

Town of

P.O. Drawer 519
Zoning Department



East Lyme

108 Pennsylvania Ave
Niantic, Connecticut 06357
(860) 691-4114
Fax (860) 739-6930

September 22, 2020

Kirk Scott, Chairman
East Lyme Planning Commission
Town of East Lyme
PO Box 519
Niantic, CT 06357

Referral: Affordable Housing Development Application
Pazz & Construction LLC
N Bride Brook Rd

Dear Sir or Madam,

I am writing to refer the following application:

1. Petition of Pazz & Construction LLC, to rezone 20.24 acres from RU-80/RU-40, its existing zoning designation, to Affordable Housing District and for approval of a Preliminary Site Plan which proposes an eighty (80) unit multi-family affordable residential housing development designated as "Brookside Apartments" for property identified on the westerly side of North Bride Brook Road in East Lyme, East Lyme Assessor's Map 09.0, Lot 37-2, pursuant to Connecticut General Statutes §8-30g.

The Zoning Commission has scheduled a public hearing on this application for November 5, 2020. Please review and forward your comments for inclusion into the hearing record.

If you have any questions, please do not hesitate to contact my office. Thank you in advance for your prompt attention to this matter.

Very truly yours

A handwritten signature in blue ink that reads "Terence Donovan /j".

Terence Donovan, Secretary
East Lyme Zoning Commission

TD/jl

Town of East Lyme

PO Box 519
Niantic, CT 06357
(860) 691-4114
Fax: (860) 691-0351

Special Permit # _____

Date Entered into SP Log _____

APPLICATION FOR SITE PLAN

Date of Application: July 10, 2020 Zone: R-80 (8-30g) Affordable Housing Pre-Emption

Applicant's Name: Pazz & Construction, LLC

Applicant's Address: 21 Darrows Ridge Road, East Lyme, CT 06333 Telephone: (860) 961-2364

Location of Affected Premises: Westerly side of North Bride Brook Road - No assigned street number Assessor's Map/Block/Lot: 9/37-2

Owner of Record: Pazz & Construction, LLC Volume/Page: Volume 987, Page 4 and Volume 987, Page 7

Owner's Address: 21 Darrows Ridge Road, East Lyme, CT 06333 Telephone: (860) 961-2364

Application Details: Application for an eighty (80) unit multi-family set-aside affordable housing development submitted pursuant to the provisions of Section 8-30g of the Connecticut

General Statutes: _____

Signature of Owner: PAZZ & CONSTRUCTION, LLC
By: Jason Pazzaglia, its Member PAZZ & CONSTRUCTION, LLC

Signature of Applicant: _____
By: Jason Pazzaglia, its Member

Below this line for Office Use Only:

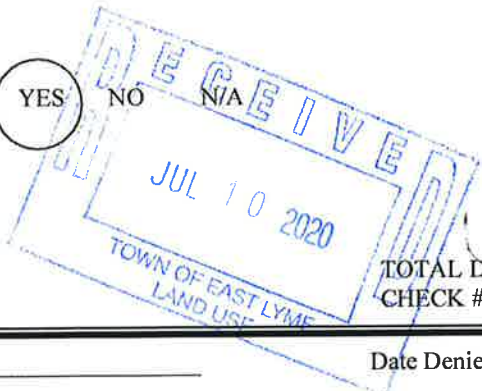
Attach a true copy a Site Plan {10 copies required}.

Site Plan Attached:

YES

NO

N/A



PERMIT FEE:

SITE PLAN FEE \$300.00 300

STORM WATER \$200.00 300

STATE FEE: \$60.00

TOTAL DUE: \$ 660⁰⁰

CHECK #: 39197

Date Approved: _____

Date Denied: _____

Approval subject to conditions below:

1. _____
2. _____
3. _____

Approval to become effective upon publication and date of entry into the land records of the Town of East Lyme affecting the premises as described in this application.

Date: _____ Attest _____

East Lyme Zoning Chairman

HELLER, HELLER & McCOY
Attorneys at Law
736 Norwich-New London Turnpike
Uncasville, Connecticut 06382

Sidney F. Heller (1903-1986)
Harry B. Heller (hellermccoy@sbcglobal.net)
William E. McCoy (hbm-bill@sbcglobal.net)

Mary Gagne O'Donal (hbm-mary@sbcglobal.net)



Telephone: (860) 848-1248
Facsimile: (860) 848-4003

July 10, 2020

Town of East Lyme Zoning Commission
Attn: Mr. William Mulholland, Zoning Enforcement Officer
108 Pennsylvania Avenue
Niantic, CT 06357

Re: Application of Pazz & Construction, LLC for site plan approval for an affordable housing multi-family residential development pursuant to Connecticut General Statutes §8-30g
Westerly side North Bride Brook Road, East Lyme, Connecticut

Dear Mr. Mulholland:

Enclosed herewith please find an application for site plan approval submitted on behalf of our client, Pazz & Construction, LLC for an eighty (80) unit multi-family affordable residential housing development designated as "Brookside Apartments" proposed to be located on real property situated on the westerly side of North Bride Brook Road in East Lyme, Connecticut. The application parcel is designated as Lot 37-2 on East Lyme Assessor's Map 9. The parcel contains 20.24 acres. This application is submitted pursuant to the provisions of §8-30g of the Connecticut General Statutes, preempting the use and bulk requirements of the East Lyme Zoning Regulations for development in the R-80 Zoning District.

Submitted herewith and constituting the application for site plan approval to the Town of East Lyme Zoning Commission are the following:

1. Original and nine (9) copies of the Application for Site Plan.
2. Authorization signed by Pazz & Construction, LLC thereby authorizing the law firm of Heller, Heller & McCoy, the engineering firm of Yantic River Consultants, LLC and the traffic engineering firm of Bubaris Traffic Associates to represent its interests in all matters concerning this application before the East Lyme Zoning Commission.
3. Ten (10) prints of the A-2 property line survey of the property entitled "Title: Limited Property Survey Lot Line Revision Prepared for Pazz & Construction, LLC Location: 90 North Bride Brook Road – Niantic, Connecticut Sheet Number 1 of 1 14036-SUB.dwg Scale: 1 Inch = 60 Ft. Drawn By: RDP Date: August 20, 2017 J. Robert Pfanner & Associates, P.C. Civil

Z:\Pazzaglia, Jason\East Lyme Zoning\tr.Town re Submission.docx

Engineers & Land Surveyors 37 Grand Street Niantic, Connecticut 06357 Tel. 860-739-6216
Fax 860-739-0693”.

4. Ten (10) prints of the site development plan entitled “North Bride Brook Multi-Family Development Prepared For Pazz & Construction, LLC Overall Layout Plan N. Bride Brook Road (Assessor’s Map 9, Lot 37-2) East Lyme, CT Date 9/25/19 Revision Summary 1/15/20 Per Town Comments & Updated Survey Mapping 7/10/20 Revised Development Layout Scale: 1” = 60’ Project Number: 00057-00001 Yantic River Consultants, LLC 191 Norwich Avenue Lebanon, Conn 06249 Phone (860) 367-7264 E-mail: yanticriver@gmail.com Web: www.yanticriverconsultants.com”. The site development plan provides, inter alia, the following:
 - a. Topographical contour information, both existing and proposed, at 2’ contour intervals.
 - b. The location of delineated wetlands and watercourses on the application parcel. There are no slopes in excess of twenty-five (25) percent in the proposed development area.
 - c. Specific and engineered layout of all proposed buildings and structures.
 - d. Area proposed for open space and/or recreational purposes.
 - e. Sewage disposal and water supply will be provided by the Town of East Lyme Water and Sewer Department. The proposed project will interconnect to municipal utilities in North Bride Brook Road. An allocation of sewer capacity for this project was approved by the East Lyme Water and Sewer Commission on August 27, 2019.
 - f. A complete stormwater management plan, including both the attenuation of peak stormwater discharge during design storm events and compliance with the requirements of the 2004 Stormwater Quality Manual adopted by the State of Connecticut Department of Energy and Environmental Protection is incorporated into the grading and drainage plan, Sheet 3 of 7.
 - g. The soil types as determined by the NRCS Soil Survey are delineated on Sheet 1 of 7 of the Site Development Plan.
5. Ten (10) copies of a traffic impact study for the project entitled “Site Traffic Assessment Proposed Multifamily Residential Development 90 North Bride Brook Road East Lyme, Connecticut” prepared by Bubaris Traffic Associates dated December 22, 2018. Please note that the traffic impact analysis was based on a projected unit load of two hundred eight (208) apartments and forty-two (42) condominium units for a total of two hundred fifty (250) units. The project being presented for consideration contains eighty (80) proposed apartment units. Therefore, the analysis contained in the traffic report is extremely conservative for the currently proposed project.

6. Three (3) copies of the project stormwater management report entitled "Stormwater Management Report North Bride Brook Multi-Family Development North Bride Brook Road, East Lyme, CT Prepared For Pazz & Construction, LLC 297 Boston Post Road East Lyme, CT 06333 Date: November 1, 2019 Revised: July 10, 2020".
7. Ten (10) copies of the preliminary design plan for the proposed buildings in the affordable housing development prepared by Springsteel Architect LLC.
8. Ten (10) copies of a table showing the number of units and number of bedrooms for each unit.
9. Ten (10) copies of an Affordability Plan for the project prepared in accordance with the requirements of Connecticut General Statutes §8-30g entitled "Affordability Plan Brookside Apartments July 10, 2020 Submitted by Pazz & Construction, LLC to the East Lyme Zoning Commission".
10. Ten (10) copies of the August 27, 2019 meeting minutes of the East Lyme Water & Sewer Commission granting a sewer capacity allocation to the proposed project in the amount of 35,400 gallons per day.
11. The proposed affordable housing project will require the following permits and approvals in addition to the site plan approval which is the subject of the instant application:
 - a. A curb cut permit from the East Lyme Department of Public Works.
 - b. A zoning permit issued by the East Lyme Zoning Enforcement Officer.
 - c. Building permit(s) issued by the Building Official of the Town of East Lyme.
 - d. A registration under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities with the State of Connecticut Department of Energy and Environmental Protection.
12. The site development plan submitted for consideration by the East Lyme Zoning Commission is a well thought out and engineered plan prepared by the Applicant's consulting civil engineer with input and advice from the Applicant's consulting traffic engineer. The site layout and development plan has been engineered in order to eliminate adverse impacts on public health and safety, including emergency services. The Applicant does not anticipate any adverse impacts to public health or safety resulting from the development of this affordable housing project, either to residents of the project or to neighboring properties.
13. Check in the amount of \$660.00 representing payment of the site plan application fee

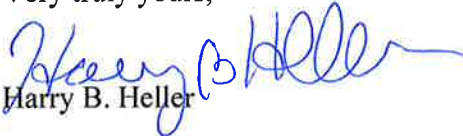
Town of East Lyme Zoning Commission
July 10, 2020
Page 4 of 4

(\$300.00), stormwater review (\$300.00) and State education fee (\$60.00).

We note that it has been East Lyme's past practice to incorporate a zone change application with an affordable housing application. This procedure has been held by the Connecticut Appellate Court to be inapplicable: See *Jag Capital Drive v East Lyme Zoning Commission* 168 Conn App 655 and *Wisniowski v Planning Commission of the Town of Berlin* 37 Conn App 303. Should the East Lyme Zoning Commission require a zone change application, the Applicant will summarily submit one. However, you are hereby advised that the Applicant is not submitting the instant site plan application under Section 32 of the East Lyme Zoning Regulations. Therefore, the Applicant would be submitting a text amendment application to create a regulation to accommodate the proposed project as well as a zone change application to change the zoning district classification of the application to that newly created zone. The cases cited hold that these procedural steps are not required for an affordable housing application as the zoning commission's permitted scope of review and inquiry is to determine that the project does not create any public health, safety and welfare issues; and if so created, to determine that those identified issues does not clearly outweigh the strong public policy of providing affordable housing in the State of Connecticut.

Request is hereby made that you place this matter on the agenda of the Town of East Lyme Zoning Commission for acceptance at its regularly scheduled meeting of Thursday, August 6, 2020. Should you have any questions concerning the application, or need any need anything further at this time, please feel free to contact the undersigned.

Very truly yours,


Harry B. Heller

HBH/rmb
enclosures

cc: Mr. Jason Pazzaglia
Mr. Brandon Handfield
Mr. Peter Springsteel

N. BRIDE BROOK MULTI-FAMILY DEVELOPMENT
BUILDING, UNIT, & BEDROOM COUNT

BUILDING	UNIT COUNT			TOTAL UNITS
	TYPE A (3-BD)	TYPE B (2-EX BD)	TYPE C (2-BD)	
BUILDING A	2	2	4	8
UNIT A101	1			
A102		1		
A103			1	
A104			1	
A105			1	
A106			1	
A107		1		
A108	1			
BUILDING B	2	2	6	10
UNIT B101	1			
B102		1		
B103			1	
B104			1	
B105			1	
B106			1	
B107			1	
B108			1	
B109		1		
B110	1			
BUILDING C	2	2	4	8
UNIT C101	1			
C102		1		
C103			1	
C104			1	
C105			1	
C106			1	
C107		1		
C108	1			
BUILDING D	2	2	6	10
UNIT D101	1			
D102		1		
D103			1	
D104			1	
D105			1	
D106			1	
D107			1	
D108			1	
D109		1		
D110	1			
BUILDING E	2	2	4	8
UNIT E101	1			
E102		1		
E103			1	
E104			1	
E105			1	
E106			1	
E107		1		
E108	1			



**N. BRIDE BROOK MULTI-FAMILY DEVELOPMENT
BUILDING, UNIT, & BEDROOM COUNT**

BUILDING		UNIT COUNT			TOTAL UNITS
		TYPE A (3-BD)	TYPE B (2-EX BD)	TYPE C (2-BD)	
BUILDING F		2	2	2	6
UNIT	F101	1			
	F102		1		
	F103			1	
	F104			1	
	F105		1		
	F106	1			
BUILDING G		2	2	6	10
UNIT	G101	1			
	G102		1		
	G103			1	
	G104			1	
	G105			1	
	G106			1	
	G107			1	
	G108			1	
	G109		1		
	G110	1			
BUILDING H		2	2	6	10
UNIT	H101	1			
	H102		1		
	H103			1	
	H104			1	
	H105			1	
	H106			1	
	H107			1	
	H108			1	
	H109		1		
	H110	1			
BUILDING I		2	2	0	4
UNIT	I101	1			
	I102		1		
	I103		1		
	I104	1			
BUILDING J		2	2	2	6
UNIT	J101	1			
	J102		1		
	J103			1	
	J104			1	
	J105		1		
	J106	1			
DEVELOPMENT TOTAL:		20 TYPE A	20 TYPE B	40 TYPE C	80 UNITS

EAST LYME WATER & SEWER COMMISSION
REGULAR MEETING
TUESDAY, AUGUST 27, 2019
MINUTES



The East Lyme Water & Sewer Commission held a Regular Meeting on Tuesday, August 27, 2019 at the East Lyme Town Hall, 108 Pennsylvania Avenue, Niantic, CT. Chairman Nickerson called the Regular Meeting to order at 7:21 PM immediately following the previously scheduled Public Hearing.

PRESENT: Mark Nickerson, Chairman, Steve DiGiovanna, Dave Jacques, Dave Murphy, Joe Mingo, Carol Russell, Roger Spencer, Dave Zoller

ALSO PRESENT: Attorney Harry Heller, representing the applicant
Attorney Mark Zamarka, Town Counsel
Attorney Timothy Hollister, Glenn Russo, Landmark
Joe Bragaw, Public Works Director
Brad Kargl, Municipal Utility Engineer
Ben North, Municipal Utility Engineer
Kevin Seery, Deputy First Selectman

ABSENT: Dave Bond

FILED

Sept 3 2019 AT 1:40 AM/PM
Kenneth M. ...
EAST LYME TOWN CLERK

1. Call to Order / Pledge of Allegiance

Chairman Nickerson called the Regular Meeting of the East Lyme Water & Sewer Commission to order at 7:21 PM immediately following the previously scheduled Public Hearing. The Pledge was previously observed.

2. Approval of Minutes

▪ **Public Hearing Minutes – July 23, 2019**

Ms. Russell read a typed paragraph regarding where she was speaking on capacity that she wanted put into the record.

The Commissioners did not approve the change.

****MOTION (1)**

Mr. DiGiovanna moved to approve the Public Hearing Minutes of July 23, 2019 as presented.

Mr. Murphy seconded the motion.

Vote: 6 – 0 – 2. Motion passed.

Abstained: Mr. Nickerson, Mr. Zoller

▪ **Regular Meeting Minutes – July 23, 2019**

Mr. Nickerson called for a motion or any discussion or corrections to the Regular Meeting Minutes of June 25, 2019.

****MOTION (2)**

Mr. DiGiovanna moved to approve the Regular Meeting Minutes of July 23, 2019 as presented.

Mr. Murphy seconded the motion.

Vote: 6 – 0 – 2. Motion passed.

Abstained: Mr. Nickerson, Mr. Zoller

3. Delegations

Mr. Nickerson called for delegations.

Cynthia Trocki, 22 Blue Heron, Niantic, CT said that she wanted complete information on the new Black Point sewer system from inception.

4. Consider Allocation of Sewer Capacity for Pazz & Construction

Mr. Nickerson noted that they had two previous evenings of Public Hearings.

Ms. Russell explained her analysis of annual average of remaining capacities for the years 2012-2018 noting that they started at remaining flow of 380,000 at the end of FY2019 and do not have current figures.

Mr. Mingo said that is not what this is about.

Mr. Nickerson said that they are to determine if there is capacity for this application and our Utility engineer has said that there is.

Attorney Zamarka said that he agrees with the Chairman in that this is not the arena to set policy going forward. To recap – the Commission purview is to determine if there is capacity for this development.

Ms. Russell cited other

Mr. Mingo called Point of Order and said that he would make a motion –

****MOTION (3)**

Mr. Mingo moved to grant the applicant Pazz & Construction the 35,400gpd sewer capacity that they have requested.

Mr. DiGiovanna seconded the motion.

Attorney Zamarka said that they would have to substantiate the motion with reasons for it.

Mr. Mingo said that they are ticket holders who originally paid the fee assessment for sewers on this property which covered the entire area. Further there is enough capacity to cover this.

Attorney Zamarka said that he has a draft resolution for the motion.

Mr. Mingo and Mr. DiGiovanna rescinded their Motion (3).

Ms. Russell said that while a ticket holder is allowed capacity she thinks they need a more reasonable analysis to get to it.

It was determined that was a discussion for another time and not here.

****MOTION (4)**

Mr. Mingo moved that Whereas, on May 28, 2019 Pazz & construction, LLC (“Applicant”) filed with the East Lyme Water & Sewer Commission (“Commission”) an application for determination of sewer capacity pursuant to General Statutes §7-246a(a)(1), seeking confirmation of 35,400 gpd (gallons per day) of sewer capacity for Phase 1 of a multi-family residential housing development project to be located on its property at 90 North Bridebrook Rd (“Application”); and

Whereas, on January 4, 2019, the Commission adopted a regulation entitled “Applications for Determination of Adequacy of Sewer Capacity Pursuant to General Statutes §7-246a(a)(1)” (“Regulation”); and Whereas, prior to the enactment of the Regulation the Applicant submitted an earlier application for determination of sewer capacity and by agreement held that application in abeyance, and that application has never been withdrawn; and

Whereas, the Regulation is now on appeal in the Superior Court for the Judicial District of Hartford; and Whereas, the Applicant has requested that the Commission decide on its Application under both the Regulation and the pre-Regulation standards, in the event that the Regulation is overturned by a court of competent jurisdiction; and

Whereas, the Regulation sets forth the information that must be included in an application for determination of sewer capacity, as well as the duration of a capacity allocation and the factors that the Commission may consider in reaching a decision on such an application; and

Whereas; the application contains the information required by the Regulation; and

Whereas, pursuant to General Statutes §7-246a(a)(1), the Commission is required to determine the adequacy of sewer capacity related to a proposed use of land; and

Whereas, the Commission held three public hearings on the application and listened to hours of testimony during those hearings; numerous exhibits were submitted by the Applicant, the commission, and individuals for consideration during the hearing process. In making its decision the commission is considering the testimony and exhibits submitted at the public hearings; and

Whereas, the Commission has wide discretion in connection with the decision to supply sewer service to particular properties; and

Whereas, pursuant to an agreement with the Town of Waterford and the City of New London ("Agreement"), the Town is entitled to make use of 15% of the treatment capacity of the Piacenti Facility (the New London Waste Water Treatment Facility); and

Whereas, the current treatment capacity of the Piacenti Facility is 10,000,000 gpd; and

Whereas, pursuant to the Agreement, the Town is currently entitled to 1,500,000 gpd of sewerage treatment capacity at the Piacenti Facility; and

Whereas, pursuant to orders from the CT Department of Energy and Environmental Protection, the Town is required to reserve 478,000 gpd of its available sewage treatment capacity for the benefit of various State facilities located in the Town, and this amount is not available to the Town or any other customers of the Town; and

Whereas, based on the evidence in the record, the Commission finds that the Town has sufficient remaining unallocated sewage treatment capacity; and

Whereas, the property has been a ticket holder for some time and has paid a sewer assessment; and there is sufficient capacity to support this request -

BE IT THEREFORE RESOLVED, that the East Lyme Water & Sewer Commission, acting as the Town's Water Pollution Control Authority, pursuant to the Regulation and based on a review of evidence in the record, hereby GRANTS to the Applicant 35,400 gallons per day (gpd) of sewage treatment capacity pursuant to an application dated May 28, 2019 seeking 35,400 gpd of sewage capacity for Phase 1 of a multi-family residential housing development project to be located on its property at 90 North Bride Brook Rd. The duration of said grant shall be as set forth in Section II of the Regulation.

Mr. DiGiovanna seconded the motion as amended.

Mr. Murphy suggested stating inside of the 'line'.

Mr. Mingo said that they are not a land use agency and we do not determine how many units or people or kids, etc.

Vote: 8 – 0 – 0. Motion passed.

Mr. Nickerson noted that it is appropriate to determine the line going forward here as long ago they used a magic market and when the map was enlarged the line was also enlarged and there is no 50' wide boundary line.

****MOTION (5)**

Mr. Murphy moved that the determination on the sewer shed means inside the border of the line.

There was No Second –

****MOTION (6)**

Mr. Mingo moved that the line be determined as the middle of any line.

Mr. Spencer seconded the motion.

Vote: 7 – 1 – 0. Motion passed.

Against: Mr. Murphy

5. Application for Sewer Capacity Determination for Rocky Neck Village (formerly JAG Capital Drive, LLC)

Ronald Penton, Sr. Project Mgr. said that they are requesting a hearing on capacity for Rocky Neck Village a 60 unit Affordable Housing project formerly known as JAG Capital Drive.

Attorney Zamarka noted that start date for this application is today – August 27, 2019 and that they have 65 days in which to make a decision. The decision must be made by October 31, 2019.

****MOTION (7)**

Mr. Murphy moved to schedule the Rocky Neck Village Public Hearing for 7 PM on September 24, 2019.

Mr. Zoller seconded the motion.

Vote: 8 – 0 – 0. Motion passed.

6. Landmark Development Group, LLC BPR Sewer Extension

- Attorney Hollister Letter dated July 25, 2019

Attorney Hollister noted for the record his letter dated July 25, 2019. (Attached)

- Commission Response

Mr. Nickerson said that they would have the discussion at another time.

7. Billing Adjustments

Mr. Kargl noted that four (4) had been approved as they all fell within the parameters of the '1 in 10' policy. He said that he provided them with the information.

8. Approval of Bills

Mr. Nickerson called for a motion on the Booster station Upgrade bill.

****MOTION (8)**

Mr. DiGiovanna moved to approve payment of the following Booster Station Upgrade bill: Hungerfords Inc., Inv. #85397 in the amount of \$22,000.

Mr. Zoller seconded the motion.

Vote: 8 - 0 – 0. Motion passed.

Mr. Nickerson called for a motion on the Water Main Improvement bill.

****MOTION (9)**

Mr. DiGiovanna moved to approve payment of the following Water Main Improvement bill: B & L Construction Inc., Inv. #74955 in the amount of 24,312.28.

Mr. Zoller seconded the motion.

Mr. Jacques asked how this came in with what was budgeted.

Mr. Kargl said that it was around \$3000 under.

Vote: 8 - 0 – 0. Motion passed.

9. Request for Authorization of funds from Sewer Benefit Assessment Fund for Pattagansett Pump Station Generator Upgrades

Mr. Kargl said that the generator is 25 years old and the transfer switch is a stand alone and not part of the generator.

****MOTION (10)**

Mr. Murphy moved to transfer \$9,600 from the Sewer Benefit Assessment Fund to the Sewer Operating Fund Account #06-01-300-610-215 for the replacement of the generator transfer switch at the Pattagansett Sewer Pump Station.

Mr. Zoller seconded the motion.

Vote: 8 – 0 – 0. Motion passed.

10. Meter Deposits – Discussion and Possible Action

Mr. Bragaw said that they have approx. \$433,000 in meter deposits and are not in a position to pay out everything to everyone all at once. They have stopped taking meter deposits and the proposal is to pay out \$25/year with interest at \$12.50 per billing period. The only piece of the information that they do not have is the interest rate or calculation as it is the last payment where the interest should be paid out. It also fluctuates per person based on the time factor that we have held the deposit – a person who has paid three years ago would not be entitled to the same rate as someone who has had the deposit held by us for 20 or 40 years.

Mr. Nickerson suggested a round figure – perhaps \$1 per year.

Attorney Zamarka noted that it is a good idea to be out of the meter deposit business.

Ms. Johnson said that she thinks that they need more time to determine the payback interest.

Mr. Bragaw said that he would like to bring this back in September and have a conversation with the Attorney once he has more information.

As an update on the new meter project he said that the meter company does not want to get started until the radio towers are ready as they want to test the meters as they go.

11. Tri-Town Sewer Agreement

▪ **Appointment of Agreement Review Committee**

Mr. Nickerson said that he would be on this Committee and also Mr. DiGiovanna, Mr. Jacques and Mr. Mingo.

12. Finance Director Report

Ms. Johnson synopsised her report which everyone received in their packets. She noted that water operations cash was getting low.

13. Water Project Updates

▪ **Well 1A and 6 Treatment Plan Modifications and Upgrades – Schedule for re-bid**

Mr. Kargl reported that the DPH had approved the revised project with the \$28,000 more and that the bid will have a different look to it – there will be two alternates to it. The DPH has also requested a letter on the alternates.

14. Correspondence Log

There were no comments.

15. Chairman's Report

Mr. Nickerson noted that the elementary school projects are 98% complete; Silver Petrucelli is moving along on the Public Safety building and the Costco building and road work are also moving along. Additionally, Old Lyme passed the sewer project at referendum so they will be coming over and through in accordance with the agreement that we have.

16. Staff Updates

a. **Water Department Monthly Report**

Mr. Kargl noted that we are doing well with the take back from New London.

b. **Sewer Department Monthly Report**

There were no comments.

17. Future Agenda Items

Mr. Murphy asked that at some point they have a capacity data review.

18. ADJOURNMENT

Mr. Nickerson called for a motion to adjourn.

****MOTION (11)**

Mr. DiGiovanna moved to adjourn this Regular Meeting of the East Lyme Water & Sewer Commission at 8:42 PM.

Mr. Murphy seconded the motion.

Vote: 8 – 0 – 0. Motion passed.

Respectfully submitted,

Karen Zmitruk,
Recording Secretary



EAST LYME
WATER & SEWER COMMISSION
AUG 27 2019
AGENDA # 6a

Timothy S. Hollister
Phone: (860) 251-5601
Fax: (860) 251-5318
thollister@goodwin.com

July 25, 2019

VIA PDF TO MARK S. ZAMARKA

Mr. Mark Nickerson, Chair,
and Commission Members
Water and Sewer Commission
Town of East Lyme
108 Pennsylvania Avenue
P. O. Box 519
Niantic, CT 06357-0519

Mark S. Zamarka, Esq.
Waller Smith & Palmer, P.C.
52 Eugene O'Neill Drive
P. O. Box 88
New London, CT 06320

Re: Landmark Development Group LLC: Sewer Allocation

Dear Chair Nickerson, Commission Members, and Attorney Zamarka:

We are writing to request further confirmation of the 118,000 gallons of sewer capacity that the Water and Sewer Commission ("WSC") granted to Landmark in December 2018.

In a Brief dated May 24, 2019, filed by Attorney Zamarka in Landmark's appeal of the East Lyme Zoning Commission's 2015 action on Landmark's Rezoning and Preliminary Site Plan application, the Zoning Commission told the Court:

Currently municipal water and sewer service is not available to the [Landmark] development area. A sewer extension along Boston Post Road, on which the plaintiff has frontage, has been approved by the East Lyme Water and Sewer Commission ("WSC") but has never been built and the WSC has no plans to build one in the near future.

Brief, p. 3. Later in the same Brief, the Zoning Commission states: "[Although] Landmark now has its conditional sewer capacity, that grant is more symbolic than practice at the present time."

Landmark requests that the WSC disavow these positions taken by the Zoning Commission and confirm Landmark's right to construct the Boston Post Road sewer extension, at its expense, subject only to the normal engineering review stated in the WSC's Regulations. If this confirmation is not provided, Landmark will raise this issue with Judge Cohn. (In doing so, Landmark will also apprise the Court of the spreadsheet regarding available sewer capacity that

7831434 v2

Attachment was Reg. Mtg. 8/27/19

2 pp.

July 25, 2019

Page 2

was distributed at the July 23, 2019 hearing on Pazz & Construction, which proves, once and for all, six years of misrepresentations to the Court about the Town's available sewer capacity.)

First, a private developer (Konover) was always going to pay for and construct the extension. The extension was never contingent or reliant on the Town building the extension. Landmark is simply stepping into the role of the prior developer.

Second, the Boston Post Road plans are not only approved, but they are fully engineered, and show sewer lateral connections from the extension onto Calkins Road and River Road, on which Landmark has existing frontage, as well as running along Landmark's frontage on Boston Post Road.

Third, in 2012, Landmark applied to this Commission under General Statutes § 7-246(a) for a determination of sewer capacity *available* to Landmark's property. A prominent exhibit throughout the six year appeal from the WSC's denial of sewer capacity was the approved Boston Post Road sewer extension. At no time during those six years did the WSC ever take the position that the sewer capacity sought by Landmark was dependent on the Town deciding *whether* to construct the extended sewer line. Such a position is now foreclosed due to not having ever been raised in the 2012-2018 litigation.

Fourth, the WSC's Sewer Use and Sewage Disposal Ordinance, as in effect in December 2018 and applicable to Landmark's 118,000 gallons, is replete with references to the right of an owner of land within the Town's Sewer District to construct an approved sewer, at its expense. *See*, for example, §§ 2.3, 2.4, 3.6, 3.9, 3.13, and 5.3.

In summary, Landmark requests written confirmation that it has the right, just as the previous developer had (Konover), at its own expense, subject only to normal engineering review, to construct the approved Boston Post Road sewer extension from the sewer line's present terminus at the Waterford / East Lyme town line, to Landmark's frontage on the Boston Post Road.

Thank you.

Very truly yours,



Timothy S. Hollister

TSH:ekf

c: Glenn Russo, Landmark Development Group LLC (via pdf)
F.A. Hesketh & Associates, Inc. (via pdf)

File Copy

AFFORDABILITY PLAN

BROOKSIDE APARTMENTS

July 10, 2020



Submitted by Pazz & Construction, LLC

to the

East Lyme Zoning Commission

PREPARED BY:

**Heller, Heller & McCoy
736 Norwich-New London Turnpike
Uncasville, Connecticut 06382**

DEFINITIONS:

“Affordable Unit” - means a housing unit within the Community that is subject to long-term rent restrictions as set forth in this plan and within the Community that will be constructed to the minimum specifications set forth in **Schedule C** of this Plan. Affordable Units are to be rented.

“Community” - means Brookside Apartments an eighty (80) unit multi-family residential project containing a mix of twenty (20) three (3) bedroom multi-family rental units of which three (3) are handicapped accessible (“Type A Units”), twenty (20) two (2) bedroom multi-family residential units with an expanded footprint (20’ x 32’-36’) (“Type B Units”) of which six (6) units are handicapped accessible and forty (40) two (2) bedroom standard units (16’ x 32’) (“Type C Units”) all located on a parcel of land located on the westerly side of North Bride Brook Road in the Town of East Lyme, which real property contains 20.24 acres, more or less, and which is shown and designated on a certain plan entitled “North Bride Brook Multi-Family Development Prepared For Pazz & Construction, LLC Overall Layout Plan N. Bride Brook Road (Assessor’s Map 9, Lot 37-2) East Lyme, CT Sheets 1 of 7 to 7 of 7 Date: 9/25/19 Revision Summary 1/15/20 Per Town Comments & Updated Survey Mapping 6/29/20 Revised Development Layout Revised 6/29/20” prepared by Yantic River Consultants, LLC, 191 Norwich Avenue, Lebanon, Conn 06249 Phone: (860) 367-7264 E-mail: yanticriver@gmail.com web: www.yanticriverconsultants.com (hereinafter the “Plan”). The site development plan was approved by the East Lyme Zoning Commission on _____, 2020.

“Developer” - means Pazz & Construction, LLC, a Connecticut limited liability company with a mailing address of 21 Darrows Ridge Road, East Lyme, Connecticut 06333, or its successors and assigns.

“Market Rate Unit” - means a rental unit within the Community that is not subject to long term rent restrictions.

“Owner” means the company that possesses fee simple title to the real property which is the subject of this Affordability Plan and described in the definition of “Community” above.

“Tenant” - means the individual or individuals who will rent from an Owner a dwelling unit in the Community.

I. Units Designated for Affordable Housing.

Thirty (30%) percent, or six (6) of the Type A Units, thirty (30%) percent or six (6) of the Type B Units, including two (2) of the handicapped accessible Units and thirty (30%) percent, or twelve (12) of the Type A Units in the Community will be designated as affordable housing units, as defined by Connecticut General Statutes §8-30g. The specific Affordable Units designated as Affordable Units are identified in **Schedule B** of this Plan.

II. Forty (40) Year Period.

The Affordable Units shall be designated and restricted as affordable for forty (40) years. This affordability period shall be calculated separately for each Affordable Unit, and the period shall begin on the date of initial occupancy of an Affordable Unit by a Tenant from the Developer or its successors or assigns to an eligible Tenant, as hereinafter defined.

III. Pro-Rata Construction.

The Affordable Units shall be offered on a pro rata basis as construction proceeds. It is the Developer's intent, therefore, to build and offer for lease two (2) Affordable Type A Units, two (2) Affordable Type B Units and four (4) Affordable Type C Units within the time that eighteen (18) total units in the Community are built and offered for rent. The Developer anticipates a build out and absorption period of five (5) years for the completed Community, based upon its experience with other projects within the East Lyme market.

IV. Nature of Construction of Affordable Units and Market-Rate Units.

Within the Community, the Developer shall offer Market Rate Units each of which shall be built in compliance with the minimum specifications, which include square footage, exterior finishes, interior materials, and amenities, set forth in Schedule C of this Plan. The actual model, size and floor plan of the Market Rate Units and the Affordable Units for each of the Type A, Type B and Type C Units shall be selected so that each Affordable Unit shall be comparable in size, quality, and appearance to each Market Rate Unit of the same category.

V. Entity Responsible for Administration and Compliance.

This Plan will be administered by Pazz & Construction, LLC, or its designees, successors and assigns ("Administrator"). The Administrator shall submit a status report to the Town of East Lyme Zoning Enforcement Officer (the "ZEO") on compliance with this Plan annually no later than January 31. The Developer or its successors or assigns may appoint a qualified third party to serve as Administrator. Notice of a vacancy in the position of Administrator and of the appointment of a new or successor Administrator shall be reported to the ZEO within five business days of their occurrence. Failure to have a qualified Administrator in place for a period of more than thirty (30) successive days shall be considered a violation of the terms of this Plan and of the Site Plan Approval and shall entitle the Town of East Lyme to obtain any and all appropriate legal or equitable remedies necessary to obtain a qualified Administrator for the Community, to recover any damages it incurs on account of the vacancy in the position, and also including all remedies provided by Connecticut General Statutes §8-12 and Connecticut General Statutes Chapter 126. The Developer shall be responsible for securing and paying all fees, costs and/or other expenses associated with and charged by an Administrator, and for any damages resulting to any person or entity, including the Town of East Lyme, or any of its officers, employees or representatives, on account of the failure to have an Administrator in place at any time or for any violation of the Plan, including violations of this Article V. All obligations and liabilities

of the Developer shall terminate upon the expiration of the forty (40) year period established in Section II of this Plan. The Town of East Lyme may seek remedies hereunder against the Developer. The Town of East Lyme shall be entitled to attorney's fees and costs associated with any action it takes to enforce the terms of this Article V. The requirements of this Article V shall be recited in the lease of each dwelling unit in the Community and shall be incorporated therein and made a part thereof. The Developer will be responsible for all advertising and marketing requirements for the leasing of all Affordable Units in the Community under this Plan.

VI. Notice of Availability of Affordable Units.

The Developer shall provide notice of the availability of Affordable Units for rent (the "Notice of Availability"). Such notices shall be provided in accordance with the Affirmative Fair Housing Marketing Plan as outlined in Section VIII. The Developer shall also provide such notice to the ZEO. Such notice shall include a description of the available Affordable Unit(s), the eligibility criteria for potential Tenants, the Maximum Rent (as hereinafter defined), and the availability of application forms and additional information. All such notices shall comply with the federal Fair Housing Act, 42 U.S.C. §§3601 et seq. and the Connecticut Fair Housing Act, Connecticut General Statutes §§46a - 64b, 64c (together, the "Fair Housing Acts").

VII. Tenant Eligibility.

Not less than fifteen percent (15%) (three (3) Type A Units, three (3) Type B Units and six (6) Type C Units) of the dwelling units for rent in the Community shall be rented to persons or families whose income is less than or equal to sixty percent (60%) of the area or statewide median income, whichever is less. The remainder of the Affordable Units for rent (three (3) Type A Units, three (3) Type B Units and six (6) Type C Units) shall be rented to persons or families whose income is less than or equal to eighty percent (80%) of the area or statewide median income, whichever is less. The area and statewide median income shall be as determined by the Department of Housing and Urban Development ("HUD").

VIII. Affirmative Fair Housing Marketing Plan.

The leasing of both Affordable Units and Market Rate Units in the Community shall be publicized, using State regulations for affirmative fair housing marketing programs as guidelines. The purpose of such efforts shall be to apprise residents of municipalities of relatively high concentrations of minority populations and eligible veterans of the military services of the United States of America of the availability of such units. The Administrator shall have responsibility for compliance with this section. Notices of initial availability of units shall be provided, at a minimum, by advertising at least two times in a newspaper of general circulation in such identified municipalities. The Administrator shall also provide such notices to the ZEO and Town of East Lyme Housing Authority. Such notices shall include a description of the available Affordable Unit(s), the eligibility criteria for potential Tenants, the Maximum Lease Amount (as hereinafter defined), and the availability of application forms and additional information.

Using the above-referenced State regulations as guidelines, dissemination of information about available affordable and market-rate units shall include:

- A. Analyzing census, Connecticut Department of Economic and Community Development town profiles, and other data to identify racial and ethnic groups least likely to apply based on representation in the East Lyme population, including Asian Pacific, Black, Hispanic, and Native American populations.
- B. Announcements/advertisements in publications and other media that will reach minority populations, including newspapers, such as television and radio stations serving East Lyme's Metropolitan Statistical Area and Regional Planning Area, and advertisements or flyers likely to be viewed on public transportation or public highway areas.
- C. Announcements to social service agencies, veteran's organizations providing services to veterans of the military of the United States of America and other community contacts serving low-income minority families (such as churches, civil rights organizations, the housing authority, and other housing authorities in towns represented in East Lyme's Metropolitan Statistical Area and Regional Planning Area, legal services organizations, etc.).
- D. Assistance to minority applicants in processing applications.
- E. Marketing efforts in geographic areas of high minority concentrations within the housing market area and metropolitan statistical area.
- F. Beginning affirmative marketing efforts prior to general marketing for the leasing of units, and repeating again during initial marketing and at fifty (50%) percent completion.

All notices shall comply with the Fair Housing Acts.

IX. Application Process.

A family or household seeking to lease one of the Affordable Units ("Applicant") must complete an application to determine eligibility. The application form and process shall comply with the Fair Housing Acts.

A. Application Form.

The application form shall be provided by the Administrator and shall include an income pre-certification eligibility form and an income certification form. In general, income for purposes of determining an Applicant's qualification shall include the Applicant family's total anticipated income from all sources for the twelve (12) month period following the date the application is

submitted (“Application Date”). If the Applicant’s financial disclosures indicate that the Applicant may experience a significant change in the Applicant’s future income during the twelve (12) month period, the Administrator shall not consider this change unless there is a reasonable assurance that the change will in fact occur. The Applicant’s income need not be re-verified after the time of lease commencement. In determining what is and is not to be included in the definition of family annual income, the Administrator shall use the criteria set forth by HUD and listed on **Schedule D** of this Plan.

B. Applicant Interview.

The Administrator shall interview an Applicant upon submission of the completed application. Specifically, the Administrator shall, during the interview, undertake the following:

1. Review with the Applicant all the information provided on the application.
2. Explain to the Applicant the requirements for eligibility, verification procedures, and the penalties for supplying false information.
3. Verify that all sources of family income and family assets have been listed in the application. The term “family” shall be as defined by the Connecticut Agency Regulations, Connecticut General Statutes §8-37ee-1, as amended.
4. Request the Applicant to sign the necessary release forms to be used in verifying income. Inform the Applicant of what verification and documentation must be provided before the application is deemed complete.
5. Inform the Applicant that a certified decision as to eligibility cannot be made until all items on the application have been verified.

C. Verification of Applicant’s Income.

Where it is evident from the income certification form provided by the Applicant that the Applicant is not eligible, additional verification procedures shall not be necessary. However, if the Applicant appears to be eligible, the Administrator shall issue a pre-certification letter. The letter shall indicate to the Applicant and the Administrator that the Applicant is income eligible, subject to the verification of the information provided in the Application. The letter will notify the Applicant that he/she will have thirty (30) days to submit all required documentation.

If applicable, the Applicant shall provide the documentation listed on **Schedule E** of this Plan, to the Administrator. This list is not exclusive, and the Administrator may require any other verification or documentation, as the Administrator deems necessary.

X. Prioritization of Applicants for Initial Occupancy.

If, after publication of the Notice of Initial Availability as described in Section VI hereof, the number of qualified Applicants exceeds the number of Affordable Units, then those Applicants who have served in the military services of the United States of America and received an honorable discharge from such military service shall be given priority preference for such available Affordable Unit(s). Thereafter, the Administrator shall establish a list of Applicants, selected by a random lottery of all other eligible Applicants, for the initial leasing of Affordable Units. The initial leasing of Affordable Units will be offered according to the Applicant's lottery ranking. Following the initial leasing of the Affordable Units, if the number of qualified Applicants exceeds the number of available Affordable Units, the Administrator shall establish a priority list of applicants based on a "first come, first served" basis, subject to the applicant's income pre-certification eligibility and the preferences as established in this Section X, provided, however, that any Applicant on the priority list who meets the military service requirements set forth herein shall be elevated to the top of the priority list on a "first come, first served" basis. The Affordable Units will then be offered for lease according to the applicant's numerical listing. In the event the Community is built in phases, the same procedure shall be followed for each phase.

XI. Maximum Monthly Housing Payment Eligibility.

Calculation of eligibility for occupancy in an Affordable Unit, so as to satisfy Connecticut General Statutes §8-30g, shall require the proposed occupant to meet two criteria: (1) maximum household income, adjusted for unit/family size; and (2) a maximum monthly housing payment that is less than the amount calculated under Connecticut General Statutes §8-30g, which shall be calculated as provided in Section XII of this Affordability Plan.

XII. Maximum Monthly Rent.

Calculation of the maximum monthly rent ("Maximum Rent") for an Affordable Unit, so as to satisfy Connecticut General Statutes §8-30g, shall utilize the lesser of the area median income data or the statewide median income as published by HUD as in effect on the day a lease agreement is entered into by and between the Developer and an affordable Tenant. The Maximum Initial Rent shall be calculated as follows (using the East Lyme Statistical Area median income level of \$94,500.00):

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Example of Calculation of Maximum Rent for a 3-bedroom dwelling unit (Type A) for a family earning less than 60% of Median Income:

Sample computations based on FY 2019 data.

1. Determine lower of relevant year (2019) area median income for area or statewide median Income, adjusted for family size (family of four (4)) as published by HUD	\$94,500.00
2. Calculate 60% of item 1:	\$56,700.00
3. Calculate 30% of item 2, representing the maximum portion of a family's income that may be used for housing:	\$17,010.00
4. Divide item 3 by twelve (12) to determine the maximum monthly housing expense:	\$1,417.50
5. Compare 100% of HUD fair market rents for the area:	\$1,879.00
6. Use lesser of calculated maximum monthly expense (Item 4) and HUD fair market rent (item 5):	\$1,417.50
7. Determine by reasonable estimate monthly expenses for heat and utility costs, excluding telephone and cable television, but including any fee required for all tenants (tenant responsible for such expenses):	\$300.00
8. Subtract reasonable monthly expenses (item 7) from maximum housing expense (item 6) to determine maximum amount available for rent	\$1,117.50

Example of Calculation of Maximum Rent for a 2-bedroom dwelling unit (Types B and C) for a family earning less than 60% of Median Income:

Sample computations based on FY 2019 data.

- | | |
|---|-------------|
| 1. Determine lower of relevant year (2019) area median income for area or statewide median Income, adjusted for family size (family of four (4)) as published by HUD | \$94,500.00 |
| 2. Determine the adjusted income for a household of 3 persons by calculating 90% of item 1: | \$85,050.00 |
| 3. Calculate 60% of item 2: | \$51,030.00 |
| 4. Calculate 30% of item 3, representing the maximum portion of a family's income that may be used for housing: | \$15,309.00 |
| 5. Divide item 4 by twelve (12) to determine the maximum monthly housing expense: | \$1,275.75 |
| 6. Compare 100% of HUD fair market rents for the area: | \$1,429.00 |
| 7. Use lesser of calculated maximum monthly expense (Item 5) and HUD fair market rent (item 6): | \$1,275.75 |
| 8. Determine by reasonable estimate monthly expenses for heat and utility costs, excluding telephone and cable television, but including any fee required for all tenants (tenant responsible for such expenses): | \$250.00 |
| 9. Subtract reasonable monthly expenses (item 8) from maximum housing expense (item 7) to determine maximum amount available for rent | \$1,025.75 |

Example of Calculation of Maximum Rent for a 3 bedroom dwelling unit (Type A) for a family earning between 60% and 80% of Median Income:

Sample computations based on FY 2019 data.

1. Determine lower of relevant year area median income or statewide median Income adjusted for family size (family of four (4)) as published by HUD	\$94,500.00
2. Calculate 80% of item 1:	\$75,600.00
3. Calculate 30% of item 2, representing the maximum portion of a family's income that may be used for housing:	\$22,680.00
4. Divide item 3 by twelve (12) to determine the maximum monthly housing expense:	\$1,890.00
5. Compare 120% of HUD fair market rents for the area:	\$2,255.00
6. Use lesser of calculated maximum monthly expense (Item 4) and HUD fair market rent (item 5):	\$1,890.00
7. Determine by reasonable estimate monthly expenses for heat and utility costs, excluding telephone and cable television, but including any fee required for all tenants (tenant responsible for such expenses):	\$300.00
8. Subtract reasonable monthly expenses (item 7) from maximum housing expense (item 6) to determine maximum amount available for rent:	\$1,590.00

Example of Calculation of Maximum Rent for a 2 bedroom dwelling unit (Types B and C) for a family earning between 60% and 80% of Median Income:

Sample computations based on FY 2019 data.

1. Determine lower of relevant year area median income or statewide median Income adjusted for family size (family of four (4)) as published by HUD	\$94,500.00
2. Determine the adjusted income for a household of 3 persons by calculating 90% of item 1:	\$85,050.00
3. Calculate 80% of item 2:	\$68,040.00
4. Calculate 30% of item 3, representing the maximum portion of a family's income that may be used for housing:	\$20,412.00
5. Divide item 4 by twelve (12) to determine the maximum monthly housing expense:	\$1,701.00
6. Compare 120% of HUD fair market rents for the area:	\$1,715.00
7. Use lesser of calculated maximum monthly expense (Item 5) and HUD fair market rent (item 6):	\$1,701.00
8. Determine by reasonable estimate monthly expenses for heat and utility costs, excluding telephone and cable television, but including any fee required for all tenants (tenant responsible for such expenses):	\$250.00
9. Subtract reasonable monthly expenses (item 8) from maximum housing expense (item 7) to determine maximum amount available for rent:	\$1,451.00

A. Principal Residence.

Affordable Units that are leased shall be occupied only as a Tenant's principal residence. Subleasing of Affordable Units by a Tenant shall be prohibited.

B. Requirement to Maintain Condition.

All Tenants are required to maintain their dwelling units. No Tenant shall destroy, damage or impair the dwelling unit, or commit waste in a dwelling unit. The Developer, its successors and assigns, shall be responsible for maintaining the condition of the Community

and for not allowing the common areas or buildings within the Community to deteriorate. When an Affordable Unit is offered for Lease, the Administrator may cause the Affordable Unit to be inspected.

C. Enforcement.

A violation of this Plan or the Deed Restrictions shall not result in a forfeiture of title, but the East Lyme Zoning Commission or its designated agent shall otherwise retain all enforcement powers granted by the Connecticut General Statutes, including § 8-12, which powers include, but are not limited to, the authority, at any reasonable time, to inspect the property and to examine the books and records of the Administrator to determine compliance of Affordable Units with the affordable housing regulations.

D. Occupancy Restrictions.

The Occupancy Restrictions contained in **Schedule F** shall be included in each lease of an Affordable Unit during the forty (40) year period in which the affordability program is in place to provide notice of the affordability restrictions. The restrictions contained in this Affordability Plan shall take priority over all mortgage financing provided to the Developer and/or its successors and assigns and any such mortgage utilized to finance the Community shall be strictly subordinate to the terms of the occupancy restrictions contained in Schedule F of this Affordability Plan. No foreclosure of any such mortgage shall terminate the occupancy restrictions contained in said Schedule F.

E. Lease Restrictions.

All Tenants of Affordable Units shall be subject to the lease restrictions set forth in Schedule F of this Affordability Plan.

G. Binding Effect.

This Affordability Plan shall be binding on the successors and assigns of the Developer.

Executed at Montville, Connecticut this ___ day of _____, 2020.

Signed, Sealed and Delivered
in the Presence of:

PAZZ & CONSTRUCTION, LLC

By: _____ (L.S.)
Jason Pazzaglia, its Member

STATE OF CONNECTICUT)
) ss: Montville
COUNTY OF NEW LONDON)

On this the ___ day of _____, 2020, before me, the undersigned officer, personally appeared Jason Pazzaglia, who acknowledged himself to be the Member of Pazz & Construction, LLC, a limited liability company, hereunto duly authorized, signer and sealer of the foregoing instrument and acknowledged the execution of the foregoing instrument to be his free act and deed, as Member aforesaid, and the free act and deed of Pazz & Construction, LLC.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Commissioner of the Superior Court/
Notary Public
My Commission Expires: _____

SCHEDULE A
PROPERTY DESCRIPTION OF BROOKSIDE APARTMENTS

A certain tract or parcel of land, together with the improvements thereon, situated on the westerly side of North Bride Brook Road a/k/a Bride Brook Road in the Town of East Lyme, County of New London and State of Connecticut and being more particularly shown on a certain map or plan entitled "Title: Limited Property Survey Lot Line Revision Prepared for Pazz & Construction, LLC Location: 90 North Bride Brook Road – Niantic, Connecticut Sheet Number 1 of 1 14036-SUB.dwg Scale: 1 Inch = 60 Ft. Drawn By: RDP Date: August 20, 2017 J. Robert Pfanner & Associates, P.C. Civil Engineers & Land Surveyors 37 Grand Street Niantic, Connecticut 06357 Tel. 860-739-6216 Fax 860-739-0693" which premises is more particularly bounded and described as follows:

Beginning at a point in the westerly line of North Bride Brook Road a/k/a Bride Brook Road as shown on the above referenced plan at the northeasterly corner of the herein described tract and on the dividing line between the herein described tract and land now or formerly Alice T. Welsh as shown on the above referenced plan; thence running South 08°36'21" West for a distance of 181.60 feet to an angle point; thence running South 21°10'21" West for a distance of 74.70 feet to an iron pipe recovered; thence running South 07°21'55" West for a distance of 30.12 feet to the northeasterly corner of Parcel P-1 as shown on the above referenced plan, the last three (3) courses being bounded generally easterly by North Bride Brook Road a/k/a Bride Brook Road; thence running North 85°15'44" West for a distance of 165.44 feet to a point; thence running South 08°13'41" West for a distance of 166.83 feet to a point; thence running South 87°44'06" East for a distance of 153.39 feet to a point, the last three (3) courses being bounded by Parcel P-1 as shown on the above referenced plan; thence running South 07°21'55" West for a distance of 28.43 feet to a point; thence running South 16°45'30" East for a distance of 202.10 feet to a point; thence running South 28°29'10" East for a distance of 4.00 feet to a point; thence running North 86°39'23" West for a distance of 517.28 feet to a point; thence running North 86°38'23" West for a distance of 404.45 feet to a point; thence running North 77°54'44" West for a distance of 406.38 feet to a point; thence running North 32°55'09" West for a distance of 158.03 feet to a point; thence running along the arc of a curve to the left with a radius of 2,620.53 feet, a central angle of 18°52'11" for a distance of 862.05 feet to a point, the last eight (8) courses being bounded by that area shown and designated as "Shaded Area is a Portion of Parcel P-1 to have Easement Granted to Parcel P-2" as shown on the above referenced plan; thence running South 73°00'44" East for a distance of 737.31 feet bounded northeasterly by land now or formerly of John P. Walsh Estate as shown on the above referenced plan to a point; thence running South 73°00'34" East for a distance of 197.80 feet bounded northeasterly by land now or formerly of Alice T. Welsh to the point and place of beginning.

Said premises is conveyed together with an exclusive use easement over and across that portion of Parcel P-1 as shown on the above referenced plan as "Shaded Area is a Portion of Parcel P-1 to have Easement Granted to Parcel P-2", which exclusive easement area is more particularly bounded and described as follows:

Beginning at a point in the westerly line of North Bride Brook Road a/k/a Bride Brook Road

at the northeasterly corner of said easement area and on the dividing line between said easement area and Parcel P-1 as shown on the above referenced plan; thence running South $07^{\circ}21'55''$ West bounded southeasterly by North Bride Brook Road a/k/a Bride Brook Road to an iron pipe recovered; thence running South $16^{\circ}45'30''$ East for a distance of 197.35 feet bounded northeasterly by North Bride Brook Road a/k/a Bride Brook Road to an angle point; thence running South $28^{\circ}29'12''$ East for a distance of 29.43 feet bounded northeasterly by North Bride Brook Road a/k/a Bride Brook Road to an iron pipe recovered; thence running North $86^{\circ}38'23''$ West for a distance of 544.26 feet to an iron pipe recovered; thence continuing North $86^{\circ}38'23''$ West for a distance of 405.59 feet to an iron pipe recovered, the last two (2) courses being bounded southwesterly by land now or formerly of Margaret Berry Balon as shown on the above referenced plan; thence running North $77^{\circ}54'44''$ West for a distance of 640.11 feet bounded southwesterly by land now or formerly of the State of Connecticut to a CHD monument recovered; thence running along the arc of a curve to the left with a radius of 2,605.53 feet, a central angle of $22^{\circ}37'10''$ for a distance of 1,028.62 feet bounded westerly by Interstate 95 to a point; thence running South $73^{\circ}00'44''$ East for a distance of 15.40 feet bounded northeasterly by land now or formerly of John P. Walsh Estate as shown on the above referenced plan to a point; thence running along the arc of a curve to the right with a radius of 2,620.53 feet, a central angle of $18^{\circ}52'11''$ for a distance of 863.05 feet to a point; thence running South $32^{\circ}55'09''$ East for a distance of 158.03 feet to a point; thence running South $77^{\circ}54'44''$ East for a distance of 406.38 feet to a point; thence running South $86^{\circ}38'23''$ East for a distance of 404.45 feet to a point; thence running South $86^{\circ}38'23''$ East for a distance of 517.28 feet to a point; thence running North $28^{\circ}29'10''$ West for a distance of 4.00 feet to a point; thence running North $16^{\circ}45'30''$ West for a distance of 202.10 feet to a point; thence running North $07^{\circ}21'55''$ East for a distance of 28.43 feet to a point, the last eight (8) courses being bounded by Parcel P-2 as shown on the above referenced plan; thence running South $82^{\circ}38'05''$ East for a distance of 15.00 feet bounded northeasterly by a portion of Parcel P-1 as shown on the above referenced plan to the point and place of beginning of said exclusive easement area.

**SCHEDULE B
IDENTIFICATION OF AFFORDABLE UNITS**

The following housing units in the Brookside Apartments shall be designated as Affordable Units:

TYPE A UNITS

Units A-101, B-110, D-110, E-108, H-101, J-101

Units A-101, D-110, H-101 shall be at the 60% of median income level

Units B-110, E-108, J-101 shall be at the 60% to 80% median income level

TYPE B UNITS

Units A-107, B-109, C-102, E-107, H-109, I-102

Units A-107, C-102, H-109 shall be at the 60% of median income level

Units B-109, E-107, I-102 shall be at the 60% to 80% median income level

TYPE C UNITS

Units A-105, A-106, B-103, B-105, B-107, C-104, D-103, D-108, F-103, G-106, H-105, J-104

Units A-105, B-103, B-107, D-103, F-103, H-105 shall be at the 60% of median income level

Units A-106, B-105, C-104, D-108, G-106, J-104 shall be at the 60% to 80% median income level

Total: 24 Affordable Units

Affordable Units may be shifted or exchanged as long as they remain interspersed, as is reasonably possible given existing occupied dwelling units at the time of conversion, and not concentrated in particular areas of the site and the 30% ratio is maintained at all times.

SCHEDULE C
MINIMUM SPECIFICATIONS FOR MARKET-RATE AND AFFORDABLE UNITS

Foundation

- 10" poured concrete walls, 4" poured concrete floors.
- Bituminous waterproof coating on foundation walls below grade.

Carpentry

- 2"x6" S.Y.P. pressure treated wood sills and sill sealer on concrete foundation walls.
- 2"x4" D.F. or Hem Fir 16" on center interior wall framing.
- 2"x6" D.F. 16" on center exterior wall framing 1/2" sheathing on exterior walls.
- 2"x10" Douglas fir floor joists at 16" on center.
- 1/2" sheathing on roof.
- 2"x10" wood basement stairs with handrails.
- Main Staircase: poplar riser with oak tread, traditional.
- Tyvar or equivalent building wrap on exterior walls.
- Pressure treated wood deck: 2"x10" joists & 5/4"x6" decking.
- Oak hardwood flooring (one room), 3/8" underlayment under vinyl or tile, 3/8" underlayment under wall to wall carpeting.
- Exterior steps/railings per code.

Interior Trim Accessories

- Painted or stained pine casings at doors/windows and baseboard.
- White vinyl coated wire shelf systems.
- All accessories, such as mirrors, medicine cabinets, etc. are included in cabinet allowance.

Cabinets, Vanities and Counter Tops

- Standard wood and plywood kitchen cabinets (including laminate countertops and accessories, such as knobs).

Siding

- Vinyl.
- Front Shutters Aluminum wrap trim.
- Aluminum gutters and downspouts.

Roofing

- 1/2" OSB or CDX roof sheathing.
- GAF architectural shingles (weathered wood) soffit and ridge vents.
- Aluminum flashing and aluminum drip cap.

Insulation-Fiberglass

- R-49 in ceiling.
- R-21 in walls.
- R-30 at wood framed floors.
- R-10 at frost wall / slab on grade floors.

Doors

- Exterior doors insulated metal 6 panel Masonite.
- Interior door solid, Molded, 1-3/8" thick.

Windows

- All vinyl double hung Insulated Glass windows with grills/screens or equivalent Casement in kitchen.

Drywall

- 1/2" painted drywall interior 1/2" drywall ceilings.

Flooring

- Wall to wall carpet in all rooms except kitchen and bathrooms which shall be vinyl.

Porch

- Pressure Treated front porch/steps/deck.

Heating/Hot Water

- Oil fired or gas hot water boiler.

Utilities

- City sewer, public water, electric and cable television

Landscaping

- Rough grade and seed, one time only.
- Concrete walk (From front door to driveway) and (rear slider pad) Crushed stone driveway.

SCHEDULE D
DEFINITIONS AND ELEMENTS OF ANNUAL FAMILY INCOME

1. Annual income shall be calculated with reference to 24 C.F.R. §5.609, and includes, but is not limited to, the following:
 - a. The full amount, before any payroll deductions, of wages and salaries, overtime pay, commissions, fees, tips, bonuses and other compensation for personal services;
 - b. The net income from operations of a business or profession, before any capital expenditures but including any allowance for depreciation expense;
 - c. Interest, dividends, and other net income of any kind from real or personal property;
 - d. The full amount of periodic payments received from social security, annuities, insurance policies, retirement funds, pensions, disability or death benefits, or other similar types of periodic payments;
 - e. Payments in lieu of earnings, such as unemployment and disability compensation, worker's compensation, and severance pay;
 - f. Welfare assistance. If the welfare assistance payments include an amount specifically designated for shelter and utilities that is subject to adjustment by the welfare assistance agency in accordance with the actual cost of shelter and utilities, the amount of welfare assistance to be included as income consists of the following:
 - (1) The amount of the allowance exclusive of the amounts designated for shelter or utilities, plus
 - (2) The maximum amount that the welfare assistance agency could in fact allow the family for shelter and utilities;
 - g. Periodic and determinable allowances, such as alimony and child support payments, and regular contributions or gifts received from persons not residing with the Applicant (e.g. periodic gifts from family members, churches, or other sponsored group, even if the gifts are designated as rental or other assistance);
 - h. All regular pay, special pay and allowances of a member of the armed forces;
 - i. Any assets not earning a verifiable income shall have an imputed interest income using a current average annual savings interest rate.

2. Excluded from the definition of family annual income are the following:
 - a. Income from employment of children under the age of 18;
 - b. Payments received for the care of foster children;
 - c. Lump-sum additions to family assets, such as inheritances, insurance payments, capital gains and settlement for personal or property losses;
 - d. Amounts received that are specifically for, or in reimbursement of, the cost of medical expense for any family member;
 - e. Amounts of educational scholarships paid directly to the student or to the educational institution, and amounts paid by the government to a veteran in connection with education costs;
 - f. Amounts received under training programs funded by HUD;
 - g. Food stamps; and
 - h. Temporary, nonrecurring or sporadic income (including gifts that are not regular or periodic).

3. Net family assets for purposes of imputing annual income include the following:
 - a. Cash held in savings and checking accounts, safety deposit boxes, etc.;
 - b. The current market value of a trust for which any household member has an interest;
 - c. The current market value, less any outstanding loan balances of any rental property or other capital investment;
 - d. The current market value of all stocks, bonds, treasury bills, certificates of deposit and money market funds;
 - e. The current value of any individual retirement, 401K or Keogh account;
 - f. The cash value of a retirement or pension fund which the family member can withdraw without terminating employment or retiring;
 - g. Any lump-sum receipts not otherwise included in income (i.e., inheritances, capital gains, one-time lottery winnings, and settlement on insurance claims);
 - h. The current market value of any personal property held for investment (i.e.,

gems, jewelry, coin collections); and

- i. Assets disposed of within two (2) years before the Application Date, but only to the extent consideration received was less than the fair market value of the asset at the time it was sold.

4. Net family assets do not include the following:

- a. Necessary personal property (clothing, furniture, cars, etc.);
- b. Vehicles equipped for handicapped individuals;
- c. Life insurance policies;
- d. Assets which are part of an active business, not including rental properties; and
- e. Assets that are not accessible to the Applicant and provide no income to the Applicant.

SCHEDULE E
DOCUMENTATION OF INCOME

The following documents shall be provided, where applicable, to the Administrator to determine income eligibility:

1. Employment Income.

Verification forms must request the employer to specify the frequency of pay, the effective date of the last pay increase, and the probability and effective date of any increase during the next twelve (12) months. Acceptable forms of verification (of which at least one must be included in the Applicant file) include:

- a. An employment verification form completed by the employer.
- b. Check stubs or earnings statement showing Applicant's gross pay per pay period and frequency of pay.
- c. W-2 forms if the Applicant has had the same job for at least two years and pay increases can be accurately projected.
- d. Notarized statements, affidavits or income tax returns signed by the Applicant describing self-employment and amount of income, or income from tips and other gratuities.

2. Social Security, Pensions, Supplementary Security Income, Disability Income.

- a. Benefit verification form completed by agency providing the benefits.
- b. Award or benefit notification letters prepared and signed by the authorizing agency. (Since checks or bank deposit slips show only net amounts remaining after deducting SSI or Medicare, they may be used only when award letter cannot be obtained.)
- c. If a local Social Security Administration ("SSA") office refuses to provide written verification, the Administrator should meet with the SSA office supervisor. If the supervisor refuses to complete the verification forms in a timely manner, the Administrator may accept a check or automatic deposit slip as interim verification of Social Security or SSI benefits as long as any Medicare or state health insurance withholdings are included in the annual income.

3. Unemployment Compensation.

- a. Verification form completed by the unemployment compensation agency.

- b. Records from unemployment office stating payment dates and amounts.

4. Government Assistance.

- a. All Government Assistance Programs. Agency's written statements as to type and amount of assistance Applicant is now receiving, and any changes in assistance expected during the next twelve (12) months.
- b. Additional Information for "As-paid" Programs: Agency's written schedule or statement that describes how the "as-paid" system works, the maximum amount the Applicant may receive for shelter and utilities and, if applicable, any factors used to ratably reduce the Applicant's grant.

5. Alimony or Child Support Payments.

- a. Copy of a separation or settlement agreement or a divorce decree stating amount and type of support and payment schedules.
- b. A letter from the person paying the support.
- c. Copy of latest check. The date, amount, and number of the check must be documented.
- d. Applicant's notarized statement or affidavit of amount received or that support payments are not being received and the likelihood of support payments being received in the future.

6. Net Income from a Business.

The following documents show income for the prior years. The Administrator must consult with Applicant and use this data to estimate income for the next twelve (12) months.

- a. IRS Tax Return, Form 1040, including any:
 - (1) Schedule C (Small Business).
 - (2) Schedule E (Rental Property Income).
 - (3) Schedule F (Farm Income).
- b. An accountant's calculation of depreciation expense, computed using straight-line depreciation rules. (Required when accelerated depreciation was used on the tax return or financial statement.)
- c. Audited or unaudited financial statement(s) of the business.

- d. A copy of a recent loan application listing income derived from the business during the previous twelve (12) months.
- e. Applicant's notarized statement or affidavit as to net income realized from the business during previous years.

7. Recurring Gifts.

- a. Notarized statement or affidavit signed by the person providing the assistance. Must give the purpose, dates and value of gifts.
- b. Applicant's notarized statement or affidavit that provides the information above.

8. Scholarships, Grants, and Veterans Administration Benefits for Education.

- a. Benefactor's written confirmation of amount of assistance, and educational institution's written confirmation of expected cost of the student's tuition, fees, books and equipment for the next twelve (12) months. To the extent the amount of assistance received is less than or equal to actual educational costs, the assistance payments will be excluded from the Applicant's gross income. Any excess will be included in income.
- b. Copies of latest benefit checks, if benefits are paid directly to student. Copies of canceled checks or receipts for tuition, fees, books, and equipment, if such income and expenses are not expected to change for the next twelve (12) months.
- c. Lease and receipts or bills for rent and utility costs paid by students living away from home.

9. Family Assets Currently Held.

For non-liquid assets, collect enough information to determine the current cash value (i.e., the net amount the Applicant would receive if the asset were converted to cash).

- a. Verification forms, letters, or documents from a financial institution, broker, etc.
- b. Passbooks, checking account statements, certificates of deposit, bonds, or financial statements completed by a financial institution or broker.
- c. Quotes from a stock broker or realty agent as to net amount Applicant would receive if Applicant liquidated securities or real estate.

- d. Real estate tax statements if tax authority uses approximate market value.
- e. Copies of closing documents showing the selling price, the distribution of the sales proceeds and the net amount to the borrower.
- f. Appraisals of personal property held as an investment.
- g. Applicant's notarized statements or signed affidavits describing assets or verifying the amount of cash held at the Applicant's home or in safe deposit boxes.

10. Assets Disposed of for Less Than Fair Market Value ("FMV") During Two Years Preceding Application Date.

- a. Applicant's certification as to whether it has disposed of assets for less than FMV during the two (2) years preceding the Application Date.
- b. If the Applicant states that it did dispose of assets for less than FMV, then a written statement by the Applicant must include the following:
 - (1) A list of all assets disposed of for less than FMV;
 - (2) The date Applicant disposed of the assets;
 - (3) The amount the Applicant received; and
 - (4) The market value to the asset(s) at the time of disposition.

11. Savings Account Interest Income and Dividends.

- a. Account statements, passbooks, certificates of deposit, etc., if they show enough information and are signed by the financial institution.
- b. Broker's quarterly statements showing value of stocks or bonds and the earnings credited the Applicant.
- c. If an IRS Form 1099 is accepted from the financial institution for prior year earnings, the Administrator must adjust the information to project earnings expected for the next twelve (12) months.

12. Rental Income from Property Owned by Applicant.

The following, adjusted for changes expected during the next twelve (12) months, may be used:

- a. IRS Form 1040 with Schedule E (Rental Income).

- b. Copies of latest rent checks, leases, or utility bills.
- c. Documentation of Applicant's income and expenses in renting the property (tax statements, insurance premiums, receipts for reasonable maintenance and utilities, bank statements or amortization schedule showing monthly interest expense).
- d. Lessee's written statement identifying monthly payments due the Applicant and Applicant's affidavit as to net income realized.

13. Full-Time Student Status.

- a. Written verification from the registrar's office or appropriate school official.
- b. School records indicating enrollment for sufficient number of credits to be considered a full-time student by the school.

14. Honorably Discharged Veterans of the Military Services of the United States of America.

- a. Department of Defense Form 214.

**SCHEDULE F
RENTAL AGREEMENT RESTRICTIONS**

TO BE INSERTED IN ALL RENTAL AGREEMENTS FOR UNITS IN BROOKSIDE APARTMENTS:

Brookside Apartments is a community which has been approved pursuant to Connecticut General Statutes §8-30g. This community contains both market rate apartments as well as apartments which have been determined to be "Affordable" for residents at or below sixty (60%) percent of the lower of the area or statewide median income and residents whose income is between sixty (60%) percent and eighty (80%) percent of the lower of the area or statewide median income. The density of Brookside Apartments has been determined pursuant to Connecticut General Statutes §8-30g and exceeds that otherwise allowed under the East Lyme Zoning Regulations. Brookside Apartments contains eighty (80) dwelling units being developed in phases. The community contains three (3) separate and distinct types of apartment units designated in the community's Affordability Plan as Type A Units, Type B Units and Type C Units. Type A Units are 3-bedroom, 2-bath units. Type B Units are 2-bedroom, 1 ½-bath units with an expanded floor plan. Six (6) Type B Units will be handicapped accessible units. Type C Units are 2-bedroom, 1 ½-bath units. Pursuant to the Affordability Plan for Brookside Apartments, six (6) Type A Units will be designated as Affordable Units, six (6) Type B Units will be designated as Affordable Units and twelve (12) Type C Units will be designated as Affordable Units.

TO BE INSERTED IN ALL AFFORDABLE UNIT LEASES IN BROOKSIDE APARTMENTS:

The language below shall be inserted in each lease of an Affordable Unit for the duration of the forty (40) year monthly maximum rental amount restriction period.

The property conveyed hereby is an "affordable housing" unit subject to the requirements of Connecticut General Statutes Section 8-30g. Said dwelling unit is subject to the following restrictions (the "Restrictions"):

TO BE INSERTED IN A LEASE FOR A SIXTY (60%) PERCENT DWELLING UNIT:

1. This dwelling unit is an affordable housing dwelling unit within a set aside development as defined in Section 8-30g of the Connecticut General Statutes and in accordance with the applicable regulations for state agencies that were in effect upon the date of the original application for the initial local approval, July 10, 2020, and is therefore subject to a limitation, at the date of commencement of the rental agreement, on the maximum annual income of the household that may lease the unit. These limitations shall be strictly enforced, and may be enforced by the person identified in the Affordability Plan as responsible for the administration of these limitations or the zoning enforcement authority of the Town of East Lyme. For the duration of this covenant or restriction, this dwelling unit shall be leased to a person or family whose annual income does not exceed SIXTY (60%) PERCENT of 'median income' as

defined in subsection 8-30g-1(10) of the Regulations of Connecticut State Agencies, applicable to this unit as specified in an Affordability Plan as on file with the Town of East Lyme Zoning Commission.

TO BE INSERTED IN A LEASE FOR AN EIGHTY (80%) PERCENT DWELLING UNIT:

1. This dwelling unit is an affordable housing dwelling unit within a set aside development as defined in Section 8-30g of the Connecticut General Statutes and in accordance with the applicable regulations for state agencies that were in effect upon the date of the original application for the initial local approval, July 10, 2020, and is therefore subject to a limitation, at the date of commencement of the rental agreement, on the maximum annual income of the household that may lease the dwelling unit. These limitations shall be strictly enforced, and may be enforced by the person identified in the Affordability Plan as responsible for the administration of these limitations or the zoning enforcement authority of the Town of East Lyme. For the duration of this covenant or restriction, this dwelling unit may be leased only to persons and families whose annual income does not exceed EIGHTY (80%) PERCENT of 'median income' as defined in subsection 8-30g-1(10) of the Regulations of Connecticut State Agencies, applicable to this unit as specified in an Affordability Plan as on file with the Town of East Lyme Zoning Commission.

TO BE INSERTED IN ALL AFFORDABLE UNIT LEASES:

2. In the event that an Affordable Unit becomes vacant, the Owner shall notify the Administrator in writing. The Owner shall pay the Administrator a fee to cover the cost of administering the new lease of the Affordable Unit. The Administrator shall then provide notice of the availability of said dwelling unit for lease. Such notice shall be provided, at a minimum, by advertising at least two times in newspapers of general circulation in the Town of East Lyme. The Owner shall bear the cost of such advertisement. The Administrator shall also provide such notice to the East Lyme Zoning Commission and the Town of East Lyme Zoning Enforcement Officer. Such notice shall include a description of the dwelling unit, the eligibility criteria for potential tenants, the Maximum Rent and the availability of application forms and additional information. All such notices shall comply with the Federal Fair Housing Act, 42 U.S.C. 3601 et seq. and the Connecticut Fair Housing Act, Connecticut General Statutes §§46a-64b, 64c. Said Owner may hire a real estate broker or otherwise individually solicit offers to lease, independent of the Administrator's action, from potential tenants. Said Owner shall inform any potential tenant of the affordability restrictions on the Affordable Unit before any lease is executed by furnishing the potential tenant with a copy of the Affordability Plan. The lease shall contain a provision to the effect that the lease is contingent upon a determination by the Administrator that the potential tenant meets the eligibility criteria set forth in the Affordability Plan. The Administrator shall have thirty (30) days from such notice to determine the eligibility of the potential tenant in accordance with the application process set forth in the Affordability Plan. The Administrator shall notify said Owner

and the potential tenant of its determination of eligibility in writing within said thirty (30) day period. If the Administrator determines that the potential tenant is not eligible, the lease shall be void, and said Owner may solicit other potential tenants. If the Administrator determines that the potential tenant is eligible, the Administrator shall provide the potential tenant and said Owner with a signed certification, executed in recordable form, to the effect that the lessee of the Affordable Unit has complied with the provisions of the Affordability Plan. The Owner shall bear the cost of recording the certification.

3. Any Tenant of an Affordable Unit shall occupy the Affordable Unit as such Tenant's principal place of residence.
4. Said Affordability Tenant shall properly maintain the Affordable Unit. Said Affordability Tenant shall not destroy, damage or impair the Affordable Unit, allow the Affordable Unit to deteriorate, or commit waste in the Affordable Unit. When an Affordable Unit is offered for re-letting, the Administrator shall cause the property to be inspected.
5. The Owner shall maintain Brookside Apartments in a good state of repair. The Owner shall not destroy, damage or impair the common areas of Brookside Apartments nor allow the property to deteriorate or commit waste on the property.
6. A site plan approval for Brookside Apartments was approved by agencies of the Town of East Lyme based in part on the condition that a defined percentage of the dwelling units in the Community would be preserved as Affordable Units. The Restrictions are required by law to be strictly enforced.
7. A violation of the Restrictions contained in the Affordability Plan shall not result in a forfeiture of title, but the East Lyme Zoning Commission or its designated agent shall otherwise retain all enforcement powers granted by the Connecticut General Statutes, including Section 8-12, which powers include, but are not limited to, the authority, at reasonable times, to inspect said property and to examine the books and records of the Administrator to determine compliance of the property with the affordable housing regulations, and all terms of the Affordability Plan, including without limitation, Article V.

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Bubaris  **Traffic**
A S S O C I A T E S
Planning • Engineering • Design

December 22, 2018

Mr. Jason Pazzaglia
Pazz Construction, LLC
P.O. Box 817
East Lyme, CT 06333

**Re: Site Traffic Assessment
Proposed Multifamily Residential Development
90 North Bride Brook Road
East Lyme, Connecticut**



Dear Mr. Pazzaglia:

Reference is made to the proposal to construct a 250-unit, low rise, multifamily residential development on the parcel of land located on the west side of North Bride Brook Road, in the Town of East Lyme, Connecticut. This parcel abuts I-95 on its west (rear) side, but without direct access/egress to and from I-95. North Bride Brook Road is a two-way town road running north-south in the vicinity of the proposed site drive. Its northern terminus ends at Route 1 (Boston Post Road). Its southern terminus ends at CT Route 156 (West Main Street).

Please refer to Exhibit 1 of the Appendix which locates this site with respect to the surrounding roadway network.

Please refer to Exhibit 2 of the Appendix which provides a conceptual site plan for the proposed development.

Introduction

The development will be served by one, two-way site drive intersecting the west side of North Bride Brook Road. The site drive will be located to optimize available sight line distances to and from the north and south of the site drive. At this point in time, it is estimated that this residential development will consist of 208 apartment units and 42 condominium units, for a total of 250 units. It has been assumed that full occupancy of the development will occur by 2023, or 5 years hence from now.

Traffic Volume and Traffic Speed Parameters

For purposes of the traffic operations analyses that follow, automatic traffic recorder measurements were conducted over a one-week period in late-May 2017 when we were first retained, to measure approaching traffic volumes and traffic speeds on a typical week which included weekdays and a weekend. These measurements were conducted on North Bride Brook Road in the vicinity of the proposed site drive.

The actual traffic volume measurements are included in Exhibit 3 of the Appendix.

The actual traffic speed measurements are included in Exhibit 4 of the Appendix.

A review of Exhibit 3 show that North Bride Brook Road in the vicinity of the subject site carries from about 700 to 1,300 two-way vehicles per day, and about 1,000 two-way vehicles per day on a Saturday and Sunday, which are considered relatively low traffic volumes. The two-way count shows about a 50-50 split for the two directions of travel.

Please refer to Exhibits 5 and 6 of the Appendix which graphically summarize the existing, and to Exhibits 7 and 8 of the Appendix which graphically summarize the projected background (no-build) weekday am and pm peak hour traffic volumes for North Bride Brook Road in the vicinity of the proposed site drive. In the case of the projected 2023 background (no-build), these were derived by expanding the 2017 existing traffic volumes by two percent per year for each of six years, where it has been assumed that this development will be fully occupied by 2023, where the typical growth factor for traffic in this area of two percent per year is applicable.

A review of Exhibit 4 shows that North Bride Brook Road in the vicinity of the proposed site drive location carries traffic with average and 85th-percentile speeds of about 32 and 36 miles per hour, respectively, which are considered reasonable given the good condition of North Bride Brook Road in this area. The posted speed limit for the entire length of North Bride Brook Road is 25 miles per hour in both directions.

Site-Generated Traffic Volumes

For the purpose of estimating site-generated traffic volumes associated with the proposed residential development, we utilized the trip generation data made available for this purpose, by land use, in Trip Generation Report, by the Institute of Transportation Engineers (ITE), tenth edition, 2017.

Please refer to Exhibits 9 of the Appendix that summarizes the trip generation calculations that were made for the proposed development assuming the full development of 250 units consisting of apartments and/or condominiums.

Please refer to Table A on the next page which summarizes the results of the trip generation calculations from Exhibit 9 of the Appendix.

A review of Table A show that the subject 250-unit low rise, multifamily residential development can be expected to generate from 98 to 130 trips per hour during the weekday am and pm commuter peak periods. A trip is defined as a one-way vehicular trip traveling either to or from the site. Note that there are typically two such peaks during both the am and pm peaks depending on how far residents live from their place of employment (i.e., the farther away the point of employment, the earlier they leave in the am and the later they return in the pm).

Finally, given that the existing peak hour traffic volumes on the abutting road to the site are distributed about 50 percent to and from the north and 50 percent to and from the south, it was assumed that site-generated traffic traveling to and from the subject residential subdivision will follow the same traffic distribution patterns.

Please refer to the right columns of Table A which show the estimated site-generated peak hour traffic volumes that will travel to and from the subject subdivision assuming a 50-50 split, north versus south, similar to existing traffic distributions.

Background and Combined Traffic Volumes

Please refer to Exhibits 10 and 11 of the Appendix which graphically show the estimated combined peak hour traffic volumes associated with the weekday am and pm commuter peak periods as derived from the foregoing. Exhibits 10 and 11 were derived by combining the background volumes from Exhibits 7 and 8 with the estimated site-generated volumes from the two right-most columns from Table A.

A review of Exhibits 10 and 11 shows that the combined (build) condition for the road immediately serving the subject residential subdivision will remain at very low traffic volume levels.

Table A
Trip Generation and Trip Distribution
Residential Subdivision
90 North Bride Brook Road
East Lyme, Connecticut

	<u>Trip Distribution</u>	
<u>Trip Generation</u>	To/From NORTH via <u>North Bride Brook Road</u> 50%	To/From SOUTH via <u>North Bride Brook Road</u> 50%
<u>250 low-rise multifamily residential units</u>		
<u>Weekday AM Peak Hour</u>		
Inbound	20	10
<u>Outbound</u>	<u>78</u>	<u>39</u>
Total	98	49
<u>Weekday PM Peak Hour</u>		
Inbound	85	43
<u>Outbound</u>	<u>45</u>	<u>22</u>
Total	130	65

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December 2018

Operations Analysis

Intersection operational analyses were performed for the proposed site drive intersection on North Bride Brook Road utilizing the methodology described in the latest edition of Highway Capacity Manual, Special Report 209, Transportation Research Board, 1985, updated to 2016. Application of this methodology was facilitated by use of Synchro Analysis Software, developed by the Trafficware Corporation, Version 9. Operational analyses are utilized to determine a Level of Service (LOS) for a given intersection operating under either signalized or unsignalized control.

In the case of unsignalized intersections similar to the proposed site drive intersection, Level of Service (LOS) is defined in terms of the average control delay for the approach or movement evaluated. Control delay involves movements at slower speeds and stops on intersection approaches as vehicles move up in the queue or slow down upstream of an intersection. The delay experienced by a motorist is comprised of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference time that would result during base conditions in the absence of incident, control, traffic, or geometric delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. At two-way stop-controlled and all-way stop-controlled intersections, control delay is the total elapsed time from a vehicle joining the queue until its departure from the stopped position at the head of the queue. The control delay also includes the time required to decelerate to a stop and to accelerate to the free-flow speed. Level of Service for a one-way or two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a one-way or two-way stop-controlled intersection is **not defined** for the intersection as a whole. In today's environment, Levels of Service D to F are common and are often experienced on minor street approaches to major streets carrying relatively high traffic volumes.

