

Stormwater Analysis

Sunfox Campground
Owners: Dave & Jen Nowakowski
15 Kenyon Road
Lisbon, Connecticut

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September 2021



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33 Wilbur Cross Way, Suite 105, P.O. Box 535, Mansfield, Connecticut 06268

PROJECT OVERVIEW

Sunfox Campground, located in Lisbon Connecticut, proposes to expand their existing campground with 32 new campsites including an associated access road and utilities. Construction is to be split into 2 phases with a total project disturbance of approximately 8.6-acres. The proposed work will be located east and southeast of the pond on the lot. The site is located along Blissville Brook, which has an approximate watershed area of 1.67 sq. mi. at the southwest limits of the campground property.

The proposed design conforms to the required Low Impact Development (LID) regulations with compacted areas flowing to vegetated areas prior to discharging, minimizing impervious areas, and minimizing erosion. The vegetated areas also serve to provide water quality treatment to the runoff produced onsite. The proposed development results in a minor increase (+7%) in peak flow rates from the developed portion of the site. Given the large drainage area and much higher peak flows associated with Blissville Brook these increases will not impact overall peak flow discharges from the site and will not contribute to increased flooding potential downstream.

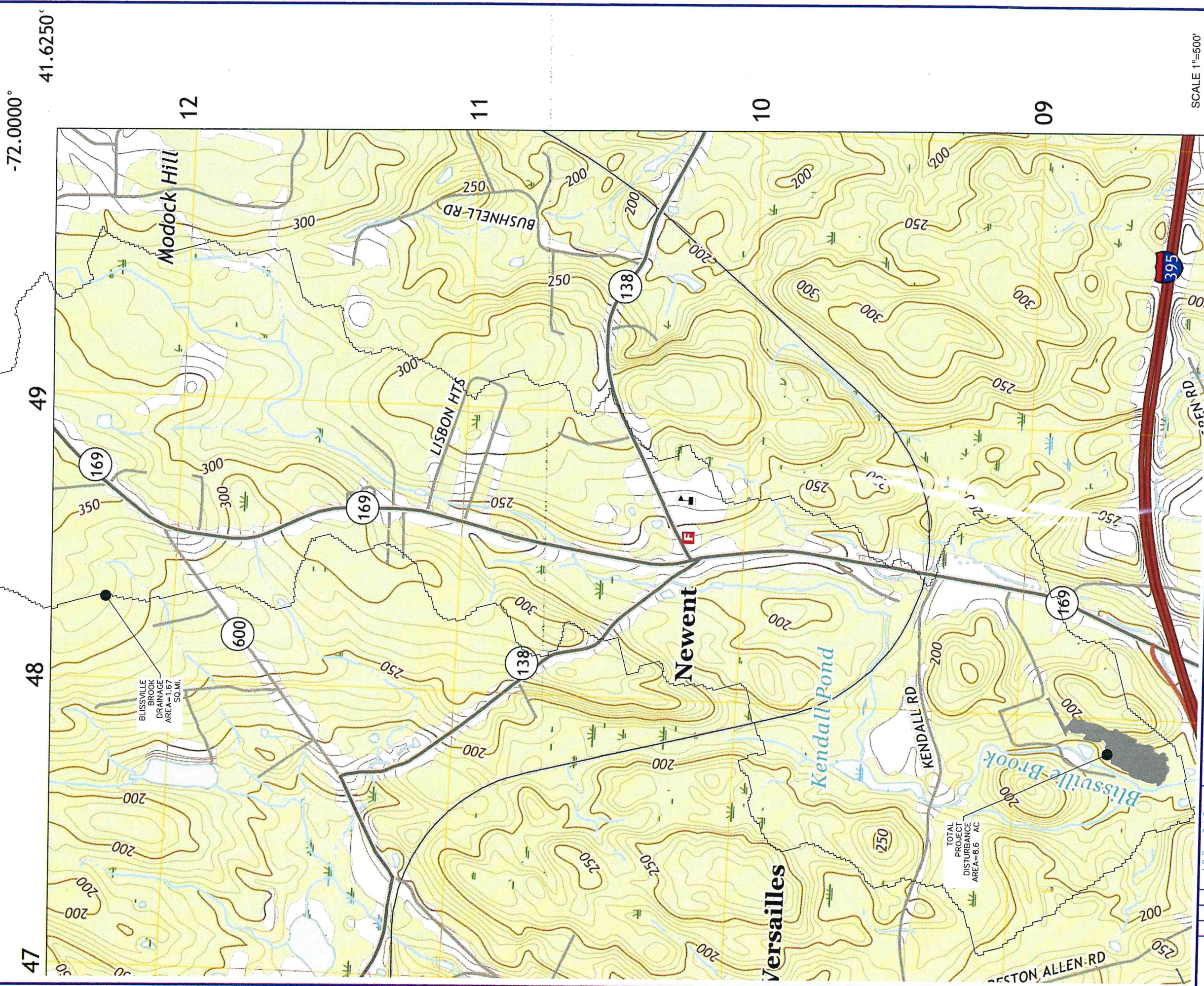
Methodology

Existing and proposed peak flow conditions were analyzed using the Rational Method. The Rational Method predicts the peak runoff according to the formula: $Q=CiA$, where C is a runoff coefficient, i is the rainfall intensity, and A is the sub-catchment area. The change in runoff coefficients (C) were determined by aerial imagery, survey data, and design plans. The catchment (A) was considered as the total project disturbance which is 8.6 acres. The rainfall intensities (i) were derived by calculating the time of concentrations using the sheet/shallow/channel flow method and NOAA Atlas 14's rainfall data. The Blissville Brook peak flow information was found using USGS's StreamStats program which uses regression equations to calculate peak flows. A flow comparison table is found below.

