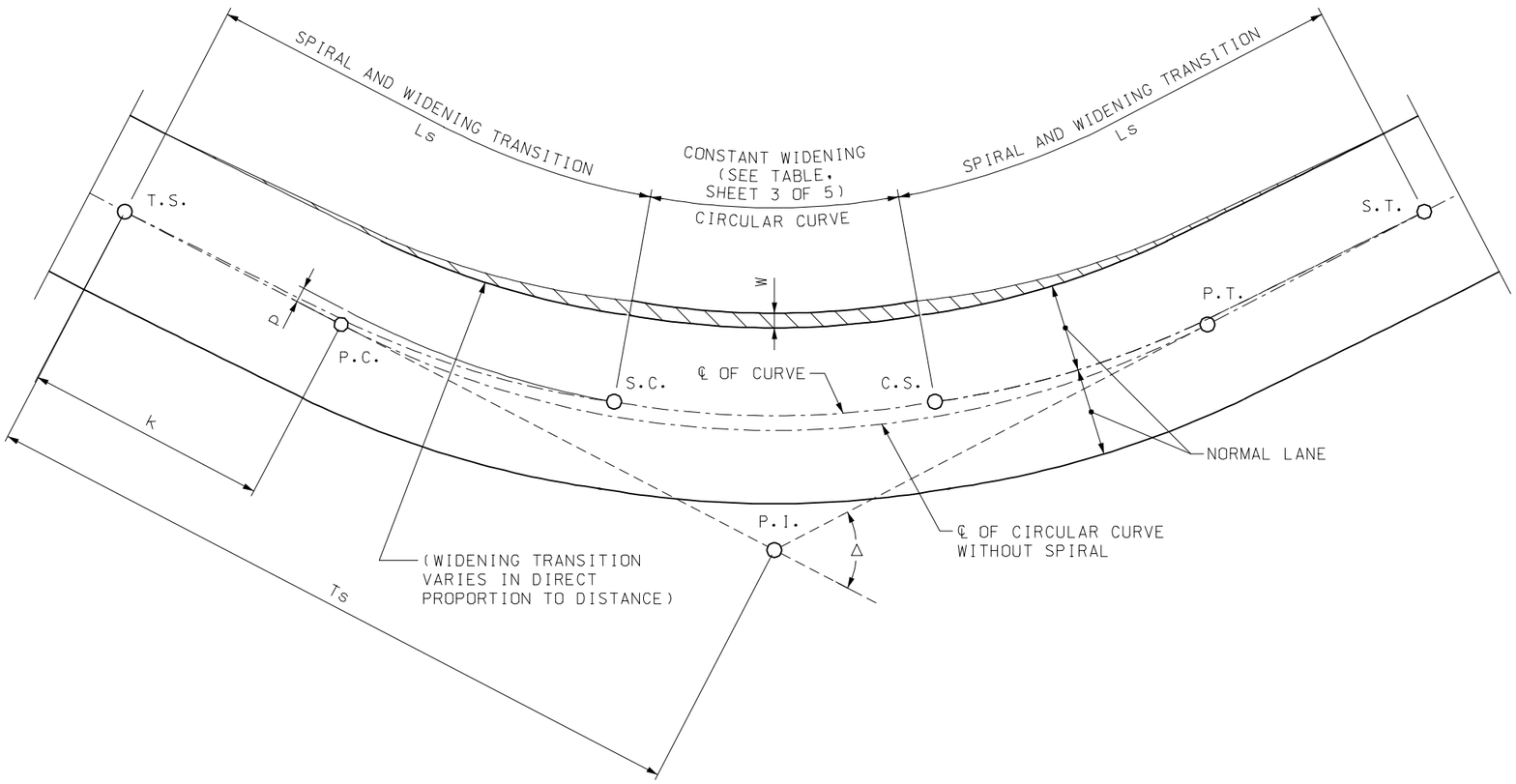
MULTILANE FACTORS FOR "L" IN ONE DIRECTION
3 LANE 1.3
4 LANE 1.7
5 LANE 2.0
6 LANE 2.3



SPIRALED CURVE AND WIDENING TRANSITIONS

SPIRAL NOTES:

