BF 71190 Local Road Over West Arrowwood Ck Tributary Hydrotechnical Summary

Channel Capacity :

S = 0.0017
B = 4 m, h = 1.2 m, T_h = 8 m
Use n = 0.045

At Bank Height : Y = 1.2 m, V = 0.8 m/s, Q = 6 cms
At Channel Capacity : Y = 1.8 m, V = 1.2 m/s, Q = 14 cms

Historical Highwater Data :

HW was noted in April 1948 with piling and wingwalls washed out. A 1960 report notes a HWM 0.6m below the deck (Y ~ 1.5 – 1.8m), estimates Q = 9cms, and notes a scour hole under the bridge opening.

There are no WSC Gauges on this stream. Gauges on West Arrowwood Ck include 05BM018 (DA = 30km^2, 1986 – Now) reporting Q = 15cms in March 1996, and 05BM014 (DA = 775km^2, 1967 – Now) reporting high flows in March 1967, April 1971, and March 1997. The largest storms in the storm database are about 90mm of rainfall in June 1959, 1963, and 1965.

Basin Runoff Potential :

d = 35 mm, T_p = 40 hrs, q = 0.25 cms/km^2 (the upper part of this basin is small, well drained, and has significant relief, which is uncharacteristic of most sites in the area. The 05BM018 1997 runoff is an outlier for the overall runoff depth but maybe more applicable to this site. Suggest q = 0.5cms/km^2)
Gross DA = 28 km^2.
Q_p = 14 cms.

Conclusion :

The modified basin runoff potential matches the channel capacity estimate and is consistent with historic information.

Recommended parameters : Y = 1.8 m, V = 1.2 m/s, Q = 14 cms.