STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

December 30, 2024
Subject: Large Culvert Replacement
State WIN: 024279.00
Location: **Etna – Region 4**

Dear Sir/Ms.:

Make the following changes to the Bid Book:

Please note the attached **Hydrology Report** has been added to the Maine Dot Contracts website for this project.

Consider these changes and information prior to submitting your bid on **January 15, 2025**.

Sincerely,

George M. A. Macdougall P.E.
Contracts & Specifications Engineer

MaineDOT Culvert Hydrology Summary Sheet

Town: Etna **WIN (or Region):** 24279.00

Route: 2 **Local Road Name:** Stage Rd

Stream: unnamed trib to Buzzell Stream

Lat: 44.816488 **Long:** -69.1386

Asset ID: LC-478394 **Also Known As:** n.a.

Existing Structure: 4' S x 5' R x 45' L concrete box culvert

****

Watershed Area: 1.3 ***sq. mi.*** **NWI Wetlands:** 16.3 ***%***

Wbf - calculated: 11.8 ***feet*** **Wbf - measured (if known):** 8.5 ***feet***

Q50: 105 ***cfs***
Q100: 120 ***cfs***

Preliminary **Pipe Size*:**

PDR pipe size = 128" S x 83" R x 100'L metal plate pipe arch

* Note: this size may NOT meet fish passage regulatory requirements. Consult with ENV staff for guidance.

Comments:

MAP Tier 2
selected 1.2x BFW structure and no mitigation
HCD design approach

By: mrl
Date: 9/6/2024
Revised:

ver: *ver. 2022 Oct 20*

WIN:	24279.00	**Project Name:**	culvert replacement
Town:	Etna	**Stream Name:**	unnamed trib to Buzzell Stream
Route No.	2	**Bridge Name:**	n.a.
Asset ID:	LC-478394	**Analysis by:**	mrl
Lat:	44.81649 **Long:** -69.13859	**Date:**	9/6/2024

Peak Flow Calculations by USGS Regression Equations (Lombard/Hodgkins, 2021; Hodgkins, 1999 & Lombard/Hodgkins, 2015)

Enter data in blue cells only!

ver. 2022 Oct 20

	km²	mi²	ac	*Enter data in [mi²]*
A	3.37	1.30	832.0	Watershed Area *DRNAREA*
W	0.55	0.2	135.6	Wetlands area (by NWI)
P_c	488711	4961564		watershed centroid (E, N; UTM 19N; meters)
County	Penobscot S			*choose county from drop-down menu*

Worksheet prepared by:
Charles S. Hebson, PE
Environmental Office
Maine Dept. Transportation
Augusta, ME 04333-0016
207-557-1052
Charles.Hebson@maine.gov

Watershed Characteristics from StreamStats

STORAGE	18.96	Storage as %
STORNWI	16.30	NWI Wetlands %
SANDGRAVF	0.00	sand & gravel aquifer as decimal fraction of watershed A
ELEV	399.1	mean basin elevation (ft)
BSLDEM10M	5.8	mean basin slope (%)
COASTDIST	75.20	distance from the coast (mi)
ELEVMAX	505.5	maximum basin elevation (ft)
LC06WATER	1.68	percent of drainage basin land cover as open water
PRECIP	42.0	mean annual precipitation
STATSGOA	0	mean basin percentage of hydrological soil group A

Ret Pd T (yr)	I24	Q_T (ft³/s) *1999 / 2015*	Q_T (ft³/s) *2020*	Q_T (ft³/s) ***Design***
1.1			18	***20***
2	2.77	45	36	***35***
5	3.40	70	55	***55***
10	3.93	86	70	***70***
25	4.65	112	89	***90***
50	5.20	129	104	***105***
100	5.77	151	120	***120***
200	6.39	171	139	***140***
500	7.26	199	164	***165***

References:

Hodgkins, G.A., 1999.
Estimating the magnitude of peak flows for streams in Maine for Selected Recurrence Intervals
WRIR 99-4008, USGS Augusta, ME

Lombard, P.J. & G.A. Hodgkins, 2015.
Peak flow regression equations for small, ungaged streams: in Maine: Comparing Map-Based to Field-Based Variables
SIR 2015-4059, USGS, Augusta, ME

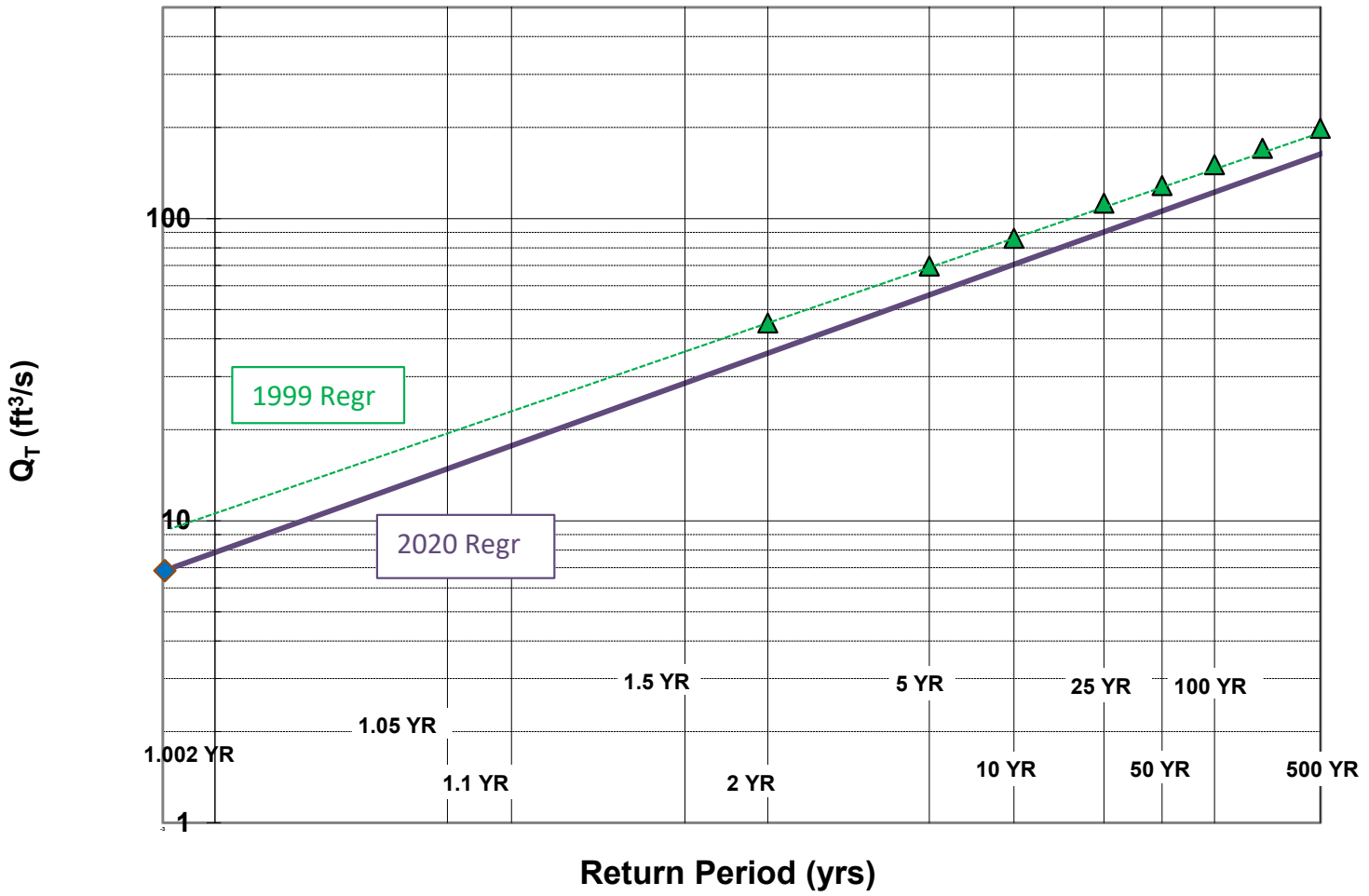
Lombard, P.J. & G.A. Hodgkins, 2020.
Estimating Flood Magnitude and Frequency on Gaged and Ungaged Streams in Maine
SIR 2020-5092, USGS, Augusta, ME.

