DDS- Planning & Zoning: Plan Review Application

Submission date:	**4 October 2022, 2:38PM**
Receipt number:	**1033**
Related form version:	**2**

Application Type

Check all that apply:	**Site Plan Review** **Special Permit**

Property Information

Property Address:	**165 Brainard Road, Hartford, CT No coordinates found**
Zoning District:	**Industrial-1 (ID-1)**
Parcel ID:	**300-817-011**
Property Owner:	**DM Realty Partners LLC**
Address of Property Owner:	**165 Brainard Rd, Hartford, CT**
Email:	**N/A**

Applicant

Name of Applicant:	**Insa CT, LLC**
File Date:	**10/04/2022**
Address:	**35 Center Street, Chicopee, MA 01013 No coordinates found**

Phone:	**413-231-4450**
Email:	**steve@myinsa.com**

Primary Point of Contact

Name:	**Steve Reilly**
Phone:	**413-231-4450**
Email	**steve@myinsa.com**

Project Narrative

Please describe your application action(s) and provide as much detail as possible. Attach additional pages if necessary:	**See attached for project narrative.**

Zoning Map Change Application

Proposed Zone:	
Describe the existing use of land and buildings in the zone change area:	
Reason for this request:	

Zoning Appeal Application

Are you an aggrieved party?	
Permit or Violation Number:	
State your reason for appealing the decision of the administrator or enforcement officer:	

Variance Application

Please state the paticular hardship* or unnecessary difficulty that prompts this application and the site the section of the zoning regulations that you are seeking relief from:

Subdivision Application

Number of lots to be created:

Area of each lot in square feet:

Street frontage of each of the new lots in feet:

Lot Combination Application

Addresses of lots to be combined

Map/Block/Lot for each property to be combined:

Liquor Permit Application

Please upload a copy of your State of CT Liquor Permit below.

Sign Permit Application

1. Is this sign proposed outside of the building line?

Maximum extention from building line:

2. Is this sign proposed outside of the street line?

Maximum extension from the Street line

3. Is the sign luminated?

4. Engineer Name (if any):

Phone:	
Address:	
5. Minimum distance from lowest point to the sidewalk:	
6. Maximum height of sign from lowest point of established grade:	
7. Distance from the nearest outdoor sign:	
8. Square feet of surface for one face of the sign:	
9. Wording of the sign (include all words):	
Description of work (upload additional files if necessary)	
Upload any supporting materials below.	165 Brainard Road Special Permit Narrative.06 (Final10.4.22)(INSA CT, LLC).pdf Stormwater Management Report 10042022.pdf 22054.00 INSA Hartford Brainard Road- Complete Plan Set.pdf

Signatures

Signature of Applicant	 Link to signature
Printed Name of Applicant:	**Peter Gallagher**
Date:	**10/04/2022**
	If you are not the property owner, you must attach a Letter of Authorization from the property owner to apply.
Letter of Authorization from Property Owner	165 Brainard Road (DM Realty Partners LLC) - Consent to Zoning Applications_ (Executed).PDF
Date:	**10/04/2022**

DM Realty Partners, LLC
165 Brainard Road
Hartford, CT

October 3, 2022

Hartford Planning and Zoning Commission
260 Constitution Plaza
Hartford, CT 06103

Re: 165 Brainard Road, Hartford, CT

To Whom it May Concern:

DM Realty Partners, LLC ("**Owner**") is the owner of the property located at 165 Brainard Road (the "**Property**"). Owner and INSA CT, LLC ("**Buyer**") are parties to a purchase and sale agreement ("**PSA**") pursuant to which Owner has agreed to sell the Property to Buyer.

Pursuant to said PSA and this Consent and Authorization, Buyer has the full right, power and authority to seek on behalf of itself, its nominees and the undersigned, any and all permits, approvals, consents, authorizations and other permission and to file and/or defend any and all appeals thereon solely with respect to its applications for special permit, site plan and inland wetlands and watercourses permits (collectively, the "**Applications**") which it deems appropriate in connection with the development and operation of cannabis facilities and associated improvements on the Property. This Consent and Authorization shall be deemed for all purposes as a grant of such right, power and authority and as the signature of Owner on and with respect to any such permits, approvals, consents, authorizations and other permission being sought as well as any appeals thereon with respect to the Applications. You (including, without limitation, the City of Hartford, the State of Connecticut, and its and their permitting and land use authorities such as the Planning and Zoning Commission, Wetlands Commission, State Traffic Commission and Department of Transportation) may rely upon this Consent and Authorization. This Consent and Authorization shall also serve to grant a license to any such agency or party to enter upon the Property with the prior consent of Buyer in connection with the Applications.

It is noted that a portion of Buyer's affiliate, Insa CT Retail I, LLC, proposed project at 167 Brainard Road, Hartford, CT, for which applications have been or will be filed, extends onto the Property. This Consent and Authorization extends to and grants all rights and powers above set forth to Insa Retail I, LLC with respect to its pursuit of permits, approvals, consents, authorizations and other permissions to the extent the same touch and concern the Property.

Very truly yours,

DM Realty Partners, LLC

By: _____
Dennis J. Longo
Its Member
Duly Authorized

Attachment to Special Permit and Site Plan Application of INSA CT, LLC

I. INTRODUCTION & APPLICANT BACKROUND

Pursuant to the City of Hartford Zoning Regulations (the "Regulations"), INSA CT, LLC (hereinafter the "Applicant" or "Company") respectfully requests special permit and site plan approval from the City of Hartford, Planning and Zoning Commission (the "Commission") for the following cannabis uses, as set forth in the Regulations, to be located at 165 Brainard Road, Hartford, Connecticut (the "Property"): Cultivator, Product Manufacturer, Food and Beverage Manufacturer, and Product Packager. The Property is located in the Industrial-1 (ID-1) Zoning District, a district designated by the City of Hartford as an area where cannabis uses may be permitted by special permit. We note that INSA CT, LLC and INSA CT Retail I, LLC have entered purchase and sale agreements with the current owners of the Property and 167 Brainard Road, Hartford, CT ("167 Brainard Road"), respectively. Following the issuance of necessary approvals for the proposed cannabis uses, the Property and 167 Brainard Road will be acquired by the Applicant and its affiliate, INSA CT Retail I, LLC respectively and consolidated into a single lot. Submitted herewith is an application consent letter from the current owner of the Property.

In August 2022, the Connecticut Department of Consumer Protection (the "Department") issued a provisional disproportionately impacted area cultivator license to INSA CT, LLC, pursuant to Section 149 of Public Act No. 21-1. A copy of the provisional cultivator license (the "Provisional License") is submitted herewith. The Provisional License grants preliminary approval from the Department for the Applicant to conduct all cannabis uses requested in this application in the State of Connecticut and authorizes the Applicant to establish a new Equity Joint Venture for a Hybrid Retailer license pursuant to Section 5 of Public Act No. 22-103. A separate special permit and site plan application has been submitted simultaneously with this application for the proposed cannabis Hybrid Retailer use to be located on 167 Brainard Road and a portion of the Property.

The Applicant is part of the Insa family of cannabis companies. Insa is a vertically integrated medical and adult-use cannabis company operating in multiple states with experience in retail, cultivating, manufacturing, and dispensing high quality medical and adult use cannabis products. Insa's headquarters is in Chicopee, Massachusetts, approximately 30 miles north of the Property.

Insa has experience developing and operating cannabis retail, cultivation, and manufacturing facilities in multiple states. Insa's operations in Massachusetts, Florida and Pennsylvania utilize some of the most advanced technology in cannabis cultivation and manufacturing. These advanced cultivation methods include automated irrigation systems, vertically stacked growing benches, light-emitting diode lighting, advanced building control systems, carbon and high-efficiency particulate air filtration, and de-ionization systems. Insa has designed their facilities in order to maintain a sterile and controlled environment to prevent pests and disease and promote plant health without disruption to the community. Insa has used this wealth of experience and knowledge to develop the facility design and operating procedures included in this application.

Insa currently operates dispensaries in Massachusetts and Florida and is in the process of opening its first store in Ohio. Its operations also include state-of-the-art indoor cultivation and product manufacturing facilities in Massachusetts, Pennsylvania, and Florida. Insa first began cultivating

medical cannabis in Easthampton, Massachusetts in July 2017 with its first medical cannabis dispensary opening in January of 2018.

II. PROPERTY

Applicant respectfully submits that the application, including the proposed redevelopment and use of the Property, meets all applicable standards of the Regulations, and will ensure the safe and effective cultivation, manufacturing and packaging, of cannabis without any material impact on the surrounding area.

The Property is located adjacent to Exit 27 on I-91. The Property is currently owned by DM Realty Partners LLC and currently houses a restaurant. The Applicant is under contract to purchase the Property. As set forth above the Applicant, will consolidate the Property with 167 Brainard Road and this is reflected in the materials submitted to the Commission.

III. RENOVATIONS, ACCESS, AND LOGISTICS

Applicant has developed its conceptual design for its proposed facilities to ensure the safe and effective cultivation, production, and manufacturing of cannabis. Applicant plans to renovate the existing building at the Property to consist of approximately 27,575 SF of production area, office, and support services, and to construct a state-of-the-art single-story addition of approximately 55,866 SF of cultivation space.

In the cultivation facility, propagation, cloning, and vegetative growth will be staggered such that the facility's flowering rooms will bloom in sequence allowing for continuous harvesting, trimming, and processing activities to take place in the facility.

There are two vehicular access driveways located in front and on each side of the Property. The driveways front Brainard Road and are adjacent to I-91 Exit 27. It is expected that the majority of the vehicular traffic will enter the property from the I-91 into the adjacent driveway on the north side of the Property. Following consolidation of the Property and 167 Brainard Road, the site will contain 197 parking spaces, a reduction from the existing 366 parking spaces. It is expected the majority of the vehicles will exit the driveway on the south side of the Property and progress to the I-91 ramp. Due to the proximity of the I-91 ramp and relatively similar traffic volume to the existing conditions, operations are not expected to have any material impact on traffic in the surrounding area.

The amount of existing impervious surface on the consolidated site will be reduced, and additional landscaping will be installed.

IV. SECURITY

Applicant shall ensure that all security, video monitoring, detection, and access and control methods will follow applicable state laws and regulations. Applicant shall have a director of security as its safety officer responsible for ensuring the safety of its employees and authorized

visitors and acting as the primary point of contact between the Applicant and law enforcement agencies. The Property will house a staffed Security Office.

(a) Limited Access Areas

Access to areas of the facility designated as limited access areas will be restricted with traceable keycards. The Company will issue a visitor identification badge to any outside vendors, contractors, or visitors as required by applicable regulations before they are granted access to any limited access area.

(b) Security System and Alarms

Applicant typically uses two operating security systems (primary and secondary).

The primary alarm system controls all building access control points and is the main alarm reporting system. The system reports to a constantly monitored central station. The secondary "back-up" alarm system provides all the functions of the primary system and will report to a constantly monitored central station. These surveillance systems will be made accessible to local law enforcement if requested. The facility's security system includes a perimeter alarm on all building entry and exit points and perimeter windows, glass break detectors, and motion detection.

(c) **Fire Alarm System**

The Company's fire alarm system consists of smoke detection as well as heat sensors. A knox box will also be provided, in accordance with Hartford Fire Department requirements.

(d) **Visual Surveillance Systems**

The Company's video surveillance system provides complete video coverage of all limited access areas, areas that contain or may contain cannabis and cannabis products, all points of entry and exit, and the parking lot servicing the Company's facility. Infrared illumination is used in all low light areas. Recording of all areas is continuous and includes a timestamp that is accurate to current date and time of all video footage and has the ability to immediately create screen shots of footage. Records will be retained as required by applicable regulations.

(e) System Installation

The vendors used for installation of the security systems will be established companies with extensive knowledge and experience in the installation of large commercial alarm, video, and access systems. All security equipment will be maintained in good working order and shall be inspected and tested in regular intervals.

(f) Cash Handling

The Company typically utilizes, a third-party armored transport provider that is appropriately licensed for cash transportation and employs appropriate cash handling procedures which will be compliant with applicable Connecticut law.

(g) Cannabis Transportation

The loading and unloading of cannabis and cannabis materials will occur in the Company's shipping and receiving area. All vehicles used for the transportation will be discrete and contain no markings indicating they are transporting cannabis.

(h) Exterior

All exterior areas of the facility will be well lit and free of obstructions activity to enable proper surveillance. This includes ensuring that trees, bushes, and other foliage surrounding the facility will be minimized and properly maintained. The Company's security department will monitor all exterior areas of the facility to ensure that there is no loitering by any individuals permitted around the facility.

(i) Lighting

Ample lighting will be always maintained withing the building as well as exterior, downward facing, overnight lighting.

(j) Backup Power

The facility will be equipped with a back-up generator capable of supplying power to maintain operation of all security systems and facility operations following a power outage.

V. ODOR CONTOL AND AIR QUALITY

The Company has developed a comprehensive odor mitigation and air quality strategy for each area of its operations. The Company will employ odor, virus, bacteria, and mold mitigation/air purification systems. These systems are currently employed at the Company's facilities in Massachusetts, Florida, and Pennsylvania. To date, the Company has received no odor or contamination complaints from neighbors at those facilities. Odor and bacteria mitigation systems at the proposed sites will include closed loop HVAC with ionization, carbon filters/scrubbers, high efficiency air conditioning and heating split systems, and negative pressure systems among other installations.

(a) Odor Mitigation

Every day the facility manager or their designee will evaluate on-site odors and operations for potential release of offensive odors. If questionable or offensive odors are detected, the company will implement the following protocols:

- Investigate and determine the likely source of the odor;
- Assess the filtration system and inspect/change filters; and
- Ensure that the exhaust fans are functioning properly, and the facility is under negative pressure.

To reduce airborne emissions of odors, the company will utilize carbon filtration systems throughout the facility. All rooms with plant material will be maintained at a negative pressure to ensure air does not escape the room and is moved through carbon filters. Regular pad and filter cleaning and maintenance is required. This will decrease the accumulation of any odor causing build up. Additionally, exhaust air may be treated with a natural organic odor neutralizer, if necessary. The Company will also keep all cannabis in sealed bags whenever possible.

(b) Operational Odor Mitigation

Curing, trimming, and grinding cannabis material are processes that generate the majority of the odor produced by cultivating and processing cannabis. To minimize the potential impact of this odor the Company implements a number of processes to reduce the odor associated with these activities.

- **Handling:** Cannabis material is handled as minimally as possible to preserve the terpene profile of the plant and to ensure that cannabinoids degrade as little as possible. By minimizing handling, odor is reduced as much as possible. Necessary handling is carried out only in areas that are equipped with appropriate odor mitigation equipment.

- **Curing**: Cure rooms in the proposed facility will be equipped with carbon filters and appropriate ventilation to mitigate any odor or air quality issues that may arise. The lights in cure rooms are kept off to prevent the deterioration of cannabinoids and terpenes due to light exposure and as such, staff are not frequently occupying these areas.

- **Storage:** Cannabis is stored in vacuum sealed bags during storage, and finished goods are stored in their final packaging.

- **Processing:** Processing areas of the facility are equipped with HEPA air filtration devices, and 'nuisance masks' are available to employees with sensitivities to particulates in the air from grinding or trimming activities.

(c) Physical Measures

The Company's facility is designed to minimize odors using a number of devices including carbon air filters, wall and ceiling mounted fans, and air filtration units.

- **Negative Air Pressure:** The facility will be designed such that cultivation and drying/curing rooms are maintained under negative air pressure. Air from those rooms will be channeled through a carbon filter using an exhaust fan to mitigate cannabis odors.

- **Air Exchange and Exhaust:** The facility will utilize two (2) wall-mounted can fans and ceiling mounted fans. In each room, fans are carefully placed to create an even, consistent airflow throughout each room. Consistent airflow allows optimal function of the carbon filters in odorous areas of the facility.

- **Air Filtration:** The Company's facility will incorporate the use of air filtration units which utilize high-efficiency particulate air filters to purify the air in cultivation rooms. The system is engineered to capture the various airborne threats to large indoor grow facilities. Mold and fungi spores, bacteria, pollen, pests, insects. Volatile organic compounds and odors are captured through a series of industry proven filtration technologies. The system is designed to trap 99.97% of all particulate larger than 0.3 microns. These units will be installed in every cultivation room including drying/curing rooms.

- **Doors and Windows:** In order to minimize any potential odor from facility operation, the facility's doors and windows will be airtight and no windows in the facility will be constructed in a way that allows them to be opened. Any broken windows, gaps, or cracks in the facility's exterior will be repaired immediately upon their discovery. Any activities requiring an exterior door to be opened will be minimized to prevent odor escaping the facility.

VI. SAFE WASTE HANDLING

The Company's processing methods allow the majority of cannabis biomass grown on site to be used to create products. Unusable parts of the plant will be disposed of according to all applicable state and local regulations.

(a) Cannabis Waste Processing

In order to ensure the health and safety of its employees, customers, and the general publict, the Company shall dispose of undesired, excess, unauthorized, obsolete, adulterated, misbranded or deteriorated cannabis in a form and manner prescribed by the commissioner, which may include a surrender without compensation of such cannabis to the commissioner, or disposal in the presence of an authorized representative of the commissioner in such a manner as to render the cannabis non-recoverable.

The employee disposing of the cannabis shall maintain and produce in accordance with section 21a-421j-6 of the Regulations of Connecticut State Agencies, a separate record of each such disposal indicating: (1) The date and time of disposal; (2) The reason for and manner of disposal; (3) The type and quantity of cannabis disposed of; and (4) The name and signature, which signature may be electronic, of the person disposing of the cannabis, the authorized representative of the commissioner and any other persons present during the disposal, as applicable.

Any compostable mixed waste will ultimately be disposed of in a mixed waste facility equipped with an anaerobic digester or similar facility, or a non-compostable facility such as a landfill or incinerator. Any non-compostable mixed waste will be disposed of in a landfill, incinerator, or other facility.

There are four sources of waste that are processed by Cultivation Department staff:

- **Non-usable cannabis waste** – Stalks, stems, fan leaves, and root balls

- **Wastewater** – Water runoff from the plant rich in nutrients (particularly nitrogen and phosphorus)

- **Usable cannabis waste** – Sweet leaf and flower that does not meet the Company's quality standards. This includes any products in the Company's inventory that have been identified as outdated, damaged, deteriorated, misbranded, or adulterated

- **Solid waste** – Packaging (plastic/cardboard), general waste, and used PPE (such as hairnets, beard-nets, and nitrile gloves)

Usable cannabis waste will be ground using the sewage grinder and mixed with ground solid waste until it is unusable and unrecognizable. The proportion of solid waste/non-usable cannabis waste to usable cannabis waste will be 50%-50%. The processed waste will then be transferred to a locked dumpster in a secure, fenced area.

The plumbing system will be designed to collect the liquid waste (or water runoff) from the cultivation facility separately from the general liquid waste from the facility (e.g., bathrooms, sinks, etc.). Wastewater, including condensate from the HVAC, dehumidification water, excess runoff, and other wastewater will be reclaimed, sanitized with ozone, and filtered. The reclaimed water will then be re-used in the cultivation process thereby reducing water consumption by up to 75%.

Disposal of organic, hazardous, and chemical waste will be conducted in a manner consistent with federal, state, and local laws, and in accordance with regulations promulgated in 410 ILCS 705 and 8 IAC 1300.

Liquid waste will be disposed of in compliance with requirements for discharge into surface water, groundwater, and sewers, or may be processed in an industrial wastewater holding tank for subsequent disposal.

VII. REQUESTED FINDINGS

The Applicant respectfully requests that, based on the application, supporting materials and evidence provided during the public hearing process, the Commission find that this application complies with all applicable standards of the Regulations. The Applicant further requests that the Commission find that the application complies with the special permit criteria set forth in §1.3.4(D)(2) of the Regulations as follows:

(a) Is in harmony with the plan of conservation and development;

(b) Complies with all applicable sections of the Regulations pertaining to the district in which the proposal is located

(c) Comports with the purposes of the district in which the proposal is located;

(d) Will not be detrimental to existing development in the district because of its location, bulk, scale, or design;

(e) Does not create safety hazards in the proposed vehicular and pedestrian circulation pattern;

(f) Will not seriously degrade traffic levels of service without providing adequate mitigation measures

(g) Is compatible with adjacent properties

(h) Provides for the suitable arrangement of buildings, open space, and provision of light and air;

(i) Properly provides for adequate provision of essential services;

(j) Will not be detrimental to the control of stormwater at its source and the minimization of runoff;

(k) Does not place excessive demands on City services and infrastructure;

(l) Provides landscaping, including vegetation and trees, that are appropriate to the district and enhance the public realm;

(m) Provides pedestrian amenities; and

(n) Conforms fully with the code.

INSA HARTFORD FACILITY

CITY OF HARTFORD PLANNING AND ZONING COMMISSION SUBMISSION
OCTOBER 4, 2022

APPLICANT:

165 BRAINARD ROAD
INSA CT, LLC
35 CENTER STREET
CHICOPEE, MA 01013

167 BRAINARD ROAD
INSA CT RETAIL, LLC
35 CENTER STREET
CHICOPEE, MA 01013

OWNER:

165 BRAINARD ROAD
DM REALTY PARTNERS, LLC
165 BRAINARD ROAD
HARTFORD, CT 06114

167 BRAINARD ROAD
167 BRAINARD ROAD, LLC
160 BRAINARD ROAD
HARTFORD, CT 06114

CIVIL ENGINEER:

PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
14 BOBALA ROAD, SUITE 2B
HOLYOKE, MA 01040
413-507-3448

ARCHITECT:

RT ARCHITECTURE, LLC
245 SHEA AVENUE
BELCHERTOWN, MA 01007

SURVEYOR:

FLYNN & CYR LAND SURVEYING, LLC
1204 FARMINGTON AVENUE
BERLIN, CT 06037

LANDSCAPE ARCHITECT:

LRC GROUP
160 WEST STREET, SUITE E
CROMWELL, CT 06416

LAND USE ATTORNEY:

MACDERMID REYNOLDS
& GLISSMAN, P.C.
86 FARMINGTON AVENUE
HARTFORD, CT 06105

165-167 Brainard Road
Hartford, CT

Scale : N.T.S.

LOCUS PLAN

PARKING TABLE

	165 BRAINARD ROAD	167 BRAINARD ROAD	165-167 BRAINARD ROAD**	
	EXISTING	EXISTING	REQUIRED	PROVIDED
STANDARD SPACES	354	18	112	188
ACCESSIBLE SPACES*	12	2	5	9
TOTAL SPACES	366	20	117	197

* ADA REQUIREMENT FOR PARKING LOT
** SITE PLAN AND SPECIAL PERMIT APPLICATION ASSUMES THE TWO (2) PARCELS: 165 & 167 BRAINARD ROAD WILL BE COMBINED INTO ONE (1) PARCEL.

INDEX OF DRAWINGS

ZONING TABLE

	165 BRAINARD ROAD	167 BRAINARD ROAD	165-167 BRAINARD ROAD[1]	
EXISTING ZONING: INDUSTRIAL (ID-1)				
LOT/SUBDIVISION AREA 165 BRAINARD ROAD = 246,315.111 SF (5,65 ACRES) - EXISTING 167 BRAINARD ROAD = 17,473.000 SF (0.40 ACRES) - EXISTING 165-167 BRAINARD ROAD = 263,788.111 SF (6.05 ACRES) - PROPOSED				
BUILDING FOOTPRINT 165 BRAINARD ROAD = 27,575.4 SF (EXISTING) 167 BRAINARD ROAD = 3,188.88 SF (EXISTING) 165-167 BRAINARD ROAD = 94,141.9 SF (PROPOSED)				
	EXISTING (RESTAURANT)	EXISTING (RETAIL)	REQUIRED (ID-1, WORKSHOP/WAREHOUSE)	PROPOSED (CANNABIS CULTIVATION/RETAIL)
BUILDING SITING				
MULTIPLE PRINCIPLE BUILDINGS	PERMITTED	PERMITTED	PERMITTED	2
FRONT LINE COVERAGE	89.4%	48%	NONE REQUIRED	48%
OCCUPATION OF CORNER	N/A	N/A	NOT REQUIRED	N/A
FRONT BUILD-TO-ZONE	301.1 FT	30 FT	MIN. 15 FT SETBACK FROM FRONT LOT LINE	30 FT
CORNER BUILD-TO-ZONE	N/A	N/A	MIN. 15 FT FROM CORNER SIDE LOT LINE	N/A
MIN. SIDE SETBACK	57.7 FT	0 FT	NONE; EXCEPT 30 FT FROM ADJACENT RESIDENTIAL USE	38 FT
MIN. REAR SETBACK	142.9 FT	27 FT	5 FT	142.9 FT
MIN. LOT WIDTH MAX. BUILDING WIDTH	335 FT N/A	192 FT N/A	60 FT NONE	335 FT N/A
MAX. BUILDING COVERAGE MAX. IMPERVIOUS AREA ADDT'L SEMI-PERVIOUS AREA	11.2% 81.6% 0%	18% 93% 0%	60% 80% 10%	36% 76% 1%
PERMITTED PARKING AND LOADING LOCATIONS	REAR & SIDEYARD	FRONT & SIDEYARD	PREFERRED IN REAR & SIDEYARD	REAR & SIDEYARD
PERMITTED VEHICULAR ACCESS	2	0[3]	ONE DRIVEWAY PER STREET FRONTAGE	2
HEIGHT				
MIN. OVERALL HEIGHT	1 STORY	1 STORY	1 STORY	1 STORY
MAX. OVERALL HEIGHT	1 STORY	1 STORY	NO MAX	1 STORY
GROUND STORY MAX. HEIGHT MIN. HEIGHT	25.7 FT 25.7 FT	20.21 FT 20.21 FT	12 FT 30 FT	16 FT 24 FT
UPPER STORY MAX. HEIGHT MIN. HEIGHT	N/A N/A	N/A N/A	9 FT 16 FT	N/A N/A
USES				
GROUND STORY	RESTAURANT	RETAIL (LIGHTING)	ANY USE PERMITTED BY ID-1	CANNABIS CULTIVATION/RETAIL
UPPER STORY	N/A	N/A	ANY USE PERMITTED BY ID-1	N/A
PARKING WITHIN BUILDING	0	0	UNLIMITED	0
GARAGE ENTRANCE/ SERVICE BAY LOCATION	0	0	UNLIMITED; PREFERRED ON REAR AND/OR SIDE FACADES	2[2], SIDEYARD
REQUIRED OCCUPIED SPACE	N/A	N/A	NOT REQUIRED	N/A
STREET FACADE REQUIREMENTS				
MIN. TRANSPARENCY PER EACH STORY	0	0	NOT REQUIRED; 15 % PREFERRED	0
BLANK WALL LIMITATIONS	N/A	N/A	NOT REQUIRED	N/A
FRONT FACADE ENTRANCE TYPE REFER TO 4.19.1 ENTRANCE TYPES	N/A	STOREFRONT	NONE REQUIRED	STOREFRONT
PRINCIPLE ENTRANCE LOCATION	REAR	FRONT	NO REQUIREMENT	FRONT (RETAIL) REAR/SIDE (CULTIVATION)
REQUIRED NUMBER OF STREET ENTRANCES	0	1	NONE REQUIRED	1
GROUND STORY VERTICAL FACADE DIVISIONS	N/A	N/A	NOT REQUIRED	N/A
HORIZONTAL FACADE DIVISIONS	N/A	N/A	NOT REQUIRED	N/A
PERMITTED ROOF TYPES REFER TO 4.19.2 ROOF TYPES	FLAT, PITCHED	FLAT	NOT REQUIRED; TOWER PERMITTED	FLAT, PITCHED
SPECIAL MATERIAL REQUIREMENTS	MASONRY	MASONRY	METAL WAREHOUSE BUILDING PERMITTED	MASONRY/METAL

1 SITE PLAN AND SPECIAL PERMIT APPLICATION ASSUMES THE TWO (2) PARCELS: 165 & 167 BRAINARD ROAD WILL BE COMBINED INTO ONE (1) PARCEL.
2 ASSOCIATED WITH THE CULTIVATION FACILITY LOADING DOCKS LOCATED ON THE SOUTHWESTERN SIDE OF THE NEW PRE-FABRICATED BUILDING.
3 EXISTING VEHICULAR ACCESS TO 167 BRAINARD ROAD THROUGH EASEMENT FROM 165 BRAINARD ROAD.

PERMIT SET ONLY
-NOT FOR CONSTRUCTION

REFERENCE

1. PROJECT LOCATION:
   1.1. DM REALTY PARTNERS, LLC, 165 BRAINARD ROAD, HARTFORD, CT 06114. ASSESSORS PARCEL ID: 300-817-011.
   1.2. 167 BRAINARD ROAD, LLC, 167 BRAINARD ROAD, HARTFORD, CT 06114. ASSESSORS PARCEL ID: 317-817-004
2. 165 BRAINARD ROAD PROPERTY LINE SURVEY AND EASEMENTS TAKEN FROM ALTA LAND TITLE SURVEY (ALTA LAND TITLE SURVEY PREPARED FOR DM REALTY PARTNERS, LLC 165 BRAINARD ROAD HARTFORD, CONNECTICUT, SCALE 1"=40', DATED AUGUST 16, 2022) PERFORMED BY FLYNN & CYR LAND SURVEYING, LLC (FLYNN & CYR).
3. 167 BRAINARD ROAD PROPERTY LINE SURVEY AND EASEMENTS TAKEN FROM ALTA LAND TITLE SURVEY (ALTA LAND TITLE SURVEY PREPARED FOR INSA CT, LLC 167 BRAINARD ROAD HARTFORD, CONNECTICUT, SCALE 1"=30', DATED AUGUST 31, 2022) PERFORMED BY FLYNN & CYR.
4. EXISTING CONDITIONS MAPPING TAKEN FROM SURVEY (BOUNDARY SURVEY SHOWING EXISTING CONDITIONS PREPARED FOR INSA CT, LLC 165 BRAINARD ROAD, HARTFORD, CONNECTICUT, SCALE 1"=30', DATED SEPTEMBER 15, 2022) PERFORMED FLYNN & CYR.
5. WETLAND WATERCOURSES WERE LOCATED BY REMA ECOLOGICAL SERVICES, INC ON SEPTEMBER 13, 2022. WETLAND FLAGS WERE SURVEYED BY FLYNN & CYR ON SEPTEMBER 15, 2022.
6. HORIZONTAL DATUM IS BASED UPON THE CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD83), MAINLAND ZONE PER GPS OBSERVATIONS.
7. ELEVATIONS ARE PROVIDED BY FLYNN & CYR AND BASED UPON THE NORTH AMERICAN VERTICAL DATUM (NAVD88).
8. ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP (FIRM) MAP NO. 09003C0506G, DATED SEPTEMBER 16, 2011, THE SUBJECT PROPERTY IS NOT LOCATED WITHIN THE 100-YEAR FLOODPLAIN AND IS DESIGNATED AS ZONE X (AREA WITH REDUCED RISK DUE TO LEVEE).

GENERAL NOTES

1. THE CITY OF HARTFORD RULES AND SPECIFICATIONS REGULATING CURB AND WALK LAYERS AND STREET EXCAVATIONS ("CITY OF HARTFORD STANDARD SPECIFICATIONS), LATEST EDITION, THE METROPOLITAN DISTRICT STANDARD DETAILS MANUAL, LATEST EDITION ("MDC MANUAL") AND STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (CT DOT STANDARD SPECIFICATIONS) FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, LATEST EDITION. THE CITY OF HARTFORD AND CT DOT CONSTRUCTION STANDARD DETAILS AND MDC MANUAL ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO. ALL WORK SHALL MEET OR EXCEED THE CITY OF HARTFORD, CT DOT CONSTRUCTION STANDARD DETAILS AND SPECIFICATIONS AND MDC MANUAL, WITH LATEST REVISIONS. THE LATEST REVISIONS OF THE STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE CITY OF HARTFORD AND CT DOT WEBSITES, RESPECTIVELY.
2. THE CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH THE SAME, AND COORDINATE WITH ENGINEER AND OWNER, AS REQUIRED.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AND/OR BARRIERS AROUND ALL OPEN EXCAVATED AREAS IN ACCORDANCE WITH OSHA FEDERAL, STATE, AND LOCAL REQUIREMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED. NO FIELD ADJUSTMENTS IN THE LOCATION OF SITE ELEMENTS SHALL BE MADE WITHOUT ENGINEER'S REVIEW AND APPROVAL.
5. IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED, THE CONTRACTOR SHALL IMMEDIATELY CONTACT AND COORDINATE ANY DEVIATIONS WITH OWNER AND ENGINEER.
6. ANY AREA OUTSIDE OF THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO OWNER.
7. ALL SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT.
8. ALL SIGNS SHALL CONFORM TO THE CT DOT STANDARD SPECIFICATIONS, LATEST REVISION AND BE RETROREFLECTIVE ALUMINUM SHEETING, TYPE IV OR IX.
9. ALL UTILITIES (LOCATION AND ELEVATION) DEPICTED SHALL BE CONSIDERED APPROXIMATE ONLY. BEFORE COMMENCING SITE WORK IN ANY AREA, CONTACT "CALL BEFORE YOU DIG CONNECTICUT" AT 1-800-922-4455 TO ACCURATELY LOCATE UNDERGROUND UTILITIES. ALL DAMAGE TO EXISTING UTILITIES OR STRUCTURES, AND THE COST TO REPAIR THE DAMAGES TO INITIAL CONDITIONS, AS SHOWN ON THE PLANS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
10. NO EXCAVATION SHALL BE DONE UNTIL COMPANIES ARE PROPERLY NOTIFIED IN ADVANCE. NOTE THAT NOT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL RESPECTIVE UTILITY COMPANIES TO VERIFY AND LOCATE EXISTING UTILITIES.

REQUESTED WAIVERS FROM ZONING ORDINANCES

1. TWO (2) VEHICULAR ACCESS DRIVEWAYS EXIST ALONG BRAINARD ROAD ON EITHER SIDE OF THE 165 BRAINARD ROAD STREET LOT LINE. ZONING REQUIREMENTS FOR WORKSHOP/WAREHOUSE BUILDINGS IN INDUSTRIAL-1 ZONE ALLOWS ONE (1) VEHICULAR ACCESS DRIVE PER STREET FRONTAGE.

LAYOUT NOTES

1. ALL LINES ARE PERPENDICULAR OR PARALLEL TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.
2. ACCESSIBLE RAMPS SHALL BE PER THE AMERICAN WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES.
3. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL PERFORM BENCHMARK FIELD LEVEL VERIFICATION AND COORDINATE LAYOUT CHECK. THE CONTRACTOR SHALL CONTACT ENGINEER IF ANY DISCREPANCIES ARE FOUND.
4. DIMENSIONS OF DRIVEWAYS ARE FROM FACE OF CURB TO FACE OF CURB. THE WIDTH OF A PARKING SPACE SHALL BE MEASURED FROM THE CENTER OF A STRIPE. DIMENSIONS FROM BUILDING ARE FROM FACE OF BUILDING TO FACE OF CURB.
5. ALIGN WALKWAYS ON DOORWAYS THEY SERVE TO PROVIDE MINIMUM REQUIRED MANEUVERING CLEARANCE IN ACCORDANCE WITH THE AMERICAN WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES.

DEMOLITION NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL DEMOLITION OF STRUCTURES, PAVEMENT AND CONCRETE MATERIALS, AND UTILITIES WITH APPROPRIATE PROPOSED SITE PLAN, STORMWATER MANAGEMENT, AND LANDSCAPING DRAWINGS.
2. ALL NOTED UTILITIES TO BE REMOVED AND DISPOSED OF, RELOCATED OR CAPPED REPRESENT ALL KNOWN SITE CONDITIONS TO BE DEMOLISHED. THE CONTRACTOR SHALL COORDINATE ALL UNFORESEEN CONDITIONS WITH PARE, INSA AND/OR RESPECTIVE UTILITY COMPANIES PRIOR TO PROCEEDING WITH WORK.
3. IT IS OUR UNDERSTANDING THAT WATER, SEWER, GAS, AND OTHER SITE UTILITIES EXIST ON THE PROPERTY AND CONNECT TO MAINS LOCATED ON BRAINARD ROAD.
4. EXISTING SEWER SERVICE SHALL BE REPLACED WITH A NEW 6-INCH DIAMETER PVC SEWER PIPE. EXISTING SEWER PIPE THAT REMAINS SHALL BE FILLED AND ABANDONED USING GROUT, SAND OR FLOWABLE FILL. EXISTING CONNECTION TO TEH MAIN SHALL BE PLUGGED, SEALED AND ABANDONED AS REQUIRED.
5. THERE SHALL BE NO INTERRUPTION OF UTILITY SERVICES DURING THE CONSTRUCTION OPERATION WITHOUT APPROVAL FROM OWNER OR OTHER AUTHORITIES HAVING JURISDICTION.

PARKING AND LOADING NOTES

1. EACH PARKING SPACE MUST HAVE A VERTICAL CLEARANCE OF AT LEAST 7 FEET.
2. PARKING FOR INDUSTRIAL ZONE AND FOR WAREHOUSE TYPE BUILDINGS SHALL BE PREFERRED ON SIDE OR REARYARD.
3. ALL PARKING AND DRIVEWAY OR SIDEWALK ACCESS SHALL MEET THE REQUIREMENTS OF THE CONNECTICUT ACCESSIBILITY CODE.
4. ALL PARKING AREAS SHALL MEET THE REQUIREMENTS OF SECTION 6.0 SITEWORK AND LANDSCAPE PER ZONING ORDINANCE.
5. ALL PARKING AREAS SHALL BE CONSTRUCTED USING ASPHALT, CONCRETE, PAVERS, OR OTHER SEMI-PERVIOUS SURFACES MEETING ONE OF THE FOLLOWING:
   5.1. PAVING MATERIALS WITH A SOLAR REFLECTANCE INDEX (SRI) OF AT LEAST 29.
   5.2. PERVIOUS PAVEMENT MATERIAL, SUCH AS PERMEABLE ASPHALT, PERMEABLE CONCRETE OR PERMEABLE PAVERS.
   5.3. RECYCLE CONTENT OF 15 PERCENT OR MORE.
6. ALL PARKING LOTS WITH 2 OR MORE DOUBLE-LOADED AISLES SHALL PROVIDE INTERNAL PEDESTRIAN PATHWAY(S) WITHIN THE PARKING AREA AND OUTSIDE OF THE PARKING DRIVE AISLE. DESIGN OF THE PARKING LOT PEDESTRIAN PATHWAYS SHALL CONFORM TO THE HARTFORD ZONING REQUIREMENTS OF SECTION 7.3.2.
7. LOADING FACILITIES SHALL BE PROVIDED FOR USES IN INDUSTRIAL ZONE IN COMPLIANCE WITH SECTION 7.4.2 OF THE HARTFORD ZONING ORDINANCE.

GRADING AND UTILITY NOTES

1. ALL WORK PERFORMED AND ALL MATERIALS FURNISHED SHALL CONFORM WITH THE LINES AND GRADES ON THE PLANS AND SITE WORK SPECIFICATIONS.
2. PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MIN. OF 1/8" PER FOOT UNLESS SPECIFIED.
3. THE PROPOSED WALKWAYS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2% AND A MAXIMUM RUNNING SLOPE OF 5% AS SHOWN ON THE CONSTRUCTION DETAILS AND GRADING PLAN.
4. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUT NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT AND CURBS SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS.
5. ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE SURROUNDING SURFACE OR PAVEMENT FINISH GRADE. RIM ELEVATIONS OF STRUCTURES AND MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH AND CONSISTENT WITH THE GRADING PLANS.
6. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION OF PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED.
7. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION SHALL BE PROVIDED ON A SKETCH TO SCALE OF THE EXISTING UTILITY WITH TIES TO KNOWN POINTS, PHOTOS AND FURNISHED TO ENGINEER FOR RESOLUTION.
8. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. THE CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS SHALL BE RESTORED TO ORIGINAL CONDITION AT NO COST TO OWNER.
9. GAS, ELECTRIC, SEWER, WATER AND COMMUNICATIONS ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY APPROPRIATE PUBLIC UTILITY COMPANIES AND THE RESPECTIVE CITY DEPARTMENTS.
10. DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES BY PROVIDING TEMPORARY SUPPORTS OR SHEETING AS REQUIRED AT NO ADDITIONAL COST TO OWNER.
11. NEW OR RELOCATED CONNECTIONS FOR NEW SEWER SERVICE TO THE SEWER MAIN SHALL BE MADE AT AT 5-FT MINIMUM DISTANCE AWAY FROM EXISTING SEWER SERVICE CONNECTIONS.
12. ALL GRAVITY SANITARY PIPING SHALL BE SDR-35 PVC. ALL SEWER CONSTRUCTION SHALL CONFORM TO THE MDC MANUAL.
13. WATER SERVICE SHALL BE TYPE K COPPER AND MEET THE MDC MANUAL SPECIFICATIONS.
14. ALL WATER LINE BENDS AND TEES SHALL BE REINFORCED WITH EITHER THRUST RESTRAINTS OR THRUST BLOCKS.
15. FIRE HYDRANTS SHALL BE SET A DISTANCE OF 2-FT +/- FROM FACE OF CURB. INSTALL 6-INCH WIDE UNDERGROUND WARNING TAPE (NON-DETECTABLE 2-FT ABOVE LENGTH OF HYDRANT BRANCH.
16. SEWER UTILITY CROSSINGS ARE TO GIVE A MINIMUM OF AN 18" CLEARANCE ON ALL SIDES OF THE WATER UTILITY.

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THE CONNECTICUT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (CT NPDES) GENERAL PERMIT (GP) FOR DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES AND THE CONTRACT DOCUMENTS.
2. A STORMWATER POLLUTION CONTROL PLAN (PLAN) SHALL BE DEVELOPED AND MAINTAINED ONSITE FOR THE DURATION OF THE CONTRACT. THE PLAN SHALL BE PREPARED IN ACCORDANCE WITH SOUND ENGINEERING PRACTICES AND SHALL BE CONSISTENT WITH THE GUIDELINES AND THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL.
3. THE CONTRACTOR SHALL PREPARE AND SUBMIT AN ELECTRONIC NOTICE OF INTENT (eNOI) WITH THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION (CT DEEP) IN ACCORDANCE WITH THE NPDES GENERAL PERMIT REQUIREMENTS PRIOR TO CONSTRUCTION.
4. SOIL EROSION AND SEDIMENTATION CONTROLS SHALL BE PROVIDED IN ACCORDANCE WITH THE "2004 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", THE PROJECT PLAN AND THE NOTES AND DETAILS SHOWN IN THIS PLAN SET.
5. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON SHEETS 6.1-6.3 ARE INTENDED TO REPRESENT THE MINIMUM CONTROLS NECESSARY TO MEET ANTICIPATED SITE CONDITIONS. ADDITIONAL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY PARE OR INSA.
6. THE LIMITS OF CONSTRUCTION WILL BE FLAGGED PRIOR TO THE PRE-CONSTRUCTION MEETING.
7. REQUIRED PERIMETER CONTROL AND TREE PROTECTION DEVICES SHALL BE PROPERLY ESTABLISHED, CLEARLY VISIBLE AND IN OPERATION PRIOR TO INITIATING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK. SUCH FACILITIES SHALL REPRESENT THE LIMIT OF WORK. WORKERS SHALL BE INFORMED THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
8. AS FEASIBLE, CONSTRUCTION SHALL BE PHASED TO LIMIT THE AREA OF EXPOSED SOIL AND THE DURATION OF EXPOSURE. ALL DISTURBED AREAS SHALL BE TEMPORARILY AND/OR PERMANENTLY STABILIZED WITHIN 14 DAYS FOLLOWING COMPLETION OF GRADING ACTIVITIES.
9. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A WEEKLY BASIS AND AFTER EACH STORM EVENT OF 0.5 INCH OR GREATER DURING CONSTRUCTION TO ENSURE THAT THE EROSION CONTROL BARRIERS ARE INTACT.
10. THE CONTRACTOR SHALL MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CLEAN AND MAINTAIN SEDIMENTATION CONTROL BARRIERS WHEN SEDIMENT ACCUMULATES TO ONE HALF THE HEIGHT OF THE BARRIER. MATERIAL COLLECTED FROM THE SEDIMENTATION BARRIER SHALL BE REMOVED AS NECESSARY AND DISPOSED IN AN UPLAND AREA.
11. THE CONTRACTOR SHALL MAINTAIN A SUFFICIENT RESERVE OF SILT FENCE AND HAYBALES ONSITE AT ALL TIMES FOR EMERGENCY PURPOSES OR ROUTINE MAINTENANCE.
12. THE CONTRACTOR SHALL SCHEDULE HIS WORK TO ALLOW THE FINISHED SUB GRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE, AS REQUIRED, TO STABILIZED DISCHARGE POINTS.
13. SOIL AND OTHER MATERIALS RESULTING FROM SITE CLEARING MAY BE RECYCLED AND/OR REUSED ON THE SITE AS APPROPRIATE. CONTAMINATED SOILS, AS DESIGNATED BY THE ENGINEER, MUST BE MANAGED ON-SITE BELOW THE CLEAN SOIL CAP OR MANAGED OFF-SITE AT A PROPERLY PERMITTED FACILITY. WASTE MATERIALS SHALL BE REMOVED FROM THE SITE.
14. CRUSHED STONE CONSTRUCTION ENTRANCES SHALL BE ESTABLISHED AT ALL POINTS OF INGRESS AND EGRESS.
15. TEMPORARY DIVERSIONS (TD) MAY CONSIST OF A DITCH OR SWALE, CONSTRUCTED AT A MINIMUM HEIGHT OF 18-INCHES FROM THE BOTTOM OF THE CHANNEL TO THE TOP OF THE BERM. SIDE SLOPES AT 3:1 INSIDE AND 1:1 OUTSIDE. THE TOP WIDTH OF THE BERM SHALL BE 1 FOOT.
16. TEMPORARY SEDIMENT TRAPS (TST) AND TEMPORARY SWALES (TS) SHALL BE SIZED BY THE CONTRACTOR USING THE PARAMETERS CONTAINED IN THE PLAN.
17. DUST SHALL BE CONTROLLED BY SPRAYING WATER OR OTHER METHODS AS REVIEWED AND APPROVED BY ENGINEER.
18. CATCH BASINS AND STORM DRAINS SHALL BE PROTECTED WITH TEMPORARY SILT SACKS UNTIL THE CONTRIBUTING AREA IS PERMANENTLY STABILIZED.
19. DEWATERING WASTEWATER PUMPED FROM EXCAVATIONS SHALL BE CONVEYED BY HOSE TO AN UPLAND AREA AND DISCHARGED INTO A DEWATERING BASIN, HAY BALE CORRALS, OR SEDIMENTATION BAGS.
20. CONSTRUCTION SOLID WASTE MATERIALS SHALL BE PROPERLY CONTAINED ONSITE AND DISPOSED OF AT A PERMITTED FACILITY IN ACCORDANCE WITH THE LOCAL AND STATE REGULATIONS.
21. RIPRAP OR OTHER ENERGY DISSIPATERS SHALL BE USED WHERE NECESSARY TO CONTROL EROSION.
22. ANY EQUIPMENT THAT IS NOT READILY MOBILE (TRACK MACHINERY) SHALL BE PARKED WITHIN THE PROJECT LIMIT OF DISTURBANCE. LARGE AND/OR BULKY MATERIALS SHALL BE STORED SUCH THAT THEY DO NOT INTERFERE WITH THE ONGOING CONSTRUCTION ACTIVITIES OR EROSION CONTROL MEASURES.
23. NEWLY VEGETATED AREAS SHALL BE REGULARLY INSPECTED AND MAINTAINED TO ENSURE THE ESTABLISHMENT OF STABLE VEGETATED SURFACES.
24. THE CONTRACTOR SHALL NOT REMOVE ANY EROSION CONTROLS UNTIL THE CONTRIBUTING AREA IS PERMANENTLY STABILIZED AND UNTIL A CERTIFICATE OF COMPLIANCE IS RECEIVED FROM CT DEEP.

STORMWATER MANAGEMENT SYSTEM INSPECTION AND MAINTENANCE NOTES

DURING CONSTRUCTION (CONTRACTOR'S RESPONSIBILITY)

1. THE CONTRACTOR SHALL REMOVE SEDIMENT AND DEBRIS FROM ALL CATCH BASINS, MANHOLES, AND THE DRAINAGE SYSTEM ON A ROUTINE BASIS, IMMEDIATELY FOLLOWING SITE STABILIZATION, AND PRIOR TO PROJECT COMPLETION AND ACCEPTANCE.
2. THE CLOSED DRAINAGE SYSTEM AND ASSOCIATED STRUCTURES SHALL BE CLEANED AND FLUSHED BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF THE DRAINAGE SYSTEM UNTIL ACCEPTANCE OF THE SYSTEM BY THE ENGINEER. FOLLOWING ACCEPTANCE OF THE PROPOSED DRAINAGE SYSTEM, THE OWNER OF THE SITE SHALL BE RESPONSIBLE FOR THE LONG-TERM INSPECTION AND MAINTENANCE OF THE DRAINAGE SYSTEM.
3. ANY ACCUMULATION OF PONDING WATER IN AREAS WITHIN THE LIMITS OF DISTURBANCE, OTHER THAN DESIGNATED AREAS, SHALL BE REMOVED ACCORDINGLY AND PREVENTED IN THE FUTURE.

POST CONSTRUCTION (OWNER'S RESPONSIBILITY)

1. TRASH, LITTER, SEDIMENT AND OTHER DEBRIS SHALL BE REMOVED FROM ANY STORMWATER MANAGEMENT FACILITY (INCLUDING BUT NOT LIMITED TO CATCH BASINS, MANHOLES, INLET AND DIVERSION STRUCTURES, AND STORMWATER BEST MANAGEMENT PRACTICES (BMPs)) A MINIMUM OF TWO TIMES PER YEAR, PREFERABLY IN THE SPRING AND FALL.
2. THE PARKING LOT AND ENTRY DRIVE SHALL BE SWEPT BY THE OWNER AS EARLY AS POSSIBLE EVERY SPRING AND ONCE IN THE FALL TO REMOVE SEDIMENTS.
3. ALL CLEANING AND MAINTENANCE OF STORMWATER MANAGEMENT SYSTEMS POST-CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE OWNER.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	SETBACKS	
	EASEMENT LINE	
255	CONTOUR	262
X 407.5	SPOT ELEVATION	
D D D	DRAINAGE LINE	D D D
W W W	WATER LINE	W W W
	FIRE WATER LINE	FW FW
S S S	SANITARY SEWER LINE	S S S
G G G	GAS LINE	G G G
E E E	ELECTRIC	E E E
T T T	TELEPHONE LINE	
OHW	OVERHEAD ELECTRIC LINE	
	LIMIT OF DISTURBANCE	LOD
	CATCH BASIN	
	HYDRANT	
	DRAINAGE MANHOLE	
	SEWER MANHOLE	
	UTILITY POLE	
WV WV	WATER VALVE	WV
GG	GAS GATE	GV
	LIGHT POLE	
	TREE LINE	
	STONE WALL	
	CHAIN LINK FENCE	
	CURBING	
	EDGE OF PAVEMENT	
	SIGN	
	HAYBALES	
	NO. OF PARKING SPACES	#
WF A52 WF A51	WETLAND EDGE	
	100' PERIMETER WETLAND	
/////	UTILITY DEMOLITION	

ABBREVIATIONS

ADA = AMERICANS WITH DISABILITIES ACT
BM = BENCHMARK
BMP = BEST MANAGEMENT PRACTICE
BIT. = BITUMINOUS
BOT. = BOTTOM
CI = CAST IRON
CB = CATCH BASIN, 4' DIA. UNLESS OTHERWISE NOTED
CL. = CLASS
CPP = CORRUGATED PLASTIC PIPE
CT DEEP = CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
CT DOT = CONNECTICUT DEPARTMENT OF TRANSPORTATION
CONC. = CONCRETE
DEMO = DEMOLITION
DIA = DIAMETER
DIP = DUCTILE IRON PIPE
DMH = DRAIN MANHOLE
EOP = EDGE OF PAVEMENT
ELEV,EL = ELEVATION
EV = ELECTRIC VEHICLE
EX, EXIST. = EXISTING
FFE = FINISH FLOOR ELEVATION
FT = FOOT
GTD = GRADE TO DRAIN
HDPE = HIGH DENSITY POLYETHYLENE PIPE
HYD = HYDRANT
I.D. = INNER DIAMETER
INV. = INVERT
LOD = LIMIT OF DISTURBANCE
LP = LOW POINT
MUTCD = MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION
MAX. = MAXIMUM
MIN. = MINIMUM
NTS, N.T.S. = NOT TO SCALE
OWS = OIL WATER SEPARATOR
PERF. = PERFORATED
PE = POLYETHYLENE
PVC = POLYVINYL CHLORIDE
R=X' = RADIUS
RCP = REINFORCED CONCRETE PIPE
SMH = SEWER MANHOLE
SESC = SOIL EROSION AND SEDIMENT CONTROL
TP = TEST PIT
TYP. = TYPICAL
UP = UTILITY POLE
VC = VITRIFIED CLAY
w/ = WITH

PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

REVISIONS:

PROJECT NO.:	22054.00
DATE:	9/30/22
SCALE:	NOT TO SCALE
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW

DRAWING TITLE:

NOTES & LEGEND

DRAWING NO.:
C1.1

SHEET NO. 2 OF 17

SCHEDULE B–II (Special Exceptions)

Connecticut Attorneys Title Insurance Company File No. NCSH 22–1374 having an effective date of July 14, 2022 at 8:00 a.m.

1. Any defect, lien, encumbrance, adverse claim or other matter that appears for the first time in the Public Records or is created, attaches or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I Requirements are met. Not a survey matter.
2. Rights or claims of parties other than the insured in actual possession or under unrecorded leases of any or all of the land. Not a survey matter.
3. Any easements or claims of easements not shown by the Public Records, boundary line disputes, overlaps, encroachments, title to filled lands (if any) and all other facts which an accurate survey and inspection of the land would disclose and which are not shown by the Public Records. When the policy issued is on a form having a revision date of 6–17–06, this exception also refers to all those matters described in Covered Risk 2(c). Does not affect the property.
4. Unrecorded mechanics' liens. Not a survey matter.
5. Real estate taxes, municipal assessments and private association assessments, if any, including liens and assessments, not yet due and payable. Not a survey matter.
6. Real Estate Taxes to the City of Hartford on the list of October 1, 2021, in the total amount of $59,727.94, first half paid, second half not yet due and payable. Not a survey matter.
7. Water and Sewer Use charges that may be due and payable to the Metropolitan District. Not a survey matter.
8. Building lines, conditions and information shown on map #939 and 1124. Affects the property as shown
9. Right of Way to Hartford Electric Light Company dated and recorded Apr. 12, 1939 in Vol. 727 at Pg. 670 of the H.L.R. Does not affect the property.
10. Agreement with the Hartford Electric Light Company dated June 5, 1934 and recorded Nov. 3, 1938 in Vol. 728 at Pg. 321 of the H.L.R. Affects the property but is not plottable.
11. Height restrictions in a deed dated and recorded Mar. 25, 1959 in Vol. 1024 at Pg. 240 of the H.L.R. Affects the property as shown.
12. Limitation of highway access as set forth in instrument dated Oct. 14, 1960 and recorded Oct. 20, 1960 in Vol. 1051 at Pg. 607 of the H.L.R. Affects the property as shown.
13. Easements reserved by the Hartford Electric Light Company dated Aug. 28, 1963 and recorded Oct. 1, 1963 in Vol. 1110 at Pg. 274 of the H.L.R. Does not affect the property.
14. Easements to the Hartford Electric Light Company dated Mar. 21, 1966 and recorded Mar. 25, 1966 in Vol. 1160 at Pg. 643 of the H.L.R. Affects the property.
15. Agreement of Mutual Restrictive Covenants dated Mar. 30, 1973 and recorded Apr. 4, 1973 in Vol. 1358 at Pg. 313 as modified by agreement dated Feb. 14, 2000 in Vol. 4208 at Pg. 270 of the H.L.R. Not a survey matter.
16. Easements, rights and covenants as set forth in a deed dated and recorded Jan. 29, 1981 in Vol. 1842 at Pg. 186 and in a deed dated Feb. 4, 1981 and recorded Feb. 20, 1981 in Vol. 1847 at Pg. 54. Both of the H.L.R. Affects the property as shown.
17. Variance recorded Dec. 17, 2001 in Vol. 4476 at Pg. 310 of the H.L.R. Affects the property but is not plottable.
18. Mortgage Deed, Security Agreement and Financing Statement from DM Realty Partners, LLC to Webster Bank, N.A. dated Aug. 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 149 of the H.L.R. Not a survey matter.
19. Collateral Assignment of Leases and Rentals from DM Realty Partners, LLC to Webster Bank, National Association dated Aug. 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 174 of the H.L.R. Not a survey matter.
20. Open–End Mortgage Deed and Financing Statement from DM Realty Partners, LLC to Community Investment Corporation dated Aug. 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 Pg. 181; as assigned to The U.S. Small Business Administration by an Assignment dated Aug. 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 220. Both of the H.L.R. Not a survey matter.
21. Collateral Assignment of Leases and Rentals from DM Realty Partners, LLC to Community Investment Corporation dated Aug. 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 201; as assigned to The U.S. Small Business Adminstration by an Assignment dated Aug. 12, 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 220. Both of the H.L.R. Not a survey matter.
22. Notice of Lease from DM Realty Partners, LLC to Chowder Pot IV, Ltd. dated Aug., 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 222 of the H.L.R. Not a survey matter.
23. The Leasehold Interest in Vol. 7647 at Pg. 222 by and between DM Realty Partners, LLC and U.S.S. Chowder Pot IV, Ltd. dated Aug., 2020 and recorded Aug. 13, 2020 is subject to the following:
   a) Third Party Lender Agreement by and between Webster Bank, N.A. and Community Investment Corporation dated Aug. 12, 2020 and recorded Aug. 13, 2020 in Vol. 7646 at Pg. 209 of the H.L.R. Not a survey matter.

SURVEY NOTES:

1. THERE ARE NO PARTY WALLS ASSOCIATED WITH THIS PARCEL.
2. THERE IS NO EVIDENCE OF EARTH–MOVING WORK DONE IN RECENT MONTHS ON THIS SITE.
3. THERE IS NO EVIDENCE OF BUILDING CONSTRUCTION OR BUILDING ADDITIONS DONE IN RECENT MONTHS ON THIS SITE.
4. THERE ARE NO FUTURE CHANGES IN THE PUBLIC RIGHT OF WAY KNOWN AS BRAINARD ROAD.
5. THERE IS NO EVIDENCE OF SITE BEING USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
6. THERE MAY BE WETLANDS WATERCOURSES LOCATED ON SITE.
7. THERE ARE 366 STRIPED PARKING SPACES ON SITE WHICH INCLUDES 12 HANDICAP ACCESSIBLE SPACES.
8. THERE IS NO EVIDENCE OF BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS SITE.
9. ALL ABOVE–GROUND UTILITIES ARE PLOTTED ON THE SURVEY AS SHOWN.
10. ELEVATIONS SHOWN ACCORDING TO NAVD88.

CERTIFICATION:

I, Kenneth Cyr, a Professional Land Surveyor duly licensed in the State of Connecticut do hereby certify to DM Realty Partners, LLC, a Connecticut limited liability company; MacDermid, Reynolds & Glissman, P.C.; Connecticut Attorneys Title Insurance Company; INSA CT, LLC, a Delaware limited liability company, its its successors and assigns; as follows:

The survey of the Property depicted on this map was actually made upon the ground on Aug. 4, 2022. The survey and bounds and measurements shown on this map are correct and accurate within the standards of a Property Survey and are conforming to the standards of accuracy for a Horizontal Class A–2 survey. This is a dependent resurvey. This survey map has been prepared in accordance with Sections 20–300b–1 through 20–300b–20 of the Regulations of Connecticut State Agencies "Standards for Surveys and Maps In The State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on October 26, 2018. This survey was prepared to depict the existing conditins of the subject Property including any leased areas and associated easements. It is intended to be used to depict the position of boundaries with respect to locations of all boundary monumentation; apparent improvements and features; record easements and physical visible evidence of the use thereof; record apparent means of ingress and egress; lines of occupation; deed restrictions pertaining to the location of the buildings and other improvements; unresolved conflicts with maps and descriptions; all apparent boundary encroachments; and existing buildings.

Except as shown hereon, (i) title lines and lines of actual possession are the same, (ii) all building lines and improvements are located as shown, are erected entirely within the Property lines, and do not encroach over or upon the street, title or building lines or any right of way or easement on or appurtenant to the Property, (iii) there are no utility or other easements or rights of way affecting the Property; (iv) there are no encroachments or projections on or over the Property or on rights of way or easements appurtenant to the same by buildings or improvements erected on adjacent land, and (v) the buildings and improvements on this Property do not violate any building or zoning regulation, covenant, deed restriction or other regulation or requirement relating to the location thereof.

The Property is not located within a Special Flood Hazard Boundary as defined by the Federal Emergency management Agency and are reflected on Flood Insurance Rate Map No. 09003c 0506G with a date of Revision of Sept. 16, 2011, and is designated as Zone "X" (Area with reduced risk due to Levee) and the Property has direct access to Brainard Road which is a public right of way.

I further certify that this map and the survey on which it is based were made in accordance with "Minimum Standard Detail Requirements for ALTA and NSPS Land Title Surveys", jointly established and adopted by ALTA and NSPS on Feb. 23, 2021, and includes items 1,3,4,5,7(a),7(c),8,9,10,11(b),13,14,15,16 and 17 of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, the undersigned further certifies that the Positional Uncertainties resulting from the survey measurements made on the survey do not exceed the allowable Positional Tolerance.

Kenneth R. Cyr   8–16–2022

PETER D. FLYNN   CT.L.L.S. #8792   DATE
KENNETH R. CYR   CT.L.L.S. #70116

NOT VALID UNLESS ORIGINAL SIGNATURE, LIVE STAMP, & RAISED SEAL ARE AFFIXED.

STATE OF CONNECTICUT KENNETH R. CYR No. 70116 LAND SURVEYOR

FLYNN & CYR LAND SURVEYING LLC
1204 Farmington Avenue 860–828–7886
BERLIN, CONNECTICUT 06037

SCHEDULE A: PROPERTY DESCRIPTION:

A certain or parcel of land with the buildings and improvements now or hereafter located thereon in the City of Hartford, Connecticut more particularly described as follows:

Beginning at a C.H.D. merestone which marks the intersection of the southerly "non–access highway line" of the State of Connecticut entrance and exit ramp to and from I–91, and the westerly street line of Brainard Road, and which is the northeast corner of the herein described parcel:

Thence: running South 5°10'10" East along the westerly street line of Brainard Road a distance of 78.00 feet to a point;
Thence: running South 84°49'50" West a distance of 91.00 feet to a point;
Thence: running South 5°10'10" East a distance of 192.00 feet to a point;
Thence: running North 84°49'50" East a distance of 91.00 feet to a point;
Thence: running South 5°10'10" East along the westerly street line of Brainard Road a distance of 65.00 feet to a point;
Thence: running South 83°51'10" West a distance of 855.23 feet to a point in the easterly "non–access highway line" of the State of Connecticut exit ramp from I–91;
Thence: running along said "non–access highway line" on a curve to the right with a radius of 755.00 feet a distance of 68.75 feet to a C.H.D. merestone which marks the point of compound curvature of said "non–access highway line";
Thence: running along said "non–access highway line" on a curve to the right with a radius of 355.00 feet a distance of 481.78 feet to a point which marks the end of the curve;
Thence: running along along the southerly "non–access highway line" of the State of Connecticut entrance and exit ramp to and from I–91 North 84°41'20" East a distance of 497.53 feet to the C.H.D. merestone which is the point and place of beginning.

Said premises also constitute the major portion of the premises shown on a map entitled "Survey of Property of Valle Realty Co. of Conn., Inc. Hartford, Conn. Scale 1=50' Date 8–8–71" prepared by Henry N. Loomis and Igor Vechesloff, Land Surveyors, excluding, however, said land conveyed to First Bank by Valle Realty of Conn., Inc. by deed dated January 29, 1981 and recorded in the Hartford Land Records in Volume 1842, Page 186, as corrected by instrument dated February 4, 1981 and recorded in said Land Records in Volume 1847, Page 54.

Together with easements reserved in that certain Warranty Deed dated January 29, 1981 and recorded in Volume 1842 at Page 186 of the Hartford Land Records, as corrected by that certain Warranty Deed dated February 4, 1981 and recorded in Volume 1847 at Page 54 of the Hartford Land Records.

REGULATIONS FOR ID–1 ZONE		
ITEM	REQUIRED	EXISTING
MULTIPLE PRINCIPAL BLDGS.	Min. 2	N/A
MIN. FRONT LOT LINE COV.	50%	89.4% ø
FRONT BLD.–TO ZONE	WITHIN 15' OF B.L.	301.1'
COR. BLD.–TO ZONE	WITHIN 15' OF B.L.	N/A
MIN. LOT WIDTH	140'	335'
MAX. BLDG. WIDTH	N/A	N/A
MIN. FRONT YARD	30'	301.1'
MIN. SIDE YARD	5'* or 15'	57.7
MIN. REAR YARD	5'	142.9'
MAX. BLDG COVERAGE	50%	11.2%
MAX. IMPERV COVERAGE	70%	81.6%
ADD. SEMIPERV COVERAGE	20%	0%
MAX. BLDG. HEIGHT	4 STY.	1 STY.
MIN. BLDG. HEIGHT	1 STY.	1 STY.
PARKING & LOADING	Rear+Side	Side
Vehicular Access/Frontage	One Drive	Two Drive

* 5' IF ADJ. TO STOREFRONT, OTHERWISE 15'
ø NON–CONFORMING BUT PRE–EXISTING.

MAP REFERENCE:

1.) MAP ENTITLED"SURVEY OF PROPERTY OF VALLE REALTY CO. OF CONN., INC. HARTFORD, CONN. 8–8–71 SCALE 1"=50' HENRY N. LOOMIS L.S." MAP #939
2.) MAP ENTITLED"SURVEY LAND TO BE CONVEYED TO FIRST BANK 165 BRAINARD ROAD HARTFORD, CT. MAY 1980 SCALE 1"=20' REVISED THRU 6–30–80 JOHN J. LAWRENCE Jr. L.S." MAP #1124
3.) MAP ENTITLED"SKETCH SHOWING POLES AND UNDERGROUND FACILITIES OF THE HARTFORD ELECTRIC LIGHT COMPANY ON THE PROPERTY OF BRAINARD CENTER, INC. BRAINARD ROAD HARTFORD, CONN., SCALE: 1"=100', DEC. 29, 1965 REV. 13–7–66 FILE NO. D–012525 THE HARTFORD ELECTRIC LIGHT CO." MAP #805
4.) MAP ENTITLED"CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF HARTFORD HARTFORD–NEW HAVEN EXPRESSWAY FROM WETHERSFIELD TOWN LINE NORTHERLY TO CHARTER OAK BRIDGE SCALE 1"=80' NUMBER 63–05 SHEET NO. 2 OF 4 APPROVED 6–64 B. LENDA ENG'R."
5.) MAP ENTITLED"CITY OF HARTFORD MAP SHOWING LAND & RIGHTS OF ACCESS ACQUIRED FROM THE HARTFORD ELECTRIC LIGHT CO. THE STATE OF CONNECTICUT RELOCATION OF ROUTE 9 SCALE 1"=40' TOWN NO. 63 PROJECT NO. 118–68 (159–91) SHEET NO. 2 OF 6 APRIL 1960 STANLEY ALLENTE ENG'R OF SURVEYS." MAP #517–12
6.) MAP ENTITLED"PLAN OF A PART OF SOUTH MEADOWS SHOWING INTERCHANGE OF LANDS & RIGHTS OF WAY BETWEEN THE CITY OF HARTFORD THE METROLPOLITAN DISTRICT THE HARTFORD ELECTRIC LIGHT COMPANY & THE COLTS PATENT FIREARMS MANUFACTURING CO. SCALE 1 INCH=200 FEET DATE MAR. 1939 DWG. NO. 050120A."
7.) MAP ENTITLED"AIRPORT APPROACH PLAN BRAINARD FIELD HARTFORD, CONN. SCALE: 1"=200' MASTER PLAN SHEET NO. 2." MAP #459

LEGEND

- SANITARY MANHOLE
- STORM MANHOLE
- HYDRANT
- WATER GATE
- UTILITY POLE (TYPE NOTED)
- FENCE
- CATCH BASIN
- Doorway Light
- Wall Pack Light
- Security Camera
- Roof Leader
- Telephone MH
- Electric MH
- GAS GATE

INDICATED UNDERGROUND UTILITIES ARE BASED ON AVAILABLE DATA. THE LOCATIONS ARE APPROXIMATE AND ALL UTILITIES MAY NOT BE SHOWN. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL CALL 1–800–922–4455 AND HAVE ALL UTILITIES MARKED.

THIS DRAWING HAS BEEN PREPARED BASED, IN PART, ON INFORMATION PROVIDED BY OTHERS RELATING TO THE LOCATION OF UNDERGROUND SERVICES. WE CANNOT VERIFY THE ACCURACY OF THIS INFORMATION AND SHALL NOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMMISSIONS, WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

ALTA LAND TITLE SURVEY PREPARED FOR DM REALTY PARTNERS, LLC
165 BRAINARD ROAD HARTFORD, CONNECTICUT
SCALE 1"=40' AUG. 16, 2022

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

CERTIFICATION:

I, Kenneth Cyr, a Professional Land Surveyor duly licensed in the State of Connecticut do hereby certify to 167 Brainard Road, LLC, a Connecticut limited liability company; MacDermid, Reynolds & Glissman, P.C.; Connecticut Attorneys Title Insurance Company, its successors, assigns, and participants; and INSA CT, LLC, a Delaware limited liability company, its successors and assigns; that:

1. The Survey was conducted on the ground on August 4, 2022, and that to my knowlege and belief the Survey is substantially accurate, complete and correct. In addition to meeting the requirements of the "Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys" as adopted by the American Land Title Association and the National Society of Professional Surveyors Effective as of February 23, 2021 including items checked on Talble A attached hereto, the Survey meets the requirements of the Regulations Connecticut State Agencies Sections 20–300b–1 through 20–300b–20 and the "Standards and Suggested Methods and Procedures for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on Septmember 29, 2019, as Class A–2, First Survey and Property Survey. The undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of Connecticut, the relative positional accuracy of this survey does not exceed that which is specified therein;
2. The Survey and the information, courses, setbacks and distances shown thereon, including front, rear and side yard lines, are correct;
3. Unless otherwise noted or described, the deed lines as disclosed on the land records and lines of actual possession are the same;
4. Unless otherwise noted or described, the location and dimensions of all buildings and other structures and improvements located on the property are as shown and do not encroach over or upon any adjacent properties, street, deed, building or setback lines or over or upon any right–of–way or easement;
5. The location and dimensions (together with recording data therefor) of any known appurtenances, easements, rights–of–way or encroachments over, upon, affecting or serving this property are as shown and there are no other appurtenances, easements, rights–of–way or encroachments over, upon, affecting or serving this property apparent from a careful inspection of the same;
6. Unless otherwise noted or described, there are no violations of zoning ordinances with respect to bulk, height, coverage, building location, set back, side yard and parking, or deed restrictions;
7. Unless otherwise noted or described, there are no discrepancies, conflicts or shortages in area with respect to this property or the boundary lines thereof and the boundary line dimensions as shown on this survey form a mathematically closed figure;
8. No part of this property is located in a flood hazard area unless shown, and if shown, flood hazard line are as shown and a note is set forth on the survey identifying the basis for the location of such lines;
9. The public street and appurtenant easements serving this property, and the curb cuts, driveways and access–ways between such street, easements and this property are as shown;
10. The following utilities are shown on this survey: gas, water, sanitary, storm & electric. All such utility services shown on this survey enter the property through an adjoining street, or the survey shows the point of entry and identifies the titled rights therefor;
11. The Premises is contiguous to and directly abut, and access to and from the Premises is contiguous to and abuts Brainard Road, Hartford, Connecticut, a publicly accepted street;
12. The survey shows the direction and location of storm drainage systems for the disposal of roof and surface drainage;
13. Any discharge into streams, rivers or other conveyance systems is as shown;
14. The perimeter of the property is identified by courses and distances, with an arrow pointing north (identified as either true or magnetic) and a scale or distances, showing stakes or other monuments appearing on or near the perimeter of the property is as shown hereon;
15. The physical character of the boundary line of the property (or a notation that no physical evidence of the boundary lines exists) is as shown;
16. The acreage of the property is shown;
17. Any evidence of a cemetery or burial ground on the property is shown;
18. Any springs, apparent wells, ponds, streams, rivers, lakes or other watercourses on the property are shown;
19. If the property consists of more than one parcel or tract, the general perimeter of each parcel or tract, and, in addition, a consolidated perimeter description are as shown, and the parcels or tracts are contiguous with no gaps or gores separating the same;
20. All lines established by restrictive covenants affecting the property known to the undersigned and applicable zoning, setback and side yard, rear yard, and height requirements and other applicable bulk zoning requirements is as shown, and each restrictive covenant is identified by reference to the volume and page of the recorded instrument and applicable section of the zoning regulations;
21. All drains, sewers, roads, paths, manhole covers, trails, driveways, parking areas and parking spaces, sidewalks pipelines, utility poles, wires, lines, vaults and other physical evidence of an improvement located on or affecting the property are as shown;
22. Fire zone, if applicable, is as shown;
23. If the property is referred to as being on a filed map, the legend relating the survey to said referenced map is as shown;
24. The measured height of buildings above grade at specified locations is shown;
25. A full measured metes and bounds legal description and a listing of all appurtenances, easements, and encumbrances together with volume and page number references therefor are as set forth in the margin of the Survey and all such appurtenances, easements, and encumbrances are as shown on the Survey, and are cross referenced by number or other means;
26. The undersigned has reviewed Connecticut Attorneys Title Insurance Commitment #NCSH 22–1374B dated June 16, 2022. All locatable appurtenances, and encumbrances set forth on Schedule B thereof are set forth in the same numerical order on the Survey, are shown and depicted on the Survey, and each encumbrence shown on the Survey is marked with the same numerical identifier;
27. Set forth on the survey is a zoning bulk requirements chart showing the applicable current zoning bulk and parking requirements for the subject property and indicating the actual bulk actual bulk and parking data for the property. The property is in compliance with such zoning, bulk and parking requirements;
28. The address of the property is 167 Brainard Road, Hartford, Connecticut;
29. The City of Hartford has designated the property as a separate tax parcel as parcel #300817011 and such tax parcel is not part of any other tax parcel.
30. The property is a legally subdivided lot and is not part of a larger lot or tract under common ownership, and was approved as a separately subdivided parcel by the Planning and Zoning Department of the City of Hartford as of May 1980;
31. The undersigned is a duly licensed surveyor under the laws of the State of Connecticut.

Kenneth R. Cyr — 8–31–2022

PETER D. FLYNN CT.L.L.S. #8792 — DATE

KENNETH R. CYR CT.L.L.S. #70116

NOT VALID UNLESS ORIGINAL SIGNATURE, LIVE STAMP, & RAISED SEAL ARE AFFIXED.

STATE OF CONNECTICUT — KENNETH R. CYR — No. 70116 — LICENSED LAND SURVEYOR

FLYNN & CYR LAND SURVEYING LLC
1204 Farmington Avenue 860–828–7886
BERLIN, CONNECTICUT 06037

SCHEDULE A: PROPERTY DESCRIPTION:

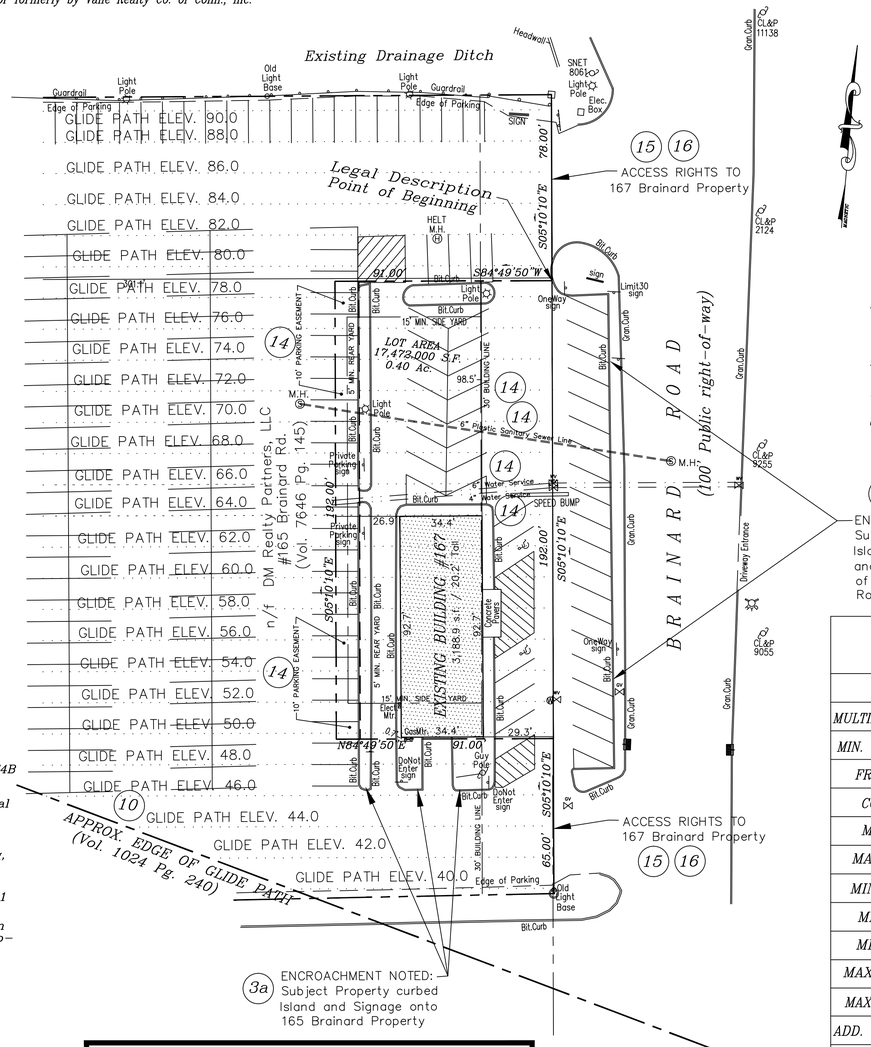
A certain or parcel of land with the improvements thereon situated in the City of Hartford, County of Hartford and State of Connecticut, as more particularly shown on a map entitled "Survey Land To BE Conveyed To First Bank 165 Brainard Road Hartford, CT May 1980 Scale 1"=20' John Lawrence & Assoc. Inc. Engineers–Surveyors Rt. #6 P.O. Box 256 Ph. 677–4141 Farmington, Connecticut 06032." Said premises are more particularly bounded and described as follows:

Beginning at a point located 78.00 feet South 5° 10' 10" East of a C.H.D. merestone place at the intersection of the westerly street line of Brainard Road and the southerly street line identified as a "non–access highway line" on said map, which point represents the northeasterly corner of the premises described herein; thence running South 84–49–50 West a distance of 91.00 feet to a point; thence running South 5°10'10" East al distance 192.00 feet to a point; thence running North 84–49–50 East a distance of 91.00 feet to a point in the westerly street line of Briand Road, thence running N 5° 10' 10" West a distance of 192.00 feet to the point and place of beginning.

Together with (1) permanent easements for driveway purposes to be used in common with the owner of land now or formerly of Valle Realty Co. of Conn., Inc. and others for the purpose of providing access between the above described premisess and said Brainard Road. Said easements are located, respectively, immediately to the north and immediately to the south of the northerly and southerly bounds of the above described premises as shown on said map; and (2) the right for Buyers employees, customers and invitees to park in otherwise unoccupied parking spaces on the property adjacent to the above described premises owned now or formerly by Valle Realty Co. of Conn., Inc.

SURVEY NOTES:

1. THERE ARE NO PARTY WALLS ASSOCIATED WITH THIS PARCEL.
2. THERE IS NO EVIDENCE OF EARTH–MOVING WORK DONE IN RECENT MONTHS ON THIS SITE.
3. THERE IS NO EVIDENCE OF BUILDING CONSTRUCTION OR BUILDING ADDITIONS DONE IN RECENT MONTHS ON THIS SITE.
4. THERE ARE NO FUTURE CHANGES IN THE PUBLIC RIGHT OF WAY KNOWN AS BRAINARD ROAD.
5. THERE IS NO EVIDENCE OF SITE BEING USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
6. THERE ARE NO WETLANDS WATERCOURSES LOCATED ON SITE.
7. THERE ARE 19 STRIPED PARKING SPACES ON SITE WHICH INCLUDES 2 HANDICAP ACCESSIBLE SPACES. ADDITIONAL PARKING AVAILABLE ON 165 BRAINARD ROAD PARCEL AS PER AGREEMENT IN ITEMS 14,15 & 16 IN SCHEDULE B, PART II EXCEPTIONS.
8. THERE IS NO EVIDENCE OF BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS SITE.
9. ALL ABOVE–GROUND UTILITIES ARE PLOTTED ON THE SURVEY AS SHOWN.
10. ELEVATIONS SHOWN ACCORDING TO NAVD88.
11. THE PROPERTY IS NOT LOCATED WITHIN A FEDERAL FLOOD HAZARD AREA AS PER FEMA F.I.R.M. MAP NO. 09003C 0506G DATED SEPT. 16, 2011 AND IS DESIGNATED AS ZONE X (AREA WITH REDUCED RISK DUE TO LEVEE)



INDICATED UNDERGROUND UTILITIES ARE BASED ON AVAILABLE DATA. THE LOCATIONS ARE APPROXIMATE AND ALL UTILITIES MAY NOT BE SHOWN. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL CALL 1–800–922–4455 AND HAVE ALL UTILITIES MARKED.

THIS DRAWING HAS BEEN PREPARED BASED, IN PART, ON INFORMATION PROVIDED BY OTHERS RELATING TO THE LOCATION OF UNDERGROUND SERVICES. WE CANNOT VERIFY THE ACCURACY OF THIS INFORMATION AND SHALL NOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMMISSIONS, WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

SCHEDULE B–II (Special Exceptions)

Connecticut Attorneys Title Insurance Company File No. NCSH 22–1374B having an effective date of June 16, 2022 at 8:00 a.m.

