REV. 11-1-95: CHANGED TO METRIC.

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

E MAX=8.0 % DESIRABLE

R (m)	V_d =30 km/h				V_d =40 km/h				V_d =50 km/h				V_d =60 km/h				V_d =70 km/h				V_d =80 km/h				V_d =90 km/h				V_d=100 km/h				V_d=110 km/h				V_d=120 km/h			
	e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)		
		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		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
7000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0
5000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0
3000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	60	60	64	2.1	65	65	70	2.4	70	70	79
2500	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	55	55	60	2.1	60	60	66	2.4	65	65	75	2.9	70	70	88
2000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	50	50	58	2.2	55	55	64	2.6	60	60	74	3.0	65	65	86	3.5	70	74	99				
1500	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	40	40	52	2.4	50	50	63	2.8	55	55	73	3.4	60	65	86	3.9	65	76	101	4.6	70	89	119
1400	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	35	36	48	2.1	40	40	54	2.5	50	50	65	3.0	55	57	76	3.6	60	67	90	4.1	65	78	105	4.9	70	93	124
1300	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	35	36	48	2.2	40	41	55	2.7	50	51	68	3.2	55	59	79	3.8	60	70	93	4.4	65	82	110	5.2	70	97	130
1200	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	35	36	48	2.4	40	43	58	2.9	50	53	71	3.4	55	61	82	4.1	60	73	98	4.7	65	86	115	5.6	70	103	137
1000	NC	0	0	0	NC	0	0	0	RC	30	32	43	2.2	35	38	51	2.8	40	47	63	3.4	50	58	78	4.0	55	68	91	4.8	60	82	109	5.5	65	96	129	6.5	77	115	153
900	NC	0	0	0	NC	0	0	0	RC	30	32	43	2.4	35	40	53	3.1	40	50	67	3.7	50	62	82	4.4	55	73	97	5.2	60	86	115	6.0	69	103	137	7.1	82	123	164
800	NC	0	0	0	NC	0	0	0	RC	30	32	43	2.7	35	42	57	3.4	40	53	71	4.1	50	66	88	4.8	55	77	103	5.7	62	92	123	6.5	73	109	146	7.6	86	130	173
700	NC	0	0	0	RC	25	31	41	2.2	30	34	45	3.0	35	45	60	3.8	40	57	76	4.5	50	70	94	5.3	55	83	110	6.3	66	100	133	7.2	79	118	158	8.0	90	135	180
600	NC	0	0	0	RC	25	31	41	2.6	30	37	50	3.4	35	49	65	4.3	41	62	83	5.1	51	77	102	6.0	60	91	121	6.9	71	107	142	7.7	83	125	166	R min=655			
500	NC	0	0	0	2.2	25	32	43	3.0	30	41	54	3.9	35	53	71	4.9	45	68	90	5.8	56	84	112	6.7	66	99	132	7.6	77	115	153	8.0	86	129	171				
400	RC	20	29	38	2.7	25	36	48	3.6	30	45	60	4.7	40	60	81	5.7	50	76	101	6.6	62	93	124	7.5	72	108	144	8.0	80	120	160	R min=500							
300	2.1	20	29	39	3.4	28	42	56	4.5	35	53	70	5.6	46	69	91	6.7	57	86	114	7.6	69	104	138	R min=305				R min=395											
250	2.5	22	32	43	4.0	31	46	62	5.1	38	58	77	6.2	49	74	99	7.3	61	91	122	7.9	71	107	143																
200	3.0	24	36	48	4.6	34	51	68	5.8	42	63	84	7.0	54	81	108	7.9	65	97	130	R min=230																			
175	3.4	26	39	52	5.0	36	54	72	6.2	44	66	89	7.4	57	85	113	8.0	66	98	131																				
150	3.8	28	42	56	5.4	38	57	76	6.7	47	70	94	7.8	59	88	118	R min=175																							
140	4.0	29	43	57	5.6	39	59	78	6.9	48	72	96	7.9	60	89	119																								
130	4.2	30	45	59	5.8	40	60	80	7.1	49	74	98	8.0	60	90	120																								
120	4.4	31	46	61	6.0	41	62	82	7.3	50	75	100	R min=125																											
110	4.7	32	48	64	6.3	43	64	85	7.6	52	78	104																												
100	4.9	33	50	66	6.5	44	66	88	7.8	53	79	106																												
90	5.2	34	52	69	6.9	46	69	92	7.9	53	80	107																												
80	5.5	36	54	72	7.2	47	71	95	8.0	54	81	108																												
70	5.9	38	57	76	7.5	49	73	98	R min=80																															
60	6.4	40	60	80	7.8	50	76	101																																
50	6.9	43	64	85	8.0	51	77	103																																
40	7.5	45	68	91	R min=50																																			
30	8.0	48	72	96																																				
	R min=30																																							