Please refer to Exhibit 12 in the Appendix, which provides details on the definitions of Levels of Service for unsignalized intersections.

Please refer to Table B on the next page which summarizes the results of the traffic operational analyses that were conducted.

The computer-generated worksheets for these operational analyses are included as Exhibits 13 and 14 of the Appendix for the combined (build) weekday am and pm commuter peak periods.

A review of Table B shows that the levels of service for the proposed site drive intersection at North Bride Brook Road will operate at level of service A, considered excellent, for all the inbound, outbound, and through movements at this intersection.

Table B
Summary of Traffic Operations Analysis
Levels of Service
Residential Subdivision
90 North Bride Brook Road
East Lyme, Connecticut

	<u>2019 Combined</u>	
	<u>(Build)</u>	
	<u>AM Peak</u>	<u>PM Peak</u>
<u>North Bride Brook Road at Proposed Site Drive</u>		
North Bride Brook Road northbound approach	A	A
North Bride brook Road southbound approach	A	A
Proposed Site Drive eastbound (outbound) approach	A	A
Outbound Delay per vehicle (sec.)	9.3	9.9
Average delay per vehicle for entire intersection (sec.)	4.2	2.6

Bubaris Traffic Associates
December 2018

Therefore, the proposed development should not have an adverse impact on traffic operations that would otherwise exist without this development.

Traffic Crash Experience

A review was made of the most recent five-year traffic crash experience summary for the subject study area which included the entire length of North Bride Brook Road as compiled and made available by the Connecticut Department of Transportation (2012-2014) and the UConn Traffic Crash Depository (2015-2017) for the five-year period from January 2012 through December 2017.

The actual traffic crash data are included in Exhibit 15 of the Appendix.

A review of Exhibit 15 shows an excellent traffic crash experience for this road, and NONE in the vicinity of the proposed site drive intersection. This excellent traffic crash experience shows no reason to expect that the proposed residential development with its relatively low site-generated traffic volumes would exacerbate this favorable condition.

Sight Line Evaluation

In the absence of an actual site plan to review, a field view of actual conditions indicated that available sight lines from a site drive location on North Bride Brook Road can be located and designed to provide satisfactory sight line distances of 450 to 500 feet to accommodate prevailing approaching traffic speeds as recently measured.

Conclusions

It is the professional opinion of Bubaris Traffic Associates that the proposed residential development at 90 North Bride Brook Road, consisting of about 250 low rise multifamily residential units, should not adversely impact traffic operations on the surrounding roadway network when it is completed and occupied.

The proposed residential development is expected to generate from 98 to 130 trips per hour during the weekday am and pm commuter peak periods.

Operational analyses indicate that the proposed development will experience excellent levels of service at the proposed site drive intersection given the relatively low traffic volumes on North Bride Brook Road.

It appears that the required sight lines to and from the proposed site drive intersection can be provided given our preliminary field view.

The traffic crash experience for the immediate study area is excellent with no reason to expect that the subject development will exacerbate this excellent condition.



Very truly yours,
Bubaris Traffic Associates, Inc.

James G. Bubaris

James G. Bubaris, P.E.
Conn. Reg. No. 9203
Principal

**Site Traffic Assessment
Proposed Residential Subdivision
90 North Bride Brook Road
East Lyme, Connecticut**

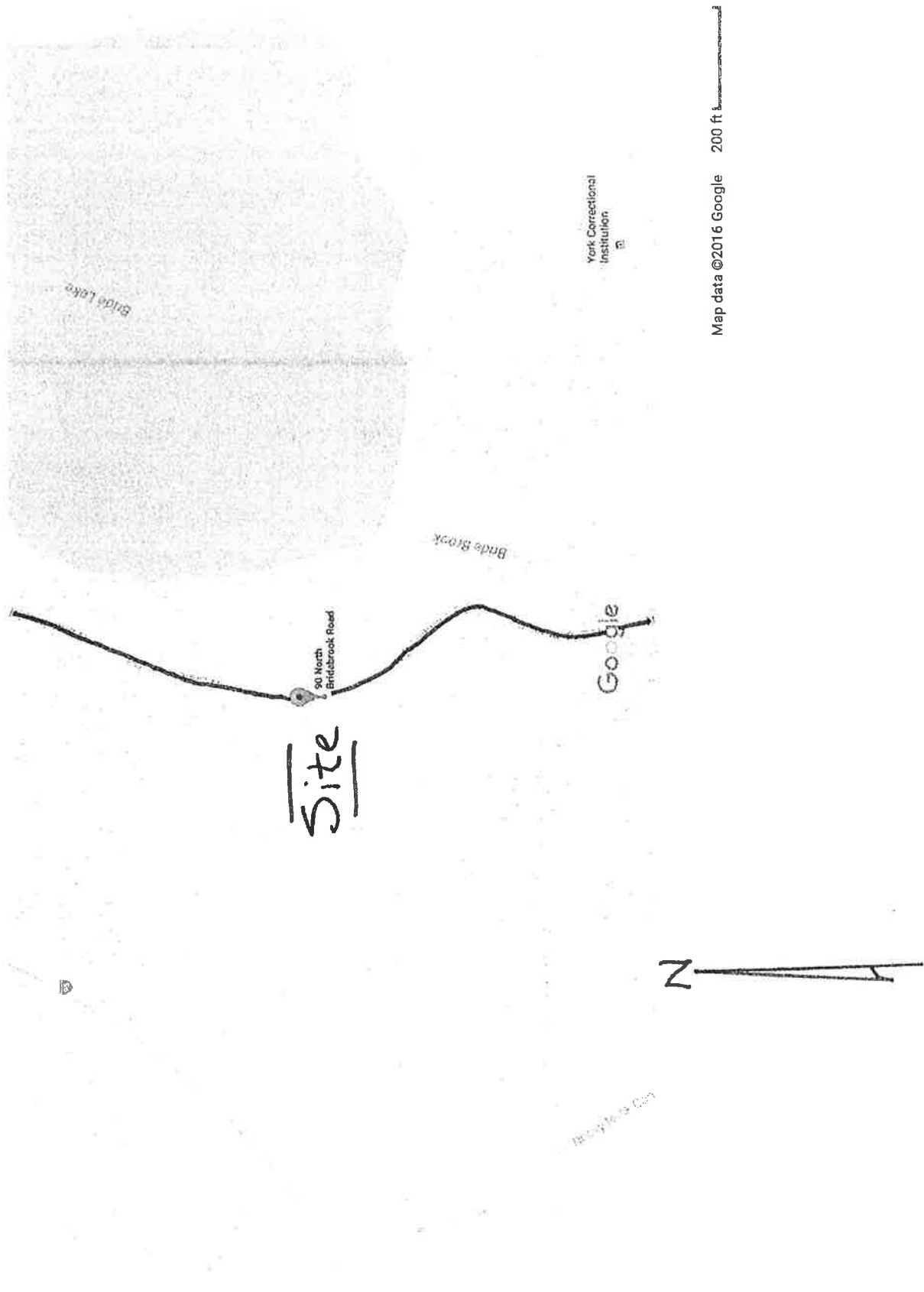
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Exhibit 1
Location Maps
Proposed Residential Subdivision
90 North Bride Brook Road
East Lyme, Connecticut

Google Maps 90 N Bridebrook Rd

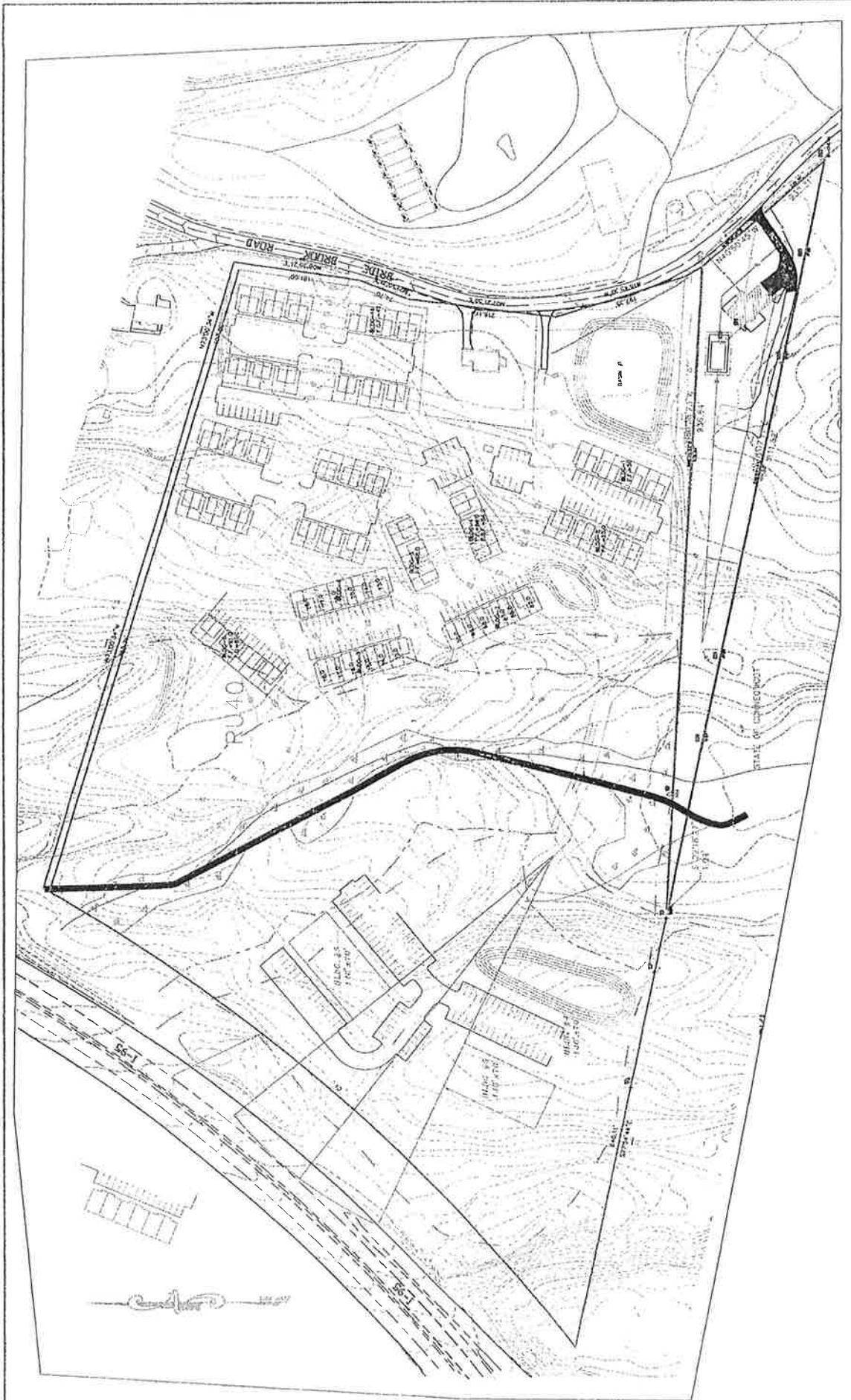


Google Maps 90 N Bridebrook Rd



Imagery ©2016 Google, Map data ©2016 Google 200 ft

**Exhibit 2
Site Plan
Proposed Residential Subdivision
90 North Bride Brook Road
East Lyme, Connecticut**



DRAWN BY: RDP		DATE: AUGUST 14, 2014	1. ROBERT REYNOLDS & ASSOCIATES, P.C. CIVIL ENGINEERS & LAND SURVEYORS 27 GRAND STREET, NANTUCKET, CONNECTICUT 06570 TEL. 860-734-9216 FAX 860-734-0895	GRAPHIC SCALE 	TITLE: PRELIMINARY SITE PLAN FOR THE PROPOSED DEVELOPMENT OF A RESIDENTIAL DEVELOPMENT ON THE EAST SIDE OF BRIDGE ROAD LOCATION: 80 North Side Brook Road - Nantucket, Connecticut	SHEET NUMBER 1 OF 1
NO	DATE	DESCRIPTION				

Exhibit 3
Automatic Traffic Volume Measurements
North Bride Brook Road vicinity of No. 90
East Lyme, Connecticut

Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

90 North Bridebrook Road
East Lyme, Connecticut

Site Code: 4321
Station ID:

Latitude: 0' 0.0000 Undefined

Start Time	15-May-17		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo
12:00 AM	*	*	*	*	*	*	3	3	6	0	4	2	8	6	5	3
01:00	*	*	*	*	*	*	2	2	2	2	5	2	4	1	3	2
02:00	*	*	*	*	*	*	2	2	0	1	3	1	2	3	2	2
03:00	*	*	*	*	*	*	1	1	2	1	1	0	0	0	1	0
04:00	*	*	*	*	*	*	1	1	2	0	3	2	2	2	2	1
05:00	*	*	*	*	*	*	7	8	2	6	2	1	5	3	4	4
06:00	*	*	*	*	*	*	10	14	17	18	3	5	5	13	9	12
07:00	*	*	*	*	*	*	18	24	13	30	20	18	15	10	16	20
08:00	*	*	*	*	*	*	24	19	24	25	15	32	22	24	21	25
09:00	*	*	*	*	*	*	36	31	19	23	42	41	29	29	32	31
10:00	*	*	*	*	*	*	18	28	30	26	41	36	21	35	28	31
11:00	*	*	*	*	*	*	31	31	28	32	42	30	32	36	33	32
12:00 PM	*	*	*	*	*	*	24	25	26	24	39	24	50	35	35	27
01:00	*	*	*	*	*	*	23	31	44	37	40	38	38	60	36	42
02:00	*	*	*	*	*	*	33	39	31	41	43	52	33	39	35	43
03:00	*	*	*	*	*	*	52	24	57	51	49	41	47	36	51	38
04:00	*	*	*	*	*	*	40	47	72	66	39	48	33	44	44	49
05:00	*	*	*	*	*	*	45	50	60	62	44	32	39	45	48	48
06:00	*	*	*	*	*	*	33	48	46	38	29	30	36	34	40	38
07:00	*	*	*	*	*	*	61	37	41	39	23	16	19	24	31	31
08:00	*	*	*	*	*	*	38	24	32	31	15	20	17	14	26	23
09:00	*	*	*	*	*	*	19	16	30	77	20	9	5	5	18	24
10:00	*	*	*	*	*	*	5	9	13	27	11	14	12	9	10	13
11:00	*	*	*	*	*	*	7	4	7	11	10	3	7	2	7	5
Lane	0	0	0	0	256	474	533	515	604	668	543	497	481	509	544	544
Day	0	0	0	0	1048	1272	1048	1048	1272	1040	1040	990	990	1088	1088	1088
AM Peak	-	-	-	-	09:00	09:00	09:00	09:00	10:00	11:00	09:00	09:00	11:00	11:00	11:00	11:00
Vol.	-	-	-	-	36	31	32	42	41	41	32	36	33	32	33	32
PM Peak	-	-	-	-	18:00	17:00	19:00	17:00	16:00	14:00	15:00	14:00	12:00	13:00	15:00	16:00
Vol.	-	-	-	-	57	51	61	50	72	77	49	52	50	60	51	49

Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

90 North Bridebrook Road
 East Lyme, Connecticut

Site Code: 4321
 Station ID:

Latitude: 0' 0.0000 Undefined

Start Time	22-May-17		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo	Nonrthbo	Southbo
12:00 AM	3	3	2	0	1	4	*	*	*	*	*	*	*	*	2	2
01:00	1	3	1	1	1	0	*	*	*	*	*	*	*	*	1	1
02:00	0	1	3	2	3	0	*	*	*	*	*	*	*	*	2	1
03:00	1	1	3	1	0	2	*	*	*	*	*	*	*	*	1	1
04:00	2	0	3	1	1	1	*	*	*	*	*	*	*	*	2	1
05:00	1	4	1	5	2	4	*	*	*	*	*	*	*	*	1	4
06:00	6	14	8	14	6	14	*	*	*	*	*	*	*	*	7	14
07:00	21	26	21	28	25	23	*	*	*	*	*	*	*	*	22	26
08:00	15	20	24	27	23	26	*	*	*	*	*	*	*	*	21	24
09:00	17	28	12	23	18	25	*	*	*	*	*	*	*	*	16	25
10:00	24	20	24	30	28	20	*	*	*	*	*	*	*	*	25	23
11:00	14	12	21	23	27	31	*	*	*	*	*	*	*	*	22	24
12:00 PM	22	19	20	22	25	31	*	*	*	*	*	*	*	*	30	21
01:00	24	21	30	19	35	23	*	*	*	*	*	*	*	*	31	54
02:00	25	33	27	53	40	75	*	*	*	*	*	*	*	*	47	33
03:00	35	29	61	36	44	34	*	*	*	*	*	*	*	*	43	40
04:00	38	29	63	56	27	35	*	*	*	*	*	*	*	*	47	33
05:00	34	23	68	47	*	*	*	*	*	*	*	*	*	*	51	35
06:00	11	23	45	39	*	*	*	*	*	*	*	*	*	*	28	31
07:00	13	13	37	25	*	*	*	*	*	*	*	*	*	*	25	19
08:00	19	8	14	20	*	*	*	*	*	*	*	*	*	*	16	14
09:00	11	9	6	14	*	*	*	*	*	*	*	*	*	*	8	12
10:00	0	5	5	4	*	*	*	*	*	*	*	*	*	*	2	4
11:00	4	2	5	11	*	*	*	*	*	*	*	*	*	*	4	6
Lane	341	346	504	501	306	341	0	0	0	0	0	0	0	0	428	435
Day	687		1005		647		0		0		0		0		863	
AM Peak	10:00	09:00	08:00	10:00	10:00	08:00	-	-	-	-	-	-	-	-	10:00	07:00
Vol.	24	28	24	30	28	26	-	-	-	-	-	-	-	-	25	26
PM Peak	16:00	14:00	17:00	16:00	15:00	14:00	-	-	-	-	-	-	-	-	17:00	14:00
Vol.	38	33	68	56	44	75	-	-	-	-	-	-	-	-	51	54

Comb. Total 687 1005 1121 1048 1272 1040 990 1951
 ADT ADT 1,003 AADT 1,003

Exhibit 4
Automatic Traffic Speed Measurements
North Bride Brook Road vicinity of No. 90
East Lyme, Connecticut

Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

90 North Bridebrook Road
 East Lyme, Connecticut

Site Code: 4321
 Station ID:

Latitude: 0' 0.0000 Undefined

Nonrthbound	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Pace	Number
Start	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Speed	in Pace
05/24/17	0	0	0	0	0	1	0	0	0	0	0	0	0	0	29-38	1
01:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	34-43	1
02:00	0	0	0	0	1	2	0	0	0	0	0	0	0	0	30-39	3
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	29-38	1
05:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	24-33	2
06:00	0	0	1	1	4	0	0	0	0	0	0	0	0	0	26-35	5
07:00	0	0	2	8	12	2	1	0	0	0	0	0	0	0	26-35	20
08:00	0	0	3	6	10	3	1	0	0	0	0	0	0	0	26-35	16
09:00	0	0	0	8	10	0	0	0	0	0	0	0	0	0	26-35	18
10:00	0	0	0	6	16	5	1	0	0	0	0	0	0	0	26-35	22
11:00	0	0	2	4	14	6	1	0	0	0	0	0	0	0	30-39	20
12 PM	0	0	1	4	15	5	0	0	0	0	0	0	0	0	29-38	20
13:00	1	2	2	10	17	3	0	0	0	0	0	0	0	0	26-35	27
14:00	1	1	0	13	19	5	1	0	0	0	0	0	0	0	26-35	32
15:00	1	0	2	10	25	5	0	1	0	0	0	0	0	0	26-35	35
16:00	0	1	1	10	13	2	0	0	0	0	0	0	0	0	26-35	23
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	3	4	14	81	157	40	6	1	0	0	0	0	0	0		306
Percent	1.0%	1.3%	4.6%	26.5%	51.3%	13.1%	2.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
AM Peak			08:00	07:00	10:00	11:00	01:00									10:00
Vol.	1	2	3	8	16	6	1									28
PM Peak	13:00	13:00	13:00	14:00	15:00	12:00	14:00	15:00								15:00
Vol.	1	2	2	13	25	5	1									44
Total	44	72	139	918	1674	606	91	16	3	4	1	0	0	0		3568
Percent	1.2%	2.0%	3.9%	25.7%	46.9%	17.0%	2.6%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%		

← NB

Stats : 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 2592
 Percent in Pace : 72.6%
 Number of Vehicles > 25 MPH : 3313
 Percent of Vehicles > 25 MPH : 92.9%
 Mean Speed(Average) : 32 MPH

Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

90 North Bridebrook Road
 East Lyme, Connecticut

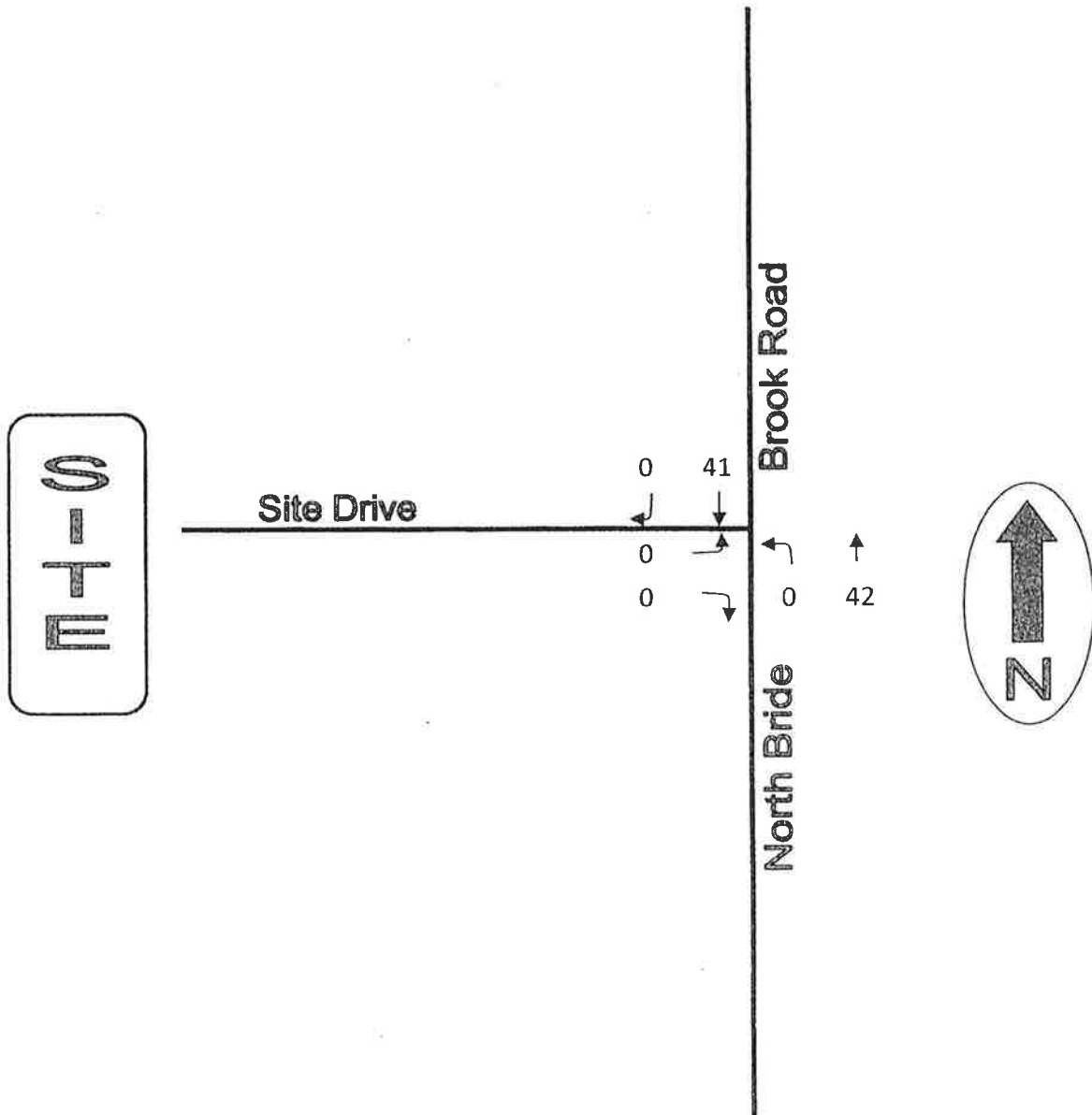
Site Code: 4321
 Station ID:

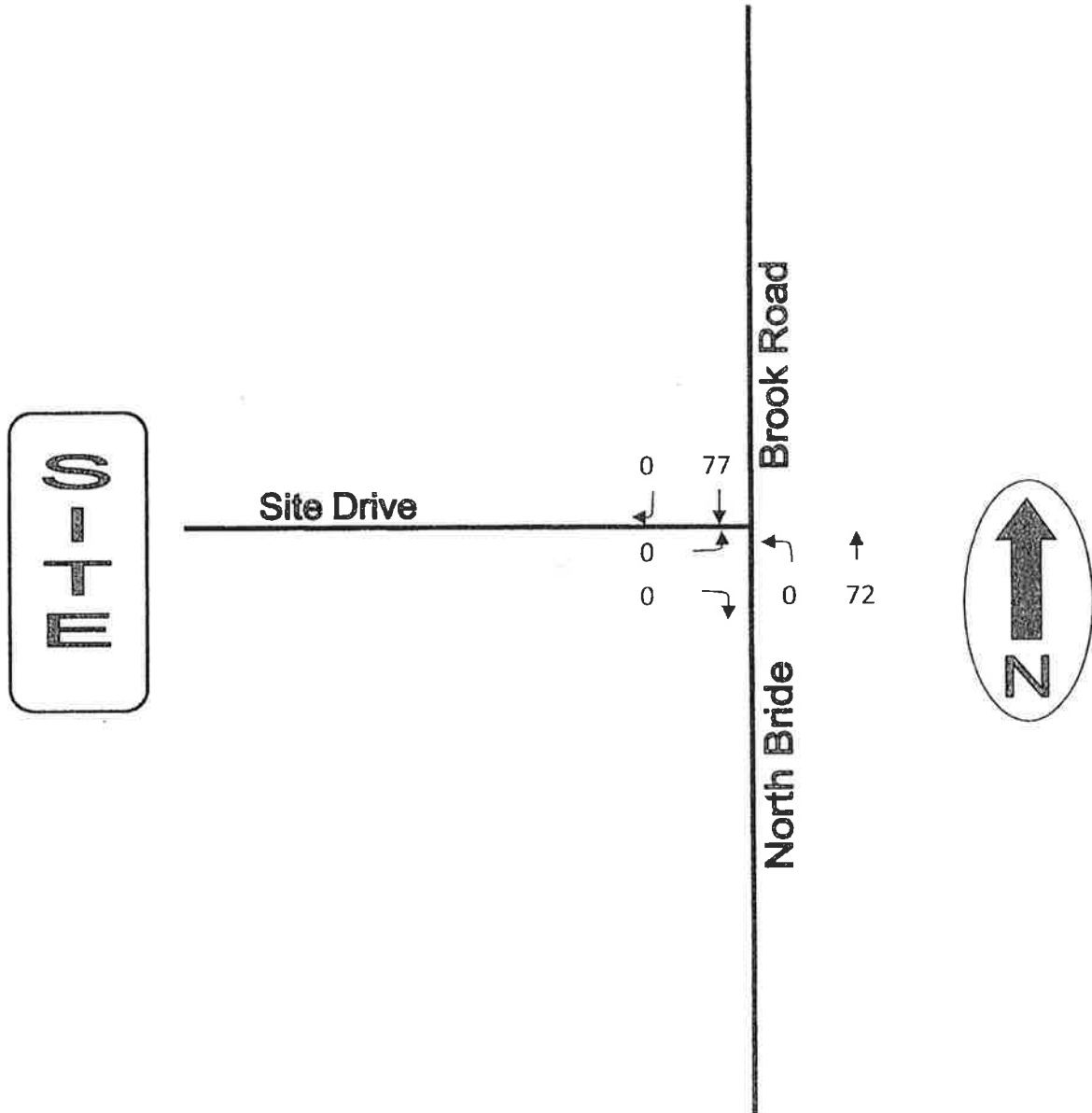
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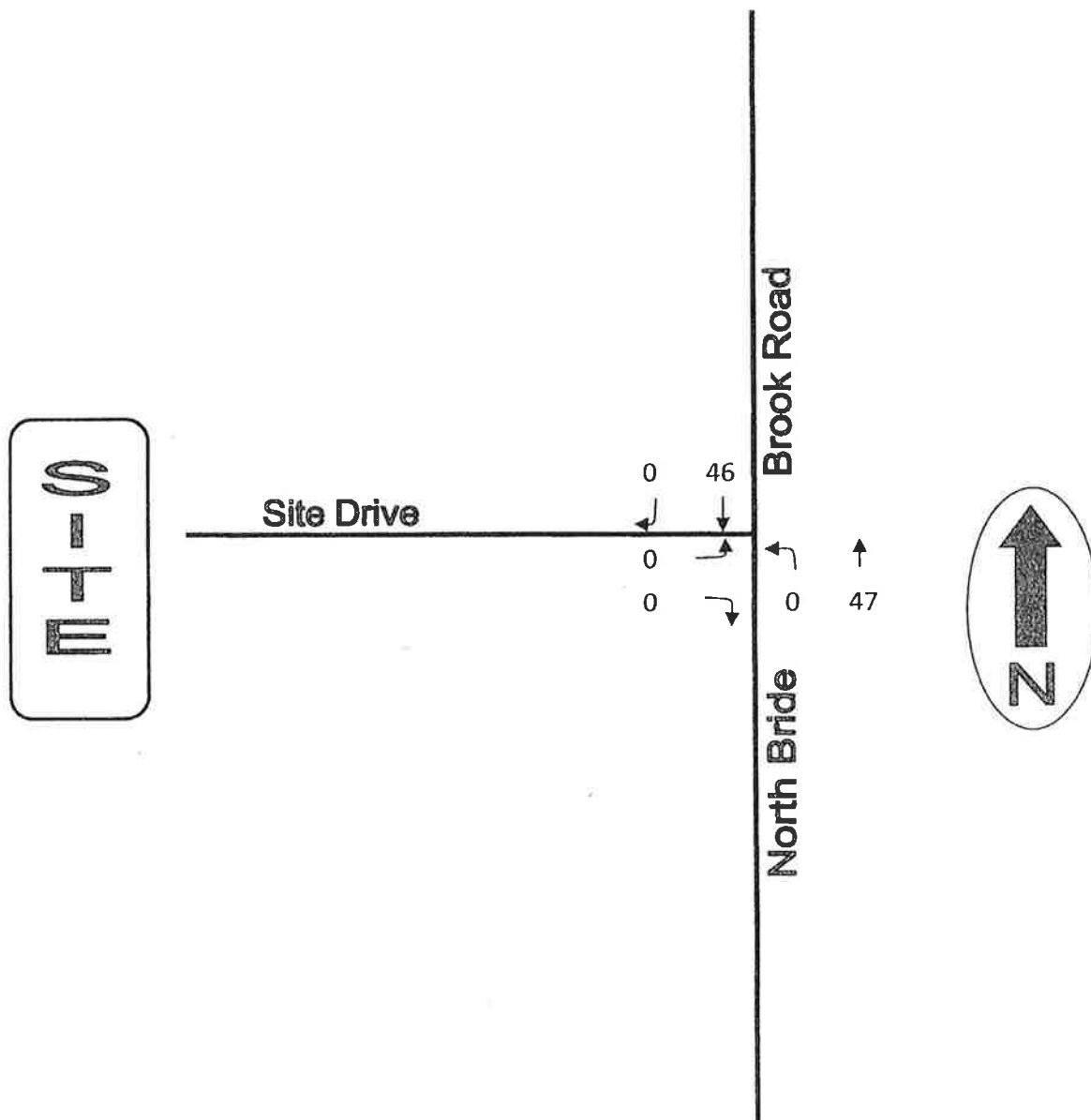
Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	78	999	Total	Pace Speed	Number in Pace
05/24/17	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	4	29-38	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	29-38	2
04:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	19-28	1
05:00	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	4	30-39	3
06:00	0	0	0	4	6	4	0	0	0	0	0	0	0	0	0	0	14	31-40	10
07:00	0	0	0	7	12	3	1	0	0	0	0	0	0	0	0	0	23	26-35	19
08:00	0	1	1	9	12	3	1	1	0	0	0	0	0	0	0	0	26	26-35	21
09:00	0	1	1	6	12	4	1	0	0	0	0	0	0	0	0	0	25	26-35	18
10:00	0	1	4	3	10	1	1	0	0	0	0	0	0	0	0	0	20	26-35	13
11:00	0	0	1	7	15	1	0	0	0	0	0	0	0	0	0	0	24	26-35	22
12 PM	0	0	2	8	11	10	0	0	0	0	0	0	0	0	0	0	31	30-39	21
13:00	0	2	0	11	8	1	1	0	0	0	0	0	0	0	0	0	23	26-35	19
14:00	0	0	4	22	33	15	1	0	0	0	0	0	0	0	0	0	75	26-35	55
15:00	0	0	2	10	17	4	1	0	0	0	0	0	0	0	0	0	34	26-35	27
16:00	0	0	0	8	23	3	1	0	0	0	0	0	0	0	0	0	35	26-35	31
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	5	15	97	161	54	8	1	0	0	0	0	0	0	0	0	341		
Percent	0.0%	1.5%	4.4%	28.4%	47.2%	15.8%	2.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	00:00	10:00	10:00	08:00	11:00	06:00	00:00	08:00									08:00		
Vol.	1	1	4	9	15	4	1	1									26		
PM Peak	13:00	14:00	14:00	14:00	14:00	14:00	13:00										14:00		
Vol.	2	4	4	22	33	15	1										75		
Total	16	49	207	1188	1609	474	46	5	0	1	0	0	0	0	0	0	3595		
Percent	0.4%	1.4%	5.8%	33.0%	44.8%	13.2%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

← SB

Stats
 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 2797
 Percent in Pace : 77.8%
 Number of Vehicles > 25 MPH : 3323
 Percent of Vehicles > 25 MPH : 92.4%
 Mean Speed(Average) : 31 MPH







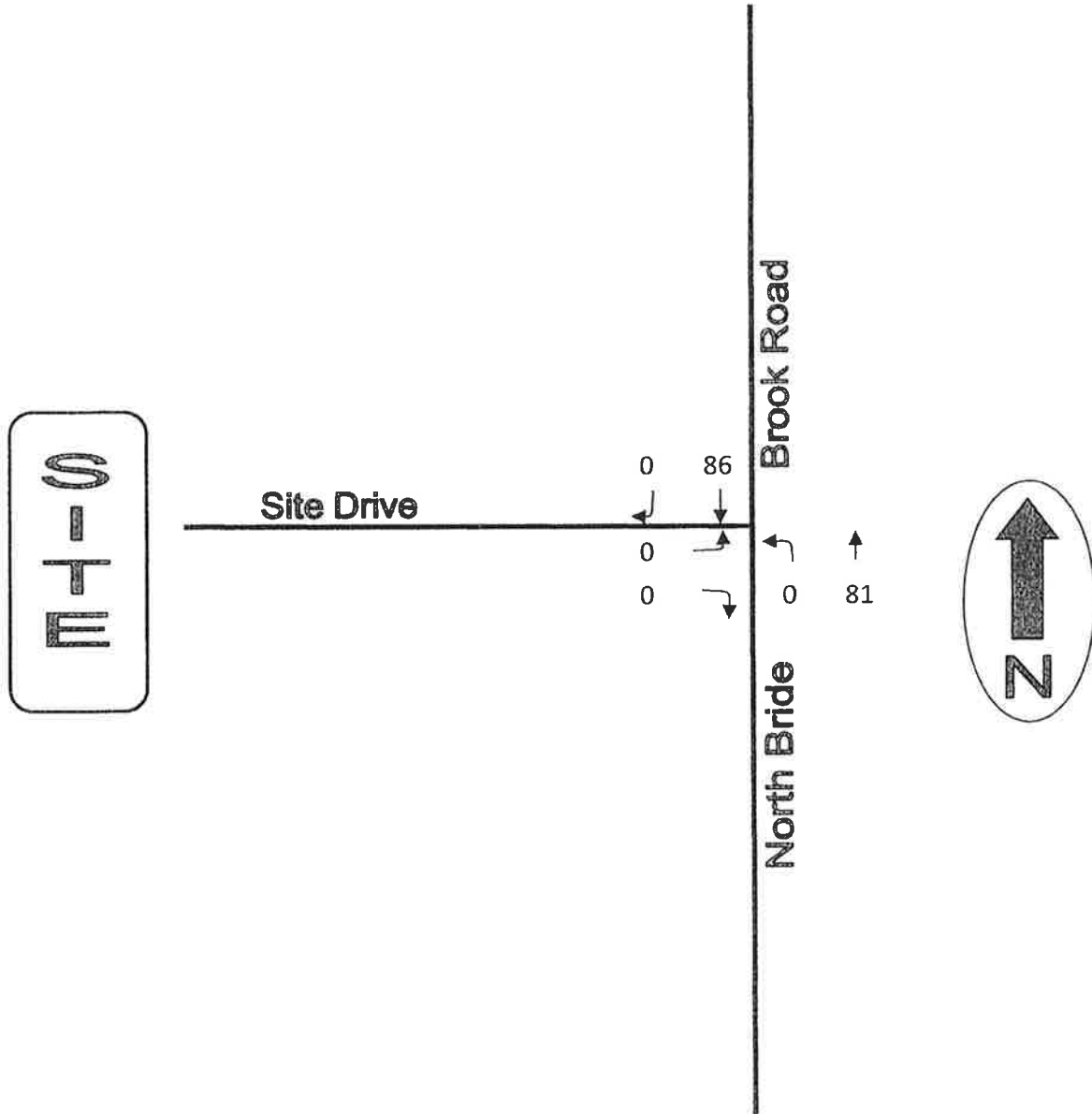


Exhibit 9
Trip Generation Calculations
Low Rise Multifamily Residential Development
ITE Land Use Code #220

Trip Generation Summary

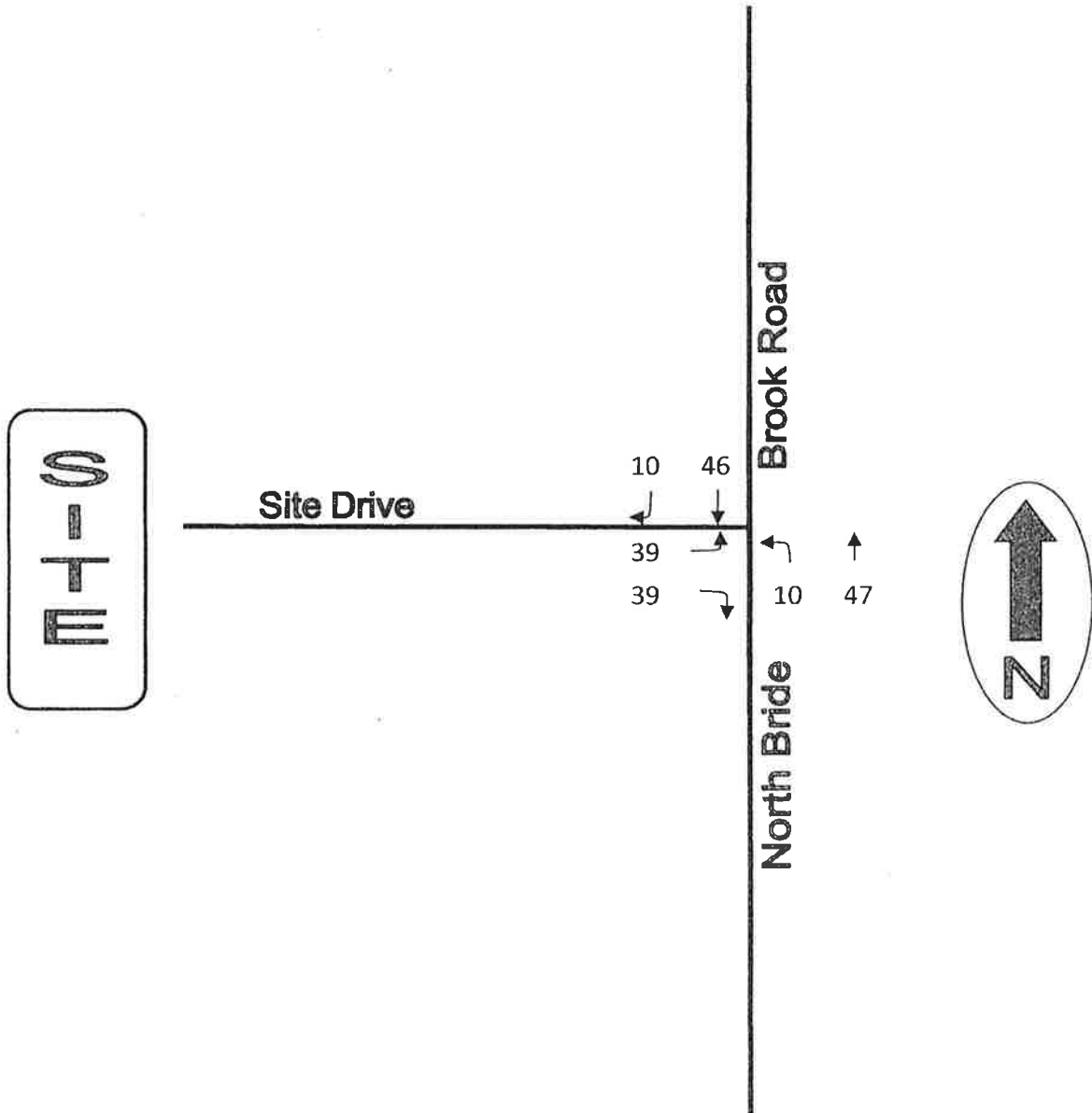
Alternative: Alternative 1
 Phase:
 Project: Pazzaglia Subdivision

Open Date: 12/16/2018
 Analysis Date: 12/16/2018

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic		
		* Enter	Exit	Total	* Enter	Exit	Total	* Enter	Exit	Total
220	LOW-RISE 1	789	789	1578	20	78	98	85	45	130
250	Occupied Dwelling Units									
	Unadjusted Volume	789	789	1578	20	78	98	85	45	130
	Internal Capture Trips	0	0	0	0	0	0	0	0	0
	Pass-By Trips	0	0	0	0	0	0	0	0	0
	Volume Added to Adjacent Streets	789	789	1578	20	78	98	85	45	130

Total Weekday Average Daily Trips Internal Capture = 0 Percent
 Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
 Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.



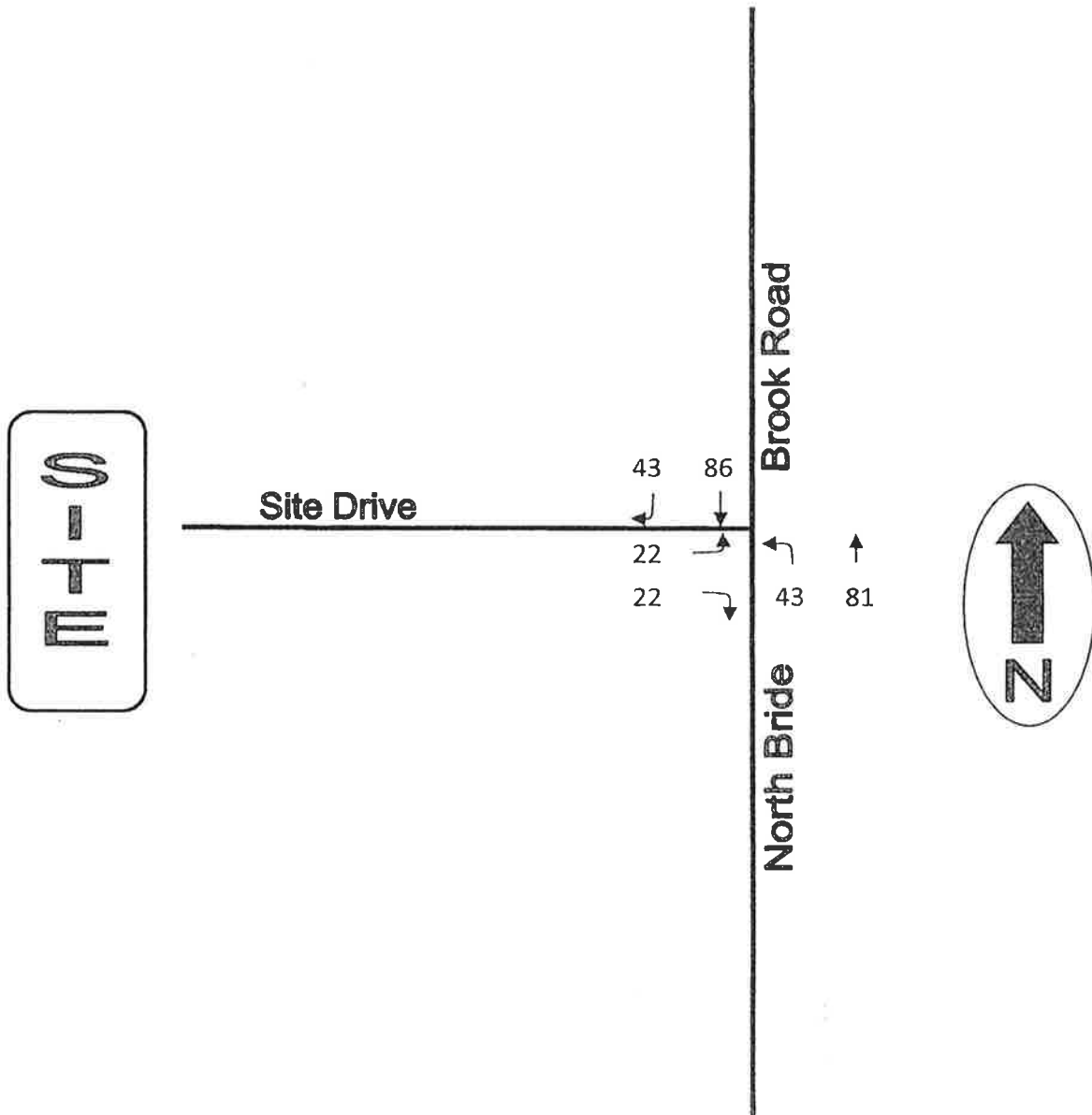


EXHIBIT 12
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTIONS

**SOURCE: HIGHWAY CAPACITY MANUAL (HCM), 2010
TRANSPORTATION RESEARCH BOARD (1)**

Level of Service for **unsignalized intersections** similar to the study intersections is defined in terms of the average control delay for the approach or movement evaluated. Control delay involves movements at slower speeds and stops on intersection approaches as vehicles move up in the queue or slow down upstream of an intersection.

The delay experienced by a motorist is comprised of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference time that would result during base conditions in the absence of incident, control, traffic, or geometric delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

At two-way stop-controlled and all-way stop-controlled intersections, control delay is the total elapsed time from a vehicle joining the queue until its departure from the stopped position at the head of the queue. The control delay also includes the time required to decelerate to a stop and to accelerate to the free-flow speed.

Level of Service (LOS) for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS is **not defined** for the intersection as a whole.

Level of Service (LOS) for an all-way stop-controlled intersection is determined by the computed or measured control delay and is defined for all movements. A LOS is **then defined** for the intersection as a whole.

Levels of Service (LOS) for **unsignalized intersections** are defined as follows:

LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	CONDITION
LOS A	0 TO 10	LITTLE OR NO DELAY
LOS B	> 10 TO 15	SHORT DELAY
LOS C	> 15 TO 25	AVERAGE DELAY
LOS D	> 25 TO 35	LONG DELAY
LOS E	> 35 TO 50	VERY LONG DELAY
LOS F	> 50	EXTREME DELAY

In today's environment, Levels of Service D to F are common and are often experienced on minor street approaches to major streets carrying relatively high traffic volumes.

(1) **HCM**, Exhibits 17-2 and 17-22.

Exhibit 13
Traffic Operations Analysis Worksheets
Combined Weekday AM Peak

Intersection

Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	39	39	10	47	46	10
Future Vol, veh/h	39	39	10	47	46	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	42	11	51	50	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	129	56	61	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	73	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	865	1011	1542	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	950	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	859	1011	1542	-	-	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	950	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1542	-	929	-	-
HCM Lane V/C Ratio	0.007	-	0.091	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Exhibit 14
Traffic Operations Analysis Worksheets
Combined Weekday PM Peak

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↙	↗	↖
Traffic Vol, veh/h	22	22	43	81	86	43
Future Vol, veh/h	22	22	43	81	86	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	24	47	88	93	47

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	299	117	140	0	0
Stage 1	117	-	-	-	-
Stage 2	182	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	692	935	1443	-	-
Stage 1	908	-	-	-	-
Stage 2	849	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	668	935	1443	-	-
Mov Cap-2 Maneuver	668	-	-	-	-
Stage 1	877	-	-	-	-
Stage 2	849	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1443	-	779	-	-
HCM Lane V/C Ratio	0.032	-	0.061	-	-
HCM Control Delay (s)	7.6	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Exhibit 15
Summary of Traffic Crash Experience
Immediate Study Area
East Lyme, Connecticut
Three Years: 2012 through 2014

North Bride Brook Road

From 1/1/2012 12:00:00 AM until 12/31/2014 11:59:59 PM

page 1 of 2

Report Generated 6/19/2017 8:53:43 AM

Town of East Lyme Route/Road Mile Marker 0.00 to 2.84 2012 To 2014 East Lyme North Bride Brook Road MM 0.00 To MM 2.84

Total of 8 accidents

1/1/2012 to 12/31/2014 Accident Experience Detail Report

Date	Town	Road	Mile	Location Description	DOT #	Police Case #	Contributing Factor	Lighting	Surface Condition	Weather Condition	Collision Type
Fri Jul-12-13 4:39	East Lyme	NORTH BRIDE BROOK RD	0.02	100 feet South of US 1-BOSTON POST RD	2068688	1300436239	Speed Too Fast For Conditions	Dawn	Dry	No Adverse Condition	Fixed Object
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix			1st/2nd Object Struck	1st/2nd Object Location	Injuries K A B C Total		
*	North	Automobile	None Apply	Vehicle Negotiating Curve			Fire Hydrant / Tree	Off Road and Shoulder, Right / Off Road and Shoulder, Right	0 0 0 0 0		
Fri Jan-25-13 21:35	East Lyme	NORTH BRIDE BROOK RD	0.20	2 tenths South of US 1-BOSTON POST RD	2025704	1300051042	Speed Too Fast For Conditions	Dark - Not Lighted	Snow/Slush	Snow	Fixed Object
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix			1st/2nd Object Struck	1st/2nd Object Location	Injuries K A B C Total		
*	South	Automobile	None Apply	Vehicle Going Straight			Utility Pole	Off Road and Shoulder, Right	0 0 0 0 0		
Wed Oct-29-14 9:03	East Lyme	NORTH BRIDE BROOK RD	0.37	250 feet South of APPLEWOOD COMMON	2222686	1400674694	Failed To Grant Right Of Way	Daylight	Dry	No Adverse Condition	Turning - Intersecting Paths
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix			1st/2nd Object Struck	1st/2nd Object Location	Injuries K A B C Total		
*	West	Automobile	None Apply	Vehicle Turning Right From Driveway					0 0 0 0 0		
	South	Automobile	None Apply	Vehicle Going Straight					0 0 0 0 0		
Sat Jun-14-14 1:33	East Lyme	NORTH BRIDE BROOK RD	1.11	200 feet North of WEST SOCIETY RD	2192531	1400366414	Speed Too Fast For Conditions	Dark - Not Lighted	Wet	Rain	Fixed Object
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix			1st/2nd Object Struck	1st/2nd Object Location	Injuries K A B C Total		
*	North	Single Unit Truck 2 Axle 4 Tires	None Apply	Vehicle Skidding in Roadway			Wall / Tree	Off Road and Shoulder, Left / Off Road and Shoulder, Left	0 0 0 0 0		

Town of East Lyme Route/Road Mile Marker 0.00 to 2.84 2012 To 2014 East Lyme North Bride Brook Road MM 0.00 To MM 2.84

Total of 8 accidents

Date	Town	Road	Mile	Location Description	DOT #	Police Case #	Contributing Factor	Lighting	Surface Condition	Weather Condition	Collision Type
Thu Aug-30-12 0:00	East Lyme	NORTH BRIDE BROOK RD	1.17	100 feet South of WEST SOCIETY RD	1884214	1200491767	Animal Or Foreign Object In Road	Dark - Not Lighted	Dry	No Adverse Condition	Fixed Object
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix	1st/2nd Object Struck		1st/2nd Object Location		Injuries		
*	South	Automobile	None Apply	Vehicle Going Straight	Utility Pole		Off Road and Shoulder, Left		K A B C Total 0 0 0 0 0		
Tue Jan-21-14 13:13	East Lyme	NORTH BRIDE BROOK RD	1.75	3 tenths South of UP I-95	2145406	1400041777	Speed Too Fast For Conditions	Daylight	Snow/Slush	Snow	Fixed Object
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix	1st/2nd Object Struck		1st/2nd Object Location		Injuries		
*	South	Automobile	None Apply	Vehicle Negotiating Curve	Utility Pole		Off Road and Shoulder, Left		K A B C Total 0 0 0 0 0		
Wed Jan-15-14 19:12	East Lyme	NORTH BRIDE BROOK RD	1.79	8 tenths North of ATWOOD DR	2144738	1400029414	Speed Too Fast For Conditions	Dark - Lighted	Wet	No Adverse Condition	Fixed Object
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix	1st/2nd Object Struck		1st/2nd Object Location		Injuries		
*	North	Automobile	None Apply	Vehicle Negotiating Curve	Curbing / Tree		Off Road and Shoulder, Right / Off Road and Shoulder, Right		K A B C Total 0 0 0 1 1		
Tue Oct-28-14 21:07	East Lyme	NORTH BRIDE BROOK RD	2.80	200 feet North of RT 156-WEST RD	2220636	1400673813	Speed Too Fast For Conditions	Dark - Lighted	Dry	No Adverse Condition	Turning - Intersecting Paths
Contrib. Factor	Direction	Veh Type	Maneuver Prefix	Maneuver Suffix	1st/2nd Object Struck		1st/2nd Object Location		Injuries		
*	East	Automobile	None Apply	Vehicle Turning Left From Driveway	Fire Hydrant		Off Road and Shoulder, Right		K A B C Total 0 0 0 0 0		
	South	Automobile	None Apply	Vehicle Going Straight					0 0 0 0 0		

Plus

North Bride Brook Road, north of Bride Brook, south of I-95, 9-12-15, non-collision off road, east side

North Bride Brook Road, south of Bride Brook, north of Health & Rehab. Center, 8-27-17, southbound, hit deer.



YANTIC RIVER
CONSULTANTS, LLC

File Copy



STORMWATER MANAGEMENT REPORT

NORTH BRIDE BROOK
MULTI-FAMILY DEVELOPMENT
NORTH BRIDE BROOK ROAD, EAST LYME, CT

PREPARED FOR

PAZZ & CONSTRUCTION, LLC
297 BOSTON POST ROAD
EAST LYME, CT 06333

DATE: NOVEMBER 1, 2019
REVISED: JULY 10, 2020





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APPENDICES

- A. DRAINAGE MAPS
- B. HYDROLOGIC COMPUTATIONS (HYDROLOGY STUDIO)
- C. SUPPLEMENTAL DATA



PROJECT DESCRIPTION

Pazz & Construction, LLC is proposing to construct a residential multi-family townhouse development on a 20.24-acre parcel of land located on the west side of North Bride Brook Road in East Lyme, CT. The subject property, hereinafter “Site”, is identified as Map 9, Lot 37-2 on the Town of East Lyme Tax Assessor Mapping.

The multi-family development will consist of the construction of 10 townhouse buildings with a total of 80 residential units. Main access to the development will be provided from the northeast via a driveway connection to North Bride Brook Road. Additional site work will include:

- 24’ access and internal driveways
- 18’ wide utility maintenance and emergency access driveway
- Exterior and garage parking
- Pedestrian walks for handicapped accessibility
- Drainage improvements including stormwater collection, treatment, infiltration & detention.
- Connection to the existing sanitary sewer, water, electric, gas and telecom services
- Landscaping including a mixture of street trees, shrubs, foundation plantings and planting beds
- Building and site lighting
- Erosion and sedimentation control measures

EXISTING SITE

The existing site(s) is currently undeveloped.

VEGETATION – The site is generally wooded with moderate to dense undergrowth.

TOPOGRAPHY – The eastern portion of the site generally slopes from a ridge line running north to south through the property towards North Bride Brook Road to the east with the low point at the southeast corner. The western portion of the site slopes from high points at the above described ridge line and the western property line towards a central inland wetland system with a low point at the southern property line. Slopes are generally moderate to steep through the entire site.

SOILS – The USDA NRCS Web Soil Survey indicates that the soils consist of Charlton-Chatfield and Haven soils. These soils have a hydrologic soil group classification (HSG) of B.

DRAINAGE – Existing drainage consists of sheet and concentrated runoff from wooded areas following the general topography described above.

PREDEVELOPMENT HYDROLOGIC CONDITIONS

- **DRAINAGE AREAS:** The existing drainage areas general follow the topography described above. EX-01 is 8.13 acres and consists of the eastern portion of the site draining to North Bride Brook Road and EX-02 is 12.03 acres and consists of the western portion of the site draining to the inland wetland system.
- **RAINFALL:** Precipitation frequency and depth estimates (rainfall data) were obtained from NOAA Atlas 14, Volume 10, Version 2 at the subject site.
- **RUNOFF COEFFICIENT:** Composite Curve Numbers (CN) were calculated based on a wooded area in “good” condition within HSG B. A composite CN of 55 was used for both watersheds.



- **TIME OF CONCENTRATION:** Time of concentration (Tc) was estimated for the watershed based on the SCS method, with sheet and shallow concentrated flow from the hydraulically most distant point of the watershed to the discharge point. EX-01 had a Tc of 26 minutes and EX-02 25 minutes.

PROPOSED DRAINAGE

The proposed development project will consist of the construction of a new buildings, access drives, parking areas, pedestrian walks and other site amenities. As part of the work, a new stormwater collection system consisting of a series of swales, yard drains, catch basins and drainage piping will be installed. This new system will connect to the existing system in North Bride Brook Road.

Peak flow rates for pre-development and post-development conditions were calculated using SCS TR-55 methodology. Hydrology Studio 2016 v.3.0.0.15 was used to generate peak flows from the watershed with the following parameters:

POST-DEVELOPED CONDITIONS

- **DRAINAGE AREA:** The proposed development maintains existing drainage areas and discharge points. PR-01 is 8.13 acres and PR-02 is 12.03 acres, which matches existing conditions.
- **RAINFALL:** Same as Pre-Developed Conditions.
- **CURVE NUMBER:** Same methodology as Pre-Developed Conditions. Composite Curve Numbers (CN) were calculated based on the land cover types for the proposed residential site for HSG B soils, including buildings and impervious surfaces (CN 98), open spaces (CN 61), and remaining wooded areas (CN 55). A composite CN of 75 was calculated for PR-01. There are no proposed activities within the EX-02 watershed, therefore a CN of 55 was used for PR-02 to match existing conditions.
- **TIME OF CONCENTRATION:** Same methodology as Pre-Developed Conditions. A time of 26 minutes was calculated for PR-01 and 25 minutes for PR-02, which generally matches predevelopment conditions.

COMPARISON

A summary of flows for existing and proposed conditions is provided below as referenced from the hydrograph summary table in Appendix B, page 2.

STORM EVENT	PEAK FLOWS 01 (CFS)			PEAK FLOWS 02 (CFS)		
	EX-01	PR-01	PR-01 vs. EX-01	EX-02	PR-02	PR-02 vs. EX-02
1-yr	0.32	4.88	4.56	0.48	0.48	0.00
2-yr	1.06	7.30	6.24	1.61	1.61	0.00
5-yr	3.07	11.60	8.53	4.64	4.64	0.00
10-yr	5.33	15.45	10.12	8.06	8.06	0.00
25-yr	9.00	20.92	11.92	13.63	13.63	0.00
50-yr	12.05	25.09	13.04	18.25	18.25	0.00
100-yr	15.56	29.62	14.06	23.58	23.58	0.00

TABLE 1: PEAK FLOW COMPARISON



As shown in Table 1, there are no changes in peak flows from Area 2 as highlighted in green. Calculated peak flows from Area 1 are substantially higher as highlighted in orange. The increase can be expected as a result of the impervious surfaces associated with the development. Subsurface treatment, infiltration, secondary treatment, and detention is proposed to attenuate the increase in peak flow rates as described below.

DETENTION

Stormwater runoff from the proposed development within Area 1 will be collected by a series of swales, drains, and piping and will be discharged to a subsurface primary treatment and infiltration system consisting of Stormtech MC-3500 chambers. Flow will be diverted into the Stormtech units through a manhole with a diversion baffle. Flow is first diverted to an “Isolator Row”, which will filter the water quality flows through a series of geotextile fabrics to remove sediment and debris. Flow within the underground chambers will then equalize through the void spaces as groundwater is recharged.

As water depths increase beyond the infiltrative capacity of the natural soils, flows will be diverted to the detention pond, which is an excavated depression with a stage-discharge outlet structure. The outlet structure connects to an existing catch basin in the westerly shoulder of North Bride Brook Road. The proposed detention pond attenuates peak flow rates and volumes as compared to pre-development conditions for the 1-, 2-, 5-, 10-, 25, 50 and 100-year storm events resulting in a zero-net increase in runoff from the development as shown in the table below.

STORM EVENT	PEAK FLOWS 01 (CFS)				
	EX-01	PR-01	POND-01	PR-01 vs. EX-01	PR-01 vs. EX-01
1-yr	0.32	4.88	0.00	4.56	-0.32
2-yr	1.06	7.30	0.00	6.24	-1.06
5-yr	3.07	11.60	0.00	8.53	-3.07
10-yr	5.33	15.45	0.00	10.12	-5.33
25-yr	9.00	20.92	0.34	11.92	-8.66
50-yr	12.05	25.09	0.77	13.04	-11.28
100-yr	15.56	29.62	2.20	14.06	-13.36

TABLE 2: PEAK FLOW COMPARISON W/ DETENTION

STORMWATER QUALITY AND TREATMENT

As discussed above, runoff from the proposed impervious surfaces will be diverted through a Stormtech MC-3500 Isolator Row, consisting of 16 units that can treat 0.24 cfs each. The total treatment capacity of the Isolator Row is 3.84 cfs, which exceeds the calculated Water Quality Flow of 2.17 cfs. Further, the underground Stormtech MC-3500 system has sufficient volume to fully retain the Water Quality Volume of 0.282 acre-feet (12,300 cubic feet), thereby providing sufficient residence time to maximize infiltration of the treated stormwater into the natural sand and gravel soils.

A toe drain is proposed along the east side of the Stormtech chambers to allow low flows that are not infiltrated to weep into a secondary treatment area within the detention pond, consisting of vegetation and a stone filter berm, to further promote infiltration and treatment.



The final treatment stage consists of a 4” diameter low-level outlet orifice elevated 6” above the basin bottom, further promoting infiltration through the sand and gravel subsoils. The Isolator Row, secondary filter berm, and raised outlet will adequately retain and treat the water quality volume and flow in accordance with the CT DEEP 2004 Stormwater Quality Manual. Additional stormwater quality measures will include:

- Minimizing impervious surfaces through the installation of islands and perimeter landscaping
- Minimal slopes over landscaped surfaces to promote infiltration
- Installation of catch basins with 2’ sumps
- Disconnection of impervious areas

CONCLUSION

The proposed stormwater system will generally maintain the original drainage patterns with no increase in peak flow rates discharging from the site. No adverse impacts to the site, adjacent properties or North Bridge Brook Road are anticipated.



APPENDIX A
DRAINAGE AREA MAPS

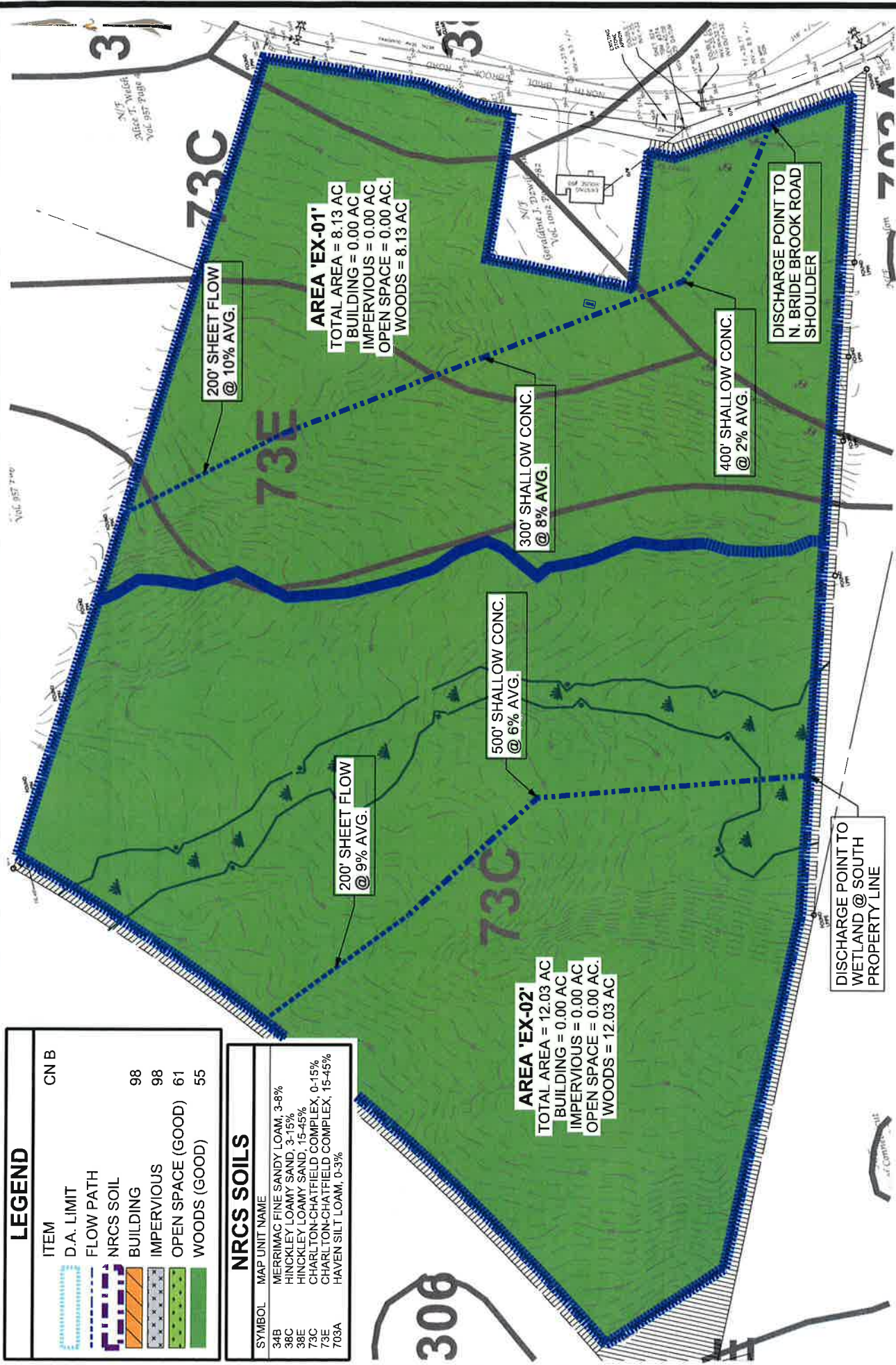
EXISTING CONDITIONS
PROPOSED CONDITIONS

LEGEND

ITEM	CN B
D.A. LIMIT	98
FLOW PATH	98
NRCS SOIL	61
BUILDING	55
IMPERVIOUS	
OPEN SPACE (GOOD)	
WOODS (GOOD)	

NRCS SOILS

SYMBOL	MAP UNIT NAME
34B	MERRIMAC FINE SANDY LOAM, 3-8%
38C	HINCKLEY LOAMY SAND, 3-15%
38E	HINCKLEY LOAMY SAND, 15-45%
73C	CHARLTON-CHATFIELD COMPLEX, 0-15%
73E	CHARLTON-CHATFIELD COMPLEX, 15-45%
703A	HAVEN SILT LOAM, 0-3%



AREA 'EX-01'
 TOTAL AREA = 8.13 AC
 BUILDING = 0.00 AC
 IMPERVIOUS = 0.00 AC
 OPEN SPACE = 0.00 AC
 WOODS = 8.13 AC

AREA 'EX-02'
 TOTAL AREA = 12.03 AC
 BUILDING = 0.00 AC
 IMPERVIOUS = 0.00 AC
 OPEN SPACE = 0.00 AC
 WOODS = 12.03 AC

SCALE: 1" = 150'



PROJECT NO:	00057 - 00001
DATE:	11/1/19
SHEET NO:	DA1

CONTACT INFORMATION

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NO. BRIDE BROOK MULTI-FAMILY DEVELOPMENT

PREPARED FOR PAZZ & CONSTRUCTION, LLC

EXISTING CONDITIONS DRAINAGE AREA MAP

NORTH BRIDE BROOK ROAD

EAST LYME, CT

LEGEND

ITEM	CN B
D.A. LIMIT	
FLOW PATH	
NRCS SOIL	
BUILDING	98
IMPERVIOUS	98
OPEN SPACE (GOOD)	61
WOODS (GOOD)	55

NRCS SOILS

SYMBOL	MAP UNIT NAME
34B	MERRIMAC FINE SANDY LOAM, 3-8%
38C	HINCKLEY LOAMY SAND, 3-15%
38E	HINCKLEY LOAMY SAND, 15-45%
73C	CHARLTON-CHATFIELD COMPLEX, 0-15%
73E	CHARLTON-CHATFIELD COMPLEX, 15-45%
703A	HAVEN SILT LOAM, 0-3%



SCALE: 1" = 150'

PROJECT NO: 00057 - 00001

DATE: 7/8/20

SHEET NO: D/A2

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NO. BRIDE BROOK MULTI-FAMILY DEVELOPMENT

PREPARED FOR PAZZ & CONSTRUCTION, LLC

PROPOSED CONDITIONS DRAINAGE AREA MAP

NORTH BRIDE BROOK ROAD
 EAST LYME, CT



APPENDIX B

HYDROLOGIC COMPUTATIONS

HYDROLOGY STUDIO REPORT
STORMWATER TREATMENT CALCULATIONS

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Hydrology Studio v 3.0.0.15

07-13-2020

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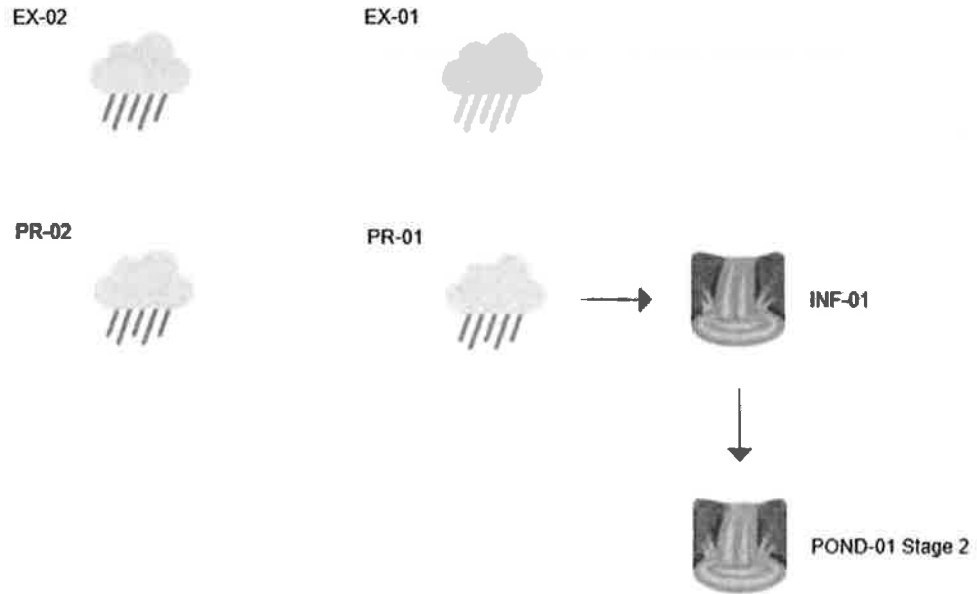
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Basin Model

Hydrology Studio v 3.0.0.15

Project Name:

07-13-2020



Hydrograph by Return Period

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	EX-01	0.317	1.062		3.069	5.329	8.999	12.05	15.56
2	NRCS Runoff	PR-01	4.883	7.297		11.60	15.45	20.92	25.09	29.62
3	Pond Route	INF-01	0.000	0.025		0.393	1.764	3.842	5.587	9.046
4	Pond Route	POND-01 Stage 2	0.000	0.000		0.000	0.000	0.337	0.774	2.196
5	NRCS Runoff	EX-02	0.479	1.606		4.641	8.061	13.63	18.25	23.58
6	NRCS Runoff	PR-02	0.479	1.606		4.641	8.061	13.63	18.25	23.58

Hydrograph 1-yr Summary

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	0.317	12.68	4,807	---		
2	NRCS Runoff	PR-01	4.883	12.35	26,079	---		
3	Pond Route(i)	INF-01	0.000	12.93	0.000	2	41.24 U 35.08 L	6,504 U 528 L
4	Pond Route	POND-01 Stage 2	0.000	0.00	0.000	3	35.00	0.000
5	NRCS Runoff	EX-02	0.479	12.65	7,057	---		
6	NRCS Runoff	PR-02	0.479	12.65	7,057	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

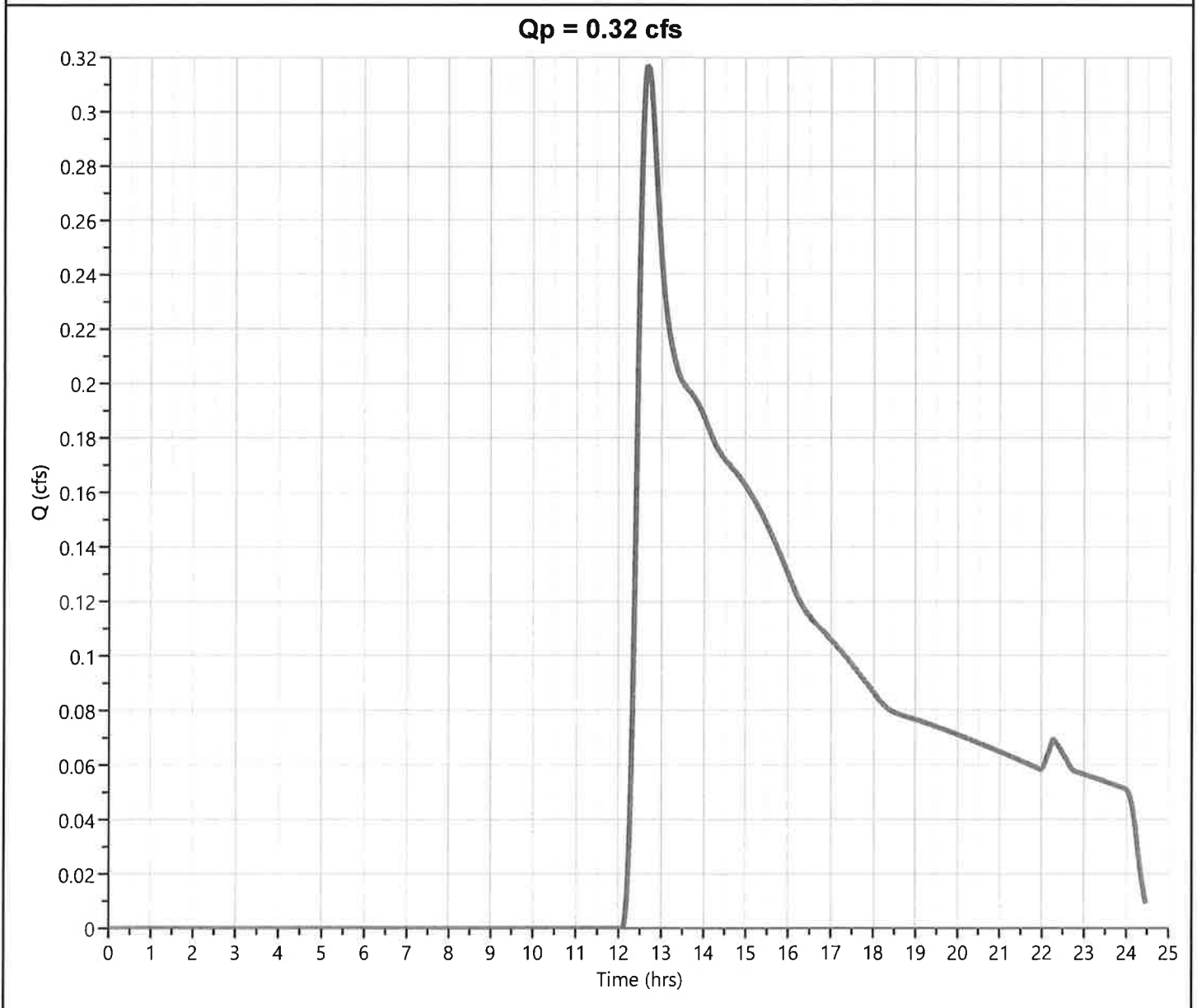
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.317 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.68 hrs
Time Interval	= 1 min	Runoff Volume	= 4,807 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 2.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

EX-01 NRCS Runoff

Hyd. No. 1

Description	Segments			Tc (min)
	A	B	C	
Sheet Flow				
Description	Woods	Woods		
Manning's n	0.400	0.400	0.013	
Flow Length (ft)	100	100		
2-yr, 24-hr Precip. (in)	3.450000	3.450000	3.450000	
Land Slope (%)	10	10		
Travel Time (min)	10.86	10.86	0.00	21.73
Shallow Concentrated Flow				
Flow Length (ft)	300	400		
Watercourse Slope (%)	8	2		
Surface Description	Unpaved	Unpaved	Paved	
Average Velocity (ft/s)	4.56	2.28		
Travel Time (min)	1.10	2.92	0.00	4.02
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				25.75 min

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

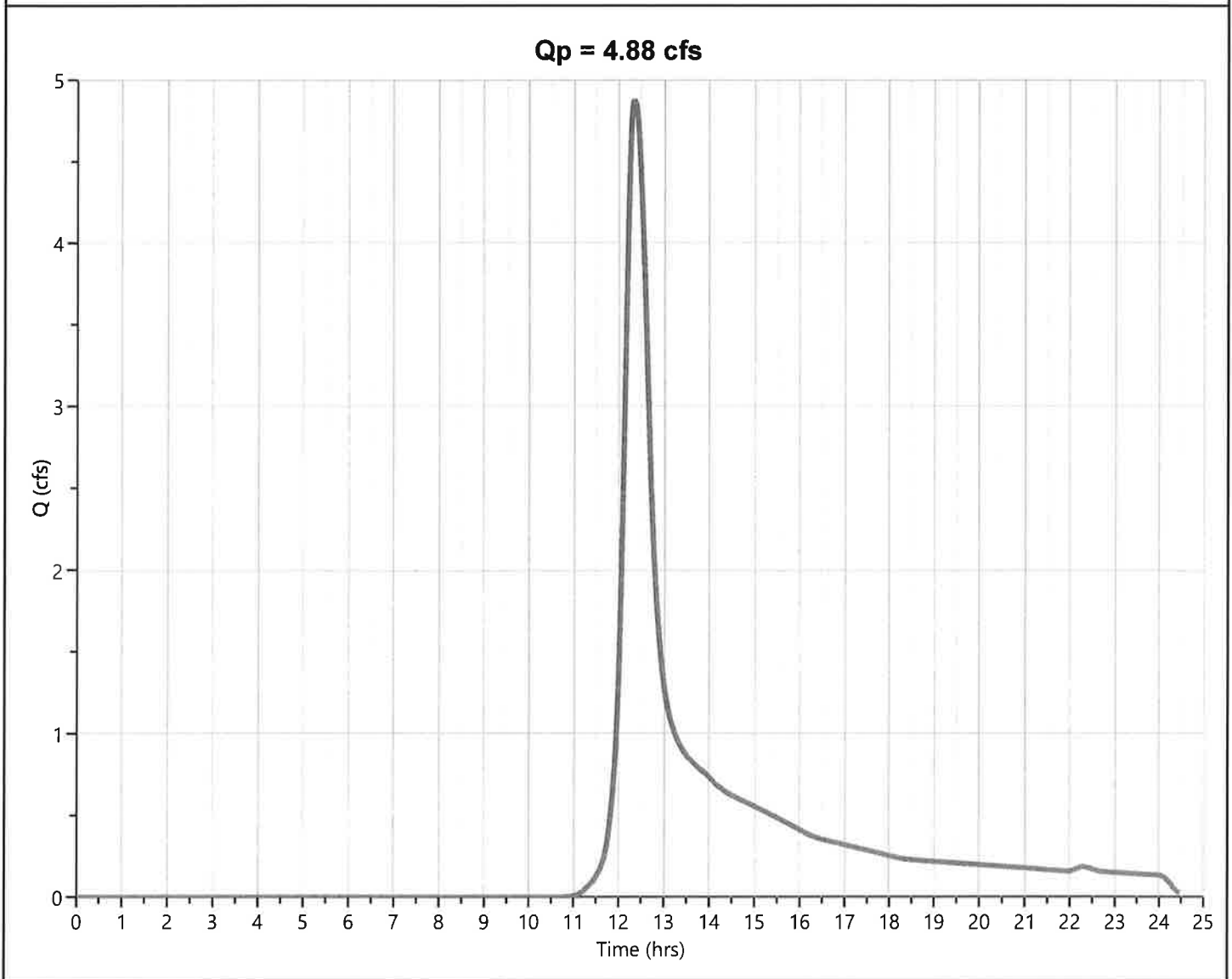
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.883 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Runoff Volume	= 26,079 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 2.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

PR-01 NRCS Runoff

Hyd. No. 2

Description	Segments			Tc (min)
	A	B	C	
Sheet Flow				
Description	Woods	Woods		
Manning's n	0.400	0.400	0.013	
Flow Length (ft)	100	100		
2-yr, 24-hr Precip. (in)	3.450000	3.450000	3.450000	
Land Slope (%)	10	10		
Travel Time (min)	10.86	10.86	0.00	21.73
Shallow Concentrated Flow				
Flow Length (ft)	100	650	100	
Watercourse Slope (%)	4	5	1	
Surface Description	Unpaved	Paved	Unpaved	
Average Velocity (ft/s)	3.23	4.55	1.61	
Travel Time (min)	0.52	2.38	1.03	3.93
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				25.66 min