1. Any defect, lien, encumbrance, adverse claim or other matter that appears for the first time in the Public Records or is created, attaches or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I Requirements are met. Not a survey matter.
2. Rights or claims of parties other than the insured in actual possession or under unrecorded leases of any or all of the land. Not a survey matter.
3. Any easements or claims of easements not shown by the Public Records, boundary line disputes, overlaps, encroachments, title to filled lands (if any) and all other facts which an accurate survey and inspection of the land would disclose and which are not shown by the Public Records. When the policy issued is on a form having a revision date of 6–17–06, this exception also refers to all those matters described in Covered Risk 2(c). Does not affect the property.
4. Unrecorded mechanics' liens. Not a survey matter.
5. Real estate taxes, municipal assessments and private association assessments, if any, including liens and assessments, not yet due and payable. Not a survey matter.
6. Real Estate Taxes to the City of Hartford on the list of October 1, 2020, in the total amount of $13,682.00. As of the date of this Commitment, such payment is paid in full. Not a survey matter.
7. Real Estate Taxes to the City of Hartford on the list of October 1, 2021, in the total amount of $10,903.06, not yet due and payable. Not a survey matter..
8. Water and Sewer Use charges that may be due and payable to the Metropolitan District. Not a survey matter.
9. An Agreement with The Hartford Electric Light Company dated June 5, 1934 and recorded Nov. 3, 1938 in Vol. 728 at Pg. 321 of the H.L.R. Affects the property but is not plottable.
10. Height restrictions in a deed dated and recorded Mar. 25, 1959 in Vol. 1024 at Pg. 240 of the H.L.R. Affects the property as shown.
11. Restrictive Covenants by the City of Hartford dated and recorded June 3, 1960 in Vol. 1044 at Pg. 258 of the H.L.R. Affects the property but is not plottable.
12. Agreement of Mutual Restrictive Covenants dated Mar. 30, 1973 and recorded Apr. 4, 1973 in Vol. 1358 at Pg. 313 of the H.L.R. Affects the property but is not plottable.
13. Food Service Agreement dated Mar. 30, 1973 and recorded June 5, 1973 in Vol. 1370 at Pg. 105 of the H.L.R. Not a survey matter.
14. Building line, 4"water service line, 6" water service line, 6" plastic sanitary sewer line, Light 152 and 10' Parking Easement as shown on Map #1124. Affects the property as shown
15. Rights, covenants and agreements as set forth in a Warranty Deed dated and recorded Jan. 29, 1981 in Vol. 1842 at Pg. 186 and in a deed dated Feb. 4, 1981 and in a Corrective Warranty Deed dated Feb. 4, 1981 and recorded Feb. 20, 1981 in Vol. 1847 at Pg. 54. Both of the H.L.R. Affects the property as shown.
16. Covenants and restrictions as set forth in a Corrective Warranty Deed dated Feb. 4, 1981 and recorded Feb. 20, 1981 in Vol. 1847 at Pg. 54. Both of the H.L.R. (Same As Item 15 above)

MAP REFERENCE:

1.) MAP ENTITLED "SURVEY OF PROPERTY OF VALLE REALTY CO. OF CONN., INC. HARTFORD, CONN. 8–8–71 SCALE 1"=50' HENRY N. LOOMIS L.S." MAP #939
2.) MAP ENTITLED "SURVEY LAND TO BE CONVEYED TO FIRST BANK 165 BRAINARD ROAD HARTFORD, CT. MAY 1980 SCALE 1"=20' REVISED THRU 6–30–80 JOHN J. LAWRENCE Jr. L.S." MAP #1124
3.) MAP ENTITLED "SKETCH SHOWING POLES AND UNDERGROUND FACILITIES OF THE HARTFORD ELECTRIC LIGHT COMPANY ON THE PROPERTY OF BRAINARD CENTER, INC. BRAINARD ROAD HARTFORD, CONN., SCALE: 1"=100', DEC. 29, 1965 REV. 13–7–66 FILE NO. D–012525 THE HARTFORD ELECTRIC LIGHT CO." MAP #805
4.) MAP ENTITLED "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF HARTFORD HARTFORD–NEW HAVEN EXPRESSWAY FROM WETHERSFIELD TOWN LINE NORTHERLY TO CHARTER OAK BRIDGE SCALE 1"=80' NUMBER 63–05 SHEET NO. 2 OF 4 APPROVED 6–64 B. LENDA ENG'R."
5.) MAP ENTITLED "CITY OF HARTFORD MAP SHOWING LAND & RIGHTS OF ACCESS ACQUIRED FROM THE HARTFORD ELECTRIC LIGHT CO. THE STATE OF CONNECTICUT RELOCATION OF ROUTE 9 SCALE 1"=40' TOWN NO. 63 PROJECT NO. 118–68 (159–91) SHEET NO. 2 OF 6 APRIL 1960 STANLEY ALLENTE ENG'R OF SURVEYS." MAP #517–12
6.) MAP ENTITLED "PLAN OF A PART OF SOUTH MEADOWS SHOWING INTERCHANGE OF LANDS & RIGHTS OF WAY BETWEEN THE CITY OF HARTFORD THE METROLPOLITAN DISTRICT THE HARTFORD ELECTRIC LIGHT COMPANY & THE COLTS PATENT FIREARMS MANUFACTURING CO. SCALE 1 INCH=200 FEET DATE MAR. 1939 DWG. NO. 050120A."
7.) MAP ENTITLED "AIRPORT APPROACH PLAN BRAINARD FIELD HARTFORD, CONN. SCALE: 1"=200' MASTER PLAN SHEET NO. 2." MAP #459

REGULATIONS FOR ID–1 ZONE

ITEM	REQUIRED	EXISTING
MULTIPLE PRINCIPAL BLDGS.	Min. 2	N/A
MIN. FRONT LOT LINE COV.	50%	93.5% ø
FRONT BLD.–TO ZONE	WITHIN 15' OF B.L.	0.7'
COR. BLD.–TO ZONE	WITHIN 15' OF B.L.	N/A
MIN. LOT WIDTH	140'	192'
MAX. BLDG. WIDTH	N/A	N/A
MIN. FRONT YARD	30'	29.3' ø
MIN. SIDE YARD	5'* or 15'	0.7' ø
MIN. REAR YARD	5'	26.9'
MAX. BLDG COVERAGE	50%	18.2%
MAX. IMPERV COVERAGE	70%	90.1% ø
ADD. SEMIPERV COVERAGE	20%	0%
MAX. BLDG. HEIGHT	4 STY.	1 STY.
MIN. BLDG. HEIGHT	1 STY.	1 STY.
PARKING & LOADING	Rear+Side	Side
Vehicular Access/Frontage	One Drive	Two Drive

*5' IF ADJ. TO STOREFRONT OTHERWISE 15'
øNON–CONFORMING BUT PRE–EXISTING.

LEGEND

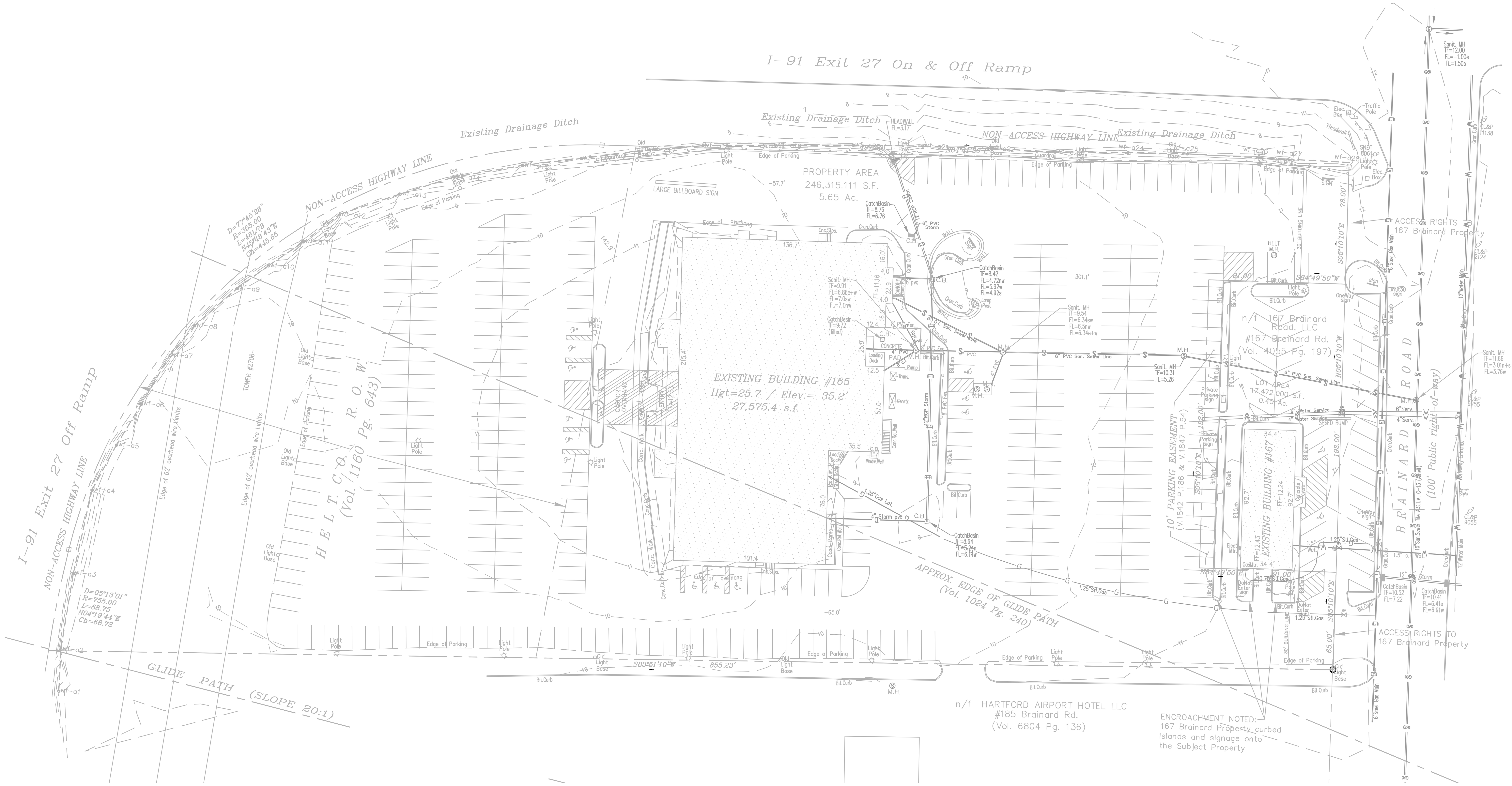
- SANITARY MANHOLE
- STORM MANHOLE
- HYDRANT
- WATER GATE
- UTILITY POLE (TYPE NOTED)
- FENCE
- CATCH BASIN
- Doorway Light
- Wall Pack Light
- Security Camera
- Roof Leader
- Telephone MH
- Electric MH
- GAS GATE

ALTA LAND TITLE SURVEY PREPARED FOR INSA CT, LLC 167 BRAINARD ROAD HARTFORD, CONNECTICUT SCALE 1"=30' AUG. 31, 2022

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

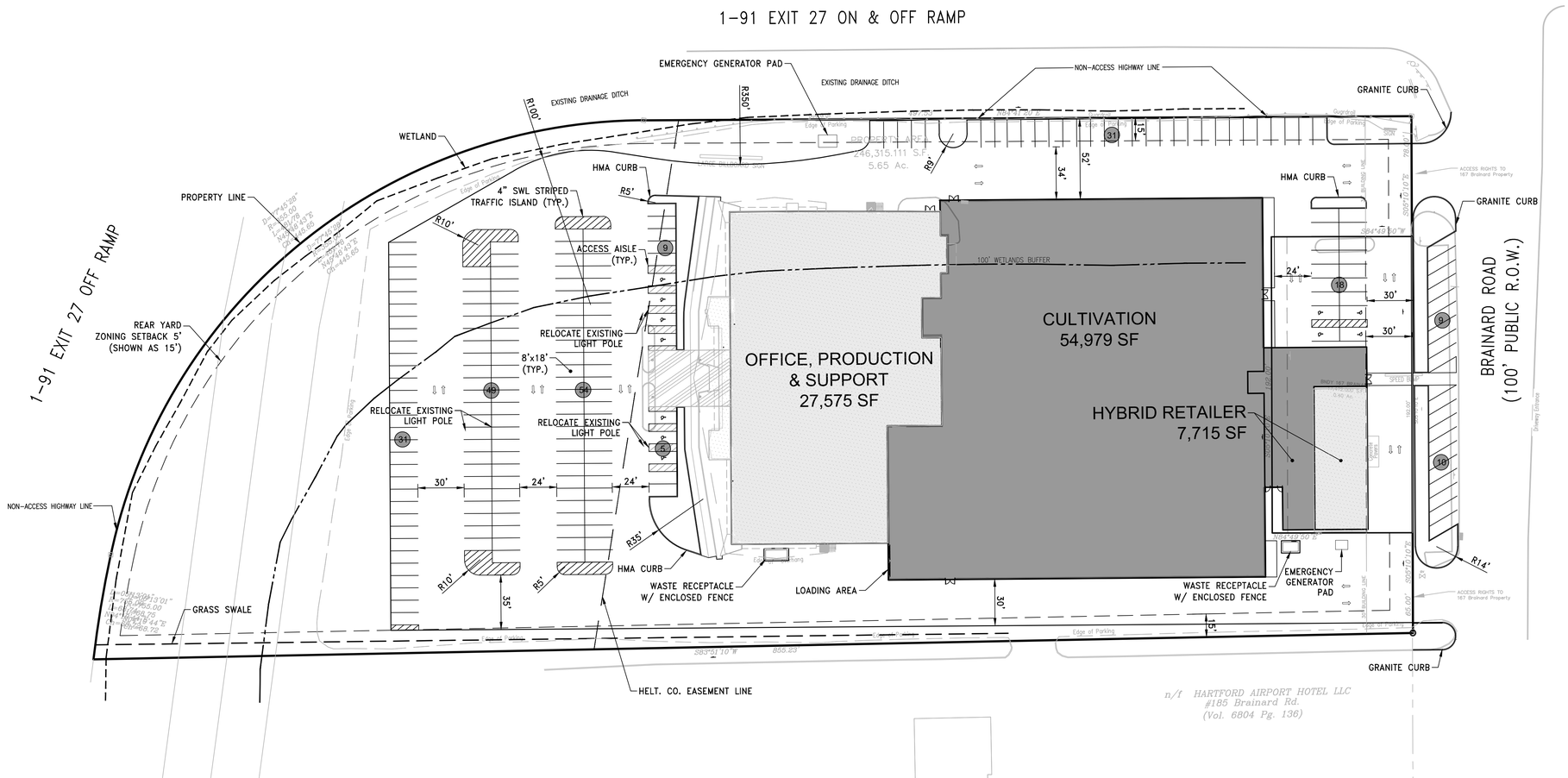
REVISIONS:

PROJECT NO.:	22054.00
DATE:	9/30/22
SCALE:	1" = 40'
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW
DRAWING TITLE:	

EXISTING CONDITIONS

DRAWING NO.:
C2.1

SHEET NO. 4 OF 17



LEGEND:

: EXISTING BUILDING

: PROPOSED BUILDING

PERMIT SET ONLY
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PARE

SCALE ADJUSTMENT GUIDE
0" 1"
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INSA- HARTFORD FACILITY

165 & 167 BRAINARD ROAD
HARTFORD, CT

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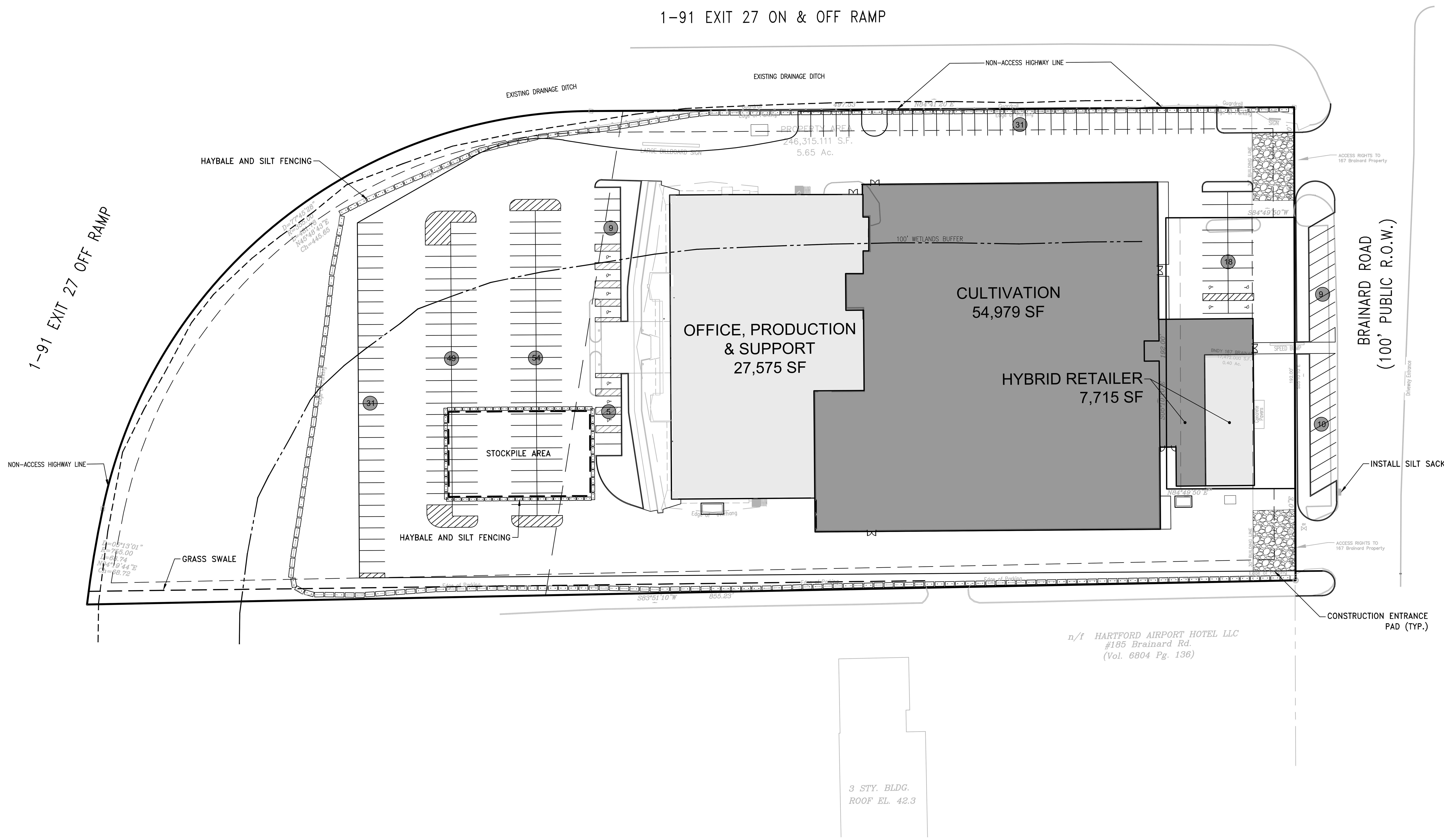
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW

DRAWING TITLE:
SITE PLAN

DRAWING NO.:
C3.1

SHEET NO. 5 OF 17



PERMIT SET ONLY
-NOT FOR CONSTRUCTION

Scale: 1"=40'
0 20' 40' 80'

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

REVISIONS:

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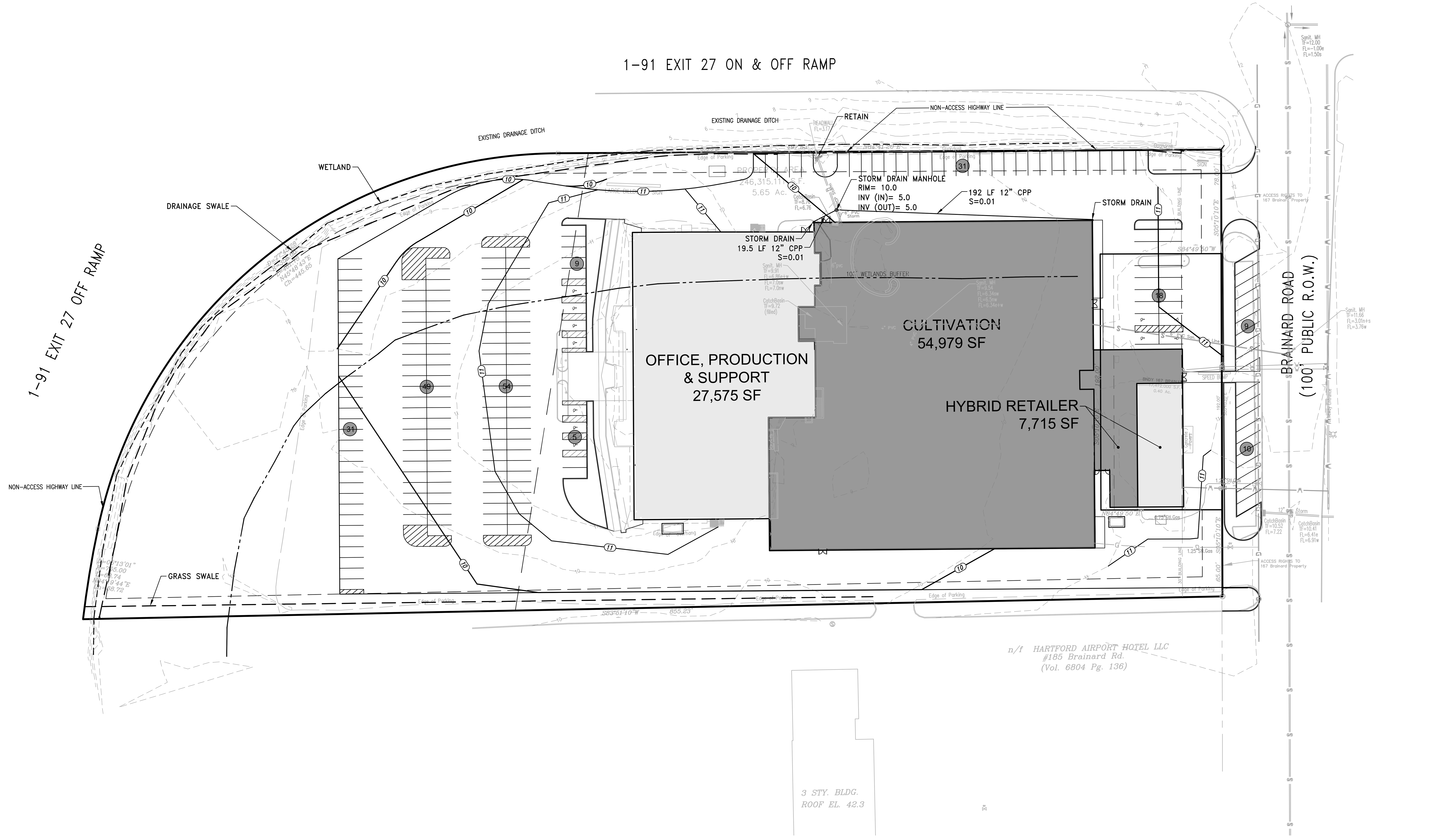
SCALE:	1" = 40'
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW

DRAWING TITLE:
EROSION & SEDIMENT CONTROL PLAN

DRAWING NO.:
C4.1

SHEET NO. 6 OF 17



PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

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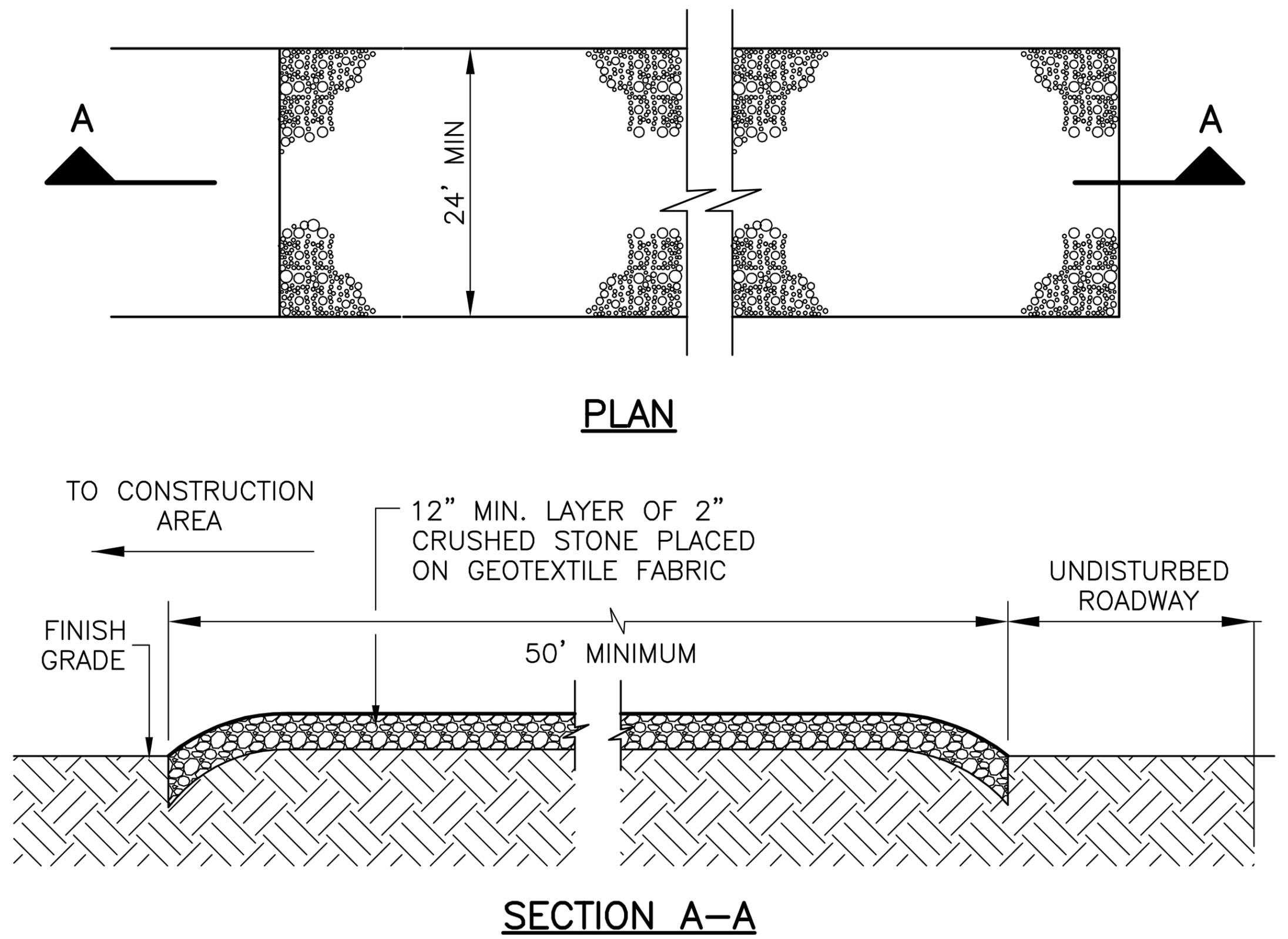
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW
DRAWING TITLE:	

DRAINAGE & UTILITY PLAN

DRAWING NO.:
C5.1

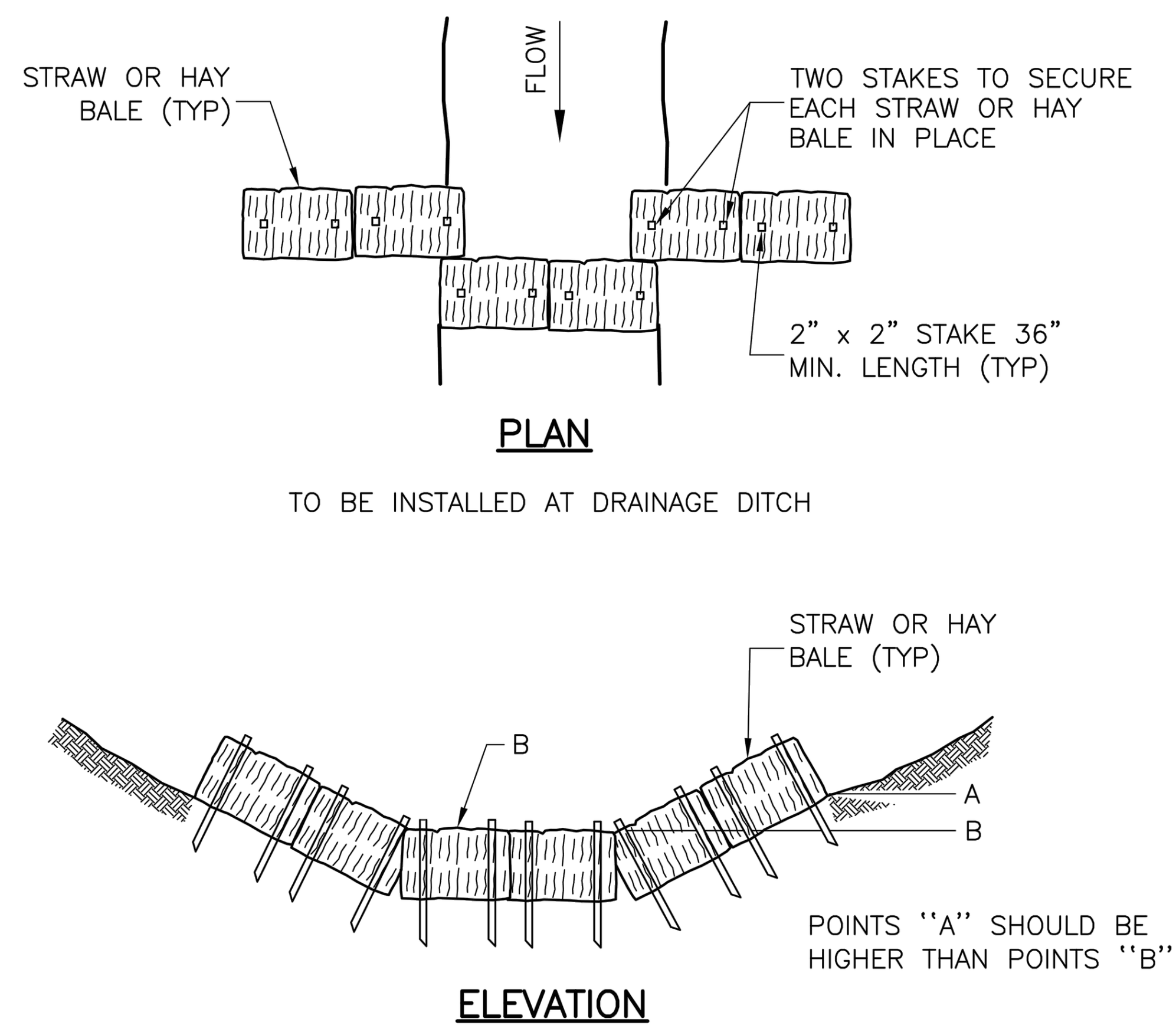
SHEET NO. 7 OF 17



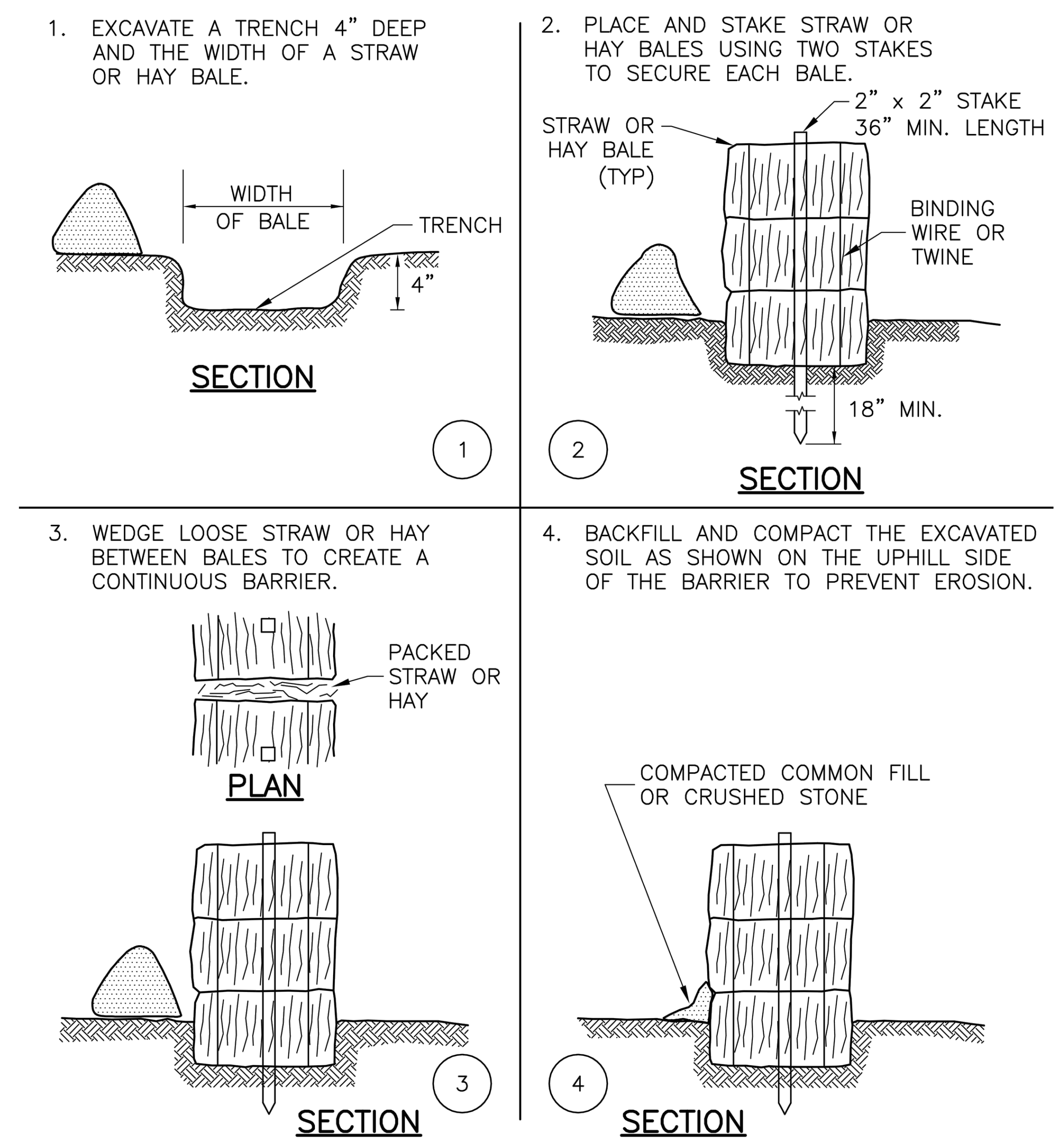
NOTES:

1. PROVIDE FOR SMOOTH, CONTINUOUS TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND UNDISTURBED ROADWAY.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO UNDISTURBED ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
3. REPAIR AND CLEAN OUT ANY MEASURES USED TO TRAP SEDIMENT.
4. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO UNDISTURBED ROADWAY MUST BE REMOVED IMMEDIATELY.

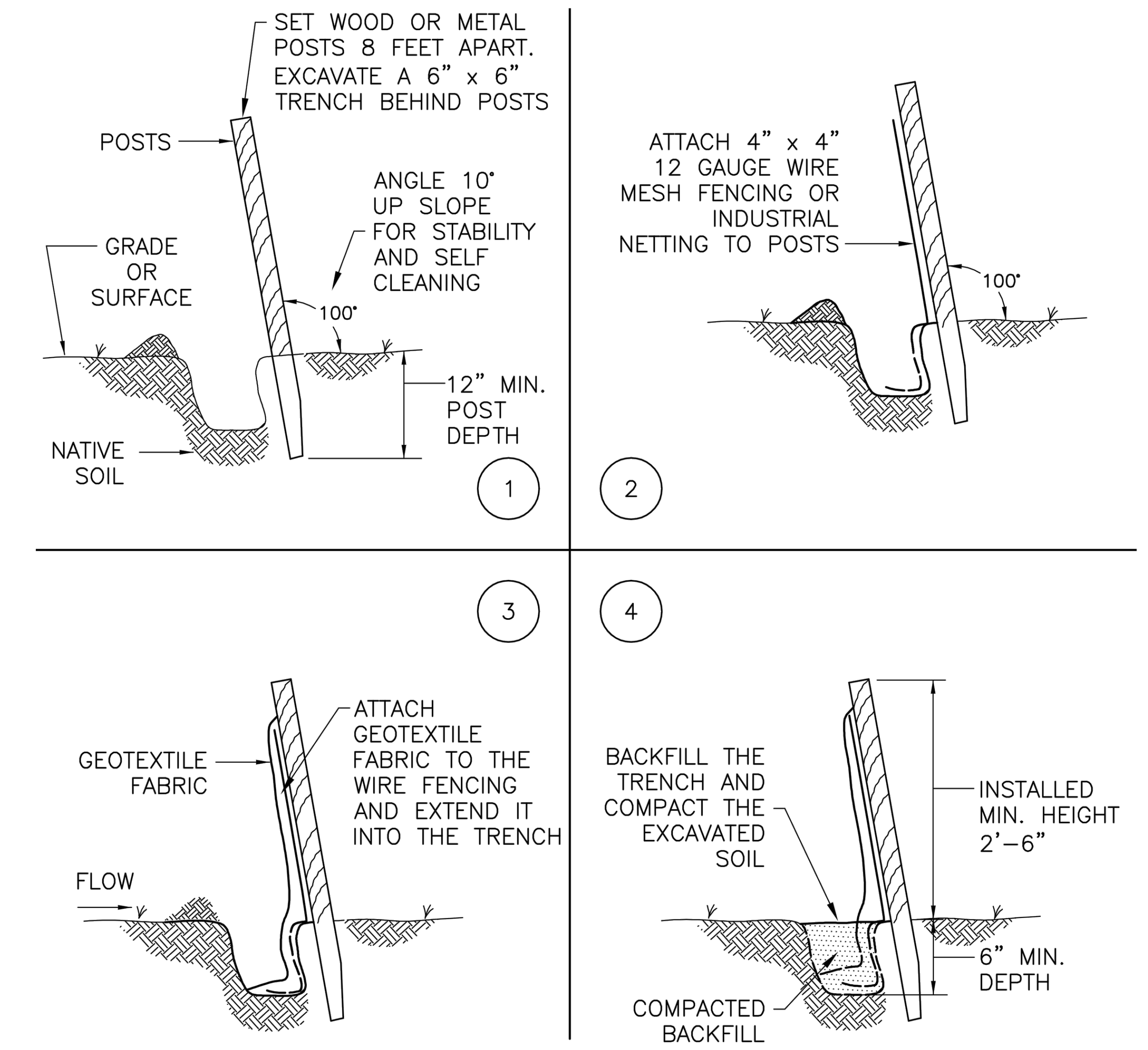
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



STRAW OR HAY BALE SEDIMENTATION CHECK
NOT TO SCALE



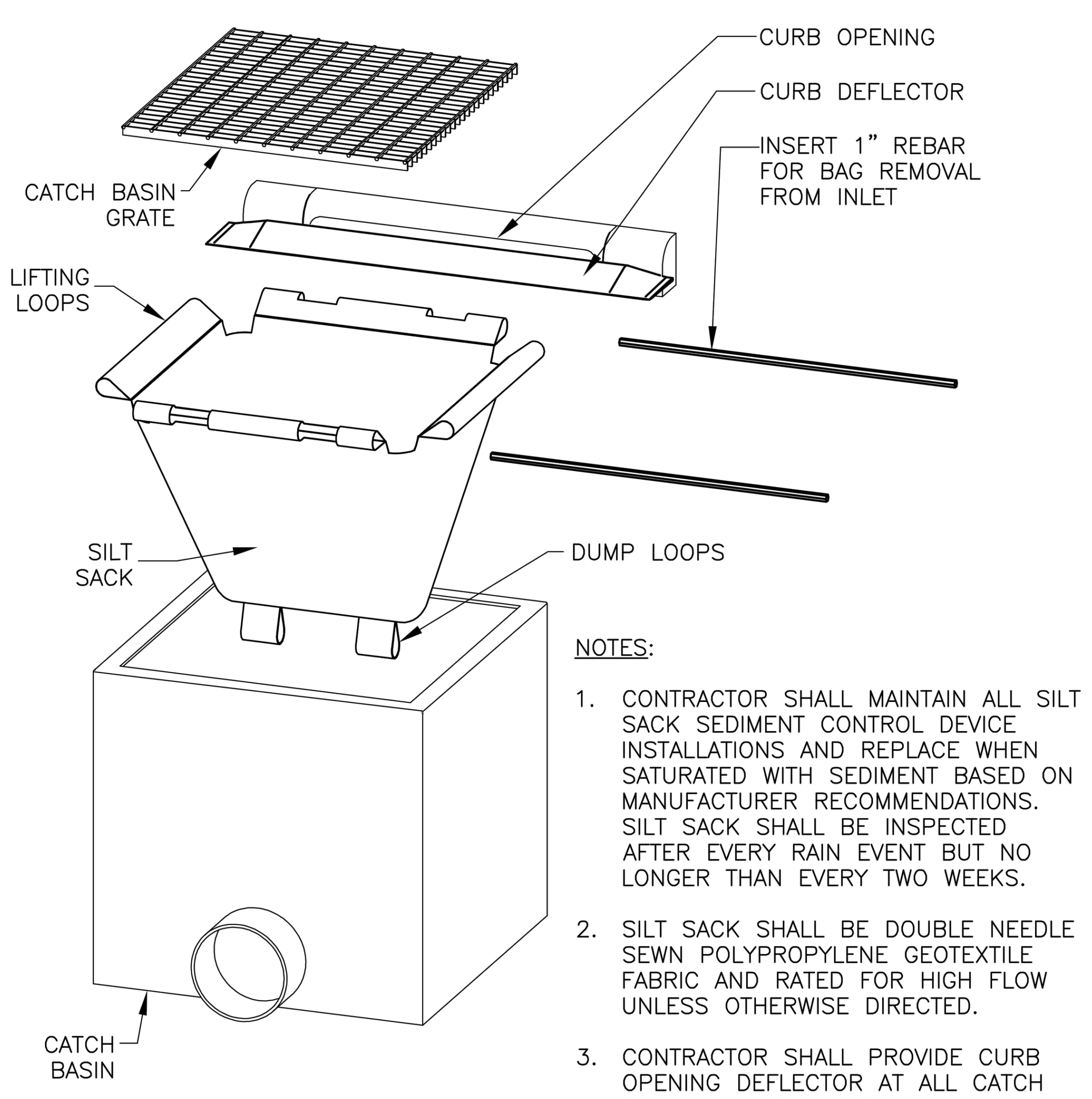
STRAW OR HAY BALE BARRIER INSTALLATION
NOT TO SCALE



NOTE:

1. FENCE TO BE INSTALLED PRIOR TO CONSTRUCTION. PRE–ASSEMBLED UNITS ALSO MAY BE USED AND INSTALLED AS INDICATED.

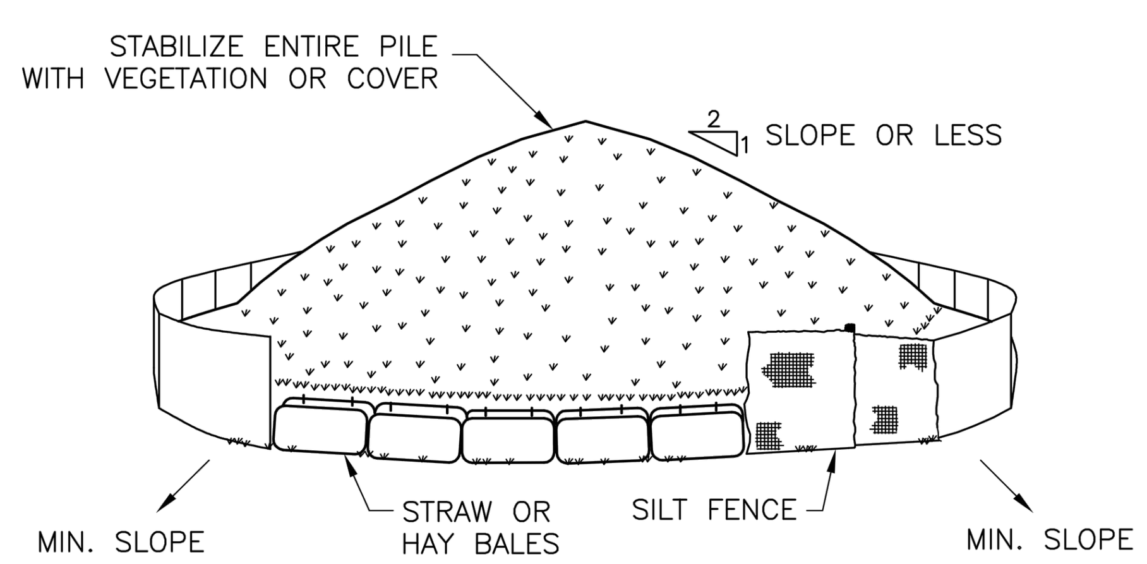
SILT FENCE INSTALLATION
NOT TO SCALE



NOTES:

1. CONTRACTOR SHALL MAINTAIN ALL SILT SACK SEDIMENT CONTROL DEVICE INSTALLATIONS AND REPLACE WHEN SATURATED WITH SEDIMENT BASED ON MANUFACTURER RECOMMENDATIONS. SILT SACK SHALL BE INSPECTED AFTER EVERY RAIN EVENT BUT NO LONGER THAN EVERY TWO WEEKS.
2. SILT SACK SHALL BE DOUBLE NEEDLE SEWN POLYPROPYLENE GEOTEXTILE FABRIC AND RATED FOR HIGH FLOW UNLESS OTHERWISE DIRECTED.
3. CONTRACTOR SHALL PROVIDE CURB OPENING DEFLECTOR AT ALL CATCH BASINS AS NECESSARY.

CATCH BASIN SILT SACK
NOT TO SCALE



NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING, STRAW BALES OR HAY BALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. UPON COMPLETION OF SOIL STOCKPILING, RESTORE STOCKPILING AREA TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

STOCKPILING AREA
NOT TO SCALE

PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

REVISIONS:

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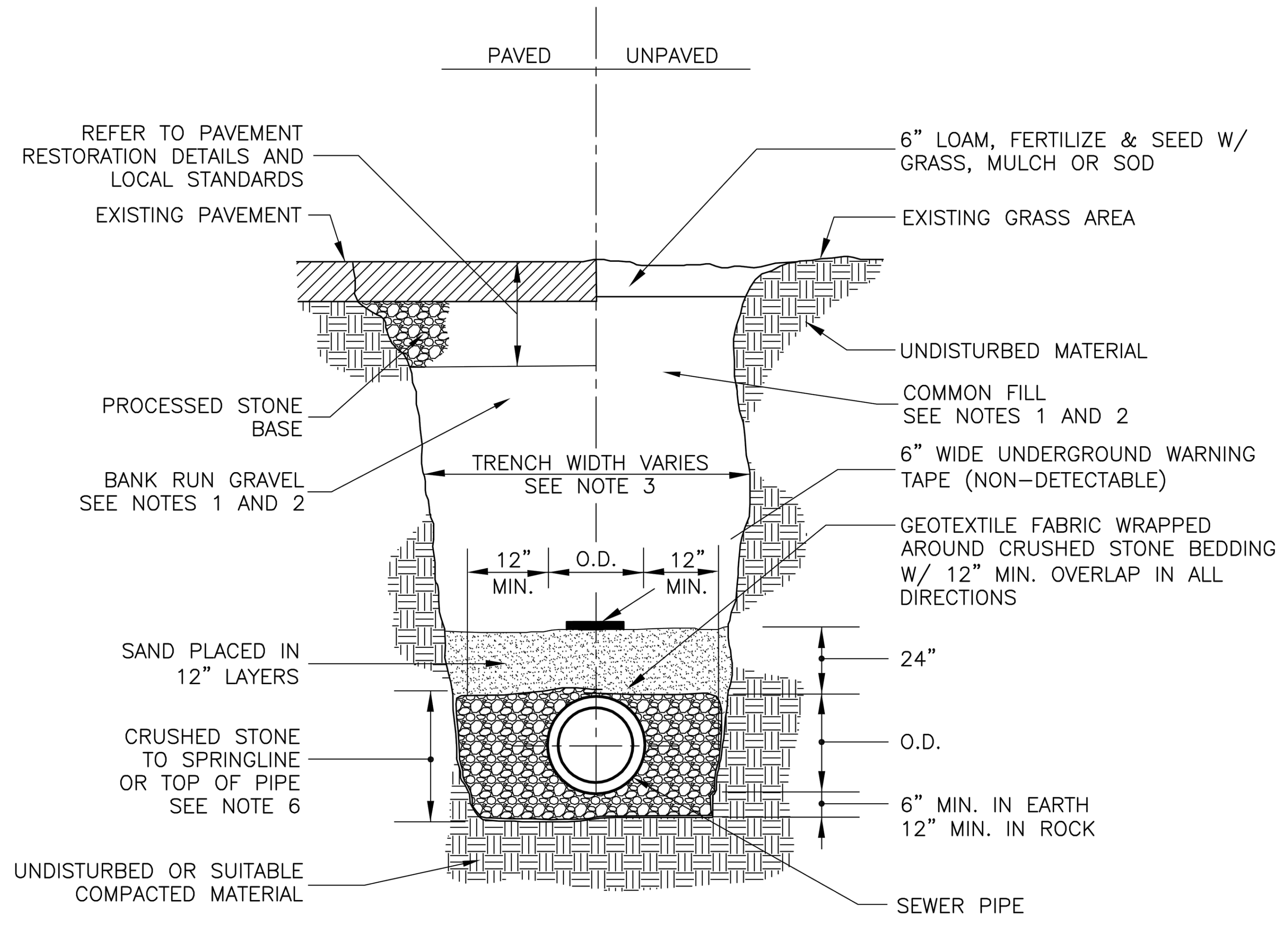
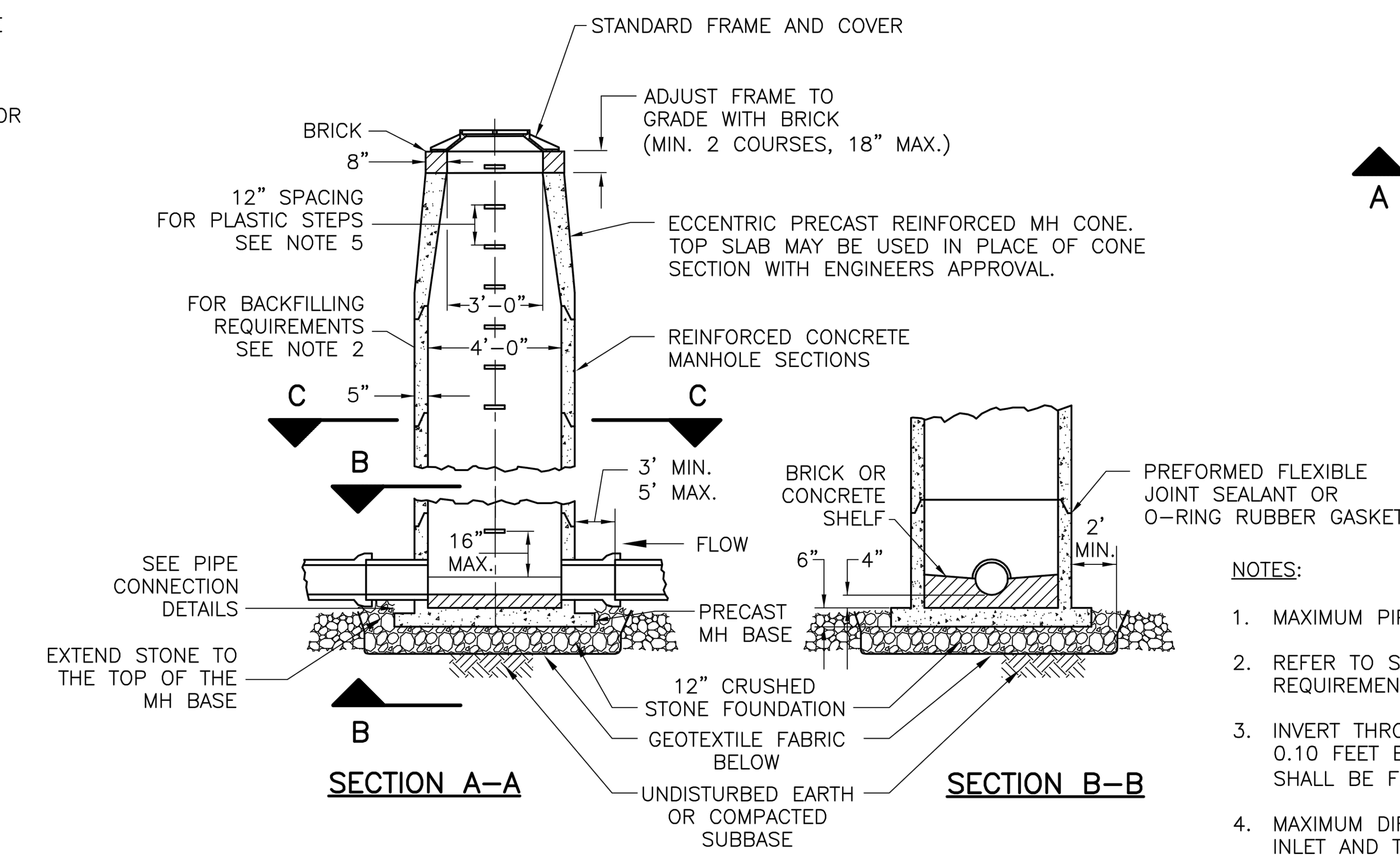
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW
DRAWING TITLE:	DETAILS 1
DRAWING NO.:	C6.1
SHEET NO.	8 OF 17

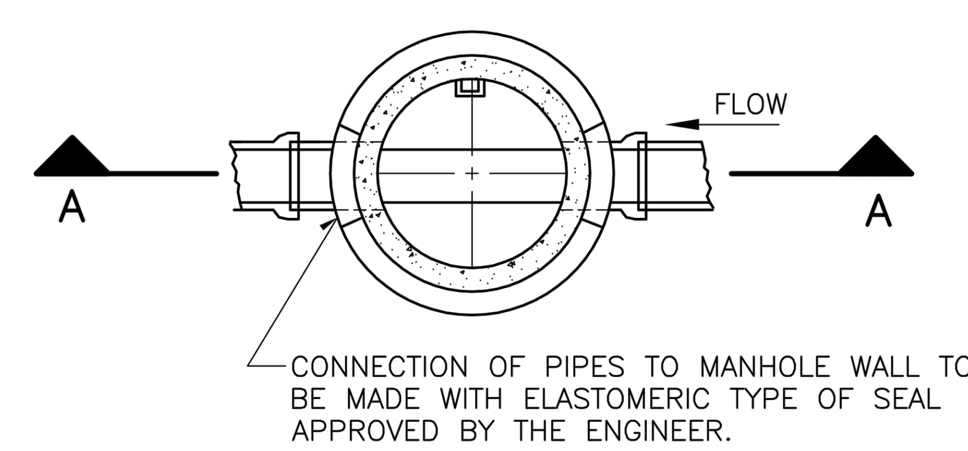


SEWER TRENCH
NOT TO SCALE

NOTES:

1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED.
2. BACKFILL MATERIAL SHALL BE APPROVED BANK RUN GRAVEL IN PAVED AREAS (INCLUDING DRIVEWAYS AND SIDEWALKS) OR COMMON FILL IN UNPAVED AREAS.
3. TRENCH WIDTH VARIES BASED ON PIPE SIZE AND DEPTH.
4. TRENCHES LOCATED IN THE ROAD SHOULDER SHALL BE TREATED THE SAME AS TRENCHES IN THE PAVED ROADWAY EXCEPT FOR PAVEMENT AND SURFACE RESTORATION WORK.
5. PROVIDE IMPERVIOUS TRENCH DAM(S) IN STONE BEDDING AS DIRECTED BY THE ENGINEER. SEE PIPE TRENCH DAM DETAIL.
6. CRUSHED STONE SHALL BE INSTALLED TO TOP OF PIPE FOR PVC AND DI PIPE AND TO SPRINGLINE FOR RC PIPE.





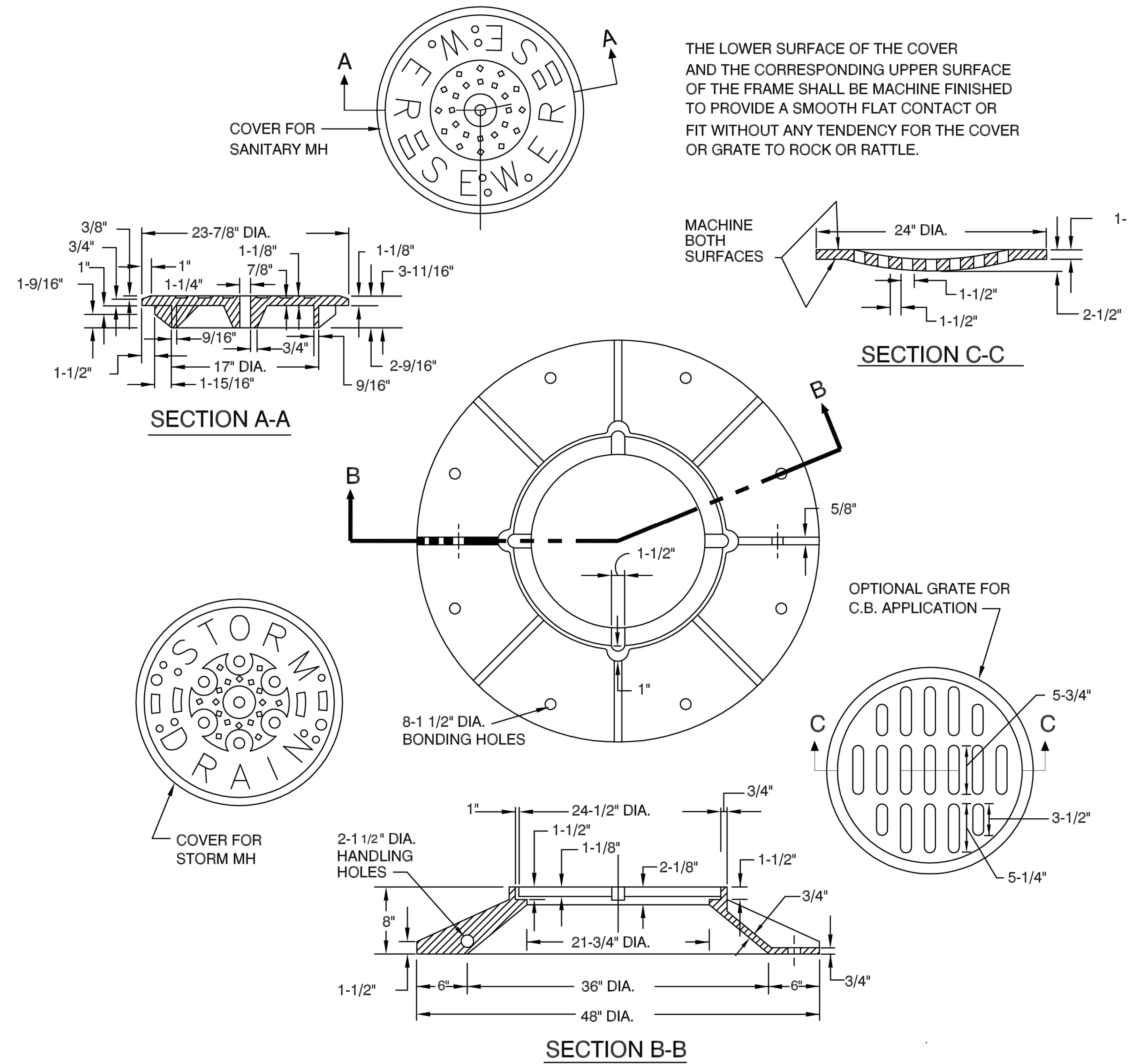
SECTION C–C

NOTES:

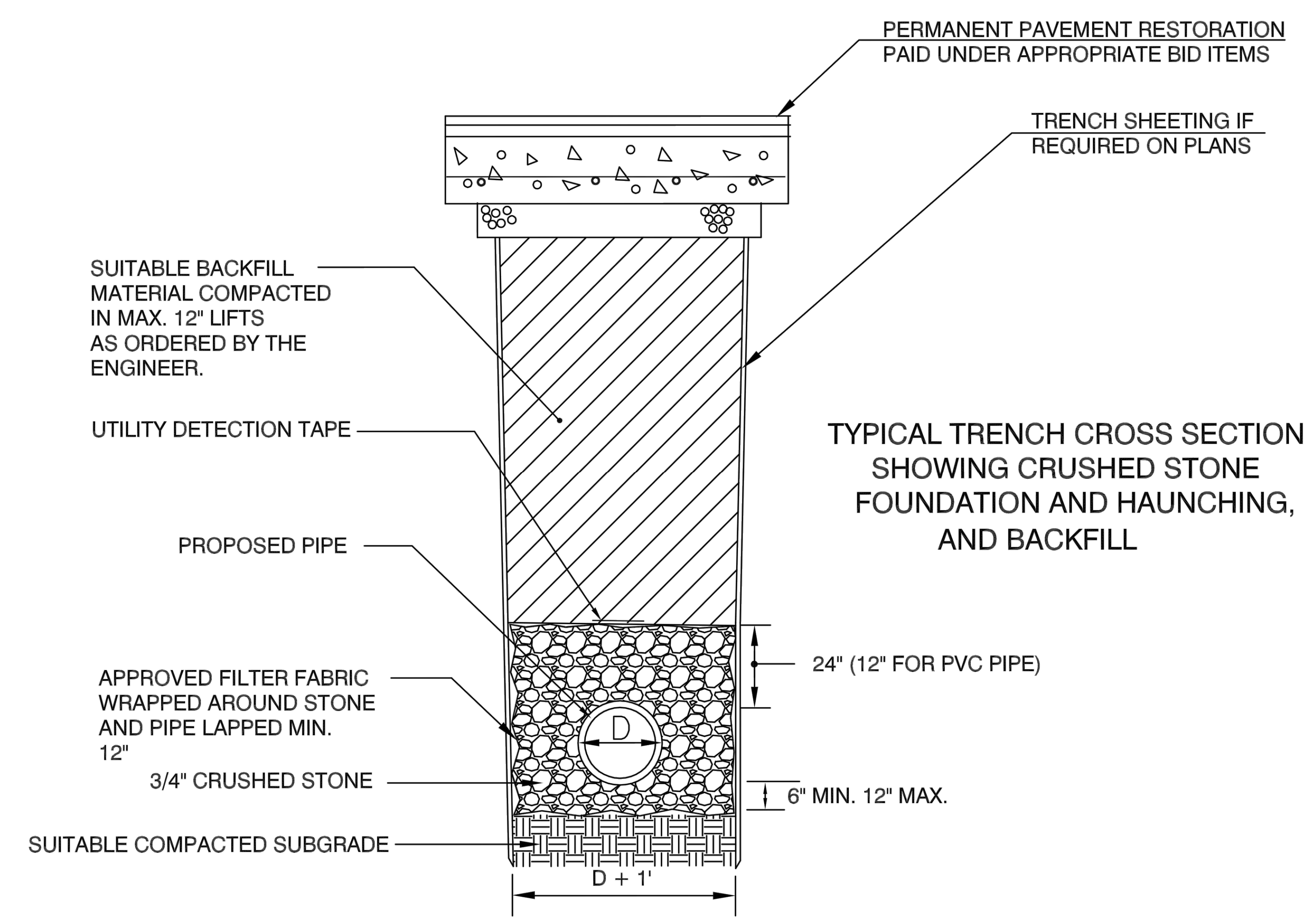
1. MAXIMUM PIPE SIZE TO BE INSTALLED IN 48" MANHOLE BASE SHALL BE 18".
2. REFER TO SEWER TRENCH DETAIL FOR BACKFILLING AND COMPACTION REQUIREMENTS AROUND SEWER MANHOLES.
3. INVERT THROUGH THE MANHOLE SHALL HAVE A UNIFORM GRADE OF MINIMUM 0.10 FEET BETWEEN THE INVERTS OF THE INLET AND OUTLET PIPES. INVERTS SHALL BE FIELD FORMED AND NOT FORMED IN SHOP/YARD.
4. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN THE INVERT OF THE TRIBUTARY INLET AND THE MANHOLE INVERT SHALL BE 18 INCHES. ELEVATION DIFFERENCES GREATER THAN 18 INCHES WILL REQUIRE A DROP CONNECTION.
5. DISTANCE FROM TOP OF MANHOLE COVER TO FIRST PLASTIC STEP SHALL BE BETWEEN 12" AND 16".

TYPICAL II PRECAST CONCRETE MANHOLE
NOT TO SCALE

THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT WITHOUT ANY TENDENCY FOR THE COVER OR GRATE TO ROCK OR RATTLE.



STANDARD MANHOLE FRAME AND COVER
NOT TO SCALE



(NOT TO SCALE)

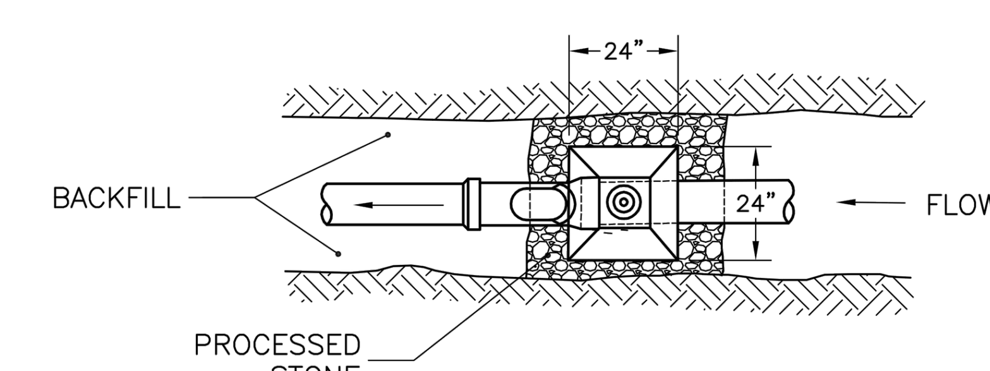
NOTE:

CRUSHED STONE FOUNDATION 3/4" MAXIMUM SIZE, SHALL BE PLACED 6" UNDER THE PIPE AND UP TO THE REQUIRED GRADE, THE PIPE LAID THEREON, CRUSHED STONE PULLED AGAINST THE PIPE SIDES TO FIRMLY HOLD THE PIPE IN PLACE.

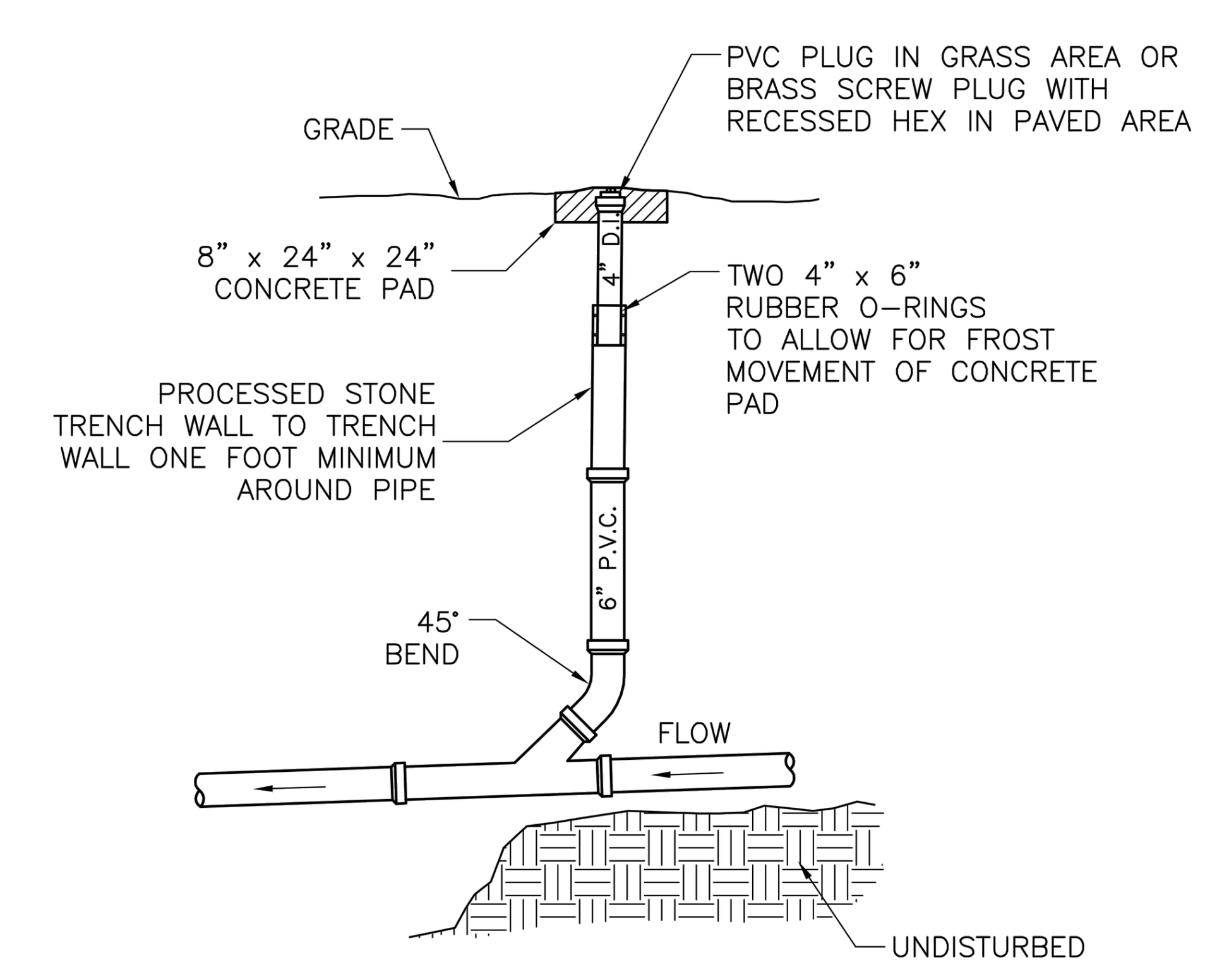
ALL COSTS FOR SUITABLE BACKFILL AND CRUSHED STOINE FOUNDATION SHALL BE INCLUDED IN THE PRICE FOR ALL PIPE. BANK-RUN GRAVEL USED AS BACKFILL ABOVE 3/4" STONE (IF ORDERED) WILL BE PAID UNDER ITEM #0103501.

CRUSHED STONE HAUNCHING, 3/4" MAXIMUM SIZE, SHALL BE BROUGHT TO A LEVEL TO THE TOP OF THE PIPE AND OUT TO THE TRENCH WALL AT THIS ELEVATION FOR ALL PIPE

DRAINAGE TRENCH
NOT TO SCALE



PLAN



PROFILE

CLEANOUT AT GRADE
NOT TO SCALE

PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

REVISIONS:

PROJECT NO.:	22054.00
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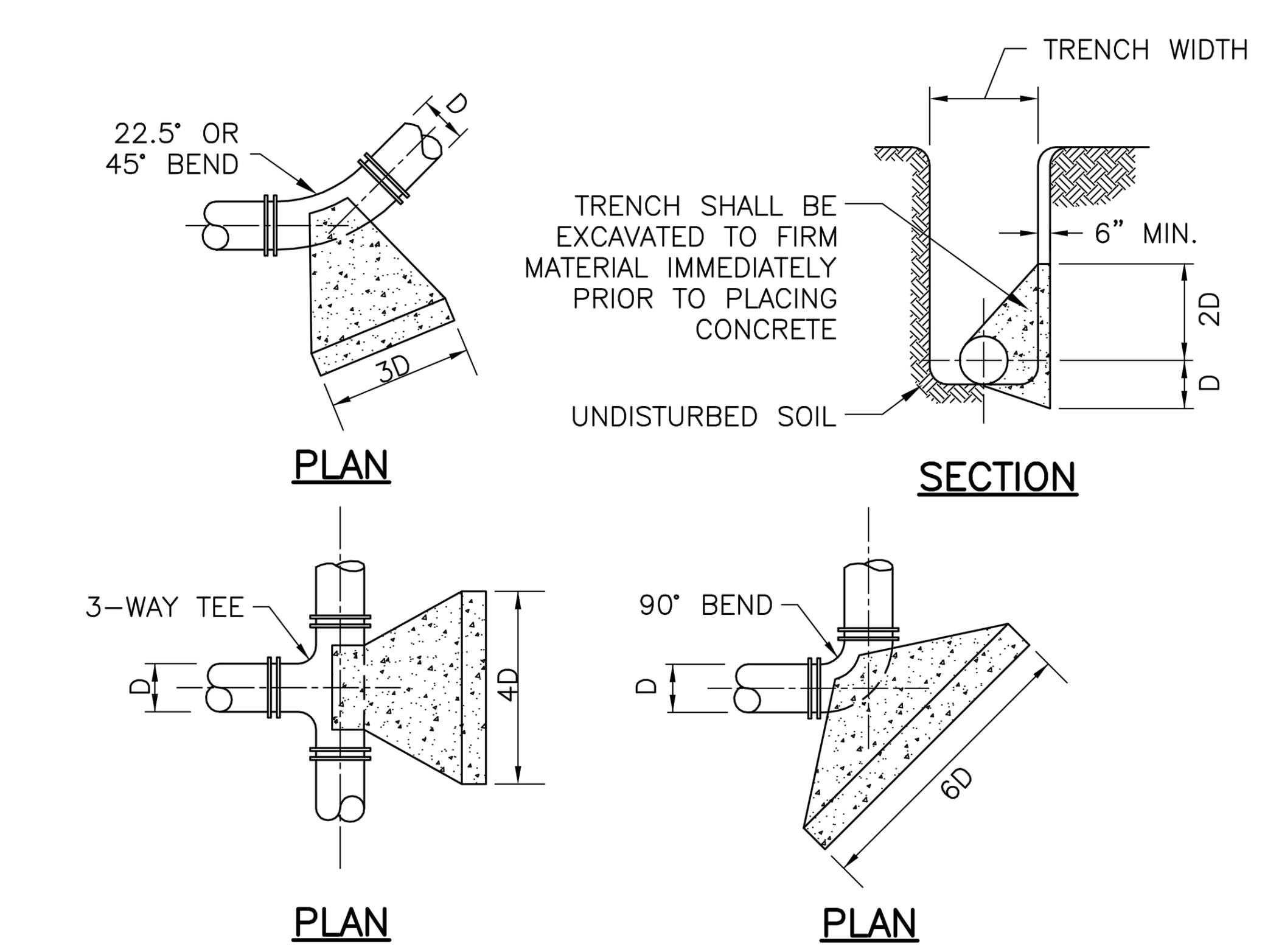
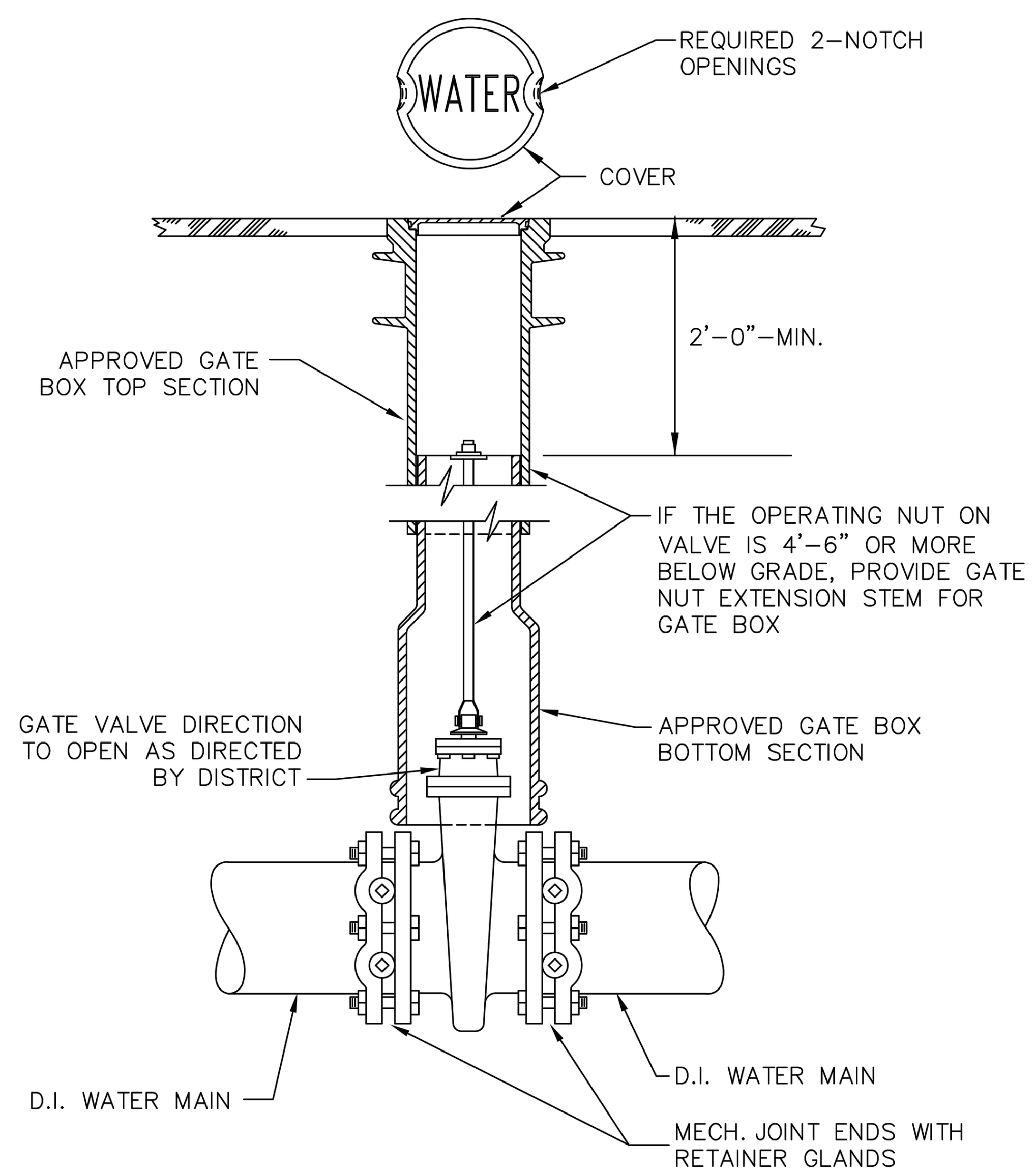
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW
DRAWING TITLE:	DETAILS 2
DRAWING NO.:	C6.2
SHEET NO.	9 OF 17



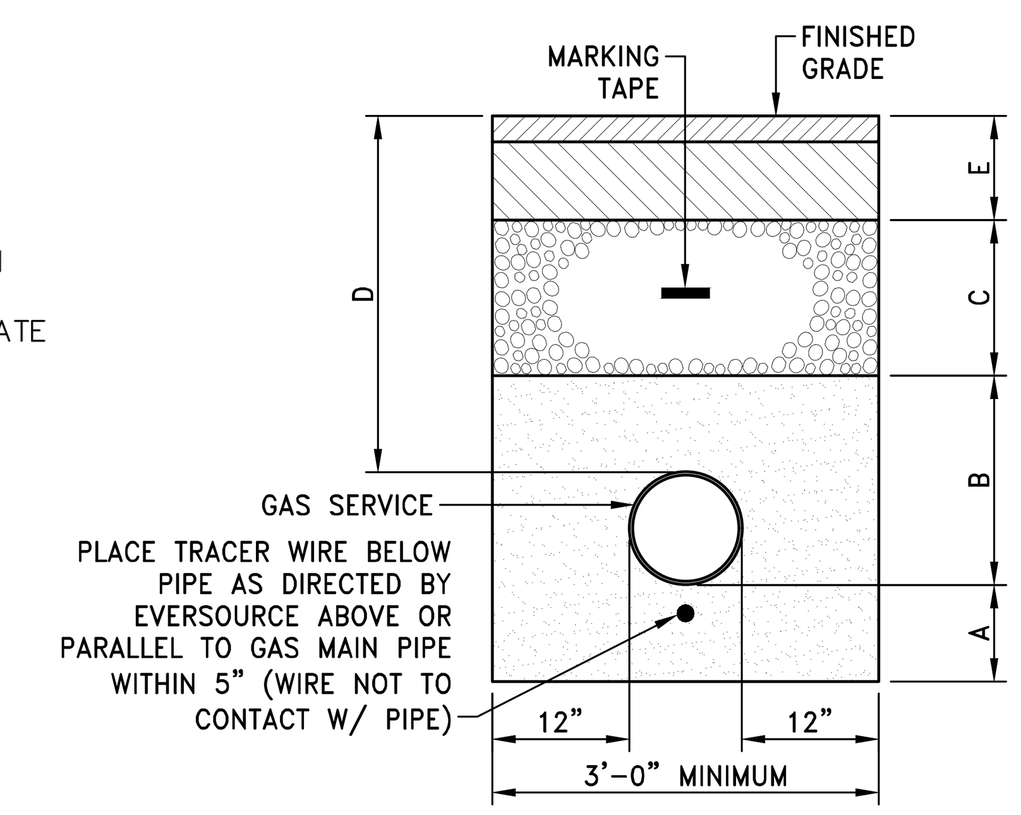
NOTES:

1. THRUST RESTRAINTS SHALL BE EITHER RESTRAINED JOINTS FOR DUCTILE IRON PIPE OR THRUST BLOCKS. THRUST BLOCKS ARE NOT THE PREFERRED METHOD OF THRUST RESTRAINT AND WILL ONLY BE PERMITTED IN SPECIAL CASES AS DIRECTED BY THE ENGINEER OR BY THE DISTRICT.
2. THRUST BLOCKS SHOULD ONLY BE USED WHEN SOIL CONDITIONS ARE STABLE.
3. ANCHORS SHALL BE BASED ON MAXIMUM ALLOWABLE WATER PRESSURE OF 150 PSI.

CONCRETE THRUST BLOCKS FOR 12-INCH AND SMALLER MAINS
NOT TO SCALE



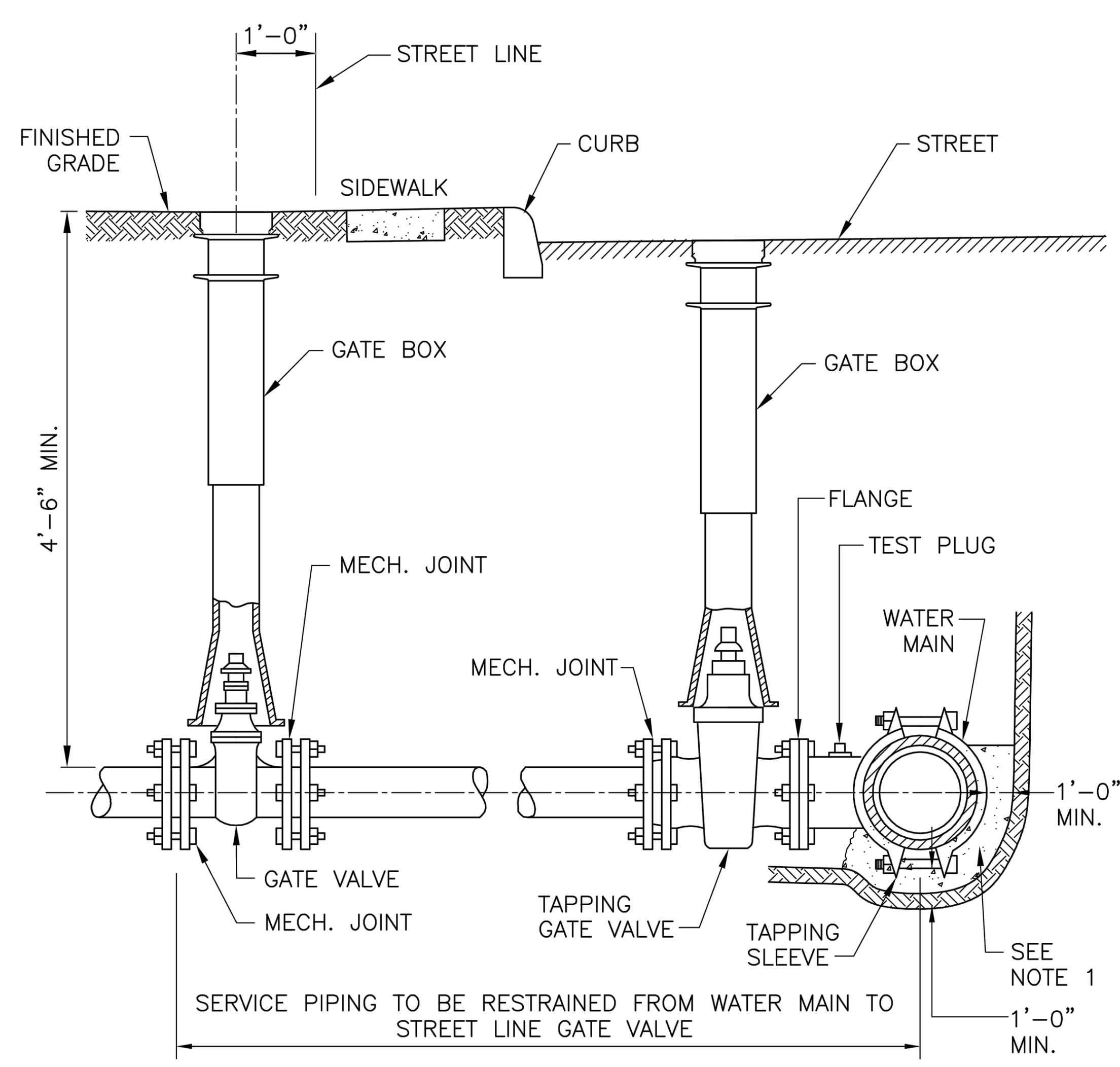
STANDARD GATE VALVE 12-INCH AND SMALLER
NOT TO SCALE



A-COARSE SAND BEDDING — 6"
B-COARSE SAND BEDDING — 12" OVER PIPE
C-COMMON BORROW — AS REQUIRED
D-COVER — 18" MINIMUM FOR SERVICES
FINISHED GRADE — SEE BITUMINOUS CONCRETE PAVEMENT

NOTE:
THIS DETAIL REPRESENTS A TYPICAL GAS TRENCH DETAIL. FINAL TRENCH MATERIALS AND DIMENSIONS SHALL BE COORDINATED WITH EVERSOURCE.

