



April 18, 2024

BY HAND DELIVERY AND E-MAIL – *planning@worcesterma.gov*

Division of Planning & Regulatory Services
City Hall Room 404
455 Main Street
Worcester, MA 01608
Attn: Michelle M. Smith, Assistant Chief Development Officer

OFFICE OF THE CITY CLERK
CITY OF WORCESTER
100 STATE STREET
WORCESTER, MA 01608

Re: *Lili, LLC – Application for Definitive Site Plan Review Approval for Commercial Development at 11 Cliff Street, Worcester, Massachusetts (the “Property”)*

Dear Ms. Smith:

This firm represents Lili, LLC (the “Applicant”) in its application to the Planning Board (the “Board”) for definitive site plan review approval in connection with the construction of an approximately 4,500 SF storage building with accessory outdoor storage and the installation of 10 parking spaces and driveway, a new curb cut, a new stormwater management system and related site improvements.

We hereby submit the following items for filing with the Board:

1. Definitive Site Plan Review Application;
2. Project Impact Statement and Statement in Support;
3. Civil Plan Set;
4. Architectural Floor Plans and Elevations;
5. Stormwater Report;
6. Zoning Determination Form (to be submitted under separate cover letter); and
7. Certified List of Abutters (to be submitted under separate cover letter).

We will coordinate with staff to facilitate the submission of the addressed envelopes, the filing fee payable to the City of Worcester and necessary copies of the above-described items.

Kindly file this Application with the City Clerk and schedule this Application to be heard at the Board’s next available meeting, which is scheduled to occur on **May 22, 2024**.

Please let me know if you have any questions regarding the enclosed materials. Thank you for your continued assistance with this matter.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Mark A. Borenstein', with a long horizontal flourish extending to the right.

Mark A. Borenstein

MAB:JD

Enclosures

cc: Project team

City of Worcester Planning Board



DEFINITIVE SITE PLAN APPLICATION

Division of Planning & Regulatory Services

City Hall, 455 Main Street, Room 404, Worcester, MA 01608

Phone: (508) 799-1400 x 31440 – Fax: (508) 799-1406 – E-mail: planning@worcesterma.gov (preferred)

1. PROPERTY INFORMATION

- a. 11 Cliff Street
Address(es) – please list all addresses the subject property is known by
- b. 31-003-0006A
Parcel ID or Map-Block-Lot (MBL) Number
- c. Worcester District Registry of Deeds, Book 68170 Page 381
Current Owner(s) Recorded Deed/Title Reference(s)
- d. Manufacturing, General (MG-1.0) and Blackstone River Parkway Sign Overlay District (BSOD)
Zoning District and all Zoning Overlay Districts (if any)

2. APPLICANT INFORMATION

- a. Lili, LLC
Name(s)
- b. 1127 Grafton Street, Worcester, MA 01604
Mailing Address(es)
- c. mborenstein@bowditch.com
Email and Phone Number(s)
- d. Owner
Interest in Property (e.g., Lessee, Purchaser, etc.)

I certify that I am requesting the Worcester Planning Board grant the Definitive Site Plan as described below

Lili, LLC

By: Danilo L. Matos


(Signature) Danilo L. Matos, Manager

3. OWNER OF RECORD INFORMATION (IF DIFFERENT FROM APPLICANT)

- a. Same
Name(s)
- b. _____
Mailing Address(es)
- d. _____
Email and Phone Number

Division of Planning & Regulatory Services
455 Main St., 4th Floor, Worcester, MA 01608
Office 508-799-1400 – Fax 508-799-1406
Planning@worcesterma.gov

4. REPRESENTATIVE INFORMATION

- a. Mark A. Borenstein, Esq.
Name(s)
- b. 
Signature(s)
- c. 311 Main Street, Worcester, MA 01608
Mailing Address(es)
- d. mborenstein@bowditch.com; (508)926-3459
Email and Phone Number
- e. Attorney
Relation to Project (Architect/Attorney/Engineer/Contractor, etc.)

5. AUTHORIZATION N/A

Authorization I, _____, Owner of Record of the property listed with the Assessing Division of the City of Worcester, Massachusetts as Map _____ Block _____ Lot(s) _____, do hereby authorize _____ to file this application with the Division of Planning & Regulatory Services of the City of Worcester on this the _____ day of _____, 20_____.

On this _____ day of _____, 20_____, before me personally appeared _____, to me known to be the person described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

NOTARY PUBLIC
 My Commission Expires: _____

(If there is more than one owner of the land to be considered in this application, a notarized authorization is required for each owner.)

6. PROVIDE THE FOLLOWING ITEMS, 1 DIGITAL COPY IN PDF FORMAT VIA EMAIL TO PLANNING@WORCESTERMA.GOV AND CONFIRM WITH STAFF BEFORE SUBMISSION OF 1 PHYSICAL COPY BY HAND DELIVERY OR MAIL:

- Zoning Determination Form** obtained from the Inspectional Services Division (email inspections@worcesterma.gov or call 508 – 799 – 1198 for more information)
- Completed Site Plan Application, signed by all parties involved.
- Completed **Tax Certification** for the Applicant and Owner (if different) are attached (page 4)
- If the applicant is NOT the Owner, the **Owner(s) Authorization** for the applicant to apply is attached (page 2)
- A **Certified Abutters List(s)** issued within 3 months of this application's filing date which includes all properties affected and includes any contiguous, commonly owned property(s). This can be obtained from the Assessor's Office and includes all abutters and abutters to abutters within 300' of the edge of the land owner's property.
Note: if the property(s) is within 300 ft. of another town an abutters list from that town may be required
- Project Impact Statement** describing the proposed project and analyzing how the project and site layout were designed with consideration for and to be compatible with the review criteria in the Zoning Ordinance.
- Site Plan** showing the full project scope and all elements listed in Item 11 of this application, stamped and signed by all applicable professionals
- Architectural drawings** showing exterior elevation, height in feet and stories, exterior materials for all structures, and corresponding floor plans stamped and signed by all applicable professionals
- Stormwater Report** demonstrating compliance with Massachusetts Stormwater Standards for the project, as applicable based on project type and scope (*contact staff to confirm*)
- Traffic Study**, if necessary based on expected traffic generation (*contact staff to confirm*)

7. PROVIDE 1 PHYSICAL COPY OF THE FOLLOWING ITEMS:

- One stamped (i.e. postage paid) pre-addressed envelope for *each* party on the Abutters List and the applicant (if different from the owner), with the following return address:

Division of Planning and Regulatory Services
455 Main Street (City Hall), Room 404
Worcester, MA 01608

- Filing Fee** of \$_____ is enclosed (*see fee schedule or contact staff to confirm amount*).

10. PROJECT TYPE AND DESCRIPTION

a. Existing Conditions. Describe the current/existing use of the property

An approximately 40,260 square foot vacant lot.

b. Proposed Conditions. Check the box for all of the categories that describe the proposed project:

Proposed Project Type			
Residential	<input type="checkbox"/>	New Construction	<input checked="" type="checkbox"/>
Industrial/manufacturing	<input type="checkbox"/>	Rehabilitation/Renovation	<input type="checkbox"/>
Business	<input checked="" type="checkbox"/>	Expansion/Addition	<input type="checkbox"/>
Mixed Use	<input type="checkbox"/>	Change of use	<input type="checkbox"/>
Subdivision	<input type="checkbox"/>	Drive-through	<input type="checkbox"/>
		Gas station	<input type="checkbox"/>
		Lodging House	<input type="checkbox"/>
		Historic Property	<input type="checkbox"/>
		Abuts Historic Property	<input type="checkbox"/>
		Billboard	<input type="checkbox"/>
		Airport Environs Overlay	<input type="checkbox"/>
		≥15% Slope Disturbed	<input checked="" type="checkbox"/>

c. Describe the proposed use of the property (attach separate narrative if needed)

Lili, LLC is proposing to construct an approximately 4,500 square foot commercial building for a landscaping business with a new parking area with 10 parking spaces and driveway, a new curb cut, a new subsurface infiltration system, new fencing, new retaining walls and other site improvements related thereto. Lili, LLC is also proposing to plant a significant number of native trees along the boundaries of the property as shown on the plan.

d. Fill in all information relevant to the proposed project

All Projects	Existing	Change +/-	Total
Overall lot size in square feet	+/- 40,260 SF	None	+/- 40,260 SF
Number of buildings	0	+1	1
Total square footage of building(s)	N/A	+4,500	+/- 4,500
Number of stories of building(s)	N/A	+ 1 Story	1 Story
Number of parking spaces	0 Spaces	+10 Spaces	10 Spaces
Number of loading spaces	0 Spaces	0 Spaces	0 Spaces
Changes to on-street parking	N/A	None	N/A
Total vehicle daily trips. <i>Please consult staff for specific thresholds requiring review.</i>	TBD	TBD	TBD
Square feet of wetlands	0.0 SF	0.0 SF	0.0 SF
Square feet of surface (open) water	0 SF	N/A	N/A
Square feet of area vegetated/wooded	40,260 SF	-14,865 SF	25,395 SF
Number of trees over 9" in caliper	TBD	TBD	TBD
Cubic yards of fill material to be imported/ exported	NONE	TBD	TBD
Square feet of property in floodplain	0 SF	N/A	0 SF
Length of roadway (in feet or miles)	N/A	N/A	N/A
Residential	Existing	Change +/-	Total
Number of units	N/A	N/A	N/A
If multi-family, number of bedrooms per unit	N/A	N/A	N/A
Number of accessible units	N/A	N/A	N/A
Number of affordable units	N/A	N/A	N/A
Business/ Industrial	Existing	Change +/-	Total
Gross square feet of floor area	0	+/- 4,500	+/- 4,500

11. ZONING

If this project has already been granted Zoning Relief by the Zoning Board of Appeals, please list the relief below:

Type of Relief	Date Approved

12. PERMITS REQUIRED

List any Federal, State, or City of Worcester agencies from which permits or other actions have been or will be sought. Please continue list on an attached sheet if needed.

Agency Name	Permit Type	Date Filed	File Number
Conservation Commission	Notice of Intent	To be filed	

13. PLAN REQUIREMENTS

The following information is required of all applications submitted for Site Plan Review. If you are not providing one of these, please check "waiver requested" next to the item.

Feature	Waiver Requested	Location in Set (Sheet/ page #)
a. Site Plan at a minimum 1" = 40'-0" scale, legend, & properly oriented north arrow	<input type="checkbox"/>	Site Plan
b. Locus plan with zoning information shown	<input type="checkbox"/>	Site Plan
c. Existing utilities	<input type="checkbox"/>	Existing Conditions Plan
d. Existing and proposed grading using differing linetypes, showing 2' contours	<input type="checkbox"/>	Existing Conditions Plan and Site Plan
e. Soil types identified on the plan (including test-pit/boring locations)	<input type="checkbox"/>	Site Plan
f. Location of all trees over 9" caliper inches on existing conditions plan	<input type="checkbox"/>	Existing Conditions Plan
g. Architectural elevations or renderings (including exterior materials)	<input type="checkbox"/>	Architectural Plans
h. Landscape plan including plantings, and details for all landscape elements	<input type="checkbox"/>	Site Plan
i. Shade trees to reduce heat island effect. (1 tree required per dwelling unit and a minimum of 1 tree required for every 10 interior parking spaces, 3.5" caliper size)	<input type="checkbox"/>	Site Plan
j. Stormwater mitigation measures for the 2, 10, 25, & 100-year design storm. Provide a stamped Stormwater Checklist & Calculations. <i>All projects shall comply with Massachusetts Stormwater Standards, as applicable to project scale.</i>	<input type="checkbox"/>	Stormwater Report
k. For multi-family residential dwellings in B zones, 10% of site area has been provided for recreation. <i>Note: See Article IV, Section 2, Table 4.2, footnote 3.</i>	<input type="checkbox"/>	N/A

14. REVIEW STANDARDS

The following standards shall be used by the Planning Board in reviewing all applications for site plan review. These standards are intended to provide a frame of reference for the applicant in development of applications. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention or innovation. Applicants are encouraged to evaluate the extent to which the site plan, its immediate and general locus and the City more generally can tolerate the development being proposed and adjust their proposals accordingly.

Applicants should additionally provide a narrative "project impact statement" summarizing how the proposed project has been designed with the following criteria in mind by evaluating their proposal on the basis of the following 16 review standards, as outlined in the Zoning Ordinance per Article V, Section 5, B.

Provide the following information about the proposed project in relation to the review standards. If you are not providing one of these features please check "none" next to the item.

1. Adequacy and arrangement of pedestrian traffic access and circulation, walkway structures, control of intersections with vehicular traffic and overall pedestrian convenience.

Feature	None	Page/ sheet #
a. Pedestrian pathways internal to the site, with dimensions of path widths	<input type="checkbox"/>	Site Plan
b. Pedestrian pathways connecting to sidewalks or nearby amenities	<input type="checkbox"/>	Site Plan
c. Doors/egress to all existing and proposed buildings	<input type="checkbox"/>	Architectural Plans
d. Pedestrian paving and surface treatment details	<input type="checkbox"/>	Sheet 3 (Utilities Plan)
e. Safe, ADA accessible pedestrian crossings at driveways and intersections	<input type="checkbox"/>	Sheet 3 (Utilities Plan)

2. Adequacy and arrangement of vehicular traffic access and circulation including intersections, road widths, pavement surfaces, dividers and traffic controls.

Feature	None	Page/ sheet #
a. Driveway layout & materials	<input type="checkbox"/>	Site Plan
b. Dimensions of all drives and curb cut widths, minimizing the number and width of curb-cuts (see Note 5 to Table 4.4)	<input type="checkbox"/>	Site Plan
c. Access control and directional signage (e.g. gates, pavement markings, etc.)	<input checked="" type="checkbox"/>	
d. Pavement and curb details, including level sidewalks at driveways	<input type="checkbox"/>	Sheet 3 (Utilities Plan)
e. Permeable or porous paving, and/ or cool pavements/ treatments	<input checked="" type="checkbox"/>	

3. Location, arrangement, appearance and sufficiency of off-street parking and loading.

Feature	None	Page/ sheet #
a. Number of parking spaces provided (9 x 18)	<input type="checkbox"/>	Site Plan
b. Number of compact parking spaces (8 x16)	<input checked="" type="checkbox"/>	
c. ADA parking spaces	<input type="checkbox"/>	Site Plan
d. Parking aisle width (24 feet for 90° parking; see policy for angled spaces)	<input type="checkbox"/>	Site Plan
e. Parking is outside front & exterior side yard/setback (except residential drives)	<input type="checkbox"/>	Site Plan
f. Loading spaces or docks (see Table 4.5 and related notes)	<input checked="" type="checkbox"/>	
g. Screen planting between parking and edge of property or pedestrian paths	<input type="checkbox"/>	Site Plan
h. Number of electric vehicle charging stations or "ready" (conduit run) spaces	<input checked="" type="checkbox"/>	TBD
i. Bicycle parking (is it covered, or provided inside the building? Circle: YES NO)	<input checked="" type="checkbox"/>	

4. Location, arrangement, size, design and general site compatibility of buildings, lighting and signs.

Feature	None	Page/ sheet #
a. Building entrance fronting on the sidewalk	<input type="checkbox"/>	Architectural Plans
b. Front façade with features to add visual interest and activate street (e.g., window placement, variation of materials, reduction in massing, etc.)	<input type="checkbox"/>	Architectural Plans
c. Green roof, blue roof, rooftop solar, or use of high-albedo roof treatments	<input checked="" type="checkbox"/>	
d. Light levels appropriate for safety (1 foot candle) where pedestrians and vehicles will meet	<input type="checkbox"/>	Photometric Plan
e. Parking and circulation directional signage	<input type="checkbox"/>	Site Plan
f. Signage facing the street	<input checked="" type="checkbox"/>	

5. Adequacy of stormwater and drainage facilities.

Feature	None	Page/ sheet #
a. Flood Zones, wetlands, watercourses, and water quality and wellhead protection areas	<input type="checkbox"/>	Site Plan
b. Bioswale or other open stormwater infiltration area planted with native vegetation (rain garden, etc.)	<input checked="" type="checkbox"/>	
c. Infiltration of clean runoff to maintain groundwater supply	<input type="checkbox"/>	Stormwater Report
d. Overflow or other connection to City stormwater infrastructure***	<input type="checkbox"/>	Utilities Plan

***Contact DWP&P to determine any applicable sewer connection or use change fees.

6. Adequacy of water supply and sewerage disposal facilities.

Feature	None	Page/ sheet #
a. Connections to or extensions of city sanitary sewer and water utilities. <i>Contact DWP&P to determine any applicable sewer connection or use change fees.</i>	<input checked="" type="checkbox"/>	
b. Connections to or extensions of city storm drainage infrastructure	<input checked="" type="checkbox"/>	
c. Footing or foundation drainage for a proposed structure or wall	<input type="checkbox"/>	Architectural Plans

7. Adequacy, type and arrangement of trees, shrubs and other landscaping elements in accordance with the Landscaping Design Standards set forth in Article V, Section-5(C).

Feature	None	Page/ sheet #
a. Walls, including height (show top & bottom elevations at highest and all intersecting points, minimize height whenever possible), materials, and related drainage.	<input type="checkbox"/>	Site Plan
b. Engineered slopes (rip-rap is not recommended)	<input type="checkbox"/>	Sheet 2 (Site Plan)
c. Planted buffers between parking facilities and adjacent properties or roads	<input type="checkbox"/>	Site Plan
d. Proposed plantings and areas to be seeded (number, species or mix, size)	<input type="checkbox"/>	Site Plan
e. Fencing, including information on material, height, and style (including gates)	<input type="checkbox"/>	Sheet 2 (Site Plan)
f. Planted buffers along rear and side yard setbacks	<input type="checkbox"/>	Site Plan

8. In the case of an apartment complex or other multiple dwelling, the adequacy of useable common property or open space. *Note: for residential uses in Business Districts see Article IV, Section 2, Table 4.2, footnote 3.*

Feature	None	Page/ sheet #
a. Outdoor seating (i.e. benches, seat walls, picnic tables, etc.)	<input checked="" type="checkbox"/>	
b. Recreation or play area (Is it designed for children/ families? Circle: YES NO)	<input checked="" type="checkbox"/>	
c. Raised beds for a community garden or other urban agriculture provisions	<input checked="" type="checkbox"/>	
d. Paved pedestrian plaza area (includes patios) or deck	<input checked="" type="checkbox"/>	
e. Interior common space and amenities or balconies	<input checked="" type="checkbox"/>	

9. Protection of adjacent or neighboring properties against noise, glare, unsightliness or other objectionable features.

Feature	None/	Page/ sheet #
a. Plan locating all existing (to remain) & proposed light fixtures	<input type="checkbox"/>	Photometric Plan
b. Details of all proposed light fixtures: showing max temperature of 4,000K, dark-sky compliant, and with shielding to prevent light spillover	<input type="checkbox"/>	Photometric Plan
c. Photometric plan for parking lots with ≥12 new spaces	<input type="checkbox"/>	Photometric Plan
d. Opaque fencing or evergreen planting to screen trash or utility areas (including siting and screening of roof-top equipment, as applicable)	<input checked="" type="checkbox"/>	
e. Sound attenuation at loading, utility, and other noise generating areas with particular attention to sensitive neighbors	<input checked="" type="checkbox"/>	
f. Limit of clearing, with mature vegetation protected where possible	<input type="checkbox"/>	Site Plan

10. Adequacy of fire lanes and other emergency zones and the provisions of fire hydrants.

Feature	None	Page/ sheet #
a. Diagram of fire truck access path (applicant should coordinate turning radius and access requirements with the Fire Department)	<input checked="" type="checkbox"/>	
b. Clearly marked fire or emergency loading areas	<input checked="" type="checkbox"/>	
c. Fire hydrants and/or FDC connections	<input type="checkbox"/>	Exist-across the street

11. Special attention to the adequacy of structures, roadways and landscaping in areas with susceptibility to ponding, flooding and/or erosion.

Feature	None	Page/ sheet #
a. All buildings and utilities are located at or above the 500-year flood elevation	<input type="checkbox"/>	Sheet 2 (Site Plan)
b. Drainage infrastructure is designed to reduce ponding and slow runoff	<input type="checkbox"/>	Stormwater Report

12. Adequacy of erosion and sedimentation control measures to be utilized during and after construction.

Feature	None	Page/ sheet #
a. Erosion control plan narrative sequence (including perimeter controls and temporary stormwater management) for construction activities	<input type="checkbox"/>	Site Plan
b. Plans for securing of any stockpiles on site during construction	<input type="checkbox"/>	Site Plan
c. Temporary and permanent slope stabilization/designs for slopes greater than 3H:1V; (note: loam and seed is not sufficient)	<input type="checkbox"/>	Sheet 2 (Site Plan)
d. Slopes ≥2.5H:1V are engineered (note: loam and seed is not sufficient)	<input type="checkbox"/>	Sheet 2 (Site Plan)
e. Temporary sediment basins and other means of stormwater velocity attenuation or conveyance proposed during construction	<input type="checkbox"/>	NOI Plan

13. Conformance and compatibility of the site plan design with structures listed in the most recent State Register of Historic Places.

Feature	None	Page/ sheet #
a. Protection of existing historic architectural or site features	<input checked="" type="checkbox"/>	
b. Historically-sensitive façade, window, and roof treatments	<input checked="" type="checkbox"/>	

14. Adequacy and impact on the regional transportation system.

	Feature	None	Page/ sheet #
a.	Bus service within ¼ mile (indicate number of stops and route numbers)	<input type="checkbox"/>	Project Impact Statement
b.	Improvements to neighborhood walk/bike-ability or public transportation	<input checked="" type="checkbox"/>	

15. Adequacy of plans and protective measures to ensure minimal risk of contamination to surface or ground water.

	Feature	None	Page/ sheet #
a.	Snow storage locations (outside of basins and required parking/landscape buffer)	<input type="checkbox"/>	
b.	Water quality structures to remove total suspended solids (TSS) from runoff	<input type="checkbox"/>	Stormwater Report
c.	Water quality structures to remove pollutants from runoff (i.e. oil/ water separators, etc.)	<input type="checkbox"/>	Stormwater Report
d.	Plan for mitigation of any contaminated soils (include RTN, RAM Plan, AUL)	<input type="checkbox"/>	N/A
e.	Locations of material to cut or filled (including the location of the source material if fill)	<input type="checkbox"/>	TBD
f.	Dewatering plans	<input type="checkbox"/>	TBD

16. Conformance of the site design with the purposes and intent of the Worcester Zoning Ordinance.

	Feature	None	Page/ sheet #
a.	Minimum yard setbacks (for front, side, and rear)	<input type="checkbox"/>	Site Plan
b.	Property and right-of-way boundary lines (include the status of ways)	<input type="checkbox"/>	Site Plan
c.	Easements for any utilities, public access, or adjacent properties	<input type="checkbox"/>	Existing Conditions Plan
d.	Regularity factor for all lots	<input type="checkbox"/>	Existing Conditions Plan
e.	% paving within the front-yard for residential uses	<input type="checkbox"/>	N/A
f.	Height of all structures in feet and stories	<input type="checkbox"/>	Architectural Plans

Statement in Support and Project Impact Statement of Lili, LLC
Application to City of Worcester Planning Board for Definitive Site Plan Review Approval
for Commercial Development Project at 11 Cliff Street, Worcester, Massachusetts

I. Background and Project Scope.

Lili, LLC (the “Applicant”) is the owner of the property known and numbered as 11 Cliff Street, Worcester, Massachusetts,¹ which property contains approximately 40,260 square feet of land (the “Property”) and is presently a vacant undeveloped lot.

The Property is located entirely within the Manufacturing, General 1.0 (“MG-1.0”) zoning district and the Blackstone River Parkway Sign Overlay District (“BSOD”) and is adjacent to certain residential properties and business establishments (e.g., automobile garage, automobile sales, gas station, etc.).

Lili is seeking definitive site plan review approval from the City of Worcester Planning Board (the “Board”) in connection with the construction and development of a new approximately 4,500 square foot commercial building (the “New Building”) consisting storage space with accessory outdoor storage of materials (e.g., stone) for the Applicant’s landscaping business (the “Project”). The Project will also include the construction and installation of a new parking area with 10 parking spaces and driveway, new curb cut, new screened dumpster area and other site related improvements thereto. The New Building will have wide doors along the northerly side which will allow for vehicles and large equipment to be stored indoors. At this stage, the New Building is proposed as a “dry building” with the expectation that water and sewer will be connected once permitted by the City of Worcester Department of Public Works & Parks.

II. Requirement for Approval of Site Plan Review.

The Project will involve the alteration of slopes 15% or greater which requires site plan review approval by the Board pursuant to Table 5.1 of Article V of the Zoning Ordinance.

In addition to site plan review approval, the Applicant will also be submitting a Notice of Intent to the Conservation Commission given the Project’s proposed work within the 100 foot buffer zone of a perennial stream.

¹ 11 Cliff Street has a parcel identification number of 31-003-0006A.

III. Reasons for Approval of Definitive Site Plan.

The Project satisfies the site plan review standards and criteria as set forth in Article V, Section 5.B of the Zoning Ordinance for the reasons stated herein:

1. **Adequacy and arrangement of vehicular traffic access and circulation including intersections, road widths, pavement surfaces, dividers and traffic controls; Adequacy and arrangement of pedestrian traffic access and circulation, walkway structures, control of intersections with vehicular traffic and overall pedestrian convenience.**

The proposed parking will provide a safe, adequate and efficient layout and design for vehicular and pedestrian traffic. The building design was developed such that all the parking will be in close proximity to the entrances of the New Building and screened with a six (6) foot high privacy fence and landscaping. The proposed curb cut along Cliff Street, parking areas, drive aisles and building entrances will not cause any nuisance or hazard to vehicles or pedestrians within or off the Property or line of sight hazards along Cliff Street. The proposed drive aisle within the parking area will provide sufficient width and turning radii necessary to provide for safe and efficient travel for passenger vehicles and the Applicant's commercial vehicles.

Emergency vehicles will be able to access the New Building by parking along Cliff Street and entering the proposed curb-cut if required. Safe, convenient and efficient pedestrian access to the New Building will be provided along new walkways that will connect the entrances to the New Building to Cliff Street to allow for future connections to sidewalks if installed by City of Worcester in the future. Loading will occur within the New Building via the proposed garage doors and outside along the northerly side of the New Building. Exterior loading for accessory outdoor storage will be located in the area shown on the plan. Larger trucks, including garbage trucks, will perform loading and trash collection by entering the curb-cut on Cliff Street.

2. **Location, arrangement, appearance and sufficiency of off-street parking and loading.**

Article IV, Section 7, Table 4.4 of the Zoning Ordinance requires 1 parking space for every 3,000 square feet of gross floor area for warehousing/storage uses. Based on the proposed 4,500 square foot New Building, the Project requires a minimum of 2 parking spaces.² A total of 10 parking spaces will be provided in compliance with the Zoning Ordinance. The proposed parking will adequately serve the occupants of the New Building and will not have a negative impact on the neighborhood with respect to on or off-street parking.

² 4,500 SF proposed / 3,000 SF = 2 parking spaces required.

The Applicant is proposing more parking that required under the Zoning Ordinance because the expectation is that certain storage areas will be converted to office space in the future once water and sewer connections are permissible which will increase the required number of parking spaces.

As noted above, there will be an interior and exterior loading located in the rear of the New Building which is separated from the main parking area and additional exterior loading for the accessory outdoor storage will occur within a designated zone within the proposed parking area.