	Existing	Proposed	Blissville Watershed
Runoff Coefficient	0.42	0.57	—
Catchment Area (ac)	8.62	8.62	1070
Q2-year (cfs)	8.8	12.9	91.8
Q10-year (cfs)	13.1	19.3	168
Q25-year (cfs)	15.8	23.3	223
Q50-year (cfs)	17.9	26.3	272
Q100-year (cfs)	20.0	29.4	324

WATERSHED & PROJECT DISTURBANCE

CONNECTICUT - NEW LONDON COUNTY
7.5-MINUTE SERIES



PROJECT: 2019160
BOOK NO. 192
DESIGNED: KLD/PMW
DRAWN: ZRC/RAC
CHECKED: KLD
CADD FILE: 2019160 ALL
FILE

JOB DATA		REVISIONS	
NO.	DATE	DESCRIPTION	BY
1	02/10/2021	HEALTH COMMENTS	RAC
2	04/02/2021	CT OPH COMMENTS	PMW
3	06/15/2021	CT OPH COMMENTS	RAC

DATE: 11/20/2020
PROJECT: #2019160

PREPARED FOR
DAVID NOWAKOWSKI
15 KENYON ROAD
LISBON, CONNECTICUT

WATERSHED & PROJECT DISTURBANCE



33 Wilbur Cross Way, Mansfield, CT 06268
101 East River Drive, 1st Floor
East Hartford, CT 06108
860-885-1055 | www.chacompanies.com

CALCULATIONS

PROPOSED						
DESCRIPTION	# units	SURFACE AREA/unit	Total Area (sf)	Area (acres)	RUNOFF COEFF	AC
PROPOSED SITES 1-9	9	3100	27900	0.64	0.7	0.448347107
PROPOSED SITES 9-30	21	2400	50400	1.16	0.7	0.809917355
PROPOSED SITES 30-53	23	2600	59800	1.37	0.7	0.96097337
GRAVEL ROADS	1	62892	62892	1.44	0.7	1.010661157
EXISTING IMPERVIOUS			94019	2.16	0.7	1.510865071
PERVIOUS			81065	1.86	0.3	0.558298382
TOTAL		376075.9	376075.9	8.63	0.61	5.30

EXISTING						
DESCRIPTION	Total Area (sf)	Area (acres)	RUNOFF COEFF	AC		
EXISTING TRAILS (8' WIDE)	16656	0.38	0.7	0.267658402		
IMPERVIOUS	94019	2.16	0.7	1.510865071		
PERVIOUS	265401	6.09	0.3	1.827830062		
TOTAL	376075.9	8.63	0.42	3.61		

Flow Comparison					
Frequency (years)	Existing	Proposed	StreamStats	% CHANGE	
2	8.8	12.9	91.8	9.3	
10	13.1	19.3	168	7.6	
25	15.8	23.3	223	6.9	
50	17.9	26.3	272	6.4	
100	20.0	29.4	324	6.0	
Average % increase				7.2	

TIME of CONCENTRATION (Tc) or TRAVEL TIME (Tt)

NOTES:

Sheet Flow (Applicable to Tc only) Segment ID

1	Surface Description	Grass
2	Manning's Roughness Coeff.,...n (See table 3-1 TR-55)	0.400
	Max. Flow Elev. (ft)=	238.00
	Min. Flow Elev. (ft)=	235.00
3	Flow length, L (total L<=100ft.).....ft.	75.0
	Land Slope (ft/ft)=	0.040
4	Two-yr 24hr Rainfall, P2...in. (Fig. B-3 of TR-55)	3.37
6	Tt = 0.007 (nL)^0.8/ P2^0.5 * S^0.4 Computed Tt....hr.	0.210

0.210 hr.

Shallow Concentrated flow, Typical from sheet flow to well defined flow which is typically a solid blue line on the USGS contour map.

Shallow Concentration Flow Segment ID

7	Surface description (paved or unpaved).....	Unpaved
	Max. Elevation,ft	235.00
	Min Elevation,ft	140.00
8	Flow length, L.....ft.	1546.0
9	Watercourse slope, s.....ft/ft	0.061
10	Average velocity, V ..ft/s(INDOT eq 29-7.7 or 7.8)	4.00
11	Tt = L/(3600 V).....Computed Tt..hr.	0.107

SUBTOTAL 0.107 hr.

20	Watershed or Subarea Tc or Tt	0.317 hr.
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or

19 min.

