

PROJECT NO.	SHEET NO.
STPE-2532(1)	1
▲ CONTROL NO.	31535
▲ CONTROL NO.	
■ CONTROL NO.	

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**STATE OF NEBRASKA
DEPARTMENT OF ROADS
PLANS FOR CONSTRUCTION
PETERSBURG NORTHEAST
BOONE COUNTY**

THE 2007 EDITION OF THE NEBRASKA STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS APPLY TO THIS PROJECT.

THE WORK ON THIS PROJECT CONSISTS OF GROUPS	
9-BITUMINOUS	
▲ GROUPS 9 ARE INCLUDED	IN THE LETTING OF APRIL 18, 2013
▲ GROUPS ARE INCLUDED	IN THE LETTING OF
■ GROUPS ARE INCLUDED	IN THE LETTING OF

DESIGN DESIGNATION	
LOCAL ROADS AND STREETS	
RURAL	
TRAFFIC	
YEAR: 2013	2033
ADT: 185	235
DHV: 50	50
T= 10 %	D= %
DESIGN NO.	RC-2
N.F.C.	RURAL MAJOR COLLECTOR

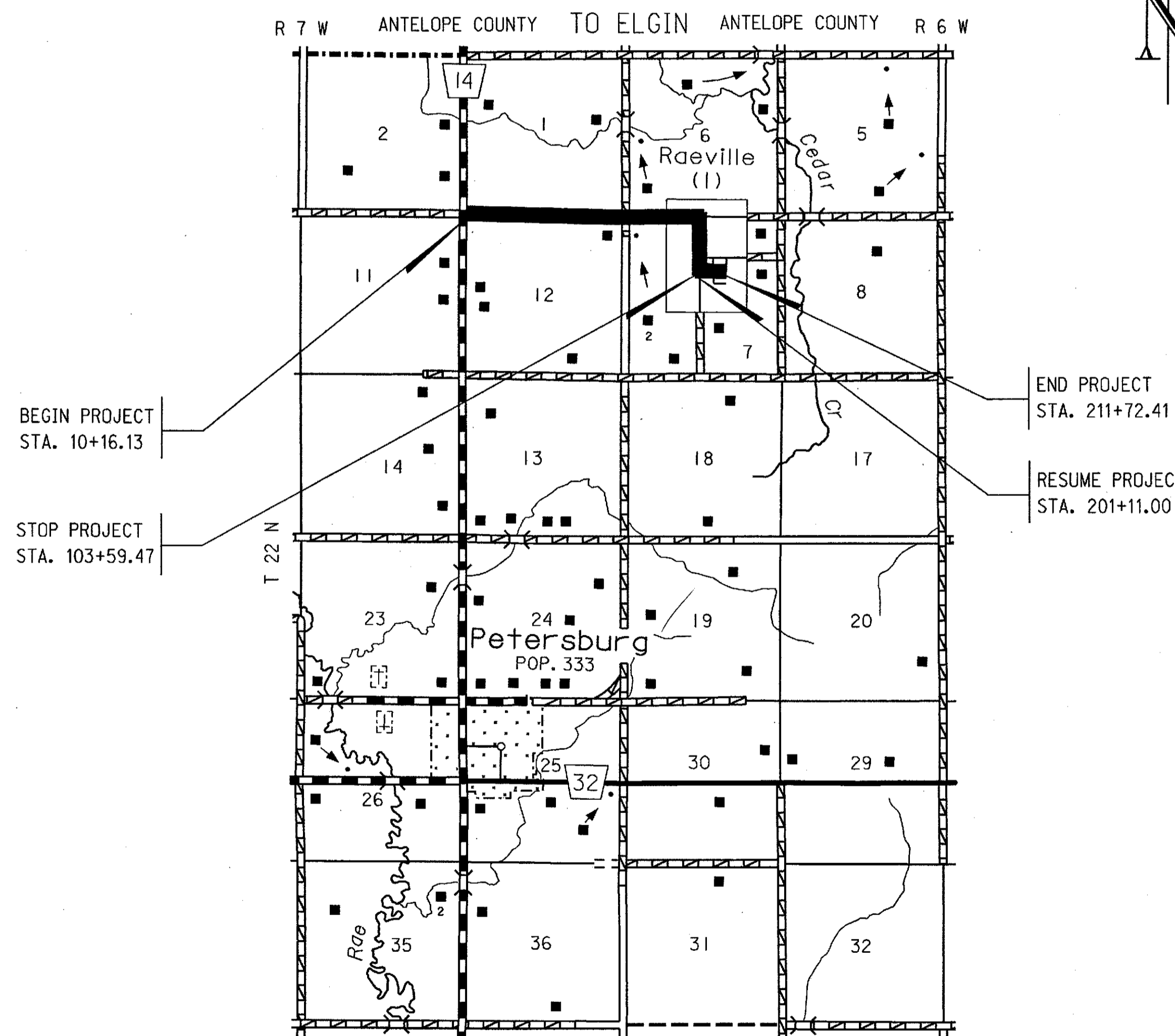
CONSTRUCTION DIVISION

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CONVENTIONAL SIGNS

FENCE R.O.W. OR WIRE	
GUARDRAIL	
TRAVELED WAY	
DIKE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
MAILBOX	
RAILROAD TRACKS	
MARSH	
TREE - CONIFEROUS	
TREE - DECIDUOUS	

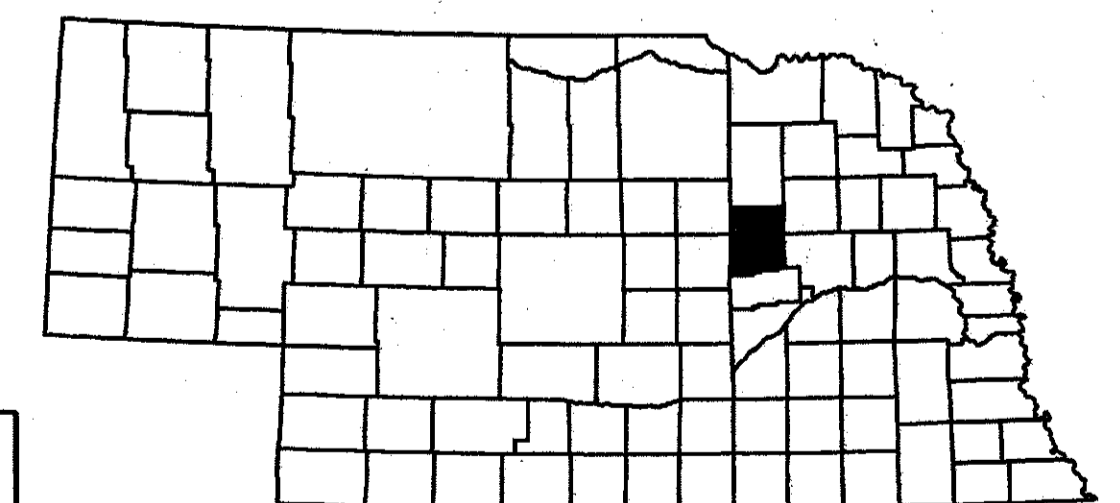
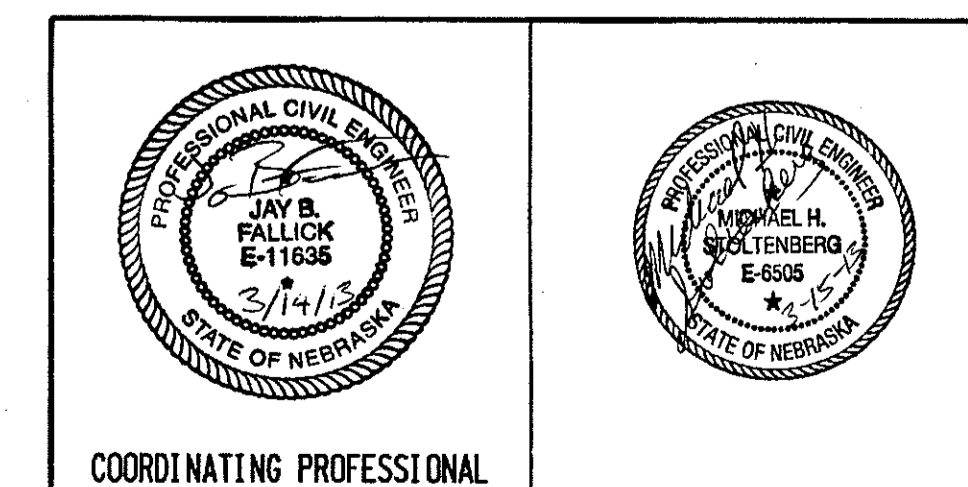
R.O.W. LEGEND

NEW CONTROLLED ACCESS	
PREVIOUS CONTROLLED ACCESS	
LIMITS OF CONSTRUCTION	
PREVIOUS R.O.W.	
NEW R.O.W.	
EXISTING PERMANENT EASEMENT	
TEMPORARY EASEMENT	
EXCESS TAKING	
PERMANENT EASEMENT	
EXISTING RAILROAD EASEMENT	
NEW RAILROAD PERMANENT EASEMENT	
NEW RAILROAD TEMPORARY EASEMENT	

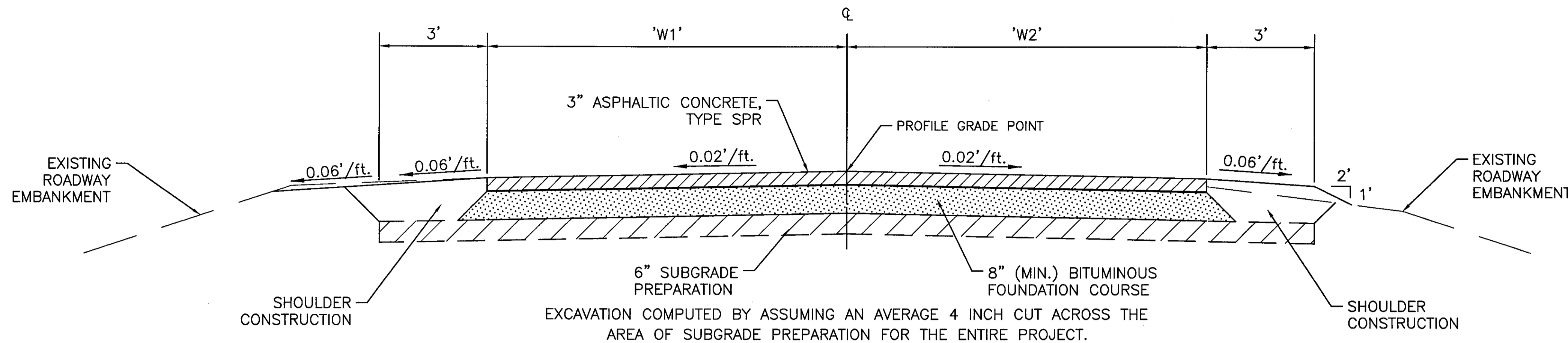
REFERENCE POST NO. TO REFERENCE POST NO.

EXCEPTIONS: FROM STA. TO STA.

TOTAL NET LENGTH OF PROJECT: 10,404.75 FEET 1.971 MILES



TYPICAL CROSS SECTION



EXCAVATION COMPUTED BY ASSUMING AN AVERAGE 4 INCH CUT ACROSS THE AREA OF SUBGRADE PREPARATION FOR THE ENTIRE PROJECT.

110th STREET/225th AVENUE/MAIN STREET

STATION	TO	STATION	'W1'	'W2'
10+16.13		98+37.84	10'-0"	10'-0"
98+37.84		99+29.12	10'-0" to 11'-0"	10'-0" to 11'-0"
99+29.12		103+59.47	11'-0"	11'-0"
201+11.00		209+13.15	11'-0"	11'-0"
209+13.15		211+30.39	11'-0" to 32'-0"*	11'-0" to 34'-10"*

*CURVILINEAR TRANSITION

AS INDICATED BY THE TYPICAL CROSS SECTION EARTHEN MATERIAL WILL BE REQUIRED TO CONSTRUCT THE SHOULDER. THE CONTRACTOR WILL BE REQUIRED TO FURNISH MATERIAL FROM SOURCES OTHER THAN R.O.W.

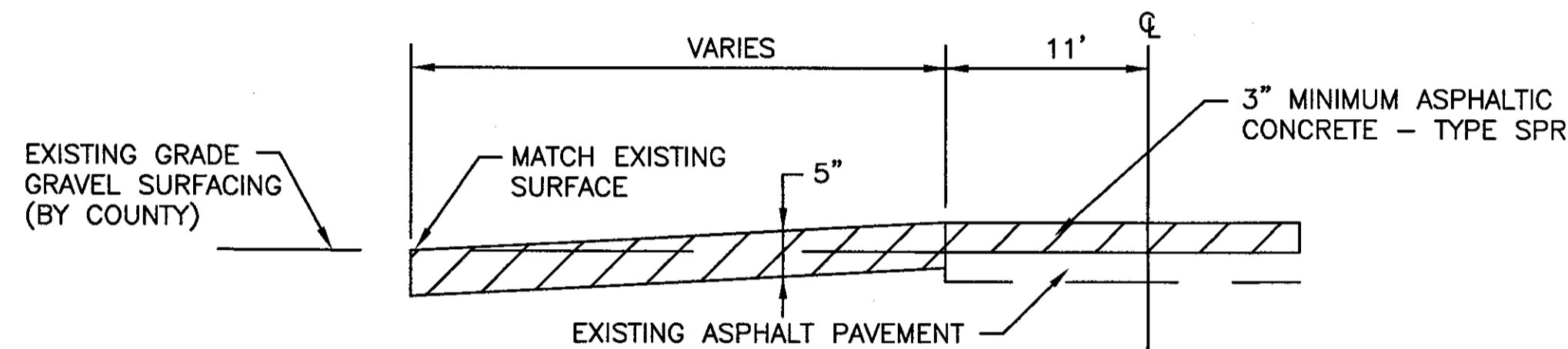
THE EXISTING BITUMINOUS PAVEMENT AND SUBGRADE WILL BE COLD MILLED AND USED AS A STRUCTURAL FOUNDATION COURSE FOR THE ASPHALTIC SURFACING. THE CONTRACTOR WILL COMPLETELY MIX THE EXISTING ASPHALT SURFACING AND UNDERLYING SOIL/GRAVEL BASE OF A THICKNESS SUFFICIENT TO PROVIDE A FINAL COMPACTED THICKNESS OF FOUNDATION MATERIAL OF 8", COMPACTED TO 98% STANDARD PROCTOR.

THE MILLINGS SHALL BE WINDROWED TO ONE SIDE, OR HAULED OFF-SITE, TO ALLOW REMOVAL OF EXCESS MATERIAL NECESSARY TO ACHIEVE THE DESIGN PROFILE. MATERIAL CANNOT BE STORED OUTSIDE OF THE EXISTING ROADWAY HINGE POINTS.

THERE WILL BE EXCESS MATERIAL FOR THIS PROJECT. THE CONTRACTOR WILL DISPOSE OF EXCESS MATERIAL AT AN APPROVED OFF SITE LOCATION.

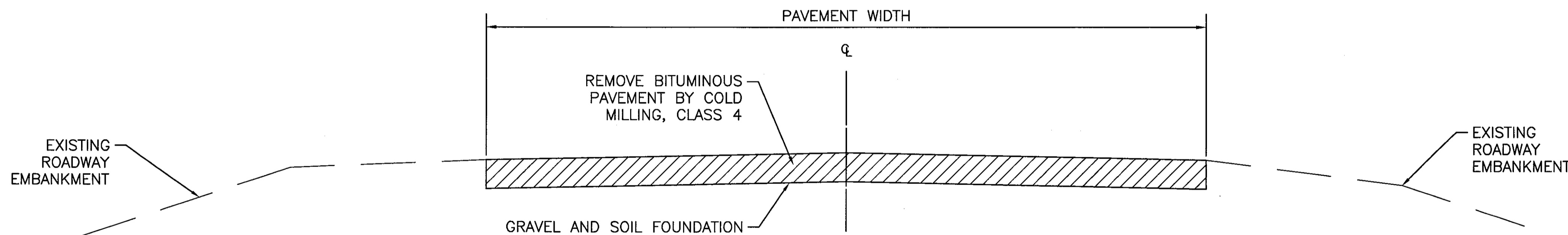
A REPORT OF THE GEOTECHNICAL INVESTIGATION FOR THE PROJECT IS AVAILABLE UPON REQUEST.

THE FEDERAL PARTICIPATION PORTION OF THE PROJECT BEGINS AT STA. 10+16.13 AND ENDS AT STA. 90+11.33.



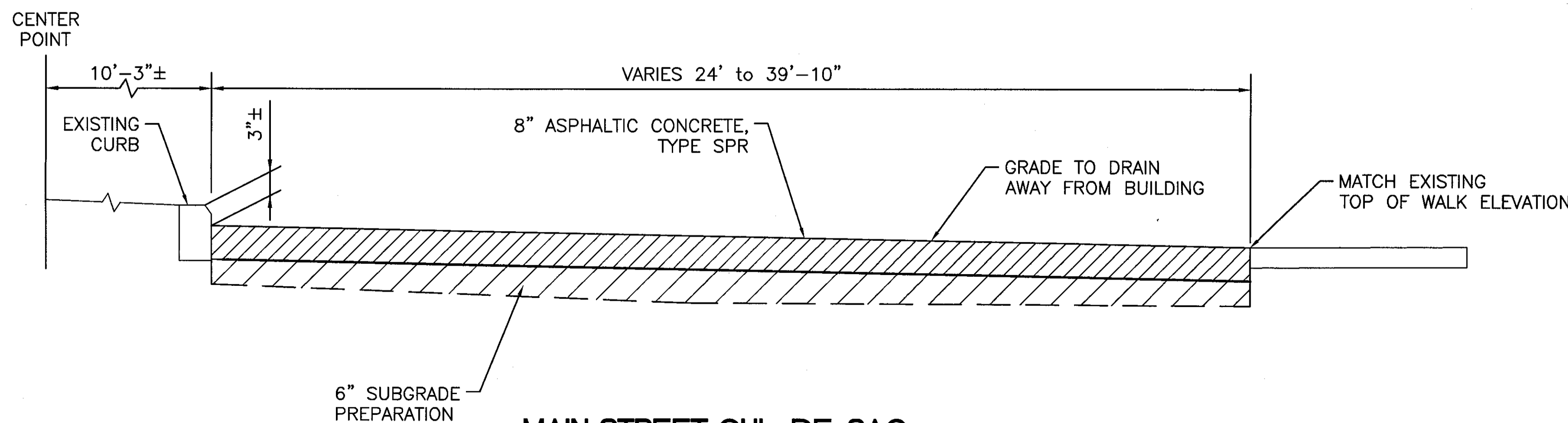
INTERSECTION AND DRIVE CONNECTION DETAIL

NO SCALE



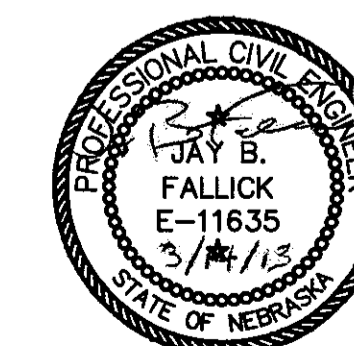
110th STREET/225th AVENUE/MAIN STREET

STATION 10+16.13 TO STATION 211+72.41



MAIN STREET CUL-DE-SAC

STATION 211+30.39 TO STATION 211+72.41



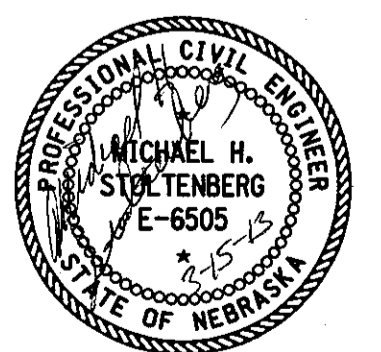
SUMMARY OF QUANTITIES

PROJECT NO.	SHEET NO.
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C.N. 31535

BITUMINOUS SURFACING ITEMS GROUP 9

ITEM	QUANTITY	UNITS
BARRICADE, TYPE III	1,980.000	B DAY
SIGN DAY	1,815.000	EACH
CONTRACTOR FURNISHED SIGN DAY	935.000	EACH
PERMANENT PAVEMENT MARKING, PAINT	18,182.000	LF
FLAGGING	20.000	DAY
MOBILIZATION	1.000	LS
EXCAVATION (ESTABLISHED QUANTITY)	2,663.000	CY
REMOVE WALK	30.600	SY
GRAVEL SURFACE COURSE	6.000	CY
MAILBOX POST	1.000	EACH
CONCRETE CLASS 47B-3000 SIDEWALKS	30.600	SY
DETECTABLE WARNING PANEL	64.000	SF
TYPE A SIGN	99.000	SF
STRUCTURAL STEEL FOR SIGN SUPPORTS	572.000	LB
HYDRATED LIME FOR ASPHALT MIXTURES	27.000	TON
BITUMINOUS FOUNDATION COURSE 8"	24,215.000	SY
ASPHALTIC CONCRETE, TYPE SPR	4,497.000	TON
PLACEMENT OF ASPHALTIC CONCRETE FOR DRIVEWAYS AND INTERSECTIONS	1,594.000	SY
PERFORMANCE GRADED BINDER (64-34)	152.898	TON
PREPARATION OF INTERSECTIONS AND DRIVEWAYS	1,594.000	SY
TACK COAT	5,006.000	GAL
RENTAL OF LOADER, FULLY OPERATED	10.000	HOUR
RENTAL OF MOTOR GRADER, FULLY OPERATED	10.000	HOUR
RENTAL OF DUMP TRUCK, FULLY OPERATED	10.000	HOUR
RENTAL OF SKID LOADER, FULLY OPERATED	10.000	HOUR
WATER	130.000	M GAL
EARTH SHOULDER CONSTRUCTION	208.095	STA
SUBGRADE PREPARATION	24,215.000	SY
COLD MILLING, CLASS 4	24,692.000	SY
RAP INCENTIVE PAYMENT	7,645.100	EACH
SEEDING, TYPE B	2.900	ACRE
COVER CROP SEEDING	2.900	ACRE
TEMPORARY SILT FENCE	500.000	LF
TEMPORARY MULCH	2.000	TON
MULCH	7.000	TON



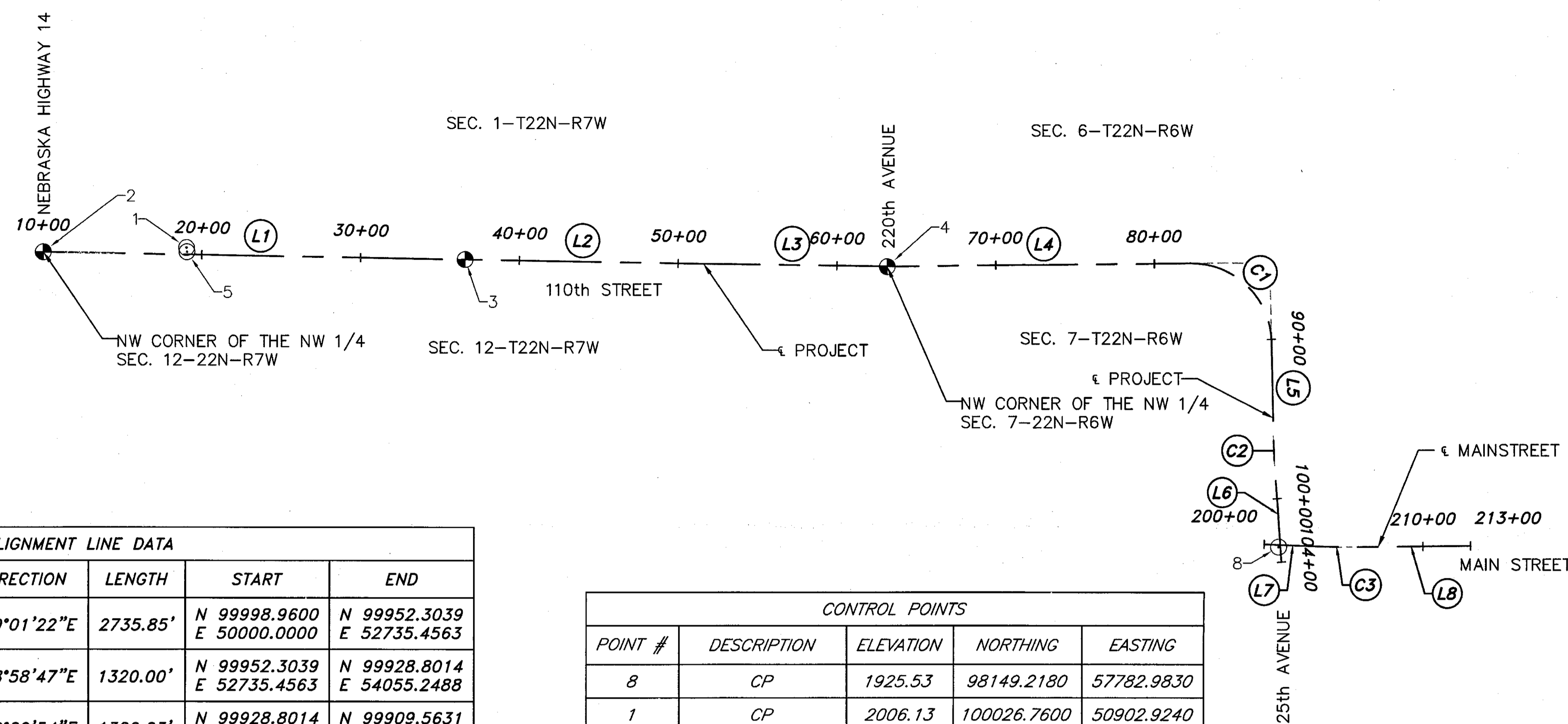
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ALIGNMENT LINE DATA					
LINE #	STATION TO STATION	DIRECTION	LENGTH	START	END
L1	STA. 10+00.00 TO STA. 37+35.85	S89°01'22"E	2735.85'	N 99998.9600 E 50000.0000	N 99952.3039 E 52735.4563
L2	STA. 37+35.85 TO STA. 50+55.86	S88°58'47"E	1320.00'	N 99952.3039 E 52735.4563	N 99928.8014 E 54055.2488
L3	STA. 50+55.86 TO STA. 63+75.88	S89°09'54"E	1320.03'	N 99928.8014 E 54055.2488	N 99909.5631 E 55375.1356
L4	STA. 63+75.88 TO STA. 82+30.66	N89°21'57"E	1854.77'	N 99909.5631 E 55375.1356	N 99930.0929 E 57229.7949
L5	STA. 90+11.33 TO STA. 96+05.70	S1°10'32"E	594.37'	N 99440.3821 E 57735.2239	N 98846.1359 E 57747.4187
L6	STA. 97+93.38 TO STA. 104+00.00	S4°14'53"E	606.62'	N 98658.6856 E 57756.2975	N 98053.7355 E 57801.2322

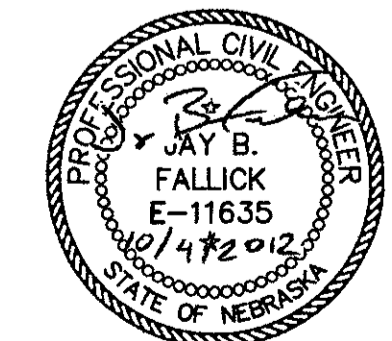
CONTROL POINTS				
POINT #	DESCRIPTION	ELEVATION	NORTHING	EASTING
8	CP	1925.53	98149.2180	57782.9830
1	CP	2006.13	100026.7600	50902.9240
2	SECTION CORNER	0.00	100000.0000	50000.0000
3	SECTION CORNER	1954.67	99954.0190	52657.4740
4	SECTION CORNER	1935.54	99908.1170	55314.8470
5	CP	2005.09	100000.6880	50905.9470

ALIGNMENT CURVE TABLE										
CURVE #	CHORD DIRECTION	START	END	STATION TO STATION	POINT OF INFLECTION	Δ ° ' "	T	LENGTH	RADIUS	D ° ' "
C1	S45°54'18"E	N 99930.0929 E 57229.7949	N 99440.3821 E 57735.2239	P.C. STA. = 82+30.66 TO P.T. STA. = 90+11.33	87+25.95	89° 27' 30.85"	495.30'	780.67'	500.00'	11° 28' 42.03"
C2	S2°42'43"E	N 98846.1359 E 57747.4187	N 98658.6856 E 57756.2975	P.C. STA. = 96+05.70 TO P.T. STA. = 97+93.38	96+99.56	3° 04' 20.68"	93.86'	187.68'	3500.00'	1° 38' 13.48"

ALIGNMENT LINE DATA					
LINE #	STATION TO STATION	DIRECTION	LENGTH	START	END
L7	STA. 200+00.00 TO STA. 203+58.09	S87°47'51"E	358.09'	N 98165.9862 E 57693.2537	N 98152.2241 E 58051.0748
L8	STA. 205+50.84 TO STA. 213+00.00	N89°26'30"E	749.16'	N 98149.4589 E 58243.7870	N 98156.7599 E 58992.9151

ALIGNMENT CURVE TABLE										
CURVE #	CHORD DIRECTION	START	END	STATION TO STATION	POINT OF INFLECTION	Δ ° ' "	T	LENGTH	RADIUS	D ° ' "
C3	S89°10'41"E	N 98152.2241 E 58051.0748	N 98149.4589 E 58243.7870	P.C. STA. = 203+58.09 TO P.T. STA. = 205+50.84	204+54.48	2° 45' 39.42"	96.39'	192.75'	4000.00'	1° 25' 56.75"

DATUM INFORMATION
 HORIZONTAL = ASSUMED
 VERTICAL =
 DAF =



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GENERAL INFORMATION

UPON COMPLETION OF THE GRADING OPERATIONS, PERMANENT SEEDING OF THE DISTURBED AREAS CREATED BY THE SHOULDERING OPERATIONS WILL BE PERFORMED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR WILL NOT BE REQUIRED TO FURNISH BORROW ON THIS PROJECT.

ALL SIGNING AND PAVEMENT MARKING WILL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

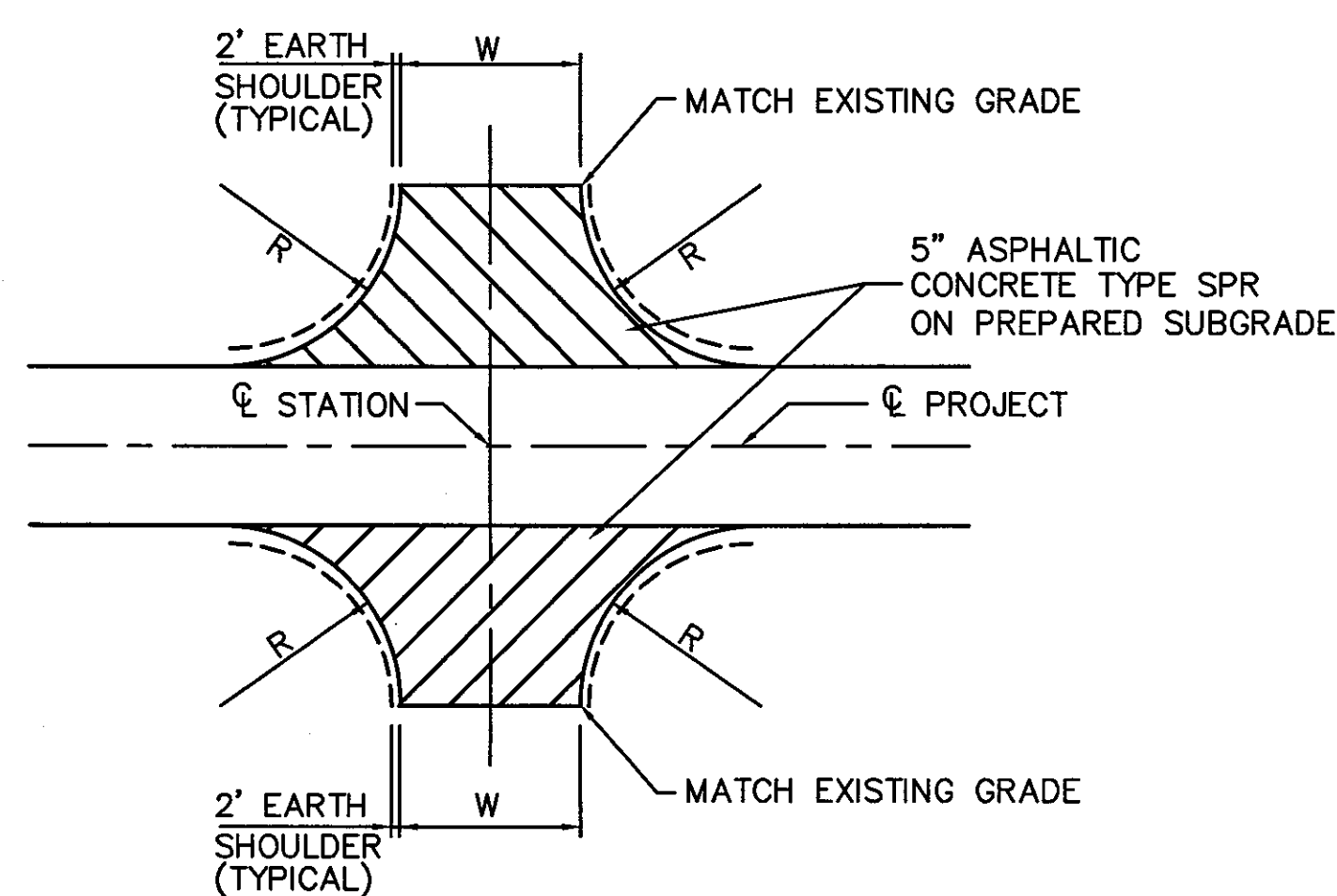
THE LOCATIONS OF ALL AERIAL AND UNDERGROUND UTILITY FACILITIES MAY NOT BE INDICATED IN THESE PLANS. UNDERGROUND UTILITIES, WHETHER INDICATED OR NOT WILL BE LOCATED AND FLAGGED BY THE UTILITIES AT THE REQUEST OF THE CONTRACTOR.

NO EXCAVATION WILL BE PERMITTED IN THE AREA OF UNDERGROUND UTILITY FACILITIES UNTIL ALL SUCH FACILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. THE EXCAVATION MUST BE ACCOMPLISHED WITH EXTREME CARE IN ORDER TO AVOID ANY POSSIBILITY OF DAMAGE TO THE UTILITY FACILITY.

THE CONTRACTOR MAY CLOSE THE ROAD TO ALL BUT LOCAL TRAFFIC SUBJECT TO THE CONDITIONS PRESCRIBED IN THE PHASING PLANS.

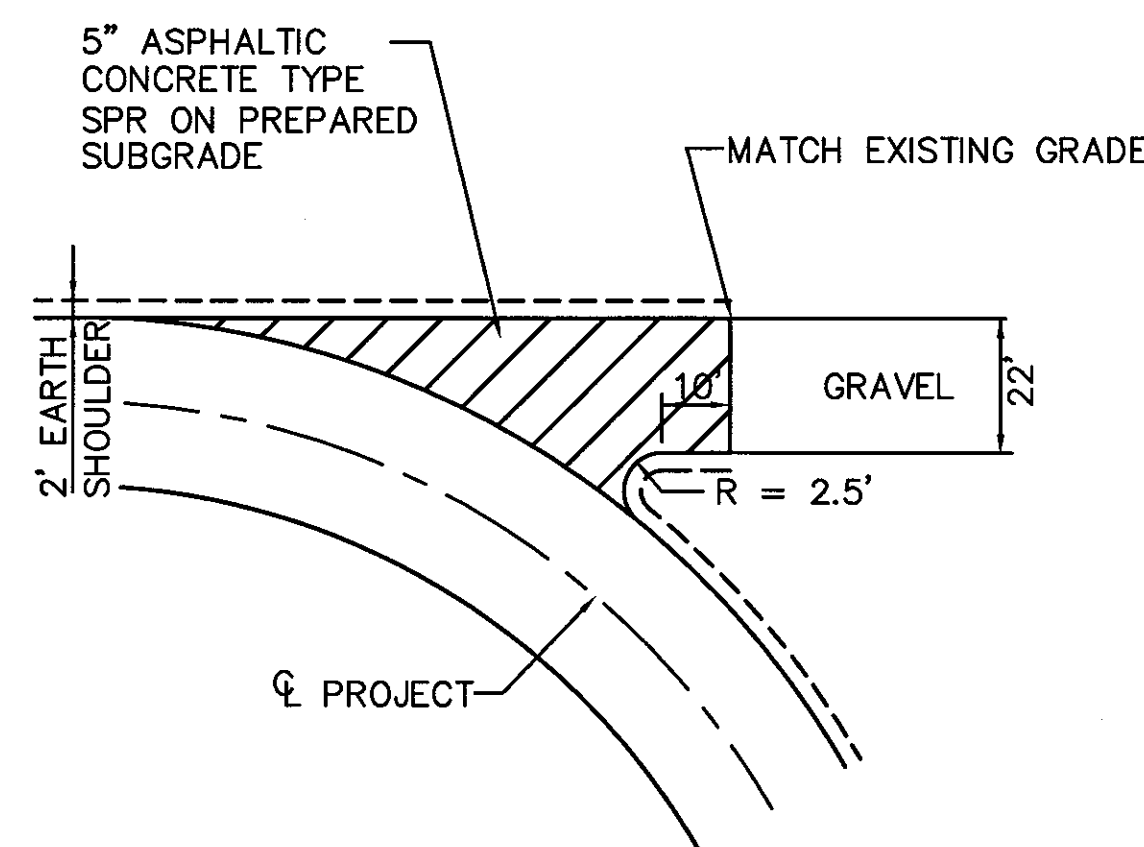
THE COUNTY SHALL PROVIDE FOR ROUTING THROUGH TRAFFIC AROUND THE PROJECT IF DEEMED NECESSARY.

TYPES OF ASPHALTIC OIL TO BE USED
TACK COAT SS-1, SS-1H, CSS-1 OR CSS-1H
PERFORMANCE GRADED BINDER
AASHTO DESIGNATION M320



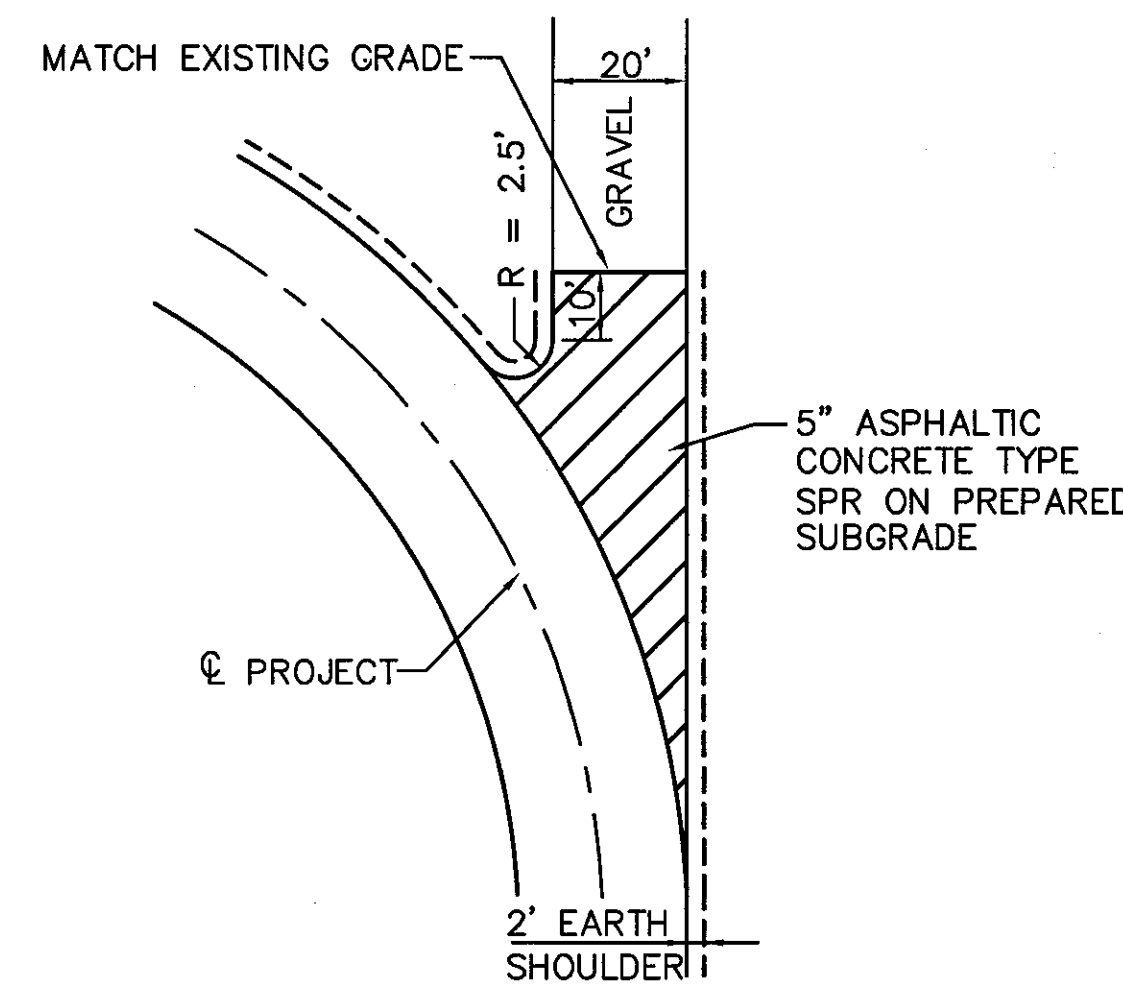
STA. 63+16
STA. 205+11
STA. 209+50

4-WAY INTERSECTION DETAIL



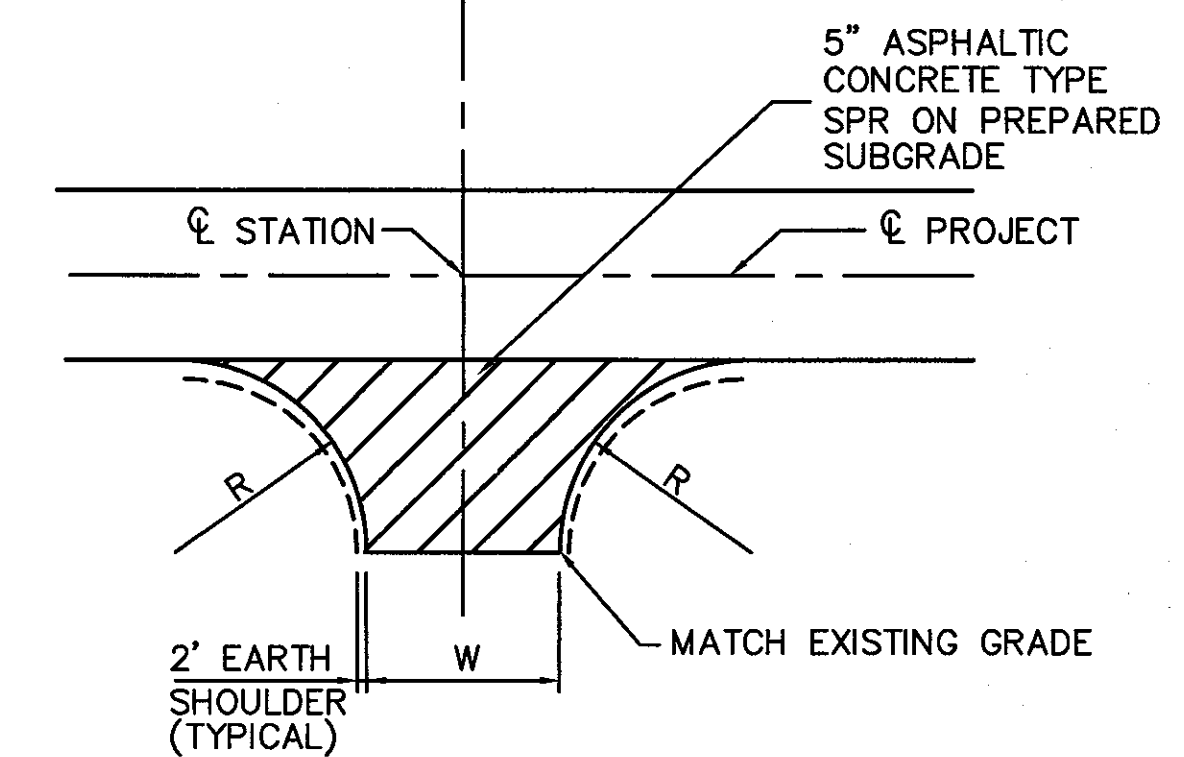
STA. 83+30 LT.