3. Location, arrangement, size, design and general site compatibility of buildings, lighting and signs.

The Project will dramatically improve the aesthetic appeal, design and quality of the Property, which is currently vacant and overwhelmed by brush and weeds. The Project is functionally and aesthetically compatible with the surrounding commercial and residential properties in the neighborhood, which include a mix automotive service and sales uses. The Property is underutilized and the proposed New Building and improvements to the site will have no greater impact on, adversely affect or be detrimental to adjoining premises or zones or the neighborhood. The proposed New Building will improve the aesthetic appeal, design quality and economic vitality of the neighborhood by putting existing property into productive use. Based on the foregoing, the New Building and improvements to the Property in connection therewith will fit into the present character of the neighborhood, and granting this approval will promote an appropriate use of the site.

The kind, size, height and nature of the New Building and the proposed site improvements for the Property are consistent with the neighborhood. The New Building will be adequately screened by new and existing landscaping as well as a privacy fence.

The Project use will not result in any increase in noise levels that would be noticeable at any abutting properties. The Project will neither create a nuisance, hazard, congestion or concerns pertaining to health, safety or general welfare, and there will not be substantial harm to the neighborhood or derogation from the intent of the Zoning Ordinance as a result of the Project.

The proposed outdoor lighting, which includes building mounted lighting solutions on facades, will be adequate for safe and secure access to and from the New Building, walkways, parking areas and the loading areas. The proposed lighting will be arranged and have directional shields so as to minimize light from shining onto abutting properties and streets, and will not

have a deleterious effect on neighboring properties. While no signage is proposed on the New Building, any future signage will comply with the Zoning Ordinance requirements.

4. Adequacy of stormwater and drainage facilities; adequacy of utilities, water supply and sewerage disposal facilities and other public services.

The development does not anticipate any adverse effect on drainage patterns. The best management practices for stormwater are incorporated in the design of the Project and will be adequate to manage stormwater runoff generated by the Project and to satisfy the requirements of the Zoning Ordinance, the Worcester Department of Public Works & Parks and Massachusetts Stormwater standards. See Stormwater Report prepared by Alpha Omega Engineering, Inc.

New gas and electric service facilities and infrastructure will be provided for the New Building and the Project. Utility lines and infrastructure currently exist on Cliff Street and are readily available to be connected for the Project.

The Applicant initially sought to provide water and sewer connections. In conversations with representatives of the City of Worcester Department of Public Works & Parks, it was determined that it would either be too costly or not feasible to provide a sewer connection at this time. The Applicant will continue to work with the City of Worcester Department of Public Works & Parks to find a viable way to bring sewer and water to the New Building and the Property.

5. Adequacy, type and arrangement of trees, shrubs and other landscaping elements in accordance with the Landscaping Design Standards set forth in Article V, Section 5(C); adequacy of useable common property or open space.

The Project proposes to provide natural vegetation by way of a landscape buffer along Cliff Street and the boundaries of the Property which will contain a variety of aesthetically appealing and native trees, shrubs and other plantings not currently provided at the site. These plantings within the landscape buffers, in addition to the 6-foot privacy fence, will comply with the Zoning Ordinance and will serve as a visual buffer between the Property, the adjoining properties and Cliff Street. All new trees will be Asian Long-Horned Beetle and Emerald Ash Borer compliant.

6. Protection of adjacent or neighboring properties against noise, glare, unsightliness or other objectionable features.

The Project use will not result in any increase in noise levels that would be noticeable at any abutting properties. The Project will neither create a nuisance, hazard, congestion or

concerns pertaining to health, safety or general welfare, and there will not be substantial harm to the neighborhood or derogation from the intent of the Zoning Ordinance as a result of the Project.

The proposed exterior lighting will be dark-sky compliant, will not exceed a color temperature of 3,000K, will be appropriately arranged with directional shields so as to minimize light from shining and/or spilling onto abutting properties and streets while maintaining pedestrian and vehicular safety, and will not have a deleterious effect on neighboring properties. Site lighting is designed to meet IESNA (Illuminating Engineering Society of North America) guidelines for security minimums within parking and pedestrian areas.

Dumpster areas will be located towards the rear of the Property and screened by a six-foot fence.

7. Adequacy of fire lanes and other emergency zones and the provisions of fire hydrants.

There is no special emergency zone noted on the plans. However, fire trucks and other emergency vehicles will be able to access the Property by parking on Cliff Street in close proximity to the New Building. The New Building will be serviced by an existing municipal fire hydrant located on Cliff Street

8. Special attention to the adequacy of structures, roadways and landscaping in areas with susceptibility to ponding, flooding and/or erosion; adequacy of erosion and sedimentation control measures to be utilized during and after construction.

The Project will minimize, to the extent practicable, changes to the natural terrain as a result of the Project. The proposed drainage, retaining walls and site design layout of the Project improvements are designed to reduce any susceptibility of ponding, flooding and erosion. The Property is outside of the Floodplain and Water Resources Protection Overlay Districts, and the Applicant will be submitting a Notice of Intent to the Conservation Commission due to the Project's proximity to a nearby stream to the north. There are no anticipated negative impacts on the groundwater. During construction, appropriate measures will be taken for controlling erosion, sedimentation and pollution as set forth in the plans submitted herewith. The premises will remain maintained upon completion of the construction phase.

9. Conformance of the site design with the purposes and intent of the Worcester Zoning Ordinance.

The Project complies with the design requirements set forth in Article V, Section 5.B, Article IV, Section 7.A.3, and other applicable provisions of the Zoning Ordinance. The Project will provide sufficient accessory off-street parking spaces necessary to accommodate visitors to the Property by virtue of the surface parking spaces. The proposed drive aisle within the parking area will provide sufficient widths and turning radii necessary to provide for safe and efficient travel for passenger vehicles. The garage doors will be located away from the street and parking area in order to allow vehicles to enter the New Building safely and conveniently with minimal impact to Cliff Street. The proposed access, parking, walkways and landscaping-related improvements are arranged for safe and convenient access for motorists and pedestrians. Proposed new lighting will be modern in design and will not have a deleterious effect on or cause a nuisance to neighboring properties or abutting streets. The Project will dramatically improve the aesthetic appeal, design and quality of the Property, which is presently overwhelmed by existing brush and weeds. The Project will create new construction jobs and will generate additional tax revenues and fees for the City.

The Project is a development of vacant lot and offers a business storage use with an accessory outdoor storage use which are permitted by right in the zoning district. The Project fits within the existing neighborhood which consists of a automobile garage, gas station and automobile sales business. The Project also provides visual buffers with respect to the residential properties to the east. Moreover, the Project will encourage the most appropriate use of the land in a manner that promotes economic development. The Project protects natural resources as well as the architectural, scenic and aesthetic qualities of the community and protects against the uses of land which are incompatible with nearby uses, undue intensity of noise and danger and congestion in travel and transportation.

10. Conformance and compatibility of the site plan design with structures listed in the most recent State Register of Historic Places.

The Property is not listed on the Massachusetts Cultural Resource Information System (MACRIS) but is located adjacent to the Historic Millbury Street South Area. The Project will be compatible with historic and non-historic structures in the neighborhood.

11. Adequacy and impact on the regional transportation system.

The Project will not materially impact the regional transportation system as the Project is not expected to result in additional traffic. The Property is located near WRTA Bus Route #4 which will provide an alternative means of transportation to the Property.

12. Adequacy of plans and protective measures to ensure minimal risk of contamination to surface or groundwater.

The Property is outside of the Floodplain and Water Resources Protection Overlay Districts and the Applicant will be submitting a Notice of Intent to the Conservation Commission due to the Project's proximity to a nearby stream to the north. Snow storage locations will be outside required parking/landscape buffers. There will be no storage of hazardous materials or substances at the Property. Based on the foregoing, the Project will ensure minimal risk of contamination to surface or groundwater.

IV. Waivers and Other Zoning Relief.

The Applicant seeks any required waivers and other zoning relief, to the extent applicable.



PLANS PREPARED BY
 DESIGN BY SAMI LLC.
 81 OCEANSIDE DRIVE
 SCITUATE, MA 02066
 517-600-1041 - Samidesign@samim.com

ISSUED FOR
 ZONING REVIEW

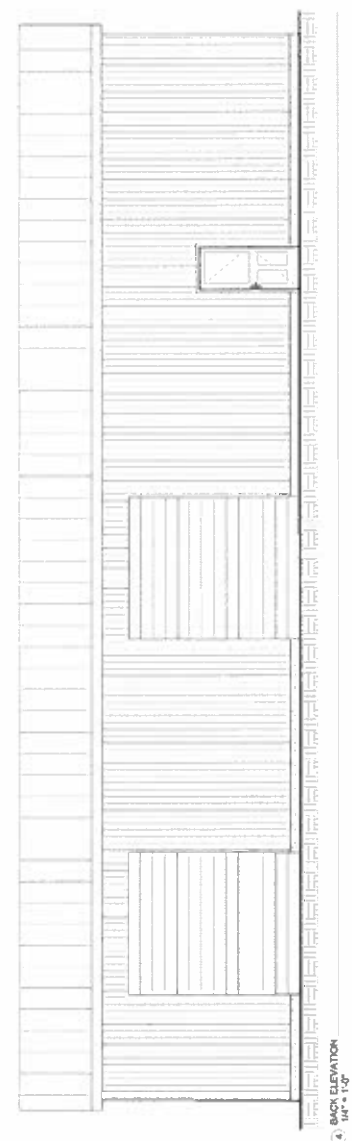
PROJECT LOCATION
 11 CLIFF STREET
 WORCESTER, MA 01607

PROJECT TYPE
 WAREHOUSE

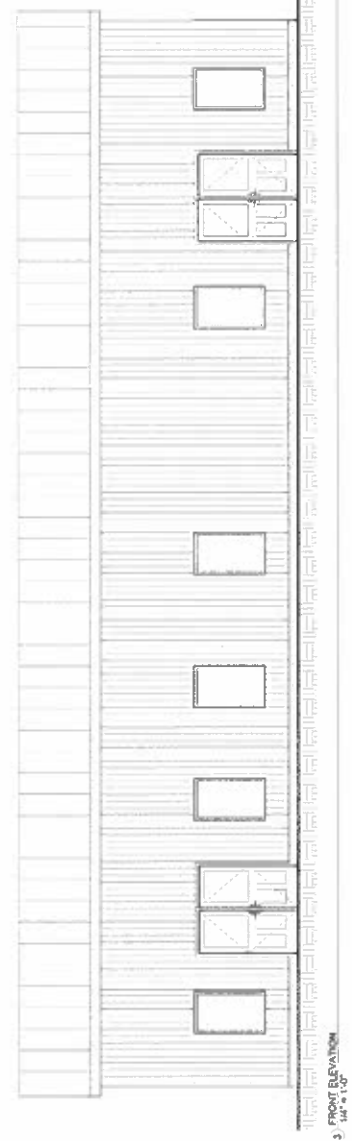
CONTRACTOR

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 CHECKED BK
 APRIL 18, 2024

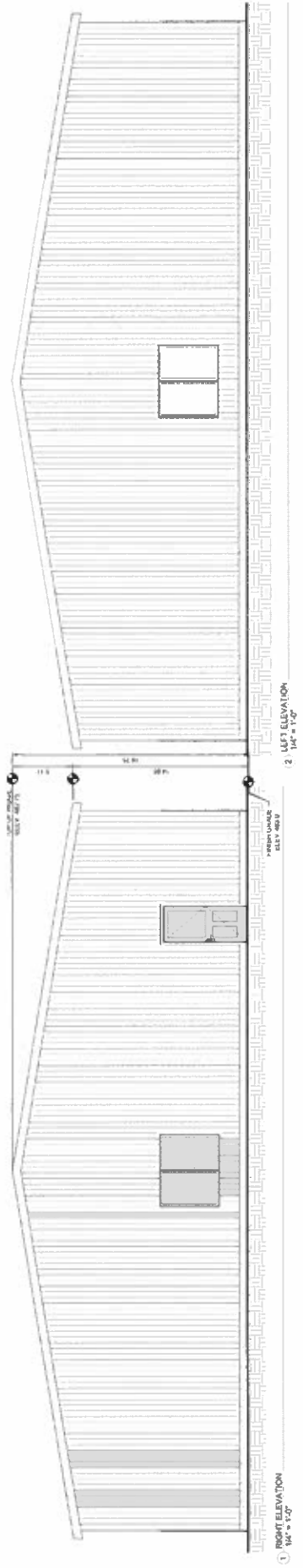
BHEET 1 OF 7



4. BACK ELEVATION
 1/4" = 1'-0"



3. FRONT ELEVATION
 1/4" = 1'-0"



2. LEFT ELEVATION
 1/4" = 1'-0"

1. RIGHT ELEVATION
 1/4" = 1'-0"

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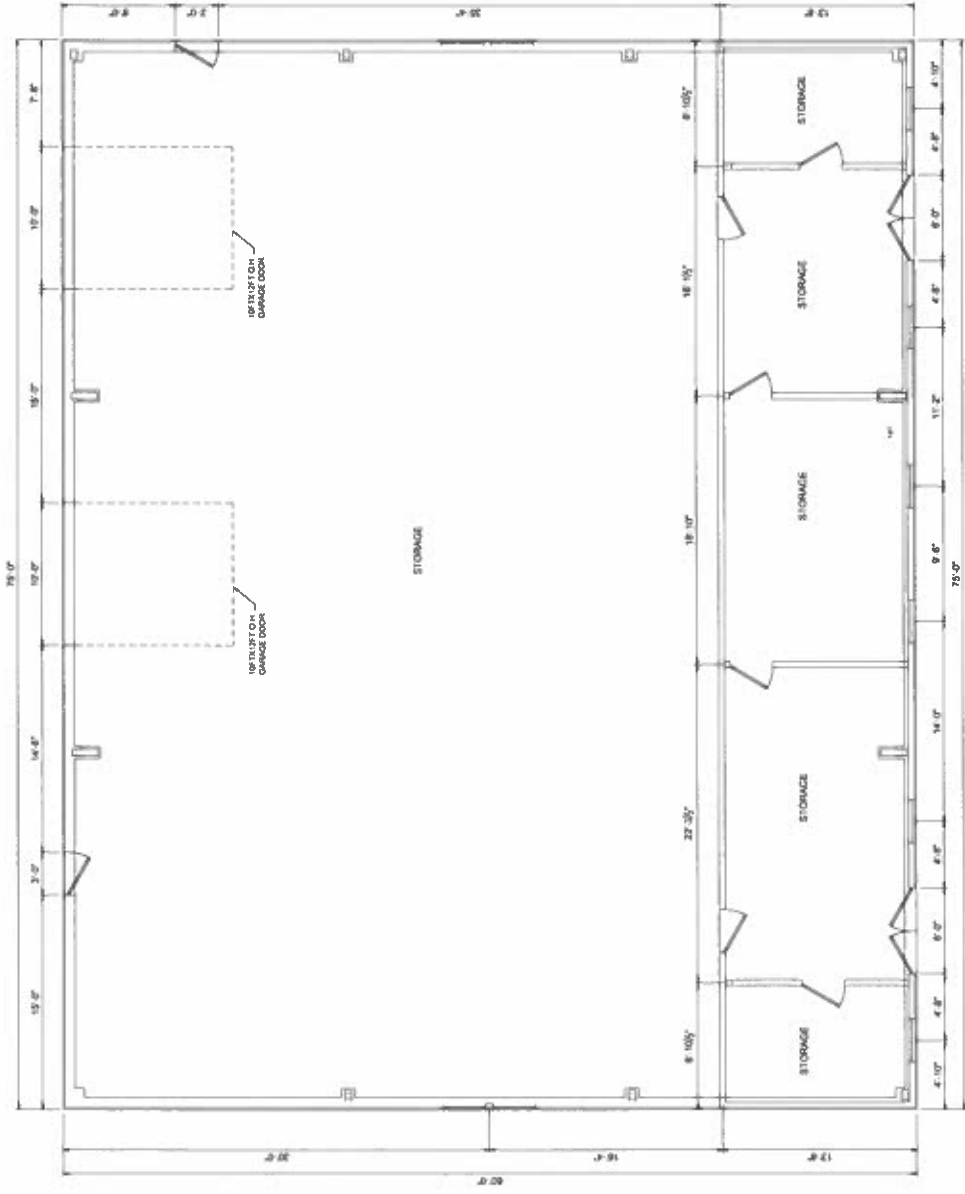
PROJECT LOCATION
 11 CLIFF STREET
 WORCESTER, MA 01607

PROJECT TYPE
 WAREHOUSE

CONTRACTOR

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 JUNE 2023

SHEET 2 OF 7



FLOOR PLAN
 SCALE 1/4" = 1'-0"

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 517-450-1041 | Sam@samiltd.com

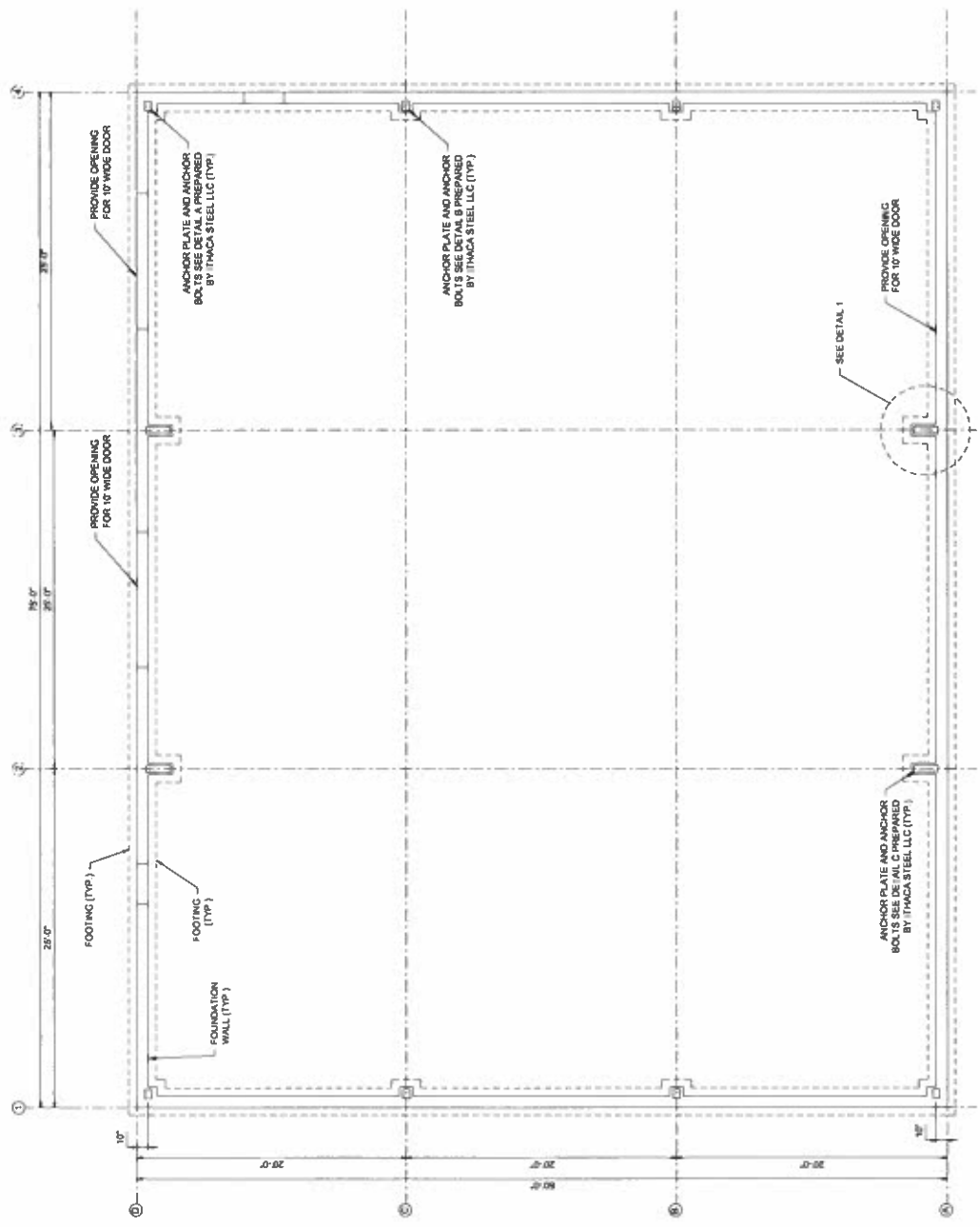
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PROJECT LOCATION
 11 CLIFF STREET
 WORCESTER, MA 01607

PROJECT TYPE
 WAREHOUSE

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FOUNDATION PLAN
 SCALE 1" = 1'-0"



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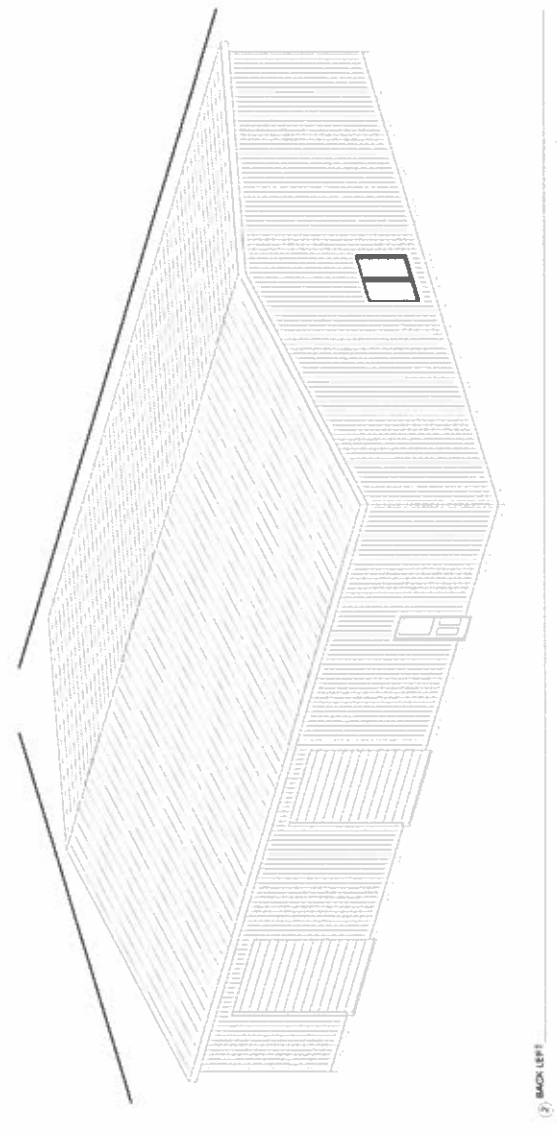
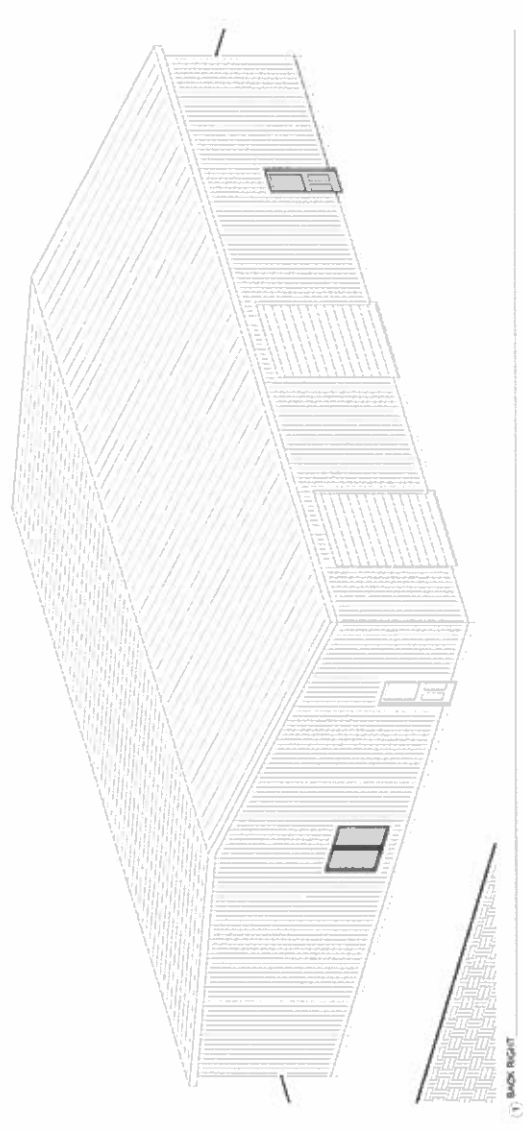
PROJECT LOCATION
 11 CLIFF STREET
 WORCESTER, MA 01607

PROJECT TYPE
 WAREHOUSE

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SHEET 4 OF 7





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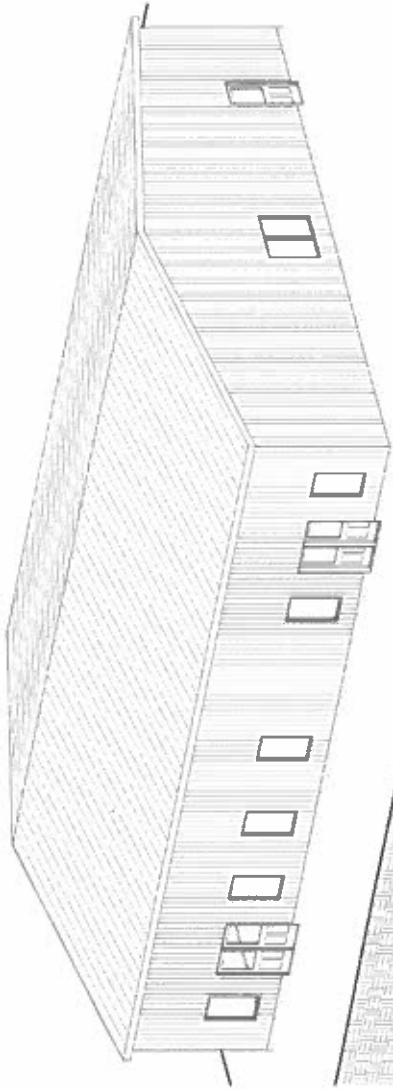
PROJECT LOCATION
11 CLIFF STREET
WORCESTER, MA 01607

PROJECT TYPE
WAREHOUSE

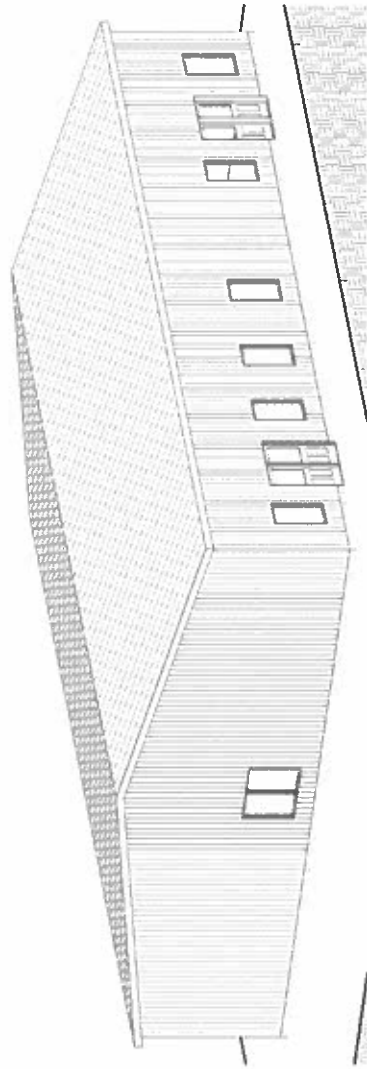
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SHEET 5 OF 7



1 FRONT RIGHT



2 FRONT LEFT



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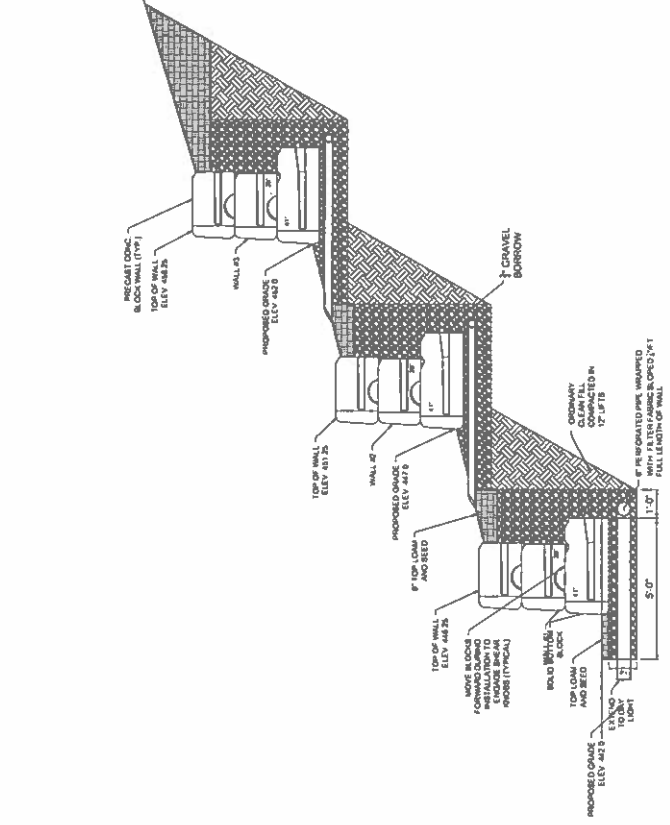
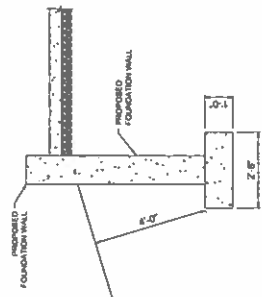
PROJECT LOCATION
 11 CLIFF STREET
 WORCESTER, MA 01607

PROJECT TYPE
 WAREHOUSE

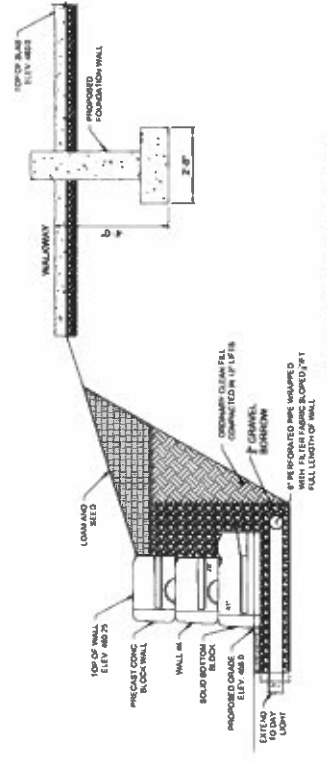
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SHEET 7 OF 7



RETAINING WALLS SECTION 1-1



RETAINING WALLS SECTION 2-2

**Drainage Analysis For
11 CLIFF STREET
WORCESTER, MA**

**Prepared for
LILI LLC
1127 GRAFTON STREET
WORCESTER, MA
April 10, 2024**

**Prepared by
ALPHA OMEGA ENGINEERING, INC.
25 Highland View Drive
Sutton, MA 01590**



Roumany A. Wasef, P.E.