Roughness Coefficients (Manning's n) for Sheet Flow

Surface Description	n
Smooth Surfaces (conc., asph., gravel or bare soil)	0.011
Fallow (w/no residue)	0.05
Cultivated Soils	
Cover <= 20%	0.06
Cover >= 20%	0.17
Grass	
Short grass, prairie	0.15
Dense grass	0.24
Bermudagrass	0.41
Range	0.13
Woods	
Light underbrush	0.4
Dense underbrush	0.8

Frequency (years)	Intensity (in/hr) Tc= 19 minutes, interpolated from NOAA
2	2.43
10	3.64
25	4.39
50	4.96
100	5.55

NOAA RAINFALL DATA



NOAA Atlas 14, Volume 10, Version 3
Location name: Jewett City, Connecticut, USA*
Latitude: 41.5942°, Longitude: -72.0241°
Elevation: 179.29 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

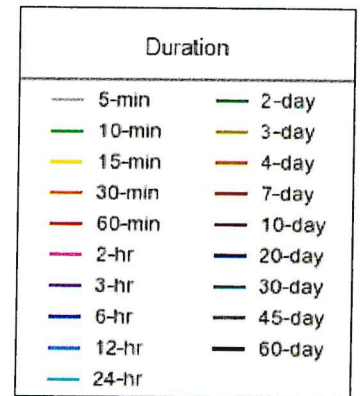
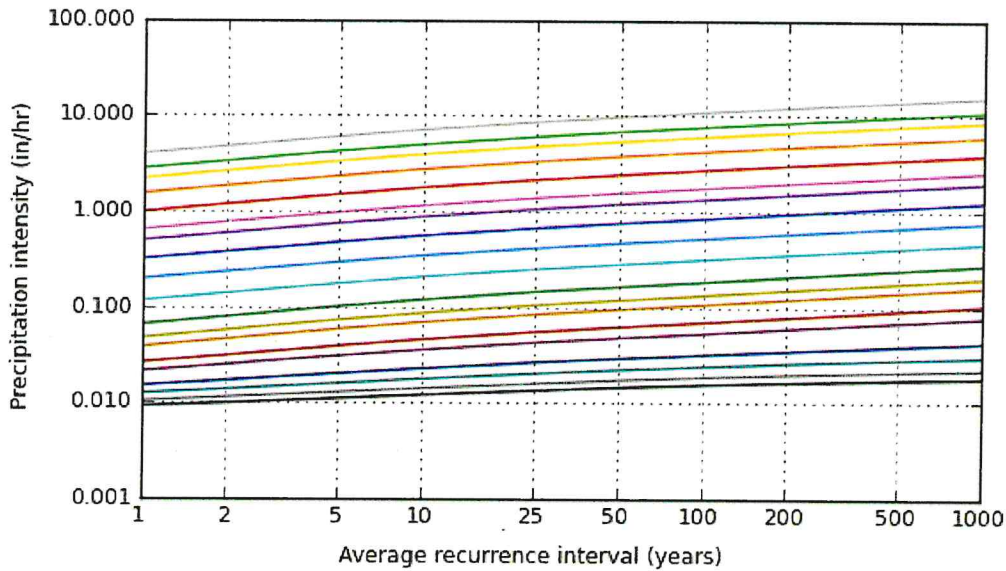
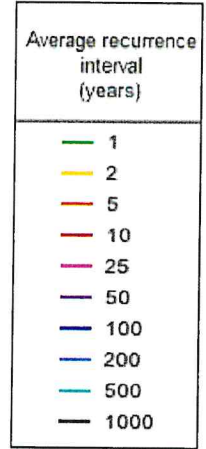
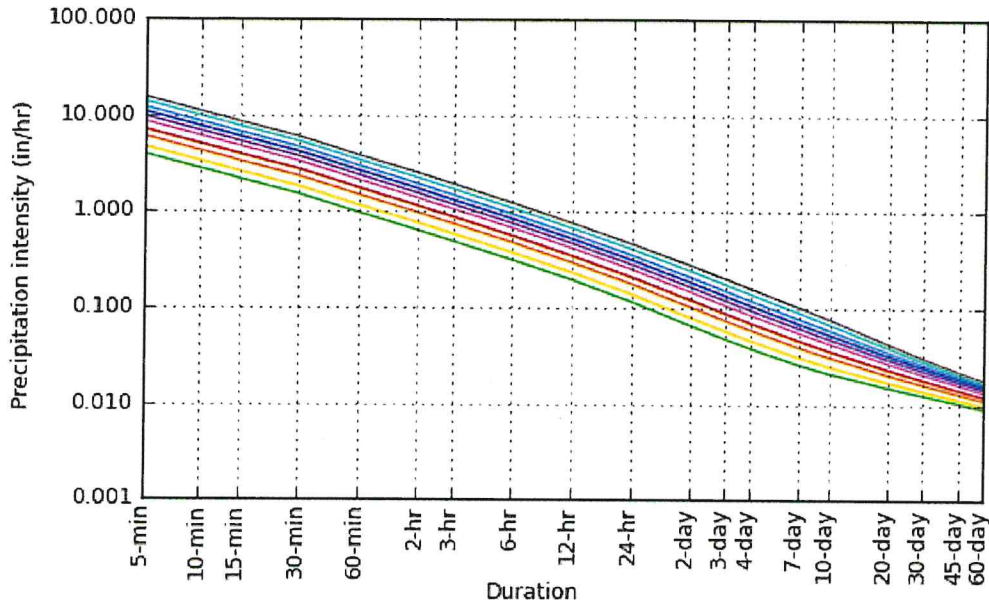
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	3.98 (3.07-5.11)	4.78 (3.68-6.13)	6.06 (4.67-7.81)	7.13 (5.46-9.20)	8.60 (6.38-11.5)	9.72 (7.07-13.2)	10.9 (7.69-15.2)	12.2 (8.18-17.2)	14.0 (9.07-20.3)	15.5 (9.80-22.8)
10-min	2.83 (2.18-3.62)	3.38 (2.61-4.34)	4.30 (3.31-5.53)	5.05 (3.86-6.53)	6.10 (4.52-8.14)	6.89 (5.00-9.33)	7.71 (5.45-10.7)	8.62 (5.80-12.2)	9.92 (6.43-14.4)	11.0 (6.94-16.1)
15-min	2.22 (1.71-2.84)	2.65 (2.05-3.40)	3.37 (2.59-4.34)	3.96 (3.03-5.12)	4.78 (3.55-6.38)	5.40 (3.92-7.32)	6.04 (4.27-8.42)	6.76 (4.54-9.54)	7.78 (5.04-11.3)	8.60 (5.44-12.7)
30-min	1.54 (1.19-1.97)	1.84 (1.42-2.37)	2.34 (1.80-3.01)	2.76 (2.11-3.56)	3.33 (2.47-4.44)	3.76 (2.73-5.09)	4.20 (2.97-5.85)	4.70 (3.16-6.64)	5.41 (3.50-7.84)	5.99 (3.79-8.81)
60-min	0.986 (0.761-1.26)	1.18 (0.911-1.52)	1.50 (1.15-1.93)	1.77 (1.35-2.28)	2.13 (1.58-2.84)	2.41 (1.75-3.26)	2.69 (1.90-3.75)	3.01 (2.02-4.26)	3.47 (2.25-5.02)	3.84 (2.43-5.64)
2-hr	0.642 (0.498-0.817)	0.766 (0.594-0.978)	0.971 (0.750-1.24)	1.14 (0.877-1.46)	1.37 (1.03-1.83)	1.55 (1.13-2.09)	1.74 (1.24-2.41)	1.95 (1.31-2.73)	2.26 (1.47-3.25)	2.52 (1.60-3.68)
3-hr	0.496 (0.386-0.629)	0.591 (0.460-0.752)	0.748 (0.580-0.952)	0.878 (0.677-1.12)	1.06 (0.791-1.40)	1.19 (0.874-1.60)	1.33 (0.953-1.85)	1.50 (1.01-2.09)	1.74 (1.13-2.50)	1.95 (1.24-2.83)
6-hr	0.319 (0.249-0.402)	0.379 (0.296-0.478)	0.478 (0.372-0.604)	0.560 (0.434-0.711)	0.672 (0.506-0.884)	0.756 (0.558-1.01)	0.846 (0.608-1.17)	0.951 (0.645-1.32)	1.11 (0.722-1.58)	1.24 (0.788-1.79)