Calculated Bankfull Width: 11.8 **ft**

Instructions:

Enter values in blue cells only, watershed data from StreamStats
Copy I24 values from Stream Stats
Use results under "Design"
Check against gage data and FEMA studies if available
Questions? Check with ENV / Hydrology Section

Log-Normal Probability Plot



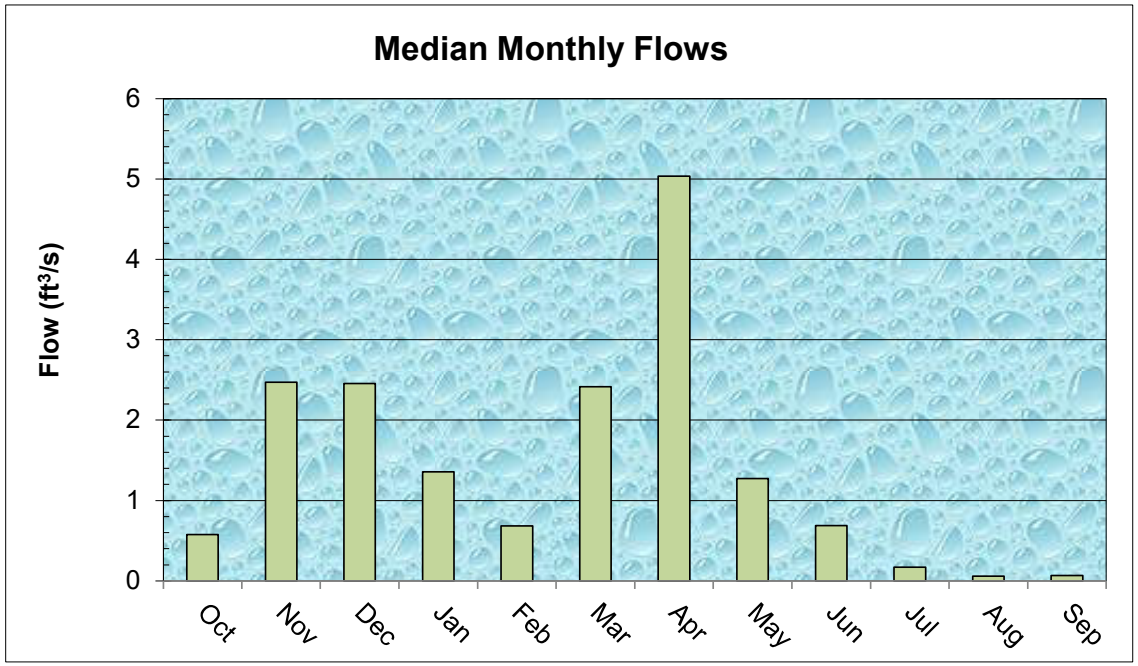
WIN:	24279.00	**Project Name:**	culvert replacement
Town:	Etna	**Stream Name:**	unnamed trib to Buzzell Stream
Route No.	2	**Bridge Name:**	n.a.
Asset ID:	LC-478394	**Analysis by:**	mrl
Lat:	44.81649 **Long:** -69.13859	**Date:**	9/6/2024

DO NOT ENTER ANY DATA ON THIS PAGE; EVERYTHING IS CALCULATED

MAINE MONTHLY MEDIAN FLOWS and HYDRAULIC GEOMETRY BY USGS REGRESSION EQUATIONS (2004, 2013, 2015)

	Value	Variable	Explanation
	1.30	*A*	Area (mi^2)
488711	4961564	P_c	Watershed centroid (E,N; UTM; Zone 19; meters)
	74.05	*DIST*	Distance from Coastal reference line (mi)
	42.0	*pptA*	Mean Annual Precipitation (inches)
	0.00	*SG*	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q_{median} (ft3/s)	(m^3/s)
Jan	**1.36**	0.0385
Feb	**0.68**	0.0194
Mar	**2.42**	0.0685
Apr	**5.03**	0.1427
May	**1.27**	0.0361
Jun	**0.69**	0.0195
Jul	**0.17**	0.0048
Aug	**0.06**	0.0017
Sep	**0.07**	0.0020
Oct	**0.58**	0.0163
Nov	**2.47**	0.0701
Dec	**2.45**	0.0696



Q_{bf}	**6.8**	
ann avg	**3.0**	
ann med	**1.2**	
$Q_{1.002}$	**7.8**	
$Q_{1.01}$	**10.5**	
$Q_{1.05}$	**14.9**	
Q_{bf}	**30.8**	assume v = 4ft/s

