BF 75701 Hwy 41 Over Red Deer River
Hydrotechnical Summary

Channel Capacity:

S = 0.0003
B = 130 m, h = 4 m, T_h = 200 m
Use AT equation

At Bank Height: Y = 4 m, V = 1.2 m/s, Q = 800 cms
At Channel Capacity: Y = 5 m, V = 1.5 m/s, Q = 1200 cms

Historical Highwater Data:

The 1970 design was based on Y ~ 5.5 m (estimated flood in 1915), and high ice to Y ~ 7.5 m. An event in 1902 may have been higher than 1915.

Gauge 05CK004 (DA = 47800 km^2, 1960 – Now) reports
Q ~ 1000 cms in 1982, 1990 and 2005, 2013 and 2018

Gauge 05CK002 (DA = 46800 km^2, 1917 – 1936, 1944 – 1960) reports
Q ~ 1300 cms in 1948
Q ~ 1200 cms in 1954
Q ~ 1000 cms in 1952

Gauge 05CE001 (DA = 24900 km^2, 1916 – 1930, 1959 – Now) reports
Q ~ 1450 cms in 2005
Q ~ 1270 cms in 2013
Q ~ 1200 cms in 1920 and 1923
Q ~ 1000 cms in 1928 and 1929

Gauge 05CC002 (DA = 11600 km^2, 1912 – Now) reports
Q ~ 1900 cms in 1915
Q ~ 1500 cms in 1954 and 2005
Q ~ 1300 cms in 2013

Basin Runoff Potential:

DA = 45825 km^2, beyond range of runoff depth basin potential.

Conclusion:

Historic observations govern. Recommended parameters:

Y = 5.5 m, V = 1.6 m/s, Q = 1500 cms.
HW EL 590.1 m (Dwg. 4524-C)

Classification: Protected A