3-WAY INTERSECTION DETAIL



STA. 88+12 LT.

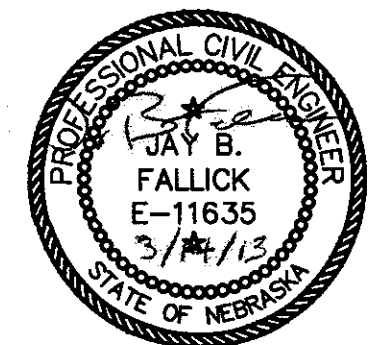
3-WAY INTERSECTION DETAIL



STA. 98+76 LT.

3-WAY INTERSECTION DETAIL

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GENERAL INFORMATION

KIRKHAM MICHAEL

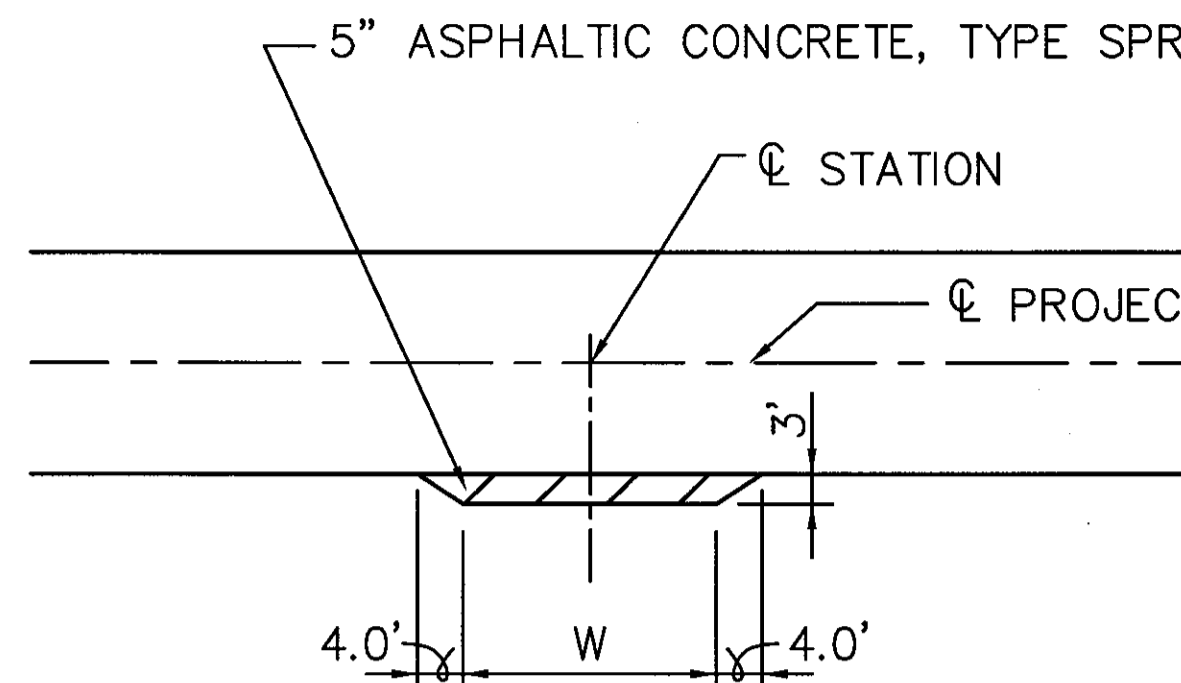
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COMPACTION REQUIREMENTS

CLASS III (SEE SPECIFICATIONS)

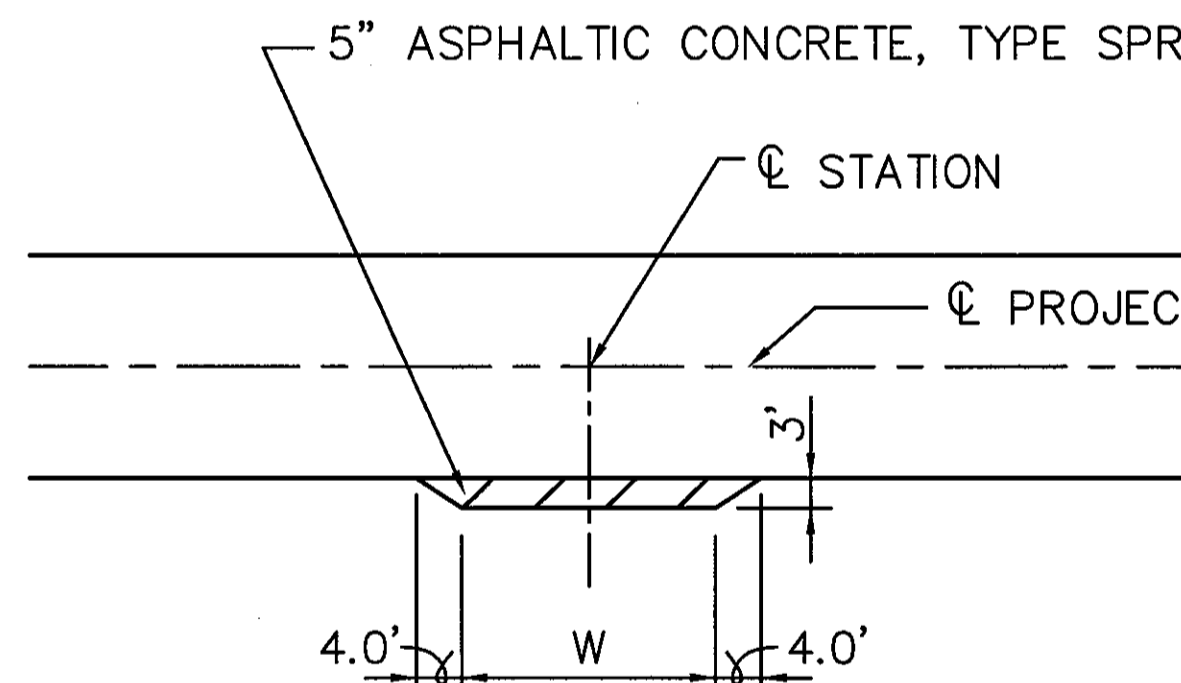
	SOIL TYPE	DEPTH BELOW FINISH SUBGRADE	PERCENT DENSITY	MOISTURE REQUIREMENTS MINIMUM	MOISTURE REQUIREMENTS MAXIMUM
Embankment/Roadway Grading, including driveways, to receive concrete pavement	Silt-Clay	Upper 3'	98 Min.	Opt.-3%	Opt.+2%
	Silt-Clay	At depths greater than 3'	95 Min.	Opt.-3%	Opt.+2%
Embankment/Roadway Grading, including driveways, to receive flexible pavement	Silt-Clay	Upper 3'	100 Min.	Opt.-2%	Opt.+1%
	Silt-Clay	At depths greater than 3'	95 Min.	Opt.-3%	Opt.+2%
Embankment/Roadway Grading not to be surfaced	Granular	All Depths	100 Min.	**	**
	Granular	All Depths	100 Min.	**	**
Subgrade Preparation, Shoulder Subgrade Preparation (Concrete Pavement)	Silt-Clay	At upper 6 inches of subgrade soil	98 Min.	Opt.-3%	Opt.+2%
	Granular	At upper 6 inches of subgrade soil	100 Min.	**	**
Subgrade Preparation, Shoulder Subgrade Preparation (Flexible Pavement)	Silt-Clay	At upper 6 inches of subgrade soil	100 Min.	Opt.-2%	Opt.+1%
	Granular	At upper 6 inches of subgrade soil	100 Min.	**	**
Embankment of driveways which are not to be surfaced	All	All Depths	Class I	(See Specifications)	
Bituminous Pavement patching	All	Underlying Material	100 Min.	(See Specifications)	
Foundation Course/ Subgrade Stabilization	--	--	100 Min.	(See Specifications)	
Granular Structural Fill (MSE Walls, Granular Fill for bridges, Culverts, etc)	Granular	All depths	100 Min.	Opt.-3%	Opt.+3%

** Moisture as necessary to obtain density.
 (A moisture target value at maximum density shall be established in the field by the Contractor during the compaction process. The acceptable moisture content shall be $\pm 2\%$ of the target value.)



FIELD DRIVE LOCATIONS

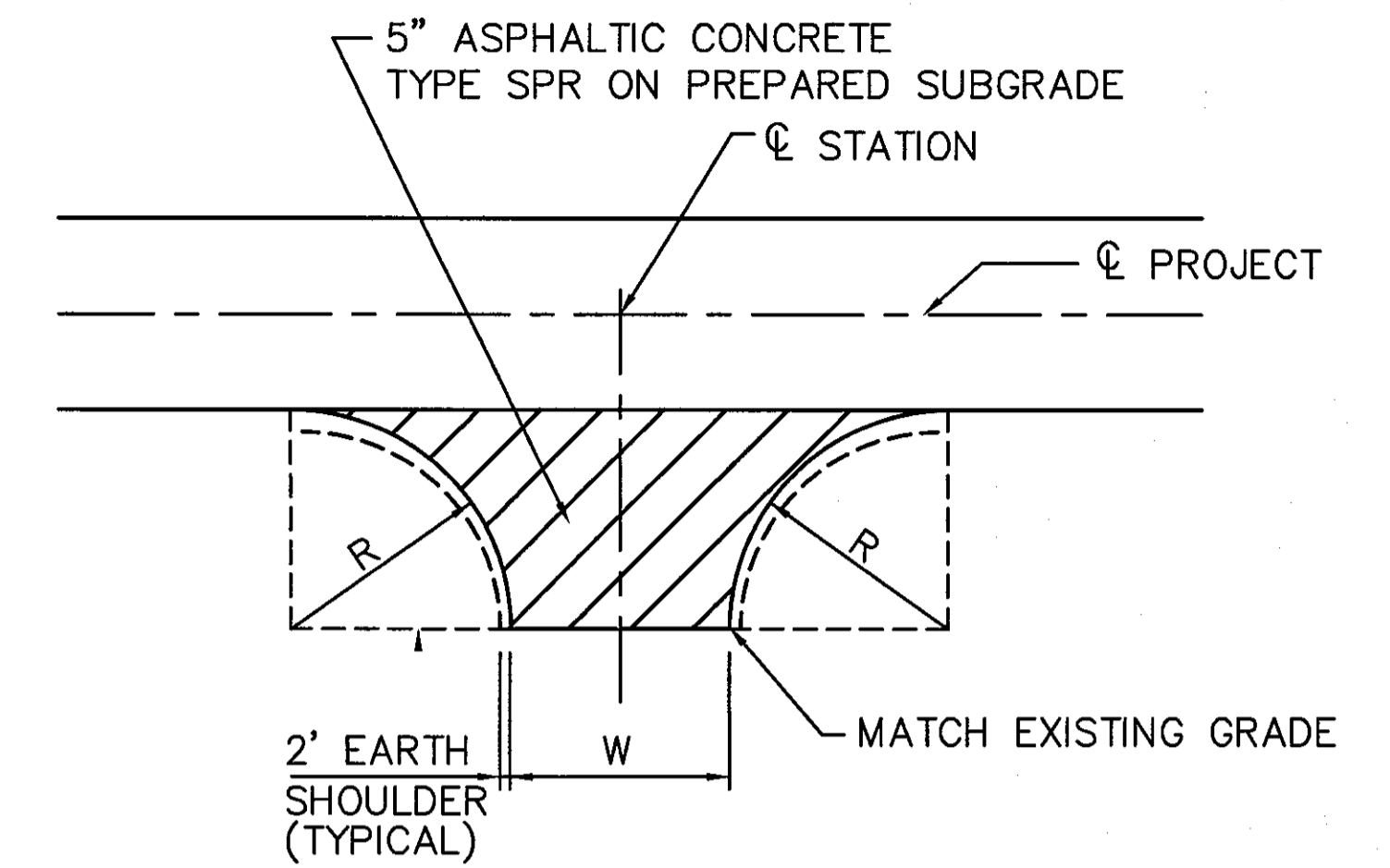
STATION	SIDE	"W" (FT.)	AREA (SQ.YD.)
18+89	LT	21.00	8.33
23+42	LT	28.00	10.67
31+61	LT	26.00	10.00
42+20	RT	17.50	7.17
56+11	LT	17.50	7.17
98+14	RT	19.00	7.76



DRIVE LOCATIONS

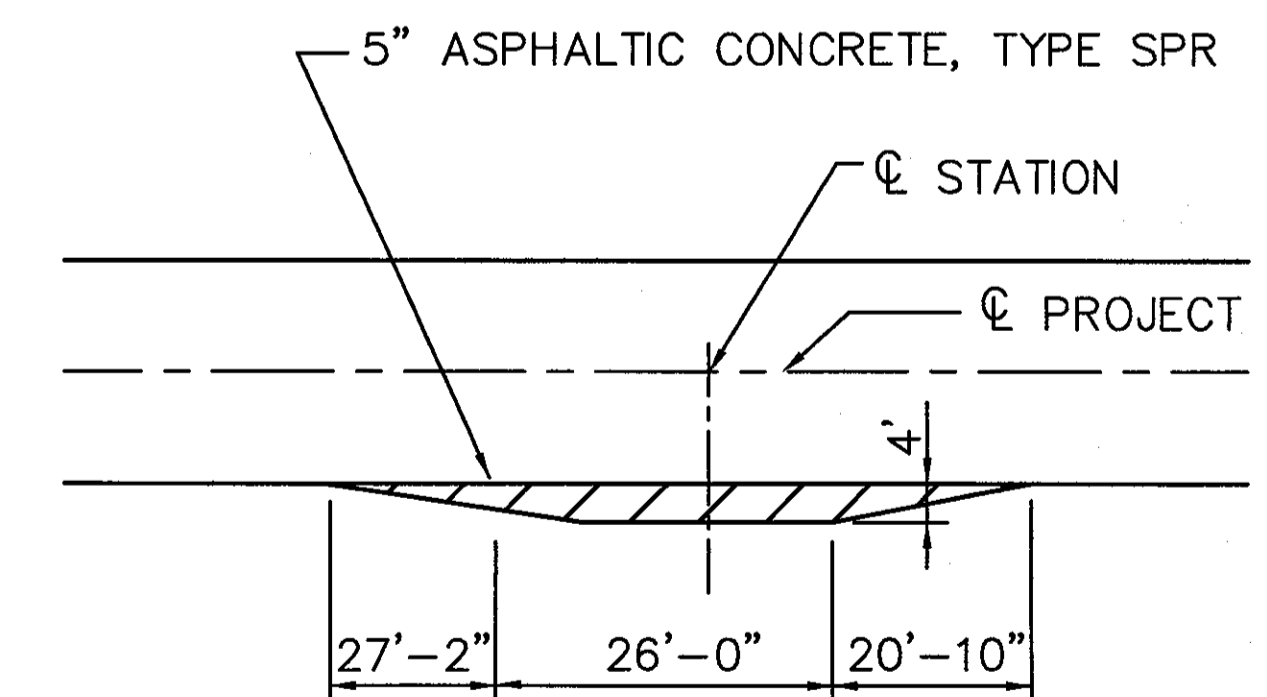
RESIDENTIAL DRIVE LOCATIONS

STATION	SIDE	"W" (FT.)	AREA (SQ.YD.)
101+45	LT	33.00	12.33
202+47	LT	26.00	10.00
203+48	RT	139.00	17.70
204+21	LT	23.00	9.00
206+92	LT	12.00	5.33
207+00	RT	13.00	5.67
207+87	LT	14.00	6.00
208+08	RT	64.00	22.67
208+66	LT	13.00	5.67
210+08	LT	16.00	6.67



INTERSECTION LOCATIONS

STATION	SIDE	"R" (FT.)	"W" (FT.)	Δ (DEGREES)	AREA (SQ.YD.)
63+19	LT	50	26.00	90°	264.5
63+19	RT	50	22.00	90°	240.80
83+30	LT	-	22.00	-	193.72
89+12	LT	-	20.00	-	140.41
98+76	LT	35	24.00	90°	153.09
205+11	LT	35/25	18.00	90°	115.38
205+11	RT	25	44.00	90°	150.14
209+50	LT	25	21.00	90°	93.14
209+50	RT	35/15	20.00	90°	69.04



MAILBOX TURNOUT LOCATIONS

STATION	AREA (SQ. YD.)	NO. OF POSTS
205+92, RT	22.20	1

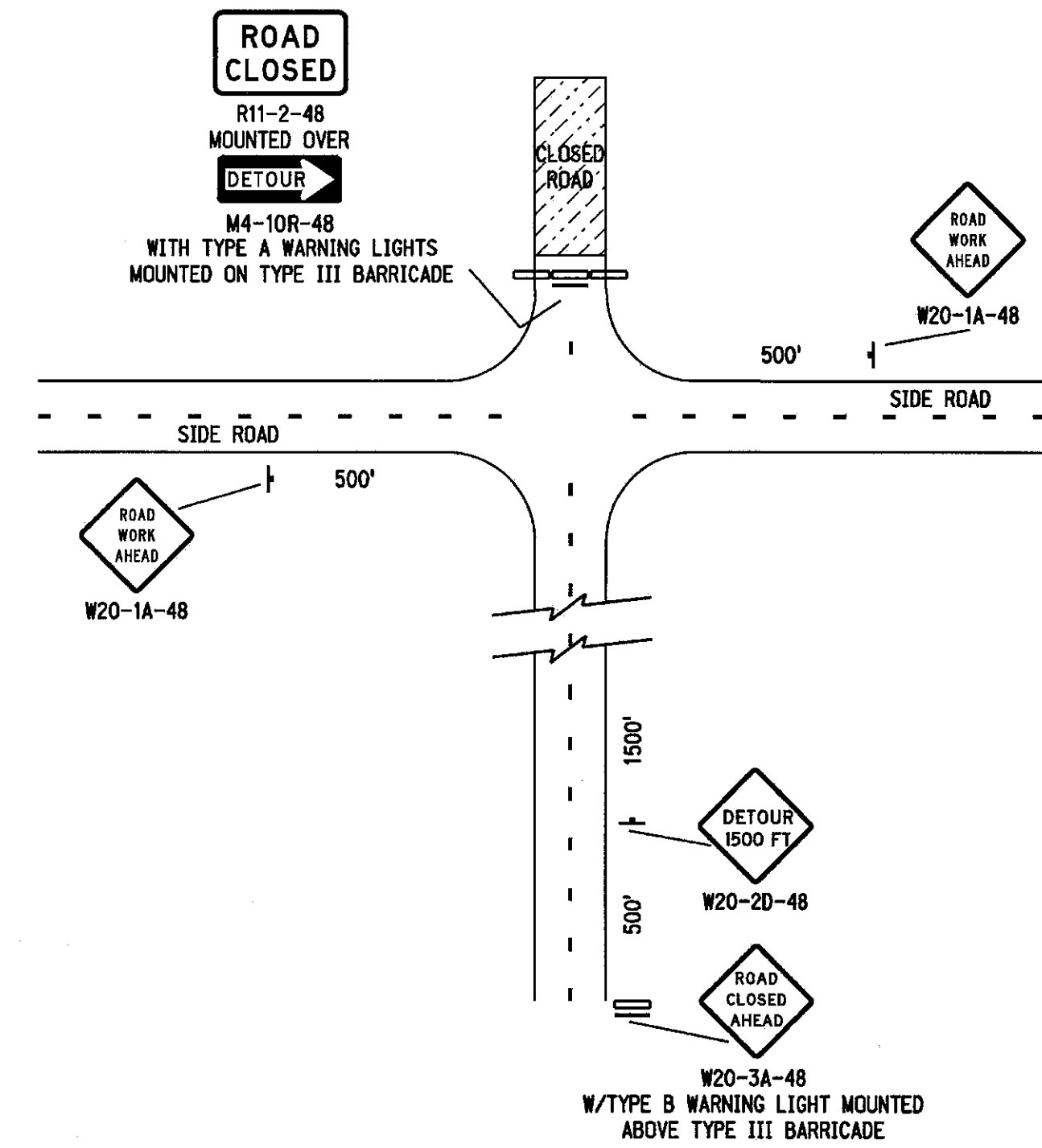
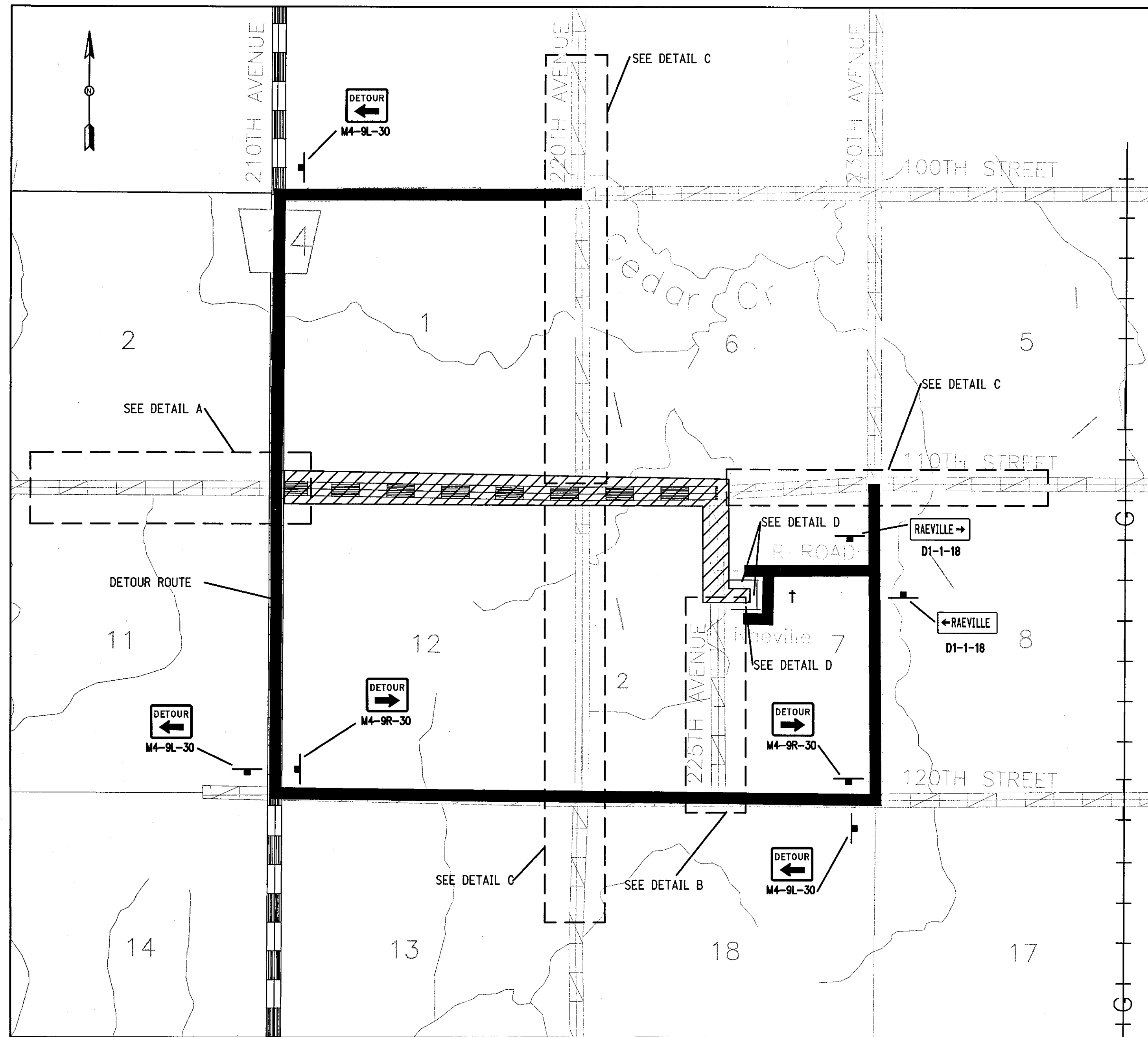
NOTE: MAILBOX TURNOUTS: ADDITIONAL EMBANKMENT ALONG WITH TOOLS AND EQUIPMENT NECESSARY FOR PLACEMENT IS SUBSIDIARY TO ITEMS FOR WHICH DIRECT PAYMENT IS MADE



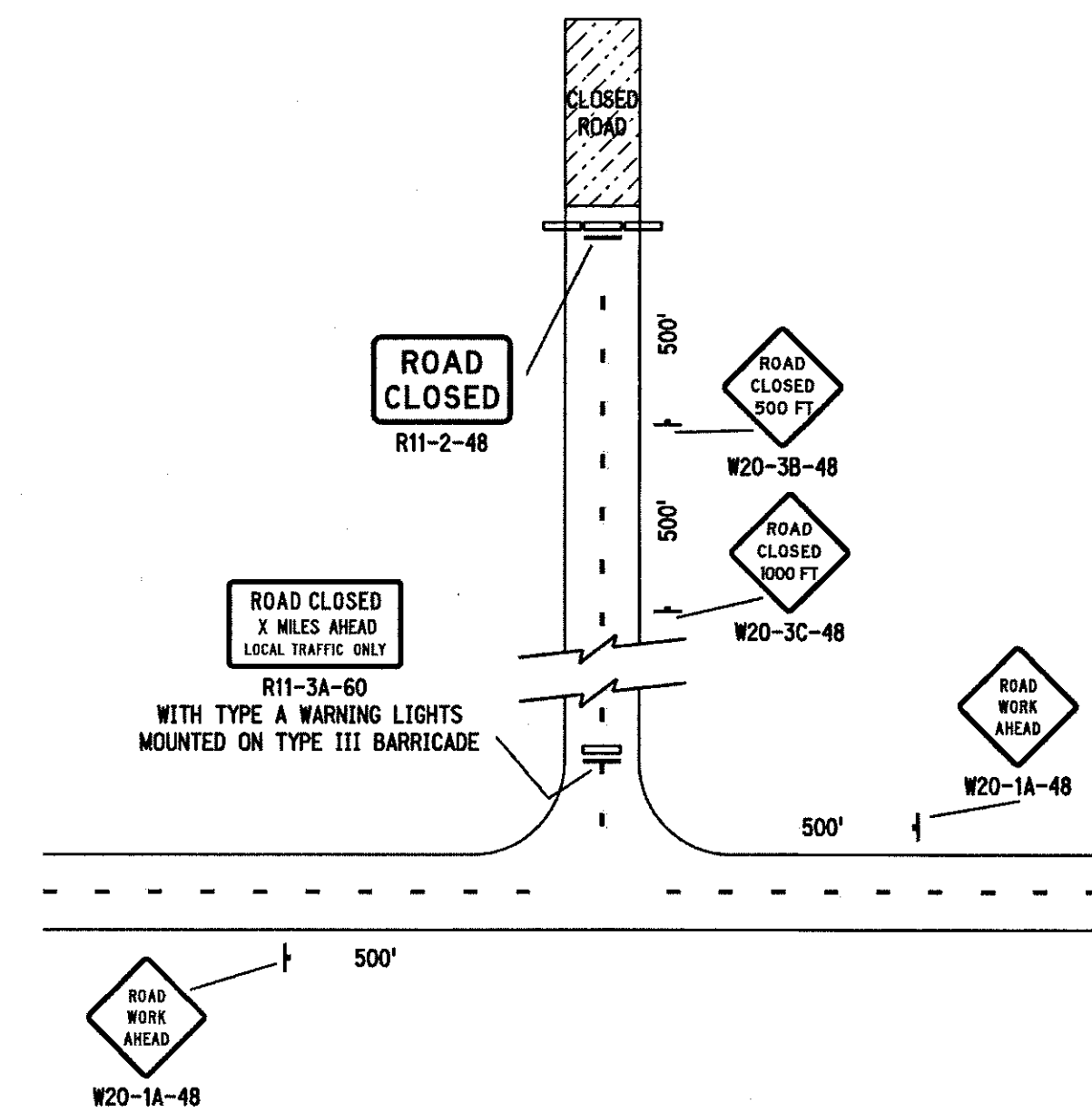
PHASE I CONSTRUCTION AND DETOUR

KIRKHAM MICHAEL

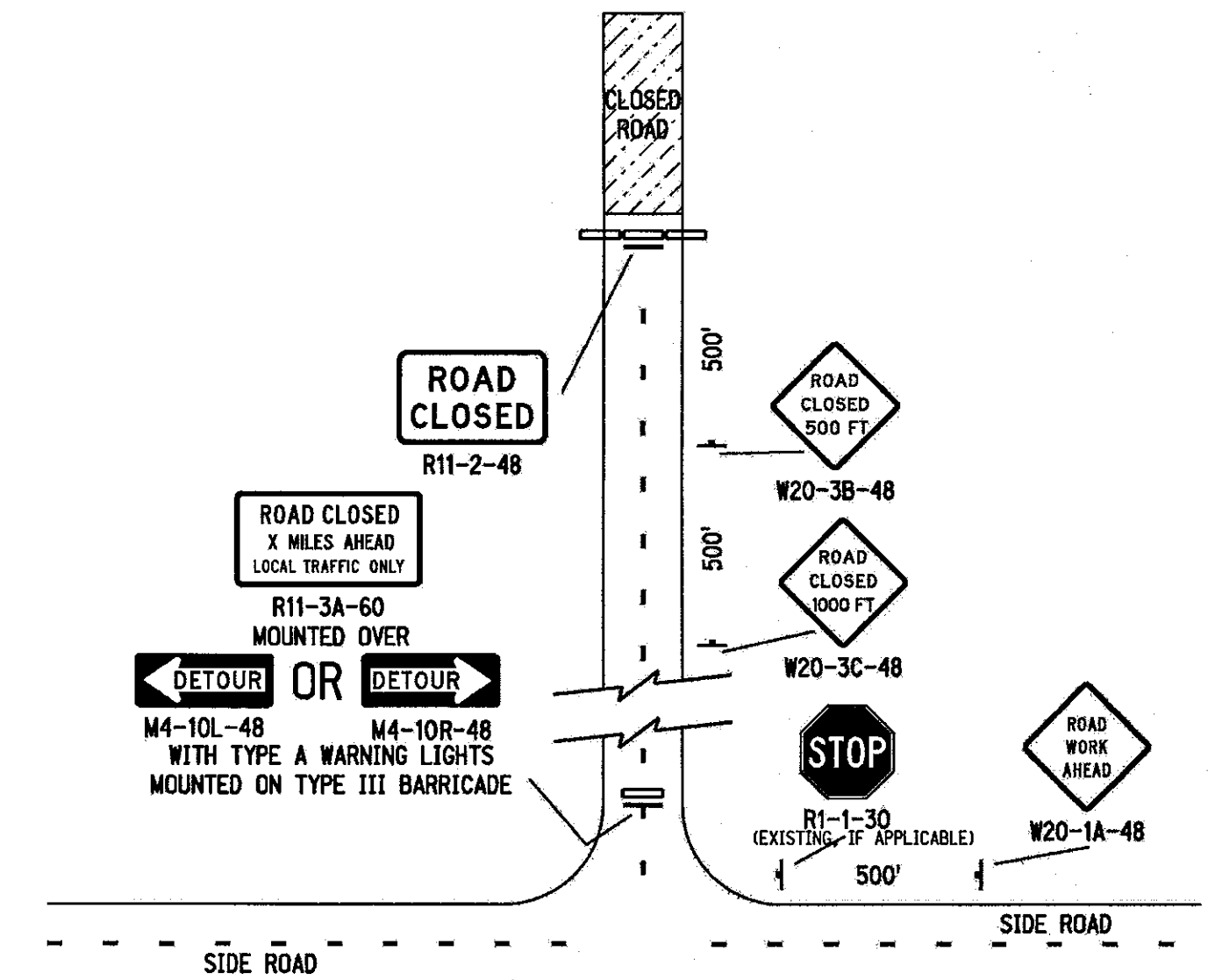
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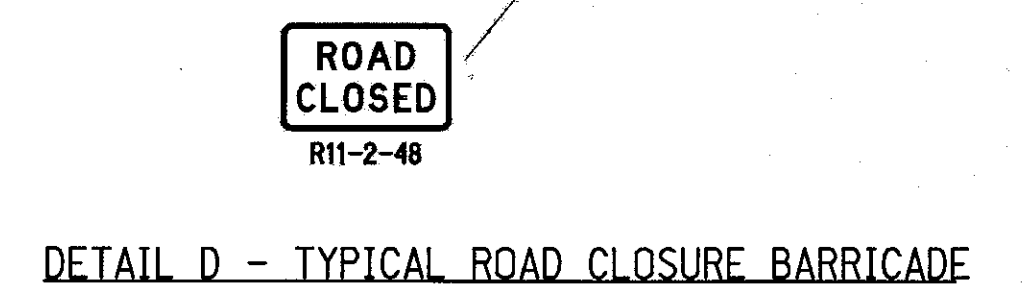
DETAIL A - TYPICAL ROAD CLOSURE AT INTERSECTION



DETAIL B - TYPICAL ROAD CLOSURE BEYOND 'T' INTERSECTION

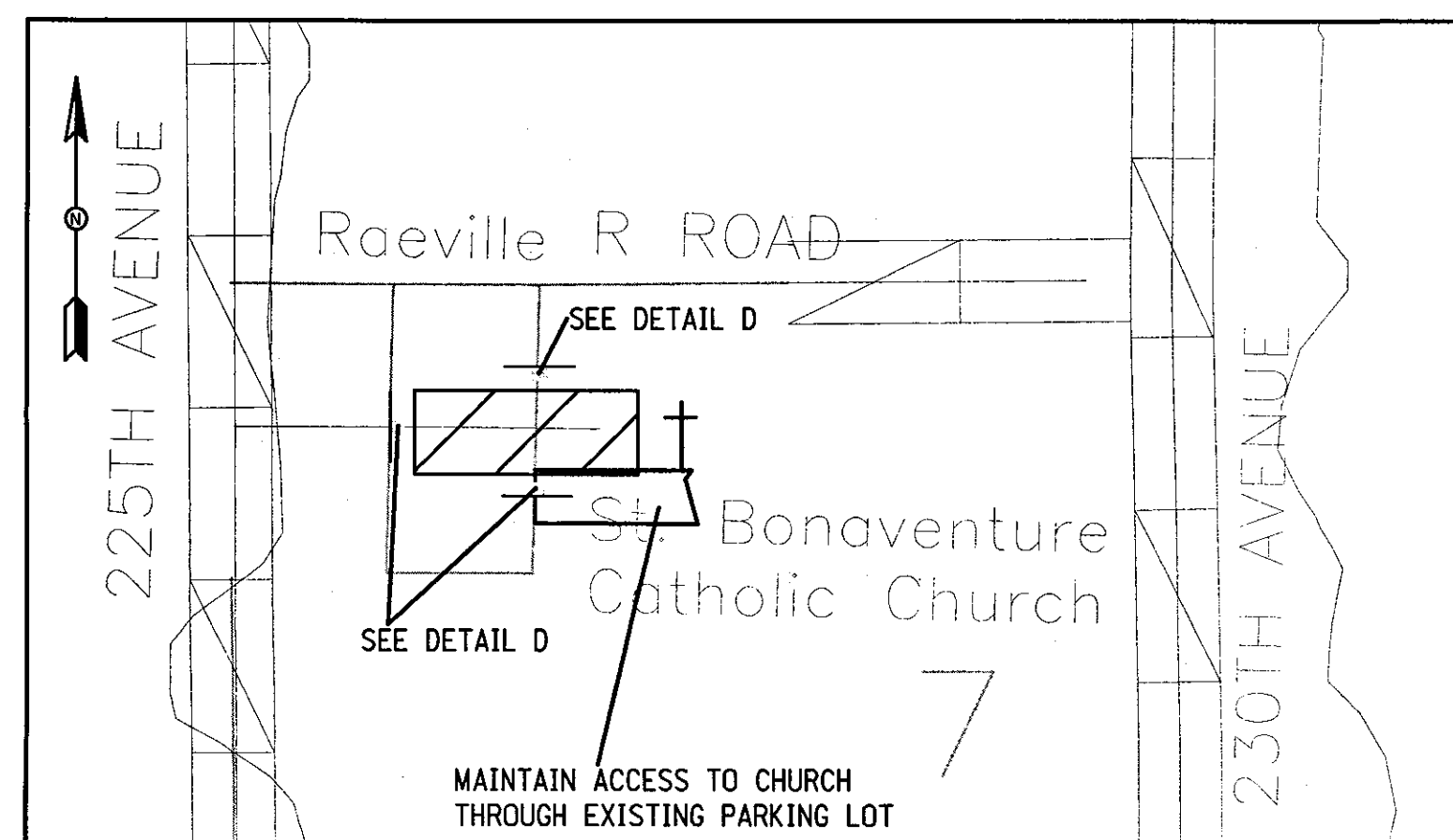


DETAIL C - TYPICAL ROAD CLOSURE BEYOND INTERSECTION



DETAIL D - TYPICAL ROAD CLOSURE BARRICADE

PHASE II CONSTRUCTION AND DETOUR



- LEGEND**
- FLASHING ARROW PANEL
 - TYPE III BARRICADE
 - REFLECTORIZED PLASTIC DRUM
 - REFLECTORIZED PLASTIC DRUM OR 42" REFLECTORIZED CONE
 - BIDIRECTIONAL RAISED PAVEMENT MARKER
 - MONDIRECTIONAL RAISED PAVEMENT MARKER
 - SIGN**
 - CHANGEABLE MESSAGE SIGN
 - SPEED DETECTOR
 - TUBULAR POST
 - FLAGGER
 - TYPE I DELINEATOR
 - TYPE II DELINEATOR
 - TYPE III DELINEATOR
 - INERTIAL BARRIER
 - CONE

GENERAL NOTES

1. ALL BARRICADE AND SIGN LOCATIONS ON THIS PLAN ARE APPROXIMATE, AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS. THE SIGNS SHALL BE INSTALLED SO AS NOT TO OBSCURE THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
2. SIGNS SHOWN ARE USUALLY FOR ONE DIRECTION OF TRAVEL ONLY.
3. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL MAINTAIN ALL TRAFFIC CONTROL DEVICES IN A CLEAN CONDITION AND REMOVE TRAFFIC CONTROL DEVICES WHEN NO LONGER NEEDED.
4. WHEN MESSAGE IS NOT PERTINENT, SIGNS SHALL BE TAKEN DOWN, COVERED OR FOLDED. TAPE IS NOT PERMITTED ON THE FACE OF THE SIGN.
5. VEHICLES OR EQUIPMENT SHALL NOT BE PARKED SO AS TO OBSCURE OR DISTRACT FROM TRAFFIC CONTROL DEVICES.
6. FLAGS MAY BE USED TO CALL ATTENTION TO WARNING SIGNS.
7. BARRICADE AND SIGN MAY BE PLACED ALONG EDGE OF ROAD IF NEEDED FOR LOCAL TRAFFIC.
8. REFER TO STANDARD PLAN NO. 920-R5 FOR GENERAL INFORMATION NOT SHOWN.