EXISTING CONDITIONS:

The site is located off Cliff Street. Presently, ground cover is wood. Existing site has one drainage catchment areas. Area A slopes about 13% easterly towards abutting property. The predominant soil on site from soil maps is Canton fine sandy loam, hydrologic soil type B and Ridgebury fine sandy loam, hydrologic soil type D. However, the soil testing shows all Canton fine sandy loam, hydrologic soil type B

DEVELOPED CONDITIONS:

Development of the site will result in the creation of a new Building and parking area. The increase of storm water run-off will be sent to an underground detention/infiltration system to attenuate increased run-off rates as a result of development. The detention/infiltration system IS located in sub-catchment area A2.

ANALYSIS:

The goal of the stormwater management system proposed is to ensure that there is no increase in peak run-off rates downstream of the site. This goal is achieved using the proposed detention/infiltration system that has been carefully sized to attenuate flow rates for the 100 year storm event.

CALCULATIONS:

The storm modeling and routings were performed using HydroCAD.

SUMMARY:

A) Runoff Rate - cfs

<i>Area</i>	<i>2 Year</i>		<i>10 Year</i>		<i>25 Year</i>		<i>100 Year</i>		Table 1
	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>	
A	.11	.09	.76	.41	1.53	.73	3.45	1.91	

B) Runoff Volume - af

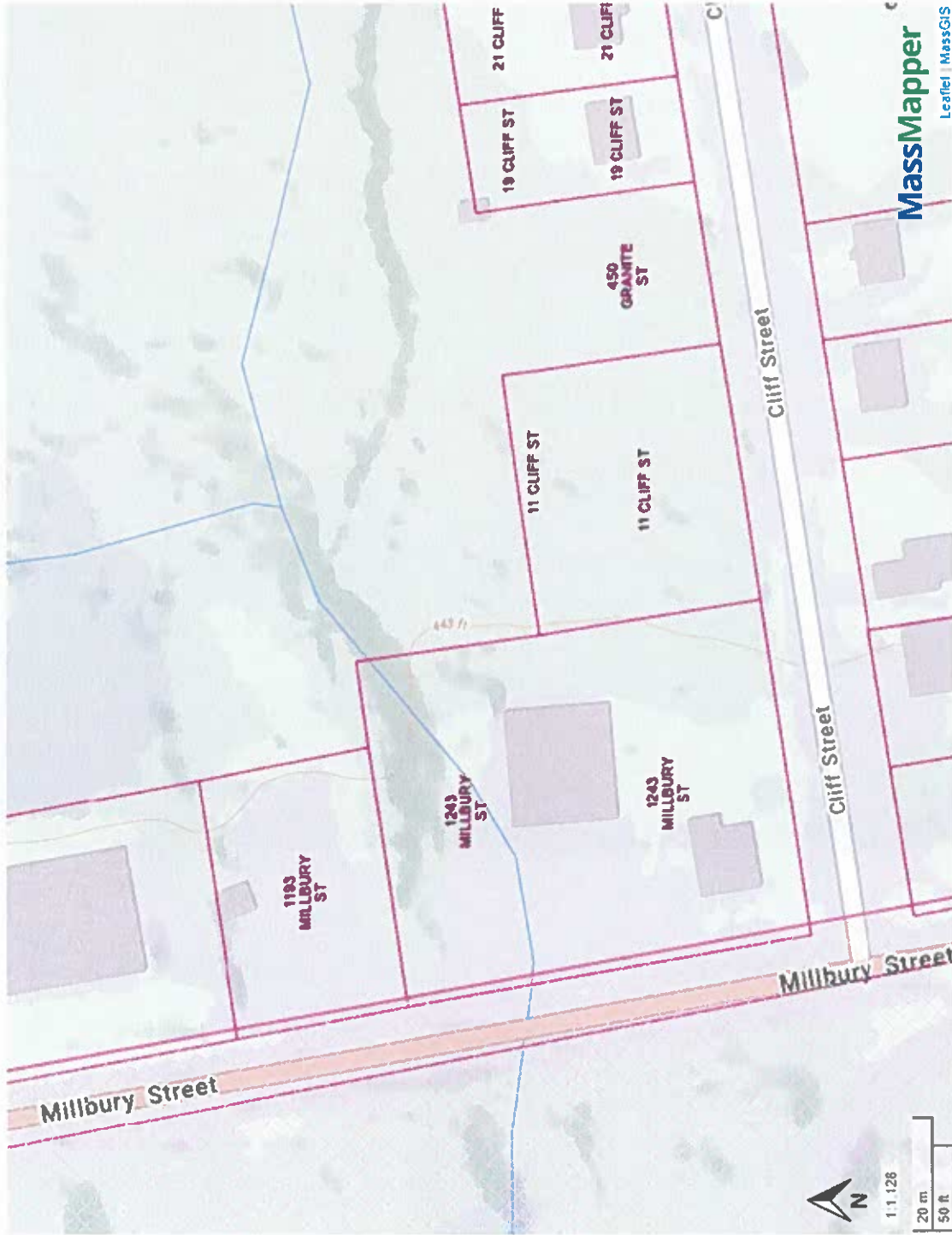
<i>Area</i>	<i>2 Year</i>		<i>10 Year</i>		<i>25 Year</i>		<i>100 Year</i>		Table 2
	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>	
A	.018	.010	.066	.031	.117	.063	.247	.210	

CONCLUSIONS:

From this analysis we conclude that no net increase in peak run-off rates and volumes will occur as a result of the development of this site. The total net peak run-off rates and volumes from this site will be reduced as a result of the development.

11 Cliff Street, Worcester

- Zone IIs
- Zone Is
- IWPAs
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- Property Tax Parcels



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	
Location	
Latitude	42.220 degrees North
Longitude	71.783 degrees West
Elevation	130 feet
Date/Time	Thu Oct 12 2023 15:55:20 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.42	0.53	0.69	0.86	1.09	1yr	0.74	1.07	1.27	1.62	2.07	2.67	2.90	1yr	2.36	2.79	3.20	3.88	4.47	1yr
2yr	0.35	0.54	0.67	0.88	1.11	1.40	2yr	0.96	1.27	1.62	2.04	2.58	3.26	3.52	2yr	2.89	3.38	3.88	4.60	5.24	2yr
5yr	0.41	0.64	0.80	1.07	1.37	1.75	5yr	1.18	1.58	2.04	2.58	3.26	4.12	4.47	5yr	3.65	4.30	4.93	5.76	6.48	5yr
10yr	0.46	0.72	0.91	1.24	1.61	2.08	10yr	1.39	1.86	2.43	3.09	3.90	4.92	5.36	10yr	4.35	5.16	5.90	6.84	7.62	10yr
25yr	0.54	0.86	1.10	1.51	2.00	2.60	25yr	1.73	2.31	3.06	3.90	4.94	6.22	6.82	25yr	5.51	6.56	7.49	8.58	9.45	25yr
50yr	0.60	0.97	1.25	1.75	2.36	3.10	50yr	2.03	2.72	3.66	4.68	5.92	7.43	8.20	50yr	6.58	7.88	8.98	10.18	11.12	50yr
100yr	0.69	1.12	1.44	2.04	2.78	3.68	100yr	2.40	3.21	4.36	5.58	7.07	8.89	9.85	100yr	7.87	9.47	10.77	12.10	13.09	100yr
200yr	0.78	1.28	1.66	2.38	3.28	4.38	200yr	2.83	3.79	5.20	6.68	8.46	10.63	11.84	200yr	9.40	11.39	12.91	14.37	15.41	200yr
500yr	0.94	1.54	2.01	2.92	4.09	5.51	500yr	3.53	4.71	6.56	8.45	10.73	13.47	15.12	500yr	11.92	14.54	16.43	18.06	19.14	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.21	0.32	0.39	0.53	0.65	0.96	1yr	0.56	0.94	1.11	1.40	1.90	2.36	2.54	1yr	2.09	2.44	2.90	3.53	4.15	1yr
2yr	0.34	0.53	0.65	0.88	1.08	1.26	2yr	0.93	1.23	1.44	1.90	2.44	3.14	3.40	2yr	2.78	3.27	3.73	4.43	5.05	2yr
5yr	0.38	0.59	0.73	1.01	1.28	1.50	5yr	1.11	1.47	1.71	2.25	2.87	3.80	4.14	5yr	3.36	3.98	4.55	5.28	5.92	5yr
10yr	0.42	0.65	0.81	1.13	1.46	1.71	10yr	1.26	1.67	1.94	2.54	3.23	4.36	4	10yr	3.86	4.59	5	6.01	6.65	10yr
25yr	0.49	0.75	0.93	1.33	1.75	2.04	25yr	1.51	1.99	2.30	3.0	3.81	5.23	5.8	25yr	4.63	5.55	6.33	7.12	7.77	25yr
50yr	0.55	0.83	1.04	1.49	2.01	2.32	50yr	1.73	2.27	2.62	3.4	4.30	6.01	6.69	50yr	5.32	6.43	7.0	8.10	8.75	50yr
100yr	0.61	0.93	1.16	1.68	2.31	2.65	100yr	1.99	2.59	2.98	3.89	4.88	6.89	7.5	100yr	6.10	7.45	8.44	9.21	9.83	100yr
200yr	0.69	1.04	1.31	1.90	2.65	3.03	200yr	2.29	2.96	3.39	4.45	5.54	7.91	8.98	200yr	7.00	8.63	9.75	10.45	11.02	200yr
500yr	0.81	1.20	1.54	2.24	3.19	3.62	500yr	2.75	3.54	4.03	5	6.57	9.51	10.92	500yr	8.42	10.50	11.80	12.35	12.82	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.78	0.96	1.19	1yr	0.83	1.16	1.38	1.76	2.31	2.98	3.21	1yr		3.08	3.58	4.19	4.82	1yr
2yr	0.36	0.56	0.69	0.93	1.15	1.35	2yr	0.99	1.37	1.55	2.01	2.58	3.42	3.67	2yr		3.53	4.07	4.8	5.47	2yr
5yr	0.44	0.67	0.84	1.15	1.46	1.75	5yr	1.26	1.71	2.01	2.58	3.25	4.44	4.84	5yr		4.66	5.32	6.28	7.16	5yr
10yr	0.51	0.79	0.98	1.36	1.76	2.13	10yr	1.52	2.09	2.45	3.11	3.87	5.46	6.01	10yr		5.78	6.58	7.3	8.77	10yr
25yr	0.64	0.97	1.20	1.72	2.26	2.78	25yr	1.95	2.72	3.17	3.95	4.89	7.19	8.00	25yr		7.70	8.71	10.1	11.50	25yr
50yr	0.75	1.13	1.41	2.03	2.73	3.39	50yr	2.36	3.32	3.88	4.76	5.83	8.86	9.94	50yr		9.56	10.78	12.53	14.13	50yr
100yr	0.88	1.33	1.67	2.41	3.31	4.15	100yr	2.85	4.05	4.74	5.74	7.05	10.91	12.36	100yr		11.88	13.35	15.45	17.38	100yr
200yr	1.04	1.56	1.98	2.87	4.00	5.08	200yr	3.45	4.96	5.80	6.89	8.25	13.45	15.37	200yr		14.78	16.52	19.06	21.39	200yr
500yr	1.30	1.93	2.49	3.61	5.14	6.63	500yr	4.44	6.48	7.56	8.81	10.44	17.72	20.53	500yr		21.74	24.89	28.9	32.17	500yr



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STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE PLAN

For

**11 Cliff Street
Worcester, MA**

April 10, 2024

The owner and party responsible for the operation and maintenance of the Stormwater Management System within the parking, and driveway areas is the Contractor and owner of the site.

The Stormwater Management System shall be inspected and maintained annually. 11 Cliff Street, Worcester MA has been designed using the best Stormwater Management practices currently recommended by the Massachusetts DEP. The following components have been used in the design with the recommended maintenance criteria for each one.

1) Stormceptor maintenance recommendations

- a. Units should be inspected post-construction, prior to being put into service.
- b. Inspect every six months for the first year of operation to determine the oil and sediment accumulation rate.
- c. In subsequent years, inspections can be based on first-year observations or local requirements.
- d. Cleaning is required once the sediment depth reaches 15% of storage capacity, (generally taking one year or longer).
- e. Inspect the unit immediately after an oil, fuel or chemical spill.

f. A licensed waste management company should remove captured petroleum waste products from any oil, chemical or fuel spills and dispose responsibly.

2) **Stormceptor® Maintenance Procedures**

Maintenance of the **Stormceptor®** is performed using vacuum trucks. No entry into the unit is required for maintenance. The Vacuum Service Industry is a well established sector of the service industry which cleans underground tanks, sewers and catch-basins. Costs to clean the **Stormceptor®** vary based on the size of unit and transportation distances.

The Stormceptor unit must be cleaned by the contractor after the site is stabilized.

2.1 **Maintenance Frequency**

Annual maintenance is recommended. Approximately 15% of the **Stormceptor®** total sediment capacity will be reduced each year based on the maximum impervious drainage.

Although it is recommended that annual maintenance be performed initially, the frequency of maintenance may need to be increased or reduced based on local conditions (i.e. if the unit is filling up with sediment more quickly than projected, maintenance may be required semi-annually; conversely once the site has stabilized maintenance may only be required once every two or three years).

2.2 **Spills**

The **Stormceptor®** is often implemented in areas where the potential for spills is great. The **Stormceptor®** should be cleaned immediately after a spill occurs by a licensed liquid waste hauler.

2.3 **Disposal**

Disposal options for the sediment will probably range from disposal in a works yard to disposal in a sanitary landfill site. It is not anticipated that the sediment would be classified as hazardous waste. Petroleum waste products collected in the **Stormceptor®** (oil/chemical/fuel spills) should be removed by a licensed waste management company.

2.4 **Inspection**

The **Stormceptor®** can be easily inspected from the surface by removing the maintenance cover. The presence of oil in the interceptor can be determined by inserting a tube dipstick in the 6" (150 mm) vent tube.

Similarly, the depth of sediment can be measured from the surface without entry into the **Stormceptor®** via a dipstick tube equipped with a ball valve (Sludge Judge). Maintenance

should be performed once the sediment depth exceeds the guideline values provided in Table 6.

Model	Sediment Depth (feet)
450I	0.50

* based on 15% of the interceptor's sediment storage

- Any potential obstructions at the inlet can be observed from the surface. The insert has been designed as a platform for maintenance personnel in the event that obstructions need to be removed, sewer flushing needs to be performed, or camera surveys are required.

3) Parking lot Maintenance

Parking lot must be swept twice a year.

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

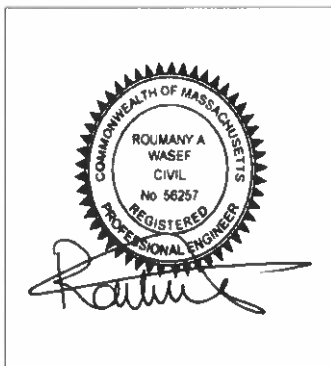
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



04/10/2024
Signature and Date

Checklist

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

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

Standard 3: Recharge

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

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

Standard 4: Water Quality

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior to* the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does *not* cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

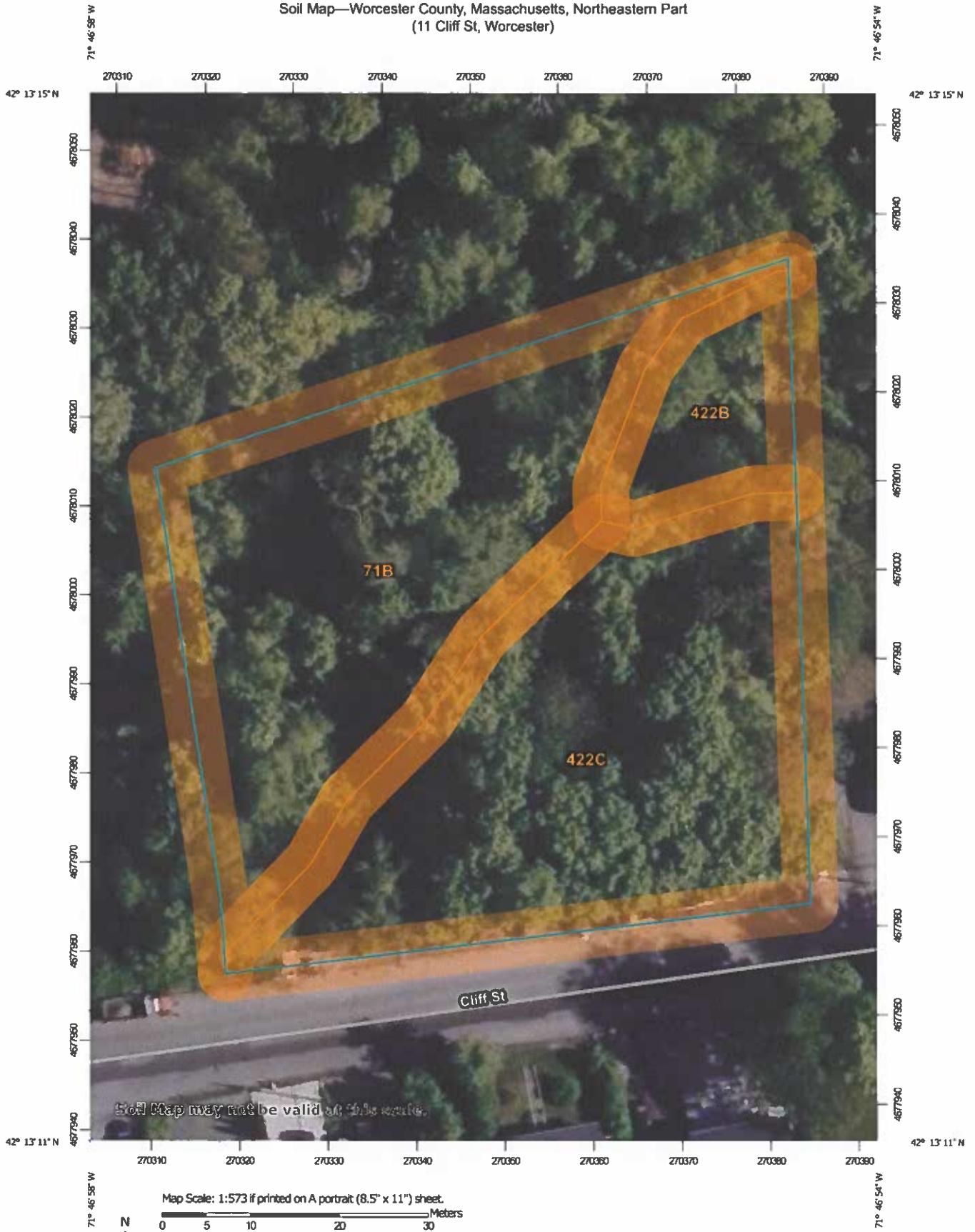
Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Soil Map—Worcester County, Massachusetts, Northeastern Part
(11 Cliff St, Worcester)



Map Scale: 1:573 if printed on A portrait (8.5" x 11") sheet.

0 5 10 20 30 Meters

0 25 50 100 150 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 19N WGS84





































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

6/3/2023
Page 1 of 3

MAP LEGEND

-  Area of Interest (AOI)
-  Area of Interest (AOI)
-  Soils
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Worcester County, Massachusetts, Northeastern Part
Survey Area Data: Version 17, Sep 9, 2022

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

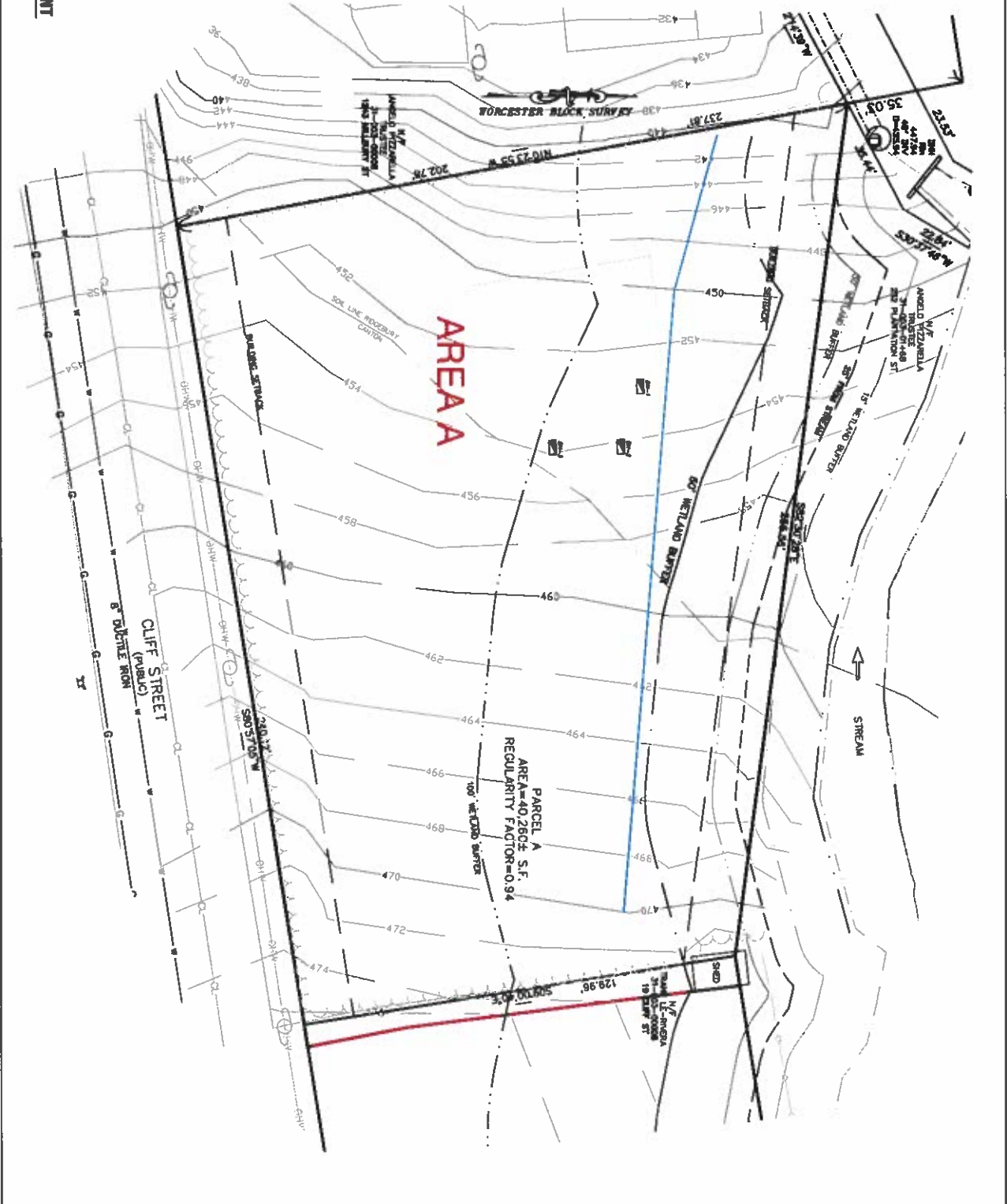
Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

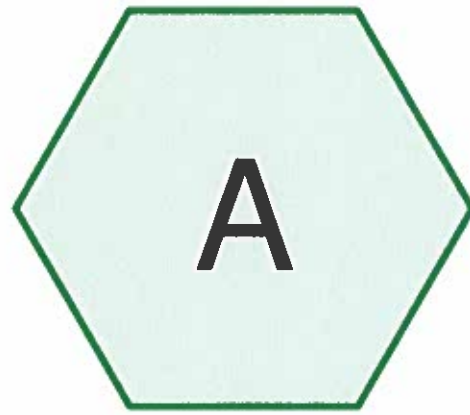
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	0.5	44.0%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	0.1	9.5%
422C	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	0.5	46.4%
Totals for Area of Interest		1.1	100.0%

