

REV. 4-1-88: DELETED LAST NOTE.  
 REV. 4-11-90: ADDED FREEWAY NOTE.  
 REV. 8-30-91: REDREW SHEET, CHANGED GENERAL NOTE (E).  
 REV. 10-26-95: CHANGED GENERAL NOTE (E).

STANDARD RATES OF SUPERELEVATION AND MINIMUM LENGTH OF RUNOFF FOR URBAN HIGHWAYS

E MAX=0.04 DESIRABLE

D	R (FT.)	V=20 (MPH)			V=30 (MPH)			V=40 (MPH)			V=50 (MPH)			V=60 (MPH)			
		e/F	L(FT.)			e/F	L(FT.)			e/F	L(FT.)			e/F	L(FT.)		
			2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN
0°-15'	22,918	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0
0°-30'	11,459	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	175	175	215
0°-45'	7,639	NC	0	0	0	NC	0	0	0	RC	150	150	195	RC	175	175	215
1°-00'	5,730	NC	0	0	0	NC	0	0	0	RC	125	130	170	RC	150	150	195
1°-30'	3,820	NC	0	0	0	RC	100	110	145	RC	125	130	170	.024	150	160	215
2°-00'	2,865	NC	0	0	0	RC	100	110	145	.022	125	135	180	.027	150	170	230
2°-30'	2,292	NC	0	0	0	RC	100	110	145	.025	125	145	190	.030	150	180	240
3°-00'	1,910	NC	0	0	0	.020	100	110	145	.027	125	150	200	.033	150	195	255
3°-30'	1,637	NC	0	0	0	.022	100	115	155	.028	125	155	205	.035	150	200	265
4°-00'	1,432	NC	0	0	0	.024	100	120	160	.030	125	160	210	.037	150	210	275
5°-00'	1,146	RC	65	100	130	.026	100	125	170	.033	125	170	225	.039	150	215	285
6°-00'	955	.020	65	100	130	.028	100	130	175	.035	125	175	235	.040	150	220	290
7°-00'	819	.022	70	105	135	.030	100	135	180	.037	125	180	240	D(MAX)=6°-00'			
8°-00'	716	.023	70	105	140	.031	100	140	185	.039	125	190	250	D(MAX)=6°-00'			
9°-00'	637	.024	75	110	145	.033	100	145	195	.040	130	190	255	D(MAX)=10°-00'			
10°-00'	573	.025	75	110	145	.034	100	150	195	.040	130	190	255	D(MAX)=10°-00'			
11°-00'	521	.026	75	115	150	.035	100	150	200	D(MAX)=10°-00'							
12°-00'	477	.027	80	115	155	.036	105	155	205	D(MAX)=10°-00'							
13°-00'	441	.028	80	120	155	.037	105	155	210	D(MAX)=10°-00'							
14°-00'	409	.028	80	120	155	.038	105	160	210	D(MAX)=10°-00'							
16°-00'	358	.030	80	120	160	.039	110	160	215	D(MAX)=10°-00'							
18°-00'	318	.031	85	125	165	.040	110	165	220	D(MAX)=10°-00'							
19°-00'	302	.032	85	125	170	.040	110	165	220	D(MAX)=10°-00'							
20°-00'	286	.032	85	125	170	D(MAX)=19°-00'											
24°-00'	239	.035	90	135	180	D(MAX)=19°-00'											
28°-00'	205	.036	90	135	180	D(MAX)=19°-00'											
32°-00'	179	.038	95	140	190	D(MAX)=19°-00'											
36°-00'	159	.039	95	145	190	D(MAX)=19°-00'											
40°-00'	143	.040	100	145	195	D(MAX)=19°-00'											
44°-00'	130	.040	100	145	195	D(MAX)=19°-00'											
D(MAX)=45°-00'																	

