BF 70592 Hwy 534 Over West Arrowwood Tributary
Hydrotechnical Summary

Channel Capacity :

S = 0.003
B = 3 m, h = 1.2 m, T_h = 7 m
Use n = 0.05

At Bank Height : Y = 1.2 m, V = 0.9 m/s, Q = 6 cms
At Channel Capacity : Y = 1.8 m, V = 1.4 m/s, Q = 14 cms

Historical Highwater Data :

HW was noted in April 1970 with ~ 1.7m ponding and 2.7m headloss (estimated Q = 20cms if no blockage, Y ~ 1m d/s). However, this depth of flow would not support this discharge in the channel, so the headloss and ponding could only result from a partial blockage of the culvert. A 1953 note states that the 6m bridge has difficulty handling spring runoff, a 1955 report states that the bridge has run full and estimates Q = 13cms, and a 1970 report estimates Q = 9cms and Y = 1.2 – 1.5m.

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 = 21 km^2.
Q_p = 10 cms.

Conclusion :

The modified basin runoff potential governs for this site, and is consistent with most historic information, other than the questionable 1971 event.

Recommended parameters : Y = 1.5 m, V = 1.2 m/s, Q = 10 cms.