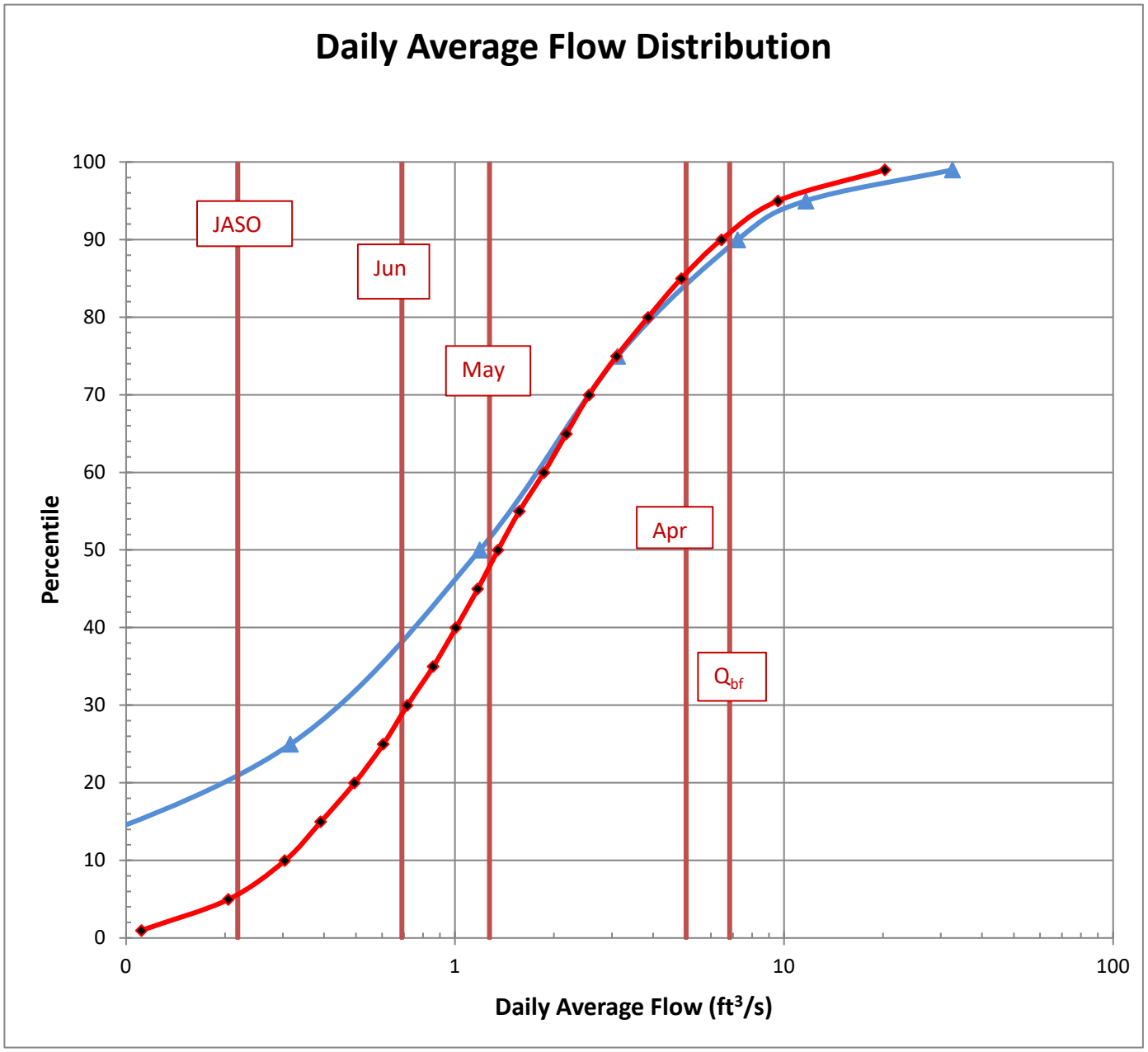
W_{bf}	**11.8**	estimated bankfull width (ft)
d_{bf}	**0.6**	estimated bankfull depth (ft)
A_{bf}	**5.7**	estimated bankfull flow area (ft^2)

References

Dudley, 2013. FY2013 Progress Report - Phase 1 …, USFWS QRP Project

Dudley, 2004. Estimating Monthly Streamflows … , SIR 2004-5026

Dudley, 2015. Regression Equations for Monthly & Annual Mean..., USGS SIR 2015-5151



Daily Avg Flow Dist		
A_{ws} = (mi^2)	1.3	
Q (ft^3/s)		
Pctl	**Median**	**84th pctl**
1.00E-06	0.00	0.00
1	0.11	0.20
5	0.20	0.33
10	0.30	0.46
15	0.39	0.57
20	0.49	0.69
25	0.61	0.81
30	0.72	0.92
35	0.86	1.06
40	1.01	1.21
45	1.17	1.37
50	1.35	1.62
55	1.57	1.89
60	1.86	2.21
65	2.18	2.58
70	2.56	3.01
75	3.10	3.62
80	3.86	4.32
85	4.88	5.54
90	6.46	7.44
95	9.58	11.57
99	20.27	26.68

Q_{bf}	6.8
$Q_{1.002}$	7.8
$Q_{1.1}$	17.7
Q_2	35.8

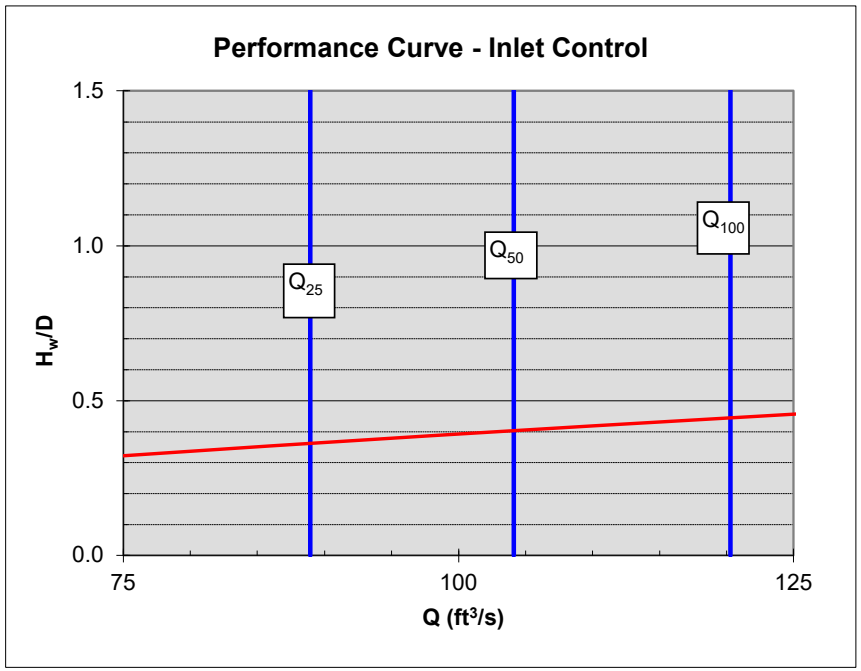
NOTE: ***This page is for preliminary sizing only.***
Final design should be done with HY8 or HDS-5