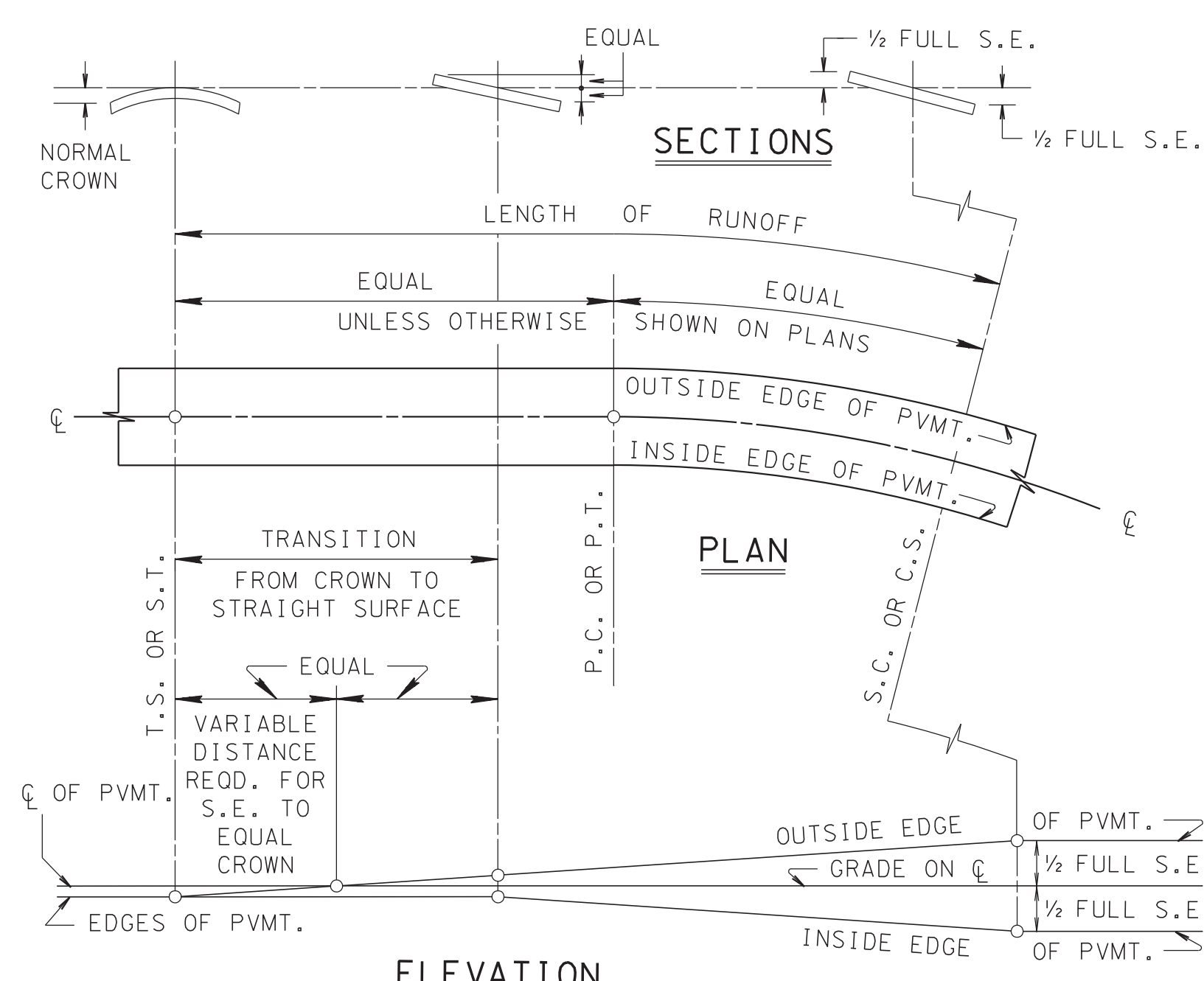
**LEGEND**

D	DEGREE OF CURVE
R	RADIUS OF CURVE
V	ASSUMED DESIGN SPEED
e	RATE OF SUPERELEVATION
L	MINIMUM LENGTH OF RUNOFF
NC	NORMAL CROWN
RC	REMOVE ADVERSE CROWN, SUPERELEVATE AT NORMAL CROWN SLOPE