1. CURVES WITH RADIUS OF 875 m OR MORE ARE NOT TO BE SPIRALED.
2. CURVES OF ROADS WITH DESIGN TRAFFIC LESS THAN 400 ADT ARE NOT TO BE SPIRALED.
3. A PRACTICAL CONTROL FOR THE LENGTH OF SPIRAL "Ls" IS CONSIDERED TO BE THE SUPERELEVATION RUNOFF "L".
4. SPIRAL TRANSITION CURVES MAY BE STAKED BY DEFLECTION ANGLES AND CHORDS OR BY OFFSETS FROM TANGENT. THE ARC DEFINITION SHALL BE USED FOR THE CIRCULAR CURVES.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

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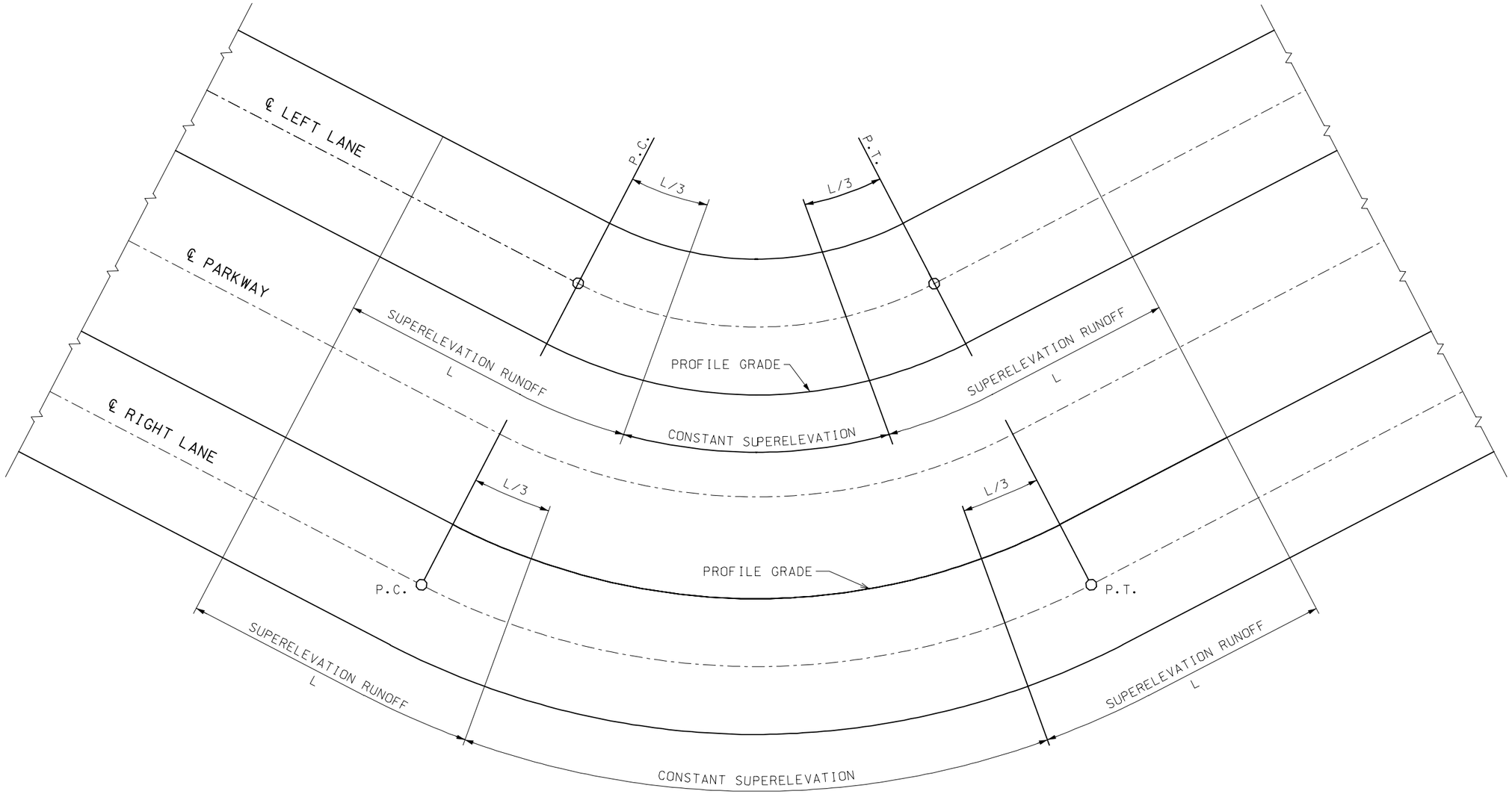
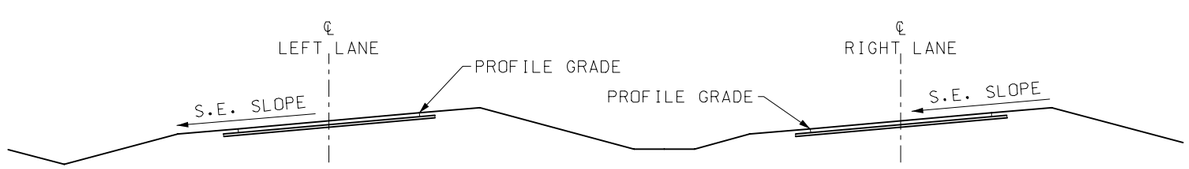


