

**MAINE DEPARTMENT OF TRANSPORTATION  
MEMORANDUM**

Date: January 19, 2012 (due 3/23/12)

To: **Charles Hebson, Environmental Hydrology Supervisor**

From: Susan Murphy, Team Coordinator, Bridge Program

For: Steve Bodge, Project Manager, Region #2

Town: Benton

Bridge: Fifteen Mile Stream Bridge #5069 PIN: 18231.00

Location: carries Route 139 over Fifteen Mile Stream, in Benton.

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I am requesting hydrology reports on this project, with peak flows and monthly median flows. Please send them to me as soon as possible. If you have any questions, I may be contacted at 624-3446 or email [susan.murphy@maine.gov](mailto:susan.murphy@maine.gov).

Thank you.

CC: Bridge Program File

**Project Name:** Benton  
**Stream Name:** Fifteen Mile Brook  
**Bridge Name:** \_\_\_\_\_  
**Route No.:** 139  
**Analysis by:** AWM

**Pin:** 18231.00  
**Town:** Benton  
**Bridge No.:** 5069  
**USGS Quad:** \_\_\_\_\_  
**Date:** 1/31/2012

**Peak Flow Calculations by USGS Regression Equations (Hodgkins, 1999)**

*Enter data in blue cells only!*

	km <sup>2</sup>	mi <sup>2</sup>	ac
A	172.45	66.58	42614.0
W	32.63	12.60	8064.1

*Enter data in [mi<sup>2</sup>]*

Watershed Area  
 Wetlands area (by NWI)

**P<sub>c</sub>** 466384 4931087  
**County** Kennebec  
**ppta** 41.7  
**SG** 0.00

watershed centroid (E, N: UTM 19N: meters)  
 choose county from drop-down menu  
 mean annual precipitation (inches; by look-up)  
 sand & gravel aquifer as decimal fraction of watershed A

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

**A (km<sup>2</sup>)** 172.45  
**W (%)** 18.92

**Conf Lvl** 0.67

Ret Pd T (yr)	Peak Flow Estimate	
	Lower Q <sub>T</sub> (m <sup>3</sup> /s)	Upper
1.1	14.99	37.11
2	19.05	53.09
5	27.17	64.93
10	32.51	80.43
25	39.21	92.50
50	44.10	105.65
100	49.22	138.22
500	60.52	

Q <sub>T</sub> (ft <sup>3</sup> /s)
529.3
938.9
1341.1
1622.2
1983.0
2255.2
2546.2
3229.5

**Reference:**  
 Hodgkins, G., 1999.  
 Estimating the magnitude of peak flows for streams  
 in Maine for selected recurrence intervals  
*Water-Resources Investigations Report 99-4008*  
 US Geological Survey, Augusta, Maine

$Q_T = b \times A^a \times 10^{-ww}$

## Murphy, Susan

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**From:** Mann, Alexander  
**Sent:** Tuesday, January 31, 2012 4:02 PM  
**To:** Bodge, Stephen; Murphy, Susan  
**Subject:** Benton, Rt 139, Fifteen Mile Stream, Br 5069, 18231.00  
**Attachments:** Benton18231.00Br5069522011SingleAreaWorksheet-Qp.xls

Stephen

I just completed the drainage study for Benton. The drainage area for this site is 66.6 mi<sup>2</sup> and there is 18.9% NWI wetlands. The calculated flows for this site are:

Q10	1622CFS
Q50	2255CFS
Q100	2546CFS

With a Mean Monthly Low flow of 17CFS for August and September. Attached is the worksheet with the complete drainage analysis. Please let me know if you have any questions or need any more information.

Alex