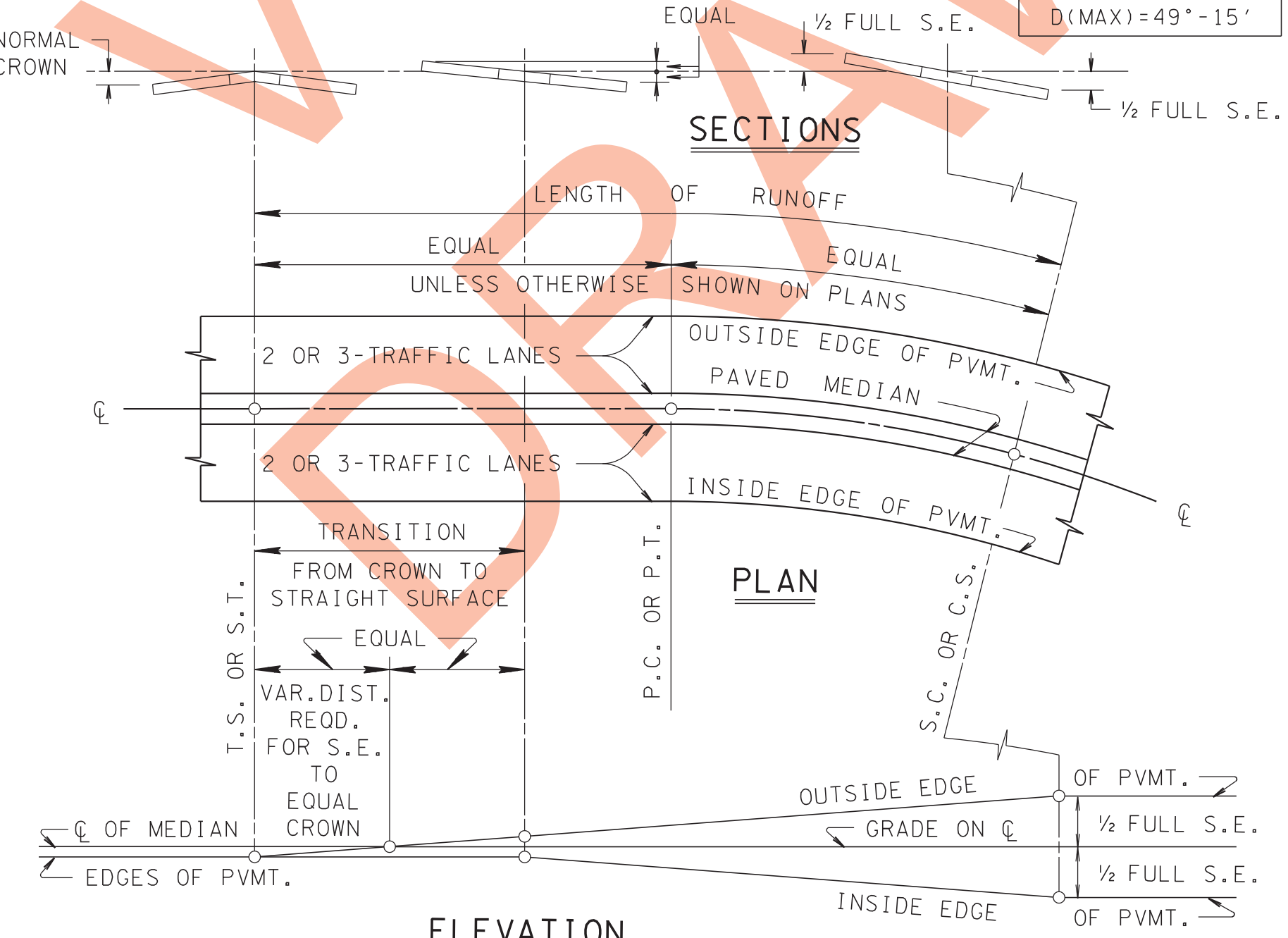
E MAX=0.06 ALLOWABLE

D	R (FT.)	V=20 (MPH)			V=30 (MPH)			V=40 (MPH)			V=50 (MPH)			V=60 (MPH)			V=70 (MPH)				
		e/F	L(FT.)			e/F	L(FT.)			e/F	L(FT.)			e/F	L(FT.)			e/F	L(FT.)		
			2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN
0°-15'	22,918	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0				
0°-30'	11,459	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0				
0°-45'	7,639	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0				
1°-00'	5,730	NC	0	0	0	NC	0	0	0	RC	125	130	170	.020	150	150	195				
1°-30'	3,820	NC	0	0	0	RC	100	110	145	.020	125	130	170	.028	150	175	235				
2°-00'	2,865	NC	0	0	0	RC	100	110	145	.025	125	145	190	.035	150	200	265				
2°-30'	2,292	NC	0	0	0	.020	100	110	145	.030	125	160	210	.040	150	220	290				
3°-00'	1,910	RC	65	100	130	.023	100	120	155	.034	125	175	230	.045	160	235	315				
3°-30'	1,637	RC	65	100	130	.026	100	125	170	.038	125	185	245	.048	165	245	330				
4°-00'	1,432	RC	65	100	130	.029	100	135	180	.041	130	195	260	.052	175	260	350				
5°-00'	1,146	.020	65	100	130	.034	100	150	195	.046	140	210	280	.056	185	275	365				
6°-00'	955	.023	70	105	140	.038	105	160	210	.050	150	225	295	.059	190	285	380				
7°-00'	819	.026	75	110	145	.041	110	165	220	.053	155	230	310	D(MAX)=6°-45'							