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

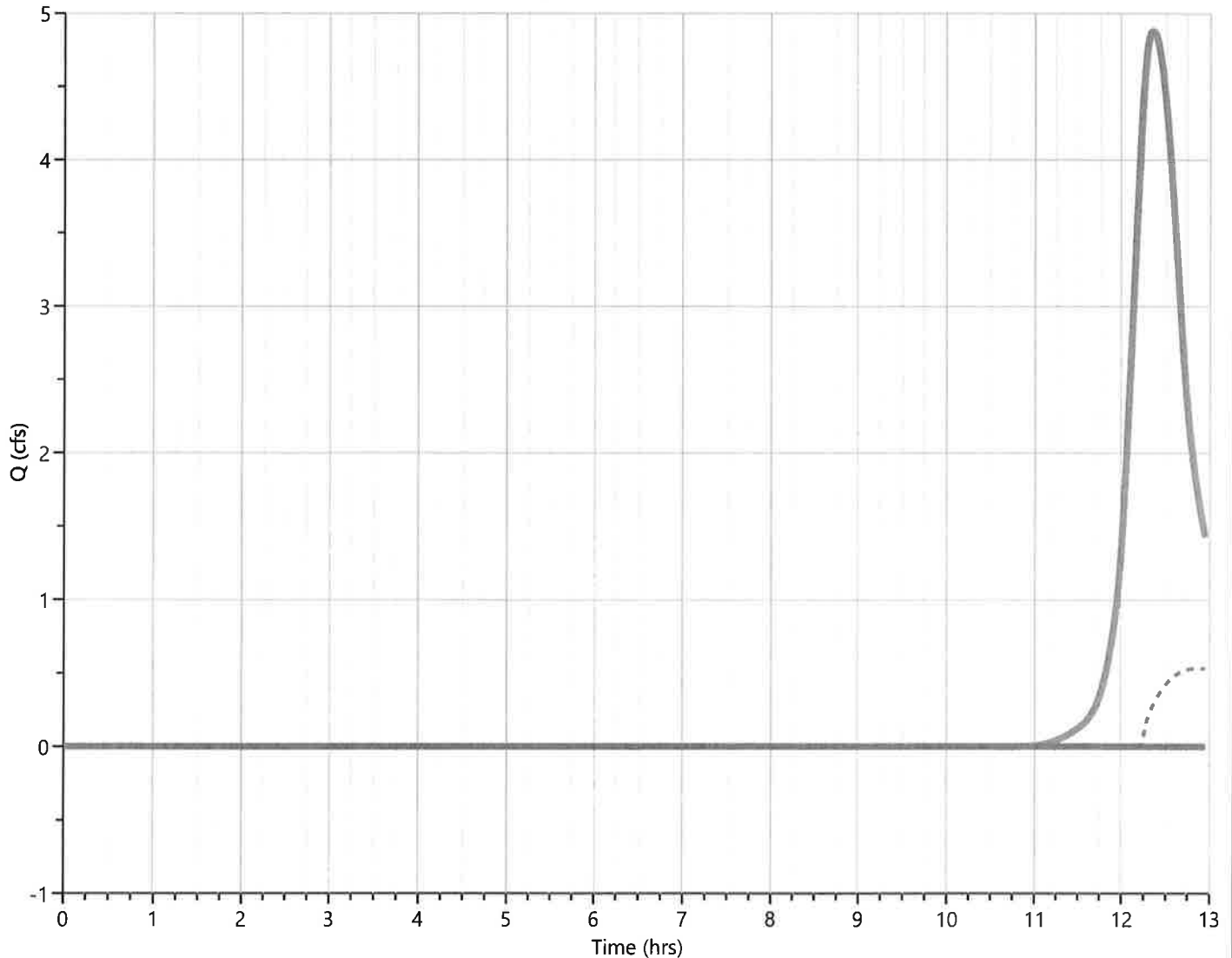
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.93 hrs
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 41.24 ft	Max. Elevation	= 35.08 ft
Max. Storage	= 6,504 cuft	Max. Storage	= 528 cuft

**Interconnected Pond Routing by Storage Indication Method.*

Qp = 0.00 cfs



— PR-01 - - - Upper Pond Out — INF-01

Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

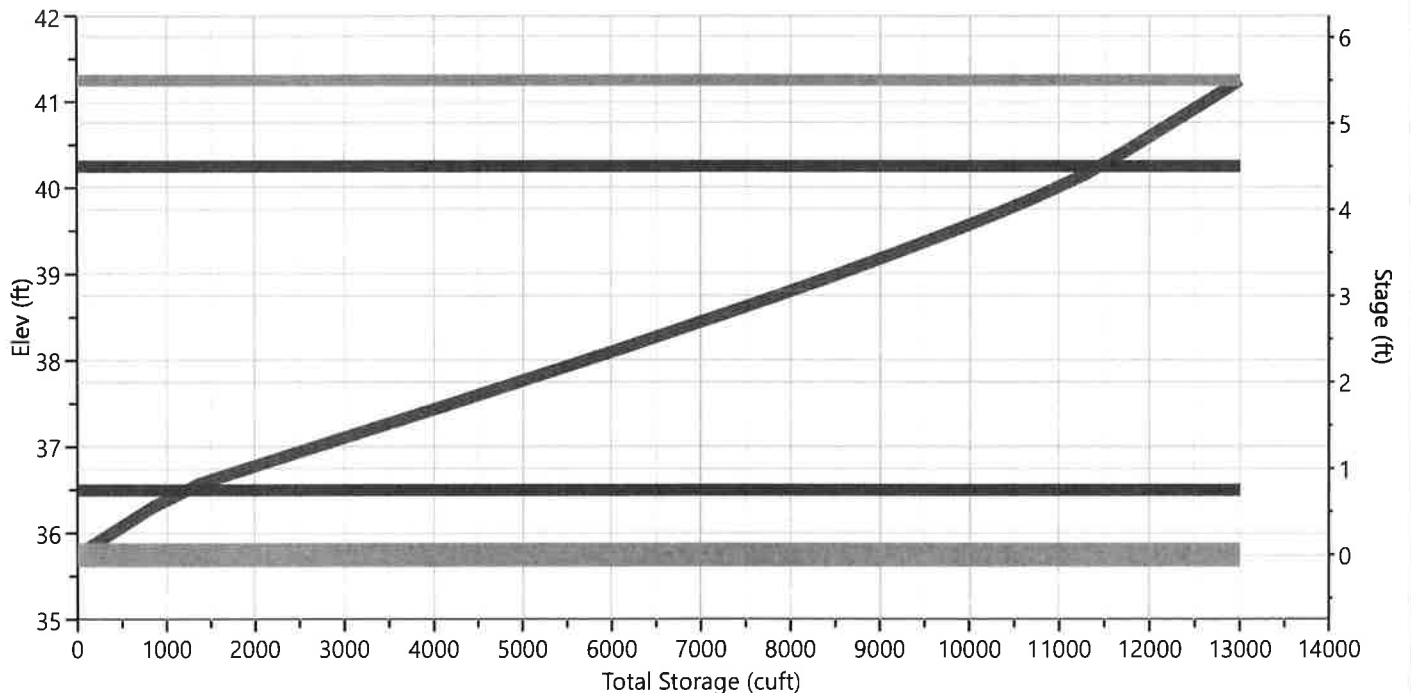
07-13-2020

POND-01B Stormtech

Stage-Storage

		Stage / Storage Table				
Description	Input	Stage (in)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Chamber Height, in	45	0.0	35.75	3,839	0.000	0.000
Chamber Shape	Arch	3.3	36.03	3,839	422	422
Chamber Width, in	77	6.6	36.30	3,839	422	844
Installed Length, ft	7.17	9.9	36.58	3,839	531	1,376
No. Chambers	68	13.2	36.85	3,839	846	2,222
Bare Chamber Stor, cuft	7,473	16.5	37.13	3,839	844	3,066
No. Rows	4	19.8	37.40	3,839	838	3,904
Space Between Rows, in	9	23.1	37.68	3,839	831	4,735
Stone Above, in	12	26.4	37.95	3,839	820	5,555
Stone Below, in	9	29.7	38.23	3,839	807	6,362
Stone Sides, in	12	33.0	38.50	3,839	791	7,153
Stone Ends, in	12	36.3	38.78	3,839	771	7,925
Encasement Voids, %	40.00	39.6	39.05	3,839	747	8,672
Encasement Bottom Elevation, ft	35.75	42.9	39.33	3,839	718	9,390
		46.2	39.60	3,839	682	10,073
		49.5	39.88	3,839	636	10,709
		52.8	40.15	3,839	569	11,278
		56.1	40.43	3,839	459	11,737
		59.4	40.70	3,839	422	12,159
		62.7	40.98	3,839	422	12,581
		66.0	41.25	3,839	422	13,004

Stage-Storage



— UG Chambers — Top of Pond — Top of Chamber — Invert of Chamber — Top Stone — Bottom Stone

Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

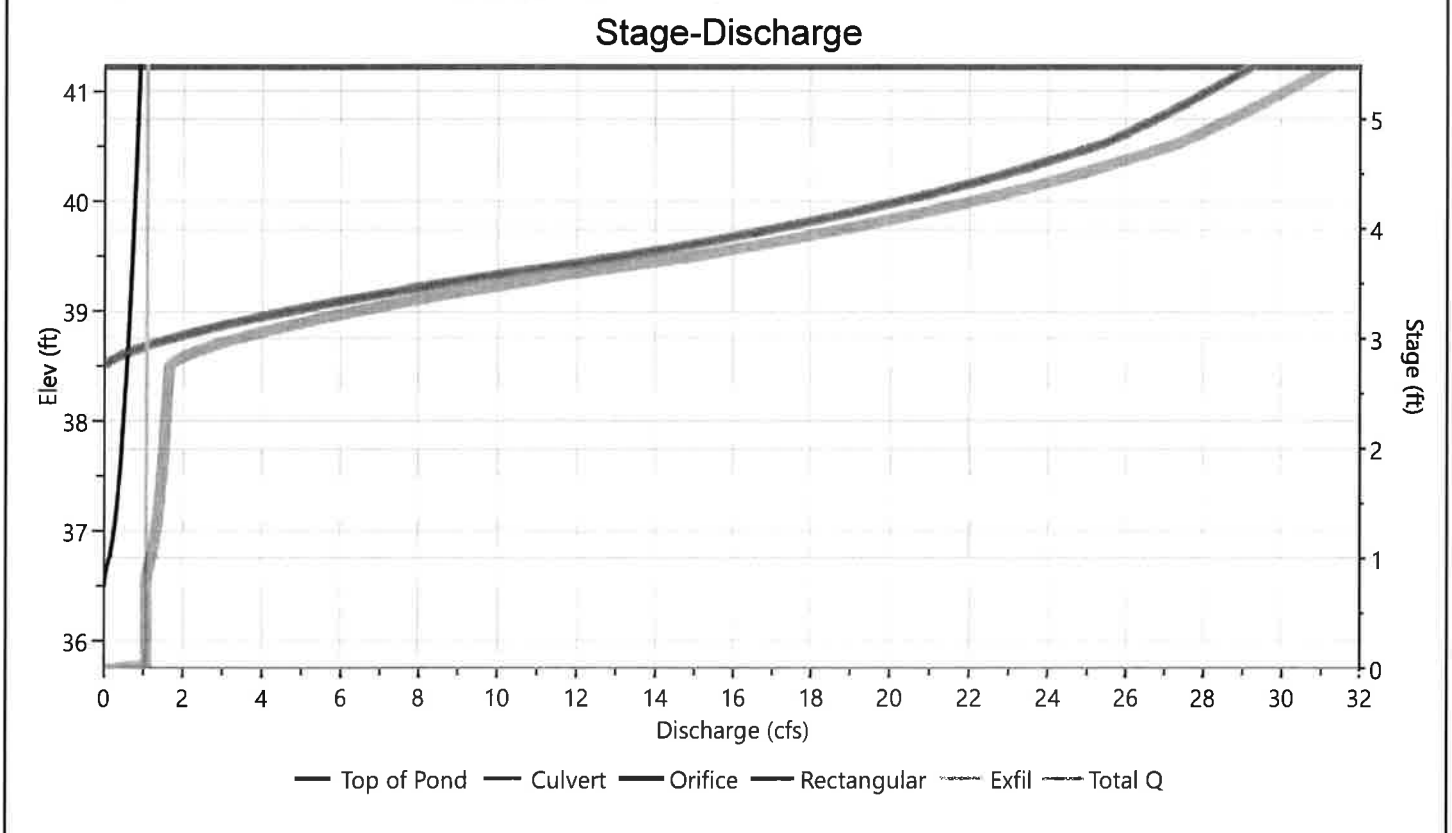
07-13-2020

POND-01B Stormtech

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser
		1	2	3	
Rise, in	24	4			Hole Diameter, in
Span, in	24	4			No. holes
No. Barrels	1	1			Invert Elevation, ft
Invert Elevation, ft	36.20	36.50			Height, ft
Orifice Coefficient, Co	0.60	0.60			Orifice Coefficient, Co
Length, ft	40				
Barrel Slope, %	.5				
N-Value, n	0.013				
Weirs	Riser*	Weirs			Ancillary
Shape / Type	Box	1*	2	3	Exfiltration, in/hr
Crest Elevation, ft		Rectangular			12.00**
Crest Length, ft		38.5			
Angle, deg		4			
Weir Coefficient, Cw		3.3			

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

POND-01B Stormtech

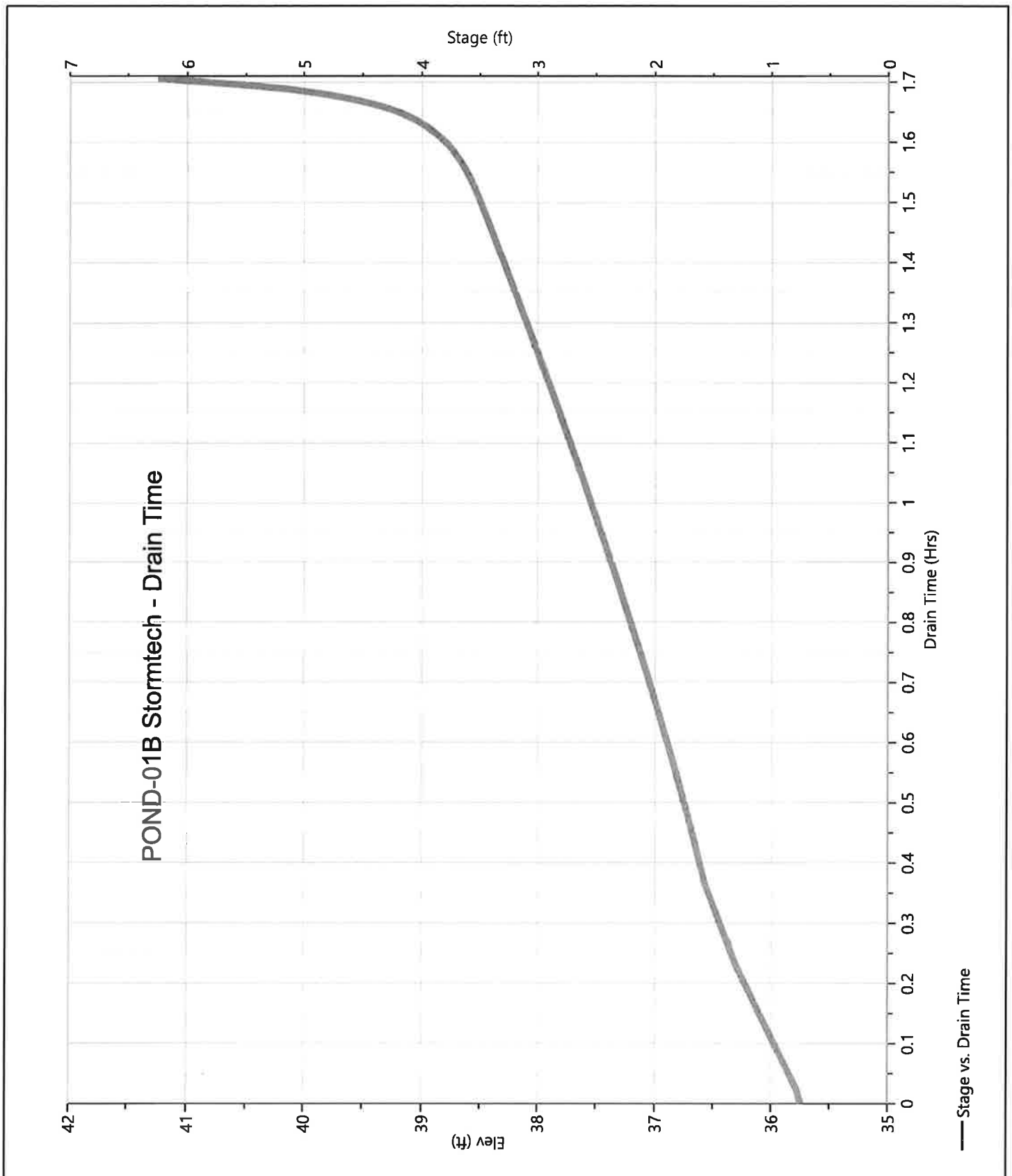
Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	35.75	0.000	0.000	0.000				0.000				0.000		0.000
0.28	36.03	422	0.000	0.000				0.000				1.067		1.067
0.55	36.30	844	0.000	0.000				0.000				1.068		1.068
0.83	36.58	1,376	0.000	0.014				0.000				1.069		1.083
1.10	36.85	2,222	0.000	0.180				0.000				1.070		1.250
1.38	37.13	3,066	0.000	0.284				0.000				1.071		1.356
1.65	37.40	3,904	0.000	0.360				0.000				1.072		1.432
1.93	37.68	4,735	0.000	0.422				0.000				1.073		1.495
2.20	37.95	5,555	0.000	0.476				0.000				1.074		1.550
2.48	38.23	6,362	0.000	0.524				0.000				1.075		1.600
2.75	38.50	7,153	0.000	0.569				0.000				1.076		1.645
3.03	38.78	7,925	1.904 oc	0.610				1.904				1.077		3.591
3.30	39.05	8,672	5.384 oc	0.649				5.384				1.078		7.111
3.58	39.33	9,390	9.891 oc	0.685				9.891				1.079		11.66
3.85	39.60	10,073	14.81 oc	0.720				14.81 s				1.080		16.61
4.13	39.88	10,709	18.70 oc	0.753				18.70 s				1.081		20.53
4.40	40.15	11,278	21.87 oc	0.784				21.87 s				1.082		23.74
4.68	40.43	11,737	24.52 oc	0.814				24.52 s				1.083		26.42
4.95	40.70	12,159	26.47 ic	0.844				26.47 s				1.084		28.40
5.23	40.98	12,581	27.98 ic	0.872				27.98 s				1.085		29.93
5.50	41.25	13,004	29.32 ic	0.899				29.32 s				1.086		31.31

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

POND-01B Stormtech

Pond Drawdown



Pond Report

Project Name:

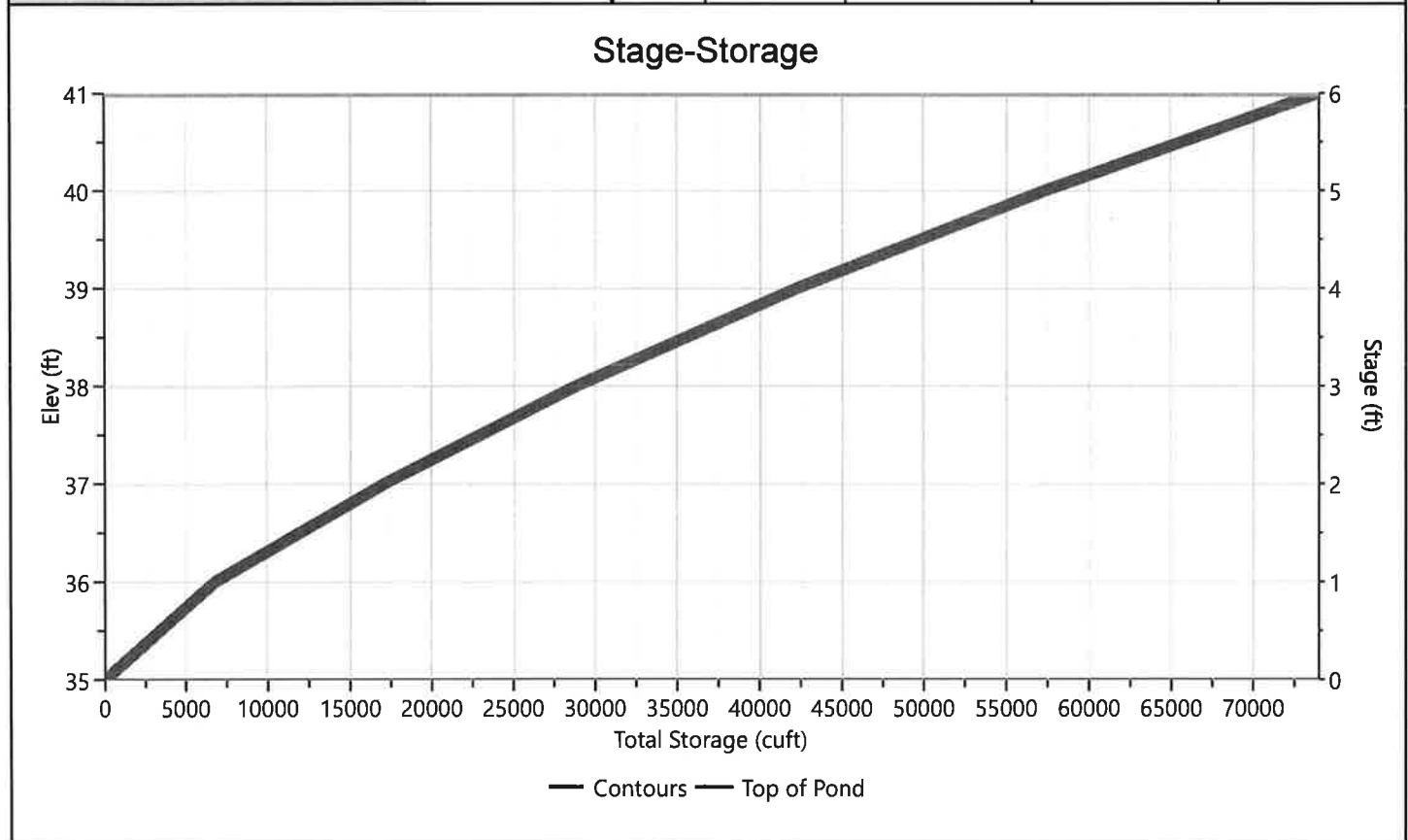
Hydrology Studio v 3.0.0.15

07-13-2020

POND-01A Stage 2

Stage-Storage

User Defined Contours		Stage / Storage Table				
Description	Input	Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Bottom Elevation, ft	35.00	0.00	35.00	4,000	0.000	0.000
Voids (%)	100.00	1.00	36.00	9,600	6,800	6,800
Volume Calc	None	2.00	37.00	11,000	10,300	17,100
		3.00	38.00	12,600	11,800	28,900
		4.00	39.00	14,200	13,400	42,300
		5.00	40.00	15,900	15,050	57,350
		6.00	41.00	17,400	16,650	74,000



Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

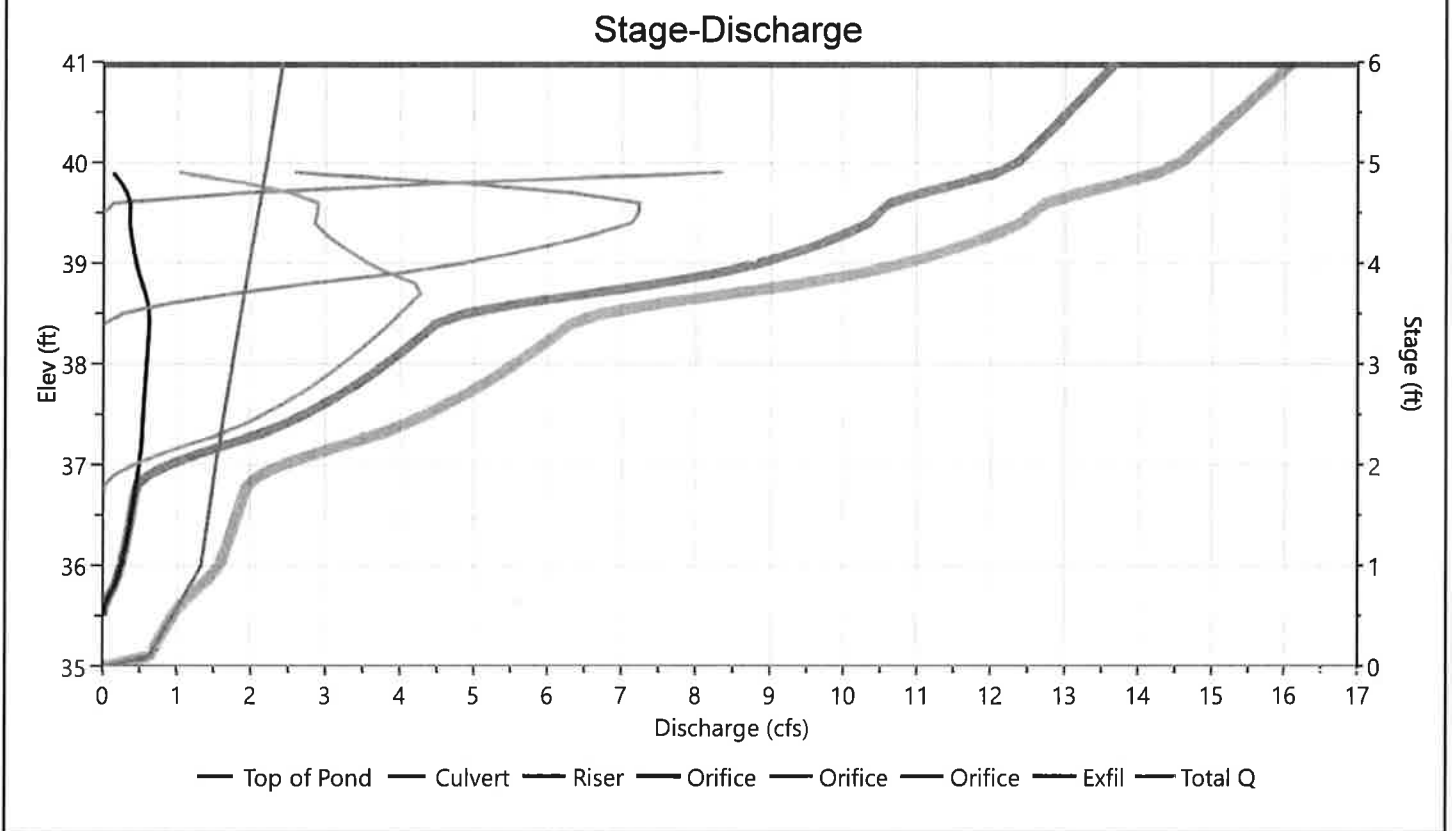
07-13-2020

POND-01A Stage 2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Orifice Plate
		1*	2*	3*	
Rise, in	15	4	8	6	Orifice Dia, in
Span, in	15	4	8	42	No. Orifices
No. Barrels	1	1	2	1	Invert Elevation, ft
Invert Elevation, ft	35.00	35.50	36.75	38.42	Height, ft
Orifice Coefficient, Co	0.60	0.60	0.60	0.60	Orifice Coefficient, Co
Length, ft	73				
Barrel Slope, %	2				
N-Value, n	0.013				
Weirs	Riser*	Weirs			Ancillary
		1	2	3	
Shape / Type	Box				Exfiltration, in/hr
Crest Elevation, ft	39.58				6.00**
Crest Length, ft	14				
Angle, deg					
Weir Coefficient, Cw	3.3				

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

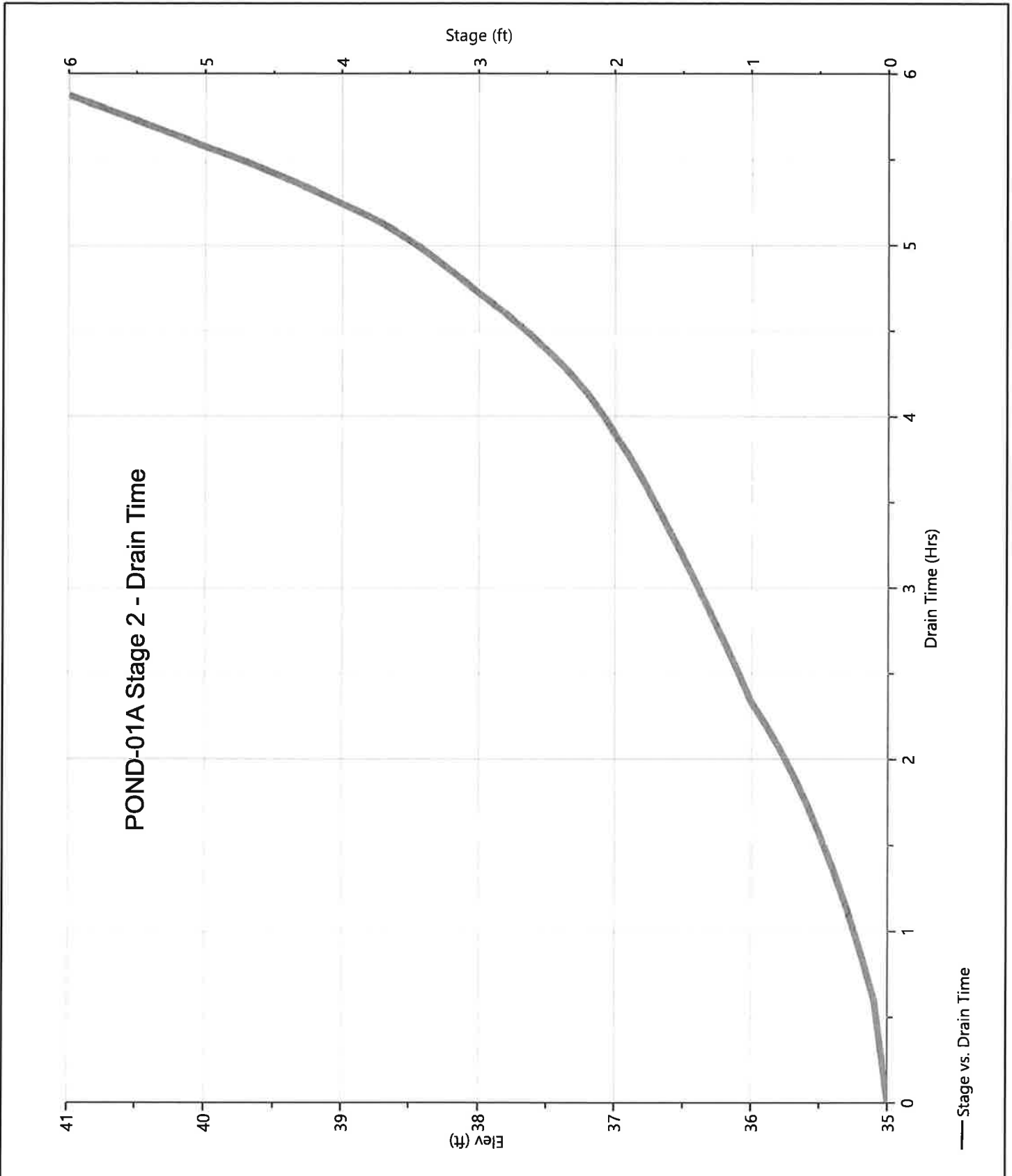
POND-01A Stage 2

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	35.00	0.000	0.000	0.000	0.000	0.000	0.000					0.000		0.000
1.00	36.00	6,800	0.243 ic	0.243	0.000	0.000	0.000					1.333		1.576
2.00	37.00	17,100	0.893 ic	0.485	0.408	0.000	0.000					1.528		2.421
3.00	38.00	28,900	3.806 ic	0.588	3.218	0.000	0.000					1.750		5.556
4.00	39.00	42,300	8.856 ic	0.446	3.570	4.841	0.000					1.972		10.83
5.00	40.00	57,350	12.36 ic	0.000	0.000	0.000	0.000					2.208		14.57
6.00	41.00	74,000	13.70 ic	0.000	0.000	0.000	0.000					2.417		16.11

POND-01A Stage 2

Pond Drawdown



POND-01A Stage 2 - Drain Time

— Stage vs. Drain Time

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

POND-01 Stage 2

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 35.00 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 0.000 cuft

Pond Routing by Storage Indication Method

Qp = 0.00 cfs

Pond Report

Project Name:

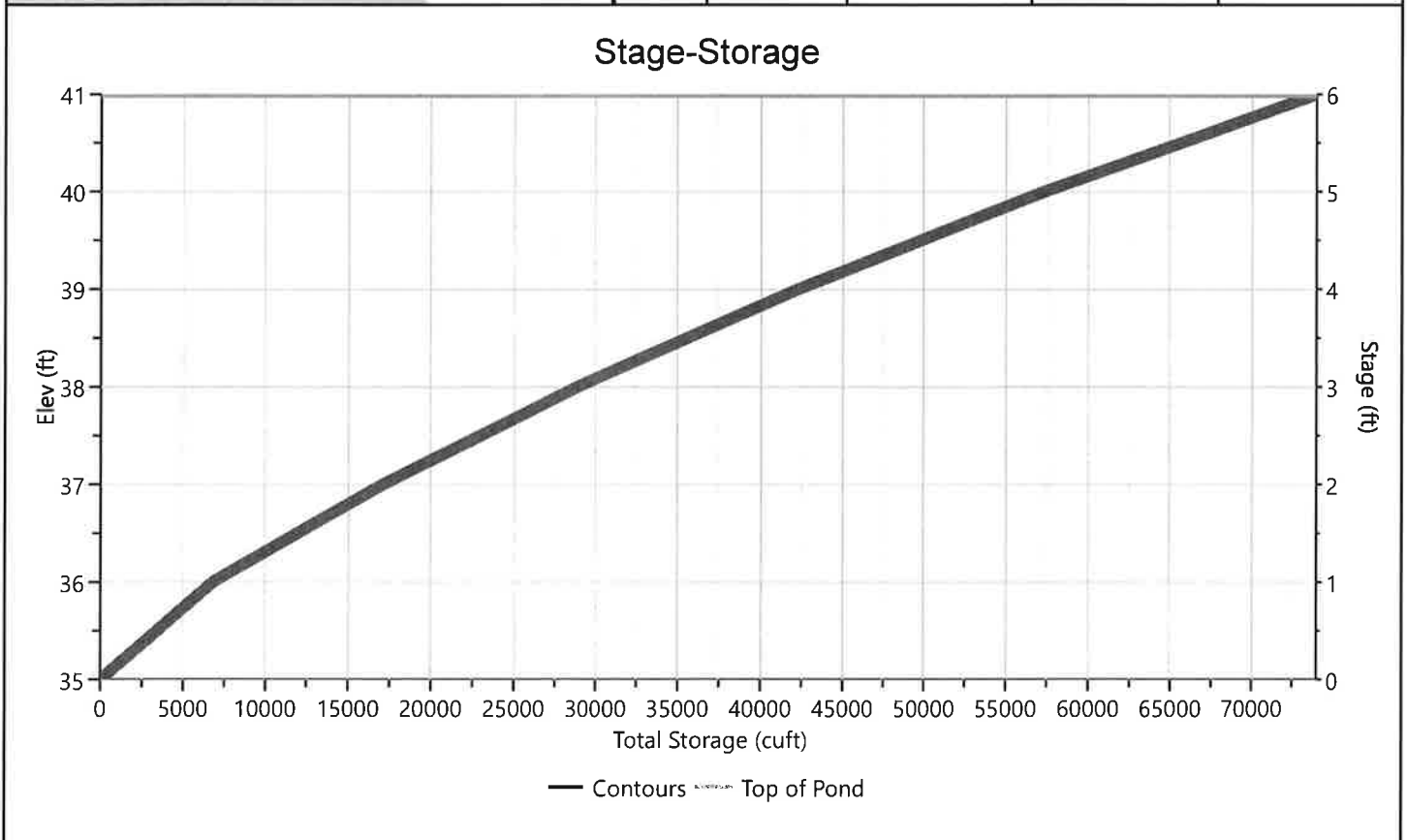
Hydrology Studio v 3.0.0.15

07-13-2020

POND-01A Stage 2

Stage-Storage

User Defined Contours		Stage / Storage Table				
Description	Input	Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Bottom Elevation, ft	35.00	0.00	35.00	4,000	0.000	0.000
Voids (%)	100.00	1.00	36.00	9,600	6,800	6,800
Volume Calc	None	2.00	37.00	11,000	10,300	17,100
		3.00	38.00	12,600	11,800	28,900
		4.00	39.00	14,200	13,400	42,300
		5.00	40.00	15,900	15,050	57,350
		6.00	41.00	17,400	16,650	74,000



Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

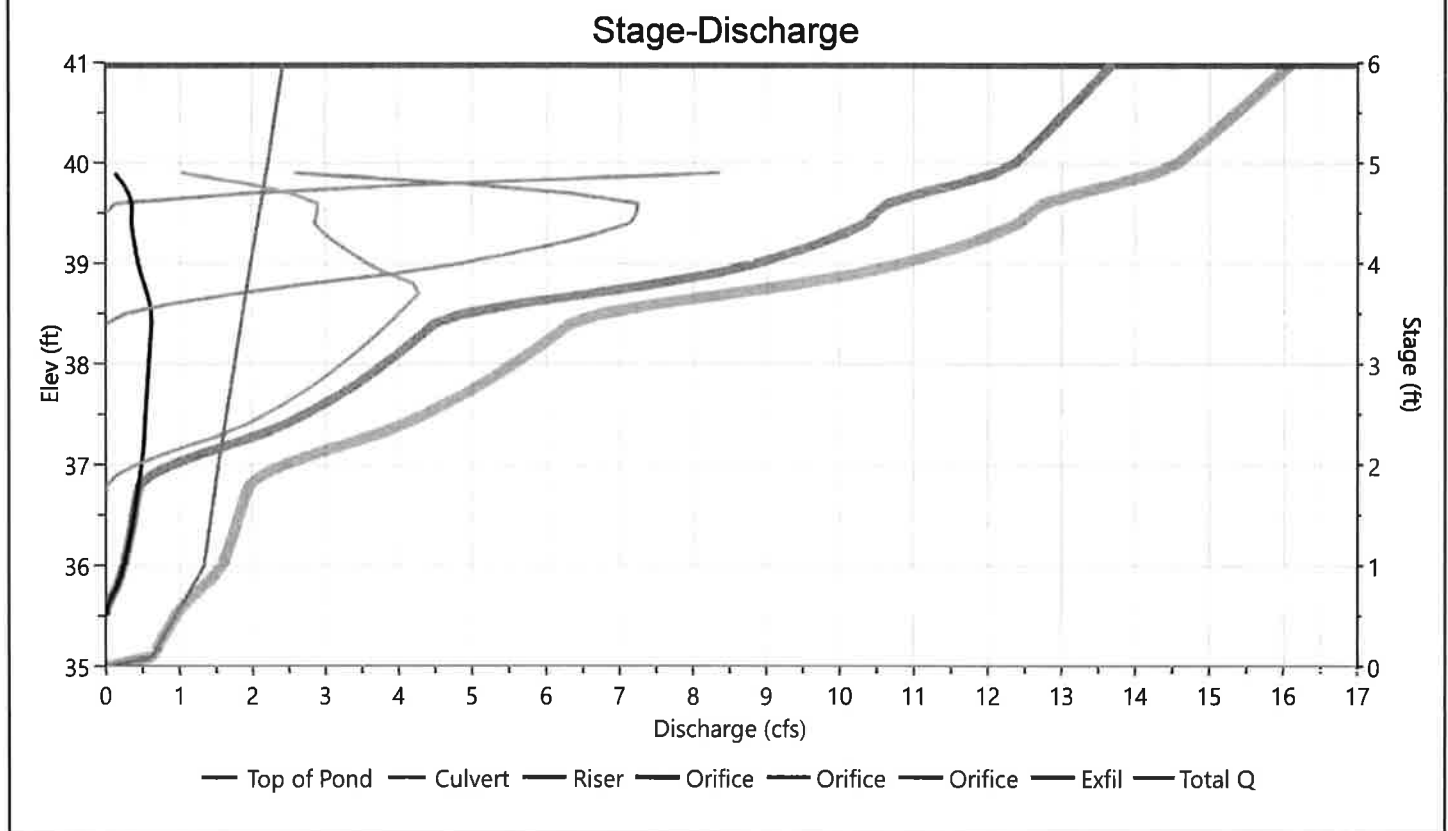
07-13-2020

POND-01A Stage 2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Orifice Plate
		1*	2*	3*	
Rise, in	15	4	8	6	Orifice Dia, in
Span, in	15	4	8	42	No. Orifices
No. Barrels	1	1	2	1	Invert Elevation, ft
Invert Elevation, ft	35.00	35.50	36.75	38.42	Height, ft
Orifice Coefficient, Co	0.60	0.60	0.60	0.60	Orifice Coefficient, Co
Length, ft	73				
Barrel Slope, %	2				
N-Value, n	0.013				
Weirs	Riser*	Weirs			Ancillary
		1	2	3	
Shape / Type	Box				Exfiltration, in/hr
Crest Elevation, ft	39.58				6.00**
Crest Length, ft	14				
Angle, deg					
Weir Coefficient, Cw	3.3				

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

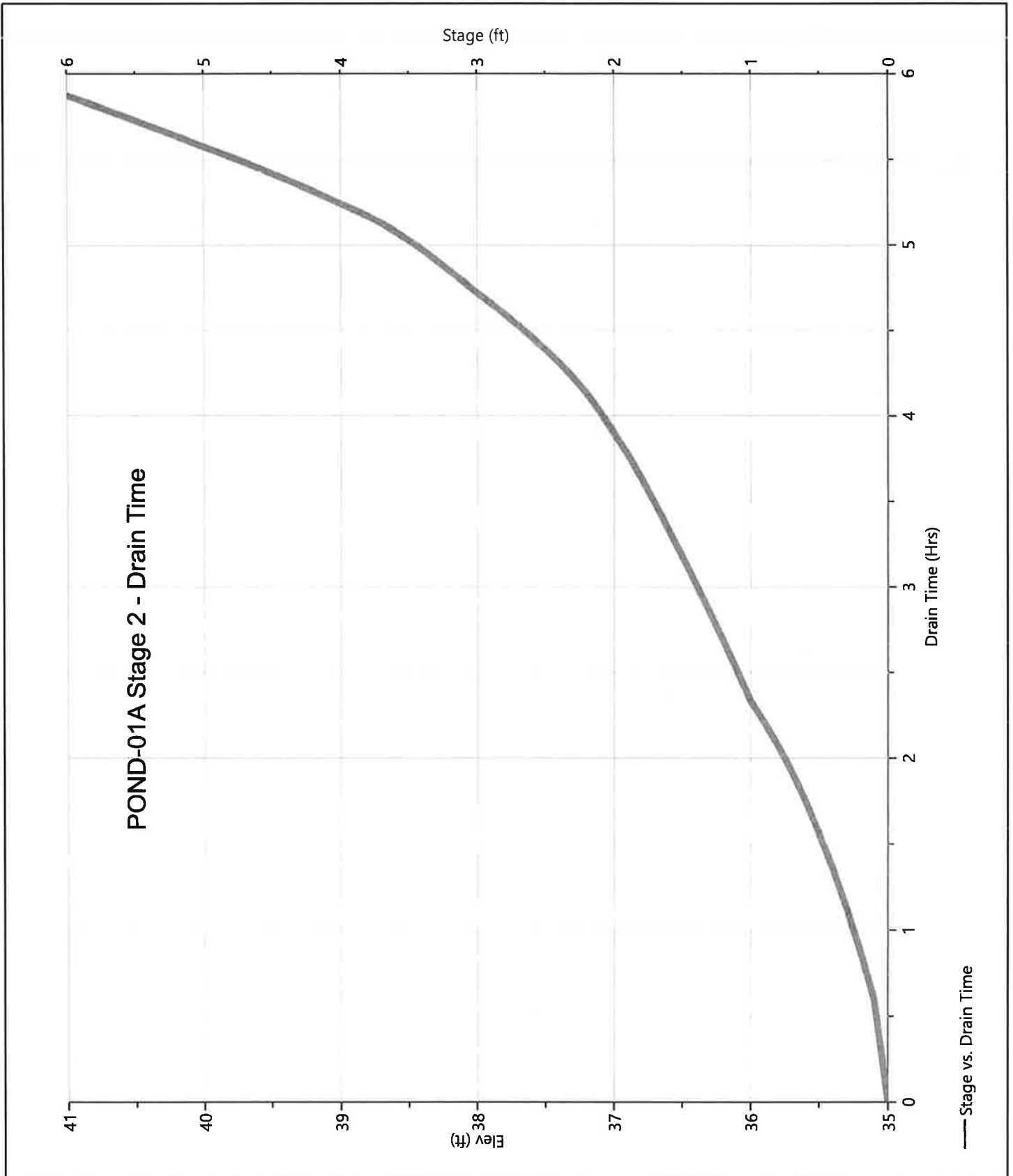
POND-01A Stage 2

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	35.00	0.000	0.000	0.000	0.000	0.000	0.000				0.000		0.000	
1.00	36.00	6,800	0.243 ic	0.243	0.000	0.000	0.000				1.333		1.576	
2.00	37.00	17,100	0.893 ic	0.485	0.408	0.000	0.000				1.528		2.421	
3.00	38.00	28,900	3.806 ic	0.588	3.218	0.000	0.000				1.750		5.556	
4.00	39.00	42,300	8.856 ic	0.446	3.570	4.841	0.000				1.972		10.83	
5.00	40.00	57,350	12.36 ic	0.000	0.000	0.000	0.000				2.208		14.57	
6.00	41.00	74,000	13.70 ic	0.000	0.000	0.000	0.000				2.417		16.11	

POND-01A Stage 2

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

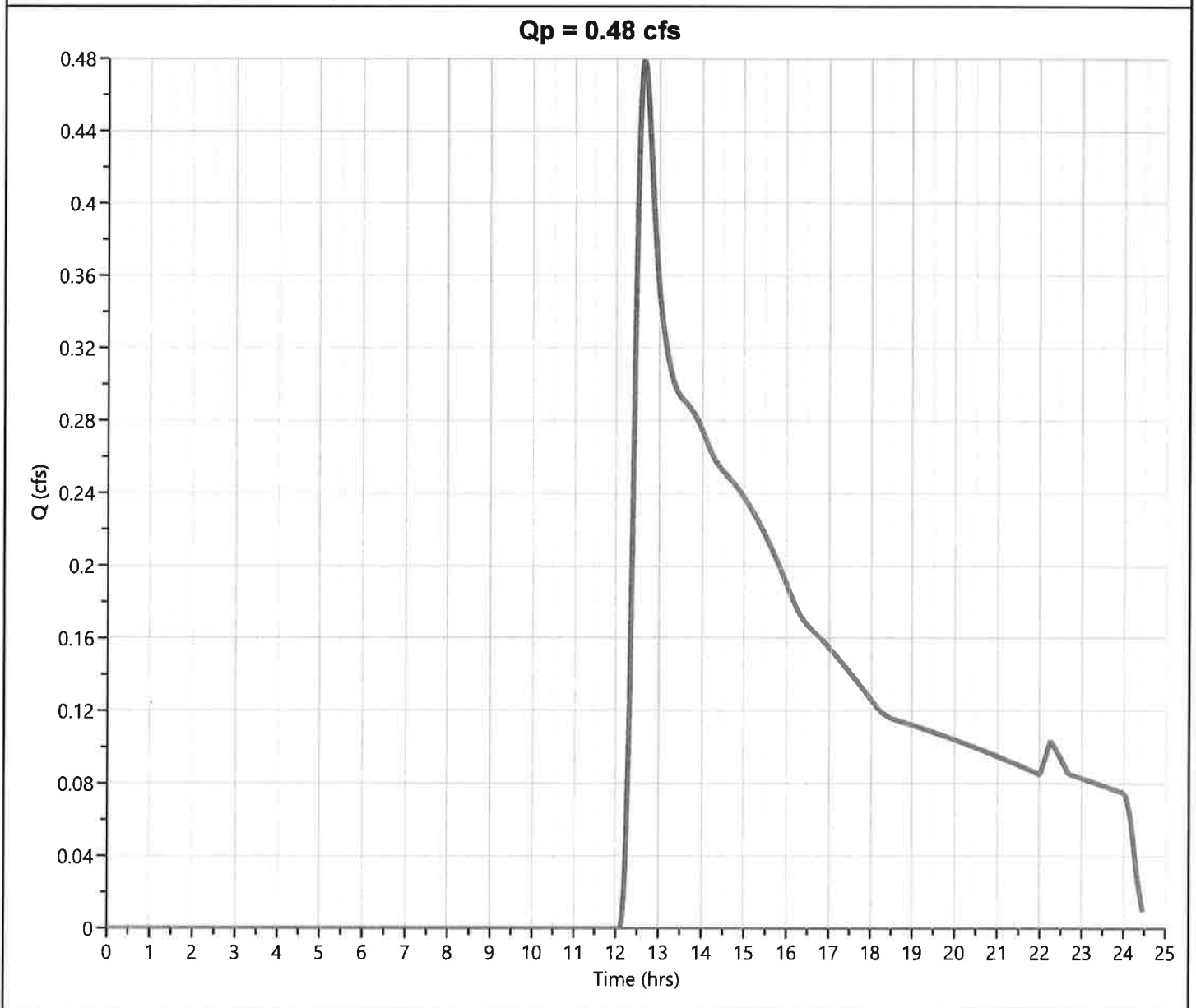
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.479 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.65 hrs
Time Interval	= 1 min	Runoff Volume	= 7,057 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 2.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

EX-02 NRCS Runoff

Hyd. No. 5

Description	Segments			Tc (min)
	A	B	C	
Sheet Flow				
Description	Woods	Woods		
Manning's n	0.400	0.400	0.013	
Flow Length (ft)	100	100		
2-yr, 24-hr Precip. (in)	3.450000	3.450000	3.450000	
Land Slope (%)	9	9		
Travel Time (min)	11.33	11.33	0.00	22.66
Shallow Concentrated Flow				
Flow Length (ft)	500			
Watercourse Slope (%)	6			
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.95			
Travel Time (min)	2.11	0.00	0.00	2.11
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				24.77 min

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

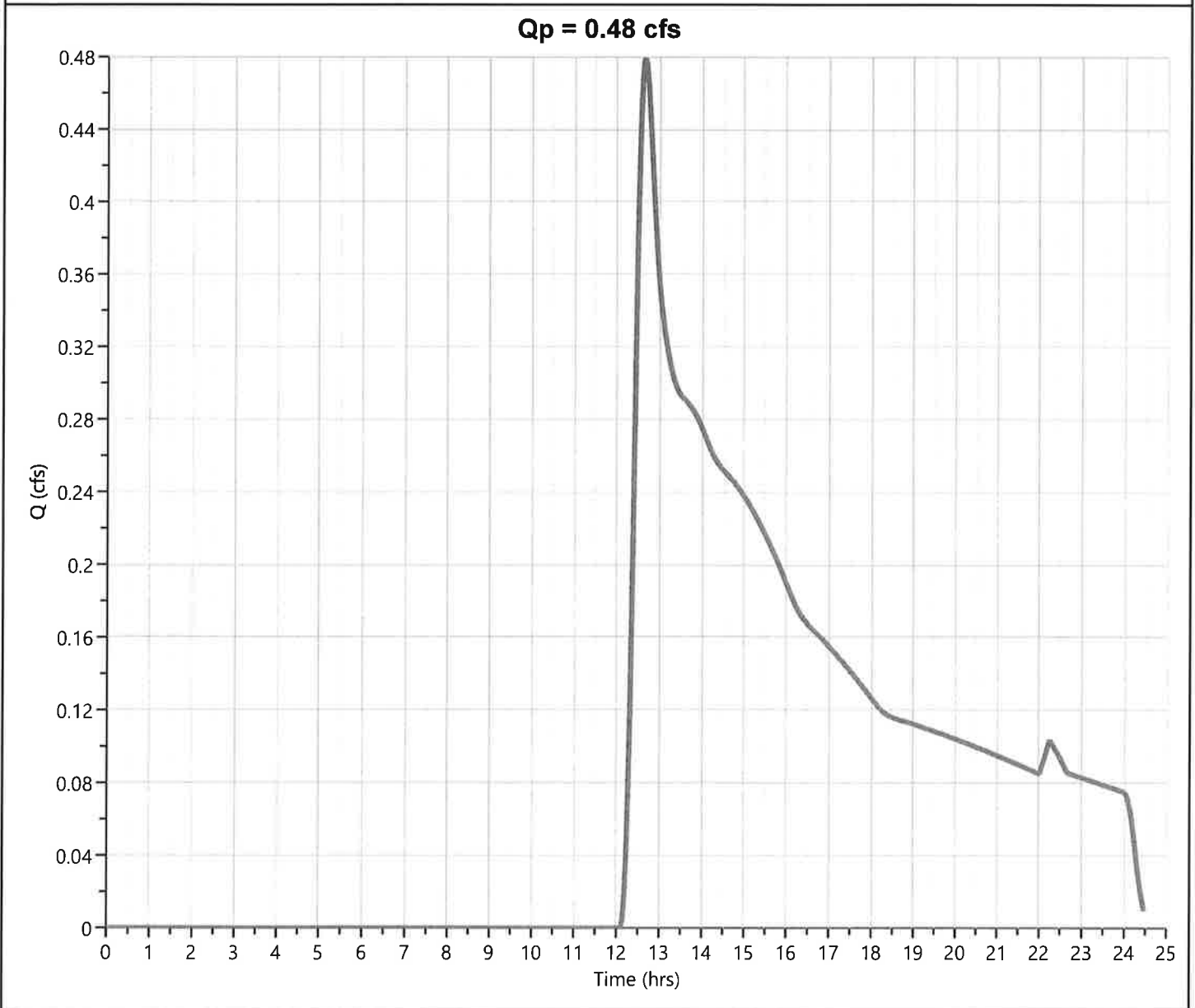
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.479 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.65 hrs
Time Interval	= 1 min	Runoff Volume	= 7,057 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 2.87 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Tc by TR55 Worksheet

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

PR-02 NRCS Runoff

Hyd. No. 6

Description	Segments			Tc (min)
	A	B	C	
Sheet Flow				
Description	Woods	Woods		
Manning's n	0.400	0.400	0.013	
Flow Length (ft)	100	100		
2-yr, 24-hr Precip. (in)	3.450000	3.450000	3.450000	
Land Slope (%)	9	9		
Travel Time (min)	11.33	11.33	0.00	22.66
Shallow Concentrated Flow				
Flow Length (ft)	500			
Watercourse Slope (%)	6			
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.95			
Travel Time (min)	2.11	0.00	0.00	2.11
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				24.77 min

Design Storm Report

Custom Storm filename:

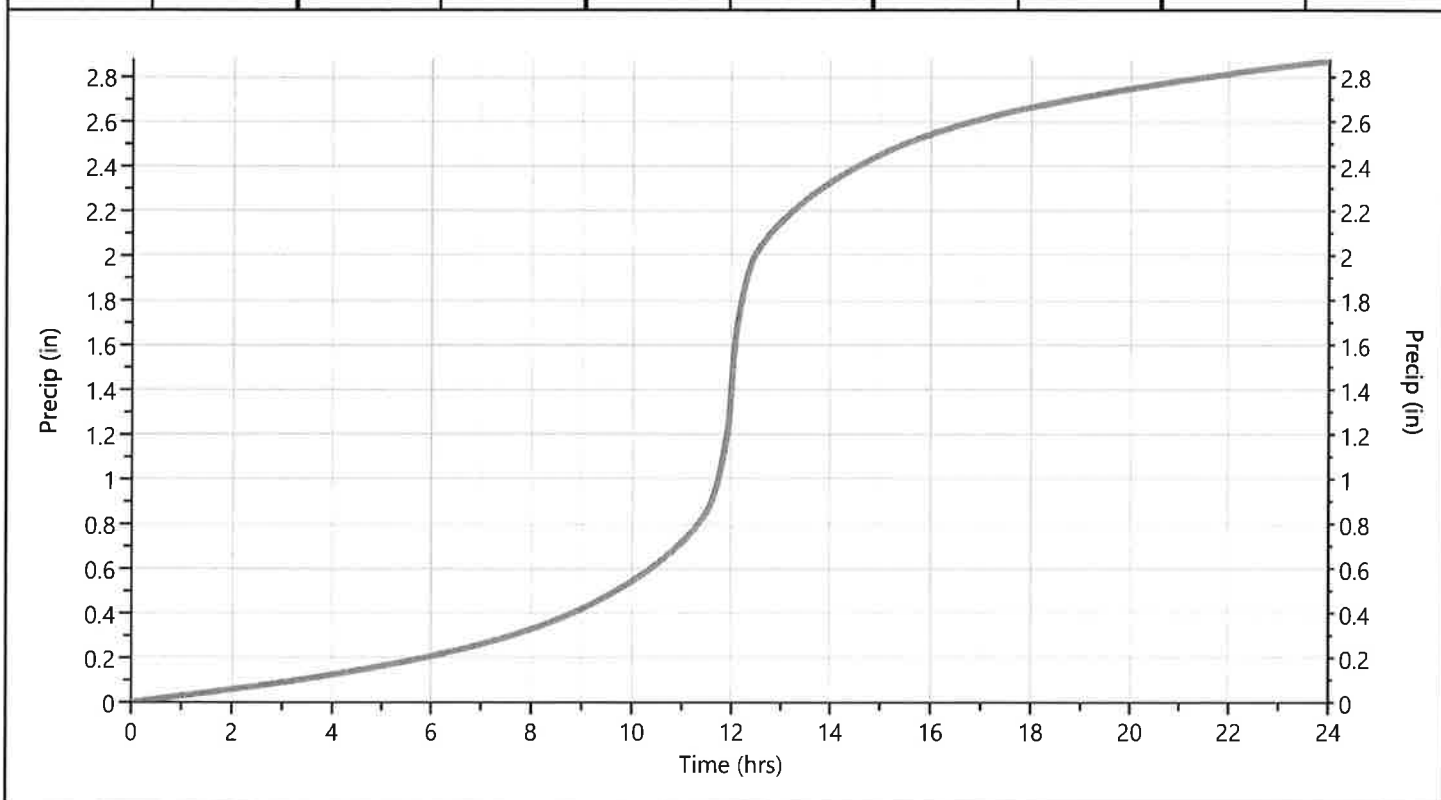
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)								
	✓ 1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92	

Incremental Rainfall Distribution, 1-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.565547	11.68	1.305848	11.87	2.077568	12.05	4.312146	12.23	1.726782
11.52	0.602669	11.70	1.376003	11.88	2.147710	12.07	3.723812	12.25	1.656628
11.53	0.674450	11.72	1.446158	11.90	2.217865	12.08	3.135455	12.27	1.586485
11.55	0.744605	11.73	1.516318	11.92	2.555323	12.10	2.547097	12.28	1.516318
11.57	0.814754	11.75	1.586461	11.93	3.135490	12.12	2.226305	12.30	1.446164
11.58	0.884914	11.77	1.656628	11.95	3.723836	12.13	2.147710	12.32	1.375997
11.60	0.955075	11.78	1.726782	11.97	4.312193	12.15	2.077568	12.33	1.305854
11.62	1.025224	11.80	1.796937	11.98	4.900539	12.17	2.007413	12.35	1.235700
11.63	1.095378	11.82	1.867092	12.00	5.488896	12.18	1.937246	12.37	1.165545
11.65	1.165539	11.83	1.937246	12.02	5.475712	12.20	1.867104	12.38	1.095378
11.67	1.235694	11.85	2.007401	12.03	4.900515	12.22	1.796937	12.40	1.025236



Hydrograph 2-yr Summary

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	1.062	12.55	9,786	---		
2	NRCS Runoff	PR-01	7.297	12.33	37,670	---		
3	Pond Route(i)	INF-01	0.025	13.03	43.4	2	41.23 U 35.60 L	8,335 U 4,091 L
4	Pond Route	POND-01 Stage 2	0.000	12.88	0.000	3	35.00	17.6
5	NRCS Runoff	EX-02	1.606	12.53	14,368	---		
6	NRCS Runoff	PR-02	1.606	12.53	14,368	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

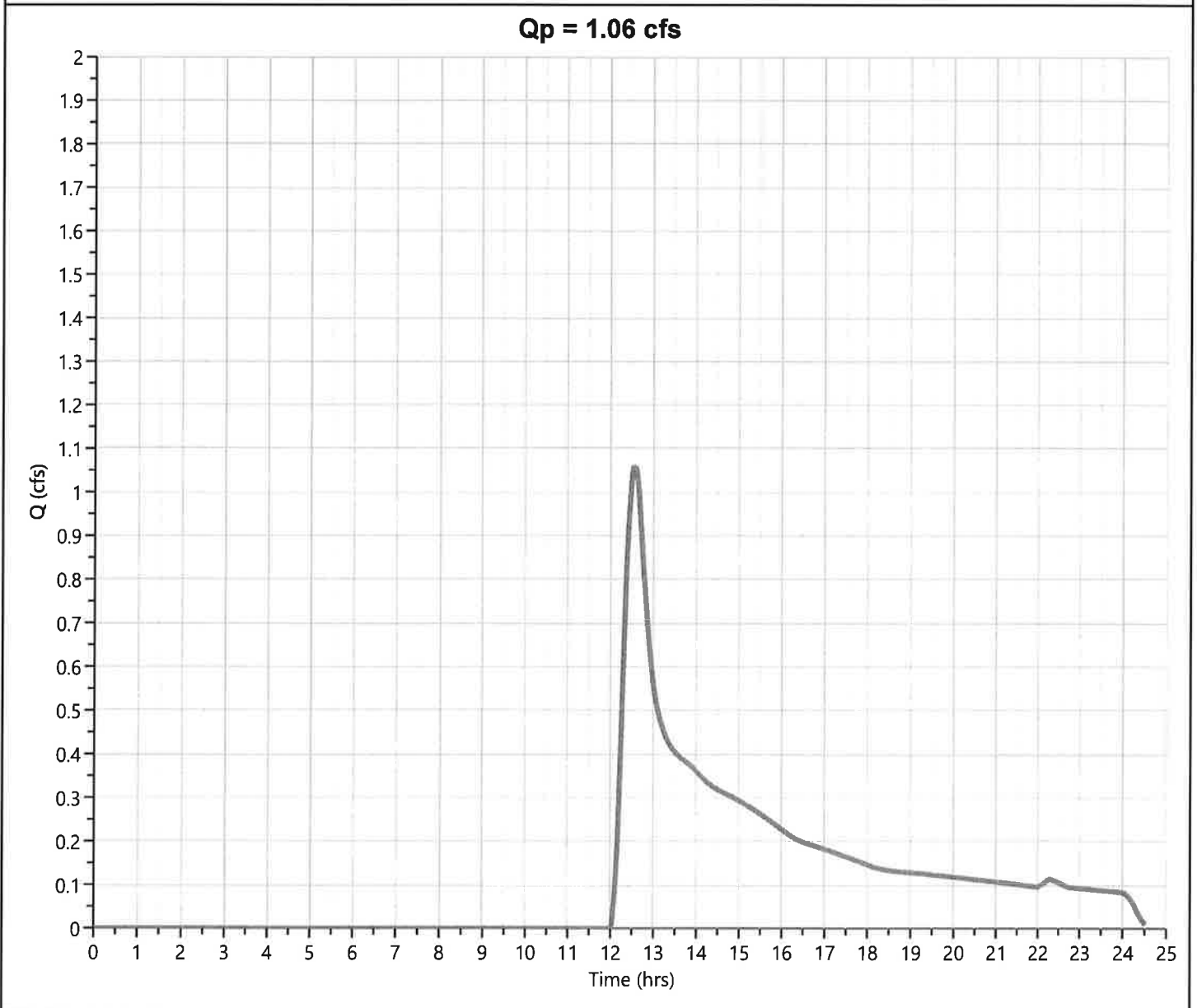
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.062 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.55 hrs
Time Interval	= 1 min	Runoff Volume	= 9,786 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 3.45 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

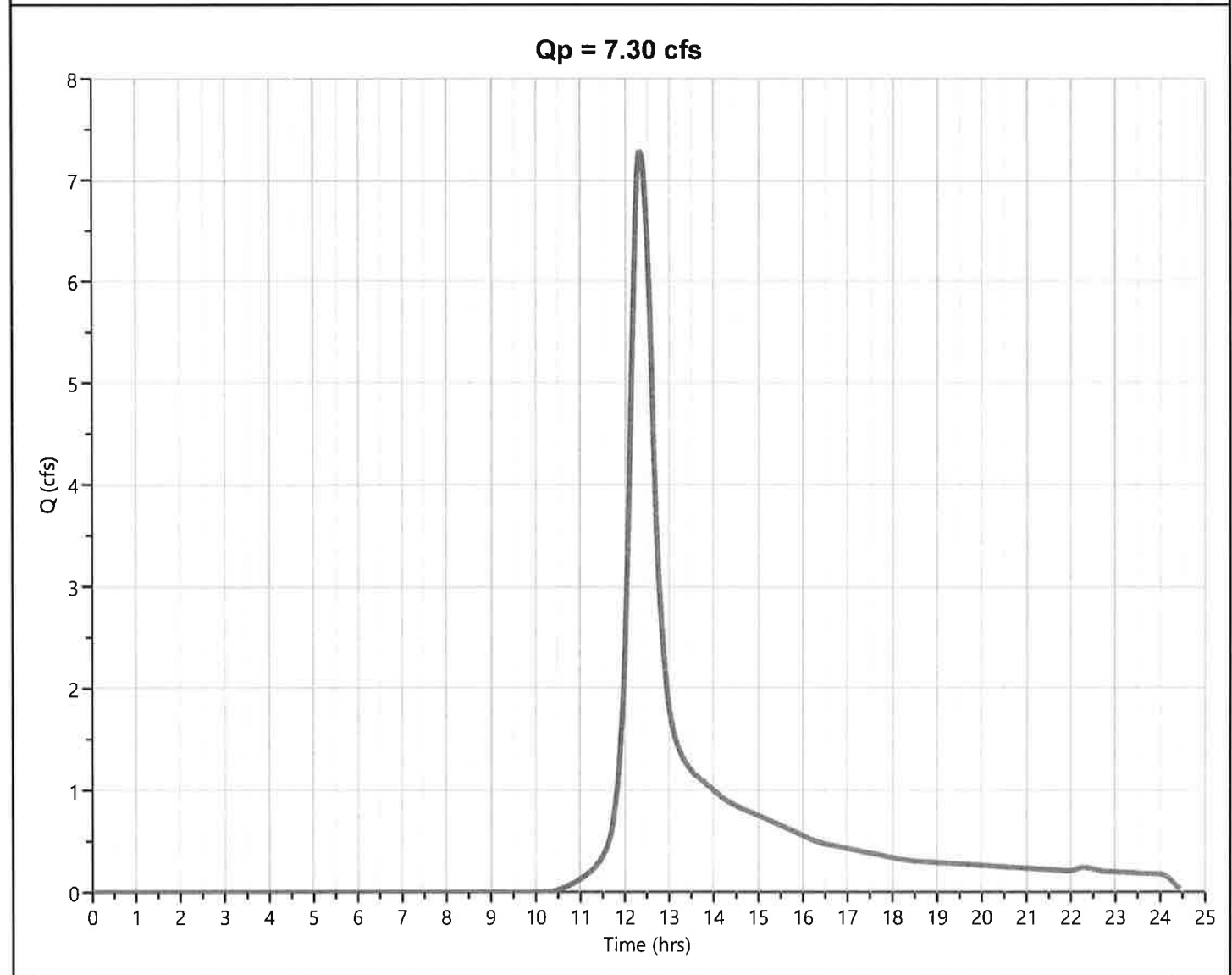
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 7.297 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Runoff Volume	= 37,670 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 3.45 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

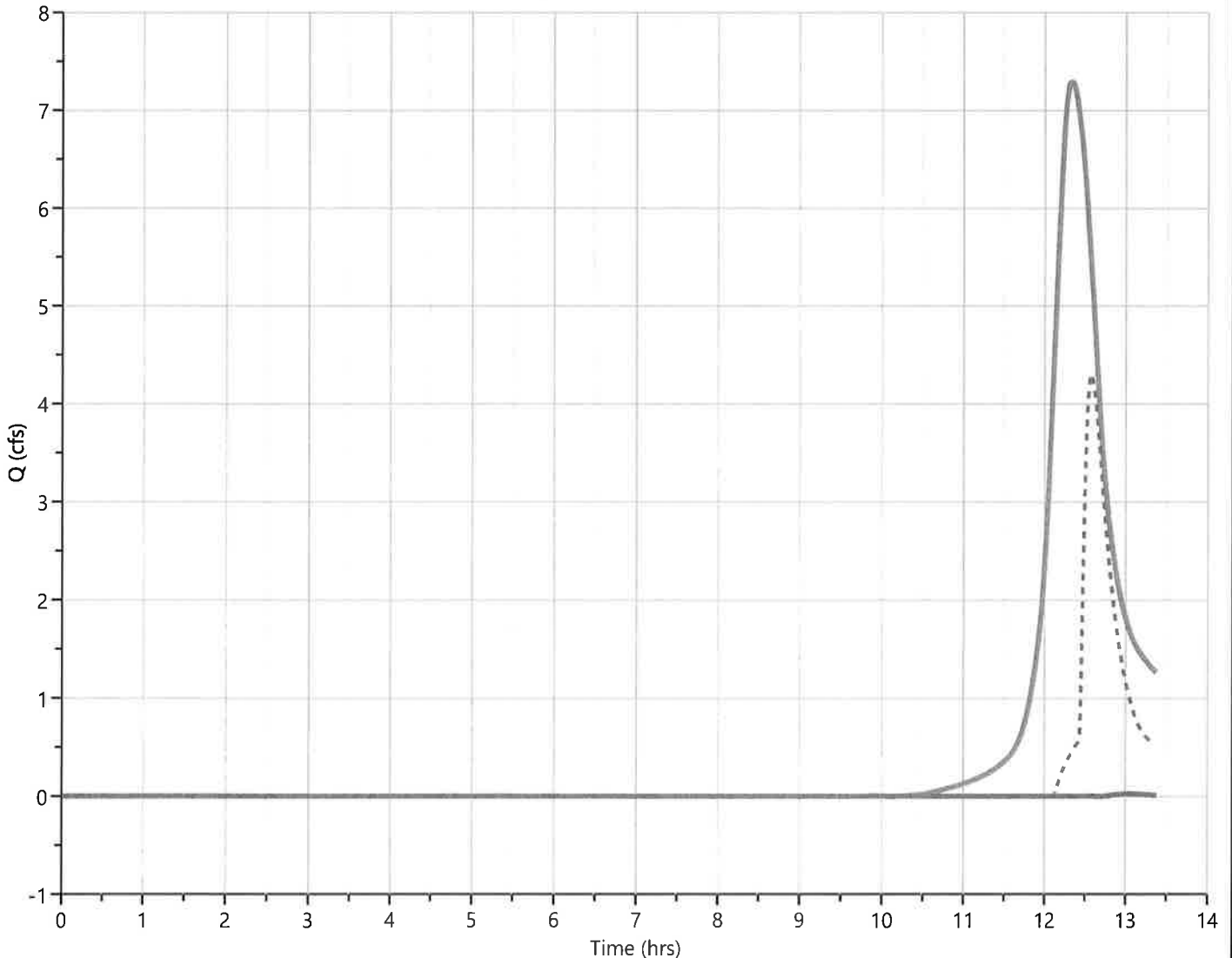
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 0.025 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.03 hrs
Time Interval	= 1 min	Hydrograph Volume	= 43.4 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 41.23 ft	Max. Elevation	= 35.60 ft
Max. Storage	= 8,335 cuft	Max. Storage	= 4,091 cuft

**Interconnected Pond Routing by Storage Indication Method.*

Qp = 0.02 cfs



PR-01 - - - Upper Pond Out — INF-01

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

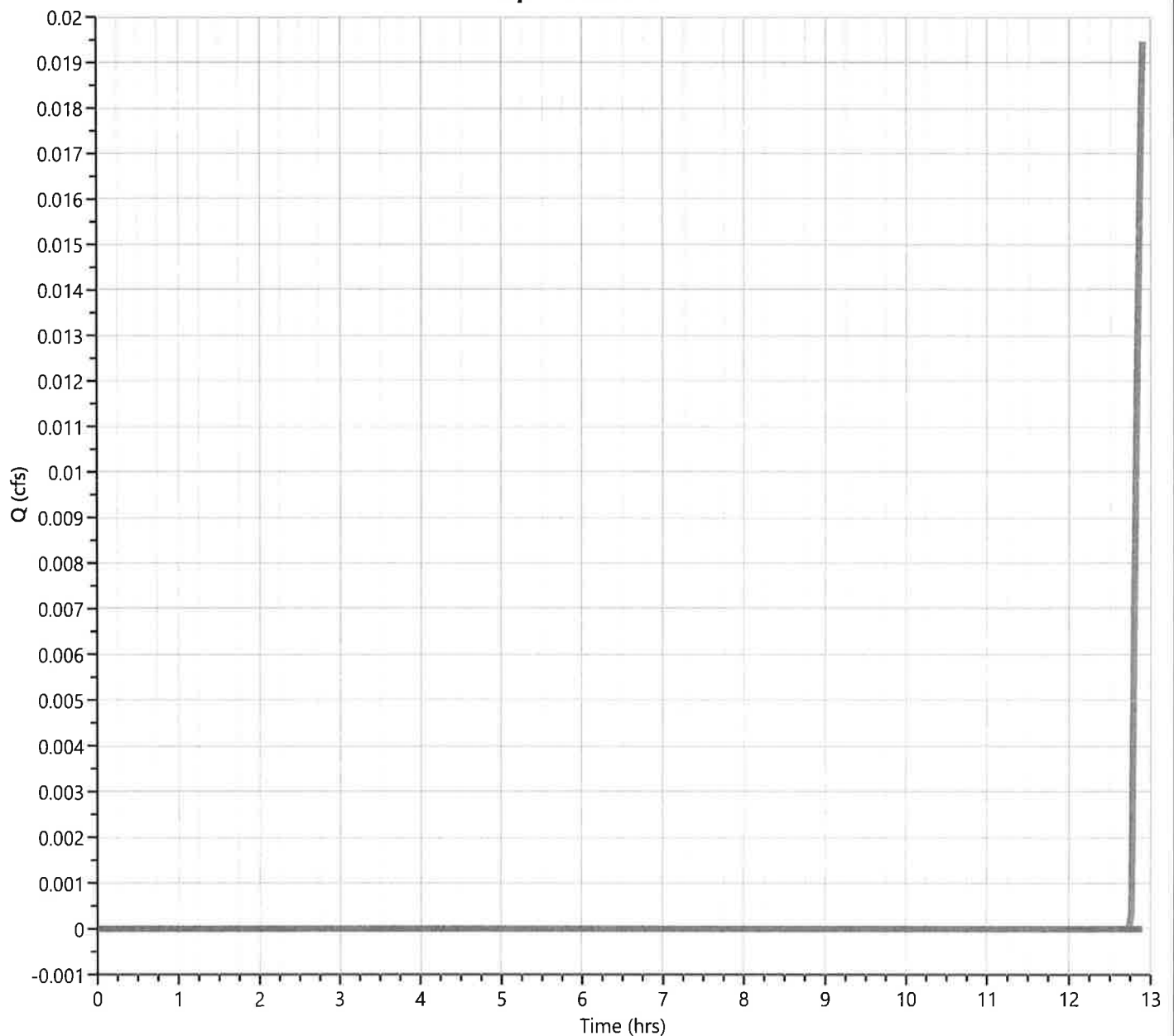
POND-01 Stage 2

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.88 hrs
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 35.00 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 17.6 cuft

Pond Routing by Storage Indication Method

Qp = 0.00 cfs



— INF-01 — POND-01 Stage 2

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

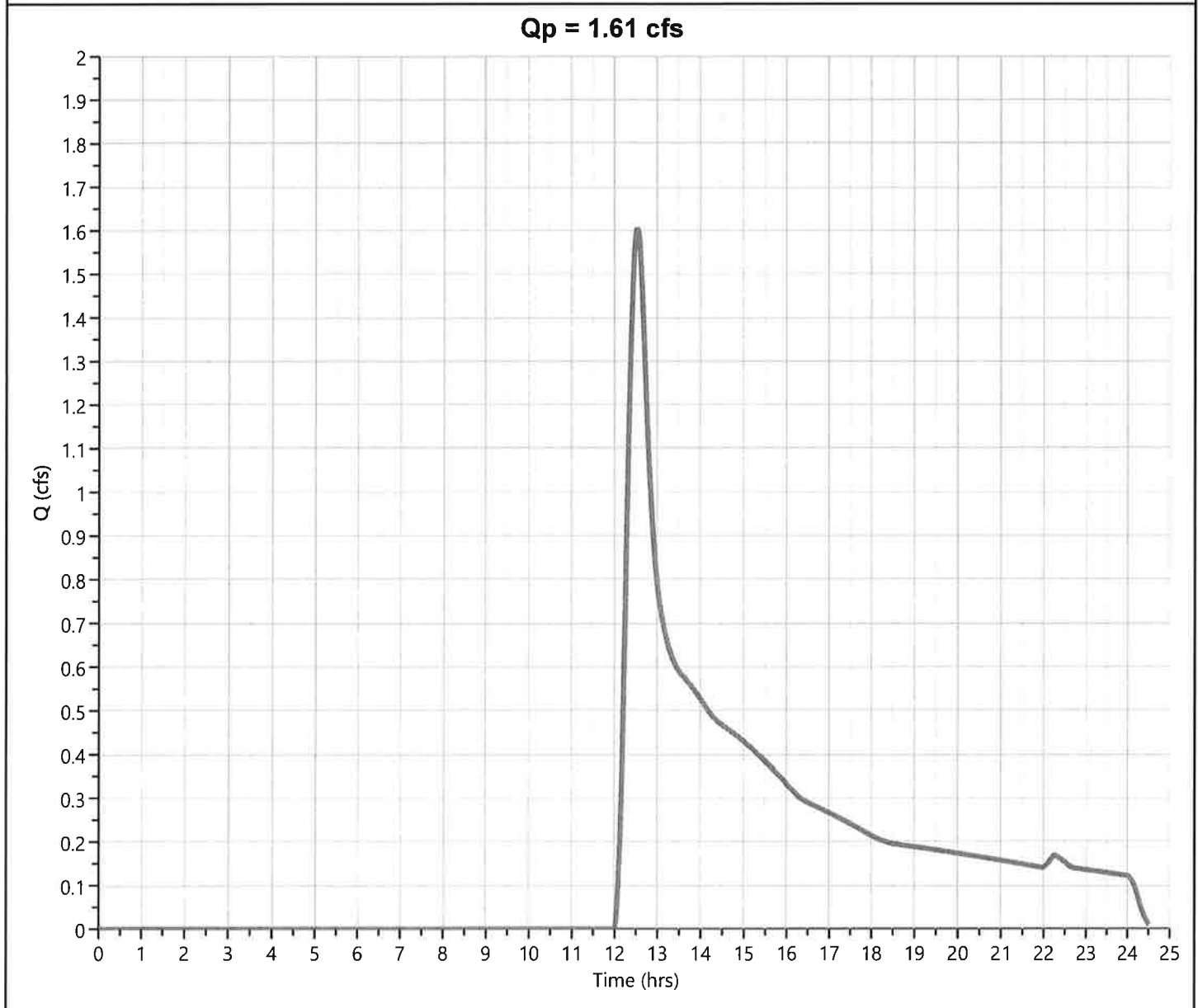
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.606 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.53 hrs
Time Interval	= 1 min	Runoff Volume	= 14,368 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 3.45 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

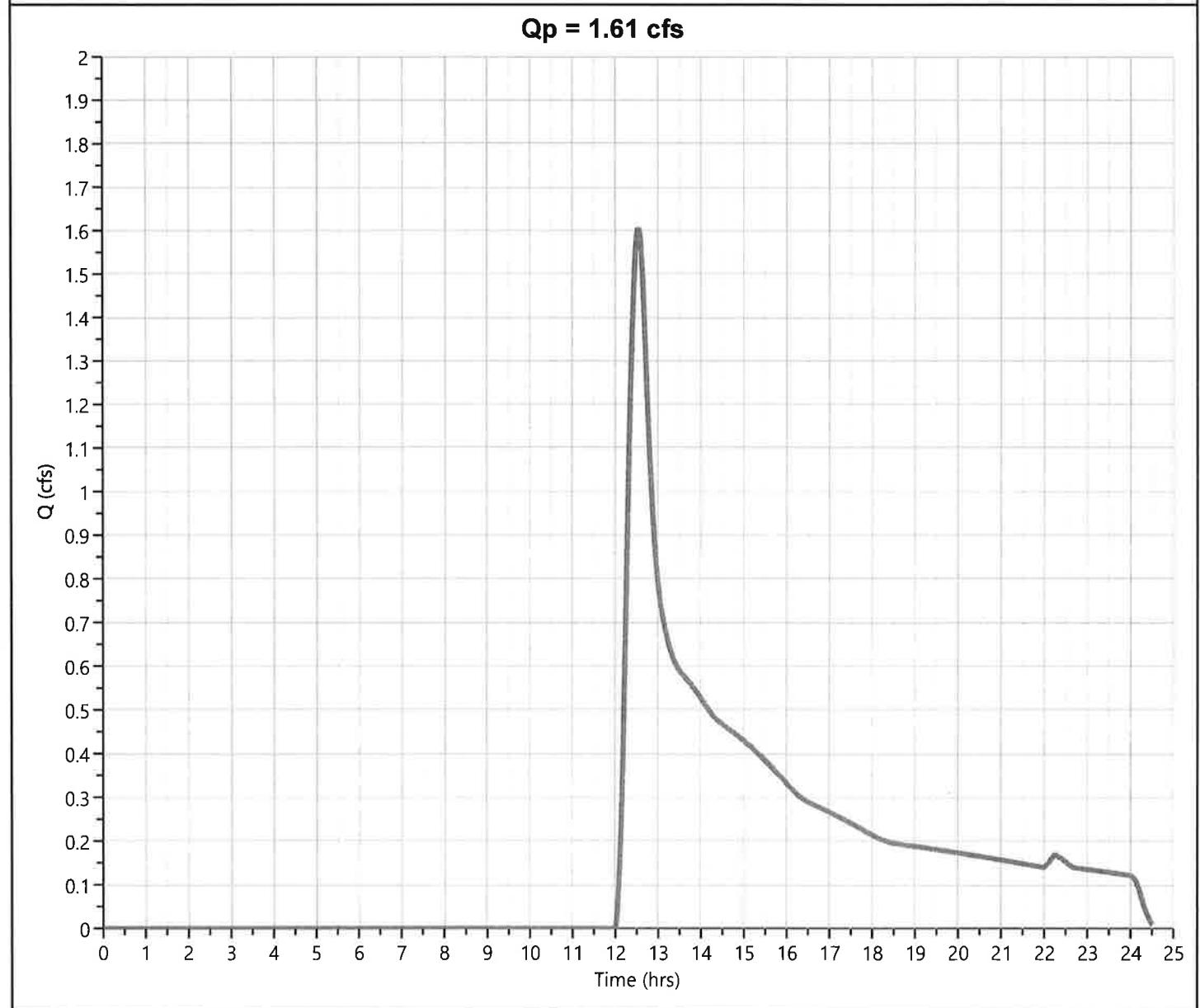
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.606 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.53 hrs
Time Interval	= 1 min	Runoff Volume	= 14,368 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 3.45 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Design Storm Report

Custom Storm filename:

