BF 01963 Local Road Over James River
Hydrotechnical Summary

Channel Capacity :

S = 0.004
B = 30 m, h = 2.0 m, T_h = 55 m
Use AT equation

At Bank Height : Y = 2.0 m, V = 2.1 m/s, Q = 170 cms
At Channel Capacity : Y = 3.0 m, V = 2.9 m/s, Q = 400 cms

Historical Highwater Data :

Washouts and channel relocations have been reported at this site in 1915, 1916 (ice jam), 1923, 1928, 1952 and 1954. HW has been observed 1963 (Y = 2.4m), June 1972 (Y = 2.5m), July 1986 (Y = 2.0m), June 1990 (Y = 2.7m), July 1999 (Y = 2.4m), and June 2005 (over road, bridge and approach washout).

WSC Gauge 05CA002 (DA ~ 820km^2, 1966 – Now) reports Q ~ 240cms (June 1990, gauged at Q ~ 200cms, stage rise ~ 2m), Q ~ 220cms (June 1972), and Q ~ 180cms (July 1981, July 1986).

Basin Runoff Potential :

d = 70 mm, T_p = 20 hrs, q = 1.0 cms/km^2
Gross DA = 860 km^2.
Q_p = 860 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 = 2.9 m/s, Q = 400 cms.
EL 1057.5 m (DD1226)