

INLET SPACING: CURB-OPENING, GRATED AND SLOTTED PIPE INLETS

SECTION 3: INSTRUCTIONS

COLUMN	ITEM	INSTRUCTIONS
1	STA/LOC	Station and Location of Inlet
2	CA	C X A: Weighted Runoff Coefficient times Drainage Area to Inlet in Acres
3	Q	Rational Discharge = (2) x I (Intensity)
4	Qc	Carryover from Previous Inlet Upstream
5	Qa	Total Gutter Flow Available = (3) + (4)
6	Sx	Pavement Cross-Slope at Inlet; use minimum of 0.001 for inlet placed 50 feet back of flat spot in Superelevated Roadway.
7	Sw / Sx	Ratio of Gutter Cross Slope (Sw) to (6)
8	So	Longitudinal Slope; use minimum of 0.001 for inlet in Sag Vertical Curve.
9	T / W	Ratio of Top Width (Spread) to Gutter Width
10	T	Top Width Flow at Inlet (Spread)
11	d	Depth of Flow at Inlet
12	V	Velocity at Inlet = (3) / Area
13	W / T	Ratio of Gutter Width to Top Width
14	Eo	Ratio of Gutter Flow to Total Flow = $Q_w / (3) = 1 - (1 - W/T)^{2.67}$
15	Se	Equivalent Cross Slope at Depressed Inlets = $S_x + S_w \times E_o$
16	Lt	Length of Curb Opening Inlet required for Total Interception = $0.6Q^{0.42}S_o^{0.3}(1/nSe)^{0.6}$
17	L / LT	Ratio of Length of Inlet to Curb Opening Length required for Total Interception
18	Rf	Ratio of Grate Frontal Flow intercepted to Total Frontal Flow = $1 - 0.09(V - V_o)$, where V_o = gutter velocity where grate splash-over first occurs (see HEC-12)
19	1-Eo	Ratio of Grate Side Flow, Q_s , to Total Gutter Flow = $Q_s/Q = 1 - Q_w/W = 1 - E_o$
20	Rs	Ratio of Grate Side Flow intercepted to Total Side Flow = $1/[1+(0.15V^{1.8})/(S_xLg^{2.3})]$, where Lg is length of grate
21	E	Efficiency of: <div style="display: flex; justify-content: space-between; margin-left: 40px;"> <div>Grate</div> <div>= $RfE_o + R_s(1-E_o)$</div> </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> <div>Curb Opening</div> <div>= $1 - (1 - L/Lt)^{1.8}$</div> </div>
22	Qi	Total Discharge intercepted by inlet, $Q_i = EQ$
23	Qc	Carryover Discharge (not intercepted) to next inlet, $Q_c = Q - Q_i$
	da	Depth at Curb Face times Gutter Depression
	Ta	Top Width times Gutter Depression
	I	Rainfall Intensity
	n	Manning's Roughness Coefficient for Pavement
	Wg	Width of Grate
	Lg	Length of Grate
	a	Gutter Depression at Inlet in feet
	Li	Length of Curb Opening Inlet
	Qsum	Sum of Total Gutter Flow in Sag
	Cw	Weir Coefficient
	Co	Orifice Coefficient
	h	Height of curb opening
	do	Effective Head on Center of Orifice Throat of Curb Opening Inlet, $do = d - (h/2)\sin\theta$, where h is height of curb opening orifice and θ is angle of orifice opening (see HEC-12)
	A/2	Area of Clear Grate Opening divided by 2
	P/2	Perimeter of Grate divided by 2