CONSTRUCTION PHASING & DETOUR

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10

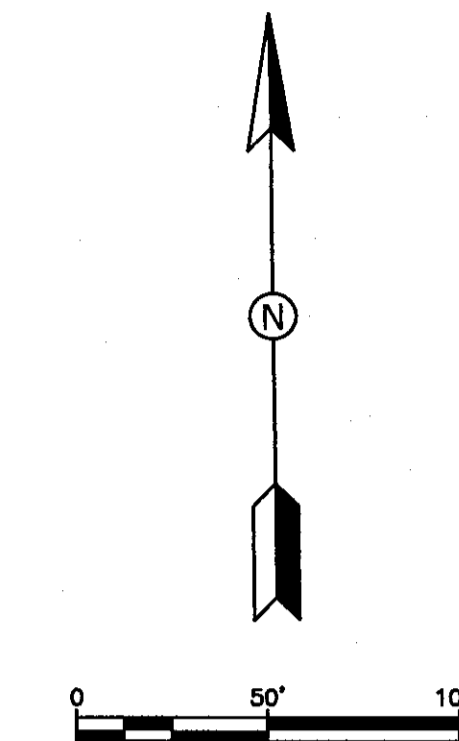
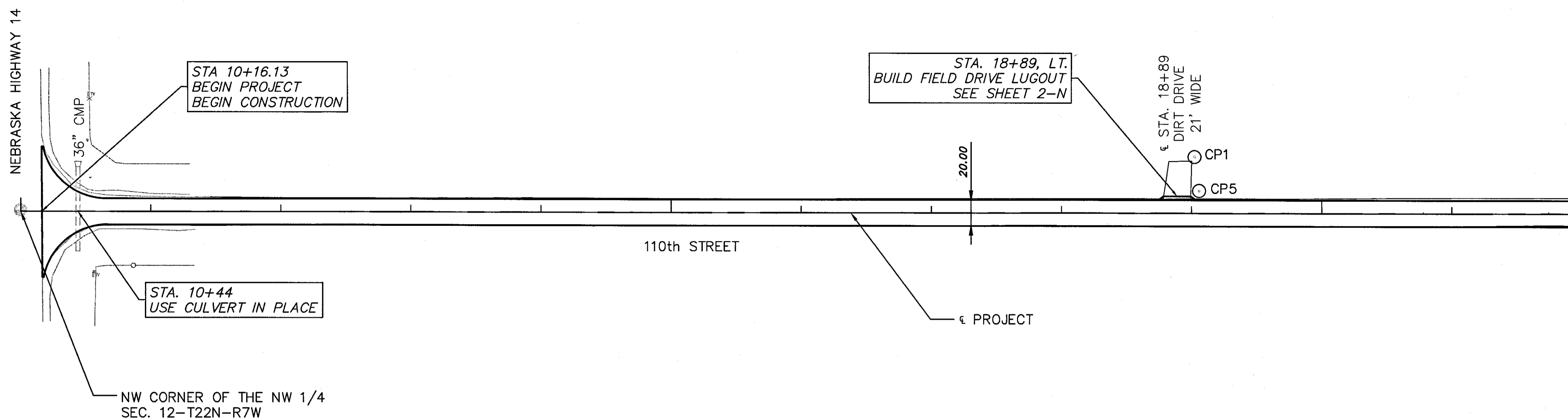
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20



PROJECT NO.	SHEET NO.
STPE-2532(1)	2-L1
CN 31535	

SEC. 1-T22N-R7W



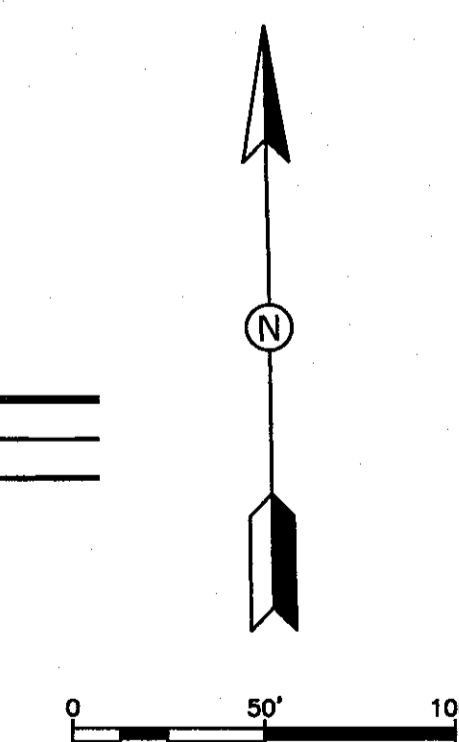
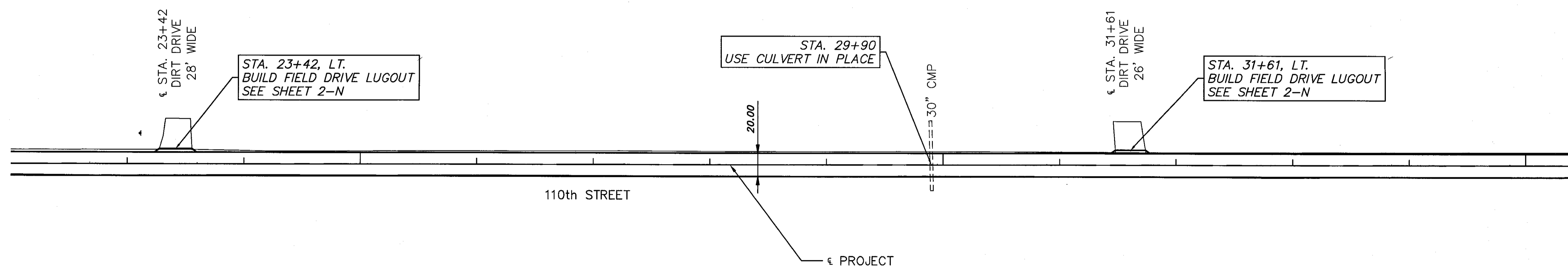
SEC. 12-T22N-R7W

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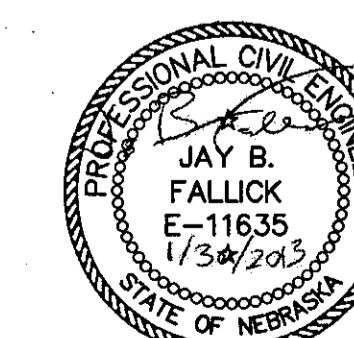
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35

SEC. 1-T22N-R7W



SEC. 12-T22N-R7W



MAINLINE/100th STREET
CONSTRUCTION & REMOVAL

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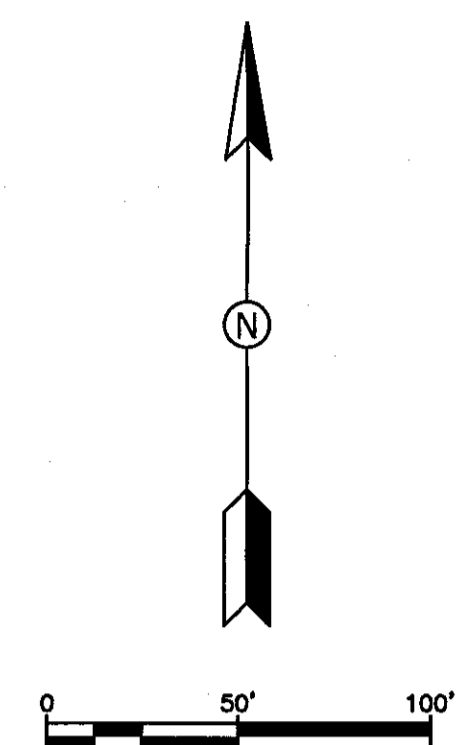
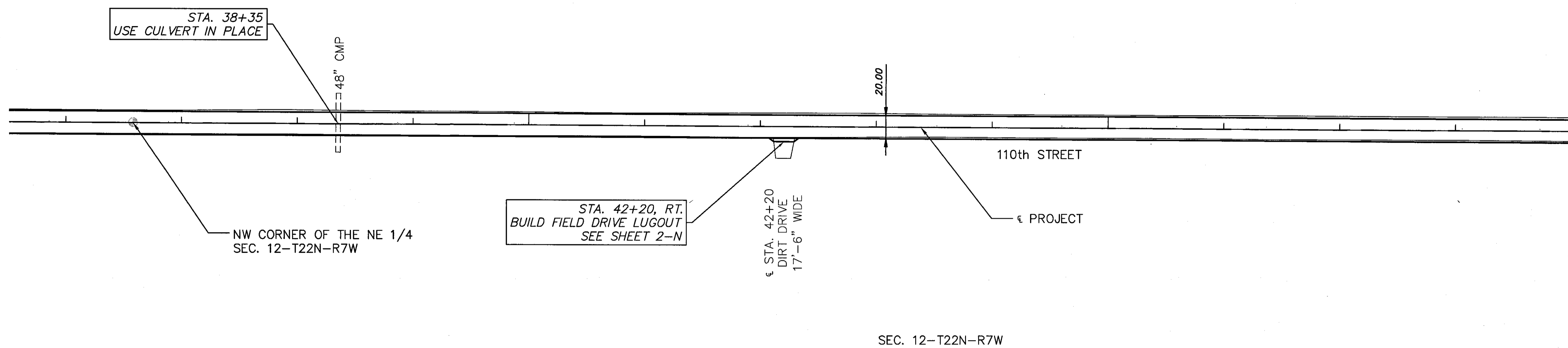
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45



PROJECT NO.	SHEET NO.
STPE-2532(1)	2-L2
CN 31535	

SEC. 1-T22N-R7W



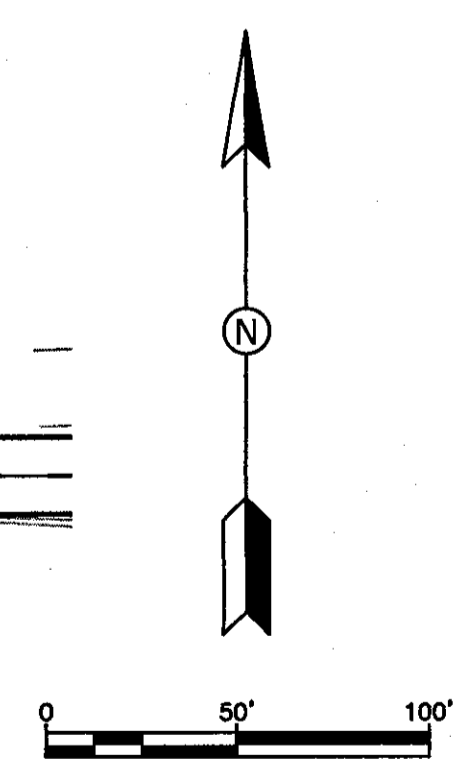
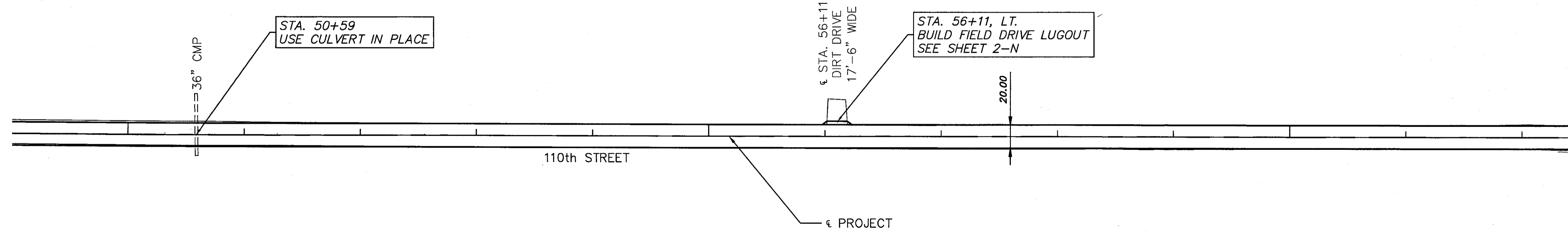
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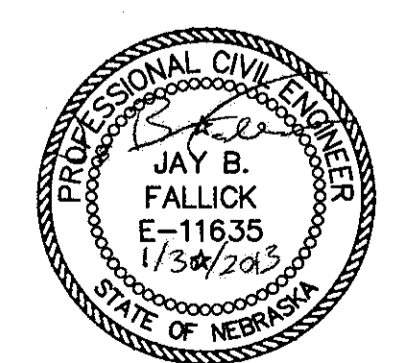
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60

SEC. 1-T22N-R7W



SEC. 12-T22N-R7W



MAINLINE/100th STREET
CONSTRUCTION & REMOVAL

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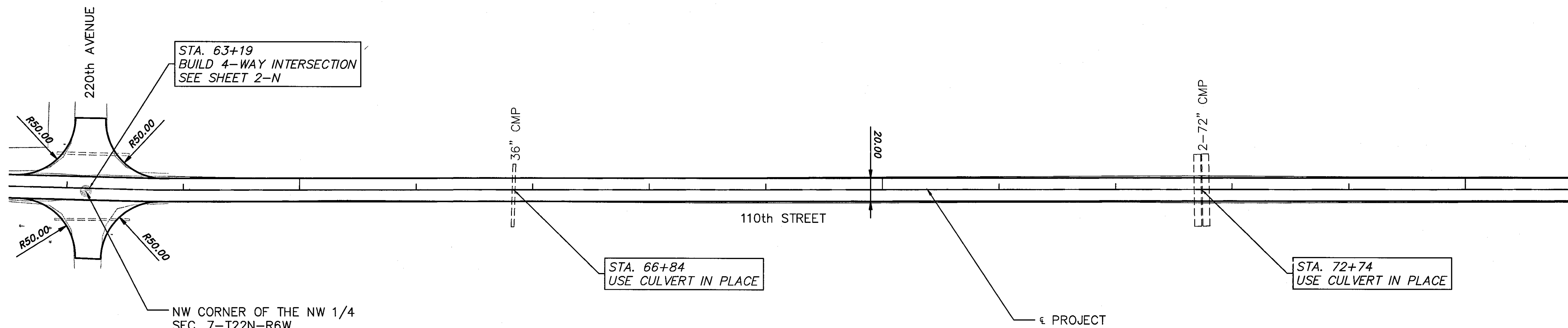
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70

PROJECT NO.	SHEET NO.
STPE-2532(1)	2-L3
CN 31535	

SEC. 6-T22N-R6W

75



NW CORNER OF THE NW 1/4
SEC. 7-T22N-R6W

STA. 66+84
USE CULVERT IN PLACE

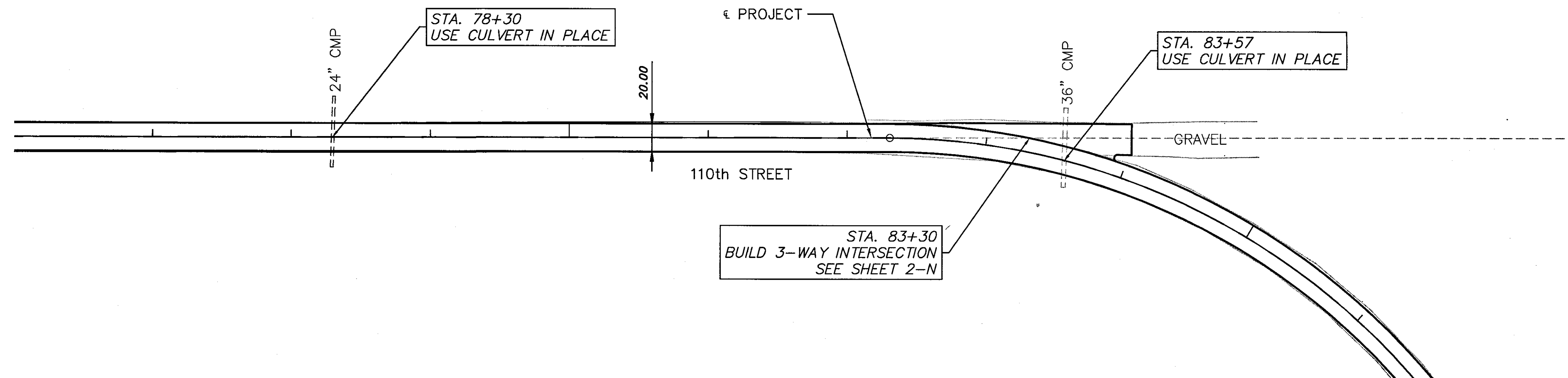
STA. 72+74
USE CULVERT IN PLACE

SEC. 7-T22N-R6W

80

85

SEC. 6-T22N-R6W

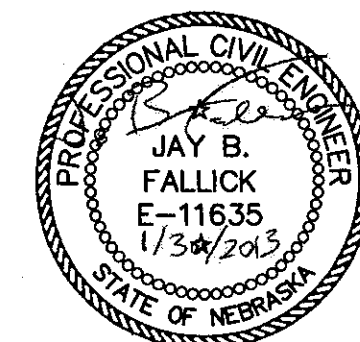
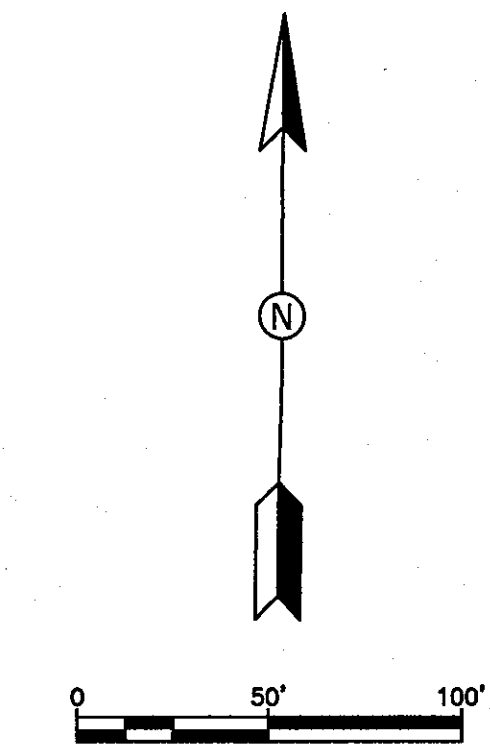


STA. 78+30
USE CULVERT IN PLACE

STA. 83+57
USE CULVERT IN PLACE

STA. 83+30
BUILD 3-WAY INTERSECTION
SEE SHEET 2-N

SEC. 7-T22N-R6W



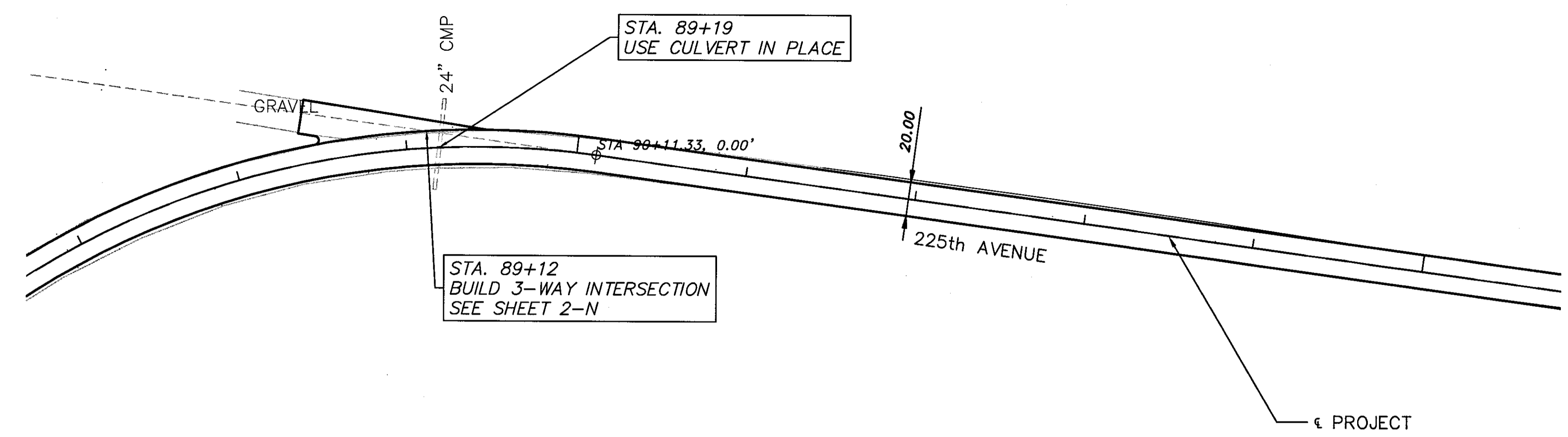
**MAINLINE/100th STREET
CONSTRUCTION & REMOVAL**

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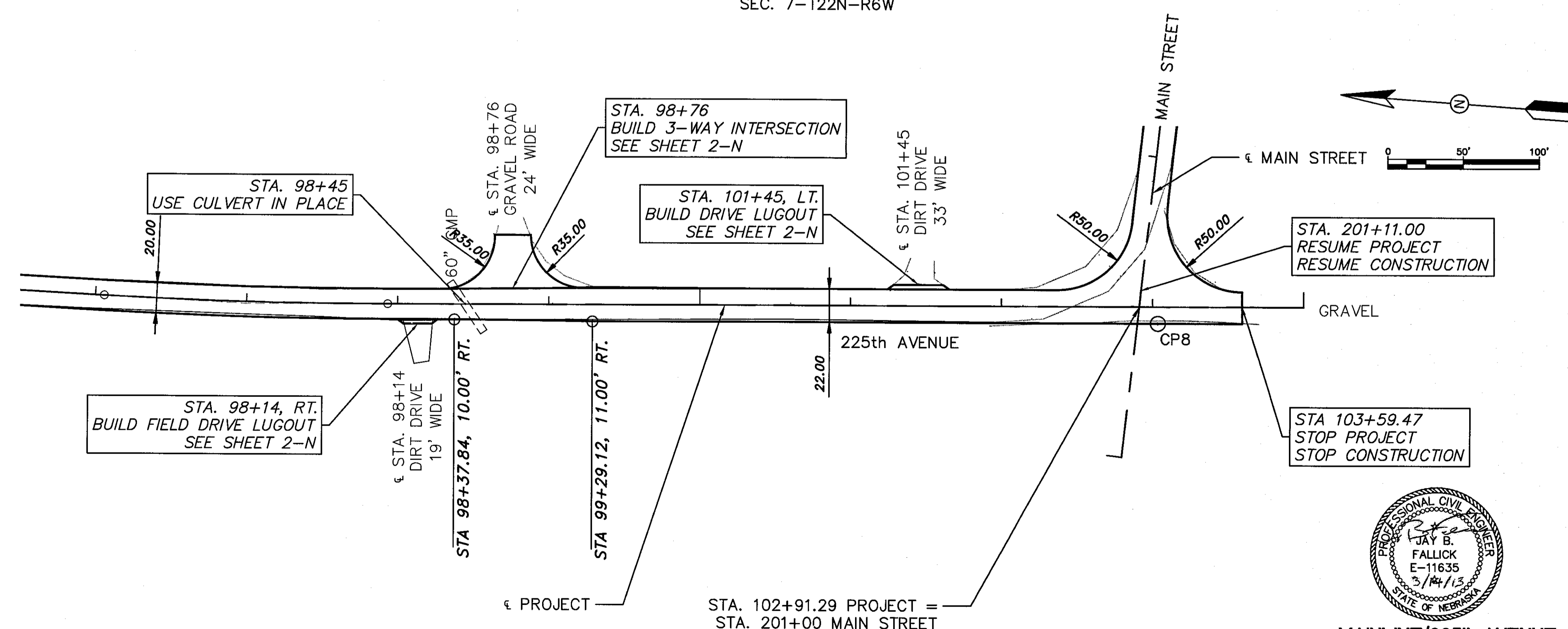
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PROJECT NO.	SHEET NO.
STPE-2532(1)	2-L4
CN 31535	

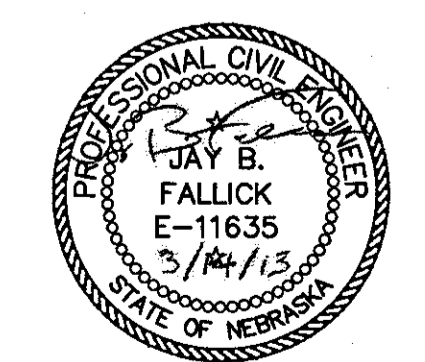
SEC. 7-T22N-R6W



SEC. 7-T22N-R6W

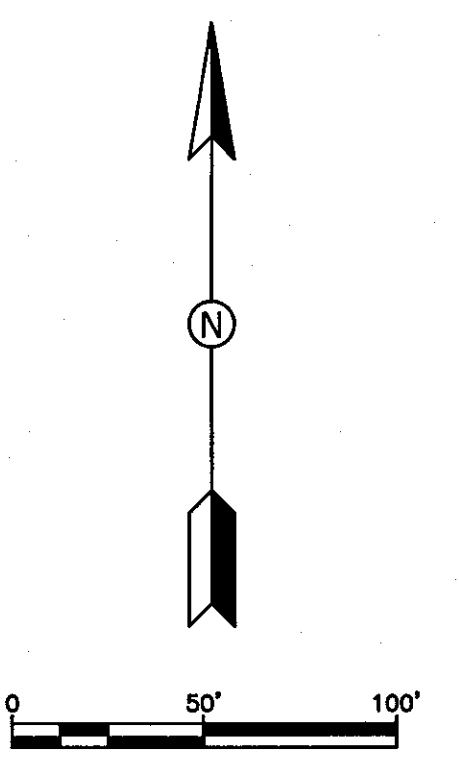
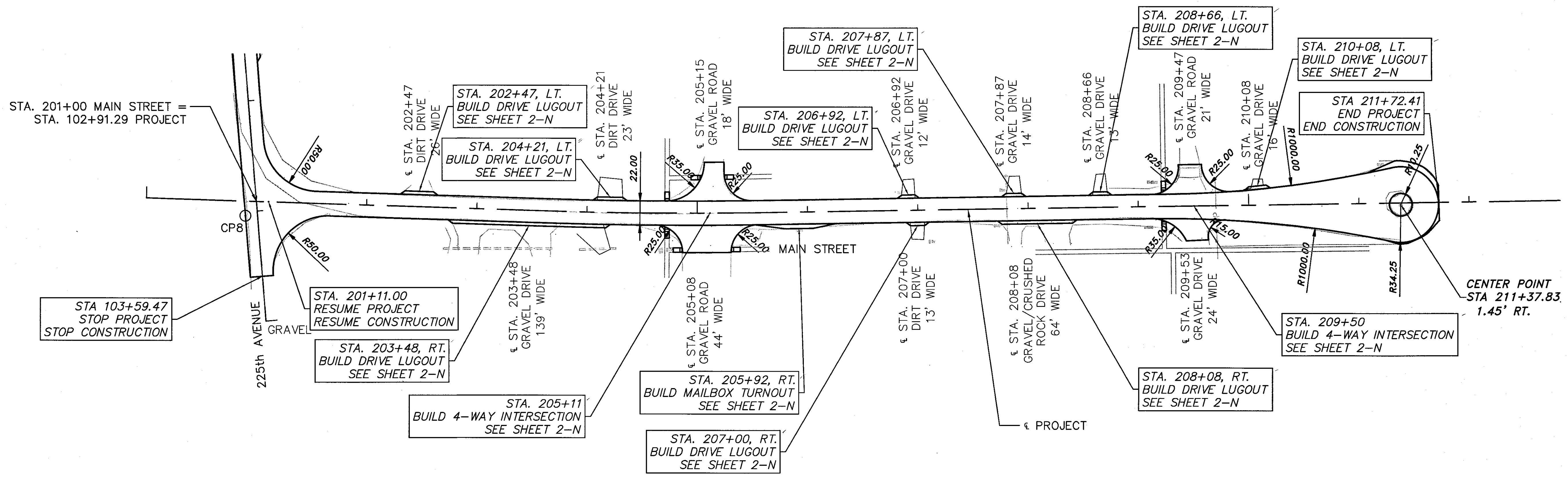


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**MAINLINE/225th AVENUE
CONSTRUCTION & REMOVAL**

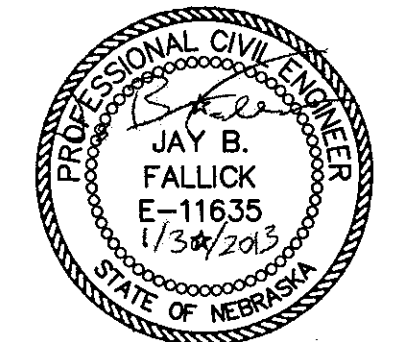
SEC. 7-T22N-R6W



REMOVE WALK			
STATION TO	STATION	SIDE	SQ. YDS.
204+73.00		Rt.	4.0
204+73.00		Lt.	3.6
204+86.00		Rt.	3.7
205+02.00		Lt.	4.0
205+31.00		Rt.	3.7
205+25.00		Lt.	3.7
209+23.00		Rt.	3.9
209+23.00		Lt.	4.0

BUILD CURB RAMP, PLAN 303-R1				
STATION	SIDE	TYPE	DETECTABLE WARNING PANEL SQ. FT.	
204+73.00	Rt.	N/A	8.0	
204+73.00	Lt.	N/A	8.0	
204+86.00	Rt.	N/A	8.0	
205+02.00	Lt.	N/A	8.0	
205+31.00	Rt.	N/A	8.0	
205+25.00	Lt.	N/A	8.0	
209+23.00	Rt.	N/A	8.0	
209+23.00	Lt.	N/A	8.0	

BUILD CONCRETE SIDEWALK, PLAN 301-R10				
STATION TO	STATION	SIDE	WIDTH	SQ. YDS.
204+73.00		Rt.	4'-0"	4.0
204+73.00		Lt.	4'-0"	3.6
204+86.00		Rt.	4'-0"	3.7
205+02.00		Lt.	4'-0"	4.0
205+31.00		Rt.	4'-0"	3.7
205+25.00		Lt.	4'-0"	3.7
209+23.00		Rt.	4'-0"	3.9
209+23.00		Lt.	4'-0"	4.0

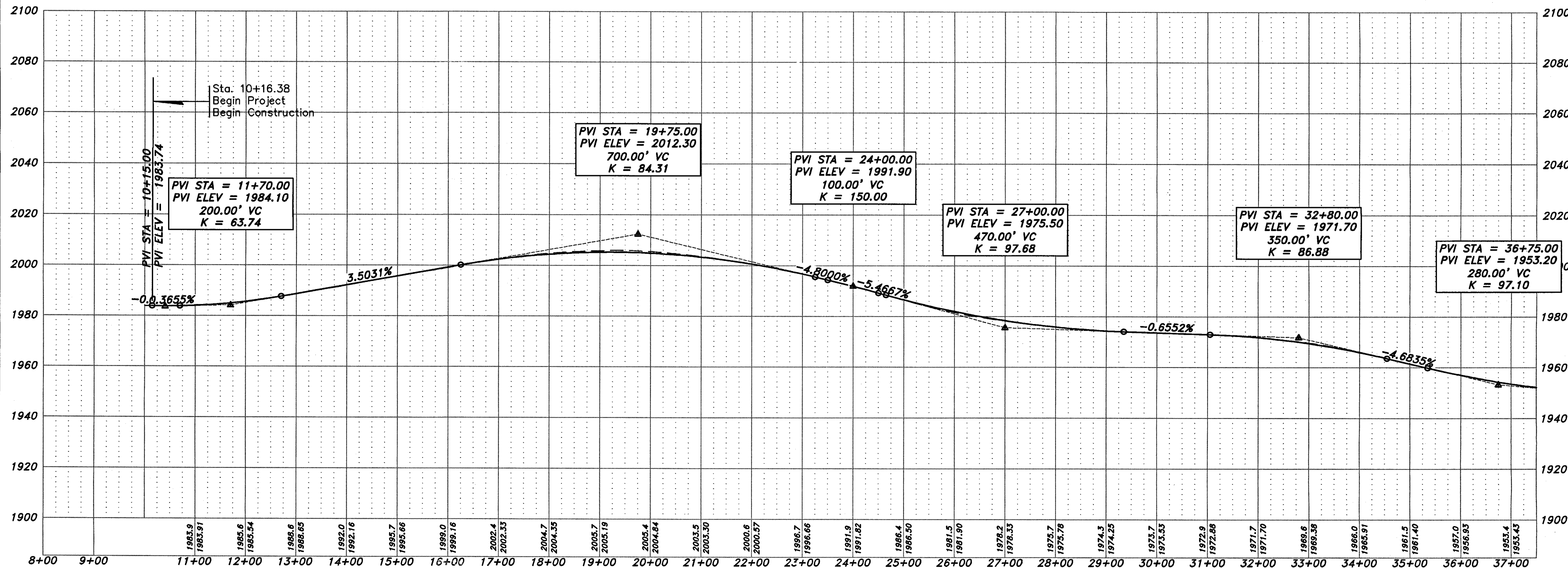
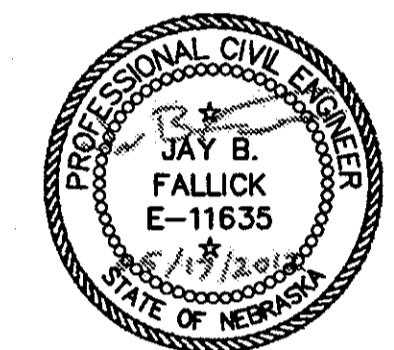
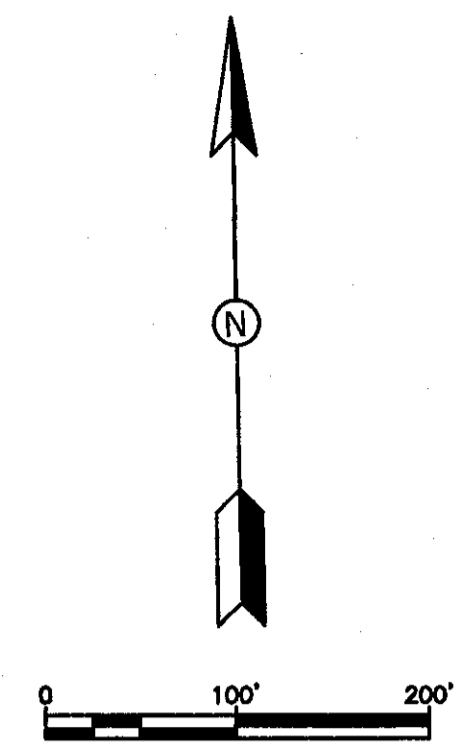
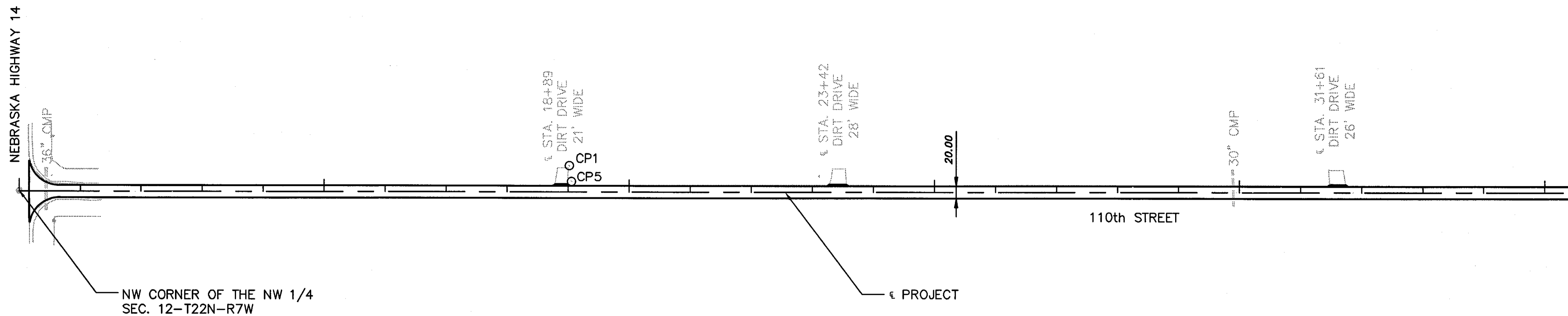


MAIN STREET CONSTRUCTION & REMOVAL

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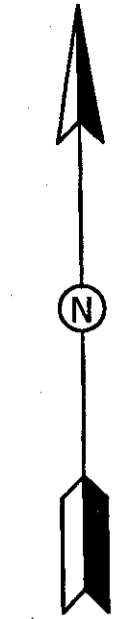
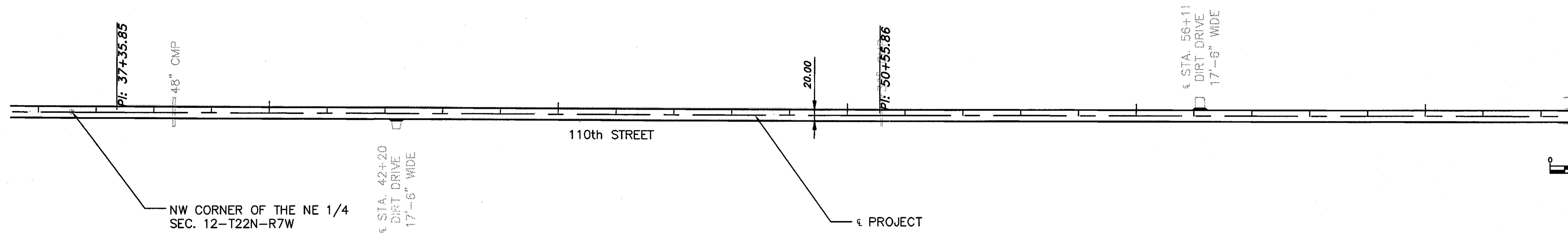
SEC. 1-T22N-R7W

SEC. 12-T22N-R7W

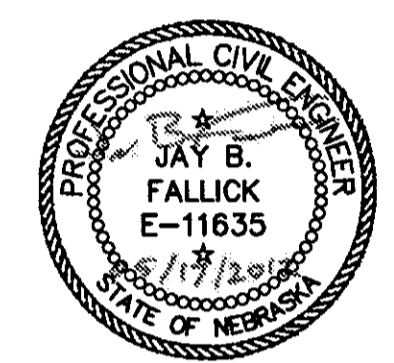


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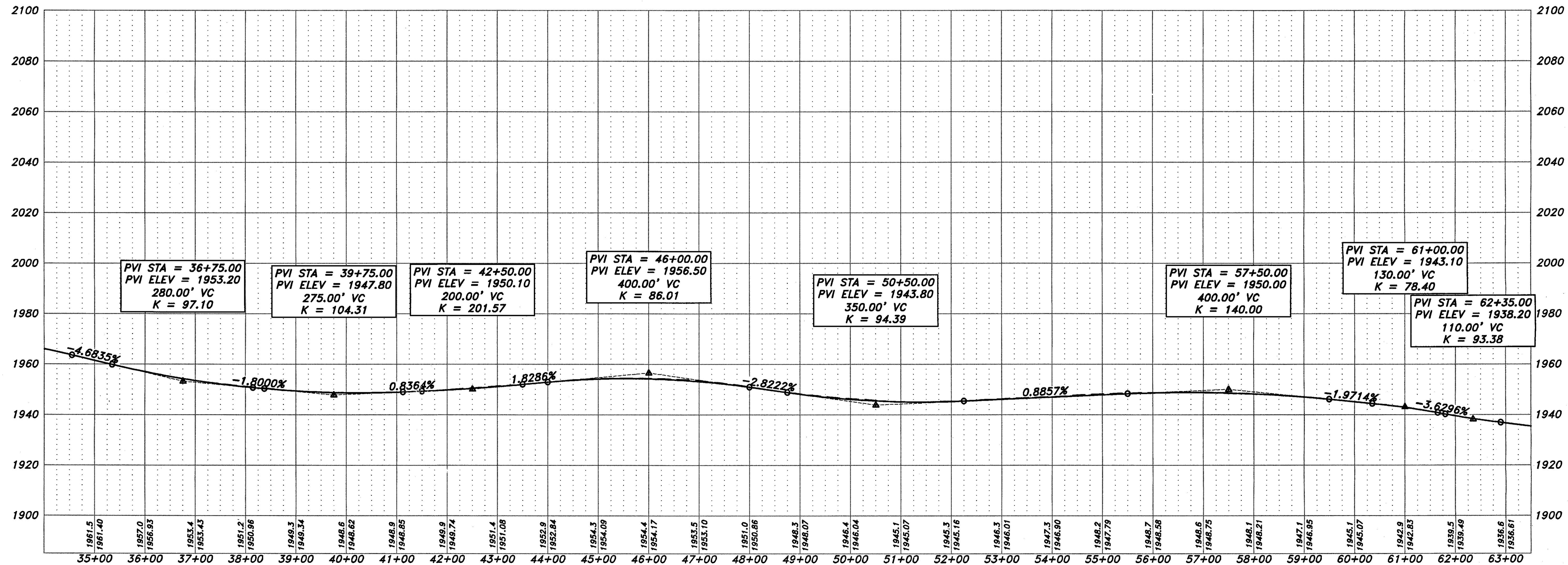
SEC. 1-T22N-R7W



