BF 00349 Local Road Over Battle River
Hydrotechnical Summary

Channel Capacity :

S = 0.0015
B = 20 m, h = 2.3 m, T_h = 35 m
Use AT equation

At Bank Height : Y = 2.3 m, V = 1.5 m/s, Q = 100 cms
At Channel Capacity : Y = 3.3 m, V = 2.1 m/s, Q = 200 cms

Historical Highwater Data :

The HWM shown on the 1959 design (DD193) for this site is Y = 2.7m. HW was noted in 1957 (Y ~ 3m, over approach roads, east abutment replaced) and in 1892 (Y = 2.7m). HW damage was noted in 1980, 1917 (washout during ice run), 1920 (east approach washed out). A 1989 BIM report notes a HWM with Y = 2.0m.

There are no WSC gauges between Samson Lake and Driedmeat Lake with records of large runoff events (largest is Q = 50cms in April 1985 at gauge 05FA021 (DA= 2800km^2, 1983 – 1985)). WSC Gauge 05FA001 located u/s of Samson Lake recorded a large event in 1990, but it does not appear to have been as significant d/s of the lake. Gauge 05FC001 d/s of Driedmeat Lake reports 1974 as the largest event (Q = 240cms), much of which entered d/s of this site from Pipestone Ck (Q = 100cms).

Basin Runoff Potential :

Gross DA = 2330km^2. Routing analysis of Samson Lake for the summary at BF01493 (DA = 2270km^2) suggests Q_{1990} = 160cms and $Q_{d = 40}$ = 220cms.

Conclusion :

The channel capacity estimate is consistent with historic observations.

Recommended parameters : Y = 3.3 m, V = 2.1 m/s, Q = 200 cms.