SUPERELEVATION RUNOUT WITHOUT SPIRALS



SECTION ON SUPERELEVATED CURVE
CURVE TO LEFT (ILLUSTRATED)

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

DATE:_____ | EFFECTIVE: 04-01-2002 | **203.21J** | 2/5

SUPERELEVATION AND WIDENING TABLE, e_{max}= 8%

DESIGN SPEED	50 M.P.H.					60 M.P.H.				70 M.P.H.		
NORMAL SURFACE WIDTH			20′	22′	24′			22′	24′			24′
RADIUS (FEET)	e%	L	W			e%	L	W		e%	L	W
17000	NC	0	0	0	0	NC	0	0	0	NC	0	0
14000	NC	0	0	0	0	NC	0	0	0	RC	90	0
12000	NC	0	0	0	0	NC	0	0	0	RC	90	0
10000	NC	0	0	0	0	RC	80	0	0	2.1	95	0
8000	NC	0	0	0	0	2.1	84	0	0	2.6	117	0
6000	RC	72	0	0	0	2.7	108	0	0	3.4	153	0
5000	2.4	86	2.0	0	0	3.2	126	0	0	4.1	184	0
4000	2.9	104	2.0	0	0	3.9	156	2.0	0	4.9	221	0
3500	3.2	115	2.0	0	0	4.4	176	2.0	0	5.5	248	0
3000	3.7	133	2.5	0	0	5.0	200	2.0	0	6.3	283	0
2500	4.3	155	2.5	0	0	5.7	228	2.0	0	7.2	324	0
2000	5.1	184	2.5	0	0	6.6	264	2.0	0	7.9	356	0
1800	5.5	196	3.0	2.0	0	7.1	284	2.0	0			
1600	5.9	212	3.0	2.0	0	7.5	300	2.5	0			
1400	6.4	230	3.0	2.5	0	7.8	312	2.5	0			
1200	7.0	252	3.5	2.5	0							
1000	7.6	274	3.5	3.0	2.0							
900	7.8	281	4.0	3.5	2.5							
800	8.0	288	4.5	3.5	2.5							

MIN RADIUS = 750′

MIN RADIUS = 1205′

MIN RADIUS = 1820′

SUPERELEVATION AND WIDENING TABLE, e_{max}= 4%

DESIGN SPEED	50 M.P.H.					60 M.P.H.			
NORMAL SURFACE WIDTH			20′	22′	24′			22′	24′
RADIUS (FEET)	e%	L	W			e%	L	W	
10000	NC	0	0	0	0	NC	0	0	0
8000	NC	0	0	0	0	RC	80	0	0
6000	RC	72	0	0	0	2.3	92	0	0
5000	RC	72	2.0	0	0	2.5	100	0	0
4000	2.3	83	2.0	0	0	2.8	112	0	0
3500	2.5	90	2.0	0	0	3.0	120	0	0
3000	2.7	97	2.5	0	0	3.3	132	0	0
2500	2.9	104	2.5	0	0	3.5	140	0	0
2000	3.2	115	2.5	0	0	3.8	152	0	0
1800	3.3	119	3.0	2.0	0	3.9	156	2.0	0
1600	3.5	126	3.0	2.0	0	4.0	160	2.5	0
1400	3.7	133	3.0	2.5	0				
1200	3.9	140	3.5	2.5	0				
1000	4.0	144	3.5	3.0	2.0				

MIN RADIUS = 930′

RADIUS = 1505′

TABLE NOTES:

1) "NC" DENOTES NORMAL CROSS SLOPE.
2) "RC" DENOTES REMOVE ADVERSE CROSS SLOPE, SUPERELEVATE AT NORMAL CROSS SLOPE.
3) "e" DENOTES THE SUPERELEVATION IN PERCENT (%).
4) "L" THE LENGTH OF SUPERELEVATION RUNOFF AND WIDENING TRANSITION IN FEET FOR A 4 LANE DIVIDED HIGHWAY.
5) "W" THE WIDENING IN FEET FOR SURFACING AT INSIDE SHOULDERS.
6) VALUE FOR A RADIUS NOT SHOWN IN ABOVE TABLE SHALL BE IDENTICAL TO THOSE FOR THE NEAREST TABULATED RADIUS. IN CASE OF TIE, USE VALUES OF NEXT LARGER RADIUS.

