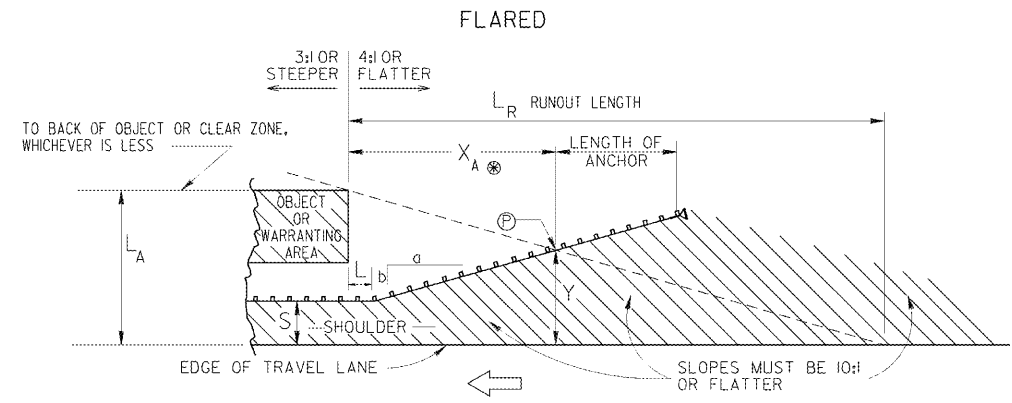


LENGTH OF GUARDRAIL ADVANCEMENT AT FIXED OBJECTS OR AT WARRANTING FILL SLOPES (TYPICAL)

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



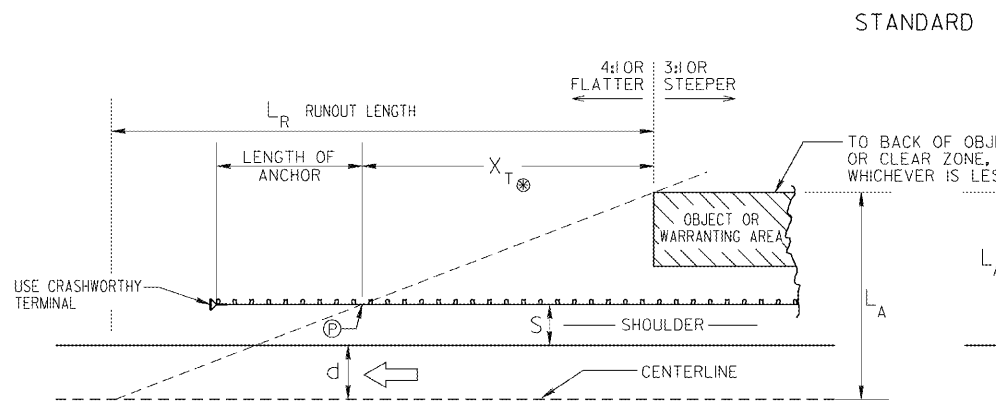
DESIGN SPEED (mph)	SHY-LINE OFFSET (ft)	(a/b)	
		BARRIER INSIDE SHY-LINE	BARRIER AT OR BEYOND SHY-LINE
70	9	30	15
60	8	26	14
55	7	24	12
50	6.5	21	11
45	6	18	10
40	5	16	8
30	4	13	7

$$Y = L_A - \frac{L_A}{L_R} (X_A)$$

$$X_A = \frac{L_A + (b/a)L - S}{b/a + (L_A/L_R)}$$

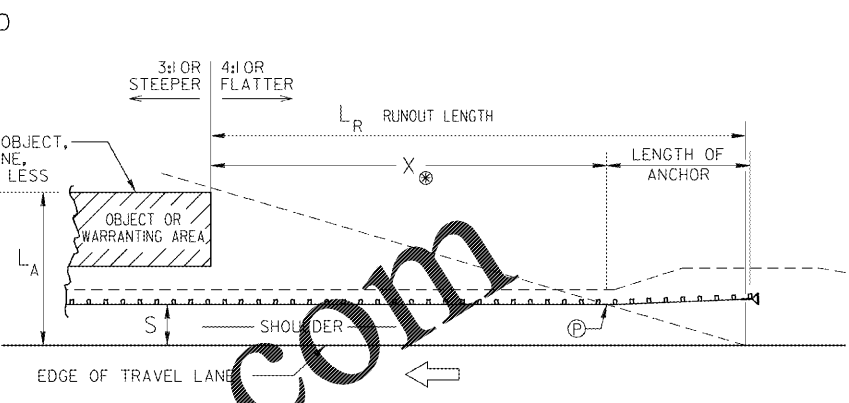
WHERE 'S' IS LESS THAN THE SHY-LINE OFFSET, USE FLATTER RATES GIVEN IN TABLE.