12-hr	0.199 (0.156-0.249)	0.236 (0.186-0.296)	0.297 (0.233-0.374)	0.348 (0.271-0.439)	0.418 (0.315-0.545)	0.470 (0.348-0.623)	0.525 (0.378-0.718)	0.589 (0.401-0.813)	0.683 (0.448-0.967)	0.761 (0.488-1.09)
24-hr	0.118 (0.094-0.147)	0.141 (0.112-0.176)	0.179 (0.141-0.223)	0.210 (0.164-0.263)	0.253 (0.192-0.328)	0.285 (0.212-0.375)	0.319 (0.231-0.433)	0.358 (0.245-0.491)	0.416 (0.274-0.586)	0.465 (0.299-0.664)
2-day	0.067 (0.053-0.082)	0.080 (0.064-0.099)	0.103 (0.081-0.127)	0.121 (0.095-0.151)	0.146 (0.112-0.189)	0.165 (0.124-0.217)	0.186 (0.136-0.252)	0.210 (0.144-0.286)	0.246 (0.162-0.344)	0.277 (0.178-0.392)
3-day	0.048 (0.038-0.059)	0.058 (0.046-0.071)	0.074 (0.059-0.092)	0.088 (0.069-0.109)	0.106 (0.081-0.136)	0.120 (0.090-0.157)	0.134 (0.098-0.182)	0.152 (0.104-0.206)	0.179 (0.118-0.248)	0.201 (0.130-0.284)
4-day	0.039 (0.031-0.048)	0.047 (0.037-0.057)	0.059 (0.047-0.073)	0.070 (0.055-0.086)	0.084 (0.065-0.108)	0.095 (0.072-0.124)	0.107 (0.078-0.144)	0.121 (0.083-0.164)	0.142 (0.094-0.197)	0.160 (0.104-0.225)
7-day	0.026 (0.021-0.032)	0.031 (0.025-0.038)	0.039 (0.031-0.048)	0.046 (0.037-0.057)	0.055 (0.043-0.070)	0.062 (0.047-0.081)	0.069 (0.051-0.093)	0.078 (0.054-0.105)	0.091 (0.061-0.126)	0.103 (0.067-0.144)
10-day	0.021 (0.017-0.026)	0.025 (0.020-0.030)	0.031 (0.025-0.038)	0.036 (0.029-0.044)	0.043 (0.033-0.054)	0.048 (0.036-0.062)	0.053 (0.039-0.071)	0.059 (0.041-0.080)	0.069 (0.046-0.095)	0.077 (0.050-0.107)
20-day	0.015 (0.012-0.018)	0.017 (0.014-0.021)	0.020 (0.016-0.025)	0.023 (0.018-0.028)	0.027 (0.021-0.033)	0.029 (0.022-0.037)	0.032 (0.023-0.042)	0.035 (0.024-0.047)	0.039 (0.026-0.053)	0.042 (0.028-0.059)
30-day	0.013 (0.010-0.015)	0.014 (0.011-0.017)	0.016 (0.013-0.019)	0.018 (0.014-0.022)	0.020 (0.016-0.025)	0.022 (0.017-0.028)	0.024 (0.018-0.031)	0.026 (0.018-0.035)	0.028 (0.019-0.039)	0.030 (0.020-0.042)
45-day	0.011 (0.009-0.013)	0.011 (0.009-0.014)	0.013 (0.010-0.016)	0.014 (0.011-0.017)	0.016 (0.012-0.020)	0.017 (0.013-0.022)	0.019 (0.014-0.024)	0.020 (0.014-0.026)	0.021 (0.014-0.029)	0.022 (0.014-0.030)
60-day	0.009 (0.007-0.011)	0.010 (0.008-0.012)	0.011 (0.009-0.013)	0.012 (0.010-0.015)	0.013 (0.010-0.016)	0.014 (0.011-0.018)	0.015 (0.011-0.020)	0.016 (0.011-0.021)	0.017 (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