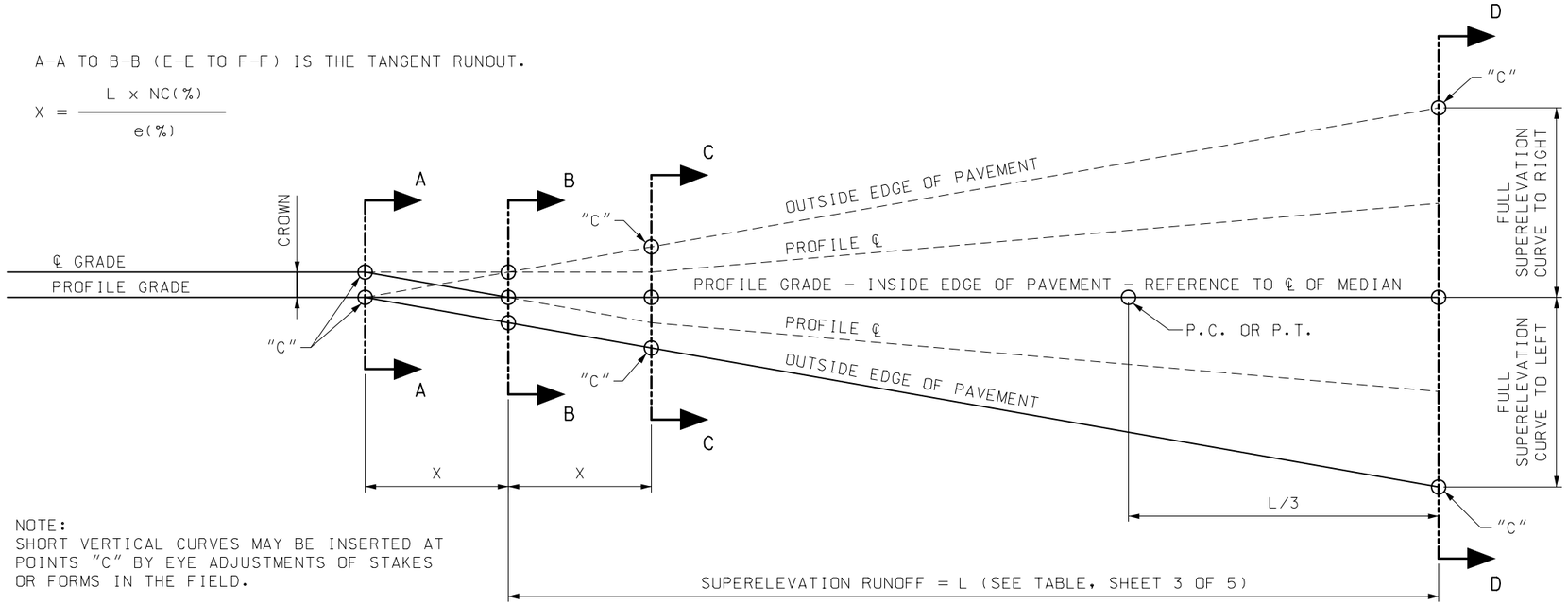
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION
SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

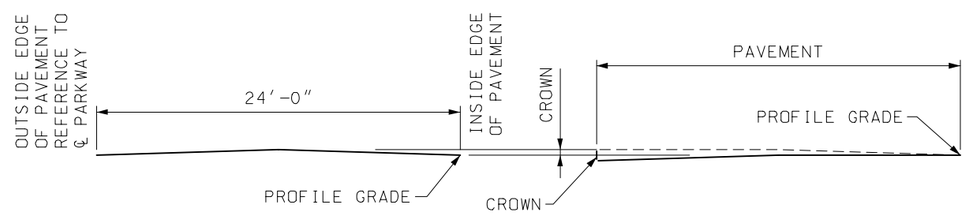
DATE:_____ EFFECTIVE: 04-01-2002 **203.21J** 3/5

A-A TO B-B (E-E TO F-F) IS THE TANGENT RUNOUT.

