BF 77000 Local Road Over Pembina River
Hydrotechnical Summary

Channel Capacity :

S = 0.003
B = 50 m, h = 2.5 m, T_h = 70 m
Use AT equation

At Bank Height : Y = 2.5 m, V = 2.3 m/s, Q = 350 cms
At Channel Capacity : Y = 3.5 m, V = 3.0 m/s, Q = 650 cms

Historical Highwater Data :

HW was noted in June 1980 and July 1986 with Y ~ 2.5m. The 2002 design was based on Y = 4m and Q = 640cms.

WSC gauge 07BA001 (1956 – 1993, DA = 2900 km^2) reports Q = 1100cms (gauged at Q = 600cms, stage rise = 6m) in July 1986. Gauge 07BB002 (1914 – 1923, 1955 – Now, DA = 4420 km^2) reports Q = 1250cms (gauged at Q = 850cms, 5m stage rise). Other large events are reported in July 1965, June 1972, June 1980, and July 1982. The storm database notes 150mm (July 1986), 120mm in July 1982, and 105mm in August 1969 and June 1972.

Basin Runoff Potential :

d = 80mm, T_p = 20hrs, q = 1.1 cms/km^2.
Gross DA = 960 km^2.
Q_p = 1050 cms.

Conclusion :

Historical Observations govern. Recommended parameters :

Y = 3.5m, V = 3.0 m/s, Q = 650 cms
EL 994.0m (21041-P)