8°-00'	716	.029	80	120	160	.043	115	175	230	.056	160	240	320	D(MAX)=6°-45'							
9°-00'	637	.031	85	125	165	.046	120	180	240	.058	165	250	330	D(MAX)=6°-45'							
10°-00'	573	.033	85	130	170	.048	125	185	245	.059	170	250	335	D(MAX)=6°-45'							
11°-00'	521	.035	90	135	180	.050	130	190	255	.060	170	255	340	D(MAX)=6°-45'							
12°-00'	477	.037	95	140	185	.052	130	195	260	D(MAX)=11°-15'											
13°-00'	441	.038	95	140	190	.054	135	200	270	D(MAX)=11°-15'											
14°-00'	409	.039	95	145	190	.055	135	205	270	D(MAX)=11°-15'											
16°-00'	358	.041	100	150	200	.058	145	215	285	D(MAX)=11°-15'											
18°-00'	318	.044	105	155	205	.059	145	215	285	D(MAX)=11°-15'											
20°-00'	286	.046	110	160	215	.060	145	220	290	D(MAX)=11°-15'											
21°-00'	273	.047	110	165	215	.060	145	220	290	D(MAX)=11°-15'											
24°-00'	239	.049	115	170	225	D(MAX)=21°-00'															
28°-00'	205	.052	120	175	235	D(MAX)=21°-00'															
32°-00'	179	.055	120	180	240	D(MAX)=21°-00'															
36°-00'	159	.057	125	185	250	D(MAX)=21°-00'															
40°-00'	143	.059	130	190	255	D(MAX)=21°-00'															
44°-00'	130	.060	130	195	260	D(MAX)=21°-00'															
48°-00'	119	.060	130	195	260	D(MAX)=21°-00'															
D(MAX)=49°-15'																					