E MAX=10.0 % ALLOWABLE

R (m)	V_d =30 km/h				V_d =40 km/h				V_d =50 km/h				V_d =60 km/h				V_d =70 km/h				V_d =80 km/h				V_d =90 km/h				V_d=100 km/h				V_d=110 km/h				V_d=120 km/h			
	e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)			e %	L(m)		
		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		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
7000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0
5000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0
3000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	60	60	64	2.1	65	65	70
2500	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	55	55	60	2.2	60	60	67	2.5	65	65	77
2000	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	50	50	58	2.2	55	55	64	2.7	60	60	75	3.1	65	66	87
1500	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	40	40	52	2.4	50	50	63	2.9	55	56	74	3.5	60	66	88	4.1	65	78	105
1400	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	35	36	48	2.1	40	40	54	2.6	50	50	66	3.1	55	58	77	3.8	60	70	93	4.3	65	81	108
1300	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	35	36	48	2.3	40	42	56	2.8	50	52	69	3.3	55	60	80	4.0	60	72	96	4.6	65	85	113
1200	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	35	36	48	2.4	40	43	58	3.0	50	54	72	3.6	55	64	85	4.3	60	76	101	5.0	65	90	120
1000	NC	0	0	0	NC	0	0	0	RC	30	32	43	2.2	35	38	51	2.9	40	48	64	3.5	50	59	79	4.2	55	70	94	5.1	60	85	113	5.9	68	102	135	7.0	81	122	162
900	NC	0	0	0	NC	0	0	0	RC	30	32	43	2.5	35	41	54	3.2	40	51	68	3.9	50	64	85	4.6	55	75	100	5.6	61	91	121	6.4	72	108	144	7.7	87	131	175
800	NC	0	0	0	NC	0	0	0	RC	30	32	43	2.7	35	42	57	3.5	40	54	72	4.3	50	68	91	5.1	55	81	107	6.2	66	98	131	7.1	78	117	156	8.5	95	142	189
700	NC	0	0	0	RC	25	31	41	2.3	30	35	46	3.1	35	46	61	4.0	40	59	79	4.8	50	73	98	5.8	59	88	118	6.9	71	107	142	8.0	86	129	171	9.5	104	155	207
600	NC	0	0	0	RC	25	31	41	2.7	30	38	51	3.6	35	51	67	4.5	43	64	85	5.5	54	81	108	6.5	64	96	129	7.8	78	117	157	9.0	94	141	188	10.0	108	162	216
500	NC	0	0	0	2.3	25	33	44	3.1	30	41	55	4.2	37	56	75	5.3	48	72	96	6.4	60	91	121	7.6	73	109	145	8.9	87	131	174	9.9	102	153	204	R min=595			
400	RC	20	29	38	2.8	25	37	49	3.8	31	47	63	5.0	42	63	84	6.3	54	82	109	7.5	68	103	137	8.8	82	122	163	9.8	94	141	189	R min=455							
300	2.2	20	30	40	3.6	29	43	58	4.8	37	55	73	6.3	50	75	100	7.8	64	96	128	9.0	79	119	158	9.9	90	135	180	R min=360											
250	2.6	22	33	44	4.2	32	48	64	5.6	41	62	82	7.1	55	82	109	8.7	70	105	140	9.7	84	126	168	R min=275															
200	3.1	24	37	49	5.0	36	54	72	6.6	46	70	93	8.2	61	92	123	9.6	76	114	152	R min=210																			
175	3.5	26	40	53	5.6	39	59	78	7.1	49	74	98	8.8	65	97	130	9.9	78	117	156																				
150	4.0	29	43	57	6.2	42	63	84	7.8	53	79	106	9.4	69	103	137	R min=160																							
140	4.3	30	45	60	6.4	43	65	86	8.1	55	82	109	9.6	70	105	139																								
130	4.5	31	47	62	6.7	45	67	90	8.5	57	85	113	9.8	71	106	142																								
120	4.8	33	49	65	7.0	46	69	93	8.8	58	87	117	10.0	72	108	144																								
110	5.1	34	51	68	7.4	48	73	97	9.1	60	90	120	R min=115																											
100	5.5	36	54	72	7.7	50	75	100	9.5	62	93	124																												
90	5.9	38	57	76	8.2	53	79	105	9.8	64	96	127																												
80	6.4	40	60	80	8.6	55	82	109	10.0	65	97	130																												
70	6.9	43	64	85	9.1	57	86	114	R min=75																															
60	7.5	45	68	91	9.6	60	90	119																																
50	8.2	49	73	98	10.0	62	93	124																																
40	9.1	53	80	106	R min=45																																			
30	9.9	57	85	114																																				
	R min=25																																							