SEC. 12-T22N-R7W



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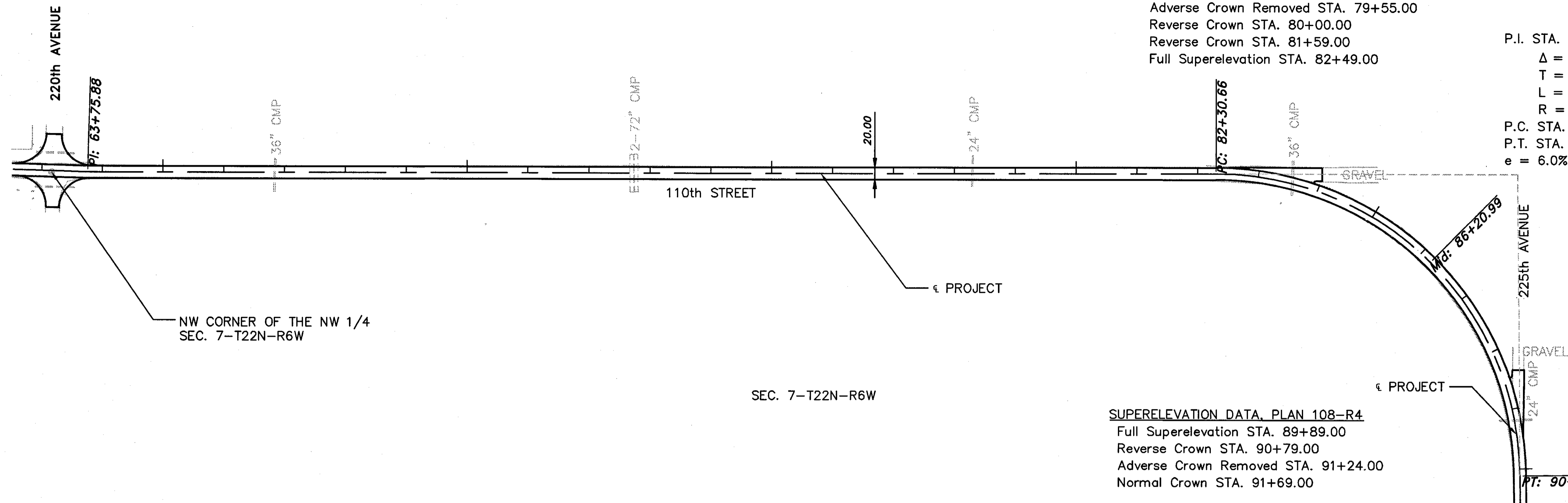
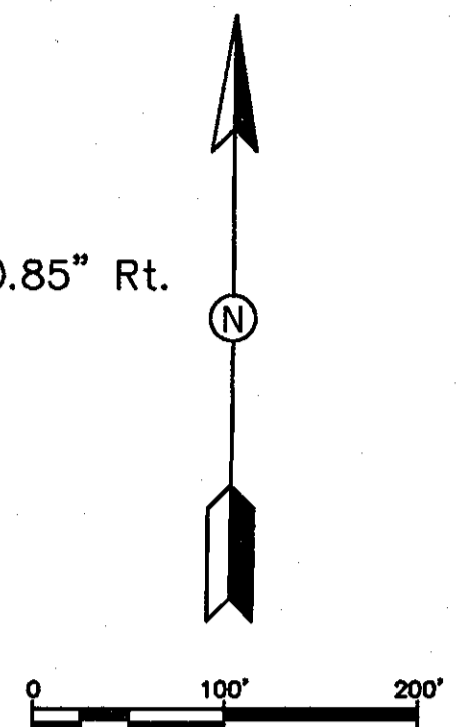


SEC. 6-T22N-R6W

SUPERELEVATION DATA, PLAN 108-R4

Normal Crown STA. 79+10.00
 Adverse Crown Removed STA. 79+55.00
 Reverse Crown STA. 80+00.00
 Reverse Crown STA. 81+59.00
 Full Superelevation STA. 82+49.00

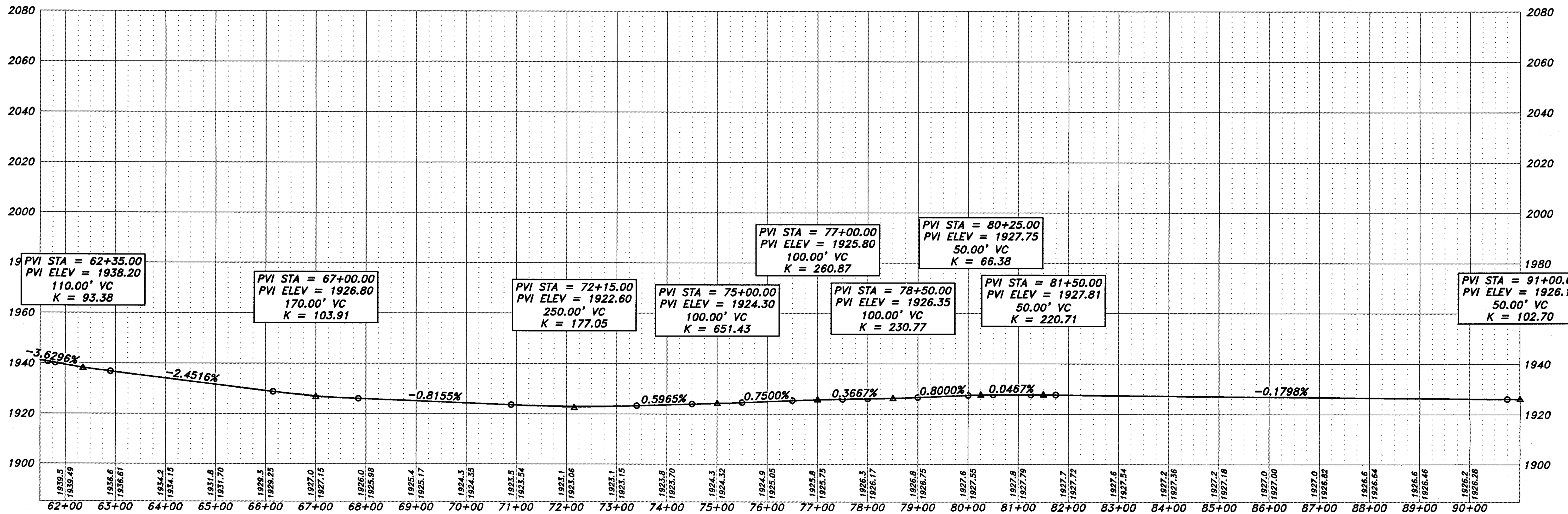
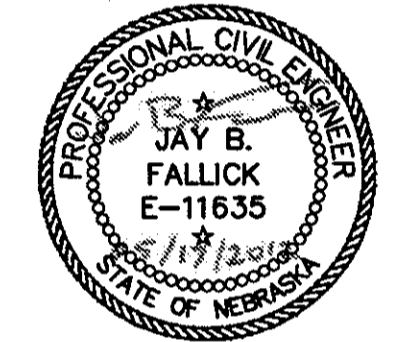
P.I. STA. 86+20.99
 $\Delta = 89' 27' 30.85''$ Rt.
 T = 495.30
 L = 780.67
 R = 500.00
 P.C. STA. 82+30.66
 P.T. STA. 90+11.33
 e = 6.0%



SEC. 7-T22N-R6W

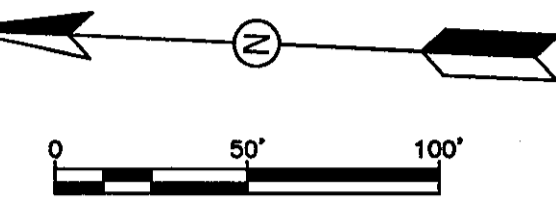
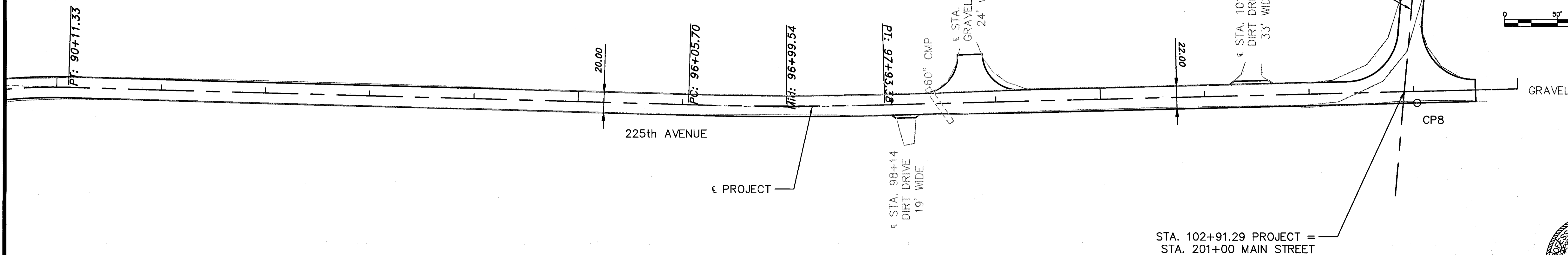
SUPERELEVATION DATA, PLAN 108-R4

Full Superelevation STA. 89+89.00
 Reverse Crown STA. 90+79.00
 Adverse Crown Removed STA. 91+24.00
 Normal Crown STA. 91+69.00

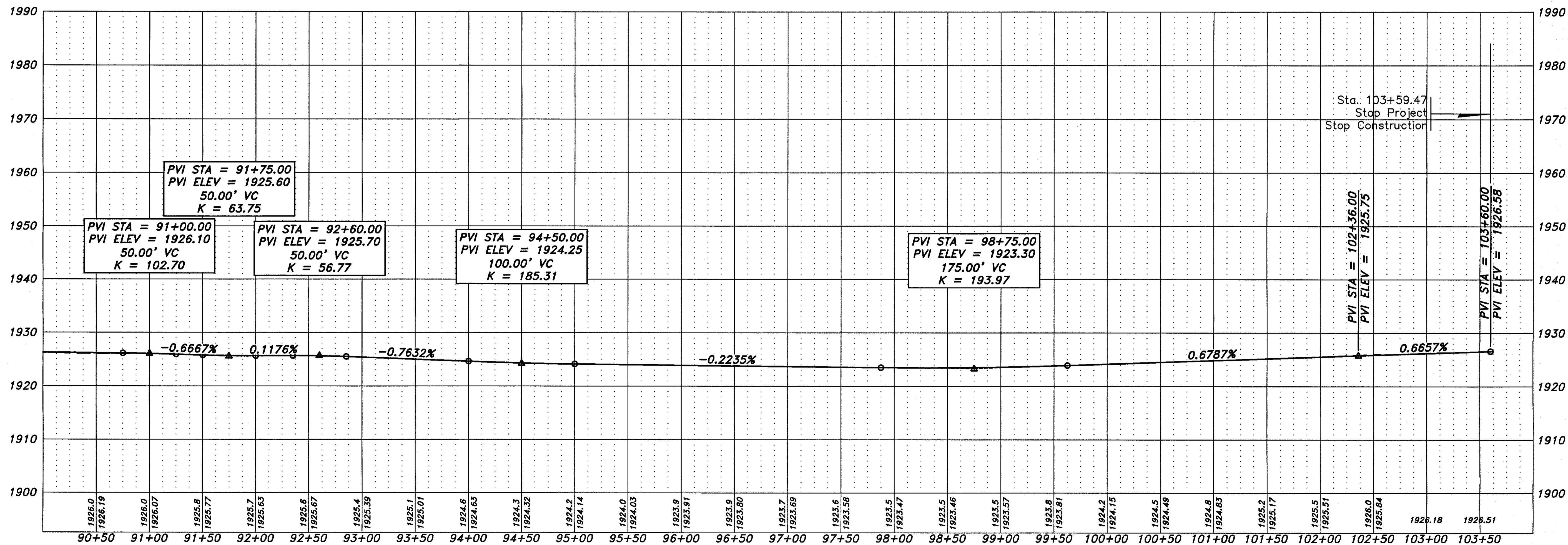
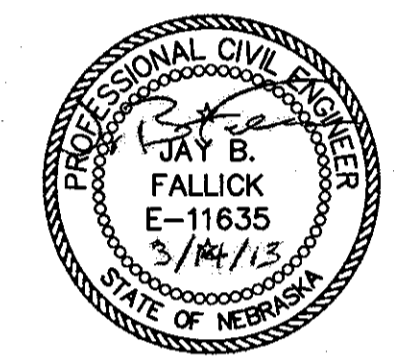


P.I. STA. 86+20.99
 $\Delta = 89^\circ 27' 30.85''$ Rt.
 T = 495.30
 L = 780.67
 R = 500.00
 P.C. STA. 82+30.66
 P.T. STA. 90+11.33
 e = 6.0%

SEC. 7-T22N-R7W

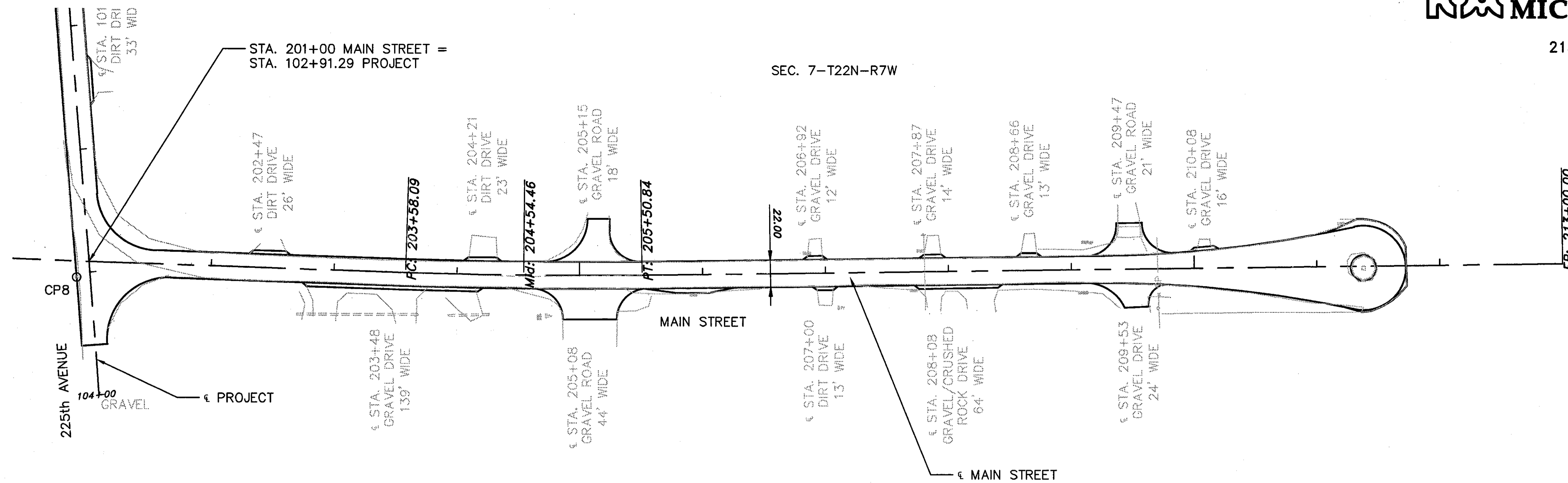


P.I. STA. 96+99.54
 $\Delta = 3^\circ 04' 20.68''$ Rt.
 T = 93.86
 L = 187.68
 R = 3500.00
 P.C. STA. 96+05.70
 P.T. STA. 97+93.38

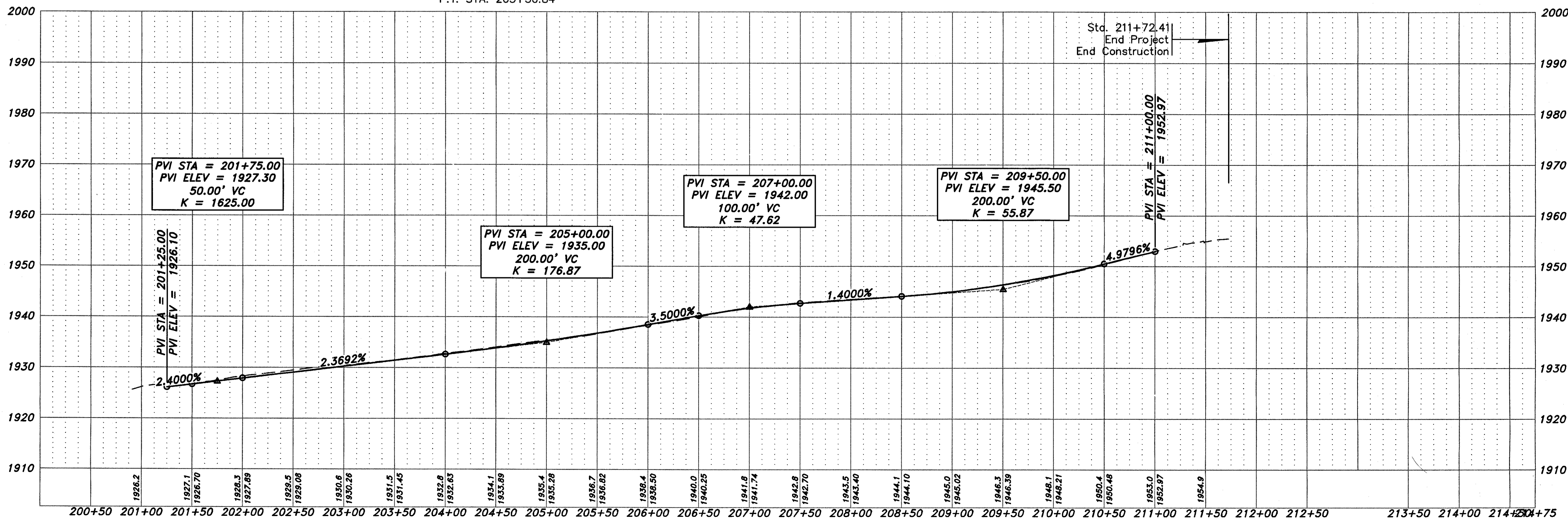
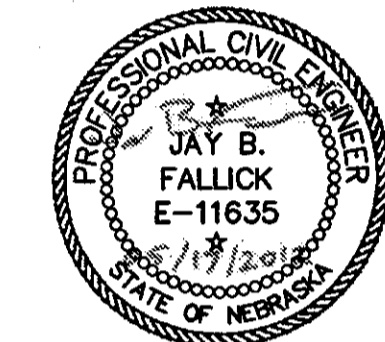


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SEC. 7-T22N-R7W



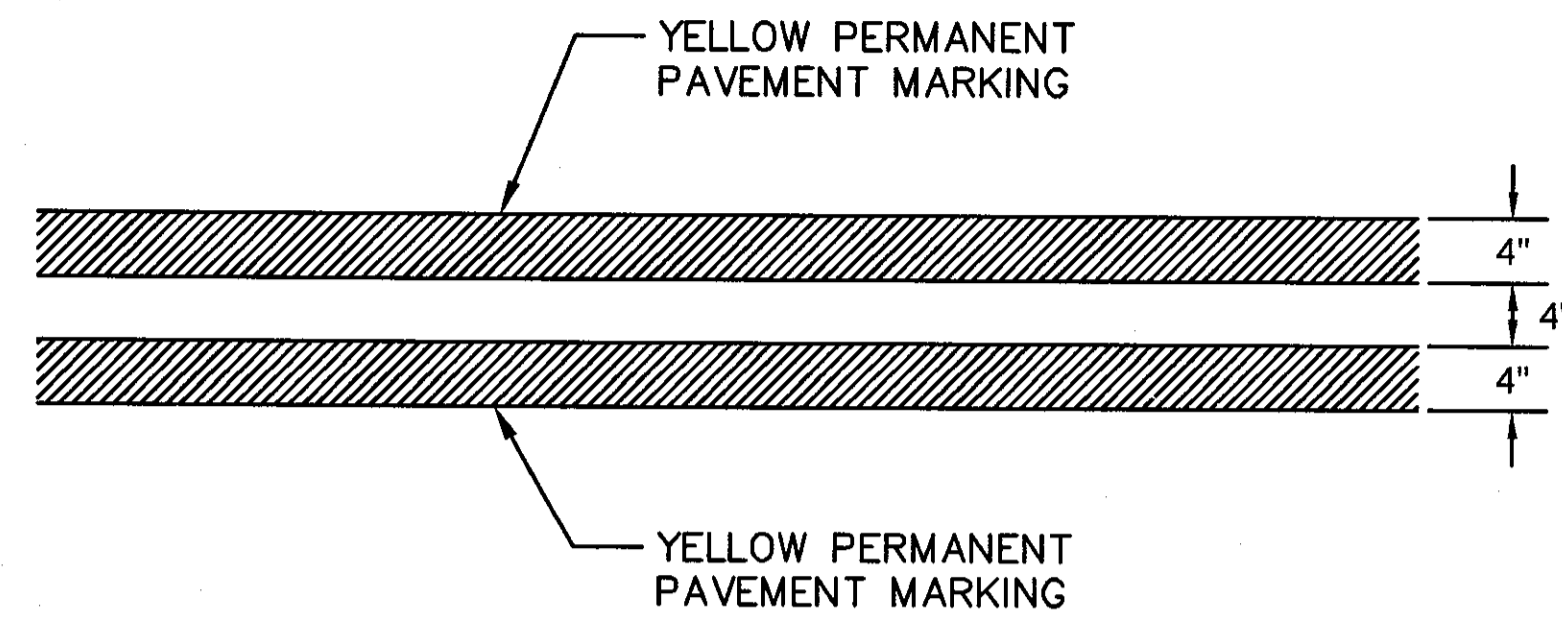
P.I. STA. 204+54.46
 $\Delta = 2' 45'' 39.42''$ Rt.
 T = 96.39
 L = 192.75
 R = 4000.00
 P.C. STA. 203+58.09
 P.T. STA. 205+50.84



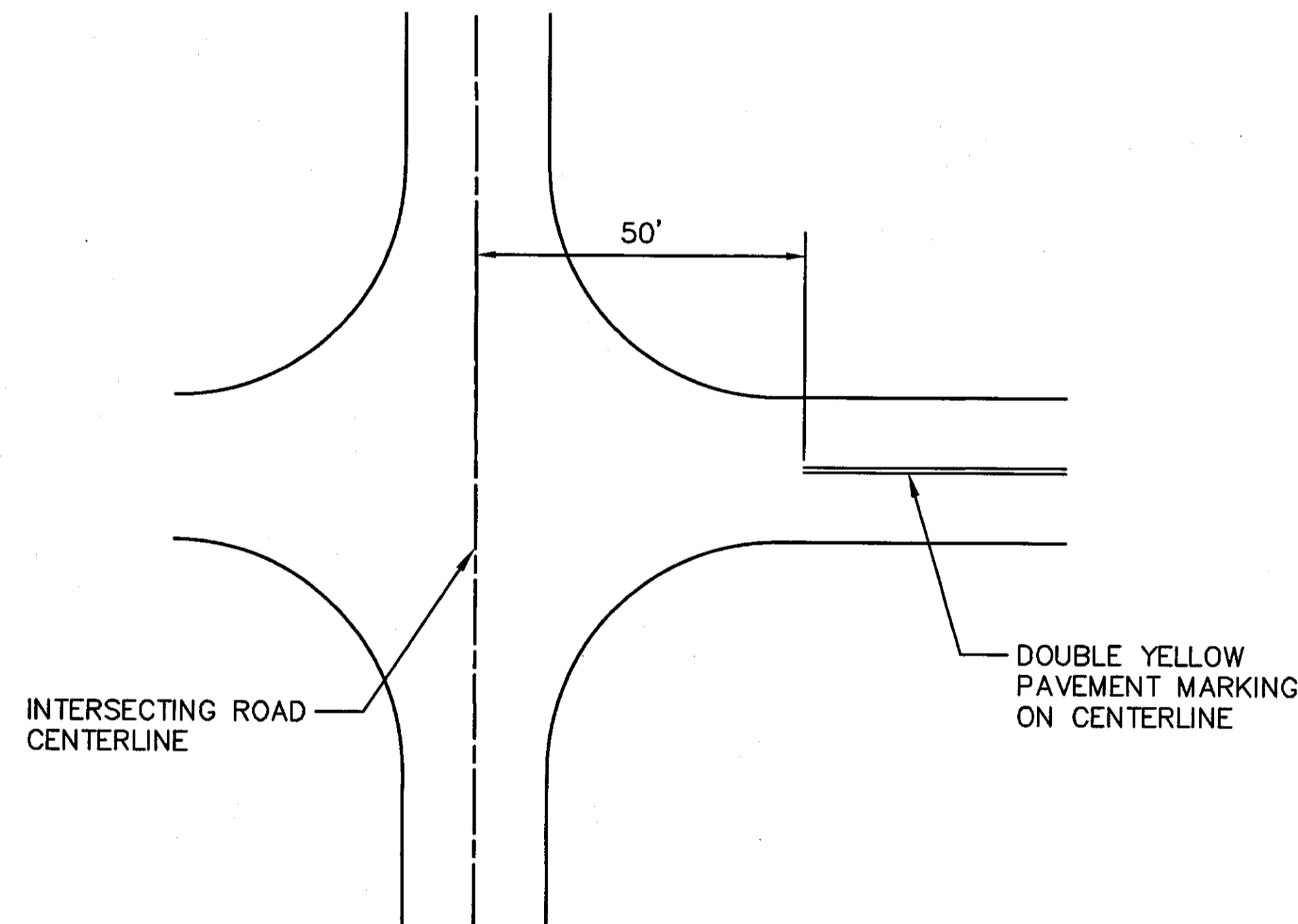
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PAVEMENT MARKING LOCATIONS

STATION	TO STATION	TYPE	LENTH (FT)
10+50.00	62+69.00	DOUBLE YELLOW	10,438
63+69.00	102+41.00	DOUBLE YELLOW	7,744



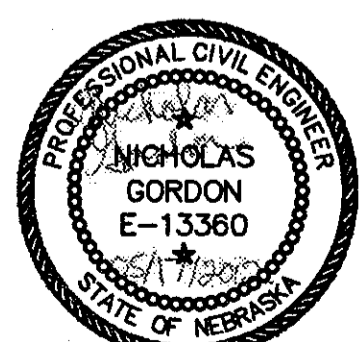
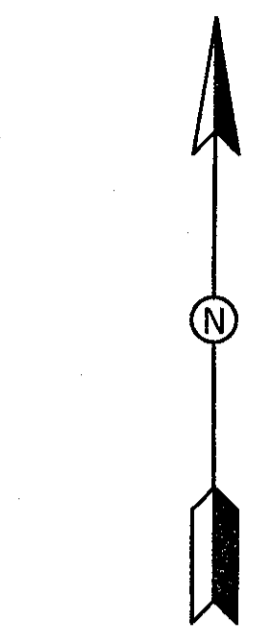
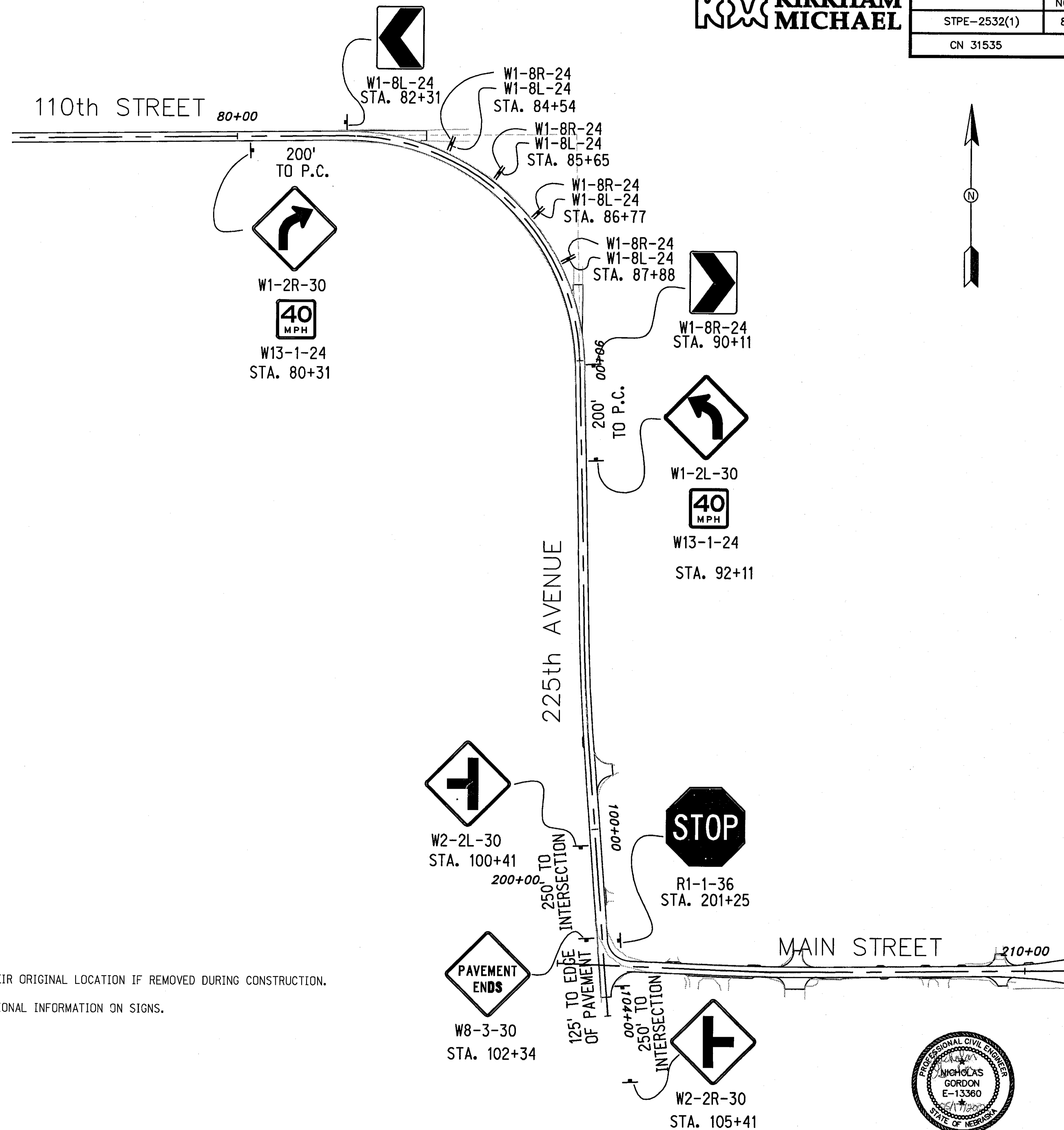
TYPICAL DOUBLE YELLOW PAVEMENT MARKINGS



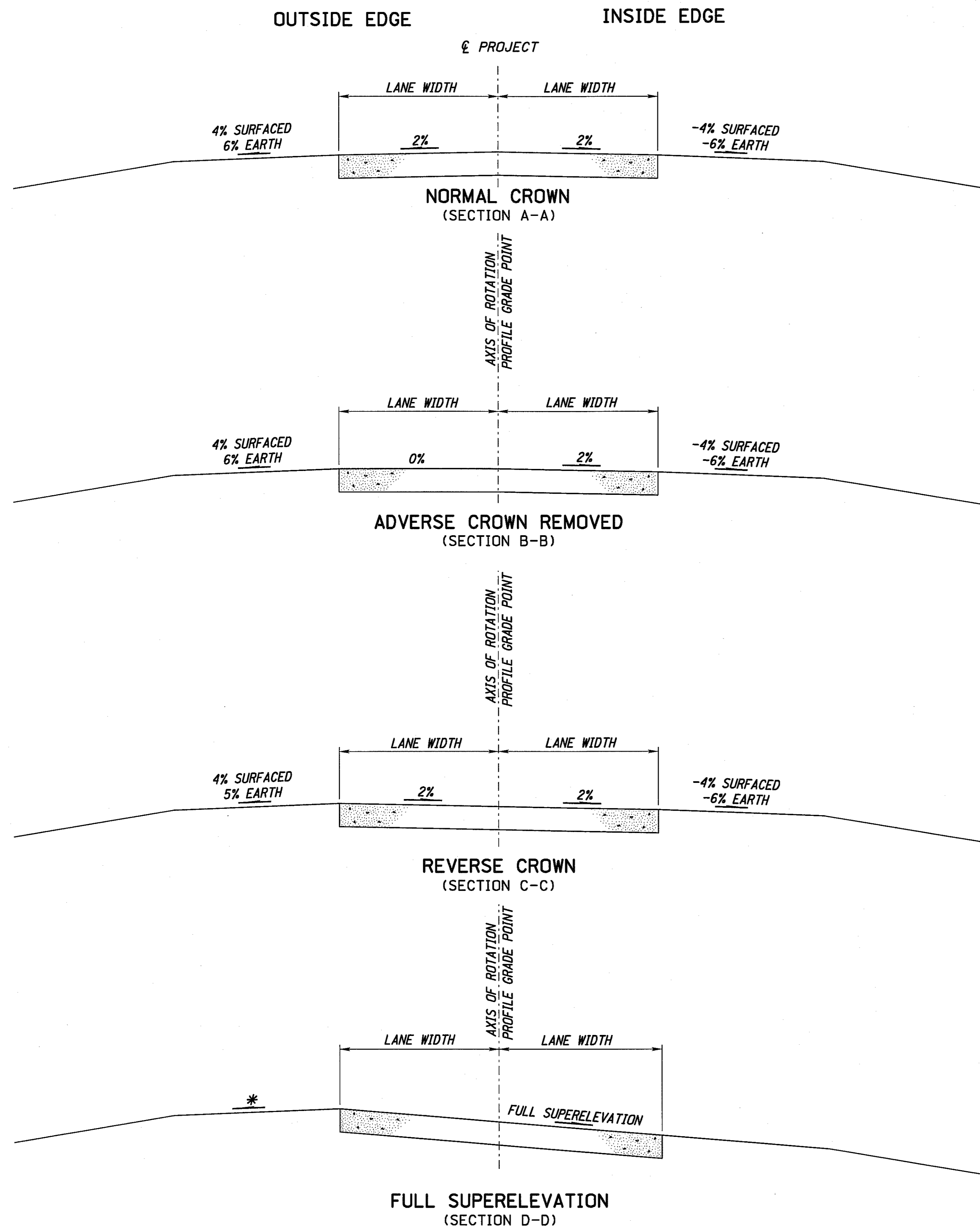
TYPICAL MARKING THROUGH INTERSECTIONS

GENERAL NOTES

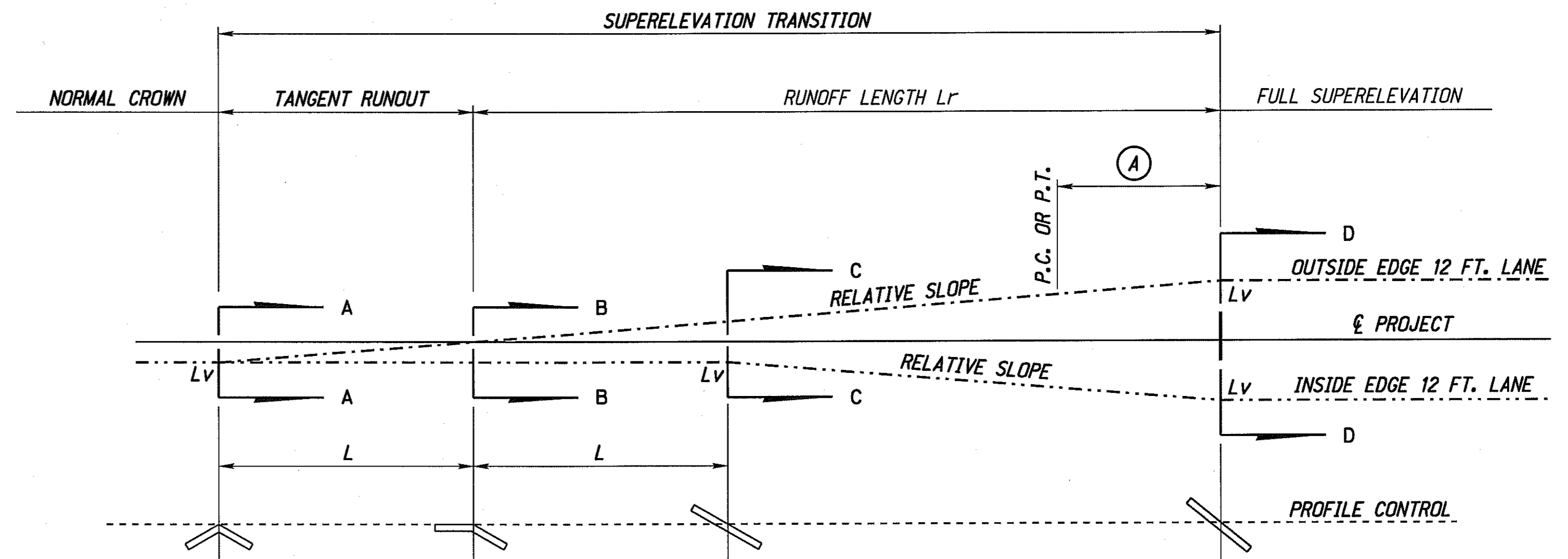
1. ALL EXISTING SIGNS SHALL REMAIN IN-PLACE OR BE RE-INSTALLED IN THEIR ORIGINAL LOCATION IF REMOVED DURING CONSTRUCTION.
2. REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL INFORMATION ON SIGNS.



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* THE SHOULDER SLOPE SHOULD BE MAINTAINED UNTIL THE SUPERELEVATION RATE ON THE ROADWAY IS SUCH THAT THE ALGEBRAIC DIFFERENCE BETWEEN CROSS SLOPES ON THE ROADWAY AND SHOULDER EQUALS 7%. THIS ALGEBRAIC DIFFERENCE SHOULD NOT EXCEED 7%.



DIAGRAMMATIC PROFILE SHOWING METHOD OF ATTAINING SUPERELEVATION

NOTES:

e = SUPERELEVATION RATE AS SHOWN IN THE PLANS (IN %)

FOR A 28 FT. TOP SYSTEM THE SUPERELEVATION RATE FOR THE 2 FT. SURFACED SHOULDER WILL BE THE SAME AS FOR THE THRU LANE.

AT POINTS MARKED "Lv" IT MAY BE NECESSARY TO INSERT A SHORT CONVENIENT LENGTH OF PARABOLIC CURVE TO ELIMINATE THE SHARP BREAK IN THE STRAIGHT LINE TRANSITION.

$L = 12$ FT. (WIDTH OF ROADWAY BEING ROTATED) \times 0.02 (CHANGE IN ROADWAY CROSS-SLOPE) \times RELATIVE SLOPE.
 $L_r = 12$ FT. (WIDTH OF ROADWAY BEING ROTATED) \times $e/100$ (FULL SUPERELEVATION) \times RELATIVE SLOPE.

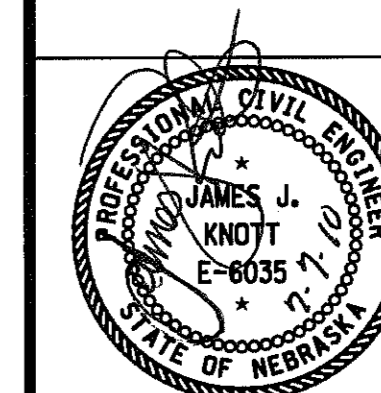
FOR A 14 FT. LANE WIDTH L AND L_r SHOULD BE COMPUTED USING THE 12 FT. DRIVING LANE WIDTH.

(A) 60% TO 90% OF THE RUNOFF LENGTH SHOULD BE PLACED ON THE TANGENT.