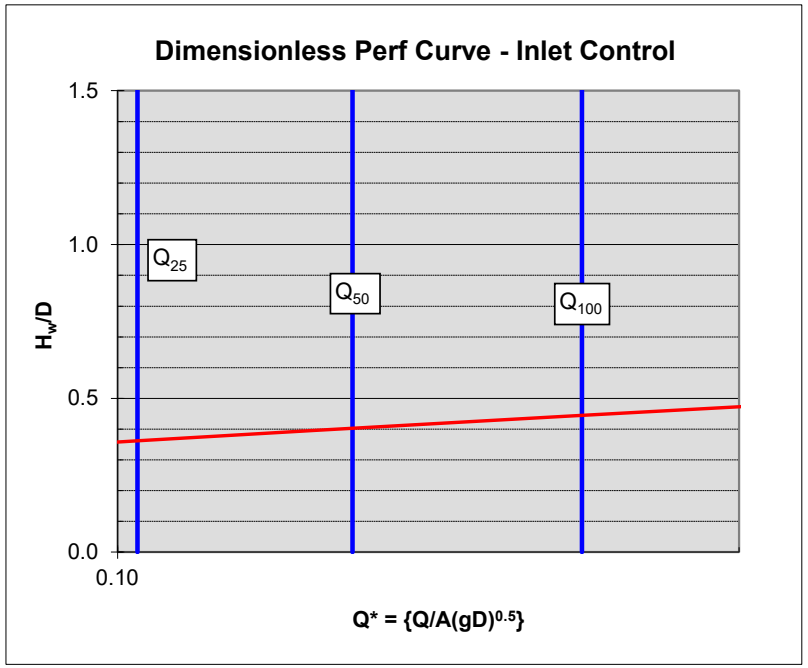
Note:
culvert dimensions are for open flow area; adjust for lost capacity due to embedding / backfilling (min {2' / 25% rise} embedment)
Finish analysis with HY-8

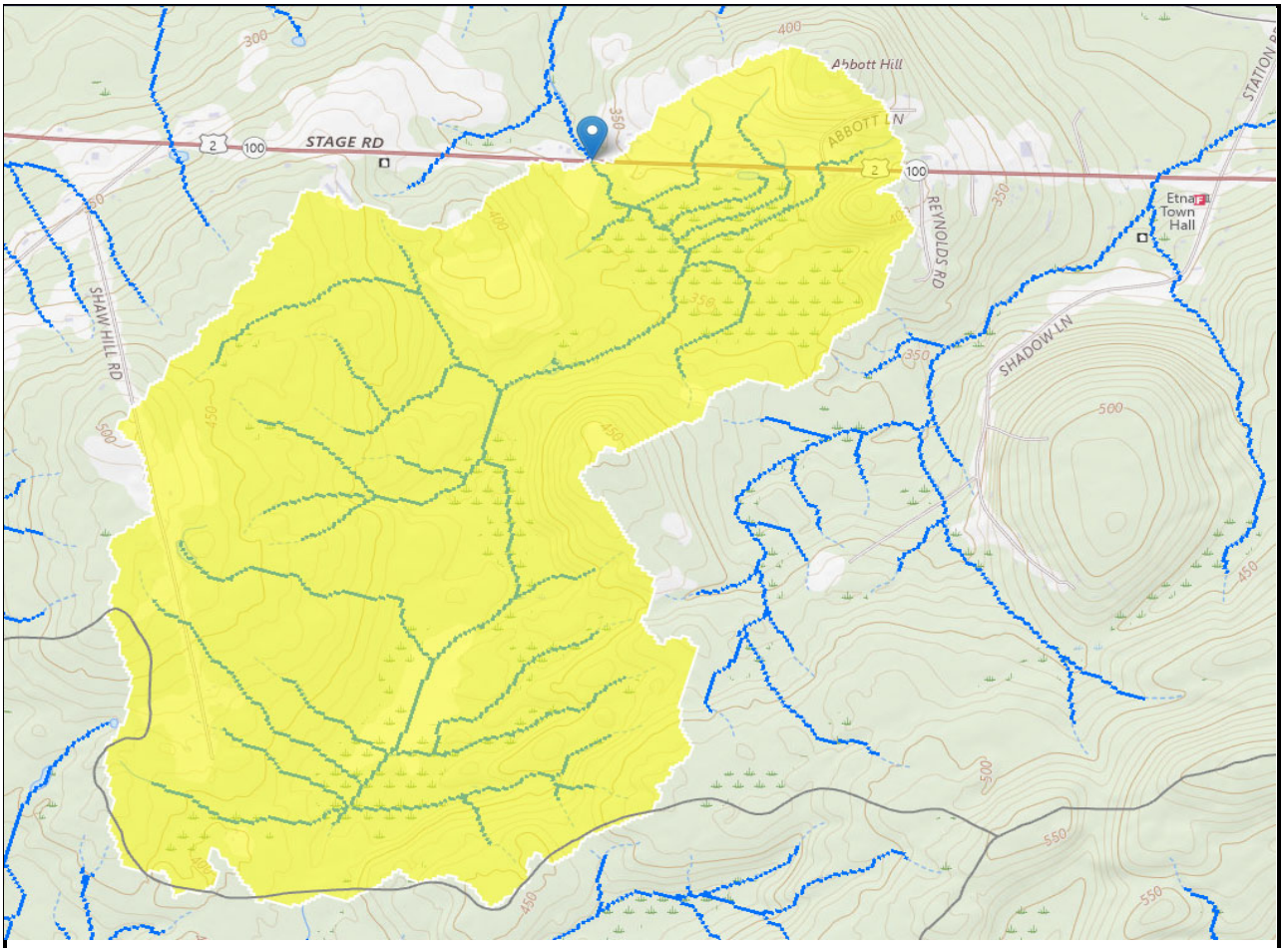
Preliminary Culvert Sizing - Round & Box Culverts

