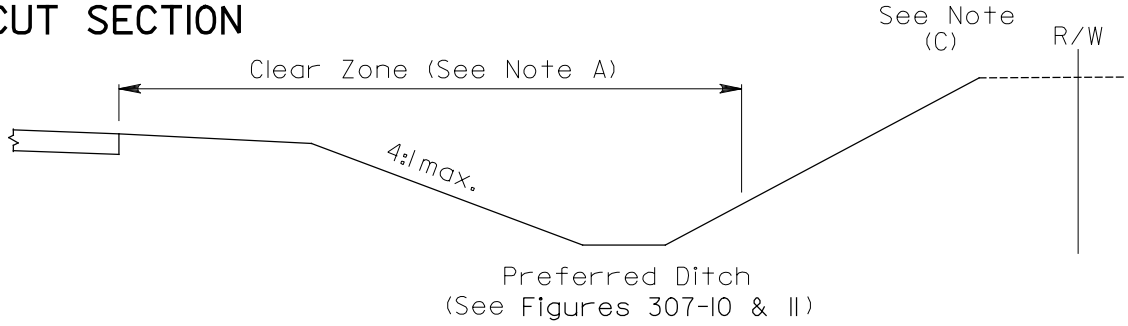
CLEAR ZONE GRADING SECTIONS

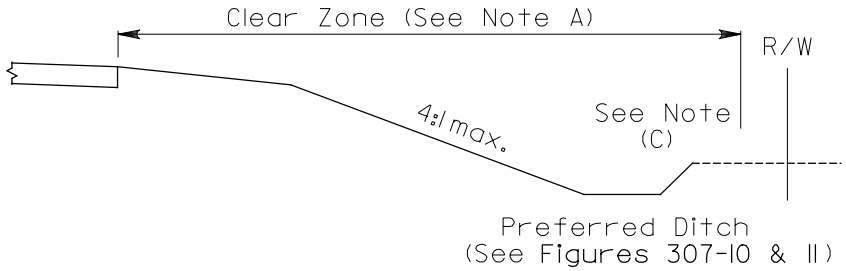
307-3

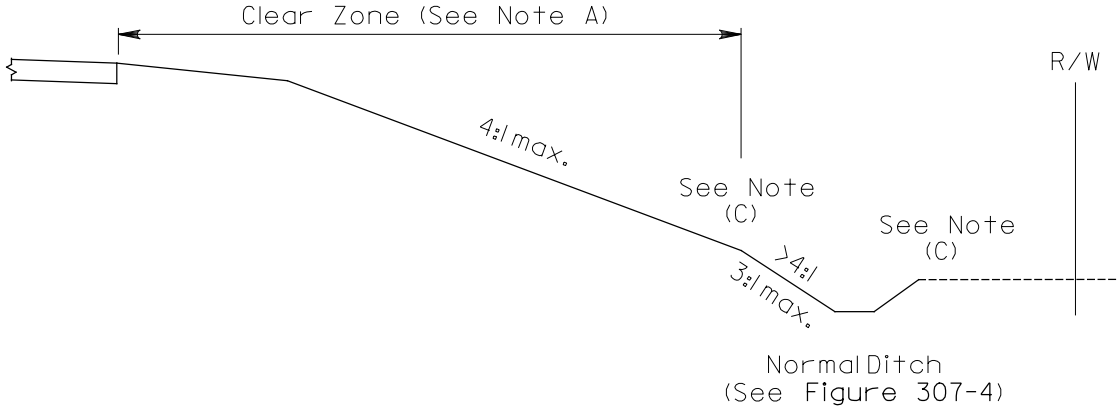
REFERENCE SECTIONS 307.2.1 & 307.2.3

CUT SECTION



FILL SECTIONS (B)





NOTES:

(A) See Figure 600-1 for Clear Zone widths.

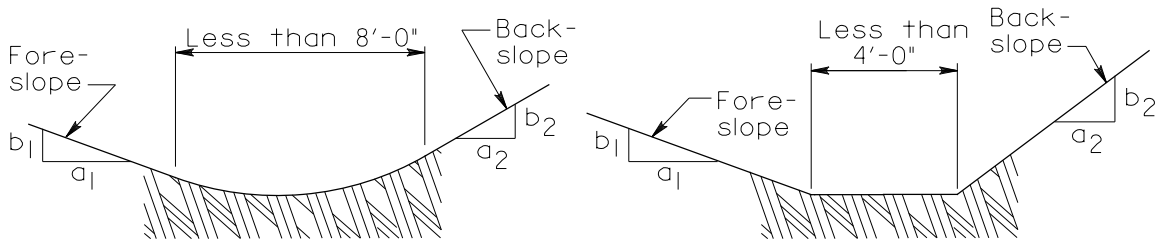
(B) For fill heights over 16 ft., use barrier grading (See Figure 307-4)