DESIGN SPEED (MPH)	OVER 10000 (A.D.T.)	5000-10000 (A.D.T.)	1000-5000 (A.D.T.)	UNDER 1000 (A.D.T.)
80	470	430	380	330
70	360	330	290	250
60	300	250	210	200
50	230	190	160	150
40	160	130	110	100
30	110	90	80	70



$$X_T = L_R \times \frac{L_A - (S+d)}{L_A}$$

(TRAILING END)



$$X = L_R \times \frac{L_A - S}{L_A}$$

(APPROACH END)

S = NORMAL WIDTH OF USUABLE SHOULDER PLUS 2 FT (TYP.)
 (P) = BEGINNING OF TERMINAL (TYP.)
 X_A, X_T, AND X MEASURED FROM THE END OF W-BEAM, WHERE TERMINAL BEGINS

CLEAR ZONE DISTANCES

CLEAR ZONE DISTANCES (FT) CHART

DESIGN SPEED	DESIGN ADT	FORESLOPES			BACKSLOPES		
		IV:6H OR FLATTER	IV:5H TO IV:4H	IV:3H	IV:5H TO IV:4H	IV:4H OR FLATTER	IV:6H
40 M.P.H. OR LESS	UNDER 750	7-10	7-10	**	7-10	7-10	7-10
	750-1500	10-12	12-14	**	12-14	12-14	12-14
	1500-6000	12-14	14-16	**	14-16	14-16	14-16
45-50 M.P.H.	UNDER 750	10-12	12-14	**	8-10	8-10	10-12
	750-1500	14-16	16-20	**	10-12	12-14	14-16
	1500-6000	16-18	20-26	**	12-14	14-16	16-18
55 M.P.H.	UNDER 750	12-14	14-18	**	8-10	10-12	12-14
	750-1500	16-18	20-24	**	10-12	14-16	16-18
	1500-6000	20-22	24-30	**	14-16	16-18	20-22
60 M.P.H.	UNDER 750	16-18	20-24	**	10-12	12-14	14-16
	750-1500	20-24	26-32*	**	12-14	16-18	20-22
	1500-6000	26-30	32-40*	**	14-18	18-22	24-26
65-70 M.P.H.	UNDER 750	18-20	20-26	**	10-12	14-16	16-18
	750-1500	24-26	28-36*	**	12-14	16-20	20-22
	1500-6000	28-32*	34-42*	**	14-20	22-24	26-28
	OVER 6000	30-34*	38-46*	**	22-24	26-30	28-30