PRE DEVELOPMENT
SCALE 1"=40'





Area A



22-0654 Pre

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.945	55	Woods, Good, HSG B (A)
0.945		TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.945	HSG B	A
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.945		TOTAL AREA

22-0654 Pre

Type III 24-hr 2 Year Storm Rainfall=3.26"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Area A

Runoff Area=41,184 sf 0.00% Impervious Runoff Depth>0.23"

Flow Length=234' Slope=0.1300 '/' Tc=7.5 min CN=55 Runoff=0.11 cfs 0.018 af

Total Runoff Area = 0.945 ac Runoff Volume = 0.018 af Average Runoff Depth = 0.23"
100.00% Pervious = 0.945 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment A: Area A

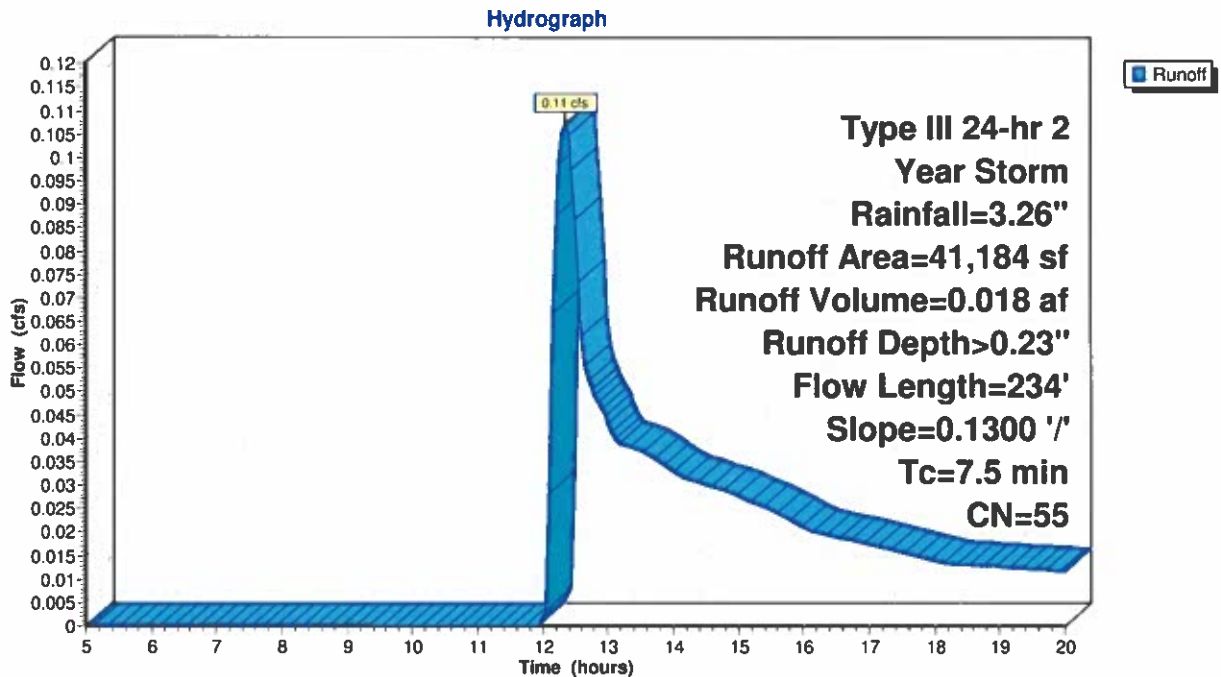
Runoff = 0.11 cfs @ 12.35 hrs, Volume= 0.018 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Rainfall=3.26"

Area (sf)	CN	Description
41,184	55	Woods, Good, HSG B
41,184		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
1.7	184	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.5	234	Total			

Subcatchment A: Area A



22-0654 Pre

Type III 24-hr 10 Year Storm Rainfall=4.92"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Area A

Runoff Area=41,184 sf 0.00% Impervious Runoff Depth>0.84"

Flow Length=234' Slope=0.1300 '/' Tc=7.5 min CN=55 Runoff=0.76 cfs 0.066 af

Total Runoff Area = 0.945 ac Runoff Volume = 0.066 af Average Runoff Depth = 0.84"

100.00% Pervious = 0.945 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment A: Area A

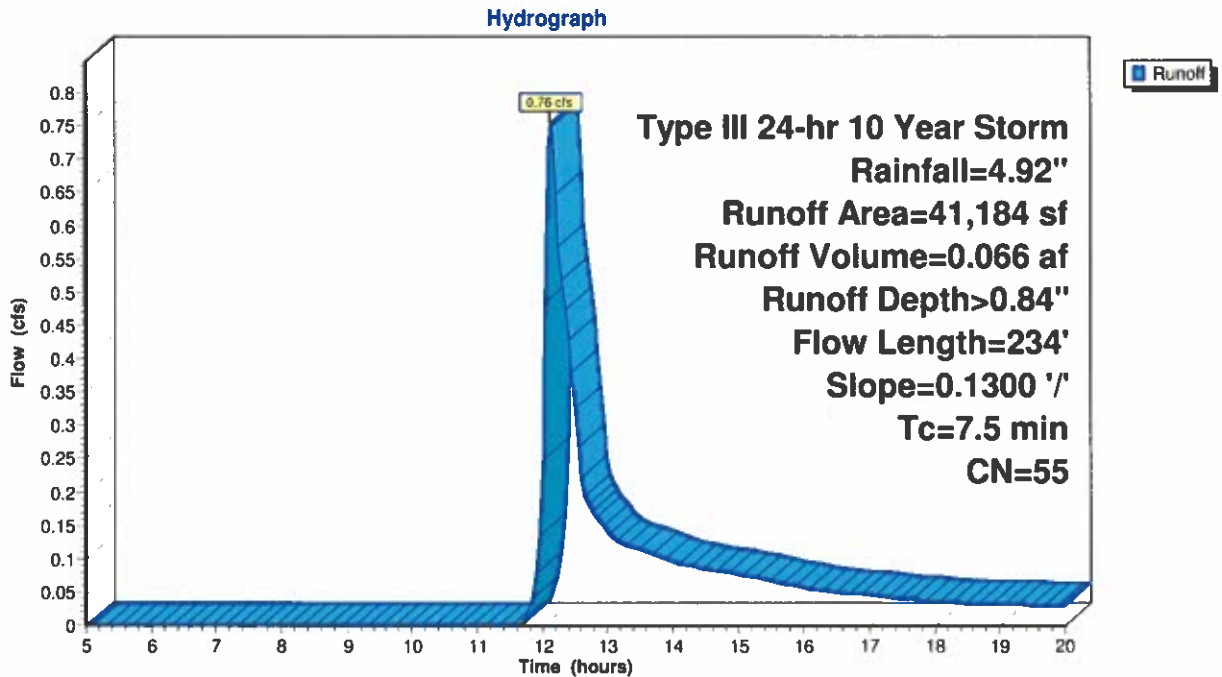
Runoff = 0.76 cfs @ 12.14 hrs, Volume= 0.066 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Rainfall=4.92"

Area (sf)	CN	Description
41,184	55	Woods, Good, HSG B
41,184		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
1.7	184	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.5	234	Total			

Subcatchment A: Area A



22-0654 Pre

Type III 24-hr 25 Year Storm Rainfall=6.22"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Area A

Runoff Area=41,184 sf 0.00% Impervious Runoff Depth>1.49"

Flow Length=234' Slope=0.1300 '/' Tc=7.5 min CN=55 Runoff=1.53 cfs 0.117 af

Total Runoff Area = 0.945 ac Runoff Volume = 0.117 af Average Runoff Depth = 1.49"
100.00% Pervious = 0.945 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment A: Area A

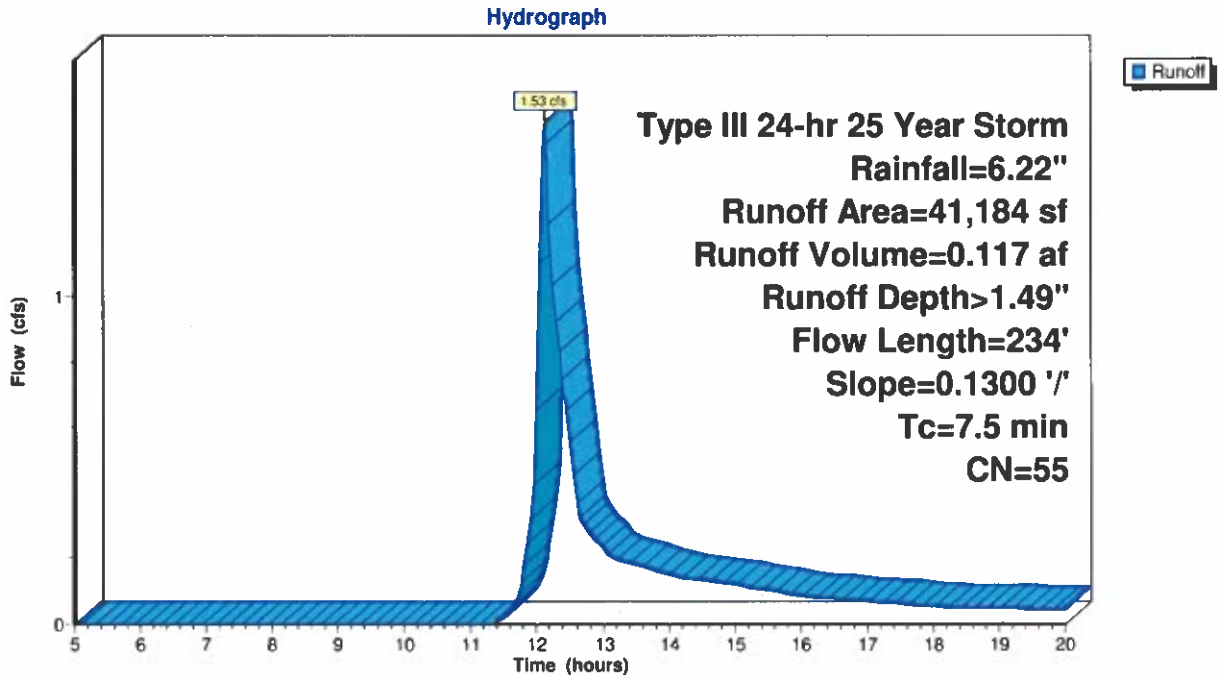
Runoff = 1.53 cfs @ 12.12 hrs, Volume= 0.117 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Rainfall=6.22"

Area (sf)	CN	Description
41,184	55	Woods, Good, HSG B
41,184		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
1.7	184	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.5	234	Total			

Subcatchment A: Area A



22-0654 Pre

Type III 24-hr 100 Year Storm Rainfall=8.89"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Area A

Runoff Area=41,184 sf 0.00% Impervious Runoff Depth>3.13"

Flow Length=234' Slope=0.1300 '/' Tc=7.5 min CN=55 Runoff=3.45 cfs 0.247 af

Total Runoff Area = 0.945 ac Runoff Volume = 0.247 af Average Runoff Depth = 3.13"

100.00% Pervious = 0.945 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment A: Area A

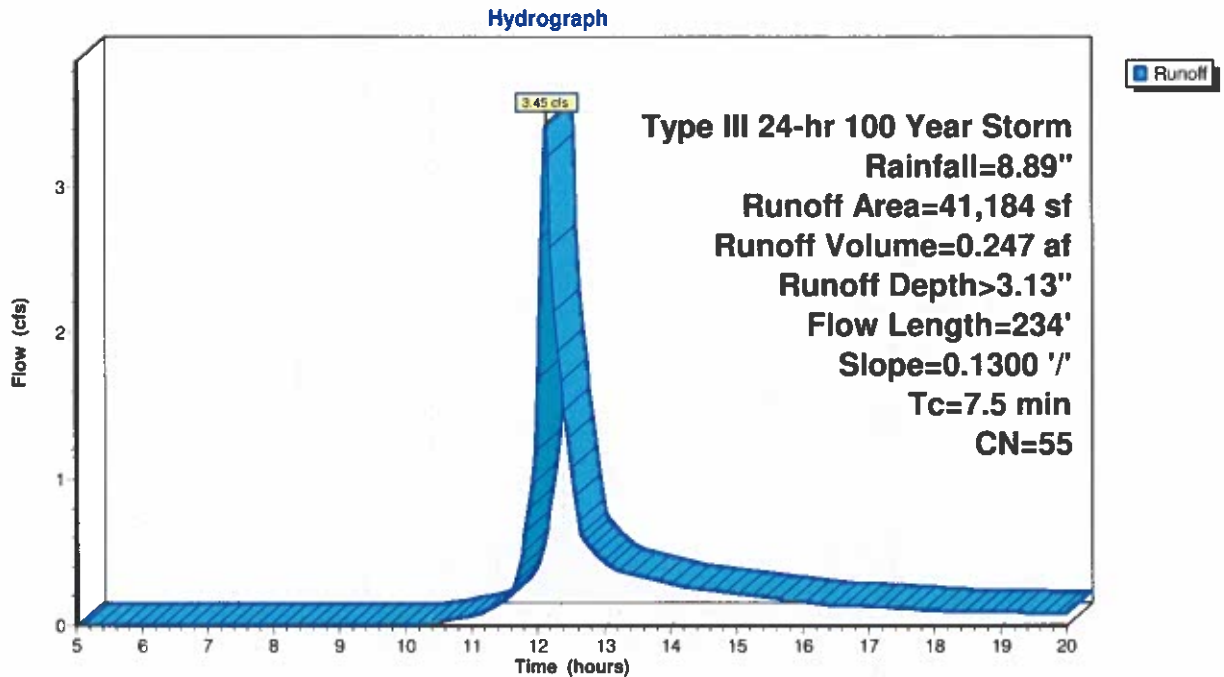
Runoff = 3.45 cfs @ 12.12 hrs, Volume= 0.247 af, Depth> 3.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.89"

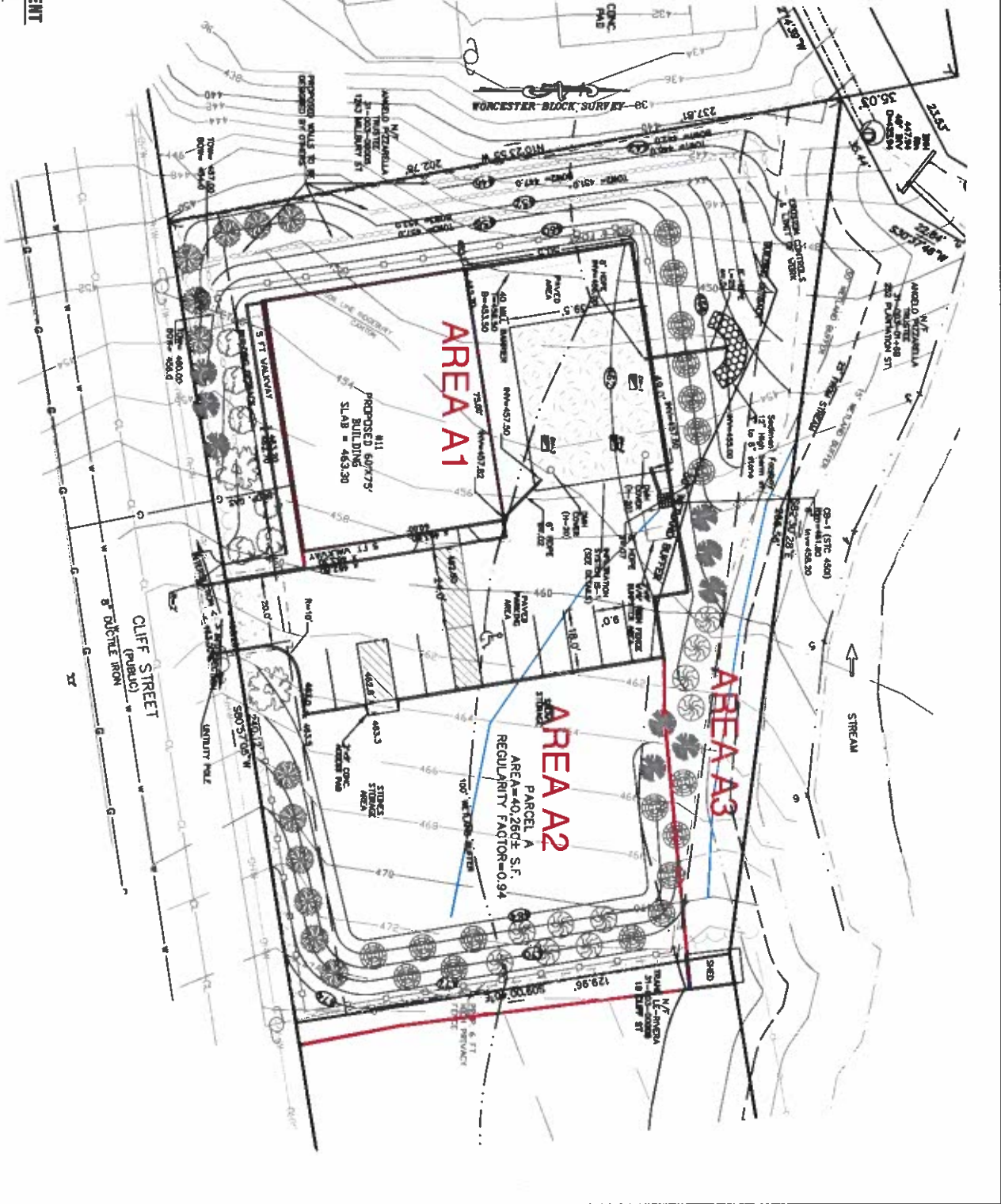
Area (sf)	CN	Description
41,184	55	Woods, Good, HSG B
41,184		100.00% Pervious Area

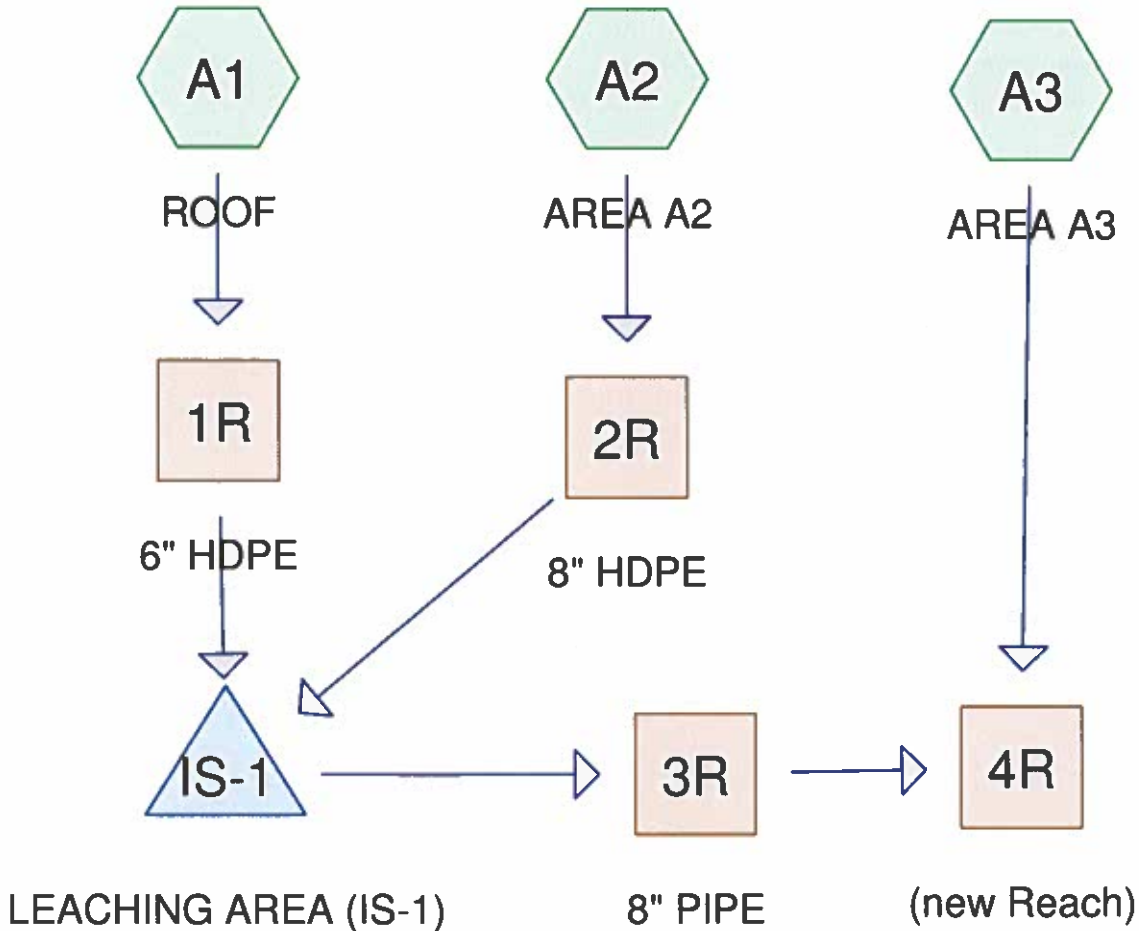
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
1.7	184	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.5	234	Total			

Subcatchment A: Area A



POST DEVELOPMENT
SCALE 1" = 40'





Drainage Diagram for 22-0654 Post-rev
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22-0654 Post-rev

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.071	55	Woods, Good, HSG B (A3)
0.539	61	>75% Grass cover, Good, HSG B (A2, A3)
0.215	98	Parking (A2)
0.005	98	Paved parking, HSG B (A3)
0.103	98	Roof (A1)
0.933		TOTAL AREA

22-0654 Post-rev

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.614	HSG B	A2, A3
0.000	HSG C	
0.000	HSG D	
0.319	Other	A1, A2
0.933		TOTAL AREA

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	1R	457.82	457.50	16.0	0.0200	0.012	6.0	0.0	0.0
2	2R	458.20	457.50	10.0	0.0700	0.012	8.0	0.0	0.0
3	3R	456.00	455.00	25.0	0.0400	0.013	8.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: ROOF Runoff Area=4,500 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.024 af

Subcatchment A2: AREA A2 Runoff Area=21,800 sf 43.03% Impervious Runoff Depth>1.15"
Flow Length=152' Tc=8.6 min CN=77 Runoff=0.64 cfs 0.048 af

Subcatchment A3: AREA A3 Runoff Area=14,329 sf 1.40% Impervious Runoff Depth>0.38"
Flow Length=148' Slope=0.1300 '/' Tc=6.7 min CN=60 Runoff=0.09 cfs 0.010 af

Reach 1R: 6" HDPE Avg. Flow Depth=0.21' Max Vel=4.06 fps Inflow=0.33 cfs 0.024 af
6.0" Round Pipe n=0.012 L=16.0' S=0.0200 '/' Capacity=0.86 cfs Outflow=0.33 cfs 0.024 af

Reach 2R: 8" HDPE Avg. Flow Depth=0.19' Max Vel=7.55 fps Inflow=0.64 cfs 0.048 af
8.0" Round Pipe n=0.012 L=10.0' S=0.0700 '/' Capacity=3.46 cfs Outflow=0.64 cfs 0.048 af

Reach 3R: 8" PIPE Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.013 L=25.0' S=0.0400 '/' Capacity=2.42 cfs Outflow=0.00 cfs 0.000 af

Reach 4R: (new Reach) Inflow=0.09 cfs 0.010 af
Outflow=0.09 cfs 0.010 af

Pond IS-1: LEACHING AREA (IS-1) Peak Elev=455.05' Storage=1,437 cf Inflow=0.94 cfs 0.072 af
Discarded=0.11 cfs 0.067 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.067 af

Total Runoff Area = 0.933 ac Runoff Volume = 0.083 af Average Runoff Depth = 1.06"
65.34% Pervious = 0.609 ac 34.66% Impervious = 0.323 ac

Summary for Subcatchment A1: ROOF

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 2.83"

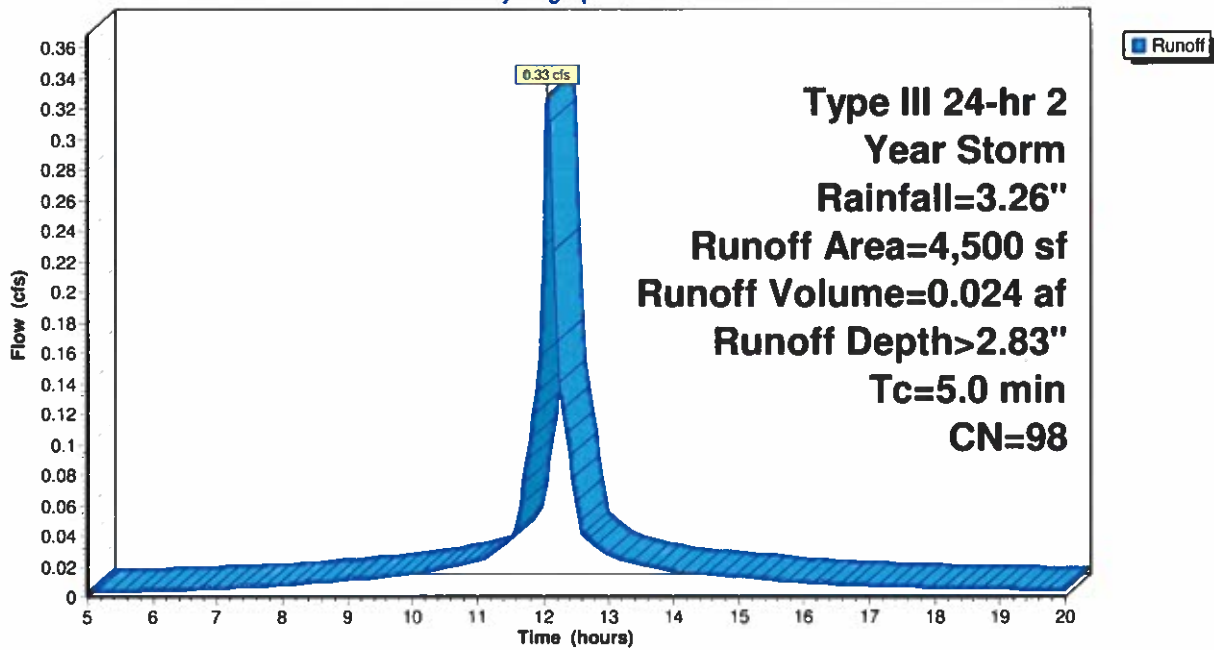
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.26"

Area (sf)	CN	Description
* 4,500	98	Roof
4,500		100.00% Impervious Area

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

Subcatchment A1: ROOF

Hydrograph



Summary for Subcatchment A2: AREA A2

Runoff = 0.64 cfs @ 12.13 hrs, Volume= 0.048 af, Depth> 1.15"