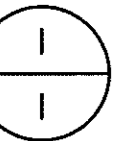
DESIGN SPEED (mph)	MAXIMUM RELATIVE SLOPE
50	200:1
55	213:1
60	222:1
65	233:1
70	250:1

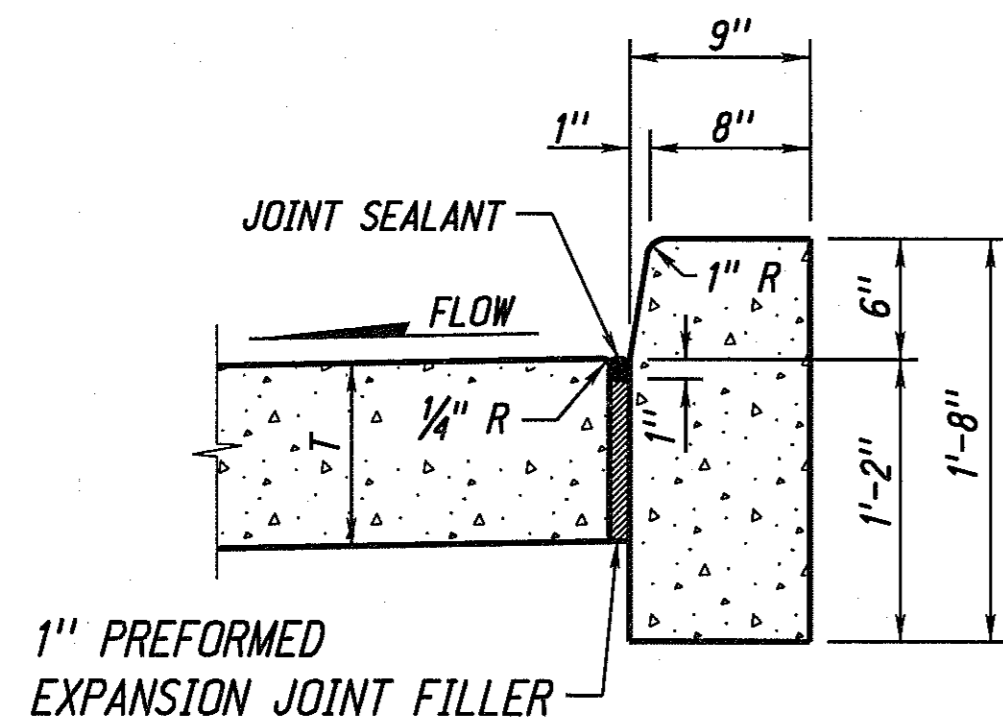
REV. NO.	DATE	DESCRIPTION OF REVISION
R4	OCT.10	RUNOFF PLACEMENT
R3	SEP.07	RELATIVE SLOPE TABLE
R2	DEC.02	MULTIPLE CHANGES

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 108-R4
SUPERELEVATION PLAN
 FOR CONCRETE AND BITUMINOUS SURFACING



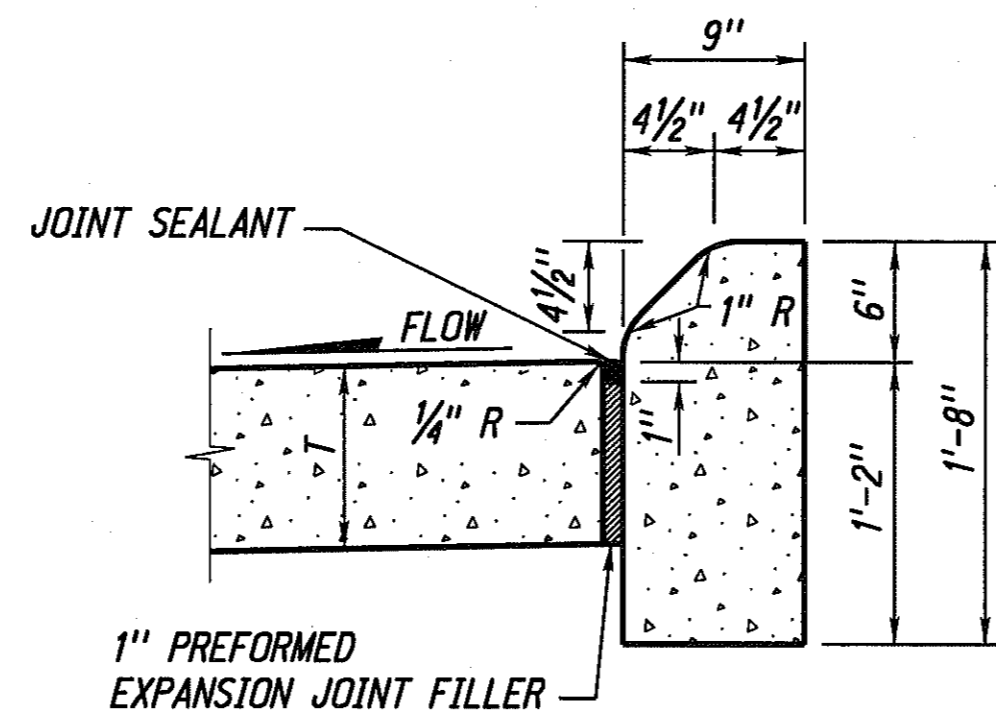
FHWA APPROVED:
[Signature]
 7/14/2010
 DATE
 ORIGINAL:
 JULY 30, 1974
 DATE





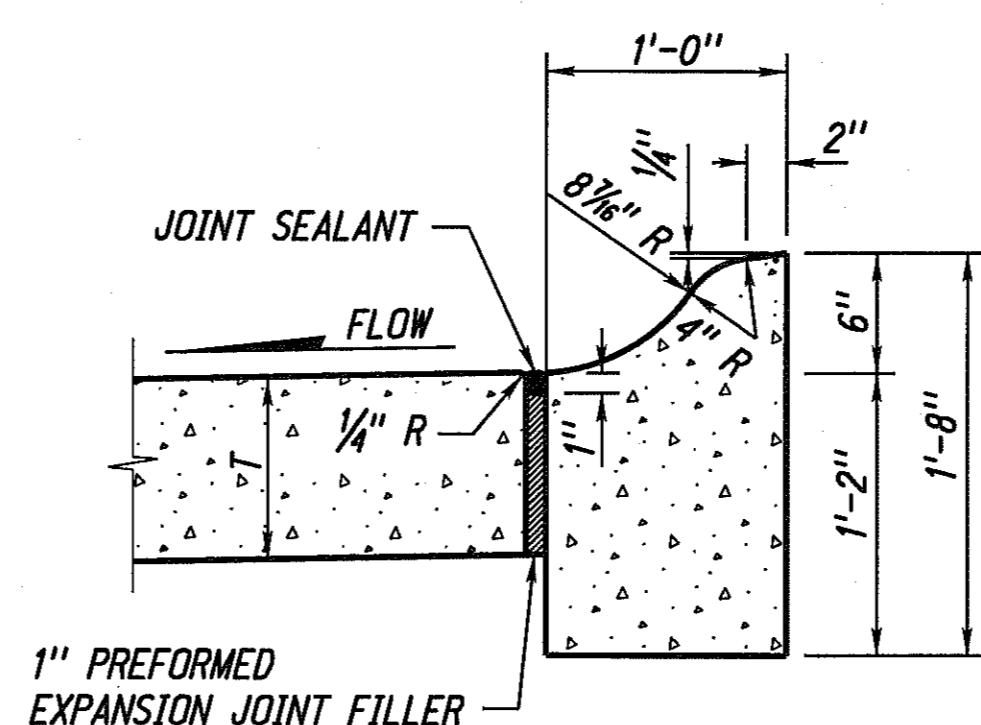
CONCRETE BARRIER CURB *

QUANTITIES
 CONCRETE 4.55 CU. YDS./STA.
 AREA 1.228 SQ. FT.



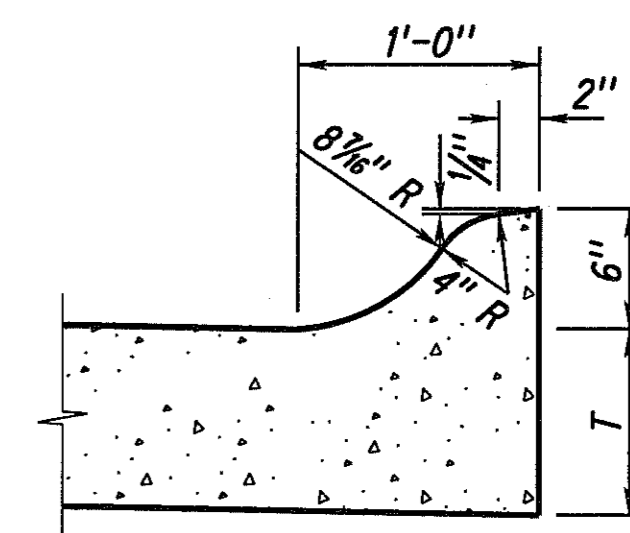
CONCRETE MEDIAN CURB *

QUANTITIES
 CONCRETE 4.42 CU. YDS./STA.
 AREA 1.192 SQ. FT.



**CONCRETE CURB, *
TYPE I**

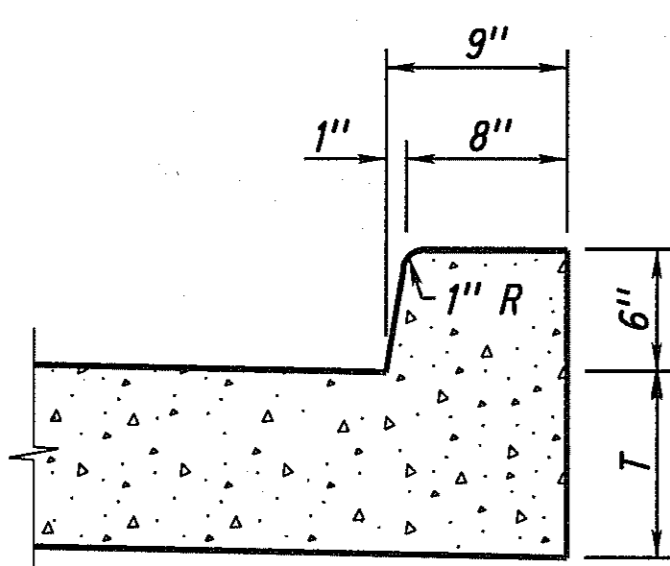
QUANTITIES
 CONCRETE 5.22 CU. YDS./STA.
 AREA 1.408 SQ. FT.



INTEGRAL CONCRETE CURB

QUANTITIES
 CONCRETE 0.89 CU. YDS./STA.
 AREA 0.239 SQ. FT.

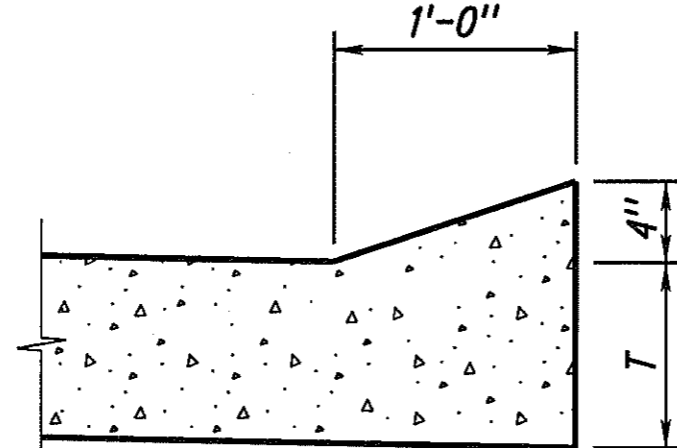
NOTE: * ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 100' THRU CONCRETE BARRIER CURB, CONCRETE MEDIAN CURB, AND CONCRETE CURB, TYPE I.



NOTE: MAY BE USED WHEN T IS LESS THAN 12"

INTEGRAL CONCRETE BARRIER CURB

QUANTITIES
 CONCRETE 1.33 CU. YDS./STA.
 AREA 0.359 SQ. FT.



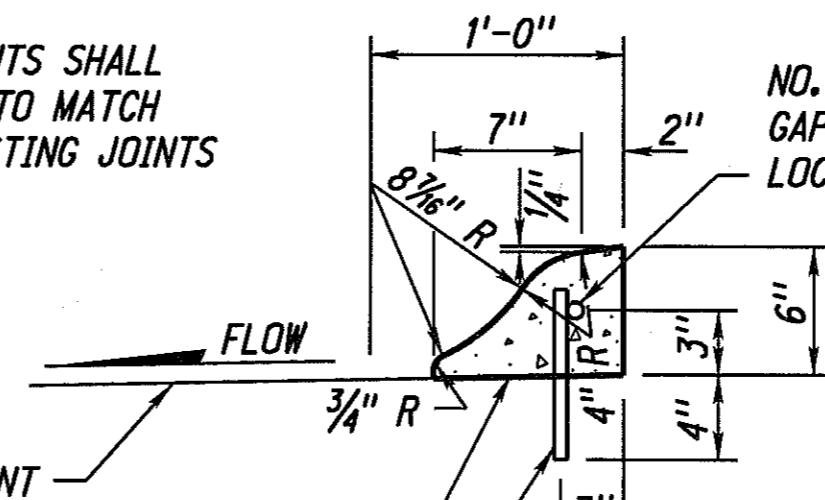
INTEGRAL CONCRETE SLOPING CURB

QUANTITIES
 CONCRETE 0.62 CU. YDS./STA.
 AREA 0.167 SQ. FT.

CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH LOCATION OF EXISTING JOINTS

EXISTING CONCRETE PAVEMENT

THE AREA BETWEEN CURB AND EXISTING CONCRETE PAVEMENT TO BE CLEANED AND ROUGHENED AS DIRECTED BY THE ENGINEER

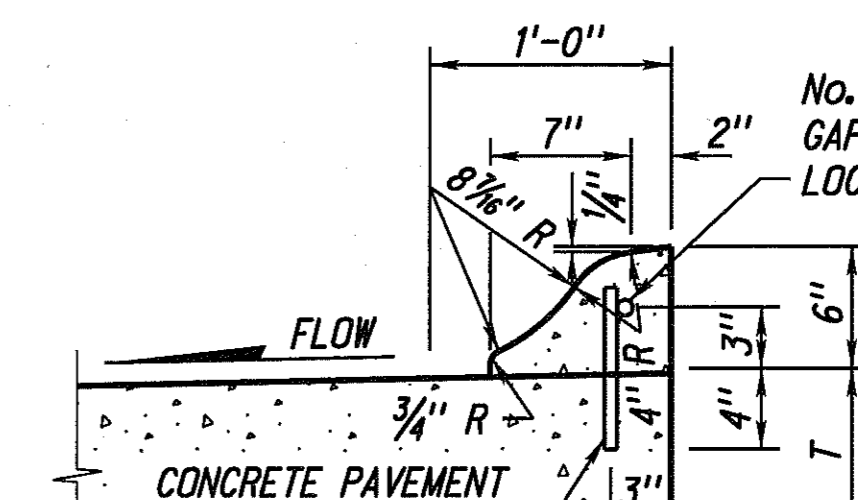


NO. 4 LONGITUDINAL BAR TO BE GAPPED AT CONTRACTION JOINT LOCATIONS; 3" MIN., 6" MAX.

NO. 5 x 8" TIE BARS AT 5'-0" CENTERS TO BE DRILLED AND GROUTED INTO EXISTING CONCRETE PAVEMENT (WITH APPROVED GROUT)

CONCRETE CURB, TYPE II

QUANTITIES
 CONCRETE 0.87 CU. YDS./STA.
 AREA 0.234 SQ. FT.

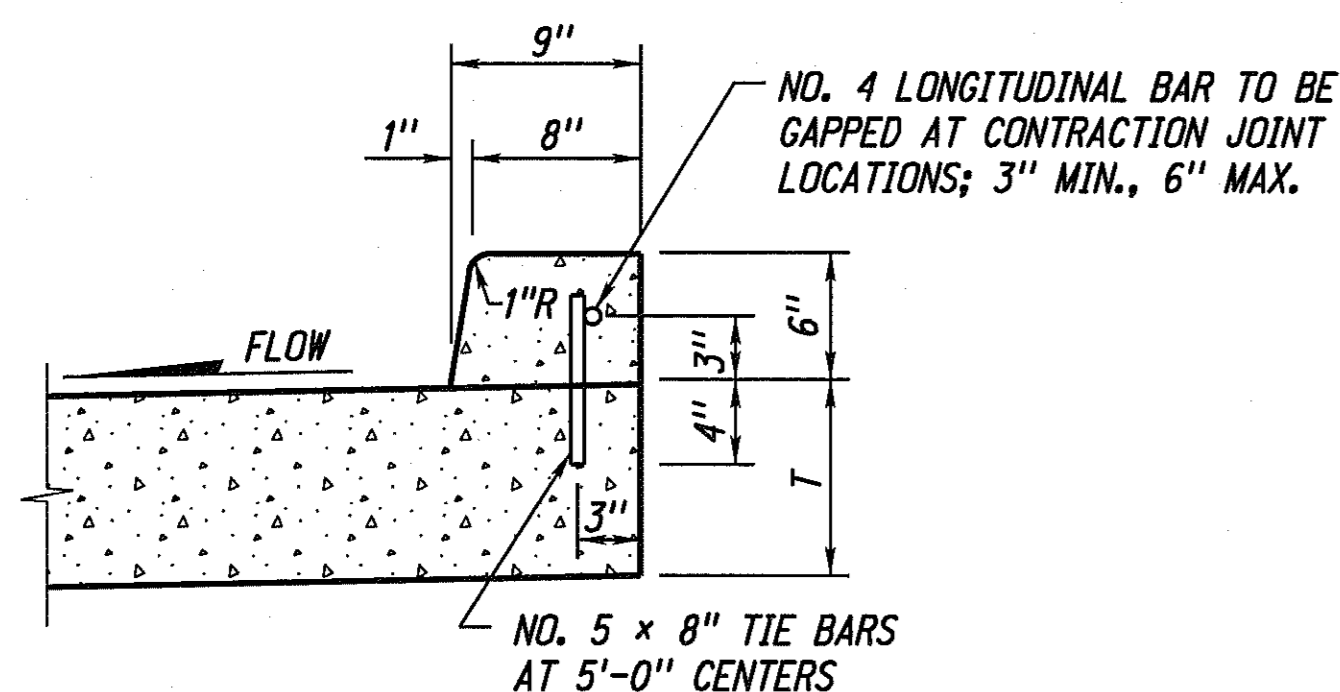


NO. 4 LONGITUDINAL BAR TO BE GAPPED AT CONTRACTION JOINT LOCATIONS; 3" MIN., 6" MAX.

NO. 5 x 8" TIE BARS AT 5'-0" CENTERS

INTEGRAL CONCRETE CURB ALTERNATE TYPE

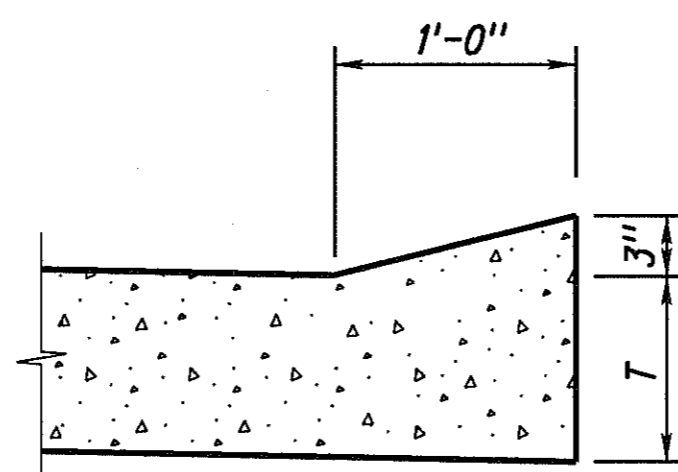
QUANTITIES
 CONCRETE 0.87 CU. YDS./STA.
 AREA 0.234 SQ. FT.



NOTE: USE WHEN T IS 12" OR GREATER

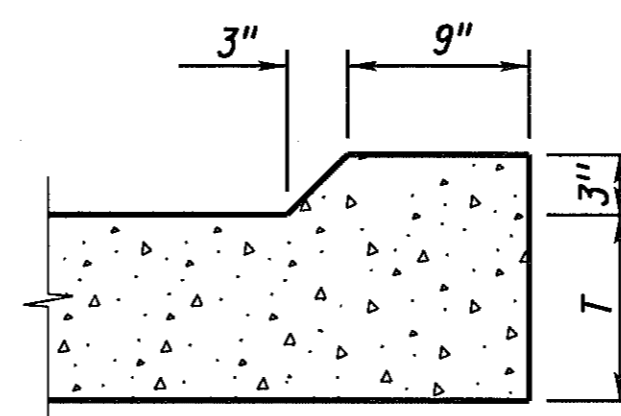
INTEGRAL CONCRETE BARRIER CURB ALTERNATE TYPE

QUANTITIES
 CONCRETE 1.33 CU. YDS./STA.
 AREA 0.359 SQ. FT.



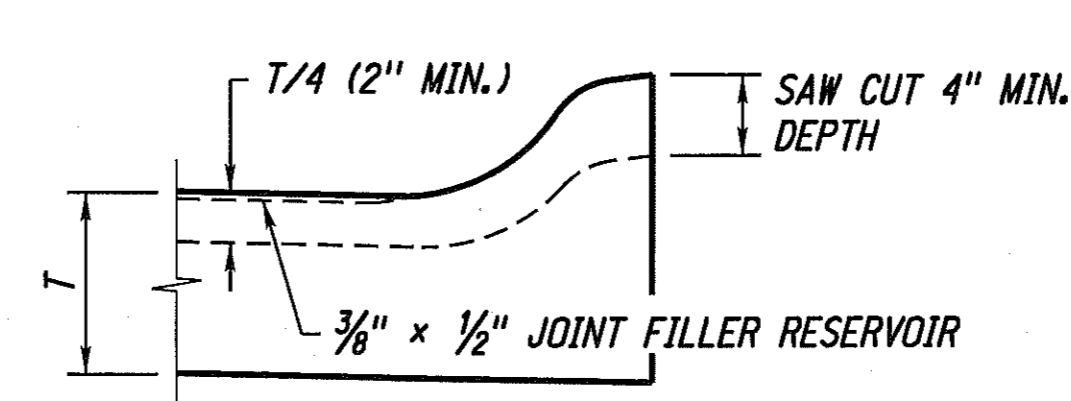
INTEGRAL CONCRETE SLOPING CURB

QUANTITIES
 CONCRETE 0.46 CU. YDS./STA.
 AREA 0.123 SQ. FT.



EROSION CONTROL CURB

QUANTITIES
 CONCRETE 0.81 CU. YDS./STA.
 AREA 0.219 SQ. FT.



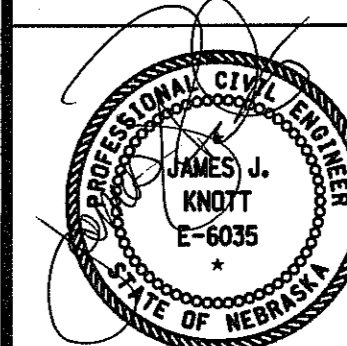
CONTRACTION JOINT THRU CURB

NOTE: T = PAVEMENT THICKNESS

R10	FEB 09	MULTIPLE REVISIONS
R9	MAR 05	MULTIPLE REVISIONS
R8	MAY 01	MULTIPLE REVISIONS
REV. NO.	DATE	DESCRIPTION OF REVISION

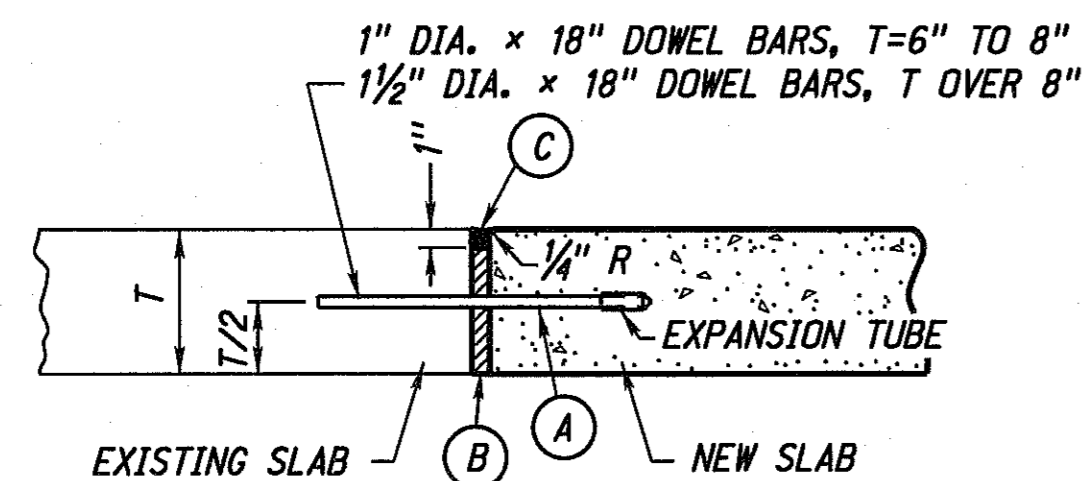
NEBRASKA DEPARTMENT OF ROADS
 STANDARD PLAN NO. 301-R10

PAVEMENT DETAILS



ORIGINAL:
 JANUARY 31, 1974
 DATE

1
 3



- (A) GREASE DOWELBAR ON EXPANSION TUB SIDE
- (B) 1" PREFORMED EXPANSION JOINT FILLER
- (C) JOINT SEALANT

NOTES:

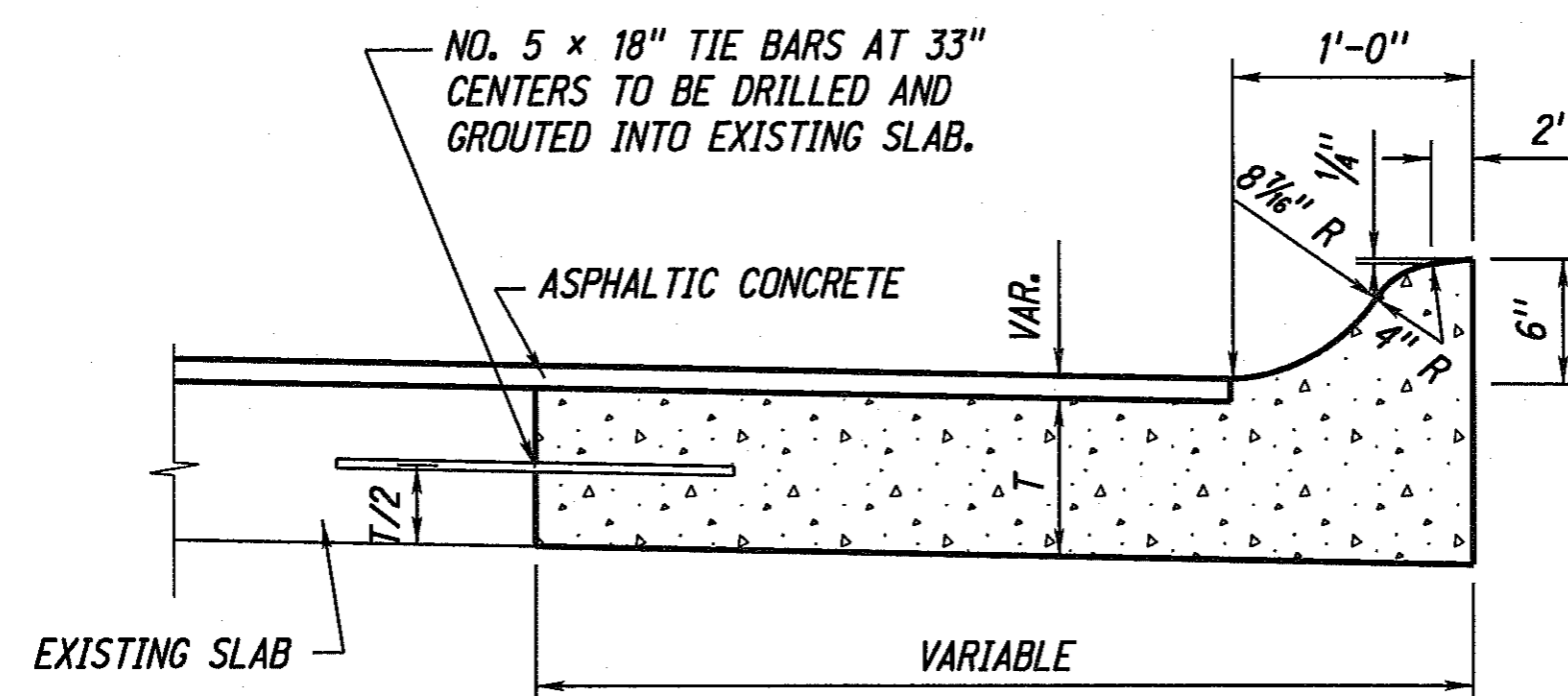
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING SLAB AND GROUTED.

DOWEL BARS SHALL BE PLACED AT 1'-0" CENTERS. THE OUTSIDE DOWEL BAR SHALL BE PLACED 6" FROM THE EDGE OF THE SLAB.

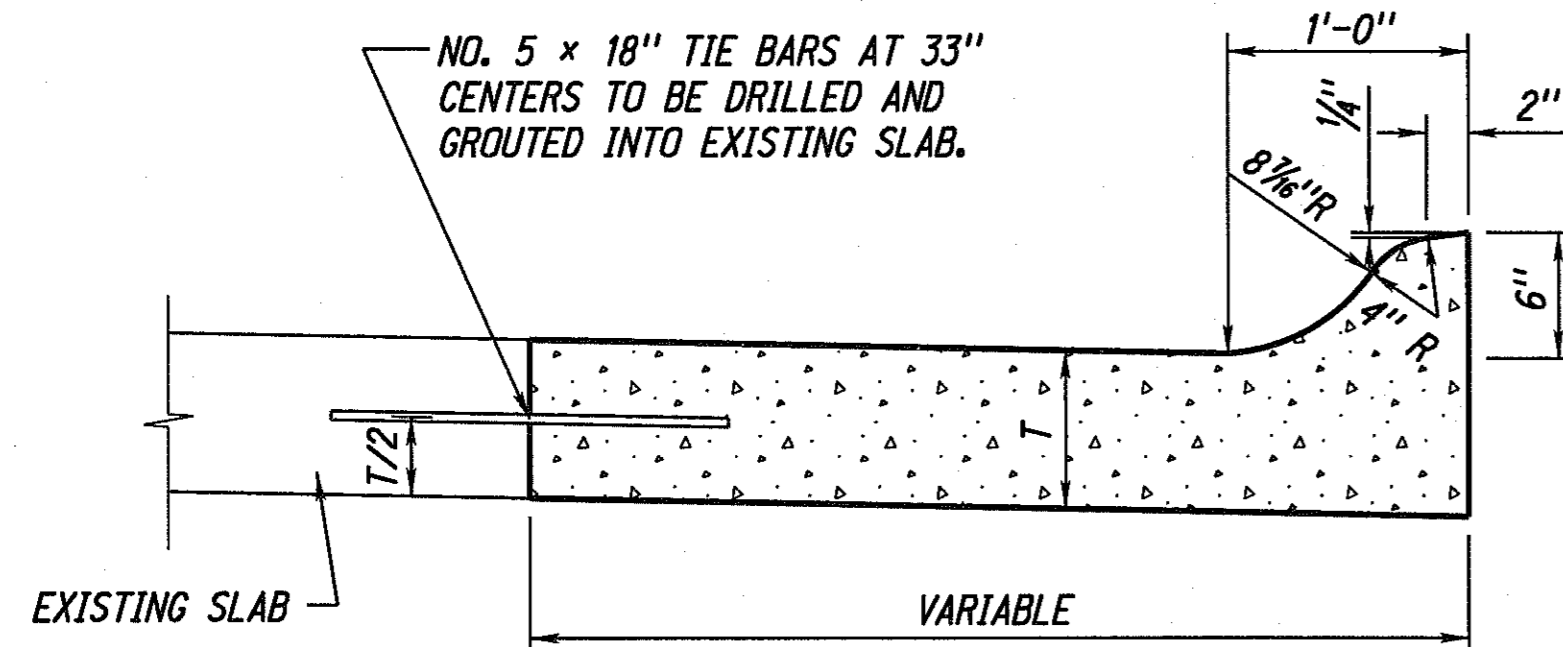
THIS JOINT SHALL BE CONSTRUCTED TRANSVERSE TO THE ROADWAY WHERE THE NEW CONCRETE ABUTS THE EXISTING CONCRETE.

DOWEL BARS SHALL BE PLACED PARALLEL TO THE ROADWAY & AND TO THE ROADBED.

EXPANSION JOINT (SUBSIDIARY)



CONCRETE BASE COURSE W/INTEGRAL CURB



THE FOLLOWING NOTE IS TYPICAL FOR CONCRETE BASE COURSE W/INTEGRAL CURB AND CONCRETE PAVEMENT WIDENING: CONTRACTION AND EXPANSION JOINTS SHALL BE CONSTRUCTED TO MATCH LOCATIONS OF EXISTING JOINTS.

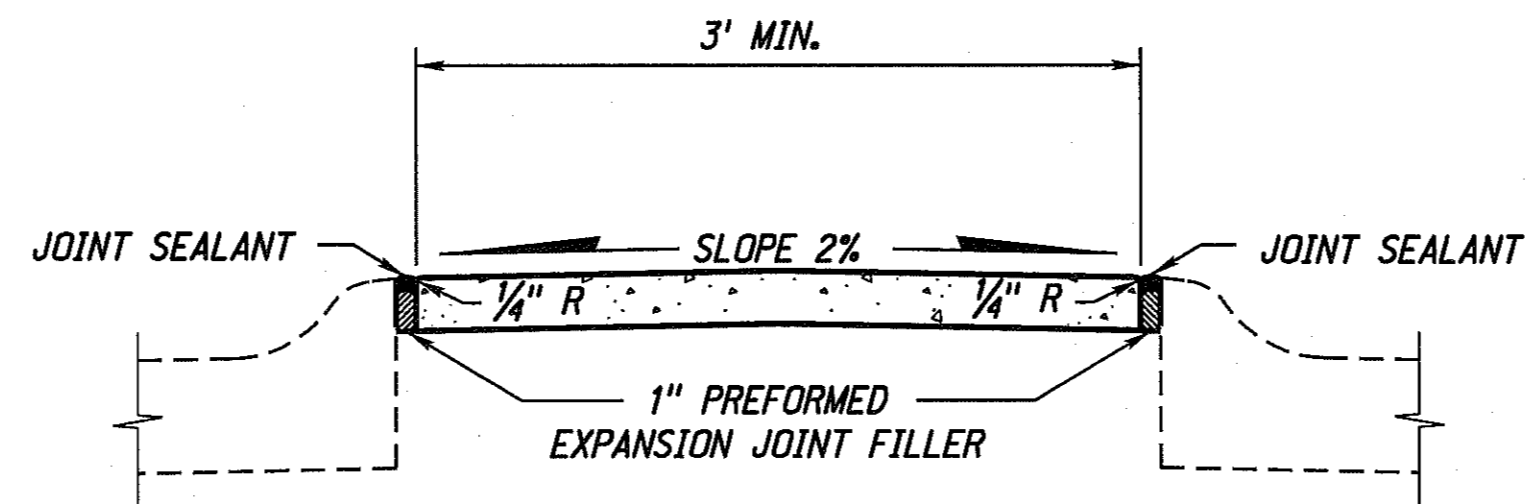
CONCRETE PAVEMENT WIDENING

ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED ACROSS THE FULL WIDTH OF THE MEDIAN SURFACING AT INTERVALS OF NOT MORE THAN 49'-0".

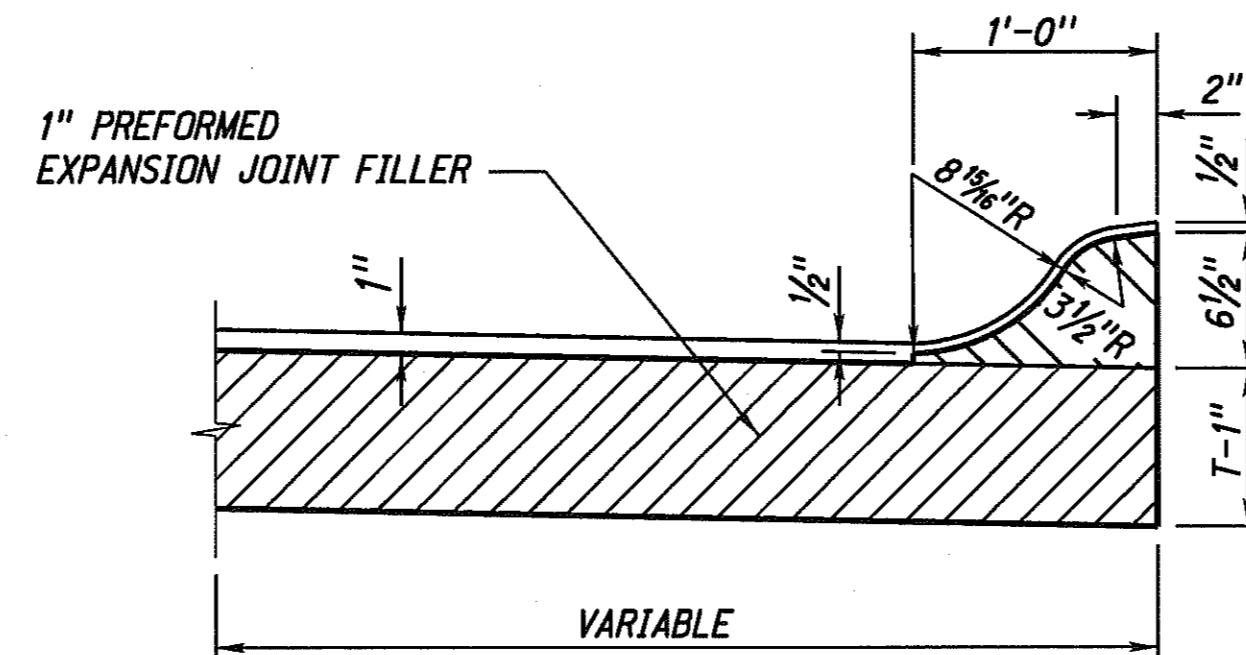
LONGITUDINAL JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS WHEN SURFACING WIDTH IS 16' OR GREATER.

TRANSVERSE JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS AT INTERVALS OF NOT MORE THAN 8'.

TRANSVERSE AND LONGITUDINAL JOINTS SHALL NOT BE FILLED.



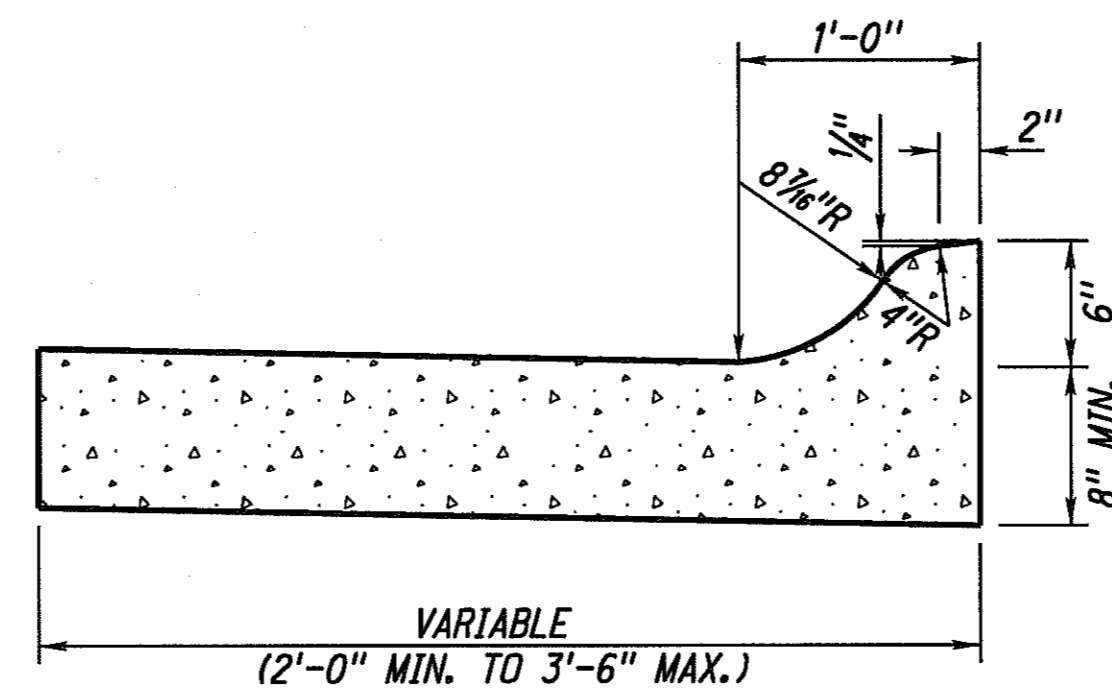
DETAILS OF CONCRETE MEDIAN SURFACING



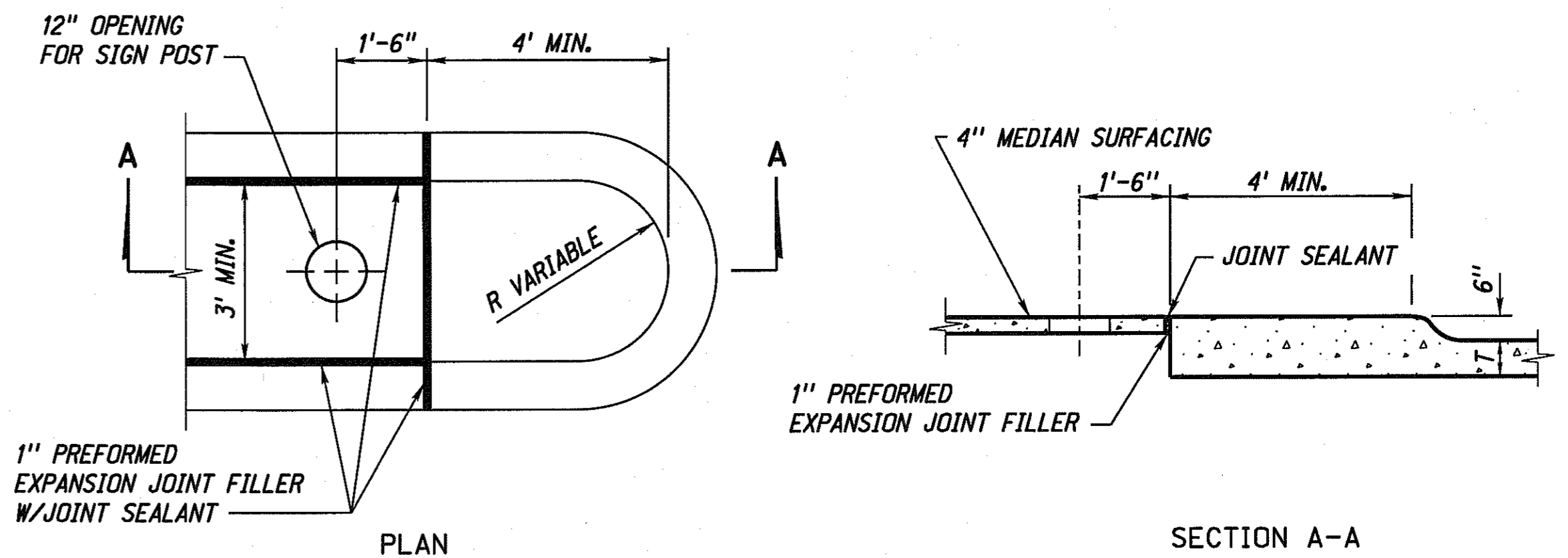
ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERSECTION RETURNS AND WHERE SHOWN ON THE PLANS. TRANSVERSE JOINTS SHALL BE PROVIDED EVERY 8' OR WHERE SHOWN ON THE PLANS.