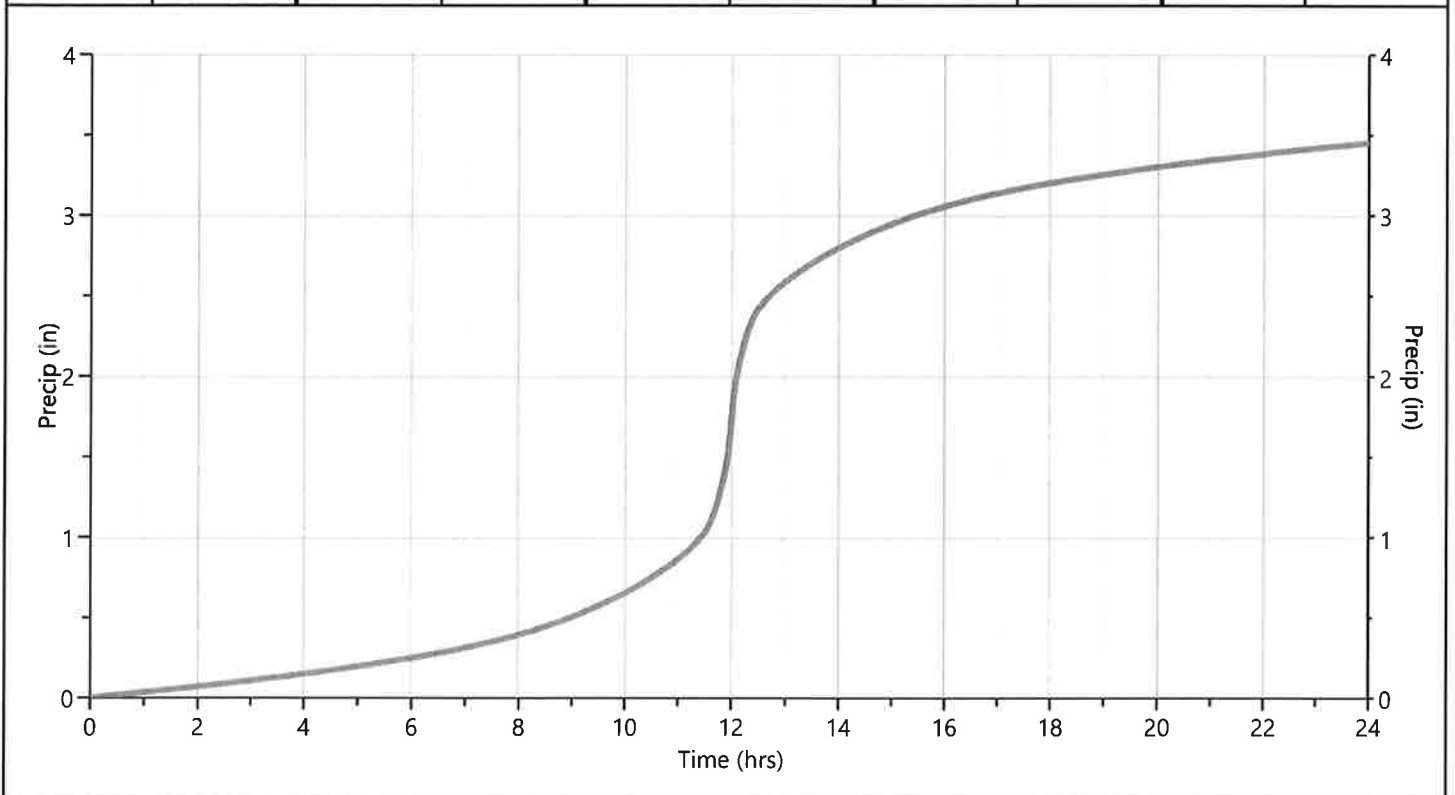
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)								
	1-yr	✓ 2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92	

Incremental Rainfall Distribution, 2-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.679839	11.68	1.569748	11.87	2.497423	12.05	5.183601	12.23	2.075768
11.52	0.724459	11.70	1.654088	11.88	2.581739	12.07	4.476345	12.25	1.991415
11.53	0.810754	11.72	1.738405	11.90	2.666080	12.08	3.769100	12.27	1.907086
11.55	0.895083	11.73	1.822746	11.92	3.071725	12.10	3.061867	12.28	1.822758
11.57	0.979412	11.75	1.907086	11.93	3.769147	12.12	2.676201	12.30	1.738405
11.58	1.063740	11.77	1.991415	11.95	4.476392	12.13	2.581763	12.32	1.654100
11.60	1.148081	11.78	2.075744	11.97	5.183649	12.15	2.497411	12.33	1.569748
11.62	1.232421	11.80	2.160084	11.98	5.890894	12.17	2.413082	12.35	1.485419
11.63	1.316750	11.82	2.244413	12.00	6.598139	12.18	2.328753	12.37	1.401091
11.65	1.401079	11.83	2.328742	12.02	6.582308	12.20	2.244425	12.38	1.316738
11.67	1.485407	11.85	2.413082	12.03	5.890858	12.22	2.160072	12.40	1.232433



Hydrograph 5-yr Summary

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	3.069	12.45	20,623	---		
2	NRCS Runoff	PR-01	11.60	12.32	58,431	---		
3	Pond Route(i)	INF-01	0.393	13.05	3,104	2	41.08 U 36.54 L	9,284 U 12,397 L
4	Pond Route	POND-01 Stage 2	0.000	12.80	0.000	3	35.06	394
5	NRCS Runoff	EX-02	4.641	12.43	30,279	---		
6	NRCS Runoff	PR-02	4.641	12.43	30,279	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

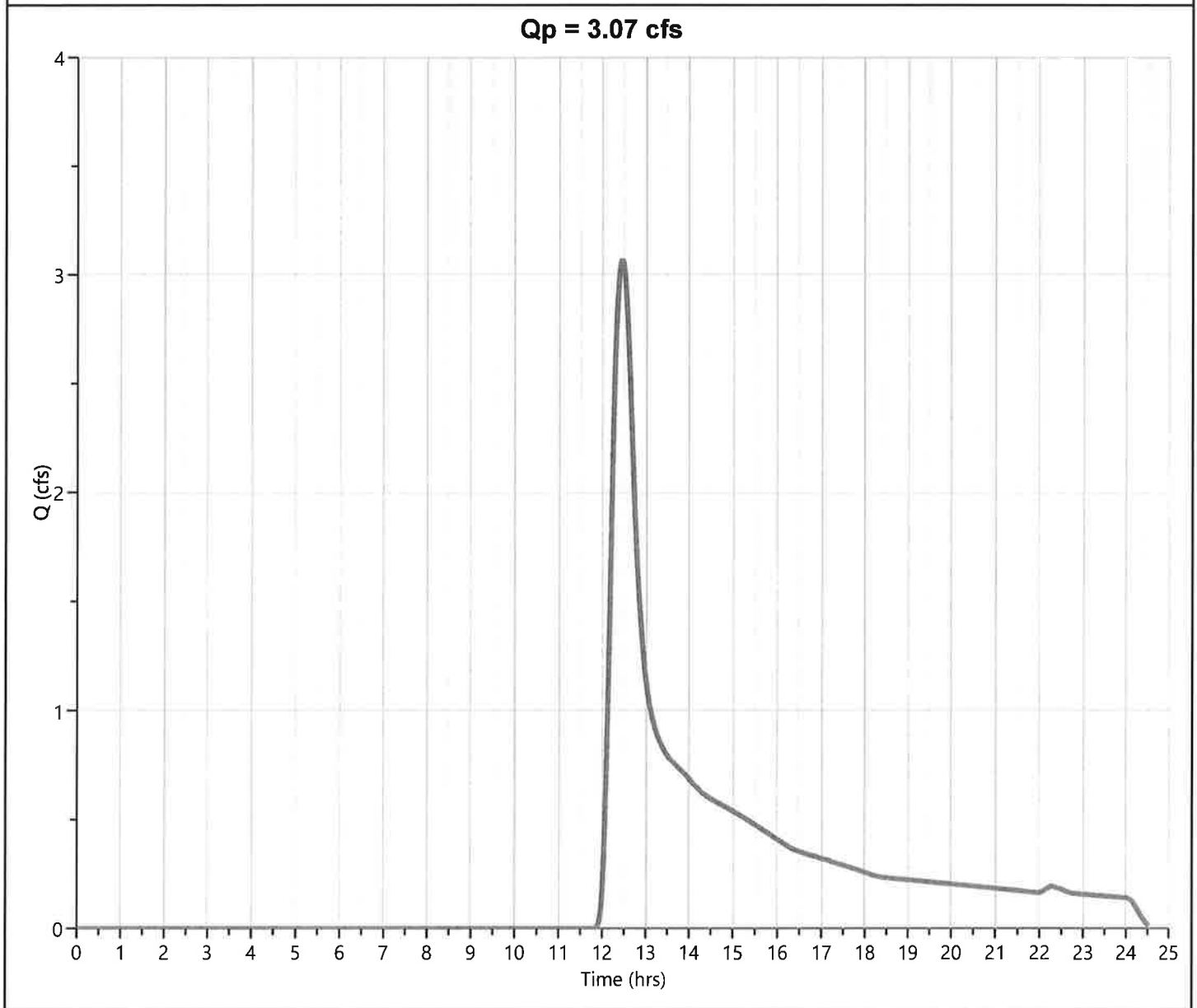
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.069 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.45 hrs
Time Interval	= 1 min	Runoff Volume	= 20,623 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 4.39 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

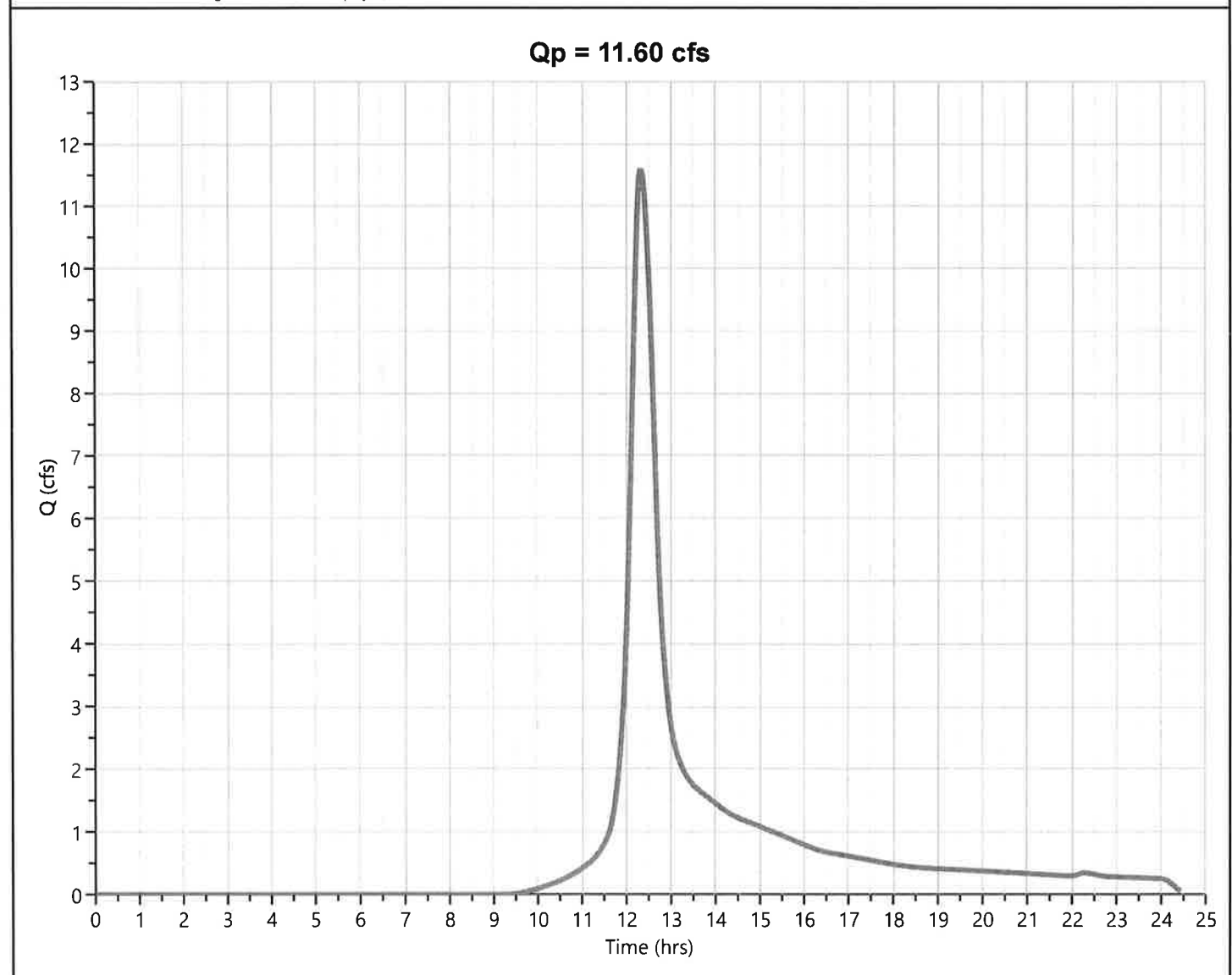
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 11.60 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 58,431 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 4.39 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

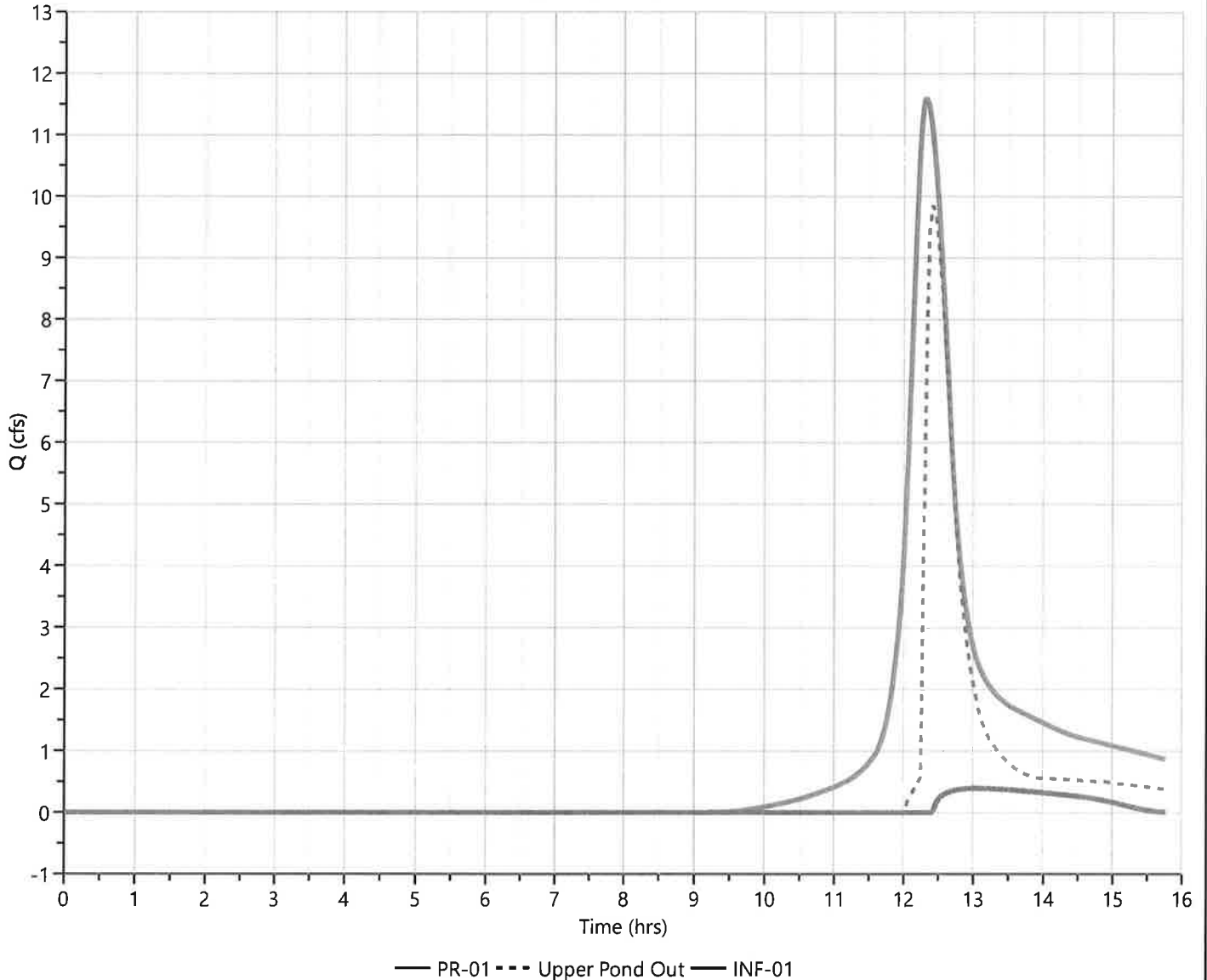
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 0.393 cfs
Storm Frequency	= 5-yr	Time to Peak	= 13.05 hrs
Time Interval	= 1 min	Hydrograph Volume	= 3,104 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 41.08 ft	Max. Elevation	= 36.54 ft
Max. Storage	= 9,284 cuft	Max. Storage	= 12,397 cuft

*Interconnected Pond Routing by Storage Indication Method.

Qp = 0.39 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

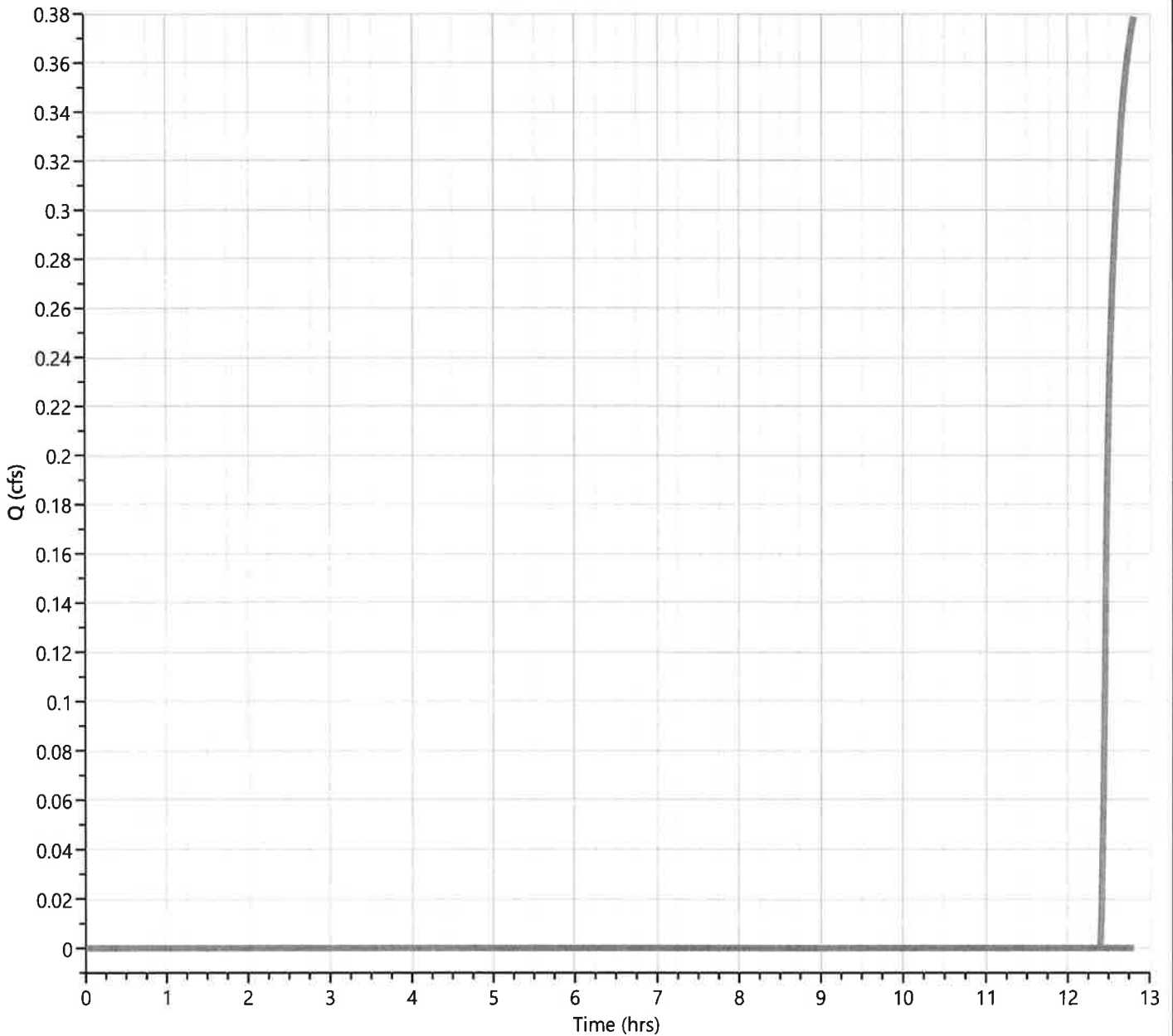
POND-01 Stage 2

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.80 hrs
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 35.06 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 394 cuft

Pond Routing by Storage Indication Method

Qp = 0.00 cfs



— INF-01 — POND-01 Stage 2

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

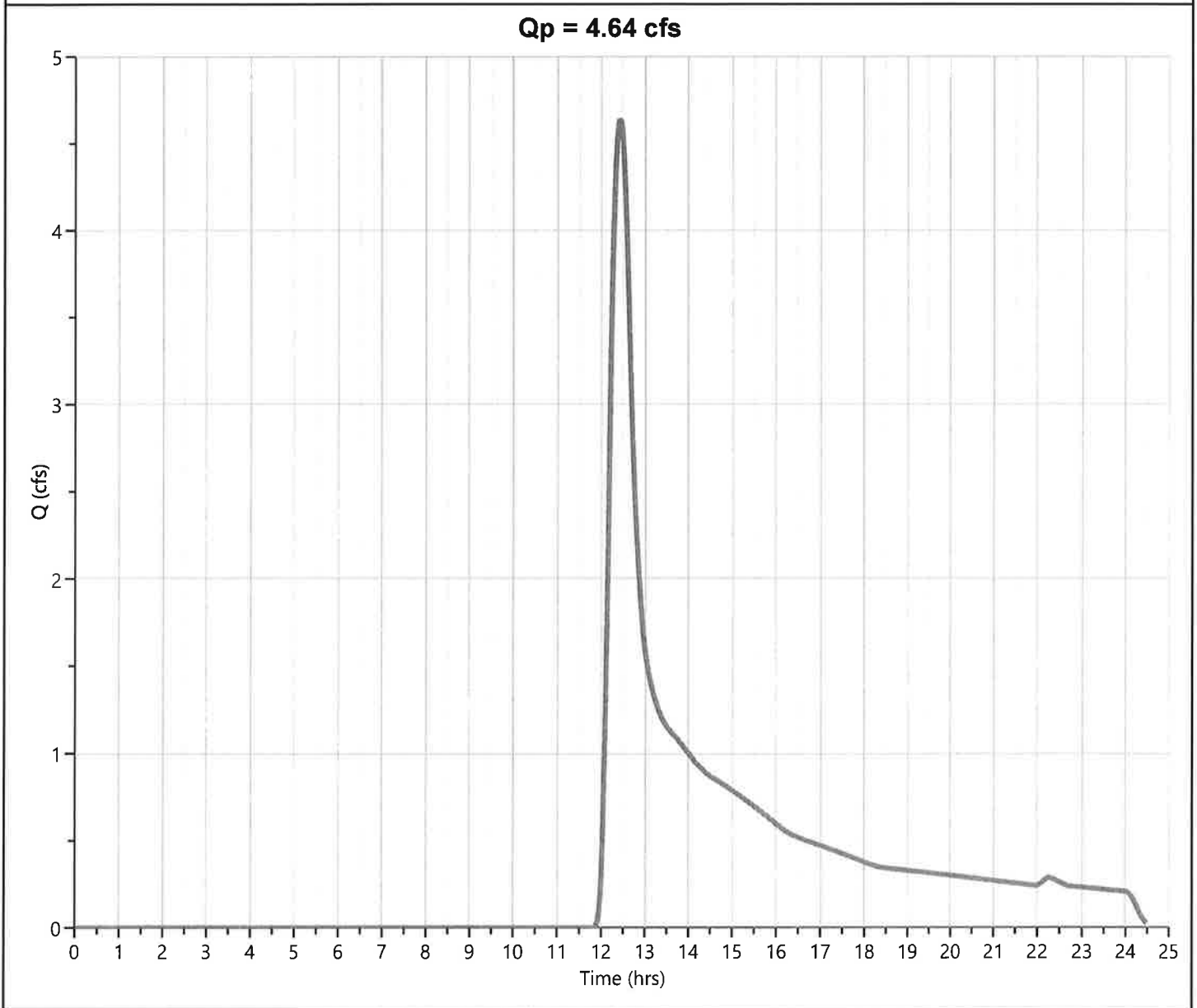
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.641 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.43 hrs
Time Interval	= 1 min	Runoff Volume	= 30,279 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 4.39 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

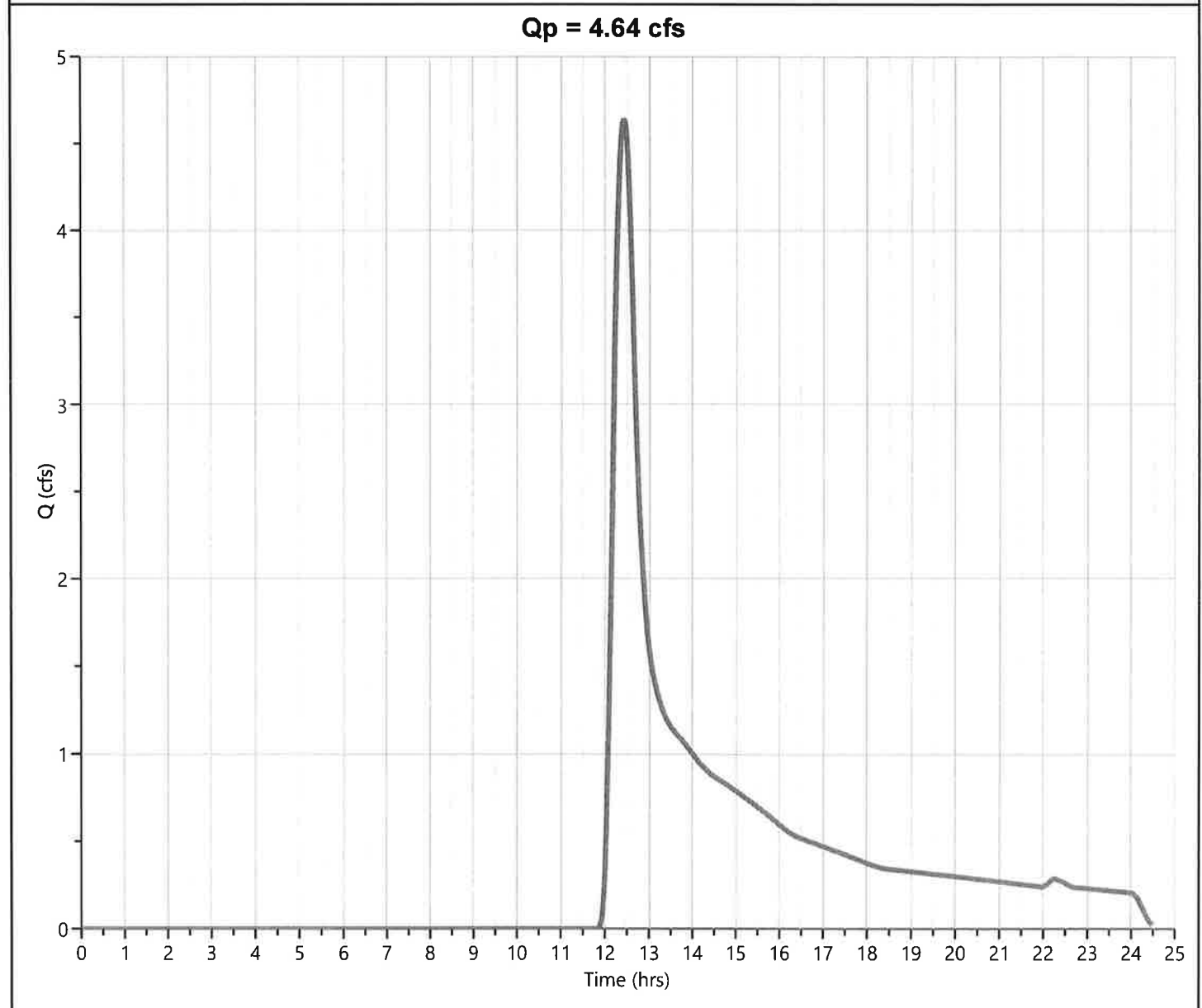
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.641 cfs
Storm Frequency	= 5-yr	Time to Peak	= 12.43 hrs
Time Interval	= 1 min	Runoff Volume	= 30,279 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 4.39 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Design Storm Report

Custom Storm filename:

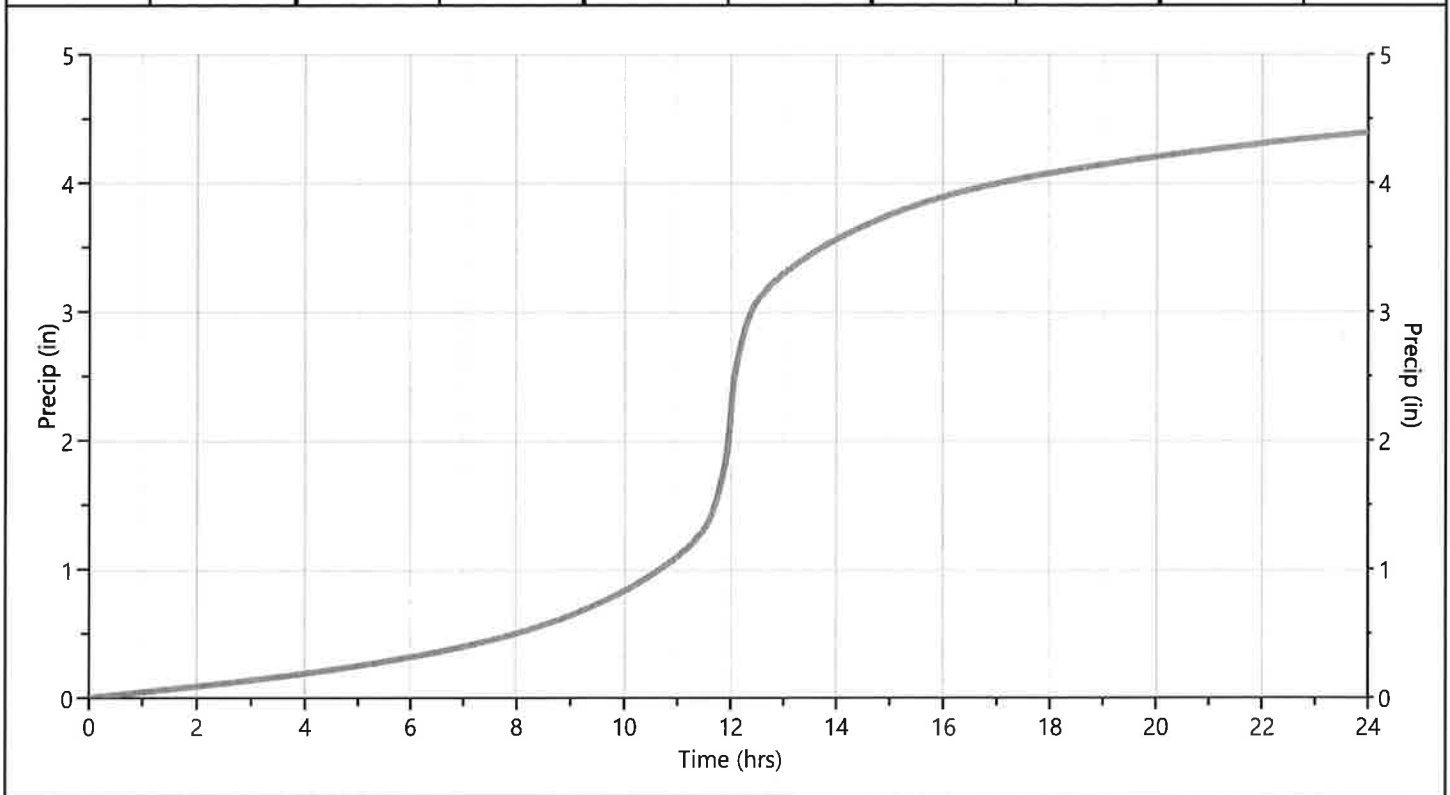
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)							
	1-yr	2-yr	3-yr	✓ 5-yr	10-yr	25-yr	50-yr	100-yr
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92

Incremental Rainfall Distribution, 5-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	0.865078	11.68	1.997447	11.87	3.177869	12.05	6.595945	12.23	2.641320
11.52	0.921845	11.70	2.104759	11.88	3.285170	12.07	5.696011	12.25	2.534008
11.53	1.031649	11.72	2.212071	11.90	3.392494	12.08	4.796028	12.27	2.426720
11.55	1.138961	11.73	2.319372	11.92	3.908658	12.10	3.896093	12.28	2.319384
11.57	1.246262	11.75	2.426696	11.93	4.796100	12.12	3.405380	12.30	2.212071
11.58	1.353586	11.77	2.533996	11.95	5.696046	12.13	3.285193	12.32	2.104759
11.60	1.460886	11.78	2.641320	11.97	6.596005	12.15	3.177881	12.33	1.997447
11.62	1.568210	11.80	2.748621	11.98	7.495952	12.17	3.070569	12.35	1.890159
11.63	1.675510	11.82	2.855933	12.00	8.395886	12.18	2.963257	12.37	1.782823
11.65	1.782823	11.83	2.963257	12.02	8.375764	12.20	2.855921	12.38	1.675510
11.67	1.890135	11.85	3.070557	12.03	7.495880	12.22	2.748632	12.40	1.568222



Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	5.329	12.40	31,852	---		
2	NRCS Runoff	PR-01	15.45	12.32	77,212	---		
3	Pond Route(i)	INF-01	1.764	12.95	9,339	2	40.93 U 37.22 L	9,853 U 19,724 L
4	Pond Route	POND-01 Stage 2	0.000	13.07	0.000	3	35.39	2,670
5	NRCS Runoff	EX-02	8.061	12.38	46,767	---		
6	NRCS Runoff	PR-02	8.061	12.38	46,767	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

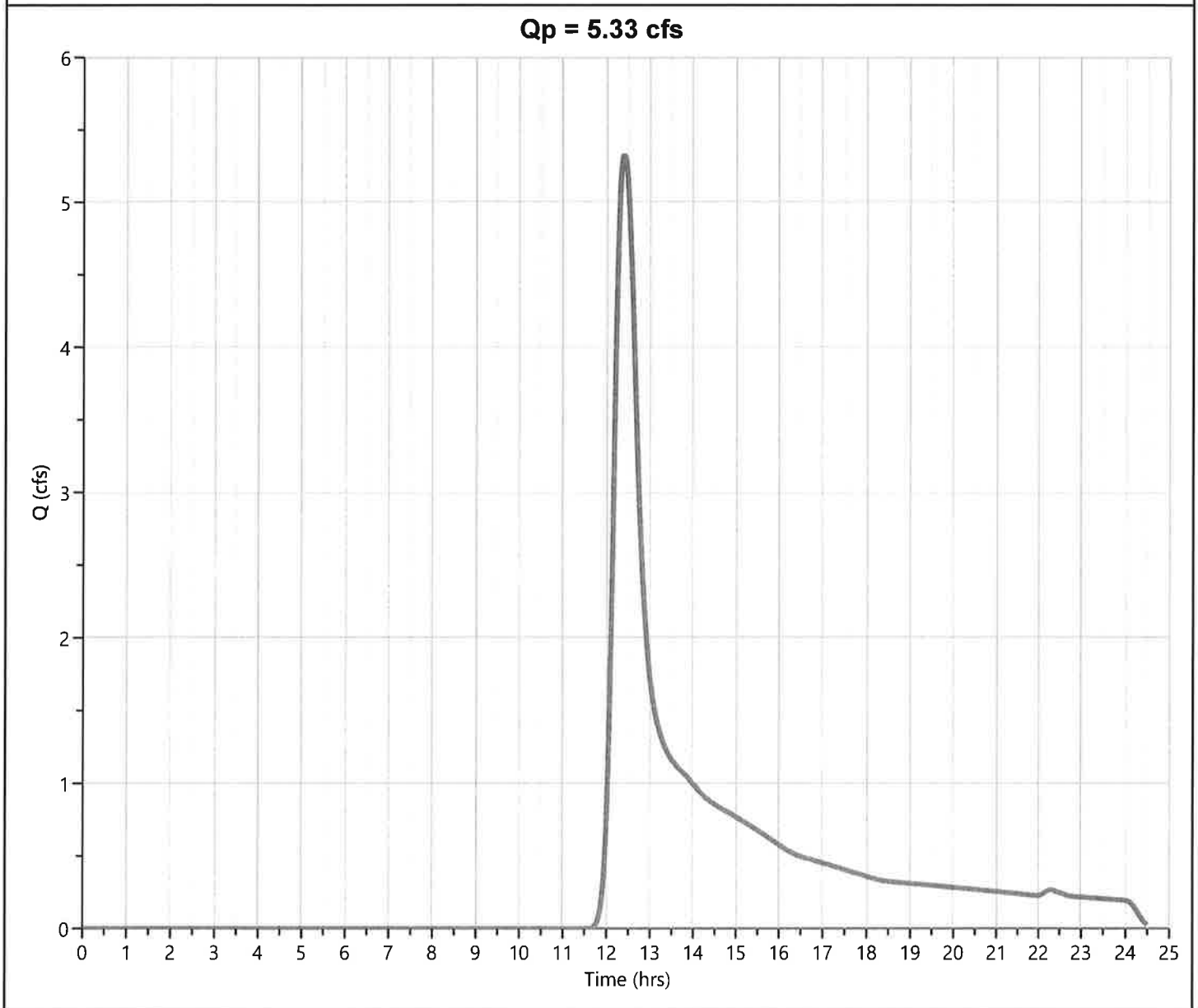
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 5.329 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.40 hrs
Time Interval	= 1 min	Runoff Volume	= 31,852 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 5.18 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

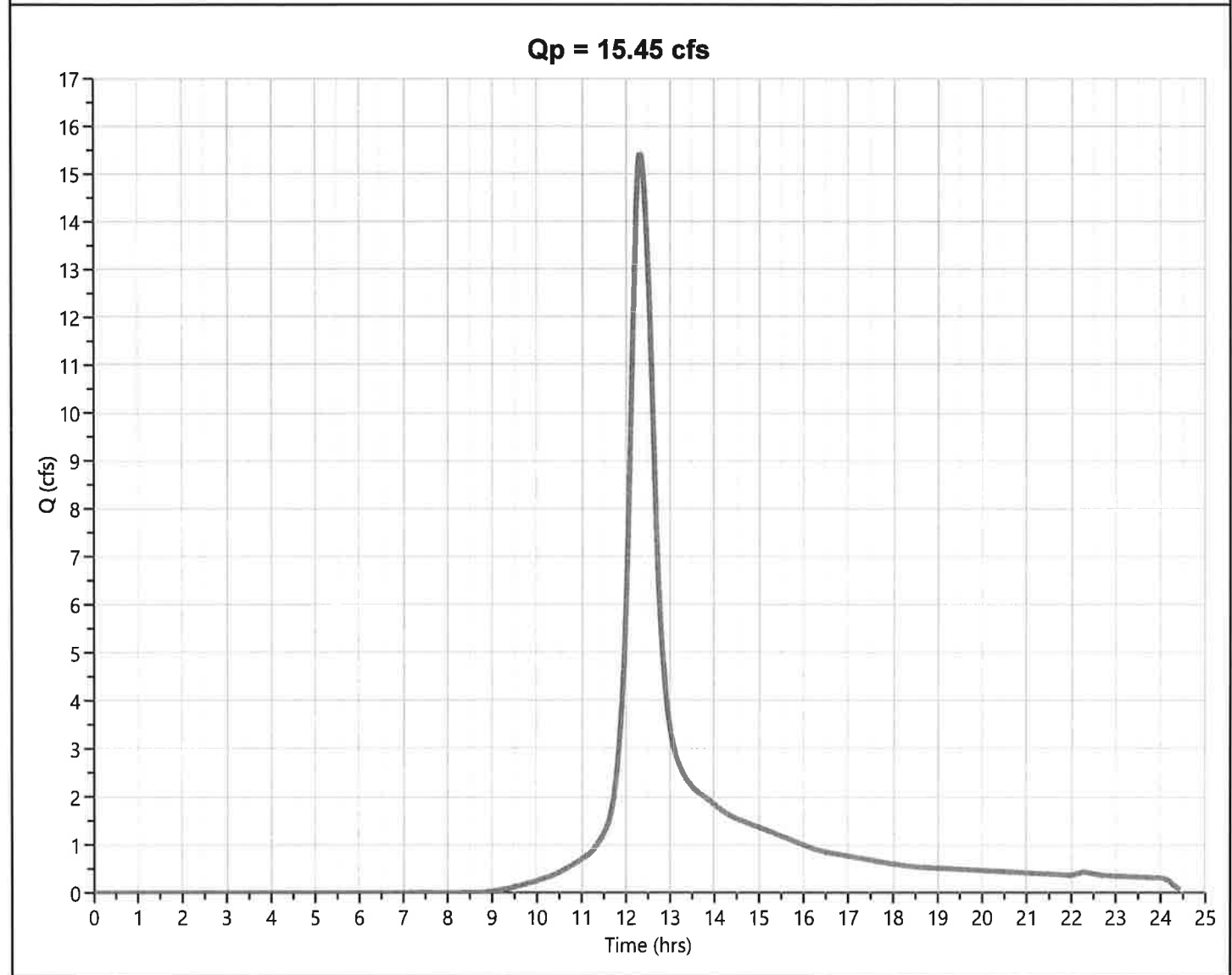
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 15.45 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 77,212 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 5.18 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

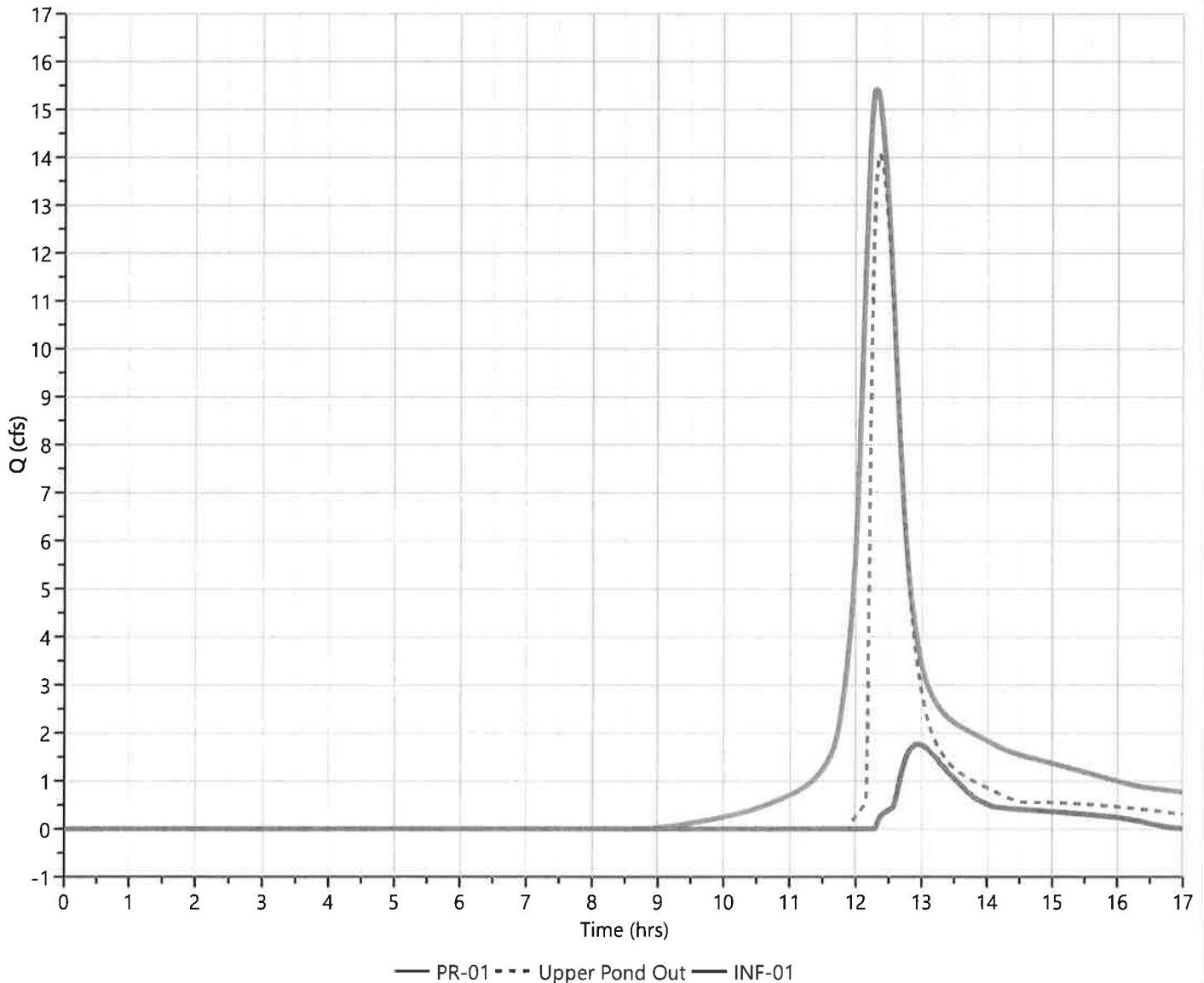
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 1.764 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.95 hrs
Time Interval	= 1 min	Hydrograph Volume	= 9,339 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 40.93 ft	Max. Elevation	= 37.22 ft
Max. Storage	= 9,853 cuft	Max. Storage	= 19,724 cuft

*Interconnected Pond Routing by Storage Indication Method.

Qp = 1.76 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

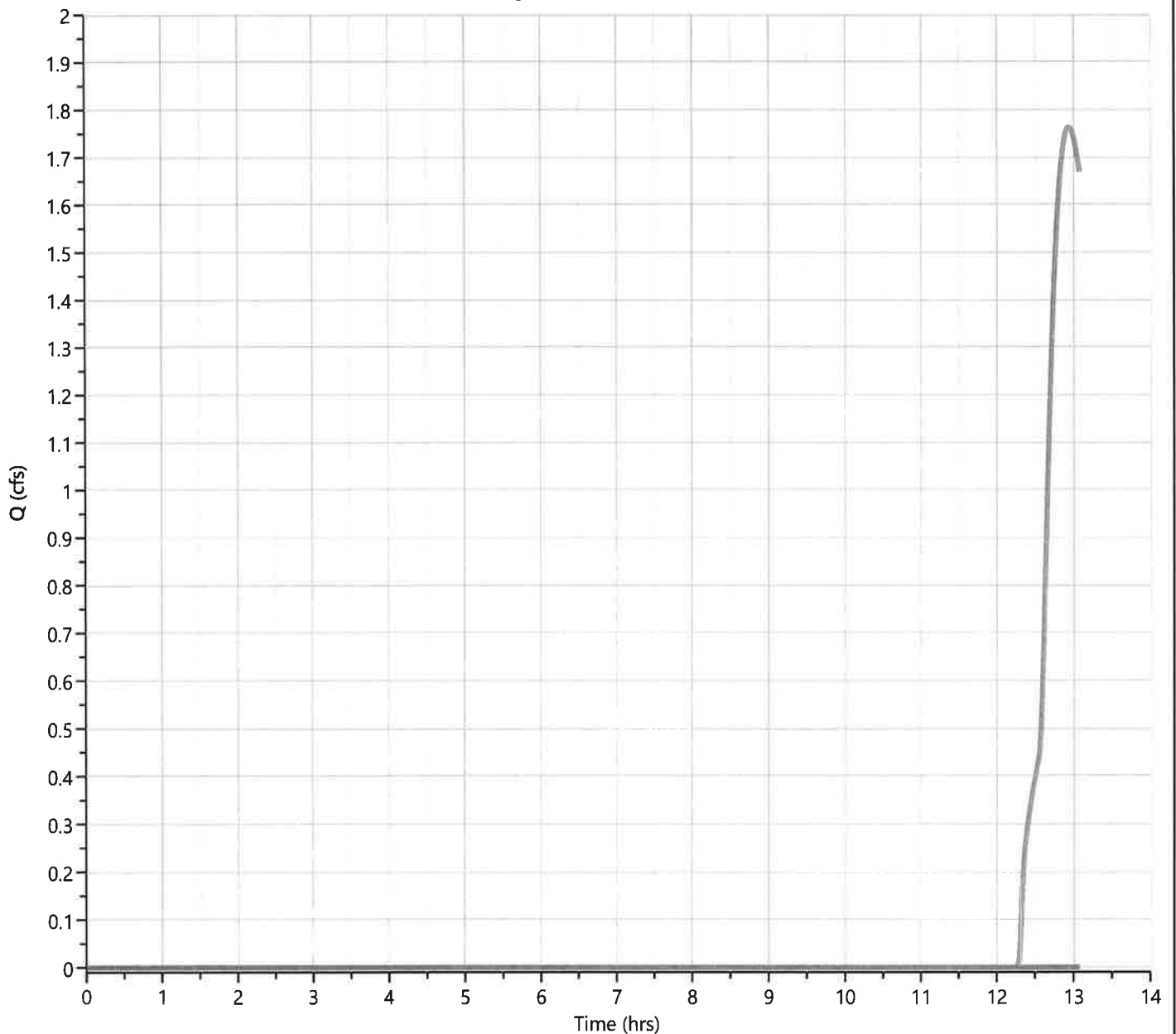
POND-01 Stage 2

Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 10-yr	Time to Peak	= 13.07 hrs
Time Interval	= 1 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 35.39 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 2,670 cuft

Pond Routing by Storage Indication Method

Qp = 0.00 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

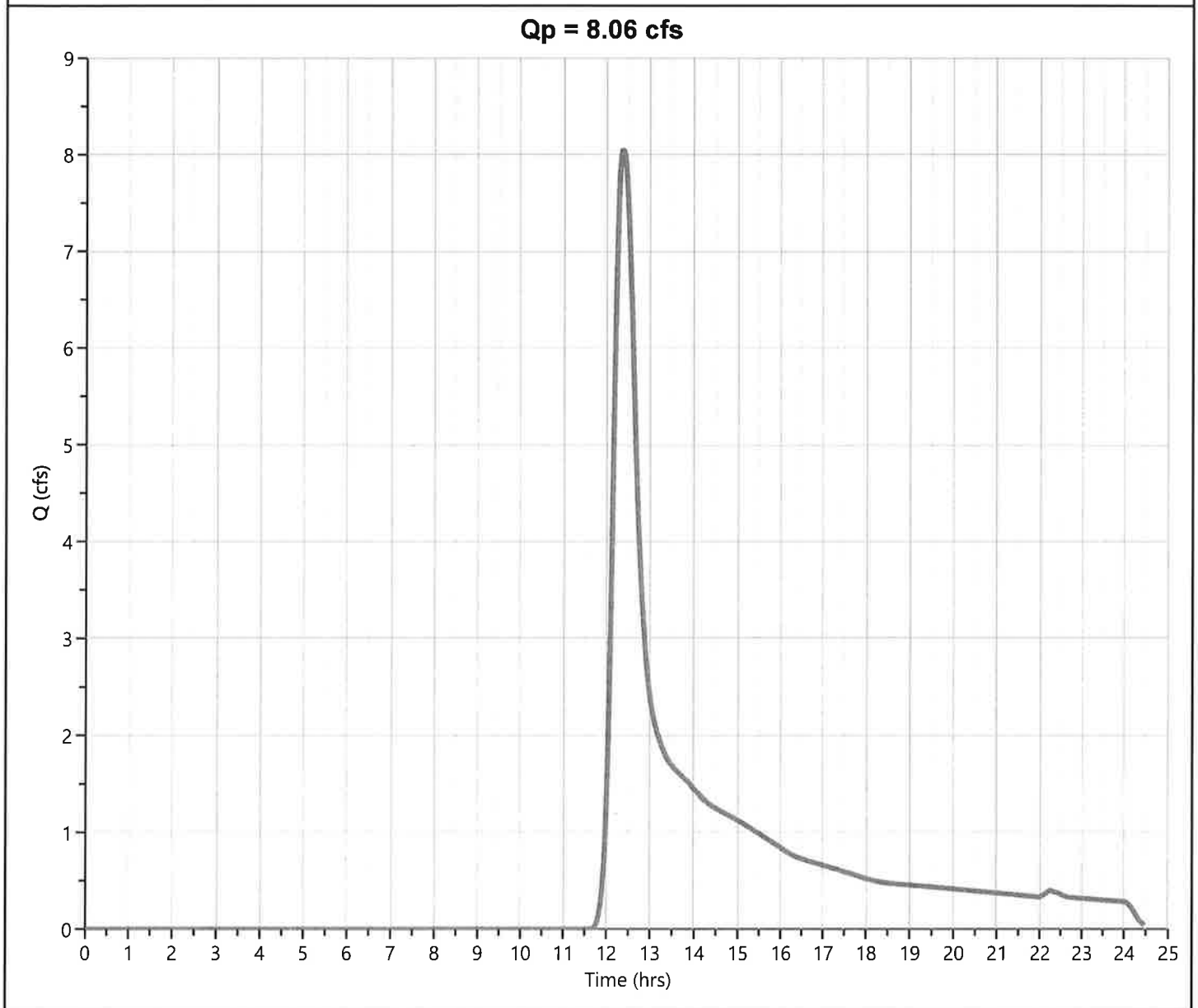
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.061 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.38 hrs
Time Interval	= 1 min	Runoff Volume	= 46,767 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 5.18 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

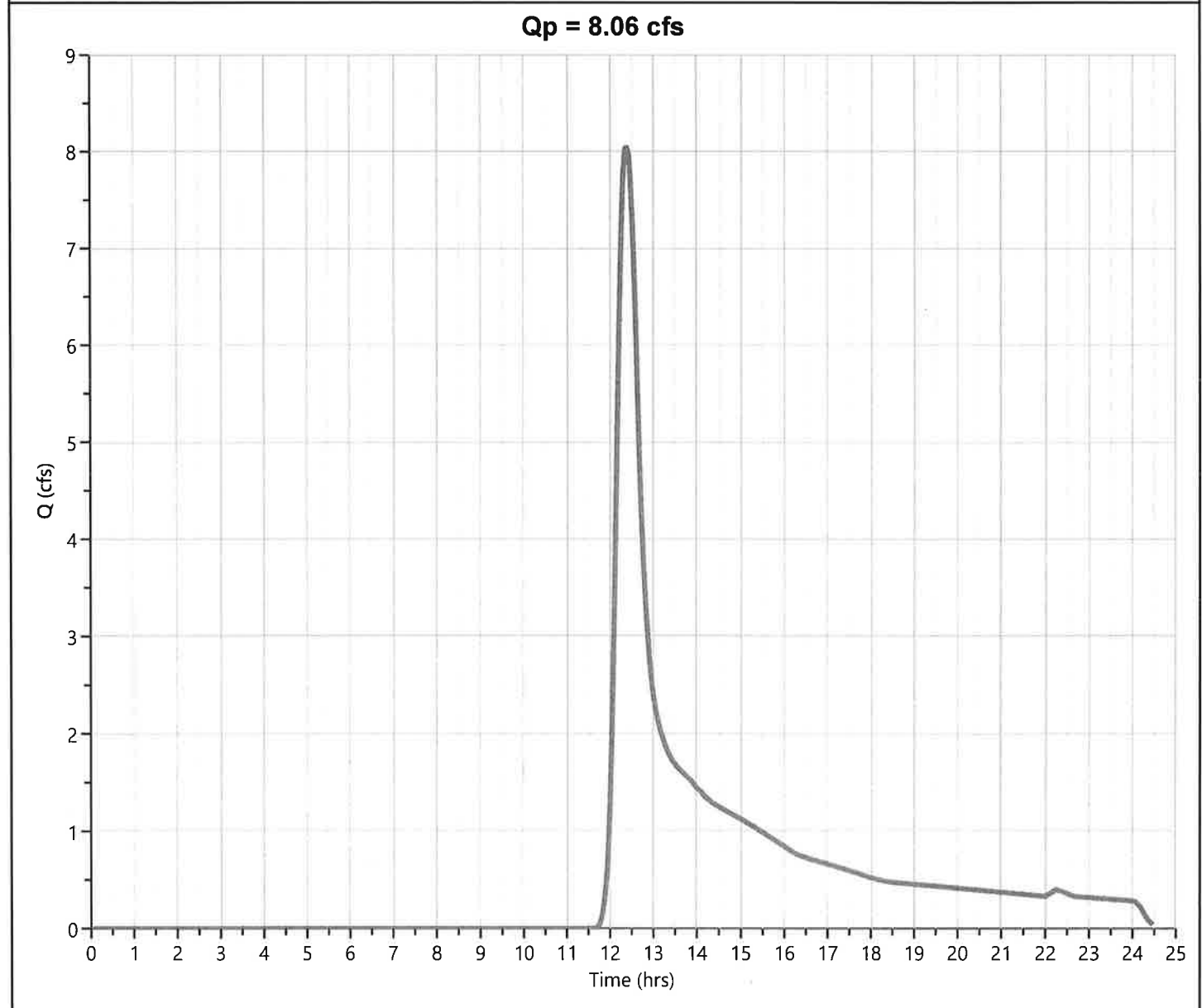
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.061 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.38 hrs
Time Interval	= 1 min	Runoff Volume	= 46,767 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 5.18 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Design Storm Report

Custom Storm filename:

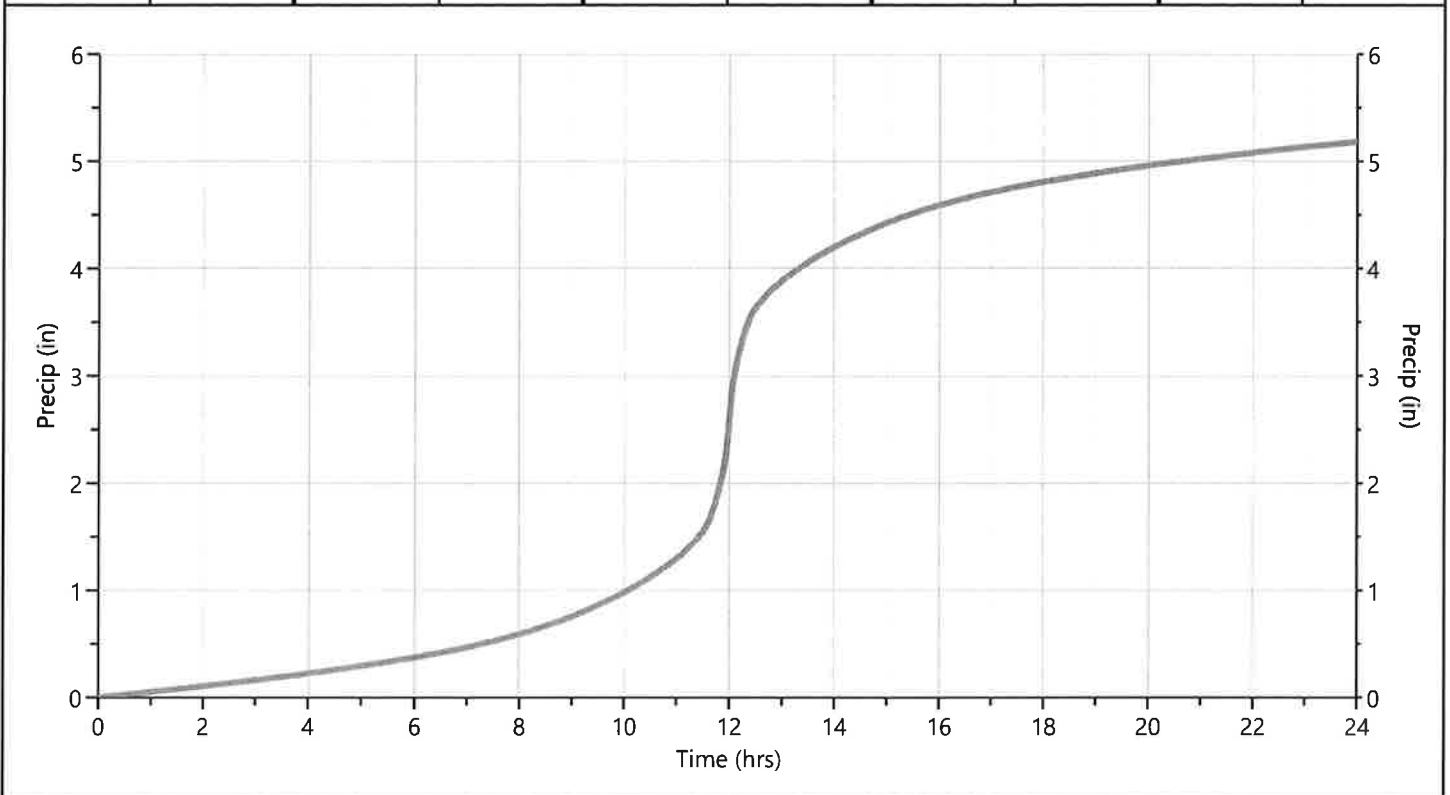
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	✓ 10-yr	25-yr	50-yr	100-yr	
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92	

Incremental Rainfall Distribution, 10-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	1.020741	11.68	2.356887	11.87	3.749752	12.05	7.782912	12.23	3.116632
11.52	1.087749	11.70	2.483523	11.88	3.876352	12.07	6.721020	12.25	2.990031
11.53	1.217294	11.72	2.610135	11.90	4.002976	12.08	5.659103	12.27	2.863383
11.55	1.343918	11.73	2.736771	11.92	4.612041	12.10	4.597211	12.28	2.736783
11.57	1.470542	11.75	2.863383	11.93	5.659175	12.12	4.018188	12.30	2.610135
11.58	1.597154	11.77	2.990007	11.95	6.721091	12.13	3.876376	12.32	2.483535
11.60	1.723790	11.78	3.116632	11.97	7.782984	12.15	3.749752	12.33	2.356911
11.62	1.850402	11.80	3.243244	11.98	8.844876	12.17	3.623128	12.35	2.230263
11.63	1.977038	11.82	3.369880	12.00	9.906769	12.18	3.496504	12.37	2.103662
11.65	2.103651	11.83	3.496504	12.02	9.882998	12.20	3.369880	12.38	1.977038
11.67	2.230275	11.85	3.623104	12.03	8.844829	12.22	3.243256	12.40	1.850414



Hydrograph 25-yr Summary

Project Name:

07-13-2020

Hydrology Studio v 3.0.0.15

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	8.999	12.37	49,653	---		
2	NRCS Runoff	PR-01	20.92	12.30	104,239	---		
3	Pond Route(i)	INF-01	3.842	12.87	23,832	2	41.13 U 38.02 L	10,704 U 29,169 L
4	Pond Route	POND-01 Stage 2	0.337	14.03	2,721	3	36.31	10,017
5	NRCS Runoff	EX-02	13.63	12.33	72,903	---		
6	NRCS Runoff	PR-02	13.63	12.33	72,903	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

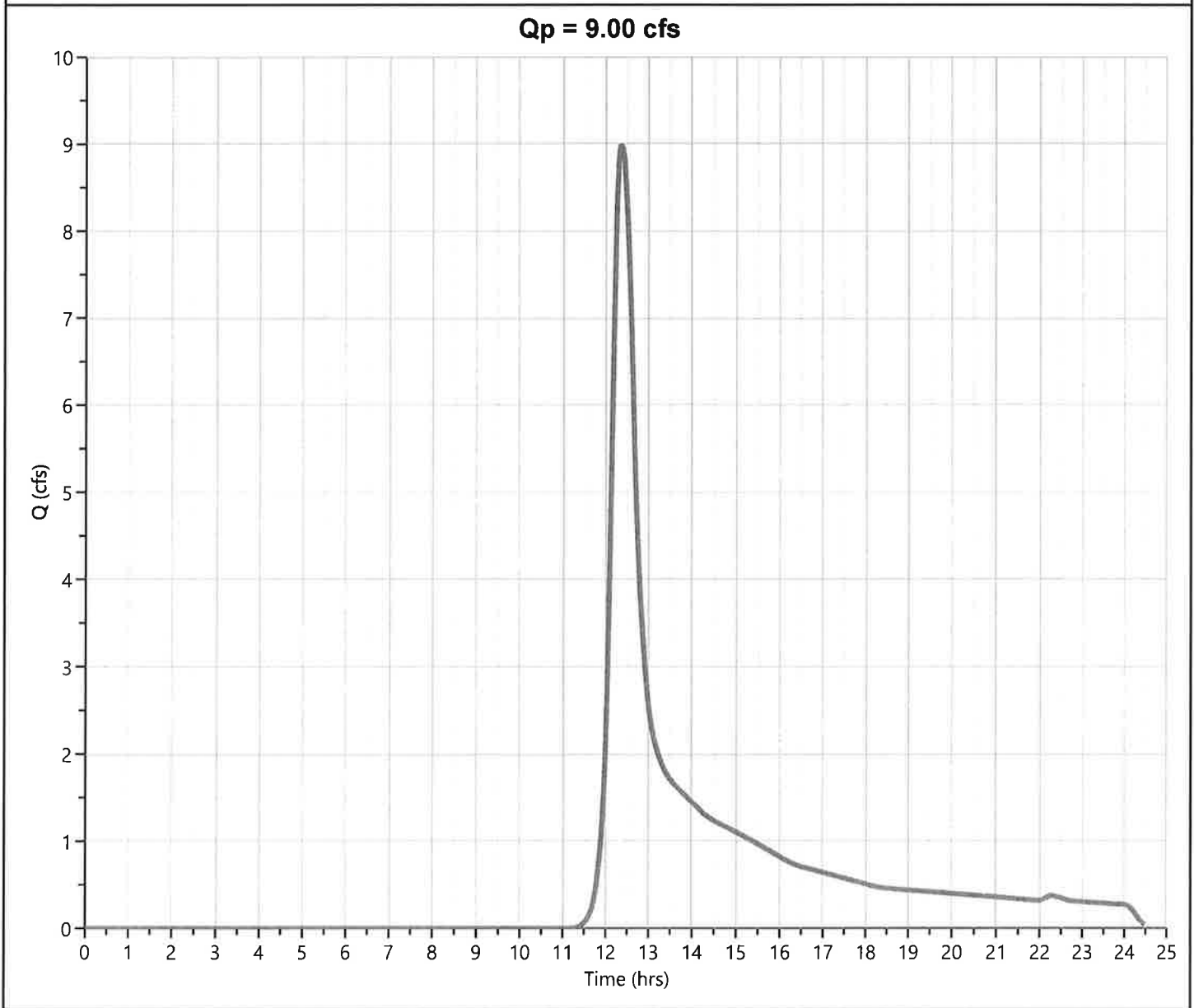
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 8.999 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.37 hrs
Time Interval	= 1 min	Runoff Volume	= 49,653 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 6.26 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

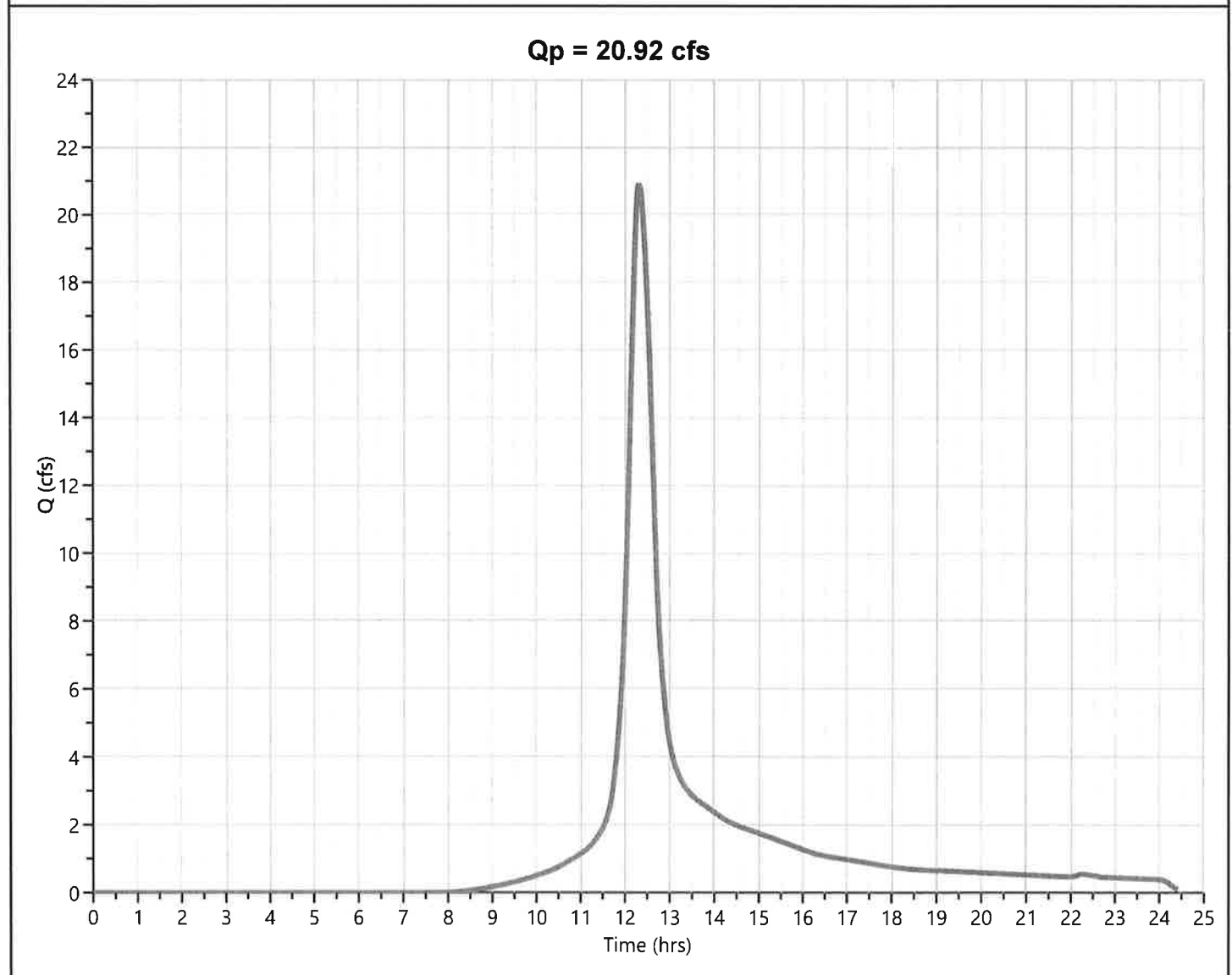
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 20.92 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Runoff Volume	= 104,239 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 6.26 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

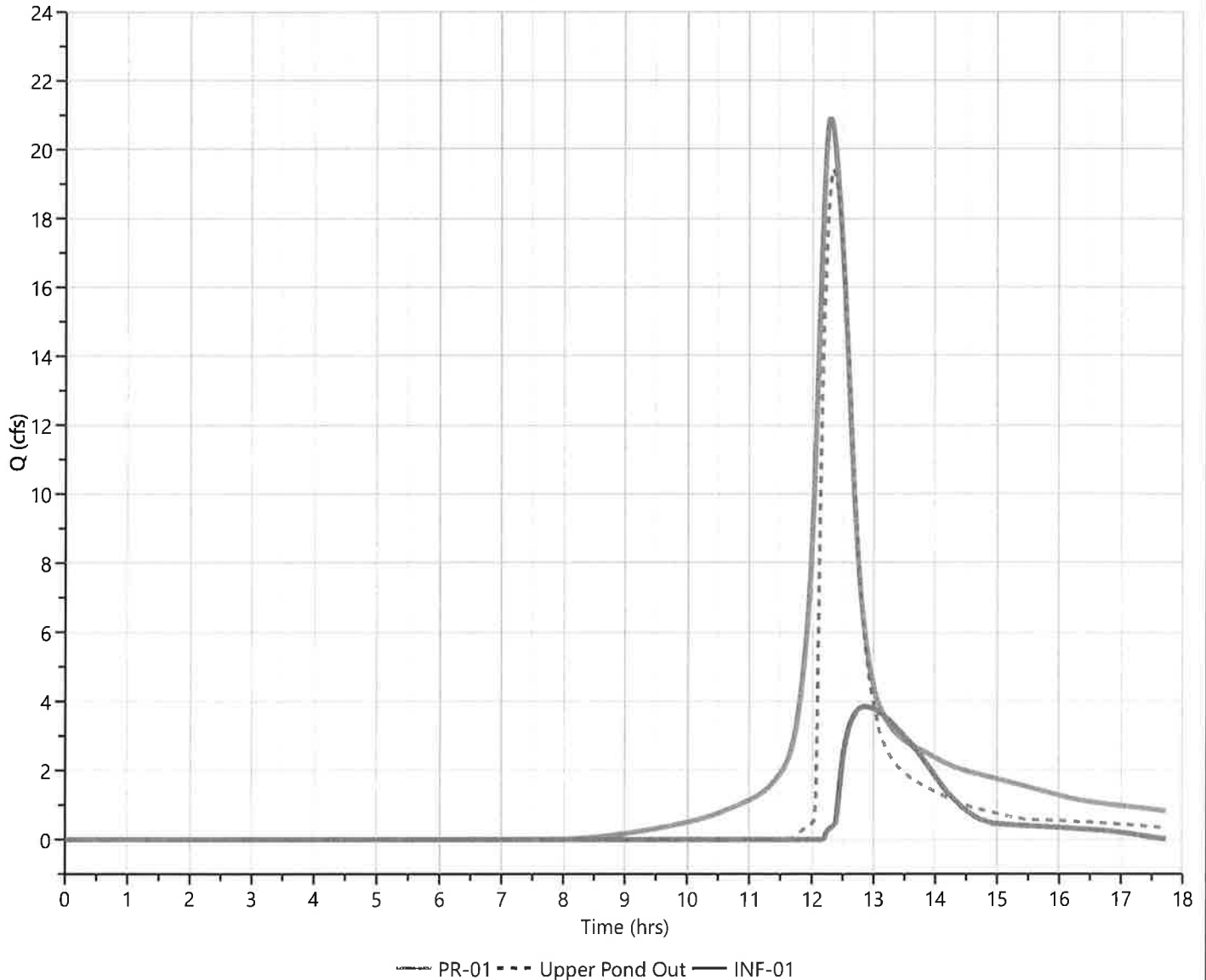
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 3.842 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.87 hrs
Time Interval	= 1 min	Hydrograph Volume	= 23,832 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 41.13 ft	Max. Elevation	= 38.02 ft
Max. Storage	= 10,704 cuft	Max. Storage	= 29,169 cuft

**Interconnected Pond Routing by Storage Indication Method.*

Qp = 3.84 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

POND-01 Stage 2

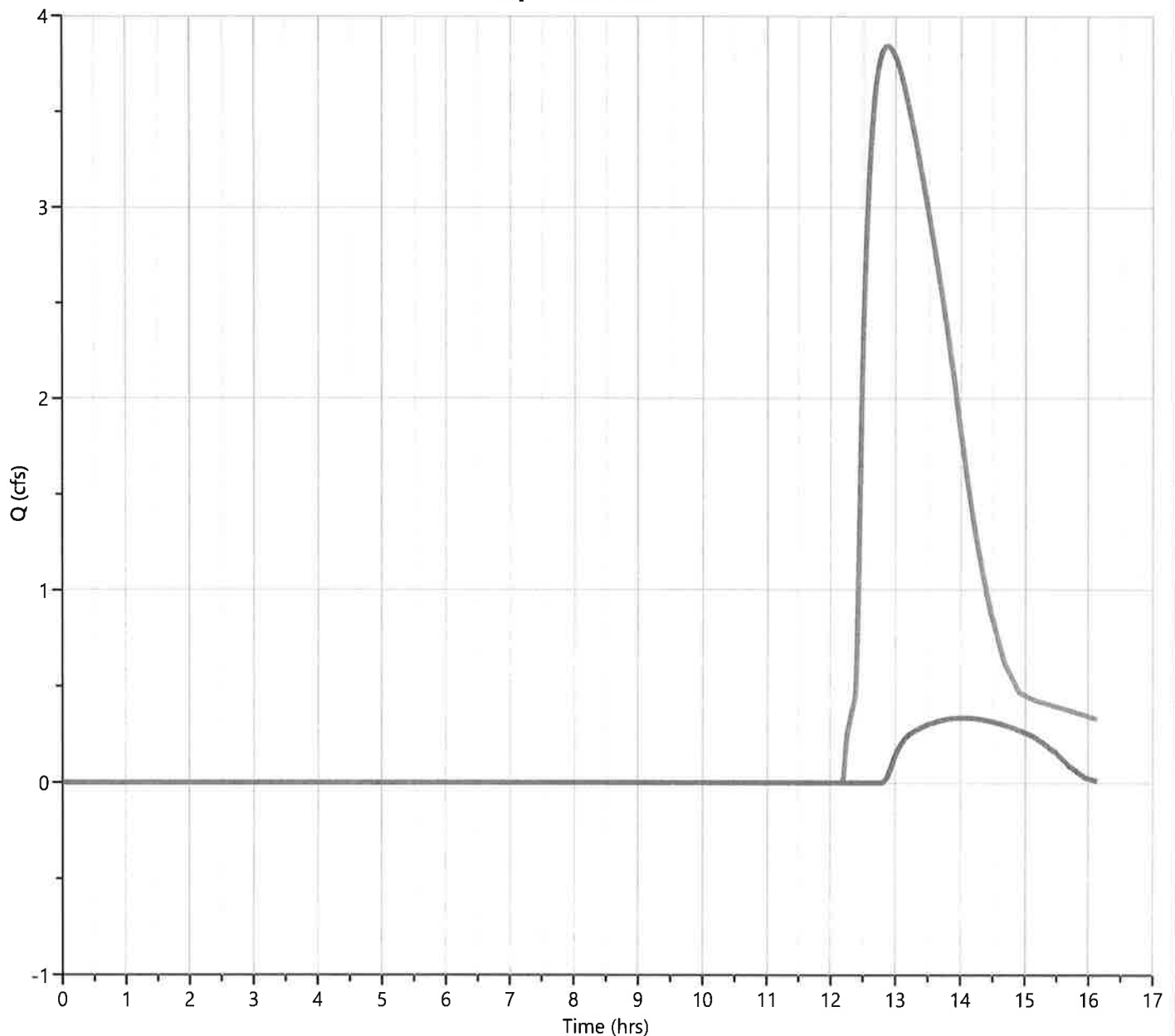
Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.337 cfs
Storm Frequency	= 25-yr	Time to Peak	= 14.03 hrs
Time Interval	= 1 min	Hydrograph Volume	= 2,721 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 36.31 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 10,017 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 37 min

Qp = 0.34 cfs



— INF-01 — POND-01 Stage 2

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

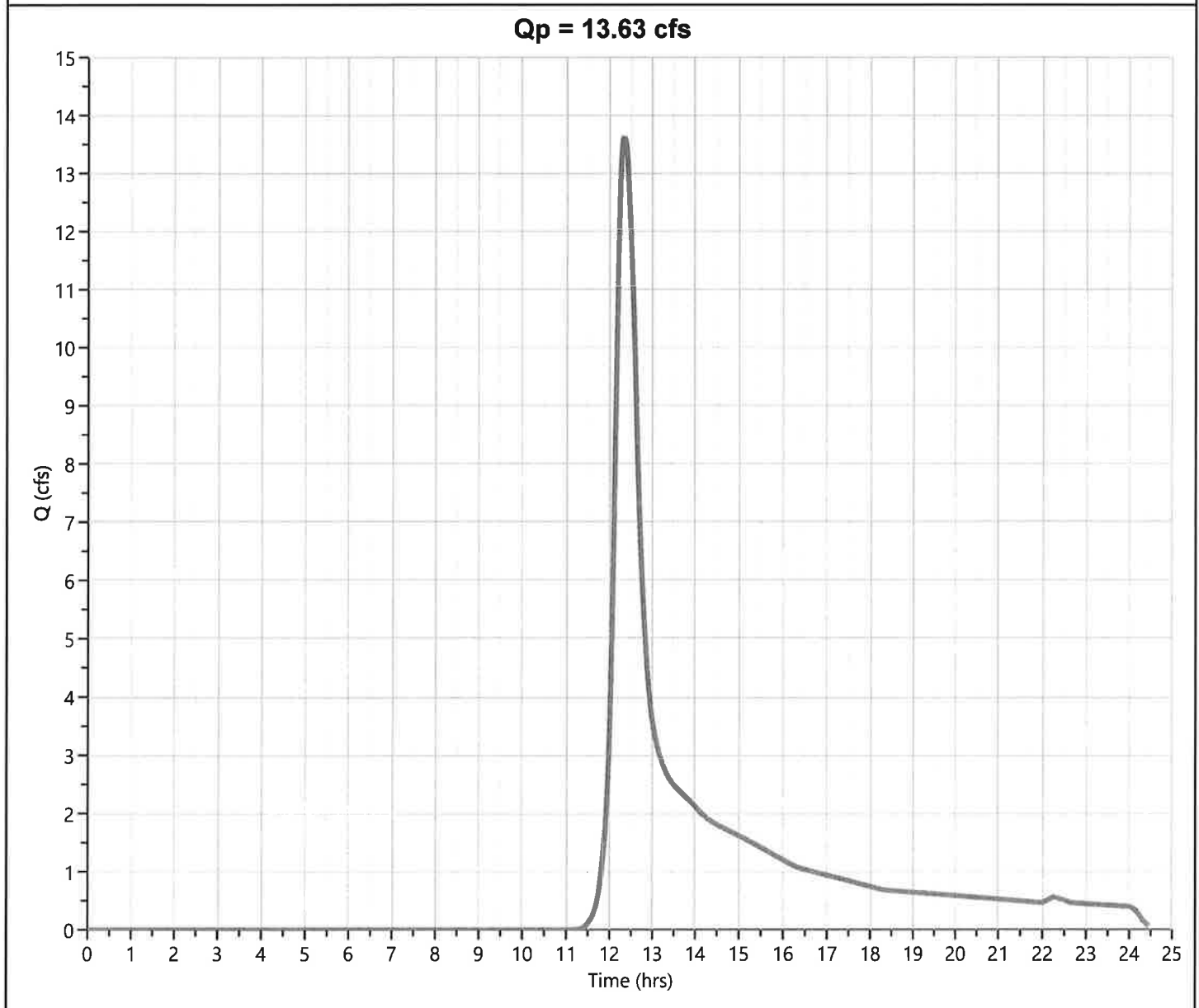
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 13.63 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Runoff Volume	= 72,903 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 6.26 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

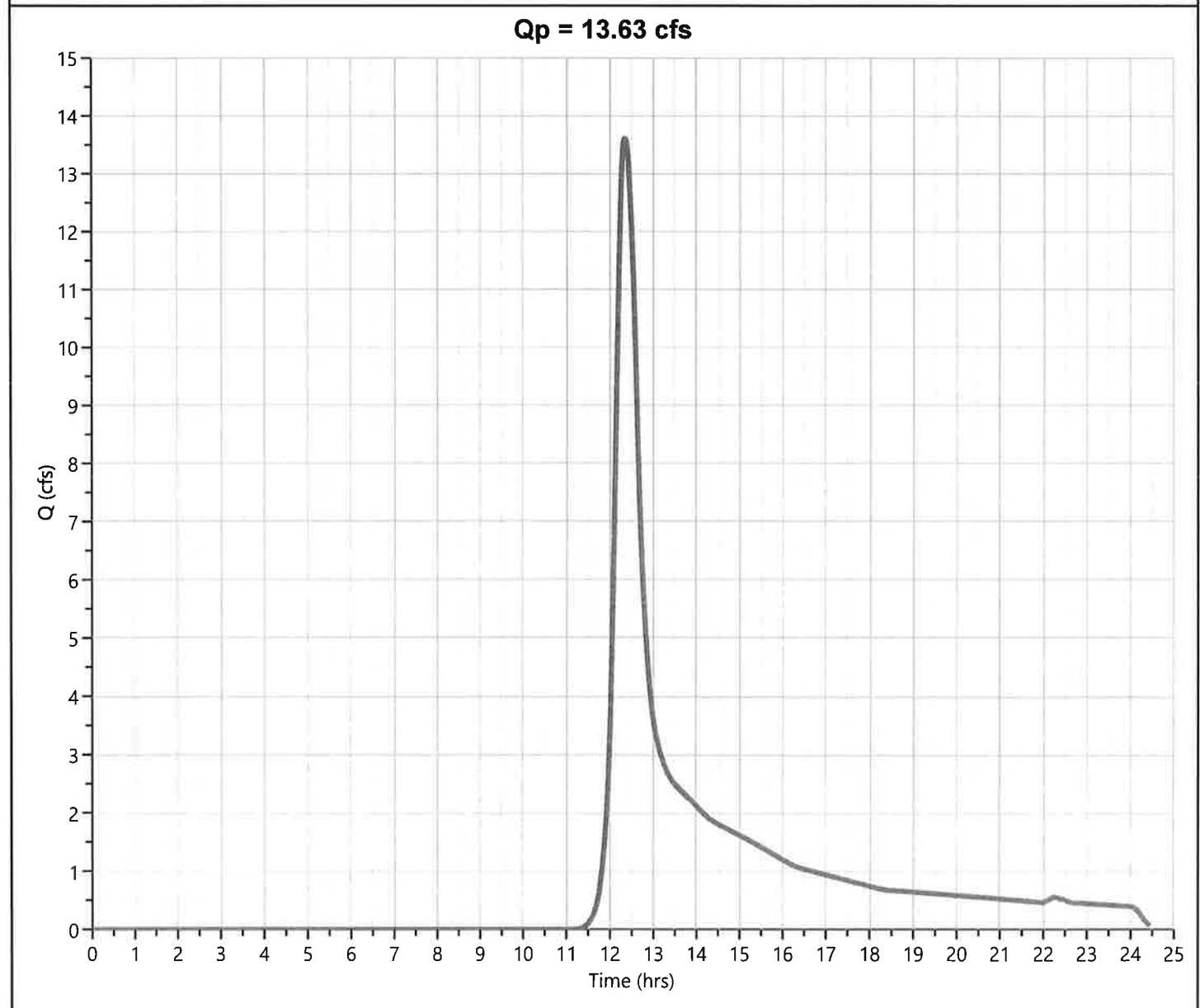
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 13.63 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Runoff Volume	= 72,903 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 6.26 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Design Storm Report

