BF 07918 Local Road Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0013
B = 15 m, h = 5.0 m, T_h = 30 m
Use AT equation

At Bank Height : Y = 5.0 m, V = 2.4 m/s, Q = 270 cms
At Channel Capacity : Y = 6.0 m, V = 2.8 m/s, Q = 400 cms

Historical Highwater Data :

HW was noted at this site in 1948 (over the bridge, Y ~ 6m u/s), and 1971 (bank erosion), with several ice related wash-outs between 1916 and 1921. The 1961 design was based on Y > 6m and Q = 165cms.

WSC Gauge 05CE003 (DA = 4000km^2, 1922 – 1930, 1936) reports Q = 80cms in March 1925. Gauge 05CE005 (DA = 3580km^2, 1966 – Now) reports Q ~ 200cms in April 1971 (gauged at Q = 170cms with 4.5m stage increase). The largest storm for this area in the database is June 1970, with about 100mm of rainfall over the basin.

Basin Runoff Potential :

d = 35mm, T_p = 40 hrs, q = 0.25 cms/km^2.
Gross DA = 3263 km^2, beyond the scope of runoff depth method.

Conclusion :

The channel capacity estimate is consistent with historic observations.

Recommended parameters : Y = 6.0 m, V = 2.8 m/s, Q = 400 cms.