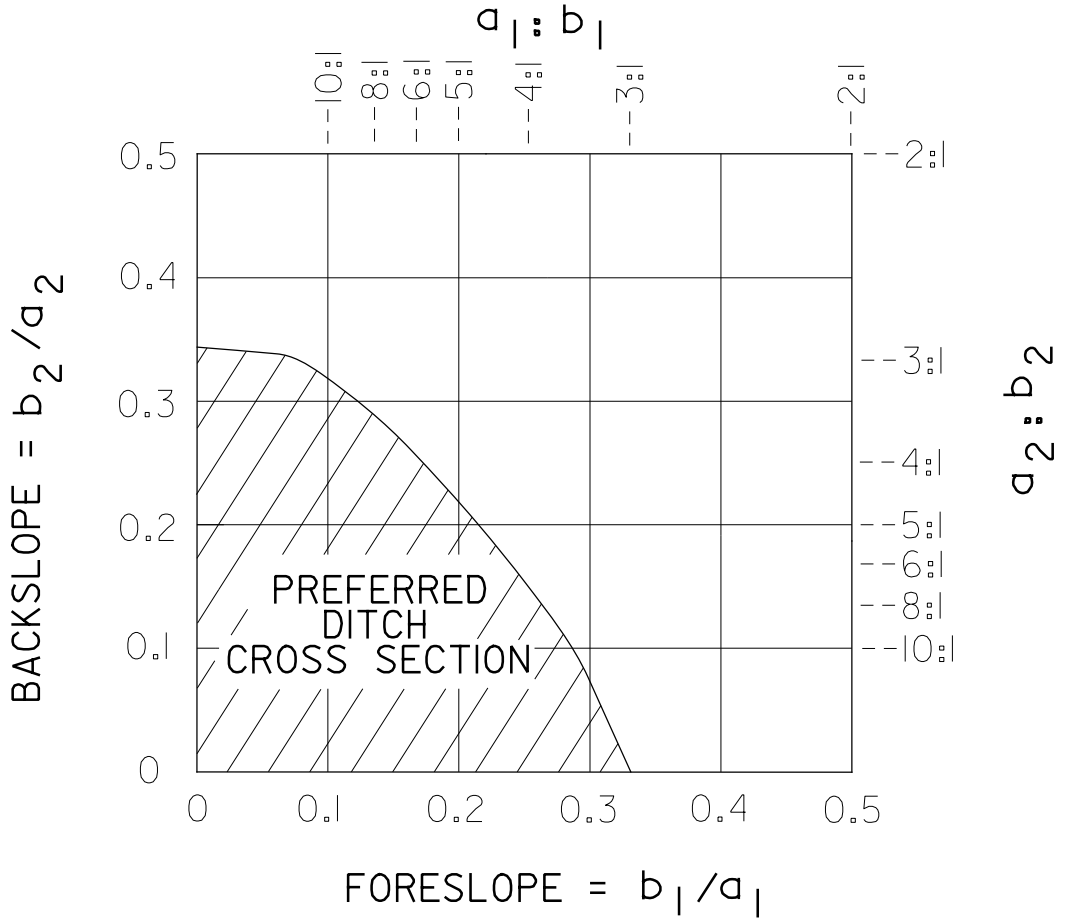
(C) 4 ft. Rounding

PREFERRED CROSS SECTIONS FOR DITCHES WITH ABRUPT SLOPE CHANGES

307-10

REFERENCE SECTIONS
600.2.1





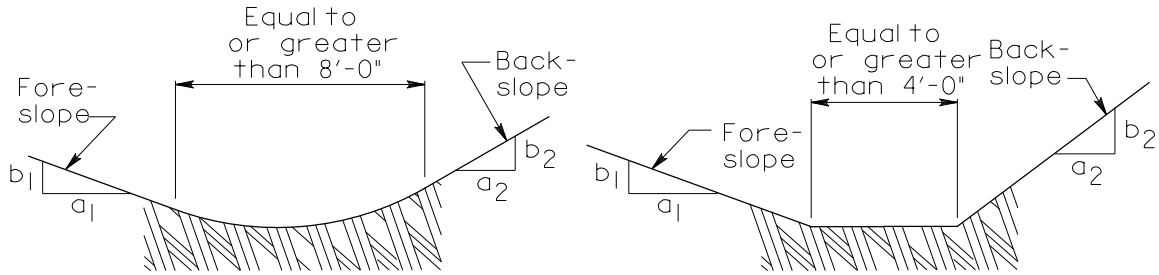
This chart is applicable to vee ditches, rounded ditches with bottom widths less than 8'-0", and trapezoidal ditches with bottom widths less than 4'-0".