NOTE: RECESS THE EXPANSION JOINT FILLER 1/2" FROM THE TOP SURFACE OF THE CURB TYPE UNDER CONSTRUCTION

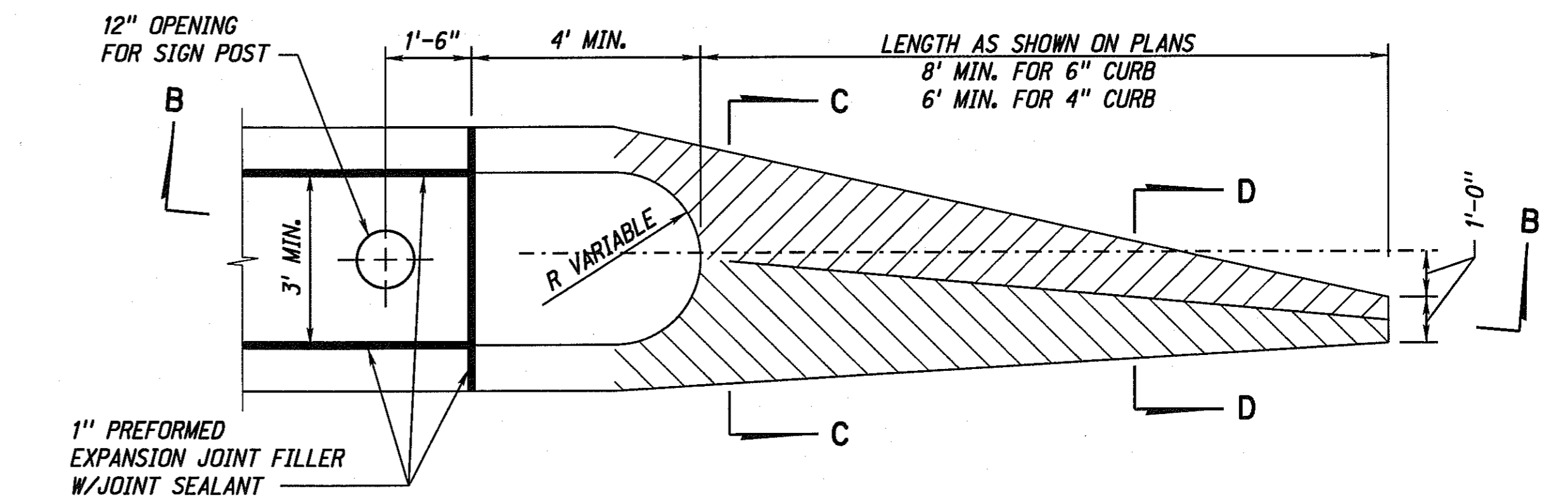
DETAIL FOR CUTTING EXPANSION JOINT FILLER



COMBINATION CONCRETE CURB & GUTTER

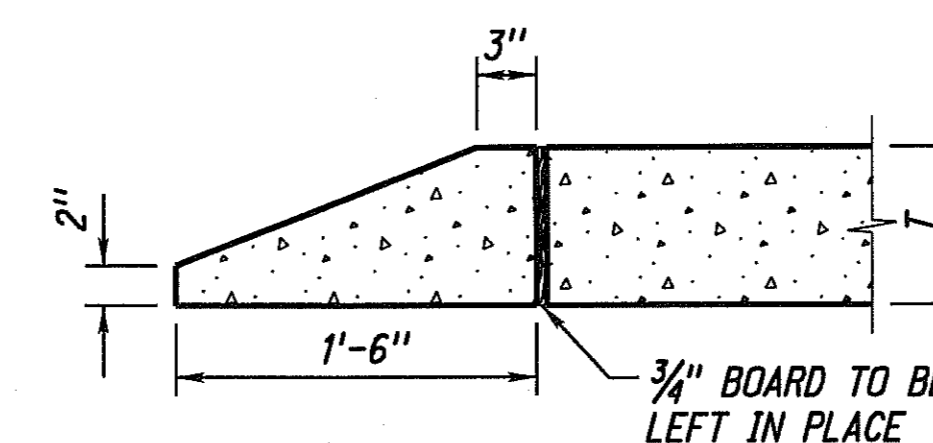


DETAIL AT END OF MEDIAN ISLAND



NOTE: EXISTING CONCRETE PAVEMENT IS TO BE REMOVED IN AREA COVERED BY CONCRETE ISLAND NOSE.

DETAILS OF CONCRETE ISLAND NOSE



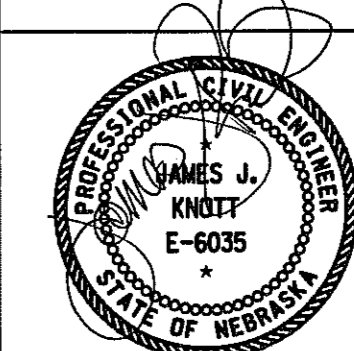
CONCRETE HEADER

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R10	FEB 09	MULTIPLE REVISIONS
R9	MAR.05	MULTIPLE REVISIONS
R8	MAY 01	MULTIPLE REVISIONS

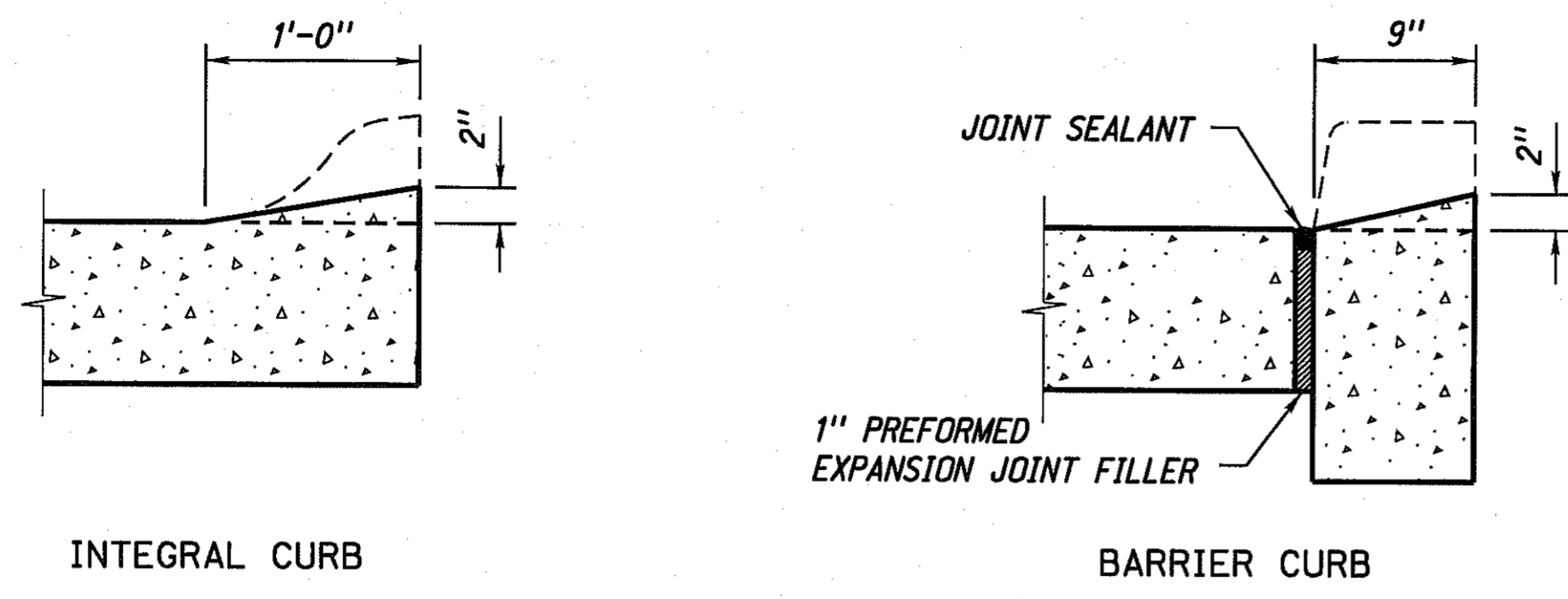
NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 301-R10

PAVEMENT DETAILS



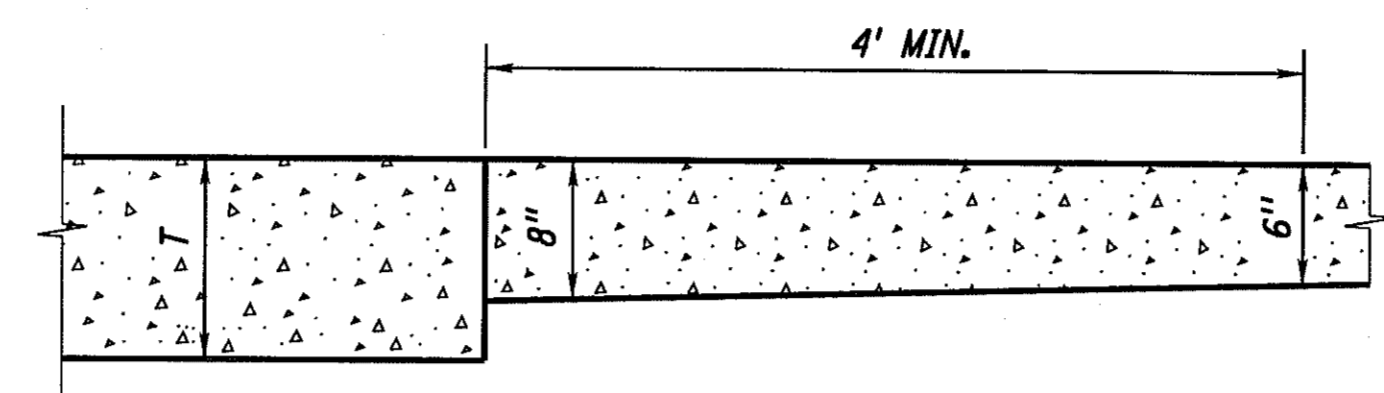
ORIGINAL:
JANUARY 31, 1974
DATE

2
3

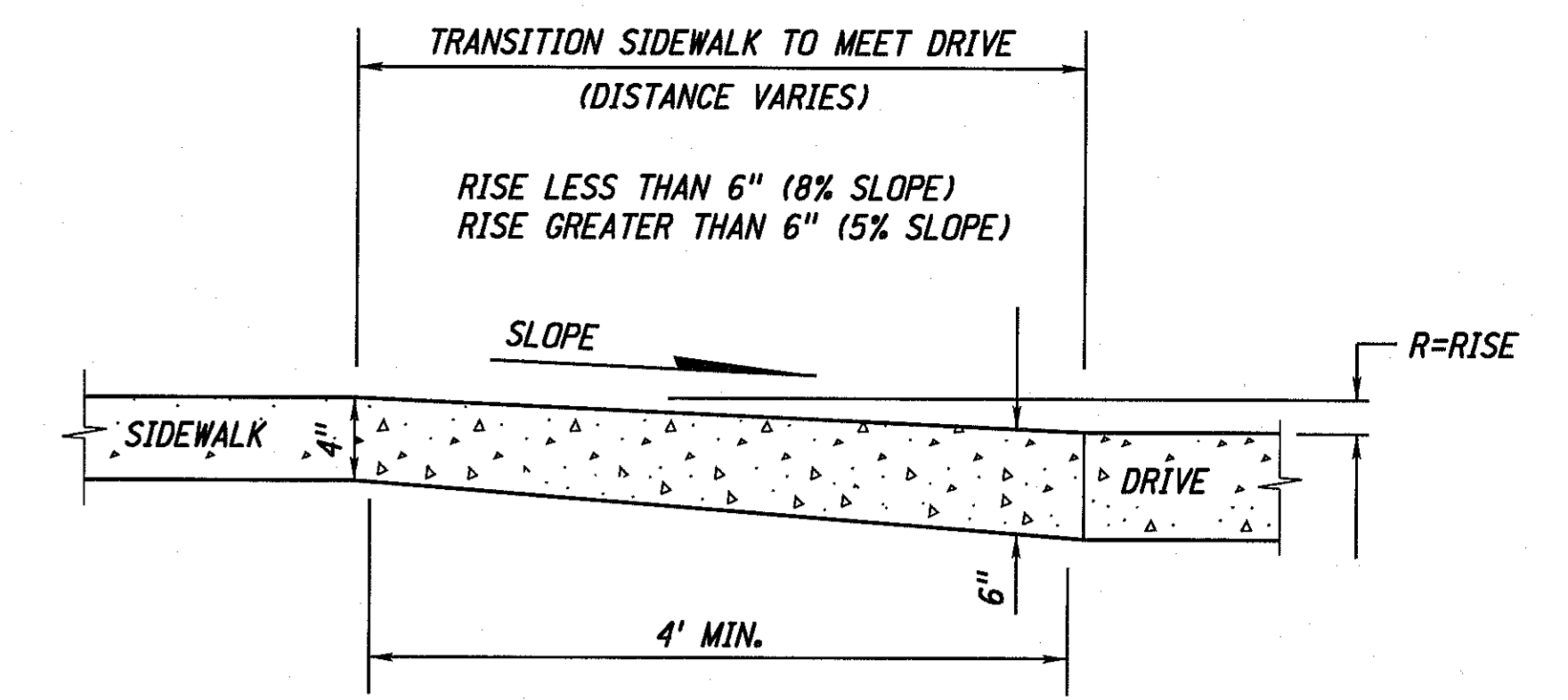


INTEGRAL CURB BARRIER CURB

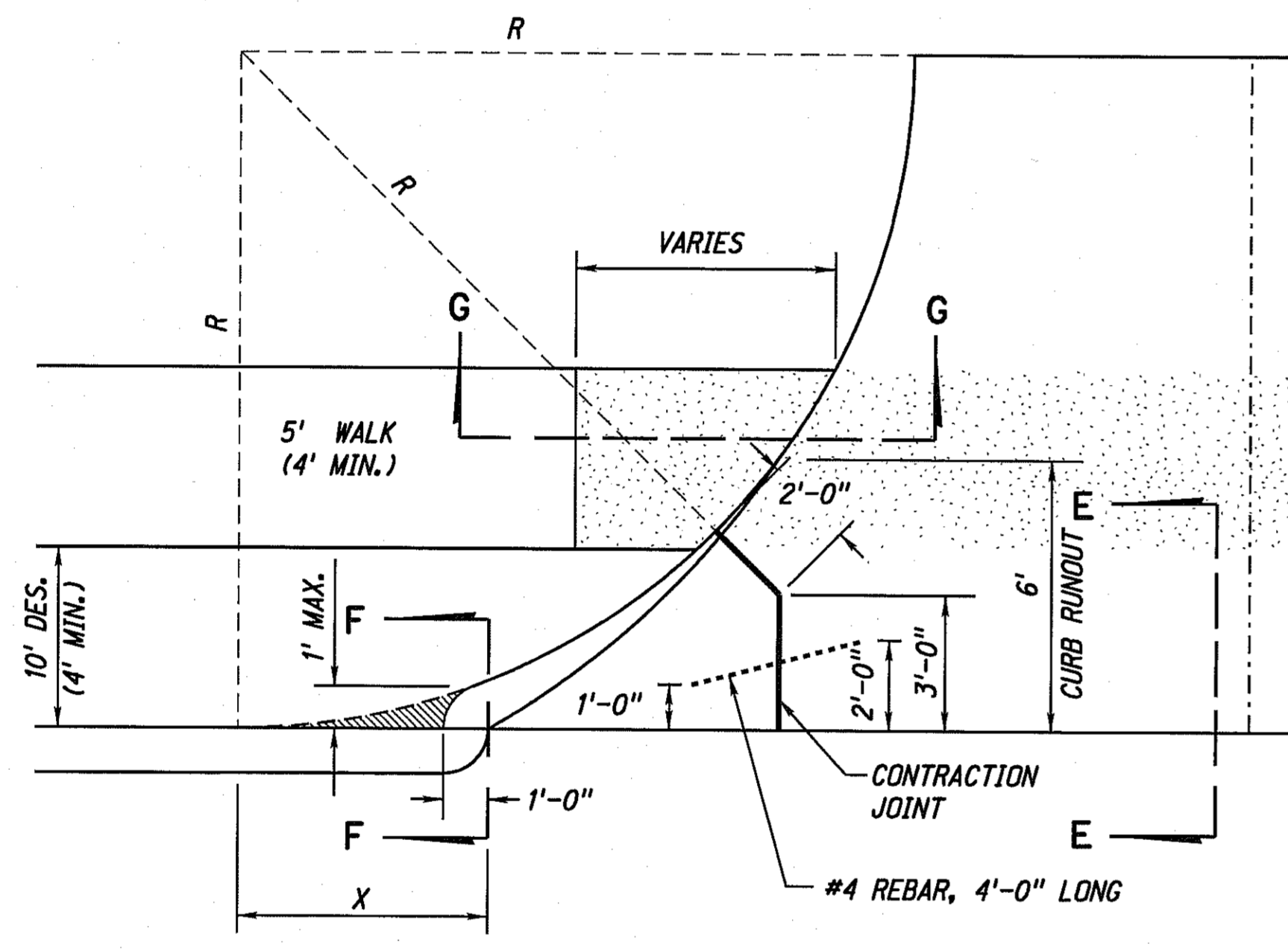
DETAILS OF CURB DROPS



SECTION E-E (RURAL DRIVEWAY)



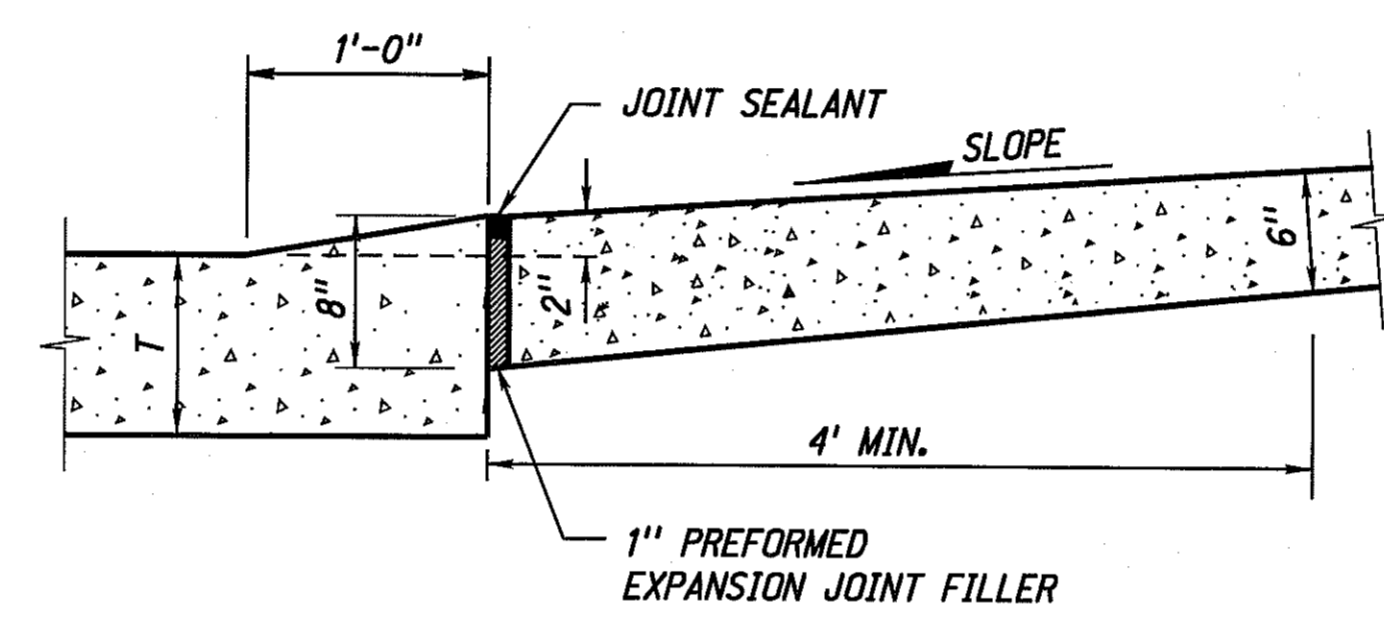
SECTION G-G



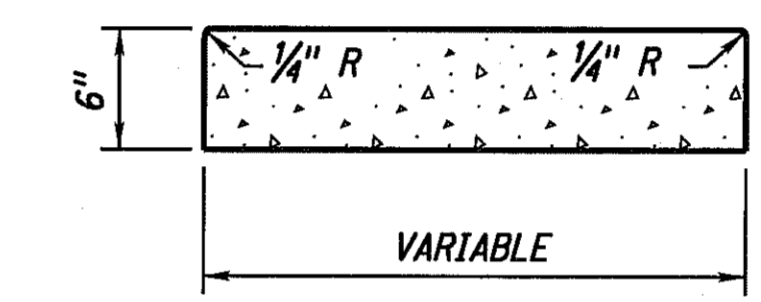
DRIVEWAY PLAN

R	X
5'	3.00'
10'	4.36'
15'	5.38'
20'	6.24'
25'	7.00'
30'	7.68'
35'	8.31'
40'	8.89'

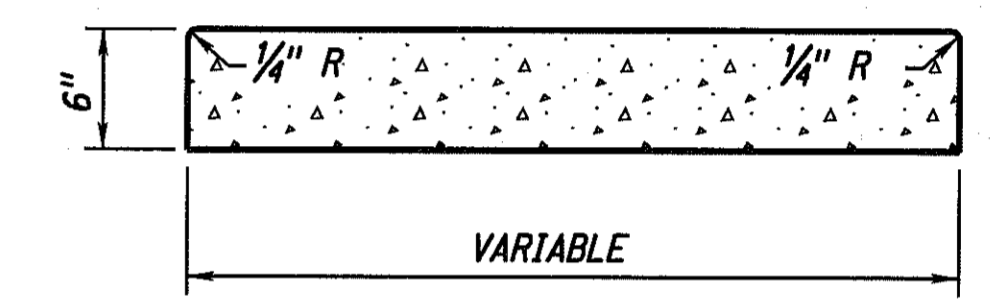
R = RADIUS
X = $\sqrt{(2R-1)}$
(X & R IN FEET)



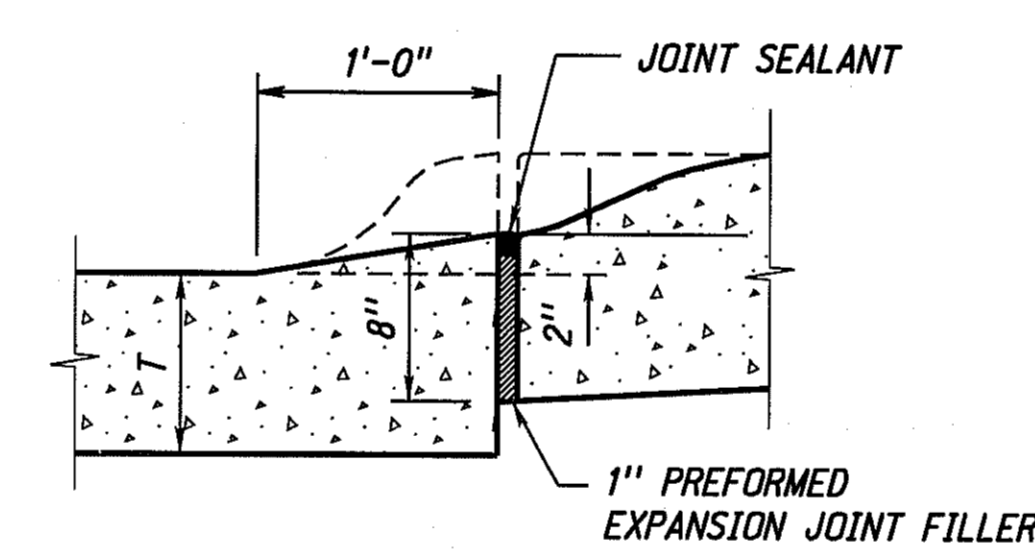
SECTION E-E (URBAN DRIVEWAY)



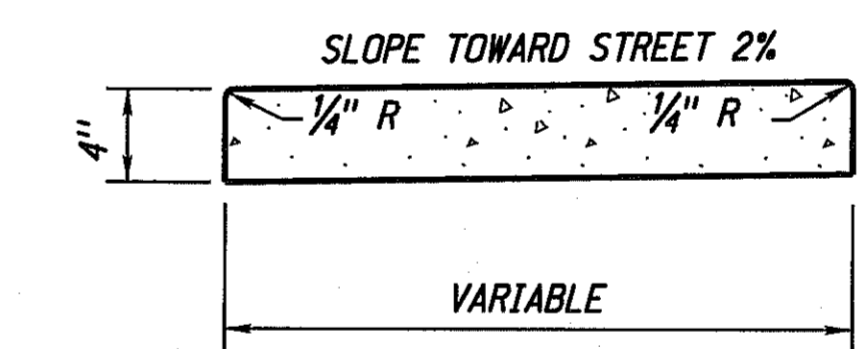
CROSSWALK



DRIVEWAY

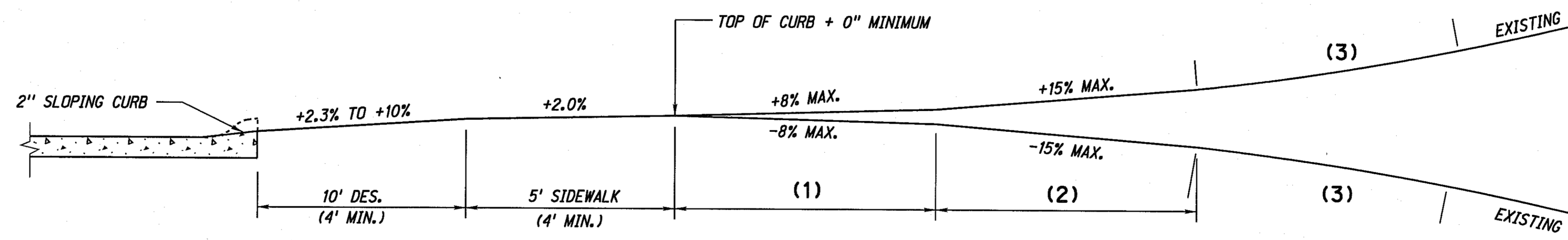


SECTION F-F (URBAN DRIVEWAY)



SIDEWALK

NOTE:
1" PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED IN ALL SIDEWALKS OR CROSSWALKS AT INTERVALS OF NOT MORE THAN 50'-0", AND AT ALL POINTS WHERE SIDEWALKS OR CROSSWALKS ARE ADJACENT TO CURB. IF SIDEWALK OR CROSSWALK TO BE CONSTRUCTED IS LESS THAN 50'-0" IN LENGTH, ONE SUCH EXPANSION JOINT SHALL BE PLACED AS DIRECTED BY THE ENGINEER.



PROFILE URBAN DRIVEWAY WITH SIDEWALK
(MAXIMUM PERCENT OF GRADE)

- (1) 10' MIN. IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±8%
- (2) 10' MIN. IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±15%
- (3) 10' MIN. ROUNDING IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±22%

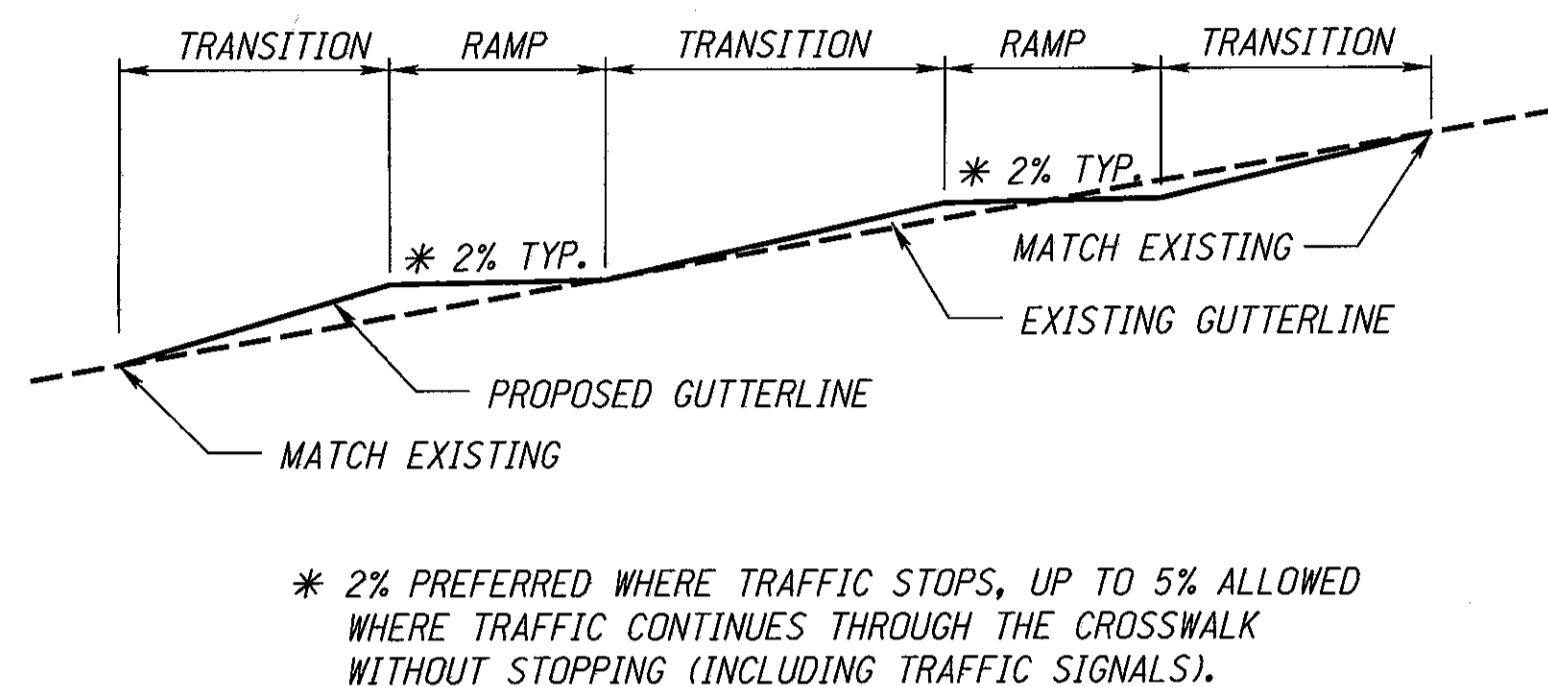
NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R10	FEB 09	MULTIPLE REVISIONS
R9	MAR.05	MULTIPLE REVISIONS
R8	MAY 01	MULTIPLE REVISIONS

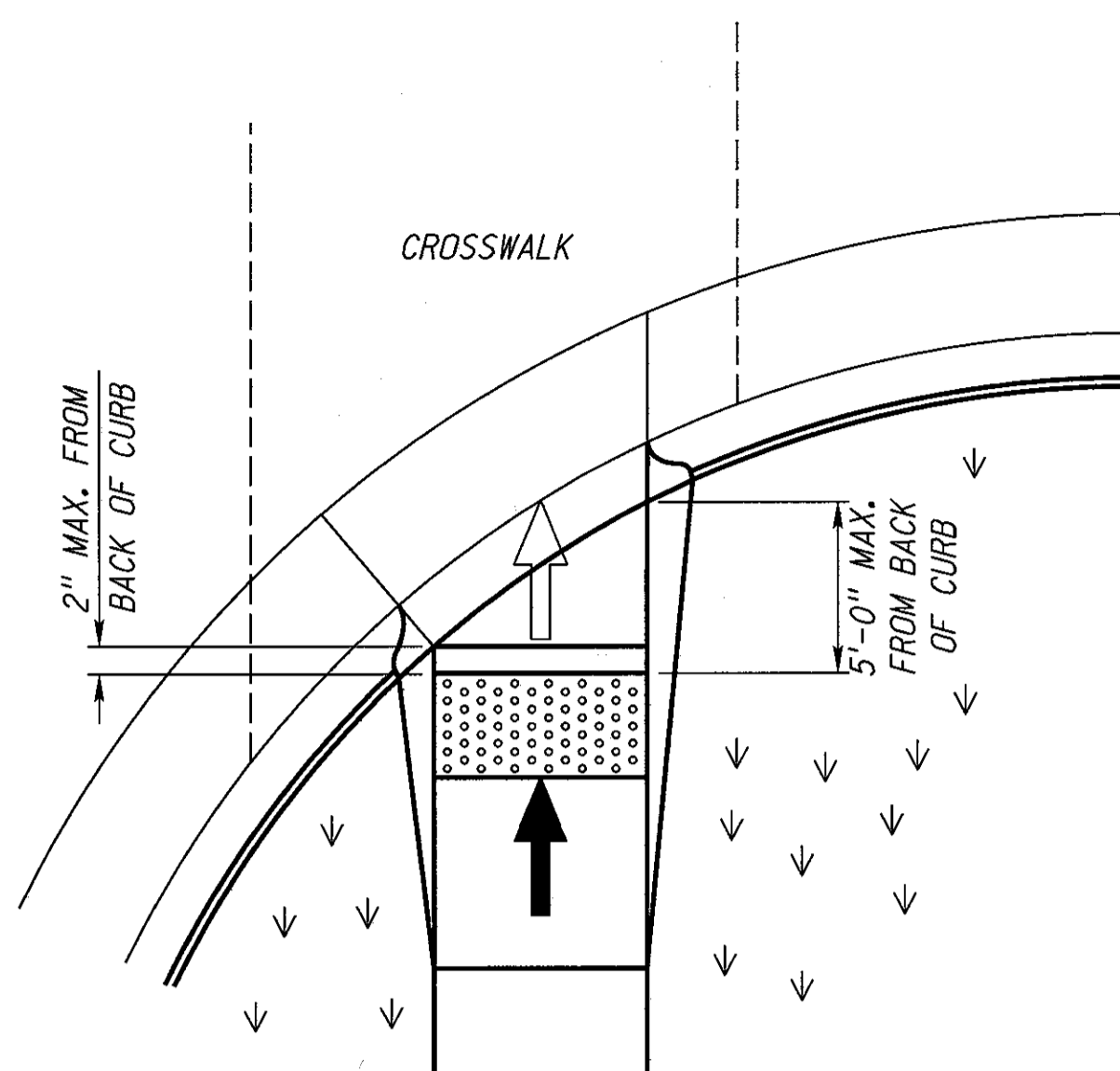
NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 301-R10
PAVEMENT DETAILS



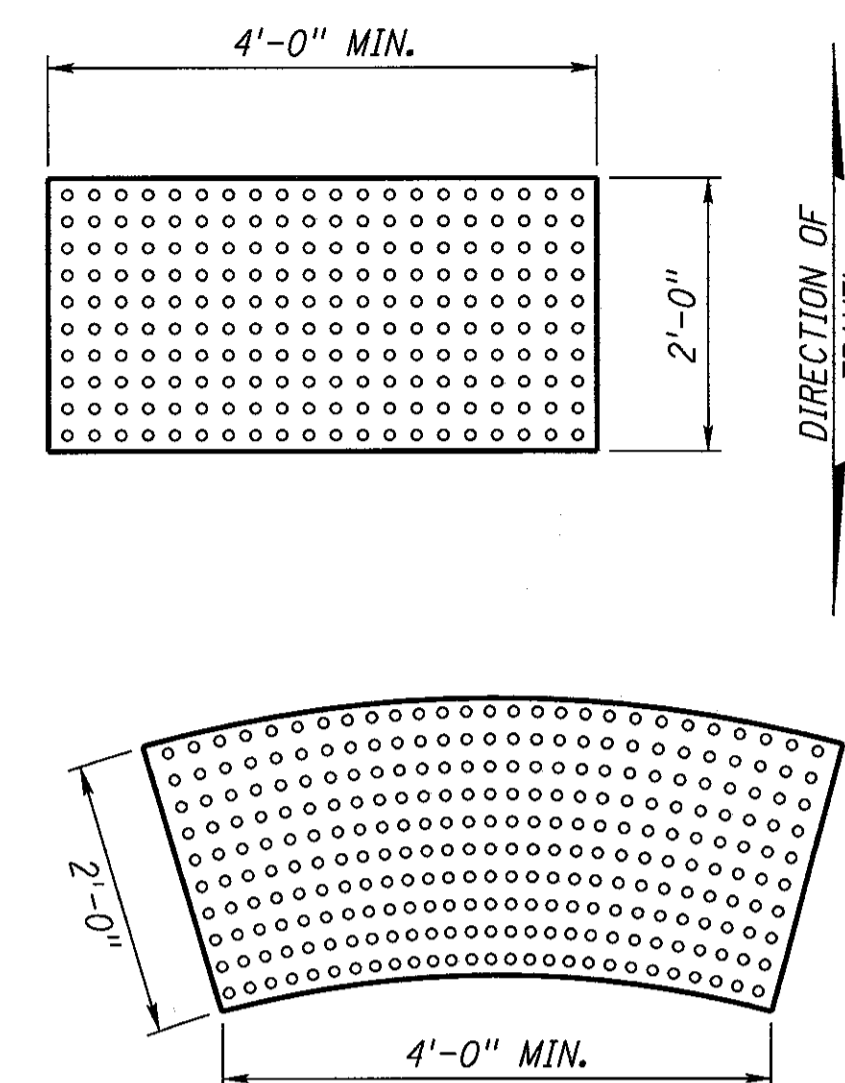
ORIGINAL:
JANUARY 31, 1974
DATE



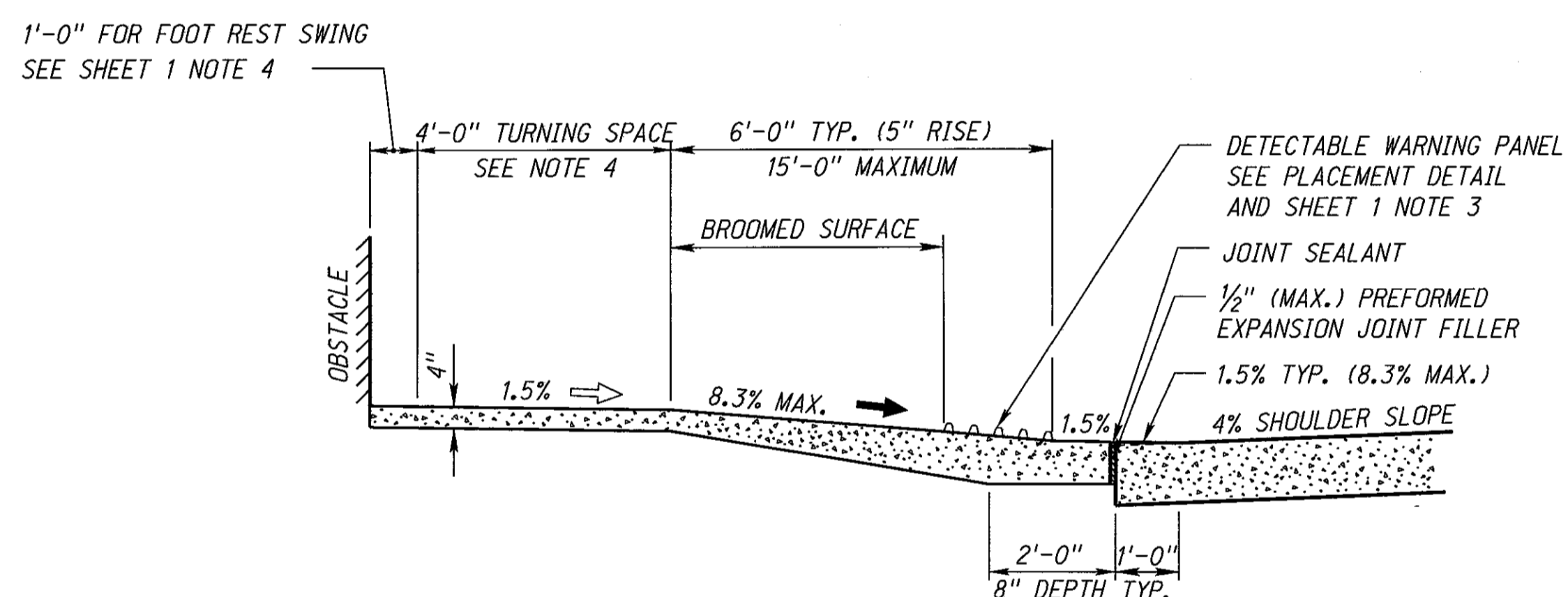
GUTTER PROFILE DETAIL



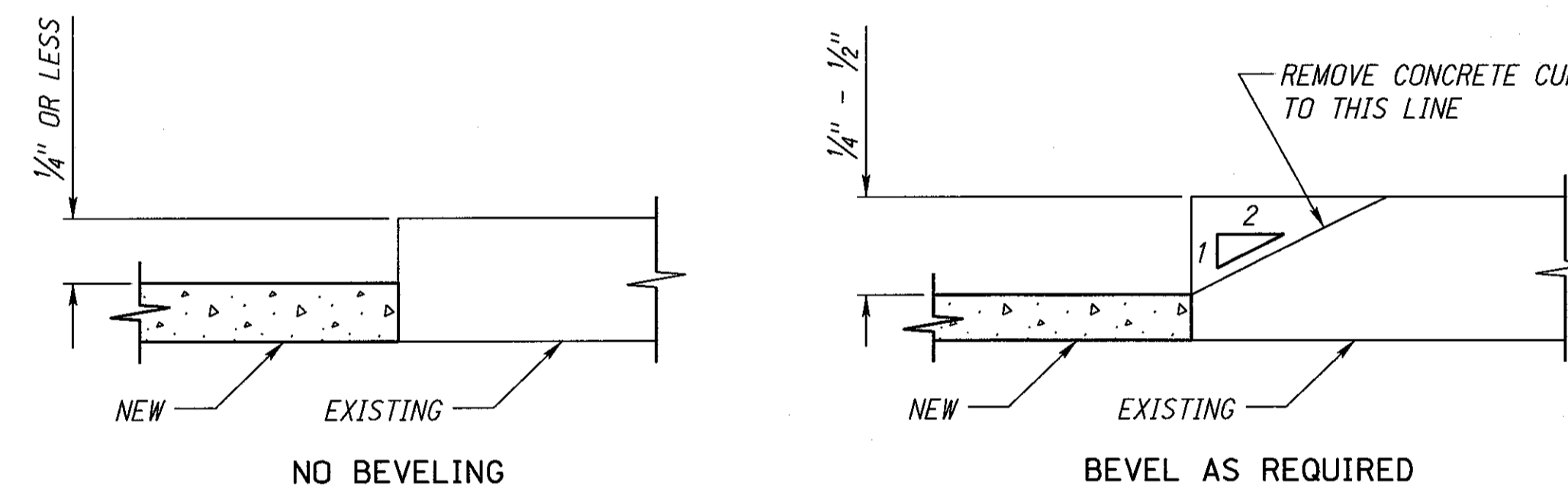
DETECTABLE WARNING PANEL PLACEMENT DETAIL



