BF 00867 Local Road Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.001
B = 7 m, h = 2.2 m, T_h = 15 m
Use n = 0.04

At Bank Height : Y = 2.2 m, V = 1.0 m/s, Q = 24 cms
At Channel Capacity : Y = 3.2 m, V = 1.5 m/s, Q = 55 cms

Historical Highwater Data :

HW was noted in 1915 (approaches and wings washed out) and in 1947 (piling on east side taken out). A 1955 report refers to a HWM with Y = 3.0m and estimates Q = 96cms. A 1998 BIM report notes a HWM with Y = 1.8m, and a 2001 design was based on Y = 2.6m and Q = 50cms.

WSC Gauge 05CE006 (DA = 753km^2, 1957 – Now) reports Q = 40 – 45cms in April 1969 and 1971 (rating curve shows a rise in stage of 2.4m for Q = 34cms). 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 = 40mm/20hrs and d = 35mm/40hrs, use q = 0.4 cms/km^2.
Gross DA = 481 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 = 3.2 m, V = 1.5 m/s, Q = 55 cms.