



AUGLAIZE COUNTY

Engineering Department

P.O. Box 59
1014 S. Blackhoof Street
Wapakoneta, Ohio 45895

TELEPHONE 419-739-6520

FAX 419-739-6521

Email: doug@augcoeng.com



Douglas Reinhart
COUNTY ENGINEER

Hydraulic Analysis of 100-year Flood

Structure # AUGLAIZE COUNTY ENGINEER-274-02.94

SR# 274 Bridge over Koop Creek; ½ mile West of New Bremen, Ohio

Bench Mark: 945.16 – Top of NW wingwall of Bridge (same elevation +/- as bridge deck)
Flowline of Koop Creek = 934.7 Drainage area: 2.34 square miles
Gradient of Stream: Flowline @ CR# 66A crossing – 1.07 miles downstream = 920.0
14.7' fall in 5650' = 0.26% grade

Hydraulic Calculations show that with the watershed, stream gradient and topography of the watershed, the 100-year storm would produce a 380 cfs flow at this structure.

Channel capacity: Four foot bottom width and 2:1 side slopes, manning roughness coefficient based upon well maintained channel slopes void of brush and debris @ 7.3' of depth the 380 CFS would produce a stream velocity of less than 3 fps therefore making the 100-year flood elevation = 942.0

Considering the variables used for roughness coefficient of the stream channel, storage capacity throughout 1500 acre watershed and varied stream gradient along the channel, one foot was added to the calculated elevation therefore making the 100-year flood elevation of Koop Creek @ the SR# 274 crossing equal to 943.0.

100-year flood elevation of Koop Creek @ Case No. 09-05-5123A

Community NO: 390761

Location of said structure is 800' downstream of the above structure. The hydraulic gradient of the stream is 0.26%. @ 800' the flood elevation would be 2' lower than that at the SR# 274 bridge crossing.

Therefore, 100-year flood elevation at the site of Case No. 09-05-5123A is 943.0-2.0 = 941.0

Douglas Reinhart, P.E., P.S.

Auglaize County Engineer

Auglaize County Flood Plain Coordinator