BF 74342 Hwy 734 Over North Saskatchewan River
Hydrotechnical Summary

Channel Capacity :

S = 0.0023
B = 60 m, h = 4 m, T_h = 100 m
Use AT Equation

At Bank Height : Y = 4.0 m, V = 2.7 m/s, Q = 900 cms
At Channel Capacity : Y = 5.0 m, V = 3.2 m/s, Q = 1300 cms

Historical Highwater Data :

HW was observed in 1964 (washout), 1967 (Y ~ 2.5m), 1980 (Y ~ 2.5m), 1982 (Y ~ 2.5m), 1986 (& ~ 2.5m), and 1990 (Y ~ 2.5m). The 1965 design was based on a 1915 estimate of Y ~ 5m and Q ~ 1300cms.

WSC Gauge 05DC010 (DA = 3890km^2, 1973 – Now) reports Q ~ 180cms in 1990 and 1991, with Q ~ 160 – 180cms many times (influenced by Bighorn Dam, built in 1972). WSC Gauge 05DC007 (DA = 3890km^2, 1954 – 1968) reports Q ~ 570cms in 1965 with Q ~ 450 – 500cms many times. Gauge 05DC002 (DA = 5160km^2, 1915 – 1923, 1952 – 1978) reports pre-dam Q ~ 1250cms (1915), 900cms (1918), and 800cms (1916, 1952, and 1972). The highest post-dam Q ~ 200 – 230cms (1973 – 1978).

Basin Runoff Potential :

Gross DA ~ 4570 km^2, beyond range of method.

Conclusion :

Post-dam historic observations govern. Recommended parameters :

Y = 3.0 m, V = 2.3 m/s, Q = 500 cms.
HW EL 1184.3m (Dwg. 4060)