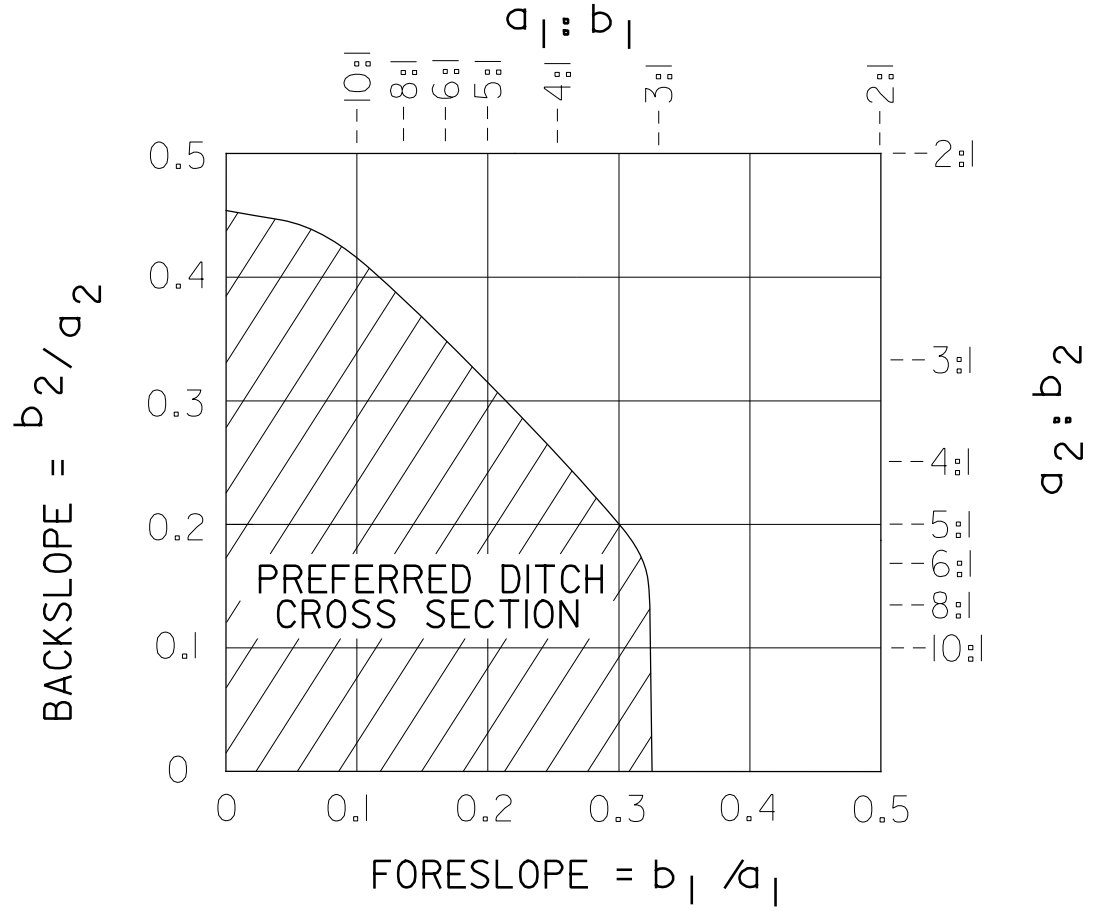
Ditch sections that fall within the shaded areas of the figure above are considered traversable and are preferred for use within the Clear Zone. Ditch sections that fall outside the shaded areas are considered non-traversable and should generally be located outside the Clear Zone.

