BF 77597 Hwy 734 Over Pembina River
Hydrotechnical Summary

Channel Capacity :

S = 0.0025
B = 35 m, h = 2.5 m, T_h = 50 m
Use AT equation

At Bank Height : Y = 2.5 m, V = 2.1 m/s, Q = 220 cms
At Channel Capacity : Y = 3.5 m, V = 2.7 m/s, Q = 430 cms

Historical Highwater Data :

HW was noted in May 1965 (approach washout, drift blockage), July 1977 (approach washout), June 1980 (Y ~ 3m), August 1982 (Y = 2m), and July 1986 (Y = 2.5m, over south approach).

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 = 530 km^2.
Q_p = 600 cms.

Conclusion :

The channel capacity estimate is consistent with historic data and within the basin runoff potential. Recommended parameters :

Y = 3.5m, V = 2.7 m/s, Q = 430 cms
EL 31.0m (7067-P)