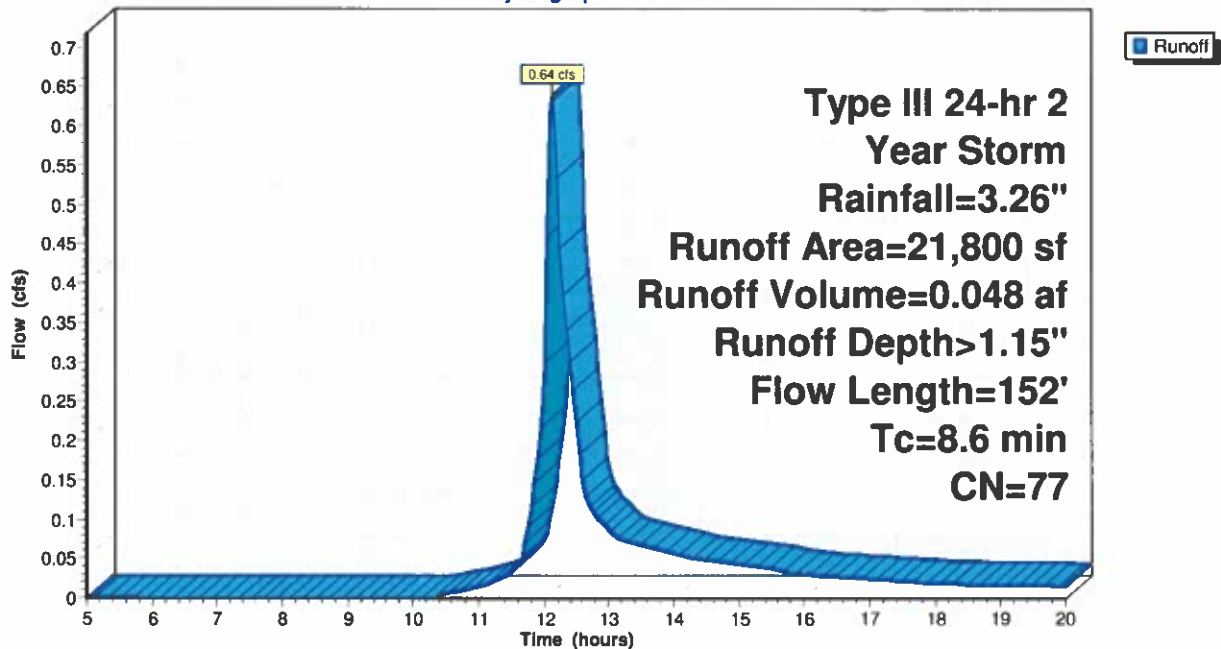
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Rainfall=3.26"

Area (sf)	CN	Description
* 9,380	98	Parking
12,420	61	>75% Grass cover, Good, HSG B
21,800	77	Weighted Average
12,420		56.97% Pervious Area
9,380		43.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.5	22	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0080	1.82		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.6	152	Total			

Subcatchment A2: AREA A2

Hydrograph



Summary for Subcatchment A3: AREA A3

Runoff = 0.09 cfs @ 12.15 hrs, Volume= 0.010 af, Depth> 0.38"

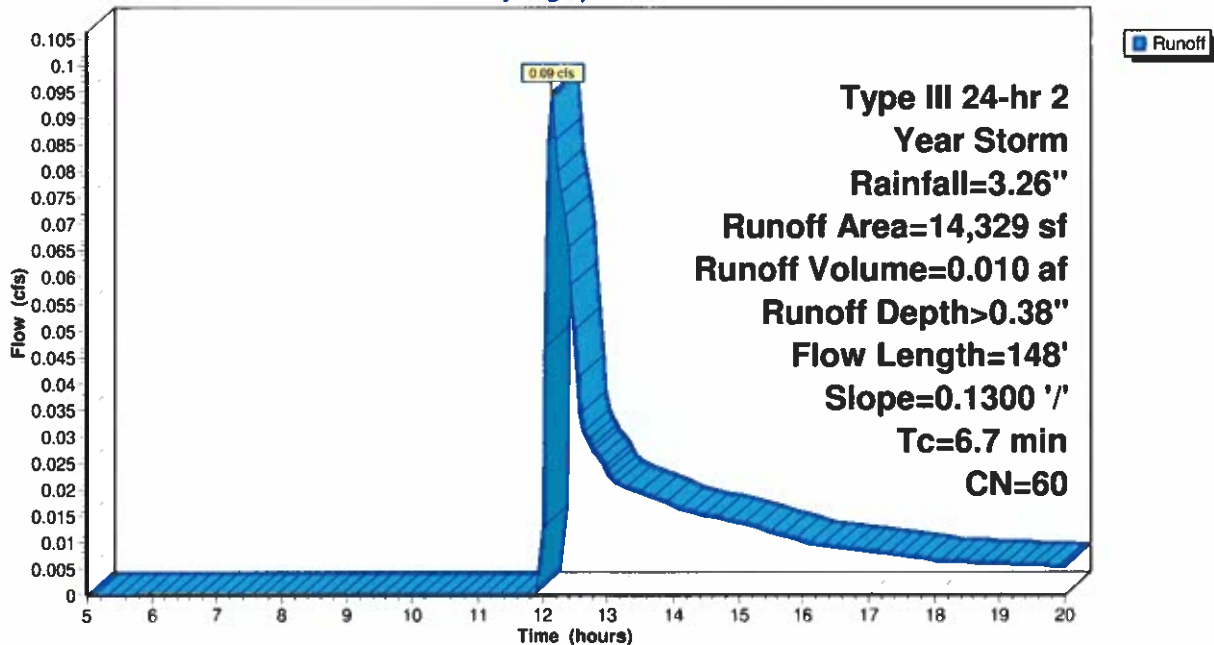
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Rainfall=3.26"

Area (sf)	CN	Description
11,049	61	>75% Grass cover, Good, HSG B
3,080	55	Woods, Good, HSG B
200	98	Paved parking, HSG B
14,329	60	Weighted Average
14,129		98.60% Pervious Area
200		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	98	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.7	148	Total			

Subcatchment A3: AREA A3

Hydrograph



Summary for Reach 1R: 6" HDPE

Inflow Area = 0.103 ac, 100.00% Impervious, Inflow Depth > 2.83" for 2 Year Storm event
Inflow = 0.33 cfs @ 12.07 hrs, Volume= 0.024 af
Outflow = 0.33 cfs @ 12.07 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.06 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.57 fps, Avg. Travel Time= 0.2 min

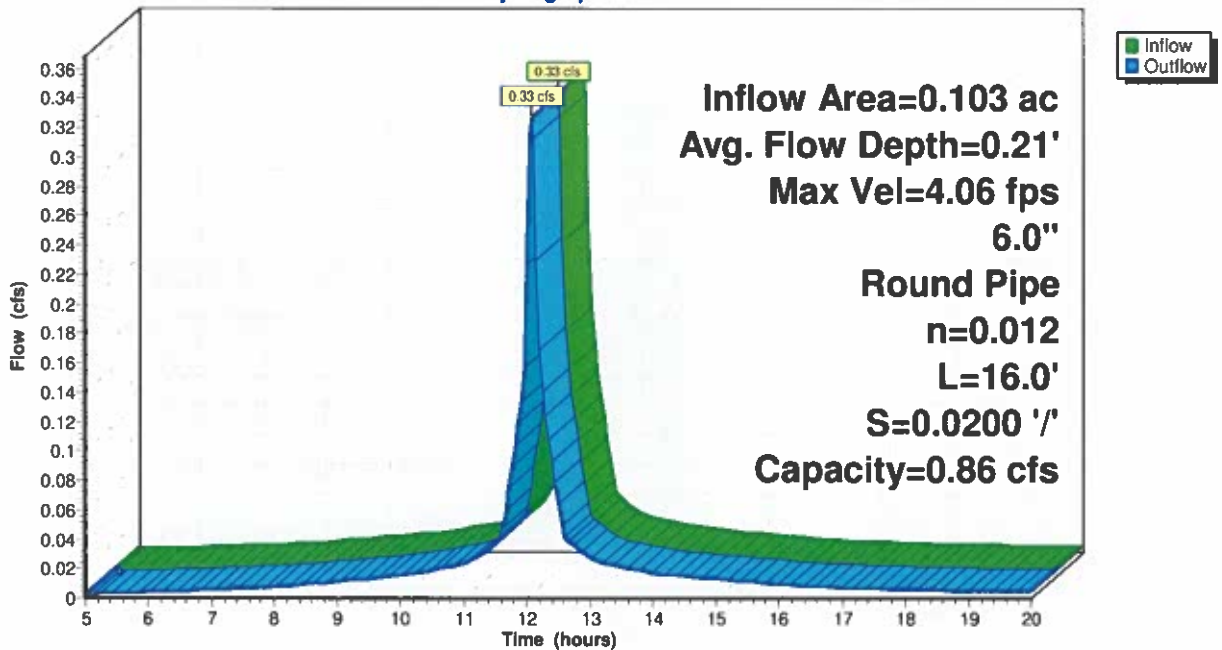
Peak Storage= 1 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.86 cfs

6.0" Round Pipe
n= 0.012
Length= 16.0' Slope= 0.0200 '/'
Inlet Invert= 457.82', Outlet Invert= 457.50'



Reach 1R: 6" HDPE

Hydrograph



Summary for Reach 2R: 8" HDPE

Inflow Area = 0.500 ac, 43.03% Impervious, Inflow Depth > 1.15" for 2 Year Storm event
 Inflow = 0.64 cfs @ 12.13 hrs, Volume= 0.048 af
 Outflow = 0.64 cfs @ 12.13 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.55 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.24 fps, Avg. Travel Time= 0.1 min

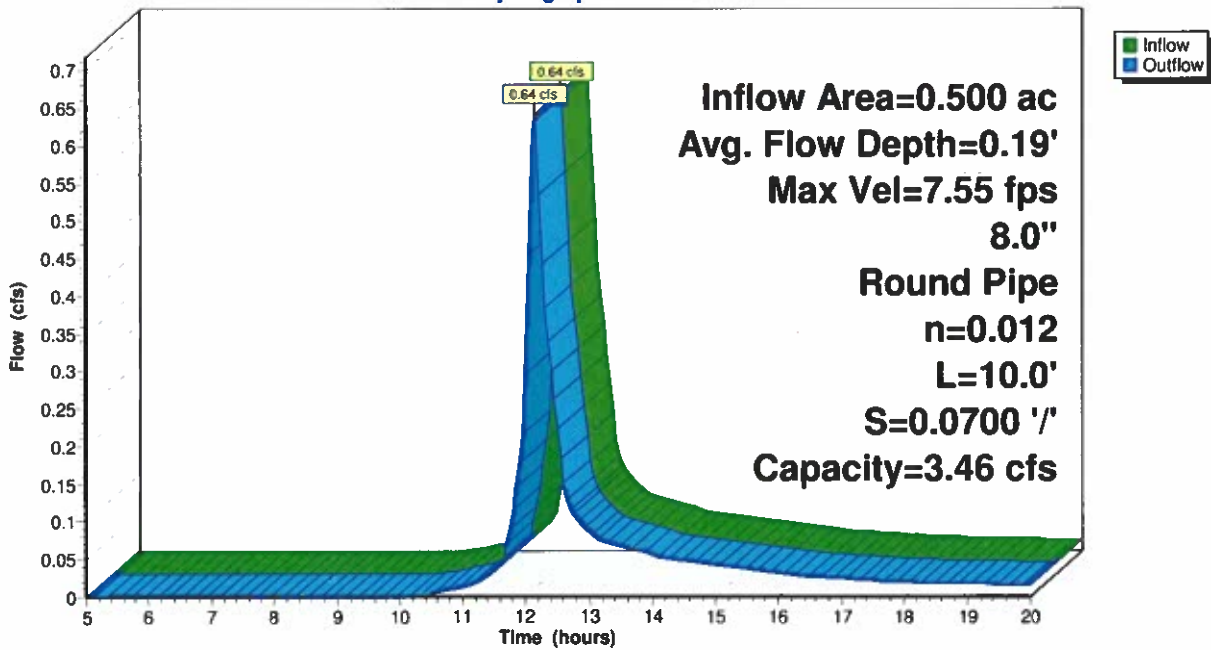
Peak Storage= 1 cf @ 12.13 hrs
 Average Depth at Peak Storage= 0.19'
 Bank-Full Depth= 0.67', Capacity at Bank-Full= 3.46 cfs

8.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0700 '/'
 Inlet Invert= 458.20', Outlet Invert= 457.50'



Reach 2R: 8" HDPE

Hydrograph



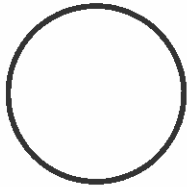
Summary for Reach 3R: 8" PIPE

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth = 0.00" for 2 Year Storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

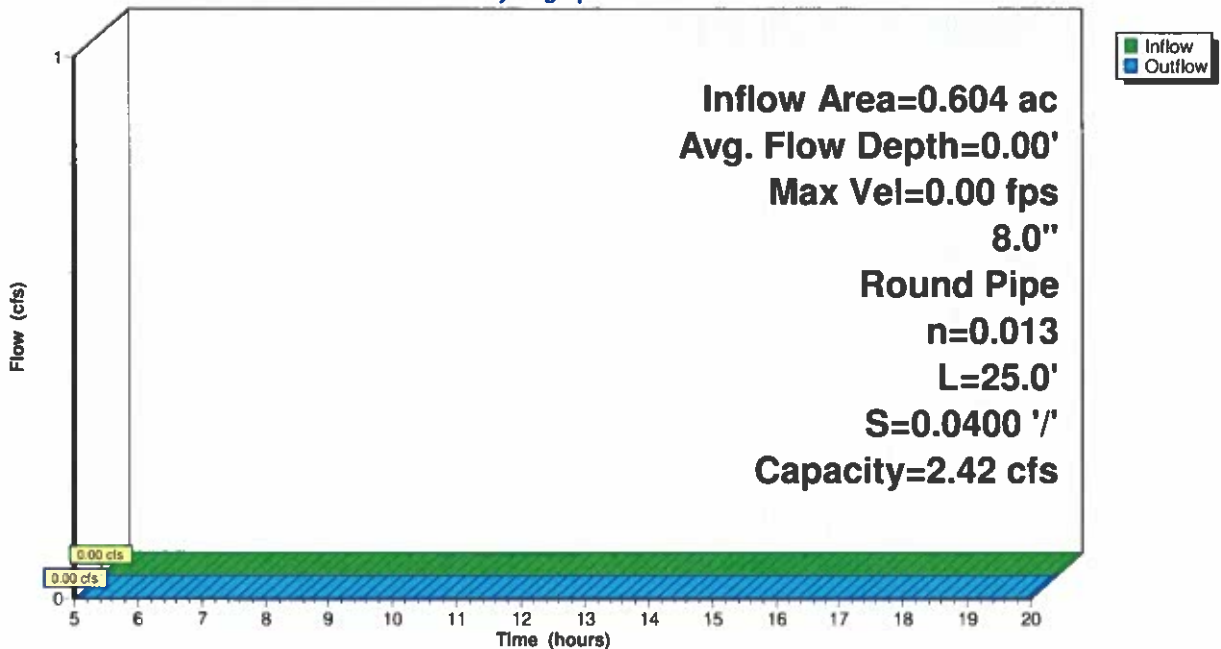
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.67', Capacity at Bank-Full= 2.42 cfs

8.0" Round Pipe
n= 0.013
Length= 25.0' Slope= 0.0400 '/'
Inlet Invert= 456.00', Outlet Invert= 455.00'



Reach 3R: 8" PIPE

Hydrograph



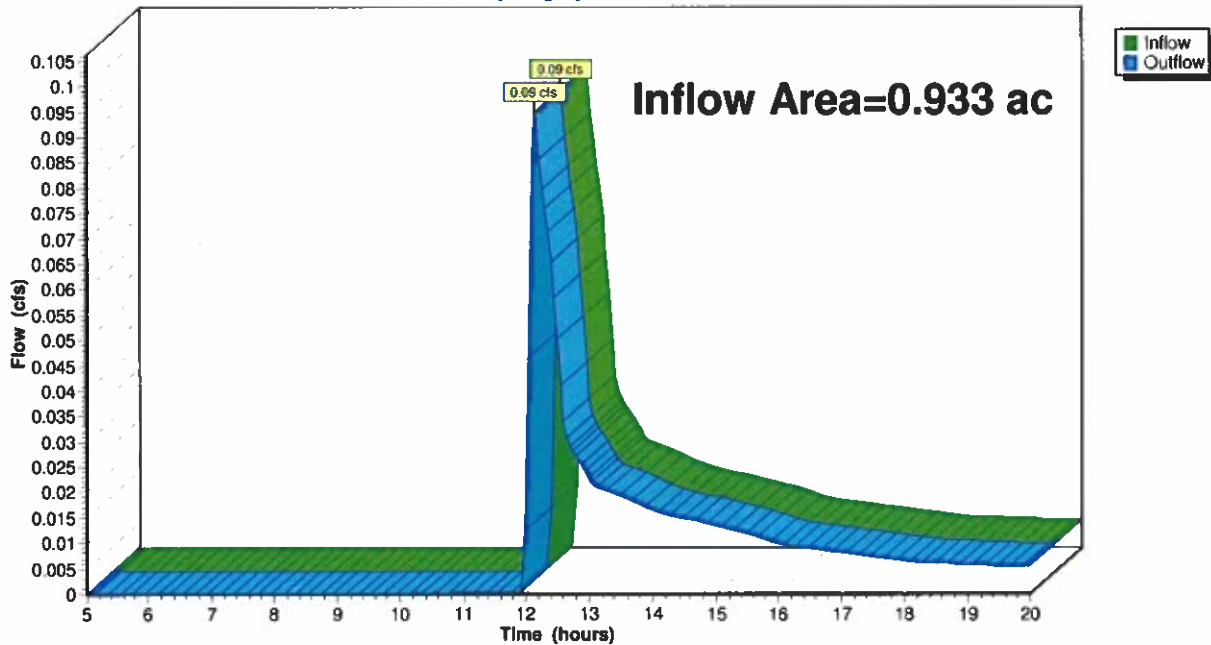
Summary for Reach 4R: (new Reach)

Inflow Area = 0.933 ac, 34.66% Impervious, Inflow Depth > 0.13" for 2 Year Storm event
Inflow = 0.09 cfs @ 12.15 hrs, Volume= 0.010 af
Outflow = 0.09 cfs @ 12.15 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: (new Reach)

Hydrograph



Summary for Pond IS-1: LEACHING AREA (IS-1)

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth > 1.44" for 2 Year Storm event
 Inflow = 0.94 cfs @ 12.11 hrs, Volume= 0.072 af
 Outflow = 0.11 cfs @ 12.15 hrs, Volume= 0.067 af, Atten= 88%, Lag= 2.4 min
 Discarded = 0.11 cfs @ 12.15 hrs, Volume= 0.067 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 455.05' @ 13.03 hrs Surf.Area= 0 sf Storage= 1,437 cf

Plug-Flow detention time= 147.0 min calculated for 0.066 af (92% of inflow)
 Center-of-Mass det. time= 119.1 min (906.4 - 787.3)

Volume	Invert	Avail.Storage	Storage Description
#1	453.50'	5,915 cf	Custom Stage Data Listed below
Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
453.50	0	0	
454.50	727	727	
455.50	1,297	2,024	
456.50	1,297	3,321	
457.50	1,297	4,618	
458.50	1,297	5,915	

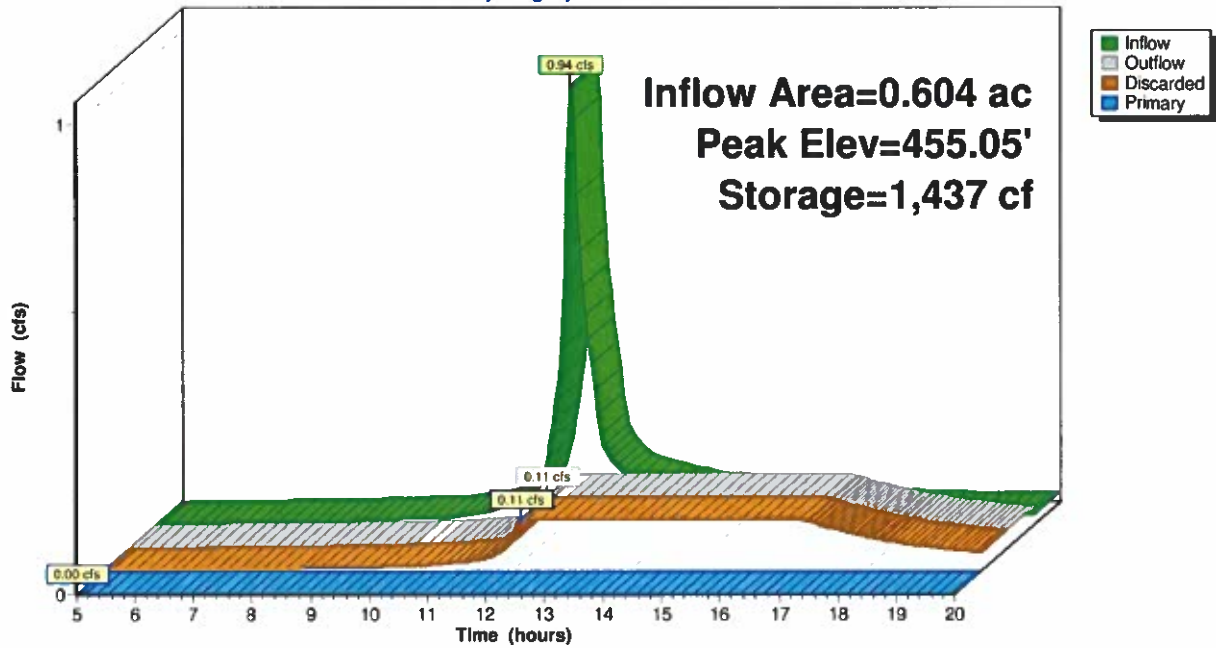
Device	Routing	Invert	Outlet Devices
#1	Discarded	453.50'	Exfiltration Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.110 0.110 0.110 0.110 0.110
#2	Primary	457.50'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.11 cfs @ 12.15 hrs HW=454.59' (Free Discharge)
 ↑1=Exfiltration (Custom Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=453.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond IS-1: LEACHING AREA (IS-1)

Hydrograph



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: ROOF

Runoff Area=4,500 sf 100.00% Impervious Runoff Depth>4.35"
Tc=5.0 min CN=98 Runoff=0.50 cfs 0.037 af

Subcatchment A2: AREA A2

Runoff Area=21,800 sf 43.03% Impervious Runoff Depth>2.38"
Flow Length=152' Tc=8.6 min CN=77 Runoff=1.35 cfs 0.099 af

Subcatchment A3: AREA A3

Runoff Area=14,329 sf 1.40% Impervious Runoff Depth>1.13"
Flow Length=148' Slope=0.1300 '/' Tc=6.7 min CN=60 Runoff=0.41 cfs 0.031 af

Reach 1R: 6" HDPE

Avg. Flow Depth=0.27' Max Vel=4.51 fps Inflow=0.50 cfs 0.037 af
6.0" Round Pipe n=0.012 L=16.0' S=0.0200 '/' Capacity=0.86 cfs Outflow=0.50 cfs 0.037 af

Reach 2R: 8" HDPE

Avg. Flow Depth=0.29' Max Vel=9.24 fps Inflow=1.35 cfs 0.099 af
8.0" Round Pipe n=0.012 L=10.0' S=0.0700 '/' Capacity=3.46 cfs Outflow=1.34 cfs 0.099 af

Reach 3R: 8" PIPE

Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
8.0" Round Pipe n=0.013 L=25.0' S=0.0400 '/' Capacity=2.42 cfs Outflow=0.00 cfs 0.000 af

Reach 4R: (new Reach)

Inflow=0.41 cfs 0.031 af
Outflow=0.41 cfs 0.031 af

Pond IS-1: LEACHING AREA (IS-1)

Peak Elev=456.51' Storage=3,332 cf Inflow=1.79 cfs 0.136 af
Discarded=0.11 cfs 0.084 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.084 af

Total Runoff Area = 0.933 ac Runoff Volume = 0.167 af Average Runoff Depth = 2.15"
65.34% Pervious = 0.609 ac 34.66% Impervious = 0.323 ac

Summary for Subcatchment A1: ROOF

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 4.35"

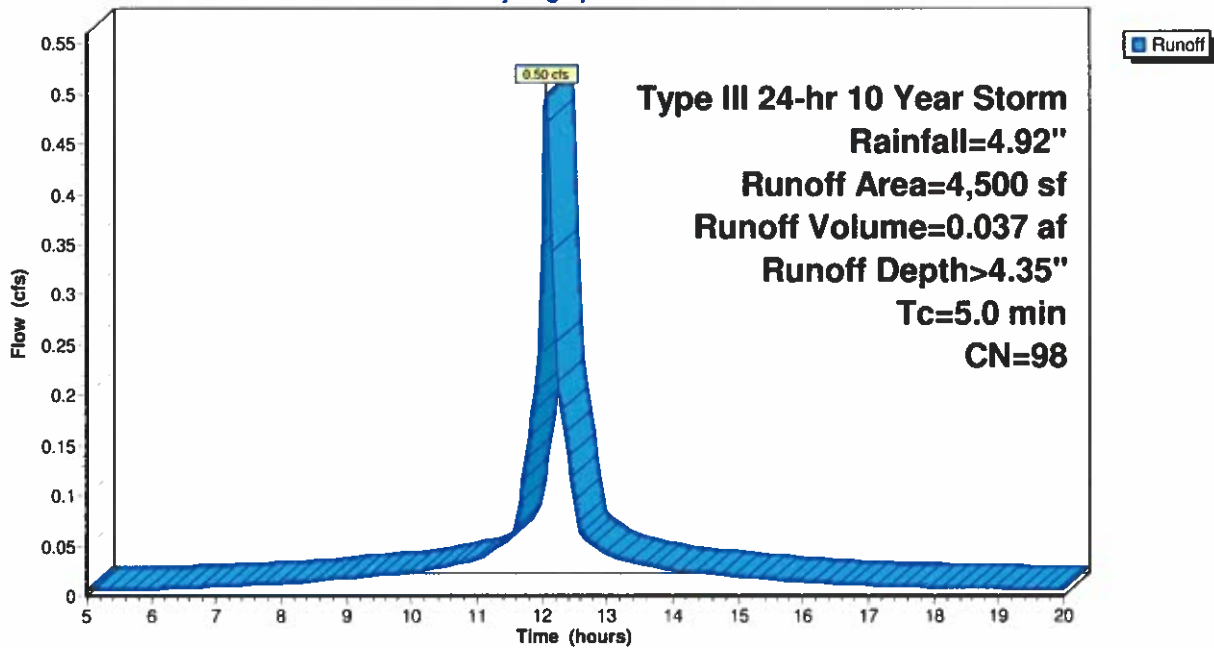
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Rainfall=4.92"

Area (sf)	CN	Description
* 4,500	98	Roof
4,500		100.00% Impervious Area

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

Subcatchment A1: ROOF

Hydrograph



Summary for Subcatchment A2: AREA A2

Runoff = 1.35 cfs @ 12.12 hrs, Volume= 0.099 af, Depth> 2.38"

