BF 08277 Local Road Over Paddle River
Hydrotechnical Summary

Channel Capacity :

S = 0.0008
B = 10 m, h = 4 m, T_h = 25 m
Use AT Equation

At Bank Height : Y = 4.0 m, V = 1.6 m/s, Q = 110 cms
At Channel Capacity : Y = 5.0 m, V = 2.0 m/s, Q = 190 cms

Historical Highwater Data :

HW was observed in 1917 (superstructure washed off, drift), 1924 (bridge washed out), 1954 (1.2m below deck, Y ~ 3.7m), April 1965 (ice damage 2m below deck, Y ~ 3.5m), June 1965 (2m below deck, Y ~ 3.5m), April 1974 (1.5m below deck, Y ~ 4.0m), June 1985 (3.4m below deck, Y ~ 2.1m), and August 1989 (3.6m below deck, Y 1.9m). A 1915 cross section notes a HWM with Y = 4m, and a 1953 report notes a HWM close to the deck, Y ~ 4.5m).

Gauge 07BB011 (DA = 260km^2, 1973 – Now) was damaged during the 1989 event, but the published peak Q (225cms) suggests Y ~ 6m at peak. Q ~ 70cms is reported in July 1986 and July 1990. Gauge 07BB004 (DA = 625km^2, 1963 – Now) suggests HW in June 1965 with Q ~ 150cms. Dam routing calculations suggest that the peak inflow to the dam in August 1989 (DA ~ 620km^2, just u/s, built in 1986) was about Q = 250cms and the outflow was Q = 45cms. The largest storms in the storm database are about 155mm June 1944, 135mm in June 1965, 115mm in August 1989, and 100mm in July 1990.

Basin Runoff Potential :

d = 60 mm, T_p = 20 hrs, q = 0.85 cms/km^2.
Gross DA = 625 km^2.
Q_p = 530 cms.

Conclusion :

The channel capacity estimate is consistent with historic observations and is within the basin runoff potential. However, dam routing calculations suggest Q_{out} = 100cms for d = 60mm and Q_{in} = 250cms with starting elevation close to the long-term mean.

Recommended parameters : Y = 4.0 m, V = 1.6 m/s, Q = 110 cms.