BF 07870 Hwy 24 Over Bow River
Hydrotechnical Summary

Channel Capacity:

S = 0.0015
B = 110 m, h = 4.5 m, T_h = 150 m
Use AT equation

At Bank Height: Y = 4.5 m, V = 2.6 m/s, Q = 1500 cms
At Channel Capacity: Y = 5.5 m, V = 3.0 m/s, Q = 2200 cms

Historical Highwater Data:

HW has been observed in 1902 (Y ~ 6.5m), 1929 (Y ~ 6m), 1932 (Y ~ 4m), 1942 (Y ~ 5m), and 1967 (3m below bottom chord). The 1975 design was based on Y ~ 6.5m and Q = 3400 cms. 2013 HWM (3 m below top of curb).

WSC Gauge 05BM002 (DA = 15700 km^2, 1956 – Now)
1963, 1967 and 1969, reported Q ~ 1200 cms
1995, reported Q ~ 1690 cms
2005, reported Q ~ 1980 cms
2013, reported Q ~ 3300 cms

WSC Gauge 05BM004 (DA ~ 20300 km^2, 1910 – 1933, 1964 – Now)
1923, reported Q ~ 2180 cms, gauged near peak, Y ~ 5.5 m
1929, reported Q ~ 2540 cms
1932, reported Q ~ 2310 cms
2005, reported Q ~ 2040 cms
2013, reported Q ~ 3380 cms

Historic photos from Calgary show highest events in 1879, 1897, and 1902, with estimates of Q > 2000cms.

Basin Runoff Potential:

Gross DA = 15130 km^2, runoff potential is not applicable

Conclusion:

Historic observations govern. Recommended parameters:

Y = 6.5 m, V = 3.4 m/s, Q = 2900 cms
Top of concrete slope protection @ EL 906.6 m (7163-P)