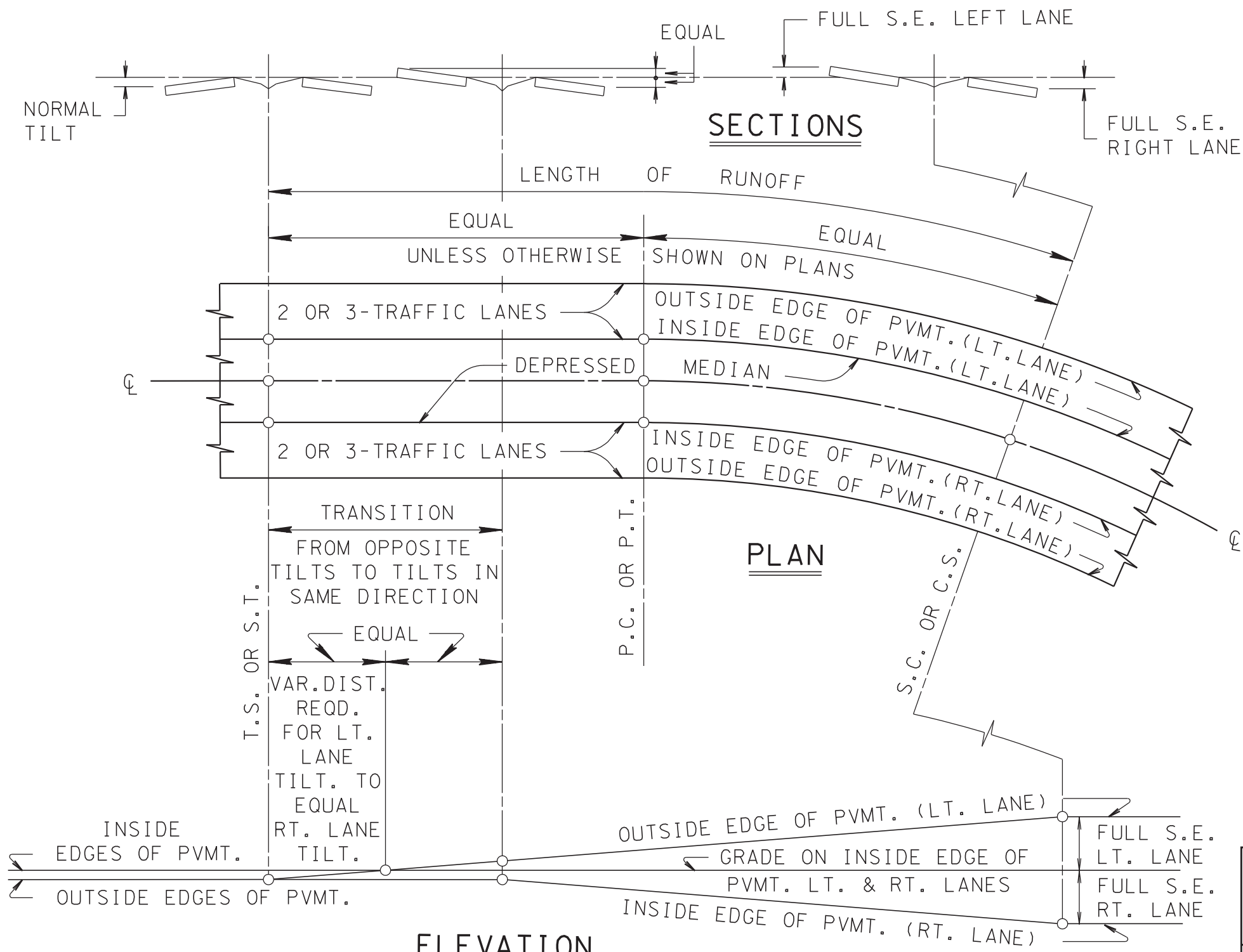
- GENERAL NOTES**
- (A) ALL HORIZONTAL CURVES SHALL BE SUPERELEVATED IN ACCORDANCE WITH THIS TABULATION, UNLESS OTHERWISE SHOWN ON THE PLANS.
  - (B) SPIRALS ARE NOT REQUIRED BELOW 50 MPH AND ABOVE THE HEAVY LINE FOR HIGHER SPEEDS.
  - (C) LENGTHS ROUNDED IN MULTIPLES OF 25 OR 50 FEET PERMIT SIMPLER CALCULATIONS.
  - (D) ALIGNMENT DESIGNS SHOULD BE SO ARRANGED AS TO AVOID SUPERELEVATION TRANSITIONS ON BRIDGE DECKS, IN ORDER TO PREVENT PONDING IN THE AREAS OF ZERO SUPERELEVATION IN THE CROWN CHANGE ZONE.
  - (E) USE RURAL SUPERELEVATION RATES ON ALL URBAN FREEWAYS AND EXPRESSWAYS EXCEPT VIADUCTS.



TYPICAL TRANSITION IN SUPERELEVATION 2-LANE HIGHWAY



TYPICAL TRANSITION IN SUPERELEVATION 4 OR 6-LANE HIGHWAY WITH PAVED MEDIAN



TYPICAL TRANSITION IN SUPERELEVATION 4 OR 6-LANE HIGHWAY WITH DEPRESSED MEDIAN

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION

URBAN SUPERELEVATION DETAILS

5-21-87 RD-SE-2