Custom Storm filename:

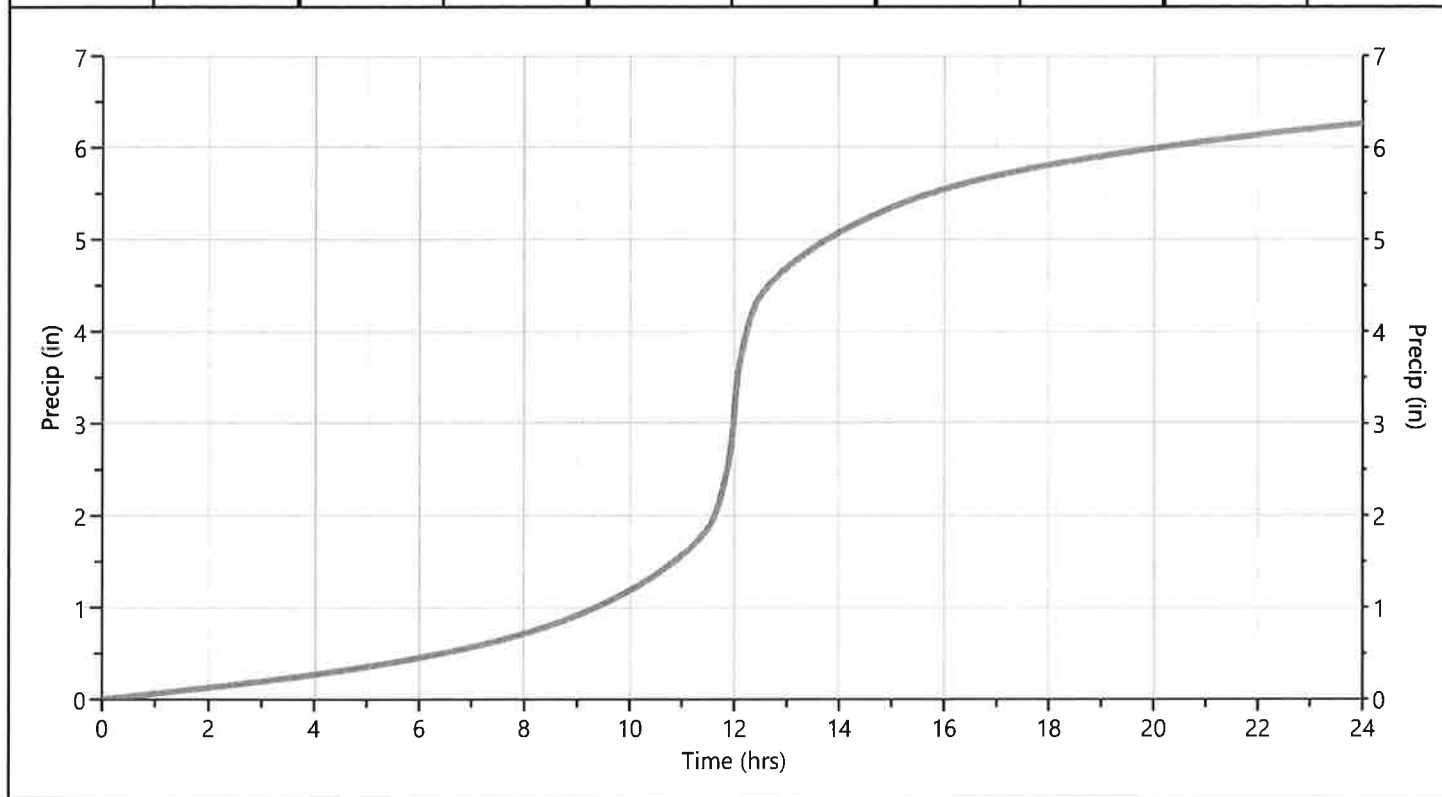
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	✓ 25-yr	50-yr	100-yr	
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92	

Incremental Rainfall Distribution, 25-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	1.233566	11.68	2.848291	11.87	4.531527	12.05	9.405613	12.23	3.766418
11.52	1.314533	11.70	3.001332	11.88	4.684567	12.07	8.122301	12.25	3.613424
11.53	1.471090	11.72	3.154325	11.90	4.837584	12.08	6.839013	12.27	3.460407
11.55	1.624119	11.73	3.307366	11.92	5.573630	12.10	5.555701	12.28	3.307343
11.57	1.777136	11.75	3.460383	11.93	6.839085	12.12	4.855967	12.30	3.154373
11.58	1.930165	11.77	3.613400	11.95	8.122373	12.13	4.684567	12.32	3.001308
11.60	2.083182	11.78	3.766441	11.97	9.405684	12.15	4.531550	12.33	2.848339
11.62	2.236211	11.80	3.919435	11.98	10.689000	12.17	4.378533	12.35	2.695274
11.63	2.389216	11.82	4.072475	12.00	11.972280	12.18	4.225492	12.37	2.542257
11.65	2.542257	11.83	4.225492	12.02	11.943550	12.20	4.072499	12.38	2.389240
11.67	2.695274	11.85	4.378533	12.03	10.688900	12.22	3.919458	12.40	2.236223



Hydrograph 50-yr Summary

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	12.05	12.35	64,305	---		
2	NRCS Runoff	PR-01	25.09	12.30	124,988	---		
3	Pond Route(i)	INF-01	5.587	12.85	36,140	2	41.08 U 38.59 L	11,414 U 36,825 L
4	Pond Route	POND-01 Stage 2	0.774	14.35	6,777	3	36.96	16,649
5	NRCS Runoff	EX-02	18.25	12.32	94,415	---		
6	NRCS Runoff	PR-02	18.25	12.32	94,415	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

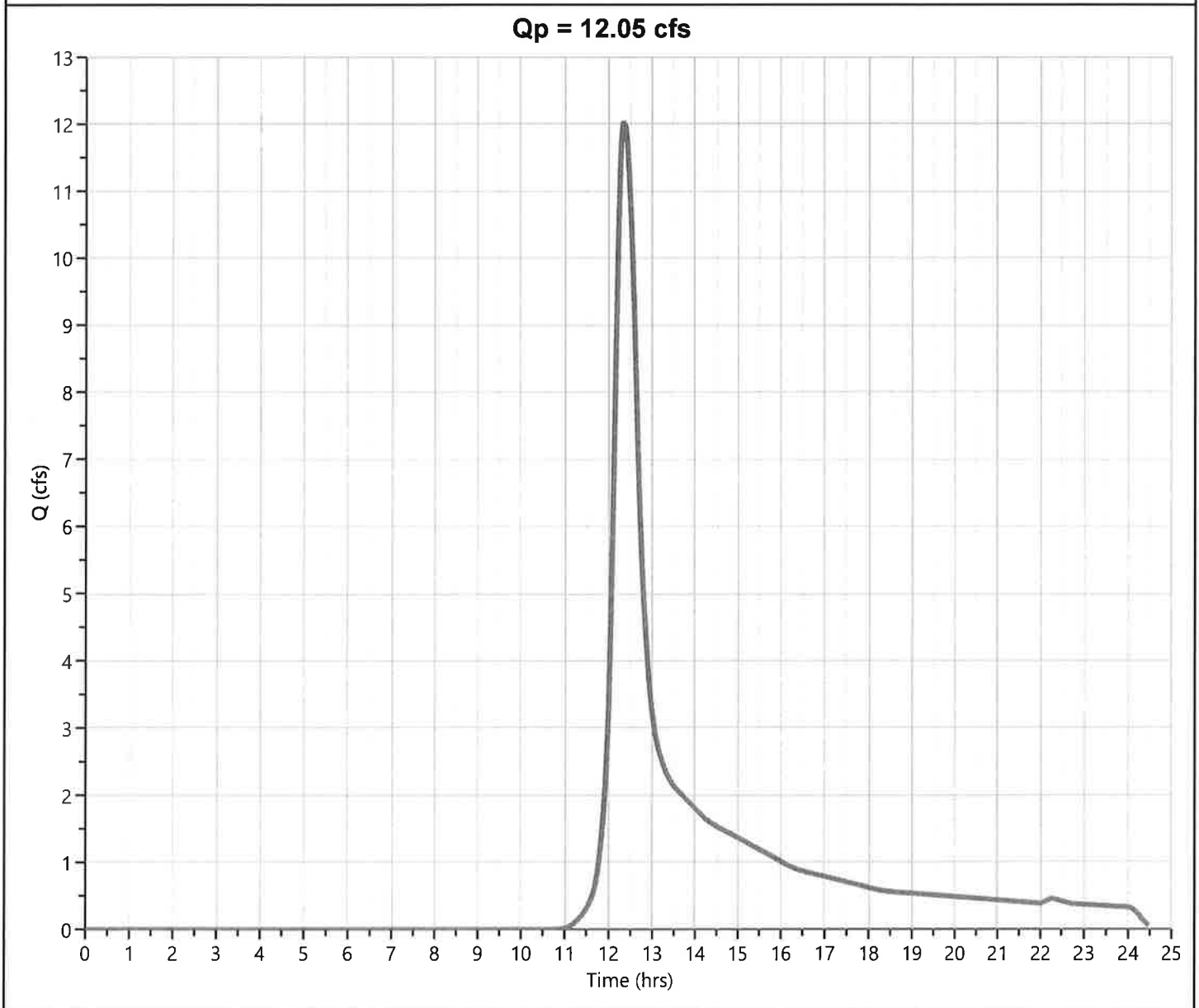
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 12.05 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.35 hrs
Time Interval	= 1 min	Runoff Volume	= 64,305 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 7.06 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

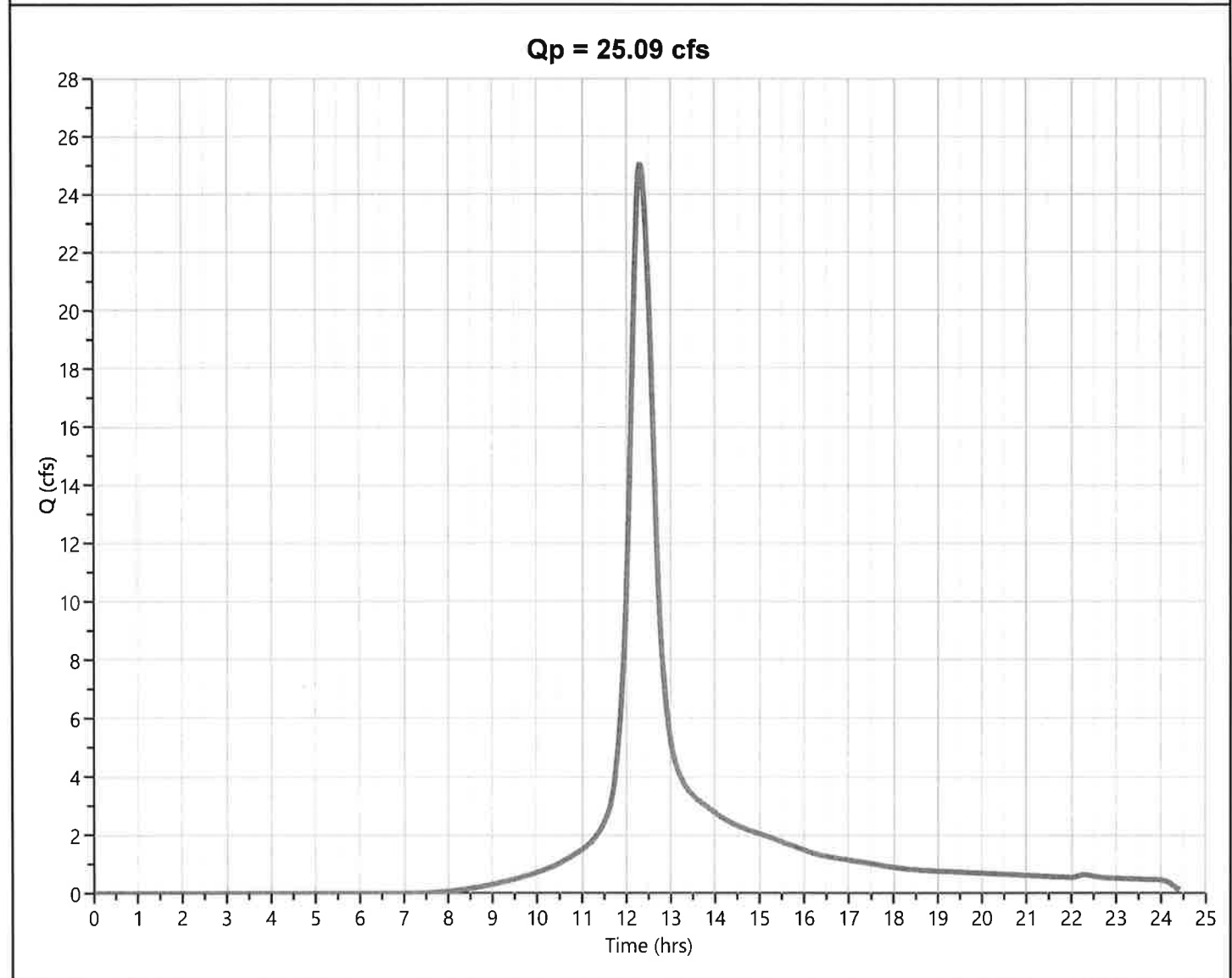
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 25.09 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Runoff Volume	= 124,988 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 7.06 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

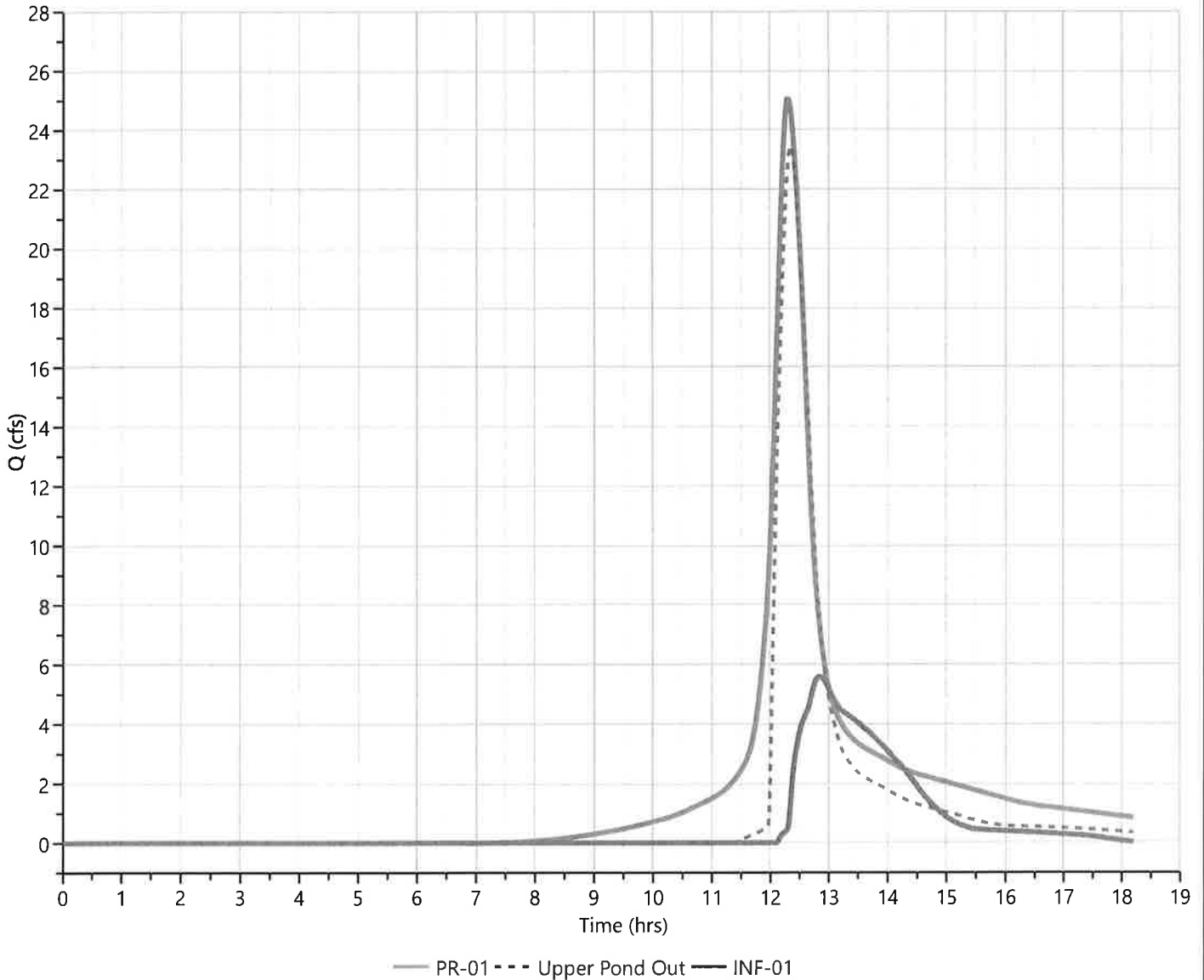
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 5.587 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.85 hrs
Time Interval	= 1 min	Hydrograph Volume	= 36,140 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 41.08 ft	Max. Elevation	= 38.59 ft
Max. Storage	= 11,414 cuft	Max. Storage	= 36,825 cuft

*Interconnected Pond Routing by Storage Indication Method.

Qp = 5.59 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

POND-01 Stage 2

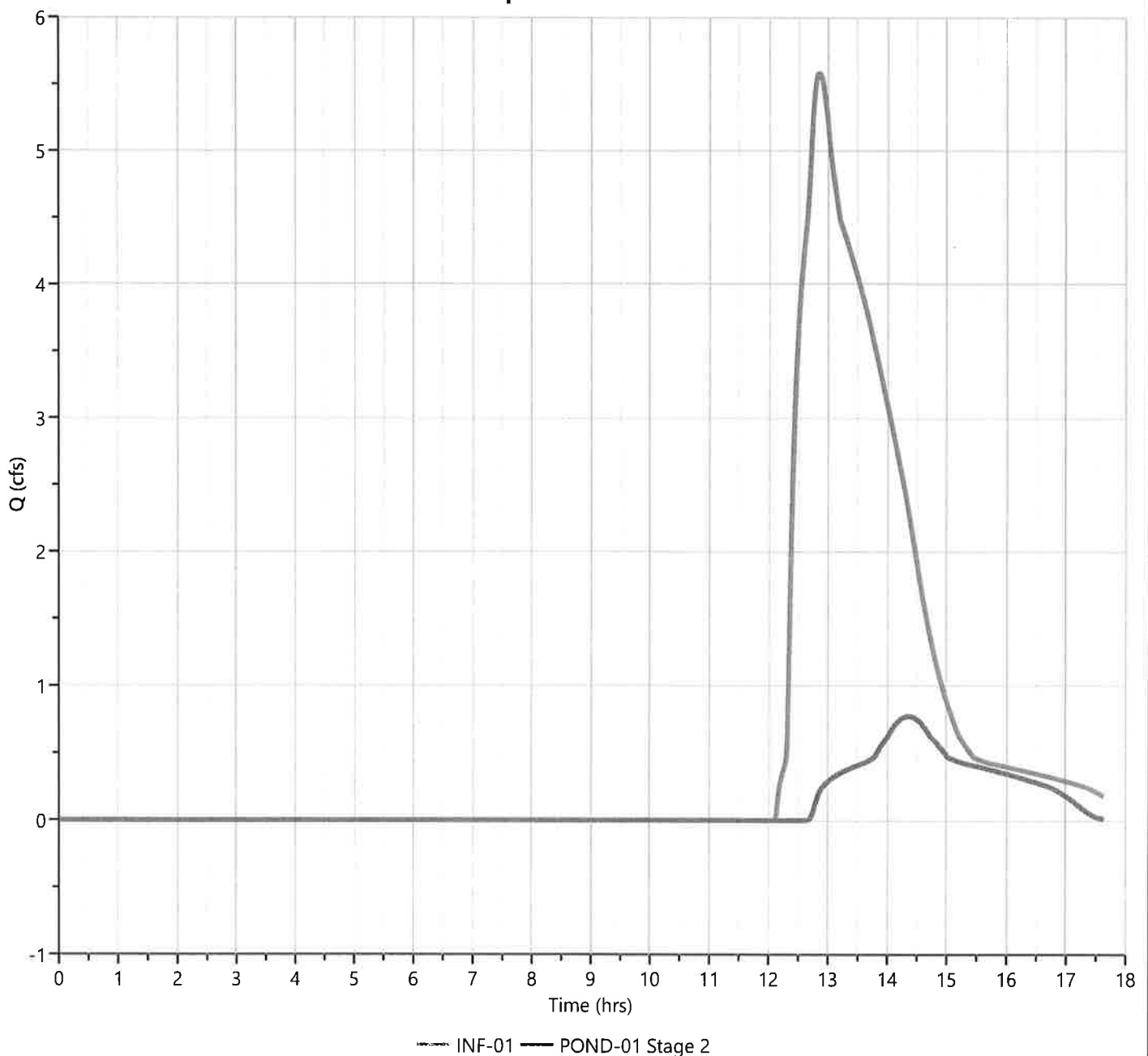
Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 0.774 cfs
Storm Frequency	= 50-yr	Time to Peak	= 14.35 hrs
Time Interval	= 1 min	Hydrograph Volume	= 6,777 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 36.96 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 16,649 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.09 hrs

Qp = 0.77 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

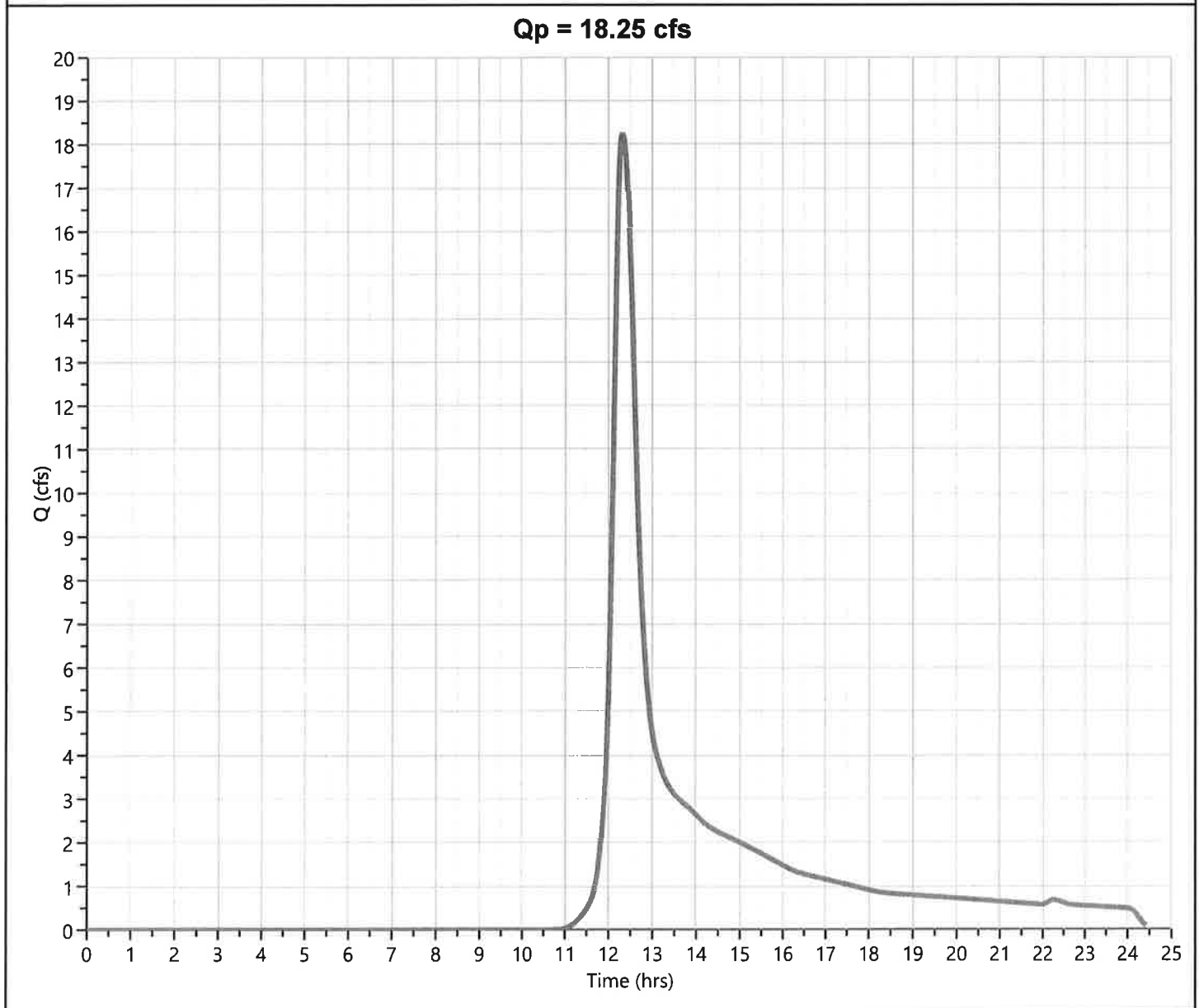
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 18.25 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 94,415 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 7.06 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

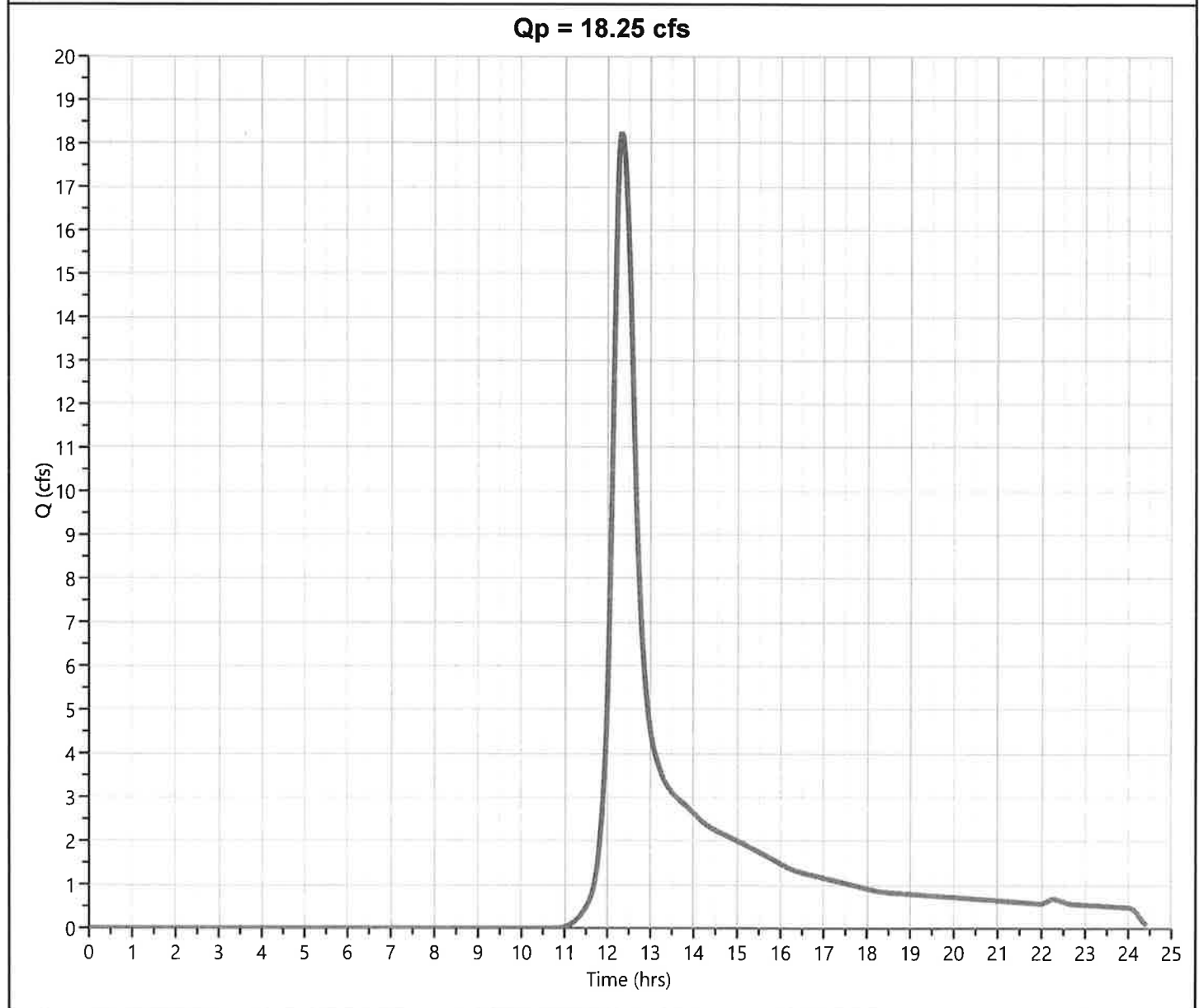
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 18.25 cfs
Storm Frequency	= 50-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 94,415 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 7.06 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Design Storm Report

Custom Storm filename:

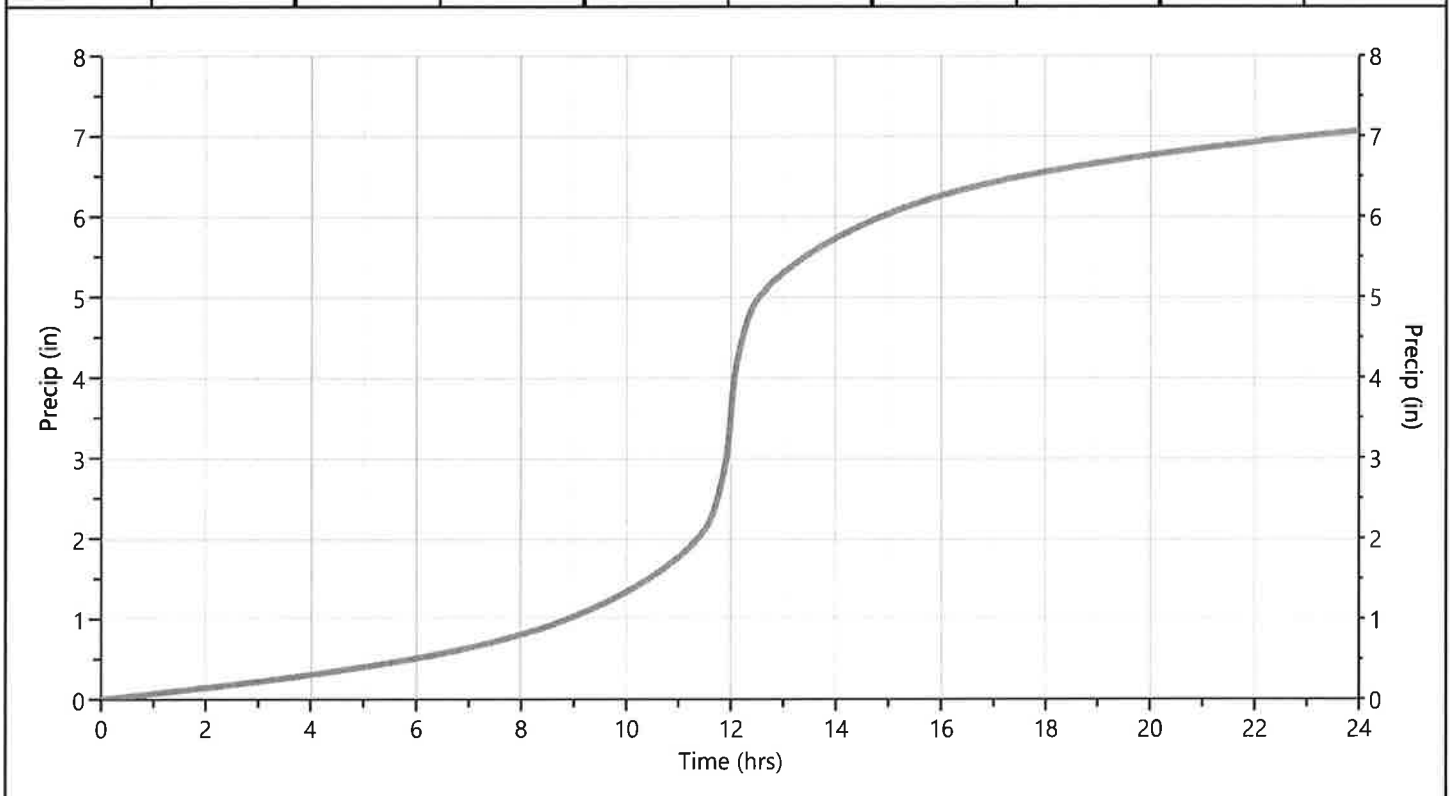
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	✓ 50-yr	100-yr
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92

Incremental Rainfall Distribution, 50-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	1.391196	11.68	3.212285	11.87	5.110645	12.05	10.607600	12.23	4.247761
11.52	1.482534	11.70	3.384876	11.88	5.283237	12.07	9.160304	12.25	4.075193
11.53	1.659083	11.72	3.557444	11.90	5.455804	12.08	7.712984	12.27	3.902626
11.55	1.831675	11.73	3.730035	11.92	6.285906	12.10	6.265688	12.28	3.730011
11.57	2.004242	11.75	3.902602	11.93	7.713079	12.12	5.476570	12.30	3.557491
11.58	2.176833	11.77	4.075193	11.95	9.160399	12.13	5.283213	12.32	3.384876
11.60	2.349401	11.78	4.247761	11.97	10.607700	12.15	5.110693	12.33	3.212309
11.62	2.521992	11.80	4.420328	11.98	12.054990	12.17	4.938078	12.35	3.039742
11.63	2.694559	11.82	4.592919	12.00	13.502290	12.18	4.765511	12.37	2.867126
11.65	2.867150	11.83	4.765487	12.02	13.469890	12.20	4.592896	12.38	2.694559
11.67	3.039718	11.85	4.938078	12.03	12.054900	12.22	4.420376	12.40	2.521992



Hydrograph 100-yr Summary

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	EX-01	15.56	12.33	81,183	---		
2	NRCS Runoff	PR-01	29.62	12.30	147,806	---		
3	Pond Route(i)	INF-01	9.046	12.78	51,196	2	41.19 U 39.04 L	12,524 U 42,943 L
4	Pond Route	POND-01 Stage 2	2.196	13.95	17,658	3	37.33	20,987
5	NRCS Runoff	EX-02	23.58	12.32	119,196	---		
6	NRCS Runoff	PR-02	23.58	12.32	119,196	---		

(i) = Interconnected ponds, U = Upper pond, L = Lower pond

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

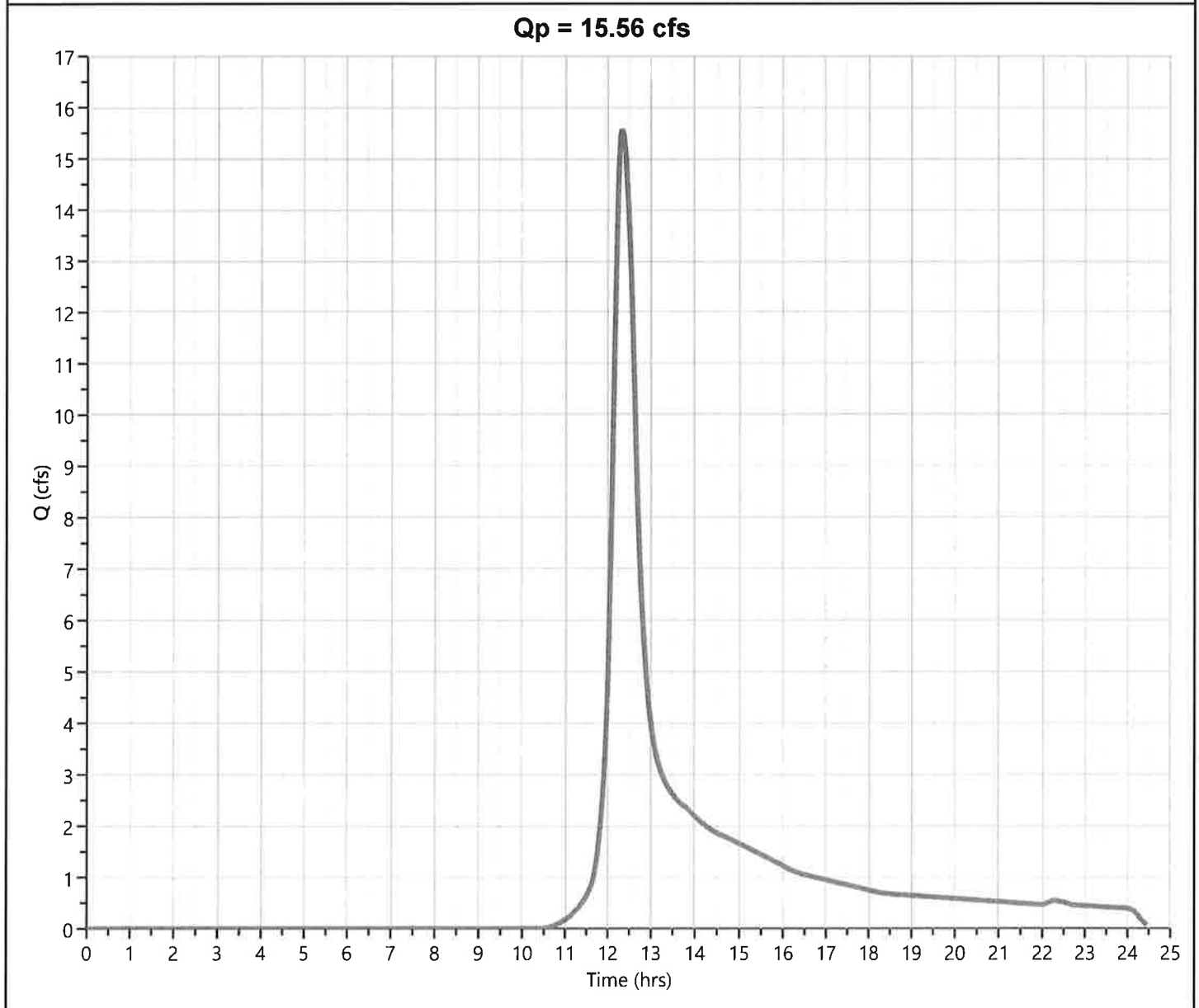
EX-01

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 15.56 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.33 hrs
Time Interval	= 1 min	Runoff Volume	= 81,183 cuft
Drainage Area	= 8.13 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.75 min
Total Rainfall	= 7.92 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
8.13	55	Woods (Good) B Soils
8.13	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

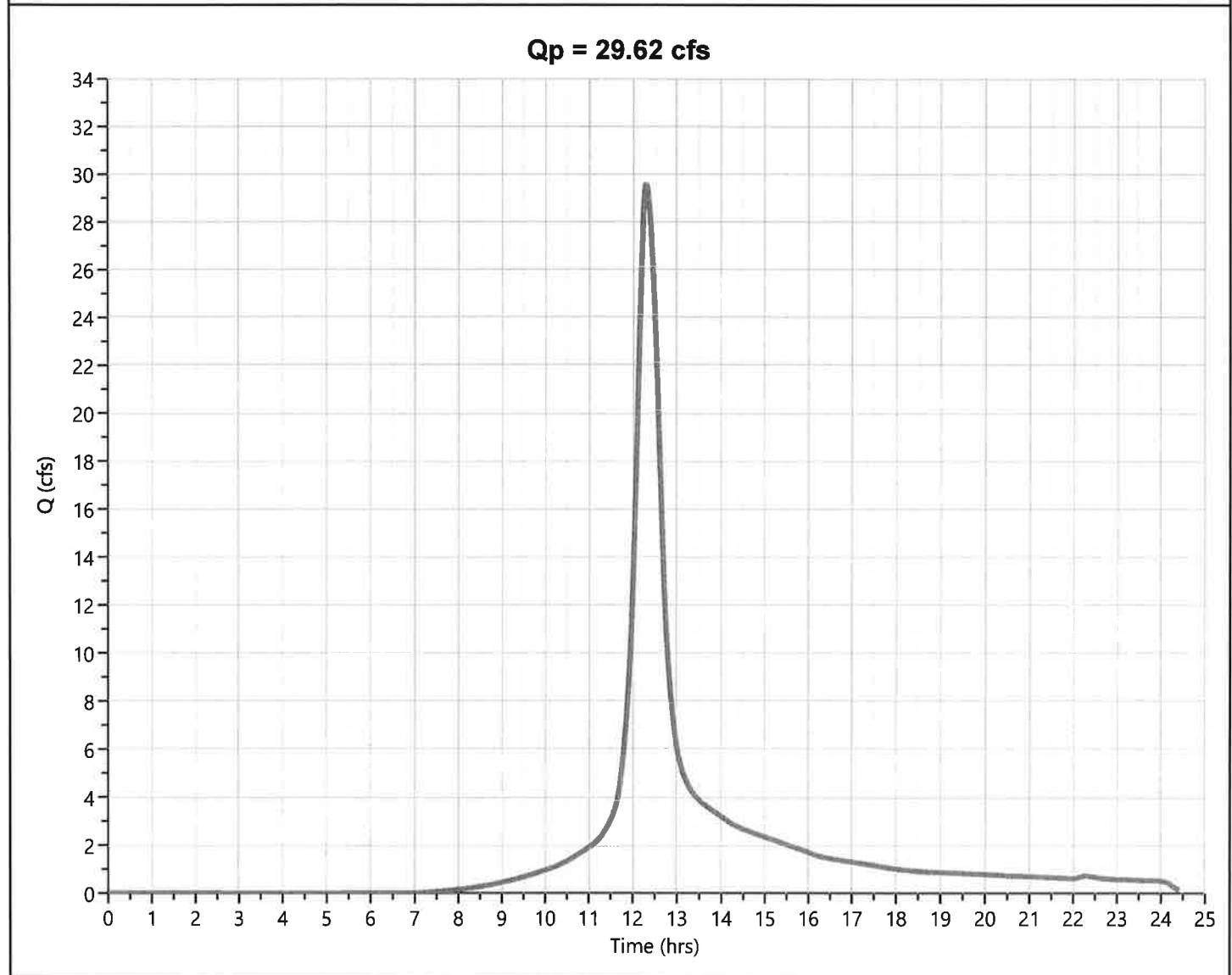
PR-01

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 29.62 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.30 hrs
Time Interval	= 1 min	Runoff Volume	= 147,806 cuft
Drainage Area	= 8.13 ac	Curve Number	= 75*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 25.66 min
Total Rainfall	= 7.92 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
1.242	55	Woods (Good) B Soils
3.58	61	Grass (Good) B Soils
2.147	98	Impervious
1.161	98	Building
8.13	75	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

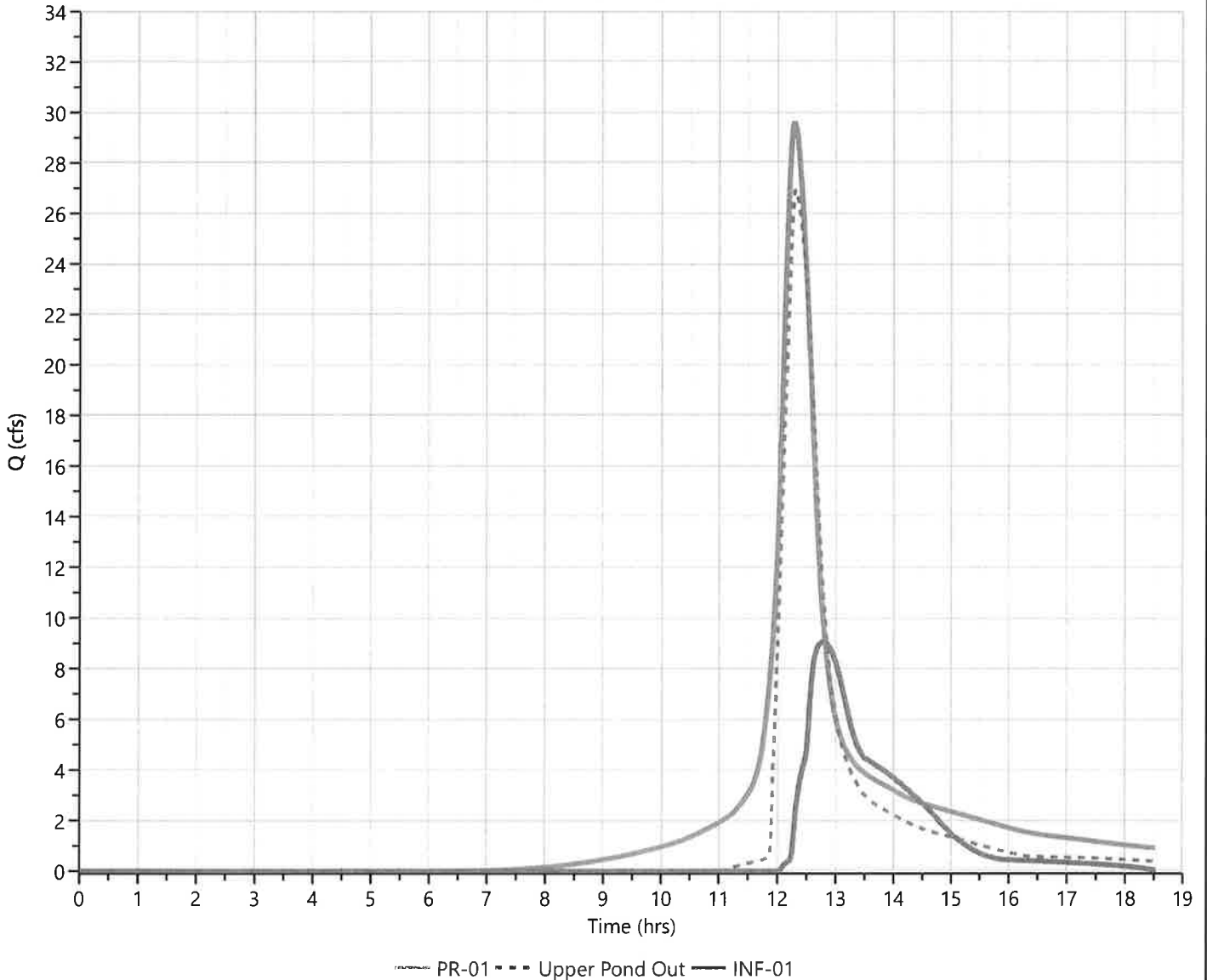
INF-01

Hyd. No. 3

Hydrograph Type	= Pond Route(i)*	Peak Flow	= 9.046 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.78 hrs
Time Interval	= 1 min	Hydrograph Volume	= 51,196 cuft
Upper Pond		Lower Pond	
Pond Name	= POND-01B Stormtech	Pond Name	= POND-01A Stage 2
Inflow Hyd	= 2 - PR-01	Addnl Inflow Hyd	= None
Max. Elevation	= 41.19 ft	Max. Elevation	= 39.04 ft
Max. Storage	= 12,524 cuft	Max. Storage	= 42,943 cuft

**Interconnected Pond Routing by Storage Indication Method.*

Qp = 9.05 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

POND-01 Stage 2

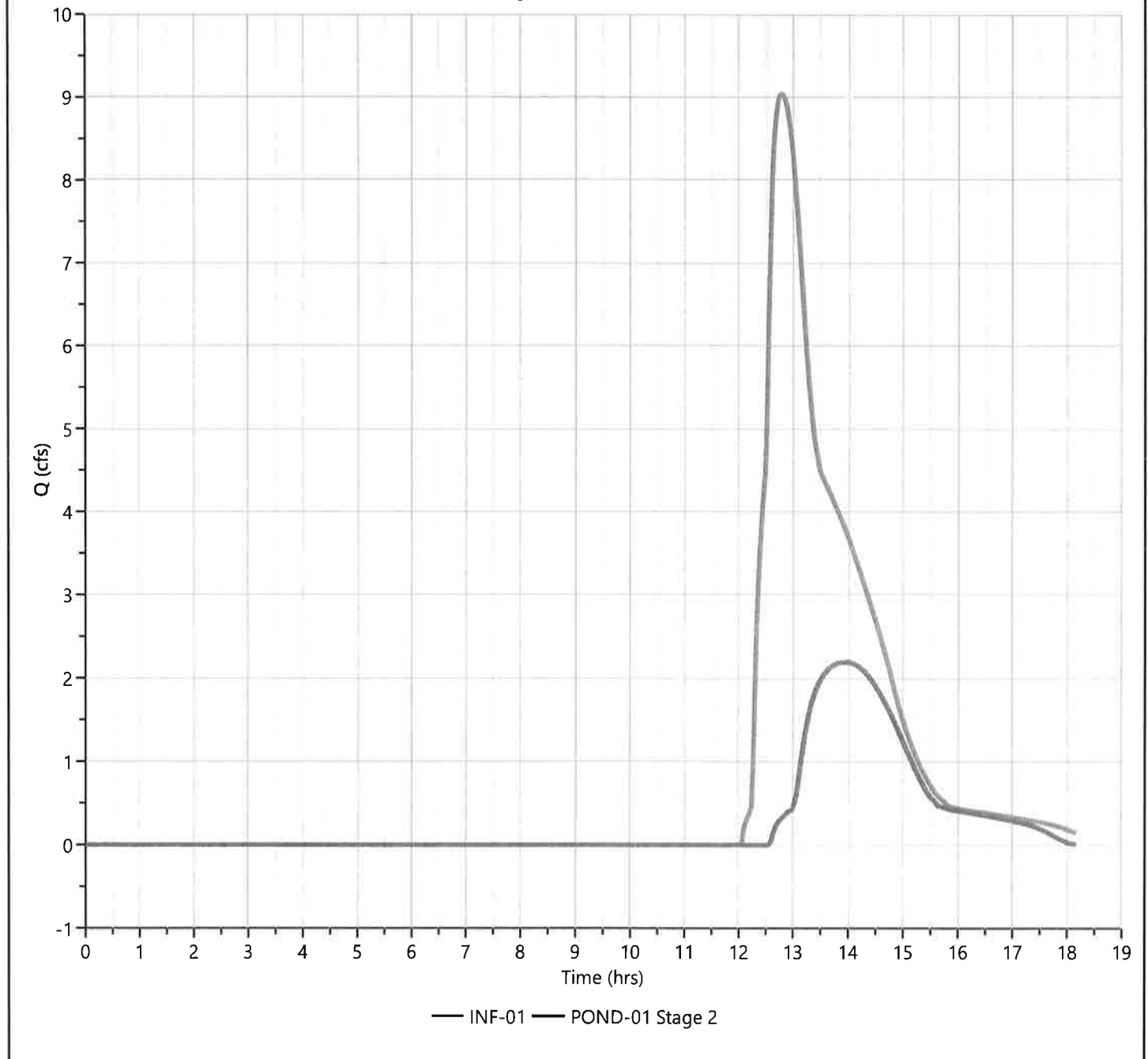
Hyd. No. 4

Hydrograph Type	= Pond Route	Peak Flow	= 2.196 cfs
Storm Frequency	= 100-yr	Time to Peak	= 13.95 hrs
Time Interval	= 1 min	Hydrograph Volume	= 17,658 cuft
Inflow Hydrograph	= 3 - INF-01	Max. Elevation	= 37.33 ft
Pond Name	= POND-01A Stage 2	Max. Storage	= 20,987 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 50 min

Qp = 2.20 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

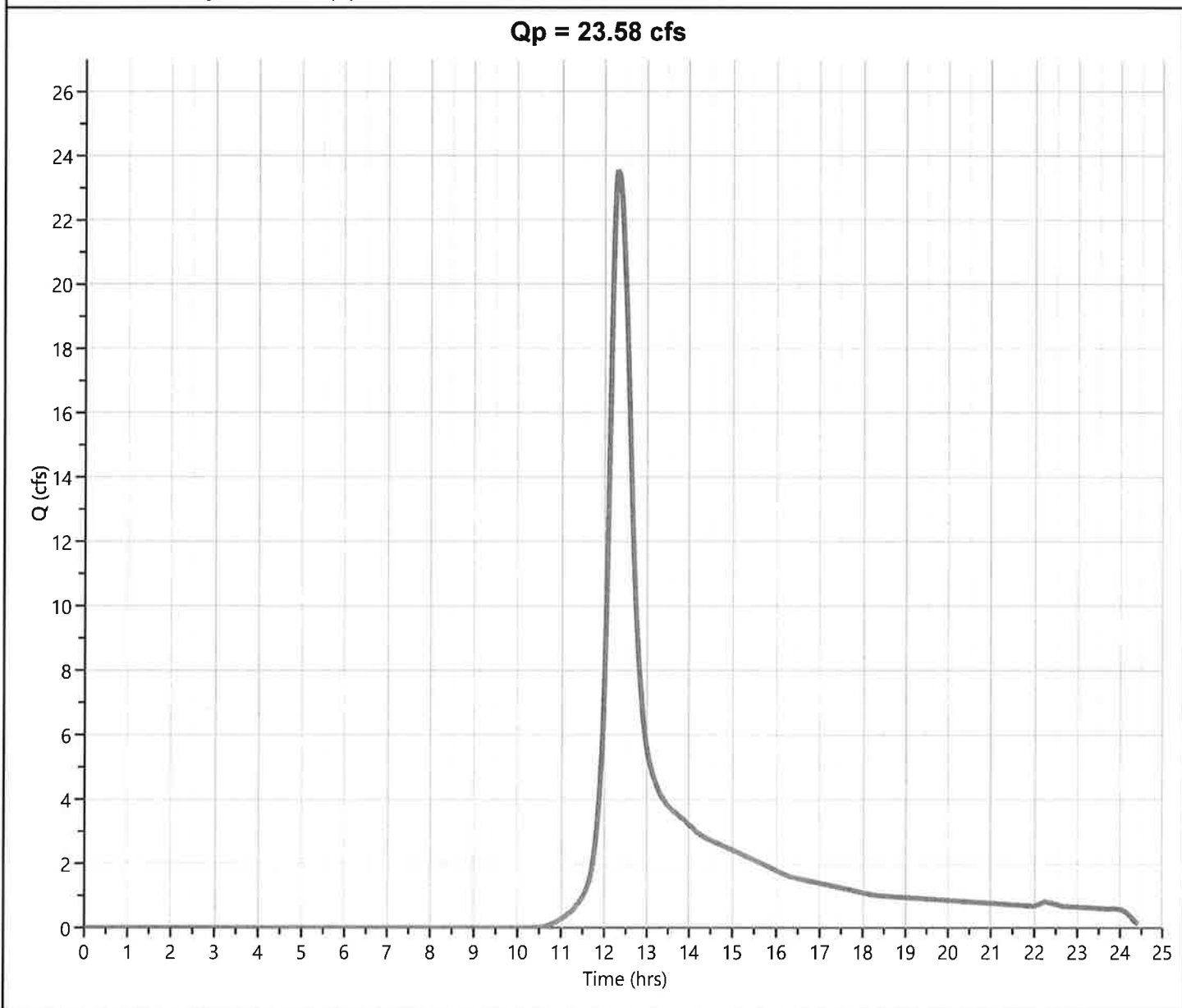
EX-02

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 23.58 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 119,196 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 7.92 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.15

07-13-2020

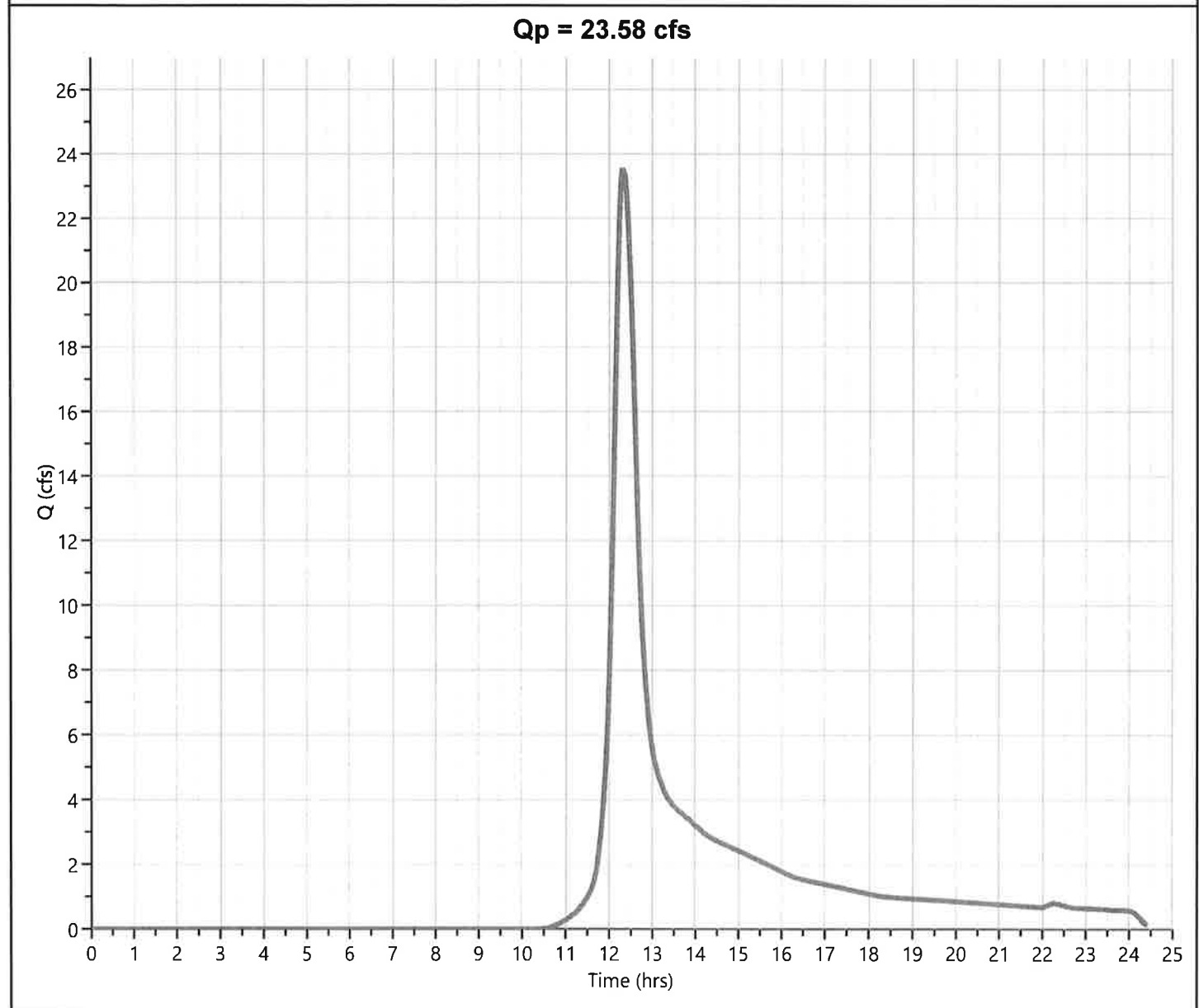
PR-02

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 23.58 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.32 hrs
Time Interval	= 1 min	Runoff Volume	= 119,196 cuft
Drainage Area	= 12.03 ac	Curve Number	= 55*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 24.77 min
Total Rainfall	= 7.92 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
12.03	55	Woods (Good) B Soils
12.03	55	Weighted CN Method Employed



Design Storm Report

Custom Storm filename:

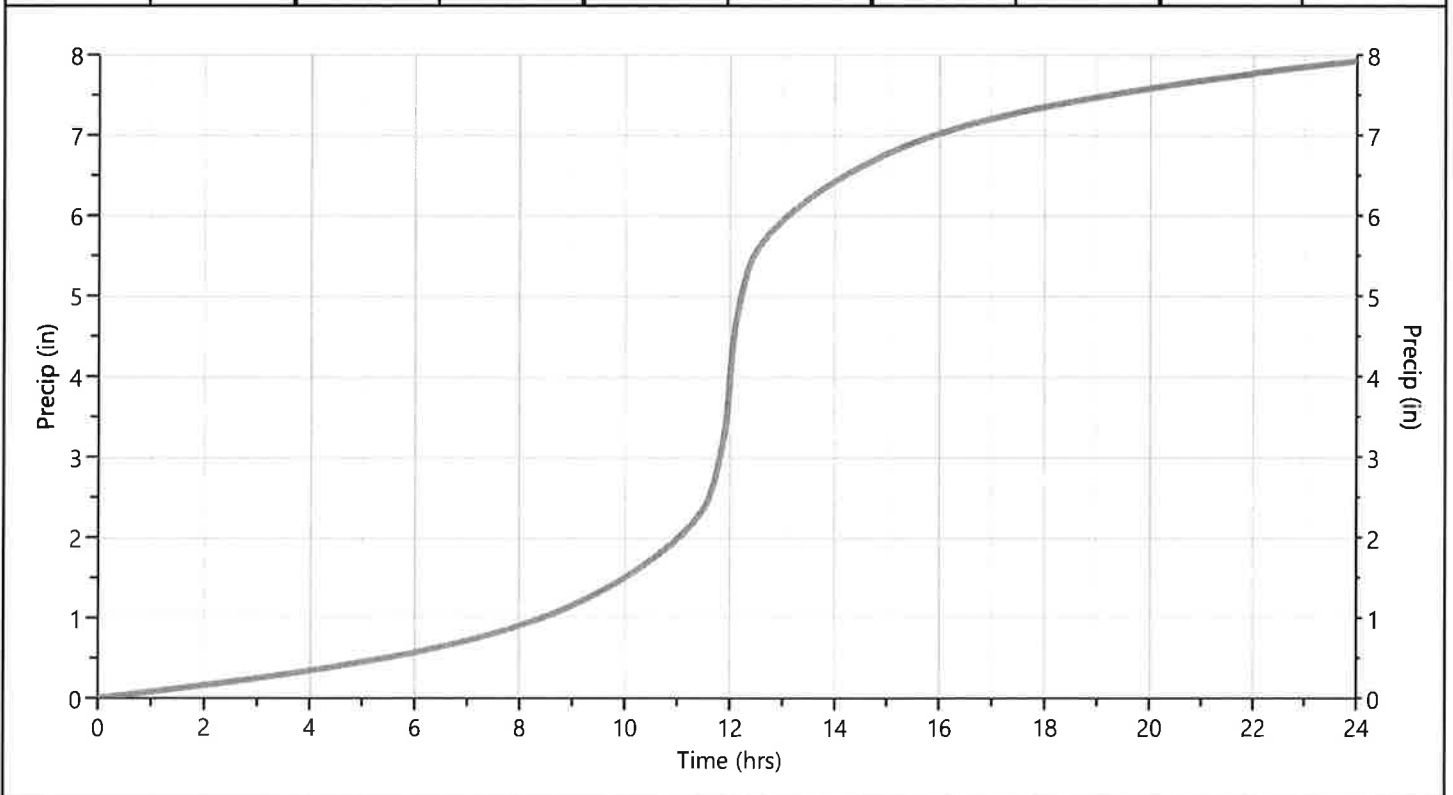
Hydrology Studio v 3.0.0.15

07-13-2020

Storm Distribution: NRCS/SCS - Type III

Storm Duration	Total Rainfall Volume (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	✓ 100-yr
24 hrs	2.87	3.45	0.00	4.39	5.18	6.26	7.06	7.92

Incremental Rainfall Distribution, 100-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
11.50	1.560664	11.68	3.603578	11.87	5.733180	12.05	11.899760	12.23	4.765224
11.52	1.663113	11.70	3.797197	11.88	5.926800	12.07	10.276170	12.25	4.571629
11.53	1.861191	11.72	3.990793	11.90	6.120396	12.08	8.652544	12.27	4.377985
11.55	2.054811	11.73	4.184389	11.92	7.051611	12.10	7.028913	12.28	4.184389
11.57	2.248383	11.75	4.378009	11.93	8.652639	12.12	6.143665	12.30	3.990841
11.58	2.442002	11.77	4.571581	11.95	10.276250	12.13	5.926800	12.32	3.797197
11.60	2.635598	11.78	4.765201	11.97	11.899850	12.15	5.733204	12.33	3.603601
11.62	2.829194	11.80	4.958797	11.98	13.523440	12.17	5.539608	12.35	3.410006
11.63	3.022790	11.82	5.152392	12.00	15.147040	12.18	5.346012	12.37	3.216410
11.65	3.216386	11.83	5.345988	12.02	15.110680	12.20	5.152416	12.38	3.022814
11.67	3.410006	11.85	5.539608	12.03	13.523340	12.22	4.958773	12.40	2.829218



IDF Report

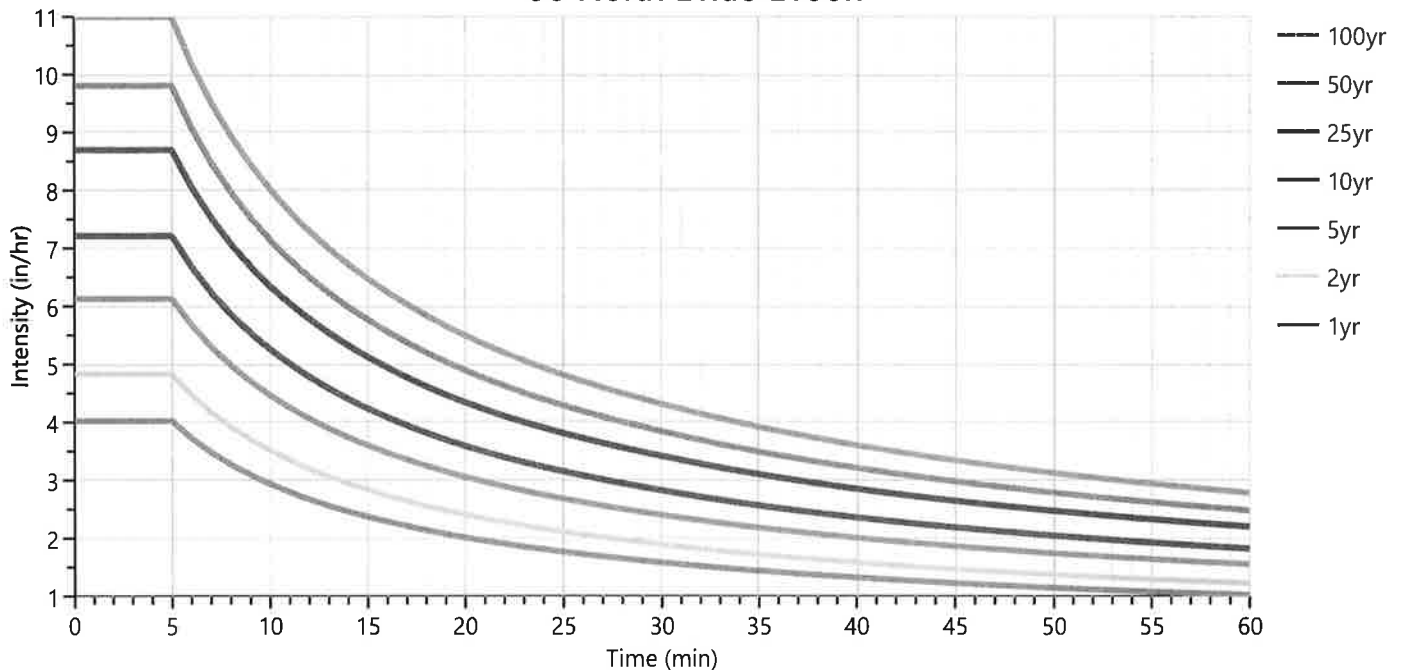
Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
B	17.5984	20.9091	0.0000	26.4767	31.2276	38.1139	42.3627	48.2349	
D	3.6000	3.5000	0.0000	3.5000	3.5000	3.6000	3.5000	3.6000	
E	0.6858	0.6845	0.0000	0.6837	0.6848	0.6868	0.6837	0.6872	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	4.02	4.83	0	6.13	7.21	8.69	9.81	10.99	
10	2.94	3.52	0	4.47	5.25	6.35	7.15	8.02	
15	2.37	2.84	0	3.60	4.23	5.12	5.76	6.47	
20	2.01	2.41	0	3.06	3.59	4.35	4.89	5.49	
25	1.76	2.11	0	2.68	3.15	3.81	4.29	4.81	
30	1.58	1.89	0	2.40	2.82	3.41	3.84	4.31	
35	1.44	1.72	0	2.18	2.56	3.10	3.49	3.92	
40	1.32	1.58	0	2.01	2.36	2.85	3.21	3.60	
45	1.23	1.47	0	1.86	2.19	2.65	2.98	3.34	
50	1.15	1.37	0	1.74	2.05	2.47	2.79	3.13	
55	1.08	1.29	0	1.64	1.93	2.33	2.62	2.94	
60	1.02	1.22	0	1.55	1.82	2.20	2.48	2.78	

Cf = Correction Factor applied to Rational Method runoff coefficient.

90 North Bride Brook



Precipitation Report

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active	✓	✓			✓	✓	✓	✓	✓
SCS Storms	> SCS Dimensionless Storms								
SCS 6hr		1.97	2.36	0	2.99	3.51	4.23	4.77	5.35
Type I, 24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Type IA, 24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Type II, 24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Type II FL, 24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Type III, 24-hr	✓	2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Synthetic Storms	> IDF-Based Synthetic Storms								
1-hr		1.02	1.22	0	1.55	1.82	2.20	2.48	2.78
2-hr		1.29	1.55	0	1.97	2.31	2.79	3.15	3.52
3-hr		1.48	1.77	0	2.25	2.64	3.19	3.60	4.03
6-hr		1.85	2.22	0	2.82	3.31	3.99	4.51	5.03
12-hr		2.31	2.77	0	3.52	4.13	4.97	5.64	6.27
24-hr		2.88	3.45	0	4.40	5.14	6.18	7.03	7.81
Huff Distribution	> 1st Quartile (0 to 6 hrs)								
1-hr		1.02	1.22	0	1.55	1.82	2.20	2.48	2.78
2-hr		1.33	1.60	0	2.03	2.39	2.88	3.25	3.65
3-hr		1.55	1.85	0	2.36	2.77	3.34	3.77	4.23
6-hr		1.97	2.36	0	2.99	3.51	4.23	4.77	5.35
Huff Distribution	> 2nd Quartile (>6 to 12 hrs)								
8-hr		0	0	0	0	0	0	0	0
12-hr		2.45	2.92	0	3.70	4.35	5.23	5.90	6.60
Huff Distribution	> 3rd Quartile (>12 to 24 hrs)								
18-hr		0	0	0	0	0	0	0	0
24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Custom Storms	> Custom Storm Distributions								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0

Precipitation Report Cont'd

Precipitation filename: North Bride Brook.pcp

Rainfall totals in Inches

07-13-2020

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active		✓	✓		✓	✓	✓	✓	✓
Huff Indiana	> Indianapolis								
30-min		0.79	0.95	0	1.20	1.41	1.70	1.92	2.15
1-hr		1.02	1.22	0	1.55	1.82	2.20	2.48	2.78
2-hr		1.33	1.60	0	2.03	2.39	2.88	3.25	3.65
3-hr		1.55	1.85	0	2.36	2.77	3.34	3.77	4.23
6-hr		1.97	2.36	0	2.99	3.51	4.23	4.77	5.35
12-hr		2.45	2.92	0	3.70	4.35	5.23	5.90	6.60
24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Huff Indiana	> Evansville								
30-min		0.79	0.95	0	1.20	1.41	1.70	1.92	2.15
1-hr		1.02	1.22	0	1.55	1.82	2.20	2.48	2.78
2-hr		1.33	1.60	0	2.03	2.39	2.88	3.25	3.65
3-hr		1.55	1.85	0	2.36	2.77	3.34	3.77	4.23
6-hr		1.97	2.36	0	2.99	3.51	4.23	4.77	5.35
12-hr		2.45	2.92	0	3.70	4.35	5.23	5.90	6.60
24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Huff Indiana	> Fort Wayne								
30-min		0.79	0.95	0	1.20	1.41	1.70	1.92	2.15
1-hr		1.02	1.22	0	1.55	1.82	2.20	2.48	2.78
2-hr		1.33	1.60	0	2.03	2.39	2.88	3.25	3.65
3-hr		1.55	1.85	0	2.36	2.77	3.34	3.77	4.23
6-hr		1.97	2.36	0	2.99	3.51	4.23	4.77	5.35
12-hr		2.45	2.92	0	3.70	4.35	5.23	5.90	6.60
24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92
Huff Indiana	> South Bend								
30-min		0.79	0.95	0	1.20	1.41	1.70	1.92	2.15
1-hr		1.02	1.22	0	1.55	1.82	2.20	2.48	2.78
2-hr		1.33	1.60	0	2.03	2.39	2.88	3.25	3.65
3-hr		1.55	1.85	0	2.36	2.77	3.34	3.77	4.23
6-hr		1.97	2.36	0	2.99	3.51	4.23	4.77	5.35
12-hr		2.45	2.92	0	3.70	4.35	5.23	5.90	6.60
24-hr		2.87	3.45	0	4.39	5.18	6.26	7.06	7.92

STORMWATER TREATMENT CALCULATIONS [AREA PR-01]

Compute Water Quality Volume

$$WQV = \frac{(I\% \times R \times A)}{12}$$

WQV = Water Quality Volume (acre-feet)
 R = Volumetric Runoff Coefficient, 0.050 + 0.009(I)
 I = Percent Impervious Cover, Impervious Area / Total Area
 DA = Drainage Area (Acres)
 IA = Impervious Area (Acres)

DA = 8.130 acres
 IA = 3.308 acres

Determine Percent Impervious Cover (I)

I = 41%

Calculate Volumetric Runoff Coefficient (R)

R = 0.42

Calculate Water Quality Volume

WQV = 0.282 acre-feet

Compute Runoff Depth

$$Q_{(in)} = \frac{(WQV \times 12)}{DA}$$

Q = Runoff Depth (in watershed inches)
 WQV = Water Quality Volume (acre-feet)
 DA = Drainage Area (acres)

Q_(in) = 0.42 watershed inches

Determine NCRS Curve Number (CN)

Q_(in) = 0.42 watershed inches

P = 1 in

From Appendix B, Figure 2-1 of the 2004 Connecticut Stormwater Manual

CN = 92

Determine Initial Abstraction (I_a)

From Appendix B, Table 4-1 of the 2004 Connecticut Stormwater Manual

I_a = 0.174 inches

Determine Unit Peak Discharge (q_u)

Time of Concentration (T_c), referenced from Pipe Flow Calculation Worksheet

T_c = 0.43 hours

I_a/P = 0.174

From Appendix B, Exhibit 4-111 of the 2004 Connecticut Stormwater Manual

q_u = 410 csm/in

Compute Water Quality Flow

$$WQF = q_u \times DA \times Q_{(in)}$$

WQF = Water Quality Flow (cfs)
 q_u = unit peak discharge (cfs/mi²/inch)
 DA = drainage area (mi²)
 Q_(in) = runoff depth (watershed inches)

WQF = 2.168 cfs

Figure 2-1 Solution of Runoff Equation

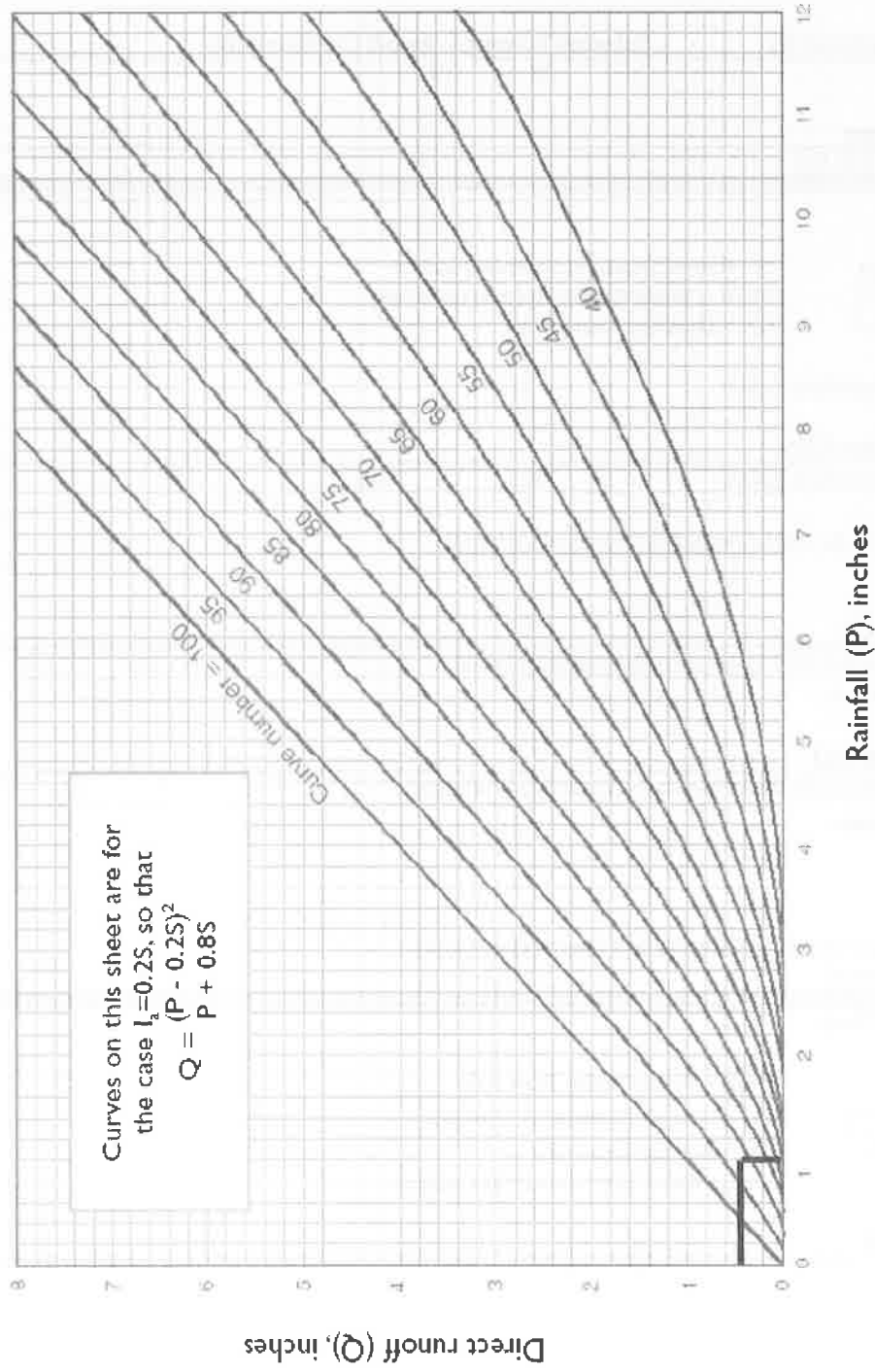
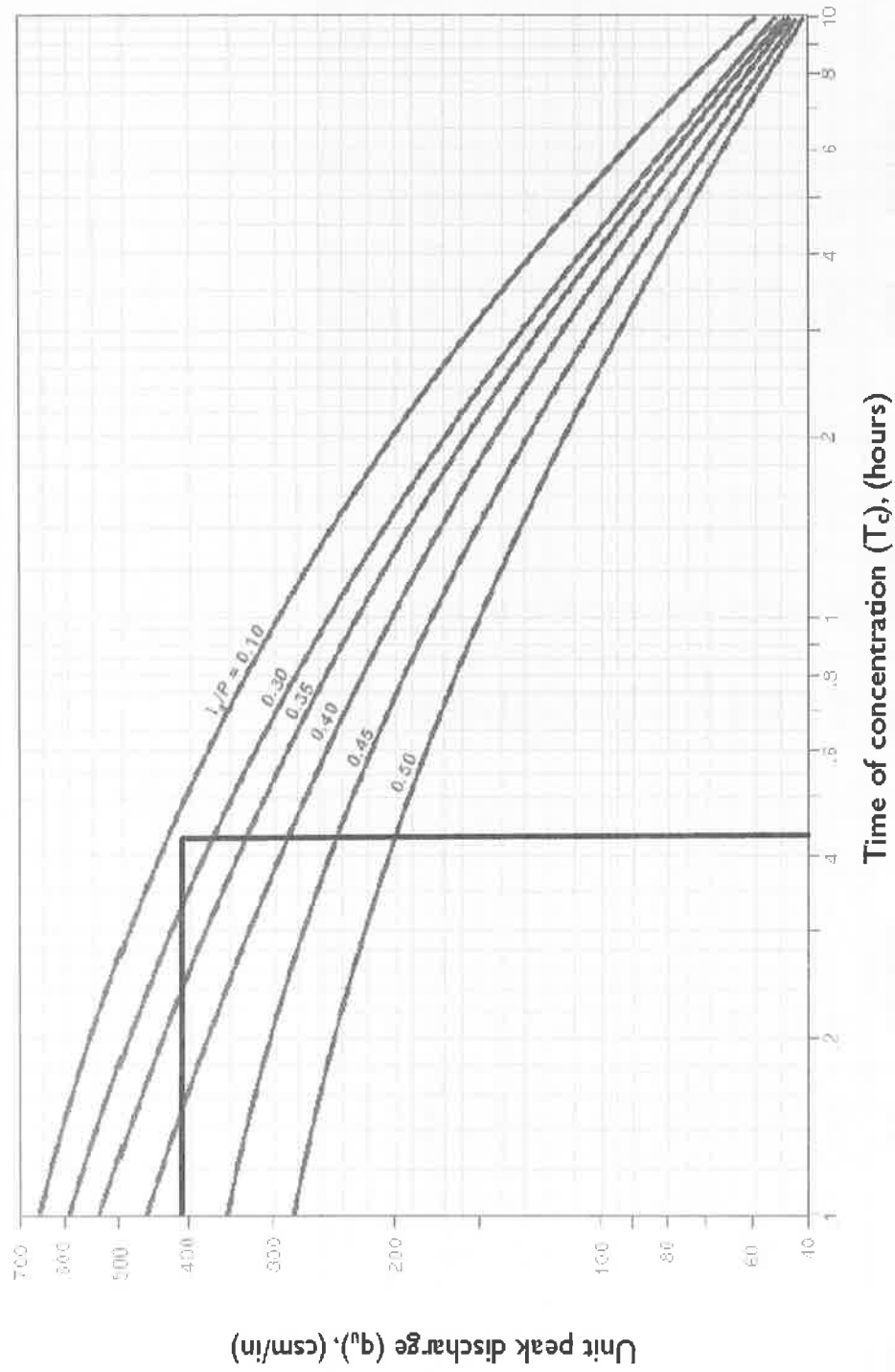


Table 4-1 I_a values for runoff curve numbers

Curve number	I _a (in)	Curve number	I _a (in)	Curve number	I _a (in)	Curve number	I _a (in)
40	3.000	55	1.636	70	0.857	85	0.353
41	2.878	56	1.571	71	0.817	86	0.326
42	2.762	57	1.509	72	0.778	87	0.299
43	2.651	58	1.448	73	0.740	88	0.273
44	2.545	59	1.390	74	0.703	89	0.247
45	2.444	60	1.333	75	0.667	90	0.222
46	2.348	61	1.279	76	0.632	91	0.198
47	2.255	62	1.226	77	0.597	92	0.174
48	2.167	63	1.175	78	0.564	93	0.151
49	2.082	64	1.125	79	0.532	94	0.128
50	2.000	65	1.077	80	0.500	95	0.105
51	1.922	66	1.030	81	0.469	96	0.083
52	1.846	67	0.985	82	0.439	97	0.062
53	1.774	68	0.941	83	0.410	98	0.041
54	1.704	69	0.899	84	0.381		

Exhibit 4-11 Unit peak discharge (q_u) for NRCS (SCS) type III rainfall distribution





STORMTECH ISOLATOR ROW SIZING CHART

	SC-160LP	SC-310	SC-740	DC-780	MC-3500	MC-4500
Chamber Area (Sq.Ft.)	11.4	20	27.8	27.8	43.2	30.1
Treated Flow Rate per chamber (CFS)	0.055	0.11	0.15	0.15	0.24	0.17

NOTE: Testing of the Isolator Row verified by NJCAT. It has shown to have a TSS removal efficiency of 84% for SIL-CO-SIL 250. MASTEP verification of up to 83% TSS of the OK-110.