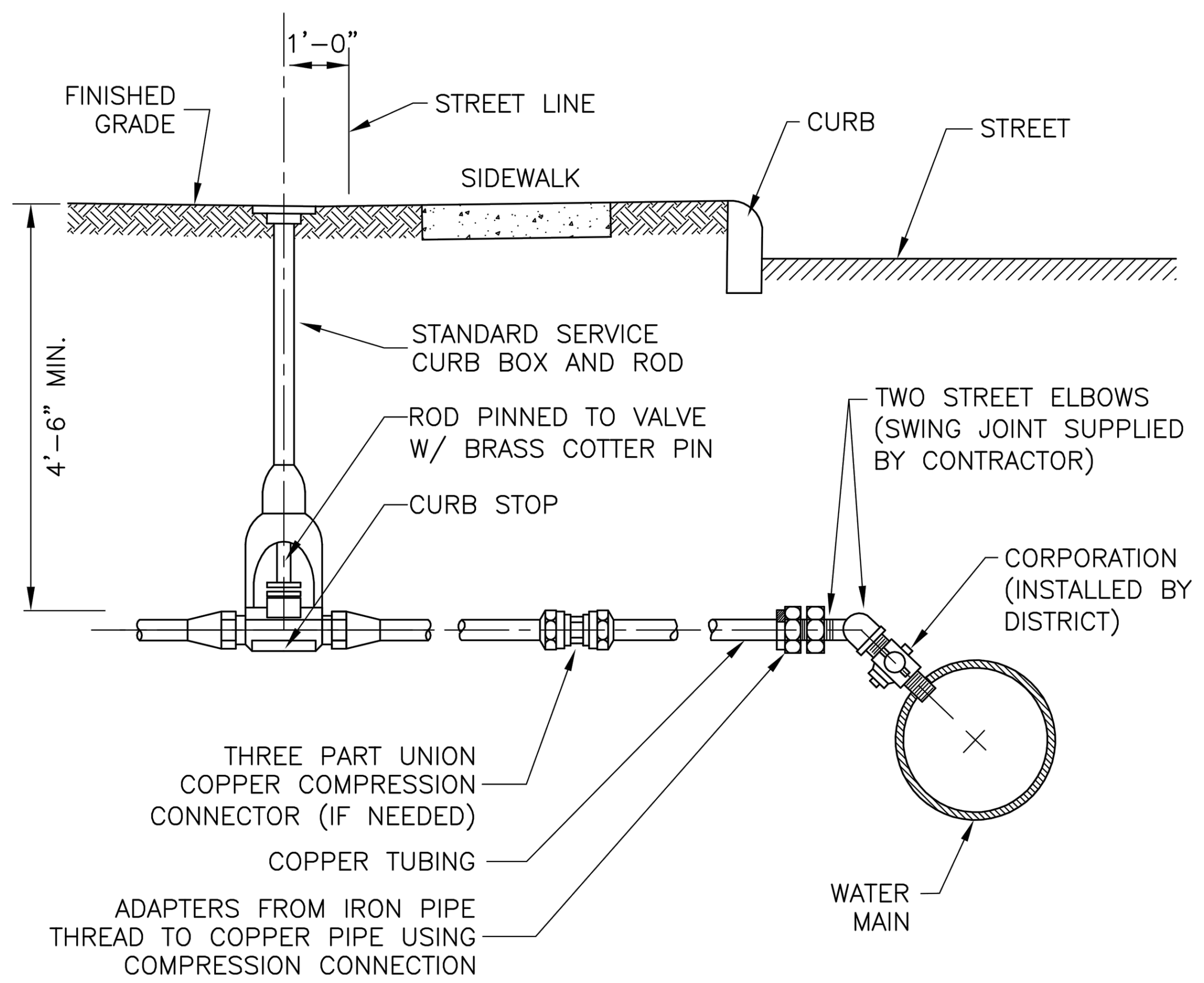
TYPICAL GAS MAIN TRENCH DETAIL
NOT TO SCALE



NOTES:

1. POURED CONCRETE THRUST BLOCK TO BE INSTALLED AFTER TAP IS MADE. PROTECT NUTS FROM CONCRETE WITH 6 MIL POLY COVER OR EQUAL.

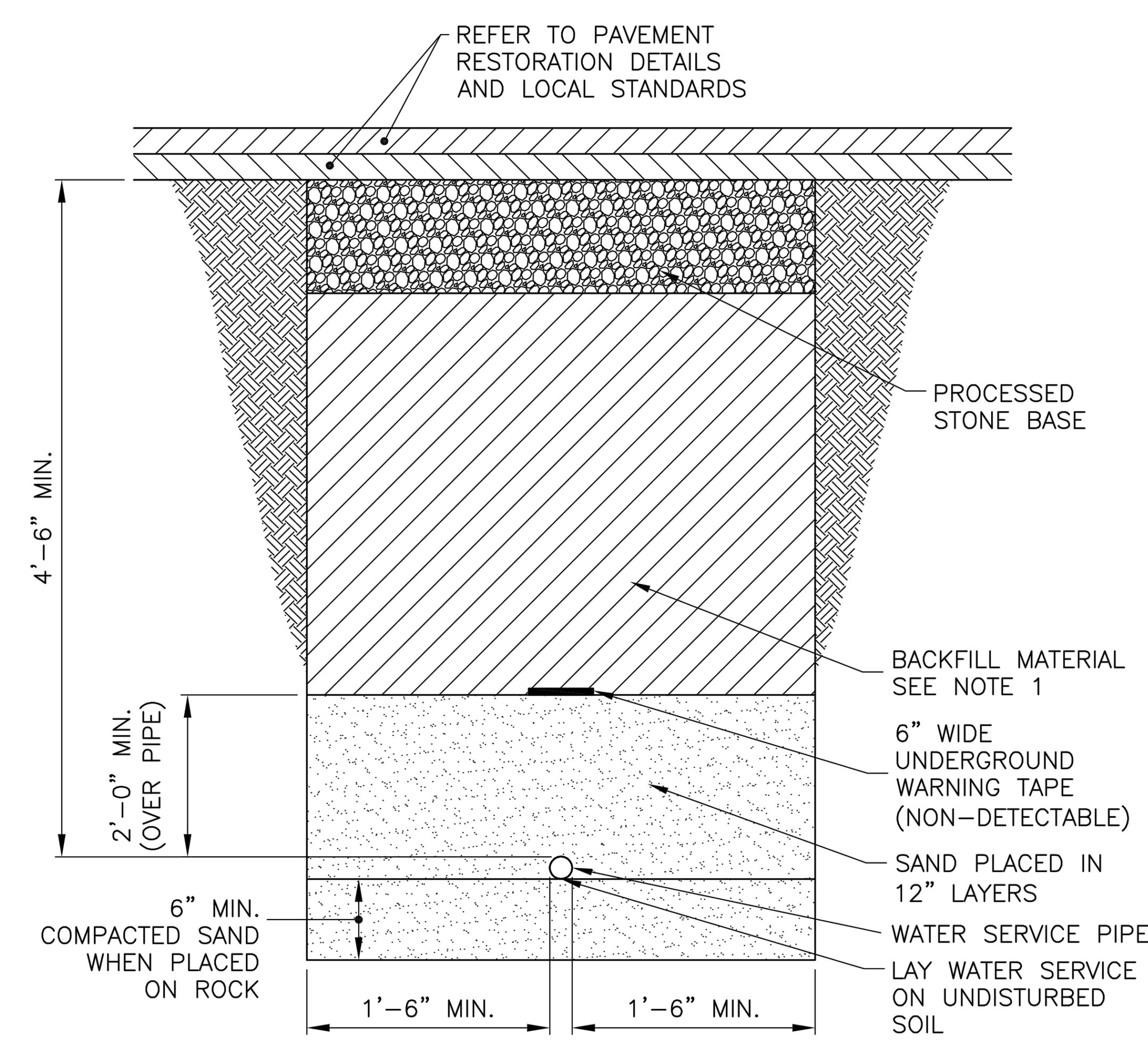
SERVICES 4-INCH THROUGH 8-INCH
NOT TO SCALE



NOTE:

1. IF THE WATER SERVICE PIPE IS IRON OR BRASS ON THE PRIVATE PROPERTY SIDE, PROVIDE SHORT LENGTH OF COPPER PIPE AND PACK JOINT ADAPTER COUPLING OR EQUIVALENT.

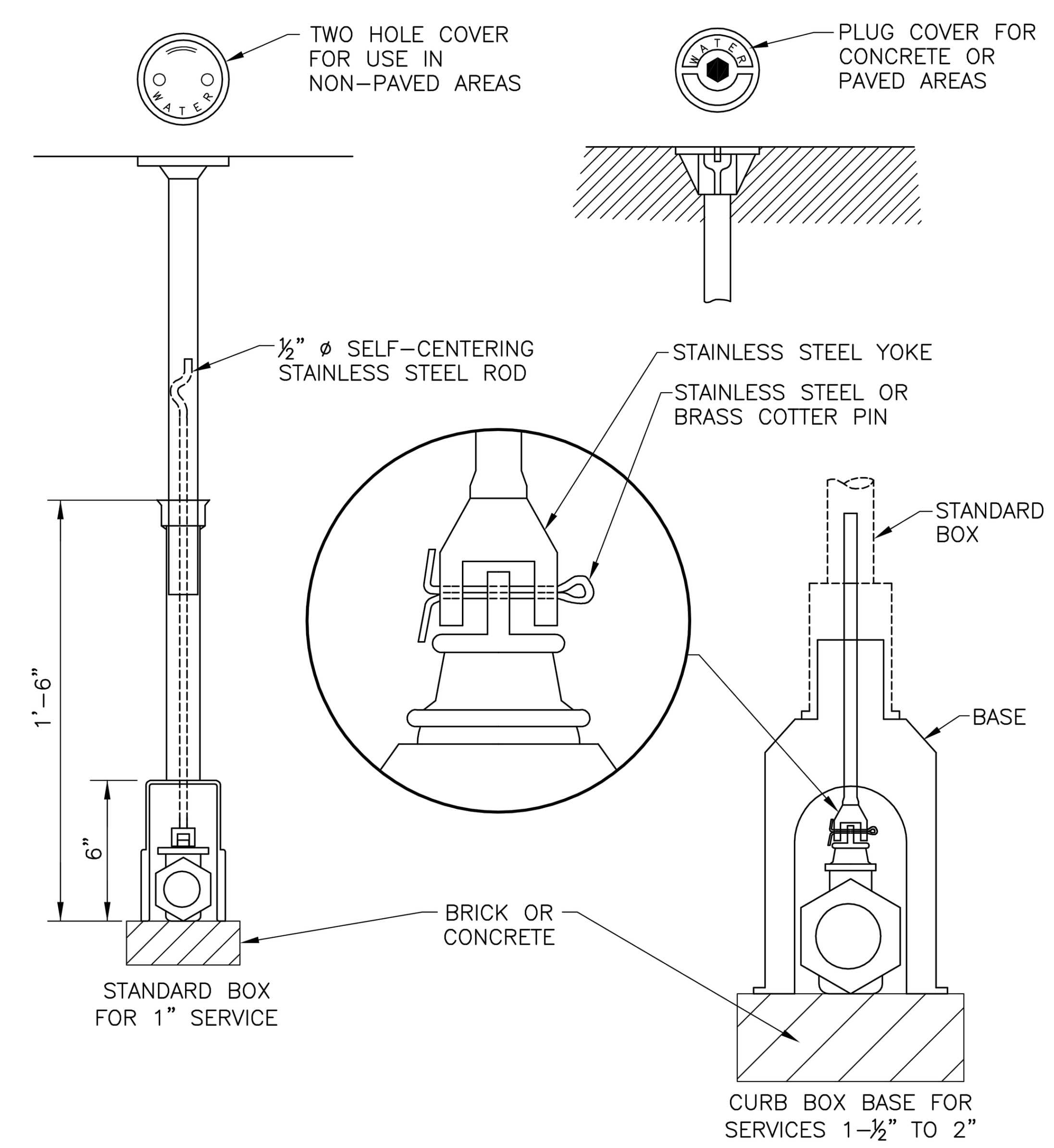
1-INCH SERVICE TAP OFF HORIZONTAL CENTER LINE
NOT TO SCALE



NOTE:

1. BACKFILL MATERIAL SHALL BE BANK-RUN GRAVEL IN PAVED AREAS (INCLUDING SIDEWALKS AND DRIVEWAYS) OR COMMON FILL IN NON-PAVED AREAS.

WATER SERVICE TRENCH
NOT TO SCALE



STANDARD SERVICE CURB BOX
NOT TO SCALE

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PARE

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0" 1"
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INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

REVISIONS:

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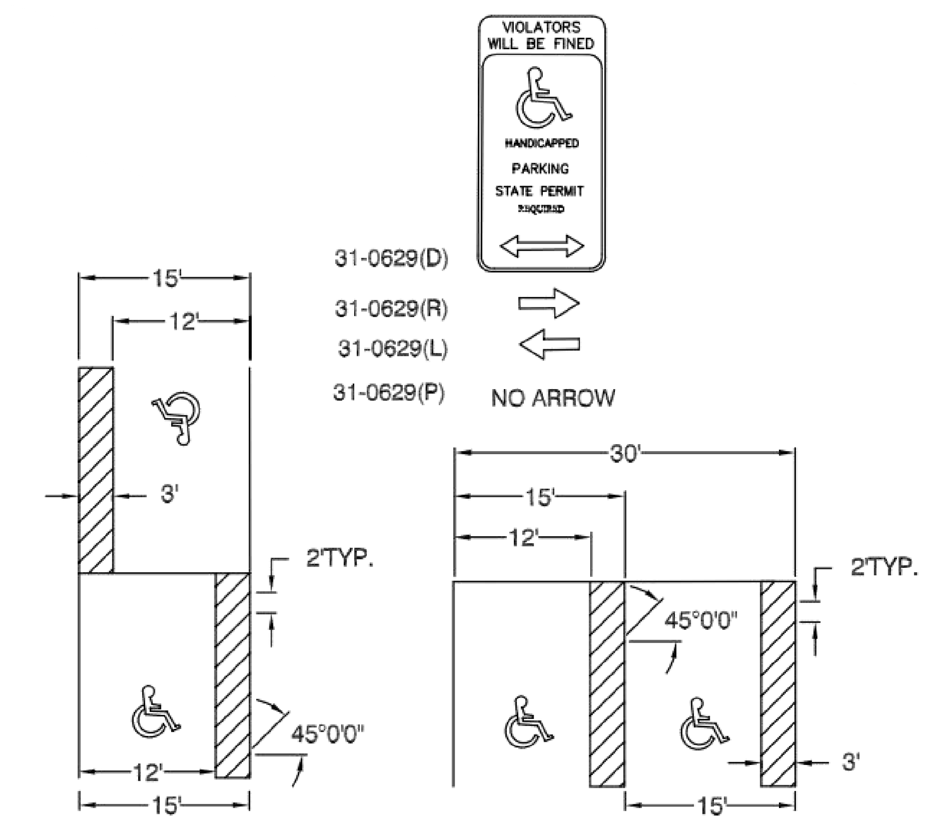
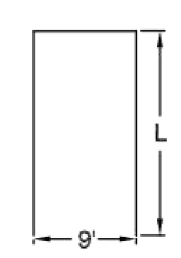
DRAWN BY:	AWL
APPROVED BY:	JLW
DRAWING TITLE:	DETAILS 3
DRAWING NO.:	C6.3
SHEET NO.	10 OF 17



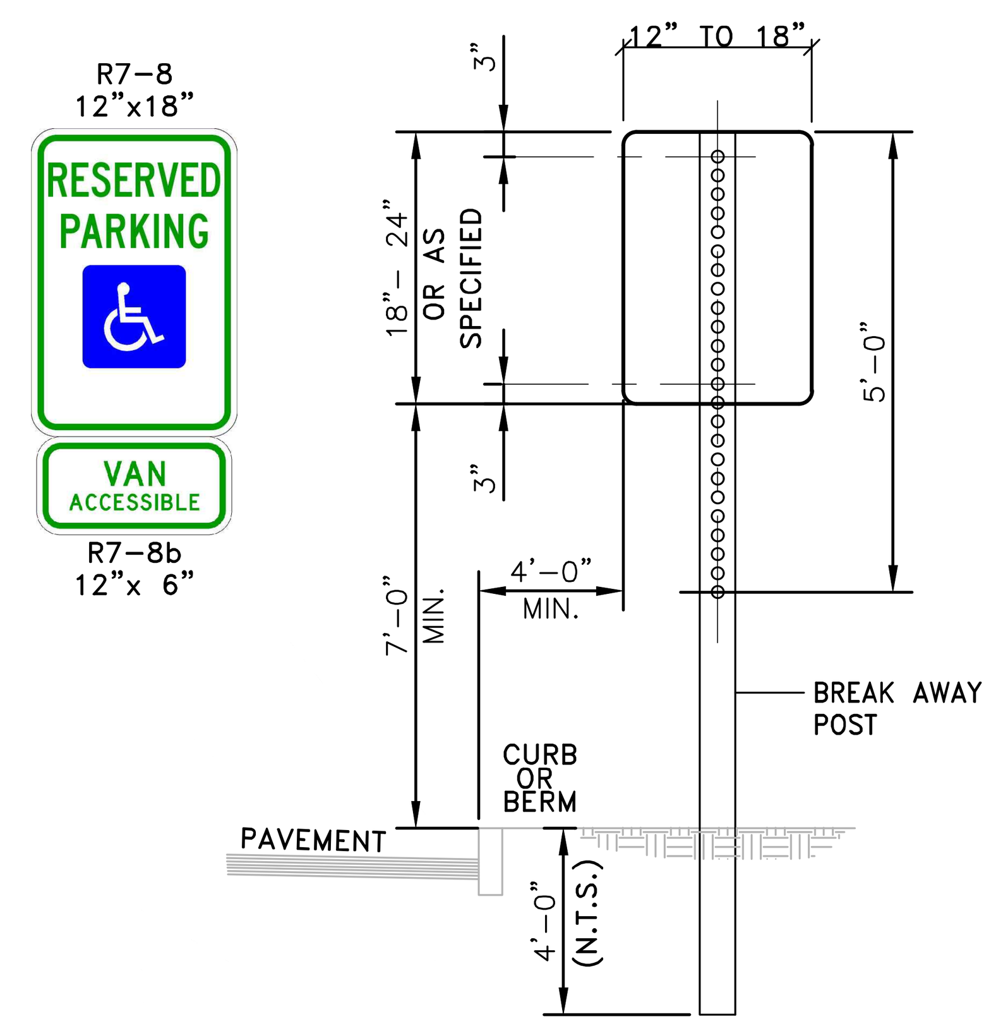
PARKING STALLS FOR HANDICAPPED

NOT TO SCALE



PARKING STALLS

NOT TO SCALE

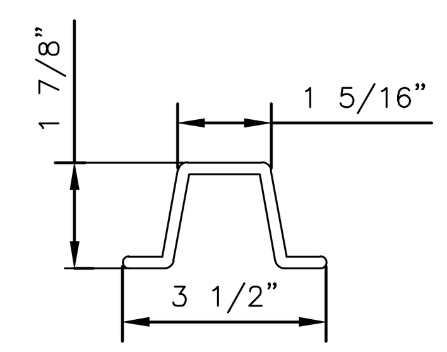


NOTE:

5/16" x 2-0" GALVANIZED BOLTS & WASHERS

STEEL SPECIFICATION – A.S.T.M. DESIGNATION A499–64 ZINC (HOT GALVANIZED) SPECIFIED BY– A.S.T.M. A 123.

WT./FT.	3.00#
Mom. Ix–x	$0.484in^4$
Sec Mod x–x	$0.569in^3$
Mon Iy–y	$0.886in^4$
Sec Mod y–y	$0.506in^3$



PARKING SIGNS SHALL BE SET AT AN ANGLE OF NOT LESS THAN 30° NOR MORE THAN 45° IN A LINE PARALLEL TO THE FLOW OF TRAFFIC.

ACCESSIBLE SIGN MOUNTING

NOT TO SCALE

NOTES:

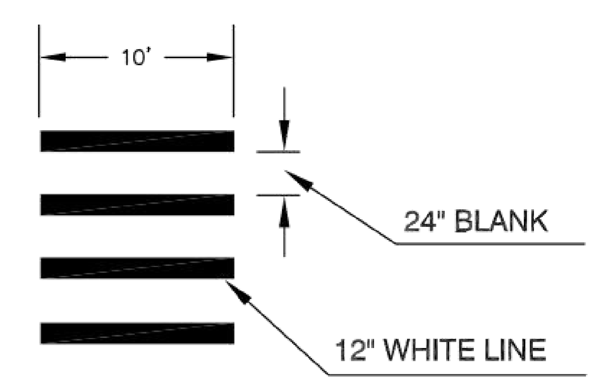
1. ALL LAG SCREWS, BOLTS AND WASHERS SHALL BE GALVANIZED 5/16" x2 1/2" LONG UNLESS OTHERWISE NOTED.
2. ALL SIGN COLORS, RADII AND BORDERS AS SPECIFIED IN "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. SHALL BE IN ACCORDANCE WITH BUREAU OF TRANSPORTATION PLANNING AND DEVELOPMENT STANDARD DRAWINGS FOR SIGNS AND SUPPORTS.
4. PARKING SIGNS SHALL BE SET AT AN ANGLE OF NOT LESS THAN 30° NOT MORE THAN 45° WITH A LINE PARALLEL TO FLOW OF TRAFFIC, 1'-6" (1'-0" MIN.) FROM THE EDGE OF CURB FACE.
5. ALL ACCESSIBLE PARKING AND SIGNAGE SHALL BE IN CONFORMANCE WITH THE RULES & REGULATIONS AS SPECIFIED BY THE AMERICAN DISABILITIES ACT (ADA).
6. SIGN(S) SHALL BE LOCATED SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.
7. FOR ACCESSIBLE VAN SPACE USE SIGN AS DETAILED.
8. FOR ACCESSIBLE SPACE FOR AUTOMOBILES USE ONLY ACCESSIBLE PARKING SIGN.

LEGEND	DESIGNATION	SIZE
	R1–1	(30" x 30")
	R7–8	(12" x 18")
	R7–8b	(12" x 6")
	AR–748	(12" x 18")
	R5–1	(30" x 30")
	R7–1	(30" x 30")

NOTE:

1. SIGNS SHALL BE CONSTRUCTED OF TYPE III REFLECTORIZED SHEETING AND IN ACCORDANCE WITH MUTCD REQUIREMENTS, LATEST REVISION.
2. THE CONTRACTOR SHALL SUBMIT SAMPLE SIGNS TO BRISA AND PARE FOR REVIEW AND APPROVAL PRIOR TO FURNISHING.
3. LETTERS, COLOR, AND FONT FOR NON–STANDARD SIGNS SHALL BE REVIEWED AND APPROVED BY INSA.
4. ALL SIGN MOUNTING SHALL CONFORM TO CTDOT STD. SIGN DETAIL

SIGN SCHEDULE



ALL LINES TO BE FULL LENGTH AND PARALLEL TO CENTER LINE

PEDESTRIAN CROSSWALK DETAIL

NOT TO SCALE

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PARE

SCALE ADJUSTMENT GUIDE
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INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

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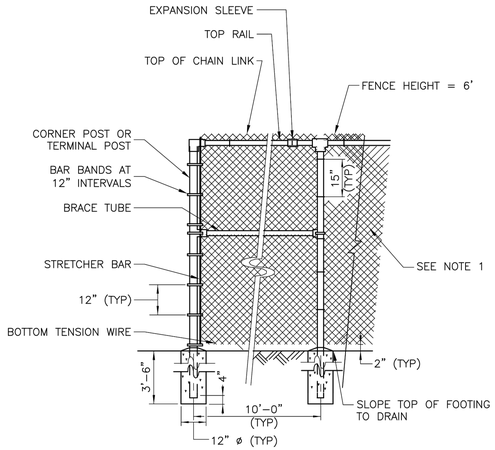
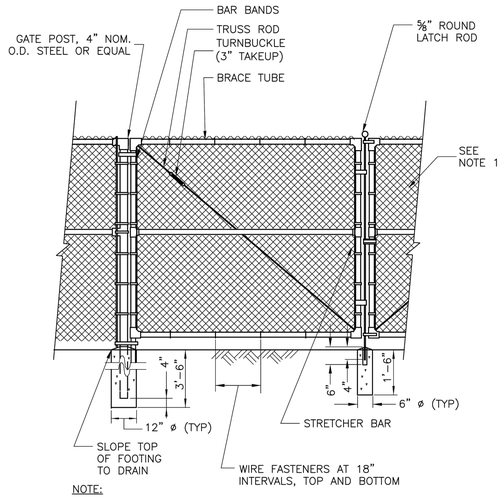
APPROVED BY:	JLW
DRAWING TITLE:	DETAILS 4
DRAWING NO.:	C6.4
SHEET NO.	11 OF 17



NOTE:

1. PROVIDE SHIELDING PRIVACY STRIPS IN CHAIN LINK MESH IF REQUIRED.

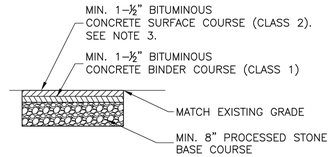
CHAIN LINK FENCE (6-FEET HIGH)
NOT TO SCALE



NOTE:

1. PROVIDE SHIELDING PRIVACY STRIPS IN CHAIN LINK MESH IF REQUIRED.

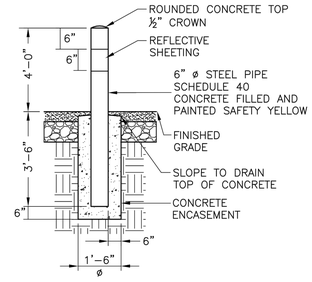
CHAIN LINK FENCE GATE (6-FEET HIGH)
NOT TO SCALE



NOTES:

1. RESTORE SURFACE OF DISTURBED BITUMINOUS CONCRETE DRIVEWAYS OR DRIVEWAY APRONS TO MATCH EXISTING DEPTH AND DIMENSIONS.
2. SAW CUT EDGES OF EXISTING DRIVEWAY AND DISPOSE OF ALL CUTBACK MATERIALS.
3. PRIOR TO PLACEMENT OF THE OVERLAY, THE ENTIRE ROAD WIDTH WHERE OVERLAY IS TO BE PLACED SHALL BE BROOM CLEANED AND TACK COATED.
4. IMMEDIATELY AFTER PLACEMENT OF BITUMINOUS CONCRETE DRIVEWAY, ALL JOINTS BETWEEN THE EXISTING AND NEW DRIVEWAY AND SIDEWALK SHALL BE SEALED WITH HOT ASPHALT SEALER.

BITUMINOUS CONCRETE DRIVEWAY
NOT TO SCALE



STEEL BOLLARD
NOT TO SCALE

PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

STATE OF CONNECTICUT JOSEPH L. WILLIAMS No. 35067 LICENSED PROFESSIONAL ENGINEER

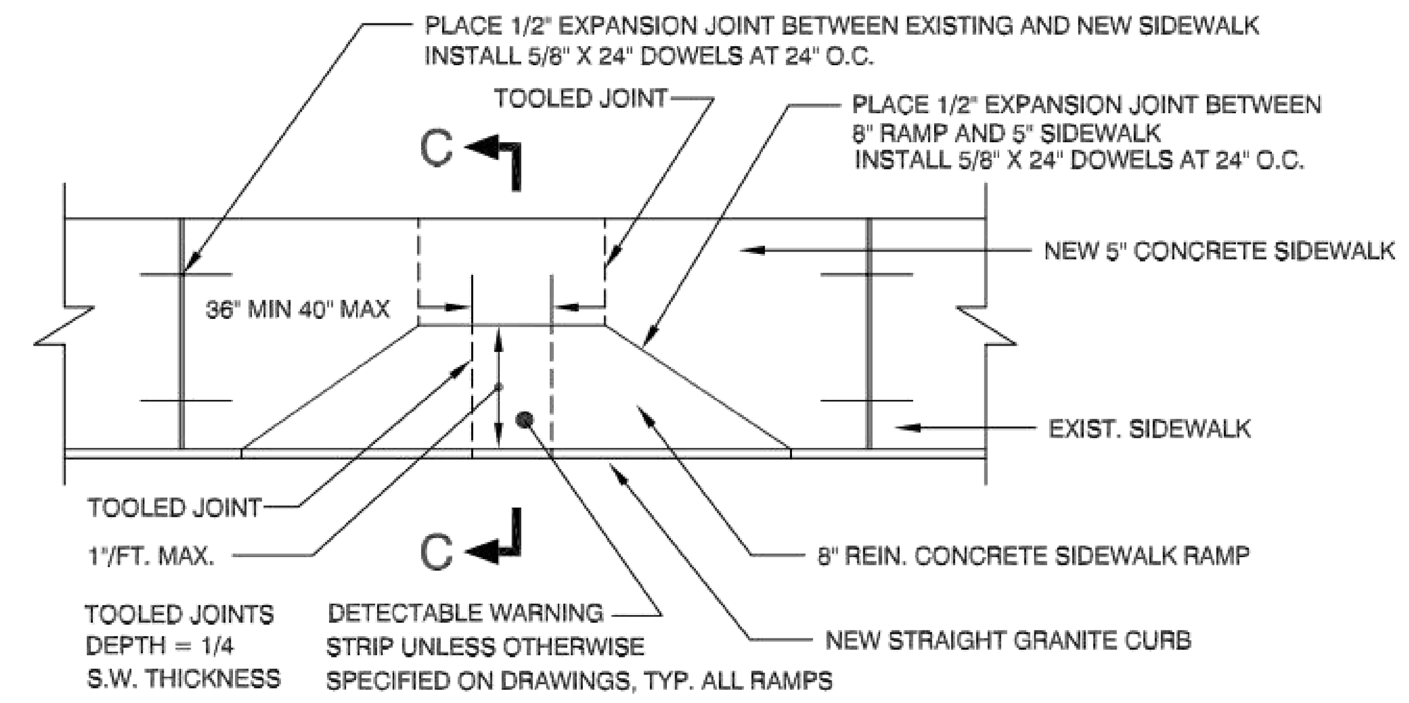
REVISIONS:

PROJECT NO.:	22054.00
DATE:	9/30/22
SCALE:	NOT TO SCALE
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW

DRAWING TITLE:
DETAILS 5

DRAWING NO.:
C6.5

SHEET NO. 12 OF 17



SIDEWALK RAMP TYPE I
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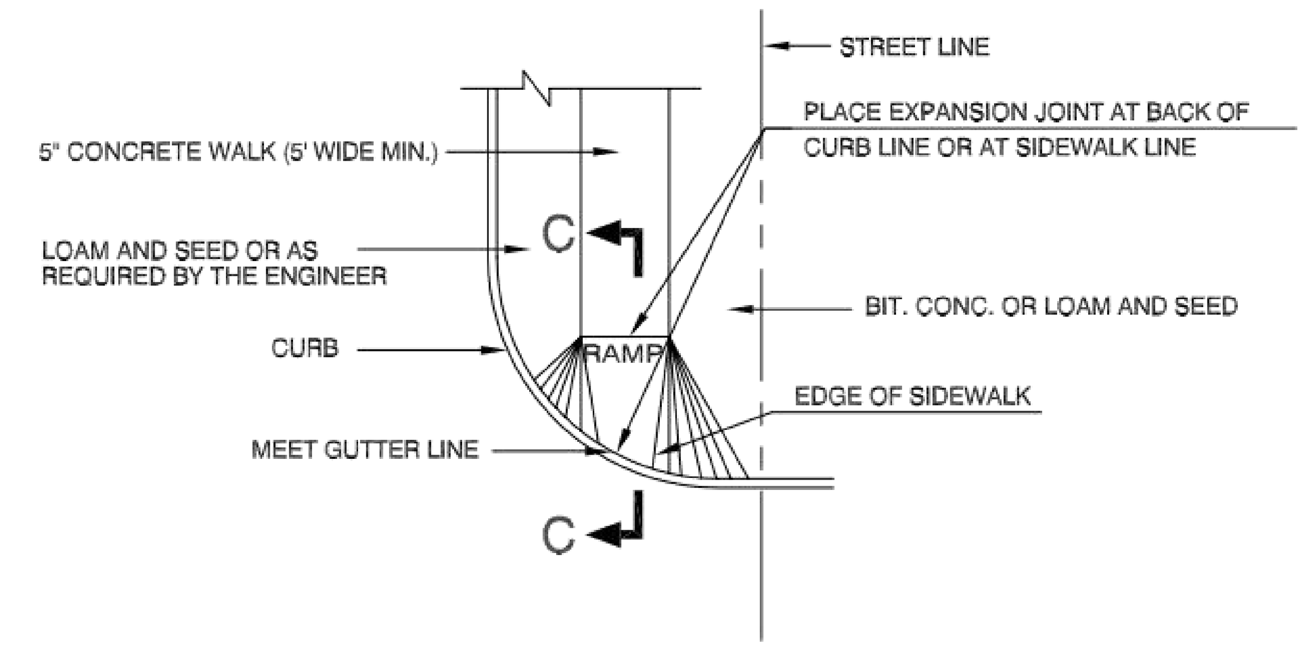

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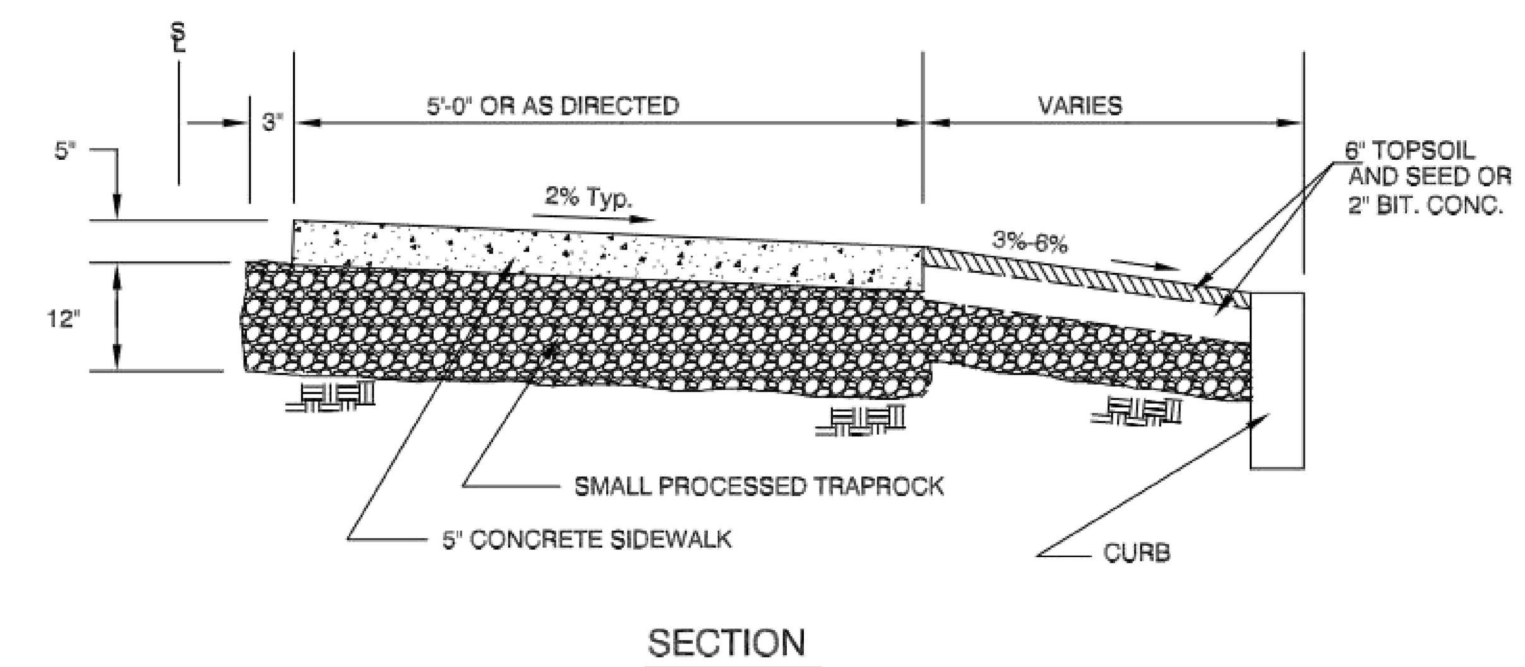
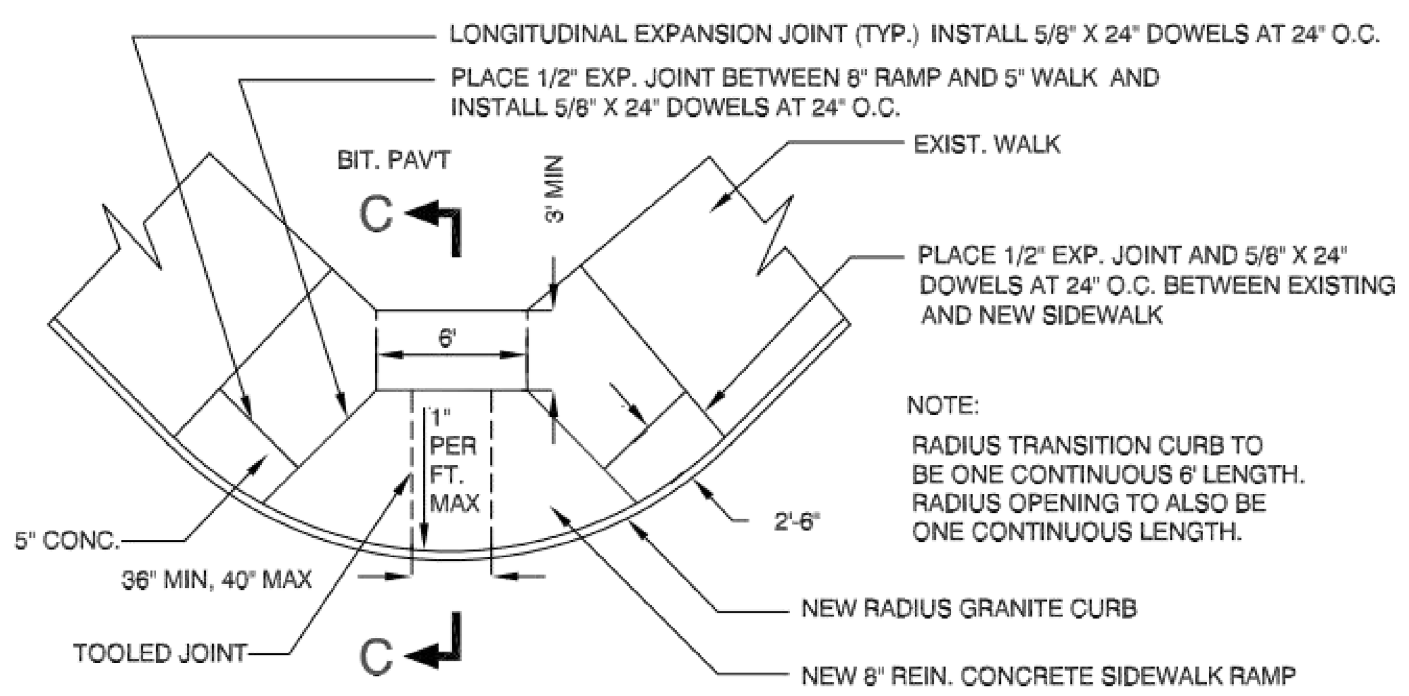


5" CONCRETE SIDEWALK
NOT TO SCALE



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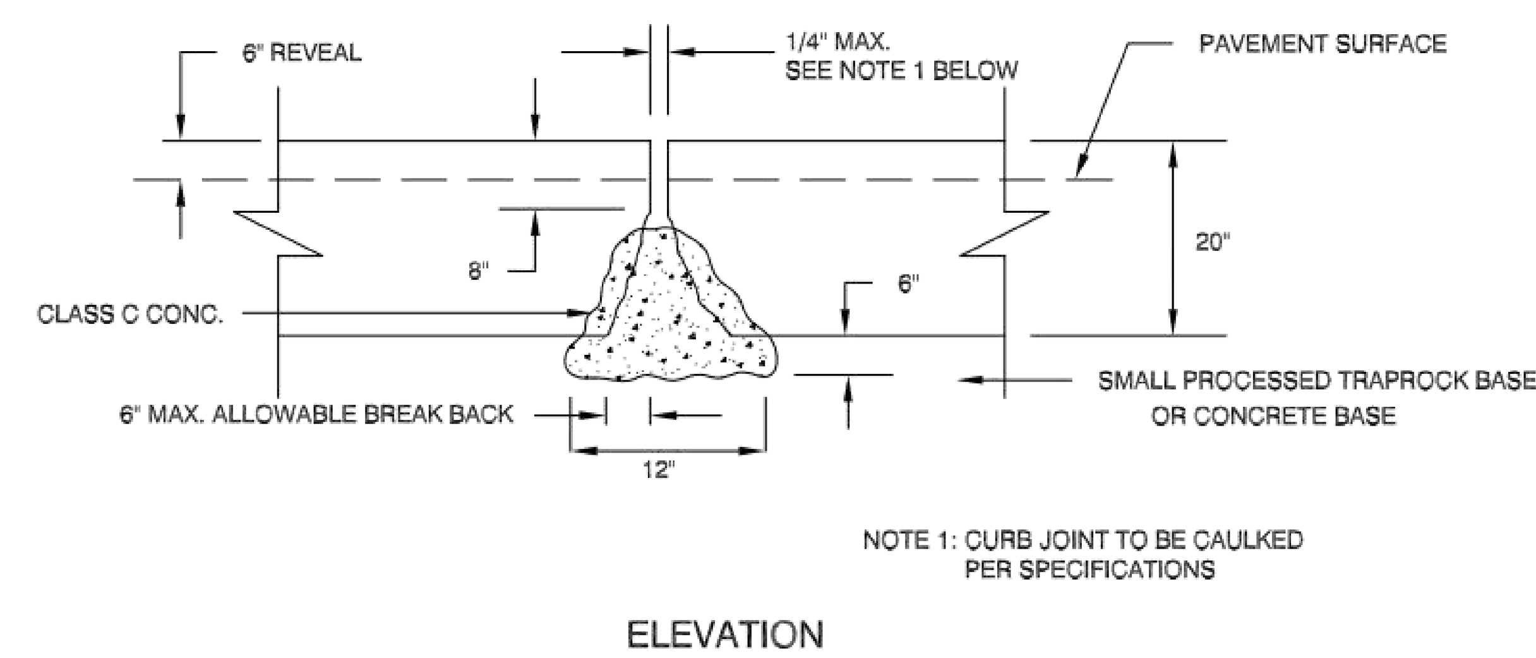
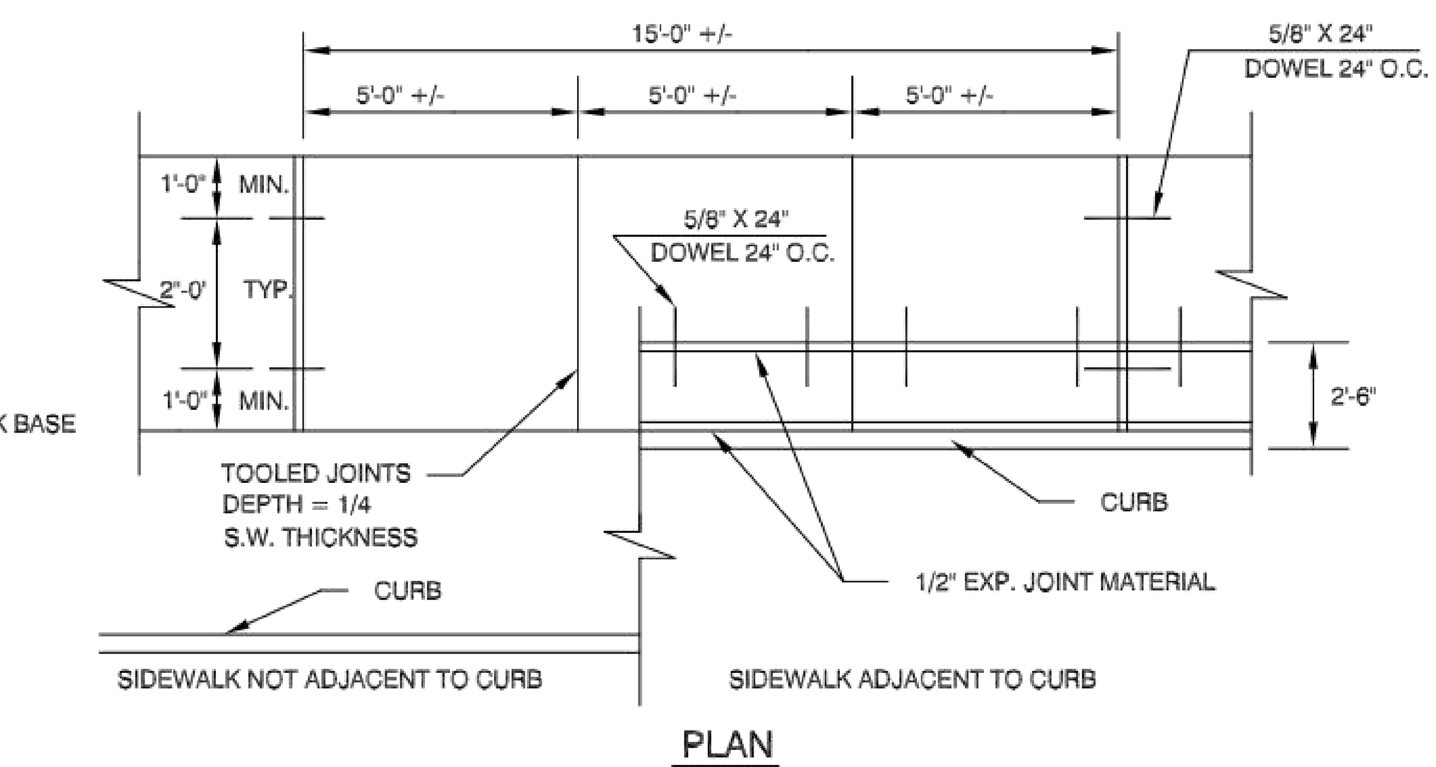


TYPICAL JOINT DETAIL FOR STRAIGHT GRANITE CURB
NOT TO SCALE



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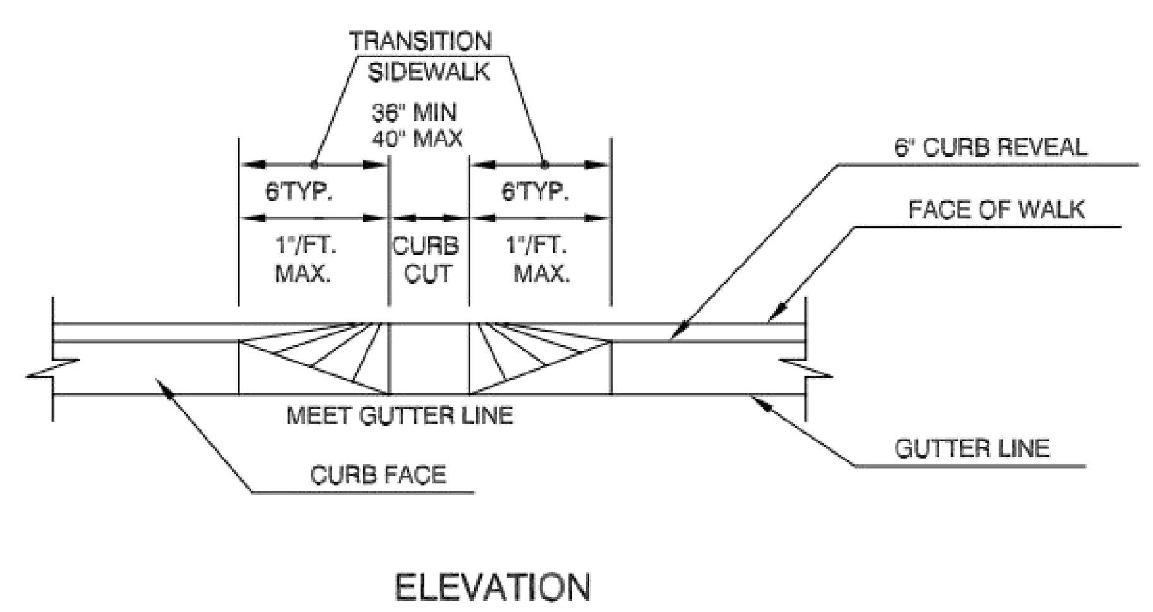

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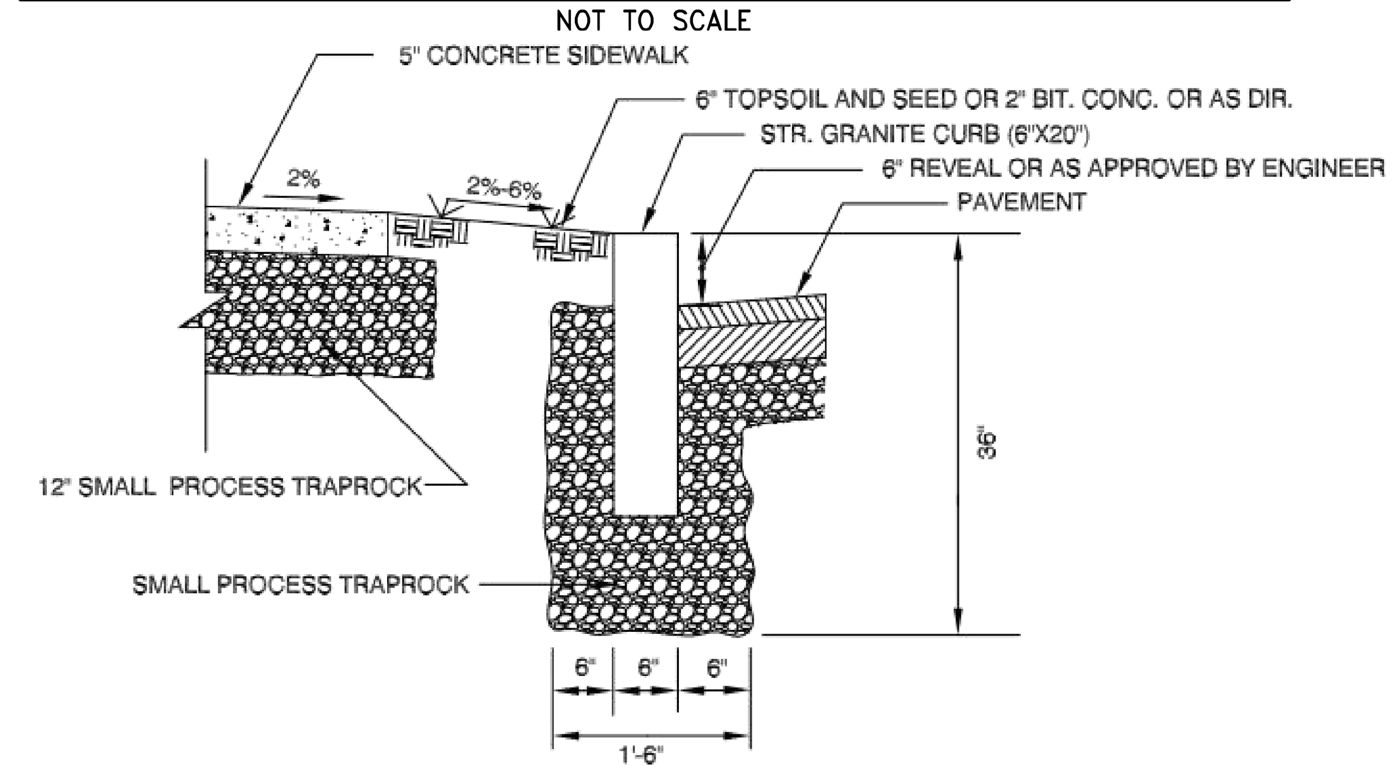
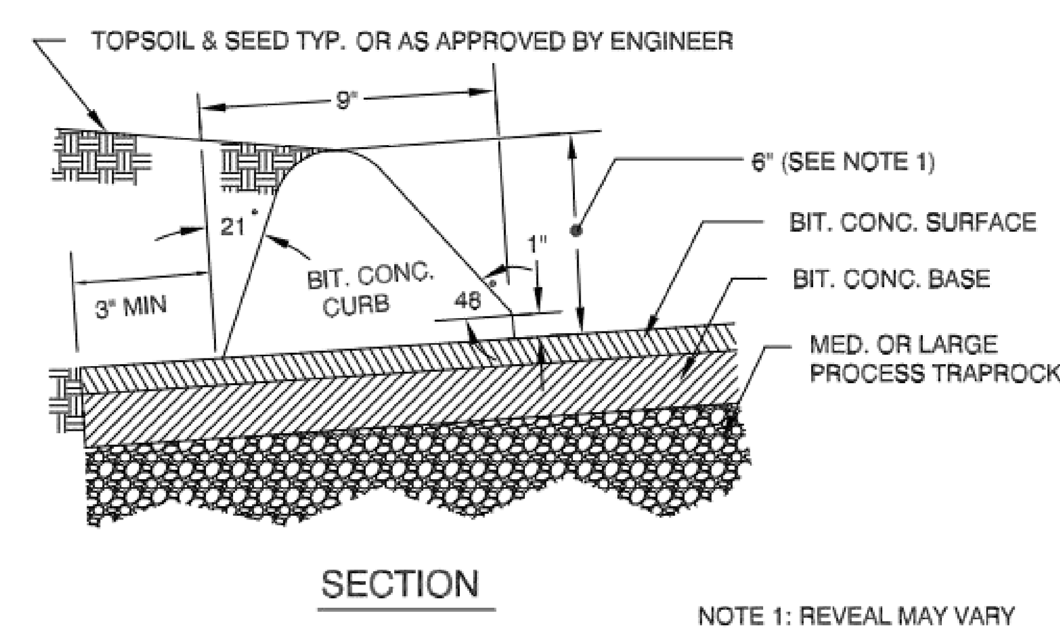


STRAIGHT GRANITE CURB SECTION
NOT TO SCALE



BITUMINOUS CONCRETE LIP CURB
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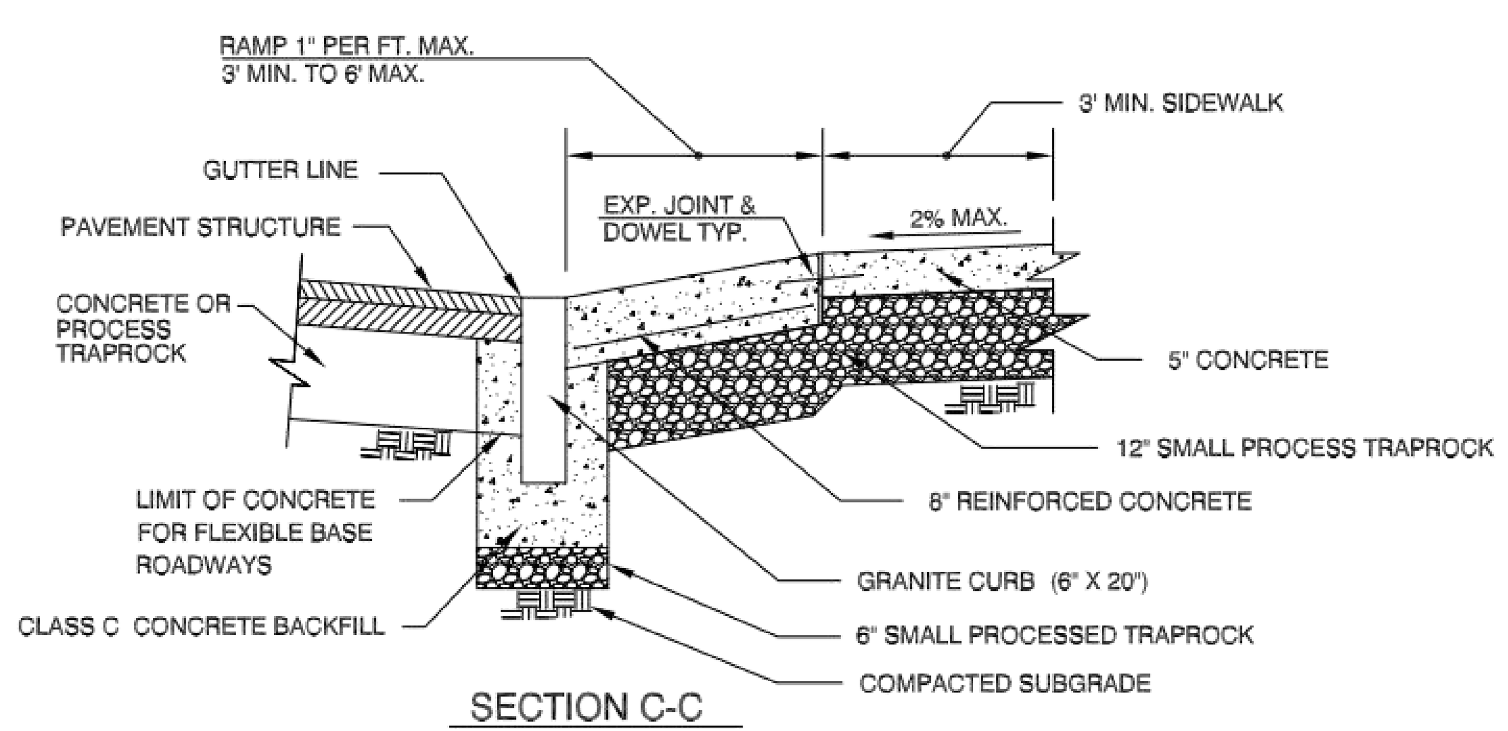

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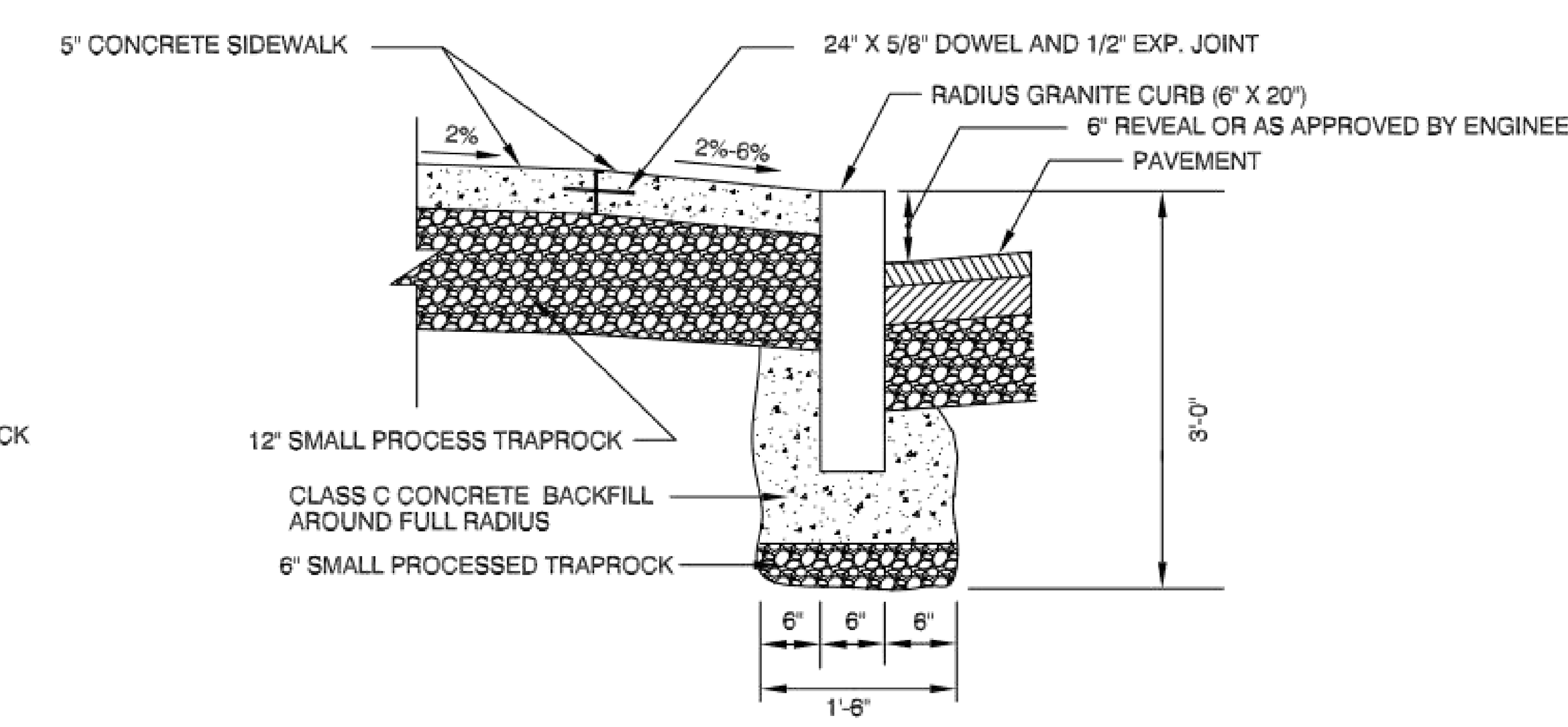


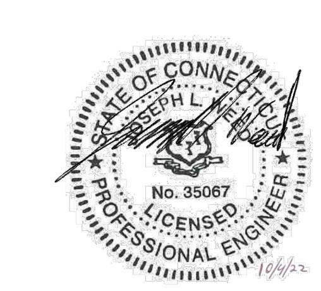
RADIUS GRANITE CURB SECTION
NOT TO SCALE

PERMIT SET ONLY
-NOT FOR CONSTRUCTION

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT



REVISIONS:

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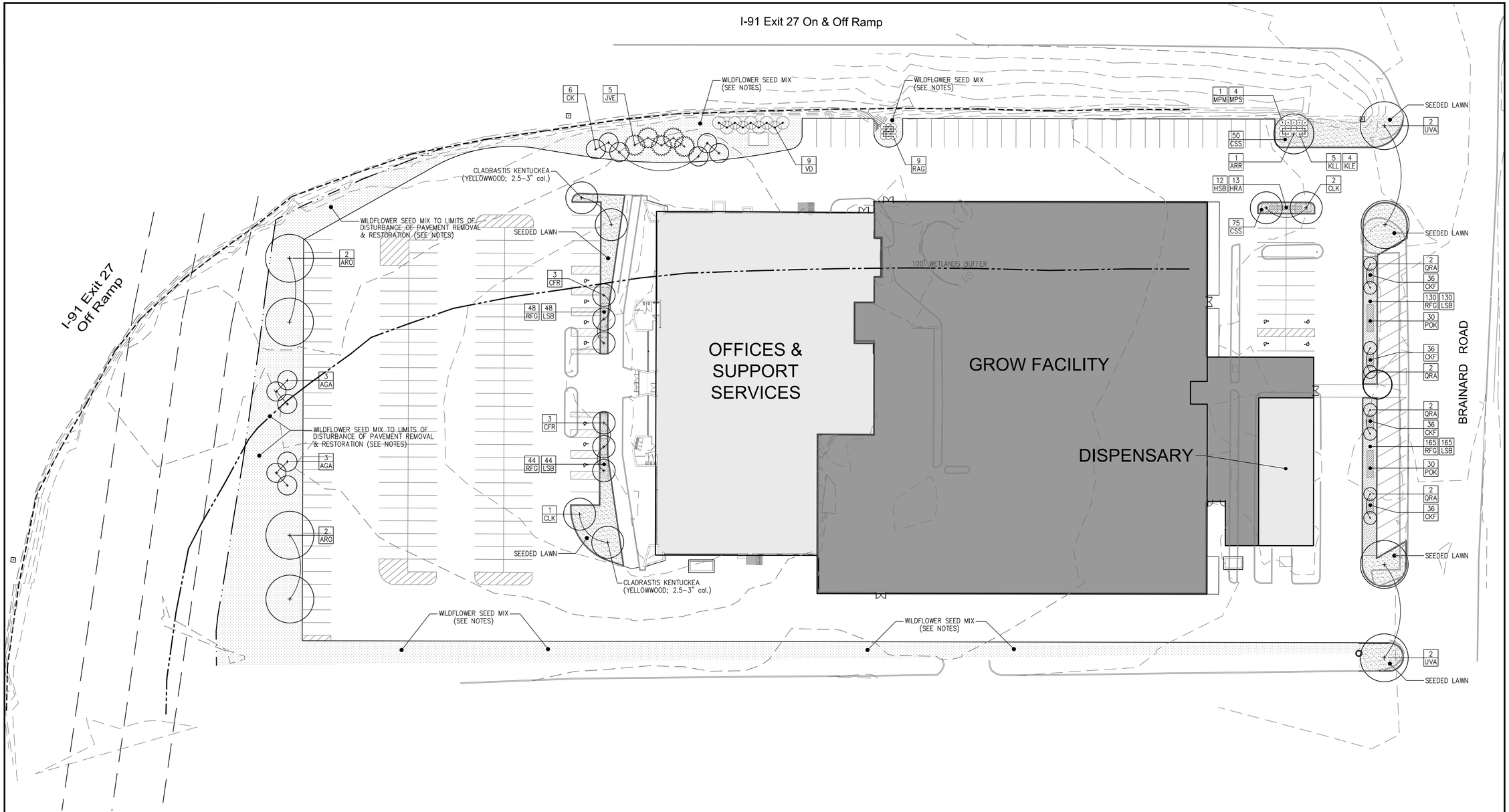
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	AWL
APPROVED BY:	JLW
DRAWING TITLE:	DETAILS 6
DRAWING NO.:	C6.6
SHEET NO.	13 OF 17

I-91 Exit 27 On & Off Ramp



PLANTING NOTES:

1. THE PLANTING PLAN AND DETAIL SHEET ARE FOR LANDSCAPING INFORMATION ONLY. PLEASE REFER TO THE SITE LAYOUT PLAN, LIGHTING PLAN, GRADING PLAN AND UTILITIES PLAN FOR ALL OTHER INFORMATION.
2. THE CONTRACTOR SHALL GUARANTEE THAT ALL PLANTS, TREES, AND SHRUBS SHALL BE HEALTHY AND FREE OF DISEASE FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION AND ACCEPTANCE BY OWNER OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE ANY DEAD OR UNHEALTHY PLANTS AT CONTRACTOR'S EXPENSE. PLANT MATERIAL REPLACEMENTS SHALL BE GUARANTEED FOR ONE FULL YEAR FROM DATE OF REPLACEMENT. FINAL ACCEPTANCE SHALL BE MADE IF ALL PLANTS MEET THE GUARANTEE REQUIREMENTS INCLUDING MAINTENANCE. MAINTENANCE RESPONSIBILITIES INCLUDE CULTIVATING, SPRAYING, WEEDING, WATERING, TIGHTENING GUYS, PRUNING, FERTILIZING, MULCHING, AND ANY OTHER OPERATIONS NECESSARY TO MAINTAIN PLANT VIABILITY. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND CONTINUE UNTIL THE END OF THE ONE YEAR GUARANTEE PERIOD.
3. THE CONTRACTOR SHALL SUPPLY ALL LABOR, PLANTS, AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER SHALL APPLY.
4. ALL SHRUB MASSINGS SHALL BE MULCHED TO A DEPTH OF 3". ANNUAL AND PERENNIAL BEDS SHALL BE MULCHED TO A DEPTH OF 2" WITH SHREDDED HARDWOOD BARK MULCH.
5. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY ENGINEER. STAKING THE LOCATION OF ALL TREES AND SHRUBS SHALL BE COMPLETED PRIOR TO PLANTING FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT. STAKING OF THE INSTALLED TREE MUST BE COMPLETED THE SAME DAY AS IT IS INSTALLED. ALL TREES SHALL BE STAKED OR GUYED PER DETAIL. SEE THIS SHEET FOR PLANTING DETAILS.
6. COORDINATE PLANT MATERIAL LOCATIONS WITH SITE UTILITIES. SEE SITE LAYOUT, GRADING AND UTILITY DRAWINGS FOR STORM, SANITARY AND WATER LINES. SEE LIGHTING PLAN FOR ELECTRICAL AND LIGHTING LAYOUT AND DETAILS. UTILITY LOCATIONS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTOR'S NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE.
7. LANDSCAPE PLANTING PITS MUST BE FREE DRAINING. PAVEMENT, COMPACTED SUBGRADE, AND BLASTED ROCK SHALL BE REMOVED FROM WITHIN TRAFFIC ISLANDS TO BE LANDSCAPED TO A DEPTH OF 2' OR TO A GREATER DEPTH IF REQUIRED BY PLANTING DETAILS OR SPECIFICATIONS. REPLACE SOIL WITHIN ISLANDS WITH MODERATELY COMPACTED LOAM OR SANDY LOAM FREE FROM STONES AND RUBBISH 1" OR GREATER IN DIAMETER AND ANY OTHER MATERIAL HARMFUL TO PLANT GROWTH AND DEVELOPMENT. PLANTING INSTALLATION WITHIN ISLANDS SHALL BE AS DETAILED AND CONTAIN PLANTING MIX AS SPECIFIED.
8. PLANTING SOIL MIXTURE FOR TREES AND SHRUBS:
   - 1 PART PEAT MOSS
   - 3 PARTS TOPSOIL
   - FERTILIZER/LIME (APPLY AS RECOMMENDED BY SOIL ANALYSIS)
   - MYCORHIZA INOCULANT – "TRANSPLANT 1–STEP" AS MANUFACTURED BY ROOTS, INC. OR APPROVED EQUAL. USE PER MANUFACTURER'S RECOMMENDATIONS FOR TREES AND SHRUBS.
10. TIME OF PLANTING: NEW PLANT MATERIALS SHALL BE INSTALLED BETWEEN APRIL 1 AND JUNE 1, OR AFTER SEPTEMBER 15TH AND NO LATER THAN OCTOBER 31ST.
11. TOPSOIL SHALL BE INSTALLED AT A MINIMUM DEPTH OF 6". CONTRACTOR SHALL SUBMIT TOPSOIL TO A CERTIFIED TESTING LABORATORY TO DETERMINE PH, FERTILITY, ORGANIC CONTENT AND MECHANICAL COMPOSITION. THE CONTRACTOR SHALL SUBMIT THE TEST RESULTS FROM REGIONAL EXTENSION OFFICE OF USDA TO THE OWNER OR LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR SHALL INCORPORATE AMENDMENTS FOR GOOD PLANT GROWTH AND PROPER SOIL ACIDITY RECOMMENDED FROM THE TOPSOIL TEST.
12. LAWN SEEDING MIXTURE:
    15% KENTUCKY BLUEGRASS (POA PRATENSIS – SINGLE VARIETY)
    15% PERENNIAL RYEGRASS (LOLIUM PERENNE)
    30% CREEPING RED FESCUE (FESTUCA RUBRA)
    25% CHEWINGS FESCUE (FESCTUCA RUBRA "JAMESTOWN II")
    15% HARD FESCUE (FESTUCA OVINA "RELIANT II")
    SEEDING RATE: 4.5 LBS PER 1,000 S.F. (ADD 10% TO QUANTITY IF HYDROSEEDED).

    SEEDING DATES: AUGUST 15 – OCTOBER 1 AND APRIL 15 – JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
13. WILDFLOWER SEED MIXTURE:

    "FUZZ & BUZZ MIX–PREMIUM" – ERNMX–147 AS BLENDED BY ERNST CONSERVATION SEEDS, MEADVILLE, PA; 1–800–873–3321.

    SEEDING RATE: 42 LBS PER ACRE – APPLY WITH A COVER CROP OF ANNUAL RYEGRASS AT 12 LBS. ACRE.

    SEEDING DATE: AUGUST 15–OCTOBER 1 AND APRIL 15–JUNE 15 UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
14. ALL SLOPES GREATER THAN 3:1 RECEIVING A GRASS SEEDING MIXTURE SHALL BE COVERED WITH AN EROSION CONTROL BLANKET.

PLANT LIST:

	CODE	QTY.	BOTANICAL NAME	COMMON NAME	ROOT	SIZE INSTALLED	SIZE MATURE	COMMENTS
TREES:	ARR	1	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	B&B	2–2.5" cal.	40' ht.	Upright oval crown
	ARO	4	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	B&B	2–2.5" cal.	40' ht.	Broad oval crown
	AGA	6	AMEL. x GRAND. 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	B&B	6–7' ht.	20' ht.	Clump Form
	CLK	6	CLADRASTIS KENTUCKEA	YELLOWWOOD	B&B	2.5–3" cal.	40' ht.	
	CFR	6	CORNUS FLORIDA 'RUBRA'	PINK FLOWERING DOGWOOD	B&B	2–2.5" cal.	20–25' ht.	Pink
	CK	6	CORNUS KOUSA 'CHINENSIS'	KOUSA DOGWOOD	B&B	2–2.5" cal.	25' ht.	
	JVE	5	JUNIPERUS VRG. 'EMERALD SENTINEL'	EMERALD SENTINEL EASTERN RED CEDAR	B&B	8' min. ht.	8'x15' ht.	
	QRA	8	QUERCUS ROBUR x ALBA 'CRIMSCHMIDT'	CRIMSON SPIRE RED OAK	B&B	2–2.5" cal.	20x45' ht.	
	UVF	4	ULMUS AMERICANA 'VALLEY FORGE'	VALLEY FORGE AMERICAN ELM	B&B	2.5–3" cal.	40x60' ht.	
SHRUBS:	KLE	4	KALMIA LATIFOLIA 'ELF'	ELF MIN. MOUNTAIN LAUREL	CONT.	18–24" ht.	3–4' ht.	White
	KLL	5	KALMIA LATIFOLIA 'LITTLE LINDA'	LITTLE LINDA MIN. MOUNTAIN LAUREL	CONT.	18–24" ht.	3–4' ht.	Red to Pink
	MPS	4	MORELLA PENSYLVANICA 'SILVER SPRITE'	SILVER SPRITE BAYBERRY	CONT.	24" min.ht.	3–5' ht.	
	MPM	1	MORELLA PENSYLVANICA 'MORTON MALE'	MALE SILVER SPRITE BAYBERRY	CONT.	24" min.ht.	3–5' ht.	
	VD	9	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	CONT.	30–36" ht.	8–10' ht.	
	RAG	9	RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC	CONT.	18–24" ht.	6x3–4' ht.	Red Fall
PERENNIALS, GROUNDCOVERS AND GRASSES:	CSS	125	COREOPSIS x 'SIENNA SUNSET'	SIENNA SUNSET COREOPSIS	CONT.	#5P5	16–20" ht.	24" o.c.
	CKF	144	CALAMAGROSTIS ACU. 'KARL FOERSTER'	FEATHER REED GRASS	CONT	#1	4–5' ht.	
	HRA	13	HEMMEROCALLIS 'RUFFLED APRICOT'	RUFFLED APRICOT DAYLILY	CONT.	#5P5	28" ht.	Deep Apricot
	HSB	12	HEMMEROCALLIS 'SPELLBINDER'	SPELLBINDER DAYLILY	CONT.	#5P5	30" ht.	Bright Gold
	LSB	295	LEUCANTHEMUM SUP. 'BECKY'	SHASTA DAISY	CONT.	#5P5	30" ht.	White
	POK	60	PENNISETUM ORIENTALE 'KARLEY ROSE'	ORIENTAL FOUNTAIN GRASS	CONT.	#5P5	36" ht.	2' o.c.; Lt. Pink tassels
	RFG	295	RUDBECKIA FUL. var. SULL. 'GOLDSTURM'	GOLDSTURM Black Eyed Susan	CONT.	#5P5	30–36" ht.	24" o.c.; Gold; June–Sept

TREE CANOPY COVERAGE CALCULATION:

PROPOSED COVER (NEW TREES):

LARGE TREES	10	@	1,000 SF	=	10,000 SF
MEDIUM TREES	6	@	700 SF	=	4,200 SF
SMALL TREES	25	@	300 SF	=	7,500 SF
TOTAL CANOPY AREA				=	21,700 SF

TOTAL COMBINED LOT AREA 263,788 SF.

GRAPHIC SCALE
00 00 0 00
SCALE IN FEET

PARE

Landscape Architects:
LRC GROUP
160 West Street
Suite E
Cromwell, CT
T (860) 635-2877
F (860) 635-4226
LRC Engineering & Surveying, DPC
LRC Engineering and Surveying, LLC
LRC Environmental Services, Inc.
Land Planning | Civil Engineering
Landscape Architecture | Environmental Services | Land Survey
www.lrcconsult.com

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

STATE OF CONNECTICUT
HENRY THOMAS
LICENSED LANDSCAPE ARCHITECT
No. 468

REVISIONS:

PROJECT NO.:	
DATE:	09-20-22
SCALE:	1" = 30'
DESIGNED BY:	HT
CHECKED BY:	HT
DRAWN BY:	HT/DW
APPROVED BY:	

DRAWING TITLE:
PLANTING PLAN

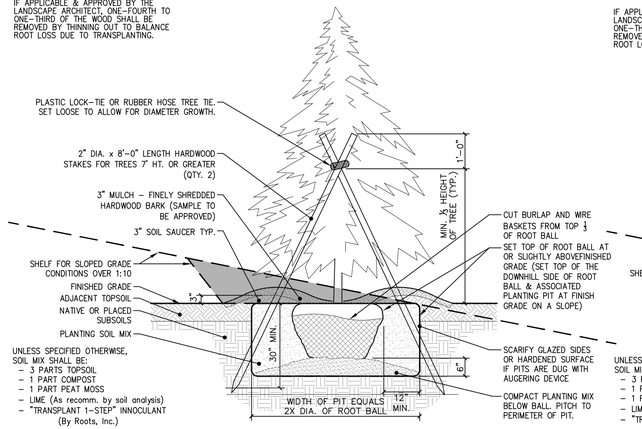
DRAWING NO.:
L-1

SHEET NO. ___ OF ___

NOTE:

PRUNE TREES IN ACCORDANCE WITH APPROVED HORTICULTURAL STANDARDS (ANLA) IN ORDER TO PRESERVE THE NATURAL FORM OF THE SPECIFIC PLANTS.

IF APPLICABLE & APPROVED BY THE LANDSCAPE ARCHITECT, ONE-FOURTH TO ONE-THIRD OF THE WOOD SHALL BE REMOVED BY THINNING OUT TO BALANCE ROOT LOSS DUE TO TRANSPLANTING.



4 CONIFER TREE PLANTING DETAIL
SCALE: 1/2" = 1'-0"

NOTE:

PRUNE TREES IN ACCORDANCE WITH APPROVED HORTICULTURAL STANDARDS (ANLA) IN ORDER TO PRESERVE THE NATURAL FORM OF THE SPECIFIC PLANTS.

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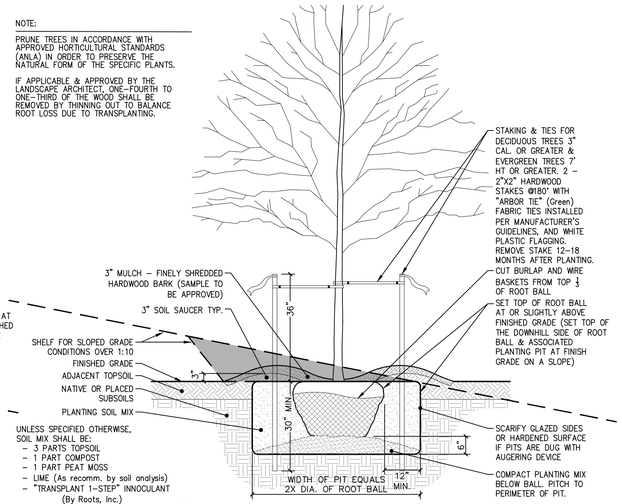
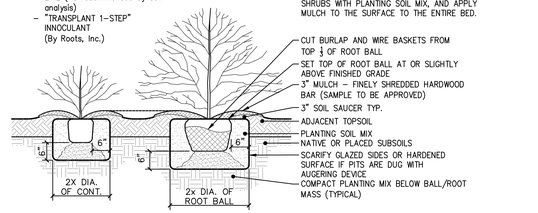


1 TREE PLANTING DETAIL
SCALE: 1/2" = 1'-0"

UNLESS SPECIFIED OTHERWISE, SOIL MIX SHALL BE:
- 3 PARTS TOPSOIL
- 1 PART PEAT MOSS OR COMPOST
- LIME (As recommended by soil analysis)
- "TRANSPLANT 1-STEP" INNOCULANT (By Roots, Inc.)

NOTE: IN AREAS OF MASS PLANTING, EXCAVATE BED AREA CONTINUOUSLY, BACKFILL BETWEEN SHRUBS WITH PLANTING SOIL MIX, AND APPLY MULCH TO THE SURFACE TO THE ENTIRE BED.



2 SHRUB PLANTING DETAIL
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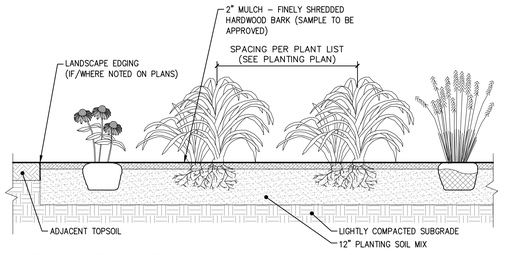

SECTION THROUGH PERENNIAL BED

PERENNIAL NOTES:
1. BULB/CORM PERENNIALS TO BE PLANTED IN FALL. POTTED PERENNIALS MAY BE PLANTED APRIL 15 TO OCTOBER 1.
2. ROTOTILL FERTILIZER AND LIME INTO SOIL PRIOR TO PLANTING AND IN ACCORDANCE TO SOIL ANALYSIS RECOMMENDATIONS.
3. DO NOT OVER COMPACT PLANTING BED. WATER THOROUGHLY AFTER PLANTING BULBS.
4. ADJUST PLANTING DEPTH AS RECOMMENDED BY BULB SUPPLIER.
5. PROVIDE DRAINAGE AS REQUIRED (PERF PIPE 4" ADS) WHEN SUBGRADE IS CLASSIFIED AS A HEAVY SOIL OR EXCESSIVELY COMPACTED.

UNLESS SPECIFIED OTHERWISE, PERENNIAL BED SOIL MIX SHALL BE:
- 3 PARTS TOPSOIL
- 1 PART MANURE (WEED FREE)
- 1 PART PEAT MOSS OR COMPOST
- LIME (As recommended by soil analysis)
- "MILORGANITE" AT 5 LBS. PER 100 SF.

3 ANNUAL/PERENNIAL AND GROUND COVER BEDS DETAIL
SCALE: 1/2" = 1'-0"

PARE

Landscape Architects:
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160 West Street
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Cromwell, CT
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F (860) 635-4226
LRC Engineering & Surveying, DPC
LRC Engineering and Surveying, LLC
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Land Planning | Civil Engineering
Landscape Architecture | Environmental Services | Land Survey
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165 & 167 BRAINARD ROAD
HARTFORD, CT

STATE OF CONNECTICUT
HENRY THOMAS
No. 168
LICENSED LANDSCAPE ARCHITECT

REVISIONS:

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DATE:	09-20-22
SCALE:	As Noted
DESIGNED BY:	HT
CHECKED BY:	HT
DRAWN BY:	HT/DW
APPROVED BY:	

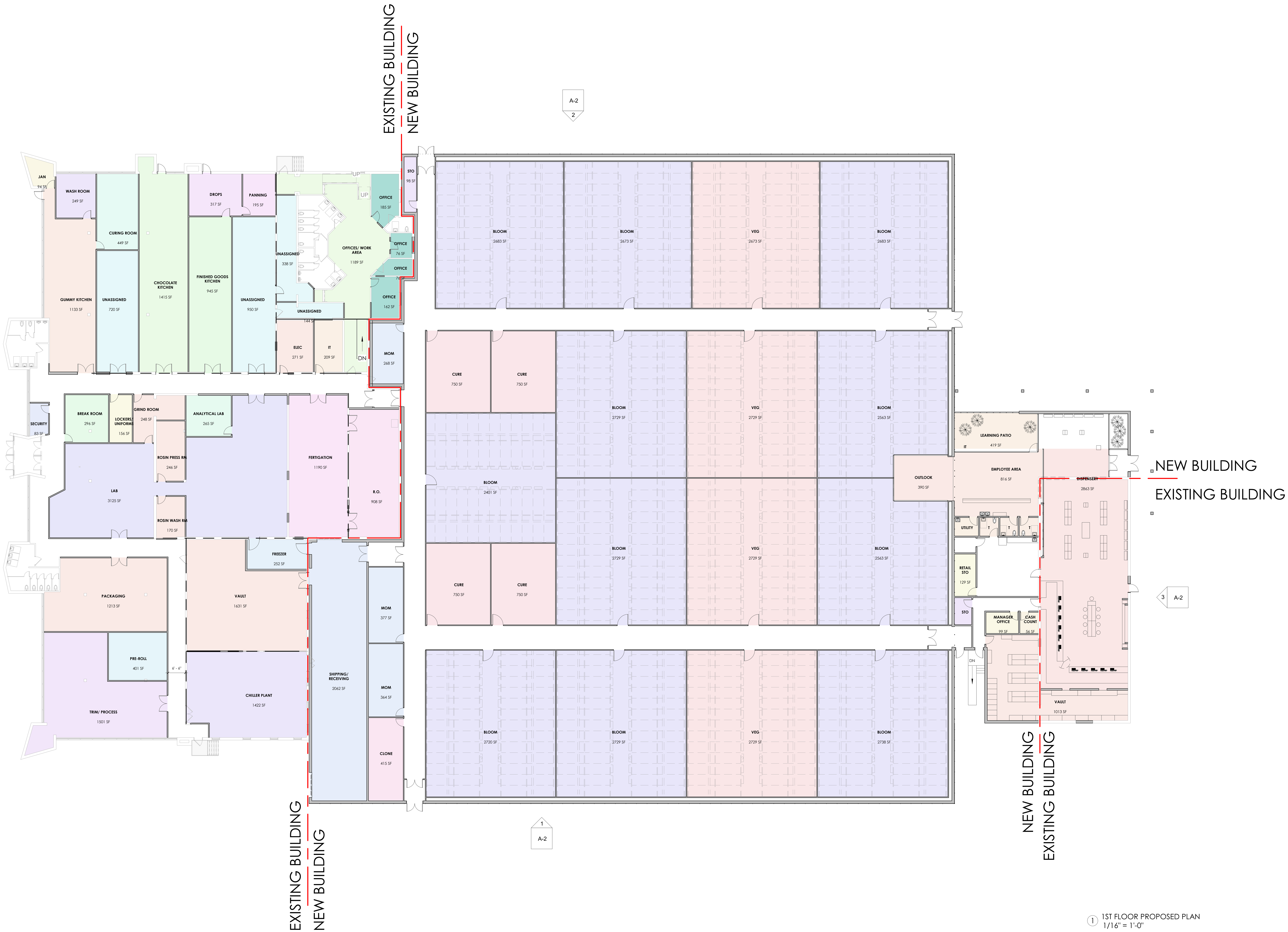
DRAWING TITLE:

PLANTING DETAILS

DRAWING NO.:

L-2

SHEET NO. ___ OF ___



1 1ST FLOOR PROPOSED PLAN
1/16" = 1'-0"

A-1

10/03/2022

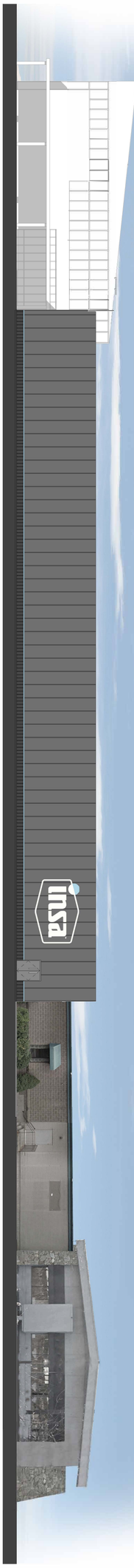
scale: 1/16" = 1'-0"

1ST FLOOR PROPOSED PLAN

165 BRAINARD RD, HARTFORD, CT 06114

RT ARCHITECTURE, LLC
245 Shea Ave
Belchertown, MA 01007
Tel: 413-241-4600
Email: rtoczko@gmail.com

③ EAST ELEVATION
1/16" = 1'-0"



② NORTH ELEVATION
1/16" = 1'-0"

① SOUTH ELEVATION
1/16" = 1'-0"

RTA
RT ARCHITECTURE, LLC
245 Shea Ave
Belchertown, MA 01007
Tel: 413-241-4600
Email: rtoczko@gmail.com

ELEVATIONS

165 BRAINARD RD, HARTFORD, CT 06114

scale: 1/16" = 1'-0"

A-2

10/03/22

PARE PROJECT NO. 22054.00

STORMWATER MANAGEMENT REPORT

INSA- MARIJUANA DISPENSARY & GROW FACILITY
HARTFORD, CONNECTICUT

Prepared for:

City of Hartford
260 Constitution Plaza, Suite 1
Hartford, CT 06103

Prepared by:

Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

September 2022

TABLE OF CONTENTS

PURPOSE

Pare Corporation (Pare) has prepared this report to summarize the stormwater management system for the proposed INSA facility in Hartford, CT. The facility is located at 165 and 167 Brainard Road. The project will include redevelopment of the existing site. The buildings on 165 Brainard Road and 167 Brainard Road will remain with minor exterior reconstruction. A new structure, approximately 59,500 square feet, will be constructed between the two existing buildings within the existing paved parking area. The ingress and egress from Brainard Road will remain the same. The existing parking lot and internal site access will be reconstructed with a reduction in vehicular pavement on the stie. The overall stormwater runoff and drainage patterns will largely follow the exiting stormwater management on the site.