DETECTABLE WARNING PANELS



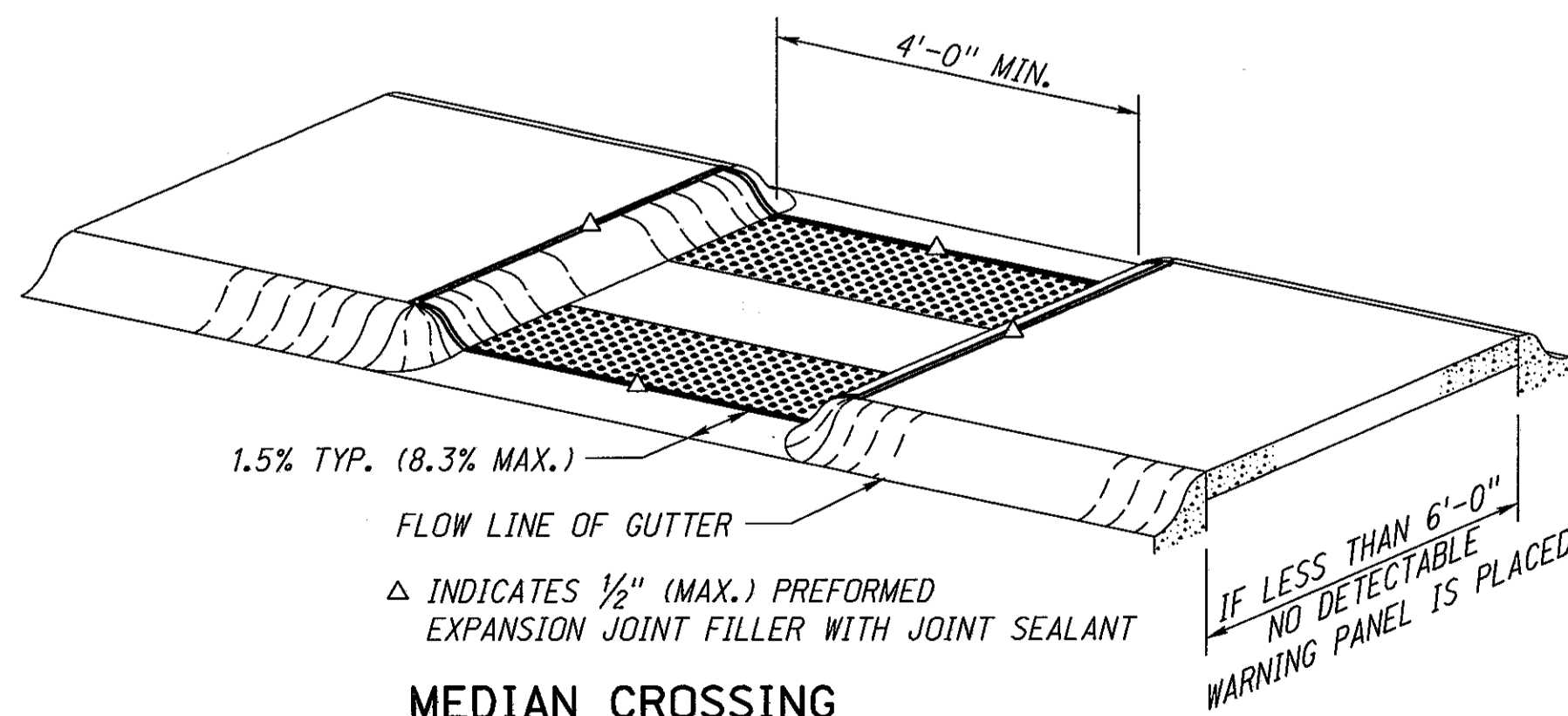
TYPICAL RAMP PROFILE



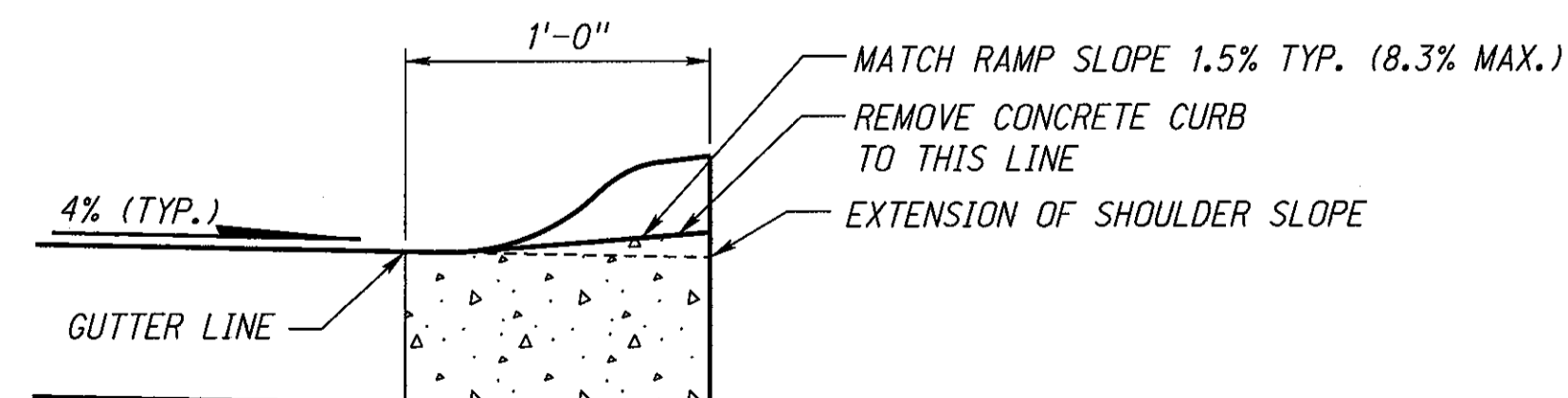
WHEN EXISTING SIDEWALK DOES NOT MEET THE 2% CROSS SLOPE, BEVELING TO MEET PROWAG IS REQUIRED.

THE SIDEWALK PANEL ABUTTING THE EXISTING SIDEWALK (WHICH MAY NOT BE 2% SLOPE): BUILD FULL WIDTH OF THE NEW SIDEWALK, ON 2% MAXIMUM CROSS SLOPE AND BEVEL THE EXISTING SIDEWALK EDGE WHERE IT DOES NOT MEET THE NEW WITHIN 1/4", THIS WORK IS SUBSIDIARY.

BEVELING DETAIL



MEDIAN CROSSING



NOTE: COMBINATION CONCRETE CURB AND GUTTER MAY BE REMOVED AND REPLACED IN LIEU OF MILLING.

CURB DETAIL

SLOPE LEGEND	
	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

NOTES:

1. THE SURFACE OF ALL CURB RAMPS SHALL BE BROOMED PERPENDICULAR TO THE SLOPE OF THE CURB RAMP.
2. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE CURB RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.
3. ALL CURB RAMPS SHALL BE CONSTRUCTED WITH A DETECTABLE WARNING PANEL (DWP), 2 FT. x 4 FT. MINIMUM. PLACED WITHIN 2" OF THE BACK OF CURB.

- DETECTABLE WARNING PANEL:
- SHALL BE PAID FOR BY THE SQ. FT.
 - SHALL BE FROM THE APPROVED PRODUCT LIST
 - SHALL BE A CONTRASTING COLOR TO THE SURROUNDING SURFACING.
 - SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP.

NEW CURB RAMPS SHALL HAVE CAST IN CONCRETE DETECTABLE WARNING PANELS.

4. TURNING SPACE SHALL HAVE MINIMUM DIMENSIONS OF 4 FT. x 4 FT. AND SHALL BE A MINIMUM OF 1 FT. FROM ANY OBSTACLE SUCH AS A CURB OR RETAINING WALL FOR SWING OF WHEELCHAIR FOOT REST. THE SLOPE SHALL BE 2% MAXIMUM IN ANY DIRECTION.
5. THE WORK OF CONSTRUCTING CURB RAMPS SHALL BE INCLUDED IN THE QUANTITIES FOR "CONCRETE SIDEWALKS", "CONCRETE MEDIAN SURFACING" OR "CONCRETE BIKEWAY". THE WORK OF MODIFICATION OF NEW OR EXISTING CURB WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK FOR WHICH DIRECT PAYMENT IS MADE.

LEGEND

- DETECTABLE WARNING PANEL (DWP)
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORIZ.

REV. NO.	DATE	DESCRIPTION OF REVISION
RI	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 303-R1

CURB RAMPS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

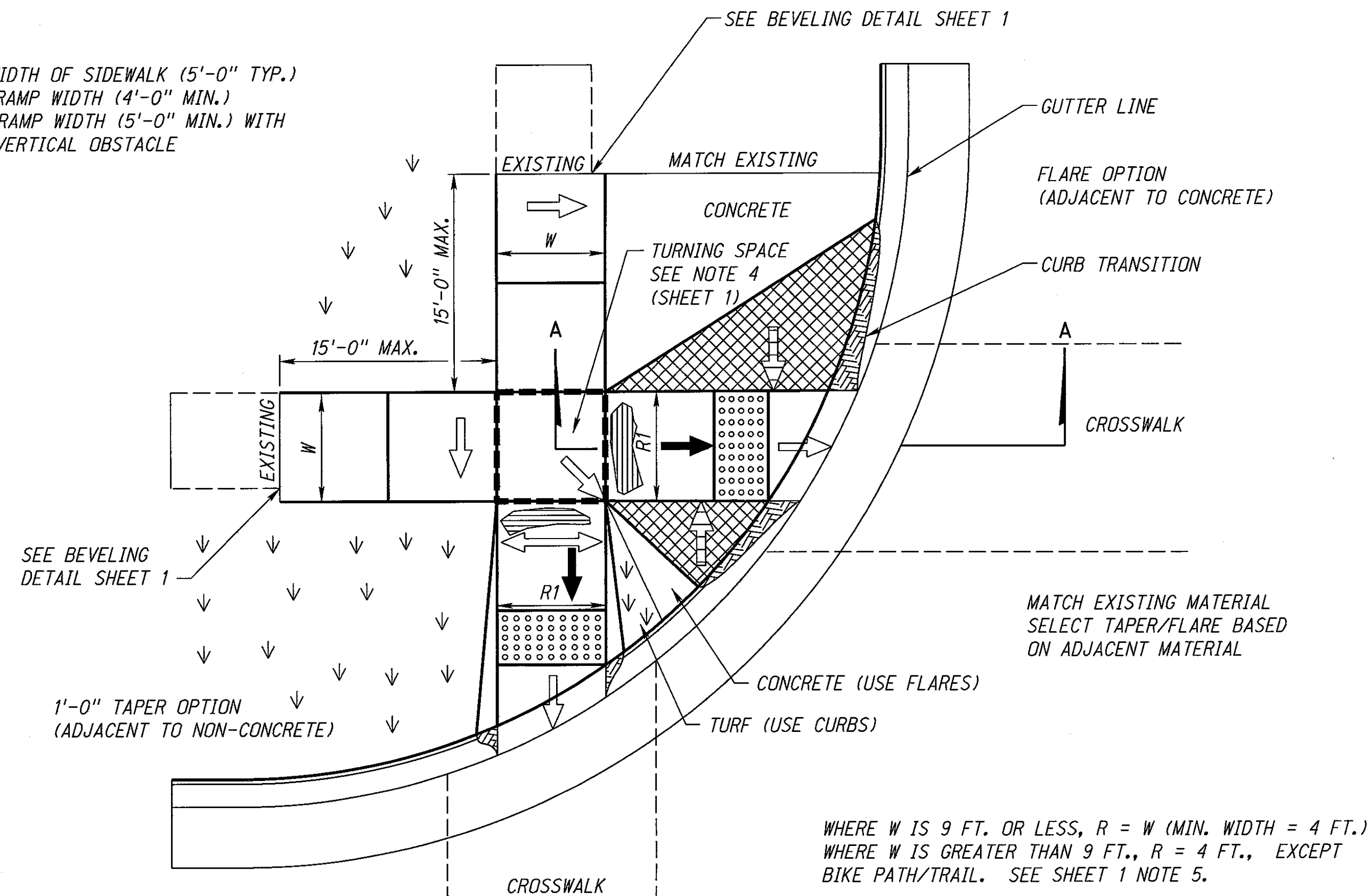
James J. Knott
DATE: 10-12-2012

ORIGINAL: MARCH 22, 2010

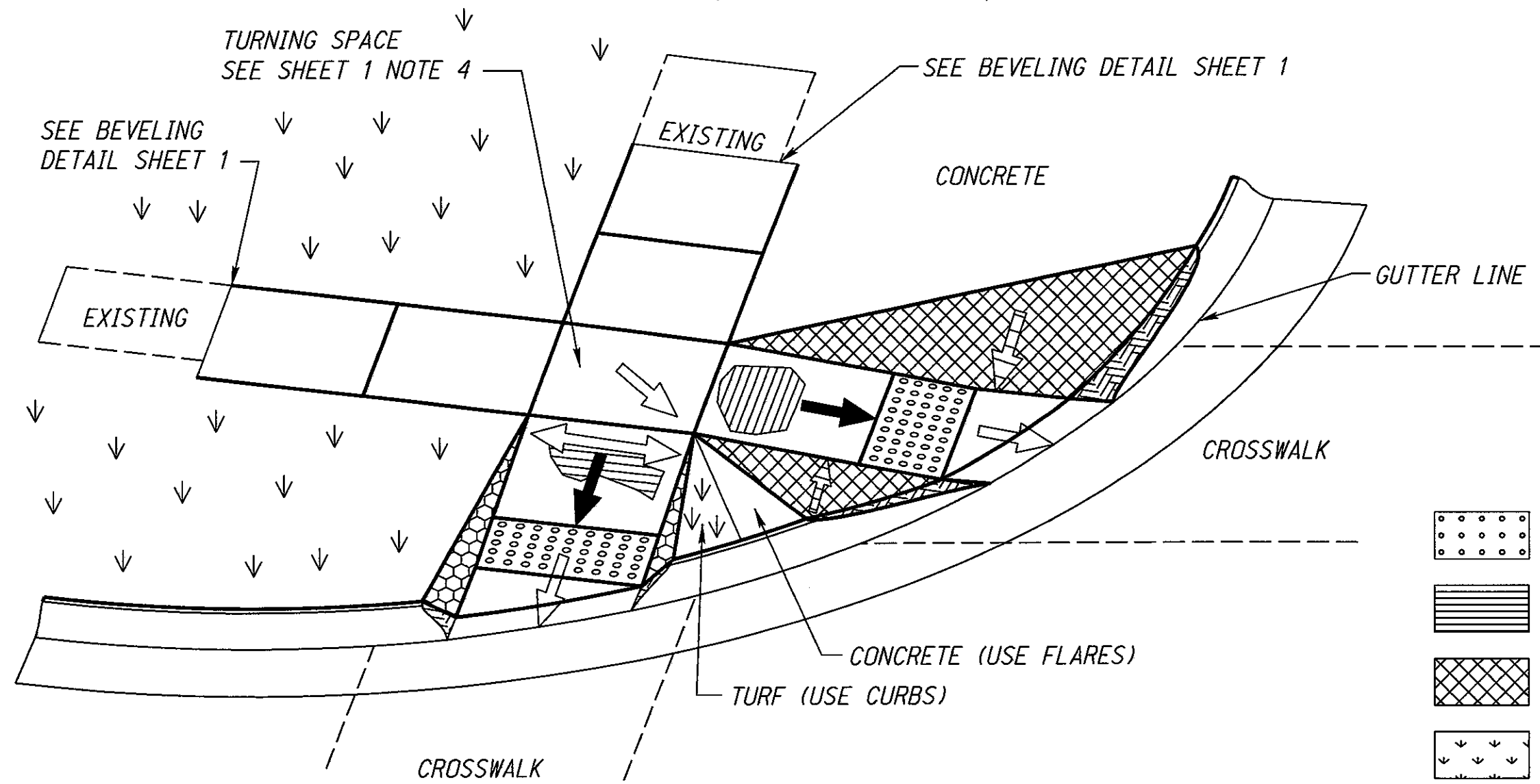
DATE

1/4

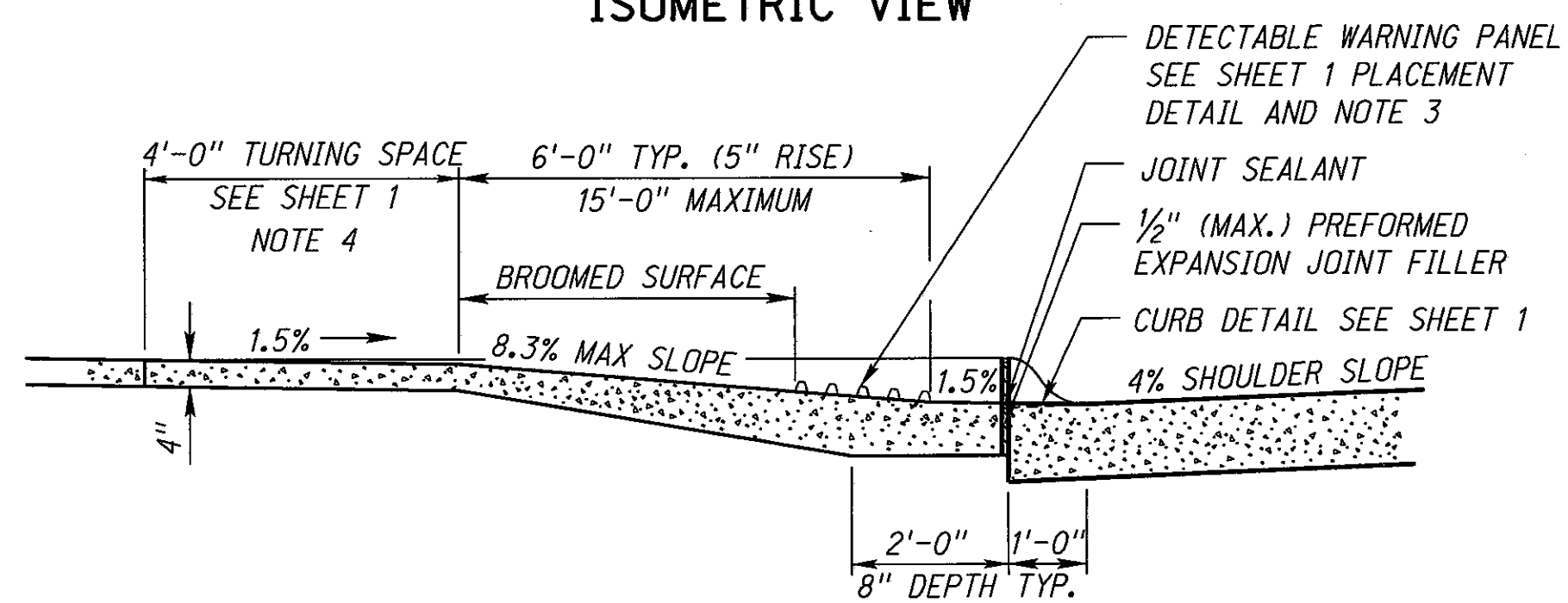
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



TYPE A PLAN



ISOMETRIC VIEW



TYPE A CROSS SECTION SECTION A-A

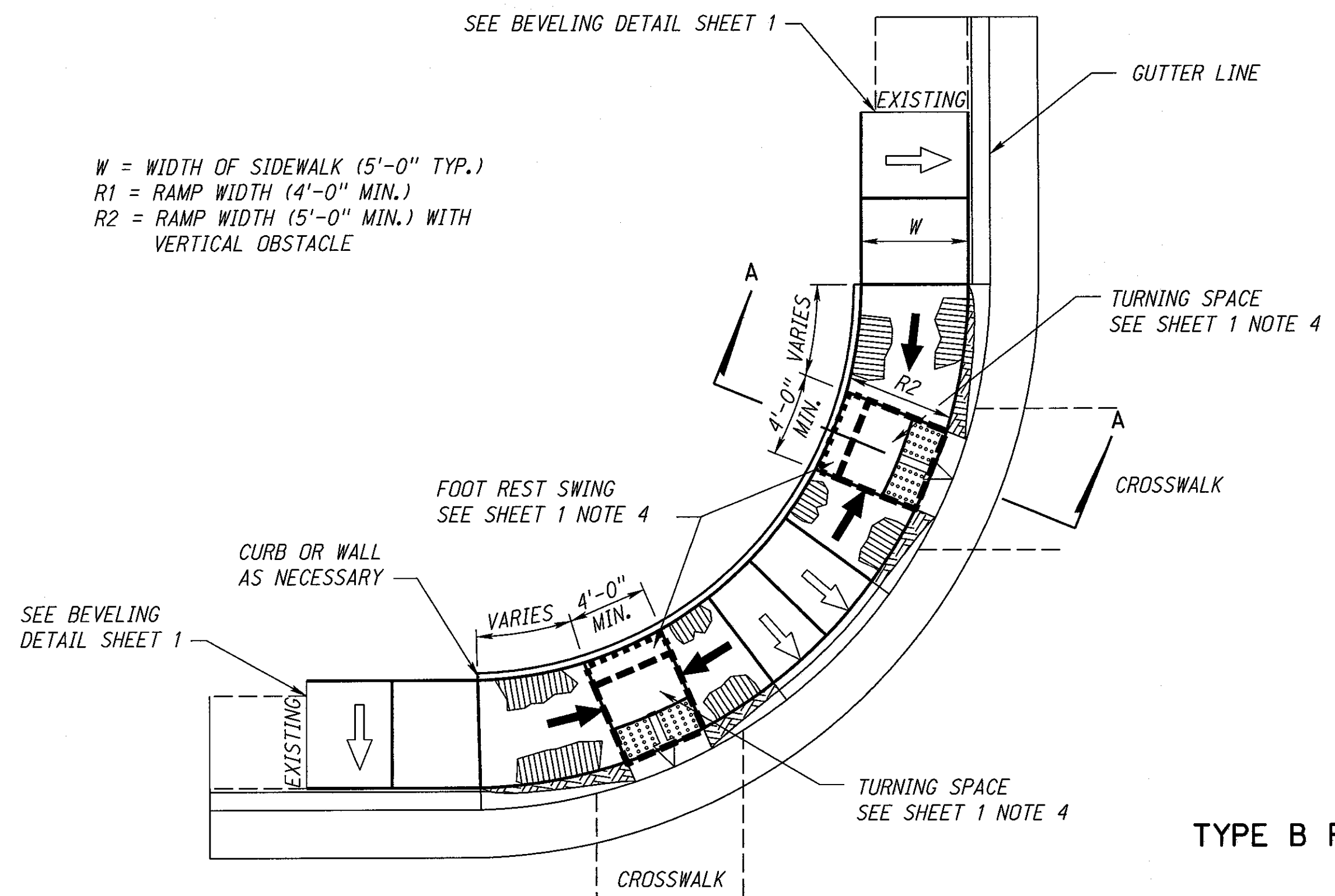
- LEGEND**
- DETECTABLE WARNING PANEL (DWP)
 - BROOMED CURB RAMP WHEN 5% TO 8.3%
 - RAMP FLARE
 - GRASS OR NON WALKING SURFACE
 - CURB TRANSITION
 - CURB FACE SLOPE 1 VERT. : 2 HORIZ.

SLOPE LEGEND

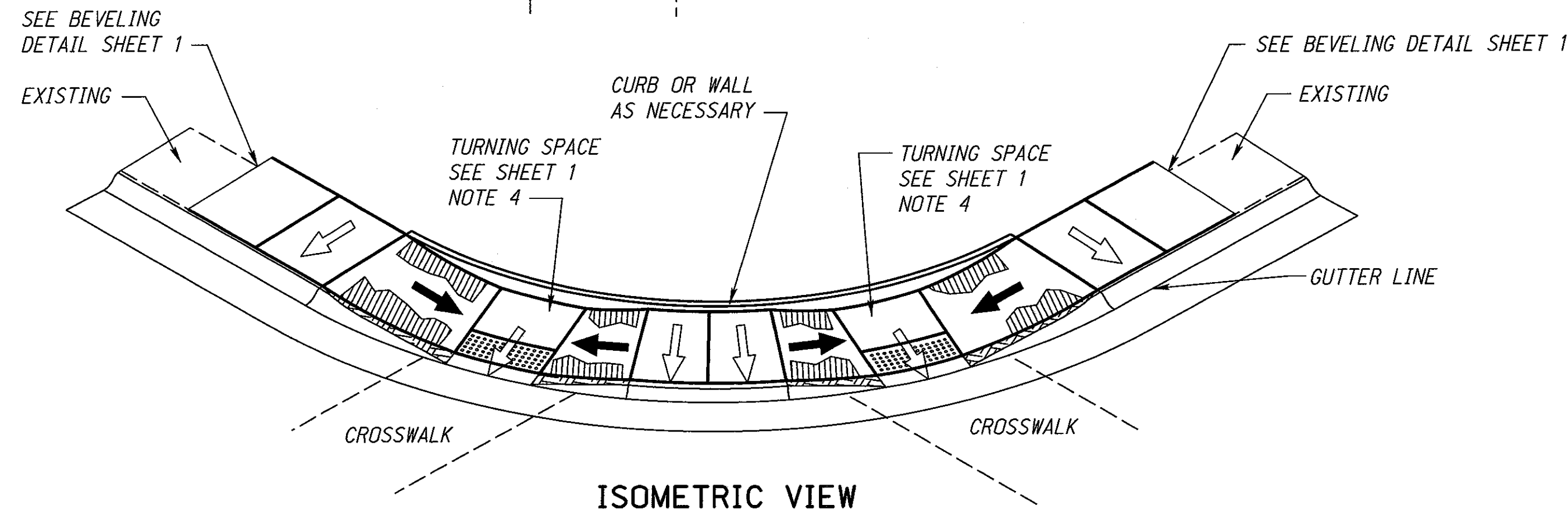
	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

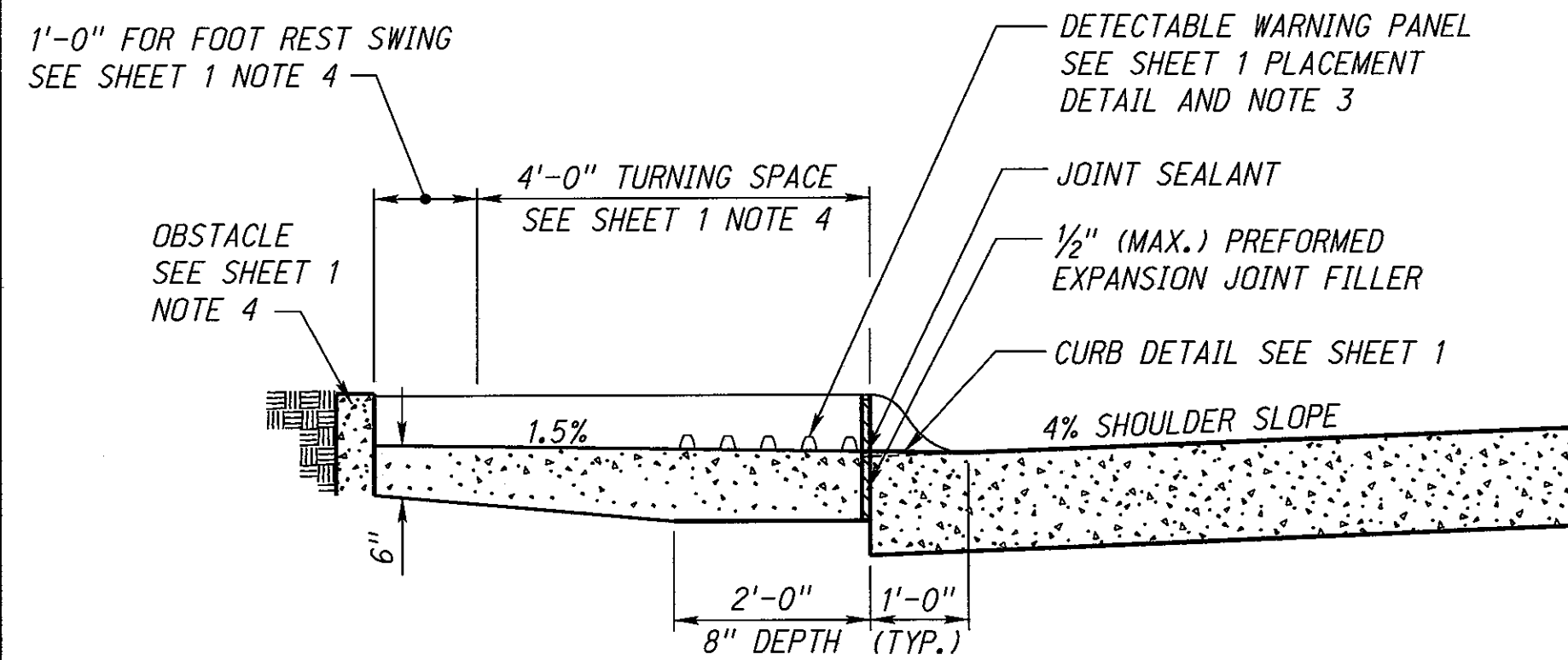
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



TYPE B PLAN



ISOMETRIC VIEW



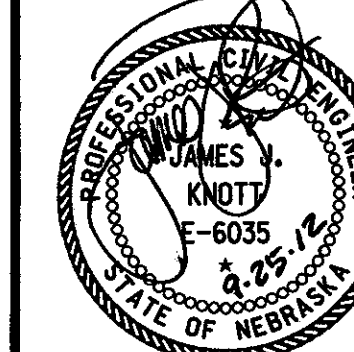
TYPE B CROSS SECTION SECTION A-A

RI	FEB 13	ALL OF PLAN REWORKED (PROWAG)
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 303-R1

CURB RAMPS

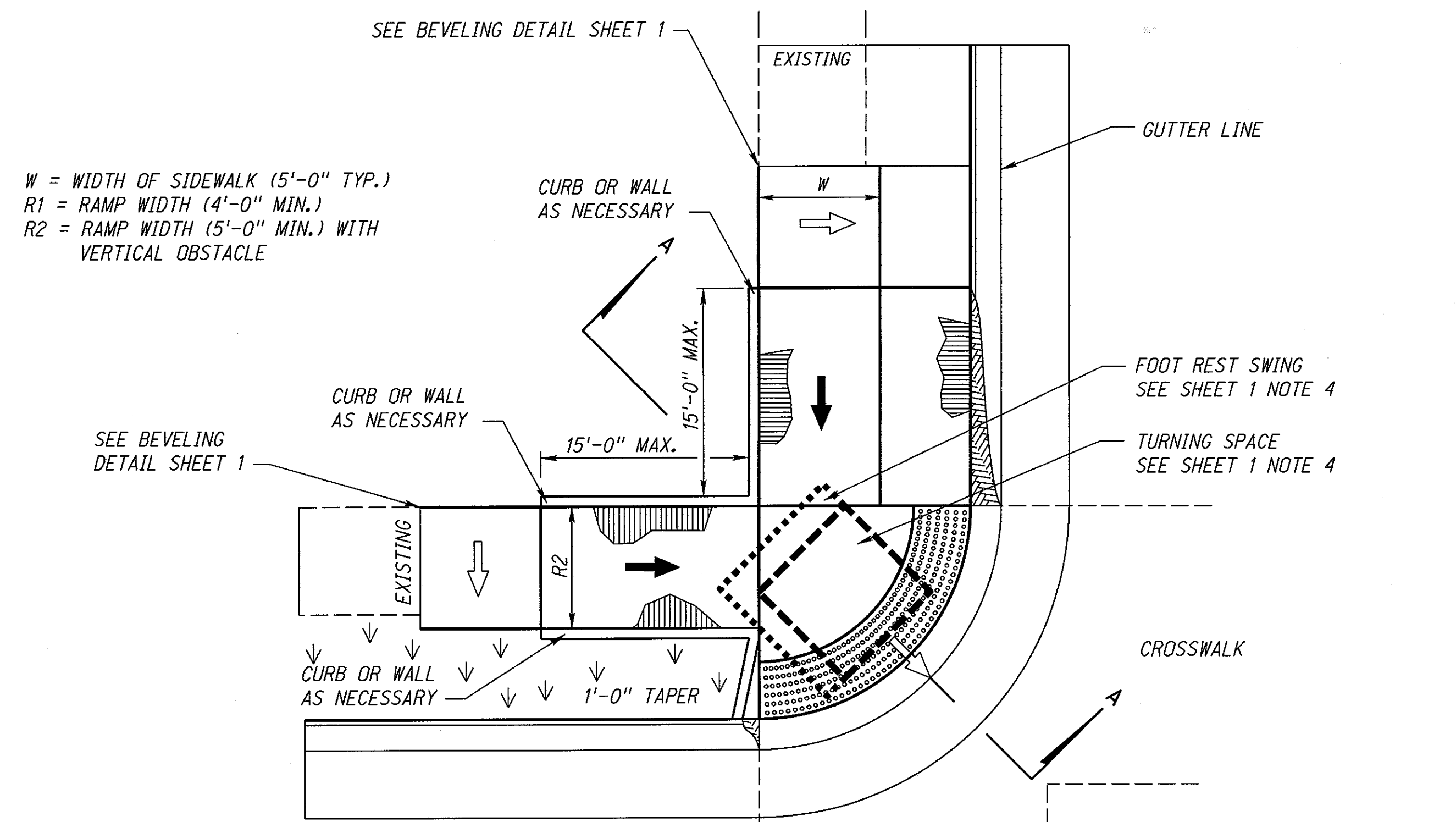
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:



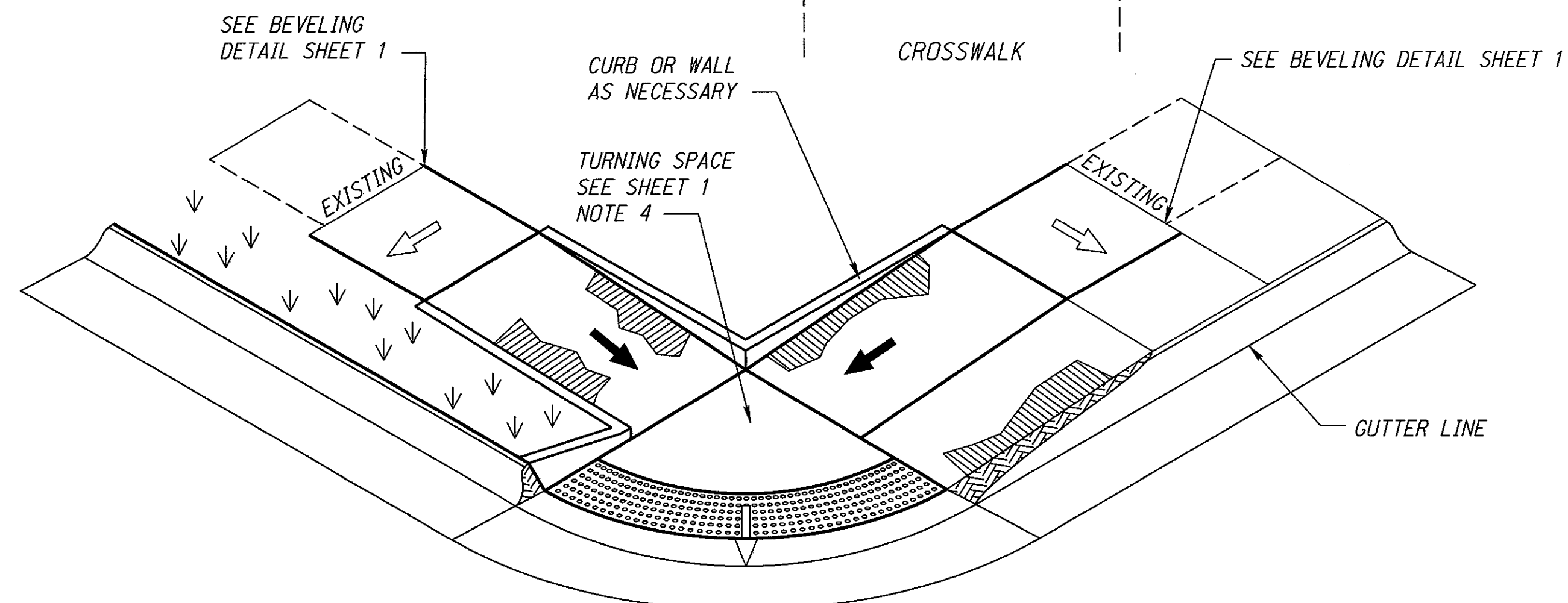
James J. Knott
10-12-2012
DATE

ORIGINAL:
MARCH 22, 2010
DATE

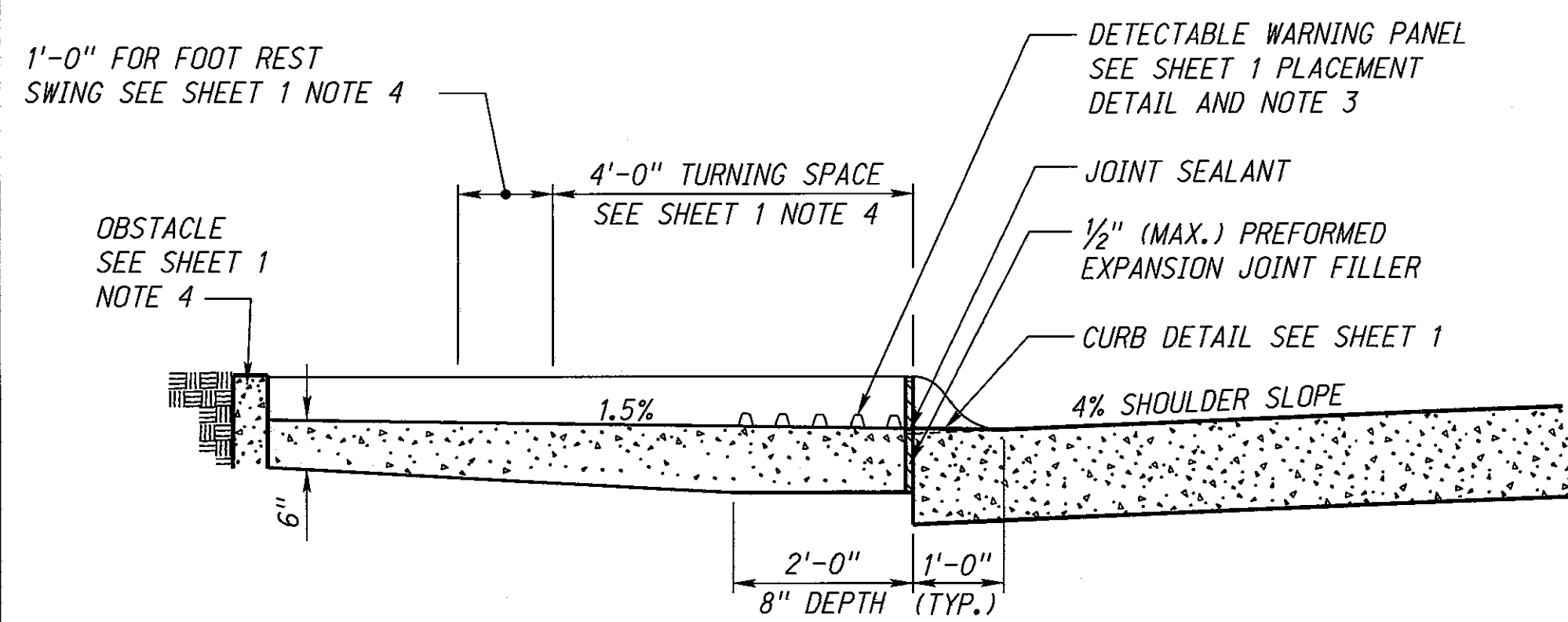
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4