NJCAT verified Treated Flow Rate (GPM / Sq.Ft.) 2:5

ISOLATOR ROW SIZING (MIN. # CHAMBERS)

MODEL	WQF	# CHAMBERS
SC-160LP	2.17	39.41
SC-310	2.17	19.71
SC-740	2.17	14.45
DC-780	2.17	14.45
MC-3500	2.17	9.03
MC-4500	2.17	12.75



APPENDIX C
SUPPLEMENTAL DATA

NRCS SOIL DATA
NOAA RAINFALL DATA



A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut

NORTH BRIDE BROOK



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

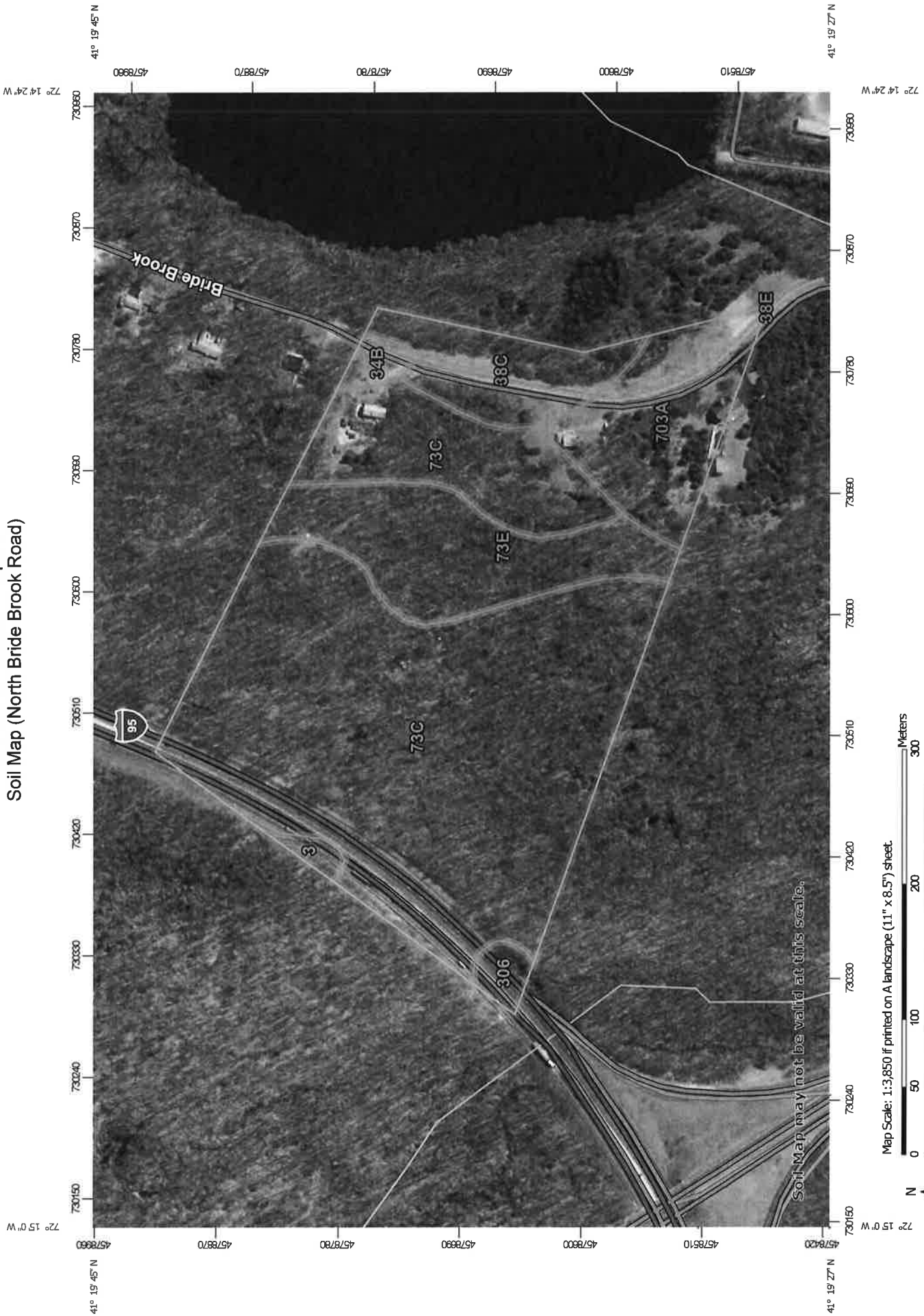
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

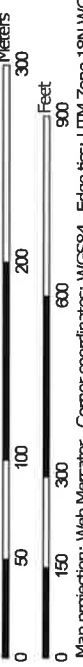
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map (North Bride Brook Road)



Map Scale: 1:3,850 if printed on A landscape (11" x 8.5") sheet



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

MAP LEGEND

MAP INFORMATION

- 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

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 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 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 (North Bride Brook Road)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	0.2	0.8%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	0.4	1.1%
38C	Hinckley loamy sand, 3 to 15 percent slopes	2.4	7.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	0.0	0.0%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	21.2	65.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	4.4	13.4%
306	Udorthents-Urban land complex	0.4	1.2%
703A	Haven silt loam, 0 to 3 percent slopes	3.6	11.0%
Totals for Area of Interest		32.5	100.0%

Map Unit Descriptions (North Bride Brook Road)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different

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management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qt
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, extremely stony, and similar soils: 40 percent
Leicester, extremely stony, and similar soils: 35 percent
Whitman, extremely stony, and similar soils: 17 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landform: Ground moraines, drumlins, drainageways, depressions, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s

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Hydrologic Soil Group: D

Hydric soil rating: Yes

Description of Leicester, Extremely Stony

Setting

Landform: Hills, ground moraines, drainageways, depressions

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 7 inches: fine sandy loam

Bg - 7 to 18 inches: fine sandy loam

BC - 18 to 24 inches: fine sandy loam

C1 - 24 to 39 inches: gravelly fine sandy loam

C2 - 39 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent

Percent of area covered with surface fragments: 9.0 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Description of Whitman, Extremely Stony

Setting

Landform: Hills, ground moraines, drumlins, drainageways, depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat

A - 1 to 10 inches: fine sandy loam

Bg - 10 to 17 inches: gravelly fine sandy loam

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Cdg - 17 to 61 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent

Percent of area covered with surface fragments: 9.0 percent

Depth to restrictive feature: 7 to 38 inches to densic material

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Woodbridge, extremely stony

Percent of map unit: 6 percent

Landform: Ground moraines, drumlins, hills

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Swansea

Percent of map unit: 2 percent

Landform: Swamps, bogs

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

34B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqs

Elevation: 0 to 1,290 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

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Farmland classification: All areas are prime farmland

Map Unit Composition

Merrimac and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Outwash plains, kames, eskers, outwash terraces, moraines

Landform position (two-dimensional): Backslope, footslope, shoulder, summit

Landform position (three-dimensional): Side slope, crest, riser, tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam

Bw1 - 10 to 22 inches: fine sandy loam

Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand

2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 2 percent

Salinity, maximum in profile: Nonsaline (0.0 to 1.4 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 1.0

Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent

Landform: Deltas, outwash plains, terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

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Hinckley

Percent of map unit: 5 percent

Landform: Outwash plains, kames, deltas, eskers

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise

Down-slope shape: Convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Windsor

Percent of map unit: 3 percent

Landform: Outwash plains, dunes, deltas, outwash terraces

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Hydric soil rating: No

Agawam

Percent of map unit: 2 percent

Landform: Outwash terraces, moraines, outwash plains, kames, stream terraces, eskers

Landform position (three-dimensional): Rise

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

38C—Hinckley loamy sand, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svmb

Elevation: 0 to 1,290 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Eskers, outwash terraces, kames, kame terraces, outwash plains, moraines, outwash deltas

Landform position (two-dimensional): Footslope, toeslope, shoulder, backslope, summit

Custom Soil Resource Report

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser, tread

Down-slope shape: Convex, concave, linear

Across-slope shape: Concave, linear, convex

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 5 percent

Landform: Moraines, outwash terraces, eskers, kames, kame terraces, outwash plains, outwash deltas

Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope, summit

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser, tread

Down-slope shape: Convex, linear, concave

Across-slope shape: Linear, convex, concave

Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent

Landform: Outwash terraces, kames, moraines, outwash plains, eskers

Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope, summit

Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser, tread

Down-slope shape: Convex

Across-slope shape: Convex

Custom Soil Resource Report

Hydric soil rating: No

Agawam

Percent of map unit: 3 percent

Landform: Eskers, outwash terraces, kames, kame terraces, outwash plains, moraines, outwash deltas

Landform position (two-dimensional): Shoulder, backslope, toeslope, summit, footslope

Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser, tread

Down-slope shape: Linear, convex, concave

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent

Landform: Outwash deltas, outwash terraces, kame terraces, outwash plains, moraines

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

Hydric soil rating: No

38E—Hinckley loamy sand, 15 to 45 percent slopes

Map Unit Setting

National map unit symbol: 2svmj

Elevation: 0 to 1,280 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, eskers, kames, kame terraces, outwash plains, moraines

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser

Down-slope shape: Linear, convex, concave

Across-slope shape: Linear, concave, convex

Custom Soil Resource Report

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 45 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent

Landform: Eskers, outwash terraces, kames, moraines, outwash plains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, head slope, nose slope, crest, riser

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Windsor

Percent of map unit: 5 percent

Landform: Outwash deltas, moraines, outwash terraces, eskers, kames, kame terraces, outwash plains

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser

Down-slope shape: Convex, linear, concave

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Agawam

Percent of map unit: 3 percent

Landform: Kame terraces, outwash terraces, eskers, kames, outwash plains, moraines, outwash deltas

Custom Soil Resource Report

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser

Down-slope shape: Linear, convex, concave

Across-slope shape: Convex, linear, concave

Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent

Landform: Kame terraces, outwash plains, outwash deltas, outwash terraces, eskers, kames, moraines

Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear, concave

Across-slope shape: Concave, linear

Hydric soil rating: No

73C—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 2w698

Elevation: 0 to 1,550 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Charlton, very stony, and similar soils: 50 percent

Chatfield, very stony, and similar soils: 30 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony

Setting

Landform: Hills, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Crest, side slope, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 4 inches: fine sandy loam

Bw - 4 to 27 inches: gravelly fine sandy loam

C - 27 to 65 inches: gravelly fine sandy loam

Custom Soil Resource Report

Properties and qualities

Slope: 3 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
B_w - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Sutton, very stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Foothlope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: No

Hollis, very stony

Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 9lql
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 45 percent
Chatfield and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Hills

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam

Bw1 - 4 to 7 inches: fine sandy loam

Bw2 - 7 to 19 inches: fine sandy loam

Bw3 - 19 to 27 inches: gravelly fine sandy loam

C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 45 percent

Percent of area covered with surface fragments: 1.6 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: B

Hydric soil rating: No

Description of Chatfield

Setting

Landform: Ridges, hills

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material

A - 1 to 6 inches: gravelly fine sandy loam

Bw1 - 6 to 15 inches: gravelly fine sandy loam

Bw2 - 15 to 29 inches: gravelly fine sandy loam

2R - 29 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 45 percent

Percent of area covered with surface fragments: 1.6 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: High

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent

Hydric soil rating: No

Leicester

Percent of map unit: 5 percent

Landform: Drainageways, depressions

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: Yes

Sutton

Percent of map unit: 5 percent

Landform: Drainageways, depressions

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Hollis

Percent of map unit: 3 percent

Landform: Hills, ridges

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Unnamed, sandy subsoil

Percent of map unit: 1 percent

Hydric soil rating: No

Unnamed, red parent material

Percent of map unit: 1 percent

Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent

Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent

Hydric soil rating: No

703A—Haven silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07k

Elevation: 0 to 1,200 feet

Mean annual precipitation: 43 to 54 inches

Mean annual air temperature: 45 to 55 degrees F

Frost-free period: 140 to 185 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Haven and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haven

Setting

Landform: Outwash terraces, outwash plains

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Linear

Custom Soil Resource Report

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam
Bw1 - 7 to 14 inches: silt loam
Bw2 - 14 to 20 inches: silt loam
BC - 20 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly sand to gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Enfield

Percent of map unit: 5 percent
Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Tisbury

Percent of map unit: 5 percent
Landform: Valley trains, outwash terraces, outwash plains, deltas
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Outwash terraces, kames, moraines, outwash plains, kame terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Raypol

Percent of map unit: 2 percent

Custom Soil Resource Report

Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Saturated Hydraulic Conductivity (Ksat), Standard Classes (North Bride Brook Road)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits. The classes are:

Very low: 0.00 to 0.01

Low: 0.01 to 0.1

Custom Soil Resource Report

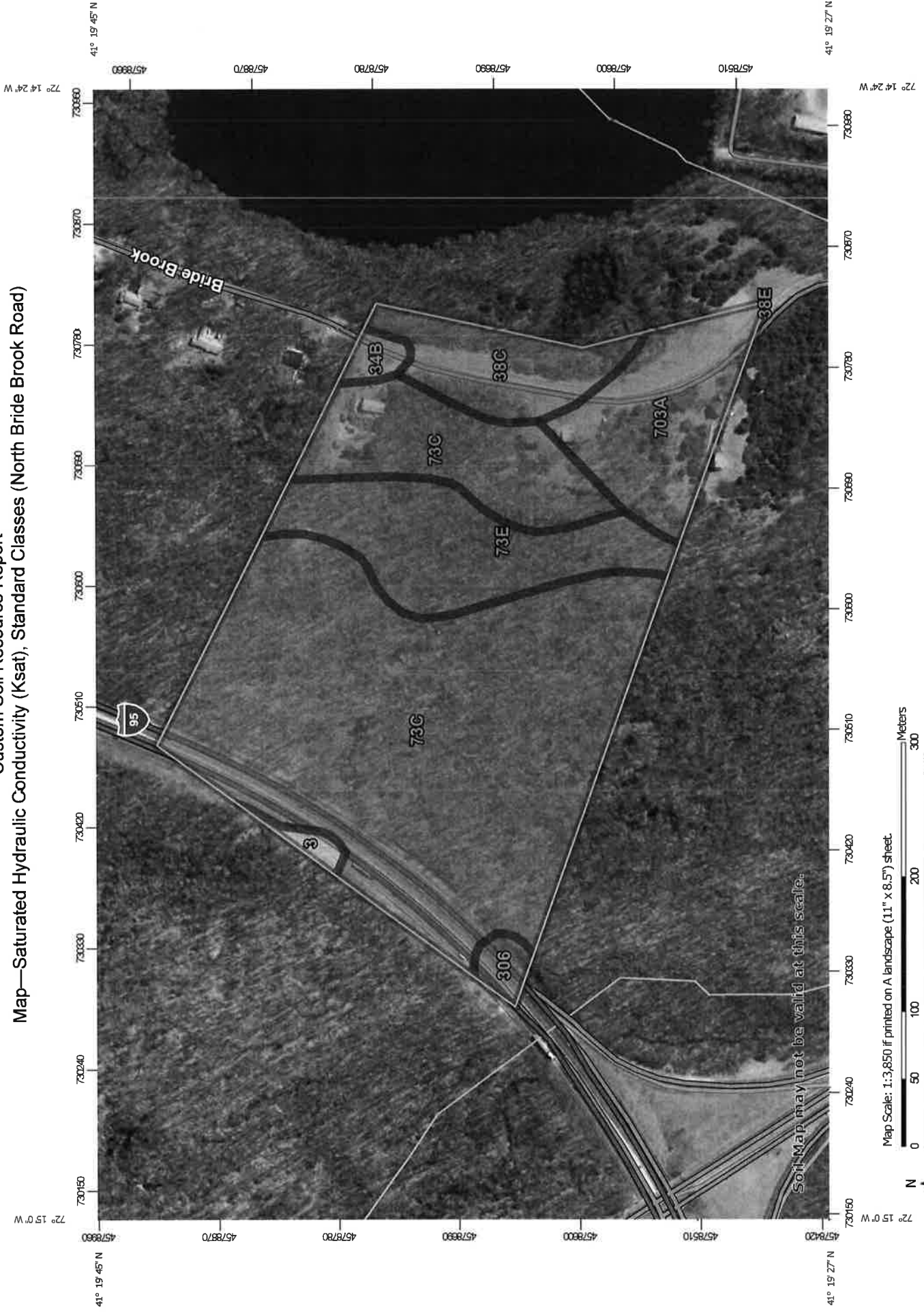
Moderately low: 0.1 to 1.0

Moderately high: 1 to 10

High: 10 to 100

Very high: 100 to 705

Custom Soil Resource Report
 Map—Saturated Hydraulic Conductivity (Ksat), Standard Classes (North Bride Brook Road)



Soil Map may not be valid at this scale.

Map Scale: 1:3,850 if printed on A landscape (11" x 8.5") sheet



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

MAP LEGEND

Area of Interest (AOI)	<input type="checkbox"/> Not rated or not available
Soils	Water Features
Soil Rating Polygons	Streams and Canals
Very Low (0.0 - 0.01)	Transportation
Low (0.01 - 0.1)	+++ Rails
Moderately Low (0.1 - 1)	Interstate Highways
Moderately High (1 - 10)	US Routes
High (10 - 100)	Major Roads
Very High (100 - 705)	Local Roads
Not rated or not available	Background
Soil Rating Lines	Aerial Photography
Very Low (0.0 - 0.01)	
Low (0.01 - 0.1)	
Moderately Low (0.1 - 1)	
Moderately High (1 - 10)	
High (10 - 100)	
Very High (100 - 705)	
Not rated or not available	
Soil Rating Points	
Very Low (0.0 - 0.01)	
Low (0.01 - 0.1)	
Moderately Low (0.1 - 1)	
Moderately High (1 - 10)	
High (10 - 100)	
Very High (100 - 705)	

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 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 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.

Table—Saturated Hydraulic Conductivity (Ksat), Standard Classes (North Bride Brook Road)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	4.5628	0.2	0.8%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	100.0000	0.4	1.1%
38C	Hinckley loamy sand, 3 to 15 percent slopes	100.0000	2.4	7.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	100.0000	0.0	0.0%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	12.1818	21.2	65.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	22.2121	4.4	13.4%
306	Udorthents-Urban land complex	23.0099	0.4	1.2%
703A	Haven silt loam, 0 to 3 percent slopes	88.0263	3.6	11.0%
Totals for Area of Interest			32.5	100.0%

Rating Options—Saturated Hydraulic Conductivity (Ksat), Standard Classes (North Bride Brook Road)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil

features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (North Bride Brook Road)

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

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

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

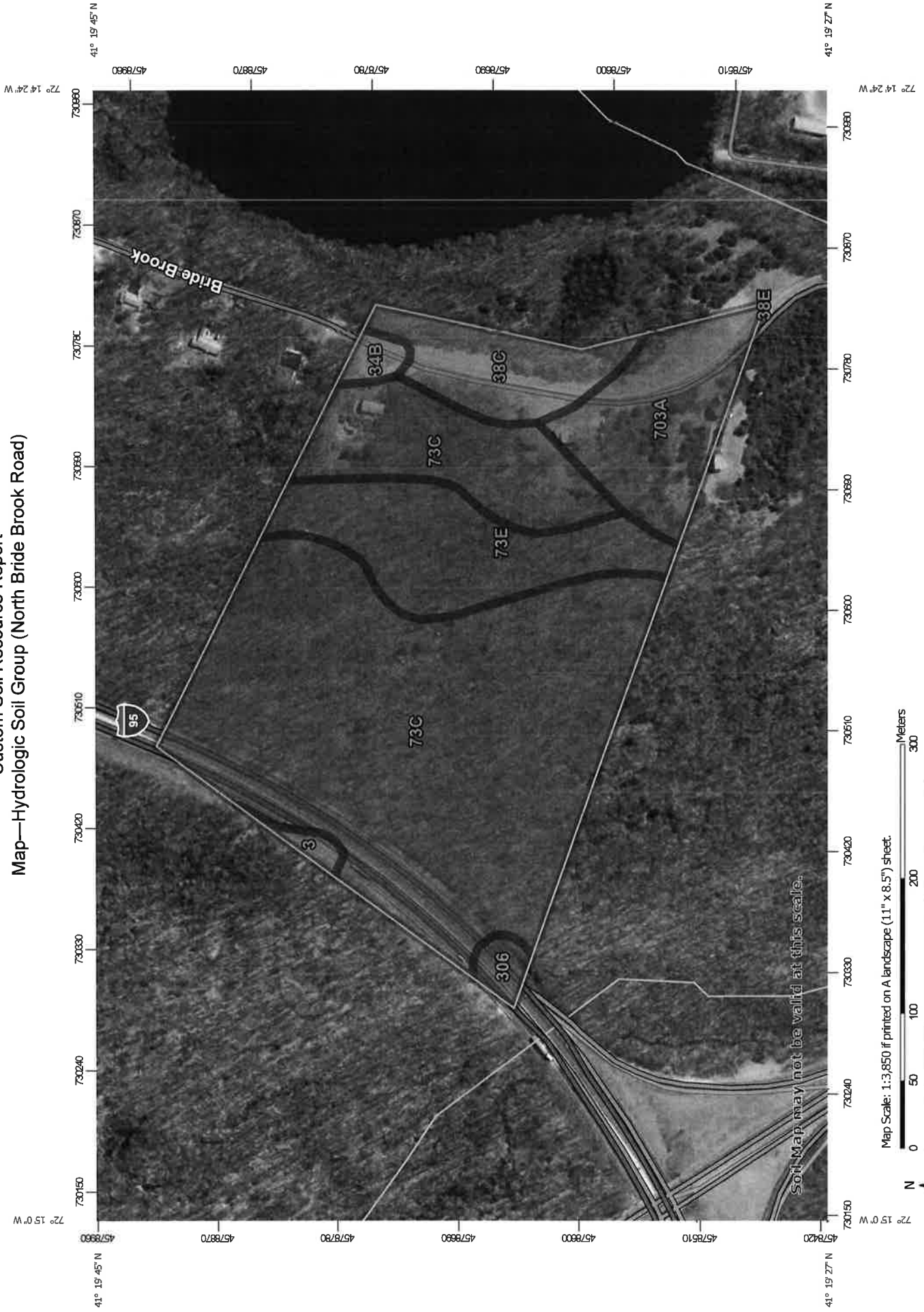
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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

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

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

Custom Soil Resource Report
 Map—Hydrologic Soil Group (North Bride Brook Road)



























Soil Map may not be valid at this scale.

Map Scale: 1:3,850 if printed on A landscape (11" x 8.5") sheet



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

MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 - Soil Rating Polygons**
 -  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
 - Soil Rating Lines**
 -  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
- 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 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 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.

Table—Hydrologic Soil Group (North Bride Brook Road)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	0.2	0.8%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	0.4	1.1%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	2.4	7.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	A	0.0	0.0%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	21.2	65.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	B	4.4	13.4%
306	Udorthents-Urban land complex	B	0.4	1.2%
703A	Haven silt loam, 0 to 3 percent slopes	B	3.6	11.0%
Totals for Area of Interest			32.5	100.0%

Rating Options—Hydrologic Soil Group (North Bride Brook Road)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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NOAA Atlas 14, Volume 10, Version 3
Location name: Niantic, Connecticut, USA*
Latitude: 41.3264°, Longitude: -72.245°
Elevation: 68.89 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.336 (0.259-0.427)	0.403 (0.310-0.512)	0.512 (0.393-0.653)	0.602 (0.460-0.771)	0.726 (0.539-0.964)	0.819 (0.596-1.11)	0.918 (0.651-1.28)	1.03 (0.691-1.45)	1.19 (0.773-1.73)	1.33 (0.841-1.96)
10-min	0.476 (0.367-0.605)	0.571 (0.440-0.726)	0.725 (0.557-0.925)	0.853 (0.652-1.09)	1.03 (0.763-1.37)	1.16 (0.845-1.57)	1.30 (0.922-1.81)	1.46 (0.980-2.06)	1.69 (1.10-2.45)	1.88 (1.19-2.77)
15-min	0.560 (0.432-0.712)	0.671 (0.517-0.854)	0.853 (0.655-1.09)	1.00 (0.767-1.29)	1.21 (0.898-1.61)	1.37 (0.994-1.85)	1.53 (1.08-2.13)	1.72 (1.15-2.42)	1.99 (1.29-2.88)	2.22 (1.40-3.26)
30-min	0.789 (0.609-1.00)	0.945 (0.728-1.20)	1.20 (0.922-1.53)	1.41 (1.08-1.81)	1.70 (1.26-2.26)	1.92 (1.40-2.59)	2.15 (1.53-3.00)	2.42 (1.62-3.40)	2.80 (1.81-4.05)	3.11 (1.97-4.58)
60-min	1.02 (0.785-1.29)	1.22 (0.940-1.55)	1.55 (1.19-1.97)	1.82 (1.39-2.33)	2.20 (1.63-2.91)	2.48 (1.80-3.34)	2.78 (1.97-3.86)	3.11 (2.09-4.39)	3.60 (2.33-5.22)	4.00 (2.53-5.89)
2-hr	1.33 (1.04-1.68)	1.60 (1.24-2.02)	2.03 (1.57-2.57)	2.39 (1.84-3.04)	2.88 (2.15-3.80)	3.25 (2.38-4.36)	3.65 (2.60-5.04)	4.10 (2.77-5.73)	4.78 (3.10-6.86)	5.34 (3.39-7.78)
3-hr	1.55 (1.21-1.94)	1.85 (1.45-2.33)	2.36 (1.83-2.97)	2.77 (2.14-3.51)	3.34 (2.51-4.39)	3.77 (2.78-5.04)	4.23 (3.03-5.83)	4.76 (3.22-6.62)	5.56 (3.62-7.93)	6.22 (3.96-9.02)
6-hr	1.97 (1.55-2.45)	2.36 (1.85-2.94)	2.99 (2.34-3.74)	3.51 (2.74-4.41)	4.23 (3.20-5.51)	4.77 (3.54-6.32)	5.35 (3.86-7.31)	6.02 (4.10-8.30)	7.02 (4.60-9.94)	7.87 (5.03-11.3)
12-hr	2.44 (1.94-3.02)	2.92 (2.32-3.61)	3.70 (2.92-4.59)	4.35 (3.42-5.41)	5.23 (3.99-6.75)	5.90 (4.40-7.74)	6.60 (4.80-8.94)	7.43 (5.08-10.1)	8.65 (5.69-12.1)	9.67 (6.21-13.8)
24-hr	2.87 (2.30-3.52)	3.45 (2.76-4.23)	4.39 (3.50-5.40)	5.18 (4.10-6.40)	6.26 (4.80-8.02)	7.06 (5.31-9.20)	7.92 (5.80-10.7)	8.95 (6.15-12.1)	10.5 (6.92-14.5)	11.8 (7.58-16.6)
2-day	3.20 (2.58-3.90)	3.89 (3.14-4.74)	5.02 (4.03-6.13)	5.95 (4.75-7.30)	7.24 (5.61-9.22)	8.19 (6.22-10.6)	9.22 (6.82-12.4)	10.5 (7.24-14.1)	12.4 (8.23-17.1)	14.1 (9.11-19.6)
3-day	3.47 (2.82-4.20)	4.21 (3.42-5.11)	5.43 (4.38-6.60)	6.44 (5.17-7.85)	7.82 (6.08-9.91)	8.84 (6.75-11.4)	9.96 (7.40-13.3)	11.3 (7.84-15.1)	13.4 (8.92-18.4)	15.2 (9.88-21.1)
4-day	3.73 (3.03-4.50)	4.50 (3.66-5.44)	5.77 (4.68-6.99)	6.82 (5.50-8.30)	8.27 (6.45-10.4)	9.34 (7.14-12.0)	10.5 (7.82-13.9)	11.9 (8.28-15.8)	14.1 (9.39-19.2)	16.0 (10.4-22.0)
7-day	4.45 (3.65-5.33)	5.28 (4.33-6.34)	6.65 (5.42-8.00)	7.78 (6.31-9.40)	9.34 (7.33-11.7)	10.5 (8.06-13.4)	11.7 (8.76-15.4)	13.2 (9.23-17.4)	15.5 (10.3-20.9)	17.4 (11.3-23.8)
10-day	5.15 (4.24-6.15)	6.02 (4.95-7.20)	7.45 (6.10-8.92)	8.63 (7.02-10.4)	10.3 (8.06-12.7)	11.5 (8.82-14.5)	12.8 (9.51-16.6)	14.3 (9.98-18.7)	16.5 (11.1-22.1)	18.3 (12.0-25.0)
20-day	7.30 (6.07-8.65)	8.24 (6.84-9.77)	9.77 (8.07-11.6)	11.0 (9.06-13.2)	12.8 (10.1-15.7)	14.1 (10.9-17.5)	15.5 (11.5-19.7)	16.9 (11.9-22.0)	19.0 (12.8-25.2)	20.6 (13.5-27.7)
30-day	9.10 (7.60-10.7)	10.1 (8.41-11.9)	11.7 (9.70-13.8)	13.0 (10.7-15.4)	14.8 (11.8-18.0)	16.2 (12.6-20.0)	17.6 (13.1-22.2)	19.1 (13.5-24.6)	20.9 (14.2-27.6)	22.3 (14.7-29.9)
45-day	11.3 (9.52-13.3)	12.4 (10.4-14.5)	14.1 (11.7-16.5)	15.5 (12.8-18.3)	17.4 (13.9-21.0)	18.9 (14.7-23.1)	20.4 (15.1-25.3)	21.7 (15.5-27.8)	23.4 (15.9-30.7)	24.6 (16.2-32.8)
60-day	13.2 (11.1-15.4)	14.3 (12.0-16.7)	16.1 (13.5-18.8)	17.5 (14.6-20.6)	19.5 (15.6-23.5)	21.2 (16.4-25.7)	22.7 (16.8-28.0)	24.0 (17.1-30.6)	25.5 (17.4-33.4)	26.6 (17.5-35.3)

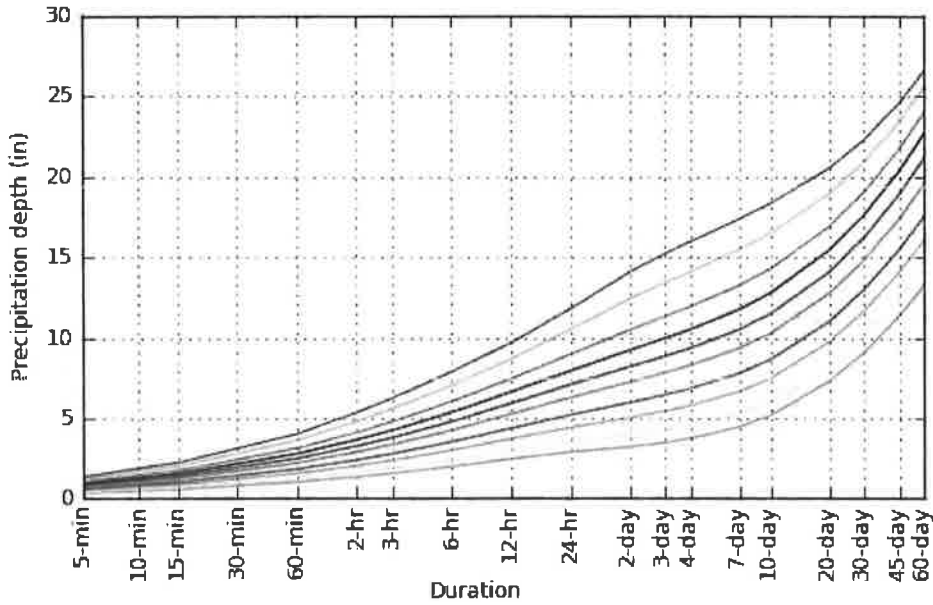
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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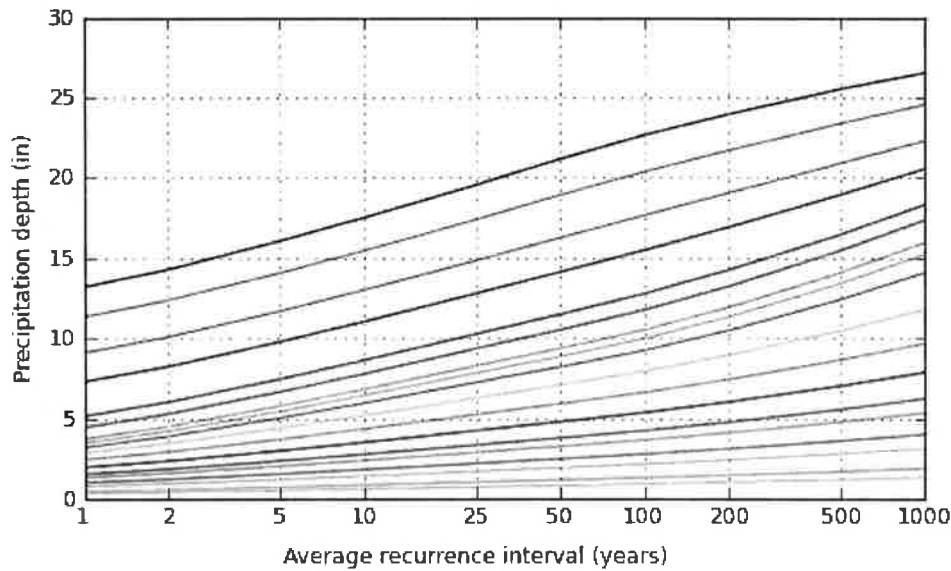
PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 41.3264°, Longitude: -72.2450°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000

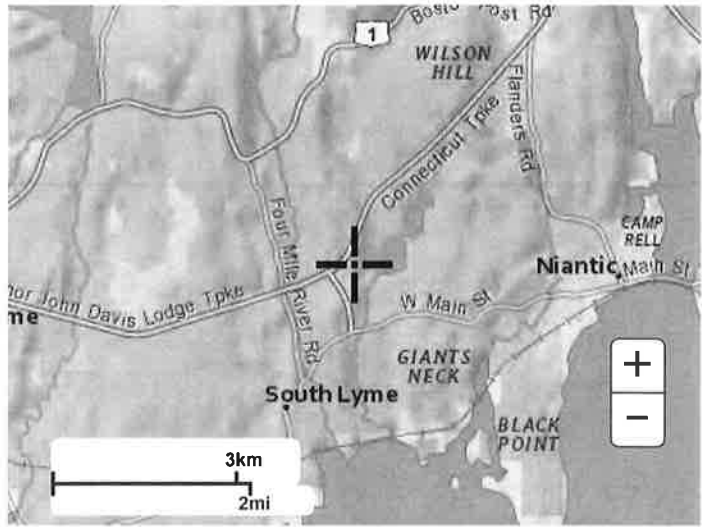


Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

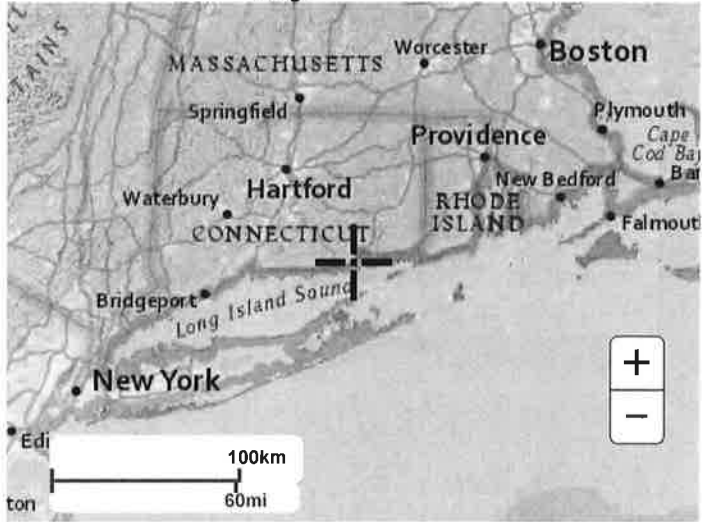
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Maps & aerials

Small scale terrain



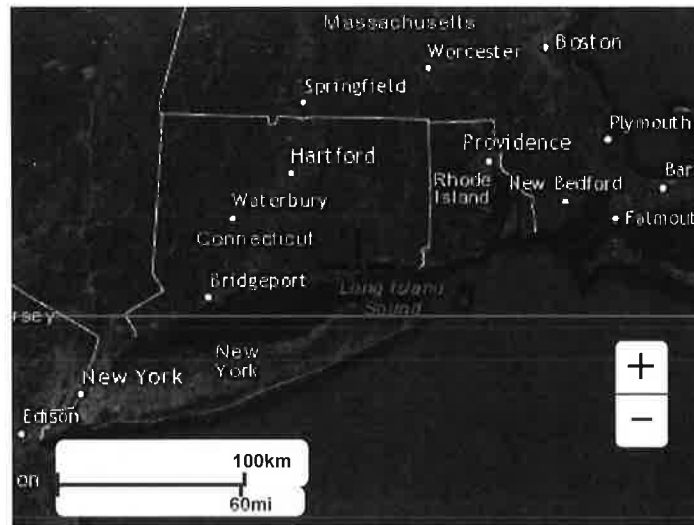
Large scale terrain



Large scale map



Large scale aerial



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NOAA Atlas 14, Volume 10, Version 3
Location name: Niantic, Connecticut, USA*
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POINT PRECIPITATION FREQUENCY ESTIMATES

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PF tabular

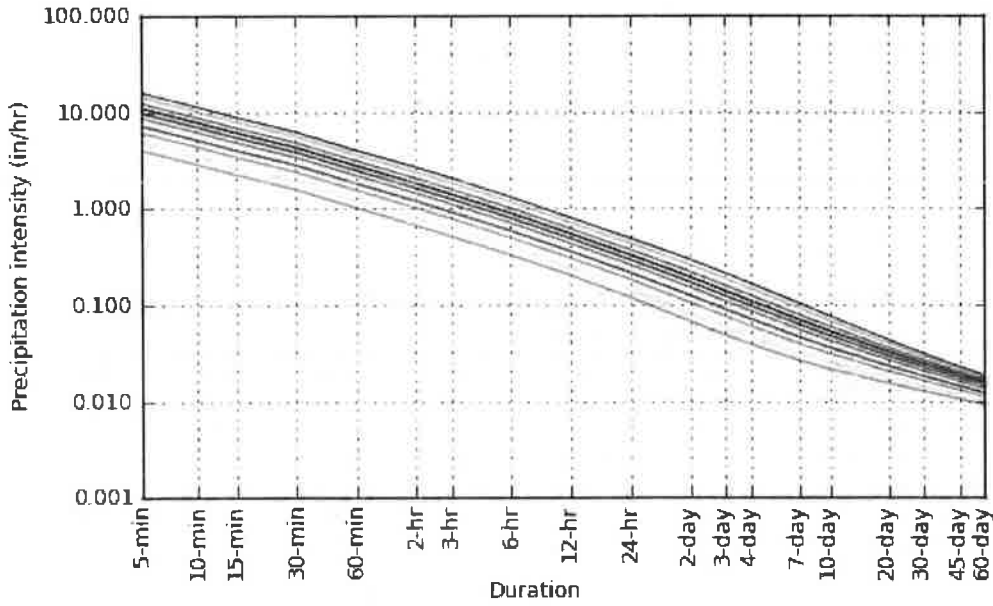
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.03 (3.11-5.12)	4.84 (3.72-6.14)	6.14 (4.72-7.84)	7.22 (5.52-9.25)	8.71 (6.47-11.6)	9.83 (7.15-13.3)	11.0 (7.81-15.3)	12.4 (8.29-17.4)	14.3 (9.28-20.8)	15.9 (10.1-23.5)
10-min	2.86 (2.20-3.63)	3.43 (2.64-4.36)	4.35 (3.34-5.55)	5.12 (3.91-6.55)	6.17 (4.58-8.20)	6.97 (5.07-9.40)	7.81 (5.53-10.9)	8.76 (5.88-12.3)	10.2 (6.57-14.7)	11.3 (7.15-16.6)
15-min	2.24 (1.73-2.85)	2.68 (2.07-3.42)	3.41 (2.62-4.35)	4.02 (3.07-5.14)	4.84 (3.59-6.43)	5.46 (3.98-7.38)	6.12 (4.34-8.52)	6.87 (4.61-9.68)	7.96 (5.15-11.5)	8.86 (5.61-13.0)
30-min	1.58 (1.22-2.01)	1.89 (1.46-2.40)	2.40 (1.84-3.06)	2.82 (2.16-3.61)	3.41 (2.53-4.52)	3.84 (2.80-5.19)	4.31 (3.05-5.99)	4.83 (3.24-6.81)	5.59 (3.62-8.10)	6.22 (3.94-9.15)
60-min	1.02 (0.785-1.29)	1.22 (0.940-1.55)	1.55 (1.19-1.97)	1.82 (1.39-2.33)	2.20 (1.63-2.91)	2.48 (1.80-3.34)	2.78 (1.97-3.86)	3.11 (2.09-4.39)	3.60 (2.33-5.22)	4.00 (2.53-5.89)
2-hr	0.666 (0.518-0.840)	0.798 (0.620-1.01)	1.01 (0.786-1.28)	1.19 (0.920-1.52)	1.44 (1.08-1.90)	1.63 (1.19-2.18)	1.82 (1.30-2.52)	2.05 (1.38-2.87)	2.39 (1.55-3.43)	2.67 (1.70-3.89)
3-hr	0.515 (0.403-0.647)	0.617 (0.482-0.776)	0.785 (0.610-0.988)	0.923 (0.714-1.17)	1.11 (0.836-1.46)	1.26 (0.925-1.68)	1.41 (1.01-1.94)	1.59 (1.07-2.20)	1.85 (1.21-2.64)	2.07 (1.32-3.00)
6-hr	0.329 (0.259-0.410)	0.393 (0.309-0.490)	0.499 (0.391-0.624)	0.587 (0.457-0.736)	0.707 (0.535-0.920)	0.797 (0.591-1.06)	0.893 (0.645-1.22)	1.01 (0.684-1.39)	1.17 (0.768-1.66)	1.31 (0.840-1.89)
12-hr	0.203 (0.161-0.251)	0.242 (0.192-0.300)	0.307 (0.243-0.381)	0.361 (0.283-0.449)	0.434 (0.331-0.560)	0.489 (0.365-0.642)	0.548 (0.398-0.742)	0.617 (0.422-0.842)	0.718 (0.472-1.01)	0.803 (0.515-1.14)
24-hr	0.119 (0.096-0.147)	0.144 (0.115-0.176)	0.183 (0.146-0.225)	0.216 (0.171-0.267)	0.261 (0.200-0.334)	0.294 (0.221-0.384)	0.330 (0.242-0.444)	0.373 (0.256-0.504)	0.436 (0.288-0.606)	0.490 (0.316-0.691)
2-day	0.067 (0.054-0.081)	0.081 (0.065-0.099)	0.105 (0.084-0.128)	0.124 (0.099-0.152)	0.151 (0.117-0.192)	0.171 (0.130-0.221)	0.192 (0.142-0.258)	0.218 (0.151-0.293)	0.259 (0.171-0.356)	0.293 (0.190-0.409)
3-day	0.048 (0.039-0.058)	0.059 (0.047-0.071)	0.075 (0.061-0.092)	0.089 (0.072-0.109)	0.109 (0.085-0.138)	0.123 (0.094-0.158)	0.138 (0.103-0.185)	0.157 (0.109-0.210)	0.186 (0.124-0.255)	0.211 (0.137-0.293)
4-day	0.039 (0.032-0.047)	0.047 (0.038-0.057)	0.060 (0.049-0.073)	0.071 (0.057-0.086)	0.086 (0.067-0.109)	0.097 (0.074-0.125)	0.109 (0.081-0.145)	0.124 (0.086-0.165)	0.147 (0.098-0.200)	0.166 (0.108-0.230)
7-day	0.026 (0.022-0.032)	0.031 (0.026-0.038)	0.040 (0.032-0.048)	0.046 (0.038-0.056)	0.056 (0.044-0.070)	0.063 (0.048-0.080)	0.070 (0.052-0.092)	0.079 (0.055-0.104)	0.092 (0.062-0.124)	0.103 (0.067-0.142)
10-day	0.021 (0.018-0.026)	0.025 (0.021-0.030)	0.031 (0.025-0.037)	0.036 (0.029-0.043)	0.043 (0.034-0.053)	0.048 (0.037-0.060)	0.053 (0.040-0.069)	0.059 (0.042-0.078)	0.069 (0.046-0.092)	0.076 (0.050-0.104)
20-day	0.015 (0.013-0.018)	0.017 (0.014-0.020)	0.020 (0.017-0.024)	0.023 (0.019-0.027)	0.027 (0.021-0.033)	0.029 (0.023-0.037)	0.032 (0.024-0.041)	0.035 (0.025-0.046)	0.039 (0.027-0.052)	0.043 (0.028-0.058)
30-day	0.013 (0.011-0.015)	0.014 (0.012-0.017)	0.016 (0.013-0.019)	0.018 (0.015-0.021)	0.021 (0.016-0.025)	0.023 (0.017-0.028)	0.024 (0.018-0.031)	0.026 (0.019-0.034)	0.029 (0.020-0.038)	0.031 (0.020-0.042)
45-day	0.010 (0.009-0.012)	0.011 (0.010-0.013)	0.013 (0.011-0.015)	0.014 (0.012-0.017)	0.016 (0.013-0.019)	0.018 (0.014-0.021)	0.019 (0.014-0.023)	0.020 (0.014-0.026)	0.022 (0.015-0.028)	0.023 (0.015-0.030)
60-day	0.009 (0.008-0.011)	0.010 (0.008-0.012)	0.011 (0.009-0.013)	0.012 (0.010-0.014)	0.014 (0.011-0.016)	0.015 (0.011-0.018)	0.016 (0.012-0.019)	0.017 (0.012-0.021)	0.018 (0.012-0.023)	0.018 (0.012-0.024)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

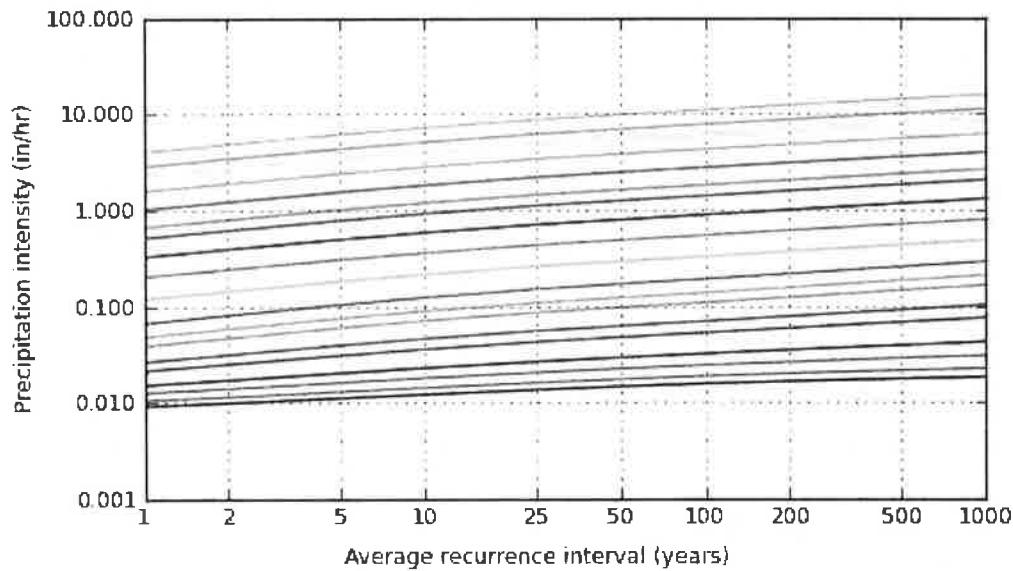
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PF graphical

PDS-based intensity-duration-frequency (IDF) curves
 Latitude: 41.3264°, Longitude: -72.2450°



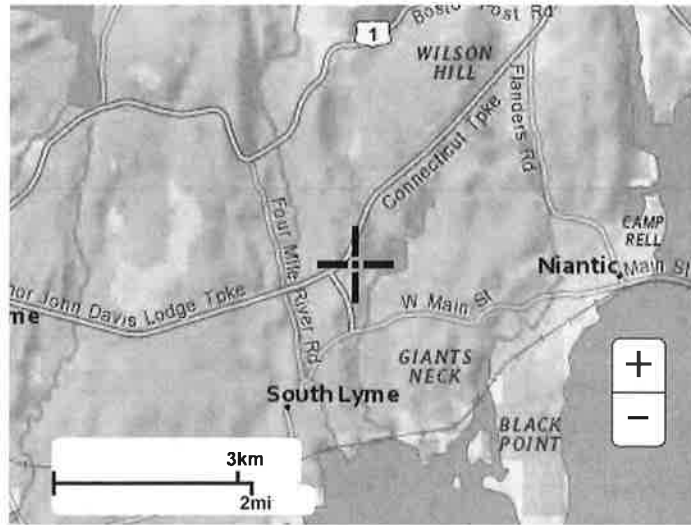
Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



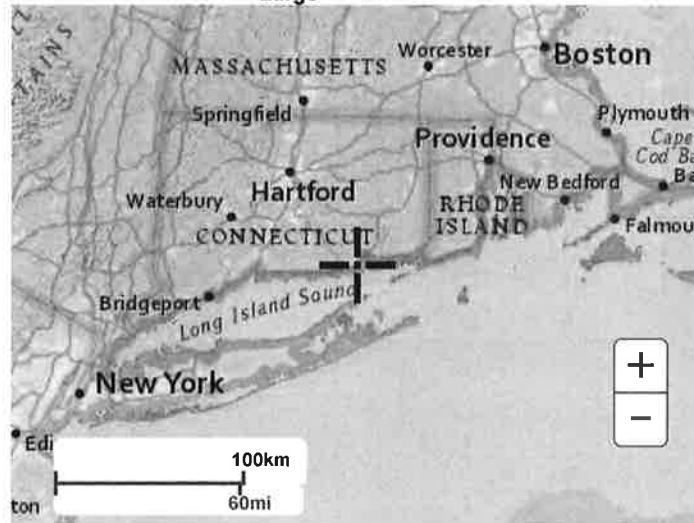
Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

Maps & aerials

Small scale terrain



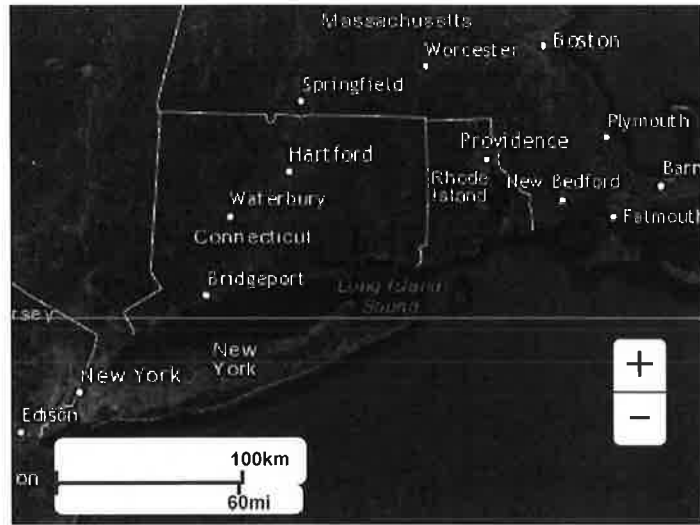
Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)





PJ SPRINGSTEEL
 105 STARR ST.
 MYSTIC, CT 06355
 860 572 7306
 ARCHITECT



BUILDING F

**NORTH BRIDE BROOK
 MULTI-FAMILY DEVELOPMENT
 NIAN TIC, CONNECTICUT**

No.	Description	Date

FRONT ELEVATION

Project number N.A.
 Date 07-10-2020
 Drawn by P.S.
 Checked by P.S.

A-3

Scale 1/8" = 1'-0"



PJ SPRINGSTEEL
 105 STARR ST.
 MYSTIC, CT 06255
 860 572 7306
 ARCHITECT



BUILDING F

**NORTH BRIDE BROOK
 MULTI-FAMILY DEVELOPMENT
 NORTH BRIDEBROOK ROAD - EAST LYME, CT**

No.	Description	Date

LEFT & RIGHT SIDE ELEVS.

Project number	N.A.	A-4
Date	07-10-2020	
Drawn by	P.S.	
Checked by	P.S.	
Scale		1/8" = 1'-0"



BUILDING F

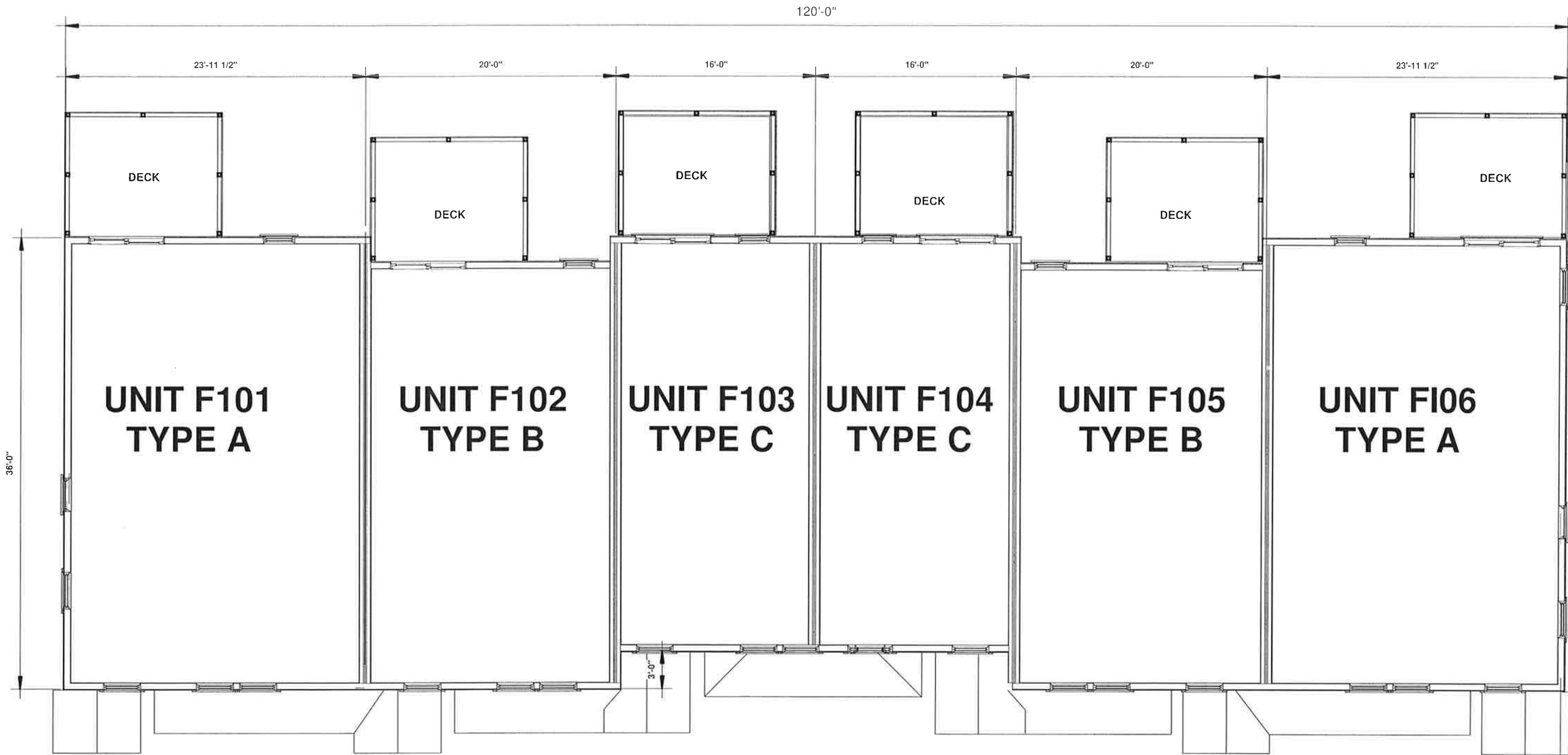
**NORTH BRIDE BROOK
MULTI-FAMILY DEVELOPMENT
NIANTIC, CONNECTICUT**

No.	Description	Date

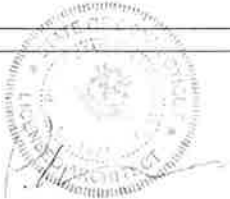
REAR ELEVATION

Project number	N.A.
Date	07-10-2020
Drawn by	P.S.
Checked by	P.S.

A-5
Scale 1/8" = 1'-0"



PJ SPRINGSTEEL
 105 STARR ST.
 MYSTIC, CT 06355
 860 572 7306
 ARCHITECT



BUILDING F

**NORTH BRIDE BROOK
 MULTI-FAMILY DEVELOPMENT
 NIAN TIC, CONNECTICUT**

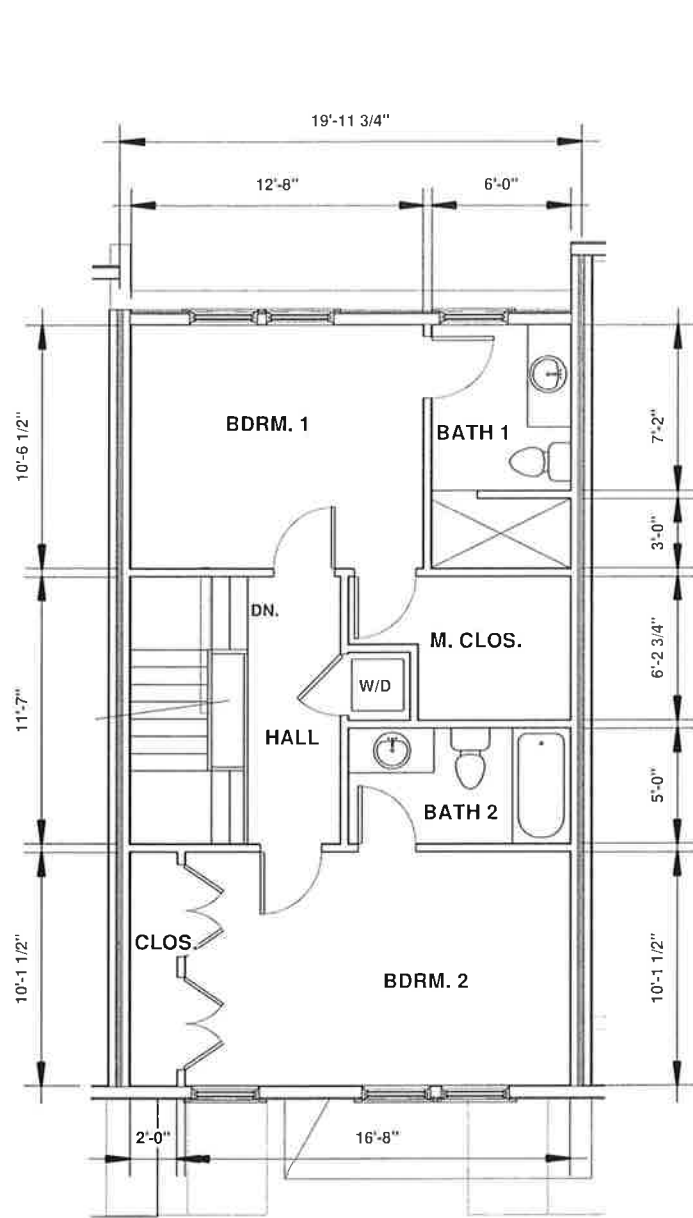
No.	Description	Date

BUILDING PLAN

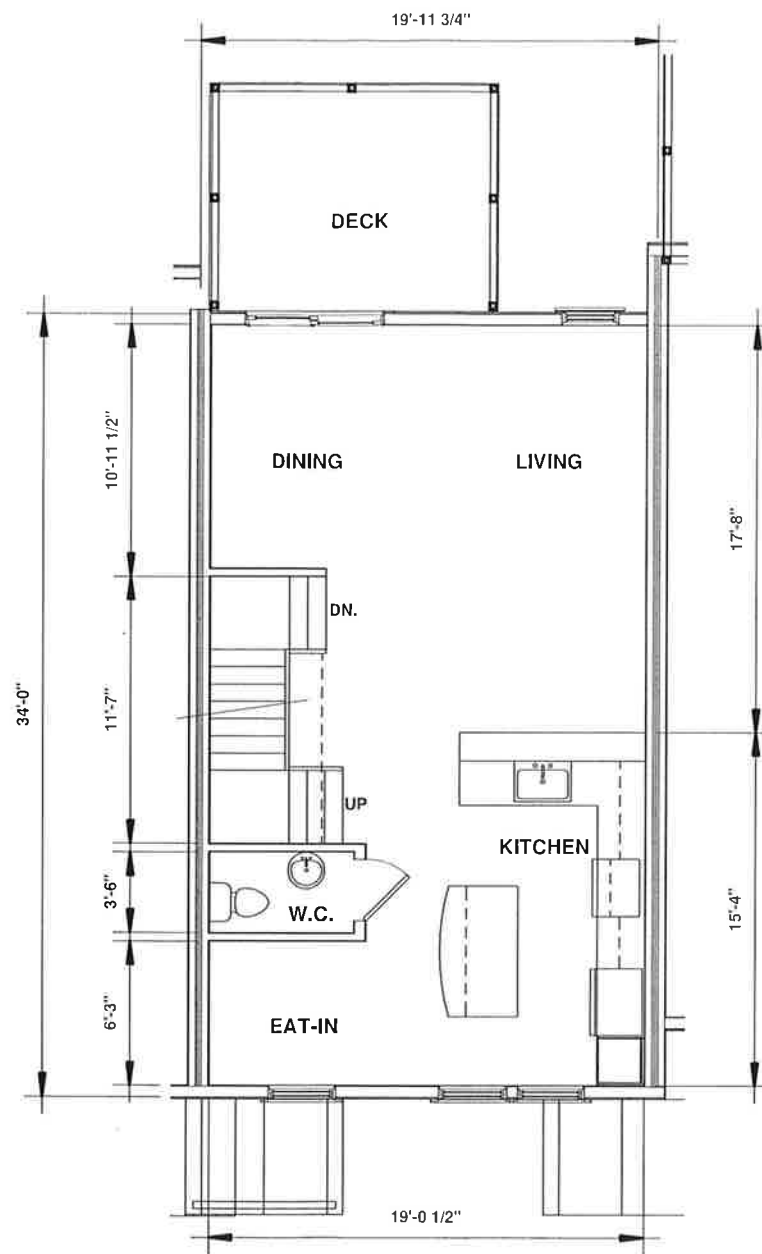
Project number N.A.
 Date 07-10-2020
 Drawn by P.S.
 Checked by P.S.

A-1

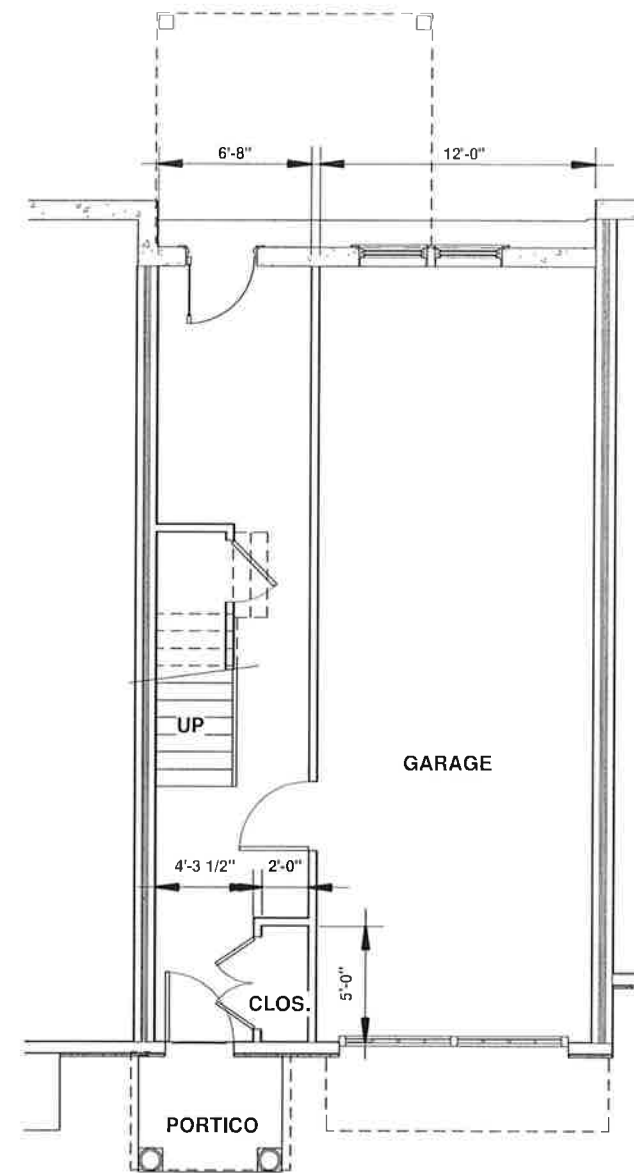
Scale 1/8" = 1'-0"



2ND FLOOR PLAN B



1ST FLOOR PLAN B



BASEMENT PLAN B

PJ SPRINGSTEEL
 105 STARR ST.
 MYSTIC, CT 06355
 860 572 7306
 ARCHITECT



BUILDING F

**NORTH BRIDE BROOK
 MULTI-FAMILY DEVELOPMENT
 Niantic, Connecticut**

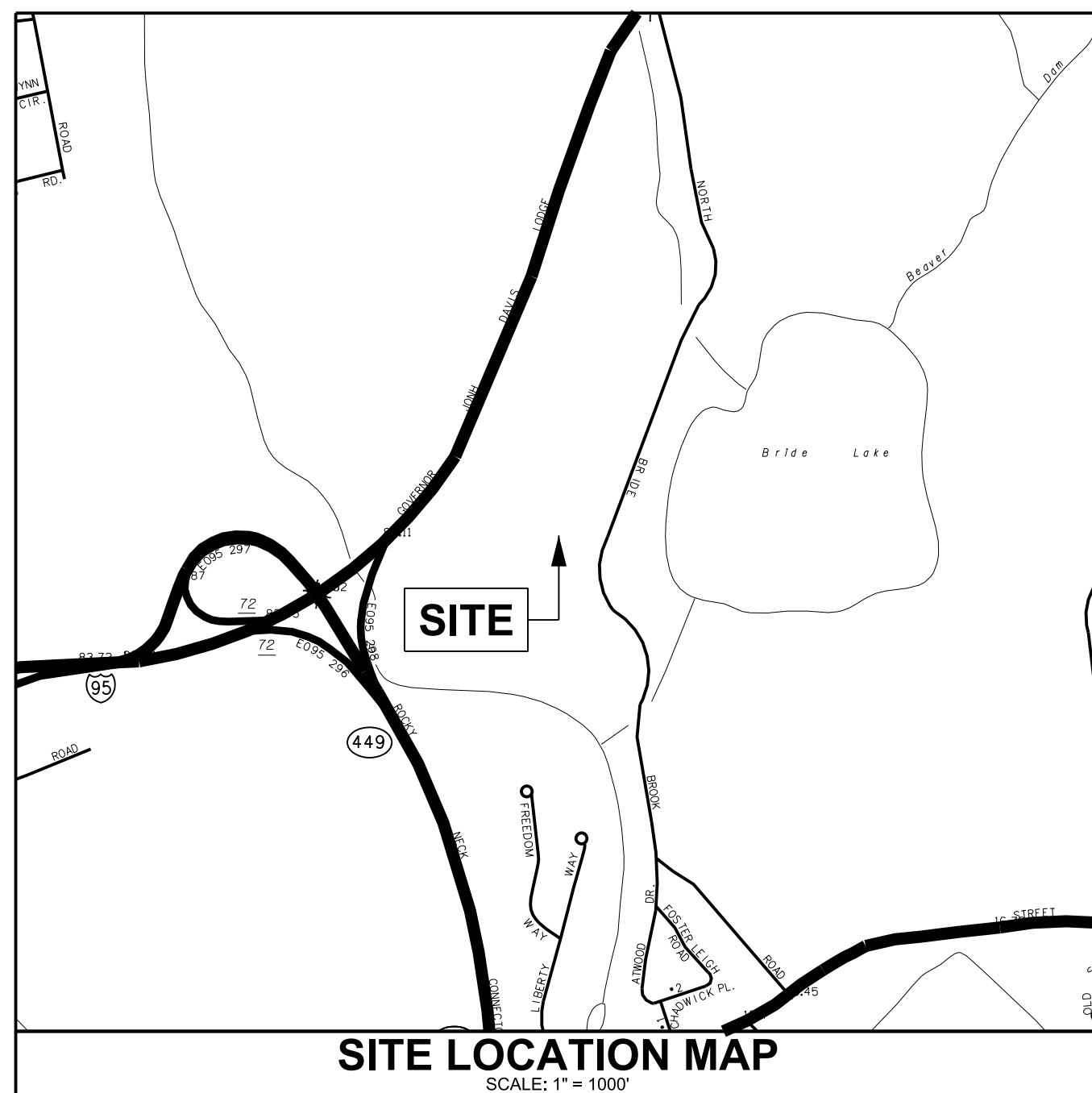
No.	Description	Date

UNIT B PLANS

Project number N.A.
 Date 07-10-2020
 Drawn by P.S.
 Checked by P.S.

A-2

Scale 1/8" = 1'-0"



SITE LOCATION MAP
SCALE: 1" = 1000'

REGULATED AREA TABLE

DESCRIPTION	TOTAL AREA	DISTURBANCE
INLAND WETLAND / WATERCOURSE	48,970 SF (1.12 AC.)	0 SF
100' UPLAND REVIEW AREA	198,730 SF (4.56 AC)	0 SF

NRCS SOILS

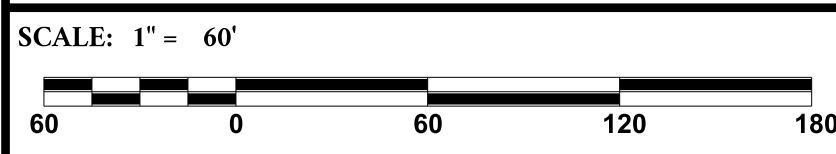
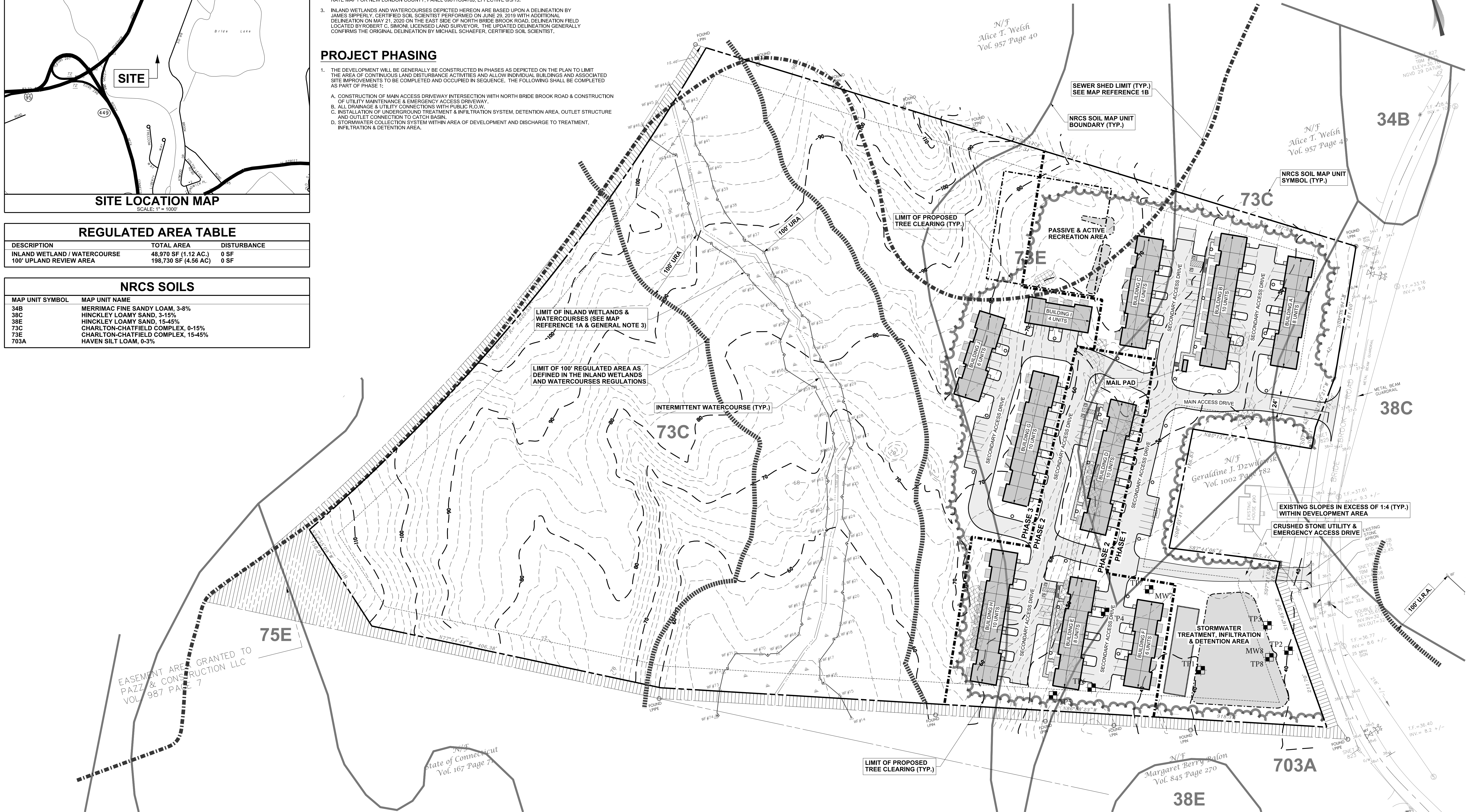
MAP UNIT SYMBOL	MAP UNIT NAME
34B	MERRIMAC FINE SANDY LOAM, 3-8%
38C	HINCKLEY LOAMY SAND, 3-15%
38E	HINCKLEY LOAMY SAND, 15-45%
73C	CHARLTON-CHATFIELD COMPLEX, 0-15%
73E	CHARLTON-CHATFIELD COMPLEX, 15-45%
703A	HAVEN SILT LOAM, 0-3%

GENERAL NOTES

- REFERENCE IS MADE TO THE FOLLOWING MAPS AND PLANS
 - "PROPERTY SURVEY LAND OF PAZZ & CONSTRUCTION LLC, LOCATION: NORTH BRIDE BROOK ROAD, EAST LYME, CONNECTICUT", SHEET NUMBER 1 OF 1, SCALE 1" = 60', DATED JANUARY 31, 2019 AS REVISED THROUGH 6-6-20, PREPARED BY ROBERT C. SIMONI LICENSED LAND SURVEYOR.
 - "SEWER SHED DISTRICT: 2014 UPDATE SELECTED EXTENT" TOWN OF EAST LYME DEPARTMENT OF PLANNING, DATED MARCH 2014.
 - NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY AREA- STATE OF CONNECTICUT, SURVEY AREA DATA: VERSION 18, DEC. 8, 2018.
- THE SUBJECT PROPERTY IS LOCATED ENTIRELY WITHIN FLOOD ZONE X (AREAS OF MINIMAL FLOOD HAZARD) AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP FOR NEW LONDON COUNTY, PANEL 09011C0478J, EFFECTIVE 8/5/13.
- INLAND WETLANDS AND WATERCOURSES DEPICTED HEREON ARE BASED UPON A DELINEATION BY JAMES SIPPERLY, CERTIFIED SOIL SCIENTIST PERFORMED ON JUNE 29, 2019 WITH ADDITIONAL DELINEATION ON MAY 21, 2020 ON THE EAST SIDE OF NORTH BRIDE BROOK ROAD. DELINEATION FIELD LOCATED BY ROBERT C. SIMONI, LICENSED LAND SURVEYOR. THE UPDATED DELINEATION GENERALLY CONFIRMS THE ORIGINAL DELINEATION BY MICHAEL SCHAEFER, CERTIFIED SOIL SCIENTIST.

PROJECT PHASING

- THE DEVELOPMENT WILL BE GENERALLY BE CONSTRUCTED IN PHASES AS DEPICTED ON THE PLAN TO LIMIT THE AREA OF CONTINUOUS LAND DISTURBANCE ACTIVITIES AND ALLOW INDIVIDUAL BUILDINGS AND ASSOCIATED SITE IMPROVEMENTS TO BE COMPLETED AND OCCUPIED IN SEQUENCE. THE FOLLOWING SHALL BE COMPLETED AS PART OF PHASE 1:
 - CONSTRUCTION OF MAIN ACCESS DRIVEWAY INTERSECTION WITH NORTH BRIDE BROOK ROAD & CONSTRUCTION OF UTILITY MAINTENANCE & EMERGENCY ACCESS DRIVEWAY.
 - ALL DRAINAGE & UTILITY CONNECTIONS WITH PUBLIC R.O.W.
 - INSTALLATION OF UNDERGROUND TREATMENT & INFILTRATION SYSTEM, DETENTION AREA, OUTLET STRUCTURE AND OUTLET CONNECTION TO CATCH BASIN.
 - STORMWATER COLLECTION SYSTEM WITHIN AREA OF DEVELOPMENT AND DISCHARGE TO TREATMENT, INFILTRATION & DETENTION AREA.



PROJECT NUMBER:
00057 - 00001



CONTACT INFORMATION
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**NORTH BRIDE BROOK
MULTI-FAMILY DEVELOPMENT**
PREPARED FOR
PAZZ & CONSTRUCTION, LLC
OVERALL LAYOUT PLAN

N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT

REVISION SUMMARY	
DATE	DESCRIPTION
11/15/20	PER TOWN COMMENTS & UPDATED SURVEY MAPPING
7/10/20	REVISED DEVELOPMENT LAYOUT

SHEET
1 OF 8
DATE
9/25/19
REVISED
7/10/20

GENERAL SITE NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION FORM 817 AS APPLICABLE.
- ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT, FACE OF CURBS, OUTSIDE FACE OF THE BUILDING OR OTHER LIMITS AS DEPICTED ON THE PLAN.
- THE PROPOSED PARKING FACILITIES ARE GENERALLY PERPENDICULAR TO OR PARALLEL WITH THE PROPOSED BUILDING(S), DRIVEWAYS, OR AS DEPICTED ON THE PLAN.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND SHALL REPORT ANY DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS TO THE OWNER.
- CONTRACTOR SHALL PROVIDE SMOOTH TRANSITIONS FROM PROPOSED FEATURES TO EXISTING FEATURES AS NECESSARY.
- ALL DISTURBED AREAS SHALL BE SEEDED OR SODDED AFTER FINISH GRADING IS COMPLETED UNLESS OTHERWISE NOTED. ALL NEW SEEDING OR SODDED AREAS SHALL HAVE A TOPSOIL LAYER OF 4" MINIMUM OR AS DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT. TOP OF TOPSOIL LAYER SHALL BE PLACED 1' BELOW TOPS OF CURBS, WALKS, OR PAVEMENT ELEVATIONS WHERE TOPSOIL ABUTS THOSE AREAS.
- CONTRACTOR SHALL SUPPLY AND PLACE STRAW MULCH WHEREVER GRASS SEED HAS BEEN PLACED. SEED SHALL BE APPLIED AT THE MINIMUM RATE RECOMMENDED BY THE MANUFACTURER OR THE PROJECT LANDSCAPE ARCHITECT.
- CONTRACTOR SHALL SEAL THE EDGE OF EXISTING ASPHALT PAVEMENT WITH TACK COAT IN ACCORDANCE WITH FORM 817 OR THE TOWN OF EAST LYME STANDARDS WHERE NEW ASPHALT JOINS EXISTING ASPHALT.
- CONTRACTOR SHALL REPAIR, RESURFACE, RECONSTRUCT OR REFURBISH ANY AREAS DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR, HIS SUBCONTRACTORS OR SUPPLIERS AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL COMPLETELY FILL ALL TRENCHES WITHIN 5 FEET OF PAVEMENT EDGES WITH GRANULAR BACKFILL. REFER TO GEOTECHNICAL REPORT FOR TYPE OF FILL TO ACHIEVE DESIRED COMPACTION.
- ALL PAINT STRIPING SHALL BE 4" TRAFFIC PAINT IN ACCORDANCE WITH FORM 817 AND SHALL BE WHITE OR YELLOW AS DEPICTED ON THE PLANS.
- CONTRACTOR TO CONFIRM WITH LOCAL CODES AND BUILDING INSPECTOR FOR SPECIFIC HANDICAPPED ACCESSIBLE PARKING SPACE DIMENSIONS, STRIPING AND SIGNAGE REQUIREMENTS.

UTILITY STATEMENT

UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED IN PART FROM RECORDS SUPPLIED BY THE RESPECTED UTILITY COMPANIES AND GOVERNMENT AGENCIES, PAROLE TESTIMONY, FIELD SURVEY AND OTHER SOURCES. THE SURVEYOR AND THIS PLAN SET MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN-SERVICE OR ABANDONED. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY "CALL BEFORE YOU DIG" AT 1-800-922-4455, IN ACCORDANCE WITH CBYD NOTIFICATION PROCEDURES PRIOR TO COMMENCING WORK.

LANDSCAPE PLANTING NOTES

- PROPOSED LANDSCAPING WILL GENERALLY CONFORM TO THE PLAN AND CONSIST OF THE FOLLOWING. THE DESIGN IS AN APPROXIMATE REPRESENTATION BASED ON SPECIES AND CULTIVARS AVAILABLE AT TIME OF INSTALLATION. ADDITIONAL PLANTINGS, PERENNIAL GRASSES, AND SHRUBS WILL BE LOCATED TO SCREEN UTILITY STRUCTURES AND FOUNDATIONS AS NECESSARY.
 - A. MIXTURE OF SHADE AND FLOWERING TREES ALONG THE MAIN & SECONDARY ACCESS DRIVEWAYS
 - B. CEDAR PLANTING BEDS ADJACENT TO PARKING AREAS
 - C. CEDAR PLANTING BEDS AROUND FOUNDATION PERIMETER
 - D. SCREENING TREES AROUND PERIMETER OF DEVELOPMENT AS SHOWN
- PLANT GROUPINGS WILL BE ADDED TO REDUCE VEHICLE LIGHTS THAT SHINE IN THE DIRECTION OF RESIDENTIAL UNITS.
- ALL PLANT MATERIALS TO BE APPROVED BY THE OWNER BEFORE THEY ARE INSTALLED. ANY SUBSTITUTIONS MUST BE APPROVED PRIOR TO PLANTING. ALL PLANT MATERIAL SHALL CARRY A WARRANTY FOR A PERIOD OF NOT LESS THAN 1-YEAR AFTER ACCEPTANCE OF THE PROJECT BY THE OWNER. WARRANTY SHALL BE A ONE-TIME REPLACEMENT INCLUDING MATERIAL AND LABOR.
- ALL PLANTING AND LAWN AREAS TO HAVE 4" MINIMUM TOPSOIL. SUPPLY AND SPREAD TOPSOIL, AS NEEDED, TO MAKE A 4" DEPTH. TOPSOIL SHALL CONFORM TO STATE OF CONNECTICUT D.O.T. FORM 817, SECTION M13.01.
- ALL TREES, SHRUBS AND GROUND COVER PLANTS SHALL BE FERTILIZED WITH LOW-NITROGEN ORGANIC FERTILIZER. ODD FEET MOSES TO PLANTING 3/30 THAT 1/4 OF PLANTING SOIL BE PEAT MOSS.
- ALL PLANTINGS TO BE MULCHED WITH 3" DEPTH OF CEDAR MULCH. SUBMIT SAMPLES FOR APPROVAL BY OWNER PRIOR TO INSTALLATION.
- PROTECT EXISTING TREES DURING CONSTRUCTION BY ERECTING A BARRIER AT THE TREE'S DRIPLINE. DO NOT FILL OR EXCAVATE BENEATH THE DRIPLINE OF EXISTING TREES, UNLESS SHOWN ON THE GRADING PLAN.
- SEED ALL DISTURBED AREAS OF SITE. WATER DAILY DURING FIRST SEASON OF ESTABLISHMENT FROM APRIL 1 TO NOVEMBER 1.
- ALL PLANTINGS IN THE VICINITY OF DRIVEWAYS AND PARKING AREAS ARE SALT-TOLERANT.