The following sections of the report discuss the existing conditions of the Site, the proposed development conditions, the methodology employed to evaluate stormwater runoff for existing and proposed conditions and the design elements for the proposed stormwater management system. Supporting documentation is provided in the attached appendices.

PROJECT DESCRIPTION

The study area, hereby referred to as the "Site," included in this hydrologic study comprises approximately six acres of land on the previously developed parcel. All the proposed improvements are included within the Site or the portion of Brainard Road adjacent to the Site. The Site is bounded to the north and west by the I-91 exit 27 on/off ramp, to the east by Brainard Road, and the south by Hartford Airport Hotel, a commercial property. An engineered drainage ditch is located along the north and west boundaries of the site; flowing west then south.

The site is currently developed with a total building gross square footage of 30,675 sf and 175,3400 of pavement areas. Under existing conditions, the stormwater runoff drains overland west and north across the pavement parking areas to drainage a ditch. The existing building roof areas are captured in drains and piped to the drainage ditch. Along the south, drainage flows overland across the pavement to a small grass strip along the south boundary and then continues west to the drainage ditch. There are limited number of catch basins (4) on the interior of the property that collect runoff from pavement areas then discharge directly north to the drainage ditch.

The proposed improvements to the Site include a reduction in the pavement areas along the north, west, and south boundaries, addition of landscape areas replacing the impervious surfaces, a green roof over a portion of the dispensary building and limited regrading to eliminate small nuisance ponding in limited

portions of the site. The project will result in a net reduction of 15,315 sf of impervious area (234,199 sf to 218,884 sf of existing to proposed impervious area).

GEOTECHNICAL INVESTIGATIONS AND SOIL DATA

NRCS Soil mapping indicated that natural soil in the vicinity of the Site is comprised of Winooski silt loam and Udorthents-Urban Land Complex. The onsite soils are filled soils primarily consisting of sandy fill and/or remnant alluvial materials (e.g. silts) over historic floodplain wetlands. A complete Soil Report for the Site are provided in Appendix C.

EXISTING CONDITIONS OF STUDY AREA

The Site consists of ingle analysis area based on existing drainage patterns. The Existing Stormwater Calculations (Appendix A) delineates the Existing Drainage Area (EDA), described below:

- **EDA-1**: EDA-1 is comprised of multiple individual sub catchment areas within the site all discharging to the engineered drainage ditch and modelled at the downstream design point at the southwest boundary of the site, labeled 10R.

Existing peak runoff rates from the study area were generated for the rainfall events having a return rate of 2-years, 10-years, 25-years, and 100-years using the SCS TR-20 Method (refer to Appendix A for existing hydrology calculations). Note that rainfall data was taken from NOAA Atlas 14 for the Hartford, CT local area. Runoff hydrographs were developed for the existing condition of each of the sub catchment-areas of the site and the results for each storm event are shown in Table 1 below.

Table 1: Existing Condition - Peak Stormwater Runoff Rate

Design Point	1-inch Event (cfs)	2-Year Event 3.08 inches (cfs)	10-Year Event 4.88 inches (cfs)	25-Year Event 6.01 inches (cfs)	100-year Event 7.75 inches (cfs)
10R	2.15	9.99	16.94	21.44	28.52

Table 2: Existing Condition - Stormwater Runoff Volume

Design Point	1-inch Event (af)	2-Year Event 3.08 inches (af)	10-Year Event 4.88 inches (af)	25-Year Event 6.01 inches (af)	100-year Event 7.75 inches (af)
10R	0.31	1.34	2.28	2.87	3.78

PROPOSED CONDITIONS OF STUDY AREA

Development on the Site includes a new structure, approximately 59,500 square feet, added between the two existing buildings. The ingress and egress from Brainard Road will remain the same. The existing parking lot and internal site access will be reconstructed with a small reduction in paved surface on the stie. The overall stormwater runoff and drainage patterns will largely follow the exiting stormwater management on the site.

The proposed drainage system for the site is designed within the guidelines of the Connecticut Stormwater Quality Manual. The drainage system is designed to incorporate features that address flowrate, quantity of runoff, and quality of runoff from the developed Site. The proposed drainage system for the Site consists of roof scuppers and a closed piped system for the building roofs discharging directly to the perimeter engineered drainage ditch. The surface parking area follows the existing drainage patterns flowing overland to the engineered drainage ditch along the north and west. The south is directed to a shallow grass swale and then to he engineered drainage ditch along the west boundary.

The Proposed Stormwater Calculations (Appendix B) delineates the Proposed Drainage Area (PDA), described below:

- **PDA-1**: PDA-1 is comprised of the entire Site. PDA-1 is comprised of multiple individual sub catchment areas within the site all discharging to the engineered drainage ditch and modelled at the downstream design point at the southwest boundary of the site, labeled 10R

Proposed peak runoff rates from the study area were generated for the rainfall events having a return rate of 2-years, 10-years, 25-years, and 100-years using the SCS TR-20 Method (refer to Appendix B for proposed hydrology calculations). Note that rainfall data was taken from NOAA Atlas 14 for the Hartford, CT local area. Runoff hydrographs were developed for the proposed condition of each of the sub catchment-areas of the Site and the results for each storm event are shown in Table 2 below.

Table 3: Proposed Condition - Peak Stormwater Runoff Rate

Design Point	1-inch Event (cfs)	2-Year Event 3.08 inches (cfs)	10-Year Event 4.88 inches (cfs)	25-Year Event 6.01 inches (cfs)	100-year Event 7.75 inches (cfs)
10R	1.87	9.71	16.46	20.94	28.01

Table 4: Existing Condition - Stormwater Runoff Volume

Design Point	1-inch Event (af)	2-Year Event 3.08 inches (af)	10-Year Event 4.88 inches (af)	25-Year Event 6.01 inches (af)	100-year Event 7.75 inches (af)
10R	0.26	1.24	2.16	2.74	3.65

PROPOSED DRAINAGE CONVEYANCE SYSTEM

The proposed stormwater conveyance system includes storm drain piping and manholes for the building roofs discharging to the engineering drainage ditch. The surface parking and site access are drained by surface flow to the vegetated landscape perimeter and then to the engineered drainage ditch. A portion of the new dispensary building includes a green roof to mitigate a portion of the roof drainage. The overall stormwater management system will be improved from existing conditions due to peak flow and volume reductions resulting from the reduction in impervious areas, increased landscaping, and green roof.

SUMMARY

The post-development stormwater management system has been designed to closely mimic the existing site conditions. A reduction in runoff peak flows and volumes is projected as a result of the reduction in impervious areas, increased landscaping, and green roof. The proposed improvements to the site will provide an overall positive effect to stormwater runoff and discharges to the area's natural resources.

FIGURES:

Locus Map
Aerial Map

CT Environmental Conditions Online

Map Title

Legend

DEEP Property

- State Forest
- State Park
- State Park Scenic Reserve
- State Park Trail
- Natural Area Preserve
- Historic Preserve
- Wildlife Area
- Wildlife Sanctuary
- DEP Owned Waterbody
- Water Access
- Flood Control
- Fish Hatchery
- Other

Parcels for Protected Open Sp

Protected Open Space Mappin

- Federal
- Land Trust
- Municipal
- Private
- State

Light Gray Canvas Base

Notes

0.1 0 0.04 0.1 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

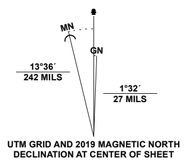
The National Map US Topo

HARTFORD SOUTH QUADRANGLE
CONNECTICUT
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 18T

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery		NAIP, July 2016 - September 2016
Roads	U.S. Census Bureau,	2016
Names		GNIS, 1979 - 2017
Hydrography		National Hydrography Dataset, 2004 - 2018
Contours		National Elevation Dataset, 2012
Boundaries		Multiple sources; see metadata file 2016 - 2017
Wetlands		FWS National Wetlands Inventory 2010



UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
XM
Grid Zone Designation
18T

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Avon
2 Hartford North
3 Manchester
4 New Britain
5 Glastonbury
6 Meriden
7 Middletown
8 Middle Haddam

ROAD CLASSIFICATION

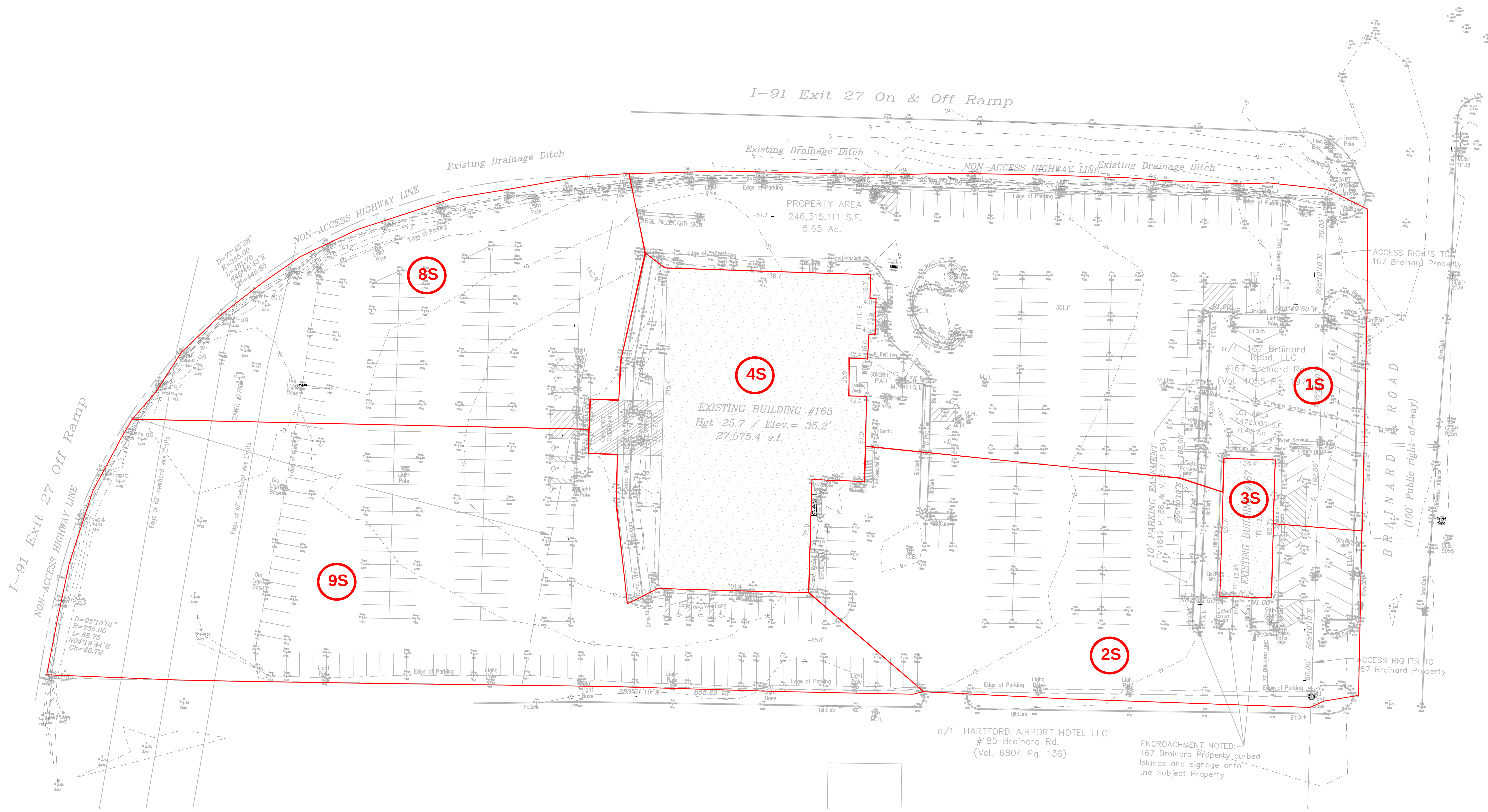
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

HARTFORD SOUTH, CT
2021

7643016360124
NSN 7643016360124
NGA REF NO. USGSX24K70322

APPENDIX A:

Existing Stormwater Calculations



STORMWATER SUBCATCHMENT AREAS
EXISTING CONDITIONS

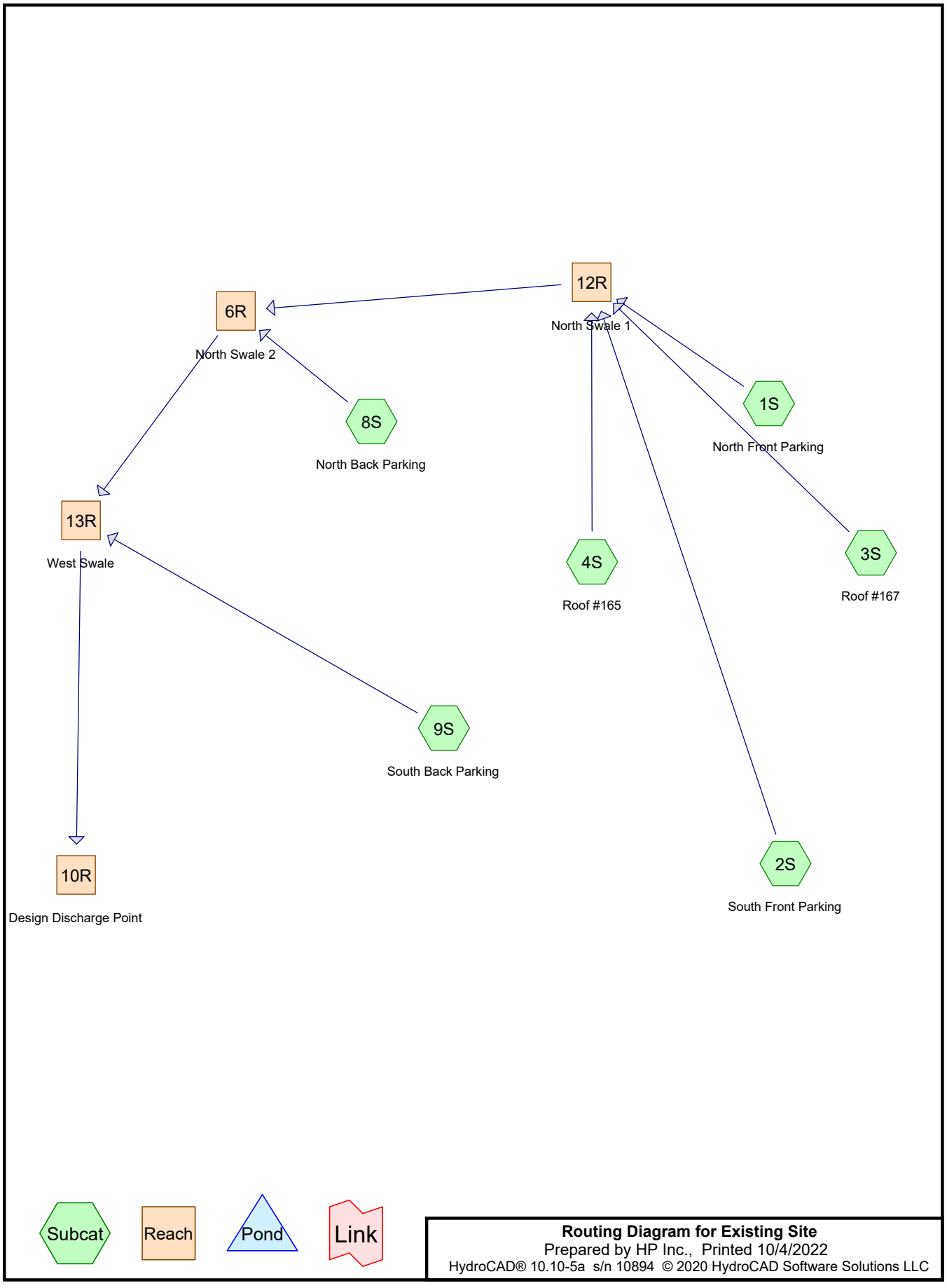
PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

REVISIONS:

PROJECT NO.:
DATE:
SCALE: 1" = 40'
DESIGNED BY:
CHECKED BY:
DRAWN BY:
APPROVED BY:
DRAWING TITLE:
EXISTING CONDITIONS
DRAWING NO.:
C2.1
SHEET NO. ___ OF ___



Routing Diagram for Existing Site
Prepared by HP Inc., Printed 10/4/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1"	Type III 24-hr		Default	24.00	1	1.00	2
2	3.08" --- 2yr	Type III 24-hr		Default	24.00	1	3.08	2
3	4.88" --- 10yr	Type III 24-hr		Default	24.00	1	4.88	2
4	6.01" --- 25yr	Type III 24-hr		Default	24.00	1	6.01	2
5	7.75" --- 100yr	Type III 24-hr		Default	24.00	1	7.75	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.835	98	(3S, 4S)
0.978	79	50-75% Grass cover, Fair, HSG C (1S, 2S, 8S, 9S)
4.541	98	Paved parking, HSG D (1S, 2S, 8S, 9S)
6.354	**95**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.978	HSG C	1S, 2S, 8S, 9S
4.541	HSG D	1S, 2S, 8S, 9S
0.835	Other	3S, 4S
6.354		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.835	0.835		3S, 4S
0.000	0.000	0.978	0.000	0.000	0.978	50-75% Grass cover, Fair	1S, 2S, 8S, 9S
0.000	0.000	0.000	4.541	0.000	4.541	Paved parking	1S, 2S, 8S, 9S
0.000	**0.000**	**0.978**	**4.541**	**0.835**	**6.354**	**TOTAL AREA**	

Summary for Subcatchment 1S: North Front Parking

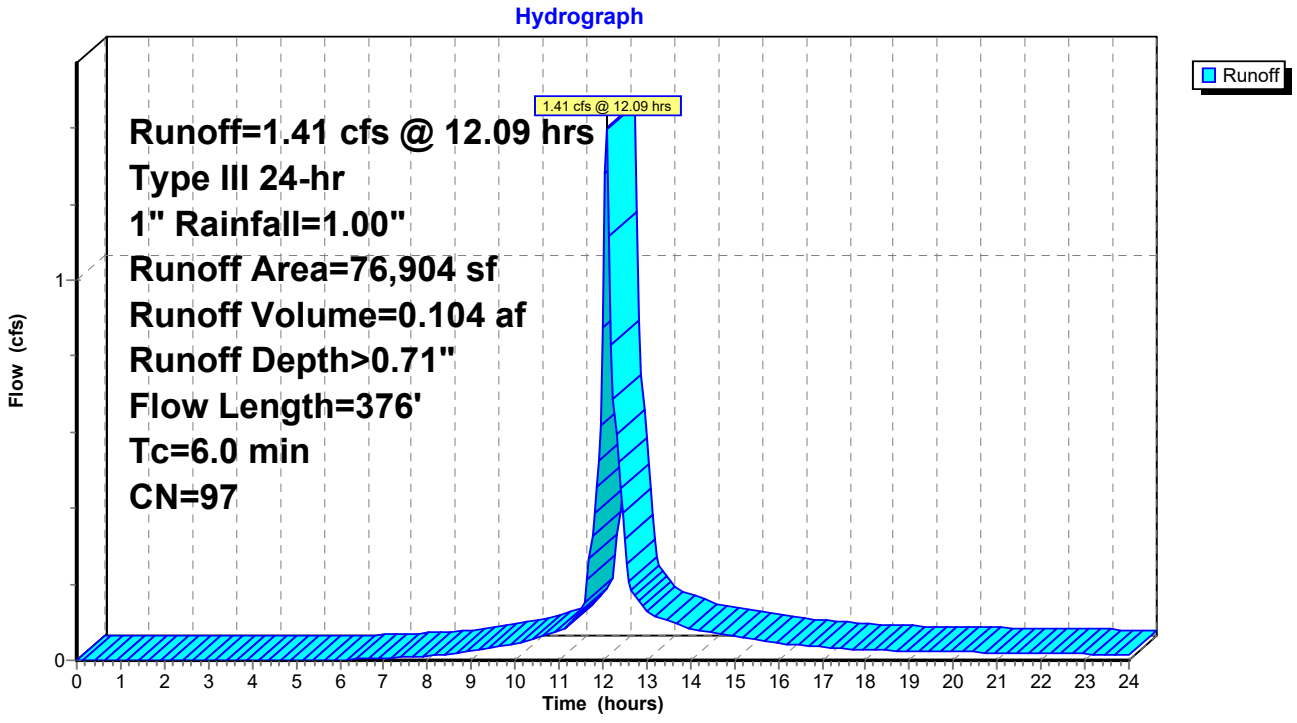
Runoff = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
72,029	98	Paved parking, HSG D
4,875	79	50-75% Grass cover, Fair, HSG C
76,904	97	Weighted Average
4,875		6.34% Pervious Area
72,029		93.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

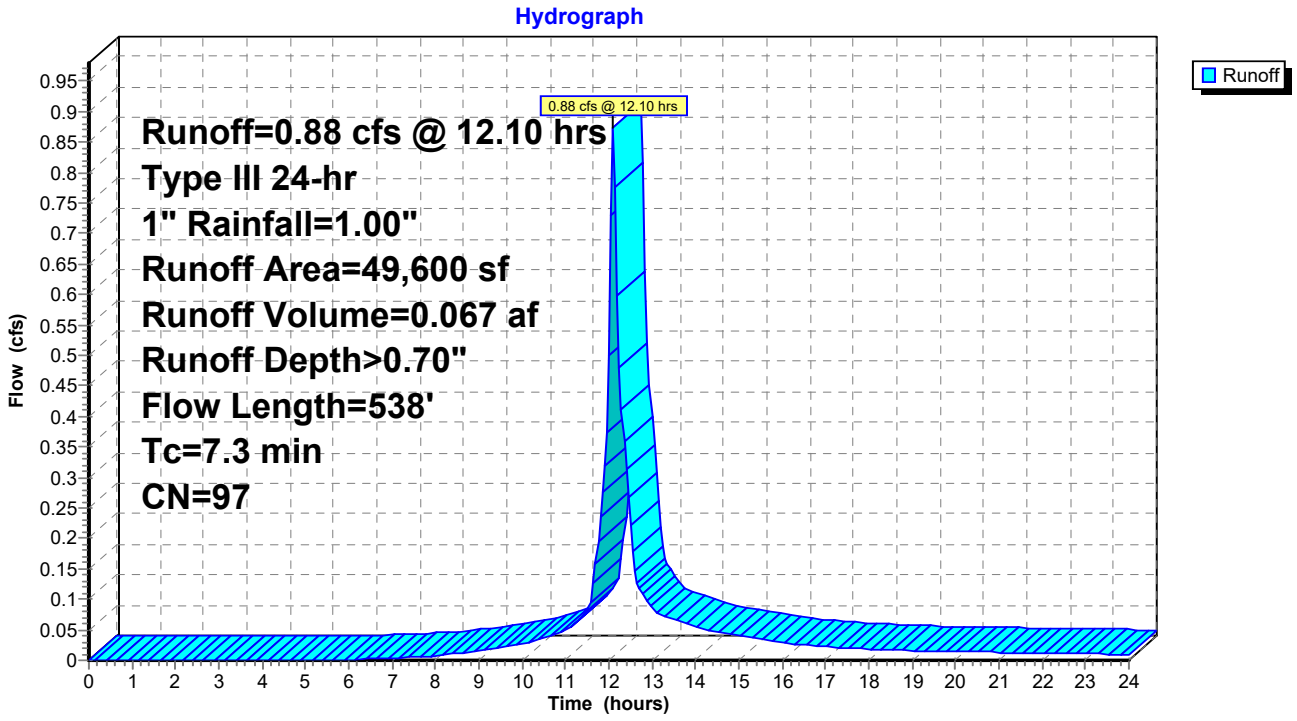
Runoff = 0.88 cfs @ 12.10 hrs, Volume= 0.067 af, Depth> 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
47,515	98	Paved parking, HSG D
2,085	79	50-75% Grass cover, Fair, HSG C
49,600	97	Weighted Average
2,085		4.20% Pervious Area
47,515		95.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

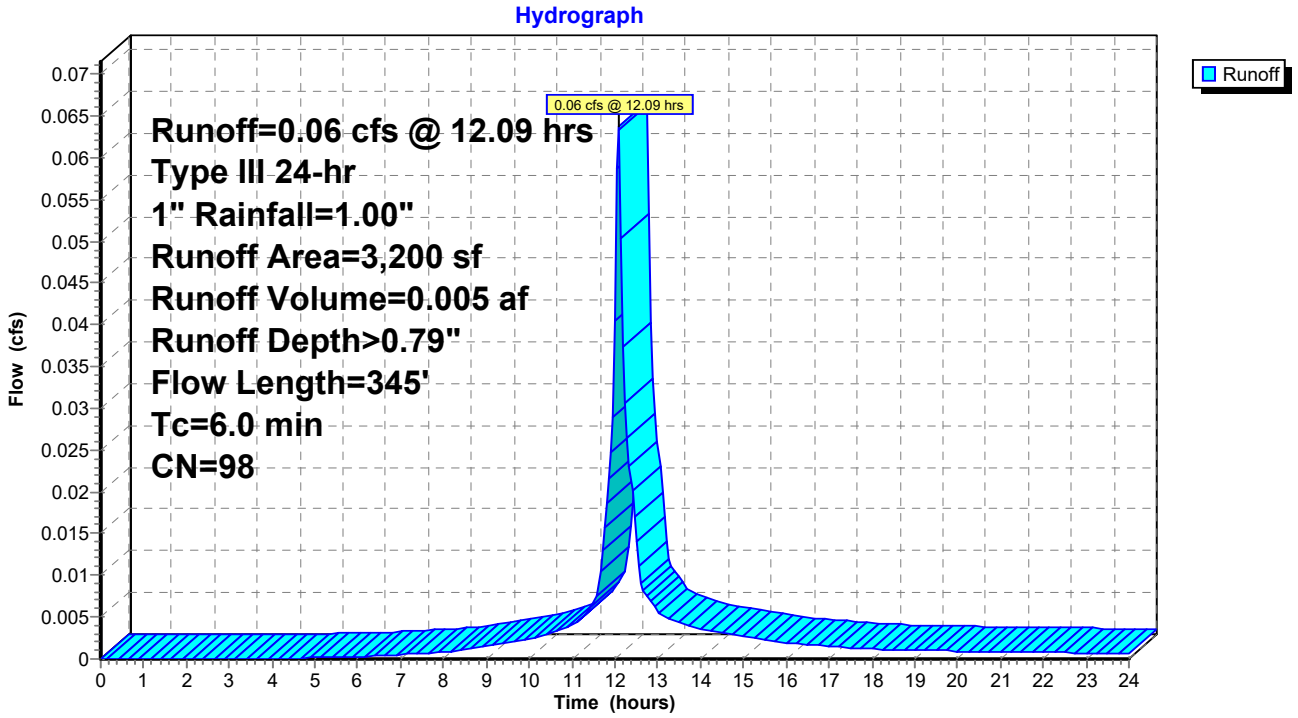
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

	Area (sf)	CN	Description
*	3,200	98	
	3,200		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	45	0.0050	0.66		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
4.7	300	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.8	345	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

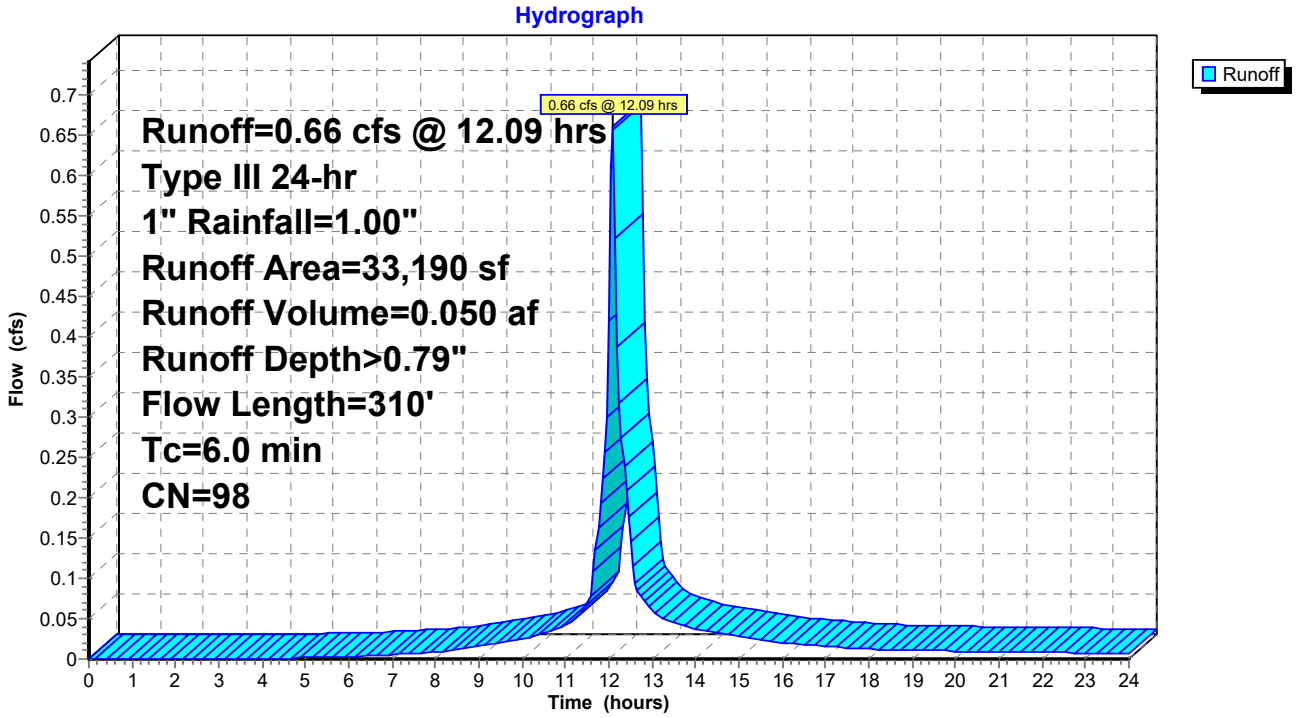
Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

	Area (sf)	CN	Description
*	33,190	98	
	33,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

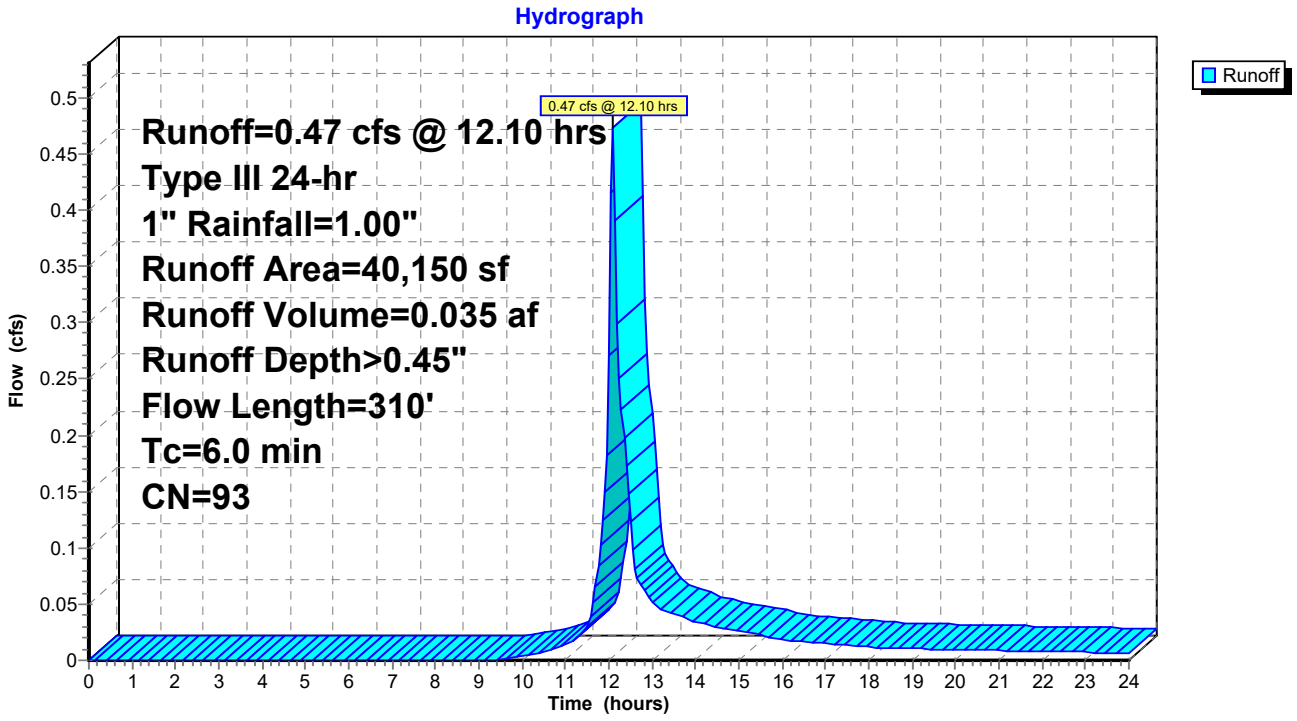
Runoff = 0.47 cfs @ 12.10 hrs, Volume= 0.035 af, Depth> 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
29,400	98	Paved parking, HSG D
10,750	79	50-75% Grass cover, Fair, HSG C
40,150	93	Weighted Average
10,750		26.77% Pervious Area
29,400		73.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

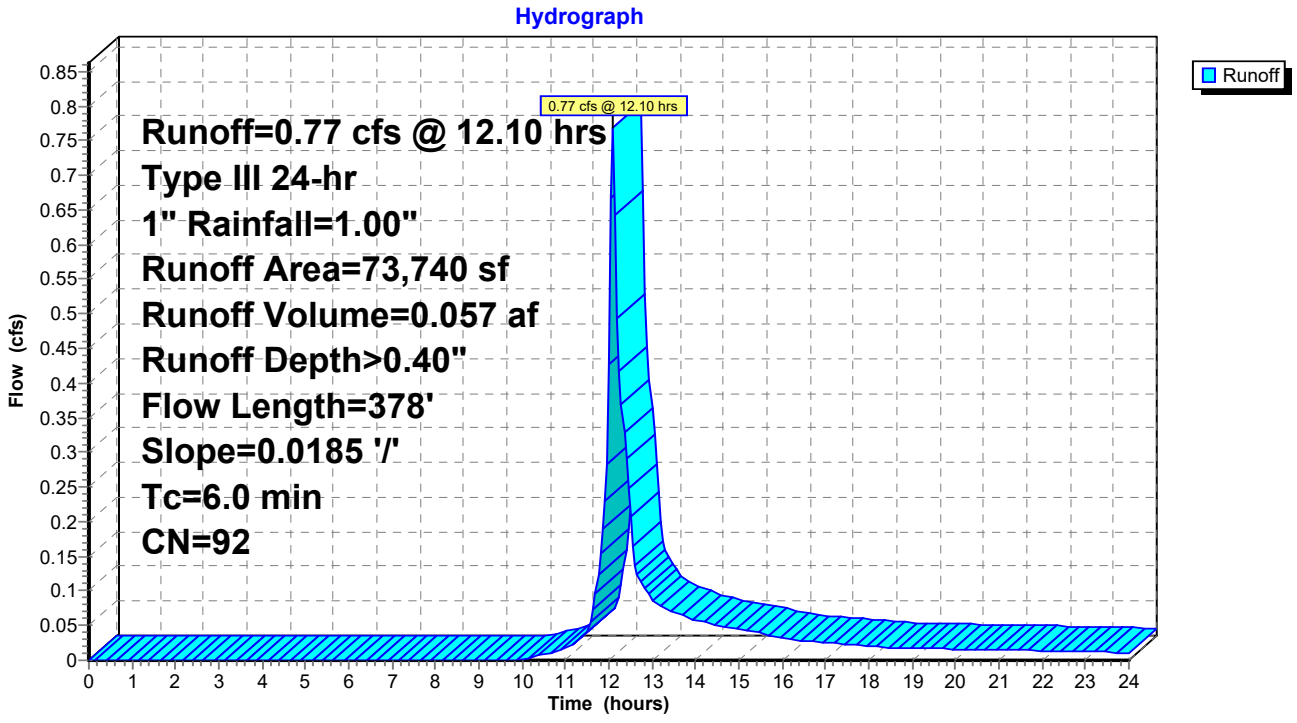
Runoff = 0.77 cfs @ 12.10 hrs, Volume= 0.057 af, Depth> 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
48,865	98	Paved parking, HSG D
24,875	79	50-75% Grass cover, Fair, HSG C
73,740	92	Weighted Average
24,875		33.73% Pervious Area
48,865		66.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



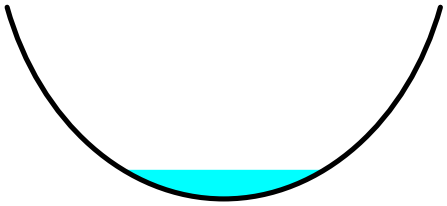
Summary for Reach 6R: North Swale 2

Inflow Area = 4.661 ac, 91.28% Impervious, Inflow Depth > 0.66" for 1" event
Inflow = 2.13 cfs @ 12.42 hrs, Volume= 0.257 af
Outflow = 2.02 cfs @ 12.56 hrs, Volume= 0.256 af, Atten= 5%, Lag= 8.4 min

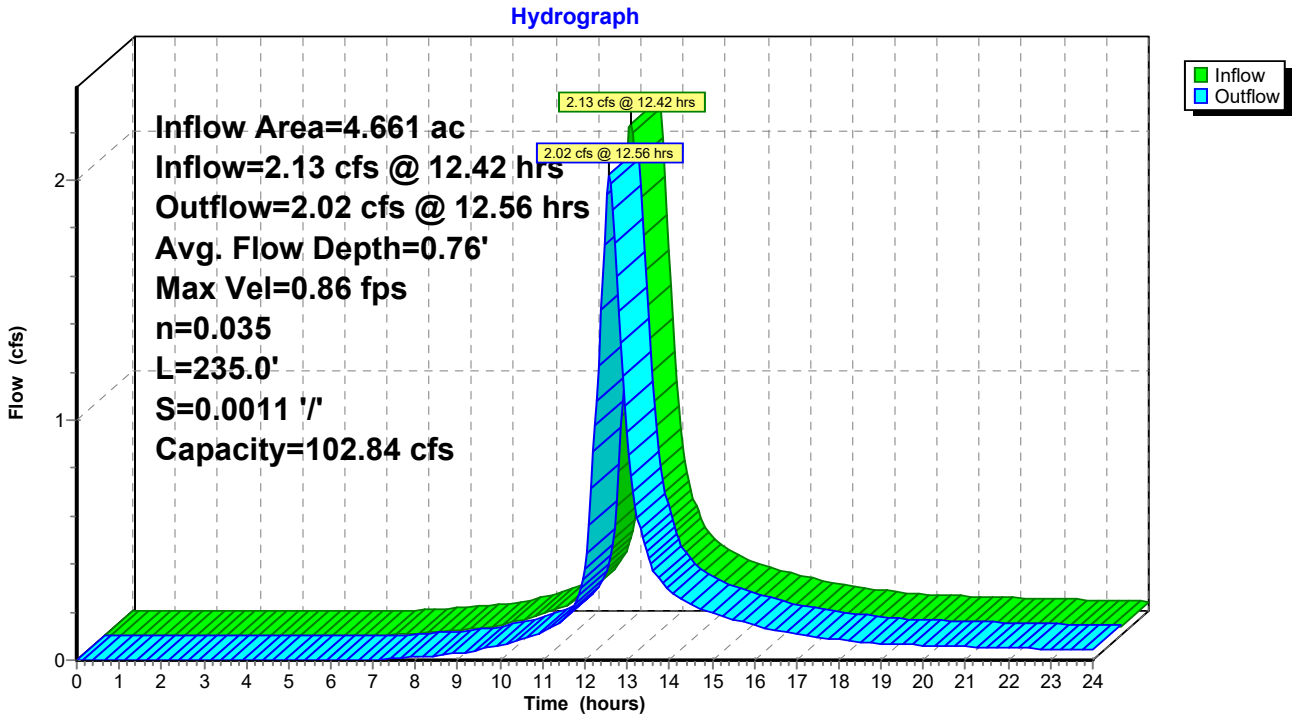
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.86 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 11.9 min

Peak Storage= 556 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 4.68'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

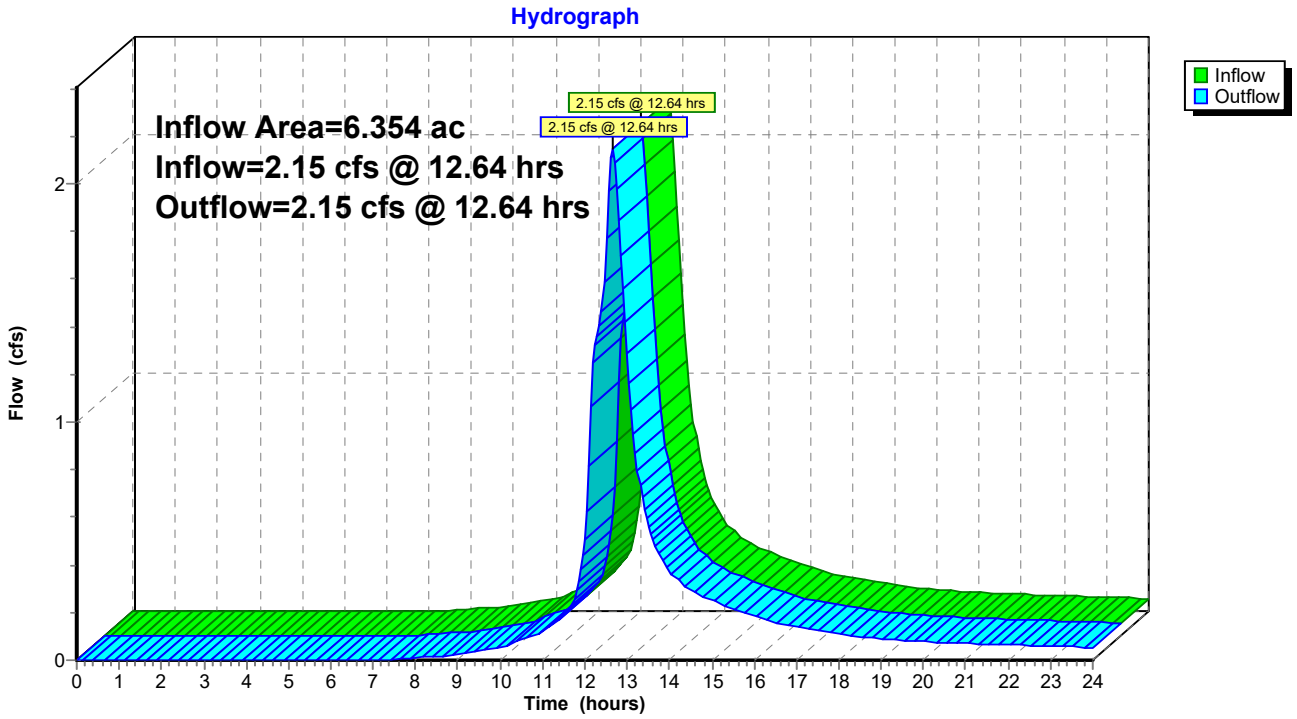


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 0.59" for 1" event
Inflow = 2.15 cfs @ 12.64 hrs, Volume= 0.312 af
Outflow = 2.15 cfs @ 12.64 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



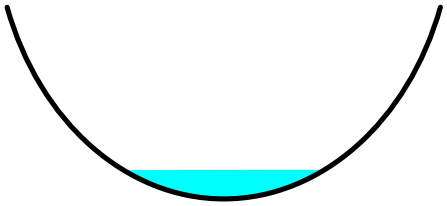
Summary for Reach 12R: North Swale 1

Inflow Area = 3.740 ac, 95.73% Impervious, Inflow Depth > 0.72" for 1" event
Inflow = 3.00 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 1.96 cfs @ 12.43 hrs, Volume= 0.223 af, Atten= 35%, Lag= 20.0 min

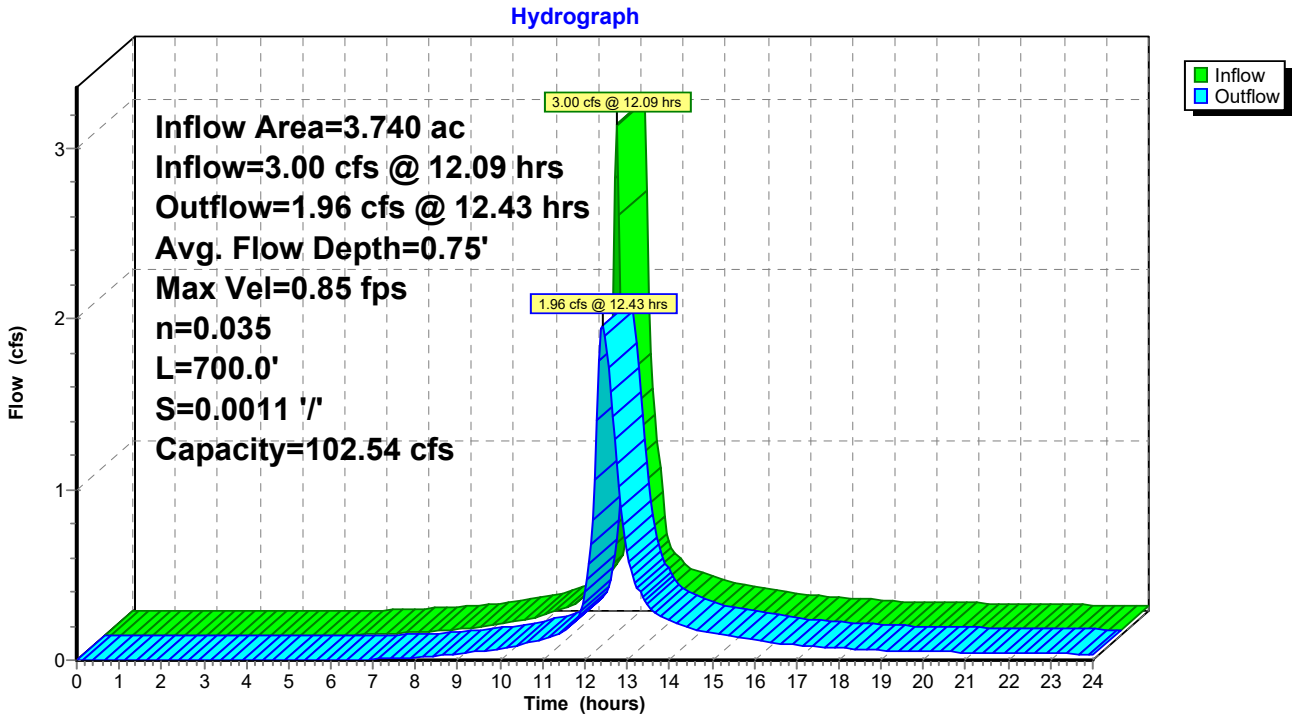
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.85 fps, Min. Travel Time= 13.7 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 37.1 min

Peak Storage= 1,630 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.75' , Surface Width= 4.65'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



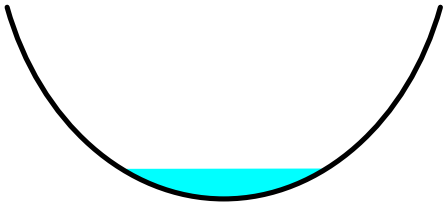
Summary for Reach 13R: West Swale

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 0.59" for 1" event
Inflow = 2.19 cfs @ 12.54 hrs, Volume= 0.313 af
Outflow = 2.15 cfs @ 12.64 hrs, Volume= 0.312 af, Atten= 2%, Lag= 6.0 min

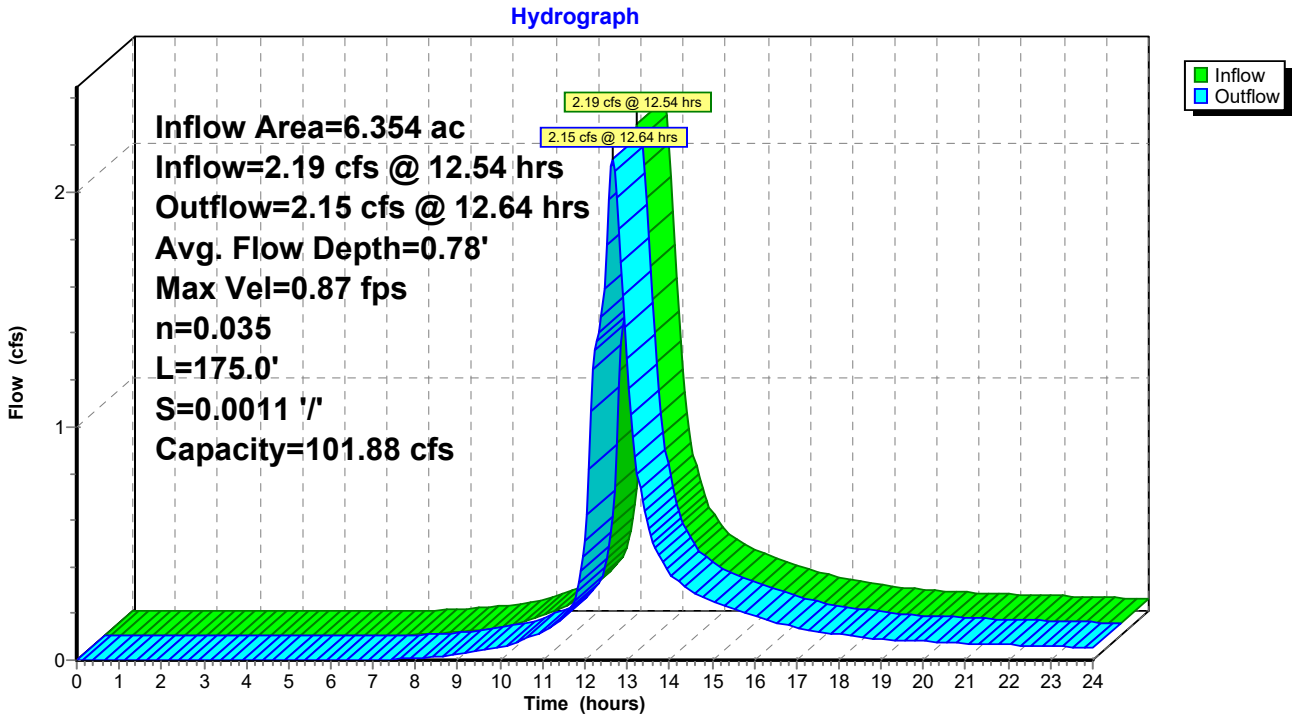
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.87 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 8.4 min

Peak Storage= 434 cf @ 12.59 hrs
Average Depth at Peak Storage= 0.78' , Surface Width= 4.75'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



Summary for Subcatchment 1S: North Front Parking

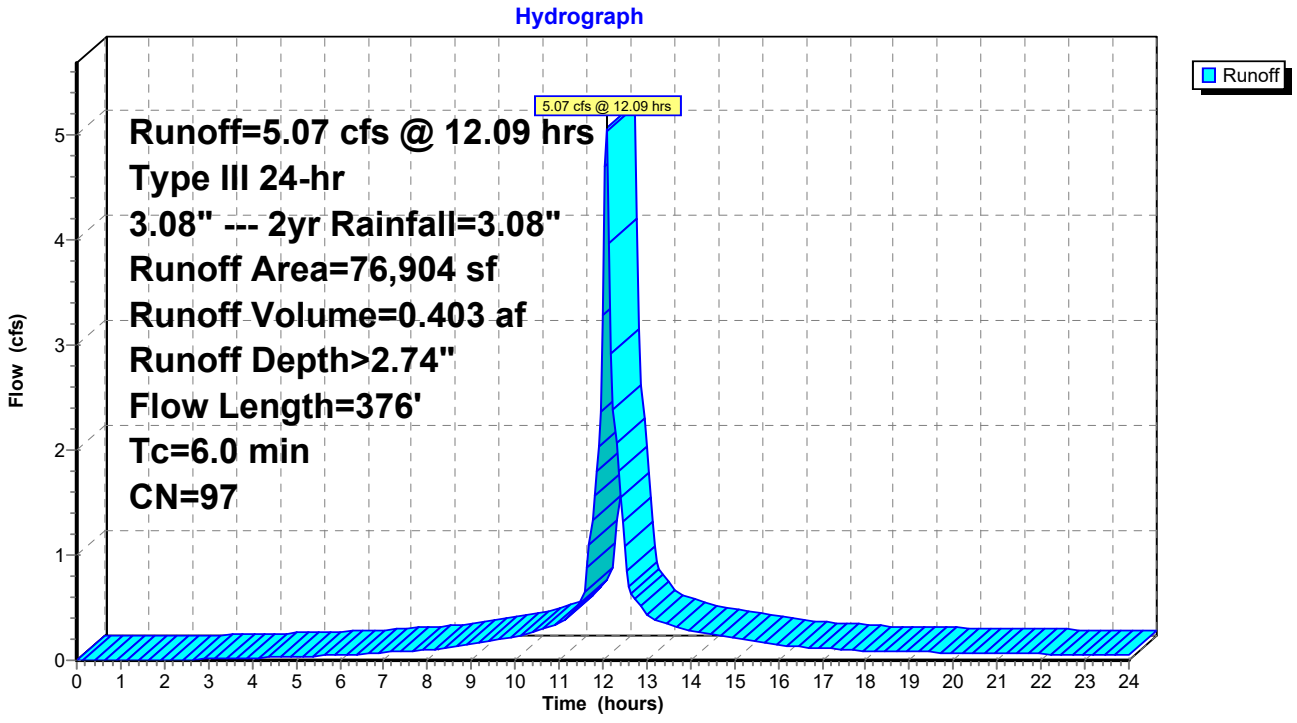
Runoff = 5.07 cfs @ 12.09 hrs, Volume= 0.403 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
72,029	98	Paved parking, HSG D
4,875	79	50-75% Grass cover, Fair, HSG C
76,904	97	Weighted Average
4,875		6.34% Pervious Area
72,029		93.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

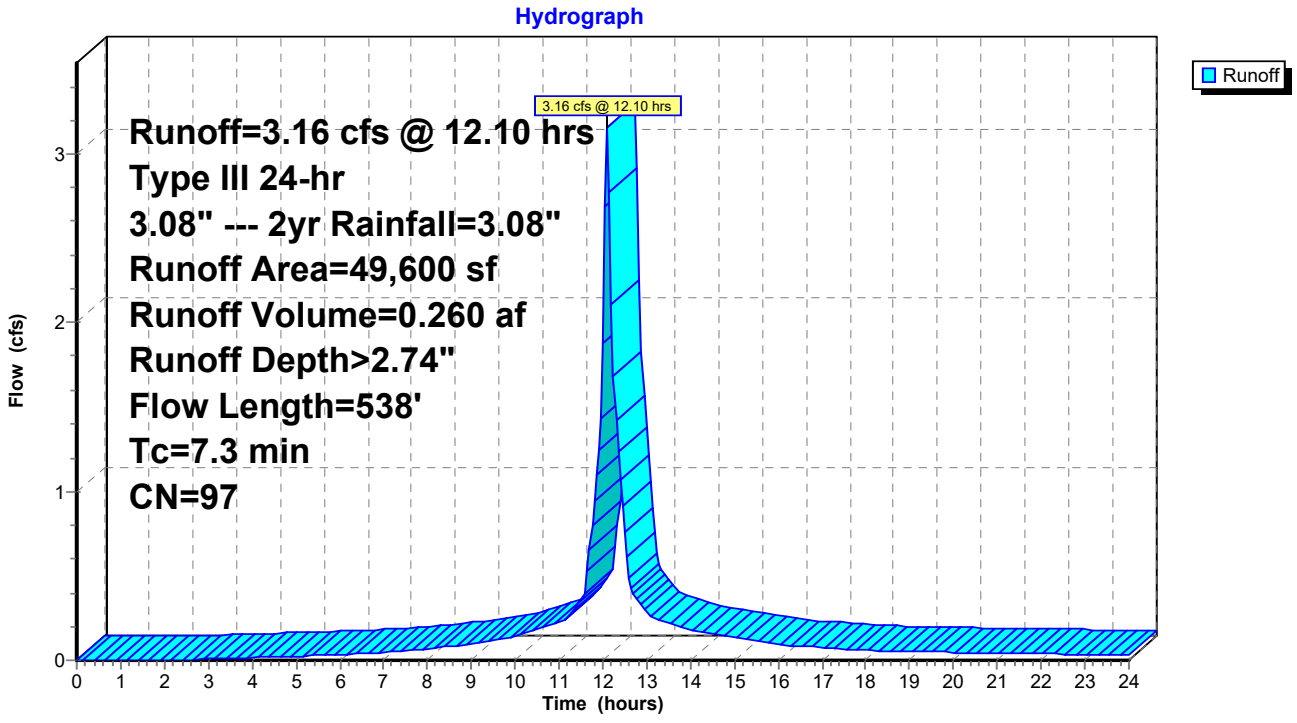
Runoff = 3.16 cfs @ 12.10 hrs, Volume= 0.260 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
47,515	98	Paved parking, HSG D
2,085	79	50-75% Grass cover, Fair, HSG C
49,600	97	Weighted Average
2,085		4.20% Pervious Area
47,515		95.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

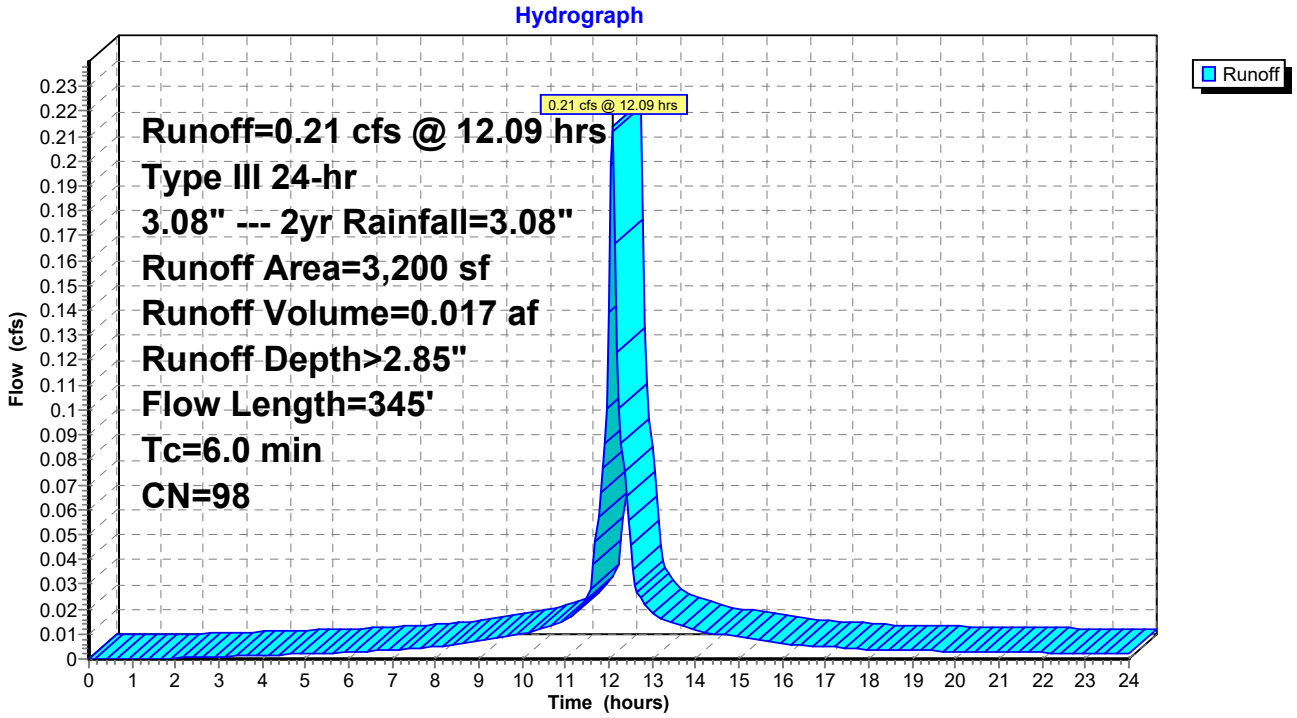
Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

	Area (sf)	CN	Description
*	3,200	98	
	3,200		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	45	0.0050	0.66		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
4.7	300	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.8	345	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

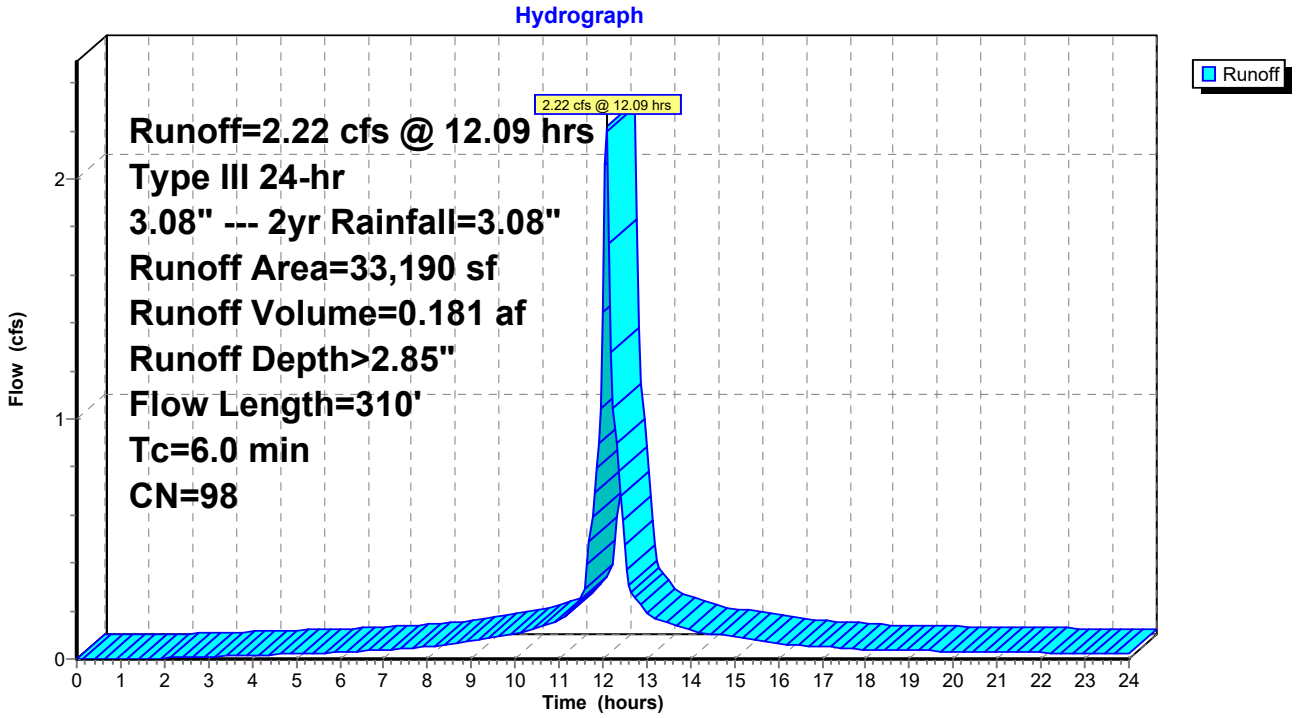
Runoff = 2.22 cfs @ 12.09 hrs, Volume= 0.181 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

	Area (sf)	CN	Description
*	33,190	98	
	33,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

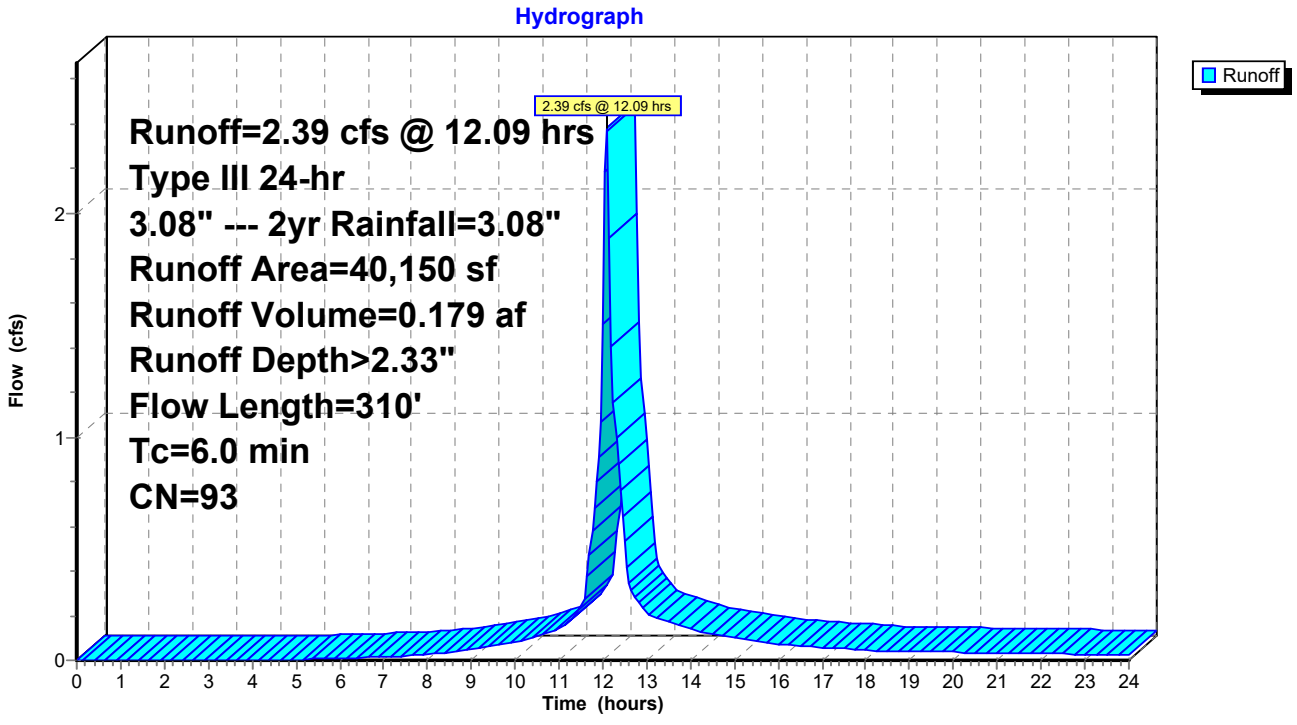
Runoff = 2.39 cfs @ 12.09 hrs, Volume= 0.179 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
29,400	98	Paved parking, HSG D
10,750	79	50-75% Grass cover, Fair, HSG C
40,150	93	Weighted Average
10,750		26.77% Pervious Area
29,400		73.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

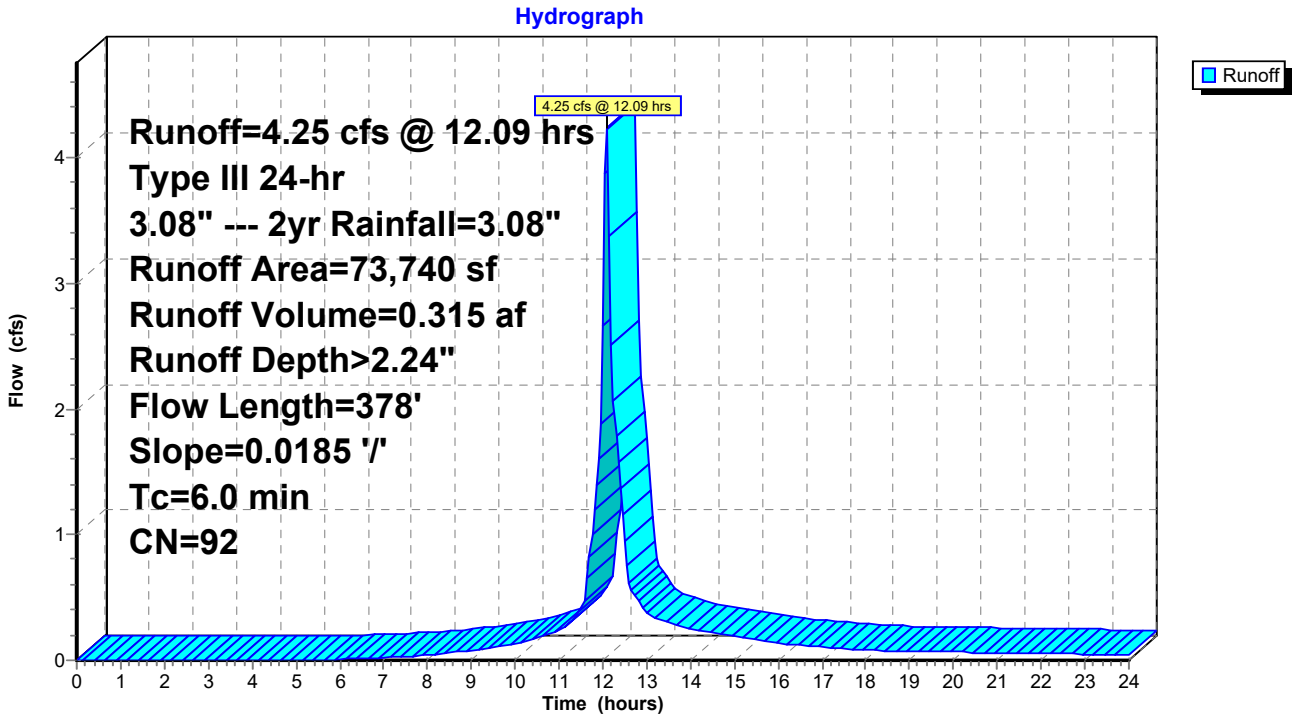
Runoff = 4.25 cfs @ 12.09 hrs, Volume= 0.315 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
48,865	98	Paved parking, HSG D
24,875	79	50-75% Grass cover, Fair, HSG C
73,740	92	Weighted Average
24,875		33.73% Pervious Area
48,865		66.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



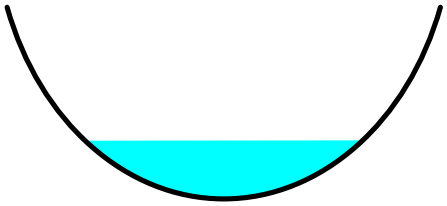
Summary for Reach 6R: North Swale 2

Inflow Area = 4.661 ac, 91.28% Impervious, Inflow Depth > 2.66" for 3.08" --- 2yr event
Inflow = 9.05 cfs @ 12.31 hrs, Volume= 1.033 af
Outflow = 8.79 cfs @ 12.40 hrs, Volume= 1.031 af, Atten= 3%, Lag= 5.3 min

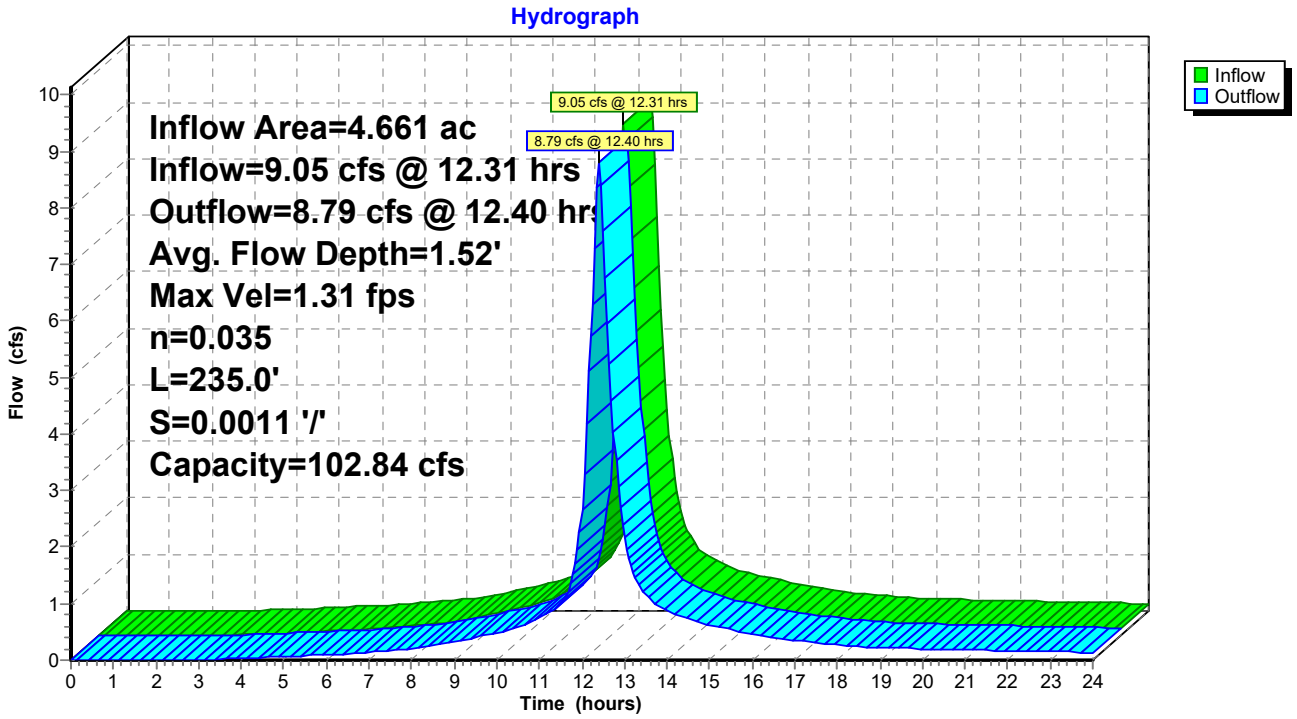
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.31 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 8.2 min

Peak Storage= 1,572 cf @ 12.35 hrs
Average Depth at Peak Storage= 1.52' , Surface Width= 6.61'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

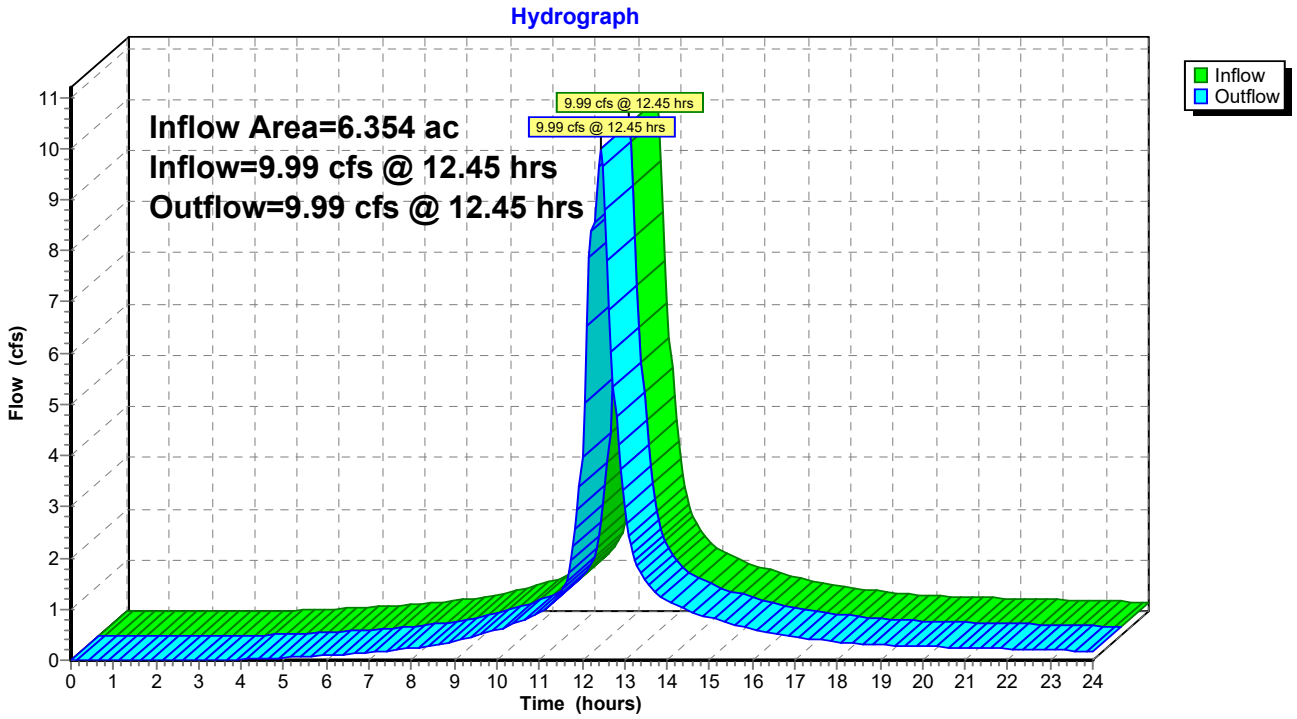


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 2.54" for 3.08" --- 2yr event
Inflow = 9.99 cfs @ 12.45 hrs, Volume= 1.344 af
Outflow = 9.99 cfs @ 12.45 hrs, Volume= 1.344 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



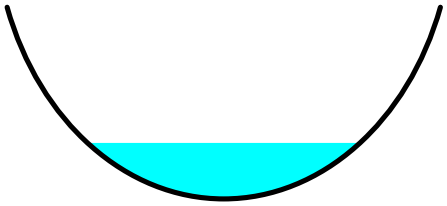
Summary for Reach 12R: North Swale 1

Inflow Area = 3.740 ac, 95.73% Impervious, Inflow Depth > 2.76" for 3.08" --- 2yr event
Inflow = 10.64 cfs @ 12.09 hrs, Volume= 0.860 af
Outflow = 8.09 cfs @ 12.32 hrs, Volume= 0.854 af, Atten= 24%, Lag= 13.6 min

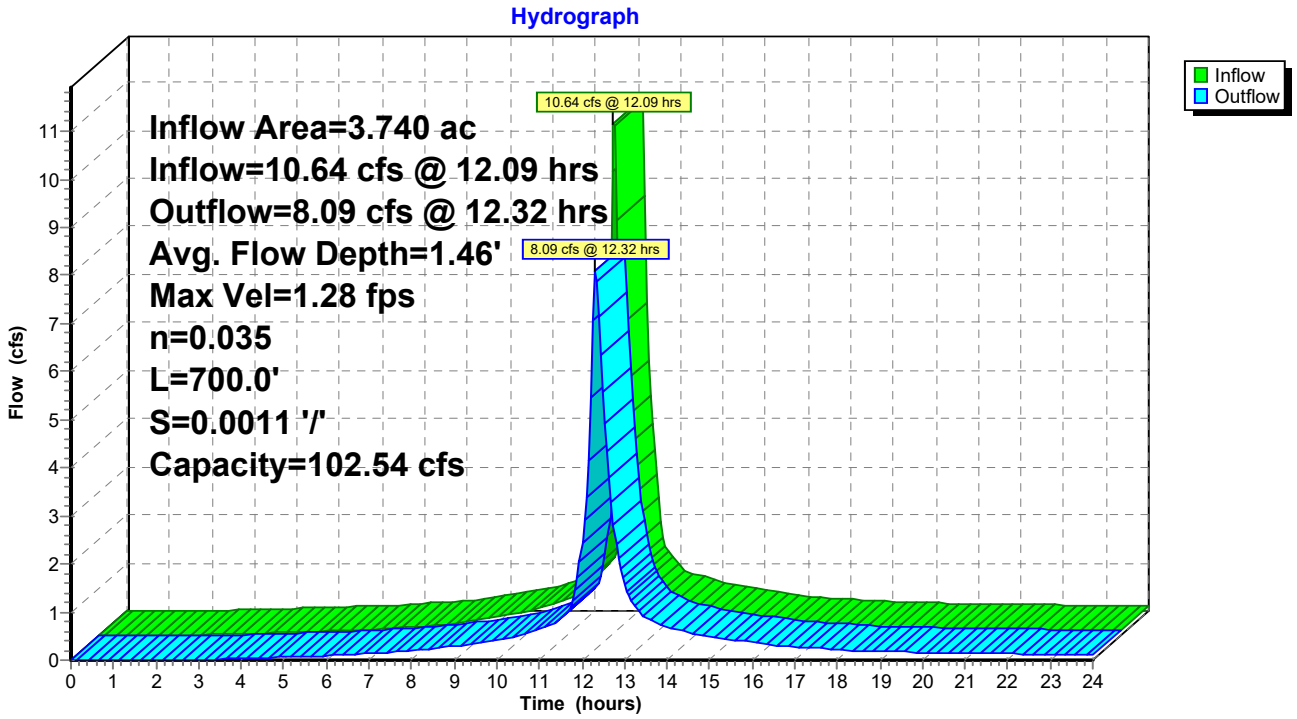
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.28 fps, Min. Travel Time= 9.1 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 25.7 min

Peak Storage= 4,431 cf @ 12.17 hrs
Average Depth at Peak Storage= 1.46' , Surface Width= 6.49'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



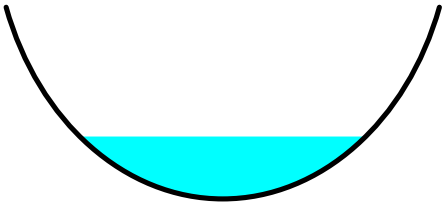
Summary for Reach 13R: West Swale

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 2.54" for 3.08" --- 2yr event
Inflow = 10.18 cfs @ 12.39 hrs, Volume= 1.346 af
Outflow = 9.99 cfs @ 12.45 hrs, Volume= 1.344 af, Atten= 2%, Lag= 3.7 min

