BF 8132 Hwy 899 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 1983 design was based on Y ~ 5.5m, and estimates 1952 ice jam to Y ~ 5.5m. HW observations suggest Y ~ 5.5m (1915, 1902 may have been higher), Y ~ 5-5.5m (1947, Ice Jam, bridge washout, below top of piers), and 1960 (Ice Jam, water over road to north).

Gauge 05CK002 (DA = 46800km^2, 1917-1936, 1944 – 1960) reports Q ~ 1300cms in 1948 and Q ~ 1200cms in 1952 and 1954, with Q~ 1000cms reported at Gauge 05CK004 in 1990 and 2005. Gauge 05CE001 (DA = 24800km^2, 1916 – 1930, 1959 – Now) reports Q ~ 1450cms in 2005 and Q ~ 1200cms in 1920 and 1923. Gauge 05CC002 (DA ~ 11000km^2, covers most of flood inflow area) reports an event in 1915 of similar magnitude to 2005 and somewhat higher than 1954.

Basin Runoff Potential :

DA = 45925km^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 586.5m (Dwg. 9352-P)