BF 76797 Hwy 40 Over Jarvis Ck
Hydrotechnical Summary

Channel Capacity :

S = 0.0005
B = 4 m, h = 1.5 m, T_h = 8 m
Use n = 0.045

At Bank Height: Y = 1.5 m, V = 0.5 m/s, Q = 4 cms
At Channel Capacity: Y = 2.2 m, V = 0.7 m/s, Q = 11 cms

Historical Highwater Data:

There are consistent reports and photographs of pipes being full of slow-flowing water during inspections (typical water level 0.4 -0.5m below crown; Y=1.3m). There is a report in the flood file that records HW 0.1m above the downstream culvert crown (tailwater depth=1.9 m, June 1997).

There are no WSC Gauges on this stream. Gauges in the area suggest HW events in July 1965, June 1980, and June 1997. The largest storms in the storm database are 123mm of rainfall in Aug 1982, and about 110mm in July 1963.

Basin Runoff Potential :

This basin is located close to the boundary of 70mm and 90mm zone, therefore:

d = 80 mm, T_p = 20 hrs, q = 1.1 cms/km^2.
Gross DA = 80 km^2.

Jarvis Lake (directly upstream of the culvert) and Pepper Lake have a combined surface area of about 8 km2. Storage routing calculations suggest Q=8cms, and a 0.7m increase in water level over normal conditions.

Conclusion:

Basin runoff potential, accounting for upstream lake storage, governs and is consistent with historic observations.

Recommended parameters : Y = 2 m, V = 0.7 m/s, Q = 8 cms.