BF 01703 Local Road Over Kneehills Ck
Hydrotechnical Summary

Channel Capacity :

S = 0.0009
B = 15 m, h = 4.5 m, T_h = 26 m
Use AT equation

At Bank Height : Y = 4.5 m, V = 2.0 m/s, Q = 180 cms
At Channel Capacity : Y = 5.5 m, V = 2.3 m/s, Q = 280 cms

Historical Highwater Data :

HW was noted in April 1965 (1.8m below deck, Y = 3.1m) and in April 1971 (0.3m below deck, Y = 4.6m). Old bridges were washed out in 1913 and 1916, and a 1978 report refers to a HWM well above the deck and ascribes it to 1951. Other bridges u/s and d/s report large highwater events in 1948 and 1951/52 with Y = 5.5m. The current bridge was designed for Y = 5m.

WSC Gauge 05CE002 (DA = 2430km^2, 1921-1930, 1957 – Now) is located d/s and reports Q = 150cms in April 1997. Gauging records show that the stream was gauged at Q = 170cms in April 1969 (stage rise = 3.2m). The largest storms for this area in the storm database are about 100mm of rainfall in June 1928 and 1970.

Basin Runoff Potential :

d = 35 mm, T_p = 40 hrs, q = 0.25 cms/km^2.
Gross DA = 1800 km^2.
Q_p = 450 cms.

Conclusion :

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

Recommended parameters : Y = 5.5 m, V = 2.3 m/s, Q = 280 cms.