

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes

110=65 mph
 100=60 mph
 90 = 55 mph
 80=50 mph
 70=45 mph

3.28 feet = 1 meter

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
28 feet = 1 meter											
Foreslope 1:∞	0.0	A	F	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.8
		B See Notes	F	0.3	0.4	0.4	0.5	0.6	0.8	1.0	1.1
		C at End	F	0.4	0.6	0.8	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Foreslope 1:10	0.15	A	F	0.2	0.3	0.5	0.6	0.7	0.9	1.1	1.2
		B See Notes	F	0.4	0.5	0.7	0.8	0.9	1.1	1.3	1.6
		C at End	F	0.7	0.9	1.1	1.3	1.4	1.6	1.9	2.2
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥0.30	A	F	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.5
		B See Notes	F	0.6	0.7	0.9	1.0	1.2	1.4	1.6	1.9
		C at End	F	0.9	1.1	1.3	1.5	1.7	1.9	2.2	2.5
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Foreslope 1:8	0.15	A	F	0.3	0.4	0.6	0.7	0.8	1.0	1.2	1.3
		B See Notes	F	0.5	0.6	0.8	0.9	1.0	1.2	1.4	1.7
		C at End	F	0.8	1.0	1.2	1.4	1.5	1.7	2.0	2.3
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥0.30	A	F	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.9
		B See Notes	F	0.6	0.8	1.0	1.2	1.4	1.6	1.9	2.2
		C at End	F	0.9	1.2	1.4	1.7	1.9	2.1	2.5	2.9
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope 1:6	0.15	A	F	0.5	0.8	1.0	1.3	1.5	1.7	1.9	2.0
		B See Notes	F	0.7	1.0	1.2	1.5	1.7	1.9	2.1	2.2
		C at End	F	1.1	1.4	1.7	2.0	2.2	2.4	2.6	2.9
		D of Table	F	2.9	3.4	3.9	4.4	4.9	5.5	5.9	6.3
		E	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	6.9
	≥0.30	A	F	0.5	0.8	1.0	1.3	1.6	1.9	2.1	2.2
		B See Notes	F	0.7	1.0	1.2	1.5	1.8	2.1	2.3	2.6
		C at End	F	1.1	1.4	1.7	2.0	2.3	2.6	2.9	3.2
		D of Table	F	3.0	3.8	4.0	4.5	5.0	5.6	6.0	6.4
		E	F	3.4	3.8	4.2	4.7	5.3	5.9	6.5	7.0
Foreslope 1:4	0.15	A	F	0.5	0.7	0.9	1.1	1.3	1.5	1.7	2.0
		B See Notes	F	0.7	0.9	1.1	1.3	1.5	1.7	2.0	2.3
		C at End	F	1.0	1.3	1.5	1.8	2.0	2.2	2.6	3.0
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.0	6.4
		E	F	3.4	3.8	4.2	4.7	5.3	5.9	6.5	7.0
	0.30	A	F	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.5
		B See Notes	F	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.9
		C at End	F	1.7	2.0	2.2	2.5	2.7	2.9	3.2	3.5
		D of Table	F	3.2	3.6	4.0	4.5	5.0	5.6	6.0	6.4
		E	F	3.5	3.9	4.3	4.8	5.4	6.0	6.6	7.1
	≥2.0	A	F	1.3	1.6	1.8	2.1	2.3	2.5	2.7	2.8
		B See Notes	F	1.5	1.8	2.0	2.3	2.5	2.7	2.9	3.2
		C at End	F	1.9	2.2	2.5	2.8	3.0	3.2	3.5	3.8
		D of Table	F	3.2	3.6	4.0	4.5	5.0	5.6	6.0	6.4
		E	F	3.5	3.9	4.3	4.8	5.4	6.0	6.6	7.1

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope 1:3	0.15	A	F	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.3
		B See Notes	F	0.9	1.1	1.3	1.5	1.7	2.0	2.3	2.6
		C at End	F	1.2	1.5	1.7	2.0	2.2	2.5	2.9	3.3
		D of Table	F	3.2	3.6	4.0	4.5	5.0	5.6	6.0	6.4
		E	F	3.5	3.9	4.3	4.8	5.4	6.0	6.6	7.1
	0.30	A	F	1.6	1.8	2.0	2.2	2.4	2.6	2.8	2.9
		B See Notes	F	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.3
		C at End	F	2.1	2.4	2.6	2.9	3.1	3.3	3.6	3.9
		D of Table	F	3.3	3.7	4.1	4.6	5.1	5.7	6.1	6.5
		E	F	3.6	4.0	4.4	4.9	5.5	6.1	6.7	7.2
	2.0	A	F	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.6
		B See Notes	F	2.2	2.5	2.7	3.0	3.2	3.5	3.7	4.0
		C at End	F	2.6	2.9	3.2	3.5	3.7	4.0	4.3	4.6
		D of Table	F	3.4	3.8	4.2	4.7	5.2	5.8	6.2	6.6
		E	F	3.7	4.1	4.5	5.0	5.6	6.2	6.8	7.3
	4.0	A	F	2.0	2.3	2.6	2.9	3.1	3.4	3.6	3.9
		B See Notes	F	2.2	2.5	2.8	3.1	3.3	3.6	3.9	4.2
		C at End	F	2.5	2.8	3.2	3.6	3.8	4.1	4.5	4.9
		D of Table	F	3.5	3.9	4.3	4.8	5.3	5.9	6.3	6.7
		E	F	3.8	4.2	4.6	5.1	5.7	6.3	6.9	7.4
	6.0	A	F	2.0	2.3	2.6	2.9	3.1	3.5	3.7	4.0
		B See Notes	F	2.2	2.5	2.8	3.1	3.3	3.7	4.0	4.3
		C at End	F	2.5	2.8	3.2	3.6	3.8	4.2	4.6	5.0
		D Of Table	F	3.5	3.9	4.3	4.8	5.3	5.9	6.3	6.7
		E	F	3.8	4.2	4.6	5.1	5.7	6.3	6.9	7.4

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES

Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	100	120
Foreslope 1:3 (cont.)	8.0	A	F	2.0	2.3	2.6	2.9	3.2	3.5	3.8	4.1
		B See Notes	F	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
		C at End	F	2.5	2.8	3.2	3.6	3.9	4.2	4.6	5.0
		D of Table	F	3.5	3.9	4.3	4.8	5.3	5.9	6.3	6.7
		E	F	3.8	4.2	4.6	5.1	5.7	6.3	6.9	7.4
	≥ 10	A	F	2.0	2.3	2.6	2.9	3.2	3.5	3.9	4.3
		B See Notes	F	2.2	2.5	2.8	3.1	3.4	3.7	4.1	4.5
		C at End	F	2.5	2.8	3.2	3.6	3.9	4.3	4.7	5.1
		D Of Table	F	3.5	3.9	4.3	4.8	5.3	5.9	6.3	6.7
		E	F	3.8	4.2	4.3	5.1	5.7	6.3	6.9	7.4
Foreslope 1:2	0.15	A	F	0.9	1.2	1.5	1.8	2.0	2.3	2.6	2.9
		B See Notes	F	1.1	1.4	1.7	2.0	2.2	2.5	2.9	3.3
		C at End	F	1.4	1.7	2.1	2.5	2.7	3.1	3.5	3.9
		D of Table	F	3.3	3.7	4.1	4.6	5.1	5.7	6.1	6.5
		E	F	3.6	4.0	4.4	4.9	5.5	6.1	6.7	7.2
	0.30	A	F	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.6
		B See Notes	F	2.3	2.5	2.7	2.9	3.1	3.3	3.6	3.9
		C at End	F	2.6	2.9	3.1	3.4	3.6	3.8	4.2	4.6
		D of Table	F	3.4	3.8	4.2	4.7	5.2	5.8	6.2	6.6
		E	F	3.7	4.1	4.5	5.0	5.6	6.2	6.8	7.3
	2.0	A	F	2.9	3.2	3.5	3.8	4.0	4.3	4.5	4.8
		B See Notes	F	2.3	2.9	3.4	4.0	4.2	4.5	4.8	5.1
		C at End	F	2.6	3.2	3.9	4.5	4.7	5.0	5.4	5.8
		D of Table	F	3.5	3.9	4.3	4.8	5.3	5.9	6.3	6.7
		E	F	3.8	4.2	4.6	5.1	5.7	6.3	6.9	7.4

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope 1:2 (cont.)	4.0	A	F	3.1	3.4	3.8	4.2	4.4	4.6	4.8	5.1
		B See Notes	F	2.5	3.1	3.8	4.4	4.6	4.8	5.1	5.4
		C at End	F	2.8	3.5	4.2	4.9	5.1	5.3	5.7	6.1
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	6.0	A	F	3.3	3.6	3.9	4.3	4.5	4.7	4.9	5.2
		B See Notes	F	3.2	3.6	4.1	4.5	4.7	4.9	5.2	5.5
		C at End	F	2.9	4.0	4.5	4.9	5.2	5.4	6.1	6.2
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	8.0	A	F	3.6	3.9	4.1	4.4	4.6	4.8	5.0	5.3
		B See Notes	F	3.8	4.1	4.3	4.6	4.8	5.0	5.3	5.6
		C at End	F	4.1	4.4	4.7	5.0	5.2	5.4	5.8	6.2
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	10.0	A	F	4.1	4.3	4.5	4.7	4.9	5.2	5.4	5.5
		B See Notes	F	4.2	4.4	4.6	4.8	5.0	5.3	5.5	5.8
		C at End	F	4.4	4.7	4.9	5.2	5.4	5.7	6.0	6.3
		D of Table	F	3.8	4.1	110=65 mph 100=60 mph 90 = 55 mph 80=50 mph 70=45 mph					
		E	F	3.9	4.3						
	14.0	A	F	4.5	4.7						
		B See Notes	F	4.6	4.8						
		C at End	F	4.7	5.0						
		D of Table	F	3.8	4.1						
		E	F	3.9	4.3						

110=65 mph
 100=60 mph
 90 = 55 mph
 80=50 mph
 70=45 mph

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope 1:2 (cont)	18.0	A	F	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.3
		B See Notes	F	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.4
		C at End	F	4.9	5.2	5.4	5.7	5.9	6.1	6.4	6.7
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	22.0	A	F	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.4
		B See Notes	F	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.5
		C at End	F	5.1	5.3	5.5	5.7	5.9	6.2	6.5	6.8
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	26.0	A	F	4.8	5.1	5.3	5.6	5.8	6.1	6.3	6.4
		B See Notes	F	4.9	5.2	5.4	5.7	5.9	6.2	6.4	6.5
		C at End	F	5.0	5.3	5.5	5.8	6.0	6.3	6.6	6.9
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	30.0	A	F	4.8	5.1	5.3	5.6	5.9	6.2	6.4	6.5
		B See Notes	F	4.9	5.2	5.4	5.7	6.0	6.3	6.5	6.6
		C at End	F	5.0	5.3	5.5	5.8	6.1	6.4	6.6	6.9
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.4	6.8
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5
	≥34.0	A	F	4.8	5.1	5.3	5.6	5.9	6.2	6.4	6.7
		B See Notes	F	4.9	5.3	5.4	5.7	6.0	6.3	6.5	6.8
		C at End	F	5.0	5.3	5.5	5.8	6.1	6.4	6.6	6.9
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.6	7.3
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.0	7.5

