BF 78814 Hwy 590 Over Red Deer River
Hydrotechnical Summary

Channel Capacity:

S = 0.0007
B = 80 m, h = 6 m, T_h = 140 m
Use AT equation

At Bank Height: Y = 6 m, V = 2.2 m/s, Q = 1400 cms
At Channel Capacity: Y = 7 m, V = 2.5 m/s, Q = 2000 cms

Historical Highwater Data:

The 1977 design was based on Y ~ 8.5m and Q ~ 2300cms (high ice ~ 1m higher).

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. Gauge 05CE001 (DA = 24800km^2, 1916 – 1930, 1959 – Now) reports Q ~ 1450cms in June 2005 (gauged at Q ~ 1050cms) and Q ~ 1200cms in June 1923.

Basin Runoff Potential:

DA = 17400km^2, beyond range of basin runoff potential technique.

Conclusion:

Historic observations govern. Recommended parameters:

Y = 7 m, V = 2.5 m/s, Q = 2000 cms.
HW EL 723.0 m (Dwg. 7674-C)

Classification: Protected A