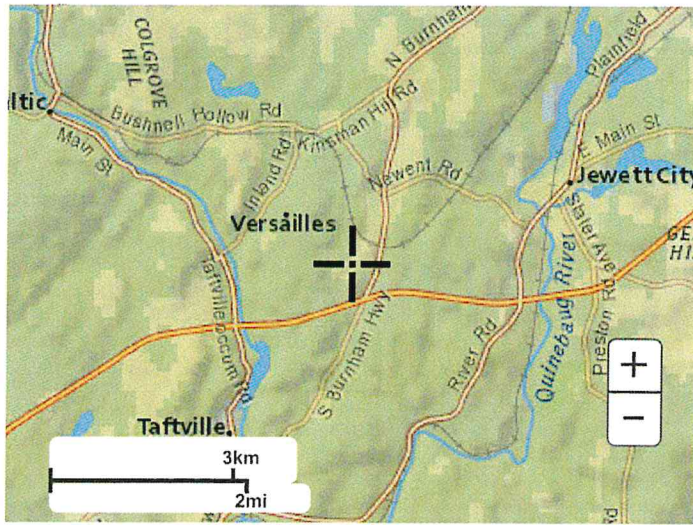
PDS-based intensity-duration-frequency (IDF) curves
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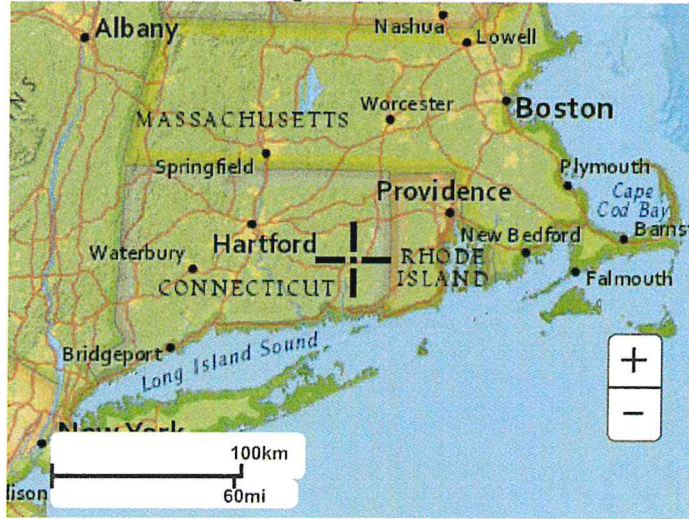
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Maps & aerials

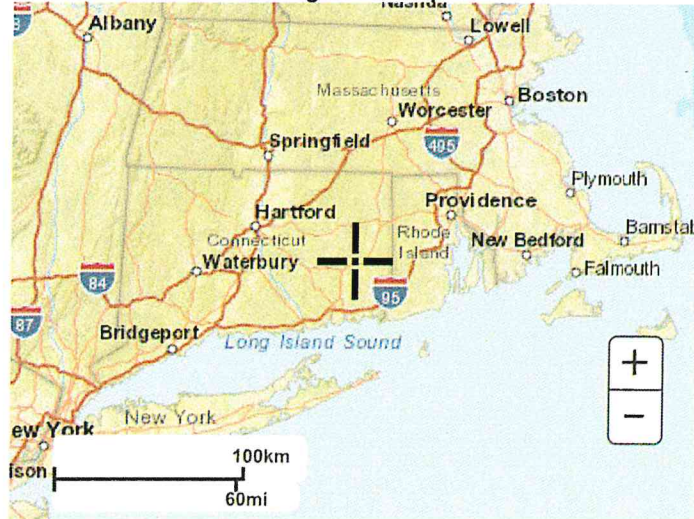
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