PREFERRED CROSS SECTIONS FOR DITCHES WITH GRADUAL SLOPE CHANGES

307-11

REFERENCE SECTIONS 600.2.1





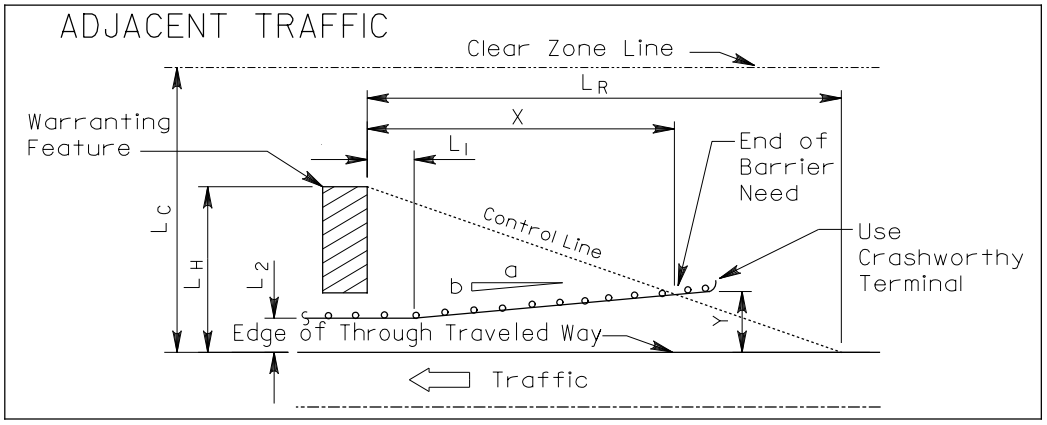
This chart is applicable to rounded ditches with bottom widths of 8′-0" or more, and to trapezoidal ditches with bottom widths equal to or greater than 4′-0".

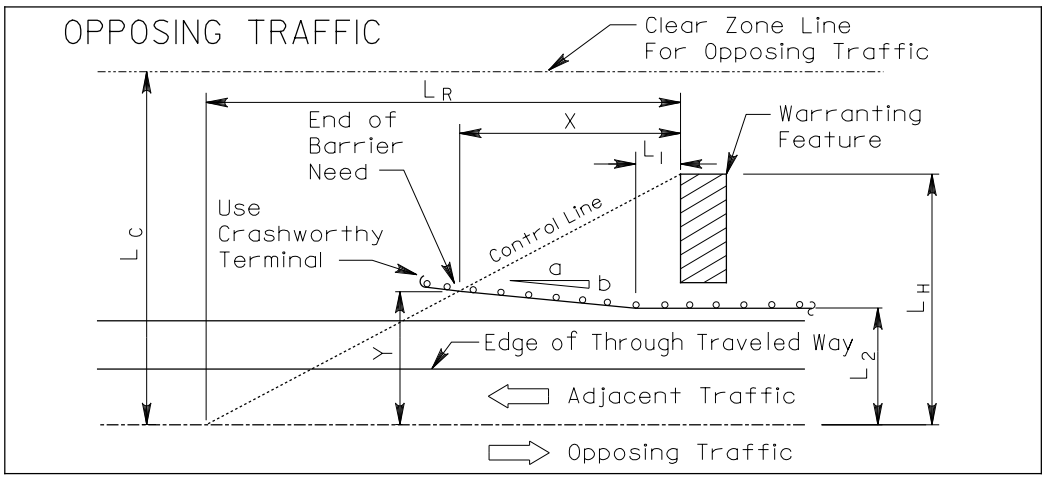
Ditch sections that fall within the shaded areas of the figure above are considered traversable and are preferred for use within the Clear Zone. Ditch sections that fall outside the shaded areas are considered non-traversable and should generally be located outside the Clear Zone.

BARRIER LENGTH OF NEED (TANGENT ALIGNMENT)

602-1

REFERENCE SECTIONS
602.1.2, 602.5.1, & 603.6





Design Speed (mph)	Flare Rate (a:b)		Runout Length, L_R (ft) Per Design Year ADT			
	Concrete Barrier	MGS Guardrail	Over 10,000 veh/day	5,000-10,000 veh/day	1,000 5,000 veh/day	Under 1,000 veh/day
75	20:1	7:1	415	380	335	290
70	20:1	7:1	360	330	290	250
65	19:1	7:1	330	290	250	225
60	18:1	7:1	300	250	210	200
55	16:1	7:1	265	220	185	175
50	14:1	7:1	230	190	160	150
45	12:1	7:1	195	160	135	130
40	10:1	7:1	160	130	110	100
35	9:1	7:1	135	110	95	85
30	8:1	7:1	110	90	80	70

Formulas

X = Length of Need
L_R = Runout Length
L_C = Required Clear Zone
L_H = Lateral Offset to Back of Warranting Feature
L_2 = Lateral Offset to Face of Barrier (see Figure 301-3)
L_1 = Varies (Typically measured to the end of a full panel of guardrail)

If $L_H < L_C$: $X = \frac{L_H + (b/a)L_1 - L_2}{(b/a) + L_H/L_R}$

$Y = L_H - X(L_H/L_R)$

If $L_H > L_C$: Substitute L_C in the above formulas.