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope 1 : 1½	0.15	A	F	0.9	1.3	1.7	2.2	2.4	2.7	3.0	3.3
		B See Notes	F	1.1	1.5	1.9	2.4	2.6	2.9	3.3	3.7
		C at End	F	1.4	1.9	2.4	2.9	3.1	3.5	3.9	4.3
		D of Table	F	3.3	3.8	4.3	4.8	5.3	5.9	6.3	6.7
		E	F	3.7	4.1	4.5	5.0	5.6	6.2	6.8	7.3
	0.30	A	F	2.4	2.6	2.8	3.0	3.2	3.5	3.7	4.0
		B See Notes	F	2.6	2.8	3.0	3.2	3.4	3.7	4.0	4.3
		C at End	F	2.9	3.2	3.4	3.7	3.9	4.2	4.6	5.0
		D of Table	F	3.3	3.8	4.3	4.8	5.3	5.9	6.4	6.9
		E	F	3.7	4.1	4.5	5.0	5.6	6.2	6.9	7.6
	2.0	A	F	3.3	3.6	3.9	4.2	4.5	4.8	5.0	5.3
		B See Notes	F	3.2	3.5	3.7	4.0	4.4	4.8	5.2	5.6
		C at End	F	3.6	3.9	4.2	4.5	4.9	5.3	5.8	6.3
		D of Table	F	3.4	3.9	4.4	4.9	5.4	6.0	6.5	7.0
		E	F	3.7	4.1	4.5	5.0	5.6	6.2	6.9	7.6
	4.0	A	F	3.8	4.1	4.4	4.7	4.9	5.2	5.4	5.7
		B See Notes	F	3.8	4.1	4.5	4.9	5.4	5.9	6.2	6.5
		C at End	F	4.8	5.0	5.2	5.4	5.8	6.3	6.8	7.3
		D of Table	F	3.8	4.1	4.5	4.9	5.4	6.0	6.5	7.0
		E	F	3.8	4.2	4.6	5.1	5.7	6.3	7.0	7.7
	6.0	A	F	4.1	4.4	4.7	5.0	5.2	5.5	5.7	6.0
		B See Notes	F	4.7	4.4	4.7	5.5	5.9	6.3	6.6	7.0
		C at End	F	5.3	5.4	5.7	5.9	6.2	6.7	7.2	7.6
		D of Table	F	3.9	4.2	4.6	5.0	5.5	6.0	6.6	7.2
		E	F	3.9	4.3	4.7	5.1	5.8	6.4	7.1	7.8

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

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Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope 1:1½ (cont.)	8.0	A	F	4.3	4.6	4.9	5.2	5.4	5.7	5.9	6.2
		B See Notes	F	5.5	5.6	5.8	5.9	6.3	6.6	7.0	7.4
		C at End	F	5.7	5.9	6.1	6.3	6.6	7.0	7.5	8.0
		D of Table	F	3.9	4.2	4.6	5.0	5.5	6.0	6.6	7.3
		E	F	3.9	4.3	4.7	5.2	5.8	6.4	7.1	7.8
	10.0	A	F	4.9	5.2	5.4	5.7	6.0	6.3	6.6	6.9
		B See Notes	F	6.4	6.5	6.7	6.8	7.2	7.6	7.8	8.1
		C at End	F	6.8	6.9	7.1	7.2	7.6	8.0	8.2	8.5
		D of Table	F	4.0	4.3	4.7	5.1	5.6	6.1	6.7	7.4
		E	F	4.0	4.4	4.8	5.3	5.9	6.5	7.2	7.9
	14.0	A	F	5.4	5.7	5.9	6.2	6.6	6.9	7.2	7.5
		B See Notes	F	7.1	7.2	7.4	7.5	7.9	8.2	8.5	8.8
		C at End	F	7.5	7.6	7.8	7.9	8.2	8.5	8.8	9.1
		D of Table	F	4.0	4.3	4.7	5.1	5.6	6.1	6.7	7.4
		E	F	4.0	4.4	4.8	5.3	5.9	6.5	7.2	7.9
	18.0	A	F	5.8	6.1	6.4	6.7	7.1	7.4	7.7	8.0
		B See Notes	F	7.6	7.7	7.9	8.0	8.4	8.7	9.0	9.3
		C at End	F	7.9	8.0	8.2	8.3	8.6	8.9	9.2	9.5
		D of Table	F	4.0	4.3	4.7	5.1	5.6	6.1	6.7	7.4
		E	F	4.0	4.4	4.8	5.3	5.9	6.5	7.2	7.9
	22.0	A	F	6.2	6.5	6.8	7.1	7.4	7.7	8.0	8.3
		B See Notes	F	7.7	7.9	8.1	8.3	8.6	8.9	9.1	9.2
		C at End	F	8.0	8.2	8.4	8.6	8.8	9.1	9.3	9.4
		D of Table	F	4.0	4.3	4.7	5.1	5.6	6.1	6.7	7.4
		E	F	4.2	4.5	4.9	5.3	5.9	6.5	7.2	7.9

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.1 SUGGESTED SEVERITY INDICES
Foreslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslopes 1:1½ (cont.)	26.0	A	F	6.3	6.6	6.9	7.2	7.5	7.8	8.1	8.4
		B See Notes	F	7.9	8.1	8.3	8.5	8.8	9.1	9.3	9.6
		C at End	F	8.0	8.3	8.5	8.8	9.0	9.2	9.4	9.7
		D of Table	F	4.1	4.4	4.8	5.2	5.6	6.1	6.7	7.4
		E	F	4.2	4.5	4.9	5.3	5.9	6.5	7.2	7.9
	30.0	A	F	6.6	6.9	7.1	7.4	7.7	8.0	8.3	8.6
		B See Notes	F	7.8	8.1	8.3	8.6	8.8	9.1	9.4	9.7
		C at End	F	8.0	8.3	8.5	8.8	9.0	9.2	9.4	9.7
		D of Table	F	4.1	4.4	4.8	5.2	5.5	6.1	6.7	7.4
		E	F	4.2	4.5	4.9	5.3	5.9	6.5	7.2	7.9
	34.0	A	F	6.8	7.1	7.3	7.6	7.8	8.1	8.4	8.7
		B See Notes	F	7.9	8.2	8.4	8.7	8.9	9.2	9.4	9.7
		C at End	F	8.1	8.4	8.6	8.9	9.0	9.2	9.4	9.7
		D of Table	F	4.1	4.4	4.8	5.2	5.6	6.1	6.7	7.4
		E	F	4.2	4.5	4.9	5.3	5.9	6.5	7.2	7.9
	≥38.0	A	F	6.9	7.2	7.4	7.7	7.9	8.2	8.5	8.8
		B See Notes	F	8.0	8.3	8.5	8.8	9.0	9.3	9.5	9.8
		C at End	F	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.8
		D of Table	F	4.1	4.4	4.8	5.2	5.6	6.1	6.7	7.4
		E	F	4.2	4.5	4.9	5.3	5.9	6.5	7.2	7.9

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

Notes for Table A.13.1:

A: Smooth and firm all seasons

B: Smooth but subject to deep rutting by errant vehicles half of the year

C: Shallow gullies (100 to 200 mm deep), scattered small boulders (under 225-mm projections), scattered small trees (diameters 75 to 100 mm), or structurally substantial woody brush. Features spaced so that nearly all encroaching vehicles will encounter them.

D: Medium gullies (approximately 250 mm deep), boulders or riprap (projecting approximately 300 mm), or medium trees (diameters 175 to 225 mm). Features spaced so that they will be encountered by all encroaching vehicles. It is assumed that density of features will preclude deep penetration of roadside. If this assumption is not valid, SIs for high, steep slopes may be considerably higher than values shown.

E: Deep gullies (over 0.5 m deep), large boulders or heavy riprap (over 450-mm projecting), large trees (diameters over 350 mm). Features spaced so that they will be encountered by all encroaching vehicles. It is assumed that density of features will preclude deep penetration of roadside. If this assumption is not valid, SIs for high, steep slopes may be considerably higher than values shown.

TABLE A.13.2 SUGGESTED SEVERITY INDICES
Foreslope - Vertical with and without water present

1/2

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Water Depth (m)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope Vertical	0:0	0	F	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.8
		1	F	2.6	2.7	2.9	3.0	3.2	3.4	3.6	3.7
		2	F	4.4	4.7	4.9	5.2	5.4	5.7	5.9	6.2
		4	F	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.7
		≥6	F	7.9	8.1	8.3	8.5	8.7	8.8	9.0	9.1
	0.3	0	F	2.6	2.9	3.1	3.4	3.6	3.9	4.1	4.4
		1	F	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.7
		2	F	4.6	4.9	5.2	5.5	5.9	6.2	6.6	7.0
		4	F	6.3	6.6	6.9	7.2	7.4	7.7	7.9	8.2
		≥6	F	8.2	8.3	8.5	8.6	8.8	9.0	9.2	9.3
	2.0	0	F	3.8	4.1	4.3	4.6	4.8	5.1	5.3	5.6
		1	F	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.7
		2	F	6.7	6.8	7.0	7.1	7.3	7.5	7.7	7.8
		4	F	7.6	7.7	7.9	8.0	8.2	8.4	8.6	8.7
		≥6	F	8.4	8.5	8.7	8.8	9.0	9.2	9.4	9.5
	4.0	0	F	5.7	5.8	5.8	5.9	6.1	6.3	6.5	6.6
		1	F	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.0
		2	F	7.4	7.5	7.7	7.8	8.0	8.2	8.4	8.5
		4	F	8.0	8.1	8.3	8.4	8.6	8.8	9.0	9.1
		≥6	F	8.6	8.7	8.9	9.0	9.2	9.4	9.6	9.7
	6.0	0	F	6.6	6.7	6.8	6.9	7.0	7.2	7.4	7.5
		1	F	6.8	6.9	7.1	7.3	7.4	7.6	7.8	7.9
		2	F	7.8	7.9	8.1	8.2	8.4	8.6	8.8	8.9
		4	F	8.2	8.3	8.5	8.7	8.9	9.1	9.3	9.4
		≥6	F	8.7	8.8	9.0	9.1	9.3	9.5	9.7	9.8

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.2 SUGGESTED SEVERITY INDICES

Foreslope - Vertical with and without water present (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Water Depth (m)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Foreslope Vertical (cont.)	8.0	0	F	7.4	7.5	7.7	7.8	7.9	8.0	8.2	8.3
		1	F	7.8	7.9	8.1	8.2	8.3	8.4	8.6	8.7
		2	F	8.1	8.2	8.4	8.5	8.7	8.9	9.1	9.2
		4	F	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.6
		≥6	F	8.8	8.9	9.1	9.2	9.4	9.6	9.8	9.9
	10.0	0	F	8.6	8.8	9.0	9.2	9.2	9.2	9.3	9.3
		1	F	8.7	8.9	9.1	9.3	9.4	9.4	9.6	9.7
		2	F	9.2	9.3	9.3	9.4	9.5	9.6	9.8	9.9
		4	F	9.5	9.6	9.6	9.7	9.8	9.8	9.9	9.9
		≥6	F	9.7	9.8	9.8	9.9	10.0	10.0	10.0	10.0
	14.0	0	F	9.5	9.6	9.6	9.7	9.8	9.8	9.8	9.8
		1	F	9.6	9.7	9.7	9.8	9.8	9.8	9.9	9.9
		2	F	9.6	9.7	9.7	9.8	9.9	9.9	10.0	10.0
		4	F	9.8	9.9	9.9	10.0	10.0	10.0	10.0	10.0
		≥6	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	18.0	0	F	9.9	9.9	9.9	9.9	9.9	9.9	10.0	10.0
		1	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		2	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		4	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		≥6	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	22.0	0	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		1	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		2	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		4	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
		≥6	F	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.3 SUGGESTED SEVERITY INDICES