STREAMSTATS REPORT

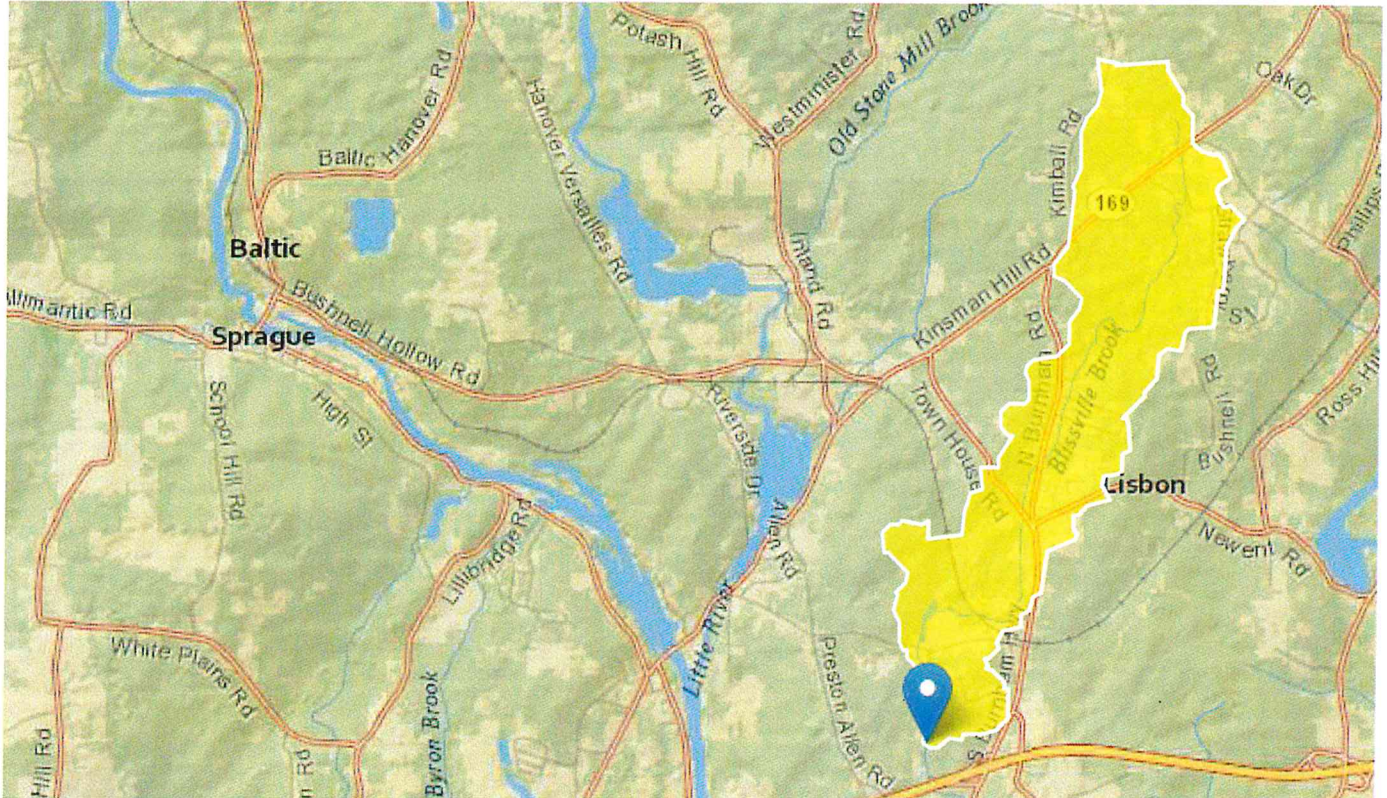
StreamStats Report

Region ID: CT

Workspace ID: CT20210818202359630000

Clicked Point (Latitude, Longitude): 41.59065, -72.02716

Time: 2021-08-18 16:24:18 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CAT1ROADS	Length of interstates lmtd access highways and ramps for lmtd access highways, includes cloverleaf interchanges (USGS Ntl Transp Dataset)	0	miles
CAT2ROADS	Length of sec hwy or maj connecting roads; main arteries & hws not lmtd access, usually in the US Hwy or State Hwy systems (USGS Ntl Transp Dataset)	0	miles

Parameter Code	Parameter Description	Value	Unit
CAT3ROADS	Length of local connecting roads; roads that collect traffic from local roads & connect towns, subdivisions & neighborhoods (USGS Nat Transp Dataset)	2.56	miles
CAT4ROADS	Length of local roads; generally paved street, road, or byway that usually have single lane of traffic in each direction (USGS Ntnl Transp Dataset)	4.29	miles
CROSCOUNT1	Number of intersections between streams and roads, where the roads are interstate, limited access highway, or ramp (CAT1ROADS)	0	dimensionless
CROSCOUNT2	Number of intersections between streams and roads, where the roads are secondary highway or major connecting road (CAT2ROADS)	0	dimensionless
CROSCOUNT3	Number of intersections between streams and roads, where roads are local connecting roads (CAT3ROADS)	3	dimensionless
CROSCOUNT4	Number of intersections between streams and roads, where roads are local roads (CAT4ROADS)	6	dimensionless
CRSDFT	Percentage of area of coarse-grained stratified drift	19.1	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	43	feet per mi
DRNAREA	Area that drains to a point on a stream	1.67	square miles
ELEV	Mean Basin Elevation	284	feet
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	7.64	inches
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	4.97	inches
I24H200Y	Maximum 24-hour precipitation that occurs on average once in 200 years	8.7	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	6.03	inches
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	3.1	inches

Parameter Code	Parameter Description	Value	Unit
I24H500Y	Maximum 24-hour precipitation that occurs on average once in 500 years	10.1	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	6.84	inches
I24H5Y	Maximum 24-hour precipitation that occurs on average once in 5 years	4.16	inches
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	11.3	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	2.09	percent
LFPLENGTH	Length of longest flow path	4.73	miles
MAPM	Mean Annual Precip Basin Average	48.819	inches
NOVAVPRE	Mean November Precipitation	4.7	inches
PRCWINTER	Mean annual precipitation for December through February	4.1	inches
SGSL	Total stream length intersecting sand and gravel deposits (in miles)	2.77	miles
SOILPERM	Average Soil Permeability	3.687	inches per hour
SSURGOCCDD	Percentage of area with hydrologic soil types C, D, or C/D from SSURGO	0.5009	percent
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	5.69	miles
WETLAND	Percentage of Wetlands	0.34	percent

