BF 74678 Hwy 39 Over Poplar Ck
Hydrotechnical Summary

Channel Capacity :

S = 0.0015
B = 20 m, h = 5.5 m, T = 38 m
Use AT equation

At Bank Height : Y = 5.5 m, V = 2.7 m/s, Q = 430 cms
At Channel Capacity : Y = 6.5 m, V = 3.1 m/s, Q = 610 cms

Historical Highwater Data :

The bridge was designed based on Y = 6.1m. HW was observed in July 1982 (EL. 755.3m, Y = 4.3m), July 1986 (EL. 757.1m, Y = 6.1m), July 1990 (EL. 757.7m, Y = 6.7m, erosion at both headslopes), and July 2001 (EL. 754.3m, Y = 3.3m).

WSC gauge 05DE008 (DA = 374km^2) has no flow records. Gauge 05DE911 (DA = 1170km^2, 1996 – Now) reports the highest flow at Q = 300cms in July 2001. Other gauges in the area have noted HW in June 1965, April 1974, and July of 1982, 1986, and 1990. The largest storms in the storm database are July 1982, 1986 and 1990 with about 130 – 140mm of rainfall.

Basin Runoff Potential :

d = 70mm, T_p = 20hrs, q = 1.0 cms/km^2.
Gross DA = 610 km^2.
Q_p = 610 cms.

Conclusion :

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

Recommended parameters : Y = 6.5 m, V = 3.1 m/s, Q = 610 cms.