Backslopes

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Backslope 1:10	0.15	A	F	0.1	0.1	0.1	0.2	0.3	0.4	0.6	0.7
		B See notes	F	0.2	0.3	0.3	0.4	0.5	0.7	0.9	1.0
		C at End	F	0.6	0.7	0.9	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥0.3	A	F	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.6
		B See Notes	F	0.1	0.1	0.3	0.4	0.5	0.6	0.8	0.9
		C at End	F	0.6	0.7	0.9	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.6	3.2	3.9	4.5	5.1	5.7	6.3	7.0
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Backslope 1:8	0.15	A	F	0.1	0.1	0.2	0.3	0.4	0.4	0.6	0.7
		B See Notes	F	0.1	0.2	0.4	0.5	0.6	0.7	0.9	1.0
		C at End	F	0.6	0.7	0.9	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥0.3	A	F	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.6
		B See Notes	F	0.1	0.2	0.2	0.3	0.4	0.6	0.8	0.9
		C at End	F	0.6	0.7	0.9	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Backslope 1:6	0.15	A	F	0.1	0.1	0.3	0.4	0.5	0.5	1.7	0.8
		B See Notes	F	0.3	0.4	0.4	0.5	0.6	0.8	1.0	1.1
		C at End	F	0.6	0.7	0.9	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.8	3.6	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.3 SUGGESTED SEVERITY INDICES
Backslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Backslope 1:6 (cont.)	≥0.5	A	F	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.6
		B See notes	F	0.1	0.2	0.4	0.5	0.5	0.6	0.8	0.9
		C at End	F	0.6	0.7	0.9	1.0	1.1	1.3	1.5	1.8
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Backslope 1:4	≥0.15	A	F	0.1	0.1	0.3	0.4	0.5	0.6	0.8	0.9
		B See Notes	F	0.4	0.5	0.5	0.6	0.7	0.9	1.1	1.2
		C at End	F	0.7	0.8	1.0	1.1	1.3	1.4	1.6	1.7
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Backslope 1:3	0.15	A	F	0.2	0.3	0.5	0.6	0.7	0.7	0.9	1.0
		B See Notes	F	0.4	0.5	0.7	0.8	0.9	1.1	1.3	1.4
		C at End	F	0.8	0.9	1.1	1.2	1.4	1.6	1.8	1.9
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥1.0	A	F	0.3	0.4	0.6	0.7	0.9	1.2	1.3	1.4
		B See Notes	F	0.7	0.8	1.0	1.1	1.3	1.5	1.7	1.8
		C at End	F	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.4
		D of Table	F	2.9	3.4	3.9	4.4	4.9	5.5	6.0	6.5
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Backslope 1:2	0.15	A	F	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.7
		B See Notes	F	0.7	0.8	1.0	1.1	1.3	1.5	1.7	2.0
		C at End	F	1.0	1.1	1.3	1.4	1.6	1.9	2.2	2.5
		D of Table	F	2.9	3.4	3.9	4.4	4.9	5.5	6.0	6.5
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.3 SUGGESTED SEVERITY INDICES
Backslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Backslope 1:2 (cont.)	0.3	A	F	0.5	0.6	0.8	0.9	1.1	1.3	1.6	1.9
		B See notes	F	0.9	1.0	1.2	1.3	1.4	1.6	1.9	2.2
		C at End	F	1.4	1.5	1.7	1.8	1.9	2.1	2.3	2.6
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1
	0.6	A	F	0.7	0.8	1.0	1.1	1.3	1.5	1.8	2.1
		B See Notes	F	1.1	1.2	1.4	1.5	1.7	1.9	2.1	2.4
		C at End	F	1.9	2.0	2.2	2.3	2.4	2.6	2.8	3.1
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1
	≥1.2	A	F	0.8	0.9	1.1	1.2	1.5	1.8	2.1	2.4
		B See Notes	F	1.2	1.3	1.5	1.6	1.8	2.1	2.3	2.6
		C at End	F	2.0	2.1	2.3	2.4	2.5	2.7	2.9	3.2
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1
Backslope 1:½	0.15	A	F	0.3	0.6	0.8	1.1	1.4	1.8	2.2	2.6
		B See Notes	F	0.6	0.9	1.1	1.4	1.7	2.1	2.5	2.9
		C at End	F	0.9	1.2	1.4	1.7	2.1	2.5	3.0	3.5
		D of Table	F	2.9	3.4	3.9	4.4	4.9	5.5	6.0	6.5
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥0.3	A	F	0.5	0.8	1.0	1.3	1.6	2.0	2.6	3.1
		B See Notes	F	0.9	1.2	1.4	1.7	1.9	2.3	2.9	3.4
		C at End	F	1.4	1.7	1.9	2.2	2.4	2.8	3.3	3.8
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.3 SUGGESTED SEVERITY INDICES
Backslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Backslope 1:1½ (cont.)	0.6	A	F	0.9	1.1	1.3	1.5	1.8	2.2	2.7	3.2
		B See notes	F	1.3	1.5	1.7	1.9	2.2	2.6	3.1	3.6
		C at End	F	2.1	2.3	2.5	2.7	2.9	3.2	3.8	4.3
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1
	≥1.2	A	F	1.0	1.2	1.4	1.6	2.0	2.4	2.8	3.2
		B See Notes	F	1.4	1.6	1.8	2.0	2.3	2.7	3.2	3.7
		C at End	F	2.2	2.4	2.6	2.8	3.0	3.4	3.9	4.4
		D of Table	F	3.1	3.6	4.1	4.6	5.1	5.7	6.2	6.7
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1
Backslope 1:1	0.15	A	F	0.4	0.7	1.0	1.3	1.7	2.2	2.8	3.3
		B See Notes	F	0.7	1.0	1.3	1.6	2.0	2.5	3.1	3.6
		C at End	F	1.0	1.3	1.6	1.9	2.4	2.9	3.5	4.2
		D of Table	F	2.9	3.4	3.9	4.4	4.9	5.5	6.0	6.5
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	F	0.7	1.0	1.3	1.6	2.0	2.4	3.1	3.8
		B See Notes	F	1.1	1.4	1.7	2.0	2.3	2.7	3.4	4.1
		C at End	F	1.6	1.9	2.2	2.5	2.8	3.2	3.8	4.5
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.1	5.8	6.4	7.1
	0.6	A	F	1.0	1.3	1.5	1.8	2.2	2.6	3.3	4.0
		B See Notes	F	1.4	1.7	1.9	2.2	2.6	3.0	3.6	4.1
		C at End	F	2.2	2.5	2.7	3.0	3.2	3.6	4.2	4.9
		D of Table	F	3.0	3.5	4.0	4.5	5.0	5.6	6.1	6.6
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.3 SUGGESTED SEVERITY INDICES

Backslopes (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index, SI							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Backslope 1:1 (cont.)	≥1.2	A	F	1.1	1.4	1.6	1.9	2.3	2.8	3.4	3.9
		B See notes	F	1.5	1.8	2.0	2.3	2.7	3.1	3.7	4.2
		C at End	F	2.3	2.6	2.8	3.1	3.4	3.8	4.4	4.9
		D of Table	F	3.1	3.6	4.1	4.6	5.1	5.7	6.2	6.7
		E A.13.1	F	3.3	3.7	4.1	4.6	5.2	5.8	6.4	7.1
Backslope Vertical	0.15	A	F	0.5	0.8	1.1	1.4	1.9	2.4	3.0	3.7
		B See Notes	F	0.8	1.1	1.4	1.7	2.2	2.7	3.3	4.0
		C at End	F	1.1	1.4	1.7	2.0	2.5	3.1	3.8	4.5
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	F	0.7	1.0	1.3	1.6	2.0	2.5	3.2	3.9
		B See Notes	F	1.1	1.4	1.7	2.0	2.4	2.8	3.5	4.2
		C at End	F	1.6	1.9	2.2	2.5	2.9	3.3	3.9	4.6
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	F	0.7	1.0	1.3	1.6	2.0	2.4	3.0	3.7
		B See Notes	F	1.1	1.4	1.7	2.0	2.3	2.7	3.3	4.0
		C at End	F	1.6	1.9	2.2	2.5	2.8	3.2	3.8	4.3
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥1.0	A	F	0.6	0.9	1.2	1.5	1.9	2.3	2.9	3.6
		B See Notes	F	1.0	1.3	1.6	1.9	2.2	2.6	3.2	3.9
		C at End	F	1.5	1.8	2.1	2.4	2.7	3.1	3.7	4.2
		D of Table	F	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	F	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.4 SUGGESTED SEVERITY INDICES
Parallel Ditches

Object Type and Characteristics			Object Surface (*)	Severity Index							
				Design Speed - km/h							
Foreslope	Backslope	Depth (m)									
1:2 Slope	1:2 Slope	0.15	F	1.2	1.5	1.7	2.0	2.4	2.8	3.4	3.9
		0.30	F	1.7	1.8	2.0	2.1	2.5	2.9	3.5	4.0
		0.60	F	1.9	2.0	2.2	2.3	2.7	3.1	3.6	4.1
		1.00	F	2.0	2.1	2.3	2.4	2.7	3.1	3.6	4.1
		1.20	F	2.1	2.2	2.4	2.5	2.8	3.2	3.7	4.2
	1:3 Slope	0.15	F	1.1	1.4	1.6	1.9	2.2	2.6	3.1	3.6
		0.30	F	1.5	1.7	1.9	2.1	2.4	2.8	3.2	3.6
		0.60	F	1.8	1.9	2.1	2.2	2.5	2.9	3.4	3.9
		1.00	F	1.9	2.0	2.2	2.3	2.5	2.9	3.5	4.0
		1.20	F	2.0	2.1	2.3	2.4	2.6	3.0	3.6	4.1
1:3 Slope	1:2 Slope	0.15	F	1.2	1.5	1.7	2.0	2.4	2.8	3.4	3.9
		0.30	F	1.6	1.7	1.9	2.0	2.4	2.8	3.4	3.9
		0.60	F	1.9	2.0	2.0	2.1	2.5	2.9	3.4	3.9
		1.00	F	2.0	2.1	2.1	2.2	2.5	2.9	3.4	3.9
		1.20	F	2.1	2.2	2.2	2.3	2.6	3.0	3.4	3.8
	1:3 Slope	0.15	F	1.1	1.4	1.6	1.9	2.2	2.6	3.1	3.6
		0.30	F	1.4	1.6	1.8	2.0	2.3	2.7	3.1	3.5
		0.60	F	1.7	1.8	2.0	2.1	2.3	2.7	3.1	3.5
		1.00	F	1.8	1.9	2.1	2.2	2.4	2.7	3.1	3.5
		1.20	F	2.0	2.1	2.1	2.2	2.4	2.8	3.2	3.6
	1:4 Slope	0.15	F	1.1	1.3	1.5	1.7	1.9	2.3	2.7	3.1
		0.30	F	1.3	1.5	1.7	1.9	2.1	2.4	2.8	3.2
		0.60	F	1.6	1.7	1.9	2.0	2.2	2.4	2.8	3.2
		1.00	F	1.9	2.0	2.0	2.1	2.2	2.5	2.9	3.3
		1.20	F	1.8	1.9	2.1	2.2	2.3	2.5	2.9	3.3

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.4 SUGGESTED SEVERITY INDICES
Parallel Ditches (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
				Design Speed - km/h							
Foreslope	Backslope	Depth (m)		50	60	70	80	90	100	110	120
1:4 Slope	1:2 Slope	0.15	F	1.1	1.4	1.6	1.9	2.3	2.7	3.2	3.7
		0.30	F	1.1	1.4	1.6	1.9	2.3	2.7	3.2	3.7
		0.60	F	1.2	1.5	1.7	2.0	2.3	2.7	3.2	3.7
		1.00	F	1.2	1.5	1.7	2.0	2.3	2.7	3.1	3.5
		1.20	F	1.2	1.5	1.7	2.0	2.3	2.7	3.1	3.5
	1:3 Slope	0.15	F	1.0	1.2	1.4	1.6	1.9	2.3	2.7	3.1
		0.30	F	1.1	1.3	1.5	1.7	1.9	2.3	2.7	3.1
		0.60	F	1.0	1.3	1.5	1.8	2.0	2.3	2.7	3.1
		1.00	F	1.1	1.4	1.6	1.9	2.1	2.3	2.7	3.1
		1.20	F	1.1	1.4	1.7	2.0	2.1	2.3	2.7	3.1
	1:4 Slope	0.15	F	0.9	1.1	1.3	1.5	1.7	2.0	2.3	2.6
		0.30	F	1.0	1.2	1.4	1.6	1.8	2.1	2.3	2.6
		0.60	F	1.1	1.3	1.5	1.7	1.9	2.2	2.4	2.5
		1.00	F	1.0	1.3	1.5	1.8	2.0	2.2	2.4	2.7
		1.20	F	1.1	1.4	1.6	1.9	2.1	2.3	2.5	2.6
1:6 Slope	1:2 Slope	0.15	F	0.8	1.1	1.3	1.6	2.0	2.4	2.9	3.4
		0.30	F	0.8	1.1	1.3	1.6	2.0	2.4	2.9	3.4
		0.60	F	0.7	1.0	1.2	1.5	1.9	2.3	2.7	3.1
		1.00	F	0.6	0.9	1.1	1.4	1.8	2.2	2.5	2.8
		1.20	F	0.6	0.9	1.1	1.4	1.8	2.2	2.4	2.7

