

Symbol	Definition	Units
AOS	Apparent opening size in filter cloth	mm
A	Coefficient used to determine the apparent opening size	
C	Coefficient, relates free vortex motion to velocity streamlines for unequal radius of curvature	-
C _u	Uniformity coefficient	
D ₅₀	The median bed material size	m or mm
D ₁₅	The fifteen percent finer particle size	m or mm
D ₈₅	The eighty-five percent finer particle size	m or mm
d _{avg}	Average flow depth in the main flow channel	m
d _s	Estimated probable maximum depth of scour	m
g	Gravitational acceleration (9.81 m/s ²)	m/s ²
H	Wave height	m
k	Permeability	cm/s or mm/s
K ₁	Correction term reflecting bank angle	-
n	Manning's roughness coefficient	-
O ₉₅	Opening size in the geotextile material for which 95% of the openings are smaller	mm
Q _{mc}	Discharge in the zone of main channel flow	m ³ /s
R	Hydraulic radius	m
R	Wave runup	m
R _o	Mean radius of the channel centerline at the bend	m
S _f , S	Friction slope or energy grade line slope	m/m
SF	Stability factor	-
S _s , s	Specific gravity of the riprap material	-
T	Top width of the channel between its banks	m
V	Velocity	m/s
V _a	Mean channel velocity	m/s
W ₅₀	Weight of the median particle	kg
Z	Superelevation of the water surface	m
γ	Unit weight of the riprap material	kg/m ³
θ	Bank angle with the horizontal	degrees
Φ	Riprap material's angle of repose	degrees

SYMBOLS AND DEFINITIONS

Figure 38-1A