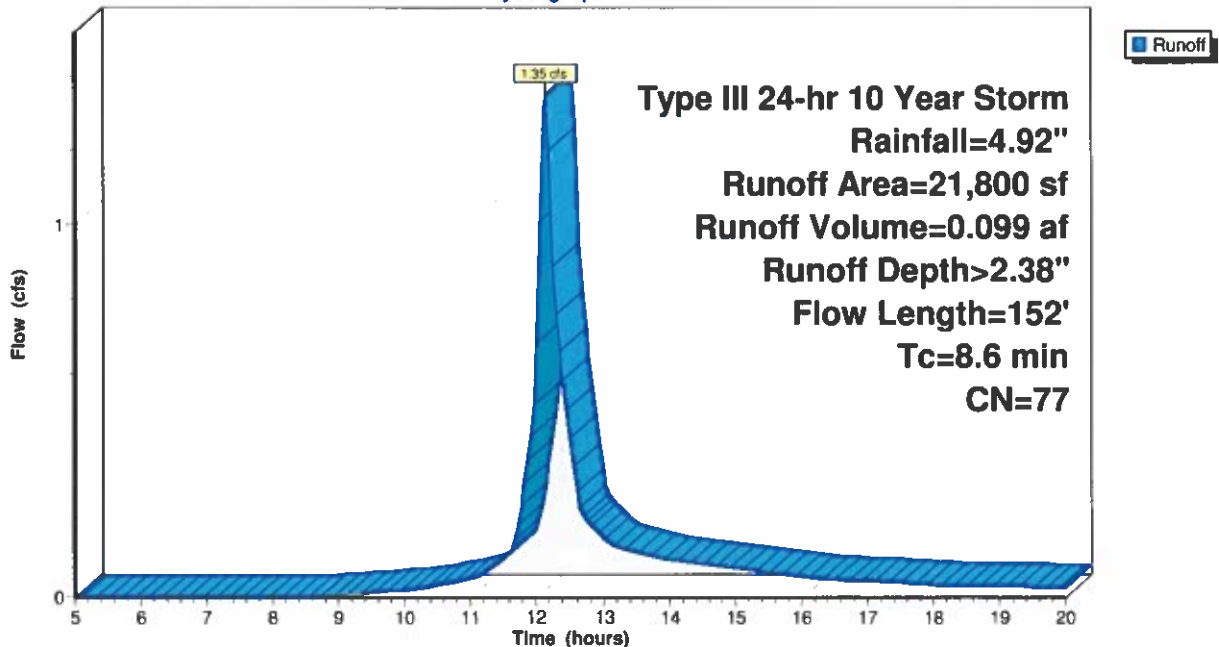
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Rainfall=4.92"

Area (sf)	CN	Description
* 9,380	98	Parking
12,420	61	>75% Grass cover, Good, HSG B
21,800	77	Weighted Average
12,420		56.97% Pervious Area
9,380		43.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.5	22	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0080	1.82		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.6	152	Total			

Subcatchment A2: AREA A2

Hydrograph



Summary for Subcatchment A3: AREA A3

Runoff = 0.41 cfs @ 12.11 hrs, Volume= 0.031 af, Depth> 1.13"

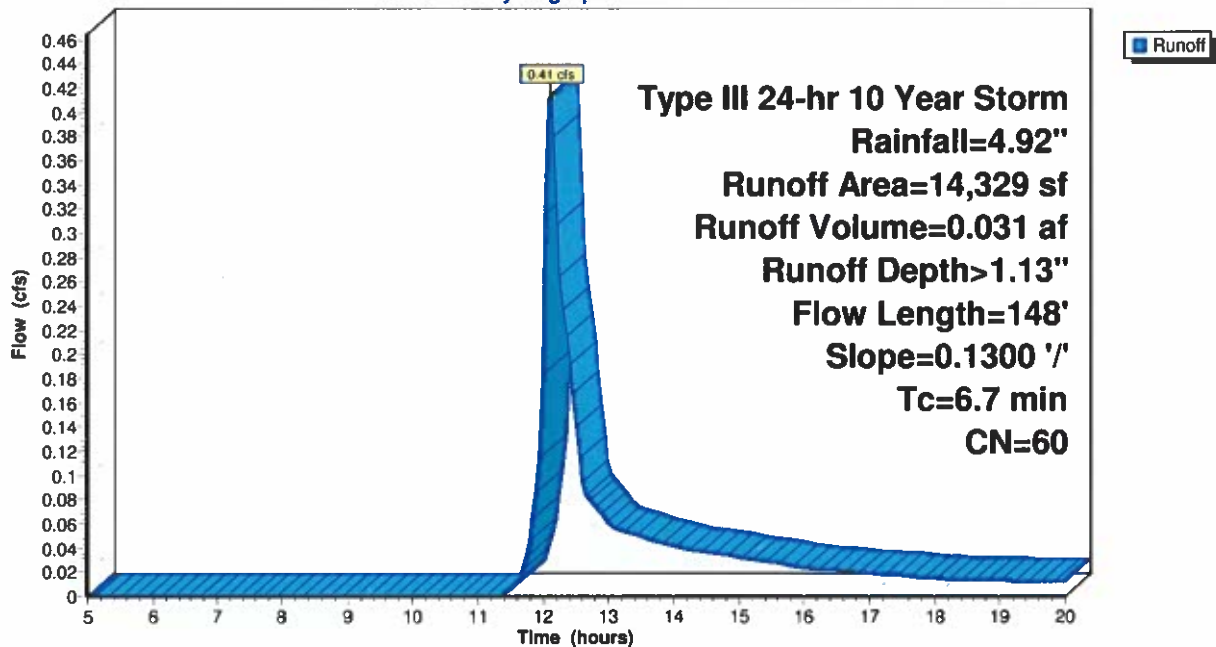
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Rainfall=4.92"

Area (sf)	CN	Description
11,049	61	>75% Grass cover, Good, HSG B
3,080	55	Woods, Good, HSG B
200	98	Paved parking, HSG B
14,329	60	Weighted Average
14,129		98.60% Pervious Area
200		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	98	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.7	148	Total			

Subcatchment A3: AREA A3

Hydrograph



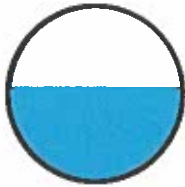
Summary for Reach 1R: 6" HDPE

Inflow Area = 0.103 ac, 100.00% Impervious, Inflow Depth > 4.35" for 10 Year Storm event
 Inflow = 0.50 cfs @ 12.07 hrs, Volume= 0.037 af
 Outflow = 0.50 cfs @ 12.07 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.51 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.80 fps, Avg. Travel Time= 0.1 min

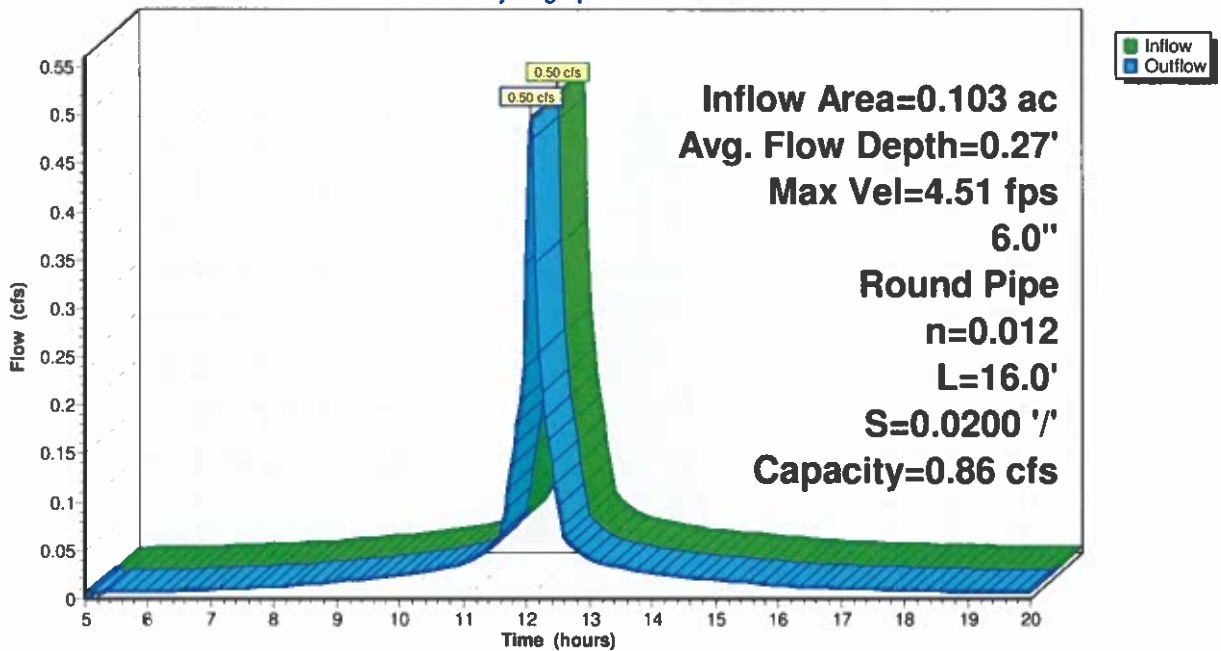
Peak Storage= 2 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.27'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.86 cfs

6.0" Round Pipe
 n= 0.012
 Length= 16.0' Slope= 0.0200 '/'
 Inlet Invert= 457.82', Outlet Invert= 457.50'



Reach 1R: 6" HDPE

Hydrograph



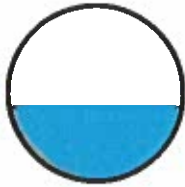
Summary for Reach 2R: 8" HDPE

Inflow Area = 0.500 ac, 43.03% Impervious, Inflow Depth > 2.38" for 10 Year Storm event
 Inflow = 1.35 cfs @ 12.12 hrs, Volume= 0.099 af
 Outflow = 1.34 cfs @ 12.13 hrs, Volume= 0.099 af, Atten= 1%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 9.24 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 3.76 fps, Avg. Travel Time= 0.0 min

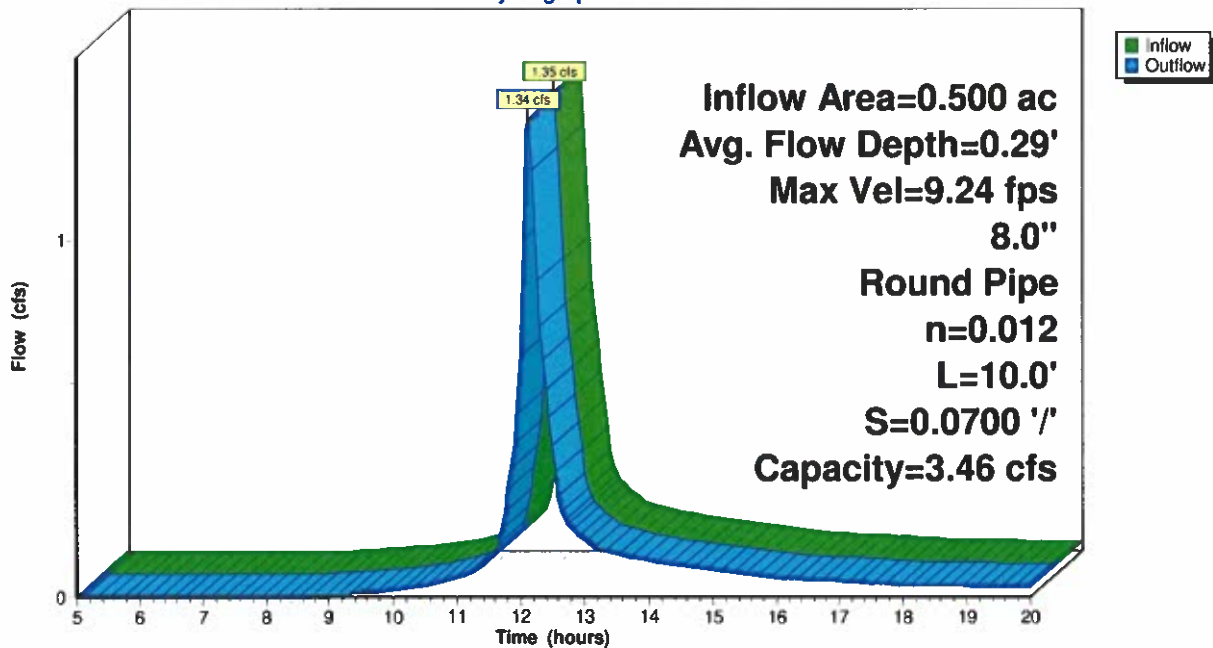
Peak Storage= 1 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.29'
 Bank-Full Depth= 0.67', Capacity at Bank-Full= 3.46 cfs

8.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0700 '/'
 Inlet Invert= 458.20', Outlet Invert= 457.50'



Reach 2R: 8" HDPE

Hydrograph



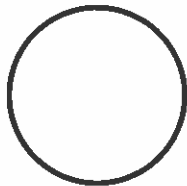
Summary for Reach 3R: 8" PIPE

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth = 0.00" for 10 Year Storm event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

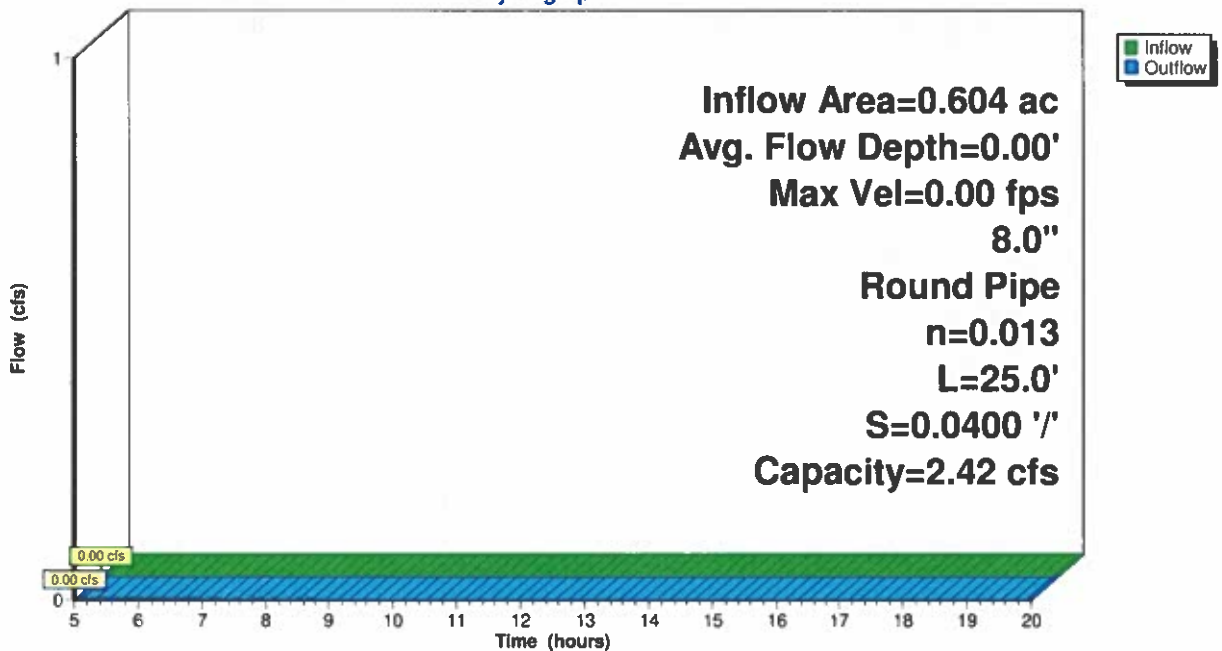
Peak Storage= 0 cf @ 5.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 0.67', Capacity at Bank-Full= 2.42 cfs

8.0" Round Pipe
 n= 0.013
 Length= 25.0' Slope= 0.0400 '/'
 Inlet Invert= 456.00', Outlet Invert= 455.00'



Reach 3R: 8" PIPE

Hydrograph



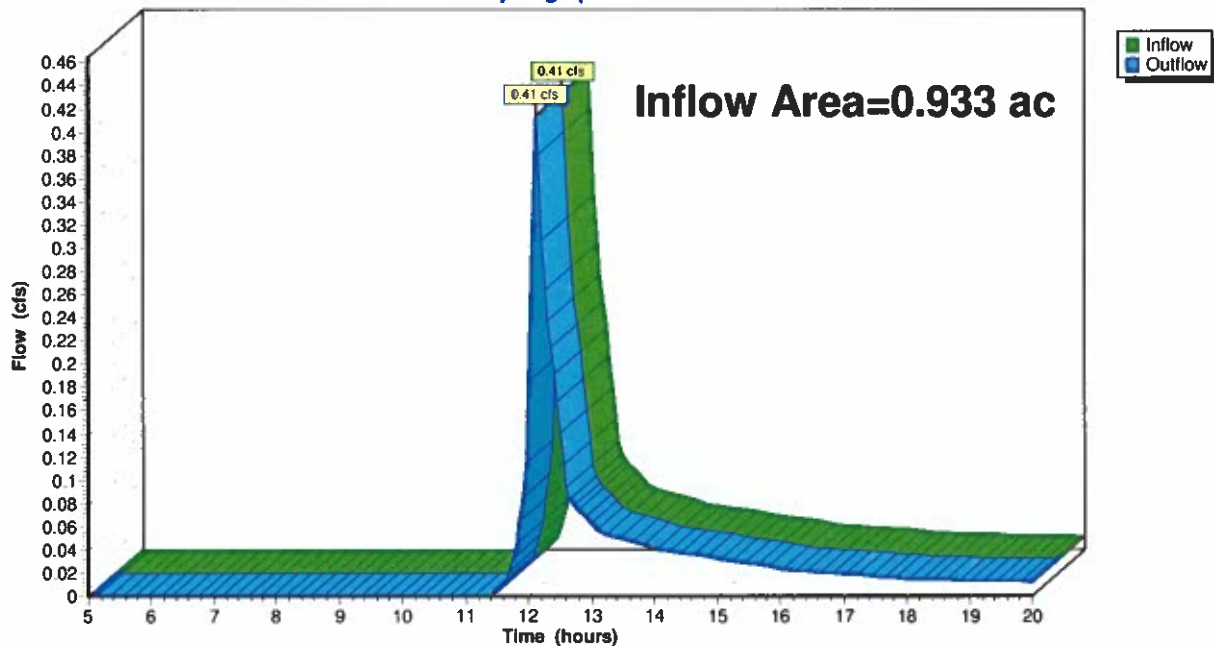
Summary for Reach 4R: (new Reach)

Inflow Area = 0.933 ac, 34.66% Impervious, Inflow Depth > 0.40" for 10 Year Storm event
Inflow = 0.41 cfs @ 12.11 hrs, Volume= 0.031 af
Outflow = 0.41 cfs @ 12.11 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: (new Reach)

Hydrograph



Summary for Pond IS-1: LEACHING AREA (IS-1)

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth > 2.71" for 10 Year Storm event
 Inflow = 1.79 cfs @ 12.11 hrs, Volume= 0.136 af
 Outflow = 0.11 cfs @ 11.90 hrs, Volume= 0.084 af, Atten= 94%, Lag= 0.0 min
 Discarded = 0.11 cfs @ 11.90 hrs, Volume= 0.084 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 456.51' @ 14.50 hrs Surf.Area= 0 sf Storage= 3,332 cf

Plug-Flow detention time= 215.8 min calculated for 0.084 af (61% of inflow)
 Center-of-Mass det. time= 138.6 min (917.9 - 779.3)

Volume	Invert	Avail.Storage	Storage Description
#1	453.50'	5,915 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
453.50	0	0
454.50	727	727
455.50	1,297	2,024
456.50	1,297	3,321
457.50	1,297	4,618
458.50	1,297	5,915

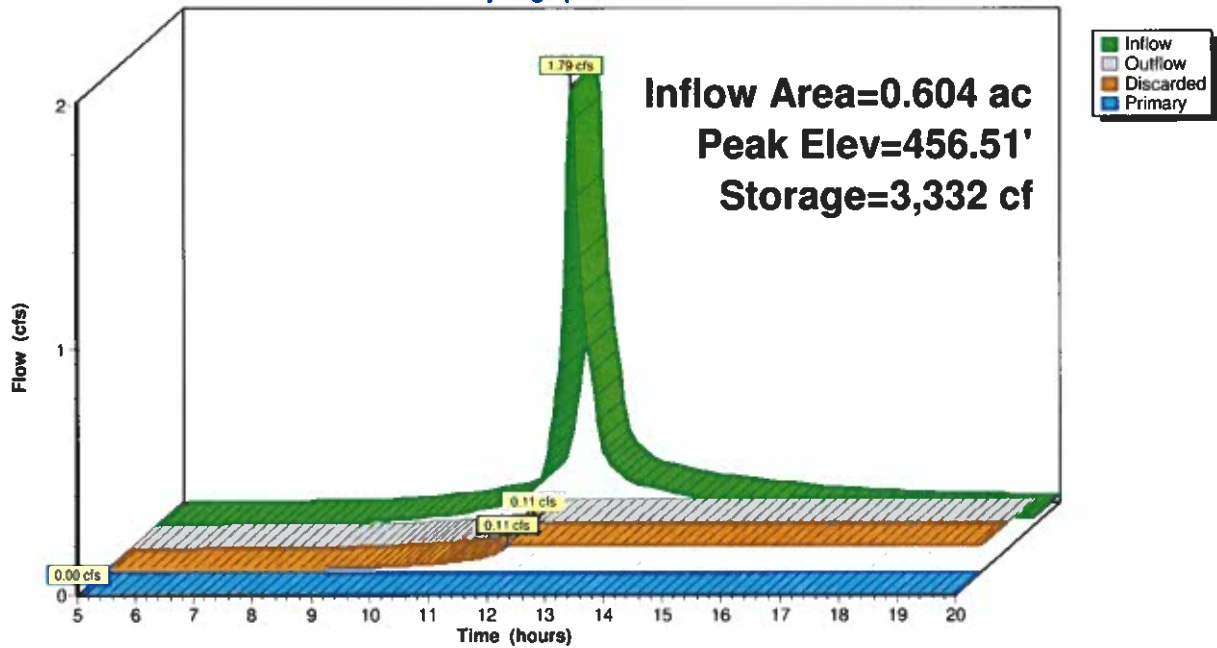
Device	Routing	Invert	Outlet Devices
#1	Discarded	453.50'	Exfiltration Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.110 0.110 0.110 0.110 0.110
#2	Primary	457.50'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.11 cfs @ 11.90 hrs HW=454.52' (Free Discharge)
 ↑1=Exfiltration (Custom Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=453.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond IS-1: LEACHING AREA (IS-1)

Hydrograph



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: ROOF Runoff Area=4,500 sf 100.00% Impervious Runoff Depth>5.53"
Tc=5.0 min CN=98 Runoff=0.63 cfs 0.048 af

Subcatchment A2: AREA A2 Runoff Area=21,800 sf 43.03% Impervious Runoff Depth>3.43"
Flow Length=152' Tc=8.6 min CN=77 Runoff=1.94 cfs 0.143 af

Subcatchment A3: AREA A3 Runoff Area=14,329 sf 1.40% Impervious Runoff Depth>1.89"
Flow Length=148' Slope=0.1300 '/' Tc=6.7 min CN=60 Runoff=0.73 cfs 0.052 af

Reach 1R: 6" HDPE Avg. Flow Depth=0.32' Max Vel=4.76 fps Inflow=0.63 cfs 0.048 af
6.0" Round Pipe n=0.012 L=16.0' S=0.0200 '/' Capacity=0.86 cfs Outflow=0.63 cfs 0.048 af

Reach 2R: 8" HDPE Avg. Flow Depth=0.36' Max Vel=10.15 fps Inflow=1.94 cfs 0.143 af
8.0" Round Pipe n=0.012 L=10.0' S=0.0700 '/' Capacity=3.46 cfs Outflow=1.94 cfs 0.143 af

Reach 3R: 8" PIPE Avg. Flow Depth=0.08' Max Vel=3.14 fps Inflow=0.08 cfs 0.011 af
8.0" Round Pipe n=0.013 L=25.0' S=0.0400 '/' Capacity=2.42 cfs Outflow=0.08 cfs 0.011 af

Reach 4R: (new Reach) Inflow=0.73 cfs 0.063 af
Outflow=0.73 cfs 0.063 af

Pond IS-1: LEACHING AREA (IS-1) Peak Elev=457.65' Storage=4,810 cf Inflow=2.51 cfs 0.191 af
Discarded=0.11 cfs 0.089 af Primary=0.08 cfs 0.011 af Outflow=0.19 cfs 0.100 af

Total Runoff Area = 0.933 ac Runoff Volume = 0.242 af Average Runoff Depth = 3.12"
65.34% Pervious = 0.609 ac 34.66% Impervious = 0.323 ac

Summary for Subcatchment A1: ROOF

Runoff = 0.63 cfs @ 12.07 hrs, Volume= 0.048 af, Depth> 5.53"

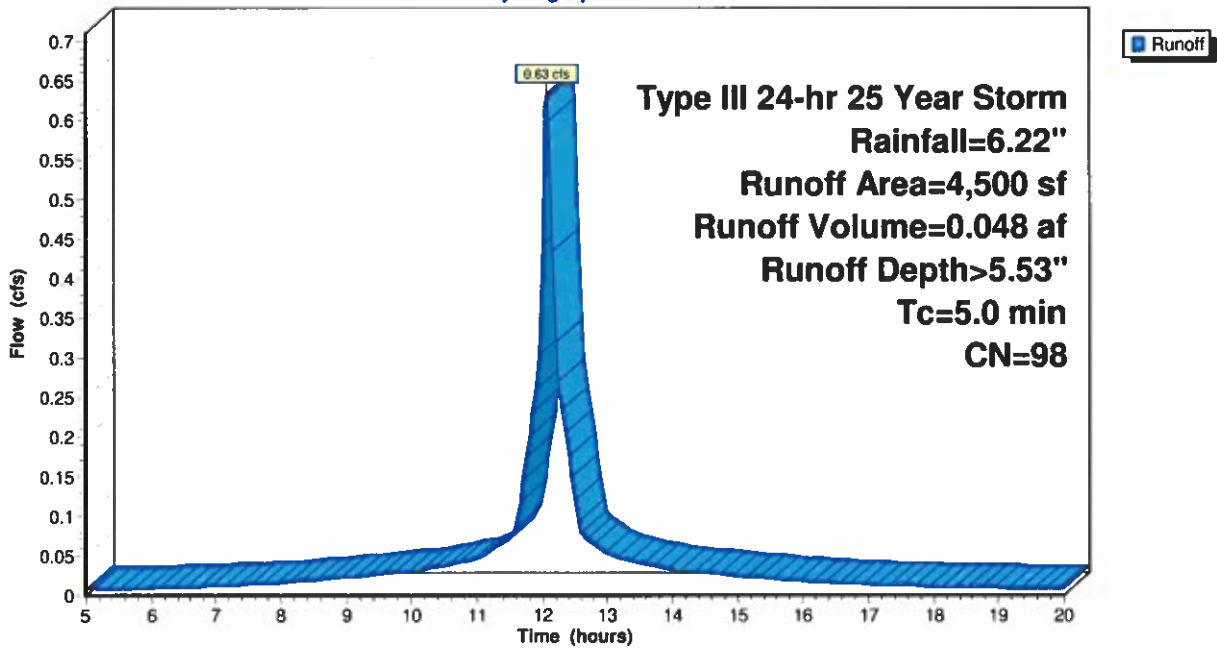
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Rainfall=6.22"