$$X = \frac{L \times NC(\%)}{e(\%)}$$



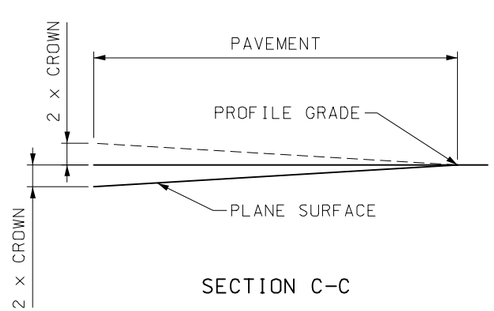
NOTE:
SHORT VERTICAL CURVES MAY BE INSERTED AT POINTS "C" BY EYE ADJUSTMENTS OF STAKES OR FORMS IN THE FIELD.



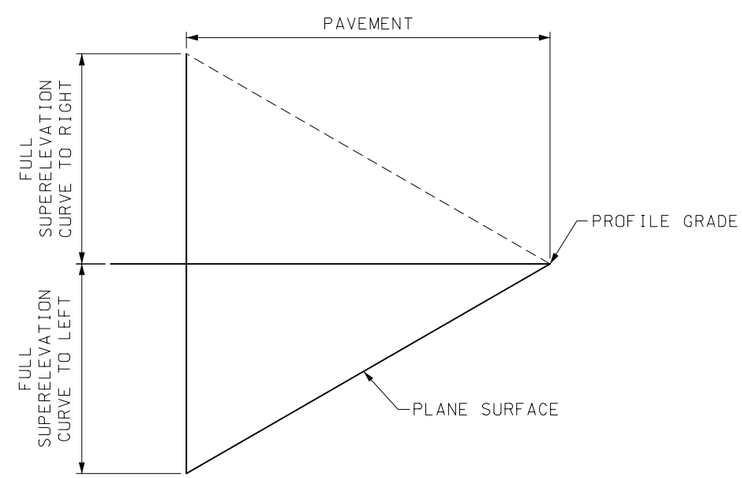
SECTION A-A

SECTION B-B

SOLID LINES ARE FOR CURVES TO LEFT
DASHED LINES ARE FOR CURVES TO RIGHT



SECTION C-C



SECTION D-D

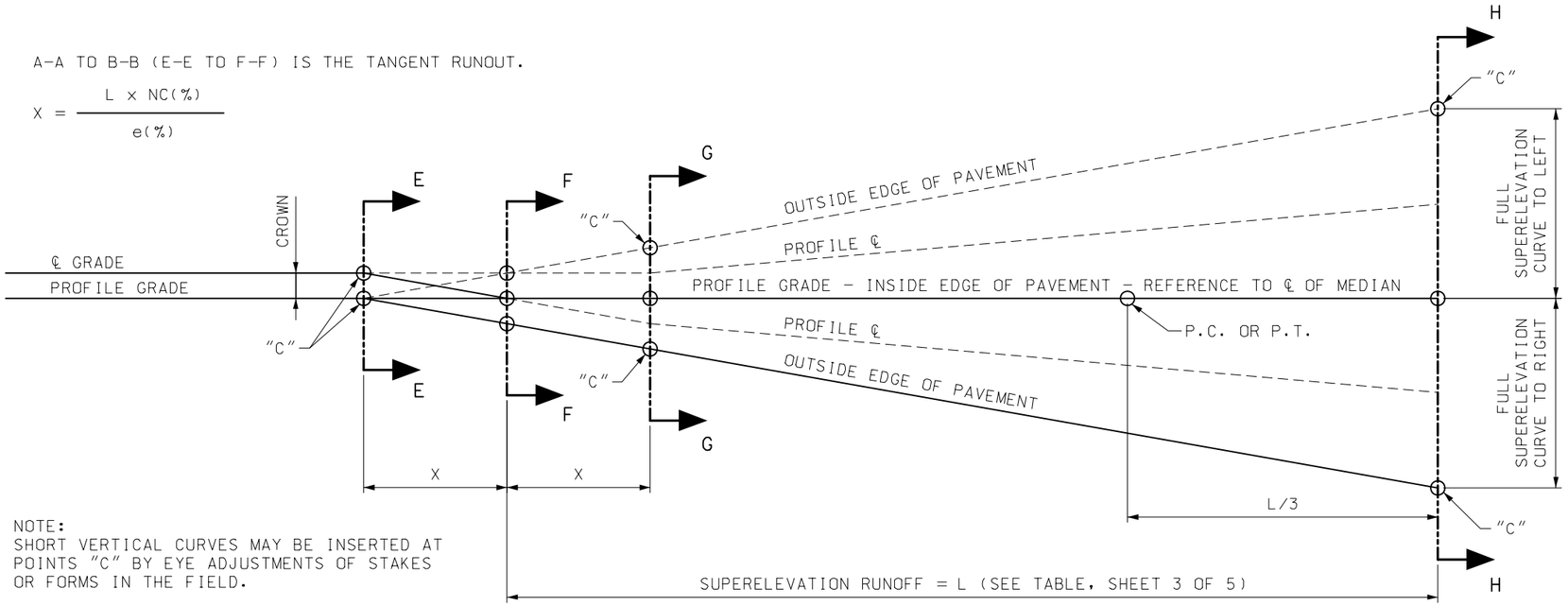
METHOD OF ATTAINING SUPERELEVATION

(LEFT LANE)

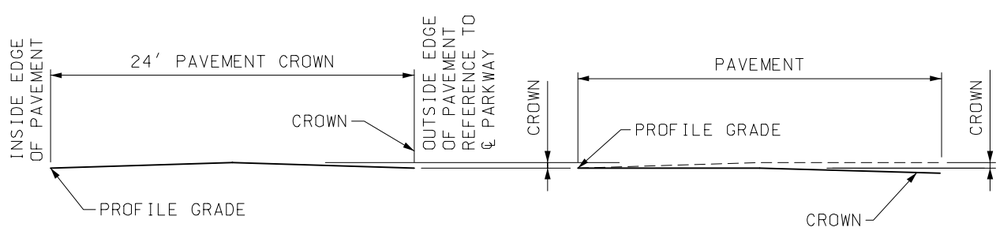
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
	SUPERELEVATION, SPIRALS AND WIDENING (DIVIDED HIGHWAYS)		
