BF 02157 Local Road Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0009
B = 5 m, h = 2.0 m, T_h = 12 m
Use n = 0.045.

At Bank Height : Y = 2.0 m, V = 0.8 m/s, Q = 15 cms
At Channel Capacity : Y = 3.0 m, V = 1.2 m/s, Q = 35 cms

Historical Highwater Data :

HW was noted in April 1997 with Y = 3.1m and no damage observed. The 1990 design was based on Y = 2.7m and Q = 41cms.

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, T_p = 20 hrs, q = 0.55 cms/km^2.
Gross DA = 183 km^2.
Q_p = 100 cms.

Conclusion :

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

Recommended parameters : Y = 3.0 m, V = 1.2 m/s, Q = 35 cms.