Area (sf)	CN	Description
* 4,500	98	Roof
4,500		100.00% Impervious Area

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

Subcatchment A1: ROOF

Hydrograph



Summary for Subcatchment A2: AREA A2

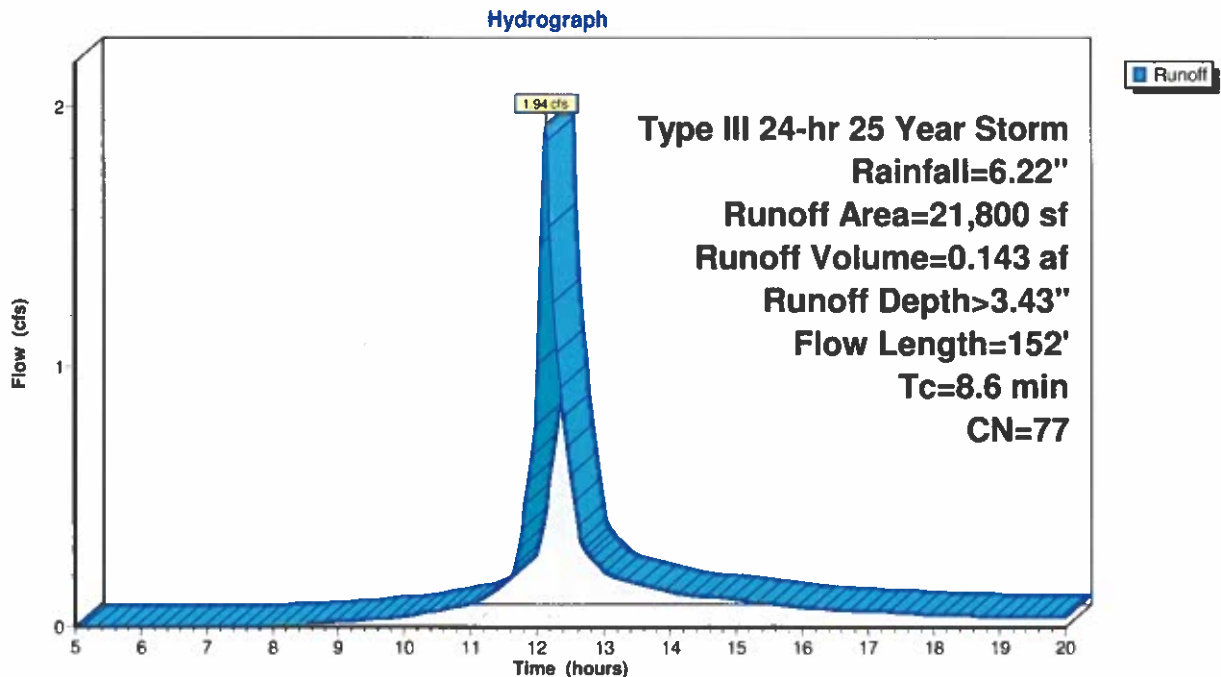
Runoff = 1.94 cfs @ 12.12 hrs, Volume= 0.143 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Rainfall=6.22"

Area (sf)	CN	Description
* 9,380	98	Parking
12,420	61	>75% Grass cover, Good, HSG B
21,800	77	Weighted Average
12,420		56.97% Pervious Area
9,380		43.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.5	22	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0080	1.82		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.6	152	Total			

Subcatchment A2: AREA A2



Summary for Subcatchment A3: AREA A3

Runoff = 0.73 cfs @ 12.11 hrs, Volume= 0.052 af, Depth> 1.89"

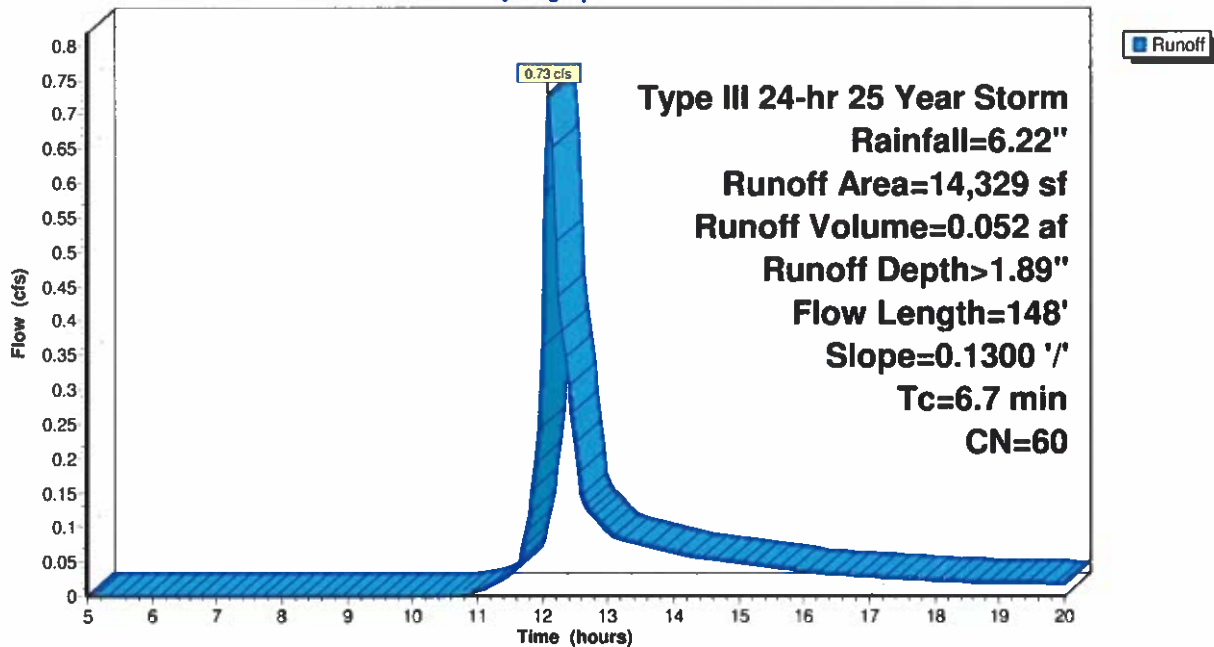
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 Year Storm Rainfall=6.22"

Area (sf)	CN	Description
11,049	61	>75% Grass cover, Good, HSG B
3,080	55	Woods, Good, HSG B
200	98	Paved parking, HSG B
14,329	60	Weighted Average
14,129		98.60% Pervious Area
200		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	98	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.7	148	Total			

Subcatchment A3: AREA A3

Hydrograph



Summary for Reach 1R: 6" HDPE

Inflow Area = 0.103 ac, 100.00% Impervious, Inflow Depth > 5.53" for 25 Year Storm event
 Inflow = 0.63 cfs @ 12.07 hrs, Volume= 0.048 af
 Outflow = 0.63 cfs @ 12.07 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.76 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 1.93 fps, Avg. Travel Time= 0.1 min

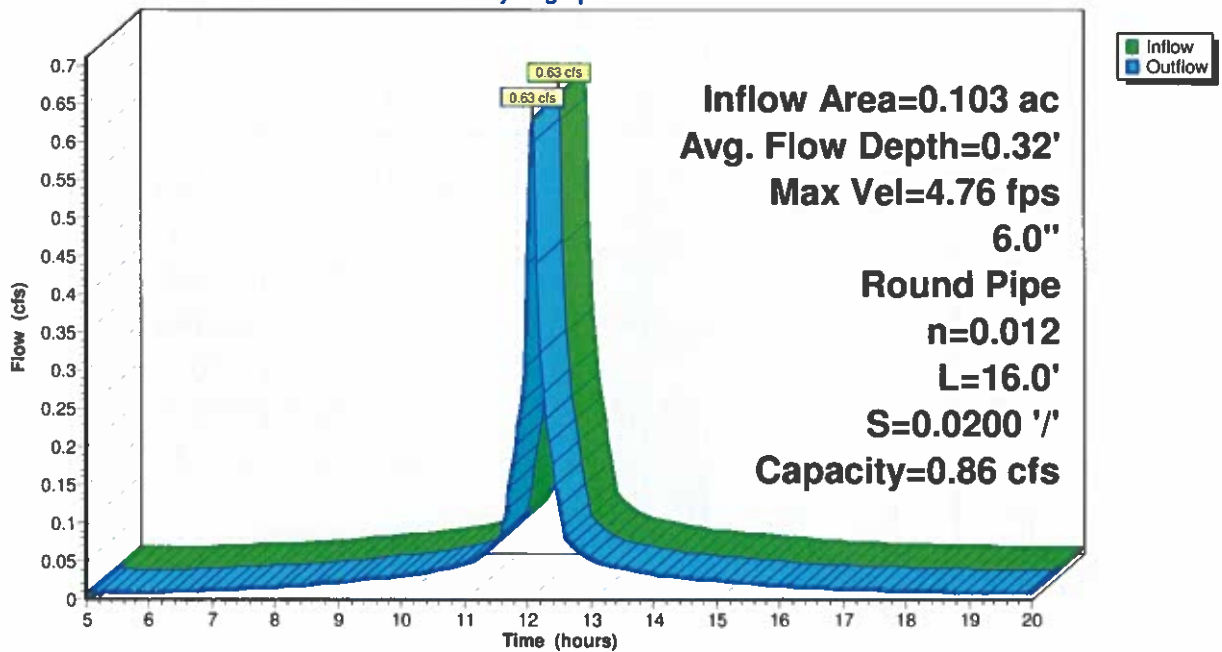
Peak Storage= 2 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.32'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.86 cfs

6.0" Round Pipe
 n= 0.012
 Length= 16.0' Slope= 0.0200 '/'
 Inlet Invert= 457.82', Outlet Invert= 457.50'



Reach 1R: 6" HDPE

Hydrograph



22-0654 Post-rev

Prepared by Alpha Omega Engineering Inc
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Type III 24-hr 25 Year Storm Rainfall=6.22"

Printed 4/10/2024

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Summary for Reach 2R: 8" HDPE

Inflow Area = 0.500 ac, 43.03% Impervious, Inflow Depth > 3.43" for 25 Year Storm event
Inflow = 1.94 cfs @ 12.12 hrs, Volume= 0.143 af
Outflow = 1.94 cfs @ 12.12 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.15 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.05 fps, Avg. Travel Time= 0.0 min

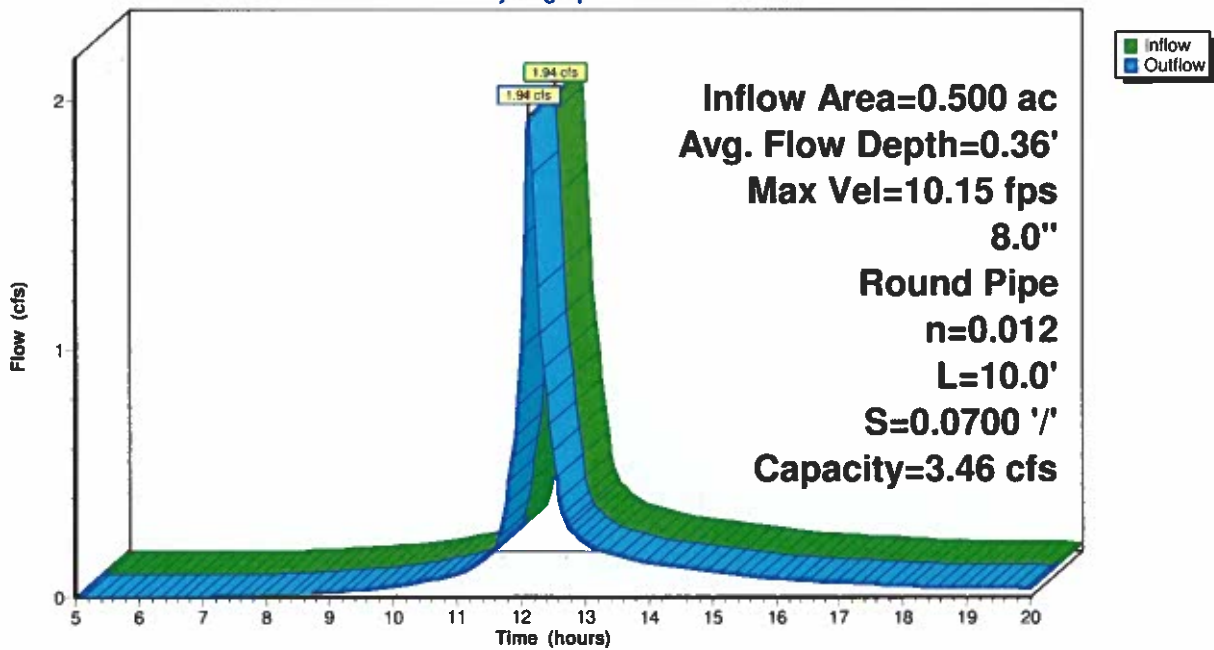
Peak Storage= 2 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 0.67', Capacity at Bank-Full= 3.46 cfs

8.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0700 '/'
Inlet Invert= 458.20', Outlet Invert= 457.50'



Reach 2R: 8" HDPE

Hydrograph



Summary for Reach 3R: 8" PIPE

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth = 0.21" for 25 Year Storm event
 Inflow = 0.08 cfs @ 13.80 hrs, Volume= 0.011 af
 Outflow = 0.08 cfs @ 13.80 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.14 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.34 fps, Avg. Travel Time= 0.2 min

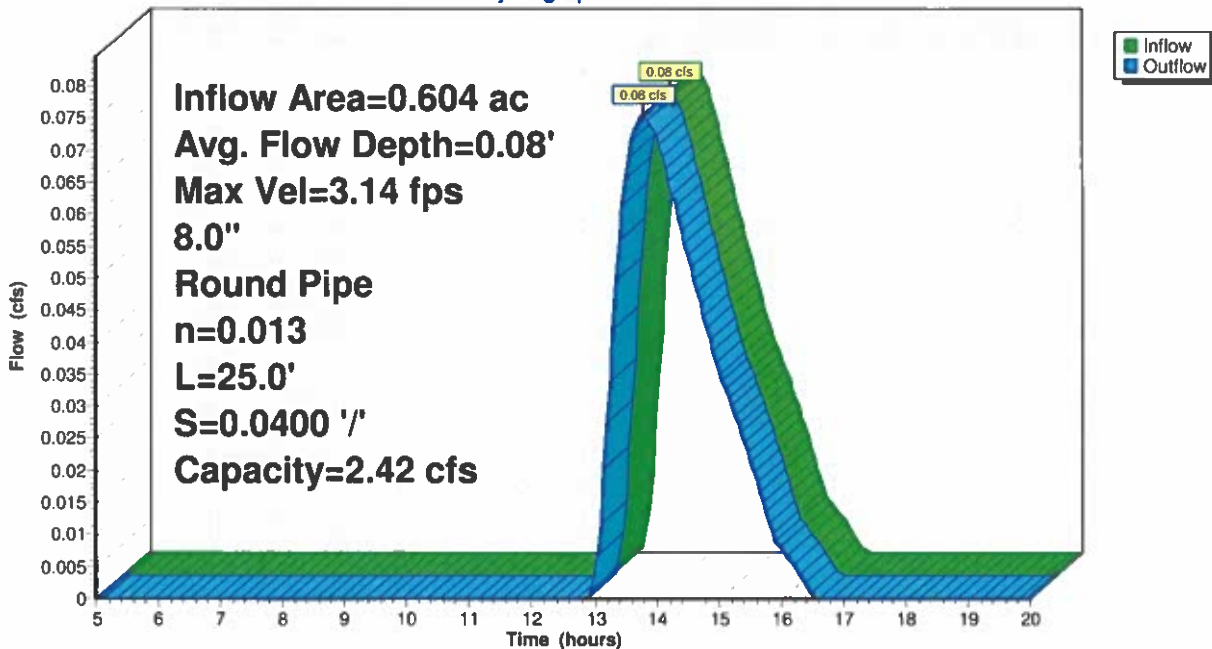
Peak Storage= 1 cf @ 13.80 hrs
 Average Depth at Peak Storage= 0.08'
 Bank-Full Depth= 0.67', Capacity at Bank-Full= 2.42 cfs

8.0" Round Pipe
 n= 0.013
 Length= 25.0' Slope= 0.0400 '/'
 Inlet Invert= 456.00', Outlet Invert= 455.00'



Reach 3R: 8" PIPE

Hydrograph



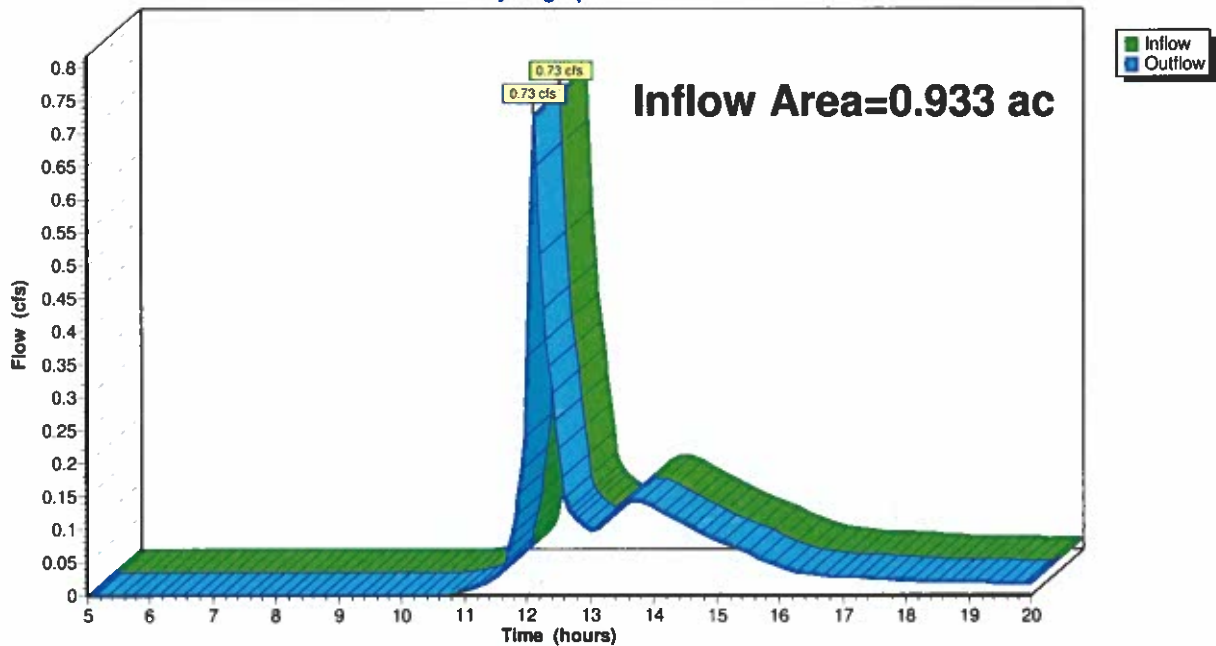
Summary for Reach 4R: (new Reach)

Inflow Area = 0.933 ac, 34.66% Impervious, Inflow Depth > 0.80" for 25 Year Storm event
Inflow = 0.73 cfs @ 12.11 hrs, Volume= 0.063 af
Outflow = 0.73 cfs @ 12.11 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: (new Reach)

Hydrograph



Summary for Pond IS-1: LEACHING AREA (IS-1)

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth > 3.79" for 25 Year Storm event
 Inflow = 2.51 cfs @ 12.11 hrs, Volume= 0.191 af
 Outflow = 0.19 cfs @ 13.80 hrs, Volume= 0.100 af, Atten= 93%, Lag= 101.2 min
 Discarded = 0.11 cfs @ 11.70 hrs, Volume= 0.089 af
 Primary = 0.08 cfs @ 13.80 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 457.65' @ 13.80 hrs Surf.Area= 0 sf Storage= 4,810 cf

Plug-Flow detention time= 205.5 min calculated for 0.100 af (52% of inflow)
 Center-of-Mass det. time= 121.6 min (895.8 - 774.2)

Volume	Invert	Avail.Storage	Storage Description
#1	453.50'	5,915 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
453.50	0	0
454.50	727	727
455.50	1,297	2,024
456.50	1,297	3,321
457.50	1,297	4,618
458.50	1,297	5,915

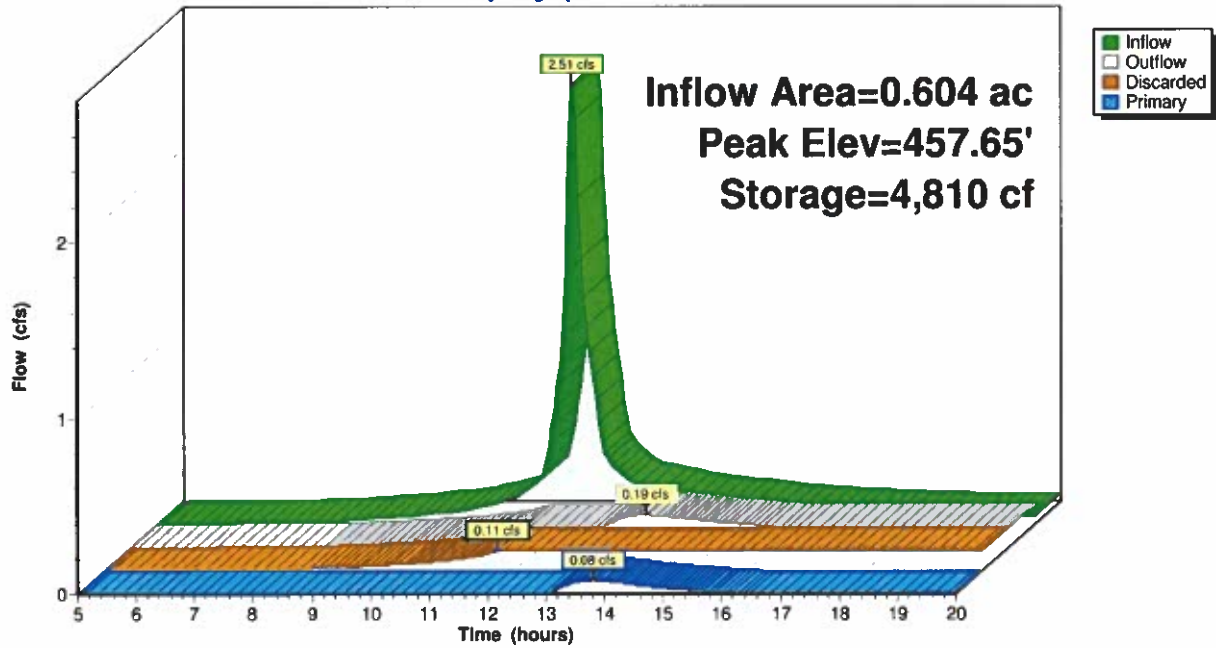
Device	Routing	Invert	Outlet Devices
#1	Discarded	453.50'	Exfiltration Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.110 0.110 0.110 0.110 0.110
#2	Primary	457.50'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.11 cfs @ 11.70 hrs HW=454.52' (Free Discharge)
 ↑**1=Exfiltration** (Custom Controls 0.11 cfs)

Primary OutFlow Max=0.08 cfs @ 13.80 hrs HW=457.65' (Free Discharge)
 ↑**2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 1.31 fps)

Pond IS-1: LEACHING AREA (IS-1)

Hydrograph



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: ROOF Runoff Area=4,500 sf 100.00% Impervious Runoff Depth>7.95"
Tc=5.0 min CN=98 Runoff=0.91 cfs 0.068 af

Subcatchment A2: AREA A2 Runoff Area=21,800 sf 43.03% Impervious Runoff Depth>5.73"
Flow Length=152' Tc=8.6 min CN=77 Runoff=3.19 cfs 0.239 af

Subcatchment A3: AREA A3 Runoff Area=14,329 sf 1.40% Impervious Runoff Depth>3.71"
Flow Length=148' Slope=0.1300 '/' Tc=6.7 min CN=60 Runoff=1.48 cfs 0.102 af

Reach 1R: 6" HDPE Avg. Flow Depth=0.43' Max Vel=4.99 fps Inflow=0.91 cfs 0.068 af
6.0" Round Pipe n=0.012 L=16.0' S=0.0200 '/' Capacity=0.86 cfs Outflow=0.90 cfs 0.068 af

Reach 2R: 8" HDPE Avg. Flow Depth=0.50' Max Vel=11.23 fps Inflow=3.19 cfs 0.239 af
8.0" Round Pipe n=0.012 L=10.0' S=0.0700 '/' Capacity=3.46 cfs Outflow=3.19 cfs 0.239 af

Reach 3R: 8" PIPE Avg. Flow Depth=0.35' Max Vel=7.06 fps Inflow=1.30 cfs 0.108 af
8.0" Round Pipe n=0.013 L=25.0' S=0.0400 '/' Capacity=2.42 cfs Outflow=1.31 cfs 0.108 af

Reach 4R: (new Reach) Inflow=1.91 cfs 0.210 af
Outflow=1.91 cfs 0.210 af

Pond IS-1: LEACHING AREA (IS-1) Peak Elev=458.44' Storage=5,832 cf Inflow=4.00 cfs 0.307 af
Discarded=0.11 cfs 0.099 af Primary=1.30 cfs 0.108 af Outflow=1.41 cfs 0.207 af

Total Runoff Area = 0.933 ac Runoff Volume = 0.409 af Average Runoff Depth = 5.26"
65.34% Pervious = 0.609 ac 34.66% Impervious = 0.323 ac

Summary for Subcatchment A1: ROOF

Runoff = 0.91 cfs @ 12.07 hrs, Volume= 0.068 af, Depth> 7.95"

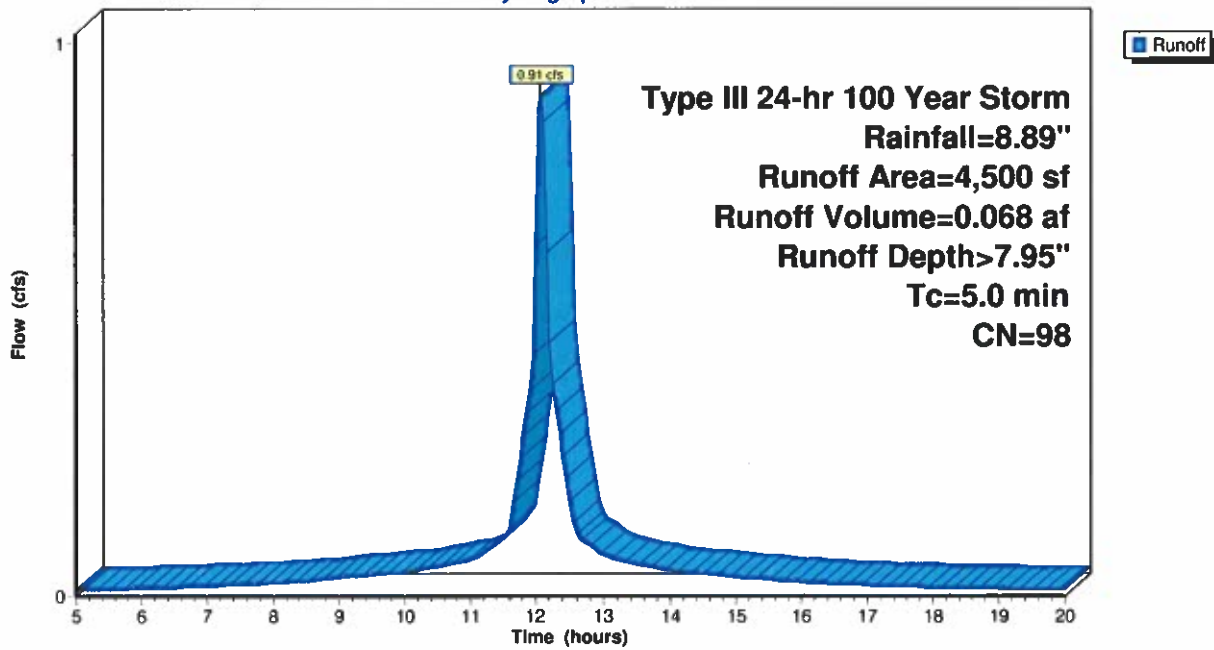
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.89"