CEDAR MULCH BED PLANTING NOTES

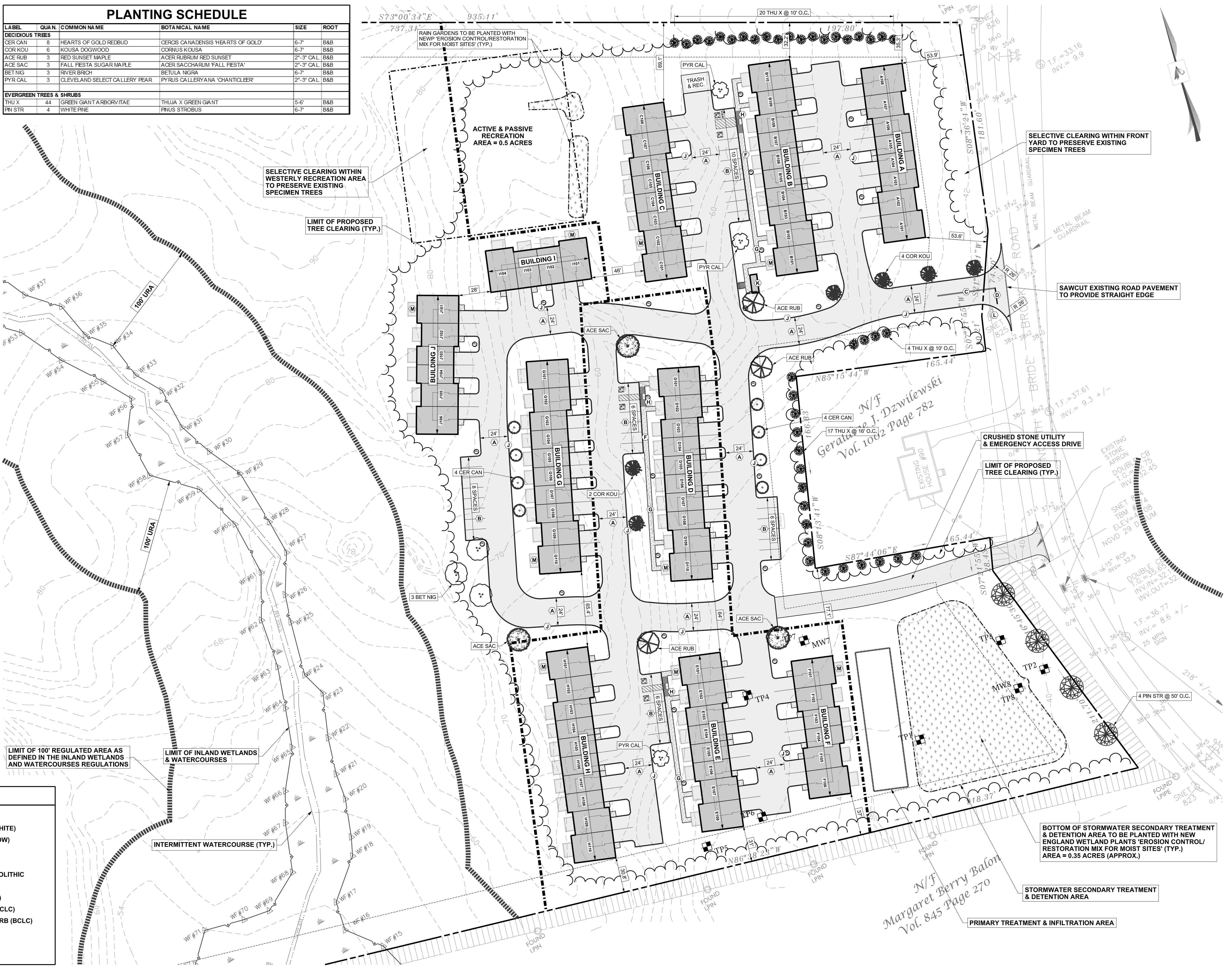
- FOR CLARITY, BUILDING AND FOUNDATION CEDAR MULCH BEDS & PLANTINGS ARE NOT DEPICTED. THESE AREAS SHALL BE LANDSCAPED WITH ANNUAL & PERENNIAL FLOWERS, BULBS/TUBERS, AND GRASSES SUCH AS THE FOLLOWING:
 - ANNUALS: MARIGOLDS, GERANIUMS, IMPATIENS, ZINNIAS, PETUNIAS, SUNFLOWERS, BEGONIAS, CLEOME, COSMOS & GAZANIA.
 - PERENNIALS: ASTER, DAYLILY, HOSTAS, ROSES, PURPLE BEAUTYBERRY, SEDUM, BUTTERFLY BUSH, WILD GERANIUM, PHLOX, YELLOW & RED BARBERRY, ASTILBES, GOATS BLEND, ANDROMEDA, SOLOMON SEAL, SAGE IRIS, BEE-BALM, ORIENTAL POPPY & TICKSEED.
 - BULBS/TUBERS: DAFFODILS & TULIPS
 - GRASSES: DWARF FOUNTAIN GRASS, MISCANTHUS VAR.

LIGHTING NOTES

- THIS PLAN DEPICTS THE GENERAL LOCATION AND TYPE OF POLE-MOUNTED AREA LIGHTS FOR THE DEVELOPMENT. A LIGHTING PLAN PREPARED BY A LIGHT DESIGN PROFESSIONAL WITH PHOTOMETRIC INFORMATION SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND APPROVAL PRIOR TO FILING.
- ALL SITE LIGHTING SHALL BE FULL SHIELDED TYPE TO PREVENT UPWARD DISTRIBUTION OF LIGHT AND GLARE ON ADJACENT PROPERTIES.
- POLE MOUNTED FIXTURES TO BE VISIONAIRE SRL-1 SANTA ROSA HID WITH VISIONAIRE DECORATIVE BASE DCB AND 14" VISIONAIRE POLE OR APPROVED EQUAL.

PLANTING SCHEDULE					
LABEL	QUAN.	COMMON NAME	BOTANICAL NAME	SIZE	ROOT
DECIDUOUS TREES					
CER CAN	8	HEARTS OF GOLD REDBUD	CERCIS CANADENSIS 'HEARTS OF GOLD'	6-7'	B&B
COR KOU	6	KOUSSA DOGWOOD	CORNUS KOUSSA	6-7'	B&B
ACE RUB	3	RED SUNSET MAPLE	ACER RUBRUM 'RED SUNSET'	2"-3" CAL	B&B
ACE SAC	3	FALL FESTA SUGAR MAPLE	ACER SACCHARUM 'FALL FESTA'	2"-3" CAL	B&B
BET NIG	3	RIVER BRICH	BETULA NIGRA	6-7'	B&B
PYR CAL	3	CLEVELAND SELECT CALLERY PEAR	PYRUS CALLERYANA 'CHANTICLEER'	2"-3" CAL	B&B
EVERGREEN TREES & SHRUBS					
THU X	44	GREEN GIANT ARBORVITAE	THUJA X GREEN GIANT	5-6'	B&B
FIN STR	4	WHITE PINE	FINUS STROBUS	6-7'	B&B

LEGEND	
	(A) BITUMINOUS CONCRETE DRIVE
	(B) PARKING PAINT STRIPING (4" WHITE)
	(C) DOUBLE CENTERLINE (4" YELLOW)
	(D) STOP BAR (12" WHITE)
	(E) CROSS-WALK (12" WHITE)
	(F) CONCRETE CURB & WALK MONOLITHIC
	(G) CONCRETE SIDEWALK
	(H) HANDICAP RAMP (12"x1'V MAX.)
	(I) EXTRUDED CONCRETE CURB (ECLC)
	(J) BITUMINOUS CONCRETE LIP CURB (BCLC)
	(K) MAIL PAD
	(L) STOP SIGN
	(M) DECK



SCALE: 1" = 40'

PROJECT NUMBER:
00057 - 00001



CONTACT INFORMATION
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NORTH BRIDE BROOK MULTI-FAMILY DEVELOPMENT
 PREPARED FOR
PAZZ & CONSTRUCTION, LLC
DETAILED LAYOUT PLAN

REVISION SUMMARY

DATE	DESCRIPTION
1/15/20	PER TOWN COMMENTS & UPDATED SURVEY MAPPING
7/10/20	REVISED DEVELOPMENT LAYOUT

SHEET **2 OF 8**
 DATE **9/25/19**
 REVISED **7/10/20**

N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT

UTILITY STATEMENT

UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN LOCATED, IN PART, FROM RECORD MAPS SUPPLIED BY THE RESPECTED UTILITY COMPANIES OR GOVERNMENT AGENCIES, PAROLE TESTIMONY, FIELD SURVEY AND OTHER SOURCES. THE SURVEYOR AND THIS PLAN SET MAKES NO GUARANTEE THAT THE UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY CALL BEFORE YOU DIG AT 1-800-922-4455. IN ACCORDANCE WITH CTSDV NOTIFICATION PROCEDURES PRIOR TO COMMENCING WORK.

GENERAL GRADING NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CTDOT STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION FORM 817 AS APPLICABLE. WORK WITHIN THE ROAD RIGHT-OF-WAYS SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF EAST LYME STANDARDS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION AND REPORT ANY DISCREPANCIES BETWEEN THE PLANS & FIELD CONDITIONS TO THE OWNER OR OWNER'S REPRESENTATIVE IMMEDIATELY.
- THE EXCAVATING CONTRACTOR SHALL TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
- THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START, OR AS REQUIRED BY GOVERNING UTILITY COMPANY. TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATION SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING IN AROUND OR OVER UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE IS PRESENT TO INSTRUCT AND OBSERVE.
- TRENCHES FOR ALL STORM DRAIN LINES SHALL BE BACKFILLED COMPLETELY WITH ENGINEERED GRANULAR MATERIAL IF WITHIN 5 FEET OF PAVEMENT.
- AFTER STRIPPING TOPSOIL MATERIAL, PROOFROLL WITH A MEDIUM WEIGHT ROLLER TO DETERMINE LOCATIONS OF UNSUITABLE MATERIAL. THE NECESSITY FOR DRAINS AND/OR REMOVAL OF ANY UNSUITABLE MATERIAL WITHIN THE PROPOSED BUILDING OR PARKING AREAS WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
- PROVIDE POSITIVE DRAINAGE WITHOUT PONDING. CONTRACTOR TO TEST FOR, AND CORRECT IF ANY, 'BIRD BATH' CONDITIONS.
- ALL PROPOSED SPOT ELEVATIONS ARE THE FINAL PAVEMENT AND FINAL GRADE.
- SEE APPROPRIATE DETAILS TO DETERMINE SUBGRADE ELEVATIONS BELOW FINISH GRADE INDICATED ON THE PLANS.
- EXTRACTION, GRADING, FILLING AND/OR PROCESSING SHALL NOT INVOLVE THE REMOVAL OR DEPOSITION OF MATERIAL(S) THAN NECESSARY TO ACHIEVE THE PROPOSED DEVELOPMENT WHILE MAINTAINING STABILITY WITH NO ADVERSE IMPACT ON ADJUTING PROPERTIES, THE PUBLIC RIGHT OF WAY, PUBLIC SAFETY, OR NATURAL RESOURCES.

DRAINAGE NOTES

- STORMWATER RUNOFF FROM THE PROPOSED DEVELOPMENT WILL BE COLLECTED THROUGH A SERIES OF ROOF LEADERS, SWALES, YARD DRAINS, CATCH BASINS, DRAINAGE PIPING AND DISCHARGING TO THE PROPOSED STORMWATER TREATMENT & DETENTION SYSTEM PRIOR TO DISCHARGING TO THE TOWN ROW.
- THE INFILTRATION & DETENTION SYSTEM CONSISTS OF A SUBSURFACE SYSTEM BACKFILLED WITH WASHED STONE AND A GRADED DEPRESSION SIZED TO ATTENUATE PEAK FLOW RATES AS COMPARED TO PRE-DEVELOPMENT (EXISTING) CONDITIONS FOR THE 2, 5, 10, 25, 50 AND 100-YEAR STORM EVENTS. THERE WILL BE NO INCREASE IN PEAK FLOW RATES DISCHARGING TO THE NORTH BRIDE BROOK ROAD ROW, INLAND WETLANDS ON SITE, OR ADJACENT PROPERTIES.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES WILL BE TREATED AS FOLLOWS. FINAL TREATMENT DESIGN IN ACCORDANCE WITH THE 2004 DEEP WATER QUALITY MANUAL SHALL BE SUBMITTED TO THE TOWN FOR APPROVAL.
 - ALL CATCH BASINS SHALL HAVE 2' DEEP SLOPS.
 - FLOWS FROM THE COLLECTION SYSTEM WILL BE DIVERTED THROUGH AN ISOLATOR ROW WITHIN THE STORMTECH SYSTEM. THE ISOLATOR ROW WILL CAPTURE TOTAL SUSPENDED SOLIDS (TSS) AND DEBRIS WITHIN AN ACCESSIBLE ROW OF LINED MC-3500 CHAMBERS TO ALLOW FOR INSPECTION AND MAINTENANCE BEFORE FLOWING INTO ADJACENT UNITS. THE SYSTEM WILL FULLY RETAIN AND INFILTRATE THE WATER QUALITY VOLUME AND TREAT WATER QUALITY FLOW.
 - STORMWATER WATER THAT IS NOT INFILTRATED WILL DISCHARGE TO THE DETENTION BASIN WHICH HAS BEEN GRADED WITH A FLAT BOTTOM AND THE INITIAL 4" DISCHARGE ORIFICE IS 6" ABOVE THE BOTTOM GRADE TO PROMOTE INFILTRATION INTO THE WITNESSED SAND & GRAVEL SUBSOILS.
- THE DESIGN ENGINEER SHALL OVERSEE THE INSTALLATION OF THE PROPOSED SUBSURFACE STORMWATER TREATMENT & INFILTRATION SYSTEM AND CERTIFY THAT IT WAS CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH THE PLAN. CONTRACTOR SHALL PROVIDE MATERIAL SUBMITTALS TO THE DESIGN ENGINEER PRIOR TO INSTALLATION AND SHALL SEQUENCE CONSTRUCTION TO ENSURE THE FOLLOWING COMPONENTS ARE INSPECTED BY THE DESIGN ENGINEER PRIOR TO BACKFILL OR CONCEALMENT:
 - EXCAVATION LIMITS AND SURROUNDING UNDISTURBED SOILS
 - PLACEMENT OF GEOTEXTILE WRAP AND BASE STONE
 - PLACEMENT OF MC-3500 UNITS AND MANIFOLDS
 - INSTALLATION OF OUTLET STRUCTURES AND PIPE CONNECTIONS
 - PLACEMENT OF GEOTEXTILE WRAP FOR ISOLATOR ROW
 - PLACEMENT OF STONE BACKFILL
 - CLOSURE OF GEOTEXTILE WRAP AND PLACEMENT OF BACKFILL
- THE DESIGN ENGINEER SHALL OVERSEE THE INSTALLATION OF THE PROPOSED STORMWATER DETENTION & TREATMENT SYSTEM AND CONFIRM THAT IT WAS CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH THE PLAN. CONTRACTOR SHALL PROVIDE MATERIAL SUBMITTALS TO THE DESIGN ENGINEER PRIOR TO INSTALLATION AND SHALL SEQUENCE CONSTRUCTION TO ENSURE THE FOLLOWING COMPONENTS ARE INSPECTED PRIOR TO CONCEALMENT:
 - EXCAVATION LIMITS AND SURROUNDING UNDISTURBED SOILS
 - INSTALLATION OUTLET STRUCTURE AND PIPE CONNECTIONS

STORMWATER O & M NOTES

THE FOLLOWING OPERATION & MAINTENANCE PLAN SHALL BE IMPLEMENTED TO ENSURE THAT STORMWATER MANAGEMENT SYSTEMS FUNCTION AS DESIGNED.

- PARTY RESPONSIBLE FOR OPERATION AND MAINTENANCE: PAZZ & CONSTRUCTION LLC
- THE FOLLOWING MAINTENANCE SHALL BE PERFORMED.
 - INSPECT EACH CATCH BASIN ANNUALLY IN THE SPRING FOLLOWING THE WINTER SEASON. REMOVE ALL COLLECTED SEDIMENT AND DEBRIS AND DISPOSE OF IN AN APPROVED MANNER.
 - INSPECT EACH VEGETATED/LANDSCAPED AREA TWICE ANNUALLY, ONCE IN THE FALL AS PART OF FOLIAGE CLEANUP AND A SECOND TIME DURING SPRING CLEANUP. ALL DEBRIS THAT OBSTRUCTS OR DIVERTS FLOW SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.
 - INSPECT THE STORMTECH MC-3500 SUBSURFACE STORMWATER DETENTION & TREATMENT SYSTEM AS REQUIRED PER THE MANUFACTURER'S RECOMMENDATIONS. SEE BELOW.
 - INSPECT THE DETENTION POND TWICE ANNUALLY IN THE SPRING AND FALL TO ENSURE THE INLET AND OUTLETS ARE FUNCTIONING PROPERLY. VEGETATION SHOULD BE MOWED AT LEAST ONCE EVERY TWO YEARS DURING A DRY PERIOD TO MINIMIZE OVERGROWTH.
 - ACCESS DRIVES, PARKING AREAS AND SIDEWALKS SHALL BE SWEEPED ANNUALLY EACH SPRING TO REMOVE SAND, SALT AND OTHER DEBRIS FROM THE WINTER MAINTENANCE SEASON.

ISOLATOR ROW INSPECTION & MAINTENANCE

THE STORMTECH MC3500 ISOLATOR ROW SHALL BE INSPECTED AS FOLLOWS EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. INSPECTION INTERVALS SHALL BE ADJUSTED BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT AND DEBRIS ACCUMULATIONS AND HIGH WATER ELEVATIONS. JETTING AND VACUUMING SHALL BE CONDUCTED IN ACCORDANCE WITH THE FOLLOWING STEPS ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- INSPECTION PORTS (CATCH BASIN GRATES OR MANHOLE COVERS)
 - REMOVE/OPEN GRATE/LID ON DRAINAGE STRUCTURE
 - REMOVE AND CLEAN FLEXIBLE FILTER (IF INSTALLED) (NOT APPLICABLE)
 - USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 - ALL ISOLATOR ROWS
 - REMOVE GRATE/LID FROM STRUCTURE AT UPSTREAM EACH END OF ISOLATOR ROW
 - USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
 - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
 - APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

TEST PIT DATA

TEST PIT	1	TEST PIT	2	TEST PIT	3	TEST PIT	4
DATE	7/25/19	DATE	7/25/19	DATE	7/25/19	DATE	7/25/19
PERF BY	BJH	PERF BY	BJH	PERF BY	BJH	PERF BY	BJH
DEPTH	CHARACTERISTICS	DEPTH	CHARACTERISTICS	DEPTH	CHARACTERISTICS	DEPTH	CHARACTERISTICS
0 - 10	Topsoil	0 - 12	Topsoil	0 - 12	Topsoil	0 - 14	Topsoil
10 - 36	Brown FSL	12 - 27	Brown FSL Trace Silt	12 - 36	Red/Brown FSL Trace Silt	14 - 32	Brown Fine Silty Loam
36 - 56	Coarse Sand & Gravel	27 - 56	Coarse S&G Loose to Mod	36 - 62	Coarse Sand & Gravel	32 - 84	Medium Sand
56 - 68	Med-Coarse Sand	56 - 62	Coarse Sand & Gravel Compact	62 - 72	Med-Coarse Sand	84 - 88	Damp Medium Sand
68 - 84	Coarse Sand & Gravel	62 - 70	Gray/Tan Medium Sand	72 - 80	Sand & Gravel Compact		
		70 - 80	Sand & Gravel Compact				
ROOTS	32"	ROOTS	27"	ROOTS	36"	ROOTS	32"
WATER	None	WATER	None	WATER	None	WATER	None
LEDGE	None	LEDGE	None	LEDGE	Ledge or Boulder @ 80"	LEDGE	None
MOTT / REST	Possible @ 58" (monitoring req'd)	MOTT / REST	Possible @ 62" (monitoring req'd)	MOTT / REST	None	MOTT / REST	Possible @ 84" (monitoring req'd)
TEST PIT	5	TEST PIT	6	TEST PIT	7 (MHW)	TEST PIT	8 (MWS)
DATE	7/25/19	DATE	7/25/19	DATE	1/14/20	DATE	1/14/20
PERF BY	BJH	PERF BY	BJH	PERF BY	BJH	PERF BY	BJH
DEPTH	CHARACTERISTICS	DEPTH	CHARACTERISTICS	DEPTH	CHARACTERISTICS	DEPTH	CHARACTERISTICS
-	Performed to delineate change in soil characteristics. Not suitable for Subsurface Drainage	-	Performed to delineate change in soil characteristics. Similar to TP 4 (sandy).	-	Performed to witness groundwater and install monitoring pipe. Pit similar to TP 4 (sandy).	-	Performed to witness groundwater and install monitoring pipe. Pit similar to TP 2 (sands & gravels).
ROOTS		ROOTS		ROOTS	Not recorded	ROOTS	Not recorded
WATER		WATER		WATER	114" (Pipe installed)	WATER	None (Pipe installed @ 108")
LEDGE		LEDGE		LEDGE	None	LEDGE	
MOTT / REST		MOTT / REST		MOTT / REST	Possible @ 102" (monitoring req'd)	MOTT / REST	None (monitoring req'd)



SCALE: 1" = 40'

PROJECT NUMBER:
00057 - 00001

CONTACT INFORMATION

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NORTH BRIDE BROOK MULTI-FAMILY DEVELOPMENT

PREPARED FOR
PAZZ & CONSTRUCTION, LLC

GRADING & DRAINAGE PLAN

N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT

DATE	DESCRIPTION	SHEET
7/10/20	REVISED DEVELOPMENT LAYOUT	3 OF 8
9/25/19	PER TOWN COMMENTS & UPDATED SURVEY MAPPING	DATE
		REVISION
		7/10/20

UTILITY STATEMENT

UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTED UTILITY COMPANIES OR GOVERNMENT AGENCIES, PAROLE TESTIMONY, FIELD SURVEY AND OTHER SOURCES. THE SURVEYOR AND THIS PLAN SET MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE SIZE, LOCATION AND ELEVATION OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY "CALL BEFORE YOU DIG" AT 1-800-822-4455, IN ACCORDANCE WITH CDD NOTIFICATION PROCEDURES PRIOR TO COMMENCING WORK.

GENERAL UTILITY NOTES

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE GENERAL SYSTEM OF UTILITIES TO SERVE THE PROPOSED RESIDENTIAL MULTIFAMILY DEVELOPMENT ONLY. DETAILED DESIGN PLANS AND DETAILS SHALL BE PREPARED FOR REVIEW AND APPROVAL BY THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION.
2. ALL UNDERGROUND UTILITIES MUST BE INSTALLED IN ACCORDANCE WITH THE STANDARDS, SPECIFICATIONS AND DETAILS OF THE APPROPRIATE PUBLIC UTILITY COMPANY.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND ORDER ALL NEW SERVICES. LOCATE AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED ON THE DRAWINGS. ANY PIPING WHICH CAN BE REMOVED DURING CONSTRUCTION WITHOUT UNDUE INTERRUPTION OF SERVICE MAY BE REMOVED AND REPLACED BY THE CONTRACTOR, AT HIS EXPENSE WITH THE PERMISSION OF THE OWNER.
3. BEFORE WORKING WITH OR AROUND EXISTING UTILITIES, THE APPROPRIATE UTILITY COMPANY SHALL BE CONTACTED BY THE CONTRACTOR.
4. WHEN CONNECTIONS ARE TO BE MADE TO EXISTING PIPING AND STRUCTURE OR WHERE CONSTRUCTION IS IN THE VICINITY OF EXISTING PIPING, THE LOCATION AND ELEVATION OF THE EXISTING PIPING SHALL BE FIELD VERIFIED. NOTIFICATION SHALL BE GIVEN TO THE OWNER IF THE FIELD VERIFICATION DIFFERS FROM THE INFORMATION ON THE DRAWINGS.
5. FOR CLARITY PIPES MAY NOT BE DRAWN TO SCALE OR EXACTLY LOCATED.

WATER

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE EAST LYME WATER AND SEWER COMMISSION.
2. AN 8" Ø CLDIP (CLASS 54) PRIVATE WATER MAIN SHALL BE INSTALLED FROM THE EXISTING WATER MAIN IN NORTH BRIDE BROOK ROAD TO PROVIDE DOMESTIC AND FIRE SUPPRESSION WATER SUPPLY TO SITE. EACH BUILDING NEW FIRE HYDRANTS AS SHOWN ON THE PLAN. INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR OF THE PRIVATE WATER MAIN IS THE SOLE RESPONSIBILITY OF THE DEVELOPER AND/OR PROPERTY OWNER.
3. COPPER (TYPE K) DOMESTIC WATER SERVICE PIPES SHALL BE INSTALLED FROM THE NEW PRIVATE MAIN TO A METER WITHIN EACH INDIVIDUAL UNIT. THE SERVICE AND METER SIZES SHALL BE CONFIRMED BY THE PROJECT ARCHITECT OR MEP FOLLOWING A HYDRANT FLOW TEST.

SANITARY

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE EAST LYME WATER AND SEWER COMMISSION.
2. AN 8" PVC (SDR-35) PRIVATE SEWER COLLECTION MAIN SHALL BE INSTALLED AS SHOWN ON THE PLANS AND SHALL CONNECT TO THE EXISTING SANITARY MANHOLE TO THE SOUTH OF NORTH BRIDE BROOK ROAD WITH AN INSIDE DROP INLET.
3. A MINIMUM CLEARANCE OF 10' HORIZONTAL AND 18" VERTICAL SHALL BE PROVIDED BETWEEN WATER AND SANITARY SEWER LINES. IF THE MINIMUM CLEARANCE IS NOT PROVIDED, THEN THE SEWER LINE SHALL BE CONSTRUCTED OF C-900 PVC OR DUCTILE IRON PIPE.
4. EACH INDIVIDUAL UNIT SHALL BE SERVED BY A SEPARATE 8" SANITARY LATERAL AS SHOWN ON THE PLAN WITH A CLEANOUT. LATERALS SHALL BE PVC (SDR-35) OR OTHER MATERIAL ON THE APPROVED MATERIALS LIST AND SHALL HAVE A MINIMUM SLOPE OF 2% AND MAXIMUM SLOPE OF 10%.

ELECTRIC & TELECOMMUNICATIONS

1. ELECTRIC SERVICE SHALL BE PROVIDED TO THE DEVELOPMENT IN ACCORDANCE WITH THE STANDARDS OF NORTHEAST UTILITIES SERVICE COMPANY (EVERSOURCE ENERGY). LAYOUT AND DETAILS NOT SHOWN AT THIS TIME.
2. FINAL CONNECTION LOCATION, SIZE & TYPE OF CONDUIT, TRANSFORMERS, METERS & OTHER ELEMENTS TO SERVE THE BUILDINGS SHALL BE COORDINATED BETWEEN EVERSOURCE ENERGY, OWNER, MEP AND ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. SITE AREA LIGHTING NOT SHOWN. POLE MOUNTED AREA LIGHTS, BUILDING MOUNTED LIGHTS AND SIGN SPOT LIGHTS SHALL BE SERVED BY A COMMON OWNERS PANEL WITH APPROPRIATE CONTROLS TO ENSURE PARKING AREAS, SIDEWALKS AND DRIVEWAYS ARE ADEQUATELY LIGHTED WILL BE PROVIDED PRIOR TO CONSTRUCTION. PANEL & CONDUIT SIZE AND LOCATION TO BE DETERMINED BY OWNER.



SCALE: 1" = 40'

PROJECT NUMBER:
00057 - 00001



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PROFESSIONAL SEAL

**NORTH BRIDE BROOK
 MULTI-FAMILY DEVELOPMENT**
 PREPARED FOR
PAZZ & CONSTRUCTION, LLC
UTILITY PLAN

N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT

REVISION SUMMARY		SHEET
DATE	DESCRIPTION	4 OF 8
1/15/20	PER TOWN COMMENTS & UPDATED SURVEY MAPPING	DATE
7/10/20	REVISED DEVELOPMENT LAYOUT	9/25/19
		REVISED
		7/10/20

GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE WORK TO BE PERFORMED.
2. THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF ALL LOCAL AGENCIES OF THE TOWN OF EAST LYME AND THE STATE OF CONNECTICUT.

SEQUENCE OF CONSTRUCTION:

1. COORDINATE AND COMPLETE A MEETING WITH TOWN AND OWNER, RESPONSIBLE PARTIES TO BE IDENTIFIED AND EMERGENCY PHONE NUMBERS PROVIDED.
2. INSTALL EROSION CONTROL MEASURES AT THE LOCATIONS SHOWN ON THE PLANS OR AS REQUIRED FOR FIELD CONDITIONS.

- PHASE 1:
3. CLEAR AND GRUB AREAS AS REQUIRED.
 4. EXCAVATE / PLACE FILL AND ROUGH GRADE SITE.
 5. INSTALL FOUNDATIONS & ERECT BUILDINGS.
 6. INSTALL UTILITIES AND STORM DRAINAGE.
 7. CONSTRUCT ACCESS DRIVES AND PARKING AREAS.
 8. INSTALL CONCRETE SIDEWALKS AND PADS.
 9. INSTALL BITUMINOUS CONCRETE BINDER COURSE.
 10. INSTALL CURBING AND BITUMINOUS CONCRETE FINISH COURSE.
 11. FINISH GRADE, SPREAD TOPSOIL, SEED, AND COMPLETE PLANTING.
 12. REMOVE EROSION AND SEDIMENTATION CONTROLS WHEN PERMANENT VEGETATIVE COVER IS ESTABLISHED, CONTACT TOWN PRIOR TO REMOVAL.
- PHASE 2 THROUGH 5:
13. SEE 3 THROUGH 12 ABOVE.

E & S CONTROL NARRATIVE:

THE PROPOSED PROJECT CONSISTS OF A MULTI-FAMILY RESIDENTIAL APARTMENT DEVELOPMENT, CONSISTING OF 108 TOWNHOUSE UNITS WITHIN 13 SEPARATE BUILDINGS. THE GENERAL SCOPE OF SITE WORK IS DESCRIBED ABOVE IN THE CONSTRUCTION SEQUENCE.

APPROXIMATELY 6.75 ACRES OF THE 20.24-ACRE SITE (33%) WILL BE DISTURBED AS PART OF THE DEVELOPMENT. TO MINIMIZE THE AREA AND LIMIT THE TIME SOILS ARE EXPOSED TO RAIN AND WIND AND SUBJECT TO EROSION & SEDIMENTATION, THE PROJECT WILL BE COMPLETED IN MULTIPLE PHASES AS DESCRIBED BELOW:

- PHASE 1: MAIN ACCESS ROAD, BUILDINGS A, B & C, MAIL PAD, INFILTRATION & DETENTION
- PHASE 2: SECONDARY ACCESS ROAD, BUILDINGS D, E, F & H
- PHASE 3: SECONDARY ACCESS ROAD, BUILDING G, I, J

THE EROSION & SEDIMENTATION CONTROL NOTES, INSPECTION REQUIREMENTS, PLANS & DETAILS DEPICTED ON THIS SHEET SHALL BE FOLLOWED. IN ADDITION THE FOLLOWING SITE SPECIFIC E&S CONTROL CONCERNS & ISSUES SHALL BE NOTED:

1. PER USDA NRCS SOIL MAPPING, THE SITE MAINLY CONSISTS OF CHARLTON-CHAFFIELD ROCKY SOILS WHICH HAVE A MODERATE SUSCEPTIBILITY TO SHEET AND RILL EROSION AND A MODERATE TO HIGH SUSCEPTIBILITY TO WIND-BLOWN EROSION. LONG-TERM EXPOSURE OF THESE SOILS SHALL BE AVOIDED. DUST CONTROL MEASURES SHALL BE EMPLOYED AS REQUIRED, SUCH AS COVERING STOCKPILES OR APPLYING WATER.
2. THE TOPOGRAPHY CONSISTS OF MODERATE TO STEEP TERRAIN, WITH SLOPES RANGING FROM 5% TO 20% WITHIN THE DEVELOPMENT AREA. THE CONTRACTOR SHALL TAKE CARE TO PRESERVE NATURAL VEGETATION ALONG THE TOP OF CUT SLOPES AND BOTTOM OF FILL SLOPES. MINIMIZE SOIL DISTURBANCE, AND MAINTAIN E&S CONTROLS FOR THE DURATION OF CONSTRUCTION UNTIL DISTURBED AREAS ARE STABILIZED.

E & S CONTROL PLAN:

1. OWNER & PARTY RESPONSIBLE FOR E&S CONTROL PLAN: PAZZ & CONSTRUCTION LLC. EMERGENCY CONTACT: TO BE PROVIDED PRIOR TO ISSUANCE OF BUILDING PERMIT.
2. ALL EROSION AND CONTROL MEASURES SHALL BE INSTALLED AT THE PROJECT SITE PRIOR TO CONSTRUCTION WHEREVER POSSIBLE. E&S MEASURES SHALL BE MOVED AND/OR ADDED TO ACCORD WITH THE PROGRESSION OF PHASES.
3. AN ANTI-TRACKING APRON SHALL BE INSTALLED AT ALL ENTRANCES TO THE SITE IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENTS TO THE CONSTRUCTION SITE BY TRUCK AND CONSTRUCTION EQUIPMENT TRAFFIC. THE SURROUNDING ROAD SURFACES SHALL BE SWEEP AS REQUIRED.
4. ALL CATCH BASINS WITHIN THE PROJECT AREA, INCLUDING WITHIN NORTH BRIDE BROOK ROAD, WILL BE PROTECTED WITH INLET CONTROL FILTER SACKS AS SHOWN ON THE PLAN THROUGHOUT THE CONSTRUCTION PERIOD. IF REQUIRED, NEW CATCH BASINS ON SITE SHALL BE PROTECTED WITH STRAW WADDLES OR BALES.
5. AN EROSION CONTROL SYSTEM SHALL BE INSTALLED AROUND STOCKPILES OF SOIL.
6. DUST CONTROL MEASURES SHALL BE APPLIED DURING CONSTRUCTION AS REQUIRED.
7. TEMPORARY SILTATION TRAPS (TST) AND DIVERSION SWALES SHALL BE INSTALLED AS NECESSARY DURING SITE CONSTRUCTION. ALL DEWATERING DISCHARGE AND CONSTRUCTION RUNOFF SHALL BE DIRECTED TO THE TST'S. CONSTRUCTION WASTE-WATERS SHALL NOT BE DIRECTLY DISCHARGED TO STORM DRAINAGE, THE ROAD, OR WETLANDS AND WATERCOURSES. AT ALL TIMES DURING CONSTRUCTION, THE TST'S AND SWALES SHALL BE MAINTAINED TO CONTROL RUNOFF AND PREVENT SEDIMENT DISCHARGE TO ADJACENT WETLANDS.

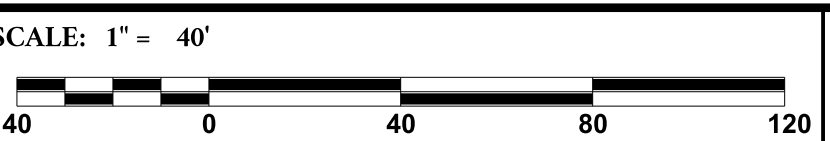
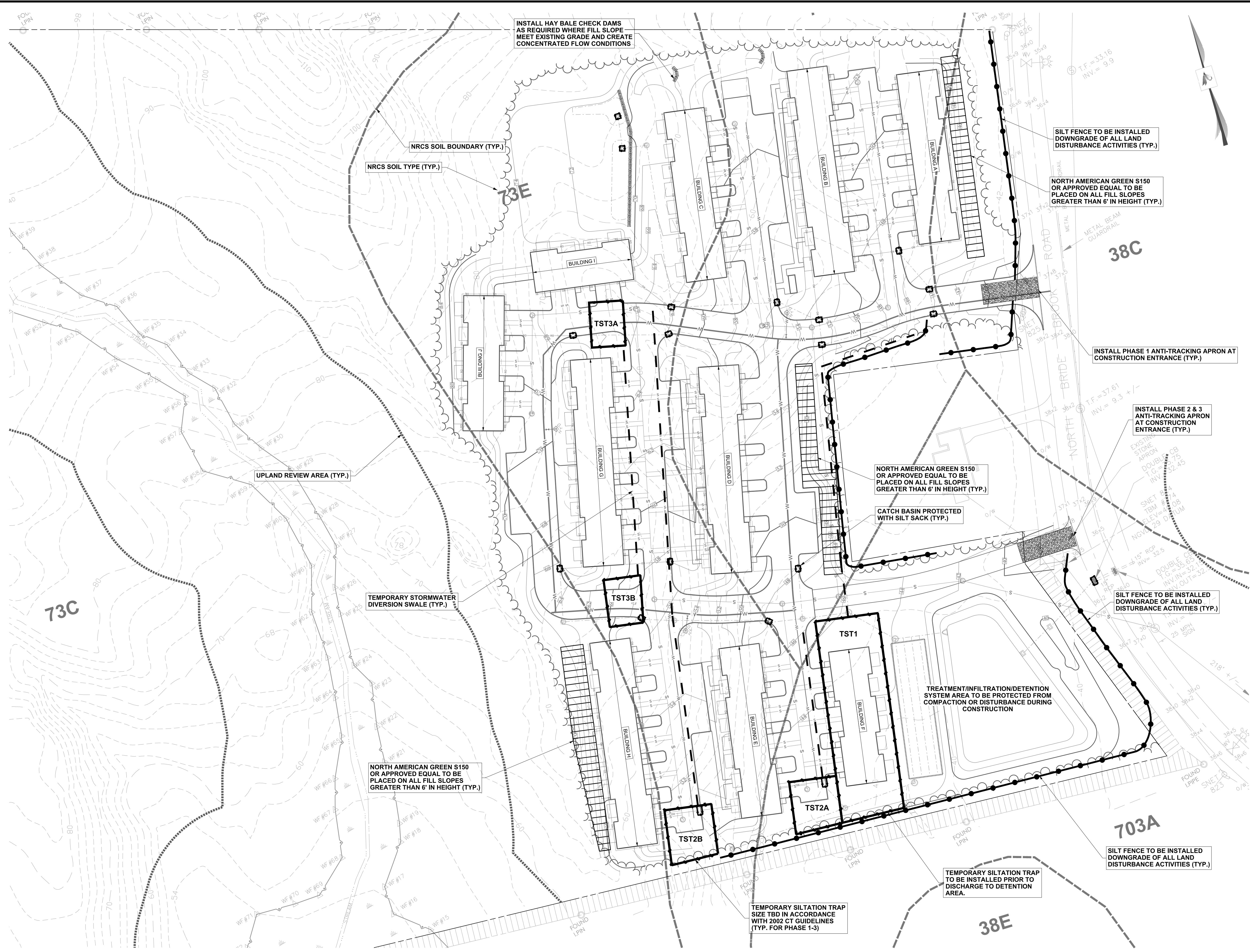
E & S CONTROL NOTES:

1. CONSTRUCTION WILL COMMENCE IN THE FALL 2020 AND BE COMPLETED IN 2025, WEATHER PERMITTING.
2. E&S CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE TOWN.
3. ALL E&S CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", DATED 2002, AS AMENDED AND THE TOWN OF EAST LYME REGULATIONS.
4. EROSION CONTROL DEVICES SHALL BE MAINTAINED, REPLACED AND/OR ADDED BY THE CONTRACTOR DURING THE CONSTRUCTION PERIOD AS NECESSARY OR AS REQUIRED BY THE ENGINEER OR THE TOWN.
5. SEDIMENT REMOVED FROM ANY CONTROL STRUCTURES SHALL BE DISPOSED OF IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THE PLAN.
6. THE CONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING ALL E&S CONTROL DEVICES AS SHOWN ON THESE PLANS OR AS DIRECTED BY THE ENGINEER OR TOWN.
7. ALL DISTURBED AREAS ARE TO BE RAKED, SEEDED AND FERTILIZED PER "TURF ESTABLISHMENT" SPEC. IN CTDOT FORM 817.
8. AREAS OUTSIDE OF IMPERVIOUS AREAS TO RECEIVE A MINIMUM 4" OF TOPSOIL.
9. THE FOLLOWING DATES FOR SEEDING SHALL BE USED:
SPRING: APRIL 15 TO JUNE 15, FALL: AUGUST 15 TO SEPTEMBER 15
10. GRASS SEED MIXTURES SHALL BE APPLIED AT A RATE NO LESS THAN 100LBS PER ACRE OR AS RECOMMENDED BY MANUFACTURER.
11. TEMPORARY GRASS SEEDING, IF NECESSARY, SHALL BE PERENNIAL RYE GRASS APPLIED AT A RATE OF 100 LBS. PER ACRE.

INSPECTION AND MAINTENANCE:

REGULAR INSPECTION AND MAINTENANCE IS CRITICAL FOR THE EFFECTIVENESS OF E&S CONTROLS. THE RESPONSIBLE PARTY SHALL IMPLEMENT THE FOLLOWING THROUGHOUT THE CONSTRUCTION PERIOD UNTIL THE SITE IS STABILIZED.

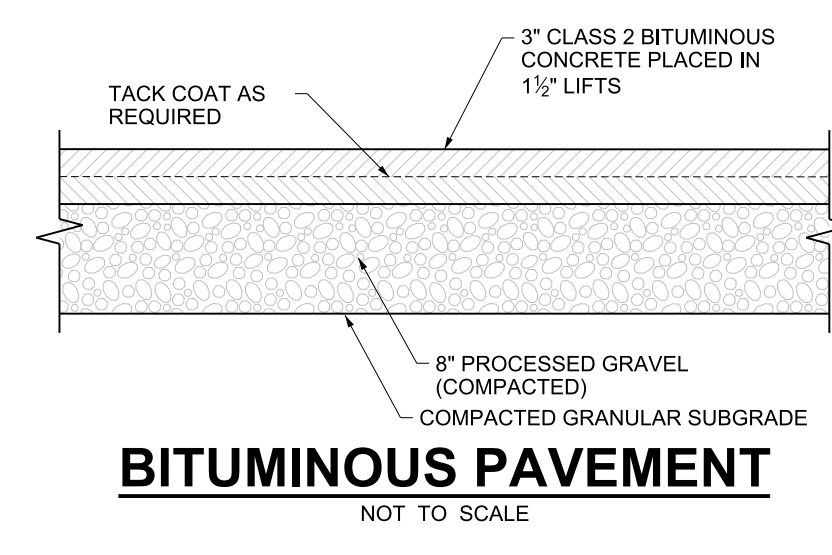
1. PRIOR TO A MAJOR STORM IN WHICH THE NOAA ISSUES WARNINGS OF FLOODING, SEVERE WEATHER CONDITIONS OR EFFECTS, ALL E&S CONTROLS SHALL BE INSPECTED, MAINTAINED, REPAIRED AND/OR CLEANED TO ENSURE THEY ARE IN PROPER WORKING ORDER.
2. ALL E&S CONTROLS SHALL BE INSPECTED, REPAIRED, AND CLEANED WITHIN 24 HOURS AFTER RAINFALL EVENTS GREATER THAN 0.1 INCHES.
3. ALL STORMWATER STRUCTURES SHALL BE INSPECTED WITHIN 24 HOURS AFTER RAINFALL EVENTS GREATER THAN 0.1 INCHES AND CLEANED AS FOLLOWS:
A. CATCH BASINS - REMOVE COLLECTED SEDIMENT @ 1/2 DEPTH OF SUMP
B. SWALES - REMOVE COLLECTED SEDIMENT @ 1/2 DEPTH
C. DEWATERING BASINS - REMOVE COLLECTED SEDIMENT @ 1/2 CAPACITY
4. ROUTINE INSPECTION AND MAINTENANCE SCHEDULE:
A. INSPECT ROAD DAILY AND SWEEP/REMOVE TRACKED MATERIALS AS REQUIRED
B. TEMPORARY CONTROLS SHALL BE INSPECTED WEEKLY AND CLEANED:
I. ANTI-TRACKING APRON - REPLACE STONE OR REPLACE STONE AS REQUIRED
II. SILT FENCE - REMOVE COLLECTED SEDIMENT @ 1/2 THE HEIGHT (MAX.)
III. SILT SACKS - CLEAN PER MANUFACTURER'S RECOMMENDATIONS
IV. STRAW BALES - REMOVE COLLECTED SEDIMENT @ 1/2 THE HEIGHT (MAX.)
5. ALL STORMWATER STRUCTURES SHALL BE CLEANED AFTER REMOVAL OF E&S CONTROLS.



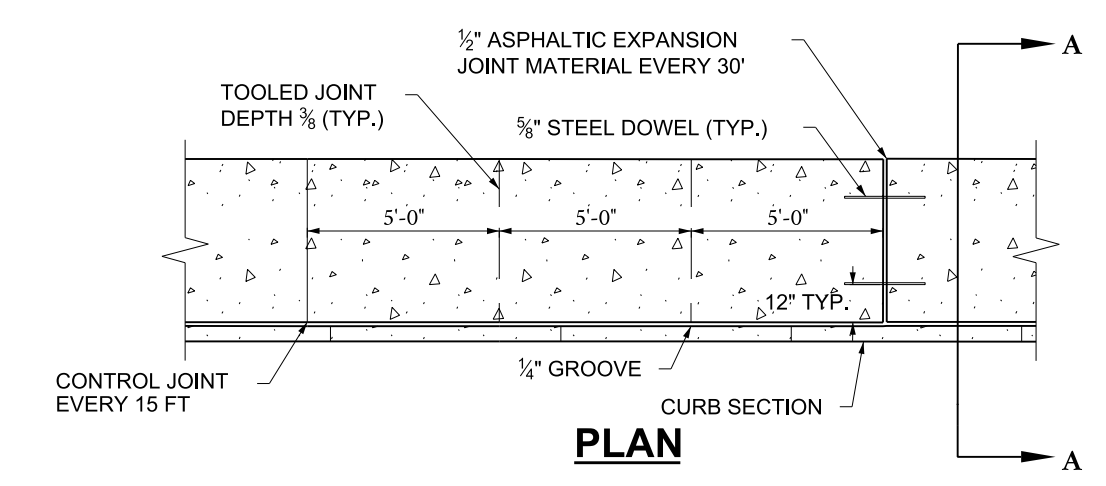
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PROJECT NUMBER:
00057 - 00001

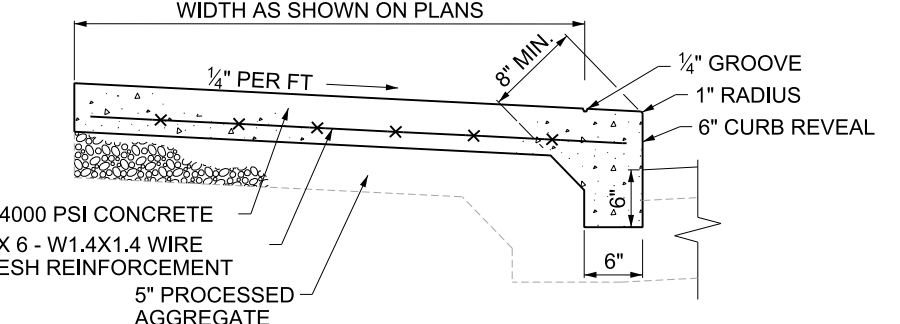
NORTH BRIDE BROOK MULTI-FAMILY DEVELOPMENT		REVISION SUMMARY DATE DESCRIPTION 1/15/20 PER TOWN COMMENTS & UPDATED SURVEY MAPPING 7/10/20 REVISED DEVELOPMENT LAYOUT	SHEET 5 OF 8 DATE 9/25/19 REVISED 7/10/20
PREPARED FOR PAZZ & CONSTRUCTION, LLC EROSION & SEDIMENTATION CONTROL PLAN			
N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT			



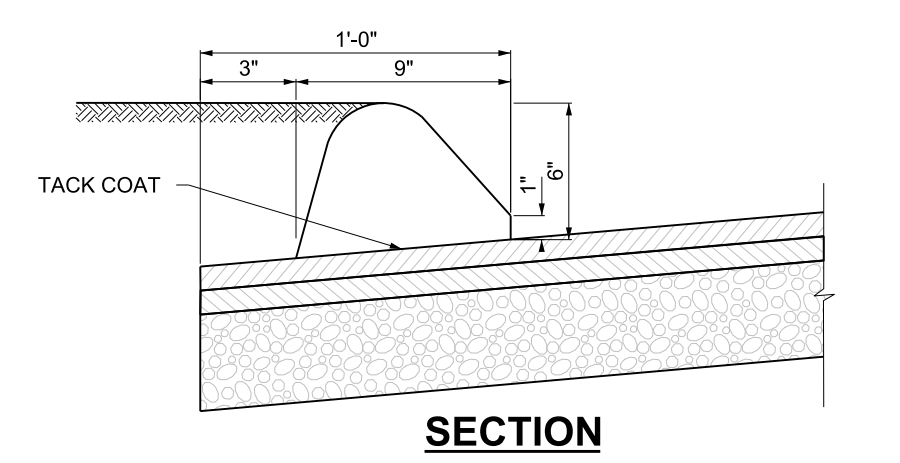
BITUMINOUS PAVEMENT
NOT TO SCALE



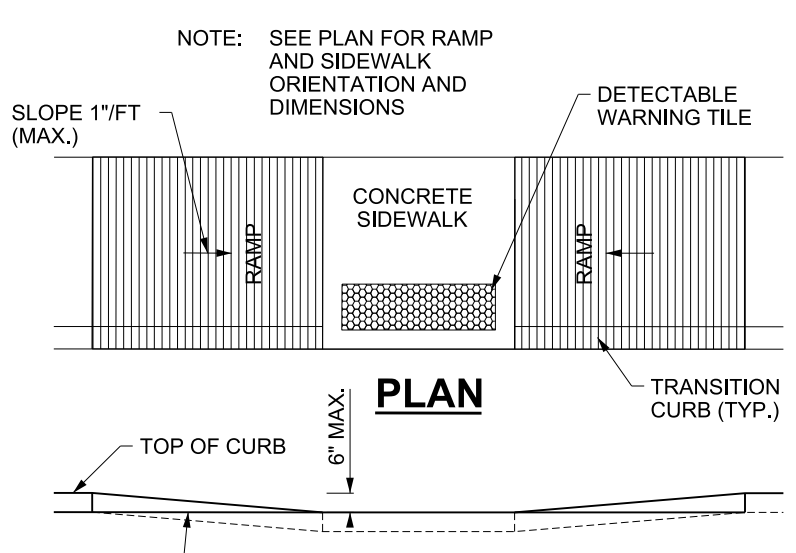
CONCRETE SIDEWALK
NOT TO SCALE



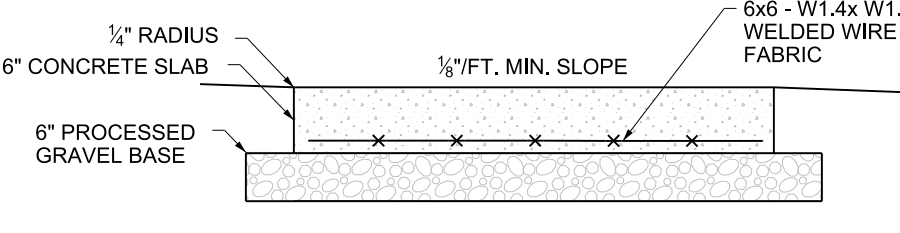
CONCRETE SIDEWALK AND CURB MONOLITHIC
NOT TO SCALE



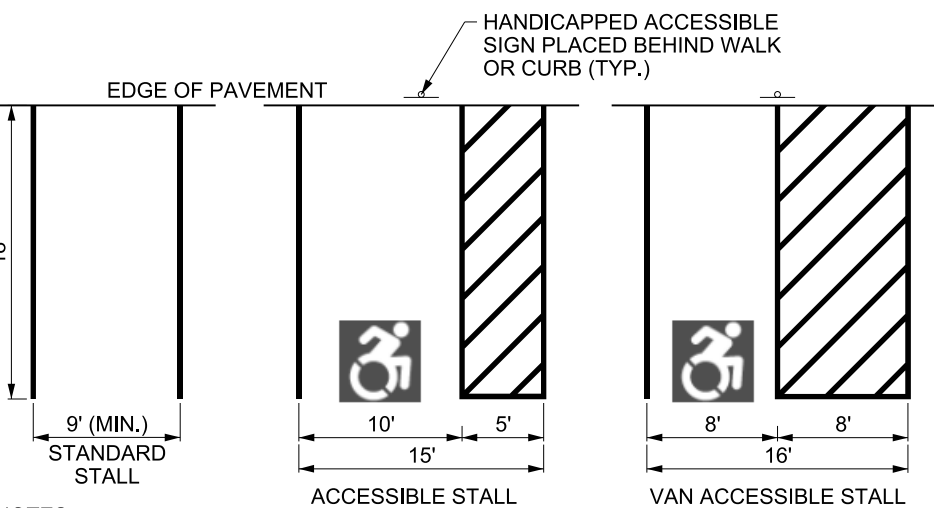
BITUMINOUS CONCRETE CURB (BCLC)
NOT TO SCALE



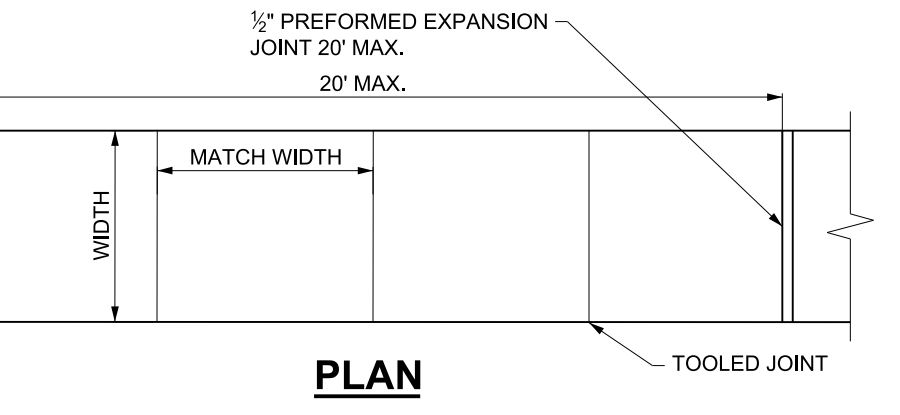
SIDEWALK RAMP
NOT TO SCALE



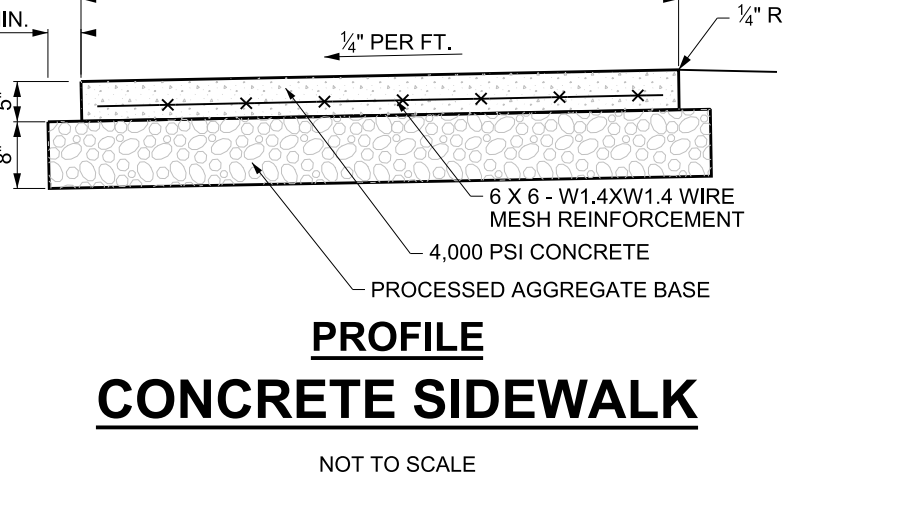
CONCRETE DUMPSTER & MAIL PAD
NOT TO SCALE



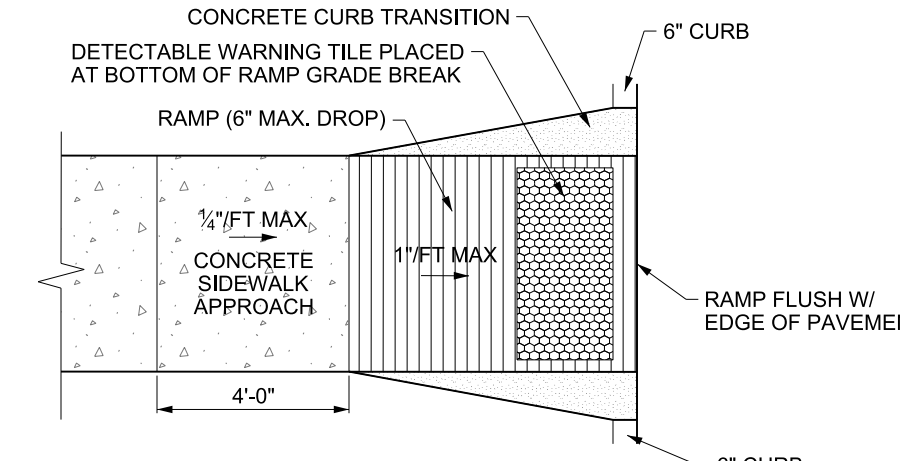
PARKING STALL DETAILS
NOT TO SCALE



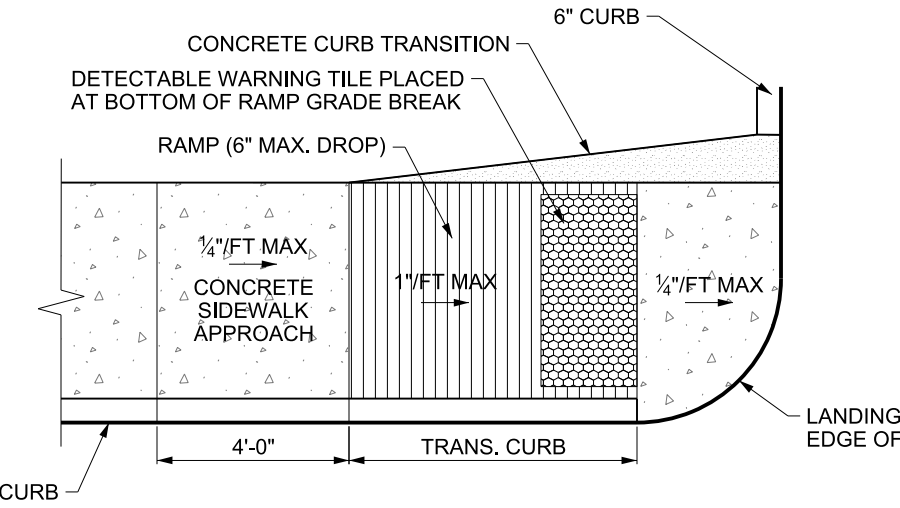
SIDEWALK RAMP 4e
NOT TO SCALE



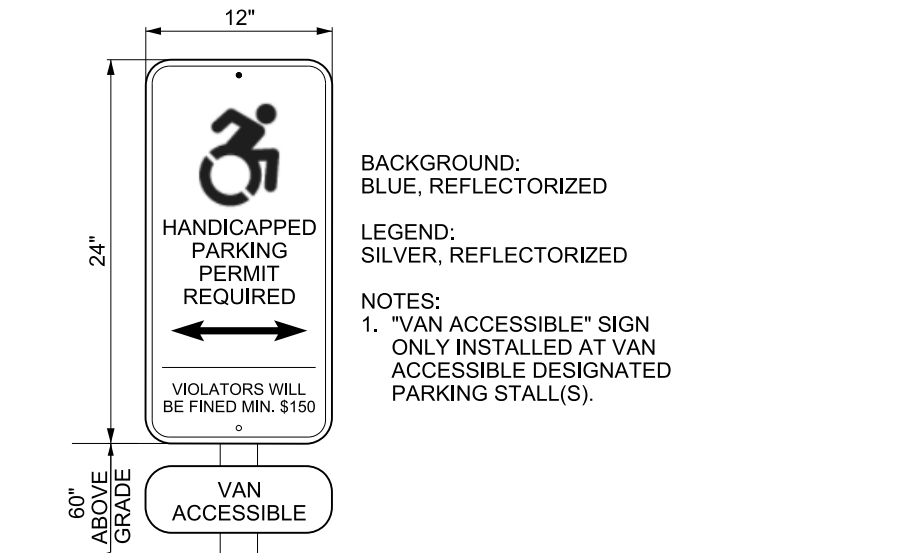
CONCRETE SIDEWALK
NOT TO SCALE



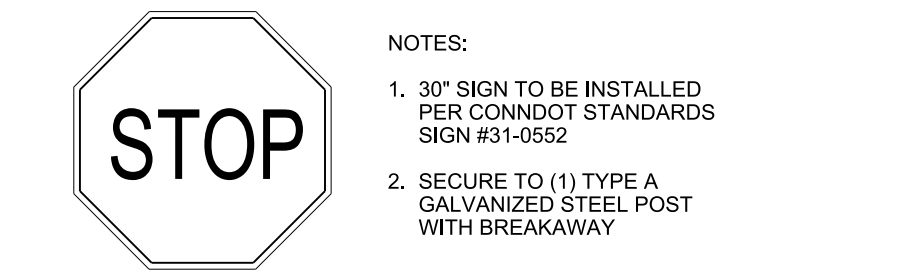
SIDEWALK RAMP 4a
NOT TO SCALE



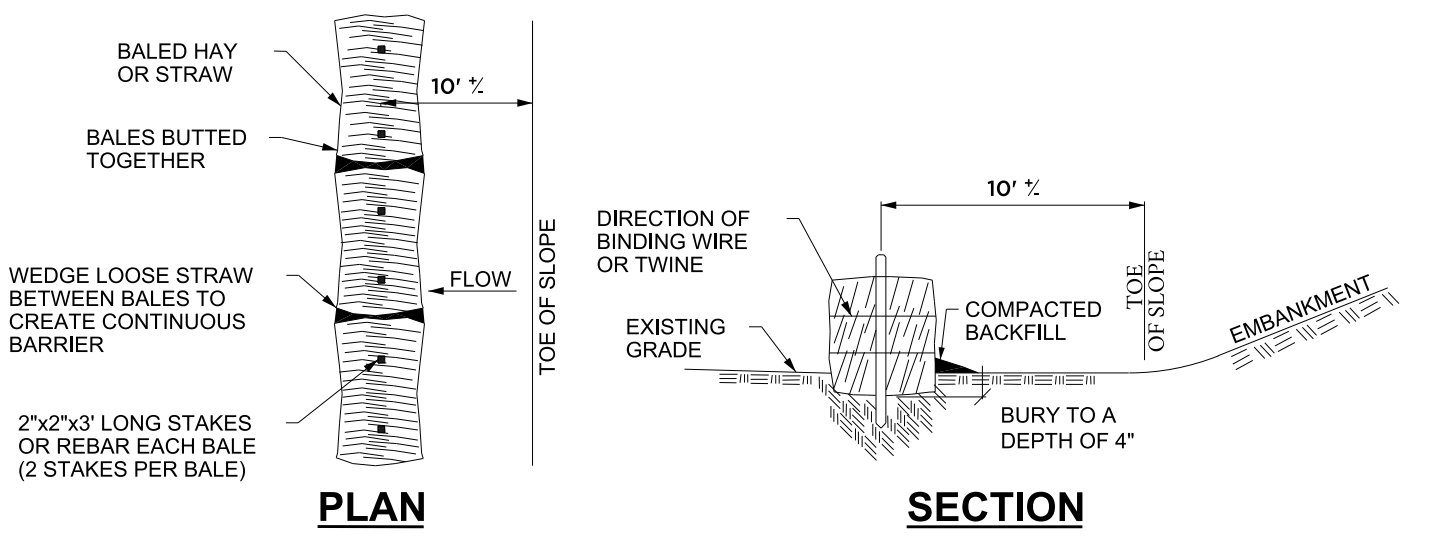
SIDEWALK RAMP 4a
NOT TO SCALE



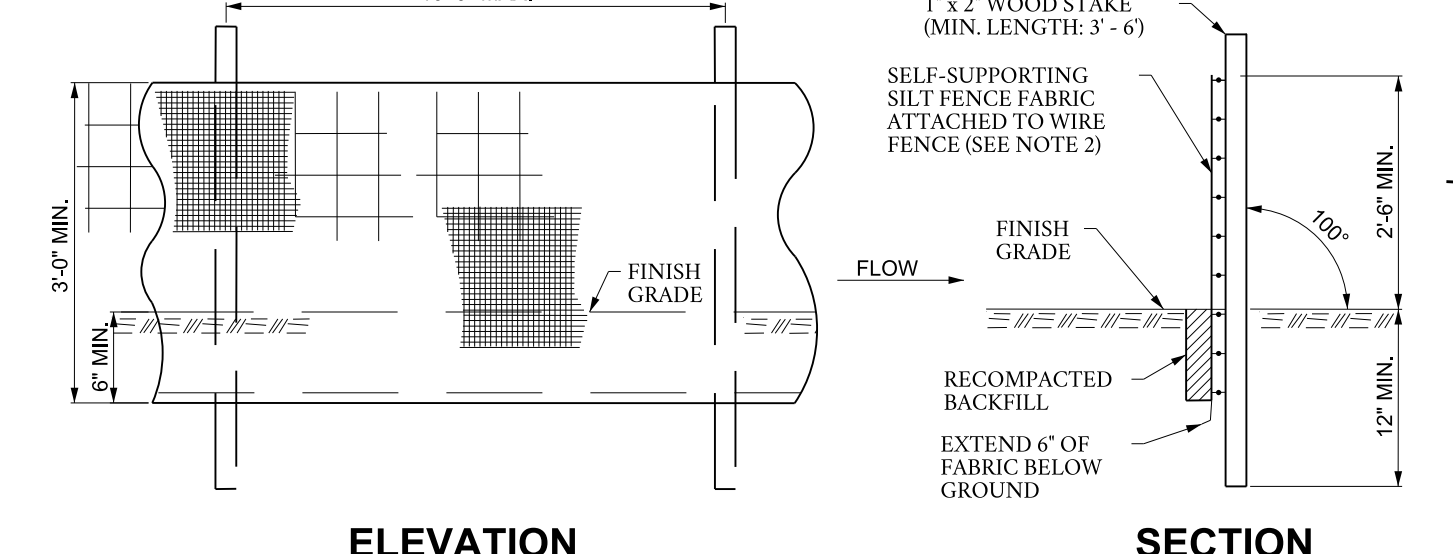
HANDICAPPED PARKING
NOT TO SCALE



STOP SIGN
NOT TO SCALE



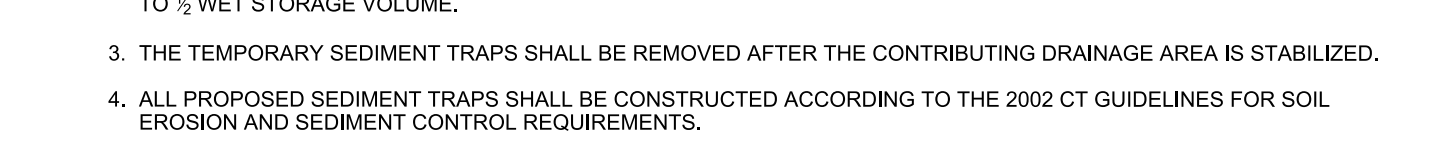
HAY BALES AT TOE OF SLOPE
NOT TO SCALE



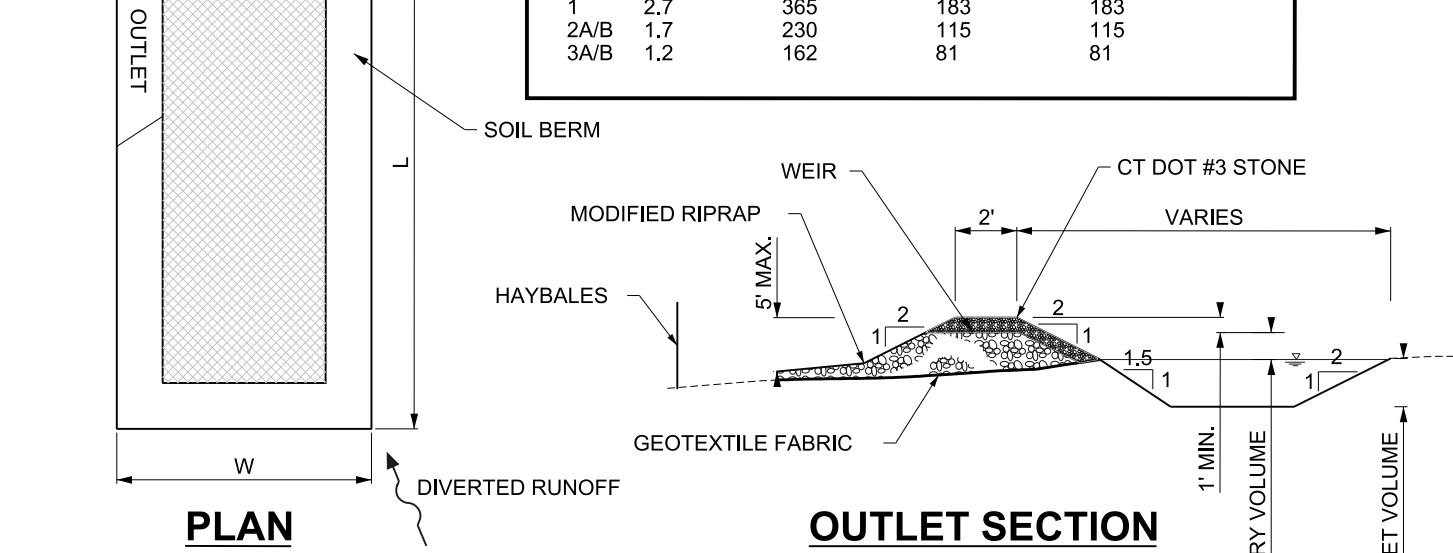
HAY BALES AT TOE OF SLOPE
NOT TO SCALE



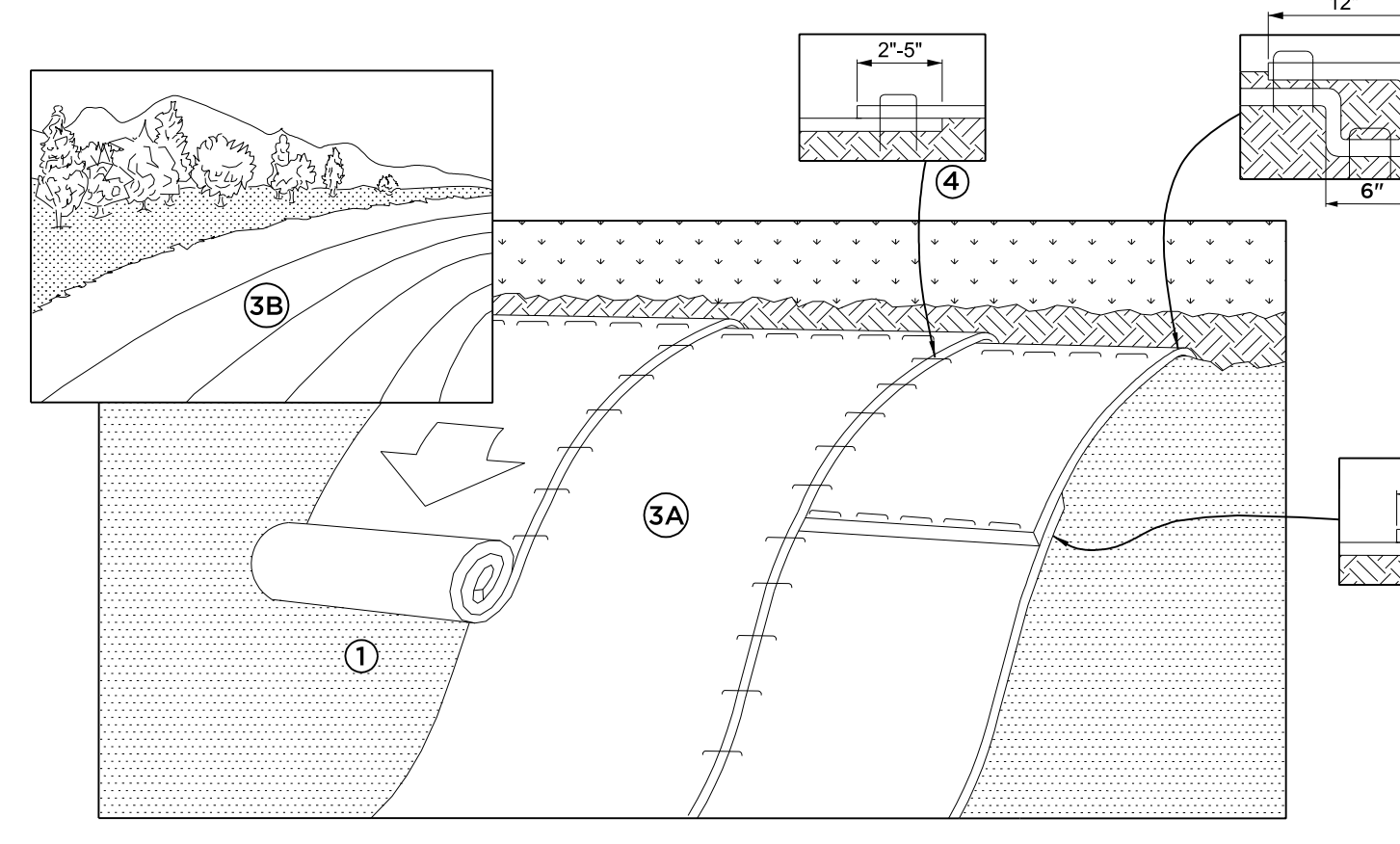
TEMPORARY SEDIMENT TRAP
NOT TO SCALE



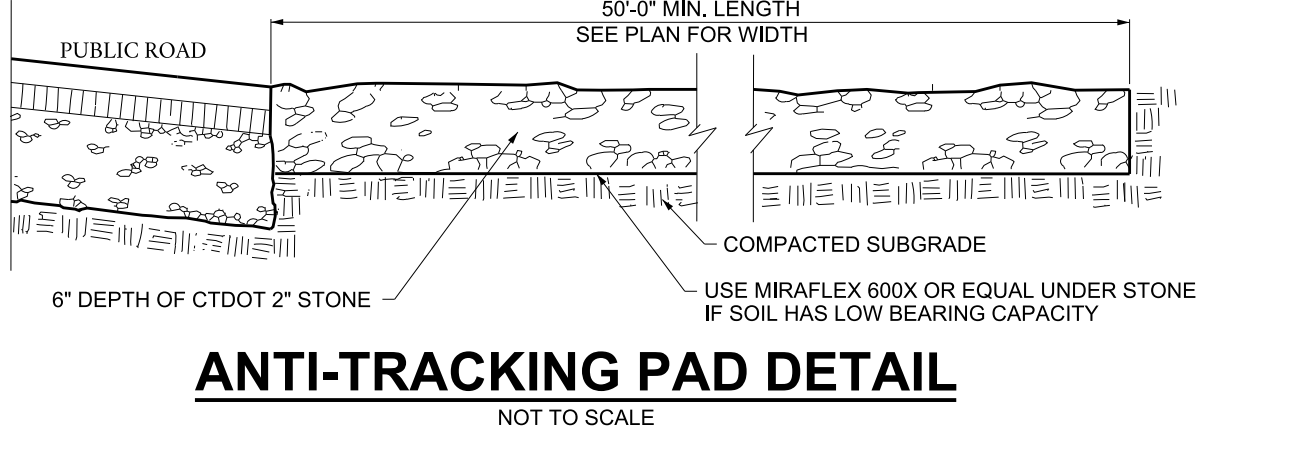
TEMPORARY SEDIMENT TRAP
NOT TO SCALE



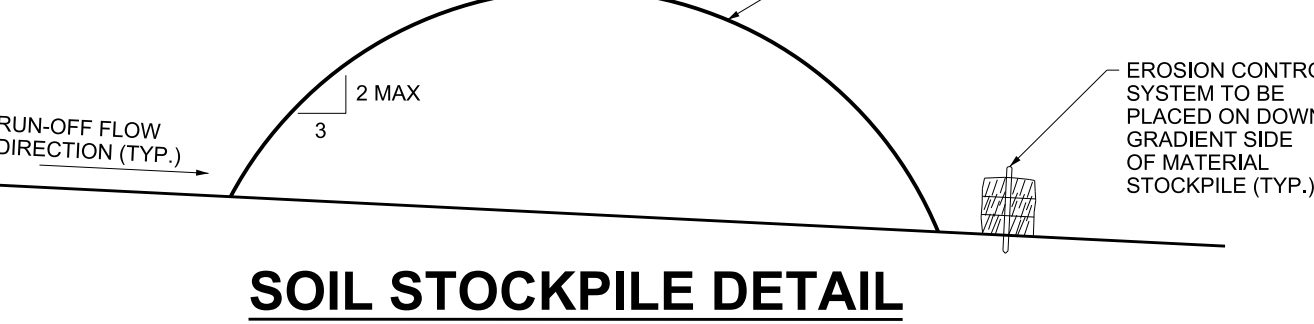
TEMPORARY SEDIMENT TRAP
NOT TO SCALE



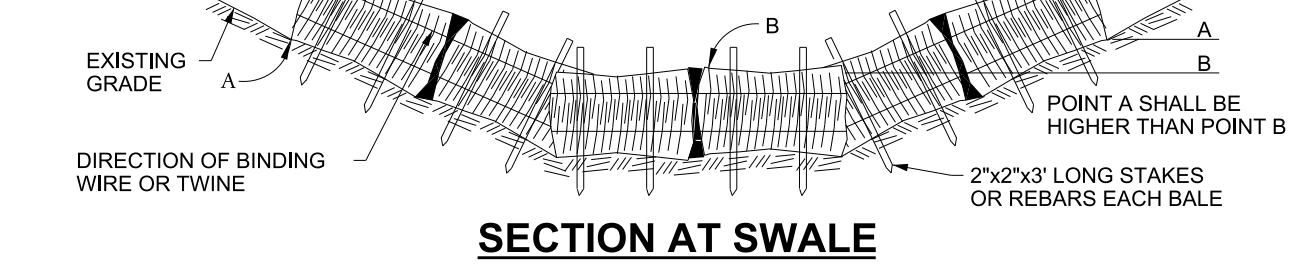
EROSION CONTROL BLANKET SLOPE INSTALLATION
NOT TO SCALE



