BF 01493 Hwy 611 Over Battle River
Hydrotechnical Summary

Channel Capacity :

S = 0.00045
B = 20 m, h = 3.5 m, T_h = 45 m
Use AT equation

At Bank Height : Y = 3.5 m, V = 1.2 m/s, Q = 130 cms
At Channel Capacity : Y = 4.5 m, V = 1.5 m/s, Q = 230 cms

Historical Highwater Data :

HW was observed in 1917 (Y ~ 4.5m, Ice Jam), 1959 Y ~ 4.5m, over deck), and 1974 (Y ~ 3m). The 2002 design was based on Y ~ 3.5m (Q ~ 125cms).

WSC Gauge 05FA001 (DA = 1830km^2, 1913 – 1931, 1967 – Now) reports Q ~ 290cms (July 1990, gauged near peak, stage rise ~ 4m) and Q ~ 110cms (1974). This gauge is located u/s of Samson Lake with significant routing observed in 1990 (estimated outflow Q ~ 150cms). WSC Gauge 05FC001 (DA ~ 7680km^2, 1966 – Now) reports Q ~ 240cms (1974, gauged at Q ~ 170cms, stage rise ~ 7m at peak) with Q ~ 55cms in 1990.

Basin Runoff Potential :

DA ~ 2270km^2, (beyond range of technique).

Conclusion :

Channel capacity estimate is consistent with historic observations. Recommended parameters :

Y = 4.5 m, V = 1.5 m/s, Q = 230 cms.
EL 770.0m (23295-P)