Area (sf)	CN	Description
* 4,500	98	Roof
4,500		100.00% Impervious Area

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

Subcatchment A1: ROOF

Hydrograph



Summary for Subcatchment A2: AREA A2

Runoff = 3.19 cfs @ 12.12 hrs, Volume= 0.239 af, Depth> 5.73"

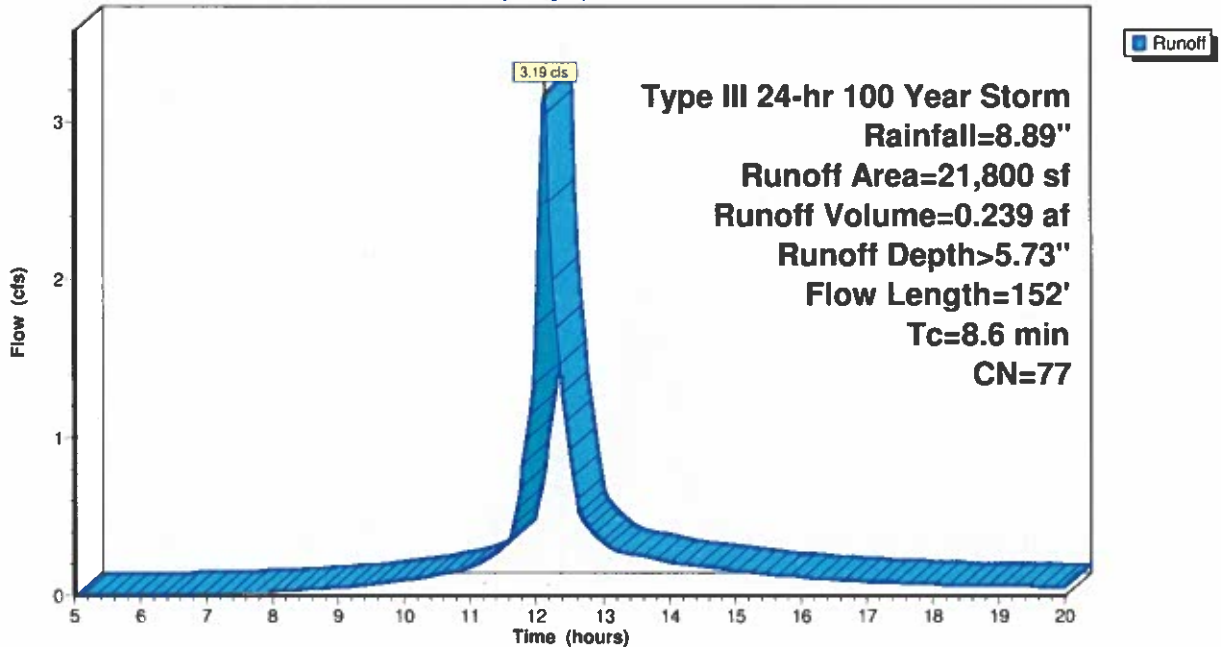
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.89"

Area (sf)	CN	Description
* 9,380	98	Parking
12,420	61	>75% Grass cover, Good, HSG B
21,800	77	Weighted Average
12,420		56.97% Pervious Area
9,380		43.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.5	22	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	80	0.0080	1.82		Shallow Concentrated Flow, Paved Kv= 20.3 fps
8.6	152	Total			

Subcatchment A2: AREA A2

Hydrograph



Summary for Subcatchment A3: AREA A3

Runoff = 1.48 cfs @ 12.10 hrs, Volume= 0.102 af, Depth> 3.71"

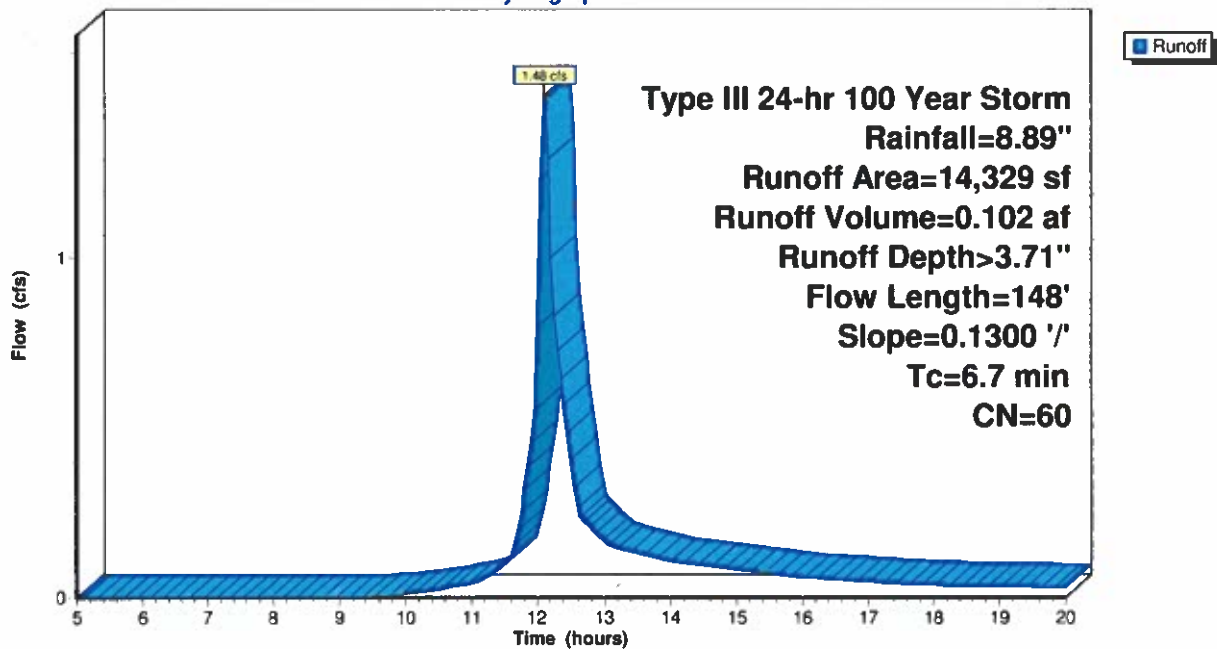
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.89"

Area (sf)	CN	Description
11,049	61	>75% Grass cover, Good, HSG B
3,080	55	Woods, Good, HSG B
200	98	Paved parking, HSG B
14,329	60	Weighted Average
14,129		98.60% Pervious Area
200		1.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.1300	0.14		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	98	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.7	148	Total			

Subcatchment A3: AREA A3

Hydrograph



Summary for Reach 1R: 6" HDPE

Inflow Area = 0.103 ac, 100.00% Impervious, Inflow Depth > 7.95" for 100 Year Storm event
 Inflow = 0.91 cfs @ 12.07 hrs, Volume= 0.068 af
 Outflow = 0.90 cfs @ 12.07 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.99 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 2.15 fps, Avg. Travel Time= 0.1 min

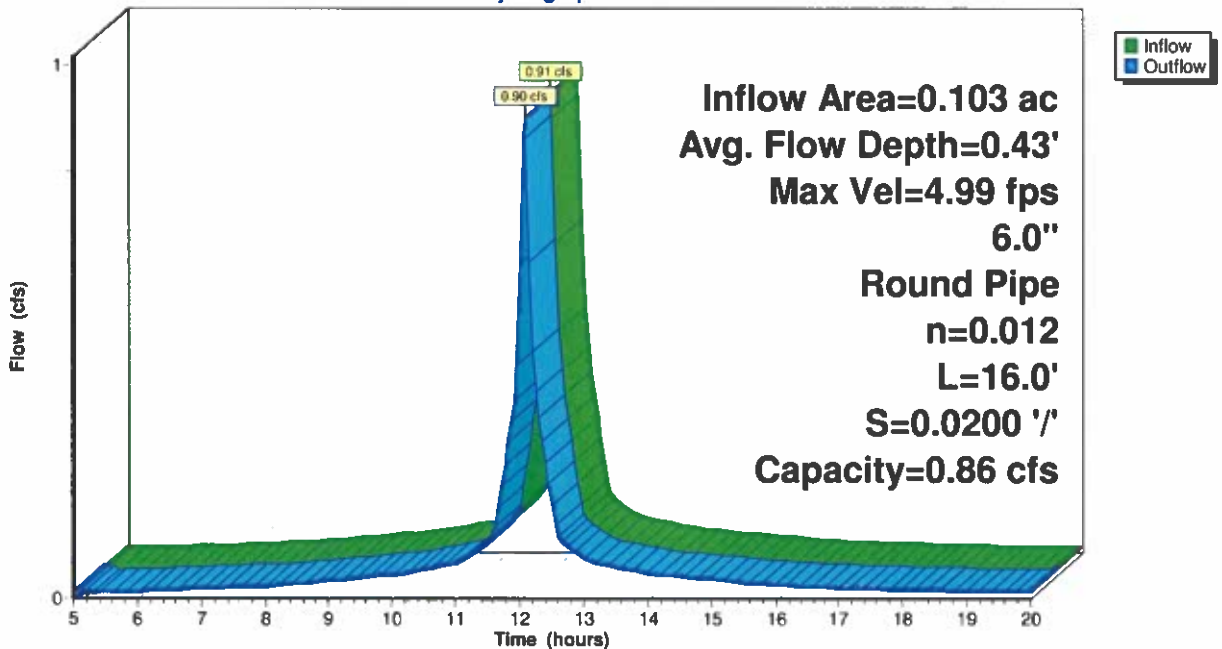
Peak Storage= 3 cf @ 12.07 hrs
 Average Depth at Peak Storage= 0.43'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 0.86 cfs

6.0" Round Pipe
 n= 0.012
 Length= 16.0' Slope= 0.0200 '/'
 Inlet Invert= 457.82', Outlet Invert= 457.50'



Reach 1R: 6" HDPE

Hydrograph



Summary for Reach 2R: 8" HDPE

Inflow Area = 0.500 ac, 43.03% Impervious, Inflow Depth > 5.73" for 100 Year Storm event
 Inflow = 3.19 cfs @ 12.12 hrs, Volume= 0.239 af
 Outflow = 3.19 cfs @ 12.12 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 11.23 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 4.48 fps, Avg. Travel Time= 0.0 min

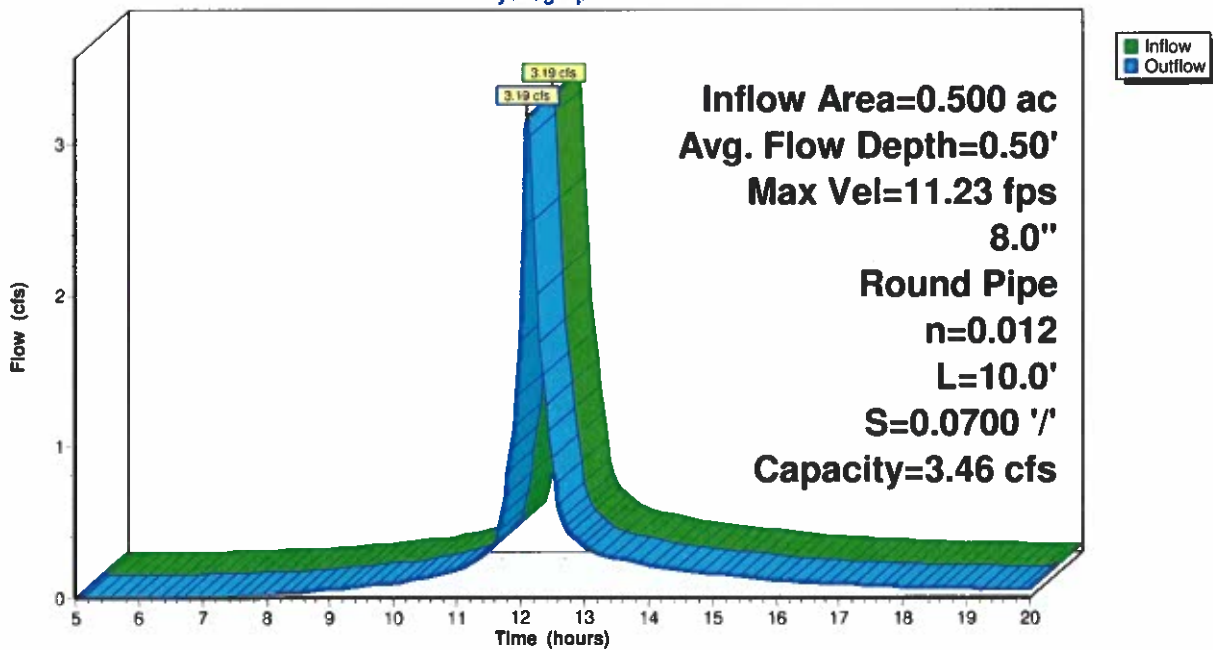
Peak Storage= 3 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.50'
 Bank-Full Depth= 0.67', Capacity at Bank-Full= 3.46 cfs

8.0" Round Pipe
 n= 0.012
 Length= 10.0' Slope= 0.0700 '/'
 Inlet Invert= 458.20', Outlet Invert= 457.50'



Reach 2R: 8" HDPE

Hydrograph



Summary for Reach 3R: 8" PIPE

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth = 2.14" for 100 Year Storm event
 Inflow = 1.30 cfs @ 12.43 hrs, Volume= 0.108 af
 Outflow = 1.31 cfs @ 12.44 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 7.06 fps, Min. Travel Time= 0.1 min
 Avg. Velocity = 3.45 fps, Avg. Travel Time= 0.1 min

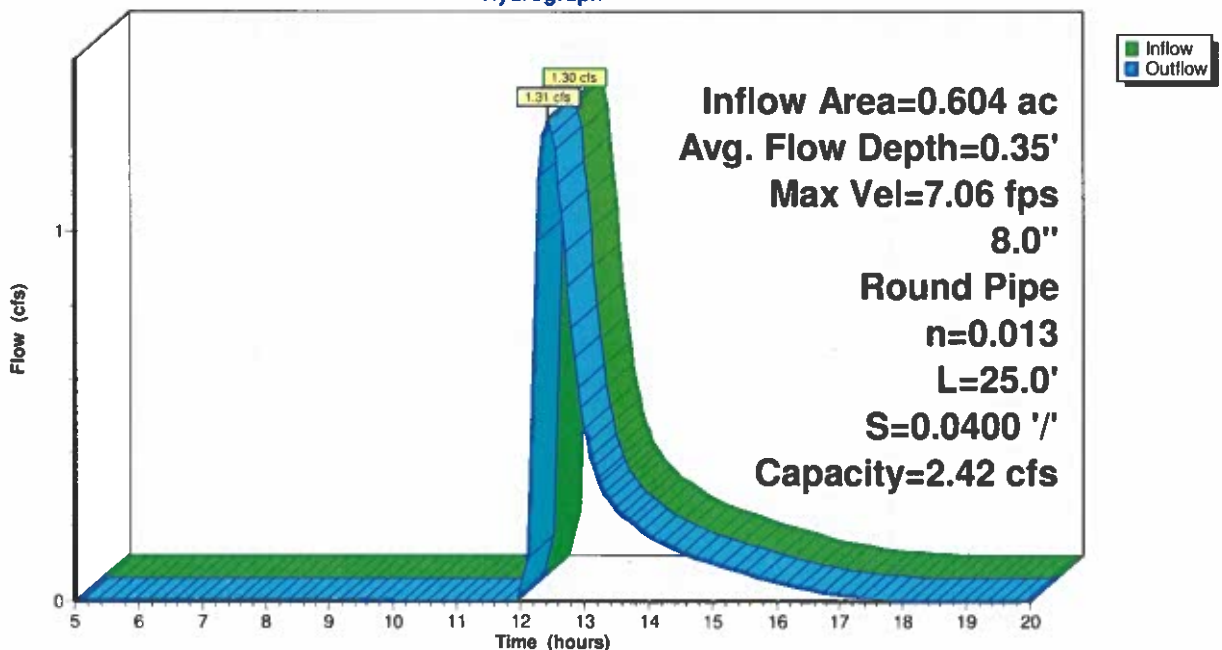
Peak Storage= 5 cf @ 12.44 hrs
 Average Depth at Peak Storage= 0.35'
 Bank-Full Depth= 0.67', Capacity at Bank-Full= 2.42 cfs

8.0" Round Pipe
 n= 0.013
 Length= 25.0' Slope= 0.0400 '/
 Inlet Invert= 456.00', Outlet Invert= 455.00'



Reach 3R: 8" PIPE

Hydrograph



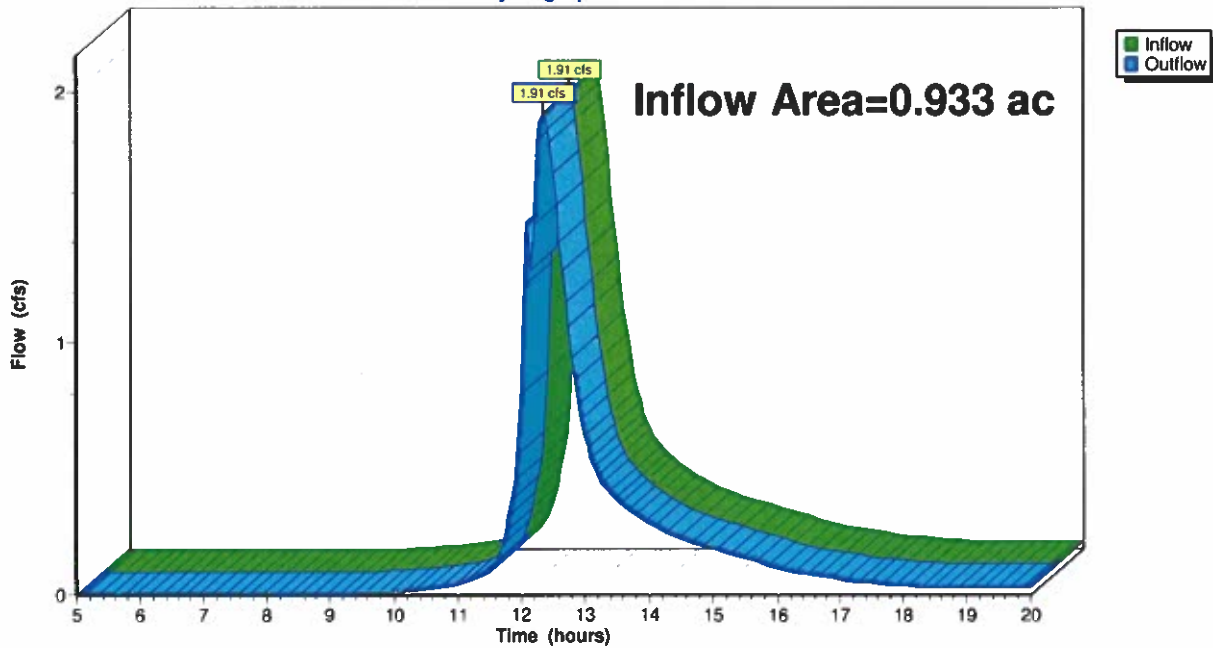
Summary for Reach 4R: (new Reach)

Inflow Area = 0.933 ac, 34.66% Impervious, Inflow Depth > 2.70" for 100 Year Storm event
Inflow = 1.91 cfs @ 12.34 hrs, Volume= 0.210 af
Outflow = 1.91 cfs @ 12.34 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: (new Reach)

Hydrograph



Summary for Pond IS-1: LEACHING AREA (IS-1)

Inflow Area = 0.604 ac, 52.78% Impervious, Inflow Depth > 6.11" for 100 Year Storm event
 Inflow = 4.00 cfs @ 12.11 hrs, Volume= 0.307 af
 Outflow = 1.41 cfs @ 12.43 hrs, Volume= 0.207 af, Atten= 65%, Lag= 19.2 min
 Discarded = 0.11 cfs @ 10.85 hrs, Volume= 0.099 af
 Primary = 1.30 cfs @ 12.43 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 458.44' @ 12.43 hrs Surf.Area= 0 sf Storage= 5,832 cf

Plug-Flow detention time= 132.5 min calculated for 0.207 af (67% of inflow)
 Center-of-Mass det. time= 62.9 min (828.9 - 766.0)

Volume	Invert	Avail.Storage	Storage Description
#1	453.50'	5,915 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
453.50	0	0
454.50	727	727
455.50	1,297	2,024
456.50	1,297	3,321
457.50	1,297	4,618
458.50	1,297	5,915

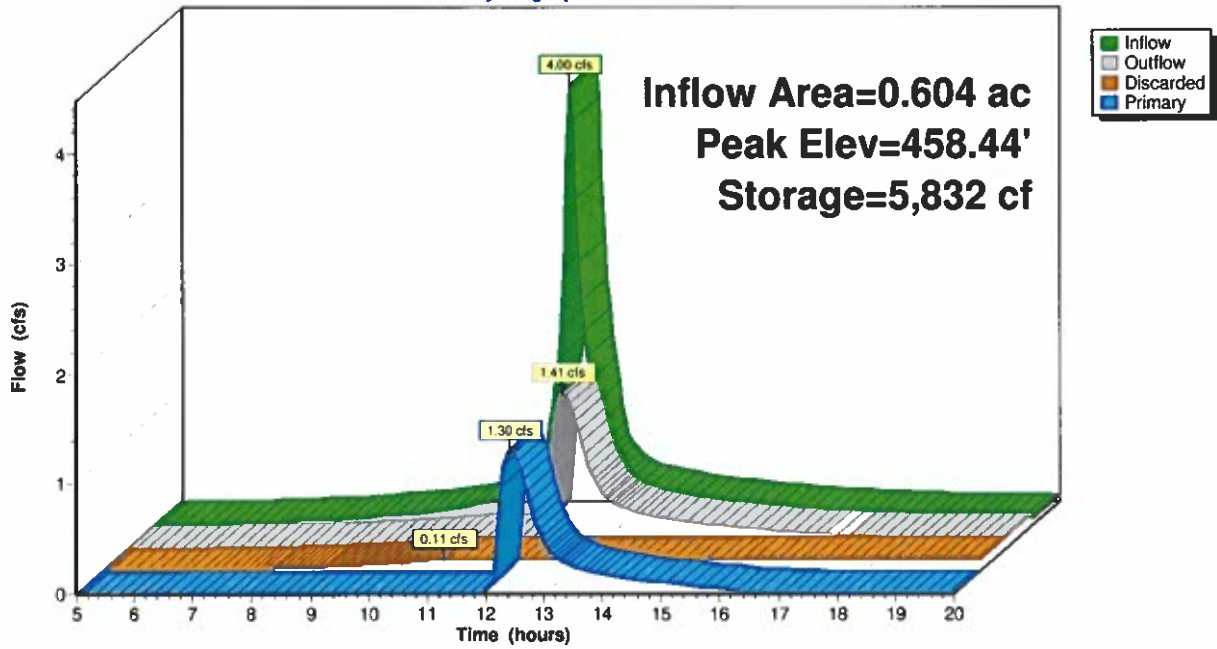
Device	Routing	Invert	Outlet Devices
#1	Discarded	453.50'	Exfiltration Head (feet) 0.00 1.00 2.00 3.00 4.00 5.00 Disch. (cfs) 0.000 0.110 0.110 0.110 0.110 0.110
#2	Primary	457.50'	8.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.11 cfs @ 10.85 hrs HW=454.51' (Free Discharge)
 ↳ **1=Exfiltration** (Custom Controls 0.11 cfs)

Primary OutFlow Max=1.30 cfs @ 12.43 hrs HW=458.43' (Free Discharge)
 ↳ **2=Orifice/Grate** (Orifice Controls 1.30 cfs @ 3.73 fps)

Pond IS-1: LEACHING AREA (IS-1)

Hydrograph



Edward M. Augustus, Jr.
CITY MANAGER



Timothy J. McGourthy
CHIEF FINANCIAL OFFICER

Samuel E. Konieczny
CITY ASSESSOR

CITY OF WORCESTER

ADMINISTRATION & FINANCE

Certified Abutters List

A list of 'parties in interest' shall be attached to the application form and shall include the names and addresses. All such names and addresses shall be obtained from the most recent applicable tax list maintained by the City's Assessing Department. The Assessing Department certifies the list of names and addresses.

Total Count: 18

Parcel Address: 11 CLIFF STREET
WORCESTER, MA 01607
Assessor's Map-Block-Lot(s): 31-003-0006A

Owner: LILI LLC
1127 GRAFTON ST
WORCESTER, MA 01604

Owner Mailing: _____

Petitioner (if other than owner): STEPHANIE FLEMING
Petitioner Mailing Address: 311 MAIN STREET
WORCESTER, MA 01608
508-926-3346

Planning: x Zoning: _____ Liquor License: _____ ConComm: _____
Historical: _____ Cannabis: _____ Other: _____

31-003-09+9A	CARNEY ANN MARIE(LIFE ESTATE)	0021 CLIFF ST	WORCESTER MA 01607
31-003-01+6B	PIZZARELLA ANGELO F TRUSTEE	0232 PLANTATION ST	WORCESTER MA 01604
31-003-002+3	SPRINGFIELD LLC TRUSTEE	1191 MILLBURY STREET	WORCESTER MA 01607
31-002-002+5	NGUYEN KIM	0004 CLIFF ST	WORCESTER MA 01607
31-003-00011	PIZZARELLA ANGELO F TRUSTEE	0232 PLANTATION ST	WORCESTER MA 01604
31-003-00005	PIZZARELLA ANGELO TRUSTEE	0232 PLANTATION ST	WORCESTER MA 01604
31-003-00010	DEROSIER JEAN TRUSTEE +	0023 CLIFF ST	WORCESTER MA 01607
31-003-00008	LE-RIVERA TRANF	0007 TYLER DR	HOLDEN MA 01520
31-003-0006A	LILI LLC	1127 GRAFTON ST	WORCESTER MA 01604
31-002-00014	COZZOLINO JAMES M + NORMA-JEAN	0470 GRANITE ST	WORCESTER MA 01607
31-002-0014A	JUDSON JOHN +MARGARET	0012 CLIFF ST	WORCESTER MA 01607
31-002-0014B	BURKE FRANK C & HELEN R	8 CLIFF ST	WORCESTER MA 01607
31-002-0014C	LUU THU + PHAM	0476 GRANITE ST	WORCESTER MA 01607
31-002-00006	ANDERSON RICHARD H + CAROL A	0098 SAINT LOUIS STREET	WORCESTER MA 01607
31-002-0001A	HOLDEN RAYMOND J	0000 CLIFF ST	WORCESTER MA 01607
31-002-00001	KHALIFE TONY N TRUSTEE	1255 MILLBURY ST	WORCESTER MA 01607

31-023-0001A	COMM OF MASS HIGHWAY DEPT	0010 PARK PLAZA ROOM 6160	BOSTON MA 02116
31-002-13-02	GREATER WORCESTER LAND TRUST INC	0004 ASH ST	WORCESTER MA 01608

This is to certify that the above is a list of abutters to Assessor's Map-Block-Lot's 31-003-0006a as cited above.
Certified by:



Signature

04/19/2024
Date

Edward M. Augustus, Jr.
CITY MANAGER



Timothy J. McGourthy
CHIEF FINANCIAL OFFICER

Samuel E. Konieczny
CITY ASSESSOR

CITY OF WORCESTER

ADMINISTRATION & FINANCE

Abutters Map

