BF 07733 Hwy 72 Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0006
B = 10 m, h = 2.8 m, T_h = 20 m
Use n = 0.035

At Bank Height : Y = 2.8 m, V = 1.1 m/s, Q = 45 cms
At Channel Capacity : Y = 3.8 m, V = 1.4 m/s, Q = 90 cms

Historical Highwater Data :

HW has been observed in March 1918 (piles washed out by ice), April 1920 (piles scoured out), and March 1947 (piling damaged by ice). The east headslope was restored in 1968, due to erosion from flow deflected by u/s obstruction. A 1960 report notes a HWM with Y = 3.3m.

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 = 769 km^2.
Q_p = 190 cms.

Conclusion :

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

Recommended parameters : Y = 3.8 m, V = 1.4 m/s, Q = 90 cms.