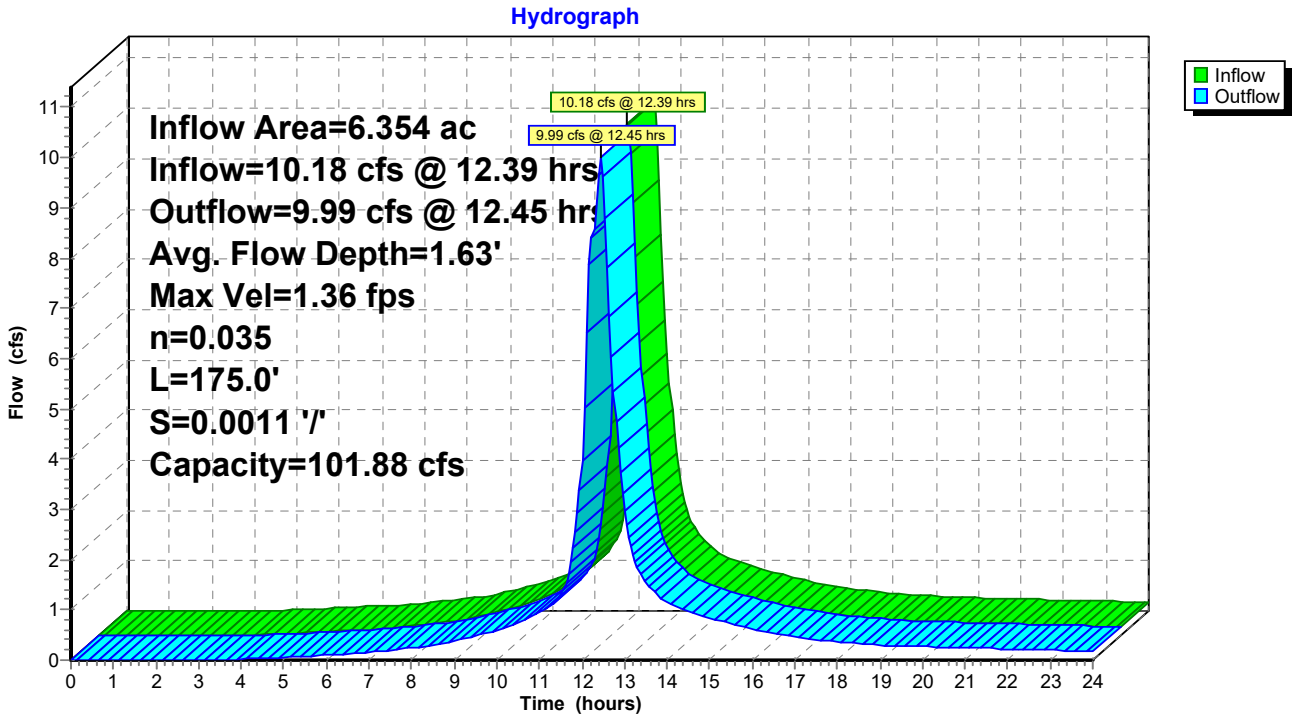
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.36 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 5.7 min

Peak Storage= 1,298 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.63' , Surface Width= 6.84'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



Summary for Subcatchment 1S: North Front Parking

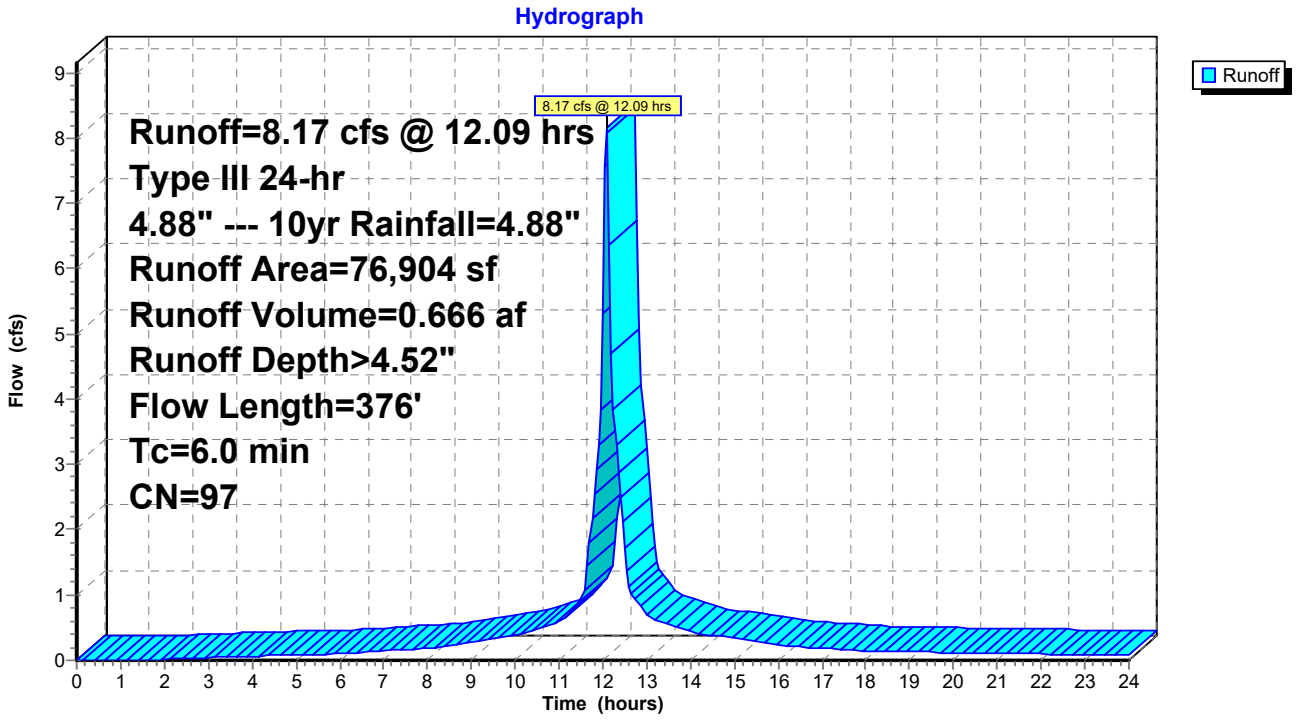
Runoff = 8.17 cfs @ 12.09 hrs, Volume= 0.666 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
72,029	98	Paved parking, HSG D
4,875	79	50-75% Grass cover, Fair, HSG C
76,904	97	Weighted Average
4,875		6.34% Pervious Area
72,029		93.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

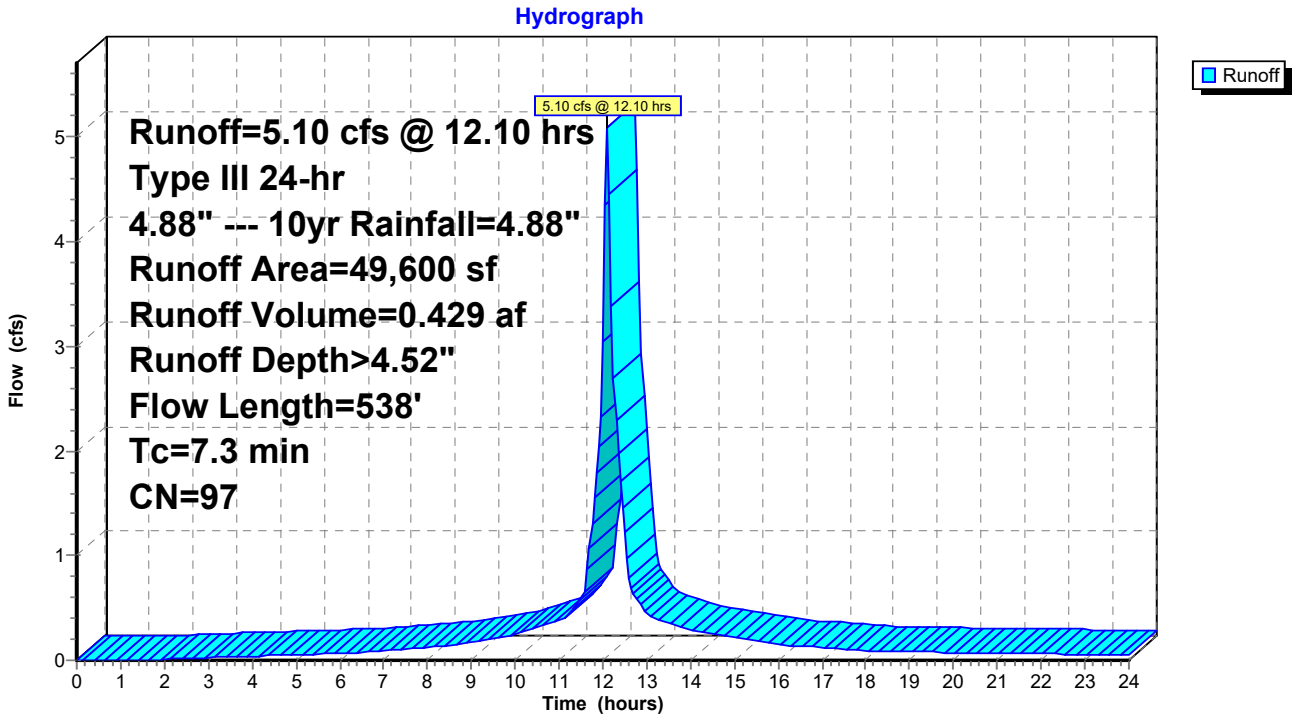
Runoff = 5.10 cfs @ 12.10 hrs, Volume= 0.429 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
47,515	98	Paved parking, HSG D
2,085	79	50-75% Grass cover, Fair, HSG C
49,600	97	Weighted Average
2,085		4.20% Pervious Area
47,515		95.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

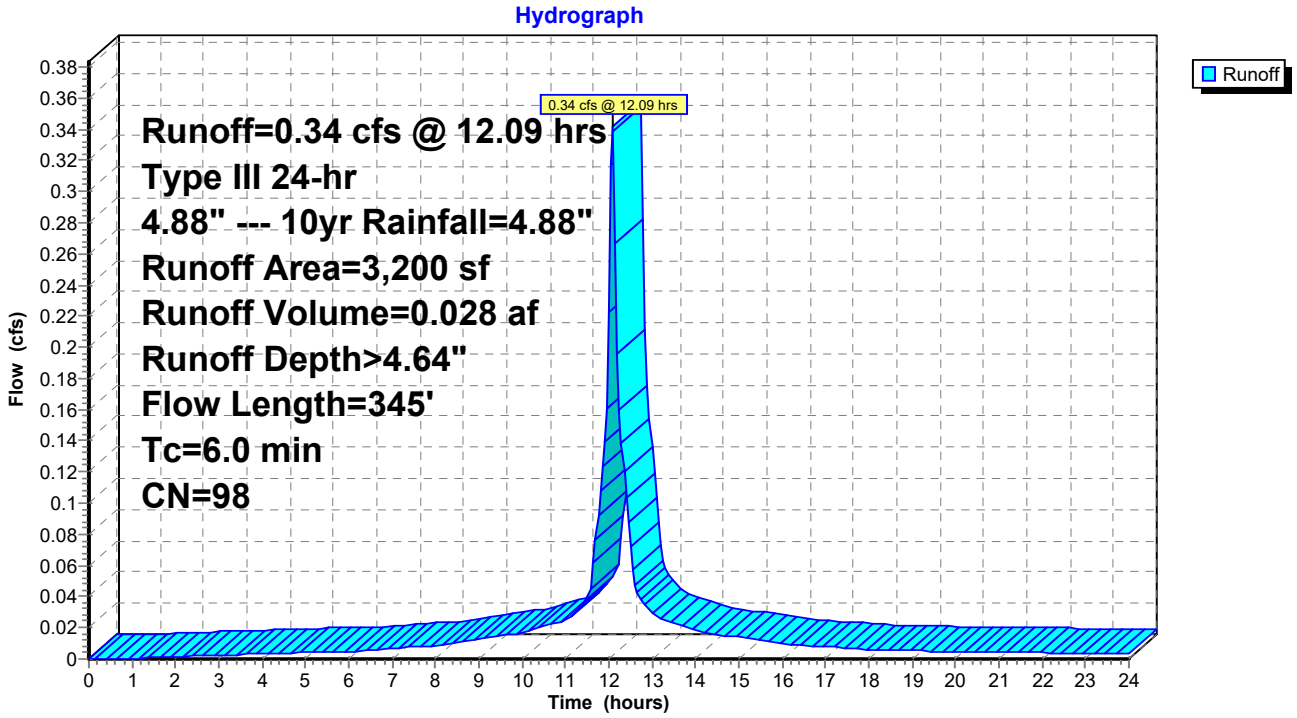
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

	Area (sf)	CN	Description
*	3,200	98	
	3,200		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	45	0.0050	0.66		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
4.7	300	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.8	345	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

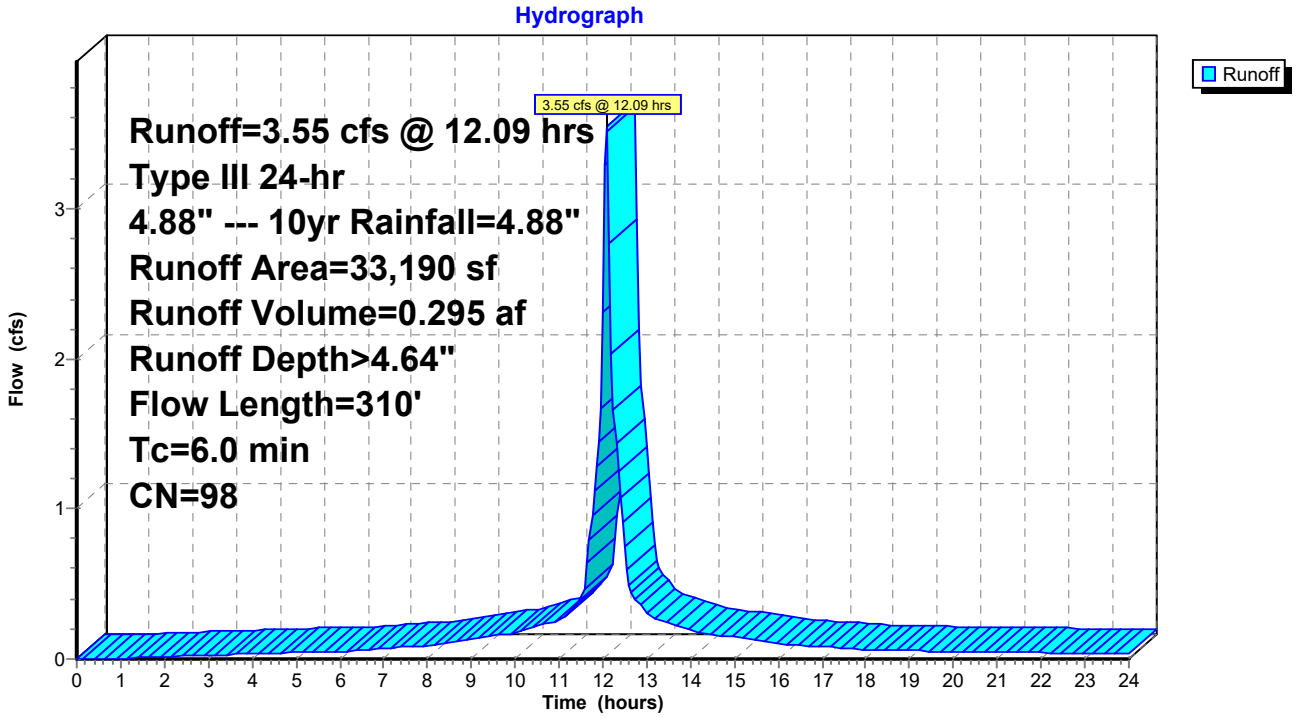
Runoff = 3.55 cfs @ 12.09 hrs, Volume= 0.295 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

	Area (sf)	CN	Description
*	33,190	98	
	33,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

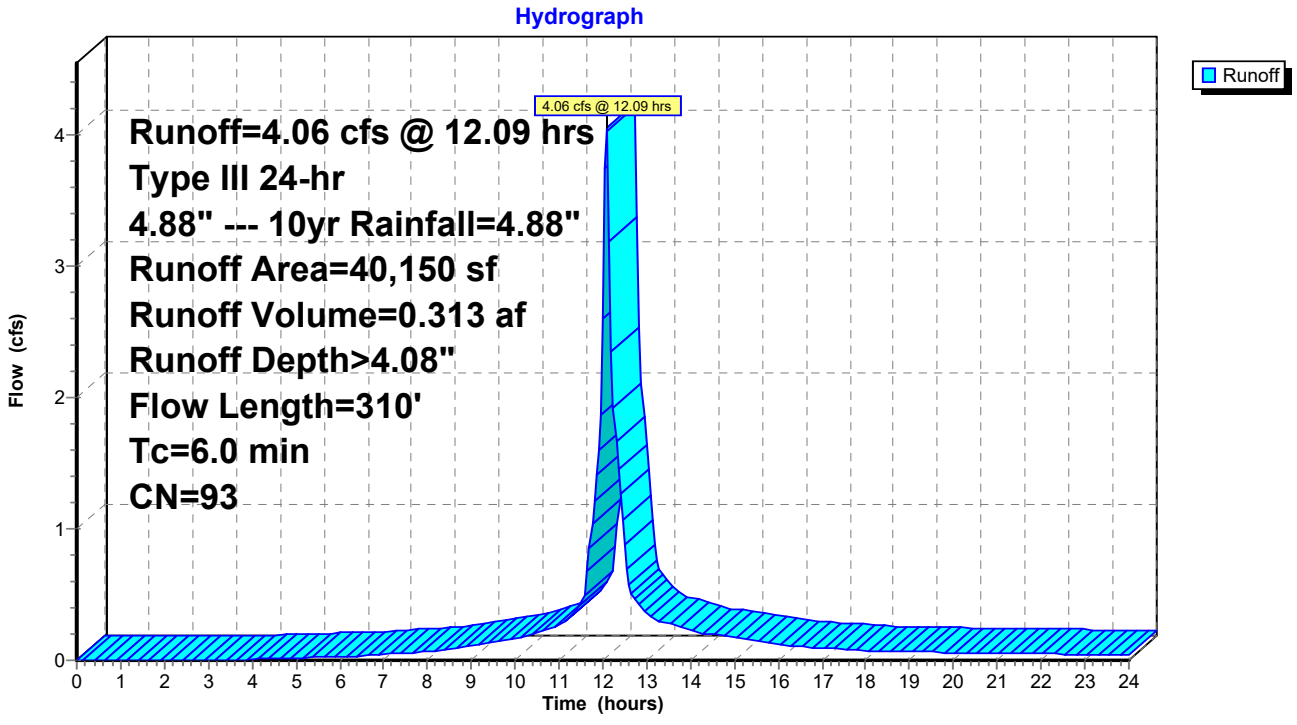
Runoff = 4.06 cfs @ 12.09 hrs, Volume= 0.313 af, Depth> 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
29,400	98	Paved parking, HSG D
10,750	79	50-75% Grass cover, Fair, HSG C
40,150	93	Weighted Average
10,750		26.77% Pervious Area
29,400		73.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

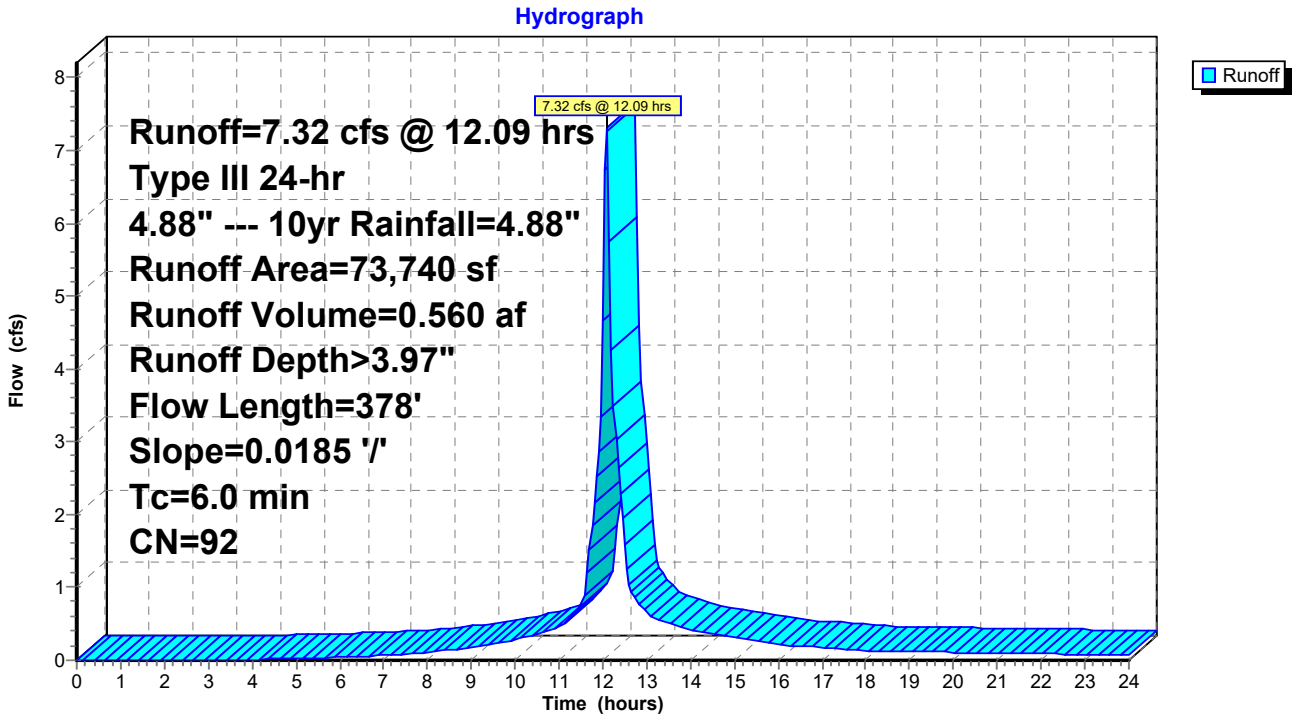
Runoff = 7.32 cfs @ 12.09 hrs, Volume= 0.560 af, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
48,865	98	Paved parking, HSG D
24,875	79	50-75% Grass cover, Fair, HSG C
73,740	92	Weighted Average
24,875		33.73% Pervious Area
48,865		66.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



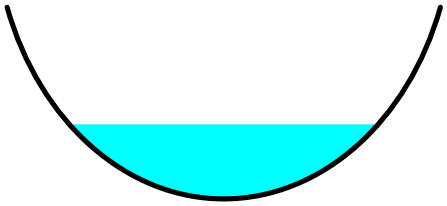
Summary for Reach 6R: North Swale 2

Inflow Area = 4.661 ac, 91.28% Impervious, Inflow Depth > 4.44" for 4.88" --- 10yr event
Inflow = 15.01 cfs @ 12.29 hrs, Volume= 1.723 af
Outflow = 14.63 cfs @ 12.36 hrs, Volume= 1.720 af, Atten= 2%, Lag= 4.5 min

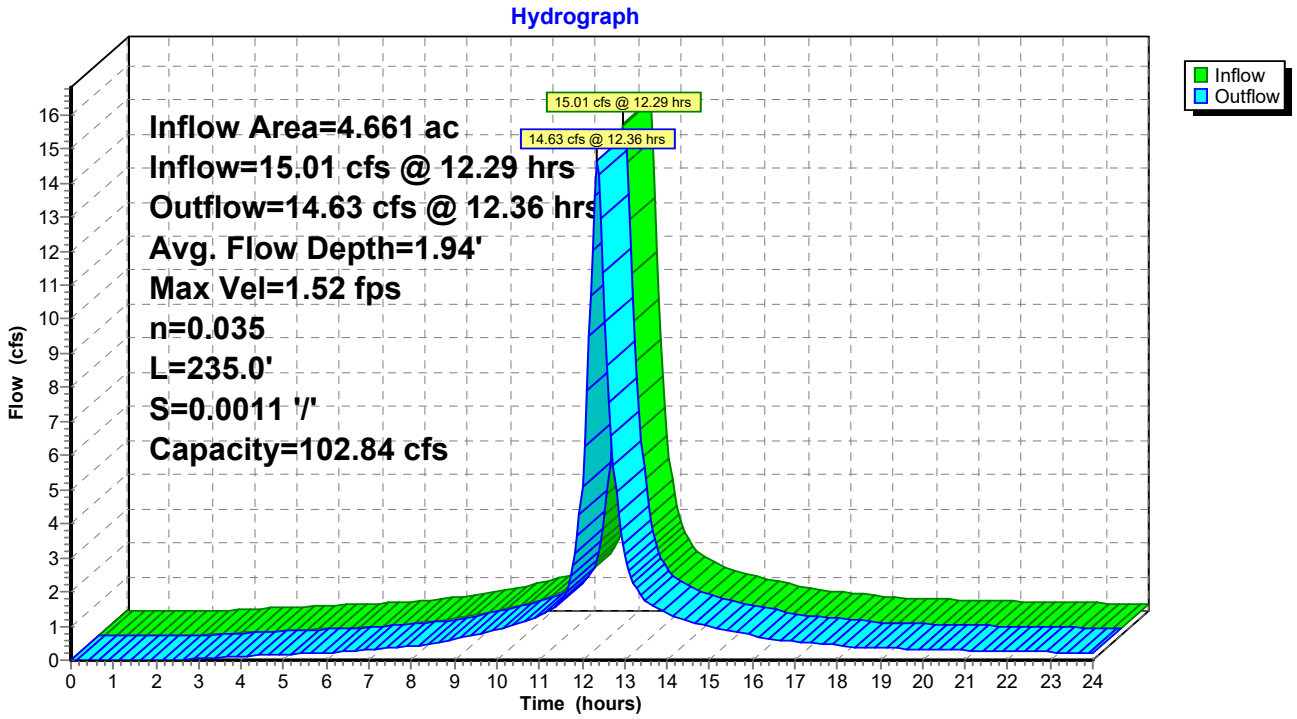
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.52 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 7.0 min

Peak Storage= 2,274 cf @ 12.32 hrs
Average Depth at Peak Storage= 1.94' , Surface Width= 7.48'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

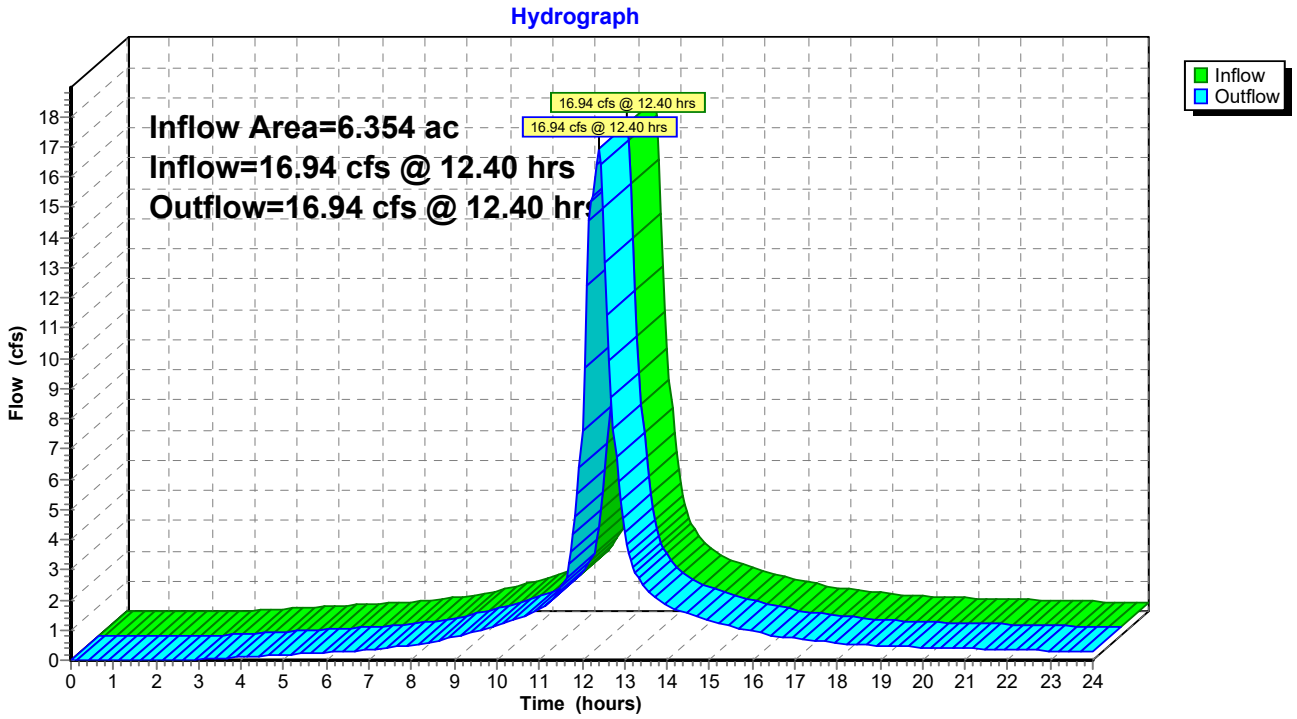


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 4.30" for 4.88" --- 10yr event
Inflow = 16.94 cfs @ 12.40 hrs, Volume= 2.276 af
Outflow = 16.94 cfs @ 12.40 hrs, Volume= 2.276 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



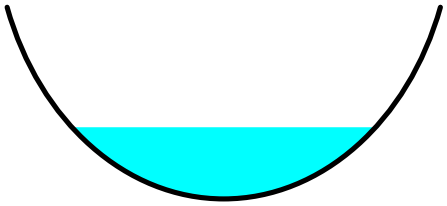
Summary for Reach 12R: North Swale 1

Inflow Area = 3.740 ac, 95.73% Impervious, Inflow Depth > 4.55" for 4.88" --- 10yr event
Inflow = 17.11 cfs @ 12.09 hrs, Volume= 1.418 af
Outflow = 13.30 cfs @ 12.30 hrs, Volume= 1.410 af, Atten= 22%, Lag= 12.2 min

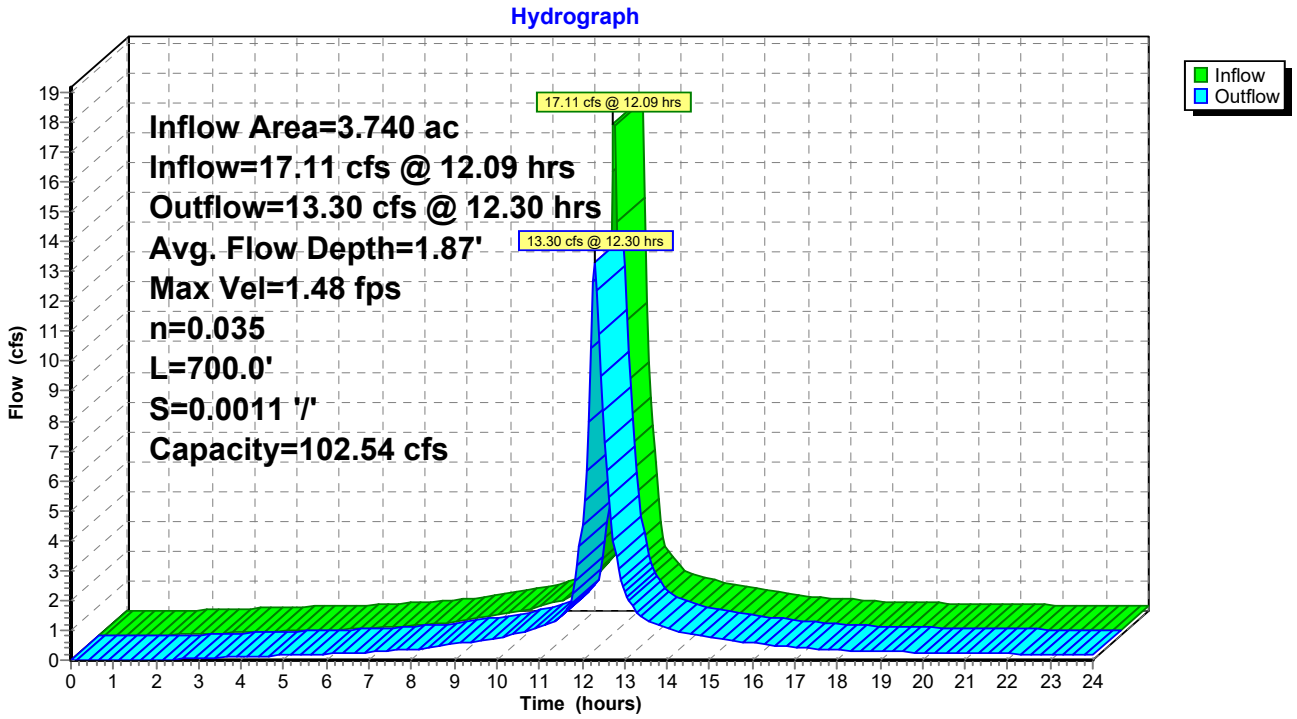
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.48 fps, Min. Travel Time= 7.9 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 22.1 min

Peak Storage= 6,399 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.87' , Surface Width= 7.34'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



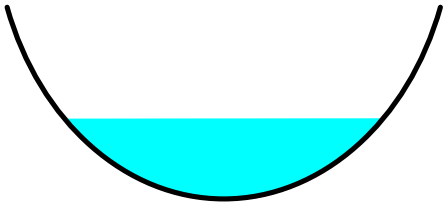
Summary for Reach 13R: West Swale

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 4.30" for 4.88" --- 10yr event
Inflow = 17.24 cfs @ 12.35 hrs, Volume= 2.280 af
Outflow = 16.94 cfs @ 12.40 hrs, Volume= 2.276 af, Atten= 2%, Lag= 3.1 min

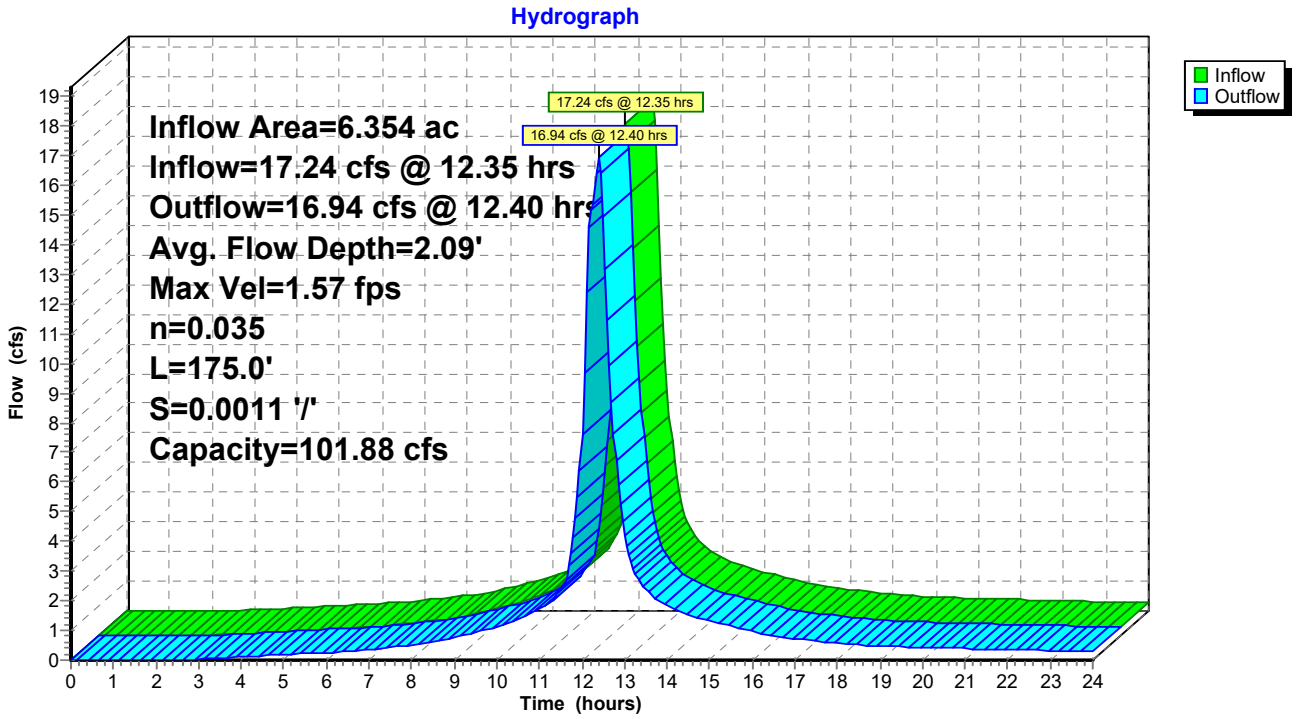
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.57 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 4.9 min

Peak Storage= 1,896 cf @ 12.37 hrs
Average Depth at Peak Storage= 2.09' , Surface Width= 7.76'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



Summary for Subcatchment 1S: North Front Parking

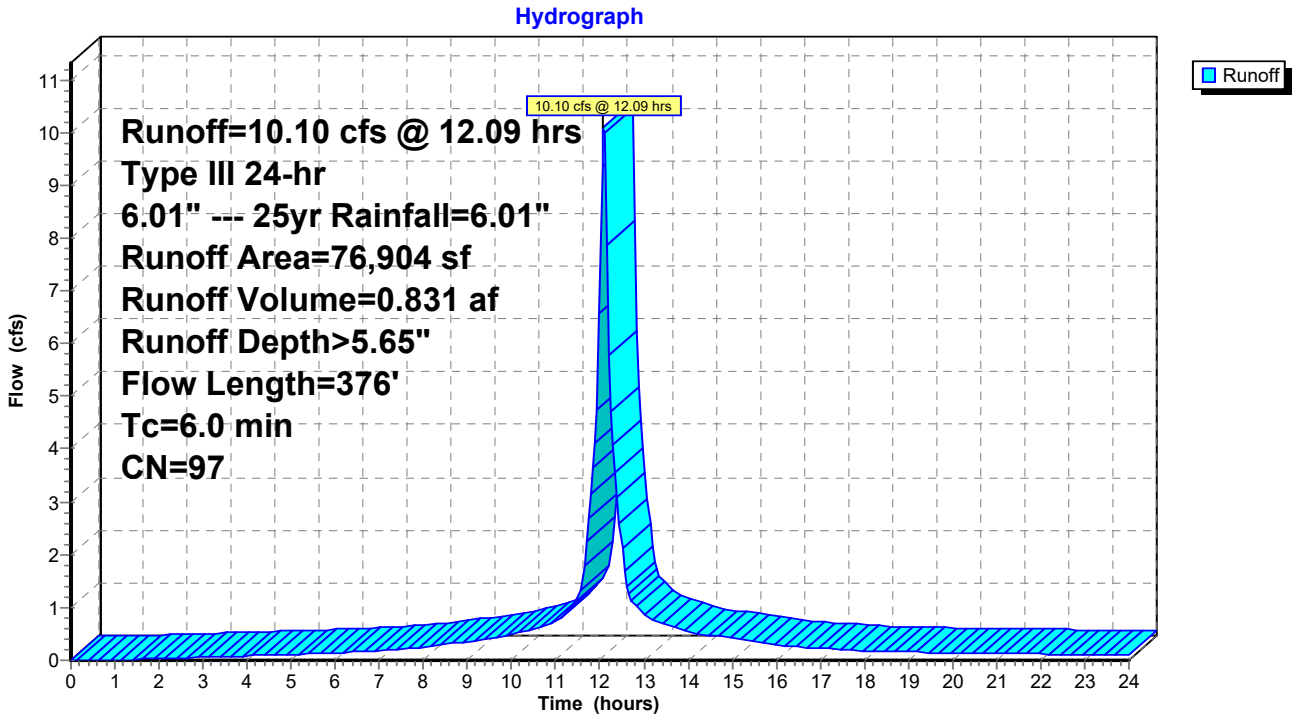
Runoff = 10.10 cfs @ 12.09 hrs, Volume= 0.831 af, Depth> 5.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
72,029	98	Paved parking, HSG D
4,875	79	50-75% Grass cover, Fair, HSG C
76,904	97	Weighted Average
4,875		6.34% Pervious Area
72,029		93.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

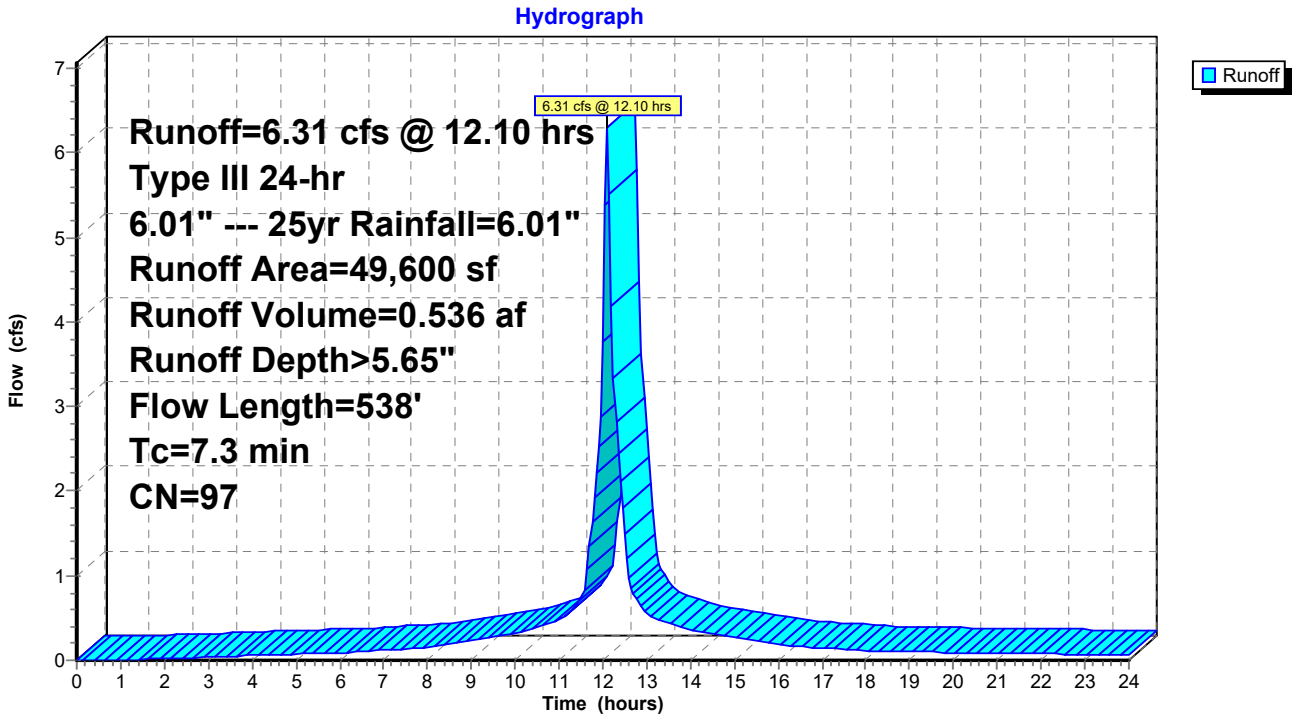
Runoff = 6.31 cfs @ 12.10 hrs, Volume= 0.536 af, Depth> 5.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
47,515	98	Paved parking, HSG D
2,085	79	50-75% Grass cover, Fair, HSG C
49,600	97	Weighted Average
2,085		4.20% Pervious Area
47,515		95.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

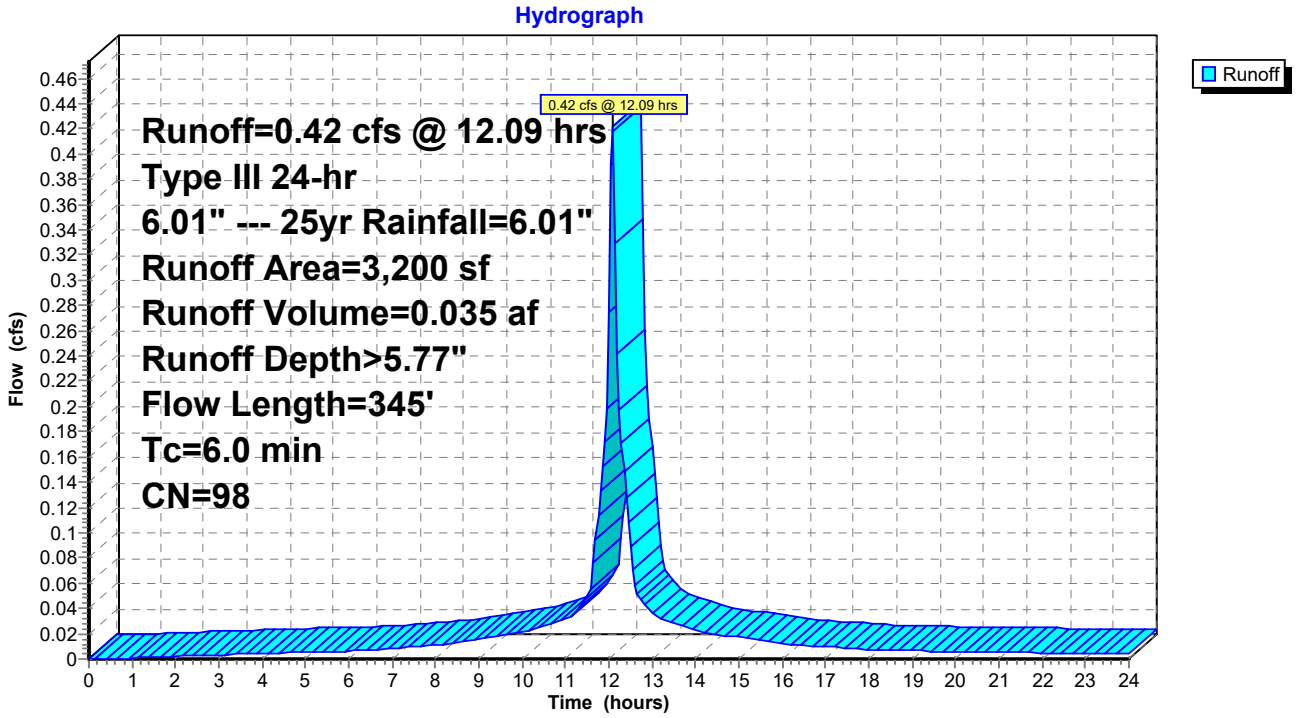
Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

	Area (sf)	CN	Description
*	3,200	98	
	3,200		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	45	0.0050	0.66		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
4.7	300	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.8	345	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

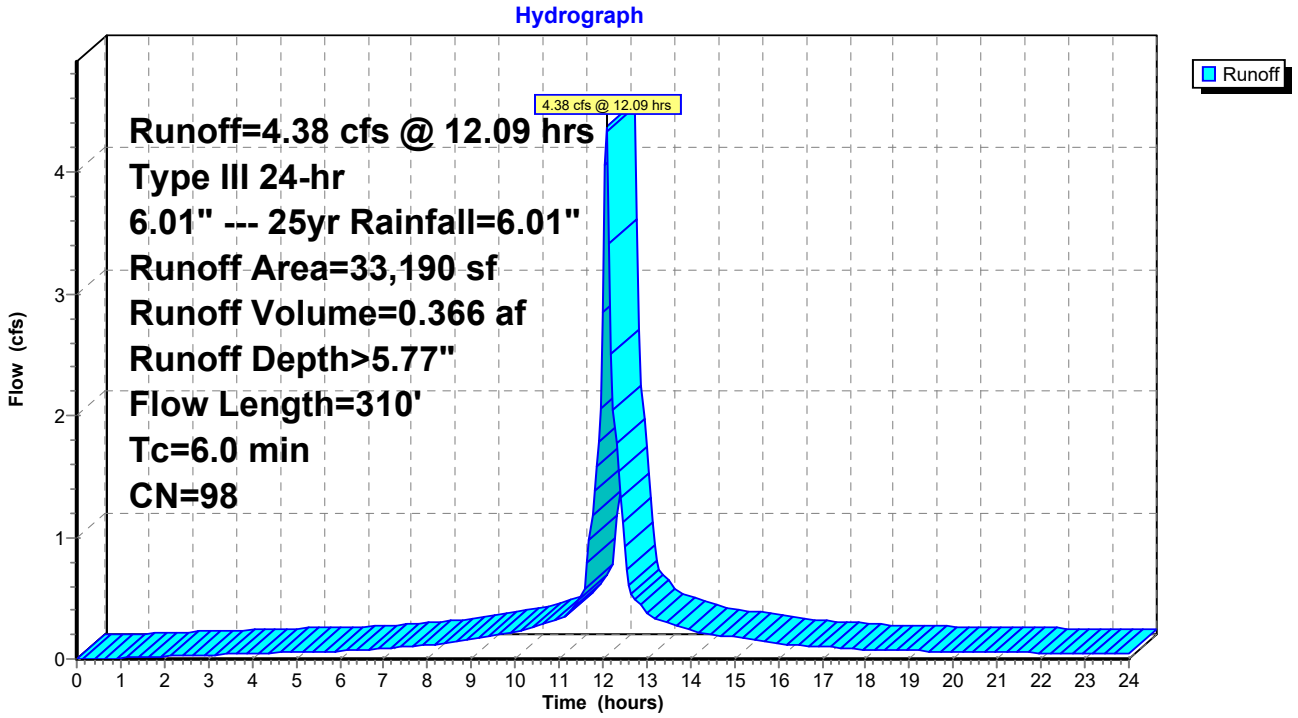
Runoff = 4.38 cfs @ 12.09 hrs, Volume= 0.366 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

	Area (sf)	CN	Description
*	33,190	98	
	33,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

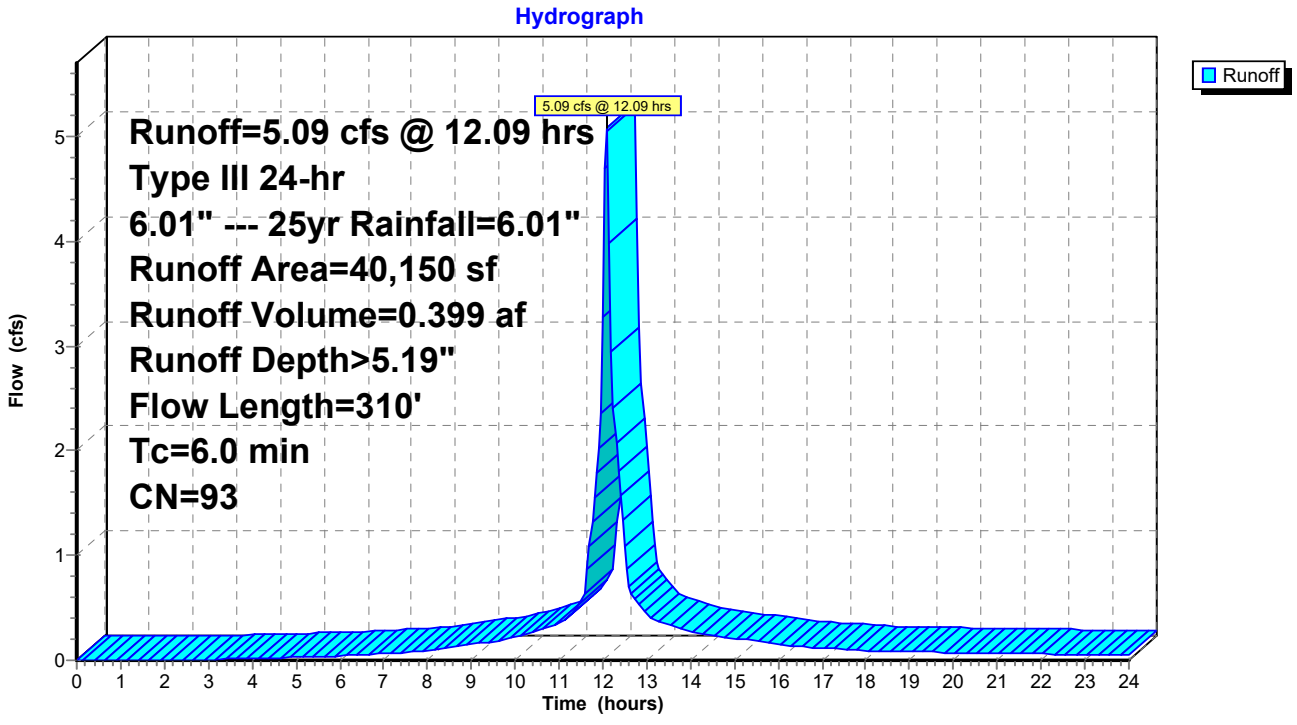
Runoff = 5.09 cfs @ 12.09 hrs, Volume= 0.399 af, Depth> 5.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
29,400	98	Paved parking, HSG D
10,750	79	50-75% Grass cover, Fair, HSG C
40,150	93	Weighted Average
10,750		26.77% Pervious Area
29,400		73.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

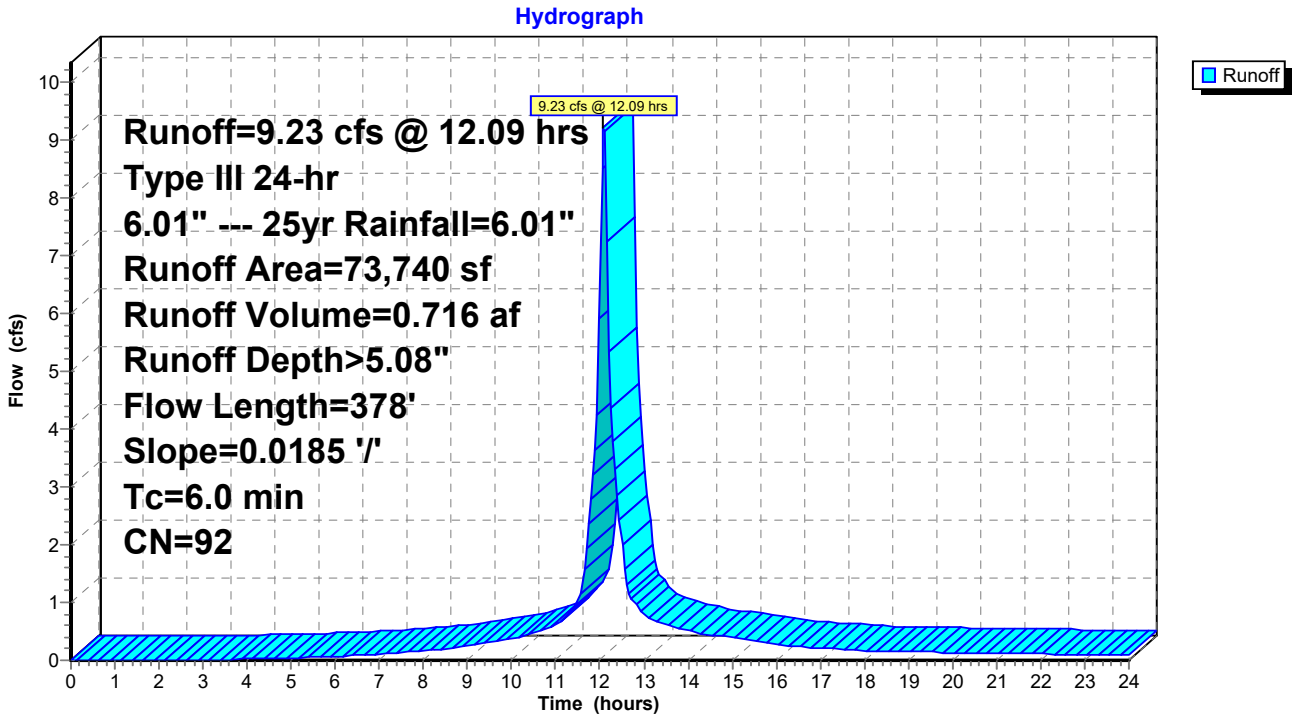
Runoff = 9.23 cfs @ 12.09 hrs, Volume= 0.716 af, Depth> 5.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
48,865	98	Paved parking, HSG D
24,875	79	50-75% Grass cover, Fair, HSG C
73,740	92	Weighted Average
24,875		33.73% Pervious Area
48,865		66.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



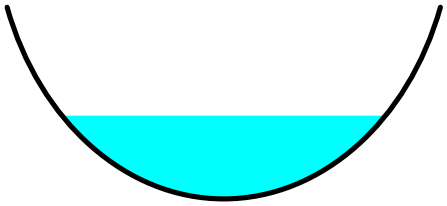
Summary for Reach 6R: North Swale 2

Inflow Area = 4.661 ac, 91.28% Impervious, Inflow Depth > 5.56" for 6.01" --- 25yr event
Inflow = 18.86 cfs @ 12.27 hrs, Volume= 2.158 af
Outflow = 18.38 cfs @ 12.35 hrs, Volume= 2.154 af, Atten= 3%, Lag= 4.4 min

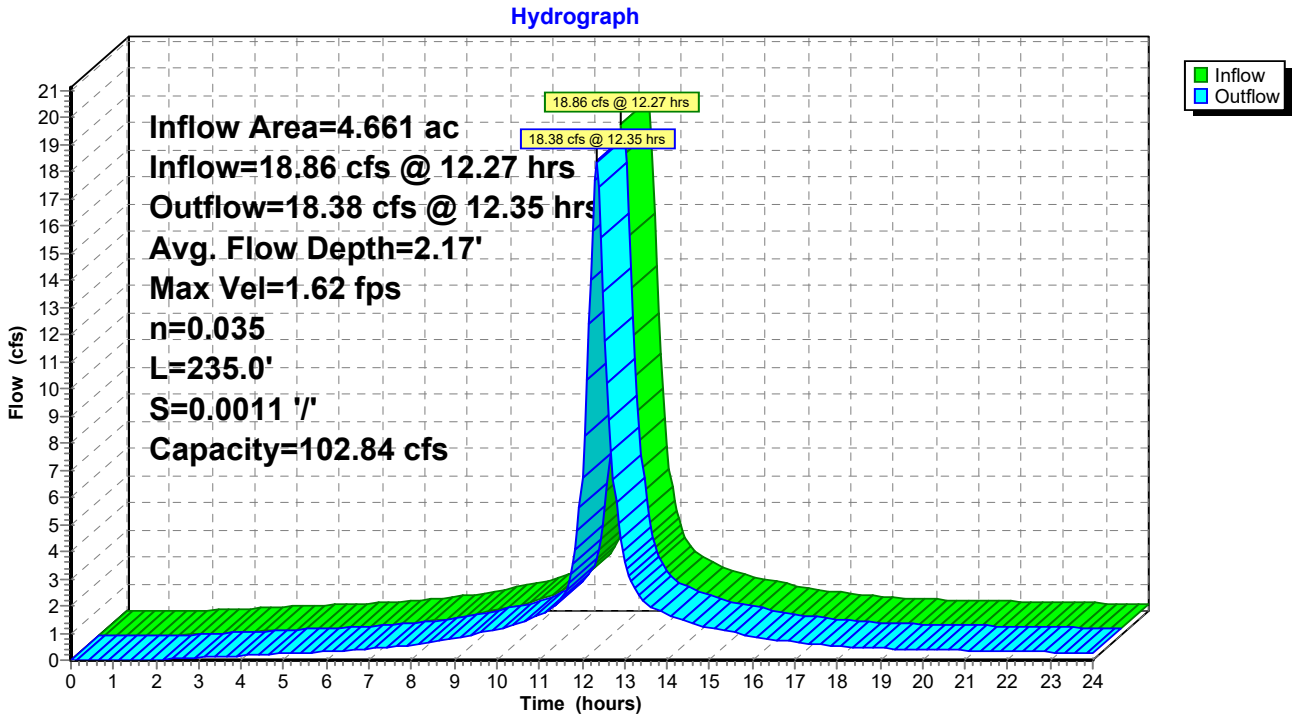
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.62 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 6.5 min

Peak Storage= 2,684 cf @ 12.30 hrs
Average Depth at Peak Storage= 2.17' , Surface Width= 7.90'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

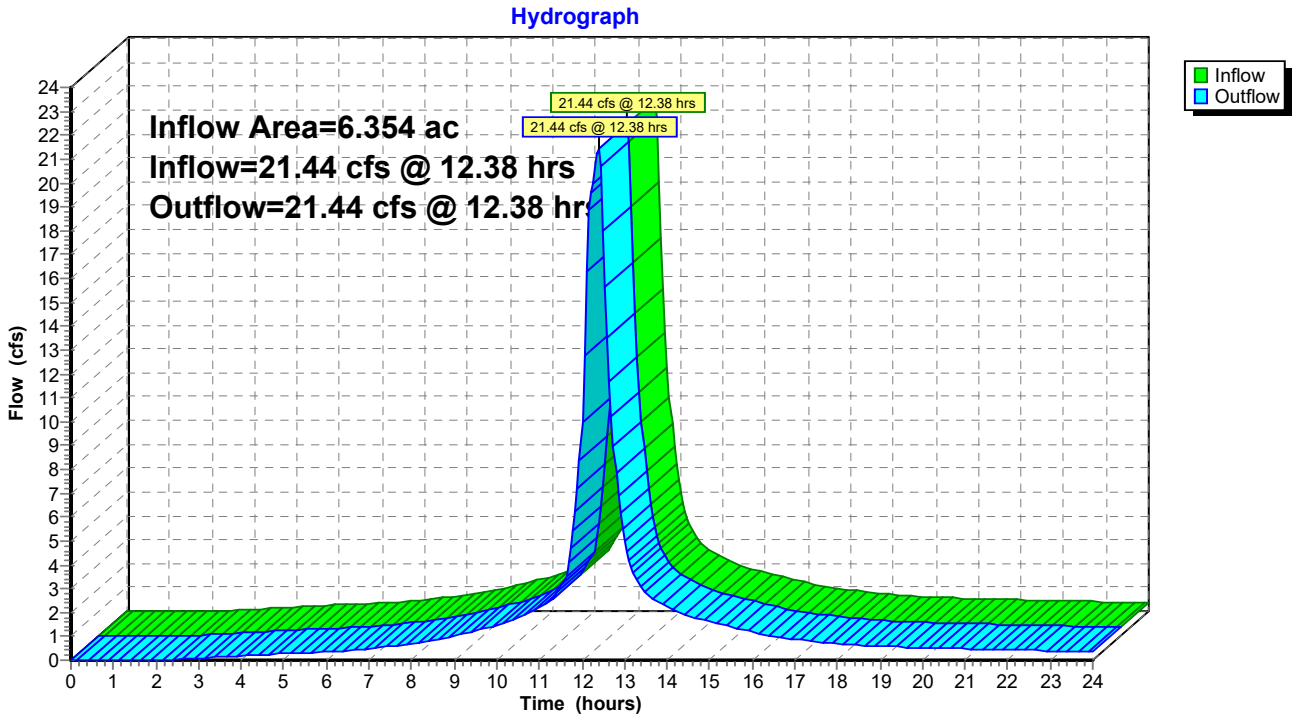


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 5.41" for 6.01" --- 25yr event
Inflow = 21.44 cfs @ 12.38 hrs, Volume= 2.867 af
Outflow = 21.44 cfs @ 12.38 hrs, Volume= 2.867 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



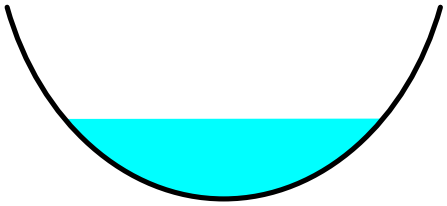
Summary for Reach 12R: North Swale 1

Inflow Area = 3.740 ac, 95.73% Impervious, Inflow Depth > 5.68" for 6.01" --- 25yr event
Inflow = 21.16 cfs @ 12.09 hrs, Volume= 1.769 af
Outflow = 16.60 cfs @ 12.28 hrs, Volume= 1.759 af, Atten= 22%, Lag= 11.5 min

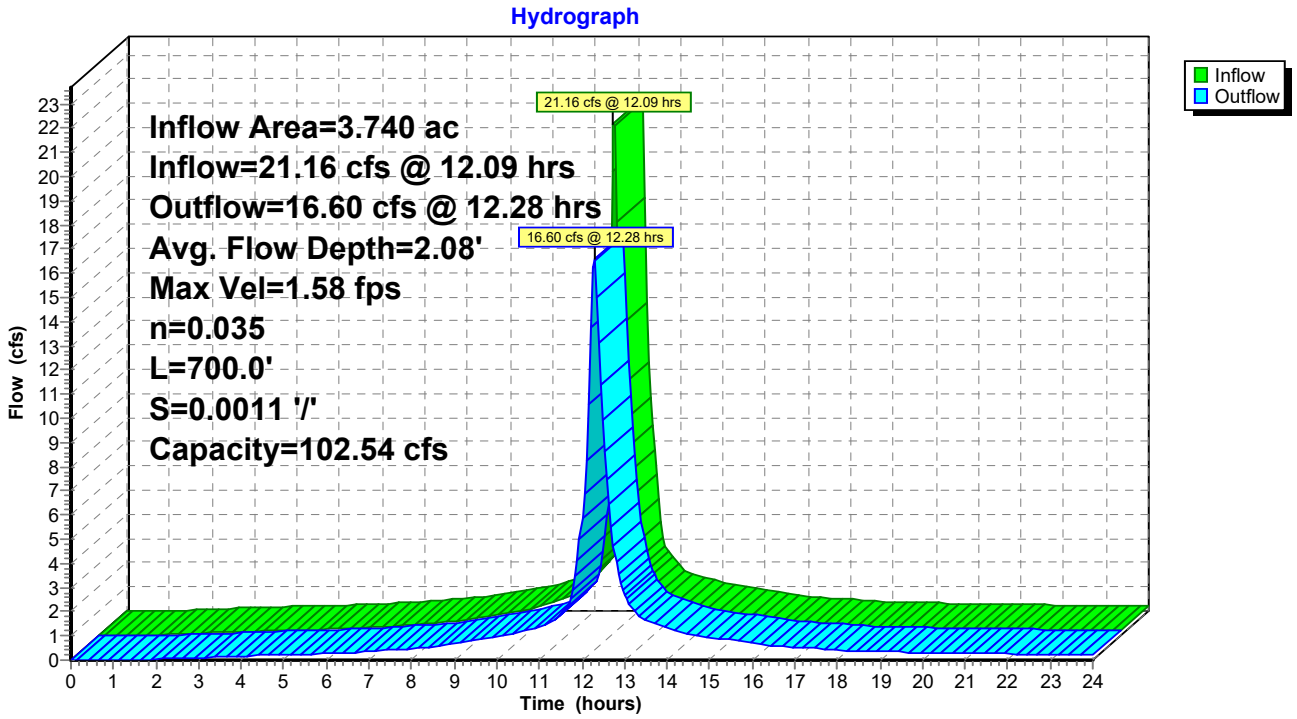
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.58 fps, Min. Travel Time= 7.4 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 20.7 min

Peak Storage= 7,534 cf @ 12.16 hrs
Average Depth at Peak Storage= 2.08' , Surface Width= 7.75'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



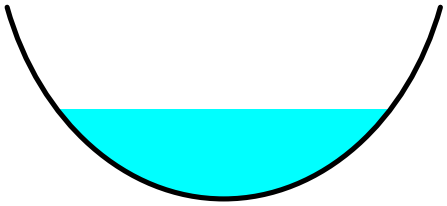
Summary for Reach 13R: West Swale

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 5.42" for 6.01" --- 25yr event
Inflow = 21.78 cfs @ 12.33 hrs, Volume= 2.870 af
Outflow = 21.44 cfs @ 12.38 hrs, Volume= 2.867 af, Atten= 2%, Lag= 2.9 min

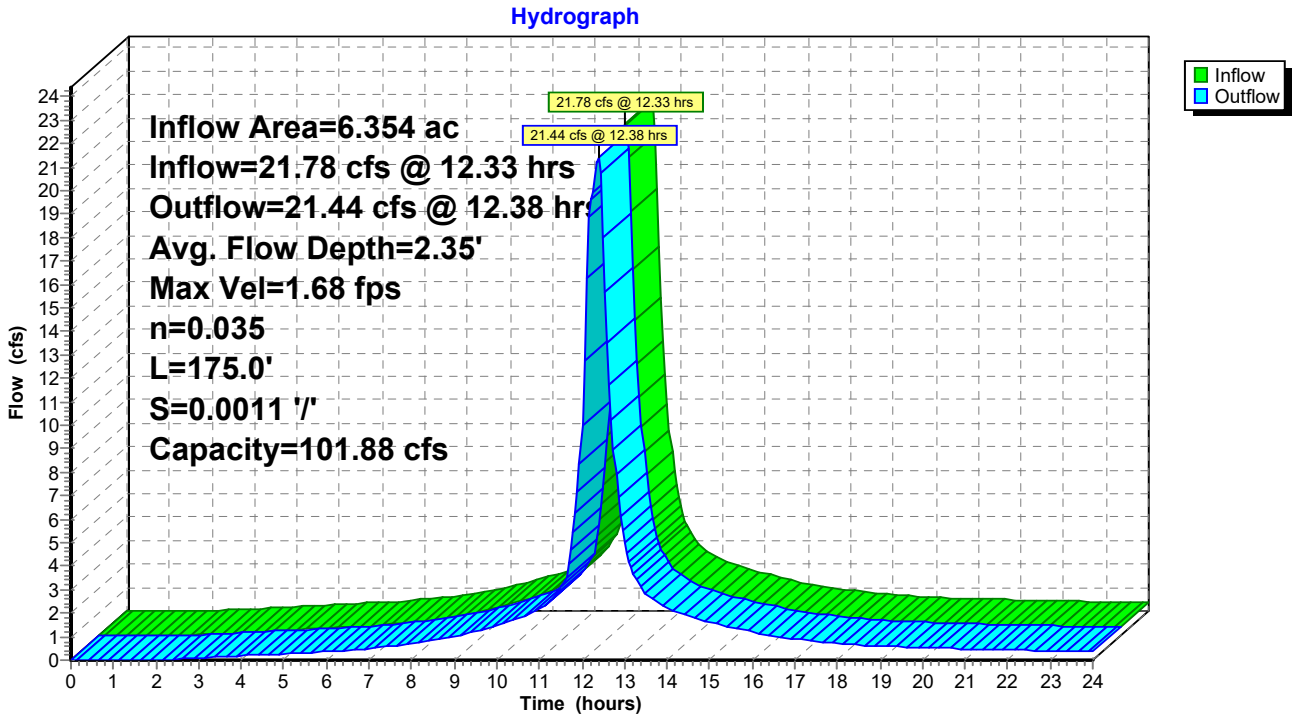
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.68 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 4.5 min

Peak Storage= 2,250 cf @ 12.35 hrs
Average Depth at Peak Storage= 2.35' , Surface Width= 8.22'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



Summary for Subcatchment 1S: North Front Parking

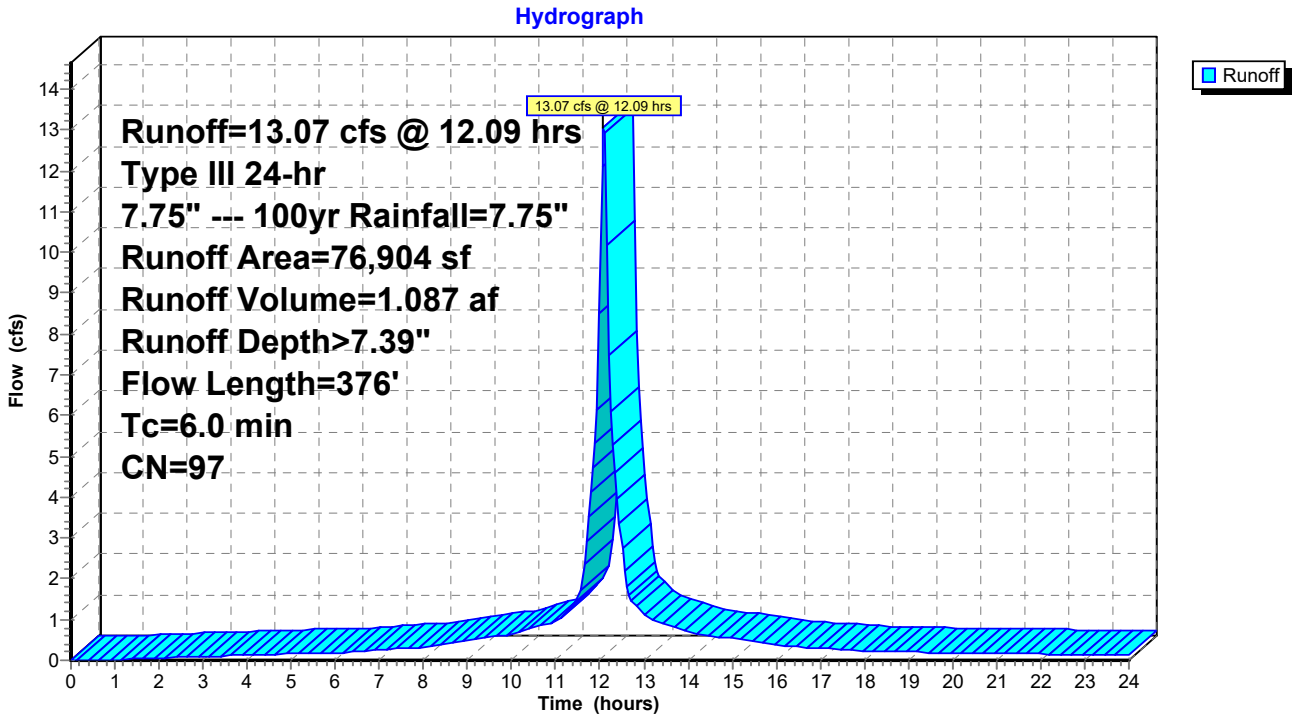
Runoff = 13.07 cfs @ 12.09 hrs, Volume= 1.087 af, Depth> 7.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
72,029	98	Paved parking, HSG D
4,875	79	50-75% Grass cover, Fair, HSG C
76,904	97	Weighted Average
4,875		6.34% Pervious Area
72,029		93.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

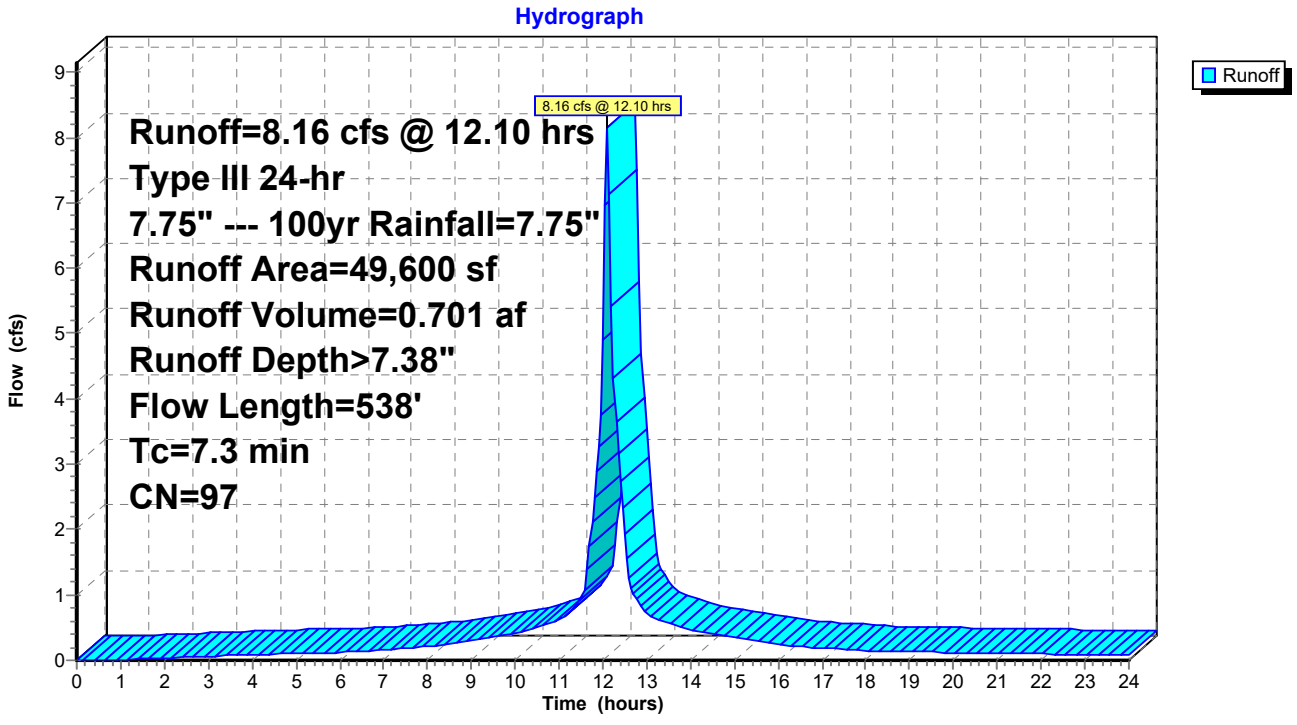
Runoff = 8.16 cfs @ 12.10 hrs, Volume= 0.701 af, Depth> 7.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
47,515	98	Paved parking, HSG D
2,085	79	50-75% Grass cover, Fair, HSG C
49,600	97	Weighted Average
2,085		4.20% Pervious Area
47,515		95.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

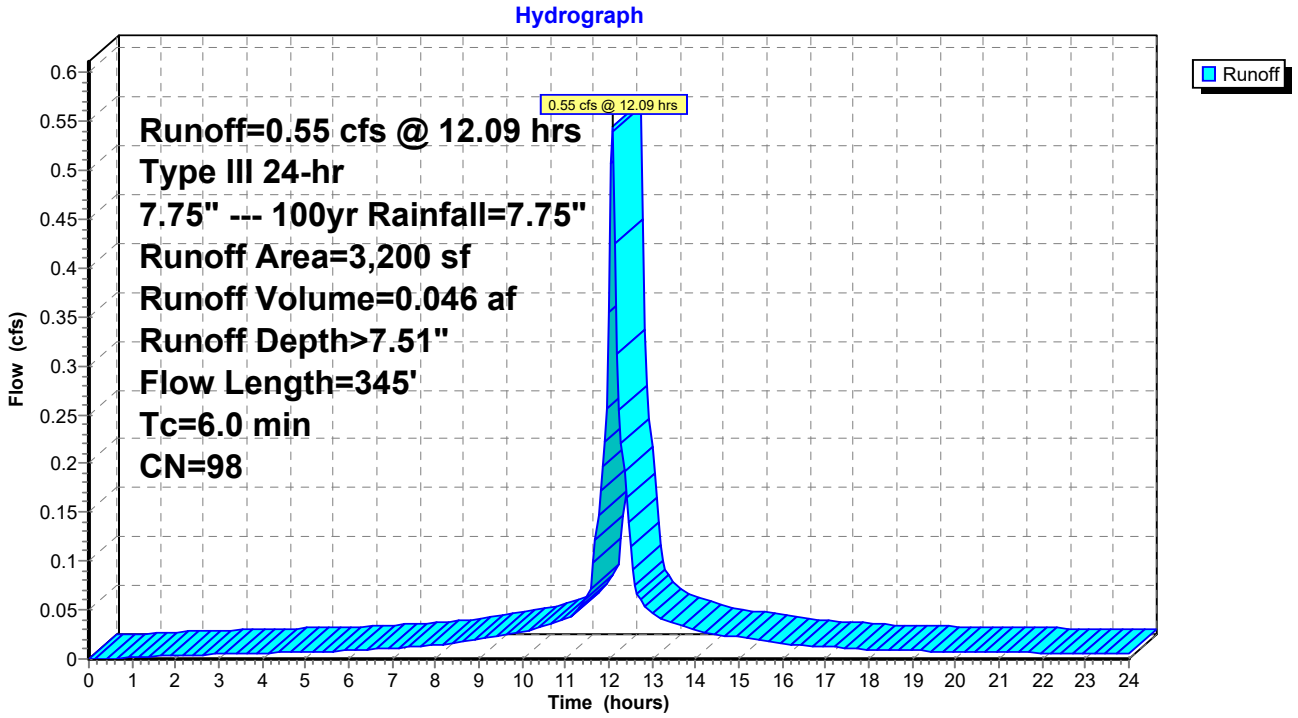
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 7.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

	Area (sf)	CN	Description
*	3,200	98	
	3,200		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	45	0.0050	0.66		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
4.7	300	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.8	345	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

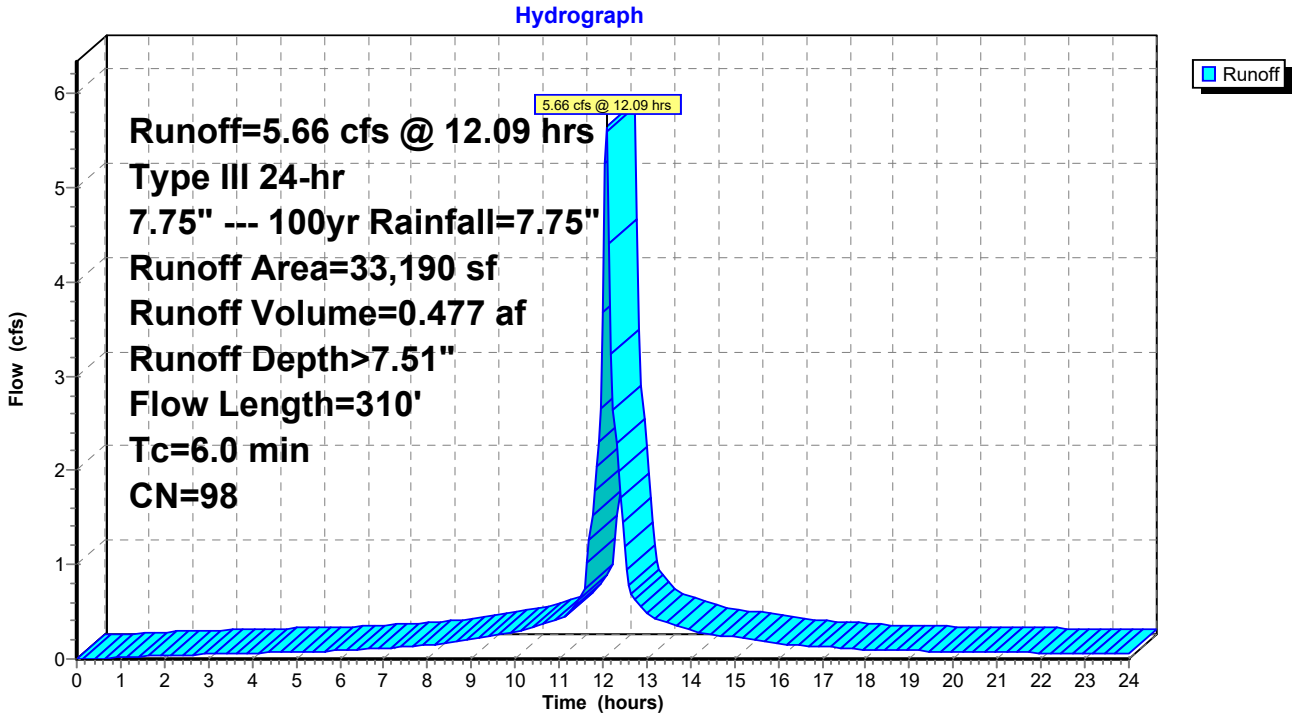
Runoff = 5.66 cfs @ 12.09 hrs, Volume= 0.477 af, Depth> 7.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

	Area (sf)	CN	Description
*	33,190	98	
	33,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

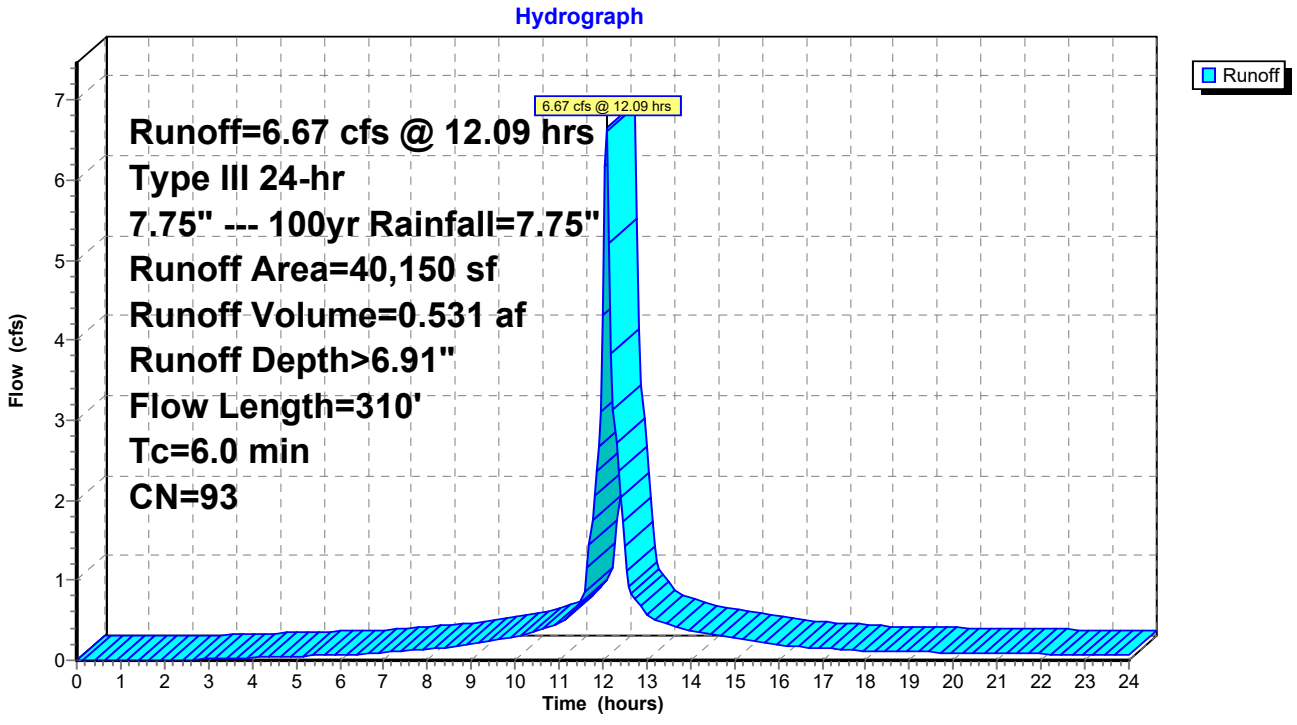
Runoff = 6.67 cfs @ 12.09 hrs, Volume= 0.531 af, Depth> 6.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
29,400	98	Paved parking, HSG D
10,750	79	50-75% Grass cover, Fair, HSG C
40,150	93	Weighted Average
10,750		26.77% Pervious Area
29,400		73.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