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

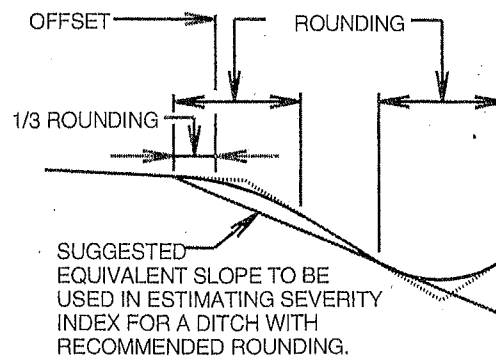
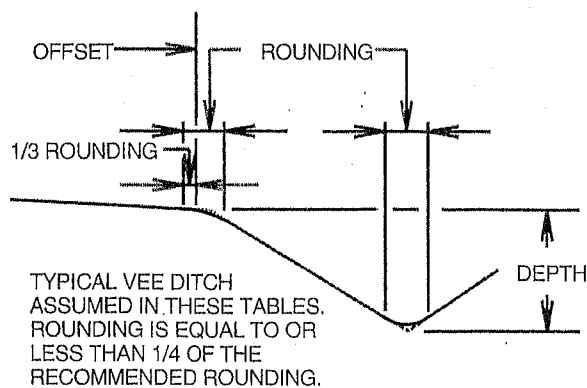


TABLE A.13.4 SUGGESTED SEVERITY INDICES
Parallel Ditches (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
				Design Speed - km/h							
Foreslope	Backslope	Depth (m)		50	60	70	80	90	100	110	120
1:6 Slope (cont.)	1:3 Slope	0.15	F	0.7	0.9	1.1	1.3	1.6	1.9	2.2	2.5
		0.30	F	0.7	0.9	1.1	1.3	1.6	1.9	2.2	2.5
		0.60	F	0.7	0.9	1.1	1.3	1.6	1.9	2.2	2.5
		1.00	F	0.5	0.8	1.0	1.3	1.6	1.9	2.1	2.4
		1.20	F	0.5	0.8	1.0	1.3	1.6	1.9	2.1	2.4
	1:4 Slope	0.15	F	0.5	0.7	0.9	1.1	1.3	1.6	1.9	2.2
		0.30	F	0.4	0.7	0.9	1.2	1.4	1.7	1.9	2.2
		0.60	F	0.6	0.8	1.0	1.2	1.4	1.7	1.9	2.2
		1.00	F	0.6	0.8	1.0	1.2	1.5	1.8	2.0	2.1
		1.20	F	0.6	0.8	1.0	1.2	1.5	1.8	2.0	2.1
	1:6 Slope	0.15	F	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.6
		0.30	F	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.7
		0.60	F	0.6	0.7	0.9	1.0	1.2	1.5	1.7	2.0
		1.00	F	0.5	0.7	0.9	1.1	1.3	1.6	1.8	2.1
		1.20	F	0.4	0.7	0.9	1.2	1.4	1.6	1.9	2.2

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

Note: For ditch configurations where the ditch bottom is 2.5 m wide or greater the foreslope and backslope should be treated as independent features with offsets adjusted for intervening slopes, and the cost of the features summed.

The estimated Severity Indices in this table assumes rounding is insufficient to have a beneficial effect. Where rounding approximating that recommended in Section A.4.7.1.1 is provided, the Severity Index of the ditch should be taken as that for a slope through the beginning and end of the hinge rounding and the offset to the feature measured to the beginning of rounding.

Where rounding is in between recommended and ineffective (say 1/4 of recommended) Severity Index estimates should be reduced to reflect more favorable conditions.

TABLE A.13.5 SUGGESTED SEVERITY INDICES

Intersecting Slopes - Negative (down)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:10	0.3	A	S	0.7	0.8	1.0	1.1	1.4	1.7	2.0	2.3
		B See Notes	S	0.9	1.0	1.2	1.3	1.4	1.6	2.2	2.9
		C at End	S	1.2	1.4	1.6	1.8	1.9	2.1	2.8	3.5
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	> 1.0	A	S	0.6	0.8	1.0	1.2	1.5	1.9	2.3	2.7
		B See Notes	S	0.8	1.0	1.2	1.4	1.7	2.1	2.6	3.1
		C at End	S	1.1	1.4	1.6	1.9	2.2	2.6	3.2	3.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Intersecting Slope (neg.) 1:8	0.3	A	S	1.3	1.4	1.6	1.7	1.9	2.1	2.4	2.7
		B See Notes	S	1.5	1.6	1.8	1.9	2.1	2.3	2.7	3.1
		C at End	S	1.8	2.0	2.2	2.4	2.6	2.9	3.3	3.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	1.4	1.6	1.8	2.0	2.2	2.5	3.0	3.5
		B See Notes	S	1.6	1.8	2.0	2.2	2.4	2.7	3.3	3.8
		C at End	S	1.9	2.2	2.4	2.7	2.9	3.2	3.8	4.5
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	2	A	S	1.4	1.6	1.8	2.0	2.3	2.7	3.2	3.7
		B See Notes	S	1.6	1.8	2.0	2.2	2.5	2.9	3.5	4.0
		C at End	S	1.9	2.2	2.4	2.7	3.0	3.4	4.0	4.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

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Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:8 (cont.)	≥4	A	S	1.4	1.6	1.8	2.0	2.3	2.7	3.3	3.8
		B See Notes	S	1.6	1.8	2.0	2.2	2.5	2.9	3.5	4.2
		C at End	S	1.9	2.2	2.4	2.7	3.0	3.4	4.1	4.8
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Intersecting Slopes (neg.) 1:6	0.3	A	S	1.7	1.8	2.0	2.1	2.3	2.5	2.7	3.0
		B See Notes	S	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
		C at End	S	2.2	2.4	2.6	2.8	3.0	3.2	3.6	4.0
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	2.1	2.3	2.5	2.7	2.9	3.3	3.7	4.1
		B See Notes	S	2.3	2.5	2.7	2.9	3.1	3.5	4.0	4.5
		C at End	S	2.6	2.9	3.1	3.4	3.6	4.0	4.6	5.1
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	2	A	S	2.3	2.6	2.9	3.2	3.5	3.9	4.4	4.9
		B See Notes	S	2.5	2.8	3.1	3.4	3.7	4.1	4.7	5.2
		C at End	S	2.8	3.1	3.5	3.9	4.2	4.6	5.2	5.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	4	A	S	2.2	2.5	2.9	3.3	3.7	4.2	4.8	5.3
		B See Notes	S	2.4	2.7	3.1	3.5	3.9	4.4	5.0	5.5
		C at End	S	2.7	3.1	3.5	4.0	4.4	4.9	5.5	6.0
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES

Intersecting Slopes - Negative (down) (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg) 1:6 (cont.)	6	A	S	2.2	2.5	2.9	3.3	3.7	4.2	4.9	5.5
		B See Notes	S	2.4	2.7	3.1	3.5	3.9	4.4	5.0	5.6
		C at End	S	2.7	3.1	3.5	4.0	4.4	4.9	5.5	6.0
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥8	A	S	2.2	2.5	2.9	3.3	3.7	4.2	4.9	5.6
		B See Notes	S	2.4	2.7	3.1	3.5	3.9	4.4	5.0	5.7
		C at End	S	2.7	3.1	3.5	4.0	4.4	4.9	5.5	6.0
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Intersecting Slopes (neg.) 1:4	0.3	A	S	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
		B See Notes	S	2.1	2.2	2.4	2.5	2.7	2.9	3.2	3.5
		C at End	S	2.4	2.6	2.8	3.0	3.2	3.4	3.8	4.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	2.6	2.8	3.0	3.2	3.4	3.6	4.0	4.4
		B See Notes	S	2.8	3.0	3.2	3.4	3.6	3.9	4.3	4.7
		C at End	S	3.1	3.4	3.6	3.9	4.1	4.4	4.9	5.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	2	A	S	3.5	3.7	3.9	4.1	4.3	4.6	5.0	5.4
		B See Notes	S	3.6	3.8	4.0	4.2	4.5	4.8	5.2	5.6
		C at End	S	3.8	4.1	4.3	4.6	5.0	5.3	5.7	6.1
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:4 (cont.)	4	A	S	3.7	4.1	4.5	5.0	5.2	5.5	5.9	6.3
		B See Notes	S	3.8	4.2	4.6	5.1	5.4	5.7	6.1	6.5
		C at End	S	4.0	4.5	5.0	5.5	5.8	6.2	6.6	7.0
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	6	A	S	3.7	4.2	4.7	5.2	5.6	6.0	6.4	6.8
		B See Notes	S	3.8	4.3	4.8	5.3	5.8	6.2	6.6	7.0
		C at End	S	3.9	4.5	5.1	5.7	6.1	6.6	7.0	7.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	8	A	S	3.7	4.3	4.8	5.4	5.9	6.4	6.8	7.2
		B See Notes	S	3.8	4.4	4.9	5.5	6.1	6.6	7.0	7.4
		C at End	S	3.9	4.5	5.2	5.8	6.4	7.0	7.4	7.8
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	10	A	S	3.7	4.3	4.8	5.4	6.0	6.6	7.2	7.7
		B See Notes	S	3.8	4.4	4.9	5.5	6.2	6.8	7.3	7.8
		C at End	S	3.9	4.5	5.2	5.8	6.5	7.1	7.5	7.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥14	A	S	3.7	4.3	4.8	5.4	6.0	6.6	7.2	7.9
		B See Notes	S	3.8	4.4	4.9	5.5	6.2	6.8	7.4	7.9
		C at End	S	3.9	4.5	5.2	5.8	6.5	7.1	7.5	7.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

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Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:3 (cont.)	0.3	A	S	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
		B See Notes	S	2.1	2.2	2.4	2.5	2.7	2.9	3.2	3.5
		C at End	S	2.4	2.6	2.8	3.0	3.2	3.4	3.8	4.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	2.7	2.9	3.1	3.3	3.5	3.7	4.0	4.3
		B See Notes	S	2.7	3.0	3.2	3.5	3.6	3.9	4.3	4.7
		C at End	S	3.1	3.4	3.6	3.9	4.1	4.4	4.9	5.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	2	A	S	3.8	4.0	4.2	4.4	4.6	4.8	5.1	5.4
		B See Notes	S	3.9	4.1	4.3	4.5	4.7	5.0	5.3	5.6
		C at End	S	4.2	4.4	4.6	4.8	5.0	5.3	5.6	5.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	4	A	S	4.8	5.0	5.2	5.4	5.7	6.0	6.2	6.5
		B See Notes	S	4.9	5.1	5.3	5.5	5.9	6.2	6.4	6.7
		C at End	S	5.1	5.3	5.5	5.7	6.1	6.4	6.8	7.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	6	A	S	4.9	5.3	5.7	6.1	6.4	6.7	6.9	7.2
		B See Notes	S	5.0	5.4	5.8	6.2	6.6	6.9	7.1	7.4
		C at End	S	5.2	5.6	5.9	6.3	6.7	7.0	7.3	7.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