Choose shape and inlet type by pull-down menu in green cells

Shape:	Box					
Inlet Type:	Box 0 ww		Q_{25}	89.0		
D or R (ft)	6	*diam / rise*	Q_{50}	104.1	trial D / R =	5.3
w (ft)	*10.5*	*box span*	Q_{100}	120.3	trial w: BFW =	11.8
Slope (ft/ft)	0.01					
A (ft^2)	63.00					
g (ft/s^2)	32.2					

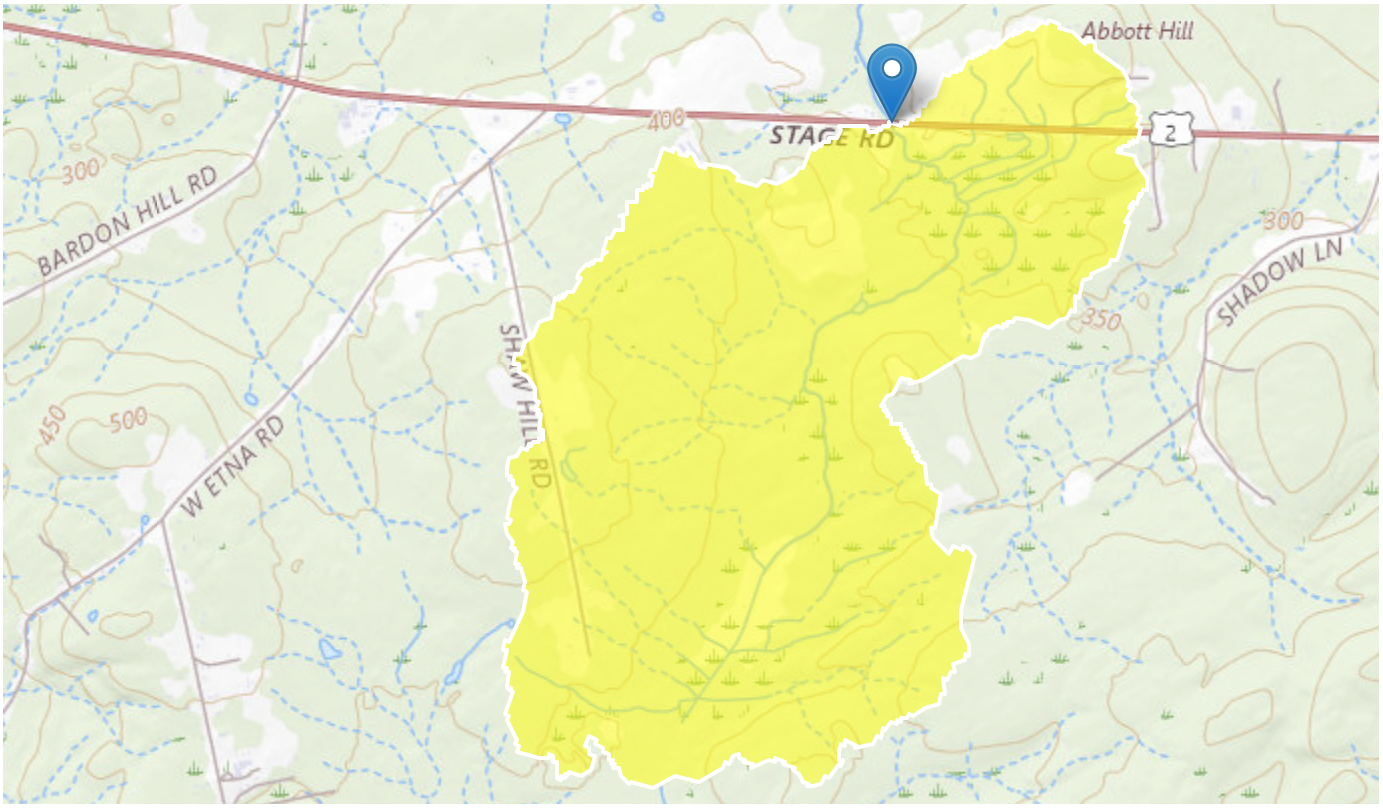





STAGE RD
ABBOTT LN
Abbott Hill
REYNOLDS RD
SHAW HILL RD
SHADOW LN
Etna
Town
Hall
STATION
2
100
300
350
400
450
500
550

Etna Rt 2 LC-47394 WIN 24279.00 USGS StreamStats Report

Region ID: ME
Workspace ID: ME20240906200231590000
Clicked Point (Latitude, Longitude): 44.81647, -69.13846
Time: 2024-09-06 16:03:06 -0400



2024.09.06 update MRL

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLDEM10M	Mean basin slope computed from 10 m DEM	5.8	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	488711.01	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	4961564.49	meters

Parameter Code	Parameter Description	Value	Unit
COASTDIST	Shortest distance from the coastline to the basin centroid	75.2	miles
DRNAREA	Area that drains to a point on a stream	1.3	square miles
ELEV	Mean Basin Elevation	399.1	feet
ELEVMAX	Maximum basin elevation	505.5	feet
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	5.77	inches
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	3.93	inches
I24H200Y	Maximum 24-hour precipitation that occurs on average once in 200 years	6.39	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	4.65	inches
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	2.77	inches
I24H500Y	Maximum 24-hour precipitation that occurs on average once in 500 years	7.26	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	5.2	inches
I24H5Y	Maximum 24-hour precipitation that occurs on average once in 5 years	3.4	inches
JULAVPRE	Mean July Precipitation	3.34	inches
LC06WATER	Percent of open water, class 11, from NLCD 2006	1.68	percent
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	0	percent
PRDECFEB90	Basin average mean precipitation for December to February from PRISM 1961-1990	9.79	inches
PRECIP	Mean Annual Precipitation	42	inches
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0	dimensionless
SANDGRAVAP	Percentage of land surface underlain by sand and gravel aquifers	0	percent

Parameter Code	Parameter Description	Value	Unit
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	0	percent
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	18.956	percent
STORNWI	Percentage of strorage (combined water bodies and wetlands) from the Nationa Wetlands Inventory	16.3	percent