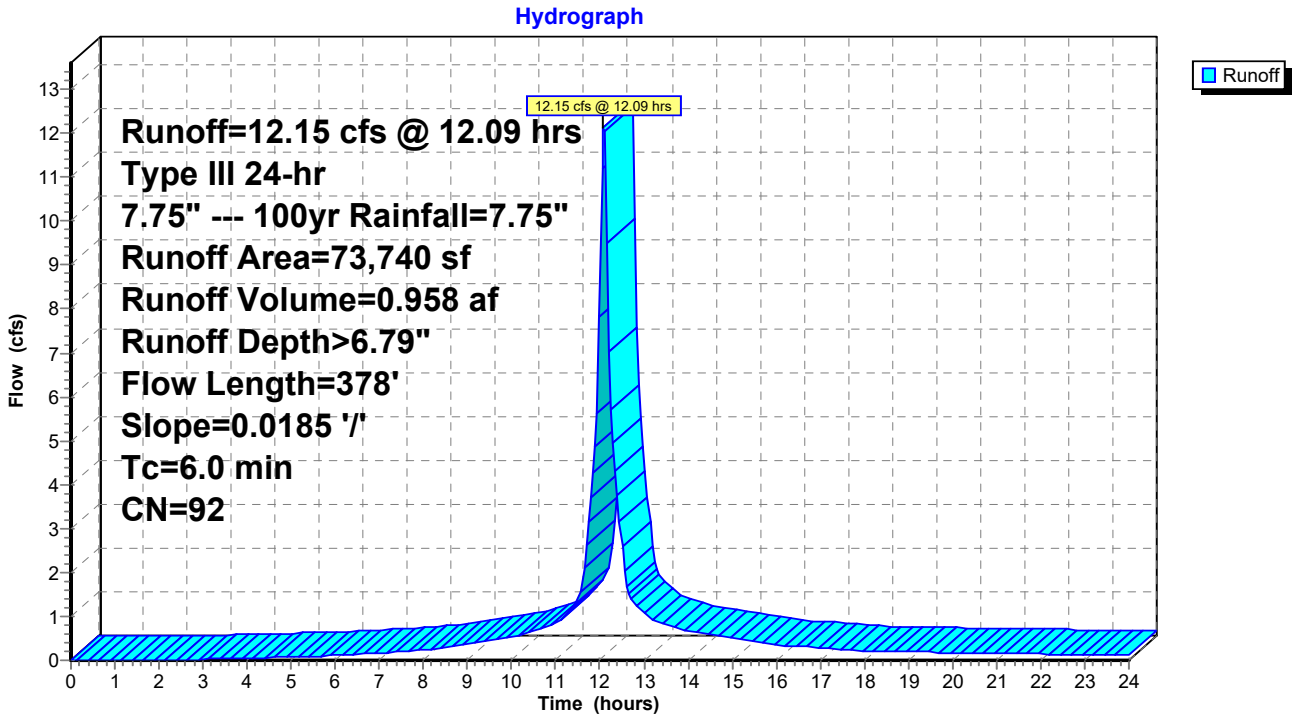
Runoff = 12.15 cfs @ 12.09 hrs, Volume= 0.958 af, Depth> 6.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
48,865	98	Paved parking, HSG D
24,875	79	50-75% Grass cover, Fair, HSG C
73,740	92	Weighted Average
24,875		33.73% Pervious Area
48,865		66.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



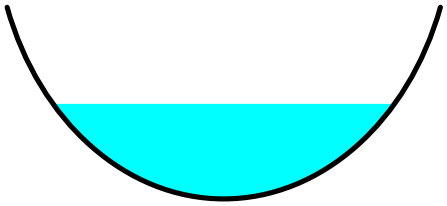
Summary for Reach 6R: North Swale 2

Inflow Area = 4.661 ac, 91.28% Impervious, Inflow Depth > 7.28" for 7.75" --- 100yr event
Inflow = 24.99 cfs @ 12.26 hrs, Volume= 2.829 af
Outflow = 24.25 cfs @ 12.33 hrs, Volume= 2.825 af, Atten= 3%, Lag= 4.0 min

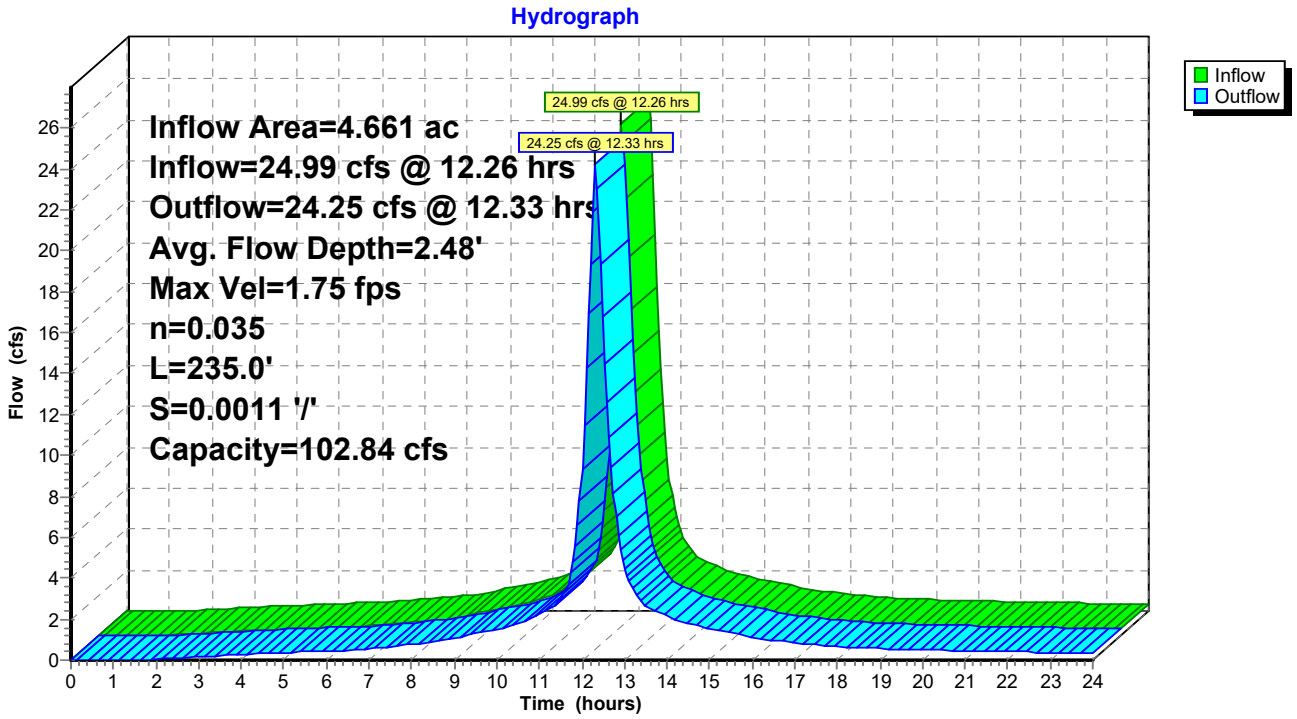
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.75 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.65 fps, Avg. Travel Time= 6.0 min

Peak Storage= 3,287 cf @ 12.29 hrs
Average Depth at Peak Storage= 2.48' , Surface Width= 8.45'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

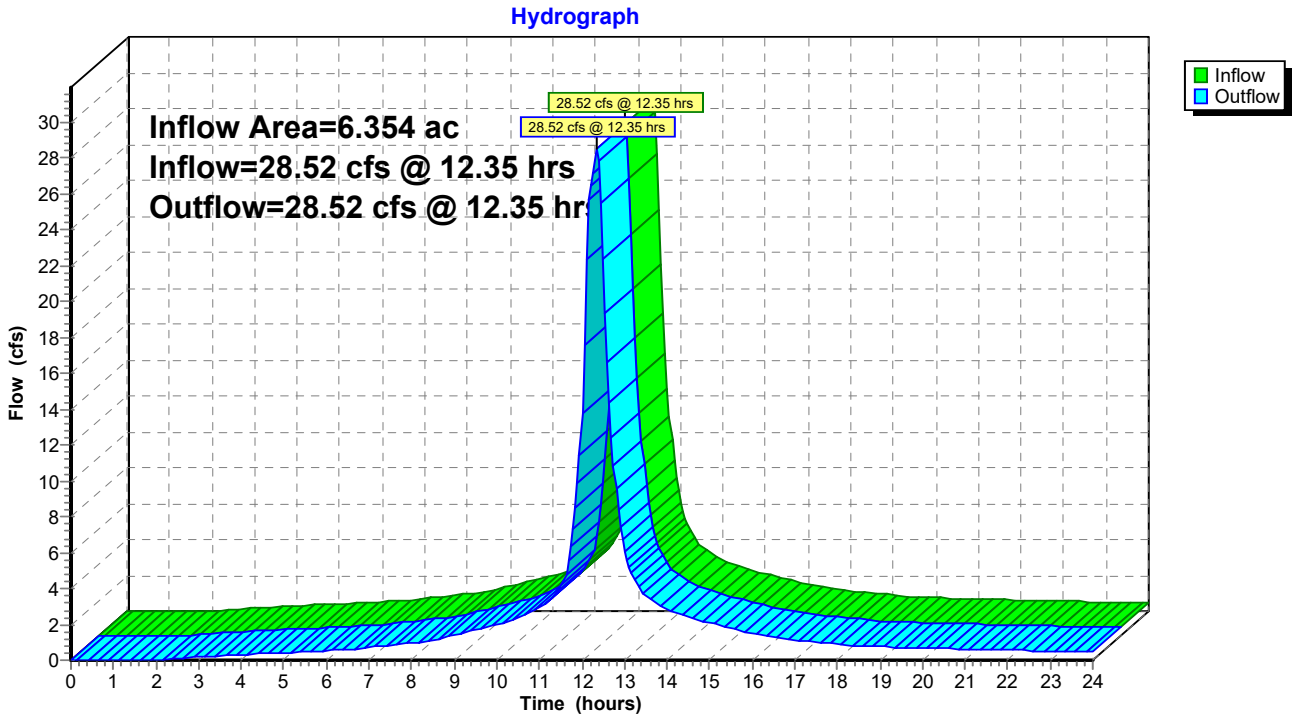


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 7.14" for 7.75" --- 100yr event
Inflow = 28.52 cfs @ 12.35 hrs, Volume= 3.779 af
Outflow = 28.52 cfs @ 12.35 hrs, Volume= 3.779 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



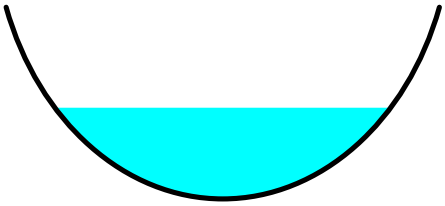
Summary for Reach 12R: North Swale 1

Inflow Area = 3.740 ac, 95.73% Impervious, Inflow Depth > 7.41" for 7.75" --- 100yr event
Inflow = 27.37 cfs @ 12.09 hrs, Volume= 2.310 af
Outflow = 22.00 cfs @ 12.27 hrs, Volume= 2.299 af, Atten= 20%, Lag= 10.6 min

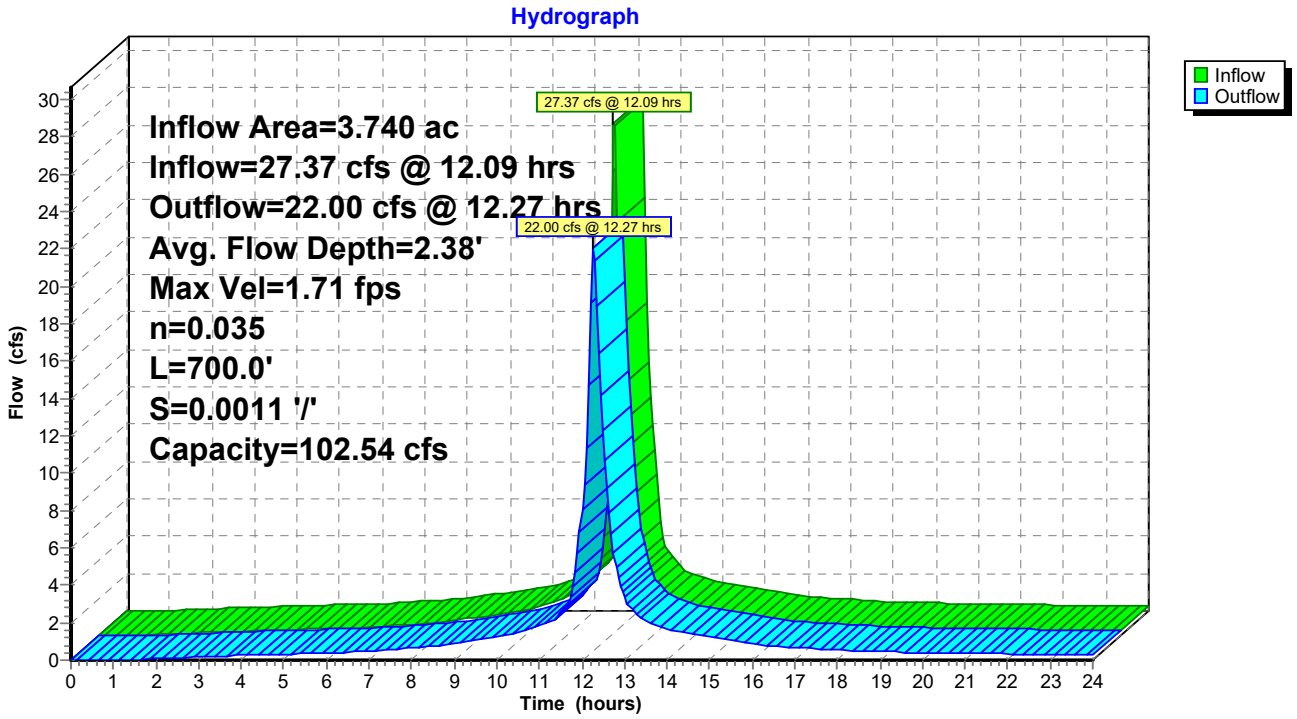
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.71 fps, Min. Travel Time= 6.8 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 19.0 min

Peak Storage= 9,182 cf @ 12.15 hrs
Average Depth at Peak Storage= 2.38' , Surface Width= 8.28'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



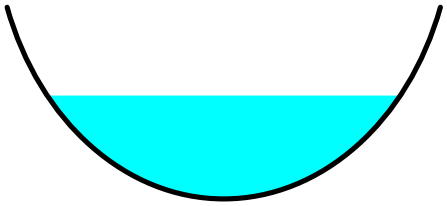
Summary for Reach 13R: West Swale

Inflow Area = 6.354 ac, 84.61% Impervious, Inflow Depth > 7.14" for 7.75" --- 100yr event
Inflow = 28.95 cfs @ 12.31 hrs, Volume= 3.783 af
Outflow = 28.52 cfs @ 12.35 hrs, Volume= 3.779 af, Atten= 1%, Lag= 2.6 min

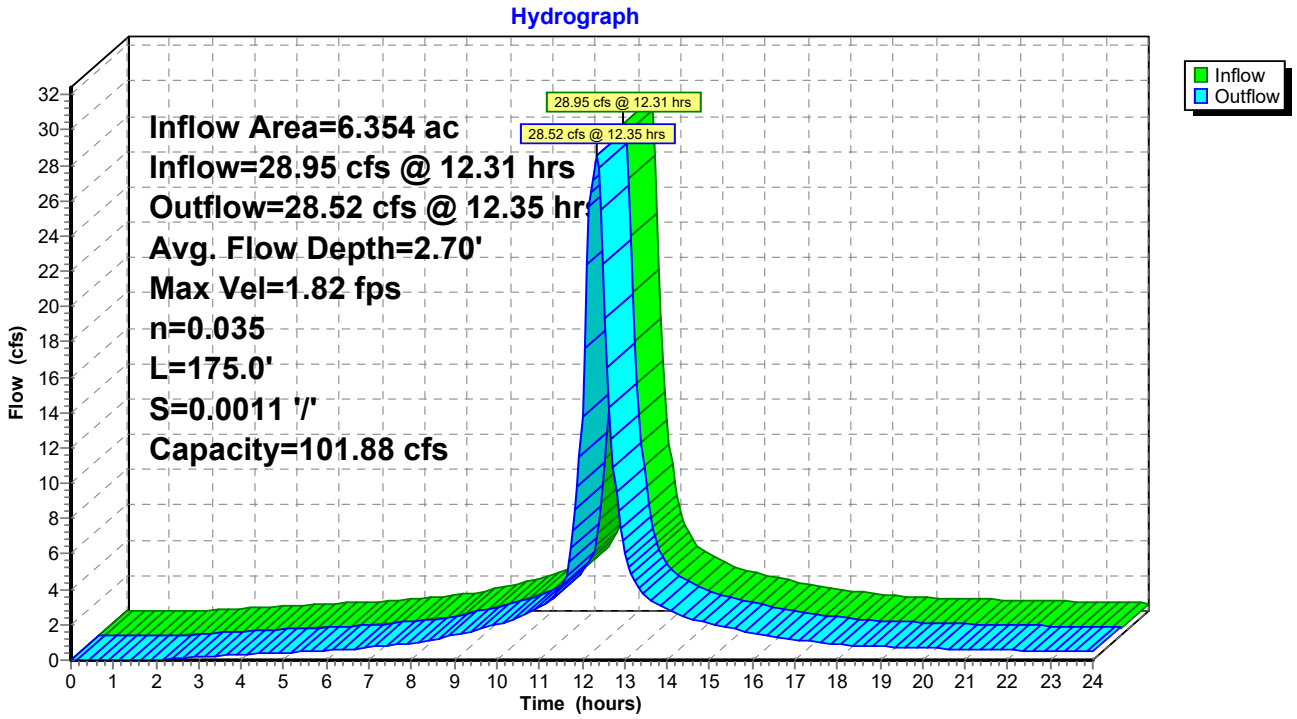
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.82 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 4.2 min

Peak Storage= 2,770 cf @ 12.33 hrs
Average Depth at Peak Storage= 2.70' , Surface Width= 8.81'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



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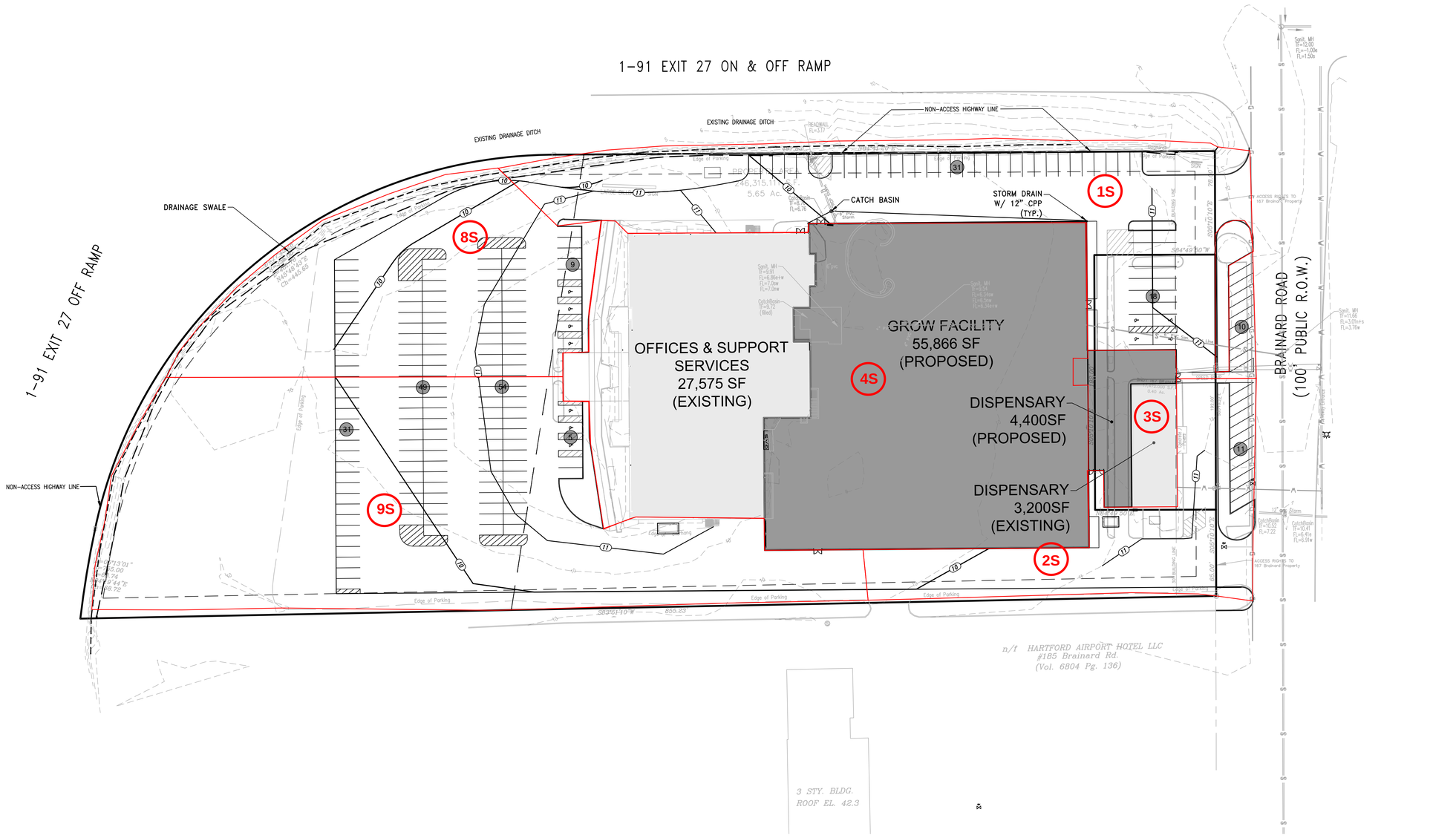
APPENDIX B:

Proposed Stormwater Calculations



STORMWATER SUBCATCHMENT AREAS
PROPOSED CONDITIONS

Scale: 1"=40'
0 20' 40' 80'

PARE

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INSA- HARTFORD FACILITY
165 & 167 BRAINARD ROAD
HARTFORD, CT

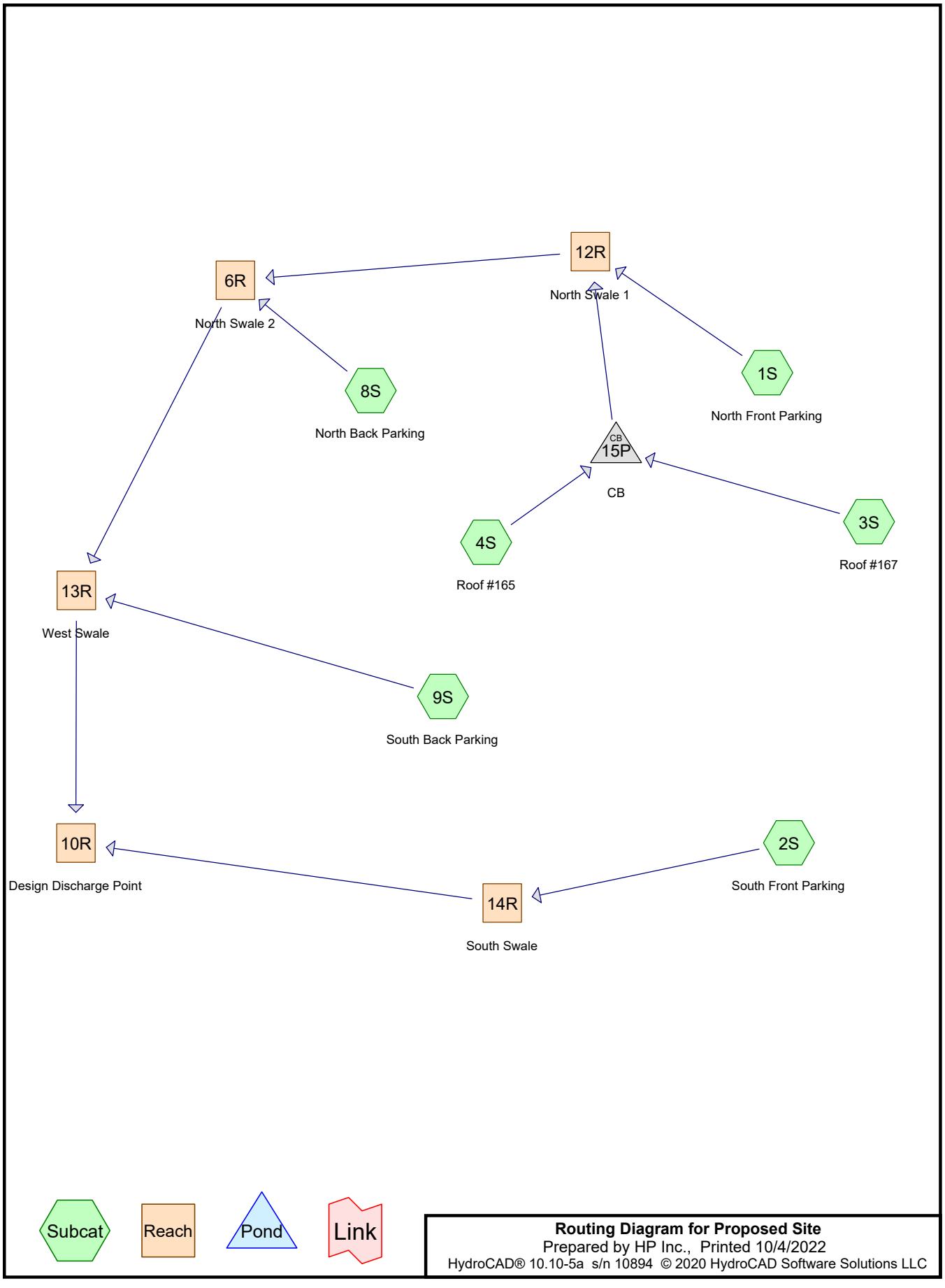
REVISIONS:

PROJECT NO.:	
DATE:	
SCALE:	1" = 40'
DESIGNED BY:	
CHECKED BY:	
DRAWN BY:	
APPROVED BY:	

DRAWING TITLE:
DRAINAGE & UTILITY PLAN

DRAWING NO.:
C7.1

SHEET NO. 1 OF



Routing Diagram for Proposed Site
Prepared by HP Inc., Printed 10/4/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1"	Type III 24-hr		Default	24.00	1	1.00	2
2	3.08" --- 2yr	Type III 24-hr		Default	24.00	1	3.08	2
3	4.88" --- 10yr	Type III 24-hr		Default	24.00	1	4.88	2
4	6.01" --- 25yr	Type III 24-hr		Default	24.00	1	6.01	2
5	7.75" --- 100yr	Type III 24-hr		Default	24.00	1	7.75	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.127	98	(3S, 4S)
1.329	74	>75% Grass cover, Good, HSG C (1S, 2S, 8S, 9S)
2.898	98	Paved parking, HSG D (1S, 2S, 8S, 9S)
6.354	**93**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.329	HSG C	1S, 2S, 8S, 9S
2.898	HSG D	1S, 2S, 8S, 9S
2.127	Other	3S, 4S
6.354		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	2.127	2.127		3S, 4S
0.000	0.000	1.329	0.000	0.000	1.329	>75% Grass cover, Good	1S, 2S, 8S, 9S
0.000	0.000	0.000	2.898	0.000	2.898	Paved parking	1S, 2S, 8S, 9S
0.000	**0.000**	**1.329**	**2.898**	**2.127**	**6.354**	**TOTAL AREA**	

Summary for Subcatchment 1S: North Front Parking

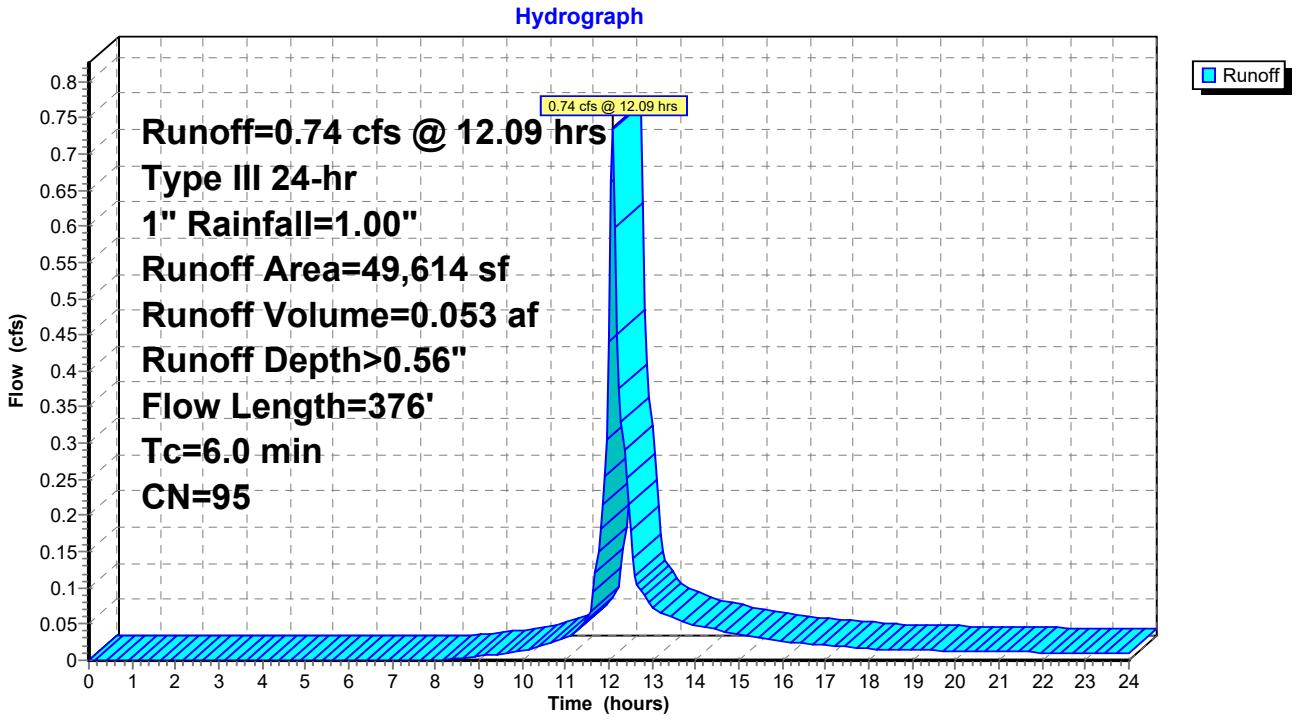
Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.053 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
43,139	98	Paved parking, HSG D
6,475	74	>75% Grass cover, Good, HSG C
49,614	95	Weighted Average
6,475		13.05% Pervious Area
43,139		86.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

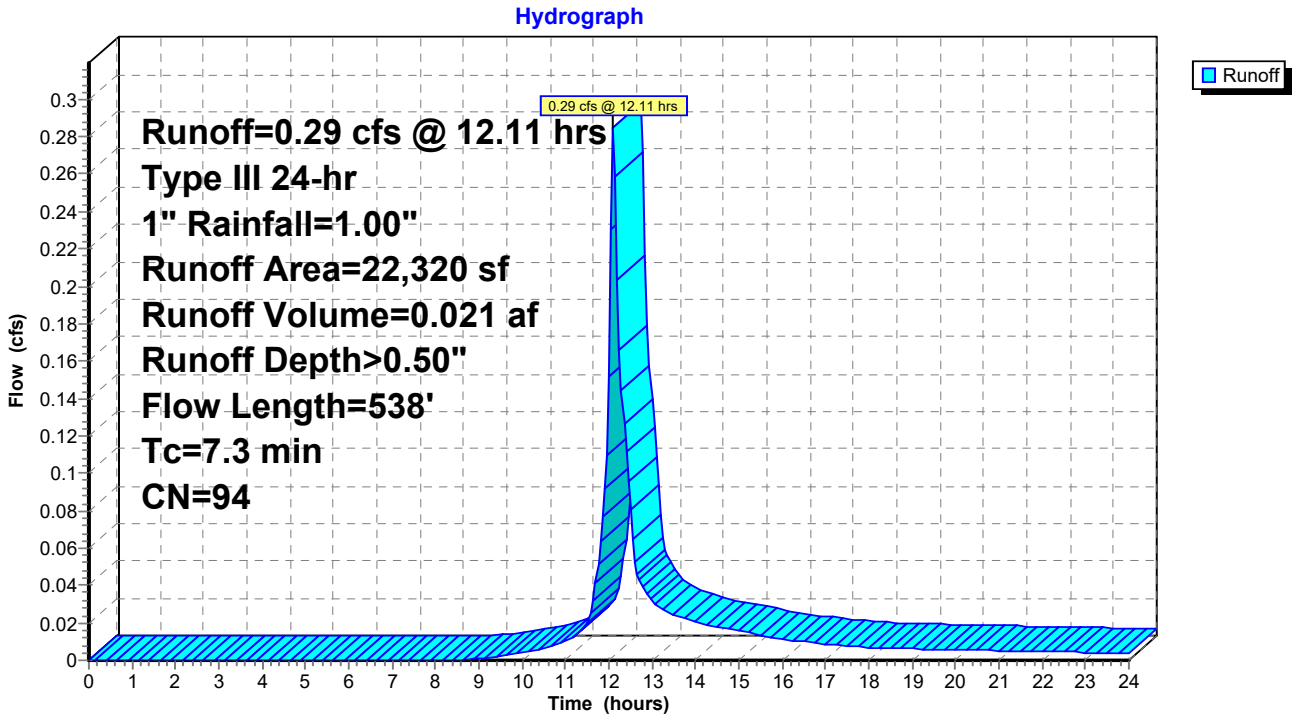
Runoff = 0.29 cfs @ 12.11 hrs, Volume= 0.021 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
19,020	98	Paved parking, HSG D
3,300	74	>75% Grass cover, Good, HSG C
22,320	94	Weighted Average
3,300		14.78% Pervious Area
19,020		85.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

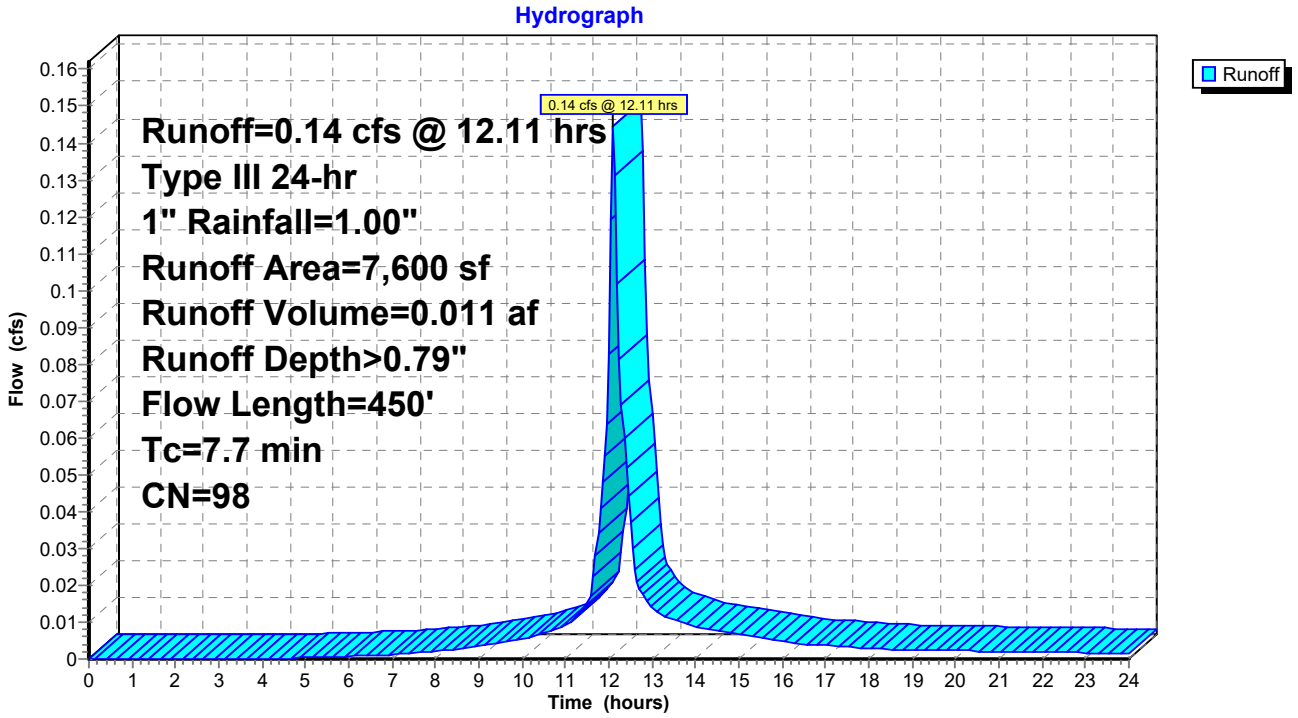
Runoff = 0.14 cfs @ 12.11 hrs, Volume= 0.011 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

	Area (sf)	CN	Description
*	7,600	98	
	7,600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	250	0.0050	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.7	450	Total			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

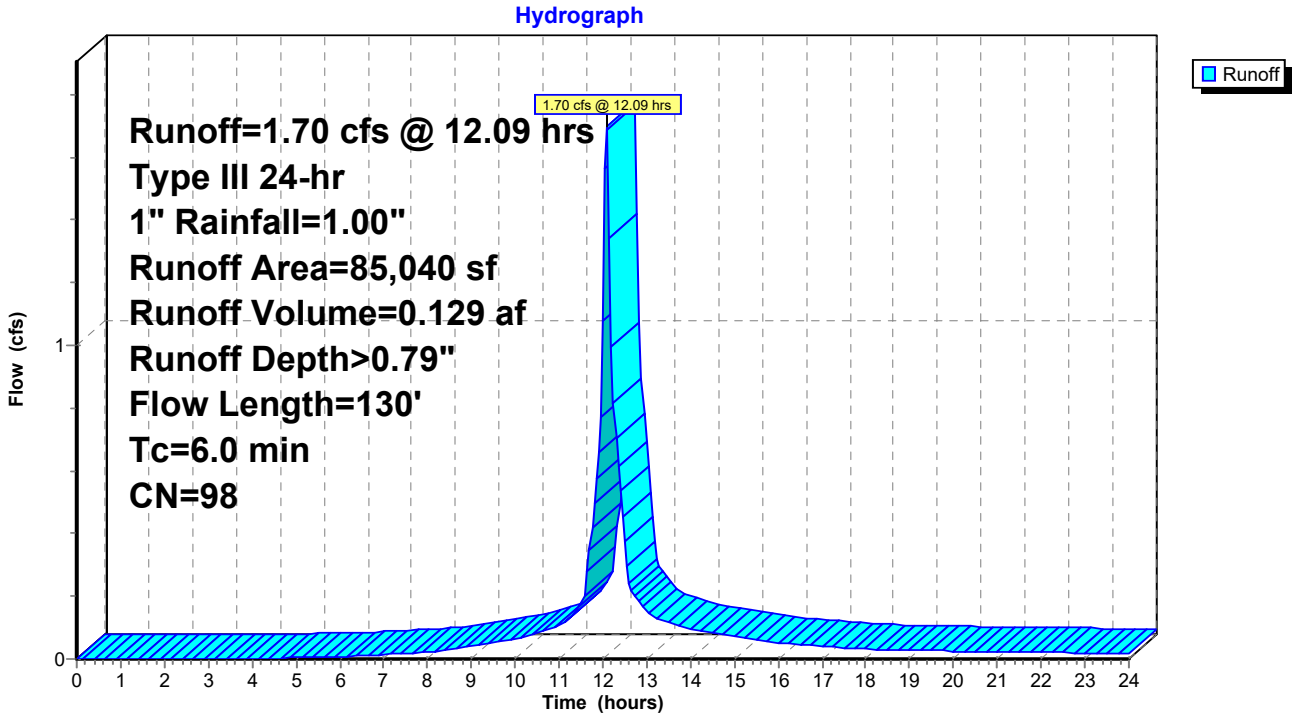
Runoff = 1.70 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

	Area (sf)	CN	Description
*	85,040	98	
	85,040		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.1	20	0.0100	2.36	1.85	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
2.4	130	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

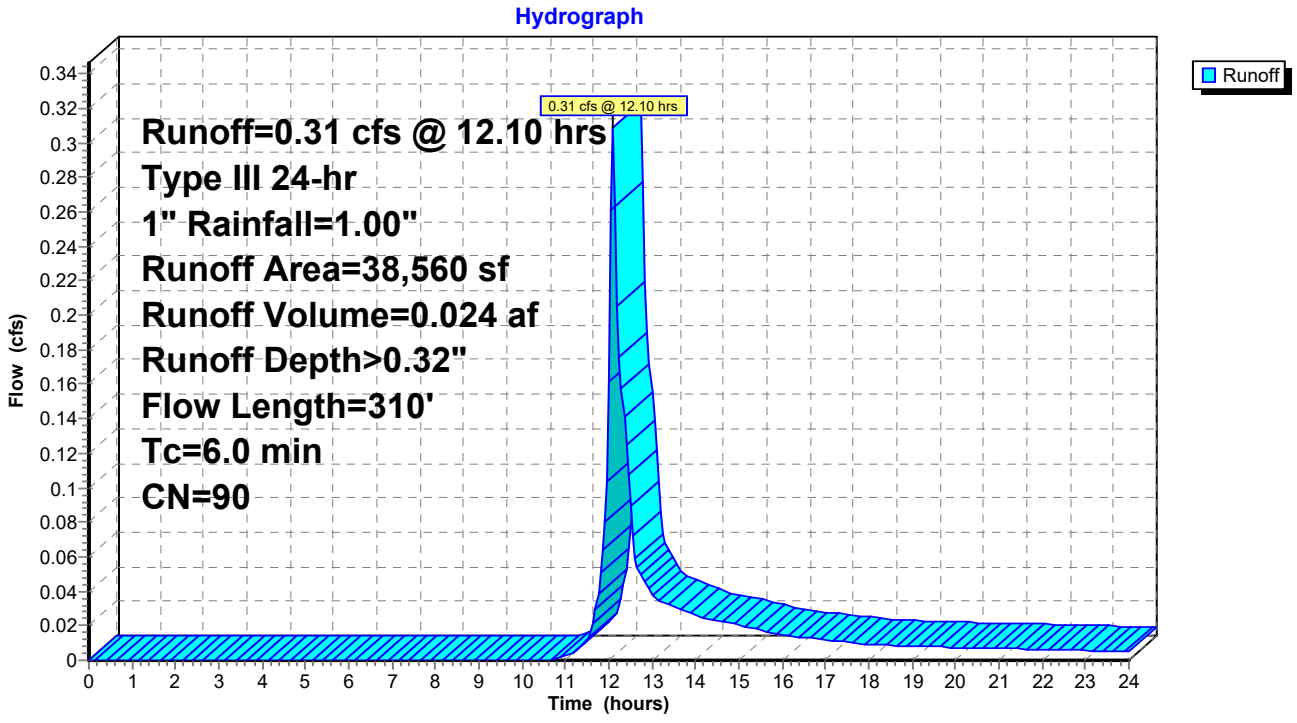
Runoff = 0.31 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
25,060	98	Paved parking, HSG D
13,500	74	>75% Grass cover, Good, HSG C
38,560	90	Weighted Average
13,500		35.01% Pervious Area
25,060		64.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

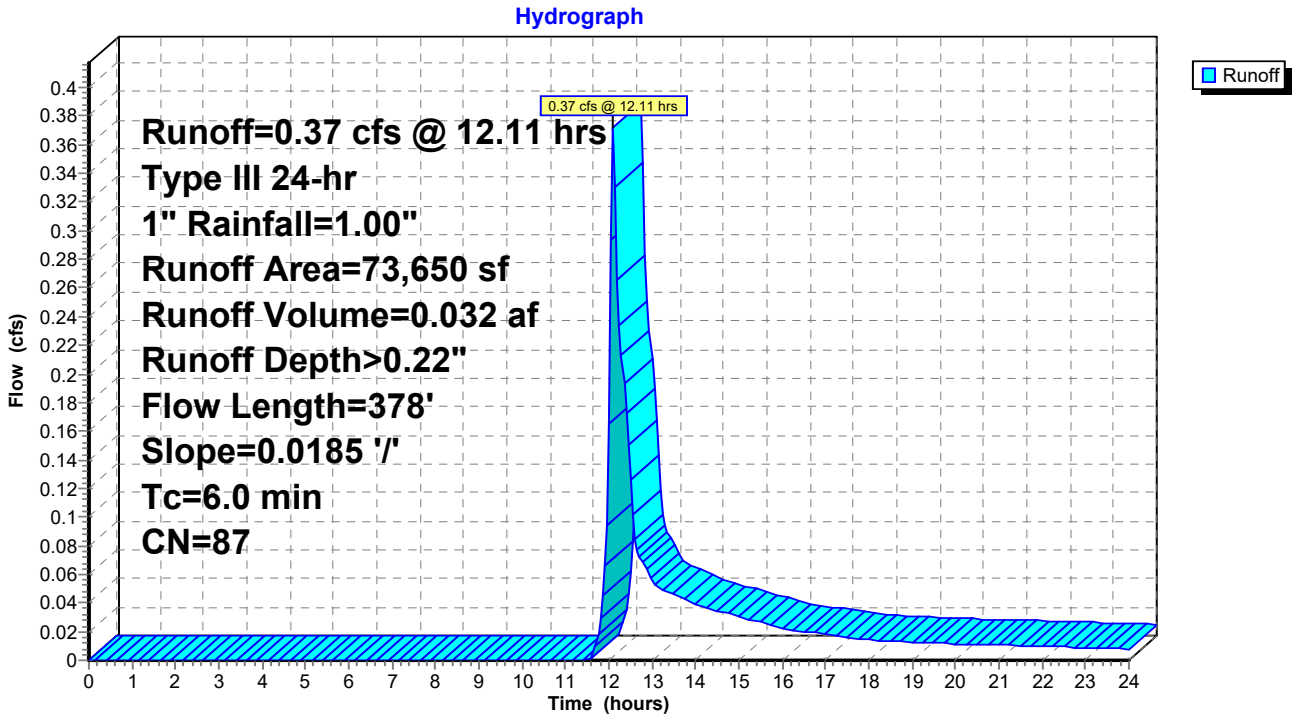
Runoff = 0.37 cfs @ 12.11 hrs, Volume= 0.032 af, Depth> 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Rainfall=1.00"

Area (sf)	CN	Description
39,025	98	Paved parking, HSG D
34,625	74	>75% Grass cover, Good, HSG C
73,650	87	Weighted Average
34,625		47.01% Pervious Area
39,025		52.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



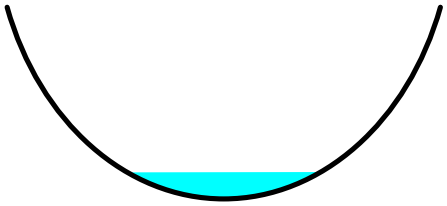
Summary for Reach 6R: North Swale 2

Inflow Area = 4.151 ac, 88.95% Impervious, Inflow Depth > 0.62" for 1" event
Inflow = 1.76 cfs @ 12.43 hrs, Volume= 0.215 af
Outflow = 1.67 cfs @ 12.58 hrs, Volume= 0.214 af, Atten= 5%, Lag= 8.9 min

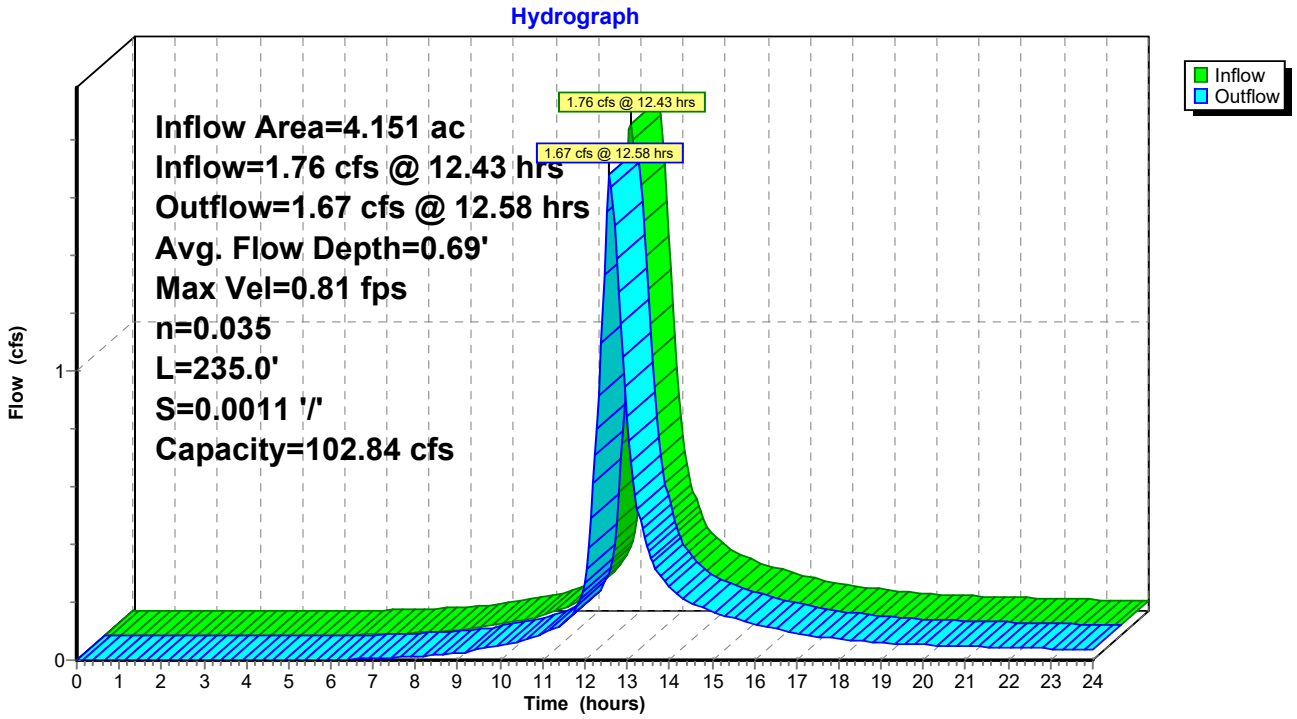
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 12.5 min

Peak Storage= 487 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.69' , Surface Width= 4.47'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

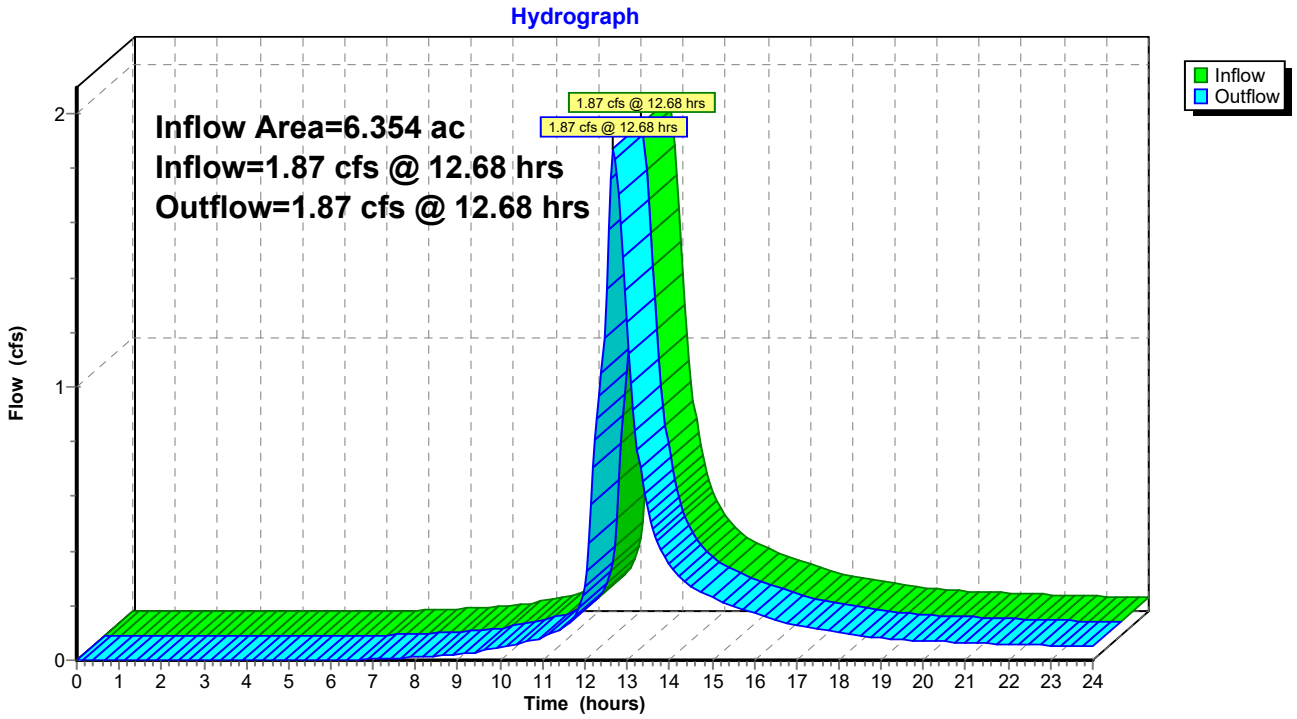


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 79.08% Impervious, Inflow Depth > 0.50" for 1" event
Inflow = 1.87 cfs @ 12.68 hrs, Volume= 0.265 af
Outflow = 1.87 cfs @ 12.68 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



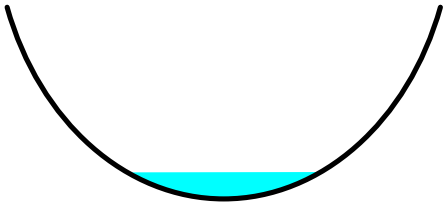
Summary for Reach 12R: North Swale 1

Inflow Area = 3.266 ac, 95.45% Impervious, Inflow Depth > 0.71" for 1" event
Inflow = 2.58 cfs @ 12.09 hrs, Volume= 0.193 af
Outflow = 1.65 cfs @ 12.44 hrs, Volume= 0.191 af, Atten= 36%, Lag= 20.9 min

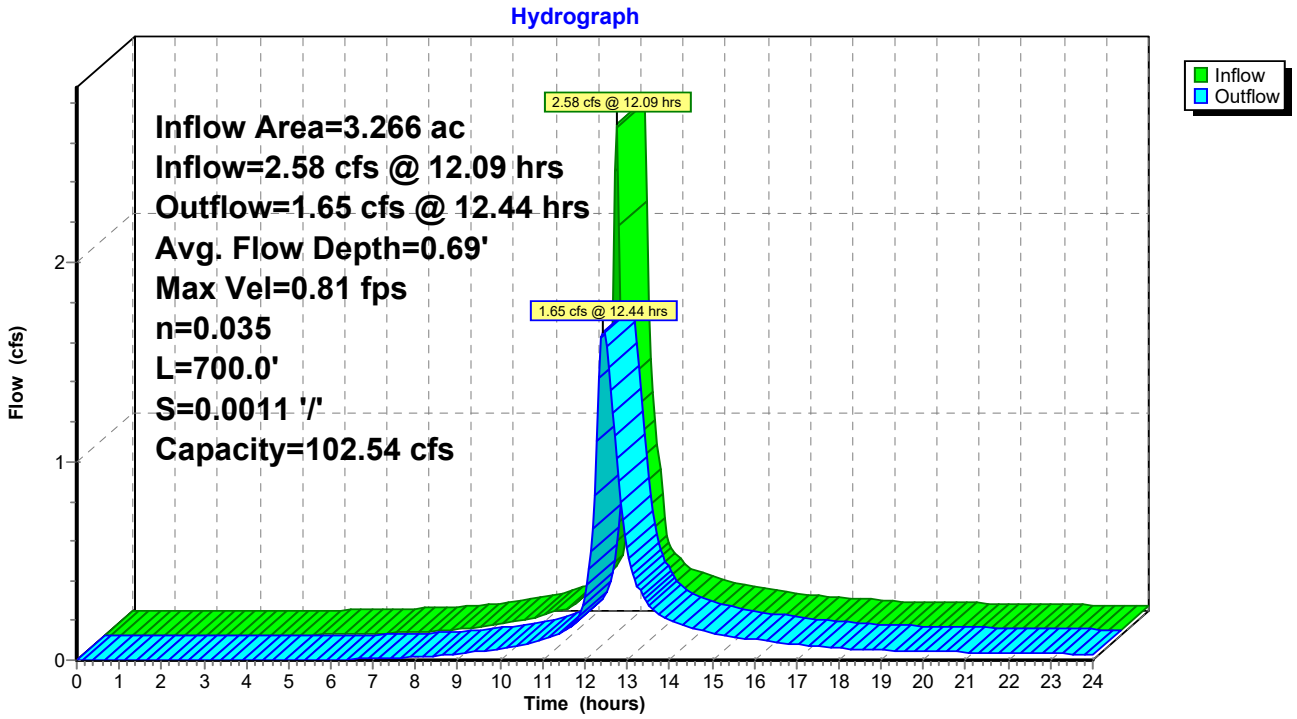
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 14.4 min
Avg. Velocity = 0.30 fps, Avg. Travel Time= 38.6 min

Peak Storage= 1,439 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.69' , Surface Width= 4.46'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



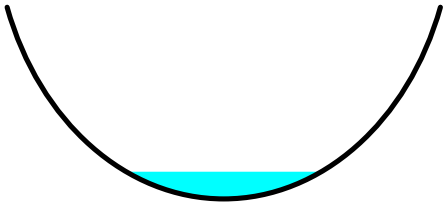
Summary for Reach 13R: West Swale

Inflow Area = 5.842 ac, 78.54% Impervious, Inflow Depth > 0.50" for 1" event
Inflow = 1.77 cfs @ 12.57 hrs, Volume= 0.245 af
Outflow = 1.73 cfs @ 12.68 hrs, Volume= 0.244 af, Atten= 2%, Lag= 6.5 min

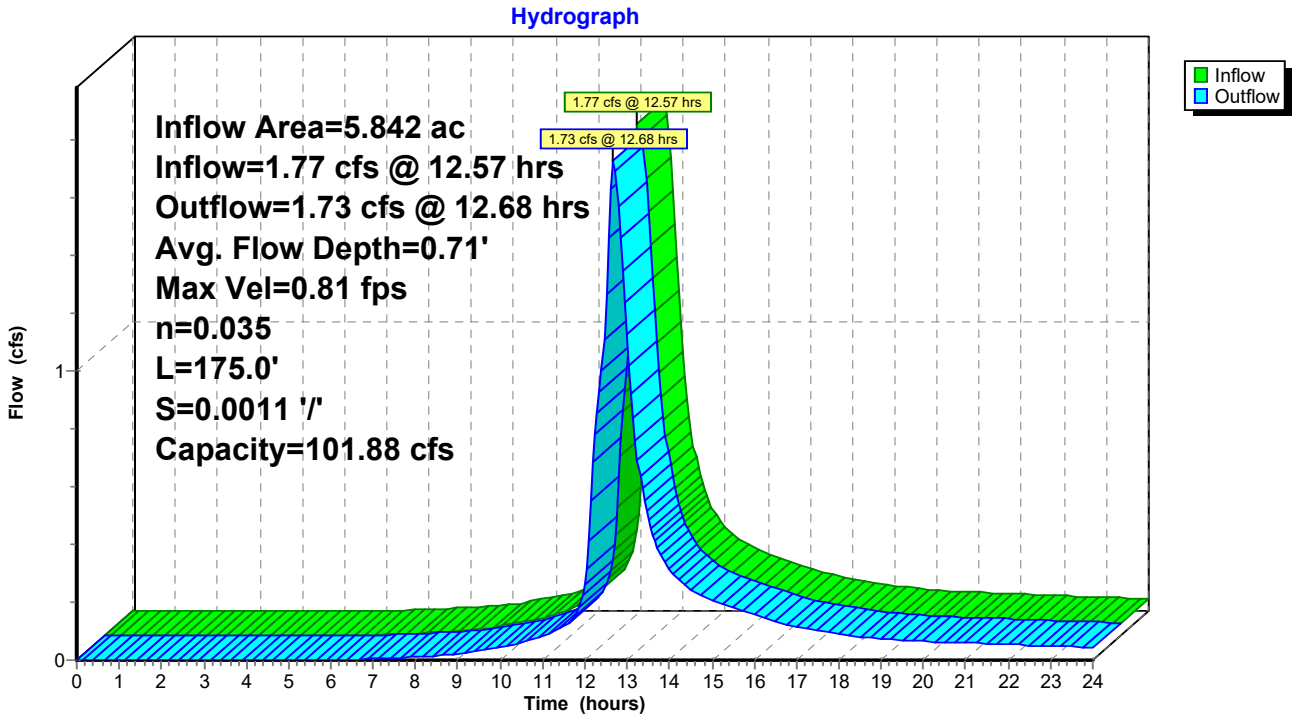
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 9.0 min

Peak Storage= 373 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.71' , Surface Width= 4.51'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



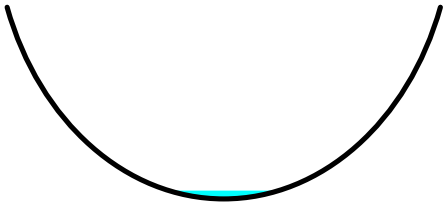
Summary for Reach 14R: South Swale

Inflow Area = 0.512 ac, 85.22% Impervious, Inflow Depth > 0.50" for 1" event
Inflow = 0.29 cfs @ 12.11 hrs, Volume= 0.021 af
Outflow = 0.15 cfs @ 12.70 hrs, Volume= 0.021 af, Atten= 49%, Lag= 35.6 min

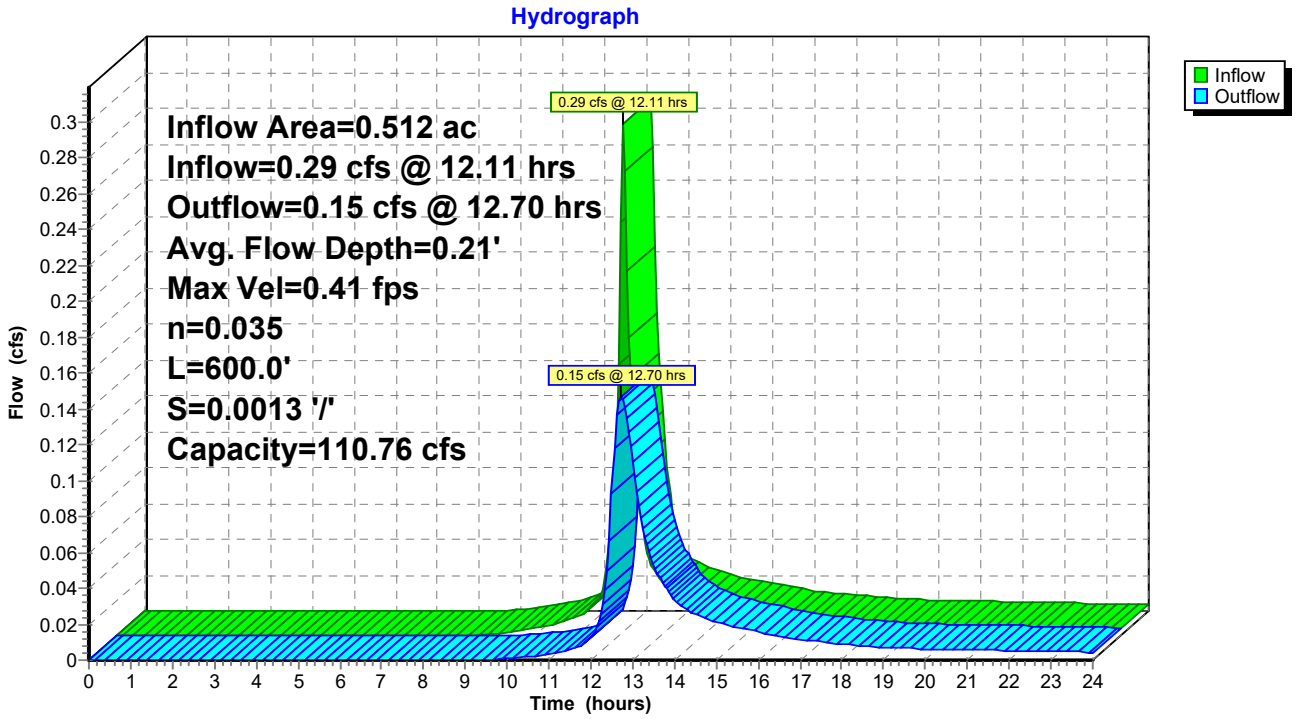
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.41 fps, Min. Travel Time= 24.2 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 50.9 min

Peak Storage= 213 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 2.48'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 110.76 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0013 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 14R: South Swale



Summary for Pond 15P: CB

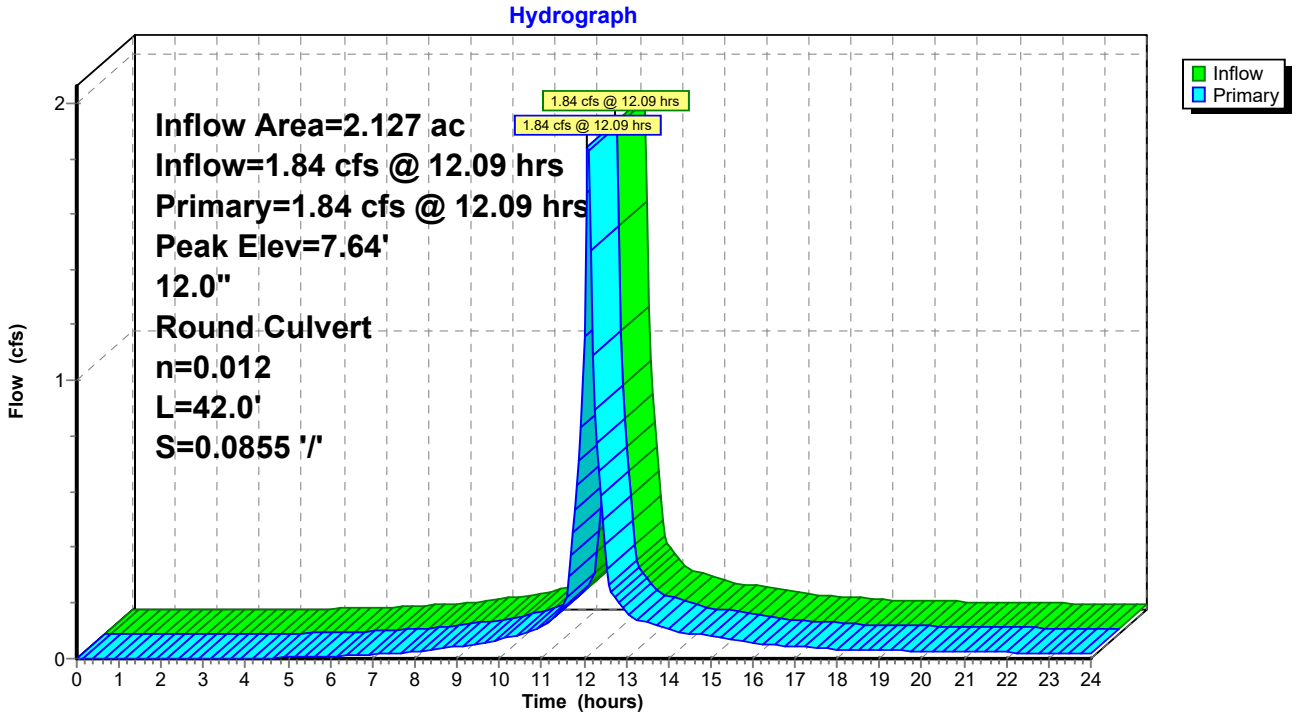
Inflow Area = 2.127 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" event
Inflow = 1.84 cfs @ 12.09 hrs, Volume= 0.140 af
Outflow = 1.84 cfs @ 12.09 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
Primary = 1.84 cfs @ 12.09 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.64' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	6.76'	**12.0" Round RCP_Round 12"** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.76' / 3.17' S= 0.0855 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=7.62' (Free Discharge)
1=RCP_Round 12" (Inlet Controls 1.80 cfs @ 2.50 fps)

Pond 15P: CB



Summary for Subcatchment 1S: North Front Parking

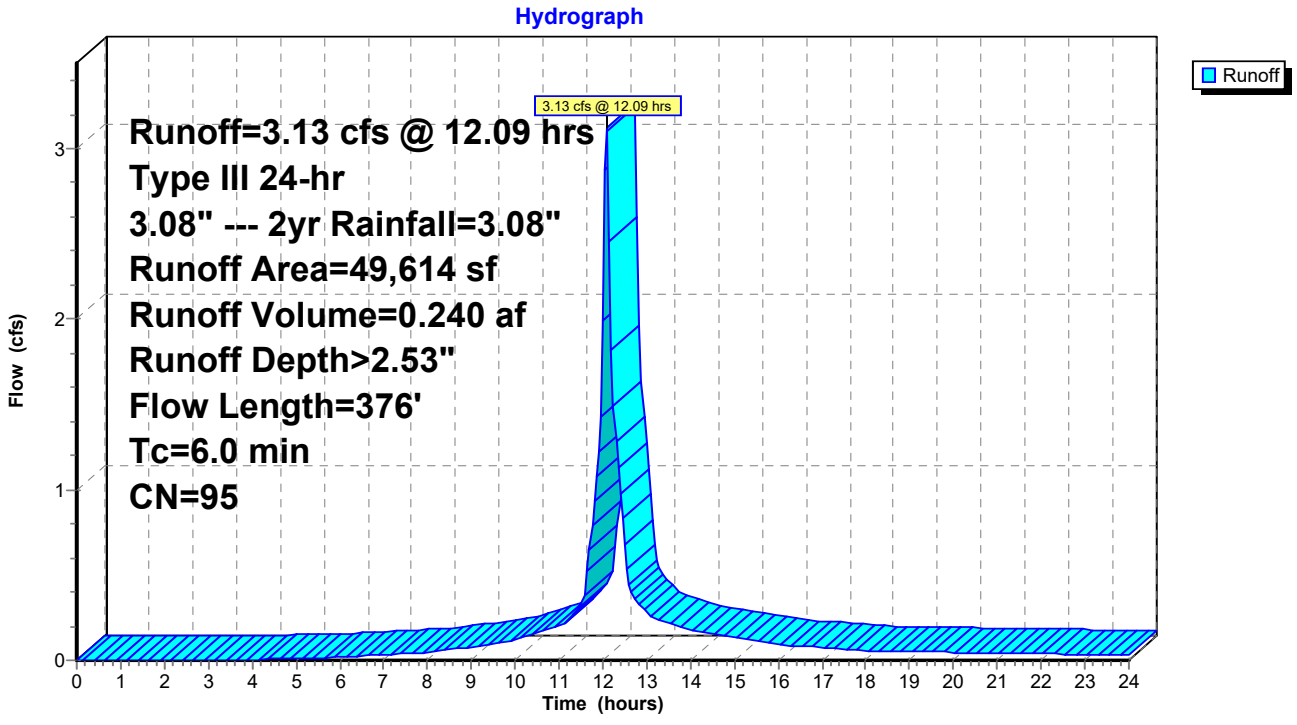
Runoff = 3.13 cfs @ 12.09 hrs, Volume= 0.240 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
43,139	98	Paved parking, HSG D
6,475	74	>75% Grass cover, Good, HSG C
49,614	95	Weighted Average
6,475		13.05% Pervious Area
43,139		86.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

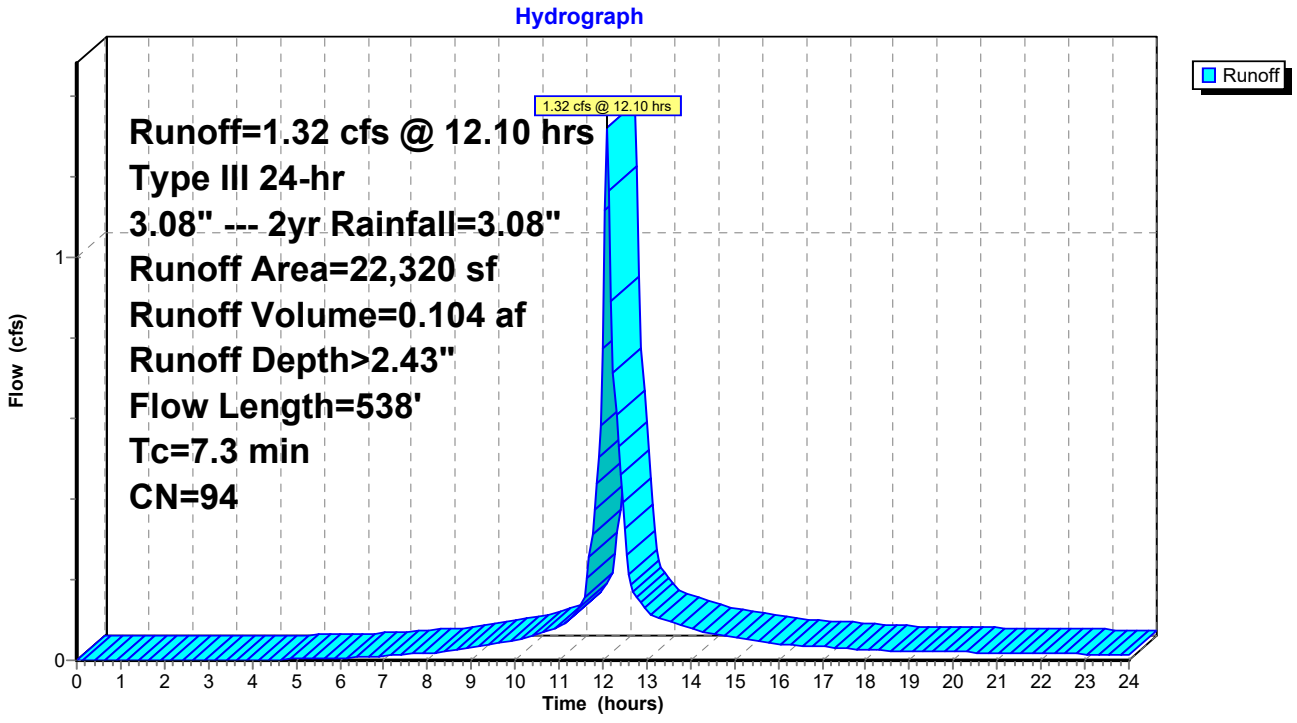
Runoff = 1.32 cfs @ 12.10 hrs, Volume= 0.104 af, Depth> 2.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
19,020	98	Paved parking, HSG D
3,300	74	>75% Grass cover, Good, HSG C
22,320	94	Weighted Average
3,300		14.78% Pervious Area
19,020		85.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

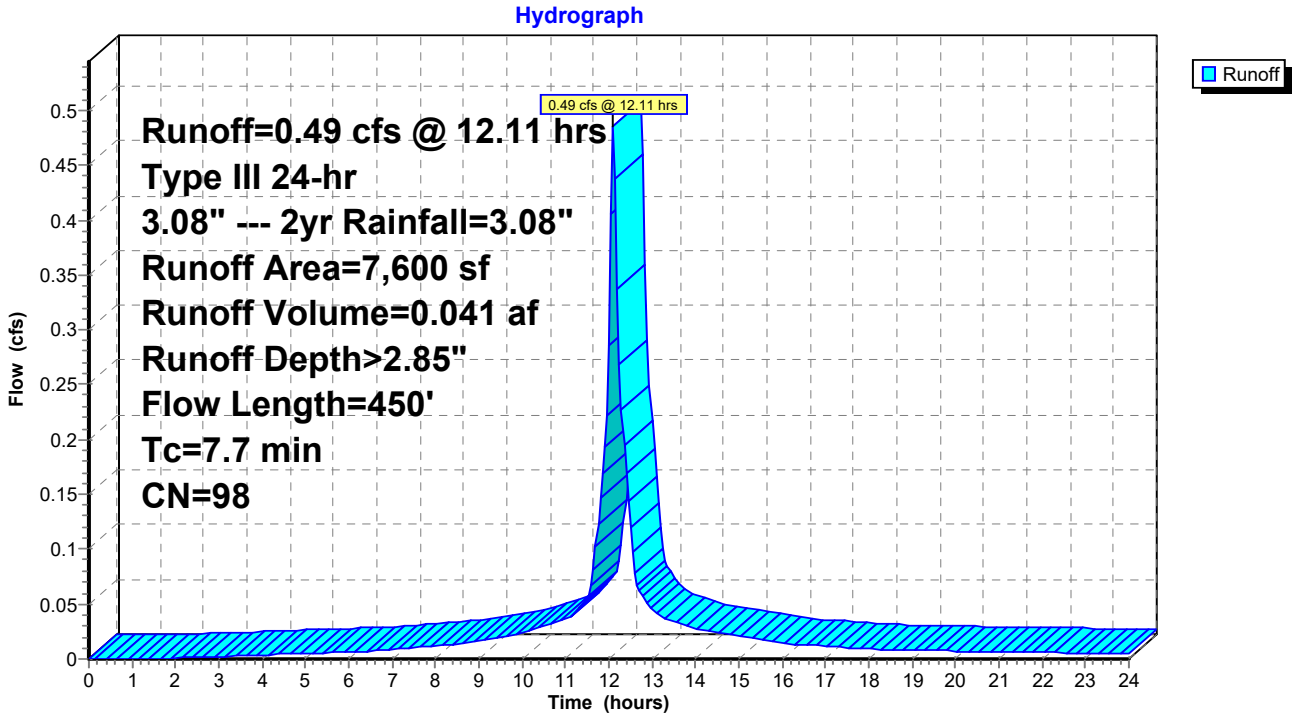
Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.041 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

	Area (sf)	CN	Description
*	7,600	98	
	7,600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	250	0.0050	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.7	450	Total			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

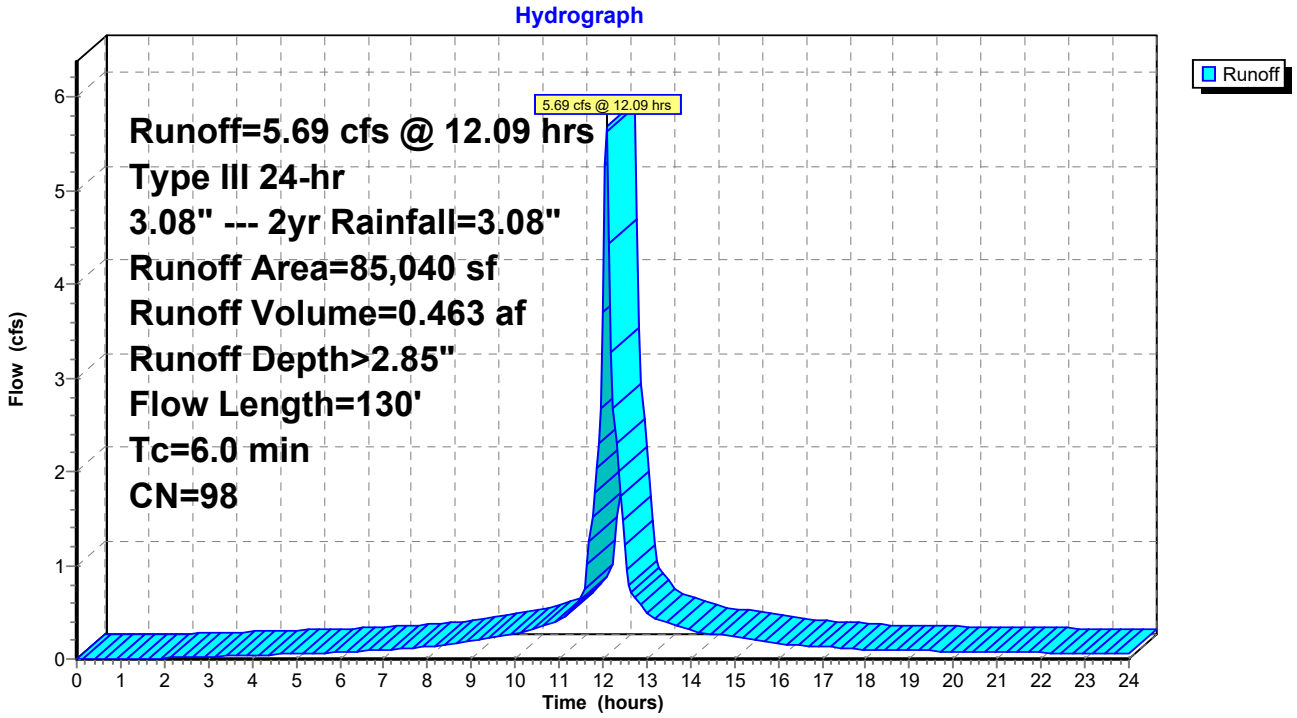
Runoff = 5.69 cfs @ 12.09 hrs, Volume= 0.463 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

	Area (sf)	CN	Description
*	85,040	98	
	85,040		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.1	20	0.0100	2.36	1.85	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
2.4	130	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

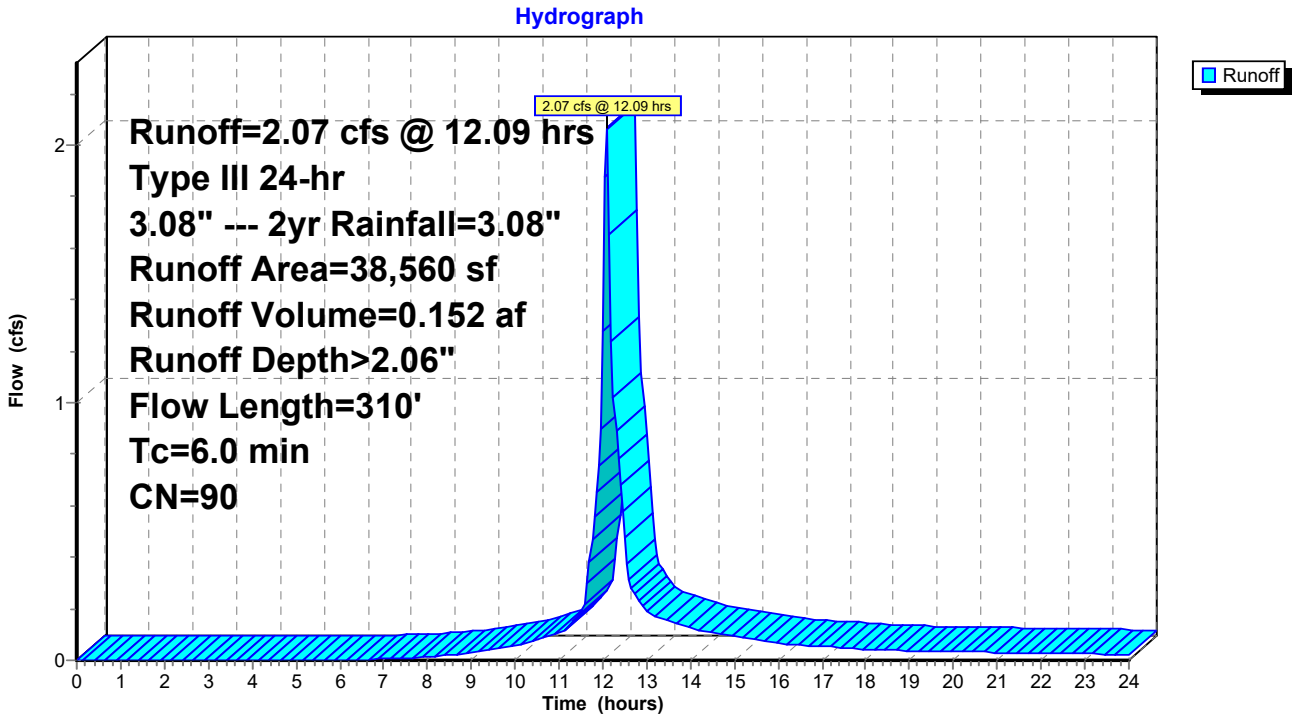
Runoff = 2.07 cfs @ 12.09 hrs, Volume= 0.152 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
25,060	98	Paved parking, HSG D
13,500	74	>75% Grass cover, Good, HSG C
38,560	90	Weighted Average
13,500		35.01% Pervious Area
25,060		64.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