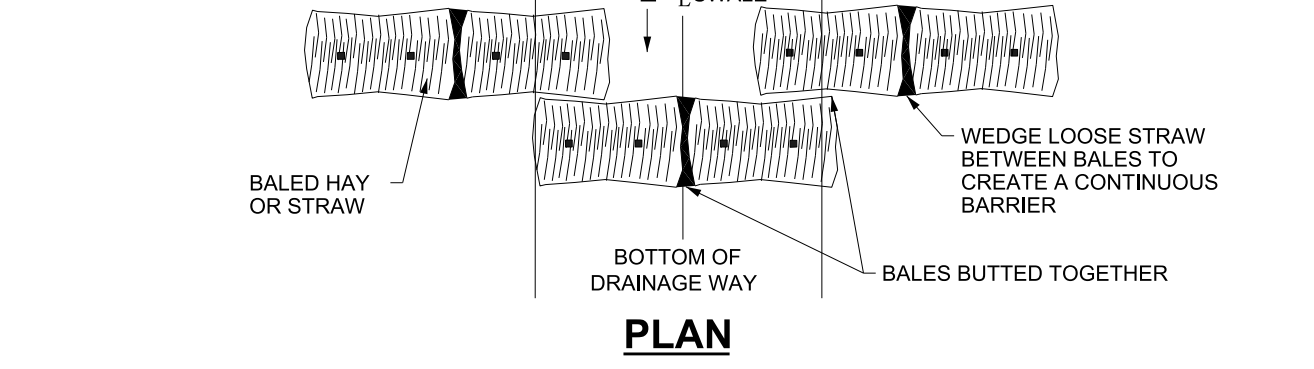
ANTI-TRACKING PAD DETAIL
NOT TO SCALE



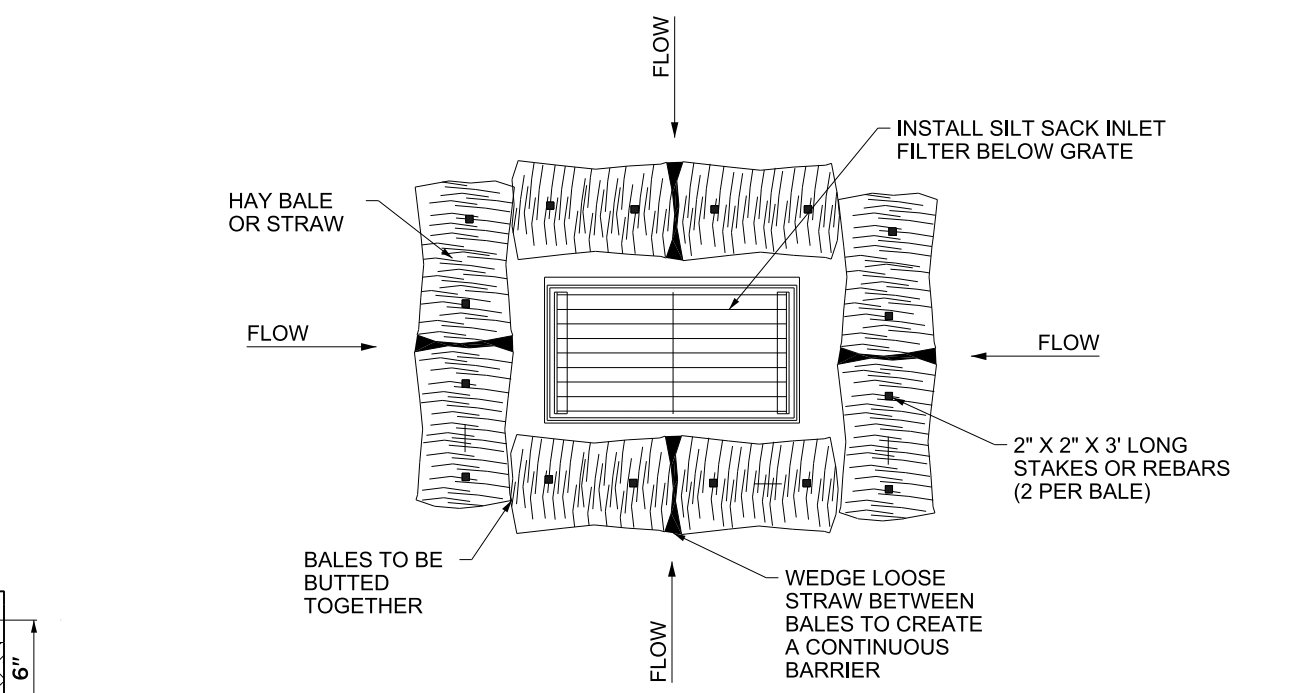
SOIL STOCKPILE DETAIL
NOT TO SCALE



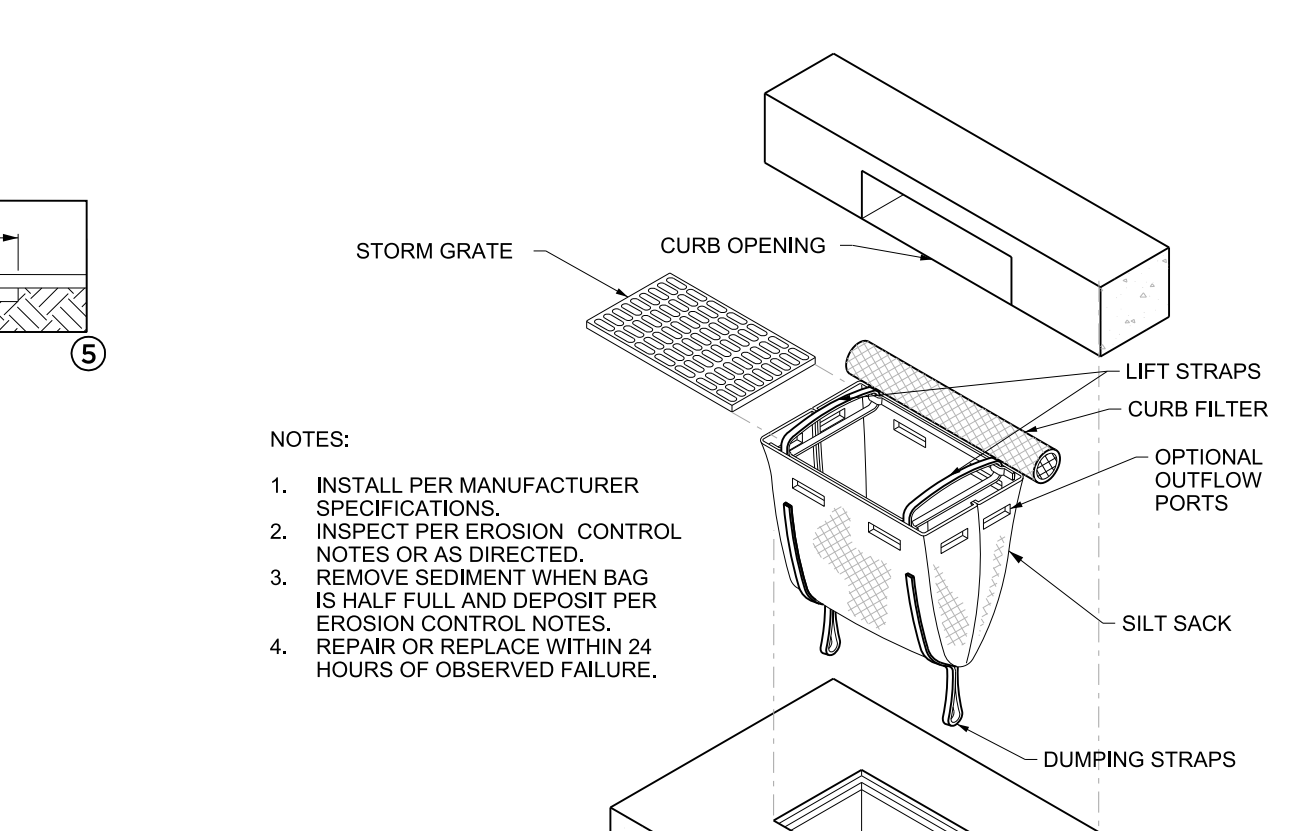
HAY BALES AT SWALE
NOT TO SCALE



HAY BALES AT SWALE
NOT TO SCALE



HAY BALES AROUND CATCH BASIN
NOT TO SCALE



INLET SEDIMENT CONTROL DEVICE
NOT TO SCALE

SCALE: AS SHOWN
PROJECT NUMBER:
00057 - 00001

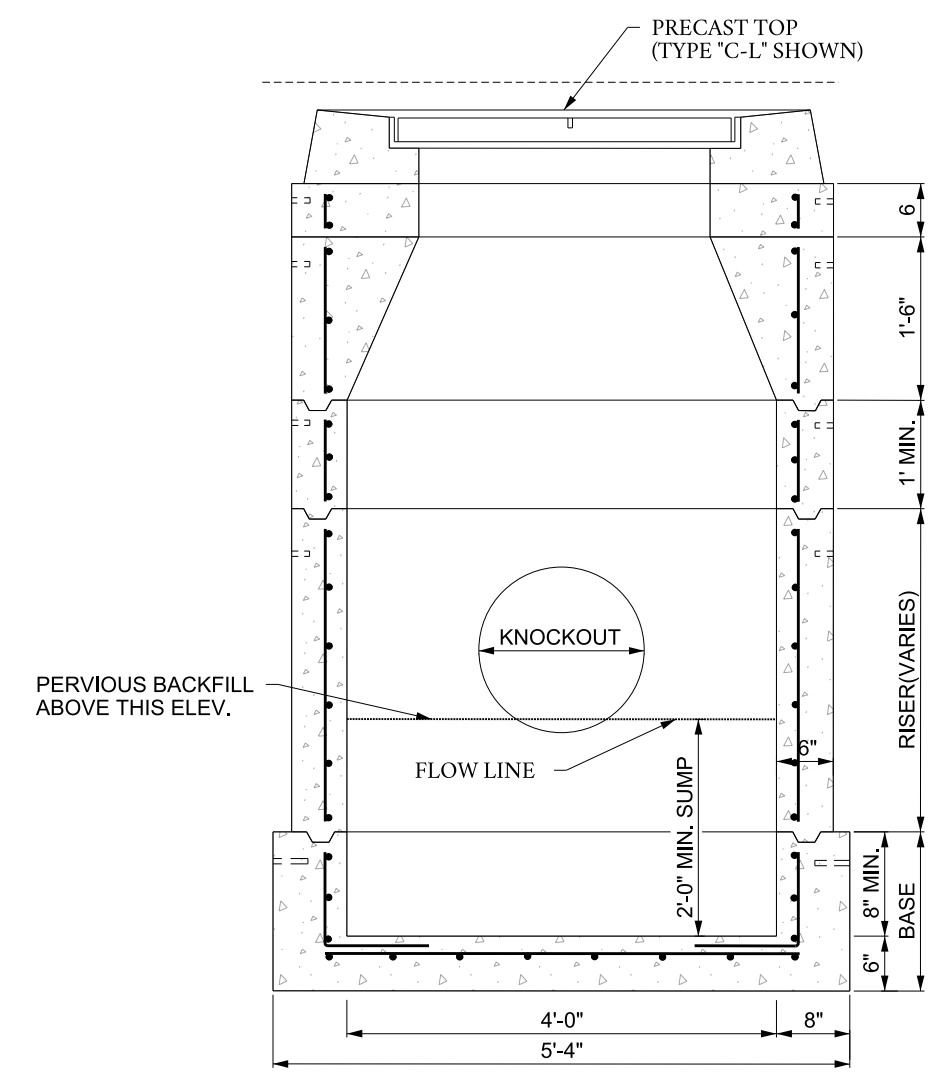


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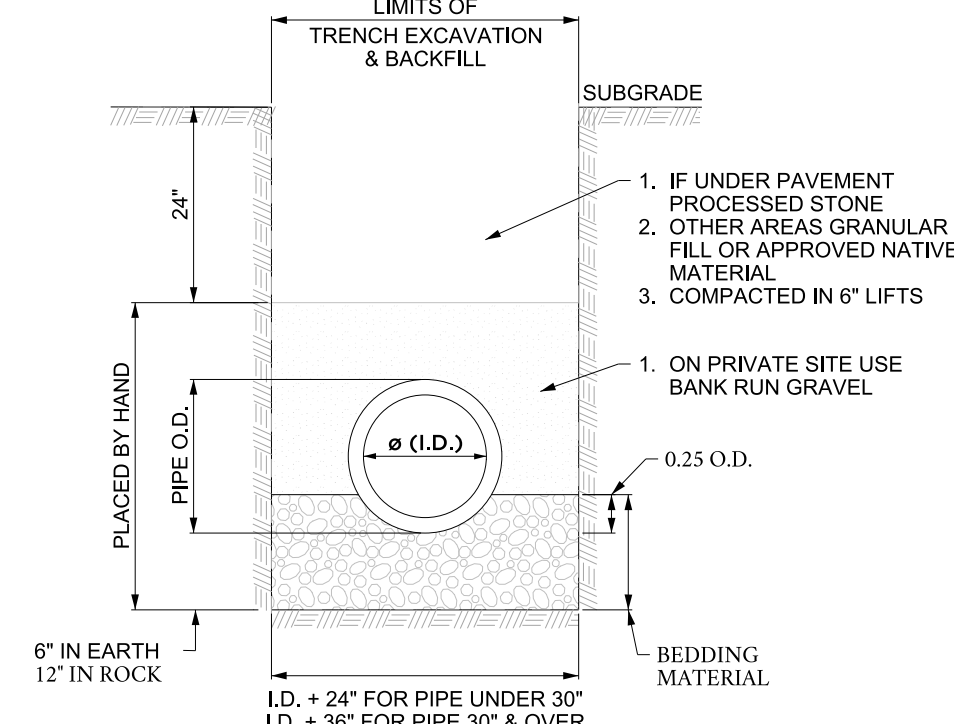
PROFESSIONAL SEAL

NORTH BRIDE BROOK ROAD MULTI-FAMILY DEVELOPMENT
PREPARED FOR
PAZZ & CONSTRUCTION LLC
SITE / E&S DETAILS
N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT

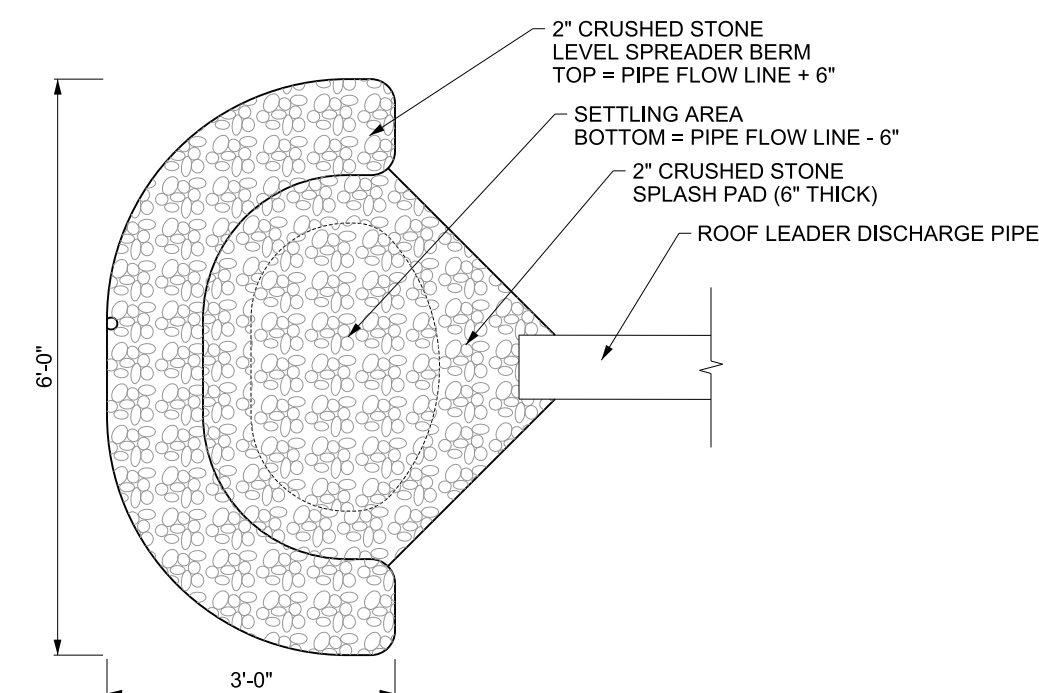
REVISION SUMMARY		SHEET 6 OF 8
DATE	DESCRIPTION	
11/15/20	PER TOWN COMMENTS & UPDATED SURVEY MAPPING	DATE 9/25/19
7/10/20	REVISED DEVELOPMENT LAYOUT	
		REVISOR 7/10/20



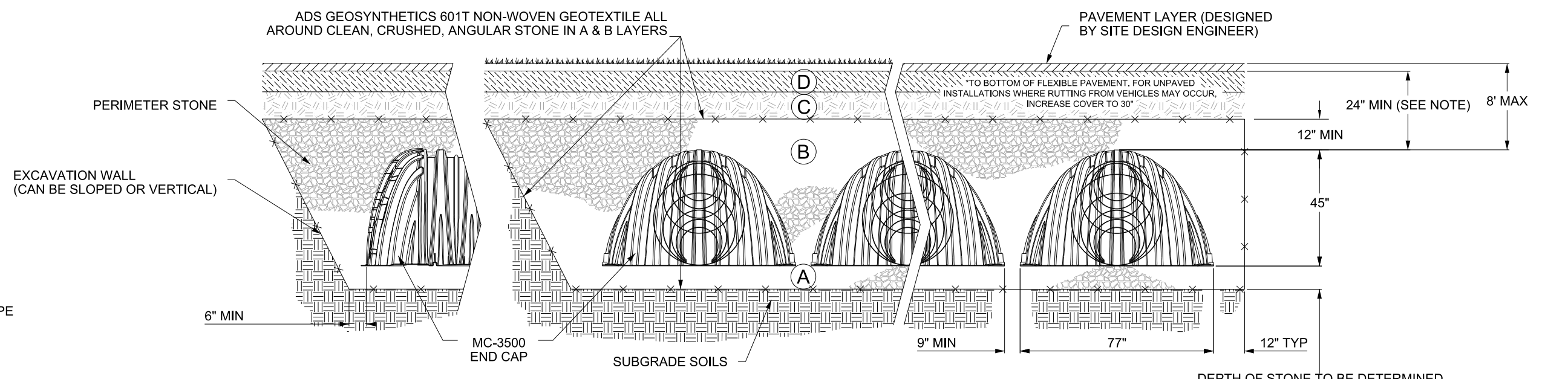
TYPE "C", "CL" OR "CG" STANDARD CATCH BASIN
NOT TO SCALE



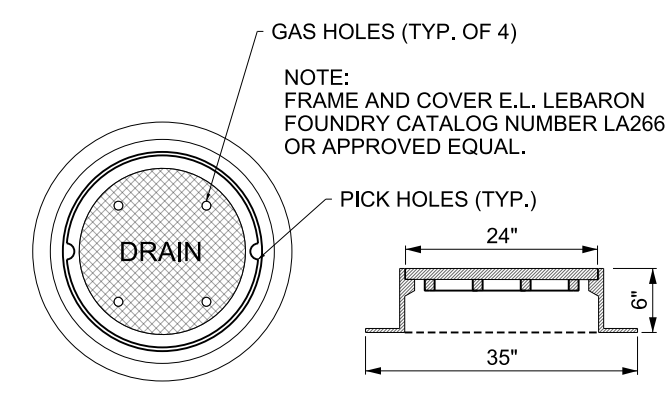
TRENCHING & BACKFILLING
NOT TO SCALE



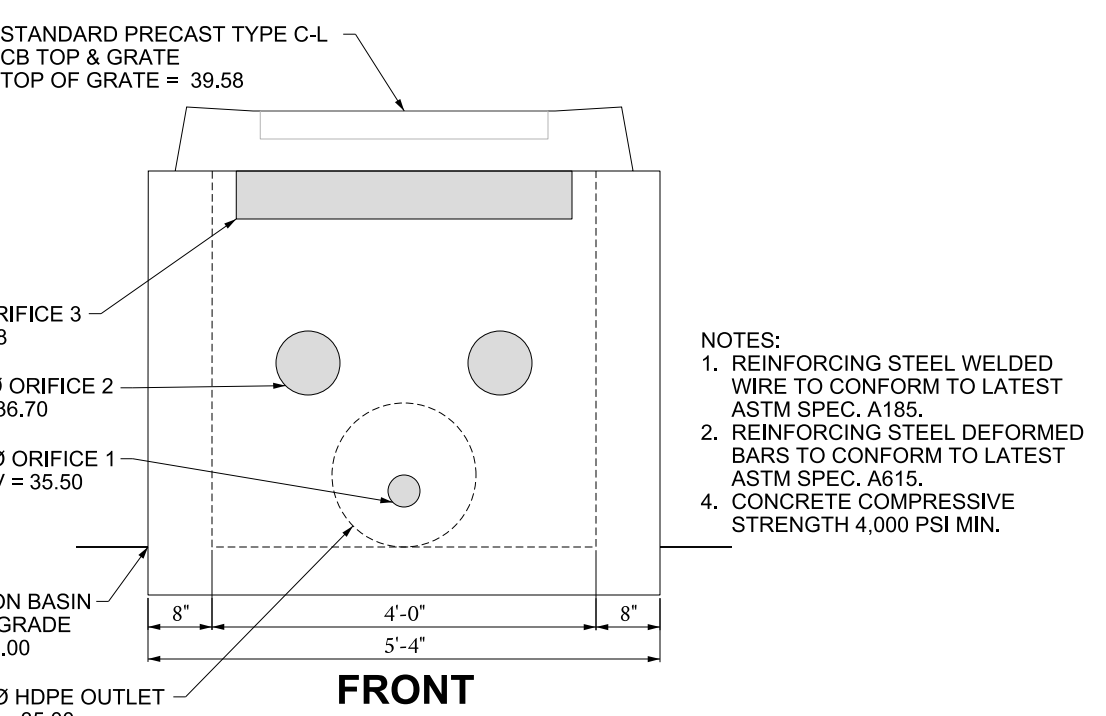
ROOF LEADER SPLASH PAD
NOT TO SCALE



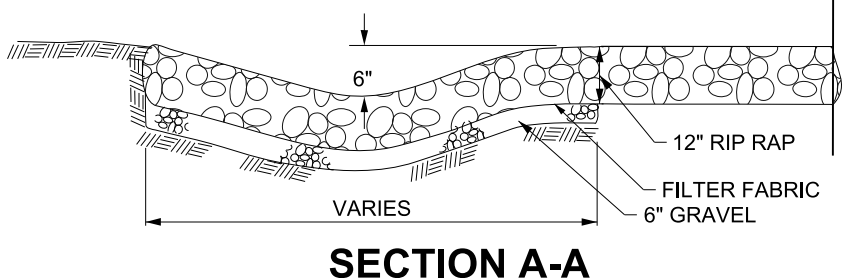
STORMTECH MC-3500 SECTION
NOT TO SCALE



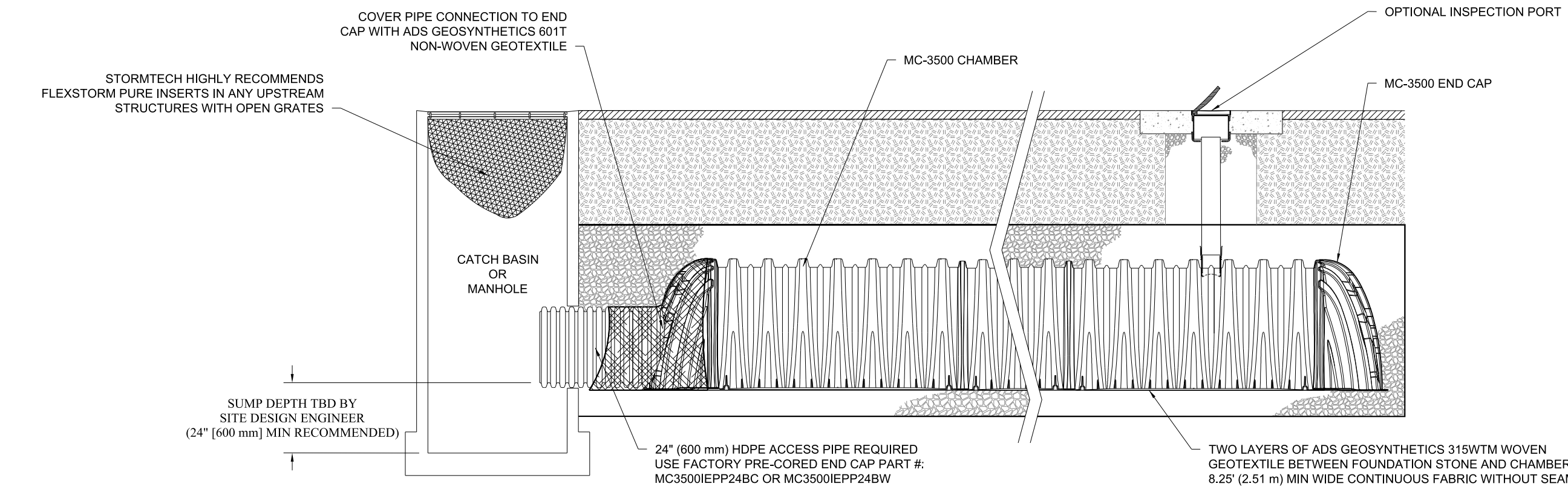
FRAME & COVER DETAIL
NOT TO SCALE



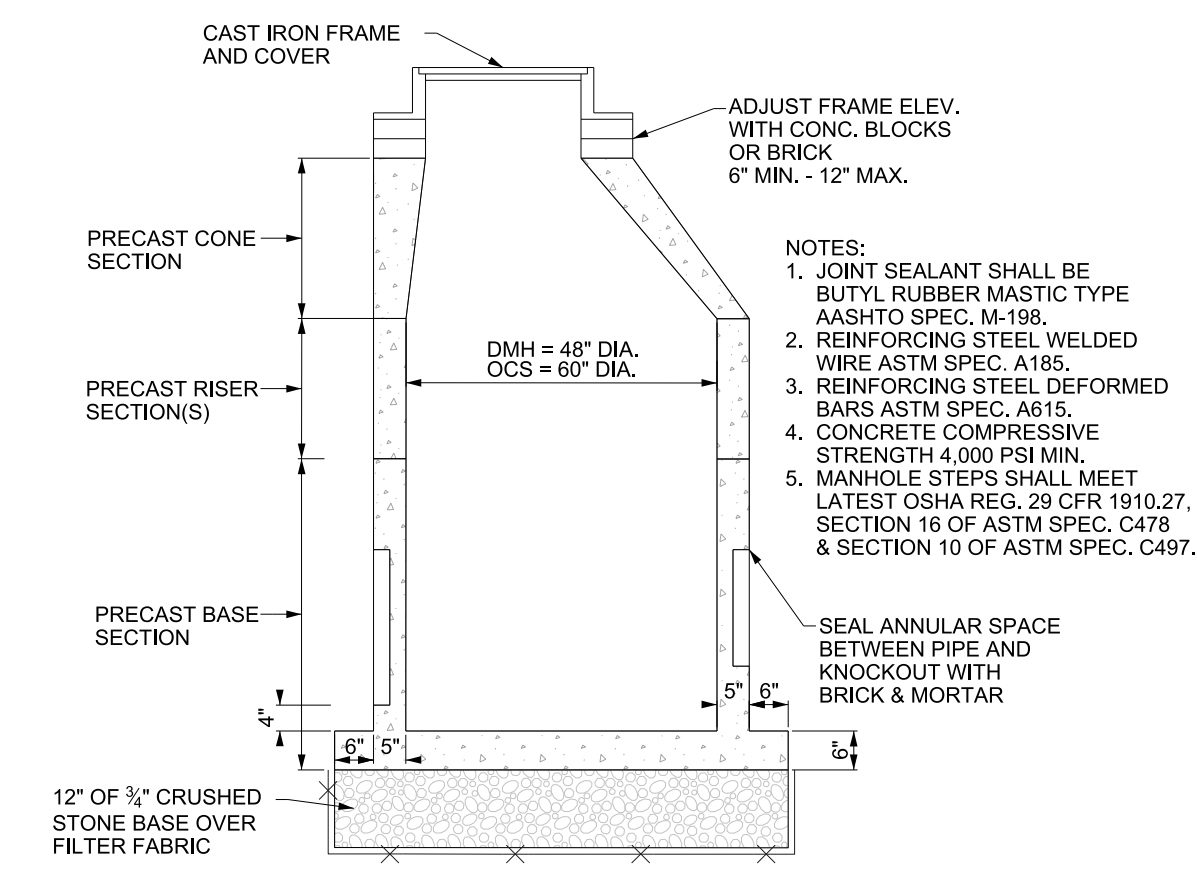
OUTLET STRUCTURE
NOT TO SCALE



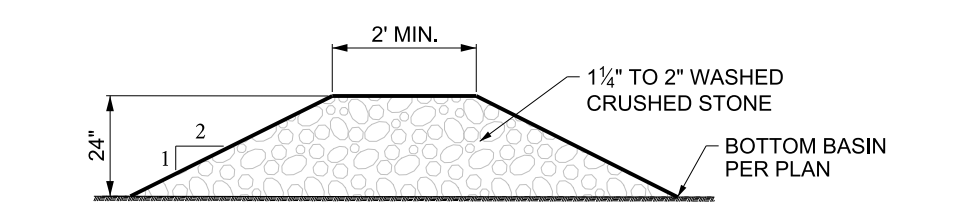
RIPRAP SPLASH PAD
NOT TO SCALE



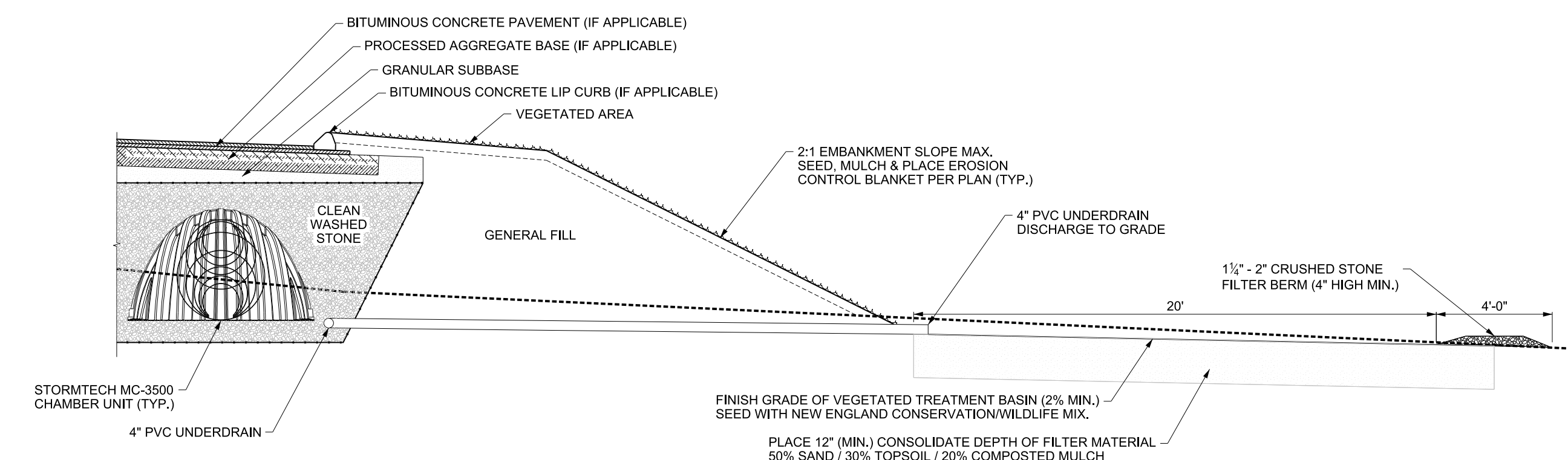
STORMTECH MC-3500 ISOLATOR ROW DETAIL
NOT TO SCALE



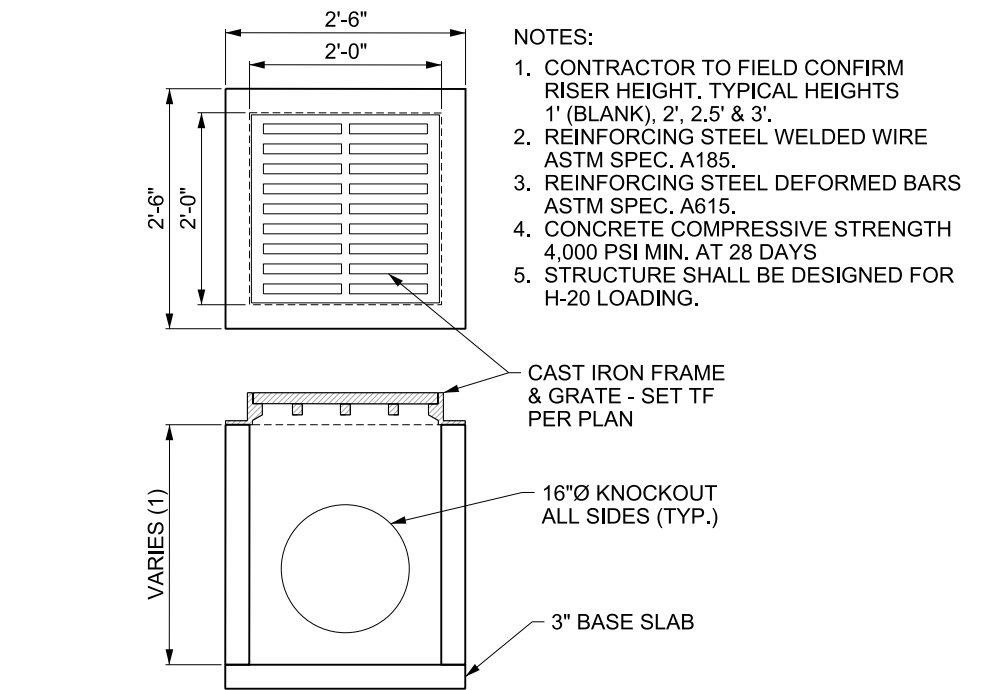
PRECAST STORM DRAIN MANHOLE
NOT TO SCALE



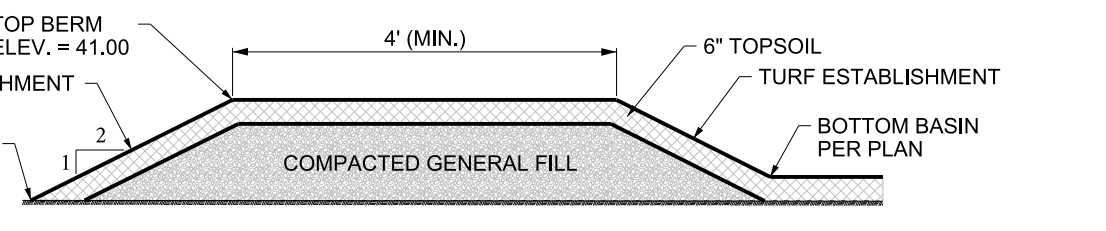
DETENTION FILTER BERM
NOT TO SCALE



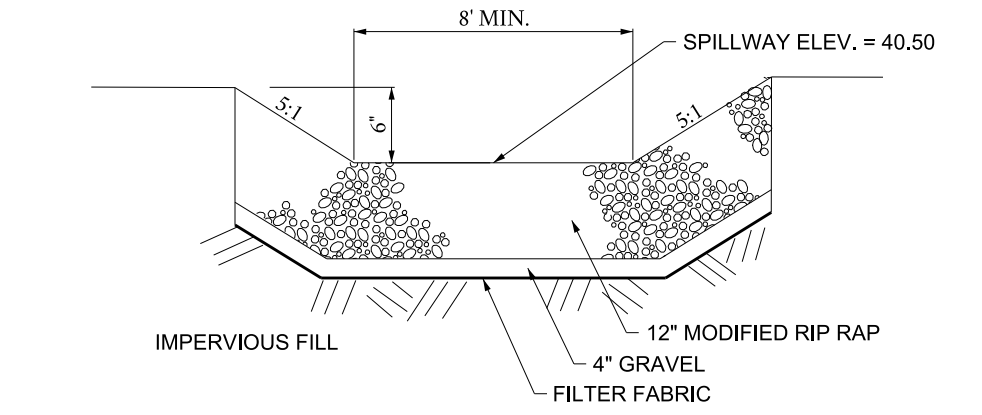
VEGETATED BASIN (SECONDARY TREATMENT) SECTION
NOT TO SCALE



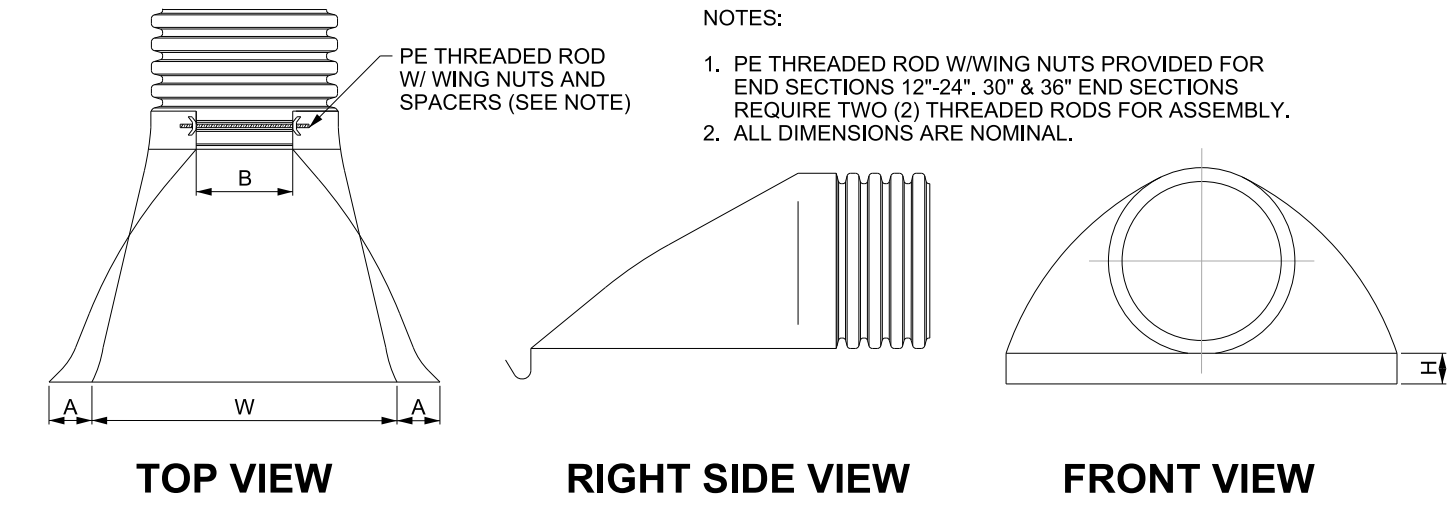
YARD DRAIN
NOT TO SCALE



DETENTION BASIN BERM
NOT TO SCALE



EMERGENCY SPILLWAY DETAIL
NOT TO SCALE



FLARED END DETAIL
NOT TO SCALE

PART #	PIPE SIZE	A	B (MAX.)	H	L	W
1210NP	12" (300 mm)	6.5" (165 mm)	10.00" (254 mm)	6.5" (165 mm)	25.00" (635 mm)	29.00" (737 mm)
1510NP	15" (375 mm)	6.5" (165 mm)	10.00" (254 mm)	6.5" (165 mm)	25.00" (635 mm)	29.00" (737 mm)
1810NP	18" (450 mm)	7.5" (191 mm)	15.00" (381 mm)	6.5" (165 mm)	32.00" (813 mm)	35.00" (889 mm)
2410NP	24" (600 mm)	7.5" (191 mm)	18.00" (450 mm)	6.5" (165 mm)	36.00" (914 mm)	45.00" (1143 mm)
3015NP	30" (750 mm)	7.5" (191 mm)	22.00" (559 mm)	8.6" (218 mm)	58.00" (1473 mm)	63.00" (1600 mm)
3615NP	36" (900 mm)	7.5" (191 mm)	25.00" (635 mm)	8.6" (218 mm)	58.00" (1473 mm)	63.00" (1600 mm)

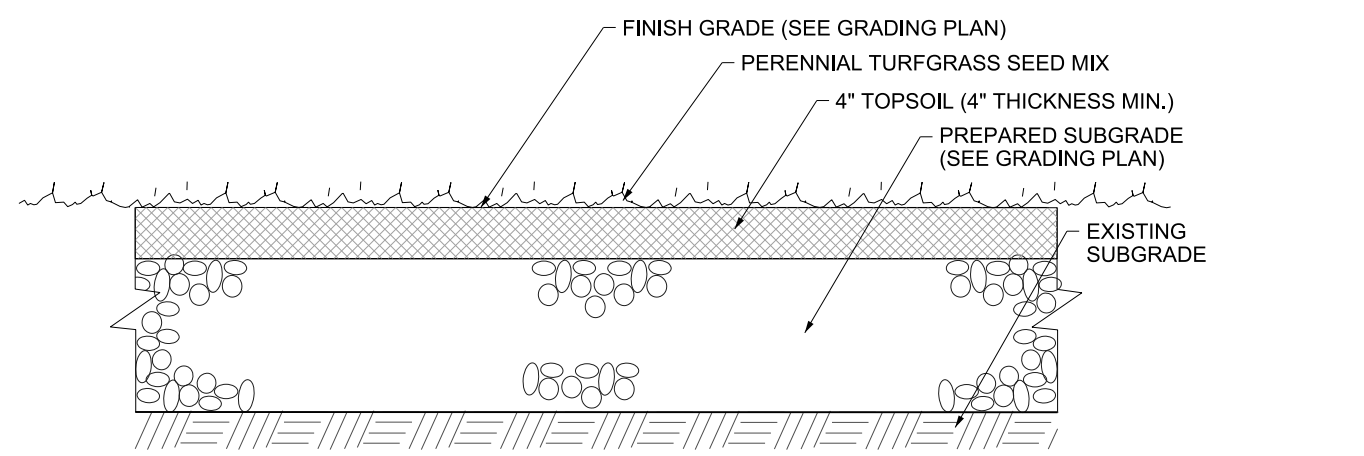
SCALE: AS SHOWN
PROJECT NUMBER:
00057 - 00001



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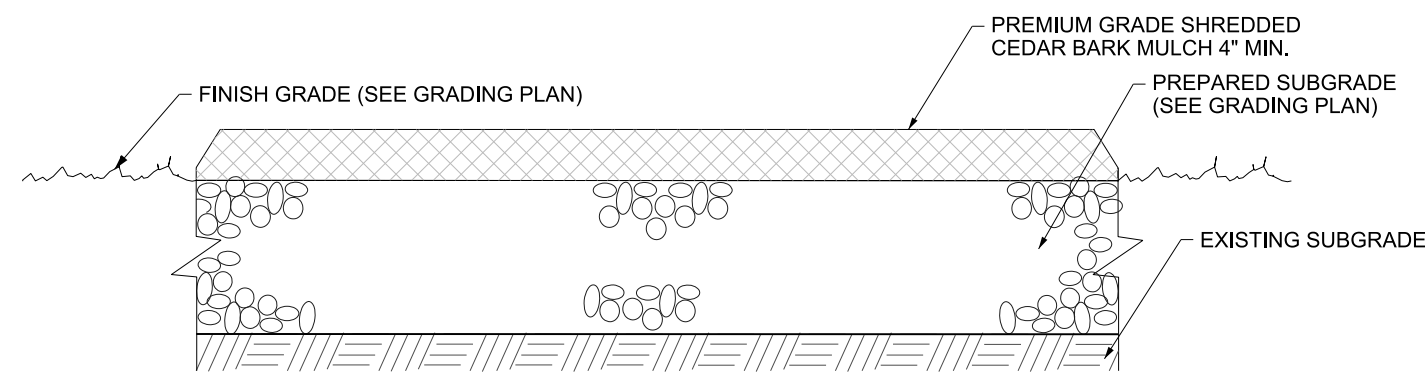
PROFESSIONAL SEAL
REVISION SUMMARY
DATE DESCRIPTION
1/15/20 PER TOWN COMMENTS & UPDATED SURVEY MAPPING
7/10/20 REVISED DEVELOPMENT LAYOUT
SHEET 7 OF 8
DATE 9/25/19
REVISED 7/10/20

NORTH BRIDE BROOK ROAD MULTI-FAMILY DEVELOPMENT
PREPARED FOR PAZZ & CONSTRUCTION LLC
DRAINAGE DETAILS
N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT



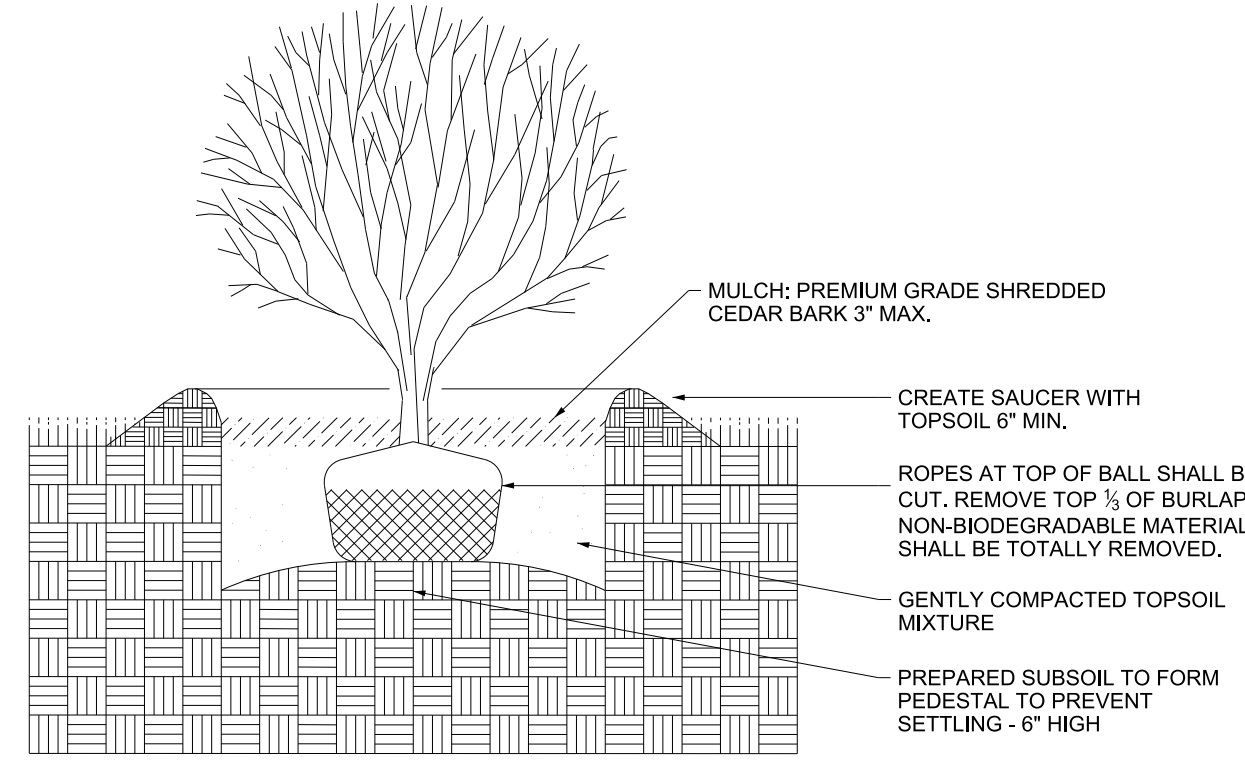
TURF ESTABLISHMENT

NOT TO SCALE



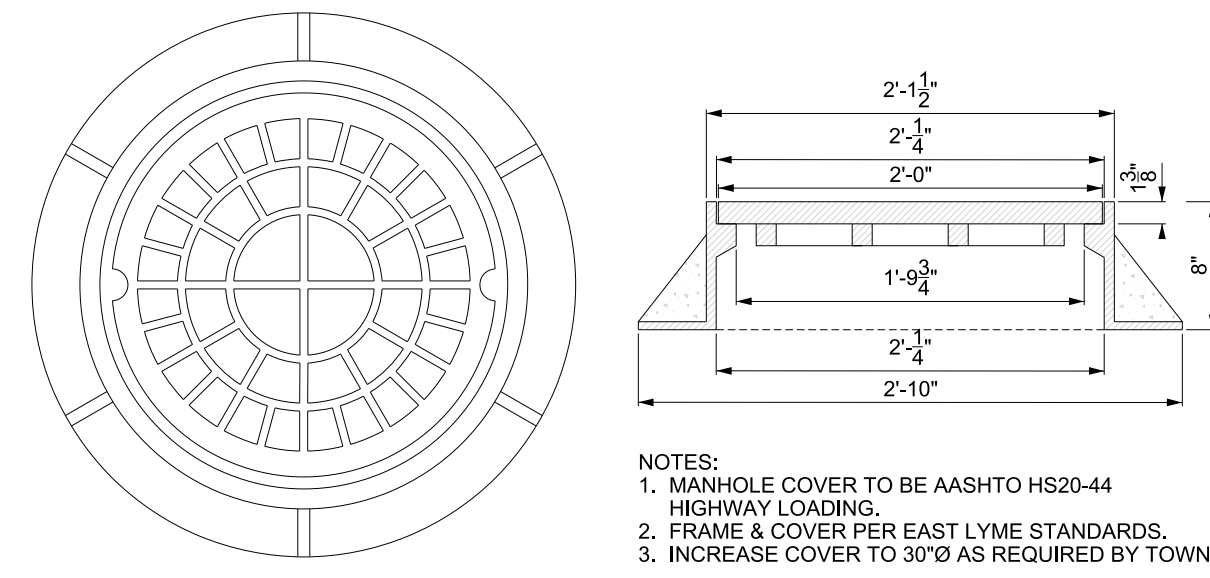
MULCH SURFACE TREATMENT

NOT TO SCALE



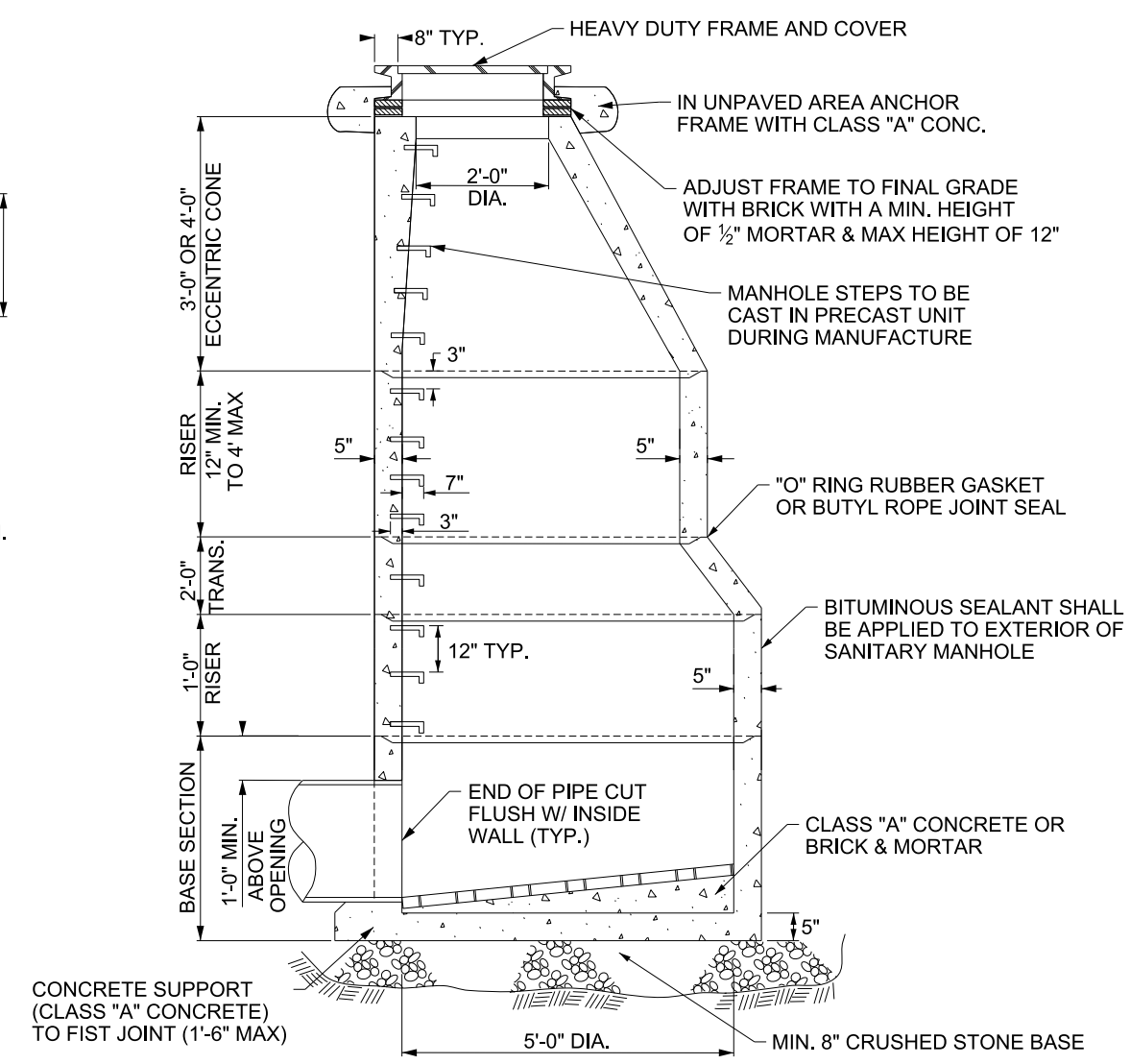
SHRUB PLANTING

NOT TO SCALE



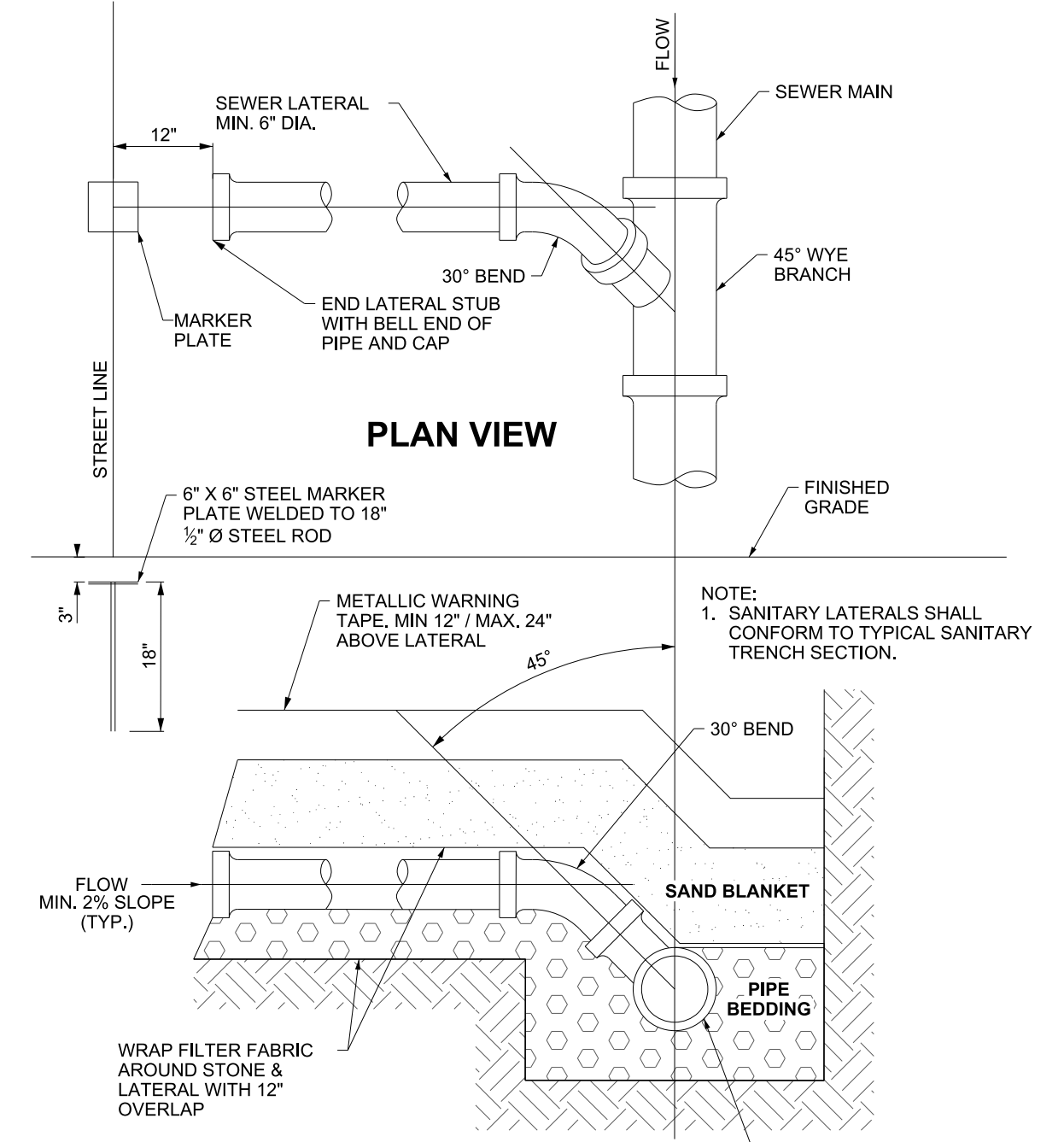
SEWER FRAME & COVER DETAIL

NOT TO SCALE



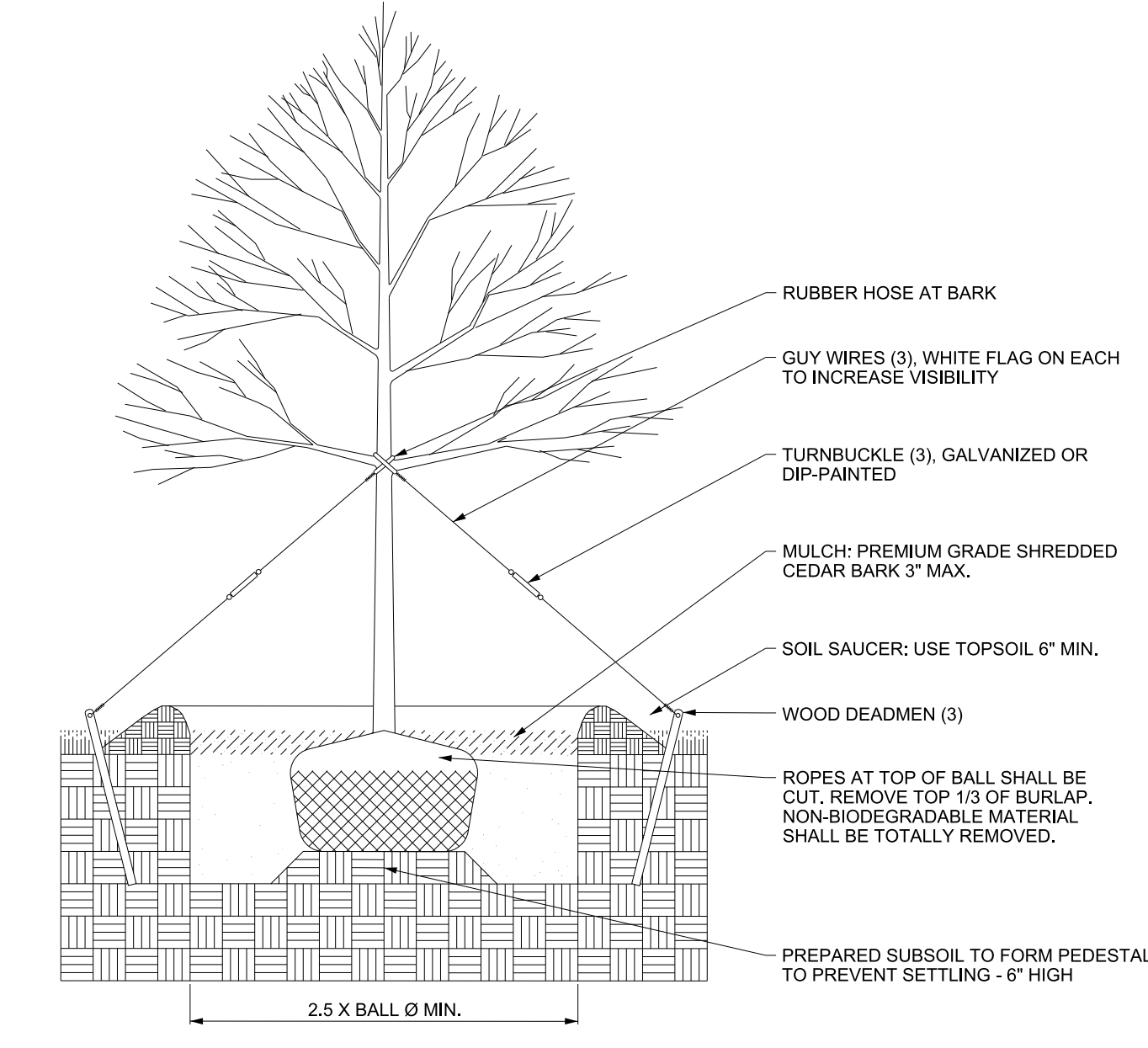
PRECAST SANITARY MANHOLE

NOT TO SCALE



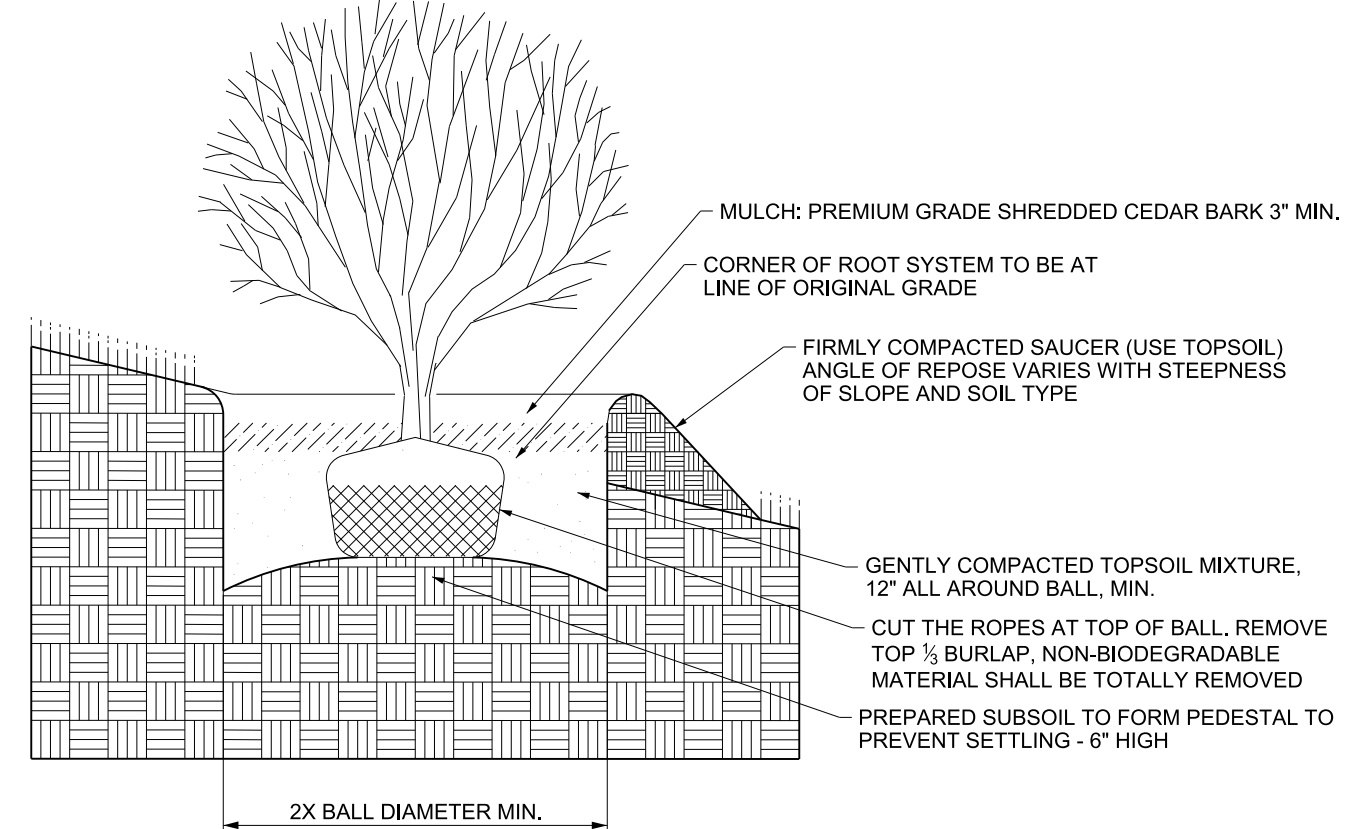
LATERAL CONNECTION

NOT TO SCALE



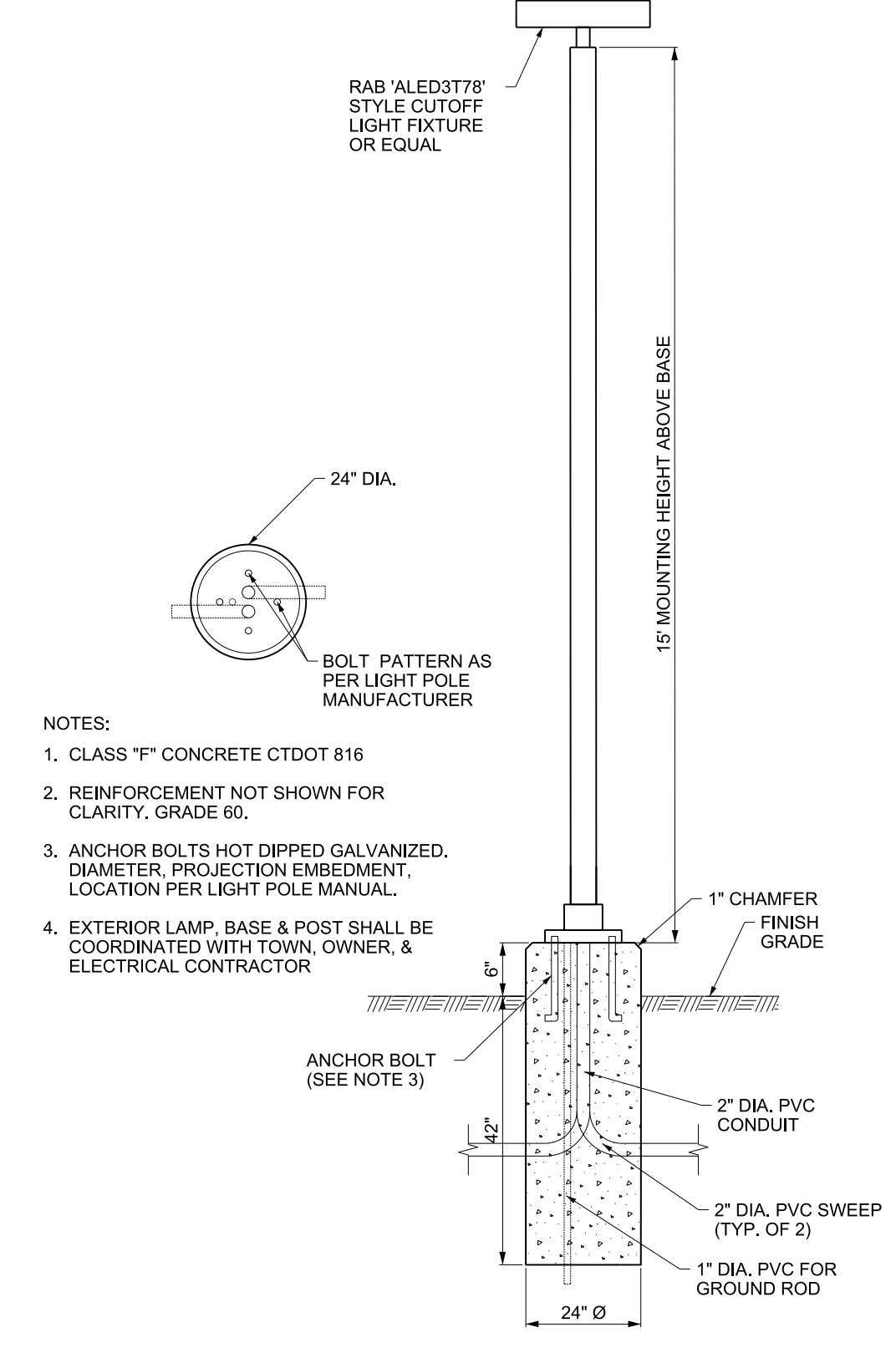
TREE PLANTING

NOT TO SCALE



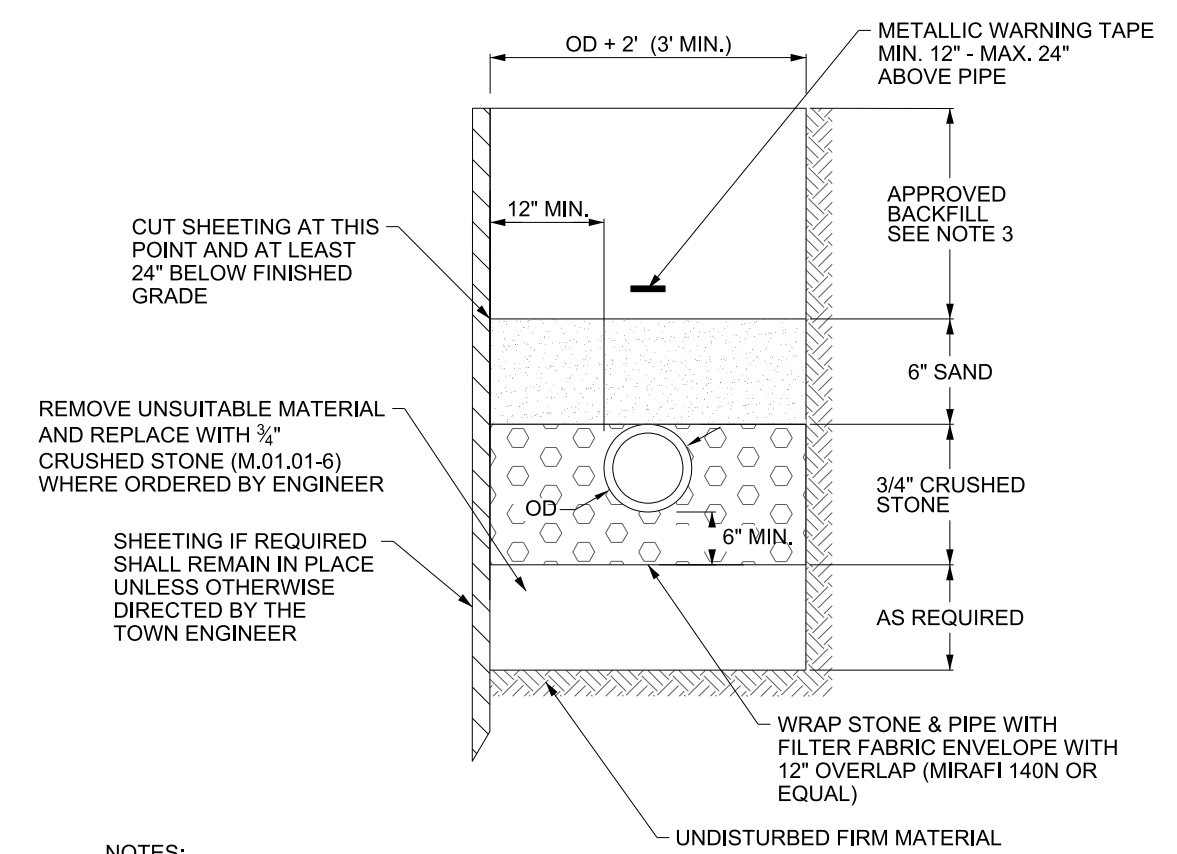
SHRUB PLANTED ON SLOPE

NOT TO SCALE



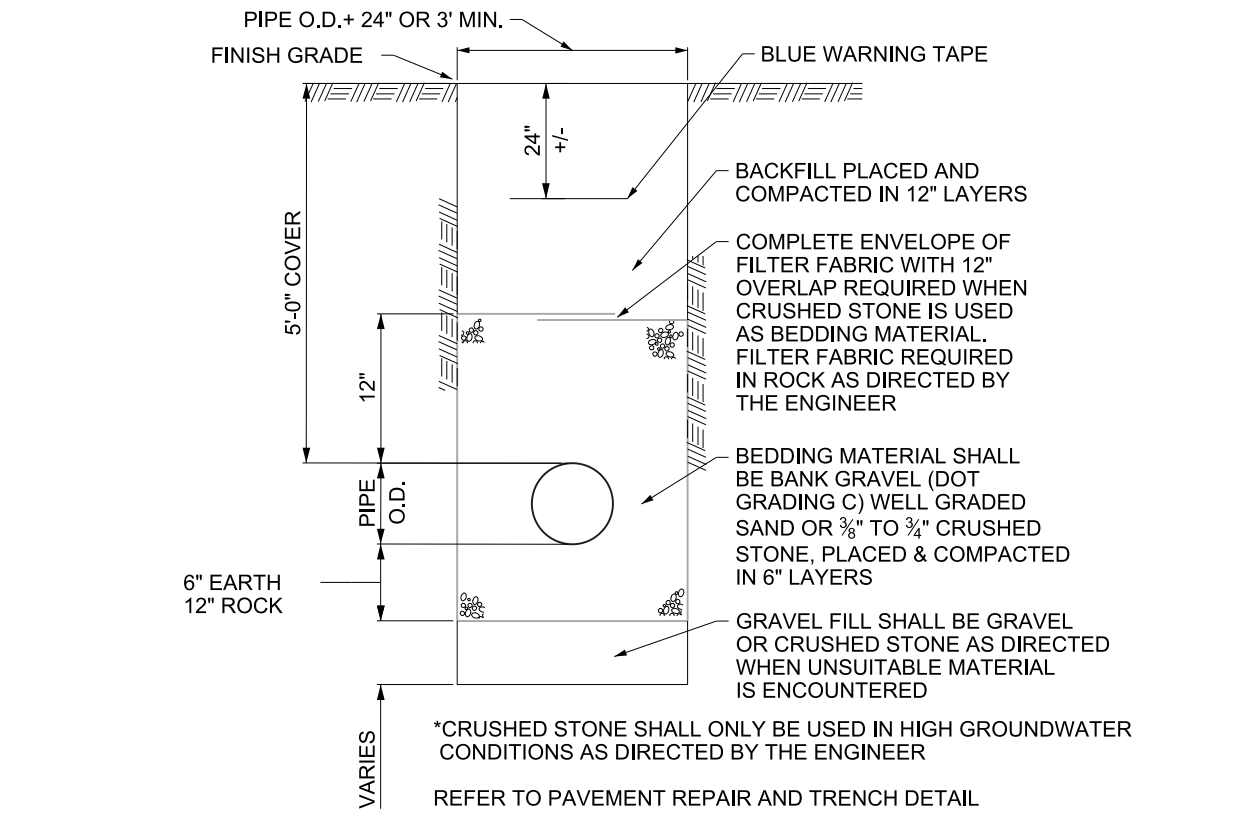
LIGHT POLE & BASE

NOT TO SCALE



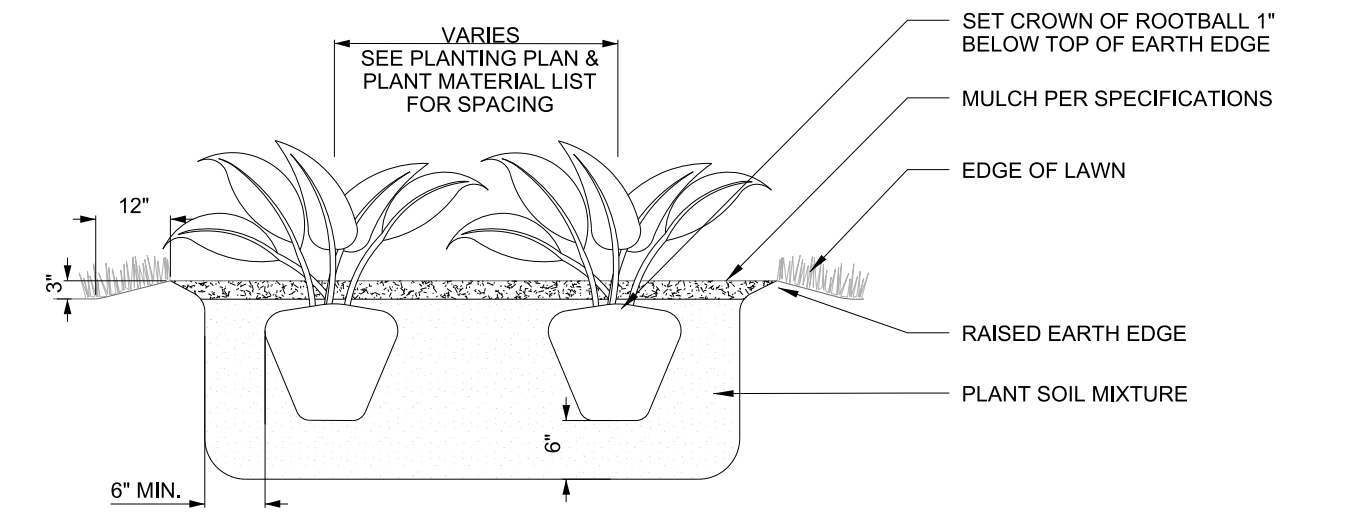
SANITARY TRENCH SECTION (PRIVATE)

NOT TO SCALE



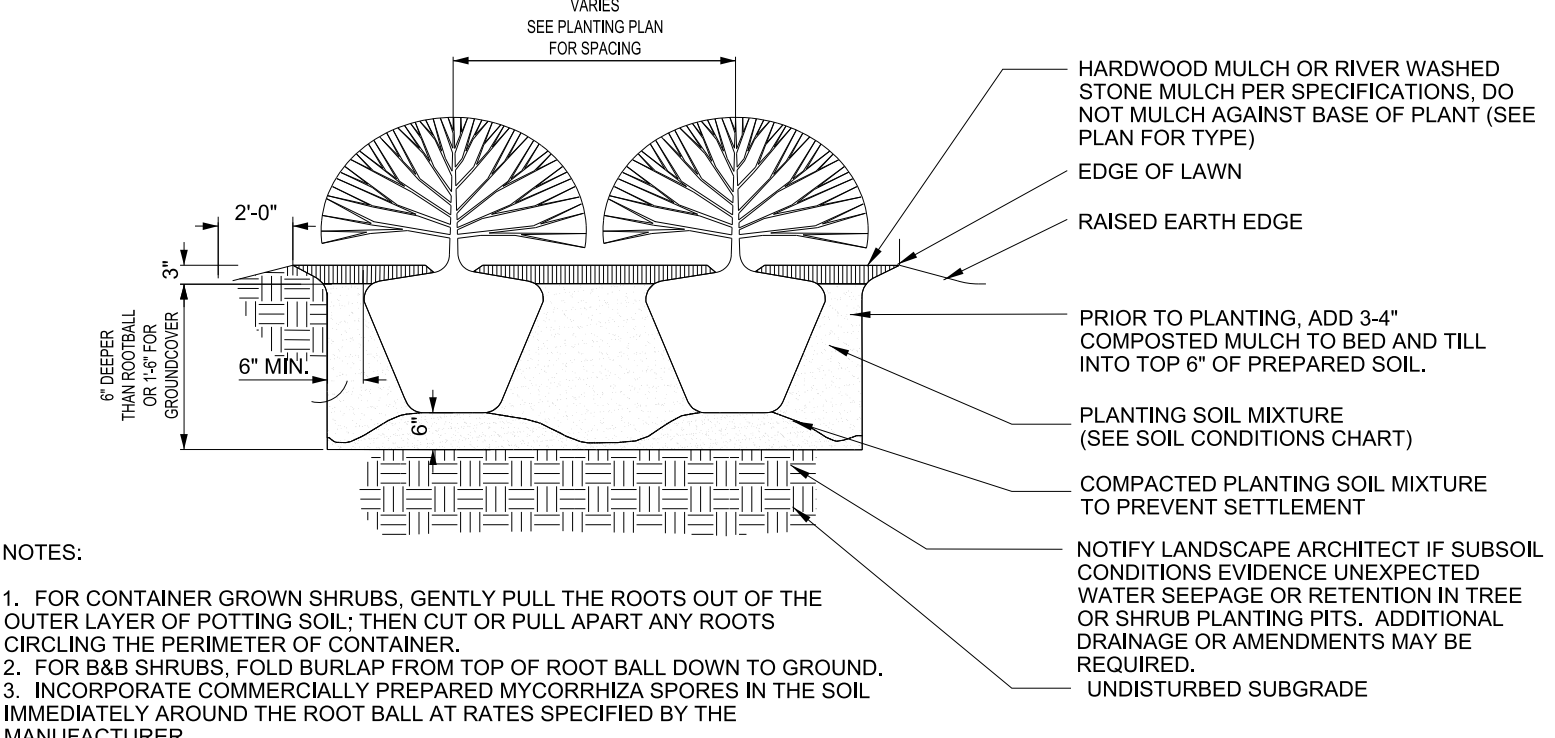
TYPICAL TRENCH DETAIL (WATER)

NOT TO SCALE



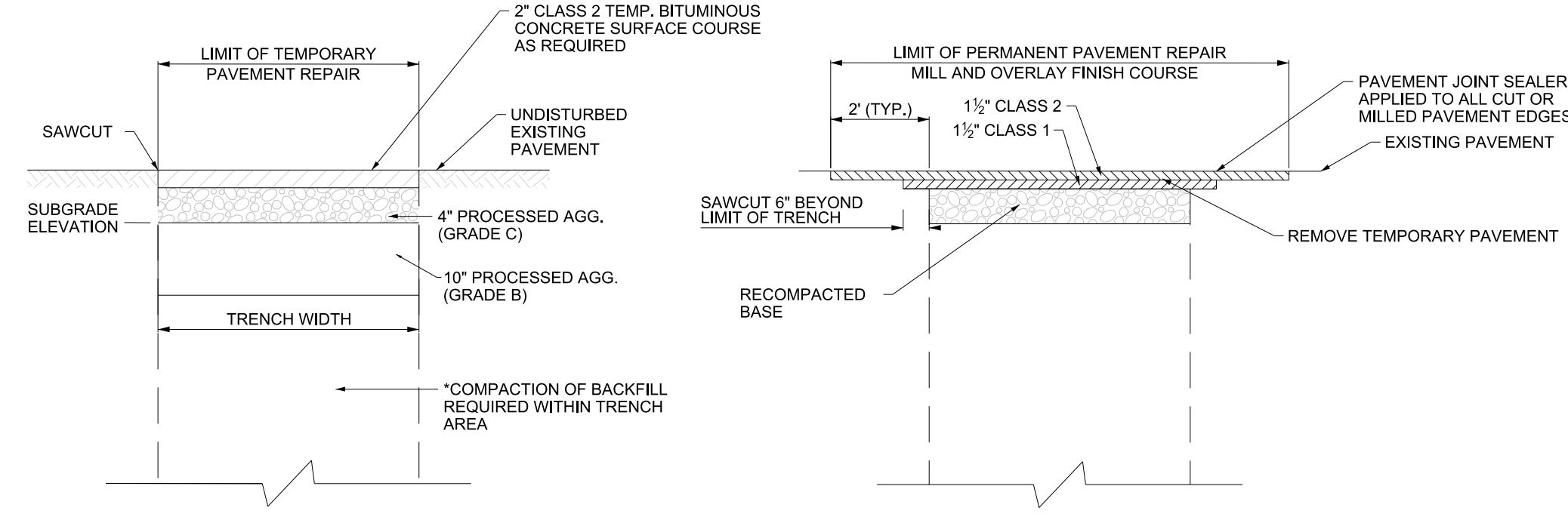
PERENNIAL PLANTING

NOT TO SCALE



SHRUB PLANTING BED

NOT TO SCALE



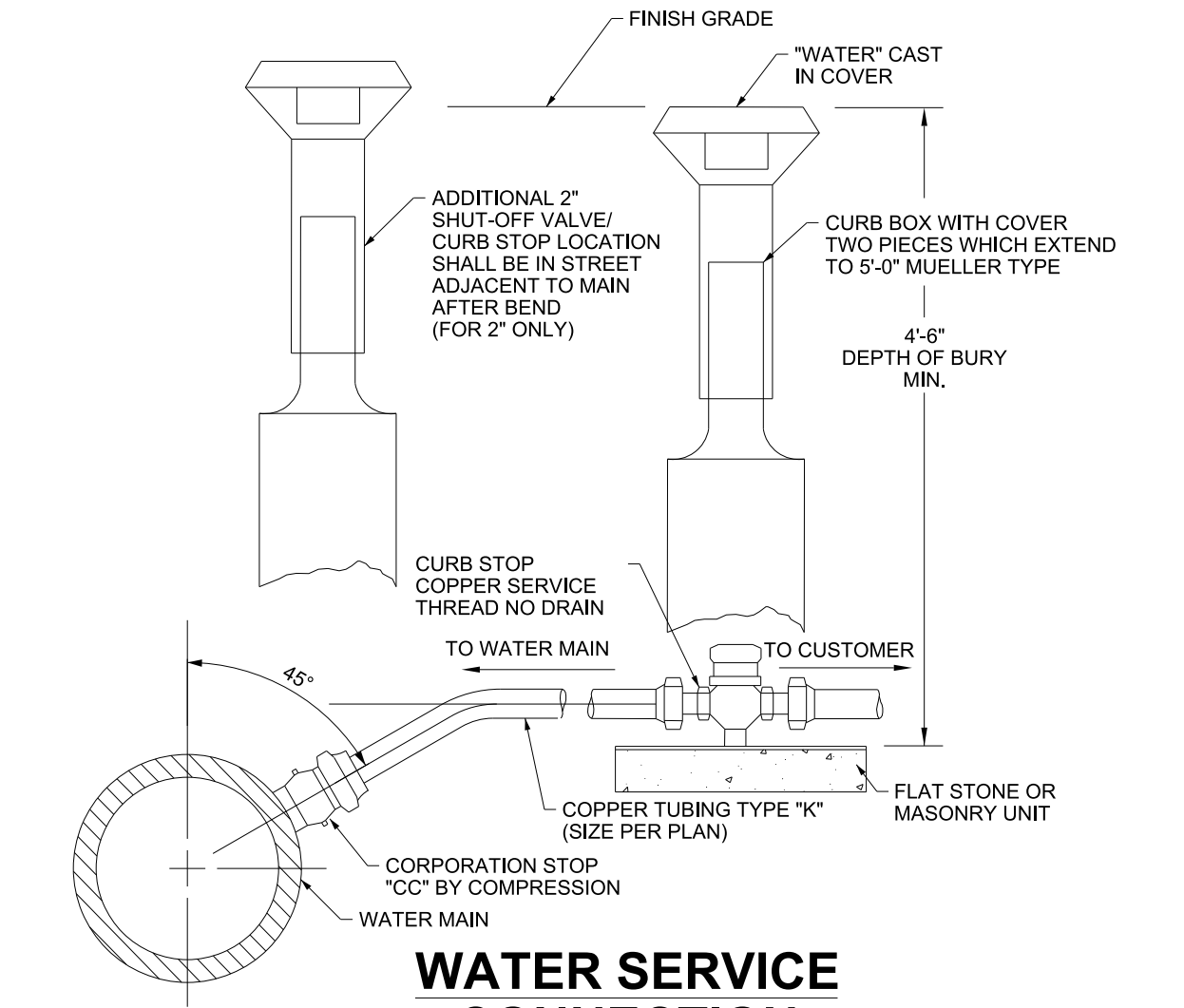
TEMPORARY REPAIR

PERMANENT REPAIR

NOTES:
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH TOWN OF WATERFORD STANDARDS OR AS OTHERWISE DETERMINED IN THE FIELD BY THE ENGINEER.

PAVEMENT RESTORATION OVER TRENCH

NOT TO SCALE



WATER SERVICE CONNECTION

NOT TO SCALE

SCALE: AS SHOWN
PROJECT NUMBER:
00057 - 00001



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PROFESSIONAL SEAL

**NORTH BRIDE BROOK ROAD
MULTI-FAMILY DEVELOPMENT**
PREPARED FOR
PAZZ & CONSTRUCTION LLC
LANDSCAPE & UTILITY DETAILS
N. BRIDE BROOK ROAD (ASSESSOR'S MAP 9, LOT 37-2) EAST LYME, CT

REVISION SUMMARY		SHEET 8 OF 8
DATE	DESCRIPTION	
7/10/20		DATE
		REVISED