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Statewide multiparameter peakflows SIR 2020 5092]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	0.26	5680
I24H2Y	24 Hour 2 Year Precipitation	2.77	inches	1.92	4.17
STORAGE	Percent Storage	18.956	percent	0	29.4
I24H5Y	24 Hour 5 Year Precipitation	3.4	inches	2.48	5.38
I24H10Y	24 Hour 10 Year Precipitation	3.93	inches	2.84	6.38
I24H25Y	24 Hour 25 Year Precipitation	4.65	inches	3.3	7.75
I24H50Y	24 Hour 50 Year Precipitation	5.2	inches	3.65	8.79
I24H100Y	24 Hour 100 Year Precipitation	5.77	inches	3.99	9.88
I24H200Y	24 Hour 200 YearPrecipitation	6.39	inches	5.26	11.1
I24H500Y	24 Hour 500 Year Precipitation	7.26	inches	5.95	13.1

Peak-Flow Statistics Flow Report [Statewide multiparameter peakflows SIR 2020 5092]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	35.8	ft^3/s	19	67.4	39.1
20-percent AEP flood	55.3	ft^3/s	29.8	103	38.1
10-percent AEP flood	69.7	ft^3/s	37	131	38.9
4-percent AEP flood	89	ft^3/s	46.6	170	39.9
2-percent AEP flood	104	ft^3/s	53.6	202	39.7
1-percent AEP flood	120	ft^3/s	62.1	232	40.7
0.5-percent AEP flood	139	ft^3/s	69.5	278	42.8
0.2-percent AEP flood	164	ft^3/s	80.8	333	43.8

Peak-Flow Statistics Citations

Lombard, P.J., and Hodgkins, G.A.,2020, Estimating flood magnitude and frequency on gaged and ungaged streams in Maine: U.S. Geological Survey Scientific Investigations Report 2020–5092, 56 p. (https://doi.org/10.3133/sir20205092)

Annual Flow Statistics

Annual Flow Statistics Parameters [Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0	dimensionless	0	0.212
ELEV	Mean Basin Elevation	399.1	feet	239	2120

Annual Flow Statistics Disclaimers [Statewide Annual SIR 2015 5151]

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

Annual Flow Statistics Flow Report [Statewide Annual SIR 2015 5151]

Statistic	Value	Unit
Mean Annual Flow	3.01	ft^3/s

Annual Flow Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Monthly Flow Statistics

Monthly Flow Statistics Parameters [Statewide January SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
STATSGOA	STATSGO Percent Hydrologic Soil Type A	0	percent	0	31.5

Monthly Flow Statistics Parameters [Statewide February SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	75.2	miles	46.6	193
BSLDEM10M	Mean Basin Slope from 10m DEM	5.8	percent	1.5	26.6

Monthly Flow Statistics Parameters [Statewide March SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	75.2	miles	46.6	193
LC06WATER	Percent_Water_from_NLCD2006	1.68	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide April SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
COASTDIST	Distance From Coast To Basin Centroid	75.2	miles	46.6	193
LC06WATER	Percent_Water_from_NLCD2006	1.68	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide May SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
BSLDEM10M	Mean Basin Slope from 10m DEM	5.8	percent	1.5	26.6
LC06WATER	Percent_Water_from_NLCD2006	1.68	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide June SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
BSLDEM10M	Mean Basin Slope from 10m DEM	5.8	percent	1.5	26.6
LC06WATER	Percent_Water_from_NLCD2006	1.68	percent	0	6.2

Monthly Flow Statistics Parameters [Statewide July SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0	dimensionless	0	0.212
ELEV	Mean Basin Elevation	399.1	feet	239	2120

Monthly Flow Statistics Parameters [Statewide August SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0	dimensionless	0	0.212
ELEV	Mean Basin Elevation	399.1	feet	239	2120

Monthly Flow Statistics Parameters [Statewide September SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0	dimensionless	0	0.212
ELEV	Mean Basin Elevation	399.1	feet	239	2120

Monthly Flow Statistics Parameters [Statewide October SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0	dimensionless	0	0.212
ELEV	Mean Basin Elevation	399.1	feet	239	2120

Monthly Flow Statistics Parameters [Statewide November SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
ELEVMAX	Maximum Basin Elevation	505.5	feet	633	6290

Monthly Flow Statistics Parameters [Statewide December SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
STATSGOA	STATSGO Percent Hydrologic Soil Type A	0	percent	0	31.5

Monthly Flow Statistics Disclaimers [Statewide January SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide January SIR 2015 5151]

Statistic	Value	Unit
January 1st percentile flow	0.35	ft^3/s
January_5th_percentile_flow	0.551	ft^3/s
January_10th_percentile_flow	0.709	ft^3/s
January 25th percentile flow	1.01	ft^3/s
January_50th_percentile_flow	1.36	ft^3/s
January 75th percentile flow	2.4	ft^3/s
January_90th_percentile_flow	5.06	ft^3/s
January 95th percentile flow	11.4	ft^3/s
January 99th percentile flow	34	ft^3/s
January Mean Flow	3.02	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide February SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide February SIR 2015 5151]

Statistic	Value	Unit
February 1st percentile flow	0.343	ft^3/s
February_5th_percentile_flow	0.335	ft^3/s
February_10th_percentile_flow	0.375	ft^3/s
February 25th percentile flow	0.474	ft^3/s
February_50th_percentile_flow	0.684	ft^3/s

Statistic	Value	Unit
February 75th percentile flow	1.4	ft^3/s
February_90th_percentile_flow	2.57	ft^3/s
February 95th percentile flow	5.82	ft^3/s
February 99th percentile flow	17.9	ft^3/s
February Mean Flow	1.47	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide March SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide March SIR 2015 5151]

Statistic	Value	Unit
March 1st percentile flow	0.405	ft^3/s
March_5th_percentile_flow	0.516	ft^3/s
March_10th_percentile_flow	0.739	ft^3/s
March 25th percentile flow	1.25	ft^3/s
March_50th_percentile_flow	2.42	ft^3/s
March 75th percentile flow	5.07	ft^3/s
March_90th_percentile_flow	12.4	ft^3/s
March 95th percentile flow	18.7	ft^3/s
March 99th percentile flow	58.6	ft^3/s
March Mean Flow	5.36	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide April SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide April SIR 2015 5151]

Statistic	Value	Unit
April 1st percentile flow	0.679	ft^3/s
April_5th_percentile_flow	0.964	ft^3/s

