BF 00272 Hwy 54 Over Red Deer River
Hydrotechnical Summary

Channel Capacity :

S = 0.0013
B = 70 m, h = 5 m, T_h = 125 m
Use AT equation

At Bank Height : Y = 5 m, V = 2.4 m/s, Q = 1200 cms
At Channel Capacity : Y = 6 m, V = 2.8 m/s, Q = 1700 cms

Historical Highwater Data :

HW was observed in 1901 (Y ~ 4.5m), 1902 (to top of pier), 1908 (drift), 1915 (to deck, Y ~ 6.5m), 1954 (Y ~ 6m), 1990 (Y ~ 5m), and 1999 (Y ~ 4m). The 1972 design was based on an estimated 1915 HW level with Y ~ 6.5m and 1954 level estimated to be 0.6m lower.

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 = 11120km^2, beyond range of basin runoff potential technique.

Conclusion :

Historic observations govern. Recommended parameters :

Y = 6.5 m, V = 3.0 m/s, Q = 2000 cms.
HW EL 887.5m (Dwg. 6283)