BF 01085 Hwy 21 Over Red Deer River
Hydrotechnical Summary

Channel Capacity :

S = 0.001
B = 80 m, h = 5.5 m, T_h = 130 m
Use AT equation

At Bank Height : Y = 5.5 m, V = 2.4 m/s, Q = 1400 cms
At Channel Capacity : Y = 6.5 m, V = 2.7 m/s, Q = 2000 cms

Historical Highwater Data :

High water was observed in 1915 (est. Y ~ 6.7m) and 1954 (drift removed). High Ice has been observed in 1928 (span washed away), 1952 (damage to bottom chord) and 1966. The 1972 design was based on high ice with Y ~ 9m.

WSC Gauge 05CC002 (DA = 11,600km^2, 1913 – Now) reports Q ~ 1900cms in June 1915 (gauged at Q ~ 1600cms, stage increase ~ 5m), and Q ~ 1500cms in August 1954 and June 2005 (~20% attenuation from Dickson Dam). Gauge 05CD004 (DA = 15,100km^2, 1944 – 1958) reports Q ~ 1500cms in August 1954.

Basin Runoff Potential :

DA = 15300km^2, beyond range of basin runoff potential technique.

Conclusion :

Historic observations govern. Recommended parameters :

Y = 6.5 m, V = 2.7 m/s, Q = 2000 cms.
HW EL 753.5 m (Dwg. 6093-P)