BF 02409 Local Road Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0004
B = 9 m, h = 3.7 m, T_h = 20 m
Use n = 0.035

At Bank Height : Y = 3.7 m, V = 1.0 m/s, Q = 55 cms
At Channel Capacity : Y = 4.7 m, V = 1.3 m/s, Q = 95 cms

Historical Highwater Data :

HW was noted over the grade in 1948, 1950, and 1969. HW was noted to the bottom chord in March 1960 (Y = 4.5m), and the superstructure was noted to have shifted due to ice in 1952. The north abutment washed out in 1916, and the bridge washed out in 1920.

WSC Gauge 05CE006 (DA = 753km^2, 1957 – Now) reports the largest events in the 40 – 45cms range in April 1969 and 1971 (stage rise = 2.5m, max. gauging at Q = 35cms). WSC Gauge 05CE005 (DA = 3580km^2, 1967 – Now) reports Q = 200cms in April 1971 (gauged at Q = 170cms, stage rise = 4.5m), with Q = 120cms in March 1997. The largest storms in the database for this area are in May 1923 and June 1928 and 1970 with rainfall in the 110 to 120mm range.

Basin Runoff Potential :

d = 35mm, T_p = 40hrs, use q = 0.25 cms/km^2.
Gross DA = 1387 km^2.
Q_p = 345 cms.

Conclusion :

The channel capacity estimate is consistent with historic observations and is within the basin runoff potential.

Recommended parameters : Y = 4.7 m, V = 1.3 m/s, Q = 95 cms.