HYDROLOGY REPORT

      Chase's Mill Bridge in Limington is located over the Little Ossipee River 1350' upstream from the confluence with the Saco River.   Fortunately a USGS gaging station is located relatively close to the bridge. USGS gaging station number 01066500 on the Little Ossipee River near South Limington is located about 5.7 miles upstream from the bridge. The drainage area of the gaging station is 168 square miles versus 187 square miles for the bridge site. The difference in drainage areas is only 19 square miles or 11%. The gaging station #01066500 was in operation for a total of 42 years from August 1940 to September 1982.   Reliable estimates of Q50 can be computed based on a minimum of 25 years of data. With the long operation period and close proximity, use of the gaging station data will provide the best flow data.

      Flow data is available from the FEMA Flood Insurance Study (FIS) for the town of Limington dated October1, 1981 and it is as follows:

	Drainage Area (sq. mile)	10 year	50 year	100 year	500 year
Little Ossipee River at the mouth	187	4630	7890	9640	14800
At USGS gage No. 01066500	168	4250	7240	8850	13600

The flow data above is based on a log Pearson Type III distribution of annual peak flow data.

      Another source of flow information is the US Geological Survey Water Resources Investigations Report 99-4008 titled "Estimating the Magnitude of Peak Flows for Streams in Maine for Selected Recurrence Intervals". The following is a summary of the flow data at the USGS gage number 01066500 at selected recurrence intervals based on three different assumptions as analyzed in 1999:

	Peak flow for a given recurrence interval						
	2 Years (ft^3/s)	5 Years (ft^3/s)	10 Years (ft^3/s)	25 Years (ft^3/s)	50 Years (ft^3/s)	100 Years (ft^3/s)	500 Years (ft^3/s)
Gaging Station (G)	2031	3139	3955	5121	6074	7063	9712
Regression (R)	3101	4485	5438	6674	7663	8617	11018
Weighted (W)	2073	3214	4061	5262	6215	7240	9888

The regression flows are based on the 1999 USGS full regression equation. The weighted flows are based on a combination of the gaging station and regression equation flows. Based on the dramatically higher flows using the regression equation, use of the regression and weighted values is eliminated from further consideration.

Between the site of the USGS gage and the bridge site there are no large tributaries. The flow data from the USGS gage station can be transposed to the bridge site using the following simplified equation:

$$Qu = (Au/Ag)^{0.8} \times Qg$$

Ag= Drainage area at gaged site in square miles
Au= Drainage area at ungaged site in square miles
Qg=Discharge at gaged site in cfs
Qu=Discharge at ungaged site in cfs

Transposed discharges from USGS gage # 01066500 to the bridge site for a given recurrence interval						
2 Years (ft^3/s)	5 Years (ft^3/s)	10 Years (ft^3/s)	25 Years (ft^3/s)	50 Years (ft^3/s)	100 Years (ft^3/s)	500 Years (ft^3/s)
2212	3419	4309	5579	6617	7695	10581

The most extreme flow on the Little Ossipee River from 1982 and earlier was March 19, 1936. The extreme flow was 8,530 cfs at the Ledgemere Dam 9.3 miles upstream from the bridge. Transposing this discharge to the bridge site results in a flow of about 9,811 cfs.

Summary

Drainage Area =187 square miles
Ordinary High Water ($Q_{1.1}$) = 1198 cfs
10 Year Flood (Q_{10}) = 4309 cfs
Design Discharge (Q_{50}) = 6617 cfs
Check Discharge (Q_{100}) = 7695 cfs
Q_{500} = 10581 cfs
Flood of Record - March 19, 1936 = 9811 cfs

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