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Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:3 (cont.)	8	A	S	5.0	5.6	6.1	6.7	7.0	7.3	7.5	7.8
		B See Notes	S	5.1	5.7	6.2	6.8	7.2	7.5	7.7	8.0
		C at End	S	5.2	5.8	6.3	6.9	7.3	7.6	7.8	8.1
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	10	A	S	4.9	5.6	6.3	7.0	7.4	7.8	8.2	8.6
		B See Notes	S	5.0	5.7	6.4	7.1	7.5	7.9	8.3	8.7
		C at End	S	5.1	5.8	6.5	7.2	7.6	8.0	8.4	8.8
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	14	A	S	4.9	5.6	6.3	7.0	7.5	7.9	8.3	8.7
		B See Notes	S	5.0	5.7	6.4	7.1	7.5	7.9	8.3	8.7
		C at End	S	5.1	5.8	6.5	7.2	7.6	8.0	8.4	8.8
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥18	A	S	4.9	5.6	6.3	7.0	7.5	8.0	8.4	8.8
		B See Notes	S	5.0	5.7	6.4	7.1	7.6	8.0	8.4	8.8
		C at End	S	5.1	5.8	6.5	7.2	7.6	8.0	8.4	8.8
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Intersecting Slopes (neg.) 1:2	0.3	A	S	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
		B See Notes	S	2.1	2.2	2.4	2.5	2.7	2.9	3.2	3.5
		C at End	S	2.4	2.6	2.8	3.0	3.2	3.4	3.8	4.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:2 (cont.)	1	A	S	2.9	3.0	3.2	3.3	3.5	3.7	4.0	4.3
		B See Notes	S	2.9	3.1	3.3	3.5	3.6	3.9	4.3	4.7
		C at End	S	3.3	3.5	3.7	3.9	4.1	4.4	4.9	5.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	2	A	S	4.1	4.2	4.4	4.5	4.7	4.9	5.1	5.4
		B See Notes	S	4.1	4.2	4.4	4.5	4.7	5.0	5.3	5.6
		C at End	S	4.2	4.4	4.6	4.8	5.0	5.3	5.6	5.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	4	A	S	5.5	5.6	5.6	5.7	5.9	6.2	6.4	6.5
		B See Notes	S	5.5	5.6	5.6	5.7	6.0	6.3	6.5	6.6
		C at End	S	5.6	5.7	5.7	5.8	6.1	6.4	6.6	6.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	6	A	S	6.0	6.2	6.4	6.6	6.8	7.1	7.3	7.4
		B See Notes	S	6.0	6.2	6.4	6.6	6.9	7.2	7.4	7.5
		C at End	S	6.1	6.3	6.5	6.7	7.0	7.3	7.5	7.6
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	8	A	S	6.5	6.8	7.1	7.4	7.6	7.9	8.1	8.2
		B See Notes	S	6.5	6.8	7.1	7.4	7.7	8.0	8.2	8.3
		C at End	S	6.6	6.9	7.2	7.5	7.8	8.1	8.3	8.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

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Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:2 (cont.)	10	A	S	7.0	7.4	7.8	8.3	8.5	8.7	8.9	9.0
		B See Notes	S	7.0	7.4	7.8	8.3	8.5	8.8	9.0	9.1
		C at End	S	7.1	7.5	7.9	8.4	8.6	8.9	9.1	9.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	14	A	S	7.2	7.6	8.0	8.5	8.7	9.0	9.2	9.3
		B See Notes	S	7.2	7.6	8.0	8.5	8.7	9.0	9.2	9.3
		C at End	S	7.2	7.6	8.0	8.5	8.7	9.0	9.2	9.3
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	18	A	S	7.3	7.7	8.1	8.6	8.9	9.1	9.3	9.4
		B See Notes	S	7.3	7.7	8.1	8.6	8.9	9.1	9.3	9.4
		C at End	S	7.3	7.7	8.1	8.6	8.9	9.1	9.3	9.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	22	A	S	7.2	7.7	8.2	8.7	8.9	9.1	9.3	9.4
		B See Notes	S	7.2	7.7	8.2	8.7	8.9	9.1	9.3	9.4
		C at End	S	7.2	7.7	8.2	8.7	8.9	9.1	9.3	9.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:1½	0.3	A	S	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
		B See Notes	S	2.1	2.2	2.4	2.5	2.7	2.9	3.2	3.5
		C at End	S	2.4	2.6	2.8	3.0	3.2	3.4	3.8	4.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	2.9	3.0	3.2	3.3	3.5	3.7	4.0	4.3
		B See Notes	S	2.9	3.1	3.3	3.5	3.6	3.9	4.3	4.7
		C at End	S	3.3	3.5	3.7	3.9	4.1	4.4	4.9	5.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	2	A	S	4.1	4.2	4.4	4.5	4.7	4.9	5.1	5.4
		B See Notes	S	4.1	4.2	4.4	4.5	4.7	5.0	5.3	5.6
		C at End	S	4.2	4.4	4.6	4.8	5.0	5.3	5.6	5.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	4	A	S	5.6	5.7	5.7	5.8	6.0	6.2	6.4	6.5
		B See Notes	S	5.6	5.7	5.7	5.8	6.0	6.3	6.5	6.6
		C at End	S	5.5	5.6	5.8	5.9	6.1	6.4	6.6	6.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	6	A	S	6.3	6.5	6.6	6.7	6.9	7.1	7.4	7.4
		B See Notes	S	6.3	6.5	6.6	6.7	6.9	7.2	7.4	7.5
		C at End	S	6.3	6.5	6.6	6.7	6.9	7.2	7.4	7.5
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.5 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Negative (down) (continued)

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Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition (**)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (neg.) 1:1½ (cont.)	8	A	S	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.3
		B See Notes	S	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.3
		C at End	S	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.3
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	10	A	S	7.9	8.2	8.5	8.8	8.9	8.9	9.1	9.2
		B See Notes	S	7.9	8.2	8.5	8.8	8.9	8.9	9.1	9.2
		C at End	S	7.9	8.2	8.5	8.8	8.9	8.9	9.1	9.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	14	A	S	8.3	8.6	8.8	9.1	9.2	9.3	9.5	9.6
		B See Notes	S	8.3	8.6	8.8	9.1	9.2	9.3	9.5	9.6
		C at End	S	8.3	8.6	8.8	9.1	9.2	9.3	9.5	9.6
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	18	A	S	8.5	8.8	9.0	9.3	9.4	9.5	9.5	9.5
		B See Notes	S	8.5	8.8	9.0	9.3	9.4	9.5	9.6	9.6
		C at End	S	8.5	8.8	9.0	9.3	9.4	9.5	9.6	9.6
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	≥22	A	S	8.6	8.9	9.1	9.4	9.5	9.5	9.6	9.6
		B See Notes	S	8.6	8.9	9.1	9.4	9.5	9.5	9.6	9.6
		C at End	S	8.6	8.9	9.1	9.4	9.5	9.5	9.6	9.6
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Surface conditions are assumed to continue on surface beyond slope.

TABLE A.13.6 SUGGESTED SEVERITY INDICES

Intersecting Slopes - Vertical Drop W/ and W/o Water Present

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Water Depth (m)		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slope Vertical Drop	0	0	S	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.8
		1	S	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.7
		2	S	4.3	4.6	4.8	5.1	5.3	5.6	5.8	6.1
		4	S	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.5
		≥6	S	7.5	7.7	7.9	8.1	8.3	8.4	8.6	8.7
	0.3	0	S	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
		1	S	2.6	2.9	3.1	3.4	3.6	3.9	4.1	4.4
		2	S	4.3	4.6	4.9	5.2	5.6	5.9	6.3	6.7
		4	S	6.0	6.3	6.6	6.9	7.1	7.4	7.6	7.9
		≥6	S	7.9	8.0	8.2	8.3	8.5	8.7	8.9	9.0
	1.0	0	S	2.9	3.0	3.2	3.3	3.5	3.7	4.0	4.3
		1	S	3.2	3.4	3.6	3.8	4.0	4.2	4.5	4.8
		2	S	5.4	5.6	5.8	6.0	6.3	6.6	6.8	7.1
		4	S	6.5	6.8	7.0	7.3	7.5	7.7	7.9	8.2
		≥6	S	8.0	8.1	8.3	8.4	8.6	8.8	9.0	9.1
	2.0	0	S	4.1	4.2	4.4	4.5	4.7	4.9	5.1	5.4
		1	S	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.7
		2	S	6.5	6.6	6.8	6.9	7.1	7.3	7.5	7.6
		4	S	7.3	7.4	7.6	7.7	7.9	8.1	8.3	8.4
		≥6	S	8.1	8.2	8.4	8.5	8.7	8.9	9.1	9.2
	4.0	0	S	5.7	5.8	5.8	5.9	6.0	6.2	6.4	6.5
		1	S	5.7	5.8	6.0	6.1	6.2	6.4	6.7	7.0
		2	S	7.2	7.3	7.5	7.6	7.8	8.0	8.2	8.3
		4	S	7.8	7.9	8.1	8.2	8.4	8.6	8.8	8.9
		≥6	S	8.4	8.5	8.7	8.8	9.0	9.2	9.4	9.5
	≥8.0	Any Depth	S	Use Values From Foreslopes - Vertical							

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F.

TABLE A.13.7 SUGGESTED SEVERITY INDICES

Intersecting Slopes - Positive (up) **

Object Type and Characteristics			Object Surface (*)	Severity Index								
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h								
				50	60	70	80	90	100	110	120	
Intersecting Slopes (pos.) 1:10	0.15	A	S	0.3	0.4	0.6	0.7	0.9	1.1	1.3	1.6	
		B See Notes	S	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8	
		C at End	S	0.9	1.0	1.2	1.3	1.5	1.7	2.0	2.3	
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4	
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0	
	0.3	A	S	0.4	0.5	0.7	0.8	1.2	1.5	1.9	2.3	
		B See Notes	S	0.6	0.7	0.9	1.0	1.4	1.7	2.1	2.5	
		C at End	S	0.8	1.0	1.2	1.4	1.8	2.1	2.5	2.9	
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4	
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0	
	0.6	A	S	0.4	0.5	0.7	0.8	1.2	1.6	2.0	2.4	
		B See Notes	S	0.6	0.7	0.9	1.0	1.4	1.8	2.2	2.6	
		C at End	S	0.8	1.0	1.2	1.4	1.8	2.2	2.6	3.0	
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4	
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0	
	Intersecting Slopes (pos.) 1:8	0.15	A	S	0.3	0.4	0.6	0.7	0.9	1.1	1.3	1.6
			B See Notes	S	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8
			C at End	S	0.9	1.0	1.2	1.3	1.5	1.7	2.0	2.3
			D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
			E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
0.3		A	S	0.4	0.6	0.8	1.0	1.5	2.0	2.2	2.5	
		B See Notes	S	0.6	0.8	1.0	1.2	1.7	2.1	2.4	2.7	
		C at End	S	0.8	1.1	1.3	1.6	2.1	2.5	2.8	3.1	
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4	
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0	

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** See note at end of this table for limitation and description of condition.

TABLE A.13.7 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Positive (up) ** (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (pos.) 1:8 (cont.)	0.6	A	S	0.3	0.6	0.9	1.2	1.7	2.1	2.3	2.4
		B See Notes	S	0.5	0.8	1.0	1.3	1.8	2.2	2.4	2.7
		C at End	S	0.8	1.1	1.4	1.7	2.2	2.6	2.8	3.1
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	0.3	0.6	0.9	1.2	1.7	2.1	2.3	2.6
		B See Notes	S	0.5	0.8	1.1	1.4	1.8	2.2	2.5	2.8
		C at End	S	0.7	1.0	1.4	1.8	2.2	2.6	2.9	3.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Intersecting Slopes (pos.) 1:6	0.15	A	S	0.3	0.4	0.6	0.7	0.9	1.1	1.3	1.6
		B See Notes	S	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8
		C at End	S	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.3
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	S	0.5	0.8	1.2	1.6	2.0	2.3	2.6	2.9
		B See Notes	S	0.7	1.0	1.4	1.8	2.1	2.4	2.8	3.2
		C at End	S	1.0	1.3	1.7	2.1	2.4	2.7	3.1	3.5
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	S	0.5	0.9	1.3	1.8	2.1	2.4	2.7	3.0
		B See Notes	S	0.8	1.1	1.5	1.9	2.2	2.5	2.9	3.3
		C at End	S	1.0	1.4	1.8	2.3	2.5	2.8	3.2	3.6
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** See note at end of this table for limitation and description of condition.

