BF 71565 Local Road Over West Arrowwood Ck Tributary Hydrotechnical Summary

Channel Capacity :

S = 0.005
B = 2 m, h = 1.0 m, T_h = 6 m
Use n = 0.05

At Bank Height : Y = 1.0 m, V = 1.0 m/s, Q = 4 cms
At Channel Capacity : Y = 1.5 m, V = 1.5 m/s, Q = 11 cms

Historical Highwater Data :

Reports from 1956 and 1960 note that HW has been over the grade at the 1.5m culvert with 1.8m fill height (estimated Q = 4 – 5cms). A 2005 BIM report notes a HWM with Y = 1m.

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 (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 = 13 km^2.
Q_p = 7 cms.

Conclusion :

The modified basin runoff potential governs for this site, and is consistent with historic information.

Recommended parameters : Y = 1.2 m, V = 1.2 m/s, Q = 7 cms.