DATE:_____	EFFECTIVE: 04-01-2002	**203.21J**	4/5

A-A TO B-B (E-E TO F-F) IS THE TANGENT RUNOUT.

$$X = \frac{L \times NC(\%)}{e(\%)}$$



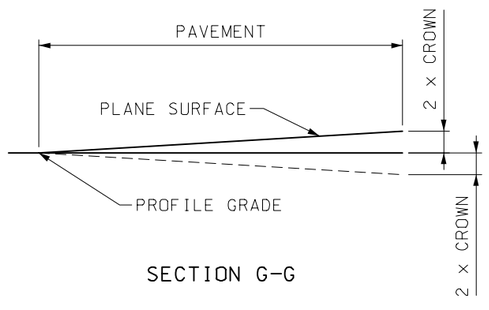
NOTE:
SHORT VERTICAL CURVES MAY BE INSERTED AT POINTS "C" BY EYE ADJUSTMENTS OF STAKES OR FORMS IN THE FIELD.



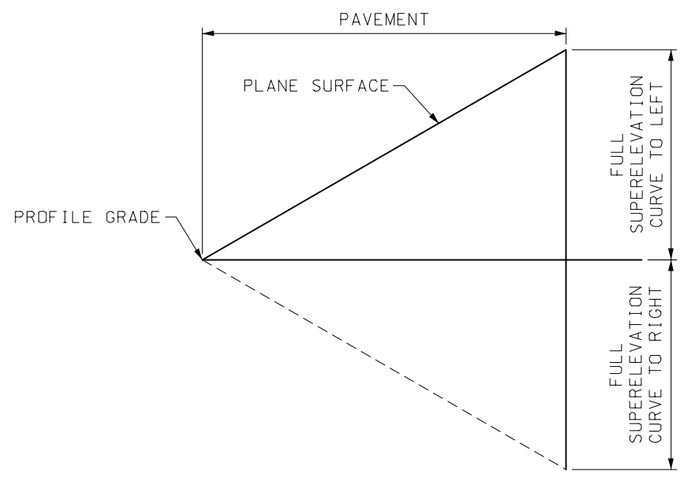
SECTION E-E

SECTION F-F

SOLID LINES ARE FOR CURVES TO LEFT
DASHED LINES ARE FOR CURVES TO RIGHT



SECTION G-G



SECTION H-H

METHOD OF ATTAINING SUPERELEVATION

(RIGHT LANE)

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

DATE:_____ | EFFECTIVE: 04-01-2002 | **203.21J** | 5/5