Statistic	Value	Unit
April_10th_percentile_flow	1.34	ft^3/s
April 25th percentile flow	2.64	ft^3/s
April_50th_percentile_flow	5.03	ft^3/s
April 75th percentile flow	10.8	ft^3/s
April_90th_percentile_flow	22.2	ft^3/s
April 95th percentile flow	34.3	ft^3/s
April 99th percentile flow	83.6	ft^3/s
April Mean Flow	9.25	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide May SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide May SIR 2015 5151]

Statistic	Value	Unit
May 1st percentile flow	0.197	ft^3/s
May_5th_percentile_flow	0.342	ft^3/s
May_10th_percentile_flow	0.468	ft^3/s
May 25th percentile flow	0.782	ft^3/s
May_50th_percentile_flow	1.27	ft^3/s
May 75th percentile flow	2.17	ft^3/s
May_90th_percentile_flow	3.91	ft^3/s
May 95th percentile flow	6.44	ft^3/s
May 99th percentile flow	14.6	ft^3/s
May Mean Flow	2.04	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide June SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide June SIR 2015 5151]

Statistic	Value	Unit
June 1st percentile flow	0.133	ft^3/s
June 5th percentile flow	0.189	ft^3/s
June_10th_percentile_flow	0.222	ft^3/s
June 25th percentile flow	0.362	ft^3/s
June_50th_percentile_flow	0.689	ft^3/s
June 75th percentile flow	1.81	ft^3/s
June_90th_percentile_flow	5.13	ft^3/s
June 95th percentile flow	10.7	ft^3/s
June 99th percentile flow	32.6	ft^3/s
June Mean Flow	2.11	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide July SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide July SIR 2015 5151]

Statistic	Value	Unit
July 1st percentile flow	0.0112	ft^3/s
July_5th_percentile_flow	0.026	ft^3/s
July_10th_percentile_flow	0.0359	ft^3/s
July 25th percentile flow	0.0641	ft^3/s
July_50th_percentile_flow	0.17	ft^3/s
July 75th percentile flow	0.559	ft^3/s
July_90th_percentile_flow	1.62	ft^3/s
July 95th percentile flow	3.13	ft^3/s
July 99th percentile flow	9.56	ft^3/s
July Mean Flow	0.661	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide August SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide August SIR 2015 5151]

Statistic	Value	Unit
August 1st percentile flow	0.000344	ft^3/s
August_5th_percentile_flow	0.00172	ft^3/s
August_10th_percentile_flow	0.00293	ft^3/s
August 25th percentile flow	0.02	ft^3/s
August_50th_percentile_flow	0.0597	ft^3/s
August 75th percentile flow	0.261	ft^3/s
August_90th_percentile_flow	0.815	ft^3/s
August 95th percentile flow	1.5	ft^3/s
August 99th percentile flow	6.62	ft^3/s
August Mean Flow	0.346	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide September SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide September SIR 2015 5151]

Statistic	Value	Unit
September 1st percentile flow	0.000324	ft^3/s
September_5th_percentile_flow	0.000506	ft^3/s
September_10th_percentile_flow	0.00456	ft^3/s
September 25th percentile flow	0.0171	ft^3/s
September_50th_percentile_flow	0.0689	ft^3/s
September 75th percentile flow	0.333	ft^3/s
September_90th_percentile_flow	0.922	ft^3/s
September 95th percentile flow	1.99	ft^3/s

Statistic	Value	Unit
September 99th percentile flow	10	ft^3/s
September Mean Flow	0.45	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide October SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide October SIR 2015 5151]

Statistic	Value	Unit
October 1st percentile flow	0.00657	ft^3/s
October_5th_percentile_flow	0.01	ft^3/s
October_10th_percentile_flow	0.0276	ft^3/s
October 25th percentile flow	0.13	ft^3/s
October_50th_percentile_flow	0.575	ft^3/s
October 75th percentile flow	2.23	ft^3/s
October_90th_percentile_flow	6.6	ft^3/s
October 95th percentile flow	13.5	ft^3/s
October 99th percentile flow	44.5	ft^3/s
October Mean Flow	2.8	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide November SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide November SIR 2015 5151]

Statistic	Value	Unit
November 1st percentile flow	0.079	ft^3/s
November_5th_percentile_flow	0.151	ft^3/s
November_10th_percentile_flow	0.414	ft^3/s
November 25th percentile flow	1.32	ft^3/s
November_50th_percentile_flow	2.47	ft^3/s

Statistic	Value	Unit
November 75th percentile flow	4.77	ft^3/s
November_90th_percentile_flow	10	ft^3/s
November 95th percentile flow	16	ft^3/s
November 99th percentile flow	43.1	ft^3/s
November Mean Flow	4.58	ft^3/s

Monthly Flow Statistics Disclaimers [Statewide December SIR 2015 5151]

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

Monthly Flow Statistics Flow Report [Statewide December SIR 2015 5151]

Statistic	Value	Unit
December 1st percentile flow	0.0722	ft^3/s
December_5th_percentile_flow	0.297	ft^3/s
December_10th_percentile_flow	0.742	ft^3/s
December 25th percentile flow	1.43	ft^3/s
December_50th_percentile_flow	2.45	ft^3/s
December 75th percentile flow	3.73	ft^3/s
December_90th_percentile_flow	6.99	ft^3/s
December 95th percentile flow	13.6	ft^3/s
December 99th percentile flow	34.5	ft^3/s
December Mean Flow	4.02	ft^3/s

Monthly Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
January 1st percentile flow	0.35	ft^3/s
January_5th_percentile_flow	0.551	ft^3/s
January_10th_percentile_flow	0.709	ft^3/s
January 25th percentile flow	1.01	ft^3/s
January_50th_percentile_flow	1.36	ft^3/s
January 75th percentile flow	2.4	ft^3/s