LEGEND

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

GENERAL NOTES

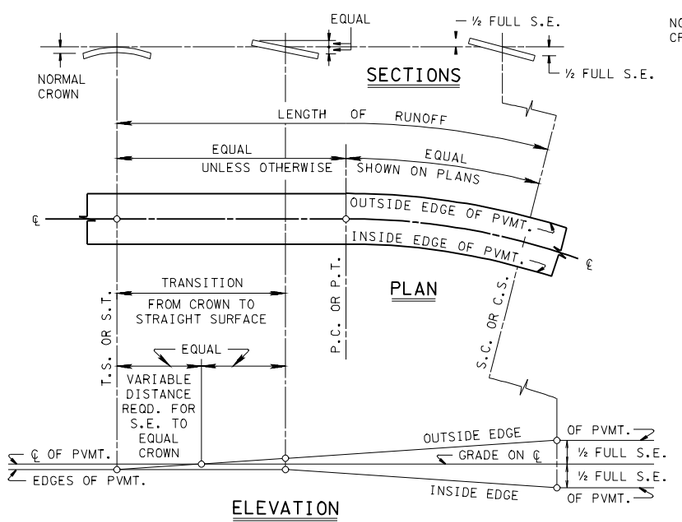
Ⓐ ALL HORIZONTAL CURVES SHALL BE SUPERELEVATED IN ACCORDANCE WITH THIS TABULATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

Ⓑ SPIRALS ARE NOT REQUIRED BELOW 80 km/h AND ABOVE THE HEAVY LINE FOR HIGHER SPEEDS.

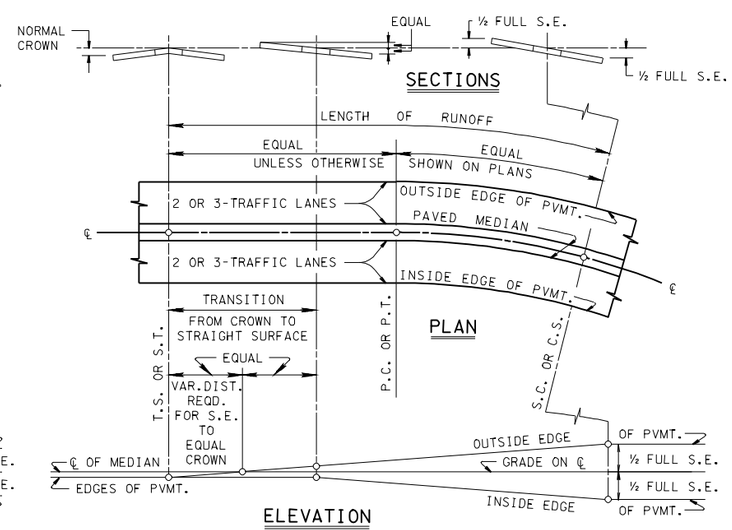
Ⓒ LENGTHS ROUNDED IN MULTIPLES OF 5 m OR 10 m SIMPLER CALCULATIONS.

Ⓓ 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.

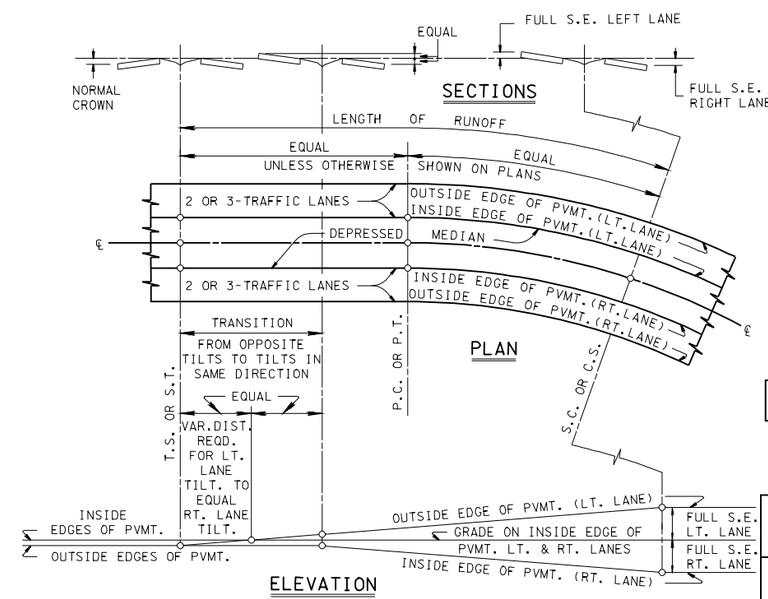
Ⓔ USE RURAL SUPERELEVATION RATES ON ALL URBAN FREEWAYS AND EXPRESSWAYS EXCEPT VIADUCTS.



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

ALL UNITS ARE IN METERS UNLESS NOTED OTHERWISE.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RURAL SUPERELEVATION DETAILS

11-1-95 RDM-SE-3