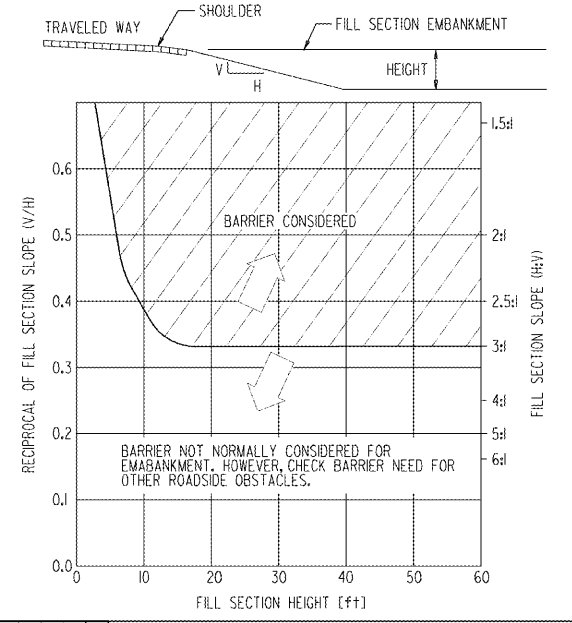
HORIZONTAL CURVE ADJUSTMENTS

RADIUS (FEET)	DESIGN SPEED (MPH)						
	40	45	50	55	65	70	
2950	1.0	1.1	1.2	1.2	1.2	1.2	
2300	1.1	1.1	1.2	1.2	1.2	1.3	
1970	1.2	1.2	1.2	1.2	1.3	1.4	
1650	1.1	1.2	1.2	1.3	1.3	1.4	
1470	1.2	1.2	1.3	1.3	1.4	1.5	
1315	1.2	1.2	1.3	1.3	1.4	1.5	
1150	1.2	1.2	1.3	1.4	1.5	1.5	
985	1.2	1.3	1.4	1.5	1.5	1.5	
820	1.3	1.3	1.4	1.5	1.5	1.5	
660	1.3	1.4	1.5	1.5	1.5	1.5	
495	1.4	1.5	1.5	1.5	1.5	1.5	
330	1.5	1.5	1.5	1.5	1.5	1.5	

CZ_C = (L_C) (K_{CZ})
 Where:
 CZ_C = CLEAR ZONE ON OUTSIDE OF CURVATURE, FEET
 L_C = CLEAR ZONES DISTANCE, FEET (SEE CHART AT LEFT)
 K_{CZ} = CURVE CORRECTION FACTOR

NOTE:
 THE CURVE CORRECTION FACTOR IS APPLIED TO THE OUTSIDE OF CURVES ONLY. CORRECTIONS ARE TYPICALLY MADE ONLY TO CURVES LESS THAN 2,950-FT RADIUS.

COMPARATIVE BARRIER CONSIDERATION FOR EMBANKMENTS



* WHEN A SITE-SPECIFIC INVESTIGATION INDICATES A HIGH PROBABILITY OF CONTINUING CRASHES OR WHEN SUCH OCCURRENCES ARE INDICATED BY CRASH HISTORY, THE DESIGNER MAY PROVIDE CLEAR-ZONE DISTANCES GREATER THAN THE CLEAR ZONE SHOWN ABOVE. CLEAR ZONES MAY BE LIMITED TO 30 FT. FOR PRACTICALITY AND TO PROVIDE A CONSISTENT ROADWAY TEMPLATE IF PREVIOUS EXPERIENCE WITH SIMILAR PROJECTS OR DESIGNS INDICATES SATISFACTORY PERFORMANCE.

** BECAUSE RECOVERY IS LESS LIKELY ON THE UNSHIELDED, TRAVERSABLE IV:3H FILL SLOPES, FIXED OBJECTS SHOULD NOT BE PRESENT IN THE VICINITY OF THE TOE OF THESE SLOPES. RECOVERY OF HIGH-SPEED VEHICLES THAT ENCRASH BEYOND THE EDGE OF THE SHOULDER MAY BE EXPECTED TO OCCUR BEYOND THE TOE OF SLOPE. DETERMINATION OF THE WIDTH OF THE RECOVERY AREA AT THE TOE OF SLOPE SHOULD CONSIDER RIGHT-OF-WAY AVAILABILITY, ENVIRONMENTAL CONCERNS, ECONOMIC FACTORS, SAFETY NEEDS, AND CRASH HISTORY. ALSO, THE DISTANCE BETWEEN THE EDGE OF THE THROUGH TRAVELED LAND AND THE BEGINNING OF THE IV:3H SLOPE SHOULD INFLUENCE THE RECOVERY AREA PROVIDED AT THE TOE OF SLOPE. A 10-FT RECOVERY AREA AT THE TOE OF SLOPE SHOULD BE PROVIDED FOR ALL TRAVERSABLE, NON-RECOVERABLE FILL SLOPES.

REV. ANCH. LOC.: UPDATED 1-29-16	FLARE TBL: ADDED CHART 4-16-15	REVISED TO 2018DC	REVISED SLOPE WARRANTS 9-4-07	DATE
F.B.F.	B.J.O.	G.L.C.	BY	REVISION
DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA STANDARD GUARDRAIL WARRANT GUIDES LENGTHS OF ADVANCEMENT CLEAR ZONE DISTANCES FILL HEIGHT EMBANKMENTS				
NOT TO SCALE				DEC., 1999
DES. (SUBMITTED)	STATE DESIGN POLICY ENGINEER			NUMBER
TRA. (APPROVED)	MARGARET B. PUKO			4000W
CHK.	CHIEF ENGINEER			