TABLE A.13.7 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Positive (up) ** (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (pos.) 1:6 (cont.)	1	A	S	0.4	0.9	1.4	1.9	2.2	2.5	2.8	3.1
		B See Notes	S	0.7	1.1	1.5	2.0	2.3	2.6	3.0	3.4
		C at End	S	0.9	1.4	1.9	2.4	2.6	2.9	3.3	3.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
Intersecting Slopes (pos.) 1:4	0.15	A	S	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.7
		B See Notes	S	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.9
		C at End	S	0.6	0.9	1.1	1.4	1.6	1.8	2.1	2.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	S	1.3	1.6	1.9	2.2	2.6	3.0	3.3	3.6
		B See Notes	S	1.5	1.8	2.0	2.3	2.7	3.1	3.5	3.9
		C at End	S	1.8	2.1	2.3	2.6	3.0	3.4	3.8	4.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	S	1.6	1.9	2.1	2.4	2.8	3.2	3.5	3.8
		B See Notes	S	1.7	2.0	2.2	2.5	2.9	3.3	3.6	3.9
		C at End	S	2.2	2.4	2.6	2.8	3.2	3.6	3.9	4.2
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	1.6	1.9	2.1	2.4	2.8	3.2	3.6	4.0
		B See Notes	S	1.7	2.0	2.2	2.5	2.9	3.3	3.7	4.1
		C at End	S	2.2	2.4	2.6	2.8	3.2	3.6	4.0	4.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** See note at end of this table for limitation and description of condition.

TABLE A.13.7 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Positive (up) ** (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (pos.) 1:3	0.15	A	S	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.7
		B See Notes	S	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.9
		C at End	S	0.6	0.9	1.1	1.4	1.6	1.8	2.1	2.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	S	1.8	2.1	2.4	2.7	3.1	3.5	3.9	4.3
		B See Notes	S	1.9	2.2	2.5	2.8	3.2	3.6	4.0	4.4
		C at End	S	2.2	2.5	2.8	3.1	3.5	3.9	4.2	4.5
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	S	1.8	2.1	2.5	2.9	3.3	3.7	4.1	4.5
		B See Notes	S	1.9	2.2	2.6	3.0	3.4	3.8	4.2	4.6
		C at End	S	2.2	2.5	2.9	3.3	3.7	4.0	4.4	4.8
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	1.9	2.2	2.6	3.0	3.4	3.8	4.2	4.6
		B See Notes	S	2.0	2.3	2.7	3.1	3.5	3.9	4.3	4.7
		C at End	S	2.1	2.5	2.9	3.4	3.8	4.1	4.5	4.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** See note at end of this table for limitation and description of condition.

TABLE A.13.7 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Positive (up) ** (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (pos.) 1:2	0.15	A	S	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.7
		B See Notes	S	0.6	0.7	0.9	1.0	1.2	1.4	1.6	1.9
		C at End	S	0.8	1.0	1.2	1.4	1.6	1.8	2.1	2.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	S	2.1	2.5	2.9	3.4	3.9	4.4	4.8	5.2
		B See Notes	S	2.2	2.6	3.0	3.5	4.0	4.5	4.9	5.3
		C at End	S	2.3	2.8	3.3	3.8	4.2	4.7	5.1	5.5
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	S	2.5	2.8	3.2	3.6	4.1	4.6	5.0	5.4
		B See Notes	S	2.6	2.9	3.3	3.7	4.2	4.7	5.1	5.5
		C at End	S	2.8	3.1	3.5	3.9	4.4	4.9	5.3	5.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	2.6	2.9	3.3	3.7	4.2	4.7	5.1	5.5
		B See Notes	S	2.7	3.0	3.4	3.8	4.3	4.8	5.2	5.6
		C at End	S	2.9	3.2	3.6	4.0	4.5	4.9	5.3	5.7
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** See note at end of this table for limitation and description of condition.

TABLE A.13.7 SUGGESTED SEVERITY INDICES

Intersecting Slopes - Positive (up) ** (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (pos.) 1:½	0.15	A	S	0.4	0.5	0.7	0.8	1.0	1.3	1.5	1.8
		B See Notes	S	0.6	0.7	0.9	1.0	1.2	1.5	1.7	2.0
		C at End	S	0.8	1.0	1.2	1.4	1.6	1.9	2.1	2.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	S	2.4	2.9	3.4	3.9	4.3	4.8	5.3	5.8
		B See Notes	S	2.5	3.0	3.5	4.0	4.4	4.9	5.4	5.9
		C at End	S	2.7	3.2	3.7	4.2	4.6	5.1	5.5	5.9
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	S	2.6	3.1	3.6	4.1	4.6	5.2	5.6	6.0
		B See Notes	S	2.7	3.2	3.7	4.2	4.7	5.3	5.7	6.1
		C at End	S	2.9	3.4	3.9	4.4	4.9	5.4	5.8	6.2
		D of Table	S	2.9	3.4	3.9	4.4	4.9	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	1	A	S	2.7	3.2	3.7	4.2	4.7	5.3	5.7	6.1
		B See Notes	S	2.8	3.3	3.8	4.3	4.8	5.4	5.8	6.2
		C at End	S	3.0	3.5	4.0	4.5	5.0	5.5	5.9	6.3
		D of Table	S	3.0	3.5	4.0	4.5	5.0	5.5	5.9	6.3
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

** See note at end of this table for limitation and description of condition.

TABLE A.13.7 SUGGESTED SEVERITY INDICES
Intersecting Slopes - Positive (up) ** (continued)

Object Type and Characteristics			Object Surface (*)	Severity Index							
Slope (V:H)	Height (m)	Surface Condition		Design Speed - km/h							
				50	60	70	80	90	100	110	120
Intersecting Slopes (pos.) 1:1	0.15	A	S	0.4	0.5	0.7	0.8	1.0	1.3	1.5	1.8
		B See Notes	S	0.6	0.7	0.9	1.0	1.2	1.5	1.7	2.0
		C at End	S	0.8	1.0	1.2	1.4	1.6	1.9	2.1	2.4
		D of Table	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.3	A	S	2.9	3.3	3.7	4.2	4.7	5.3	5.8	6.3
		B See Notes	S	3.0	3.4	3.8	4.3	4.8	5.4	5.8	6.2
		C at End	S	3.2	3.6	4.0	4.5	5.0	5.5	5.9	6.3
		D of Table	S	3.2	3.6	4.0	4.5	5.0	5.5	5.9	6.4
		E A.13.1	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	7.0
	0.6	A	S	3.0	3.5	4.0	4.5	5.0	5.6	6.2	6.7
		B See Notes	S	3.1	3.6	4.1	4.6	5.1	5.6	6.2	6.7
		C at End	S	3.3	3.8	4.3	4.8	5.2	5.7	6.3	6.8
		D of Table	S	3.3	3.8	4.3	4.8	5.2	5.7	6.3	6.8
		E A.13.1	S	3.3	3.8	4.3	4.8	5.2	5.7	6.3	7.0
	1	A	S	3.1	3.6	4.1	4.6	5.1	5.7	6.3	6.8
		B See Notes	S	3.2	3.7	4.2	4.7	5.2	5.7	6.3	6.8
		C at End	S	3.4	3.9	4.4	4.9	5.3	5.8	6.4	6.9
		D of Table	S	3.4	3.9	4.4	4.9	5.3	5.8	6.4	6.9
		E A.13.1	S	3.4	3.9	4.4	4.9	5.3	5.8	6.4	6.9

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

** The condition addressed in this table is a relatively simple one where the vehicle encounters an intersecting upward slope that connects to a relatively level and wide surface at its upper limit. Transitions between foreslope or backslope and intersecting slopes are not addressed, nor is the condition where a vehicle might vault over a dike or a narrow intersecting roadway. Developing SIs for the conditions not addressed will require special analysis and engineering judgement.

TABLE A.13.8 SUGGESTED SEVERITY INDICES
Traffic Barriers

Object Type and Characteristics	Object Surface (*)	Severity Index							
		Design Speed - km/h							
		50	60	70	80	90	100	110	120
Longitudinal Traffic Barriers									
Uniform Section									
Basic SI For all currently accepted barriers, guardrails, bridgerails, median barriers, apply the basic SI to that percentage of impacts estimated to be contained by the barrier. For that percentage of impacts estimated to penetrate an SI appropriate for the shielded hazard should be used to adjust the effective barrier SI.	F	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
Basic SI Non-blocked out w-beam on strong posts with 1.9-m post spacings (adjust for estimated penetrations)	F	2.0	2.1	2.3	2.4	2.7	3.0	3.3	3.6
Basic SI Cable on strong posts (adjust for estimated penetrations)	F	2.0	2.2	2.4	2.6	2.8	3.1	3.4	3.7
For walls and parapets with irregular surfaces estimate SIs by referring to vertical backslopes	F	-	-	-	-	-	-	-	-
Guardrail to Parapet Transitions									
Treat the same as currently acceptable longitudinal barriers if transition meets crash test acceptance requirements and adjust for estimated penetrations	F	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.8 SUGGESTED SEVERITY INDICES
Traffic Barriers (continued)

Object Type and Characteristics	Object Surface (*)	Severity Index							
		Design Speed - km/h							
		50	60	70	80	90	100	110	120
Guardrail to Parapet Transitions (cont.)									
For substandard transitions consider a section of the face of the approach guardrail as having the severity of a fixed object. This section of barrier would nominally be part of a continuous barrier face, thus the corner and side SIs would be zero.									
Examples: Standard, strong-post, w-beam guardrail, blocked out with two spaces at 0.95-m and full-strength attachment to parapet	F	0.1m @ 1.8**	0.1m @ 2.0	0.3m @ 2.2	0.4m @ 2.4	0.7m @ 2.6	1.1m @ 2.9	1.6m @ 3.2	2.0m @ 3.5
Standard, strong-post, w-beam guardrail, blocked out, with 1.9-m post spacing and no connection to parapet	F	0.4m @ 2.0	0.7m @ 2.3	1.1m @ 2.5	1.5m @ 2.8	2.1m @ 3.2	2.7m @ 3.5	3.5m @ 3.9	4.2m @ 4.3
Three cable guardrail, 4.88-m post spacing, attached to parapet end	F	2.4m @ 3.0	2.8m @ 3.4	3.3m @ 3.8	3.8m @ 4.3	4.5m @ 4.8	5.5m @ 5.4	6.9m @ 6.0	8.4m @ 6.5
Terminals (approach end except where noted)									
Stand-up w-beam, unanchored, with no safety treatment and no flare. The first few feet of the unanchored rail will have diminished effectiveness and have a higher SI than the remainder of the guardrail. The values given here for that section of guardrail may require adjustment for penetration to the shielded object.	C&S	4.1	4.3	4.5	4.7	5.0	5.3	5.6	5.9
	F	1.0m @ 2.2	1.6m @ 2.5	2.1m @ 2.7	2.7m @ 3.0	3.3m @ 3.2	4.1m @ 3.4	5.2m @ 3.8	6.3m @ 4.2
BCT without diaphragms (properly installed with recommended flare)	C&S	3.0	3.3	3.6	3.9	4.1	4.3	4.5	4.8
	F	1.8m @ 2.1	1.8m @ 2.3	1.8m @ 2.5	1.8m @ 2.7	1.8m @ 2.9	1.8m @ 3.2	1.8m @ 3.5	1.8m @ 3.8
Turned-down w-beam (7.5-m twist)	C&S	2.7	2.9	3.1	3.3	3.7	4.0	4.3	4.6
	F	5.5m @ 2.8	5.5m @ 3.0	5.5m @ 3.2	5.5m @ 3.4	5.5m @ 3.8	5.5m @ 4.1	5.5m @ 4.4	5.5m @ 4.7

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

** Dimension above "@" sign is length of device to be analyzed using the noted severity index.

TABLE A.13.8 SUGGESTED SEVERITY INDICES

Traffic Barriers (continued)

