

STORMWATER MANAGEMENT

160 Attachment 4

TABLE B-4
Manning Roughness Coefficients

Pipe Material or Channel Lining	Roughness Coefficient
Cast iron pipe	0.013
Concrete pipe	0.012
Corrugated metal pipe	0.024
Corrugated metal pipe – paved invert	0.019
High-density polyethylene pipe (HDPE) – smooth lined	0.012
High-density polyethylene pipe (HDPE) – corrugated	0.018
Plastic pipe (PVC, SDR, S&D)	0.011
Earth-lined channel (few rocks)	0.020
Earth-bottomed channel with rock sides	0.030
Grass-lined channel	0.050

SOURCE: L. W. Mays, 2001. Stormwater Collection Systems Design Handbook, McGraw-Hill Book Co.