



INDIANA DEPARTMENT OF TRANSPORTATION

Design Memo No. 26-17

July 8, 2026

TO: All Design Personnel and Consultants

FROM: /s/ William Schmidt
William Schmidt
Hydraulic Engineering Director

SUBJECT: Shallow Concentrated Flow Velocity Equations

REVISES: *Indiana Design Manual* Section 202-2.05(02)

EFFECTIVE: Immediately

The velocity equations for calculating travel time for shallow concentrated flow have been corrected to match the USDA NRCS Technical Release 55 (TR-55) equations as shown below.

IDM Revisions

The referenced section of IDM [Chapter 202](#) has been revised to reflect these changes.

	Current Equation	Corrected Equation
Unpaved	$V = 16.393 \times S^{0.5}$	$V = 16.1345 \times S^{0.5}$
Paved	$V = 20.683 \times S^{0.5}$	$V = 20.3282 \times S^{0.5}$
Where:	V = average velocity, ft/s S = slope of hydraulic gradient, or watercourse slope, ft/ft	

For questions related to this design memo, please contact the Hydraulic Engineering Division at Hydraulics@indot.IN.gov.