Object Type and Characteristics	Object Surface (*)	Severity Index							
		Design Speed - km/h							
		50	60	70	80	90	100	110	120
Terminals (cont.)									
Three cable, wood post guardrail terminal with cables anchored to end post and end post restrained by rod attached to a deadman. Approach end.	C&S	3.0	3.3	3.5	3.8	4.2	4.6	5.0	5.4
Exit end (treat as fixed object)	C&S	2.7	3.1	3.5	4.0	4.5	5.0	5.5	6.0
BCT with diaphragm (properly installed with recommended flare)	C&S	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.4
	F	2m @ 2.1	2m @ 2.3	2m @ 2.5	2m @ 2.7	2m @ 2.9	2m @ 3.2	2m @ 3.5	2m @ 3.8
CAT, ET2000, Brakemaster, MELT	C&S	2.0	2.2	2.4	2.6	2.9	3.2	3.5	3.8
	F	2m @ 2.1	2m @ 2.3	2m @ 2.5	2m @ 2.7	2m @ 2.9	2m @ 3.2	2m @ 3.5	2m @ 3.8
Buried in backslope - The SI components for this type of terminal will be dependent on the configuration of the backslope, the ditch cross section, the terminus flare rate, and the conditions reachable by vehicles penetrating the terminal area. Values given here assume a 1:3 backslope paralleling the roadway at the point of burial, top of guardrail parallels the roadway at point of burial, top of guardrail parallels the roadway grade, the ditch is modified to provide a berm for carrying the flaring guardrails, grading approaching the berm is sufficiently gentle to have minimal effect on approach vehicle trajectory, and the guardrail at flare rates for 50, 60, 70, 80, 90, 100, 110, and 120 km/h are 9:1, 10:1, 11:1, 12:1, 13:1, 14:1, 15:1, and 16:1 respectively.	C&S	0.6	0.7	0.9	1.0	1.2	1.5	1.7	2.0
	F	4m @ 2.0	4m @ 2.2	4m @ 2.4	4m @ 2.6	4m @ 2.8	4m @ 3.1	4m @ 3.3	4m @ 3.6

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.8 SUGGESTED SEVERITY INDICES

Traffic Barriers (continued)

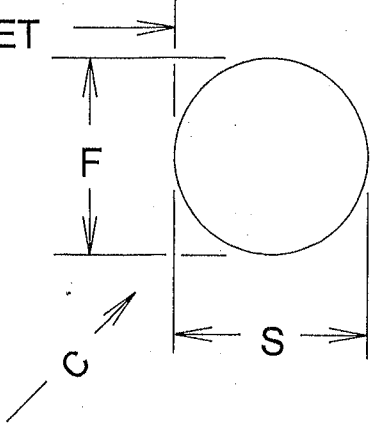
Object Type and Characteristics	Object Surface (*)	Severity Index							
		Design Speed - km/h							
		50	60	70	80	90	100	110	120
Terminals (Approach end except where noted)(cont.)									
Three-cable, steel post guardrail terminal with 5.5-m turndown and non-slag release feature for exit end impacts	C&S	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
	F	3m @ 2.0	3m @ 2.1	3m @ 2.3	3m @ 2.4	3m @ 2.6	3m @ 2.8	3m @ 3.1	3m @ 3.4
Eccentric Loader Terminal	C&S	2.0	2.2	2.4	2.6	2.8	3.1	3.4	3.7
	F	2m @ 2.1	2m @ 2.3	2m @ 2.5	2m @ 2.7	2m @ 2.9	2m @ 3.2	2m @ 3.5	2m @ 3.8
SENTRÉ	C&S	2.1	2.2	2.4	2.5	2.7	3.0	3.3	3.6
	F	2m @ 1.9	2m @ 2.0	2m @ 2.2	2m @ 2.3	2m @ 2.5	2m @ 2.7	2m @ 2.9	2m @ 3.2
Crash Cushions									
Redirecting - Design meets recommended performance requirements.	C&S	2.1	2.2	2.4	2.5	2.7	3.0	3.3	3.6
	F	1.9	2.0	2.2	2.3	2.5	2.8	3.1	3.4
Non-Redirecting - Design meets recommended performance requirements, sand barrels have recommended 0.75-m shadow offset at rear of array - treat a section of the face at the rear of the array as having higher SI than that assigned to the remainder of the crash cushion. Consider section as part of a continuous barrier face. Thus the corner and side SIs of the section equal zero.	C&S	1.9	2.0	2.2	2.3	2.5	2.8	3.1	3.4
	F	0.2m @ 3.3	0.3m @ 3.6	0.5m @ 3.9	1.0m @ 4.2	1.5m @ 4.6	2.3m @ 5.1	2.7m @ 5.6	3.3m @ 6.1

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.9 SUGGESTED SEVERITY INDICES

1/4

Fixed Objects

Object Type and Characteristics		Object Surface (*)	Severity Index								
			Design Speed - km/h								
			50	60	70	80	90	100	110	120	
Round OFFSET 	Diameter equal to 0.5 m	S	3.0	3.4	3.8	4.3	4.8	5.4	6.0	6.5	
		C	3.4	3.8	4.2	4.7	5.2	5.8	6.5	7.2	
		F	2.6	3.0	3.4	3.9	4.4	4.9	5.3	5.7	
	Diameter equal to 1 m	S	2.8	3.3	3.8	4.3	4.8	5.3	5.9	6.4	
		C	3.3	3.7	4.1	4.6	5.1	5.7	6.4	7.1	
		F	2.5	2.9	3.3	3.8	4.3	4.7	5.0	5.3	
	Diameter equal to or greater than 2 m	S	2.7	3.2	3.7	4.2	4.7	5.3	5.9	6.4	
		C	3.2	3.6	4.0	4.5	5.0	5.6	6.3	7.0	
		F	2.6	2.9	3.3	3.7	4.2	4.7	5.2	5.7	
Rectangular: Width of approach side equal to 0.5 m Face parallel to roadway, sides are perpendicular.	Height = 0.15 m	S	0.2	0.3	0.5	0.6	0.7	0.8	0.9	0.9	
		C	0.2	0.3	0.5	0.6	0.7	0.8	0.9	0.9	
		F	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.5	
	Height = 0.3 m	S	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4	
		C	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4	
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2	
	Height = 0.5 m	S	3.2	3.6	4.0	4.5	5.1	5.7	6.3	6.8	
		C	3.2	3.6	4.0	4.5	5.1	5.7	6.3	6.8	
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2	
	Height = 0.6 m	S	3.4	3.8	4.2	4.7	5.2	5.8	6.5	7.2	
		C	3.4	3.8	4.2	4.7	5.2	5.8	6.5	7.2	
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2	
	Height > 1.0 m	S	3.4	3.9	4.4	4.9	5.4	6.0	6.7	7.4	
		C	3.4	3.9	4.4	4.9	5.4	6.0	6.7	7.4	
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2	

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.9 SUGGESTED SEVERITY INDICES
Fixed Objects (continued)

Object Type and Characteristics		Object Surface (*)	Severity Index							
			Design Speed - km/h							
			50	60	70	80	90	100	110	120
Rectangular: Width of approach side is 1.25 m. Face is parallel to roadway, sides are perpendicular.	Height = 0.15 m	S	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8
		C	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8
		F	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.5
	Height = 0.3 m	S	2.6	3.2	3.7	4.3	4.8	5.3	5.8	6.3
		C	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
	Height = 0.5 m	S	3.0	3.5	4.0	4.5	5.0	5.6	6.2	6.7
		C	3.2	3.6	4.0	4.5	5.1	5.7	6.3	6.8
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
	Height = 0.6 m	S	3.1	3.6	4.1	4.6	5.1	5.7	6.4	7.1
		C	3.4	3.8	4.2	4.7	5.2	5.8	6.5	7.2
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2
	Height > 1.0 m	S	3.3	3.8	4.3	4.8	5.3	5.9	6.6	7.3
		C	3.4	3.9	4.4	4.9	5.4	6.0	6.7	7.4
		F	1.9	2.0	2.2	2.3	2.5	2.7	2.9	3.2

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.9 SUGGESTED SEVERITY INDICES

Fixed Objects (continued)

Object Type and Characteristics		Object Surface (*)	Severity Index							
			Design Speed - km/h							
			50	60	70	80	90	100	110	120
Rectangular: Width of approach side is 2 m or greater. Face is parallel to traffic and sides are perpendicular.	Height = 0.15 m	S	0.5	0.7	0.9	1.1	1.3	1.6	1.9	2.2
		C	0.5	0.7	0.9	1.1	1.3	1.6	1.9	2.2
		F	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.5
	Height = 0.3 m	S	2.5	3.1	3.6	4.2	4.7	5.3	5.8	6.3
		C	2.8	3.3	3.8	4.3	4.8	5.4	5.9	6.4
		F	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
	Height = 0.5 m	S	2.9	3.4	3.9	4.4	4.9	5.5	6.1	6.6
		C	3.2	3.6	4.0	4.5	5.1	5.7	6.3	6.8
		F	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
	Height = 0.6 m	S	2.8	3.4	4.1	4.7	5.1	5.6	6.3	7.0
		C	3.5	3.8	4.2	4.6	5.2	5.8	6.5	7.2
		F	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
	Height > 1.0 m	S	3.2	3.7	4.2	4.7	5.2	5.8	6.5	7.2
		C	3.4	3.9	4.4	4.9	5.4	6.0	6.7	7.4
		F	1.9	2.0	2.2	2.3	2.5	2.7	3.0	3.3
Trees	Diameter = 50 mm	A	0.2	0.3	0.3	0.4	0.5	0.5	0.7	0.8
	Diameter = 100 mm	A	1.0	1.1	1.1	1.2	1.3	1.5	1.7	2.0
	Diameter = 150 mm	A	2.5	2.6	2.6	2.7	2.9	3.0	3.2	3.3
	Diameter = 200 mm	A	3.2	3.5	3.7	4.0	4.3	4.6	5.0	5.4
	Diameter = 250 mm	A	3.2	3.6	4.0	4.5	5.0	5.6	6.2	6.7
	Diameter = 300 mm	A	3.3	3.7	4.1	4.6	5.1	5.7	6.4	7.1
	Diameter > 300 mm	A	3.4	3.8	4.2	4.7	5.2	5.8	6.5	7.2

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

TABLE A.13.9 SUGGESTED SEVERITY INDICES
Fixed Objects (continued)

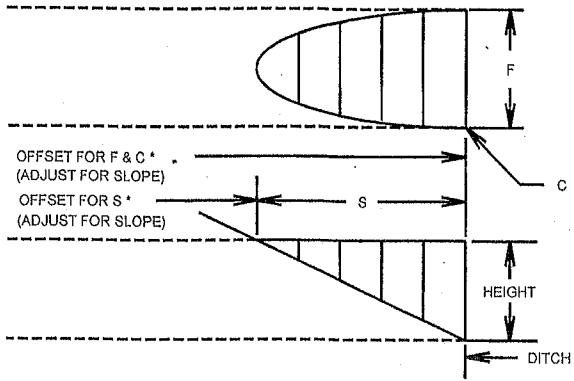
Object Type and Characteristics		Object Surface (*)	Severity Index							
			Design Speed - km/h							
			50	60	70	80	90	100	110	120
Utility Poles (Wooden)	Diameter = 200 mm	A	3.1	3.4	3.6	3.9	4.2	4.5	4.9	5.3
	Diameter = 250 mm	A	3.1	3.5	3.9	4.4	4.9	5.5	6.1	6.6
	Diameter = 300 mm	A	3.3	3.7	4.1	4.6	5.1	5.6	6.3	7.0
	Diameter > 300 mm	A	3.4	3.8	4.2	4.7	5.2	5.8	6.5	7.2
Breakaway Supports with 35 km/h crash test velocity change of:	1.5 meters/second	A	0.9	1.0	1.2	1.3	1.4	1.6	1.8	1.9
	3.0 meters/second	A	1.4	1.5	1.7	1.8	1.9	2.1	2.3	2.6
	4.5 meters/second	A	1.8	2.0	2.2	2.4	2.5	2.7	2.9	3.2
	6.1 meters/second	A	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.8
	7.6 meters/second	A	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.4