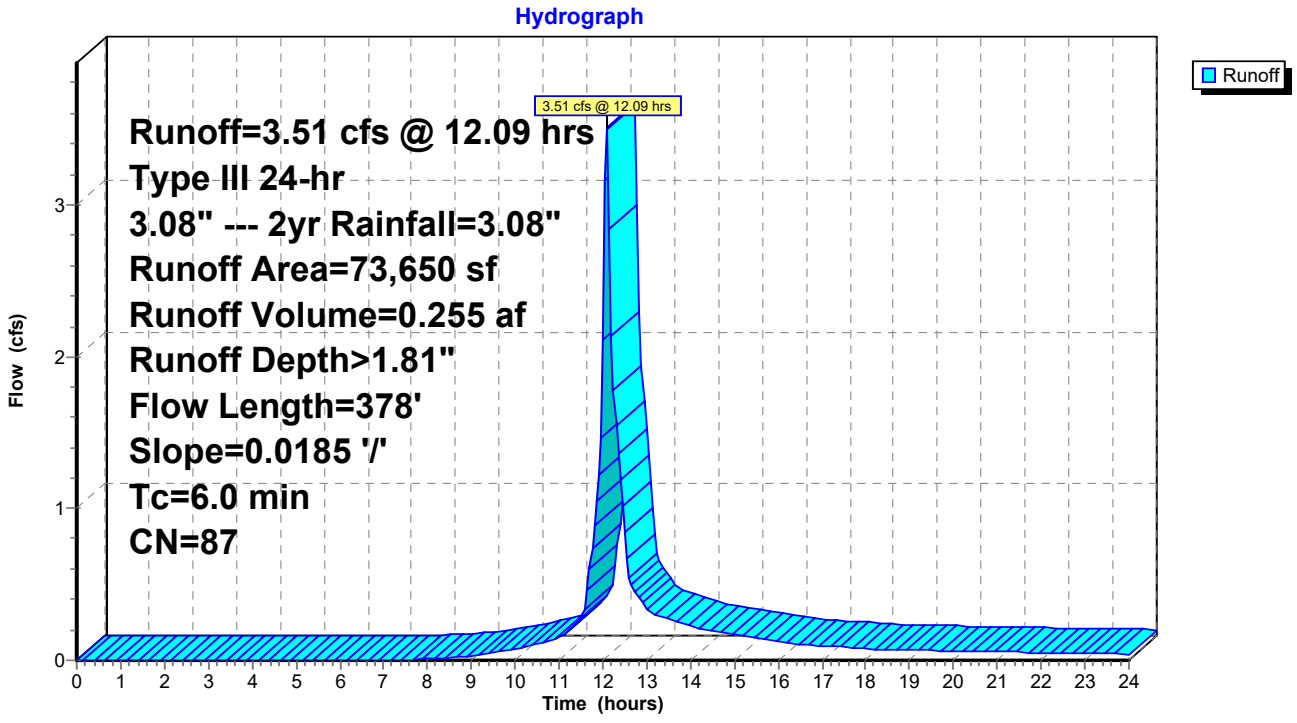
Runoff = 3.51 cfs @ 12.09 hrs, Volume= 0.255 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 3.08" --- 2yr Rainfall=3.08"

Area (sf)	CN	Description
39,025	98	Paved parking, HSG D
34,625	74	>75% Grass cover, Good, HSG C
73,650	87	Weighted Average
34,625		47.01% Pervious Area
39,025		52.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



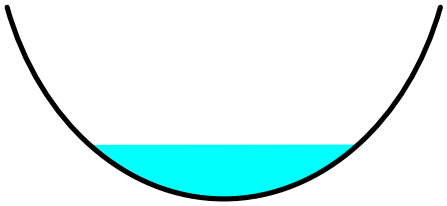
Summary for Reach 6R: North Swale 2

Inflow Area = 4.151 ac, 88.95% Impervious, Inflow Depth > 2.57" for 3.08" --- 2yr event
Inflow = 7.75 cfs @ 12.32 hrs, Volume= 0.890 af
Outflow = 7.52 cfs @ 12.41 hrs, Volume= 0.888 af, Atten= 3%, Lag= 5.5 min

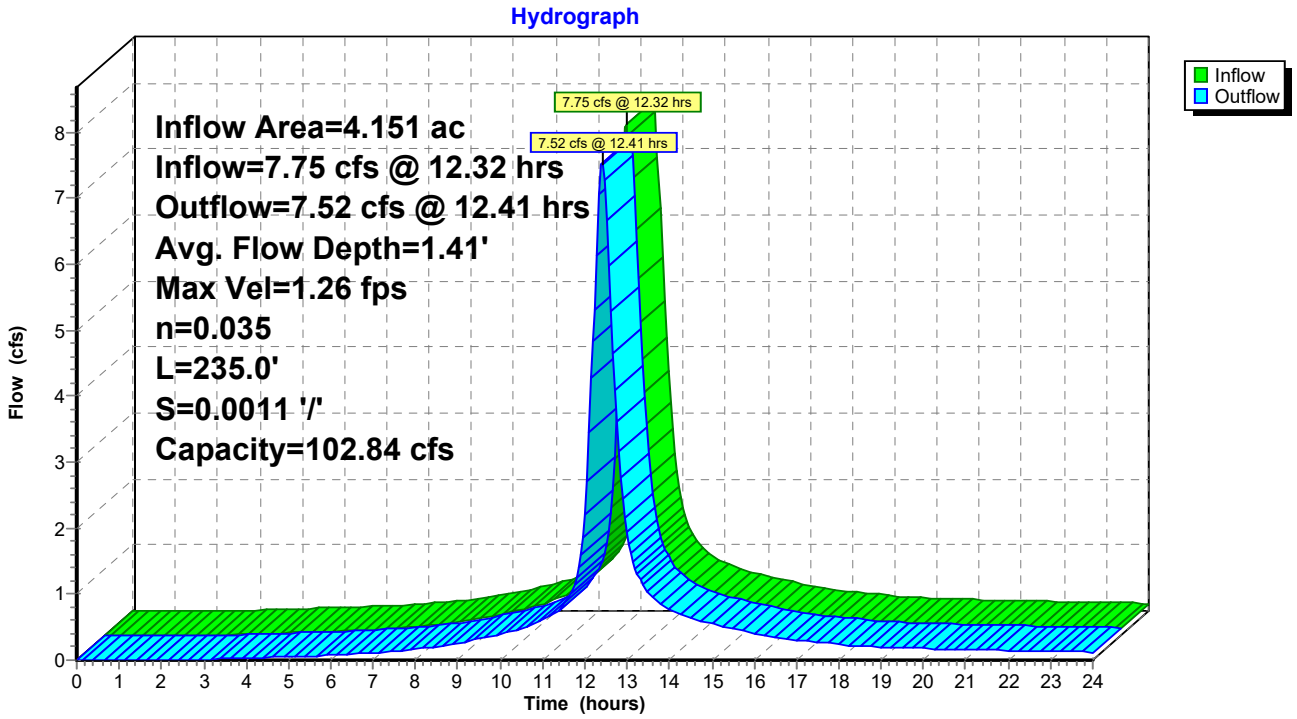
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.26 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 8.6 min

Peak Storage= 1,407 cf @ 12.36 hrs
Average Depth at Peak Storage= 1.41' , Surface Width= 6.37'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

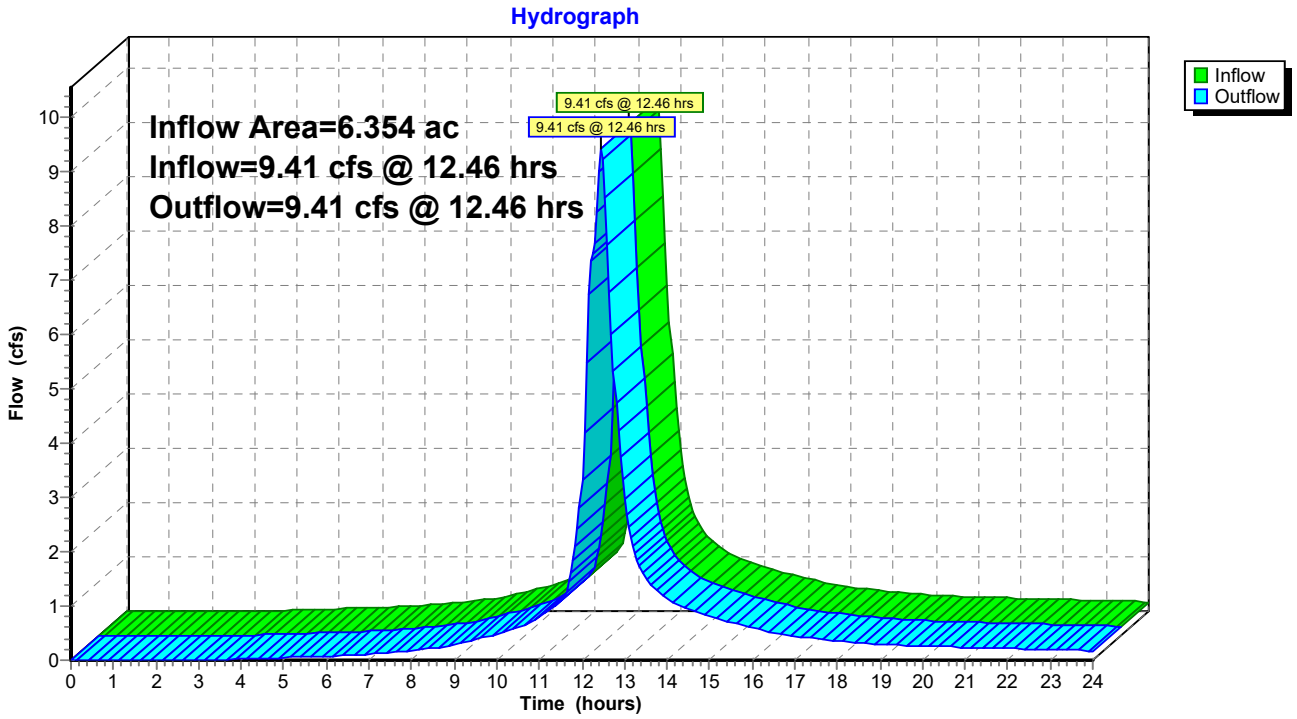


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 79.08% Impervious, Inflow Depth > 2.35" for 3.08" --- 2yr event
Inflow = 9.41 cfs @ 12.46 hrs, Volume= 1.243 af
Outflow = 9.41 cfs @ 12.46 hrs, Volume= 1.243 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



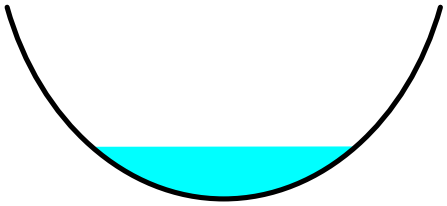
Summary for Reach 12R: North Swale 1

Inflow Area = 3.266 ac, 95.45% Impervious, Inflow Depth > 2.73" for 3.08" --- 2yr event
Inflow = 9.30 cfs @ 12.09 hrs, Volume= 0.744 af
Outflow = 6.91 cfs @ 12.32 hrs, Volume= 0.739 af, Atten= 26%, Lag= 14.1 min

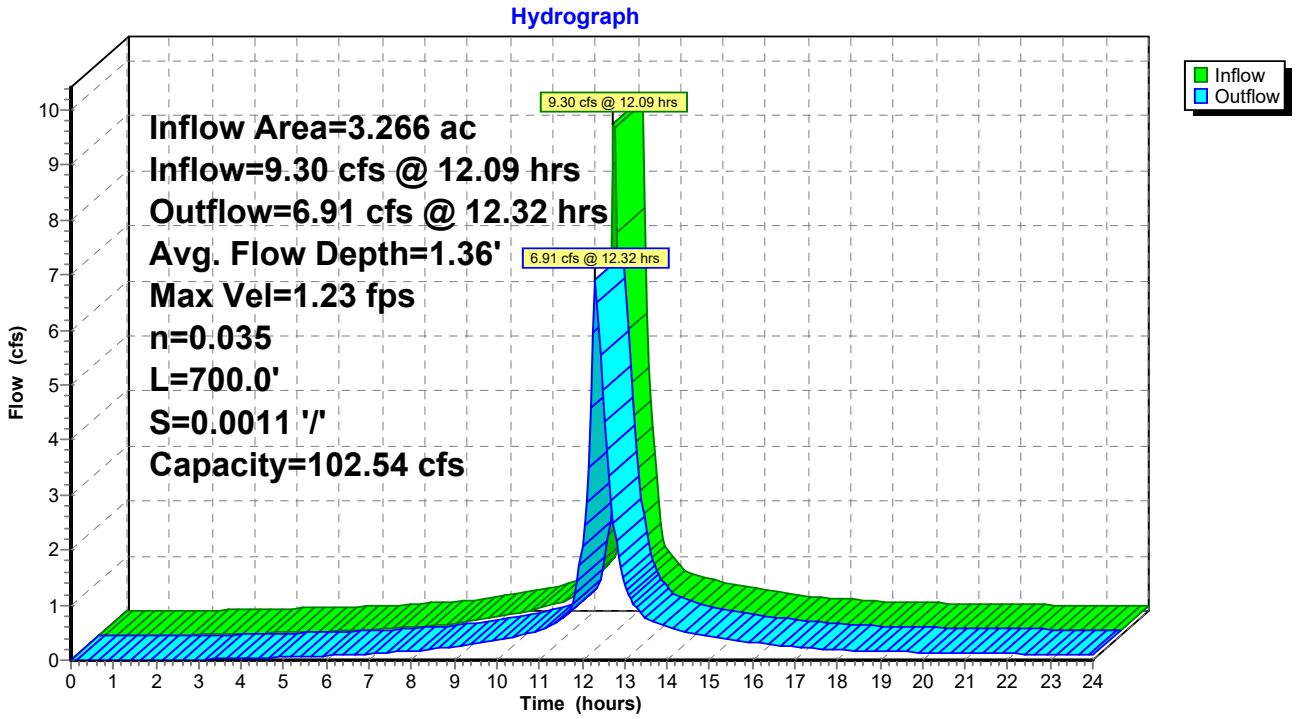
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.23 fps, Min. Travel Time= 9.5 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 26.8 min

Peak Storage= 3,980 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.36' , Surface Width= 6.26'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



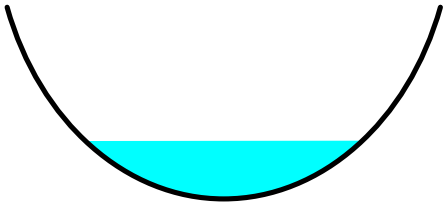
Summary for Reach 13R: West Swale

Inflow Area = 5.842 ac, 78.54% Impervious, Inflow Depth > 2.35" for 3.08" --- 2yr event
Inflow = 8.70 cfs @ 12.40 hrs, Volume= 1.143 af
Outflow = 8.54 cfs @ 12.46 hrs, Volume= 1.141 af, Atten= 2%, Lag= 3.8 min

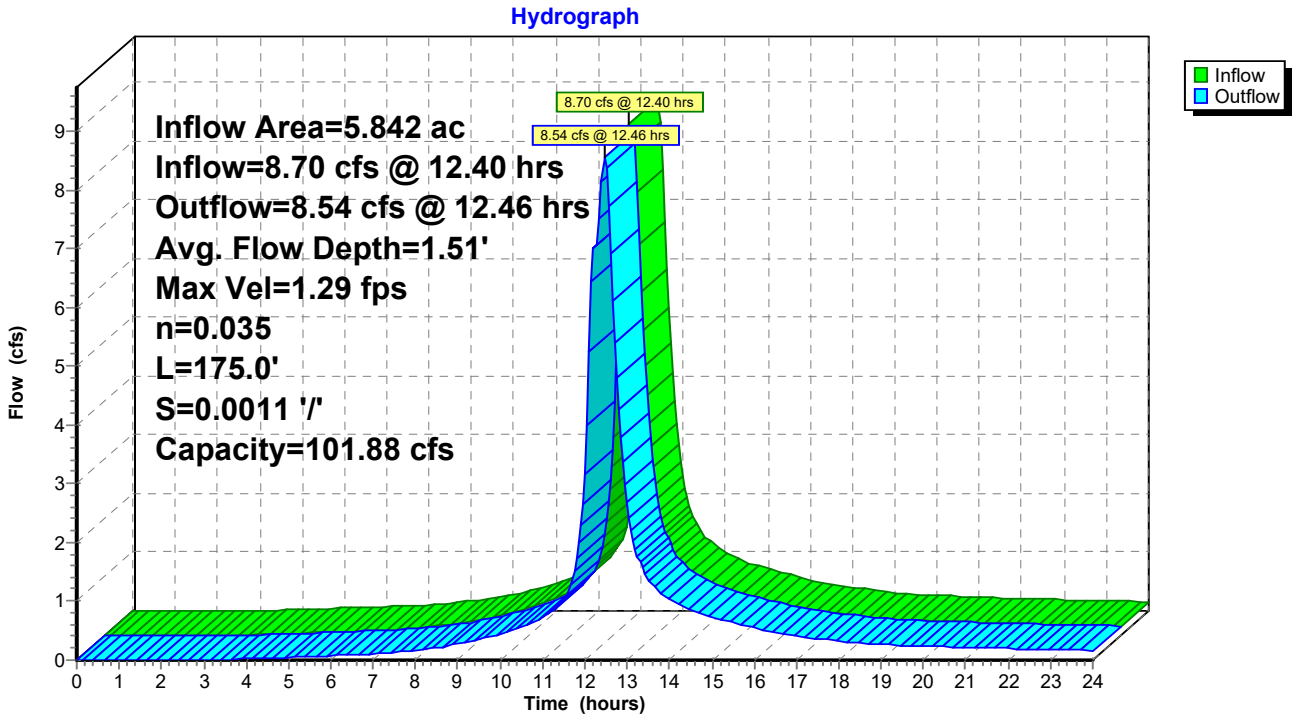
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.29 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 6.0 min

Peak Storage= 1,159 cf @ 12.42 hrs
Average Depth at Peak Storage= 1.51' , Surface Width= 6.59'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



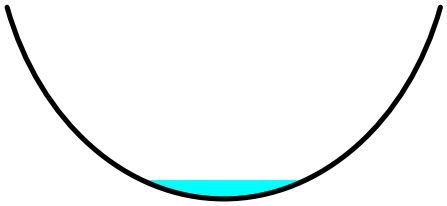
Summary for Reach 14R: South Swale

Inflow Area = 0.512 ac, 85.22% Impervious, Inflow Depth > 2.43" for 3.08" --- 2yr event
Inflow = 1.32 cfs @ 12.10 hrs, Volume= 0.104 af
Outflow = 0.88 cfs @ 12.45 hrs, Volume= 0.102 af, Atten= 34%, Lag= 20.9 min

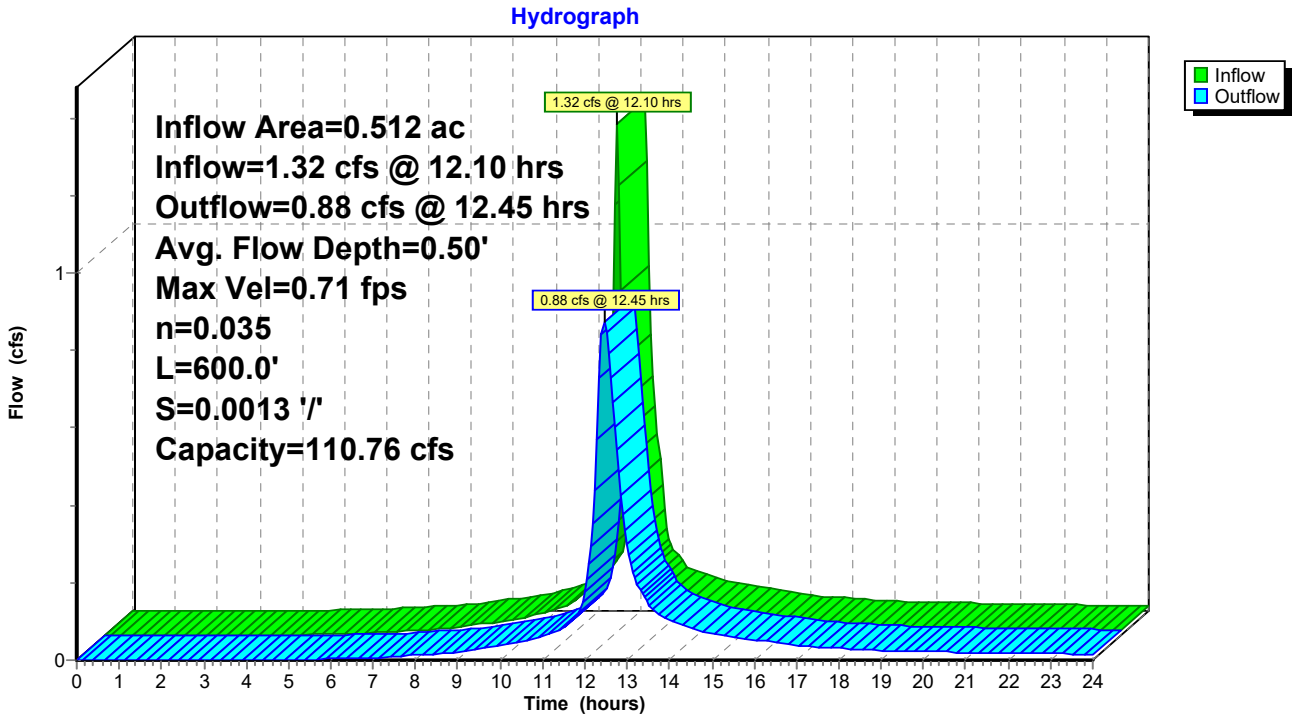
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.71 fps, Min. Travel Time= 14.2 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 36.8 min

Peak Storage= 749 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.50' , Surface Width= 3.78'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 110.76 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0013 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 14R: South Swale



Summary for Pond 15P: CB

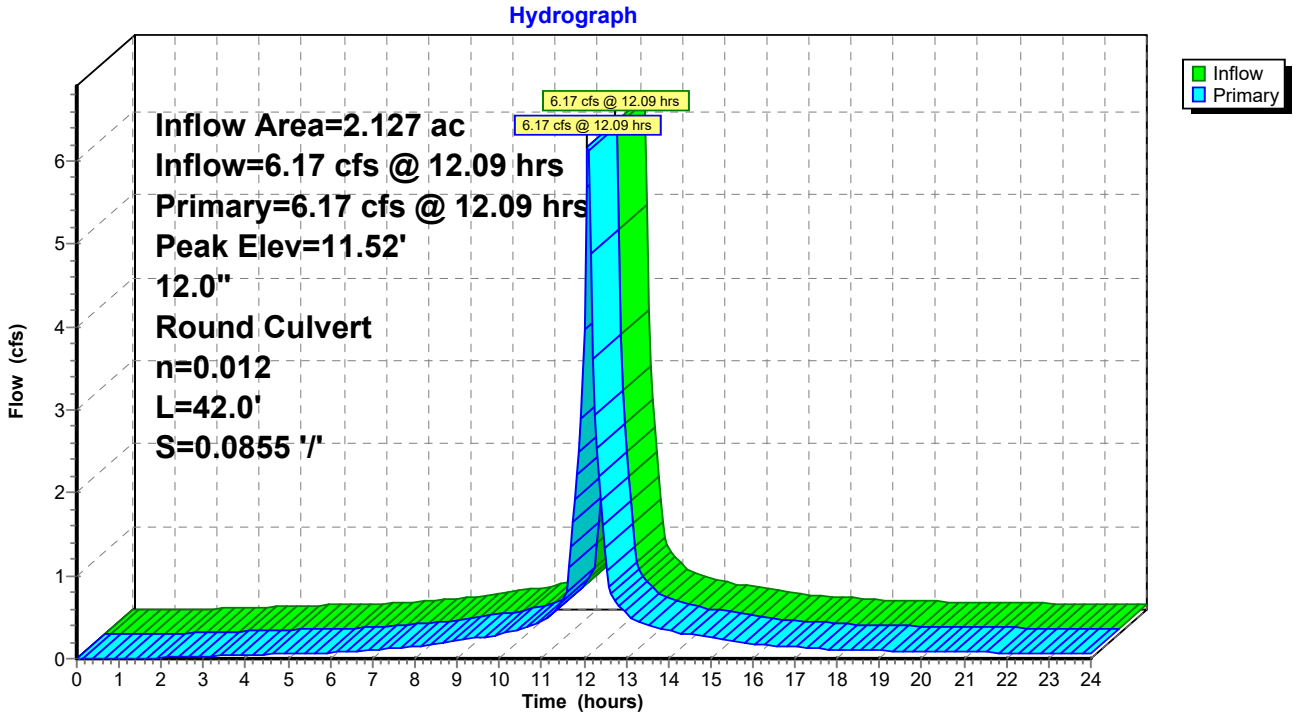
Inflow Area = 2.127 ac,100.00% Impervious, Inflow Depth > 2.85" for 3.08" --- 2yr event
Inflow = 6.17 cfs @ 12.09 hrs, Volume= 0.504 af
Outflow = 6.17 cfs @ 12.09 hrs, Volume= 0.504 af, Atten= 0%, Lag= 0.0 min
Primary = 6.17 cfs @ 12.09 hrs, Volume= 0.504 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.52' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	6.76'	**12.0" Round RCP_Round 12"** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.76' / 3.17' S= 0.0855 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.02 cfs @ 12.09 hrs HW=11.33' (Free Discharge)
1=RCP_Round 12" (Inlet Controls 6.02 cfs @ 7.67 fps)

Pond 15P: CB



Summary for Subcatchment 1S: North Front Parking

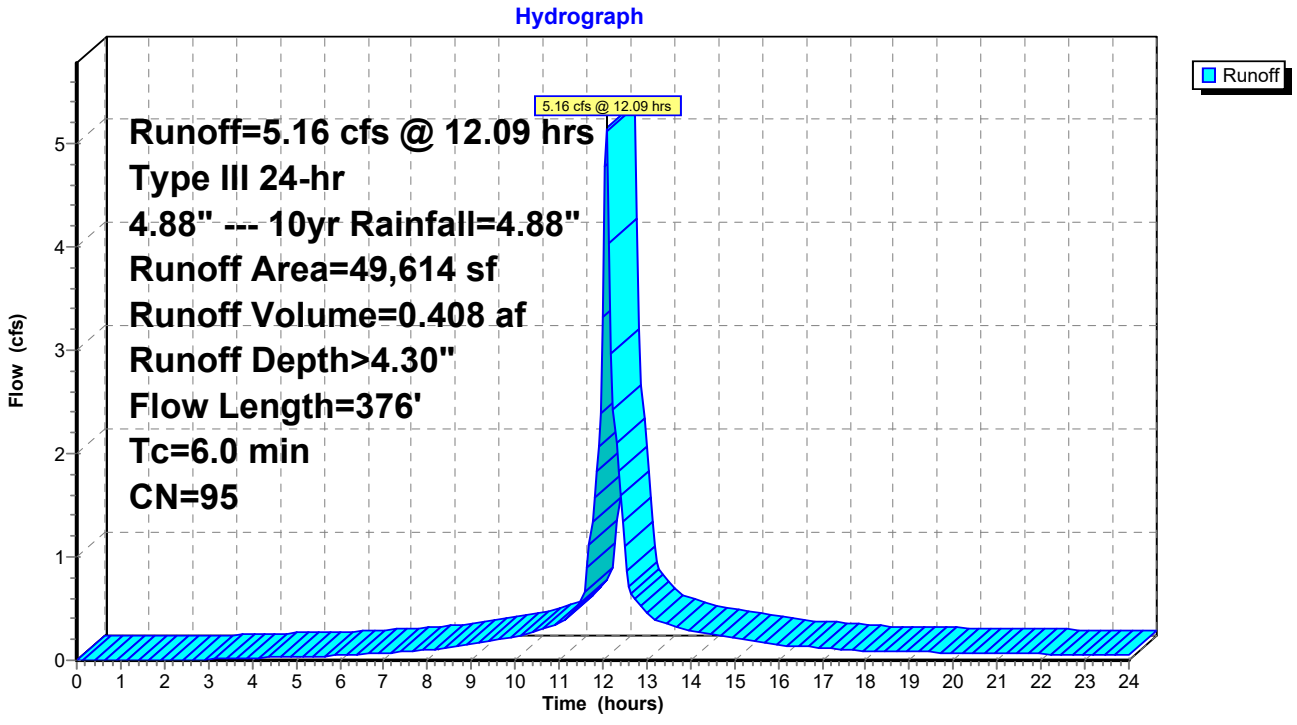
Runoff = 5.16 cfs @ 12.09 hrs, Volume= 0.408 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
43,139	98	Paved parking, HSG D
6,475	74	>75% Grass cover, Good, HSG C
49,614	95	Weighted Average
6,475		13.05% Pervious Area
43,139		86.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

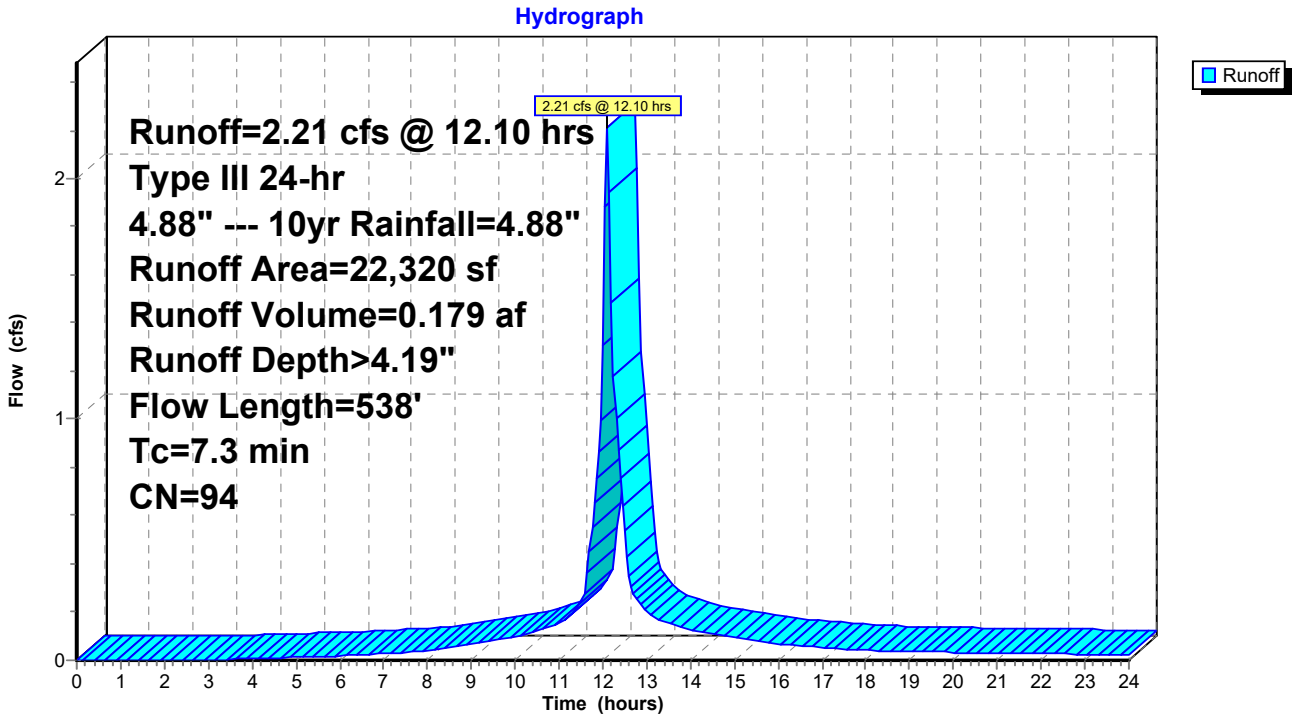
Runoff = 2.21 cfs @ 12.10 hrs, Volume= 0.179 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
19,020	98	Paved parking, HSG D
3,300	74	>75% Grass cover, Good, HSG C
22,320	94	Weighted Average
3,300		14.78% Pervious Area
19,020		85.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

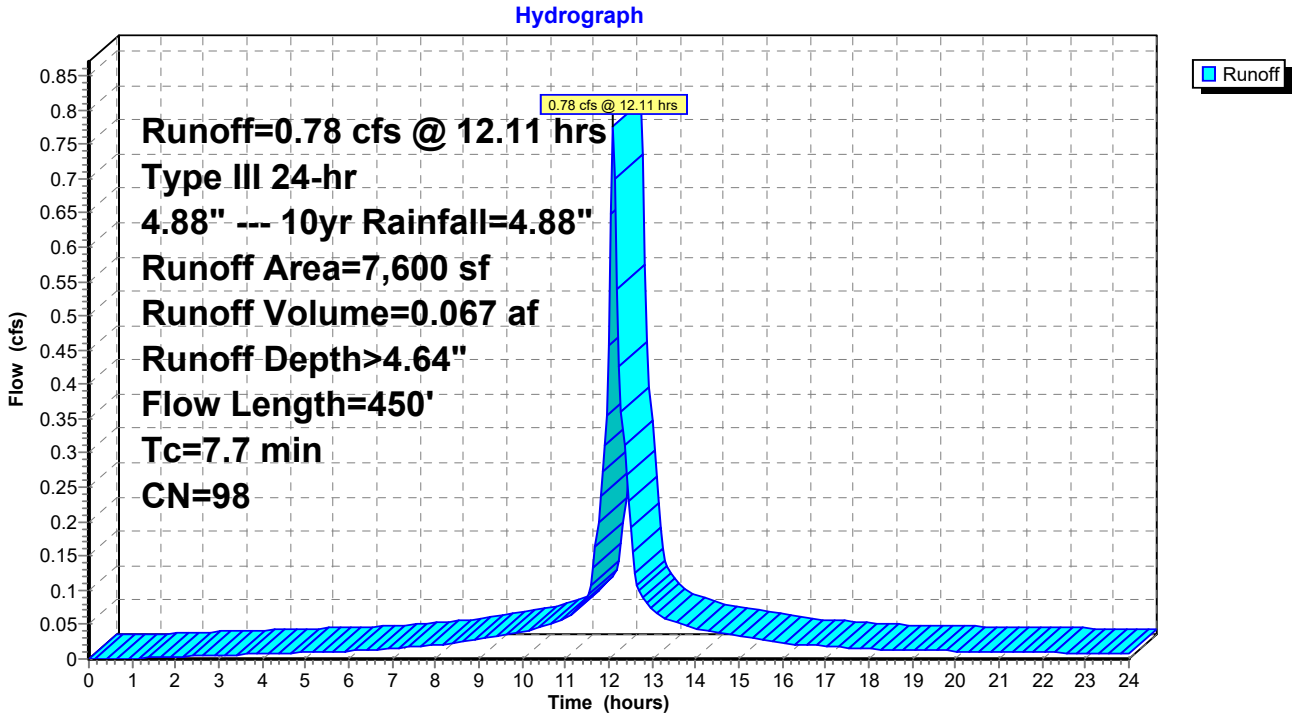
Runoff = 0.78 cfs @ 12.11 hrs, Volume= 0.067 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

	Area (sf)	CN	Description
*	7,600	98	
	7,600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	250	0.0050	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.7	450	Total			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

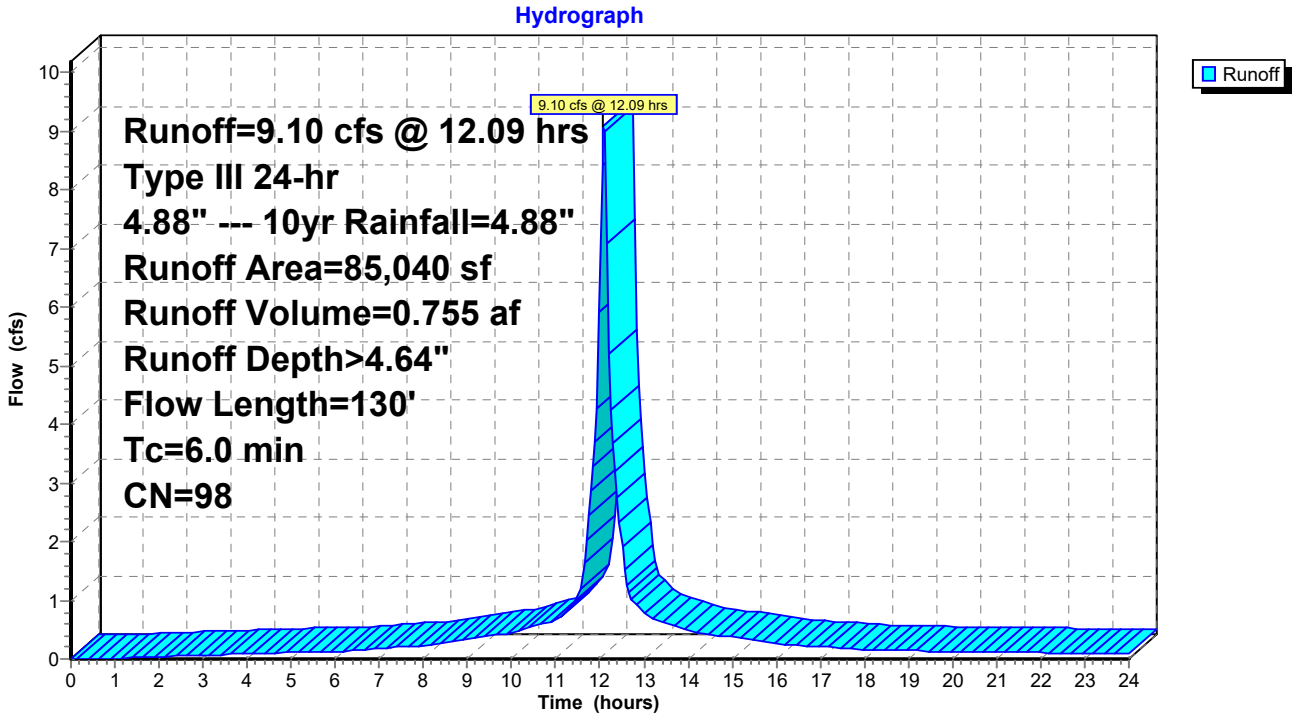
Runoff = 9.10 cfs @ 12.09 hrs, Volume= 0.755 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

	Area (sf)	CN	Description
*	85,040	98	
	85,040		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.1	20	0.0100	2.36	1.85	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
2.4	130	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

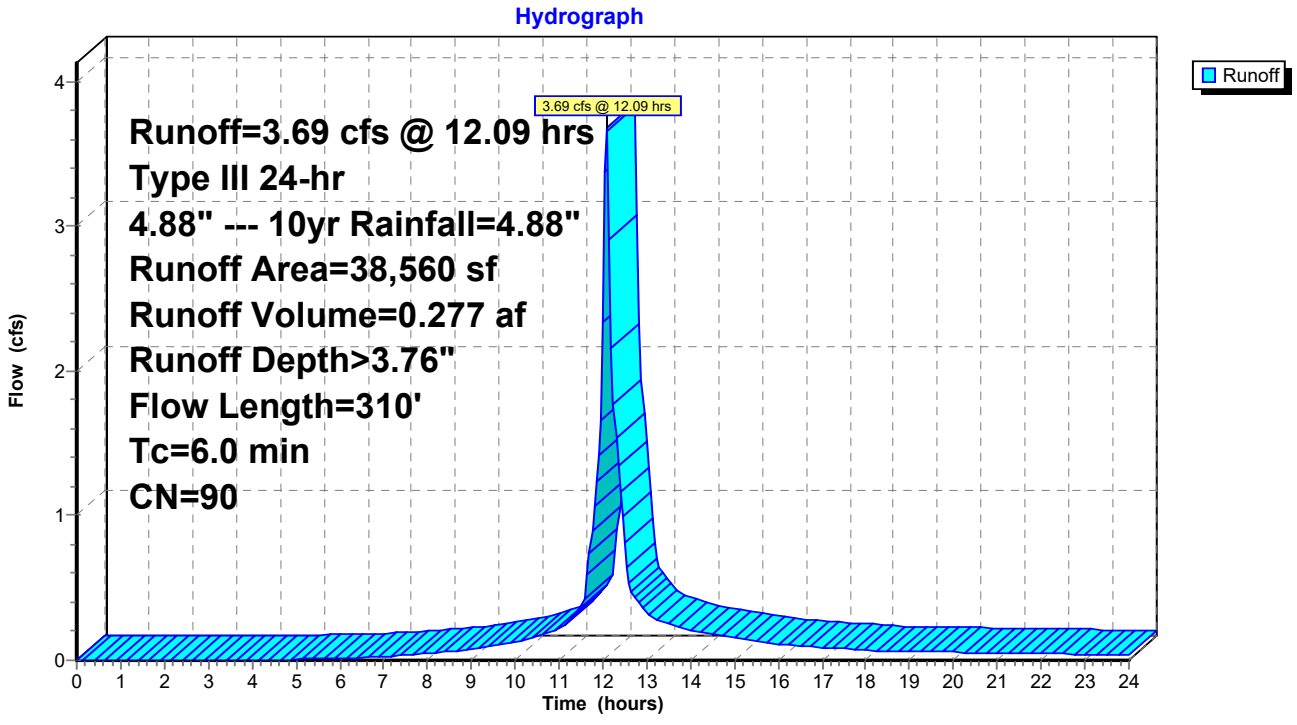
Runoff = 3.69 cfs @ 12.09 hrs, Volume= 0.277 af, Depth> 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
25,060	98	Paved parking, HSG D
13,500	74	>75% Grass cover, Good, HSG C
38,560	90	Weighted Average
13,500		35.01% Pervious Area
25,060		64.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

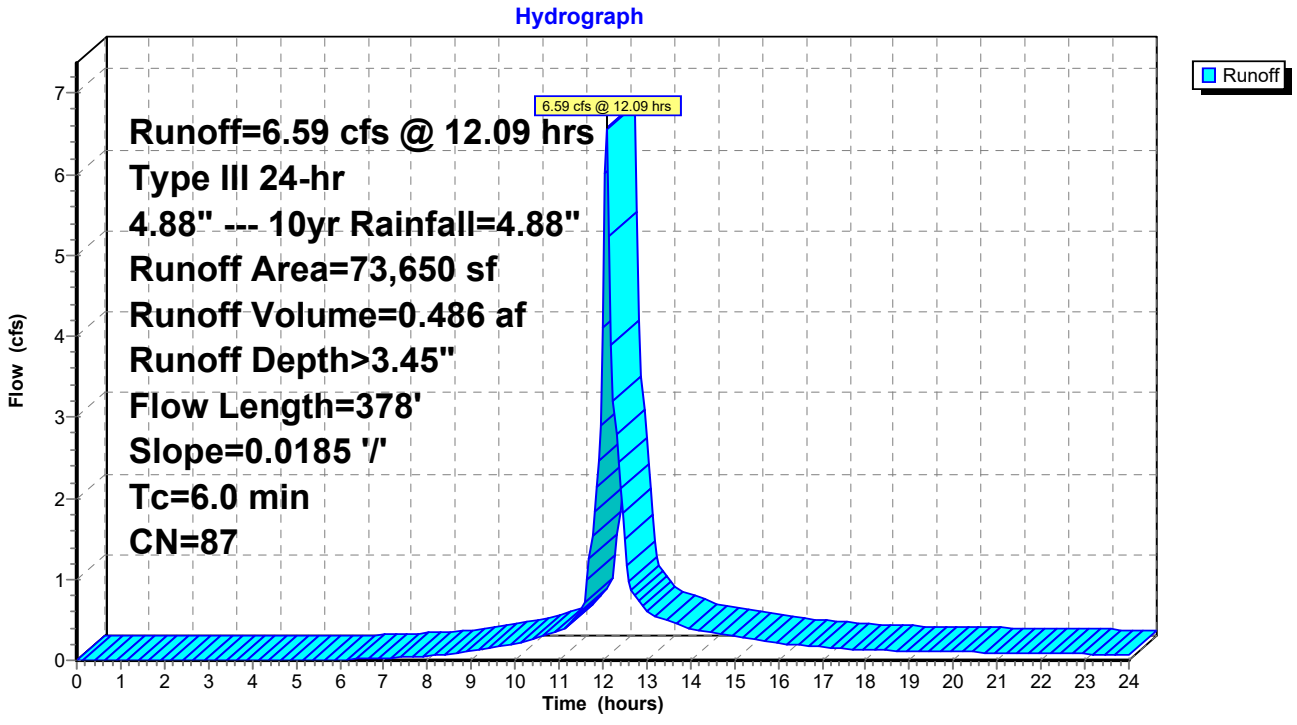
Runoff = 6.59 cfs @ 12.09 hrs, Volume= 0.486 af, Depth> 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 4.88" --- 10yr Rainfall=4.88"

Area (sf)	CN	Description
39,025	98	Paved parking, HSG D
34,625	74	>75% Grass cover, Good, HSG C
73,650	87	Weighted Average
34,625		47.01% Pervious Area
39,025		52.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



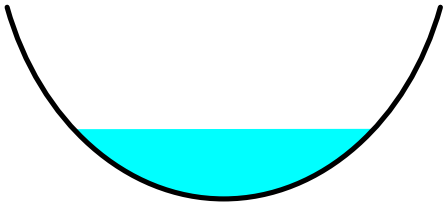
Summary for Reach 6R: North Swale 2

Inflow Area = 4.151 ac, 88.95% Impervious, Inflow Depth > 4.34" for 4.88" --- 10yr event
Inflow = 13.13 cfs @ 12.29 hrs, Volume= 1.500 af
Outflow = 12.78 cfs @ 12.37 hrs, Volume= 1.497 af, Atten= 3%, Lag= 4.6 min

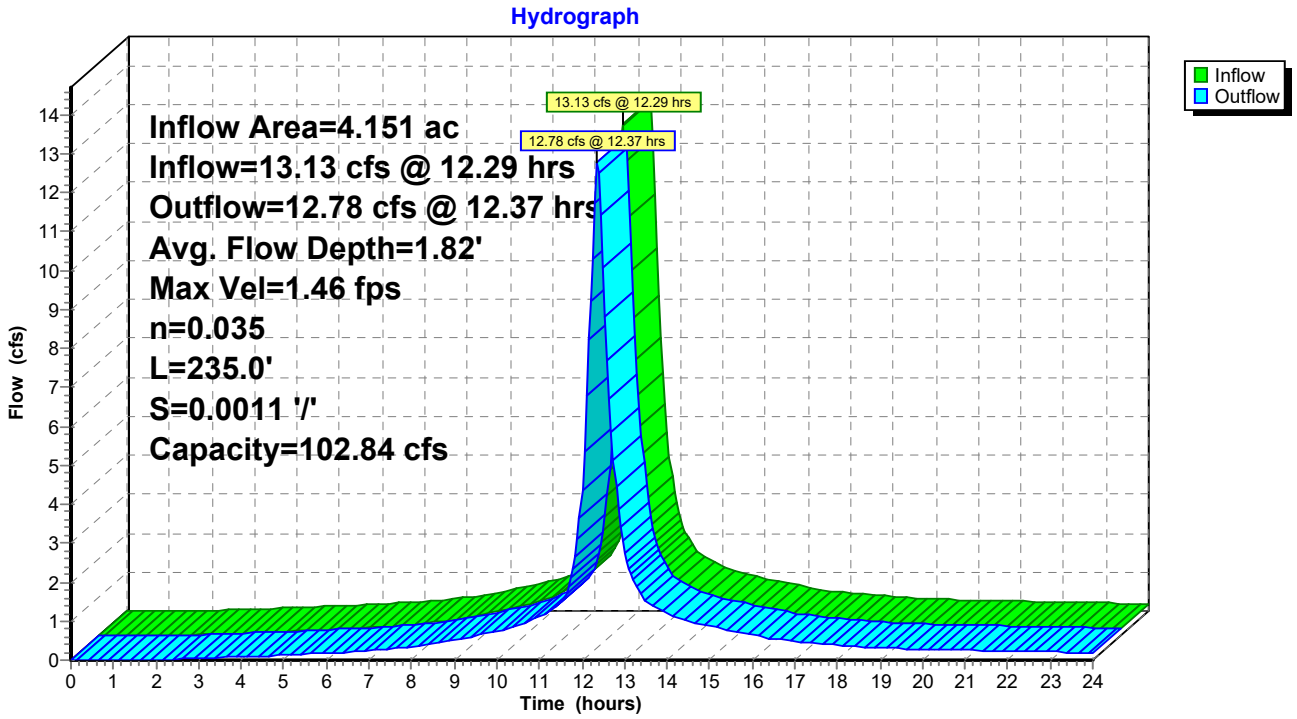
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 7.3 min

Peak Storage= 2,061 cf @ 12.32 hrs
Average Depth at Peak Storage= 1.82' , Surface Width= 7.24'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

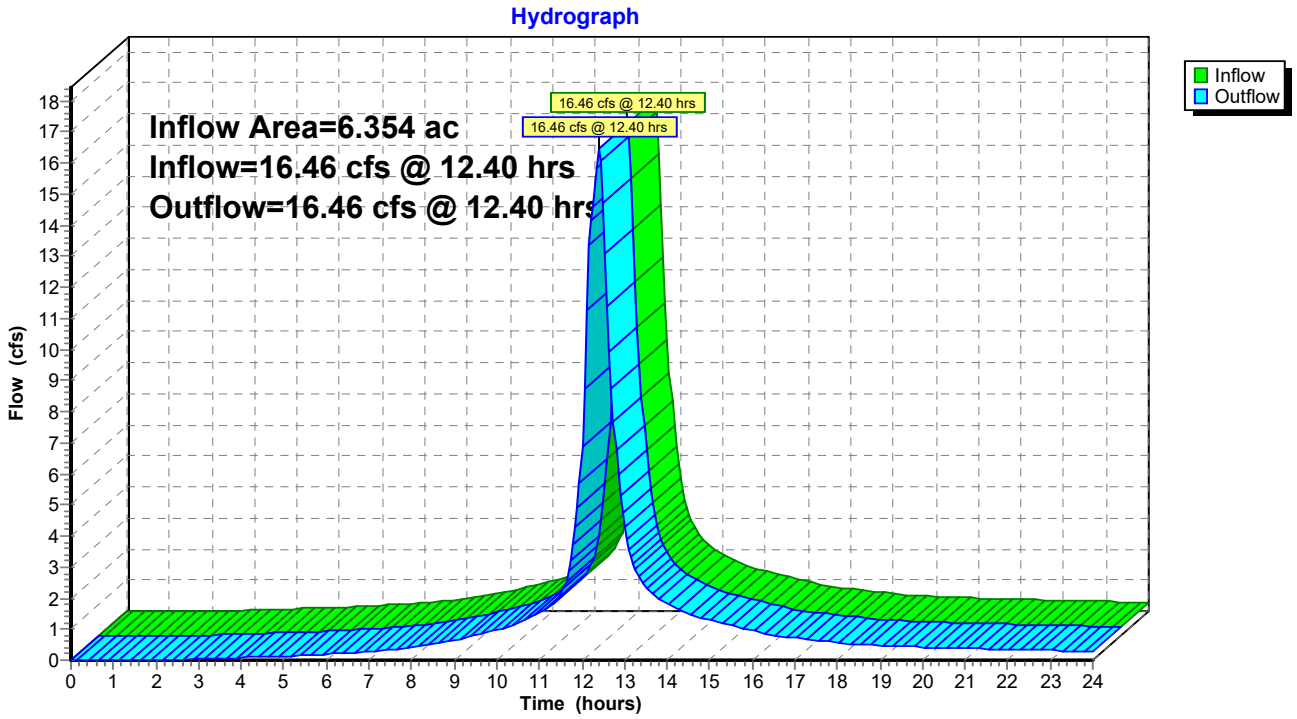


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 79.08% Impervious, Inflow Depth > 4.07" for 4.88" --- 10yr event
Inflow = 16.46 cfs @ 12.40 hrs, Volume= 2.157 af
Outflow = 16.46 cfs @ 12.40 hrs, Volume= 2.157 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



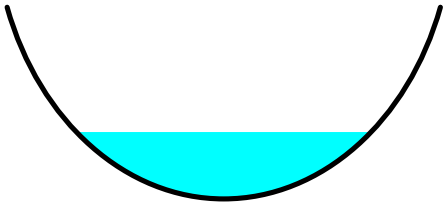
Summary for Reach 12R: North Swale 1

Inflow Area = 3.266 ac, 95.45% Impervious, Inflow Depth > 4.52" for 4.88" --- 10yr event
Inflow = 15.02 cfs @ 12.09 hrs, Volume= 1.230 af
Outflow = 11.56 cfs @ 12.30 hrs, Volume= 1.223 af, Atten= 23%, Lag= 12.6 min

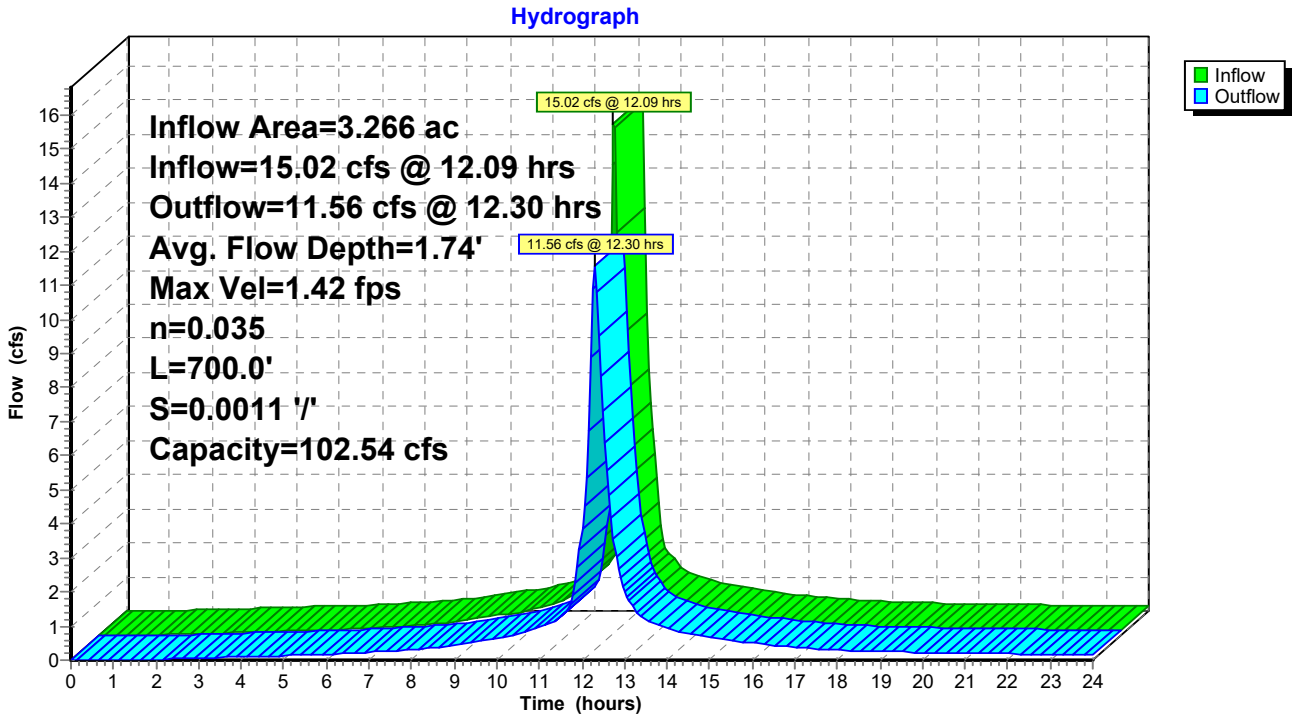
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.42 fps, Min. Travel Time= 8.2 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 23.1 min

Peak Storage= 5,771 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.74' , Surface Width= 7.09'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



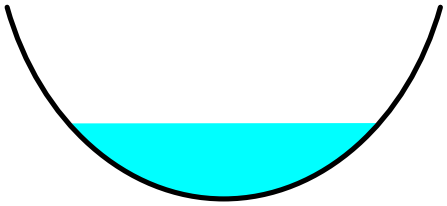
Summary for Reach 13R: West Swale

Inflow Area = 5.842 ac, 78.54% Impervious, Inflow Depth > 4.07" for 4.88" --- 10yr event
Inflow = 15.17 cfs @ 12.35 hrs, Volume= 1.983 af
Outflow = 14.89 cfs @ 12.41 hrs, Volume= 1.980 af, Atten= 2%, Lag= 3.2 min

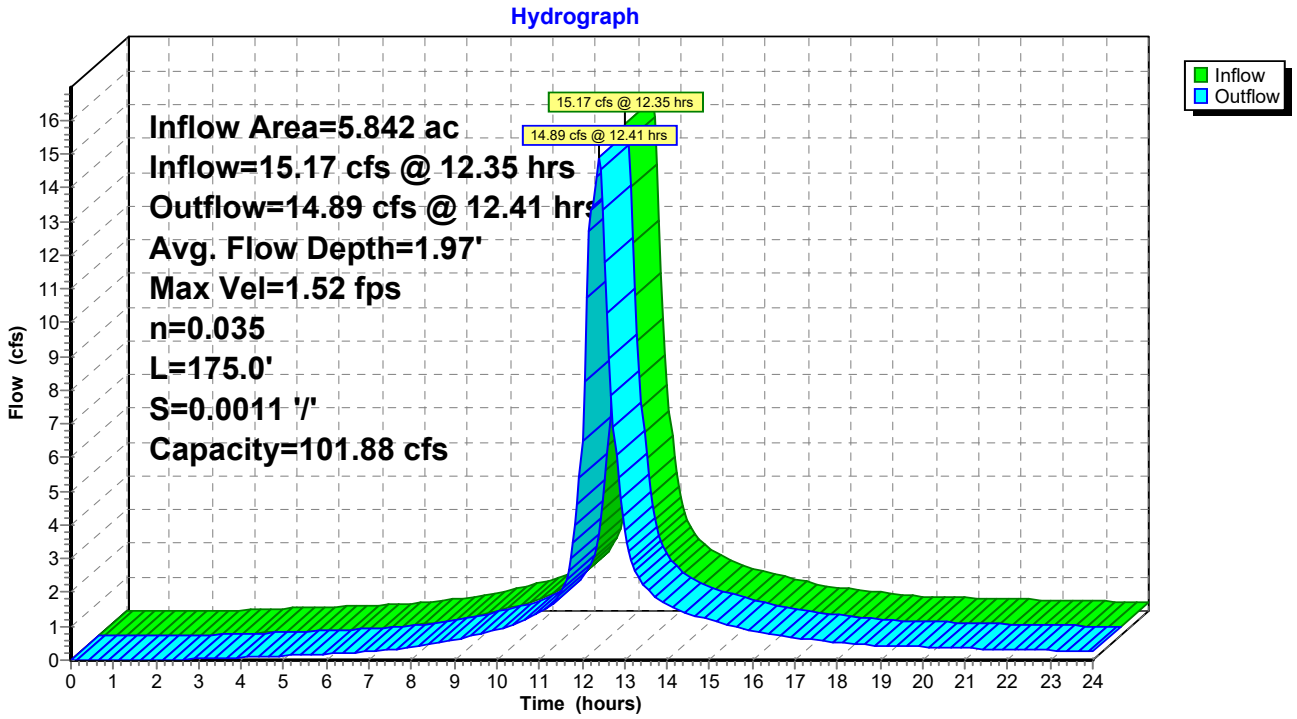
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.52 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 5.1 min

Peak Storage= 1,730 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.97' , Surface Width= 7.53'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



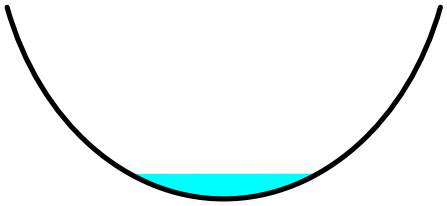
Summary for Reach 14R: South Swale

Inflow Area = 0.512 ac, 85.22% Impervious, Inflow Depth > 4.19" for 4.88" --- 10yr event
Inflow = 2.21 cfs @ 12.10 hrs, Volume= 0.179 af
Outflow = 1.57 cfs @ 12.40 hrs, Volume= 0.177 af, Atten= 29%, Lag= 17.7 min

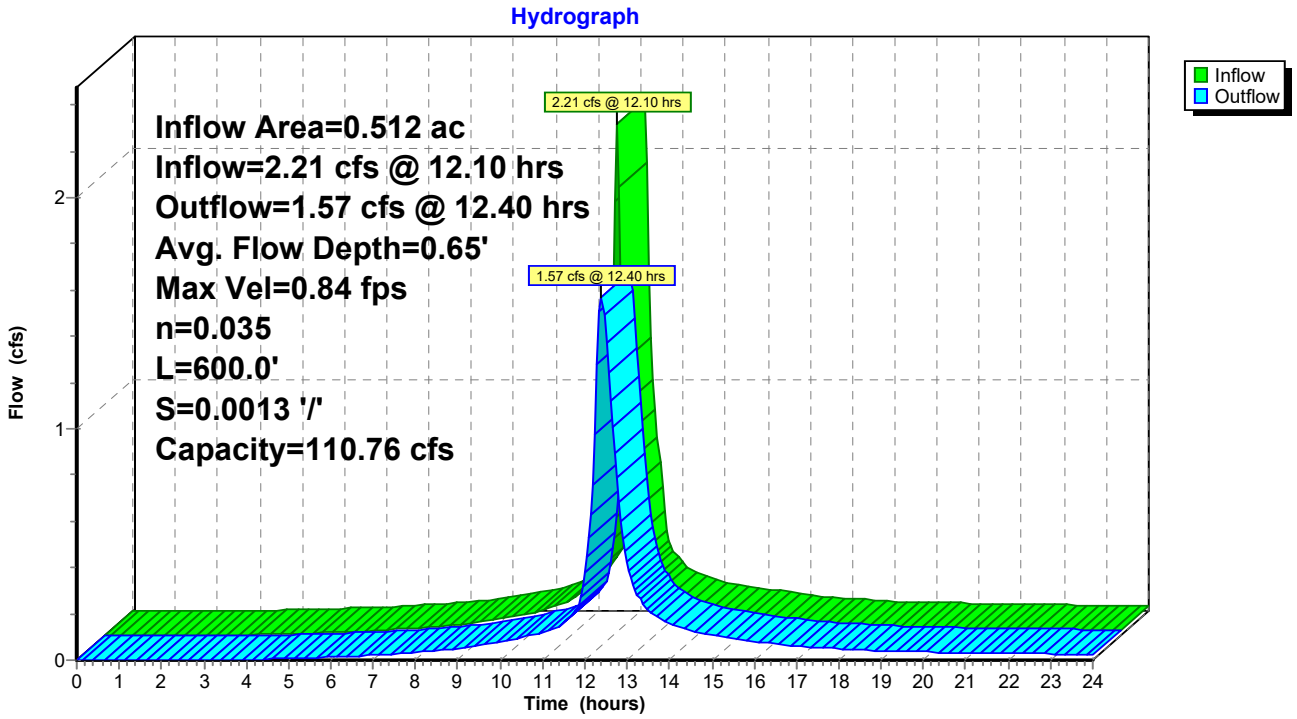
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.84 fps, Min. Travel Time= 11.9 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 32.3 min

Peak Storage= 1,123 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.65' , Surface Width= 4.32'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 110.76 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0013 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 14R: South Swale



Summary for Pond 15P: CB

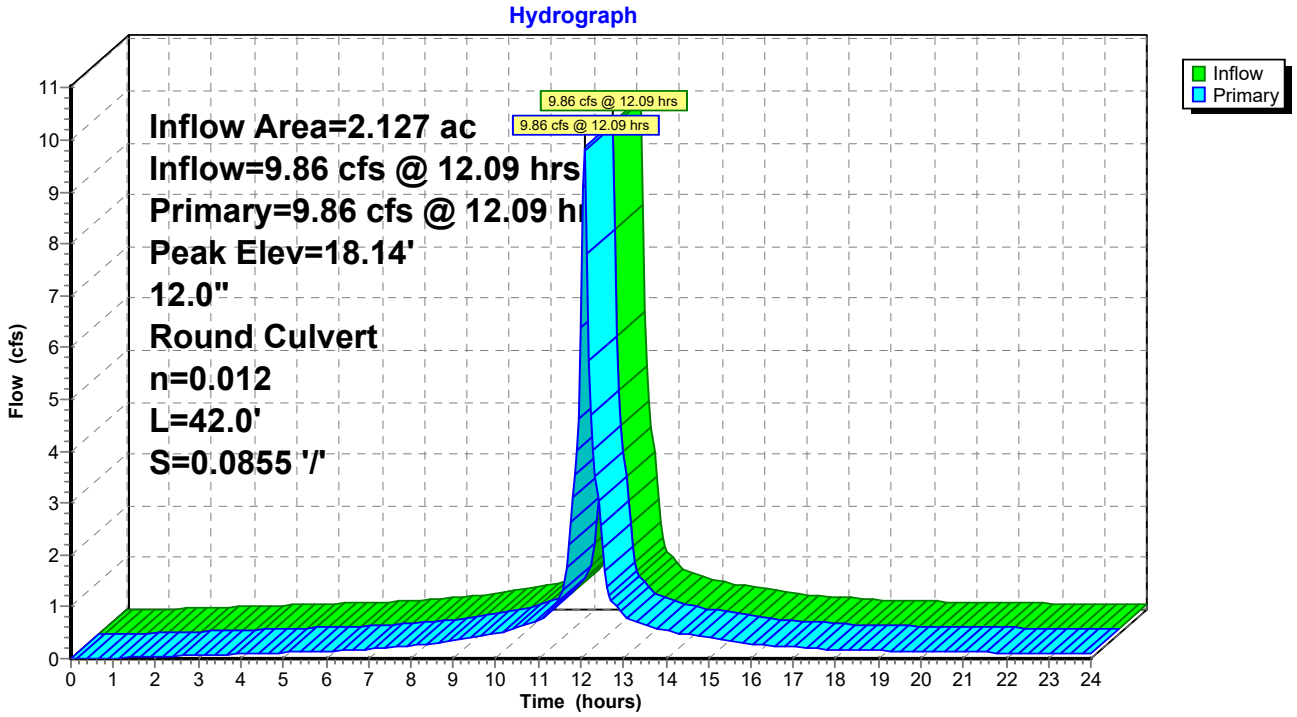
Inflow Area = 2.127 ac,100.00% Impervious, Inflow Depth > 4.64" for 4.88" --- 10yr event
Inflow = 9.86 cfs @ 12.09 hrs, Volume= 0.822 af
Outflow = 9.86 cfs @ 12.09 hrs, Volume= 0.822 af, Atten= 0%, Lag= 0.0 min
Primary = 9.86 cfs @ 12.09 hrs, Volume= 0.822 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 18.14' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	6.76'	**12.0" Round RCP_Round 12"** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.76' / 3.17' S= 0.0855 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=9.62 cfs @ 12.09 hrs HW=17.64' (Free Discharge)
1=RCP_Round 12" (Inlet Controls 9.62 cfs @ 12.25 fps)

Pond 15P: CB



Summary for Subcatchment 1S: North Front Parking

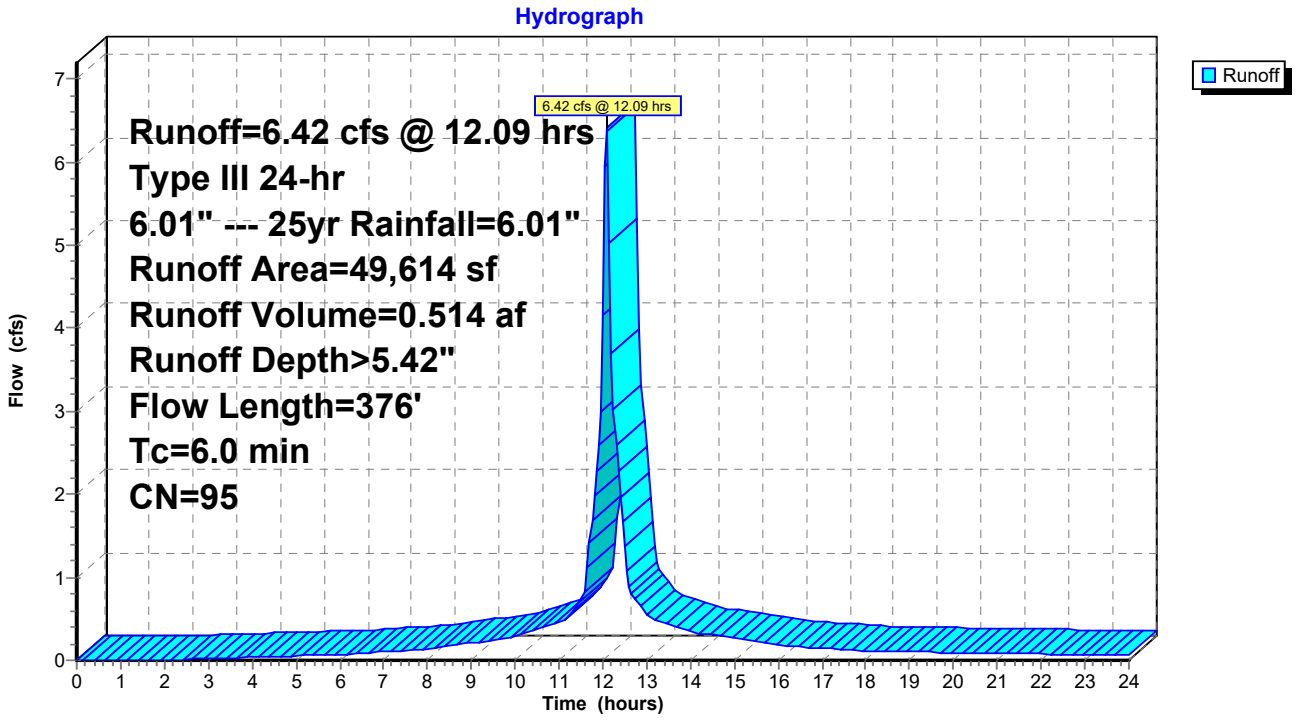
Runoff = 6.42 cfs @ 12.09 hrs, Volume= 0.514 af, Depth> 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
43,139	98	Paved parking, HSG D
6,475	74	>75% Grass cover, Good, HSG C
49,614	95	Weighted Average
6,475		13.05% Pervious Area
43,139		86.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

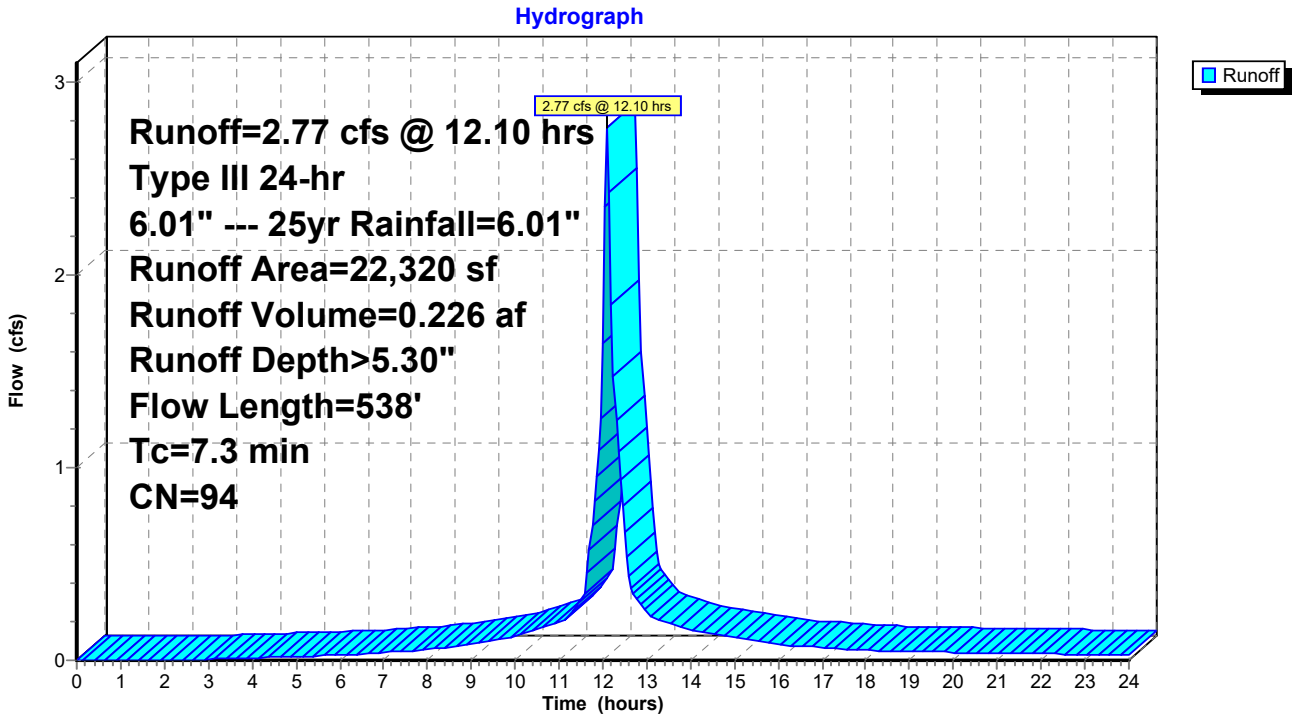
Runoff = 2.77 cfs @ 12.10 hrs, Volume= 0.226 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
19,020	98	Paved parking, HSG D
3,300	74	>75% Grass cover, Good, HSG C
22,320	94	Weighted Average
3,300		14.78% Pervious Area
19,020		85.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

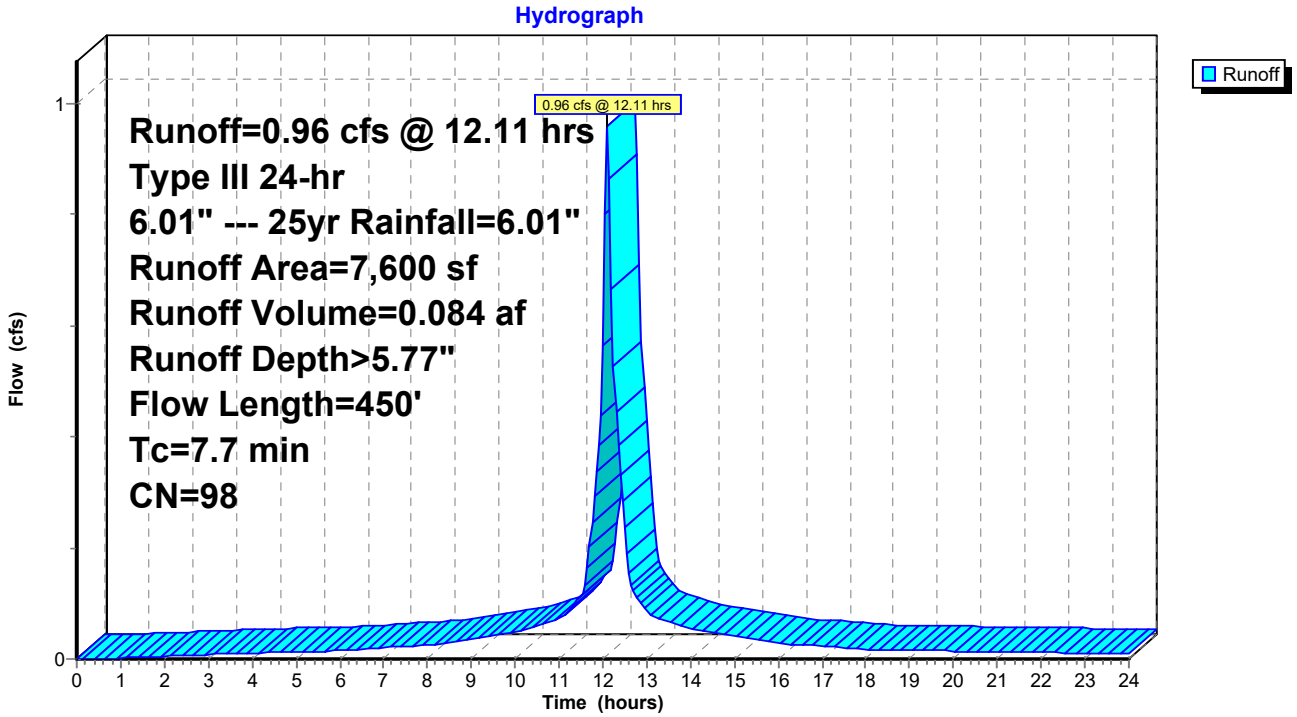
Runoff = 0.96 cfs @ 12.11 hrs, Volume= 0.084 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

	Area (sf)	CN	Description
*	7,600	98	
	7,600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	250	0.0050	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.7	450	Total			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

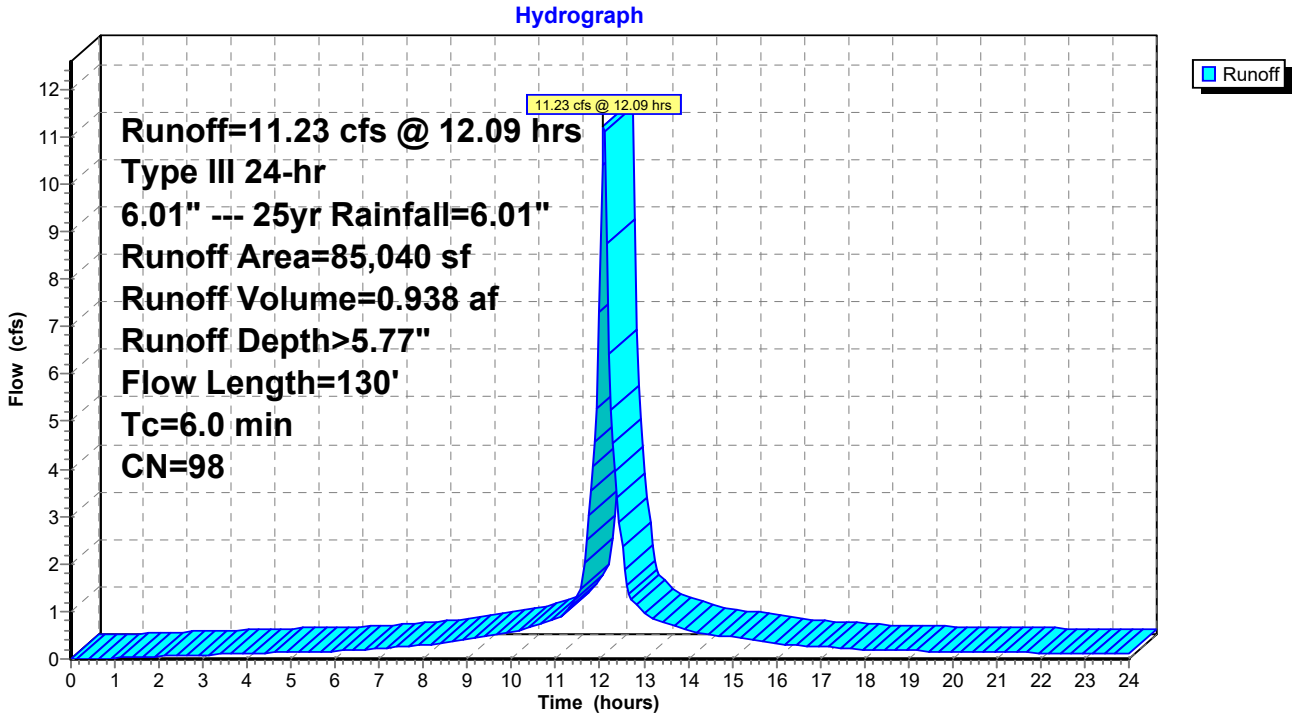
Runoff = 11.23 cfs @ 12.09 hrs, Volume= 0.938 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

	Area (sf)	CN	Description
*	85,040	98	
	85,040		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.1	20	0.0100	2.36	1.85	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
2.4	130	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

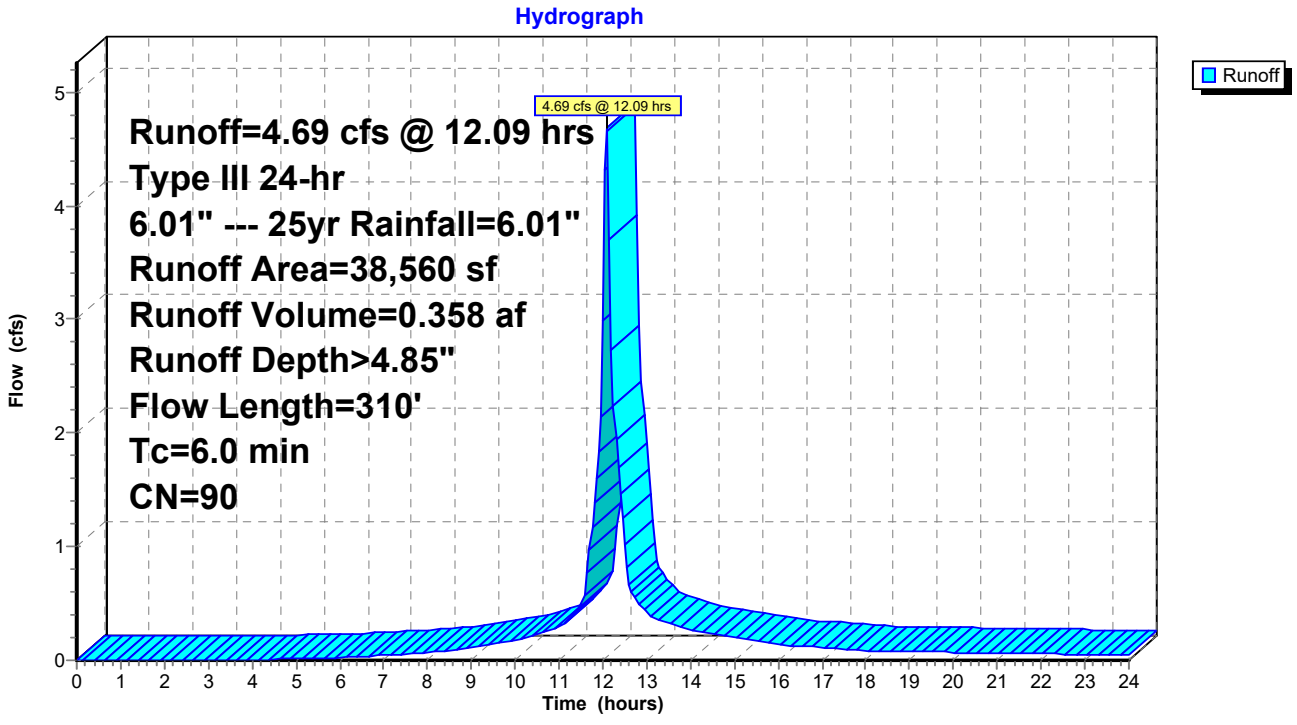
Runoff = 4.69 cfs @ 12.09 hrs, Volume= 0.358 af, Depth> 4.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
25,060	98	Paved parking, HSG D
13,500	74	>75% Grass cover, Good, HSG C
38,560	90	Weighted Average
13,500		35.01% Pervious Area
25,060		64.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

