BF 78880 Hwy 2 Over Bow River
Hydrotechnical Summary

Channel Capacity:

S = 0.0018
B = 90 m, h = 4 m, T_h = 130 m
Use AT equation

At Bank Height: Y = 4 m, V = 2.5 m/s, Q = 1100 cms
At Channel Capacity: Y = 5 m, V = 3.0 m/s, Q = 1700 cms

Historical Highwater Data:

Recent post flood bridge inspection on July 7, 2013 indicated highwater mark of approx. 1029.3 m. Based on as built drawing 19259-C, the 1977 design flood EL = 1030.0 m and design Q = 3455 cms.

WSC Gauge 05BH004 on the Bow River (DA ~ 7870 km^2, 1911 – Now) reports Q ~ 1840 cms (2013), 1520 cms (1932), 1320 cms (1929) and 1130cms (1915). The gauging record in 1929 at Q ~ 1320 cms shows a stage rise ~ 3.5 m and a mean depth ~ 4 m. Historic photos from Calgary show higher events in 1879, 1897, and 1902, with estimates of Q > 2000 cms.

WSC Gauge 05BJ001 on the Elbow River (DA ~ 1240 km^2, 1908 – Now) reports Q ~ 700 cms (2013), 382 cms (1929), and 331 cms (1923). Dam inflow estimates in 2013 (Q ~ 1240 cms).

The combined peak Q of 05BH004 and 05BJ001 at the bridge site in 2013 was estimated ~ 2540 cms. July 2013 measured HWL ~ 1029.3 m.

Basin Runoff Potential:

Gross DA = 9920 km^2, runoff potential is not applicable

Conclusion:

Historic observations govern. Recommended parameters:

Y = 6 m, V = 4.3 m/s, Q = 3300 cms
Design flood EL = 1030.0 m (19259-C)