Statistic	Value	Unit
January_90th_percentile_flow	5.06	ft^3/s
January 95th percentile flow	11.4	ft^3/s
January 99th percentile flow	34	ft^3/s
January Mean Flow	3.02	ft^3/s
February 1st percentile flow	0.343	ft^3/s
February_5th_percentile_flow	0.335	ft^3/s
February_10th_percentile_flow	0.375	ft^3/s
February 25th percentile flow	0.474	ft^3/s
February_50th_percentile_flow	0.684	ft^3/s
February 75th percentile flow	1.4	ft^3/s
February_90th_percentile_flow	2.57	ft^3/s
February 95th percentile flow	5.82	ft^3/s
February 99th percentile flow	17.9	ft^3/s
February Mean Flow	1.47	ft^3/s
March 1st percentile flow	0.405	ft^3/s
March_5th_percentile_flow	0.516	ft^3/s
March_10th_percentile_flow	0.739	ft^3/s
March 25th percentile flow	1.25	ft^3/s
March_50th_percentile_flow	2.42	ft^3/s
March 75th percentile flow	5.07	ft^3/s
March_90th_percentile_flow	12.4	ft^3/s
March 95th percentile flow	18.7	ft^3/s
March 99th percentile flow	58.6	ft^3/s
March Mean Flow	5.36	ft^3/s
April 1st percentile flow	0.679	ft^3/s
April_5th_percentile_flow	0.964	ft^3/s
April_10th_percentile_flow	1.34	ft^3/s
April 25th percentile flow	2.64	ft^3/s
April_50th_percentile_flow	5.03	ft^3/s
April 75th percentile flow	10.8	ft^3/s

Statistic	Value	Unit
April_90th_percentile_flow	22.2	ft^3/s
April 95th percentile flow	34.3	ft^3/s
April 99th percentile flow	83.6	ft^3/s
April Mean Flow	9.25	ft^3/s
May 1st percentile flow	0.197	ft^3/s
May_5th_percentile_flow	0.342	ft^3/s
May_10th_percentile_flow	0.468	ft^3/s
May 25th percentile flow	0.782	ft^3/s
May_50th_percentile_flow	1.27	ft^3/s
May 75th percentile flow	2.17	ft^3/s
May_90th_percentile_flow	3.91	ft^3/s
May 95th percentile flow	6.44	ft^3/s
May 99th percentile flow	14.6	ft^3/s
May Mean Flow	2.04	ft^3/s
June 1st percentile flow	0.133	ft^3/s
June 5th percentile flow	0.189	ft^3/s
June_10th_percentile_flow	0.222	ft^3/s
June 25th percentile flow	0.362	ft^3/s
June_50th_percentile_flow	0.689	ft^3/s
June 75th percentile flow	1.81	ft^3/s
June_90th_percentile_flow	5.13	ft^3/s
June 95th percentile flow	10.7	ft^3/s
June 99th percentile flow	32.6	ft^3/s
June Mean Flow	2.11	ft^3/s
July 1st percentile flow	0.0112	ft^3/s
July_5th_percentile_flow	0.026	ft^3/s
July_10th_percentile_flow	0.0359	ft^3/s
July 25th percentile flow	0.0641	ft^3/s
July_50th_percentile_flow	0.17	ft^3/s
July 75th percentile flow	0.559	ft^3/s

Statistic	Value	Unit
July_90th_percentile_flow	1.62	ft^3/s
July 95th percentile flow	3.13	ft^3/s
July 99th percentile flow	9.56	ft^3/s
July Mean Flow	0.661	ft^3/s
August 1st percentile flow	0.000344	ft^3/s
August_5th_percentile_flow	0.00172	ft^3/s
August_10th_percentile_flow	0.00293	ft^3/s
August 25th percentile flow	0.02	ft^3/s
August_50th_percentile_flow	0.0597	ft^3/s
August 75th percentile flow	0.261	ft^3/s
August_90th_percentile_flow	0.815	ft^3/s
August 95th percentile flow	1.5	ft^3/s
August 99th percentile flow	6.62	ft^3/s
August Mean Flow	0.346	ft^3/s
September 1st percentile flow	0.000324	ft^3/s
September_5th_percentile_flow	0.000506	ft^3/s
September_10th_percentile_flow	0.00456	ft^3/s
September 25th percentile flow	0.0171	ft^3/s
September_50th_percentile_flow	0.0689	ft^3/s
September 75th percentile flow	0.333	ft^3/s
September_90th_percentile_flow	0.922	ft^3/s
September 95th percentile flow	1.99	ft^3/s
September 99th percentile flow	10	ft^3/s
September Mean Flow	0.45	ft^3/s
October 1st percentile flow	0.00657	ft^3/s
October_5th_percentile_flow	0.01	ft^3/s
October_10th_percentile_flow	0.0276	ft^3/s
October 25th percentile flow	0.13	ft^3/s
October_50th_percentile_flow	0.575	ft^3/s
October 75th percentile flow	2.23	ft^3/s

Statistic	Value	Unit
October_90th_percentile_flow	6.6	ft^3/s
October 95th percentile flow	13.5	ft^3/s
October 99th percentile flow	44.5	ft^3/s
October Mean Flow	2.8	ft^3/s
November 1st percentile flow	0.079	ft^3/s
November_5th_percentile_flow	0.151	ft^3/s
November_10th_percentile_flow	0.414	ft^3/s
November 25th percentile flow	1.32	ft^3/s
November_50th_percentile_flow	2.47	ft^3/s
November 75th percentile flow	4.77	ft^3/s
November_90th_percentile_flow	10	ft^3/s
November 95th percentile flow	16	ft^3/s
November 99th percentile flow	43.1	ft^3/s
November Mean Flow	4.58	ft^3/s
December 1st percentile flow	0.0722	ft^3/s
December_5th_percentile_flow	0.297	ft^3/s
December_10th_percentile_flow	0.742	ft^3/s
December 25th percentile flow	1.43	ft^3/s
December_50th_percentile_flow	2.45	ft^3/s
December 75th percentile flow	3.73	ft^3/s
December_90th_percentile_flow	6.99	ft^3/s
December 95th percentile flow	13.6	ft^3/s
December 99th percentile flow	34.5	ft^3/s
December Mean Flow	4.02	ft^3/s

Monthly Flow Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Flow Percentile Statistics

Flow Percentile Statistics Parameters [Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0	dimensionless	0	0.212
ELEV	Mean Basin Elevation	399.1	feet	239	2120

Flow Percentile Statistics Disclaimers [Statewide Annual SIR 2015 5151]

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

Flow Percentile Statistics Flow Report [Statewide Annual SIR 2015 5151]

Statistic	Value	Unit
1st Percentile Flow	0.00204	ft^3/s
5th Percentile Flow	0.0159	ft^3/s
10th Percentile Flow	0.0506	ft^3/s
25th Percentile Flow	0.316	ft^3/s
50th Percentile Flow Median	1.19	ft^3/s
75th Percentile Flow	3.12	ft^3/s
90th Percentile Flow	7.23	ft^3/s
95th Percentile Flow	11.7	ft^3/s
99th Percentile Flow	32.5	ft^3/s

Flow Percentile Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

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