Peak-Flow Statistics Parameters [Statewide DA only SIR 2020 5054]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.69	325

Peak-Flow Statistics Parameters [Statewide Multiparameter SIR 2020 5054]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
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Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.69	325
I24H2Y	24 Hour 2 Year Precipitation	3.1	inches	2.77	3.32
SSURGOCCDD	Percent soil type C or D from SSURGO	0.5009	percent	0.118	0.945
I24H5Y	24 Hour 5 Year Precipitation	4.16	inches	4	4.7
I24H10Y	24 Hour 10 Year Precipitation	4.97	inches	4.86	5.79
I24H25Y	24 Hour 25 Year Precipitation	6.03	inches	5.99	7.22
I24H50Y	24 Hour 50 Year Precipitation	6.84	inches	6.81	8.3
I24H100Y	24 Hour 100 Year Precipitation	7.64	inches	7.62	9.38
I24H200Y	24 Hour 200 Year Precipitation	8.7	inches	8.7	11.22
I24H500Y	24 Hour 500 Year Precipitation	10.1	inches	10.1	13.64

Peak-Flow Statistics Flow Report [Statewide DA only SIR 2020 5054]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
Drainage Area Only 50-percent AEP flood	95.6	ft ³ /s	35
Drainage Area Only 20-percent AEP flood	168	ft ³ /s	35
Drainage Area Only 10-percent AEP flood	228	ft ³ /s	36.3
Drainage Area Only 4-percent AEP flood	317	ft ³ /s	37.8
Drainage Area Only 2-percent AEP flood	392	ft ³ /s	39.8
Drainage Area Only 1-percent AEP flood	476	ft ³ /s	42.4
Drainage Area Only 0.5-percent AEP flood	570	ft ³ /s	44.4
Drainage Area Only 0.2-percent AEP flood	710	ft ³ /s	48

Peak-Flow Statistics Flow Report [Statewide Multiparameter SIR 2020 5054]

FLOW USED IN ANALYSIS

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	ASEp
50-percent AEP flood	91.8	ft ³ /s	22.5	374	26.5
20-percent AEP flood	133	ft ³ /s	29.6	598	26.3

Statistic	Value	Unit	PIl	Plu	ASEp
10-percent AEP flood	168	ft ³ /s	34.4	820	28.4
4-percent AEP flood	223	ft ³ /s	41.1	1210	31.5
2-percent AEP flood	272	ft ³ /s	45.7	1620	34.3
1-percent AEP flood	324	ft ³ /s	49.4	2120	37.1
0.5-percent AEP flood	385	ft ³ /s	65.9	2250	40.6
0.2-percent AEP flood	481	ft ³ /s	87.5	2640	45

Peak-Flow Statistics Flow Report [Area-Averaged]

PIl: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp		
Drainage Area Only 50-percent AEP flood	95.6	ft ³ /s	35		
Drainage Area Only 20-percent AEP flood	168	ft ³ /s	35		
Drainage Area Only 10-percent AEP flood	228	ft ³ /s	36.3		
Drainage Area Only 4-percent AEP flood	317	ft ³ /s	37.8		
Drainage Area Only 2-percent AEP flood	392	ft ³ /s	39.8		
Drainage Area Only 1-percent AEP flood	476	ft ³ /s	42.4		
Drainage Area Only 0.5-percent AEP flood	570	ft ³ /s	44.4		
Drainage Area Only 0.2-percent AEP flood	710	ft ³ /s	48		
50-percent AEP flood	91.8	ft ³ /s	22.5	374	26.5
20-percent AEP flood	133	ft ³ /s	29.6	598	26.3
10-percent AEP flood	168	ft ³ /s	34.4	820	28.4
4-percent AEP flood	223	ft ³ /s	41.1	1210	31.5
2-percent AEP flood	272	ft ³ /s	45.7	1620	34.3
1-percent AEP flood	324	ft ³ /s	49.4	2120	37.1
0.5-percent AEP flood	385	ft ³ /s	65.9	2250	40.6
0.2-percent AEP flood	481	ft ³ /s	87.5	2640	45

Peak-Flow Statistics Citations

Ahearn, E.A., and Hodgkins, G.A., 2020, Estimating flood magnitude and frequency on streams and rivers in Connecticut, based on data through water year 2015: U.S. Geological

Flow-Duration Statistics Parameters [Duration Flow 2010 5052]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.92	150
ELEV	Mean Basin Elevation	284	feet	168	1287
CRSDFT	Percent Coarse Stratified Drift	19.1	percent	0.1	55.1

Flow-Duration Statistics Flow Report [Duration Flow 2010 5052]

Statistic	Value	Unit
25 Percent Duration	4.28	ft ³ /s
99 Percent Duration	0.0723	ft ³ /s

Flow-Duration Statistics Citations

Ahearn, E.A.,2010, Regional regression equations to estimate flow-duration statistics in Connecticut: U. S. Geological Survey Scientific Investigations Report 2010-5052, 45 p.
 (<http://pubs.usgs.gov/sir/2010/5052/>)

Seasonal Flow Statistics Parameters [Duration Flow 2010 5052]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.92	150
PRCWINTER	Mean Annual Winter Precipitation	4.1	inches	3.19	4.4
CRSDFT	Percent Coarse Stratified Drift	19.1	percent	0.1	55.1