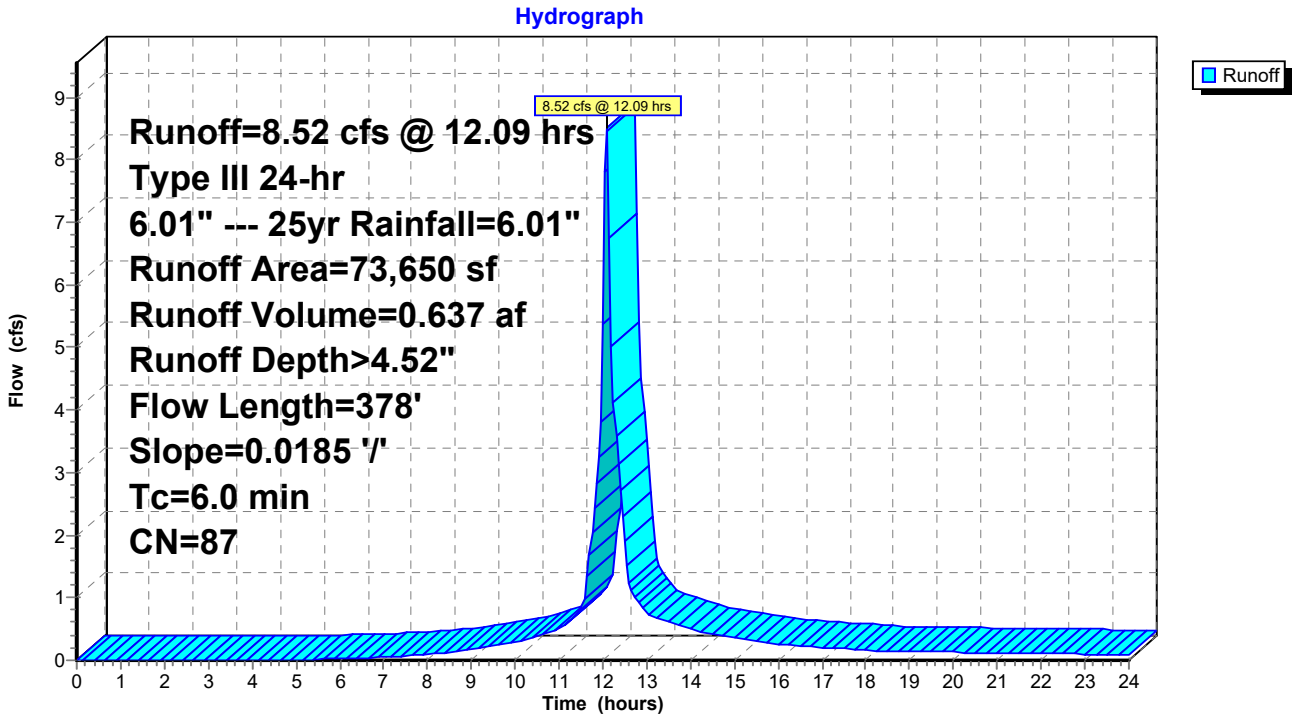
Runoff = 8.52 cfs @ 12.09 hrs, Volume= 0.637 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 6.01" --- 25yr Rainfall=6.01"

Area (sf)	CN	Description
39,025	98	Paved parking, HSG D
34,625	74	>75% Grass cover, Good, HSG C
73,650	87	Weighted Average
34,625		47.01% Pervious Area
39,025		52.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



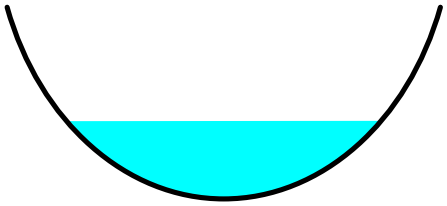
Summary for Reach 6R: North Swale 2

Inflow Area = 4.151 ac, 88.95% Impervious, Inflow Depth > 5.45" for 6.01" --- 25yr event
Inflow = 16.47 cfs @ 12.28 hrs, Volume= 1.886 af
Outflow = 16.08 cfs @ 12.35 hrs, Volume= 1.882 af, Atten= 2%, Lag= 4.4 min

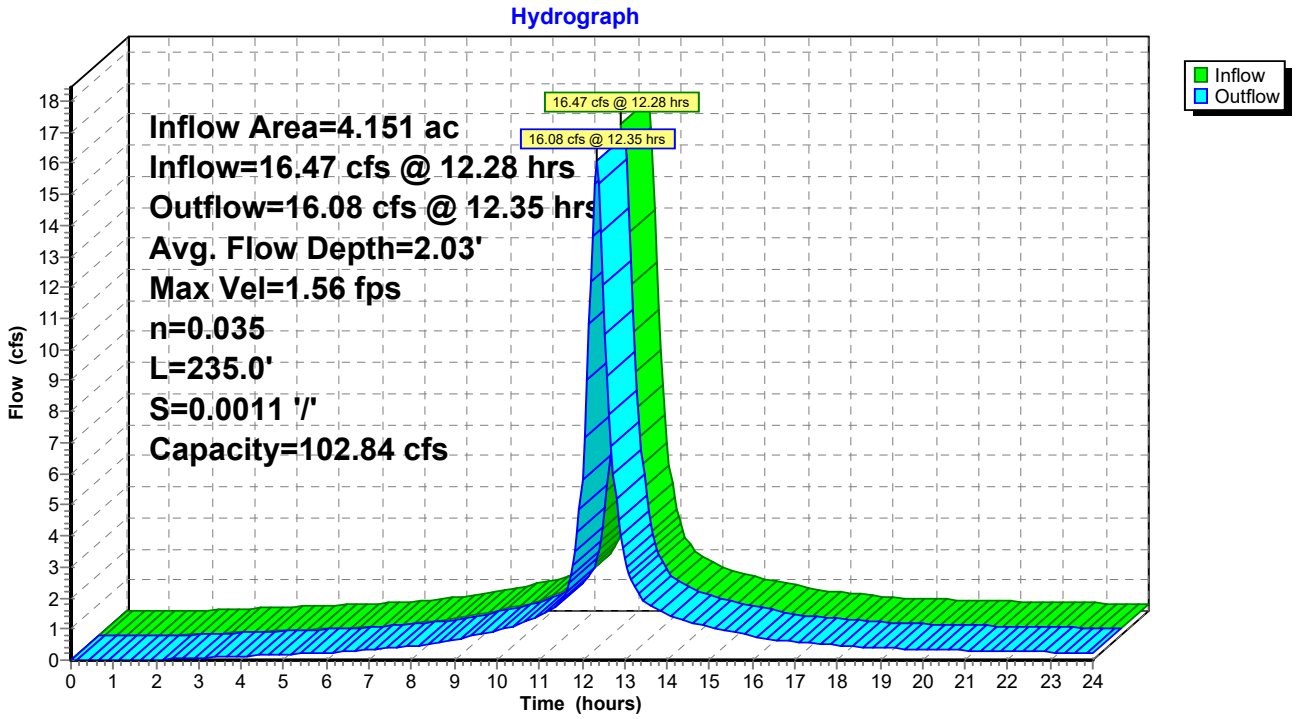
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.56 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 6.8 min

Peak Storage= 2,436 cf @ 12.31 hrs
Average Depth at Peak Storage= 2.03' , Surface Width= 7.65'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

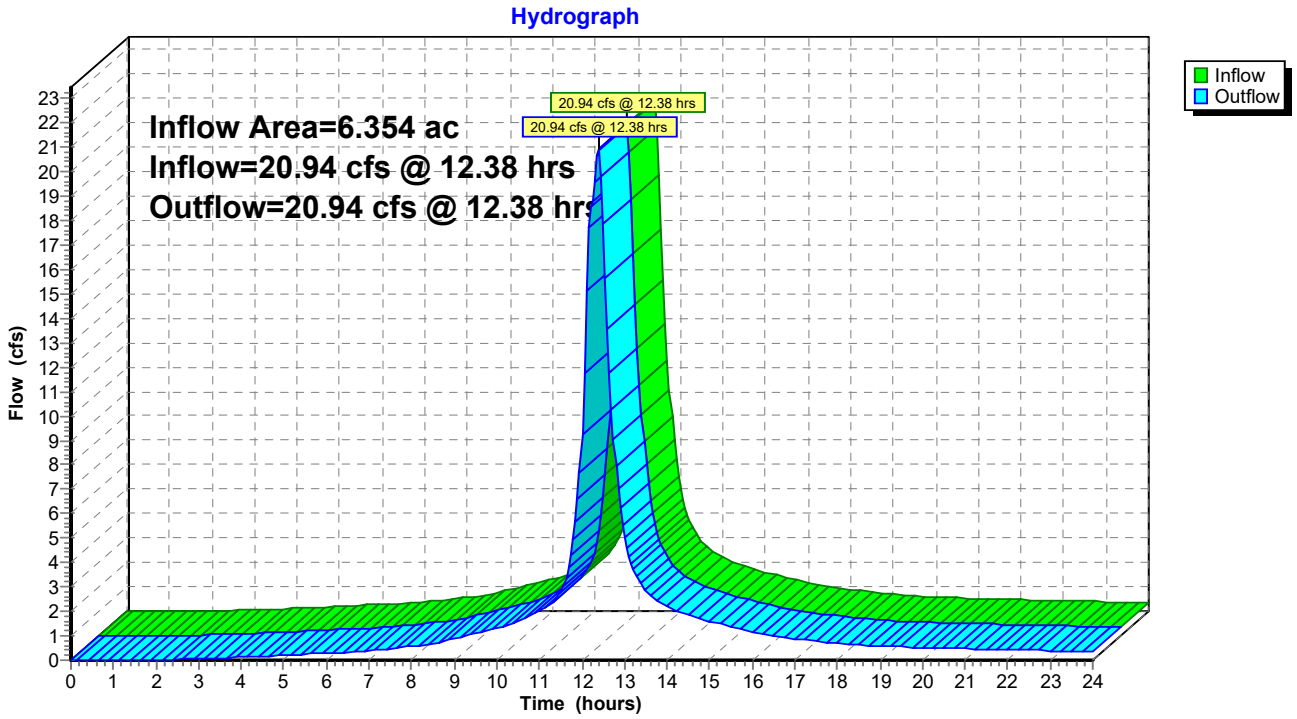


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 79.08% Impervious, Inflow Depth > 5.18" for 6.01" --- 25yr event
Inflow = 20.94 cfs @ 12.38 hrs, Volume= 2.741 af
Outflow = 20.94 cfs @ 12.38 hrs, Volume= 2.741 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



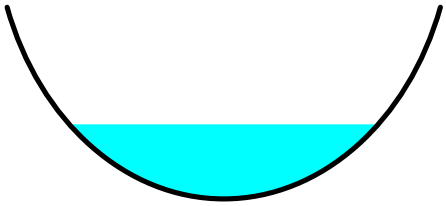
Summary for Reach 12R: North Swale 1

Inflow Area = 3.266 ac, 95.45% Impervious, Inflow Depth > 5.65" for 6.01" --- 25yr event
Inflow = 18.59 cfs @ 12.09 hrs, Volume= 1.537 af
Outflow = 14.43 cfs @ 12.29 hrs, Volume= 1.528 af, Atten= 22%, Lag= 11.9 min

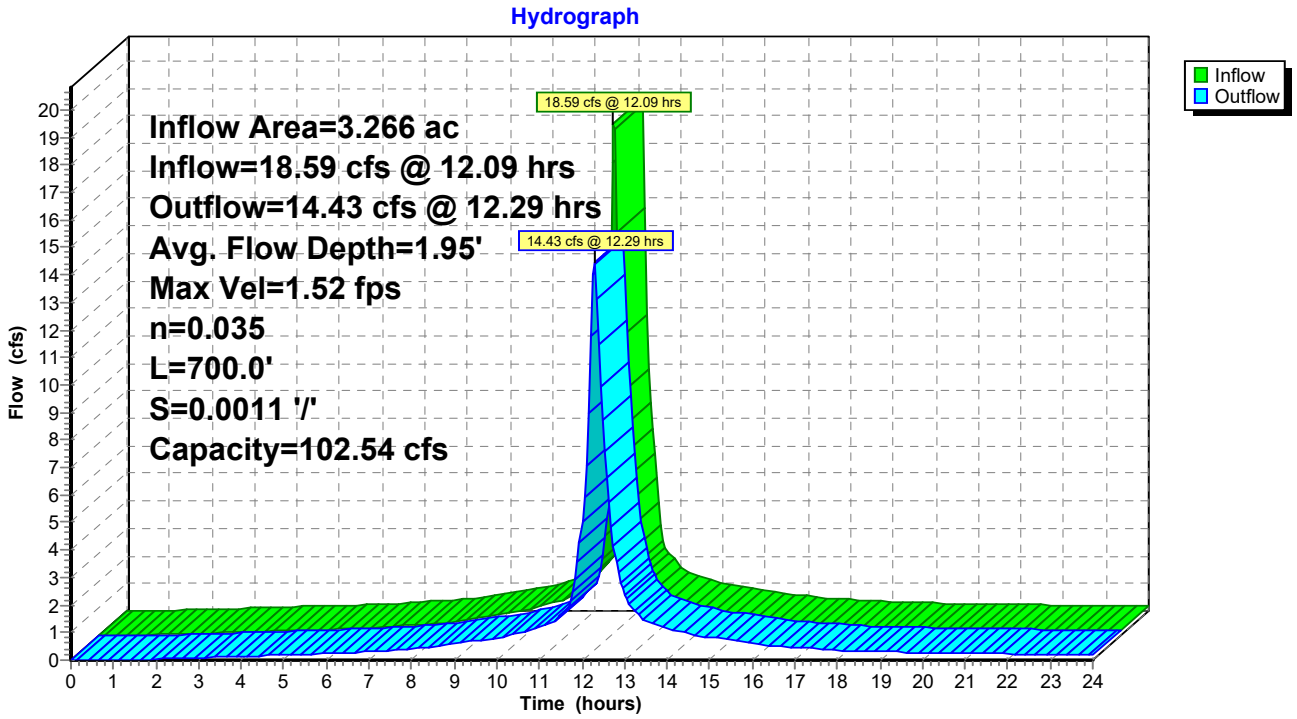
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.52 fps, Min. Travel Time= 7.7 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 21.5 min

Peak Storage= 6,802 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.95' , Surface Width= 7.49'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



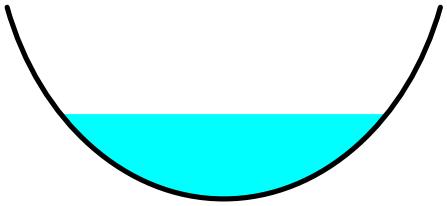
Summary for Reach 13R: West Swale

Inflow Area = 5.842 ac, 78.54% Impervious, Inflow Depth > 5.18" for 6.01" --- 25yr event
Inflow = 19.27 cfs @ 12.34 hrs, Volume= 2.520 af
Outflow = 18.96 cfs @ 12.38 hrs, Volume= 2.516 af, Atten= 2%, Lag= 2.9 min

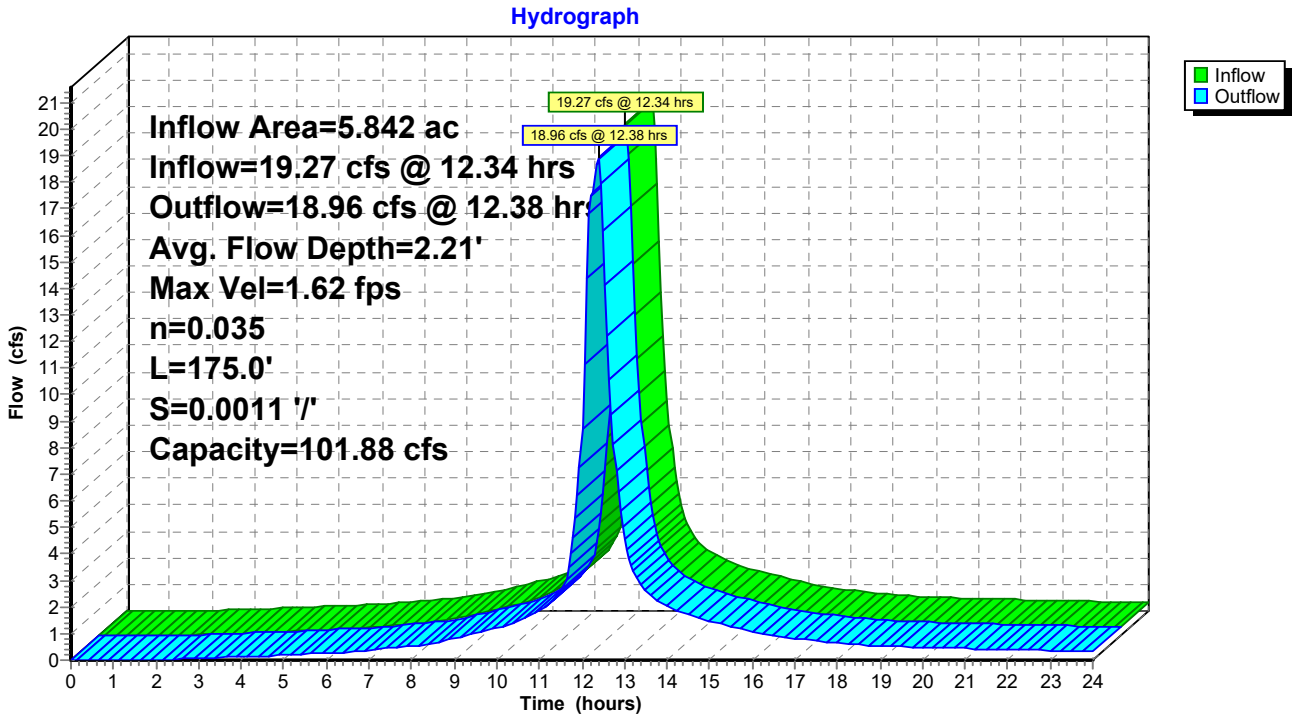
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.62 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.62 fps, Avg. Travel Time= 4.7 min

Peak Storage= 2,058 cf @ 12.35 hrs
Average Depth at Peak Storage= 2.21' , Surface Width= 7.98'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



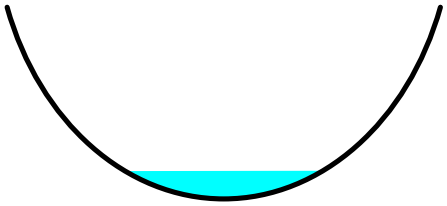
Summary for Reach 14R: South Swale

Inflow Area = 0.512 ac, 85.22% Impervious, Inflow Depth > 5.30" for 6.01" --- 25yr event
Inflow = 2.77 cfs @ 12.10 hrs, Volume= 0.226 af
Outflow = 1.99 cfs @ 12.38 hrs, Volume= 0.224 af, Atten= 28%, Lag= 16.5 min

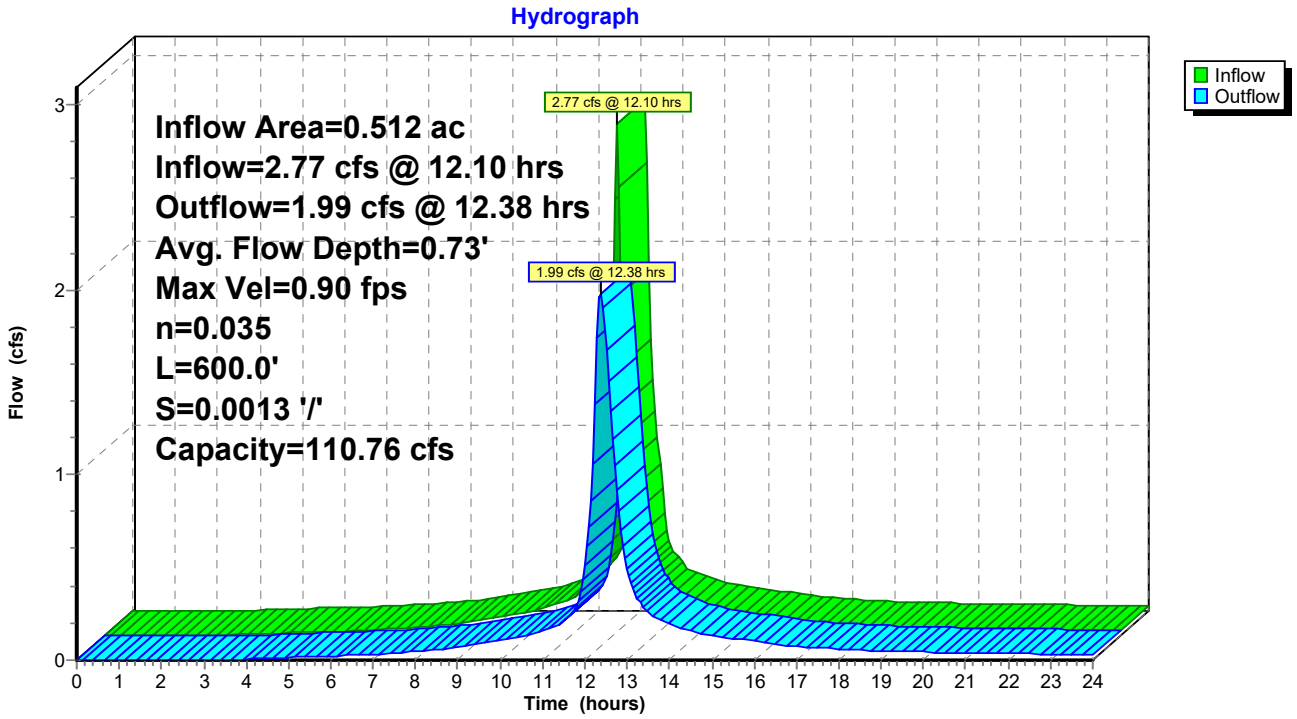
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.90 fps, Min. Travel Time= 11.1 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 30.3 min

Peak Storage= 1,335 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.73' , Surface Width= 4.58'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 110.76 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0013 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 14R: South Swale



Summary for Pond 15P: CB

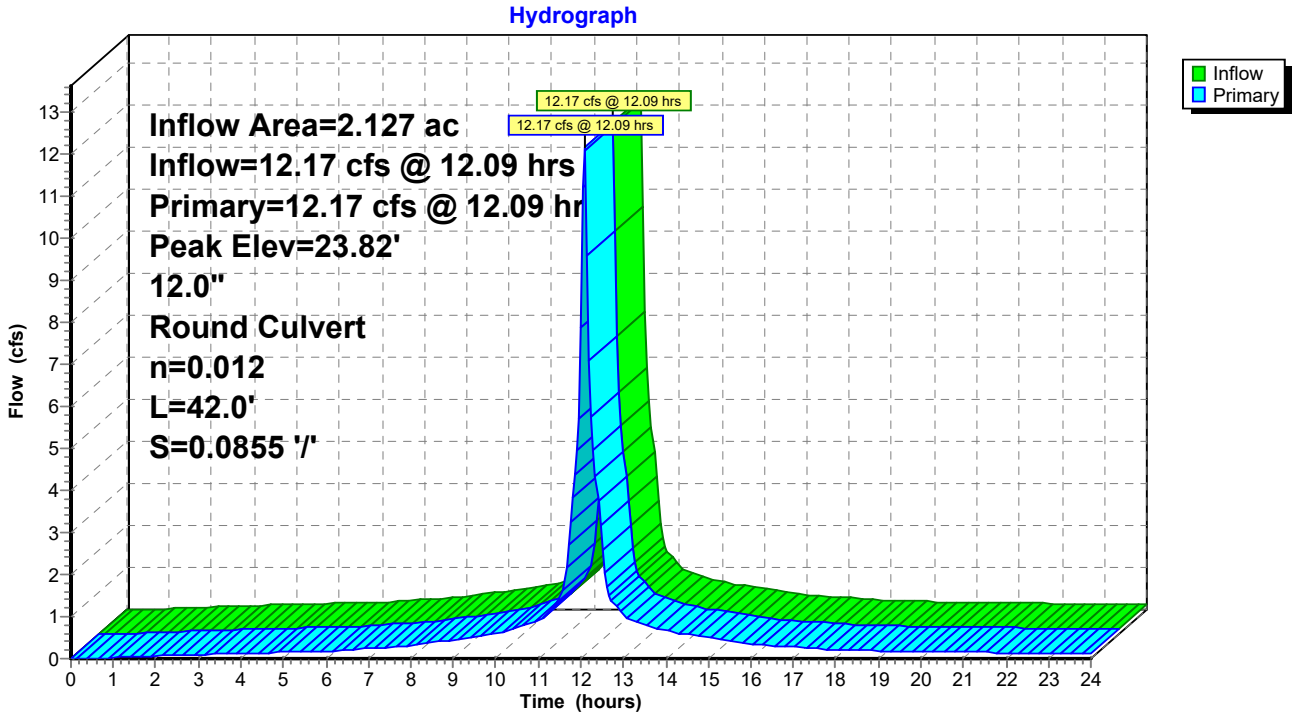
Inflow Area = 2.127 ac,100.00% Impervious, Inflow Depth > 5.77" for 6.01" --- 25yr event
Inflow = 12.17 cfs @ 12.09 hrs, Volume= 1.022 af
Outflow = 12.17 cfs @ 12.09 hrs, Volume= 1.022 af, Atten= 0%, Lag= 0.0 min
Primary = 12.17 cfs @ 12.09 hrs, Volume= 1.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 23.82' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	6.76'	**12.0" Round RCP_Round 12"** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.76' / 3.17' S= 0.0855 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=11.87 cfs @ 12.09 hrs HW=23.07' (Free Discharge)
1=RCP_Round 12" (Inlet Controls 11.87 cfs @ 15.11 fps)

Pond 15P: CB



Summary for Subcatchment 1S: North Front Parking

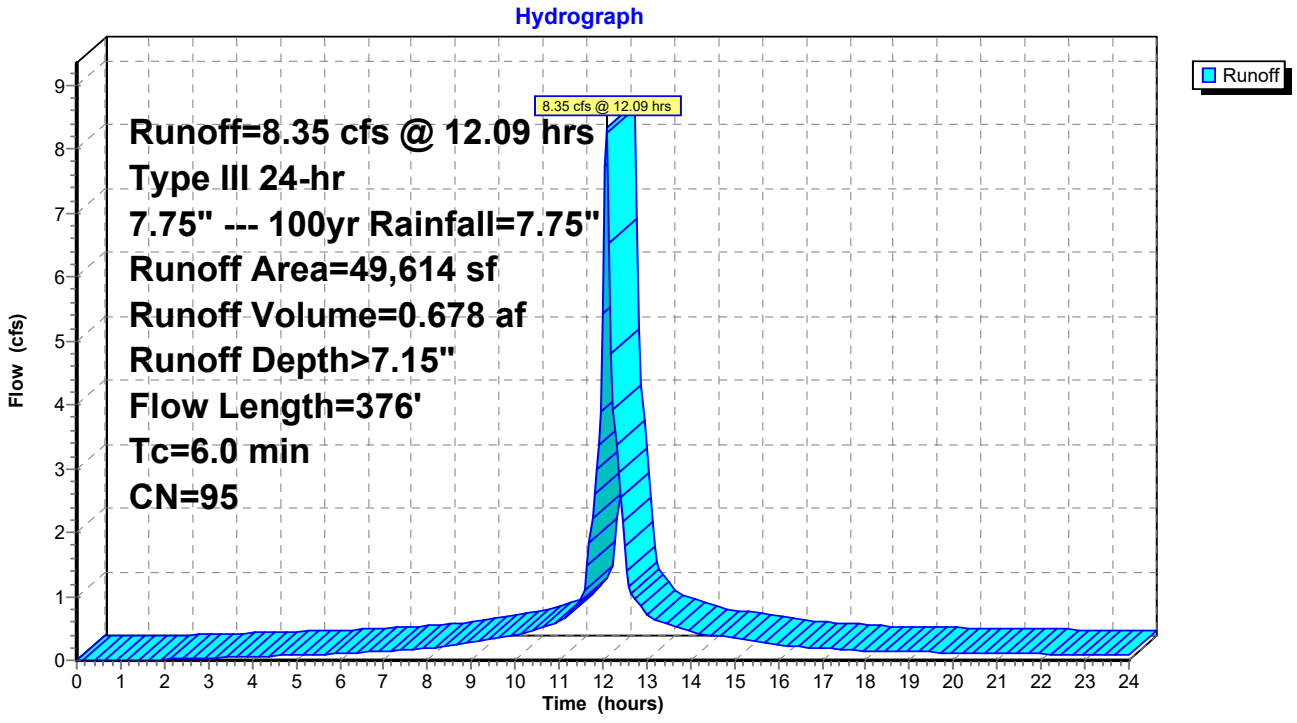
Runoff = 8.35 cfs @ 12.09 hrs, Volume= 0.678 af, Depth> 7.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
43,139	98	Paved parking, HSG D
6,475	74	>75% Grass cover, Good, HSG C
49,614	95	Weighted Average
6,475		13.05% Pervious Area
43,139		86.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	285	0.0098	1.25		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.6	91	0.0125	2.64	2.07	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.4	376	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: North Front Parking



Summary for Subcatchment 2S: South Front Parking

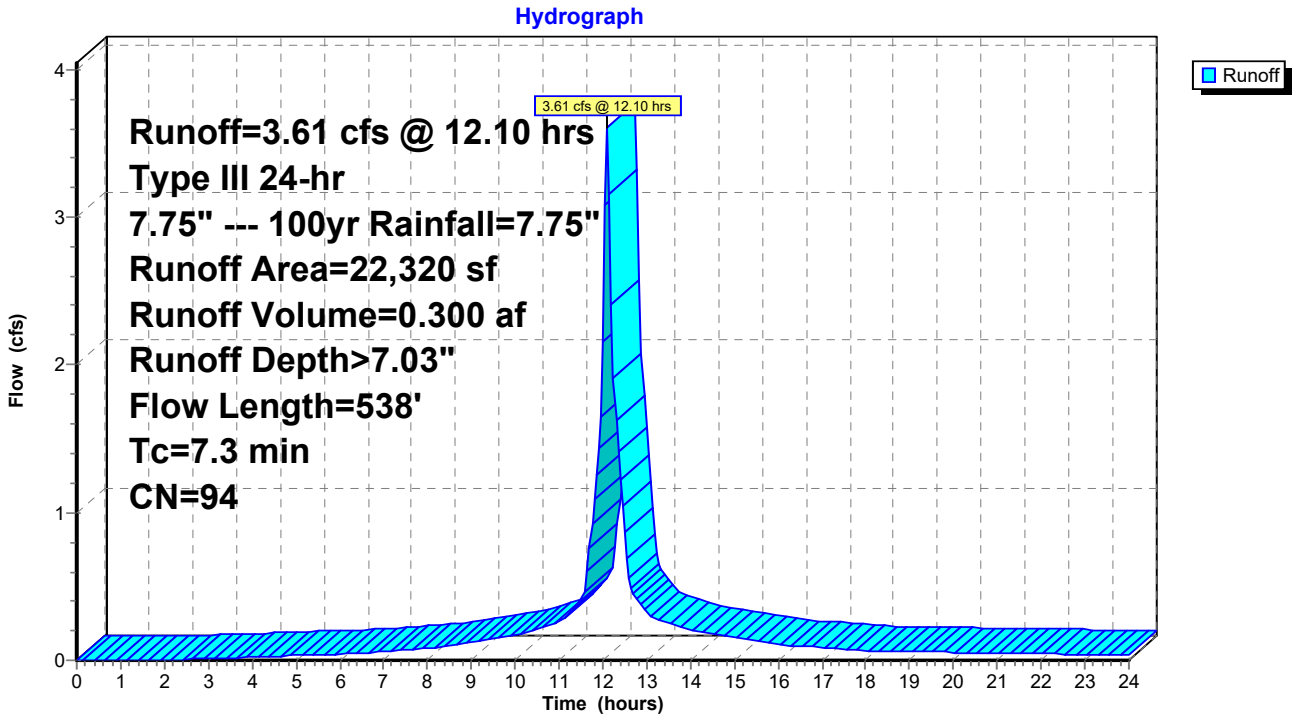
Runoff = 3.61 cfs @ 12.10 hrs, Volume= 0.300 af, Depth> 7.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
19,020	98	Paved parking, HSG D
3,300	74	>75% Grass cover, Good, HSG C
22,320	94	Weighted Average
3,300		14.78% Pervious Area
19,020		85.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	288	0.0101	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.5	250	0.0025	1.18	0.93	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.3	538	Total			

Subcatchment 2S: South Front Parking



Summary for Subcatchment 3S: Roof #167

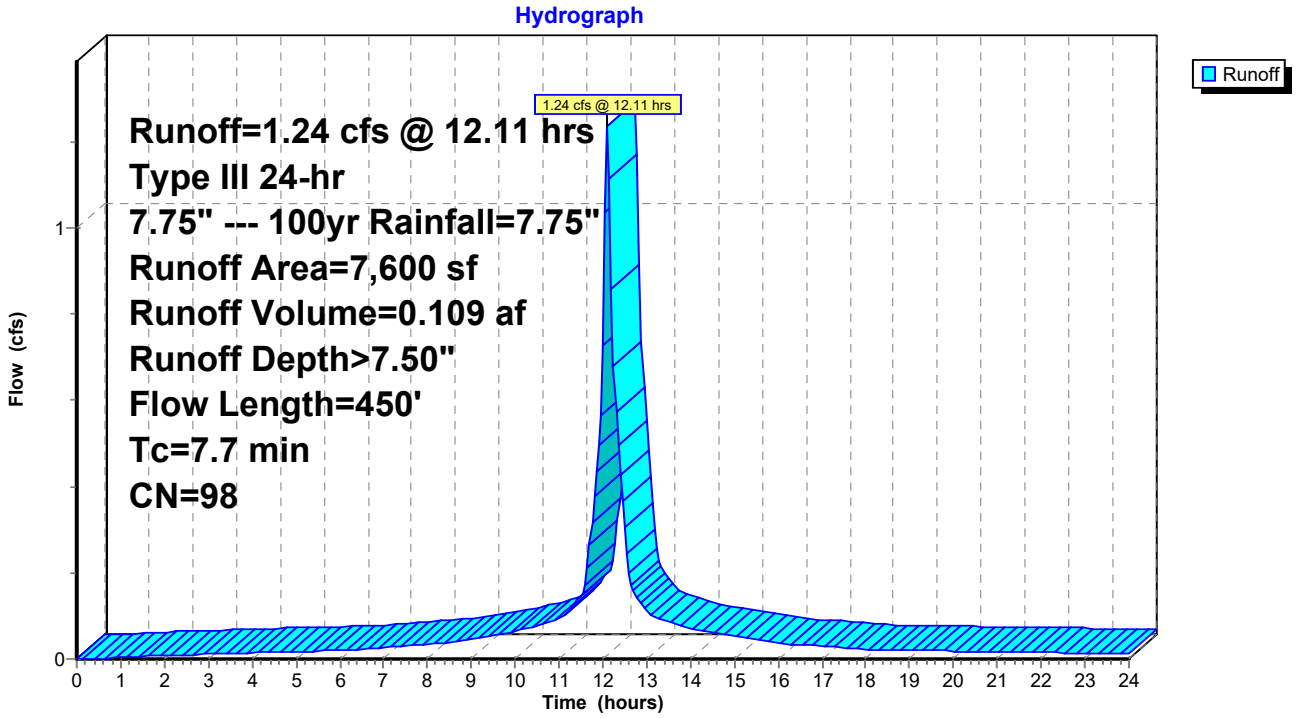
Runoff = 1.24 cfs @ 12.11 hrs, Volume= 0.109 af, Depth> 7.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

	Area (sf)	CN	Description
*	7,600	98	
	7,600		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	250	0.0050	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
7.7	450	Total			

Subcatchment 3S: Roof #167



Summary for Subcatchment 4S: Roof #165

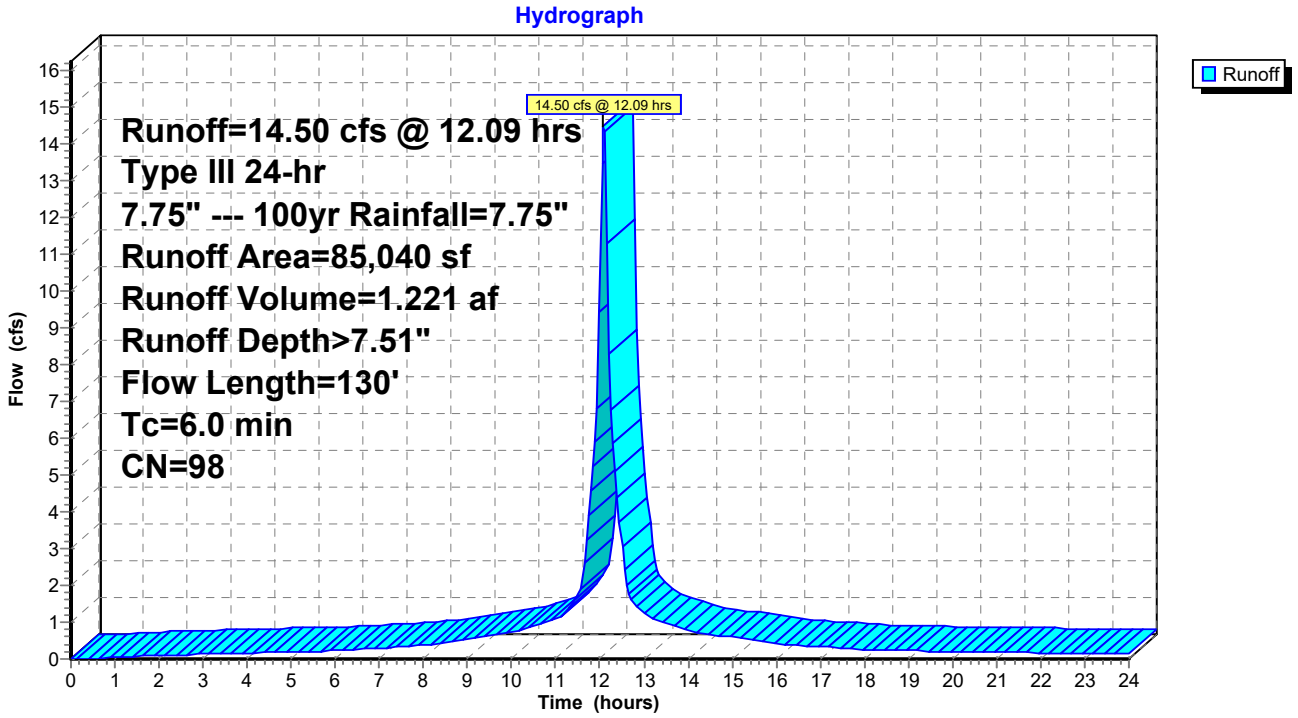
Runoff = 14.50 cfs @ 12.09 hrs, Volume= 1.221 af, Depth> 7.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

	Area (sf)	CN	Description
*	85,040	98	
	85,040		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.1	20	0.0100	2.36	1.85	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
2.4	130	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Roof #165



Summary for Subcatchment 8S: North Back Parking

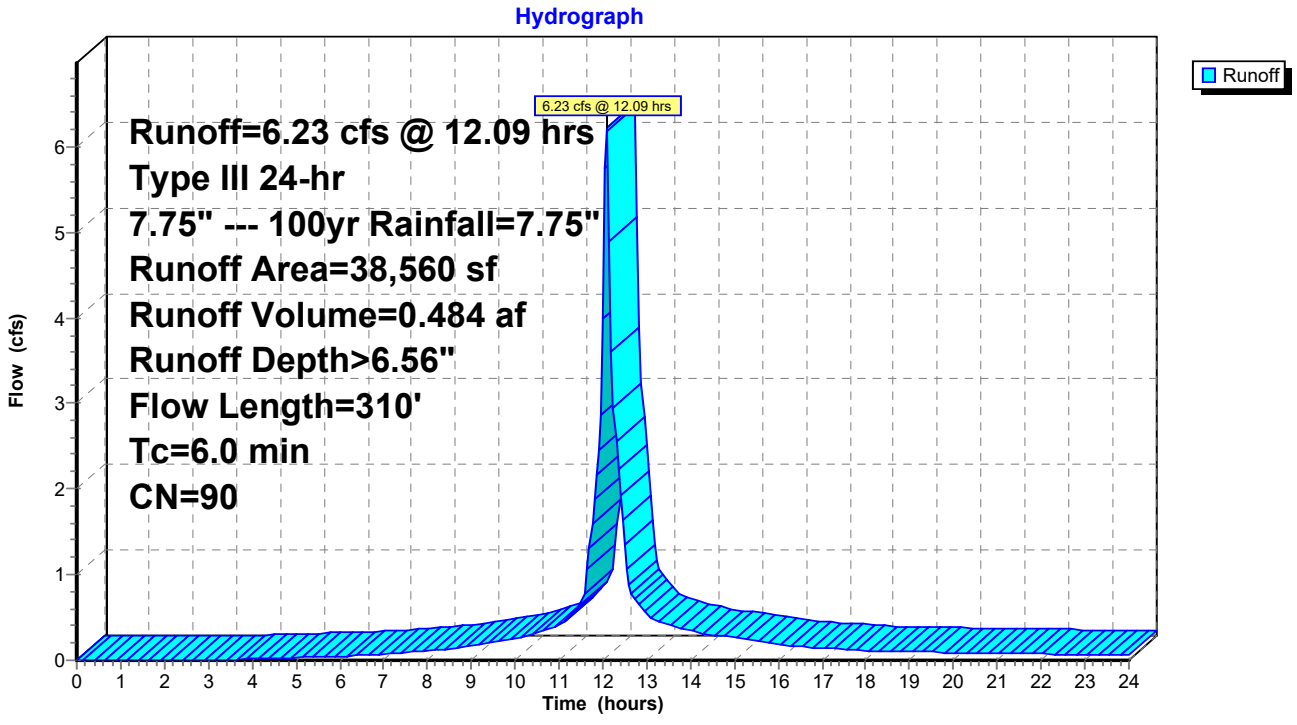
Runoff = 6.23 cfs @ 12.09 hrs, Volume= 0.484 af, Depth> 6.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
25,060	98	Paved parking, HSG D
13,500	74	>75% Grass cover, Good, HSG C
38,560	90	Weighted Average
13,500		35.01% Pervious Area
25,060		64.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	110	0.0050	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
3.2	200	0.0020	1.05	0.83	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
5.5	310	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 8S: North Back Parking



Summary for Subcatchment 9S: South Back Parking

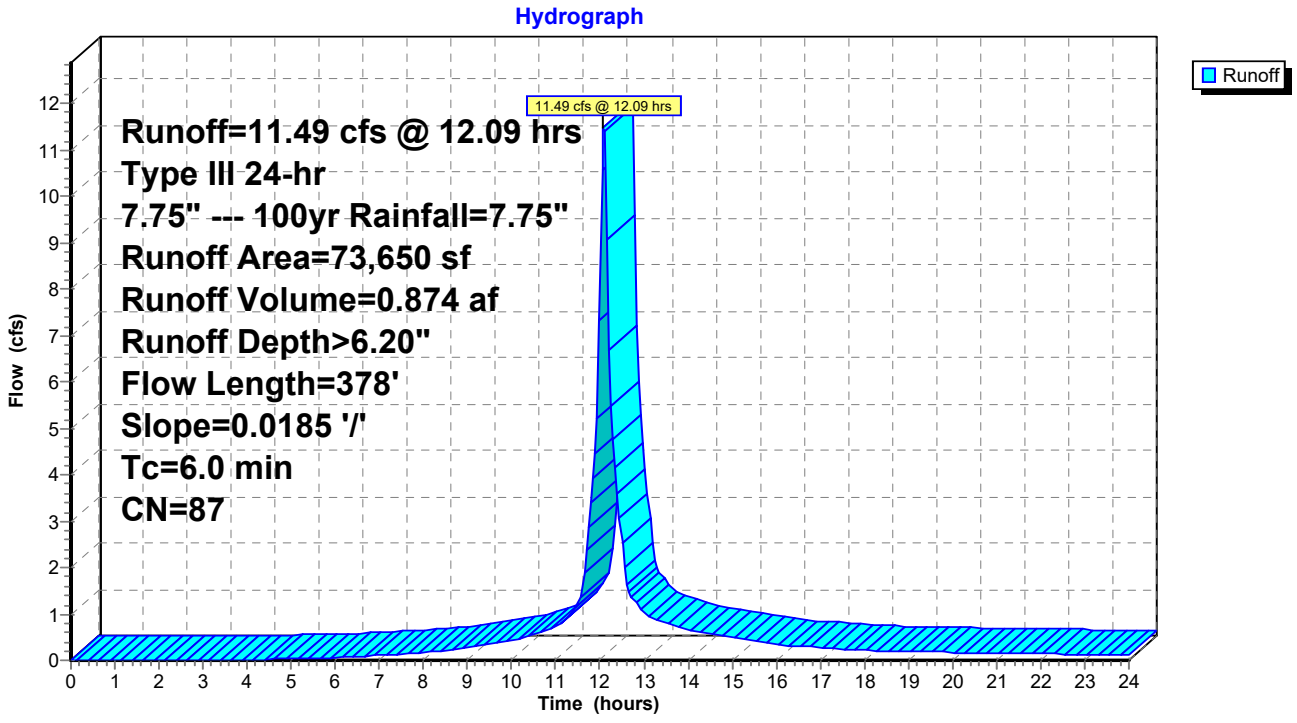
Runoff = 11.49 cfs @ 12.09 hrs, Volume= 0.874 af, Depth> 6.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 7.75" --- 100yr Rainfall=7.75"

Area (sf)	CN	Description
39,025	98	Paved parking, HSG D
34,625	74	>75% Grass cover, Good, HSG C
73,650	87	Weighted Average
34,625		47.01% Pervious Area
39,025		52.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.0185	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.08"
0.0	78	0.0185	39.18	156.71	**Channel Flow,** Area= 4.0 sf Perim= 1.0' r= 4.00' n= 0.013 Asphalt, smooth
3.1	378	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9S: South Back Parking



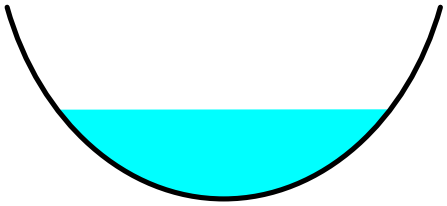
Summary for Reach 6R: North Swale 2

Inflow Area = 4.151 ac, 88.95% Impervious, Inflow Depth > 7.17" for 7.75" --- 100yr event
Inflow = 21.88 cfs @ 12.26 hrs, Volume= 2.482 af
Outflow = 21.26 cfs @ 12.33 hrs, Volume= 2.478 af, Atten= 3%, Lag= 4.2 min

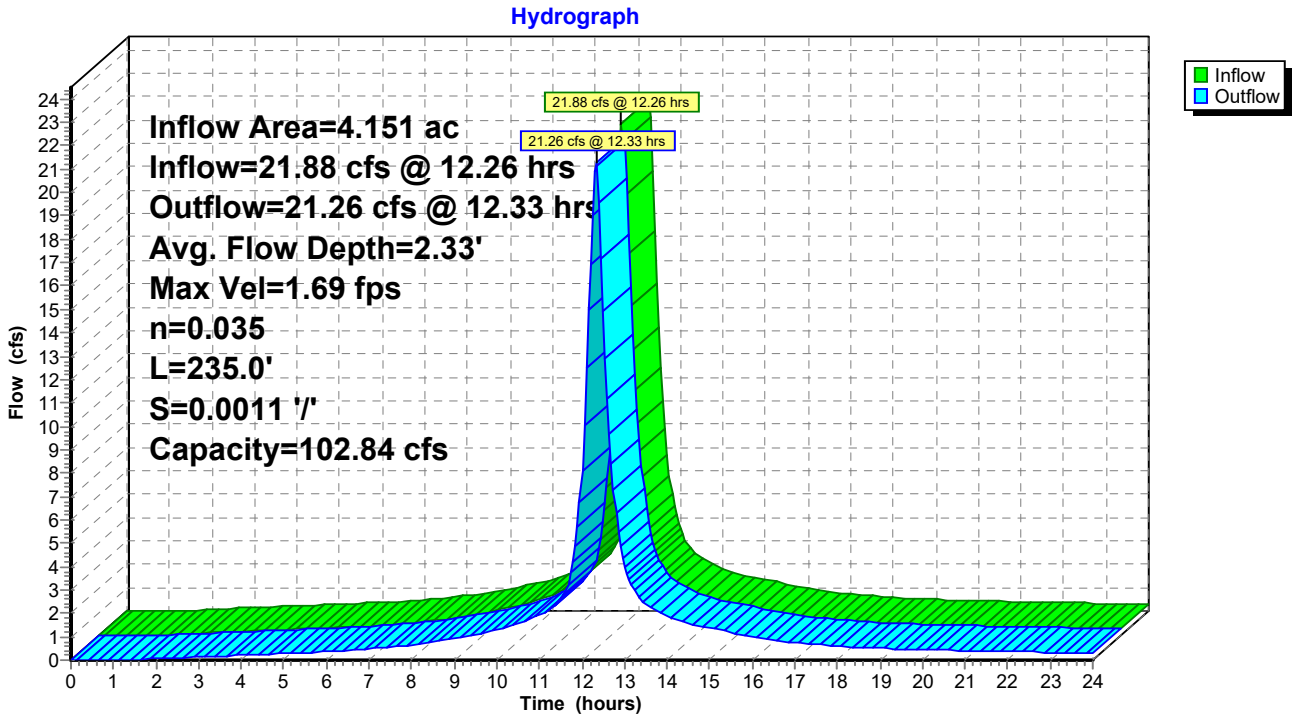
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.69 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.62 fps, Avg. Travel Time= 6.3 min

Peak Storage= 2,986 cf @ 12.29 hrs
Average Depth at Peak Storage= 2.33' , Surface Width= 8.19'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.84 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 235.0' Slope= 0.0011 '/'
Inlet Invert= 4.23', Outlet Invert= 3.97'



Reach 6R: North Swale 2

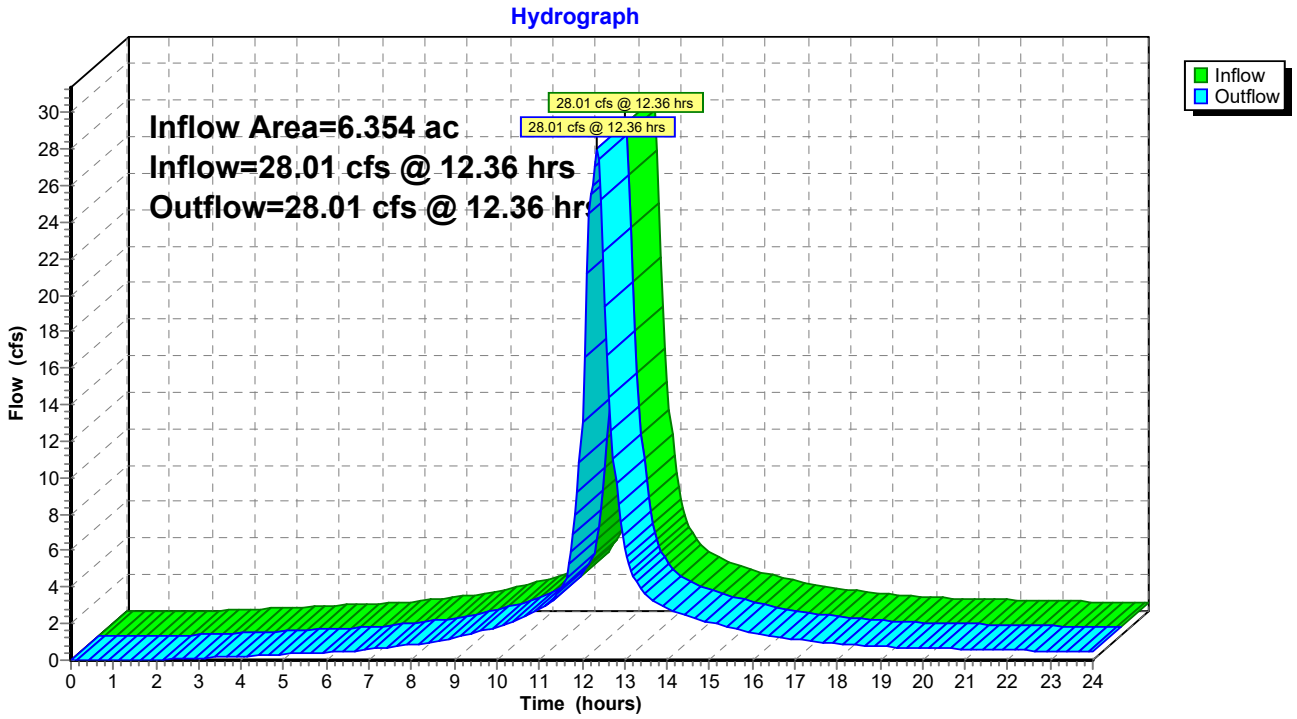


Summary for Reach 10R: Design Discharge Point

Inflow Area = 6.354 ac, 79.08% Impervious, Inflow Depth > 6.88" for 7.75" --- 100yr event
Inflow = 28.01 cfs @ 12.36 hrs, Volume= 3.645 af
Outflow = 28.01 cfs @ 12.36 hrs, Volume= 3.645 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Design Discharge Point



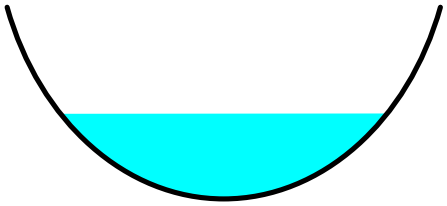
Summary for Reach 12R: North Swale 1

Inflow Area = 3.266 ac, 95.45% Impervious, Inflow Depth > 7.38" for 7.75" --- 100yr event
Inflow = 24.07 cfs @ 12.09 hrs, Volume= 2.009 af
Outflow = 19.08 cfs @ 12.27 hrs, Volume= 1.998 af, Atten= 21%, Lag= 11.0 min

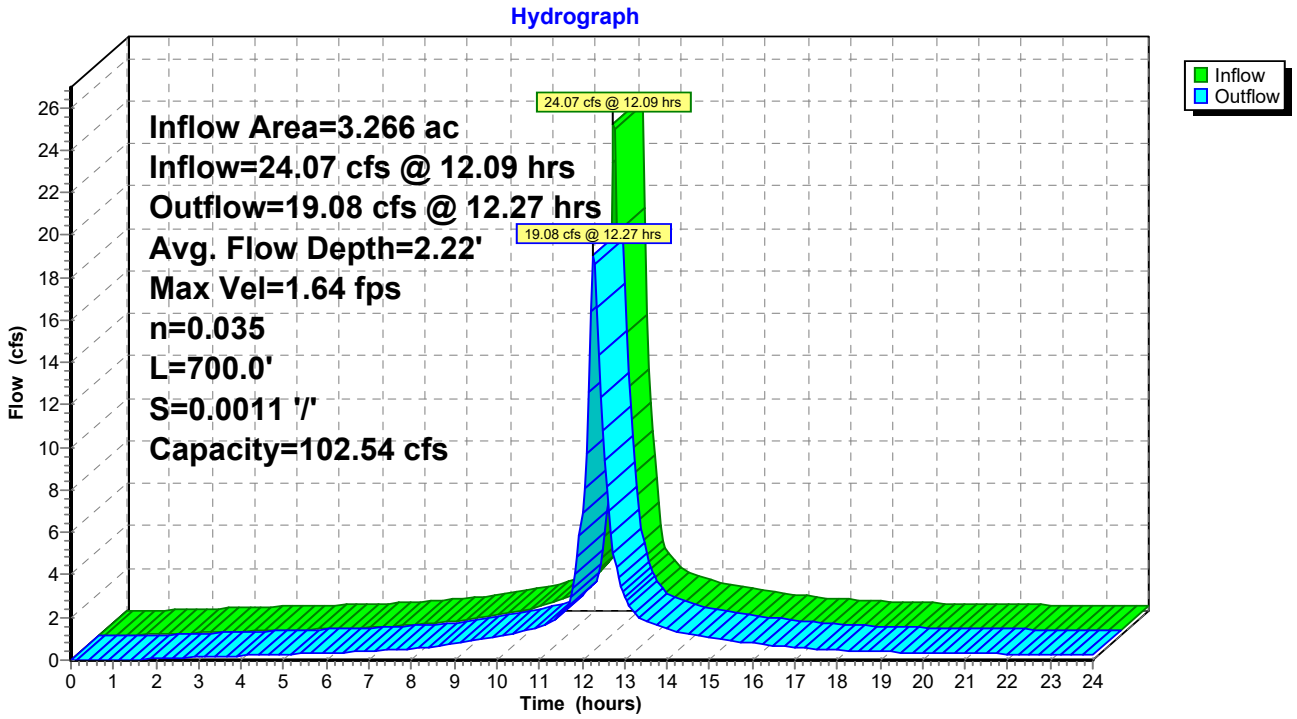
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.64 fps, Min. Travel Time= 7.1 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 19.9 min

Peak Storage= 8,299 cf @ 12.15 hrs
Average Depth at Peak Storage= 2.22' , Surface Width= 8.00'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 102.54 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 700.0' Slope= 0.0011 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 12R: North Swale 1



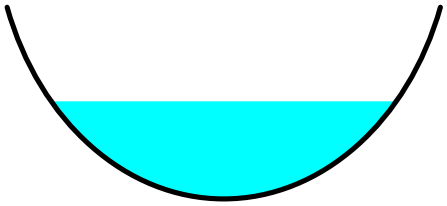
Summary for Reach 13R: West Swale

Inflow Area = 5.842 ac, 78.54% Impervious, Inflow Depth > 6.88" for 7.75" --- 100yr event
Inflow = 25.71 cfs @ 12.31 hrs, Volume= 3.351 af
Outflow = 25.35 cfs @ 12.36 hrs, Volume= 3.347 af, Atten= 1%, Lag= 2.6 min

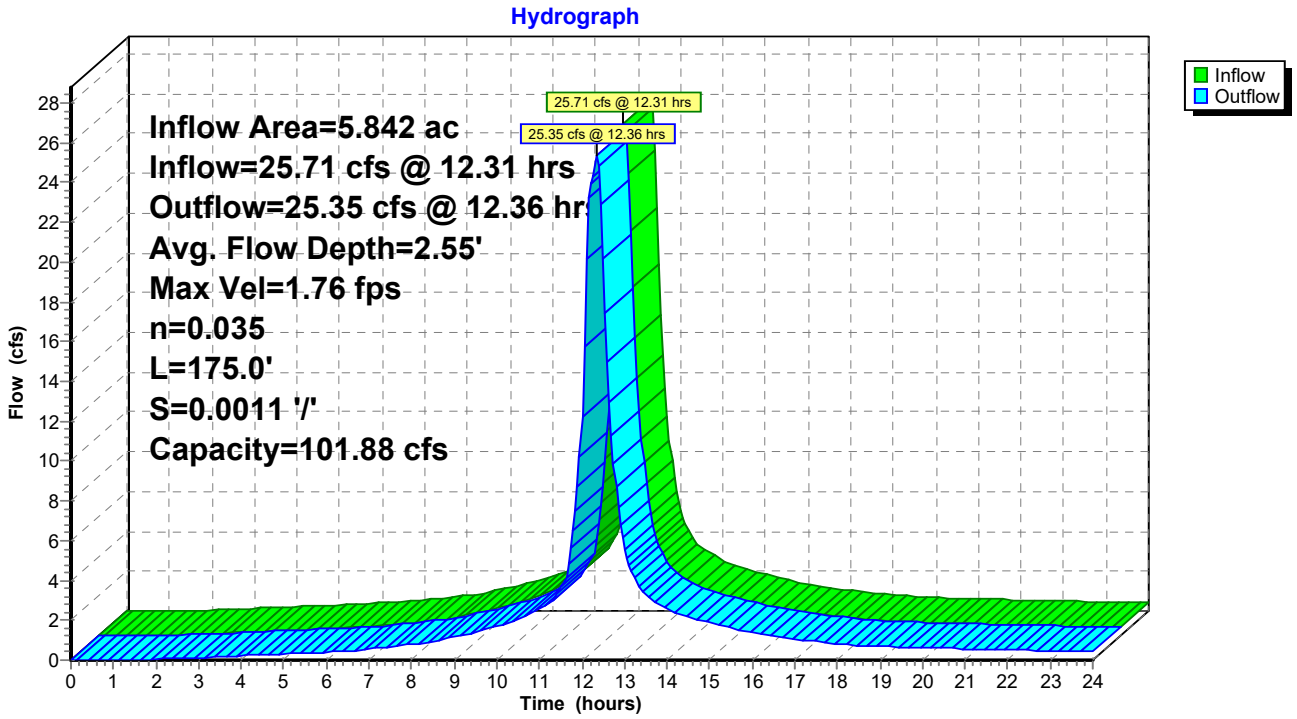
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.67 fps, Avg. Travel Time= 4.3 min

Peak Storage= 2,543 cf @ 12.33 hrs
Average Depth at Peak Storage= 2.55' , Surface Width= 8.56'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 101.88 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 175.0' Slope= 0.0011 '/'
Inlet Invert= 3.97', Outlet Invert= 3.78'



Reach 13R: West Swale



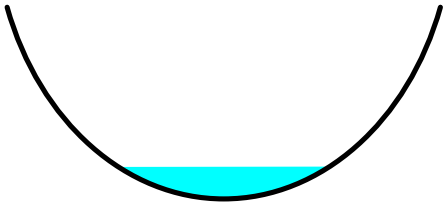
Summary for Reach 14R: South Swale

Inflow Area = 0.512 ac, 85.22% Impervious, Inflow Depth > 7.03" for 7.75" --- 100yr event
Inflow = 3.61 cfs @ 12.10 hrs, Volume= 0.300 af
Outflow = 2.66 cfs @ 12.36 hrs, Volume= 0.298 af, Atten= 26%, Lag= 15.4 min

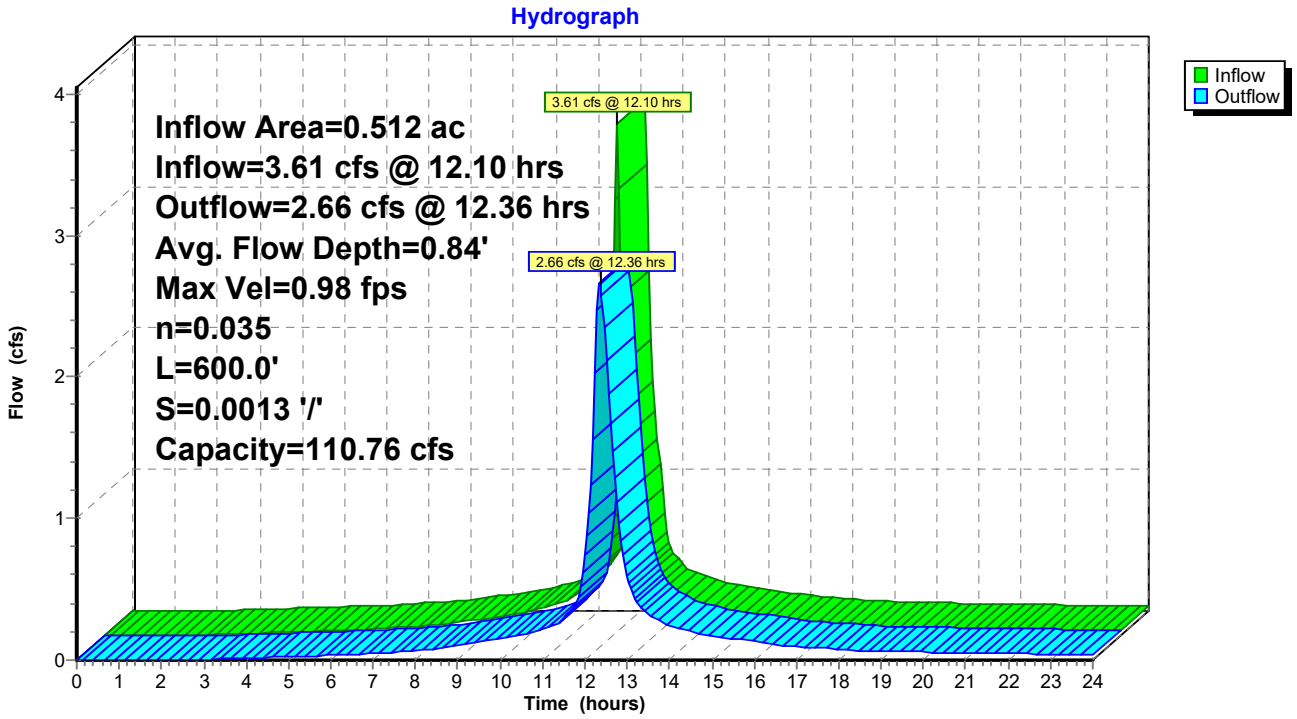
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.98 fps, Min. Travel Time= 10.2 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 28.0 min

Peak Storage= 1,641 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.84' , Surface Width= 4.91'
Bank-Full Depth= 5.00' Flow Area= 40.0 sf, Capacity= 110.76 cfs

12.00' x 5.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0013 '/'
Inlet Invert= 5.00', Outlet Invert= 4.23'



Reach 14R: South Swale



Summary for Pond 15P: CB

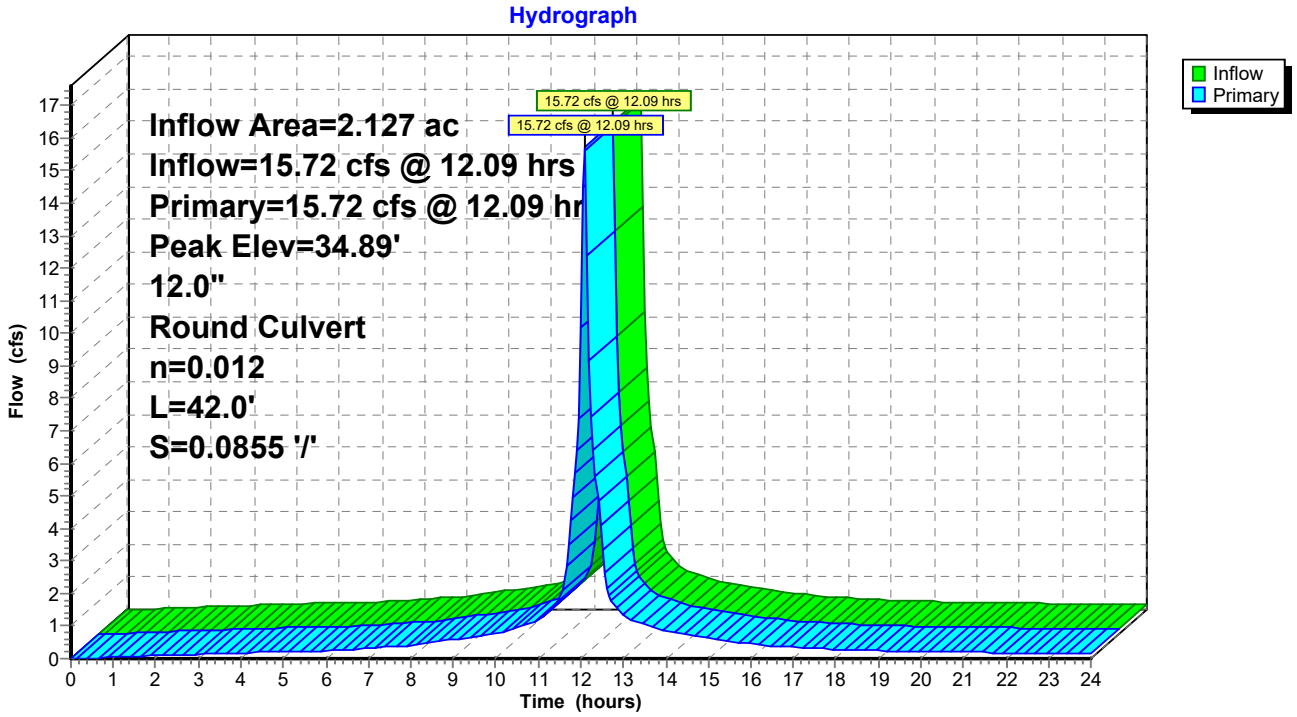
Inflow Area = 2.127 ac,100.00% Impervious, Inflow Depth > 7.51" for 7.75" --- 100yr event
Inflow = 15.72 cfs @ 12.09 hrs, Volume= 1.330 af
Outflow = 15.72 cfs @ 12.09 hrs, Volume= 1.330 af, Atten= 0%, Lag= 0.0 min
Primary = 15.72 cfs @ 12.09 hrs, Volume= 1.330 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 34.89' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	6.76'	**12.0" Round RCP_Round 12"** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.76' / 3.17' S= 0.0855 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=15.33 cfs @ 12.09 hrs HW=33.63' (Free Discharge)
1=RCP_Round 12" (Inlet Controls 15.33 cfs @ 19.52 fps)

Pond 15P: CB



APPENDIX C

Soil Data

REMA ECOLOGICAL SERVICES, LLC
164 East Center Street, Suite 8
Manchester, CT 06040
860.649.REMA (7362)

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT

PROJECT NAME & SITE LOCATION:
(+/- 6.05 acres) ("study area")
615 – 617 Brainard Road
Hartford, CT

REMA Job No.: 22-2530-HRT12
Field Investigation Date(s): 9/13/2022
Field Investigation Method(s):
- ☒ Spade and Auger
- ☐ Backhoe Test Pits
- ☐ Other:

REPORT PREPARED FOR:
Pare Corporation
10 Lincoln Road, Suite 103
Foxboro, MA 02035

Field Conditions:
Weather: Overcast, 70s
Soil Moisture: moderate
Snow/Frost Depth: n/a

Purpose of Investigation:
- ☒ Wetland Delineation/Flagging in Field
- ☐ Wetland Mapping on Sketch Plan or Topographic Plan
- ☐ High Intensity Soil Mapping by Soil Scientist
- ☒ Medium Intensity Soil Mapping from *The Soil Survey of Connecticut* Maps (USDA-NRCS)
- ☒ Other:

Base Map Source: CT Soil Survey web; USDA-NRCS) (attached); Figure A (attached)

Wetland Boundary Marker Series: RES-A-1 to RES-A-28 (open line)

General Site Description/Comments: The "study area", or "site", consists of two industrially-zoned parcels of land, encompassing +/- 6.05 acres, easterly and southerly of the Interstate North Exit 27 ramp, northerly of a Holiday Inn Express, with frontage along Brainard Road to the east, in Hartford, CT. A westerly, then southerly flowing drainage ditch, constructed to handle runoff from the adjacent roadway system, hugs the northern then westerly property boundary, partially off-site and partially on-site. The majority of the site is in impervious cover, including a restaurant (i.e., U.S.S Chowder Pot IV) and an expansive parking lot. The far western, roughly 0.67-acre section of the site, is within an electric power line right-of-way and supports a moist meadow, dominated by goldenrods, with scattered woody species (e.g., sumacs, blackberries, aspen, etc.). The site has been drastically altered over many decades, which included the filling of floodplain wetlands that once connected to the Connecticut River, per archival aerial photography (e.g., 1934, 1952, 1965, 1970). The on-site soils are derived from sandy fill and/or remnant alluvial materials (e.g., silts). The disturbed upland-type soils are mapped Udorthents (308), while the wetland-type soils are mapped as Aquents (308w). The regulated on-site and immediately off-site resource is a temporarily flooded to saturated, emergent wetland (i.e., marsh), dominated by common reed (*Phragmites australis*). This is a man-made "watercourse" the flows to Wethersfield Cove, via Folly Brook. Other common vegetation within or at the edge of the wetland/watercourse (Note: only the southern and eastern edge were delineated), included such species as cattail, jewelweed, white snakeroot, purple loosestrife, white avens, sensitive fern, bushy aster, grass-leaved goldenrod, silver maple and cottonwood saplings, silky dogwood, river and fox grape, and Asiatic bittersweet.

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT *(CONTINUED)*

PROJECT NAME & SITE LOCATION: (+/- 6.05 acres) ("study area")
615 – 617 Brainard Road, Hartford, CT

SOIL MAP UNITS

Upland Soils

Udorthents (308). This soil mapping unit consists of well drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. Udorthents or Made Land soils can be found on any soil parent material but are typically fluvial on glacial till plains and outwash plains and stream terraces.

Wetland Soils

Aquents (308w). This soil map unit consists of poorly drained and very poorly drained, disturbed land areas. They are most often found on landscapes which have been subject to prior filling and/or excavation activities. In general, this soil map unit occurs where two or more feet of the original soil surface has been filled over, graded or excavated. The Aquents are characterized by a seasonal to prolonged high ground water table and either support or are capable of supporting wetland vegetation. Aquents are recently formed soils which have an aquic moisture regime. An aquic moisture regime is associated with a reducing soil environment that is virtually free of dissolved oxygen because the soil is saturated by groundwater or by water of the capillary fringe. The key feature is the presence of a ground water table at or very near to the soil surface for a period of fourteen days or longer during the growing season.

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT *(CONTINUED)*

PROJECT NAME & SITE LOCATION: (+/- 6.05 acres) ("study area")
615 – 617 Brainard Road, Hartford, CT

SOIL MAP UNITS

See previous page

Any accompanying soil logs and soil maps, and the on-site soil investigation narrative are in accordance with the taxonomic classification of the National Cooperative Soil Survey of the USDA Natural Resource Conservation Service, and with the Connecticut Soil Legend (DEP Bulletin No.5, 1983), as amended by USDA-NRCS. Jurisdictional wetland boundaries were delineated pursuant to the Connecticut General Statutes (CGS Sections 22a-36 to 22a-45), as amended. The site investigation was conducted and/or reviewed by the undersigned Registered Soil Scientist(s) [registered with the Society of Soil Scientists of Southern New England (SSSSNE) in accordance with the standards of the Federal Office of Personnel Management].

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC

George T. Logan, MS, PWS, CSE
Registered Soil Scientist
Field Investigator/Senior Reviewer

CT Environmental Conditions Online

Map Title

Legend

DEEP Property

- State Forest
- State Park
- State Park Scenic Reserve
- State Park Trail
- Natural Area Preserve
- Historic Preserve
- Wildlife Area
- Wildlife Sanctuary
- DEP Owned Waterbody
- Water Access
- Flood Control
- Fish Hatchery
- Other

Parcels for Protected Open Sp

Protected Open Space Mappin

- Federal
- Land Trust
- Municipal
- Private
- State

Light Gray Canvas Base

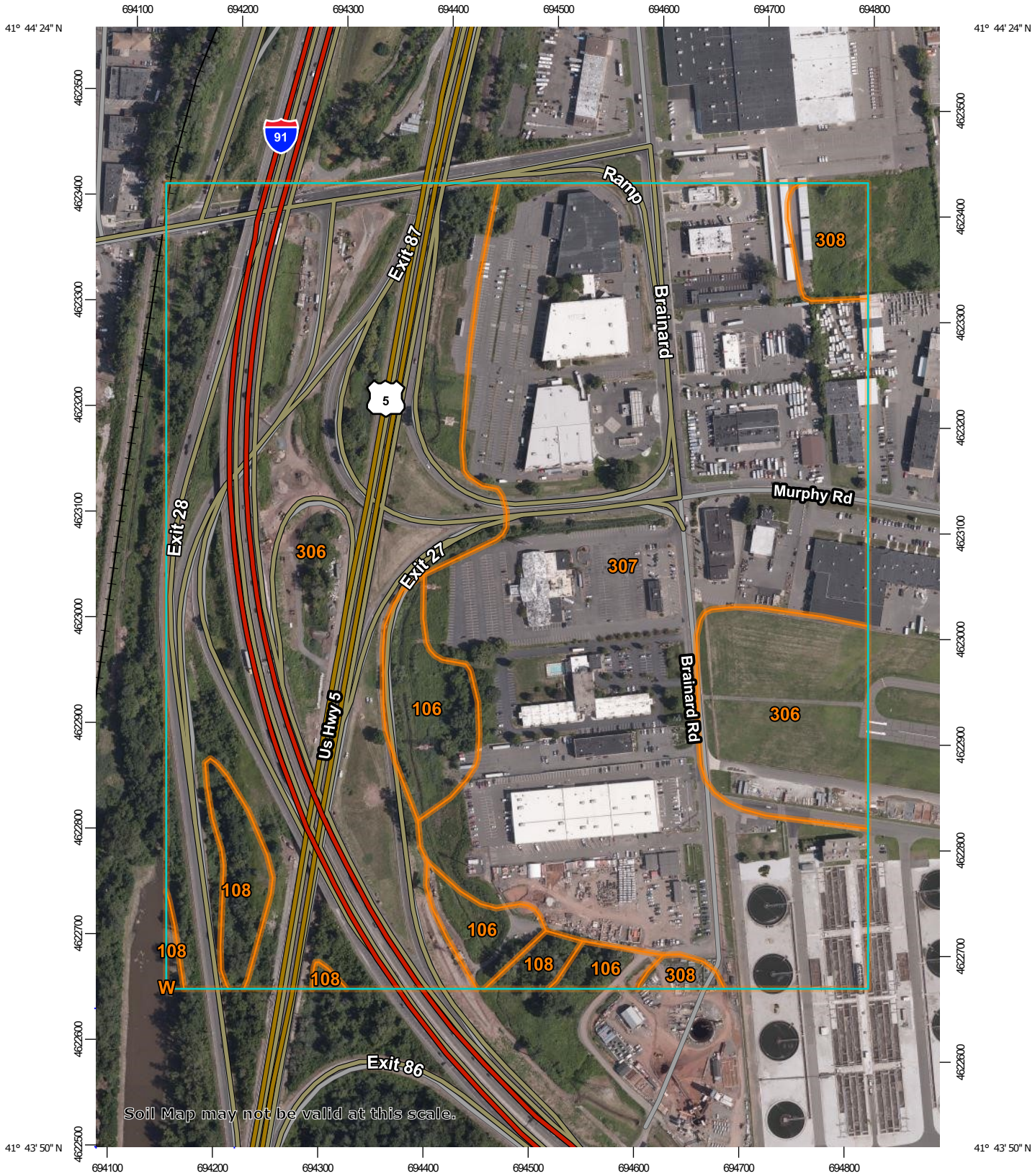
Notes

0.1 0 0.04 0.1 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

Soil Map—State of Connecticut
(615 617 Brainard Road, Hartford, CT)



Map Scale: 1:5,170 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
106	Winooski silt loam	5.6	4.4%
108	Saco silt loam	2.9	2.3%
306	Udorthents-Urban land complex	55.2	43.8%
307	Urban land	60.0	47.6%
308	Udorthents, smoothed	2.4	1.9%
W	Water	0.0	0.0%
Totals for Area of Interest		**126.1**	**100.0%**

Paul Ashworth

From: Dellaripa, Frank
Sent: Thursday, November 10, 2022 5:07 PM
To: Paul Ashworth
Subject: FW: 165/167 Brainard Road - DPW Site Plan Comments- COMM-2022-0703&0702
Attachments: 165brainard_planset.pdf; 165brainard_stormwatermanagementplan.pdf

Hi Paul, see Keith's comments below.

Frank Dellaripa
City Engineer / Assistant Director
50 Jennings rd, 2nd Floor
Hartford, CT 06120
O: (860) 757-9975
C: (860) 214-8027
F: (860) 722-6215

From: KEITH RAPOZA <RAPOK001@hartford.gov>
Sent: Thursday, November 10, 2022 2:44 PM
To: Dellaripa, Frank <Frank.Dellaripa@hartford.gov>; Deane, Michael <DEANM001@hartford.gov>
Subject: RE: 165/167 Brainard Road - DPW Site Plan Comments- COMM-2022-0703&0702

Frank,
I know #160 (the lighting place across the street) has an encroachment permit to have parking and certain site improvements in the right of way but I didn't see anything for this address. That said it seems that #167 has been using a portion of the right of way for parking for a number of years. I don't have a problem if they keep the existing configuration for the parking spaces that encroach within the right of way but I'm not big on the proposed change to angled parking. Aside from having vehicles back up directly into the travel lane it may impact (probably minor) snow removal operations. If we continue allow any use of the right of way I suggest DPW gets an encroachment permit from the new property owner. If the City does not want to allow use of its right of way I assume we have that right as well (may want to confirm with Legal).

Based on the stormwater plan provided it seems that the flow rates and volumes are both equal to or less than pre-development rates so that complies with the City's regulations (however you interpret them). What I didn't see was calculations and/or a narrative explaining how the WQV is treated?
Keith

From: Dellaripa, Frank <Frank.Dellaripa@hartford.gov>
Sent: Wednesday, November 9, 2022 2:16 PM
To: KEITH RAPOZA <RAPOK001@hartford.gov>; Deane, Michael <DEANM001@hartford.gov>
Subject: FW: 165/167 Brainard Road - DPW Site Plan Comments- COMM-2022-0703&0702

Is this really allowed?

Frank Dellaripa
City Engineer / Assistant Director
50 Jennings rd, 2nd Floor
Hartford, CT 06120
O: (860) 757-9975

C: (860) 214-8027
F: (860) 722-6215

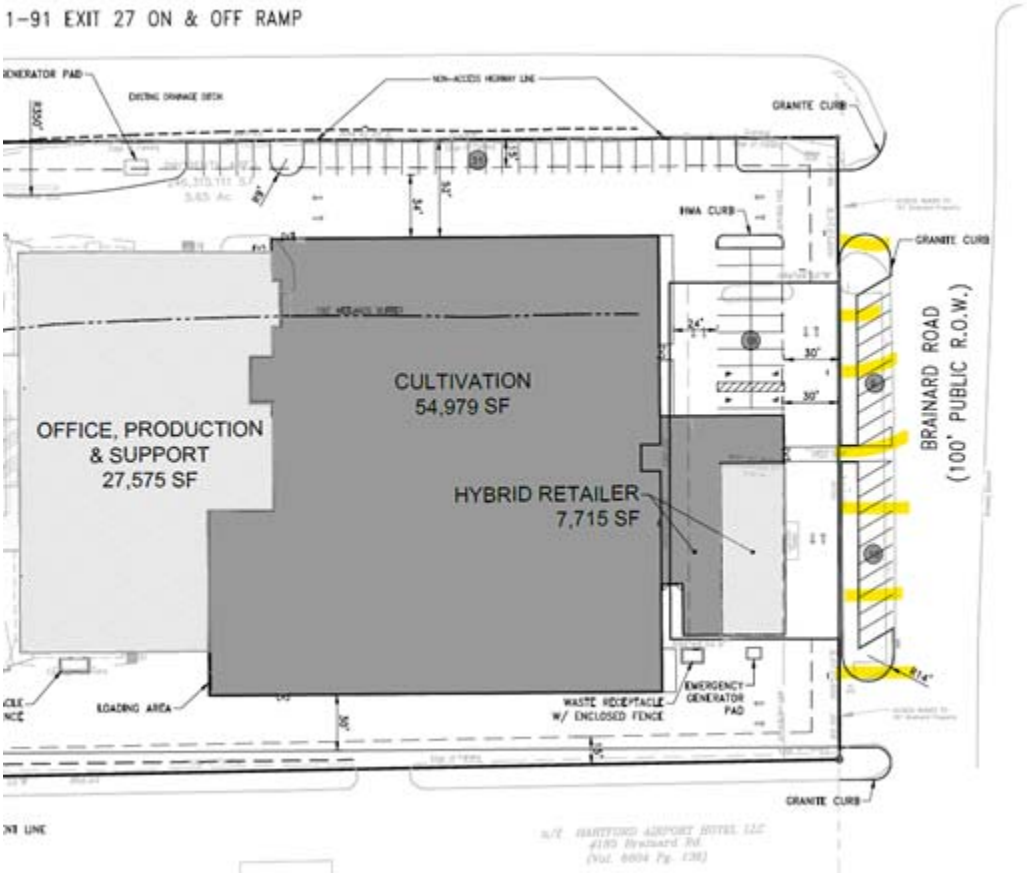
From: Paul Ashworth <Paul.Ashworth@hartford.gov>
Sent: Wednesday, November 9, 2022 10:40 AM
To: Dellaripa, Frank <Frank.Dellaripa@hartford.gov>; Dionne, Heather <Heather.Dionne@hartford.gov>
Cc: Hartford Planning Division <oneplan@hartford.gov>; Cruz, Carlos <Carlos.Cruz@hartford.gov>
Subject: 165/167 Brainard Road - DPW Site Plan Comments- COMM-2022-0703&0702

Hi Frank,
I'm reviewing a special permit and site plan application for 165-167 Brainard Road. I'm reaching out for DPW review of the drainage/stormwater and changes to the ROW.

Frank, The biggest review item I see is the applicant's request to modify and continue using the parking within the ROW along Brainard Road. There is parking there currently, but it is facing toward the interior of the site The applicant is proposing to reverse the parking making it angled parking accessible from the northbound lane of Brainard Rd. See markup below and page 6 of the plan set.

Heather (<<name is correct :), The landscaping plan is on page 15. My comments include the addition of a buffer along the southern property line (more trees) and interior parking lot landscaping islands with trees. I welcome any comments regarding species or layout.

Find the plan set and stormwater plan attached for your use.



All the best!
Paul Ashworth
Senior Planner
Department of Development Services, City of Hartford

Desk: (860)757-9055
Email: paul.ashworth@hartford.gov

Mailing Address:
260 Constitution Plaza, 1st Floor
Hartford, CT 06103
ATTN: Planning Division

Make an appointment online: https://developmentservices.setmore.com/

Follow us! **@DDSHartford**

Paul Ashworth

From: Hartford Planning Division
Sent: Tuesday, October 25, 2022 4:09 PM
To: Carl Williams
Cc: Paul Ashworth; Hartford Planning Division
Subject: RE: INSA Hartford - 165-167 Brainard Rd

Hello Carl,

Received, thank you for your input.

Best,

Paige Berschet
Administrative Assistant
City of Hartford - Department of Development Services
Planning & Zoning Division
she/her/hers
260 Constitution Plaza, 1st Floor
oneplan@hartford.gov
Desk: 860-757-9029

Follow us! **@DDSHartford**

From: Carl Williams <cabwill2020@outlook.com>
Sent: Tuesday, October 25, 2022 2:54 PM
To: Hartford Planning Division <oneplan@hartford.gov>
Subject: INSA Hartford - 165-167 Brainard Rd

-

Would you please advise the Zoning Commission that the South End has met with INSA.

We totally support their Project, we have no concerns.

Sincerely,

Carl A. Williams