

## Appendix 1—List of symbols

$A$	Flow cross sectional area ( $\text{cm}^2$ )
$d$	Grain diameter (cm)
$D$	Maximum eggshell diameter (cm)
$Fr$	Froude number
$g$	Acceleration by gravity ( $\text{cm}/\text{s}^2$ )
$H$	Maximum eggshell height (cm)
$I$	Intermediate eggshell diameter (cm)
$m$	Mass of a dry eggshell (g)
$m_s$	Mass of a water-saturated eggshell submerged in water (g)
$n_b$	Manning's coefficient for channel bed
$n_s$	Manning's coefficient for channel sides
$Q$	Flow rate ( $\text{cm}^3/\text{s}$ )
$R$	Channel hydraulic radius (cm)
$S_0$	Bed slope (cm/cm)
$t$	Time (s)
$u$	Bulk flow velocity (cm/s)
$u^*$	Friction velocity (cm/s)

$x$	Position of eggshell deposition measured from the flume outlet (cm)
$y$	Estimated flow depth (cm)
$y'$	Measured flow depth (cm)
$\beta$	Regression coefficients
$v$	Particle volume (cm <sup>3</sup> )
$\pi$	Probability of an eggshell oriented concave-down after transport
$\rho$	Particle density (g/cm <sup>3</sup> )
$\rho_w$	Water density (g/cm <sup>3</sup> )
$\tau_0$	Bed shear stress based on Song and Graf (1995) (g/cm·s <sup>2</sup> )
$\tau_c$	Critical bed shear stress at eggshell deposition based on $\tau_0$ (g/cm·s <sup>2</sup> )