Seasonal Flow Statistics Flow Report [Duration Flow 2010 5052]

Statistic	Value	Unit
25 Percent Duration December to February	4.66	ft ³ /s
50 Percent Duration December to February	2.77	ft ³ /s
75 Percent Duration December to February	1.66	ft ³ /s

Statistic	Value	Unit
95 Percent Duration DEC FEB	0.765	ft ³ /s
99 Percent Duration December to February	0.418	ft ³ /s
25 Percent Duration March to April	7.02	ft ³ /s
50 Percent Duration March to April	4.41	ft ³ /s
75 Percent Duration March to April	3.21	ft ³ /s
95 Percent Duration March to April	1.97	ft ³ /s
99 Percent Duration March to April	1.42	ft ³ /s
25 Percent Duration July to October	1.13	ft ³ /s
50 Percent Duration July to October	0.508	ft ³ /s
75 Percent Duration July to October	0.243	ft ³ /s
80 Percent Duration July to October	0.201	ft ³ /s
99 Percent Duration July to October	0.0294	ft ³ /s

Seasonal Flow Statistics Citations

Ahearn, E.A.,2010, Regional regression equations to estimate flow-duration statistics in Connecticut: U. S. Geological Survey Scientific Investigations Report 2010-5052, 45 p. (<http://pubs.usgs.gov/sir/2010/5052/>)

May Flow-Duration Statistics Parameters [Duration Flow 2010 5052]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.92	150
CRSDFT	Percent Coarse Stratified Drift	19.1	percent	0.1	55.1

May Flow-Duration Statistics Flow Report [Duration Flow 2010 5052]

Statistic	Value	Unit
May 25 Percent Duration	4.79	ft ³ /s
May 50 Percent Duration	3.24	ft ³ /s
May 75 Percent Duration	2.26	ft ³ /s
May 95 Percent Duration	1.29	ft ³ /s
May 99 Percent Duration	0.87	ft ³ /s

May Flow-Duration Statistics Citations

Ahearn, E.A.,2010, Regional regression equations to estimate flow-duration statistics in Connecticut: U. S. Geological Survey Scientific Investigations Report 2010-5052, 45 p. (<http://pubs.usgs.gov/sir/2010/5052/>)

June Flow-Duration Statistics Parameters [Duration Flow 2010 5052]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.92	150
CRSDFT	Percent Coarse Stratified Drift	19.1	percent	0.1	55.1
WETLAND	Percent Wetlands	0.34	percent	0.3	18.1

June Flow-Duration Statistics Flow Report [Duration Flow 2010 5052]

Statistic	Value	Unit
June 25 Percent Duration	2.46	ft ³ /s
June 50 Percent Duration	1.34	ft ³ /s
June 75 Percent Duration	0.758	ft ³ /s
June 90 Percent Duration	0.569	ft ³ /s
June 99 Percent Duration	0.258	ft ³ /s

June Flow-Duration Statistics Citations

Ahearn, E.A.,2010, Regional regression equations to estimate flow-duration statistics in Connecticut: U. S. Geological Survey Scientific Investigations Report 2010-5052, 45 p. (<http://pubs.usgs.gov/sir/2010/5052/>)

November Flow-Duration Statistics Parameters [Duration Flow 2010 5052]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.92	150
NOVAVPRE	Mean November Precipitation	4.7	inches	3.48	4.93
CRSDFT	Percent Coarse Stratified Drift	19.1	percent	0.1	55.1

November Flow-Duration Statistics Flow Report [Duration Flow 2010 5052]

Statistic	Value	Unit
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Statistic	Value	Unit
November 25 Percent Duration	3.72	ft ³ /s
November 50 Percent Duration	2.05	ft ³ /s
November 75 Percent Duration	0.965	ft ³ /s
November 90 Percent Duration	0.54	ft ³ /s
November 99 Percent Duration	0.225	ft ³ /s

November Flow-Duration Statistics Citations

Ahearn, E.A.,2010, Regional regression equations to estimate flow-duration statistics in Connecticut: U. S. Geological Survey Scientific Investigations Report 2010-5052, 45 p. (<http://pubs.usgs.gov/sir/2010/5052/>)

Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.07722	940.1535

Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	3.799224	138.999861

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.67	square miles	0.07722	59927.7393

Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	18.8	ft
Bieger_D_channel_depth	1.3	ft
Bieger_D_channel_cross_sectional_area	24.7	ft ²

Bankfull Statistics Disclaimers [New England P Bieger 2015]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	8.89	ft
Bieger_P_channel_depth	0.469	ft
Bieger_P_channel_cross_sectional_area	45	ft ²

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	4.52	ft
Bieger_USA_channel_depth	0.41	ft
Bieger_USA_channel_cross_sectional_area	22.5	ft ²

Bankfull Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Bieger_D_channel_width	18.8	ft
Bieger_D_channel_depth	1.3	ft
Bieger_D_channel_cross_sectional_area	24.7	ft ²
Bieger_P_channel_width	8.89	ft
Bieger_P_channel_depth	0.469	ft
Bieger_P_channel_cross_sectional_area	45	ft ²
Bieger_USA_channel_width	4.52	ft
Bieger_USA_channel_depth	0.41	ft
Bieger_USA_channel_cross_sectional_area	22.5	ft ²

Bankfull Statistics Citations

Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G., 2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub/1515?utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_can

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StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2



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