BF 77713 Hwy 677 Over Saddle River Tributary
Hydrotechnical Summary

Channel Capacity :

S = 0.0075
B = 3 m, h = 1.8 m, T_h = 7 m
Use n = 0.05

At Bank Height : Y = 2.0 m, V = 1.9 m/s, Q = 20 cms
At Channel Capacity : Y = 3.0 m, V = 2.9 m/s, Q = 55 cms

Historical Highwater Data :

An additional span was added to the bridge in 1935 following a washout. HW was noted over the grade at the one pipe crossing in 1964 and at the 2 pipe crossing in 1968 (rock washed away, estimated Q = 40cms) and June 1990 (damage to the u/s bevel). A large d/s scour hole was noted in 2002, with the smaller pipe clogged with debris. Damage occurred to the new structure in July 2004.

There are no WSC gauges on this stream. WSC gauge (DA = 538km^2, 1968 – Now) located on the Saddle River reports Q = 440cms in June 1968 and June 1990 (largest gauged measurement Q = 365cms in June 1990 with stage rise = 4.5m). The largest storms for this area in the storm database are about 110 - 120mm of rainfall in June 1964, 1965, and 1990.

Basin Runoff Potential :

d = 70 - 80 mm, T_p = 20 hrs, q = 1 – 1.1 cms/km^2.
Gross DA = 51 km^2.
Q_p = 55 cms.

Conclusion :

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

Recommended parameters : Y = 3.0 m, V = 2.9 m/s, Q = 55 cms.