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

TABLE A.13.10 SUGGESTED SEVERITY INDICES

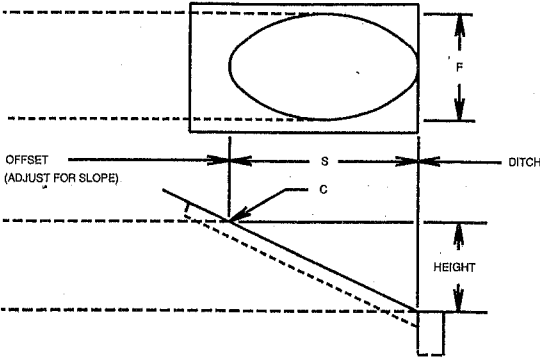
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Culverts

Object Type and Characteristics		Object Surface (*)	Severity Index								
Description	Height		Design Speed - km/h								
			50	60	70	80	90	100	110	120	
Culvert Ends: Culvert Axis Transverse to traffic Culvert End Type A (See sketch below.)		0.3 m	S	0.4	0.5	0.7	0.8	0.9	1.1	1.3	1.4
 OFFSET FOR F & C * (ADJUST FOR SLOPE) OFFSET FOR S * (ADJUST FOR SLOPE) HEIGHT DITCH * ANALYSIS SHOULD BE DONE IN TWO STEPS AND THE RESULTS COMBINED. (SEE TEXT)			C	1.4	1.7	2.0	2.3	2.7	3.1	3.4	3.7
			F	2.3	2.6	2.9	3.2	3.4	3.7	4.0	4.3
		0.5 m	S	0.6	0.7	0.9	1.0	1.2	1.4	1.6	1.7
			C	1.7	2.1	2.5	3.0	3.4	3.8	4.3	4.8
			F	2.1	2.4	2.8	3.2	3.4	3.6	4.0	4.4
		0.6 m	S	1.5	1.8	2.2	2.6	2.9	3.2	3.6	4.0
			C	1.9	2.5	3.2	3.8	4.3	4.8	5.3	5.8
			F	2.2	2.5	2.8	3.1	3.3	3.6	4.0	4.4
		1.0 m	S	2.1	2.5	2.9	3.4	3.8	4.2	4.7	5.2
			C	2.0	2.6	3.1	3.7	4.3	4.9	5.5	6.0
			F	2.2	2.5	2.8	3.1	3.5	3.8	4.1	4.4
		1.2 m	S	2.6	3.0	3.4	3.9	4.3	4.8	5.4	5.9
			C	1.6	2.2	2.9	3.5	4.2	4.8	5.4	6.1
			F	2.1	2.5	2.9	3.4	3.8	4.1	4.3	4.6
		1.8 m	S	2.9	3.3	3.7	4.2	4.7	5.2	5.8	6.5
			C	1.1	1.8	2.5	3.2	3.9	4.5	5.1	5.8
			F	1.6	2.1	2.6	3.1	3.4	3.8	4.2	4.6
		2.4 m	S	3.0	3.5	4.0	4.5	5.0	5.6	6.2	6.7
C	0.2		1.0	1.9	2.7	3.4	4.1	4.7	5.4		
F	1.5		1.9	2.3	2.8	3.3	3.7	4.1	4.5		

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

TABLE A.13.10 SUGGESTED SEVERITY INDICES
Culverts (continued)

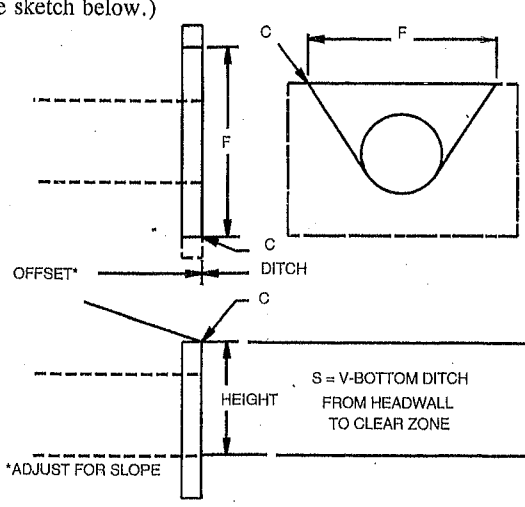
Object Type and Characteristics		Object Surface (*)	Severity Index							
			Design Speed - km/h							
Description	Height		50	60	70	80	90	100	110	120
Culvert Ends: Culvert Axis Transverse to traffic (cont.) Culvert End Type B (See sketch below.) 	0.3 m	S,C,& F	0.2	0.3	0.5	0.6	0.8	1.0	1.3	1.6
	0.5 m	S,C,& F	0.4	0.5	0.7	0.8	1.2	1.6	2.0	2.4
	0.6 m	S,C,& F	0.3	0.6	0.9	1.2	1.7	2.1	2.3	2.6
	1.0 m	S,C,& F	0.5	1.0	1.5	2.0	2.3	2.6	3.0	3.4
	1.2 m	S,C,& F	1.5	1.8	2.1	2.4	2.8	3.2	3.6	4.0
	1.8 m	S,C,& F	1.9	2.3	2.7	3.2	3.7	4.1	4.5	4.9
	2.4 m	S,C,& F	2.5	2.9	3.3	3.8	4.3	4.8	5.3	5.8

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

TABLE A.13.10 SUGGESTED SEVERITY INDICES

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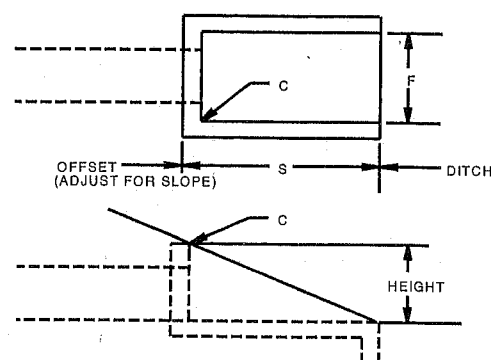
Culverts (continued)

Object Type and Characteristics		Object Surface (*)	Severity Index							
			Design Speed - km/h							
			50	60	70	80	90	100	110	120
Description	Height									
Culvert Ends: Culvert Axis Transverse to traffic (cont.) Culvert End Type C (See sketch below.) 	0.3 m	C,S	2.4	2.7	3.0	3.3	3.6	3.9	4.3	4.7
		F	2.1	2.4	2.7	3.0	3.3	3.6	3.8	4.1
	0.5 m	C,S	3.0	3.3	3.5	3.8	4.1	4.4	4.6	4.9
		F	2.6	2.9	3.1	3.4	3.6	3.9	4.1	4.4
	0.6 m	C,S	3.2	3.5	3.8	4.1	4.4	4.7	5.0	5.3
		F	2.8	3.1	3.3	3.6	3.8	4.1	4.3	4.6
	1.0 m	C,S	3.9	4.2	4.5	4.8	5.0	5.3	5.5	5.8
		F	3.0	3.3	3.6	3.9	4.1	4.4	4.6	4.9
	1.2 m	C,S	4.3	4.5	4.7	4.9	5.2	5.5	5.8	6.1
		F	3.5	3.7	3.9	4.1	4.3	4.6	4.8	5.1
	1.8 m	C,S	4.8	5.0	5.2	5.4	5.7	6.0	6.3	6.6
		F	4.0	4.2	4.4	4.6	4.8	5.1	5.3	5.6
	2.4 m	C,S	5.2	5.4	5.6	5.8	6.0	6.3	6.6	6.9
		F	4.6	4.7	4.9	5.0	5.2	5.5	5.7	6.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.10 SUGGESTED SEVERITY INDICES
Culverts (continued)

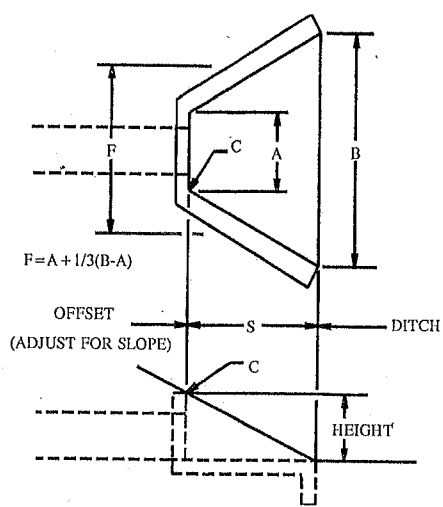
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Object Type and Characteristics		Object Surface (*)	Severity Index								
Description	Height		Design Speed - km/h								
			50	60	70	80	90	100	110	120	
Culvert Ends: Culvert Axis Transverse to traffic Culvert End Type D (See sketch below.)		0.3 m	S,C,& F	1.2	1.4	1.6	1.8	2.0	2.3	2.6	2.9
		0.5 m	S,C,& F	1.5	1.7	1.9	2.1	2.4	2.8	3.5	4.2
		0.6 m	S,C,& F	1.6	1.9	2.1	2.4	2.8	3.1	3.3	3.6
		1.0 m	S,C,& F	1.7	2.1	2.5	3.0	3.2	3.5	3.8	4.1
		1.2 m	S,C,& F	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5
		1.8 m	S,C,& F	3.0	3.3	3.6	3.9	4.3	4.6	4.9	5.2
		2.4 m	S,C,& F	3.3	3.6	4.0	4.4	4.8	5.1	5.5	5.9

* S = Approach Side, C = Corner, F = Traffic Face, A = S,C, and F

TABLE A.13.10 SUGGESTED SEVERITY INDICES
Culverts (continued)

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Object Type and Characteristics		Object Surface (*)	Severity Index								
Description	Height		Design Speed - km/h								
			50	60	70	80	90	100	110	120	
Culvert Ends: Culvert Axis Transverse to traffic Culvert End Type E (See sketch below.) 		0.3 m	S	1.8	2.1	2.3	2.6	2.9	3.1	3.3	3.4
			C	2.2	2.5	2.8	3.1	3.4	3.7	3.9	4.2
			F	1.8	2.0	2.2	2.4	2.7	3.0	3.2	3.3
		0.5 m	S	2.5	2.7	2.9	3.1	3.2	3.4	3.7	4.0
			C	3.0	3.2	3.4	3.6	3.8	4.1	4.3	4.6
			F	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.8
		0.6 m	S	2.6	2.8	3.0	3.2	3.4	3.7	4.0	4.3
			C	3.0	3.3	3.5	3.8	4.0	4.3	4.6	4.9
			F	2.3	2.6	2.8	3.1	3.3	3.5	3.8	4.1
		1.0 m	S	2.7	3.0	3.4	3.8	4.0	4.2	4.4	4.5
			C	3.3	3.6	4.0	4.4	4.6	4.8	5.0	5.3
			F	2.7	3.0	3.3	3.6	3.8	4.0	4.2	4.3
		1.2 m	S	3.3	3.5	3.7	3.9	4.1	4.3	4.6	4.9
			C	3.9	4.1	4.3	4.5	4.7	5.0	5.3	5.6
			F	3.1	3.3	3.5	3.7	3.9	4.1	4.4	4.7
		1.8 m	S	3.9	4.0	4.2	4.3	4.5	4.8	5.1	5.4
			C	4.4	4.6	4.8	5.0	5.2	5.5	5.8	6.1
			F	3.7	3.8	4.0	4.1	4.3	4.6	4.9	5.2
		2.4 m	S	4.3	4.4	4.6	4.7	4.9	5.1	5.2	5.2
			C	5.0	5.1	5.3	5.4	5.6	5.8	6.0	6.1
			F	4.1	4.2	4.4	4.5	4.7	4.9	5.0	5.0

* S = Approach Side, C = Corner, F = Traffic Face, A = S, C, and F

Note: The ditch beyond the culvert end is also an obstacle and should be accounted for in an economic analysis and in locating guardrail.