TYPE C PLAN

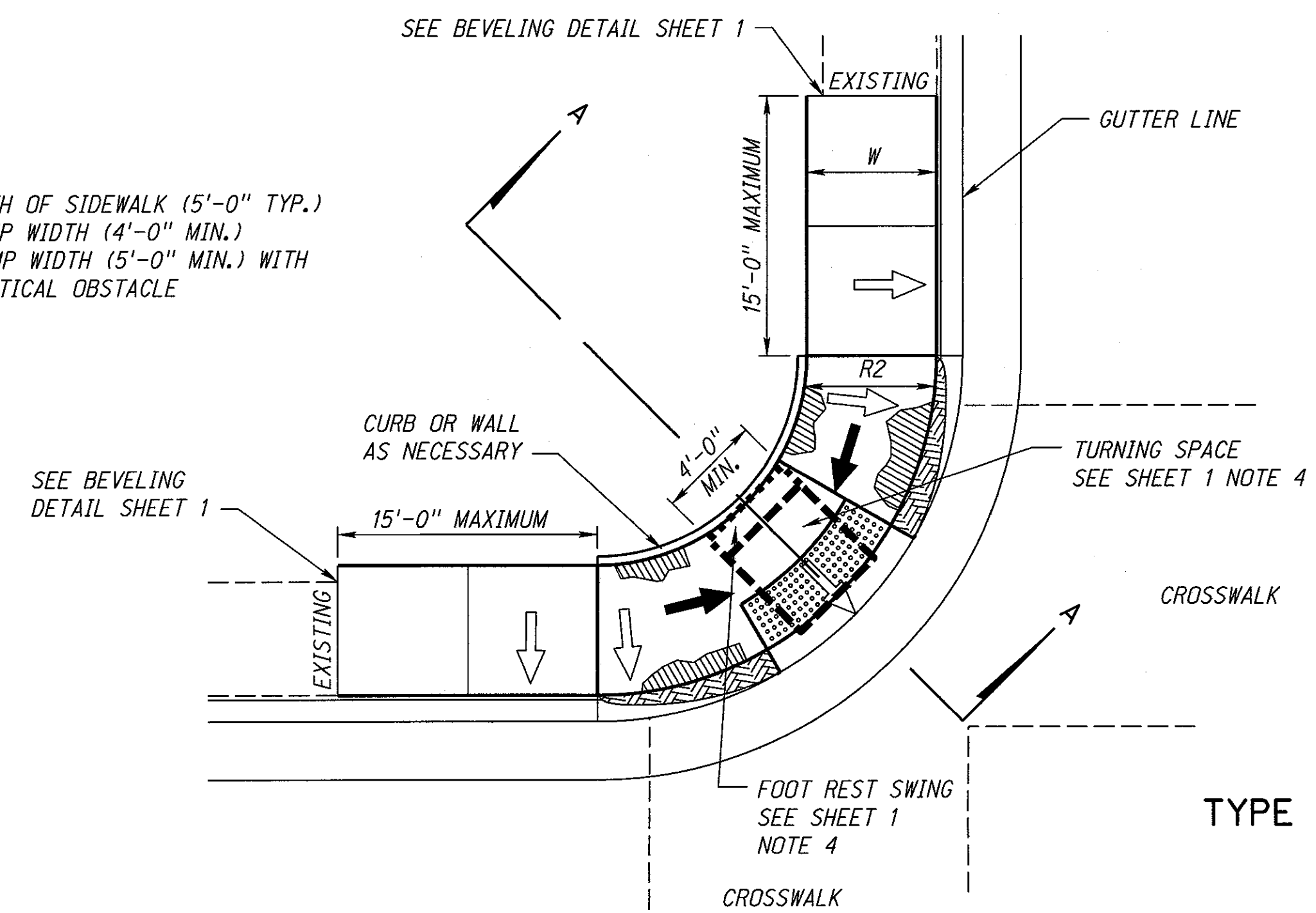


ISOMETRIC VIEW

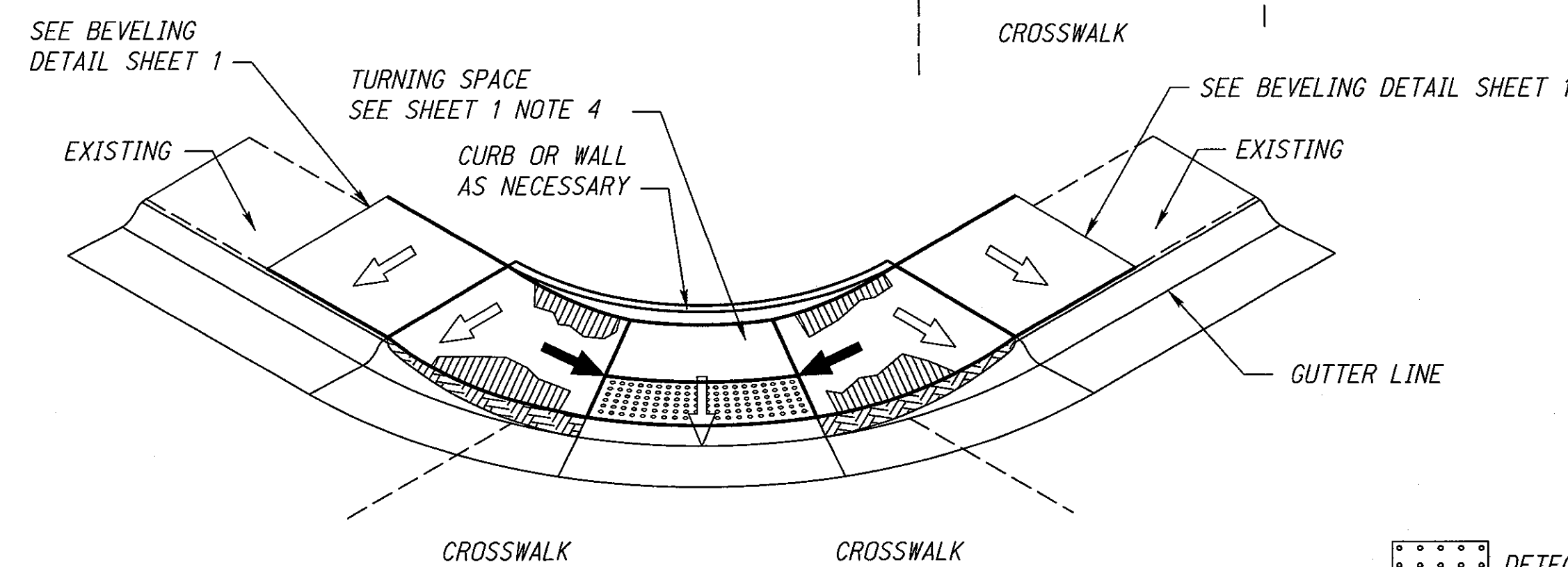


TYPE C CROSS SECTION SECTION A-A

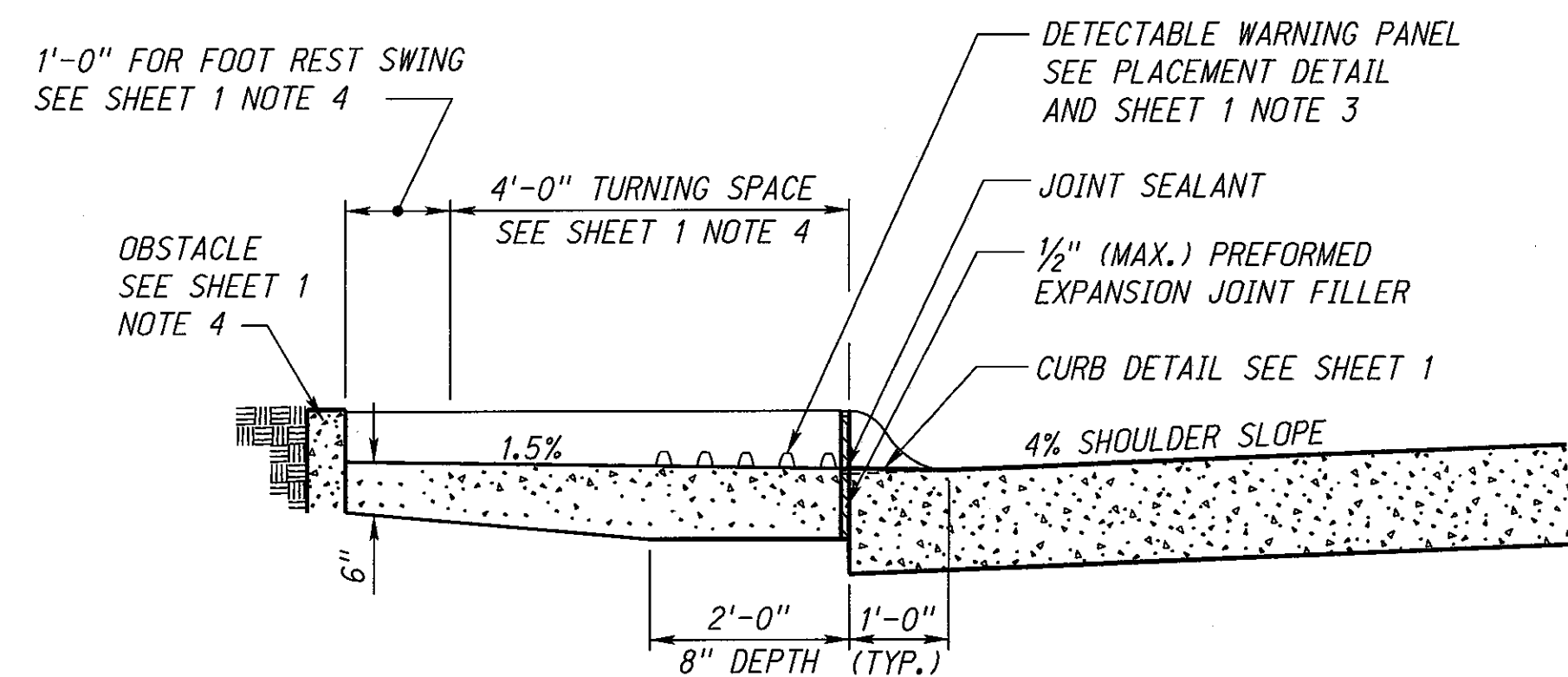
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



TYPE D PLAN



ISOMETRIC VIEW



TYPE D CROSS SECTION SECTION A-A

LEGEND

- DETECTABLE WARNING PANEL (DWP)
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.

SLOPE LEGEND

	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

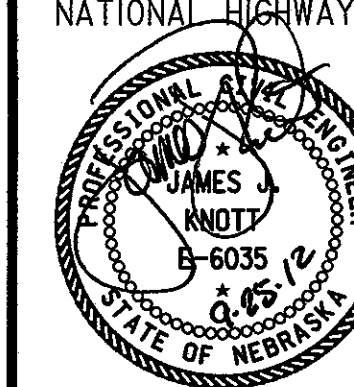
THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

REV. NO.	DATE	DESCRIPTION OF REVISION
RI	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 303-R1

CURB RAMPS

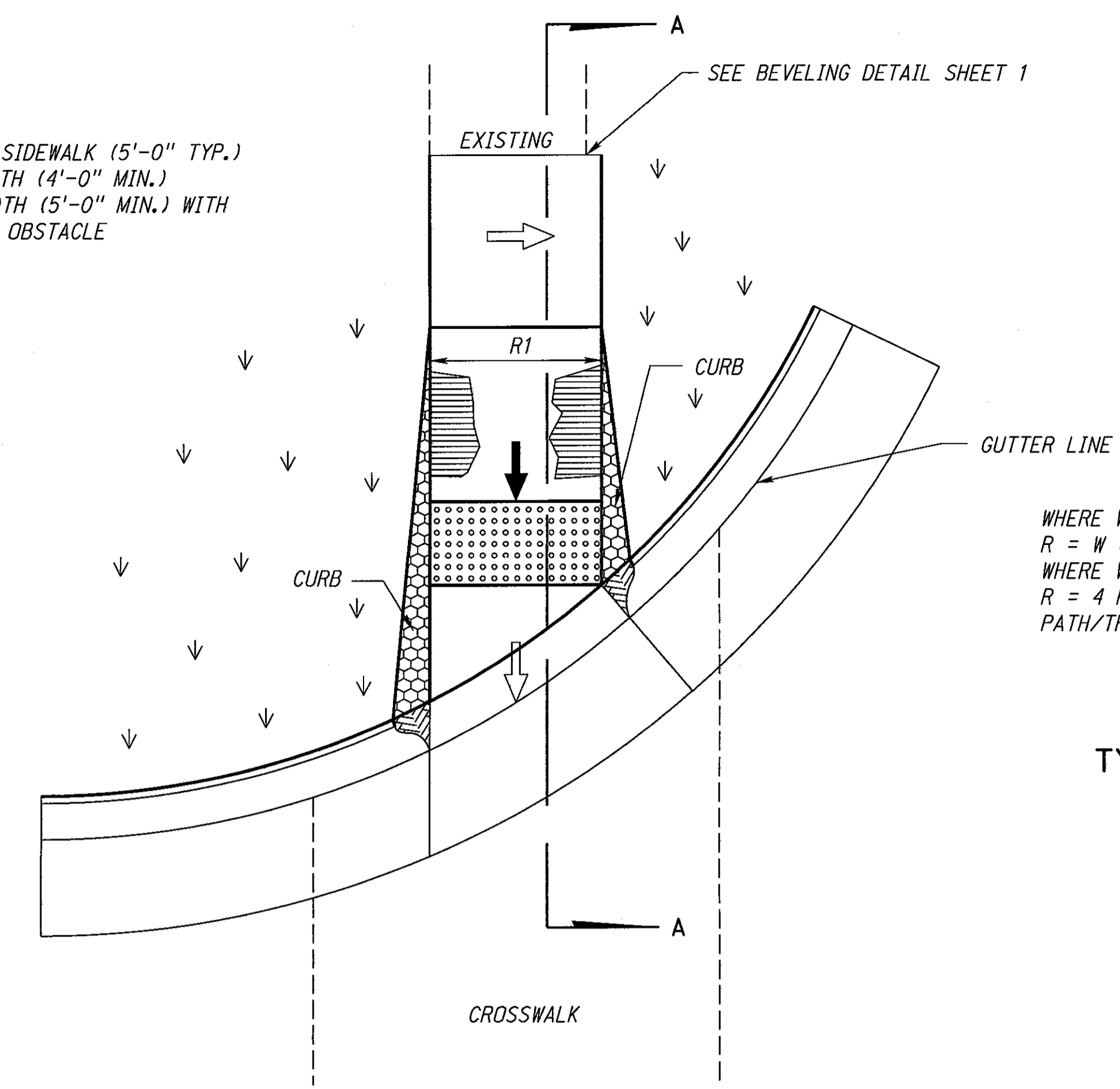
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:



Wendell D. Dorn
DATE: 10-12-2012

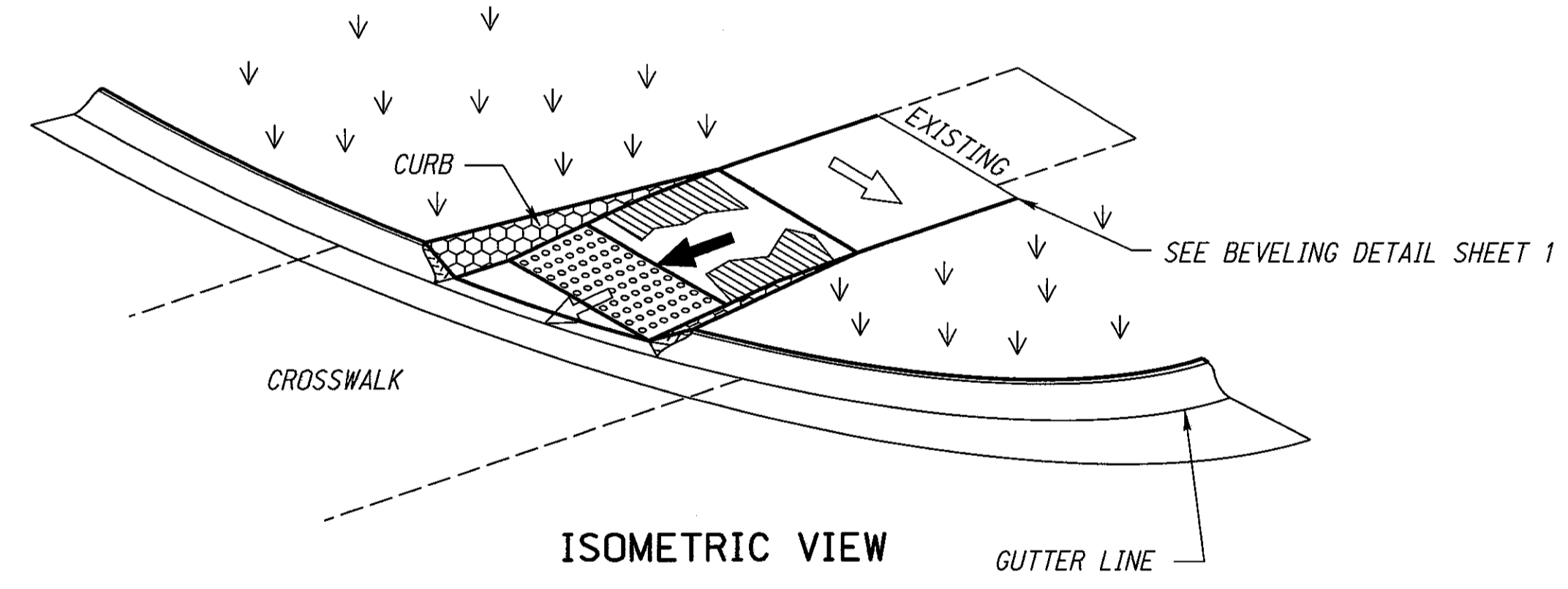
ORIGINAL:
MARCH 22, 2010
DATE

W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH
VERTICAL OBSTACLE

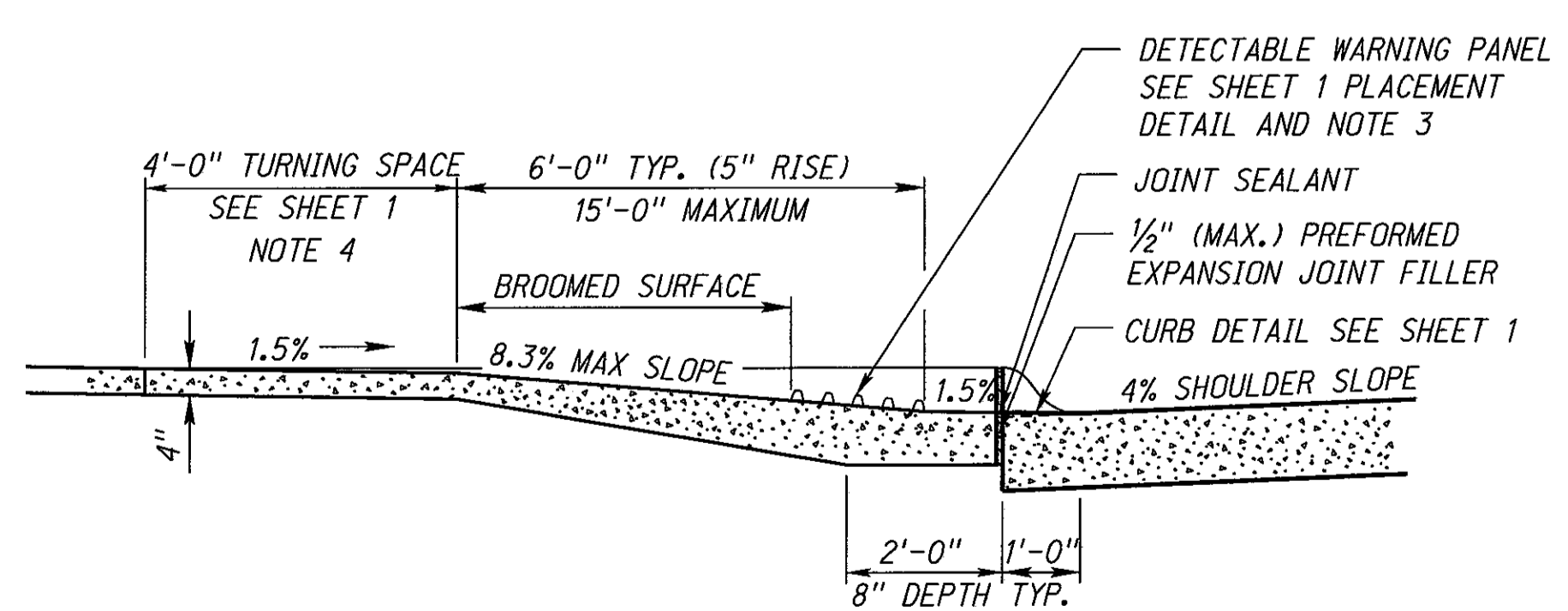


WHERE W IS 9 FT. OR LESS,
R = W (MIN. WIDTH = 4 FT.)
WHERE W IS GREATER THAN 9 FT.,
R = 4 FT., EXCEPT BIKE
PATH/TRAIL. SEE NOTE 5 (SHEET 1)

TYPE E PLAN

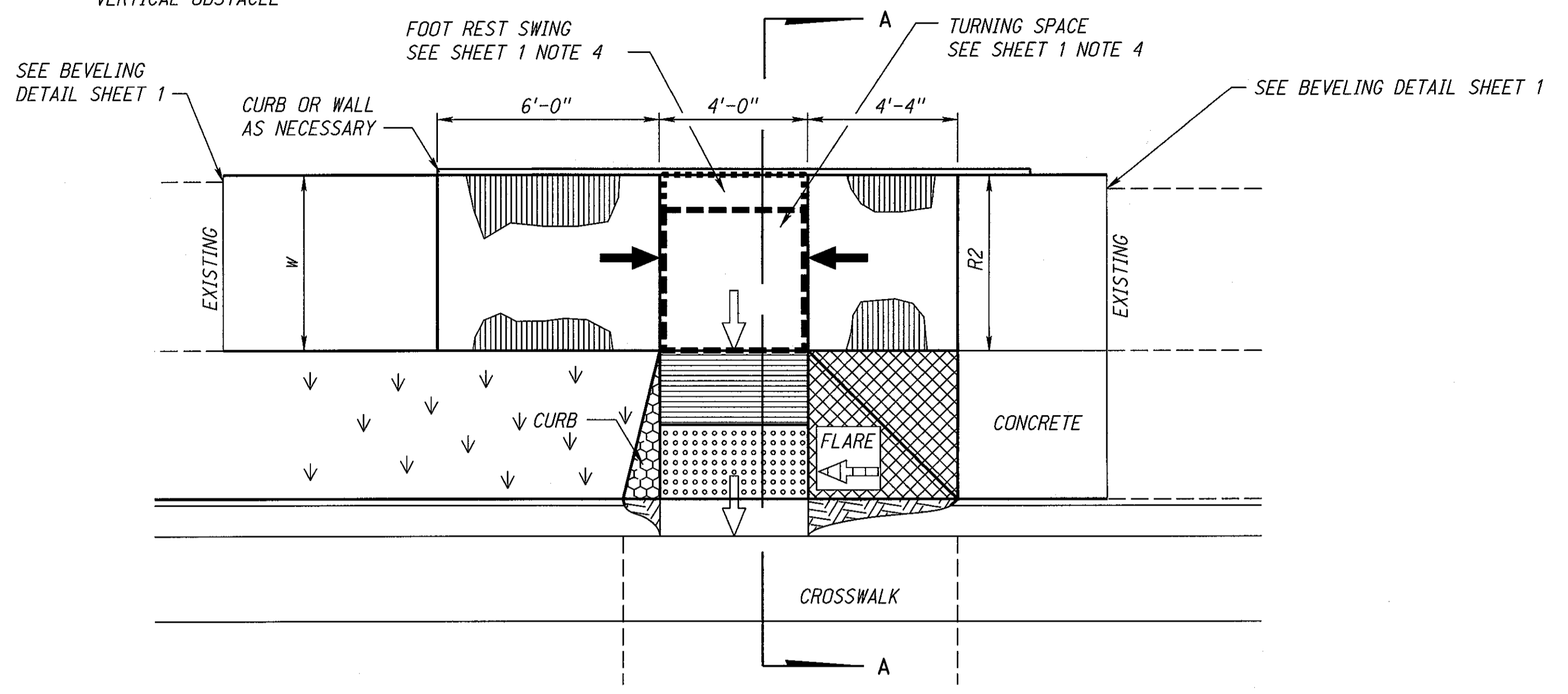


ISOMETRIC VIEW

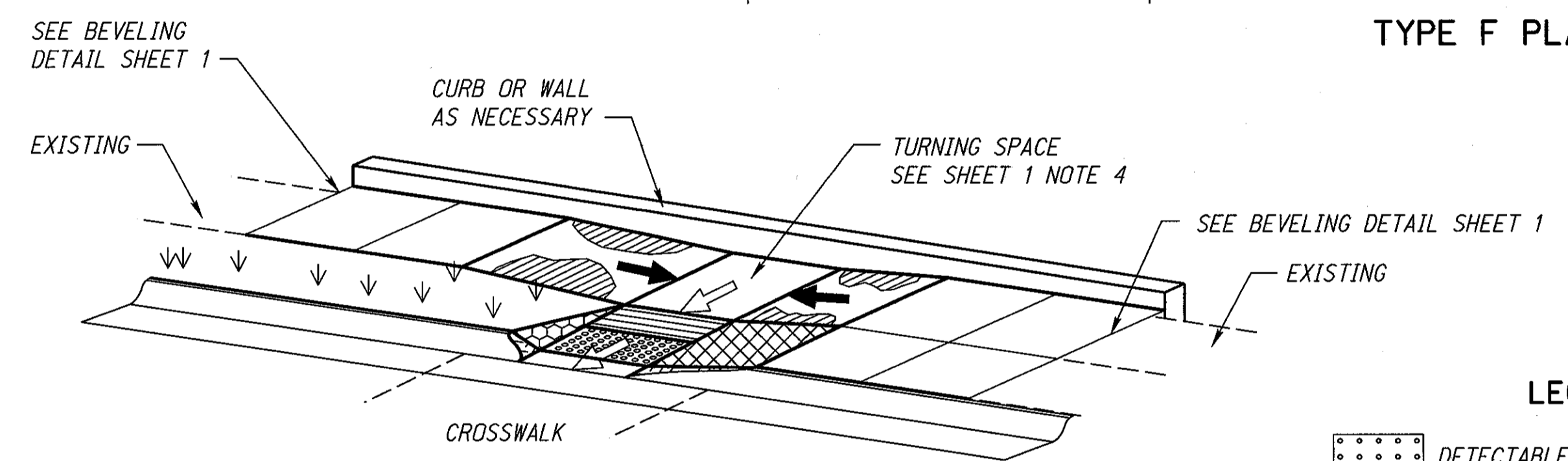


TYPE E CROSS SECTION
SECTION A-A

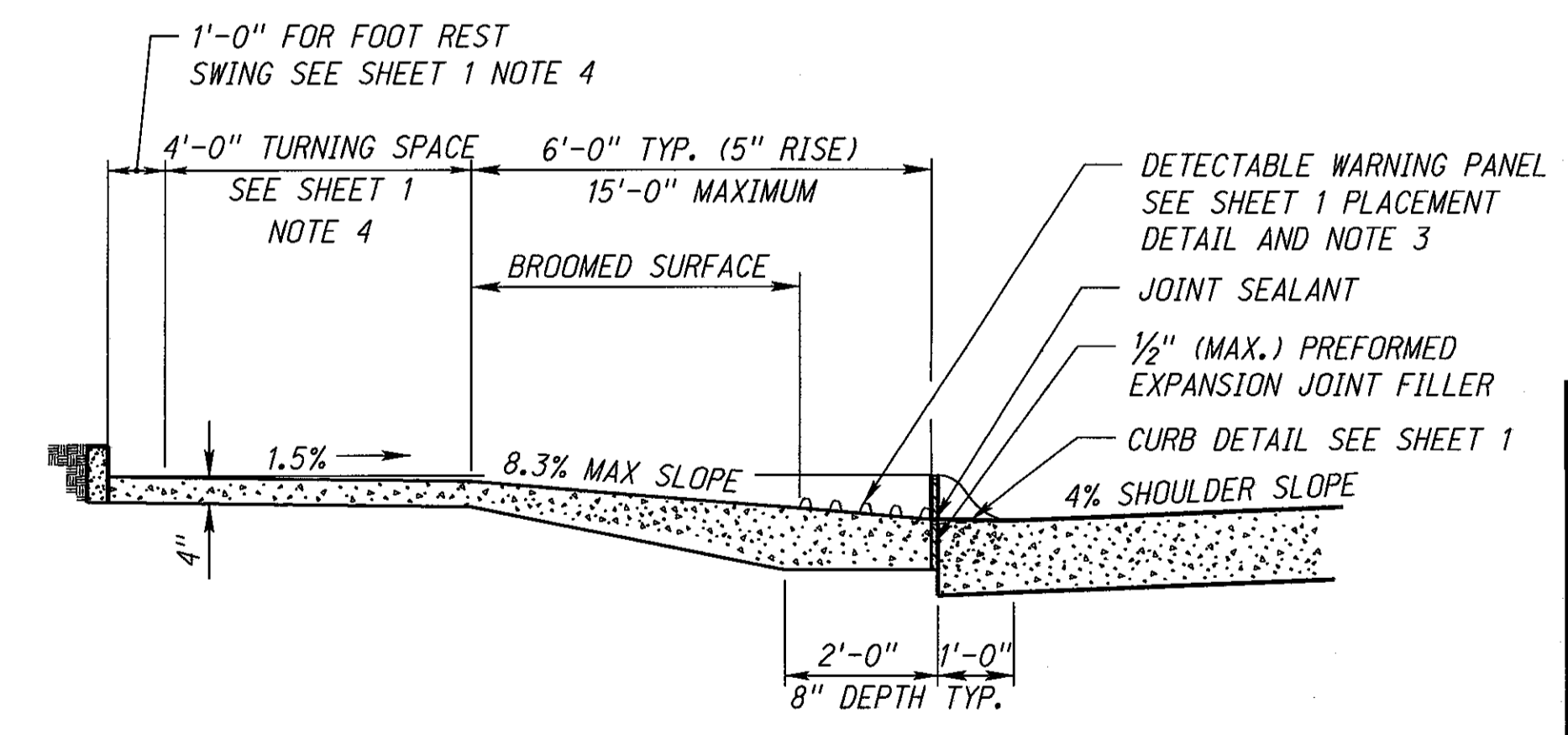
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH
VERTICAL OBSTACLE



TYPE F PLAN



ISOMETRIC VIEW



TYPE F CROSS SECTION
SECTION A-A

LEGEND

- DETECTABLE WARNING PANEL (DWP)
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORIZ.

SLOPE LEGEND

	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

REV. NO.	DATE	DESCRIPTION OF REVISION
RI	FEB 13	ALL OF PLAN REWORKED (PROWAG)

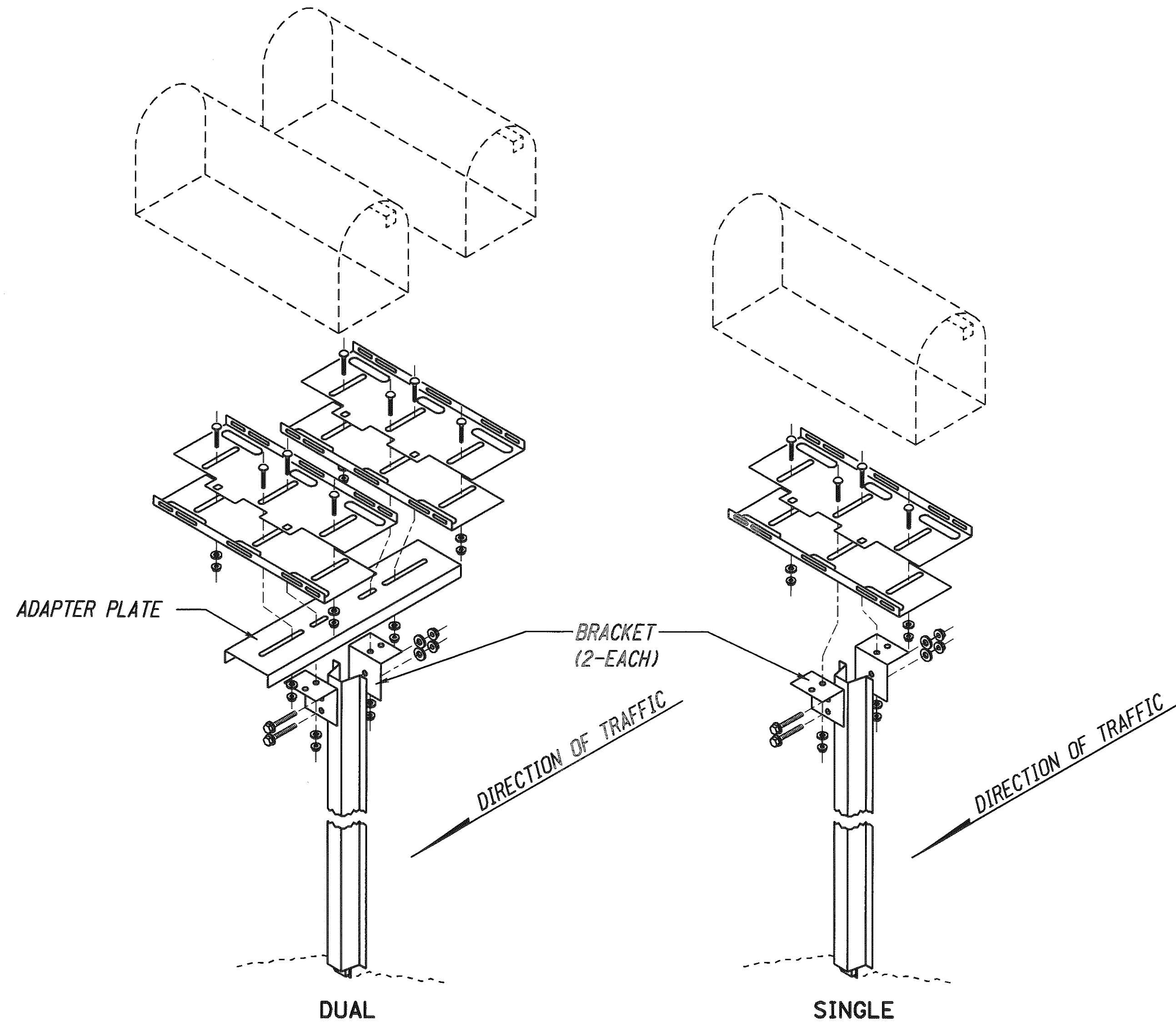
NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 303-R1
CURB RAMPS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

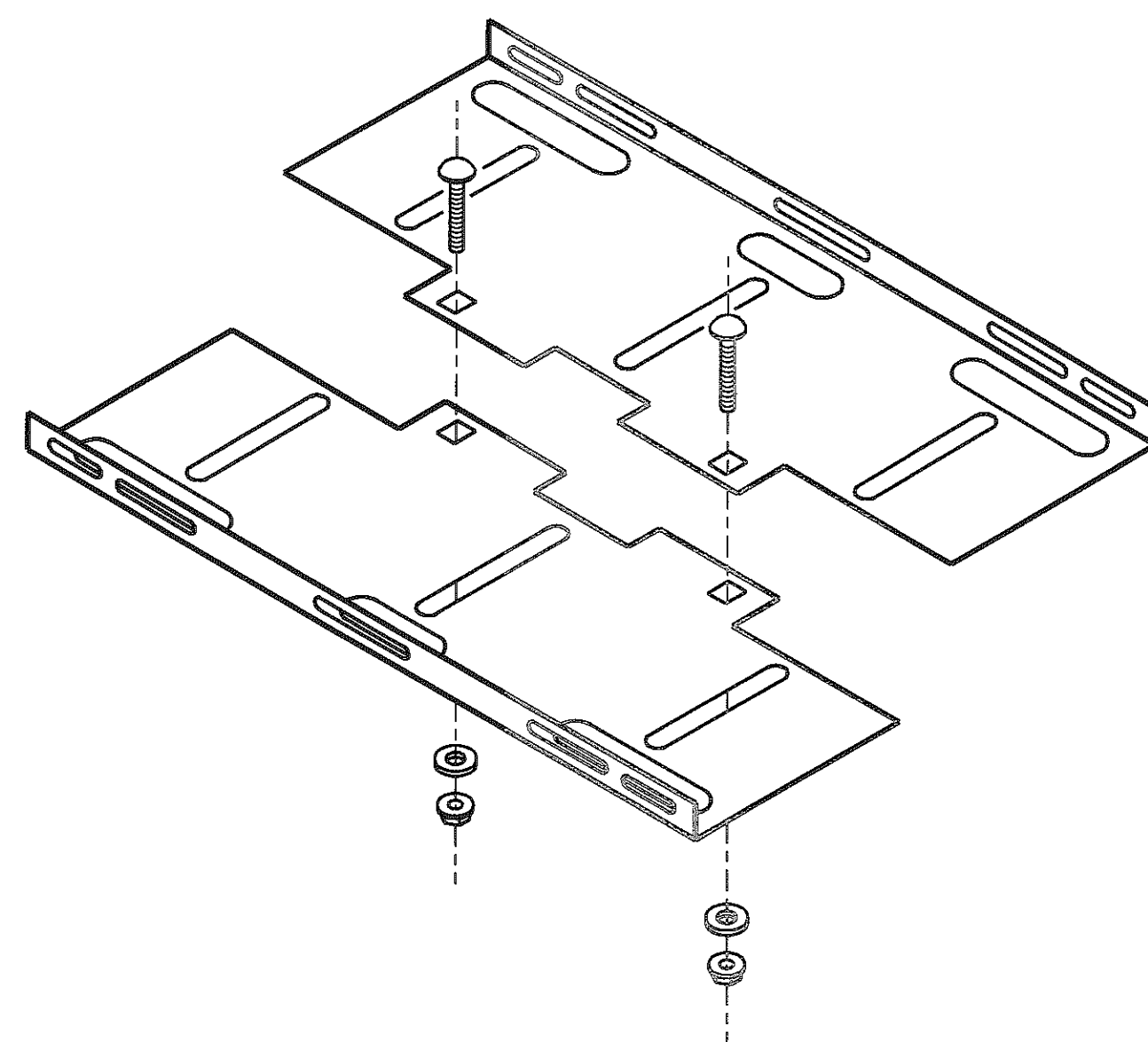
James J. Kindt
DATE: 10-12-2012

ORIGINAL: MARCH 22, 2010
DATE

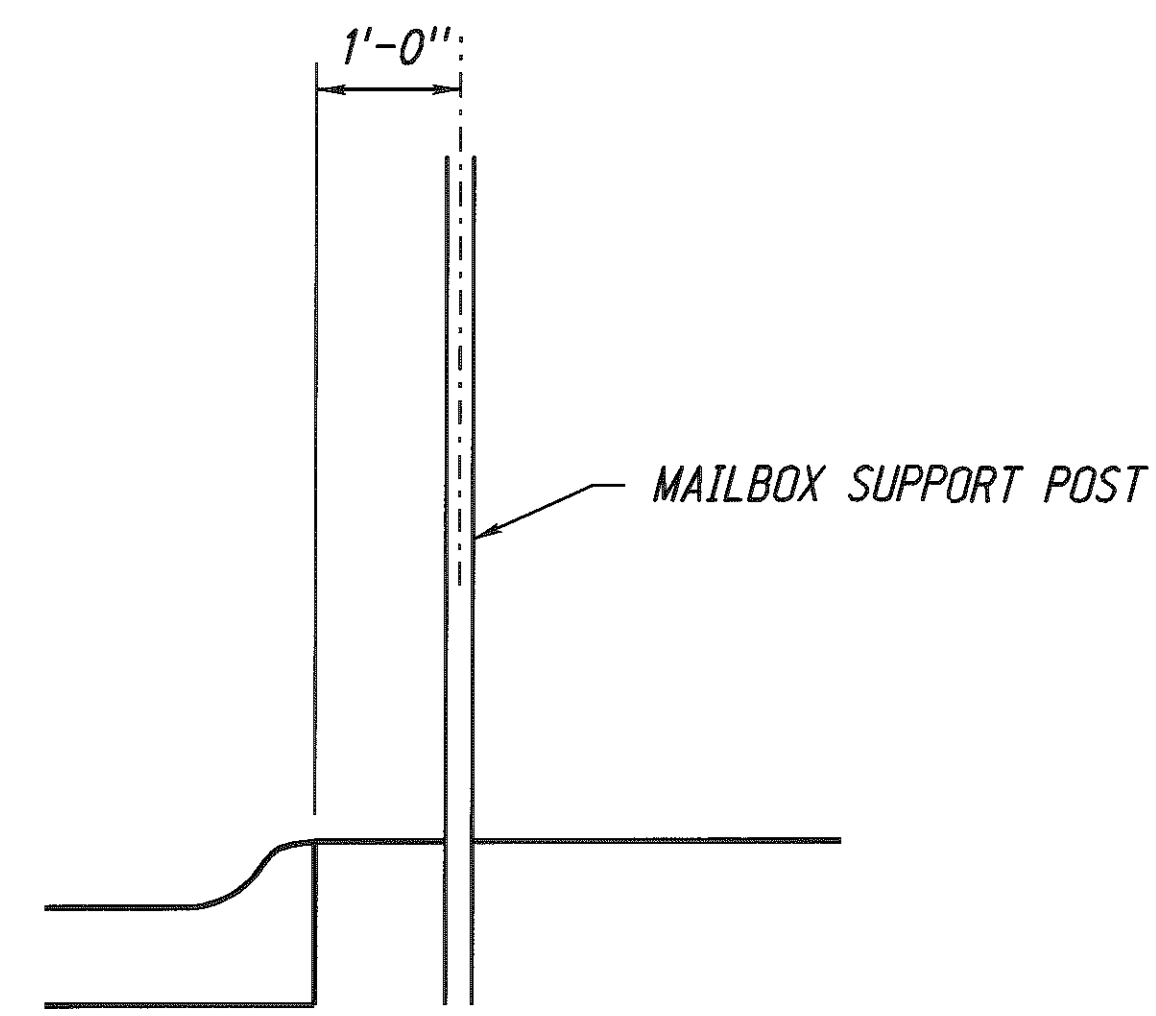
4
4



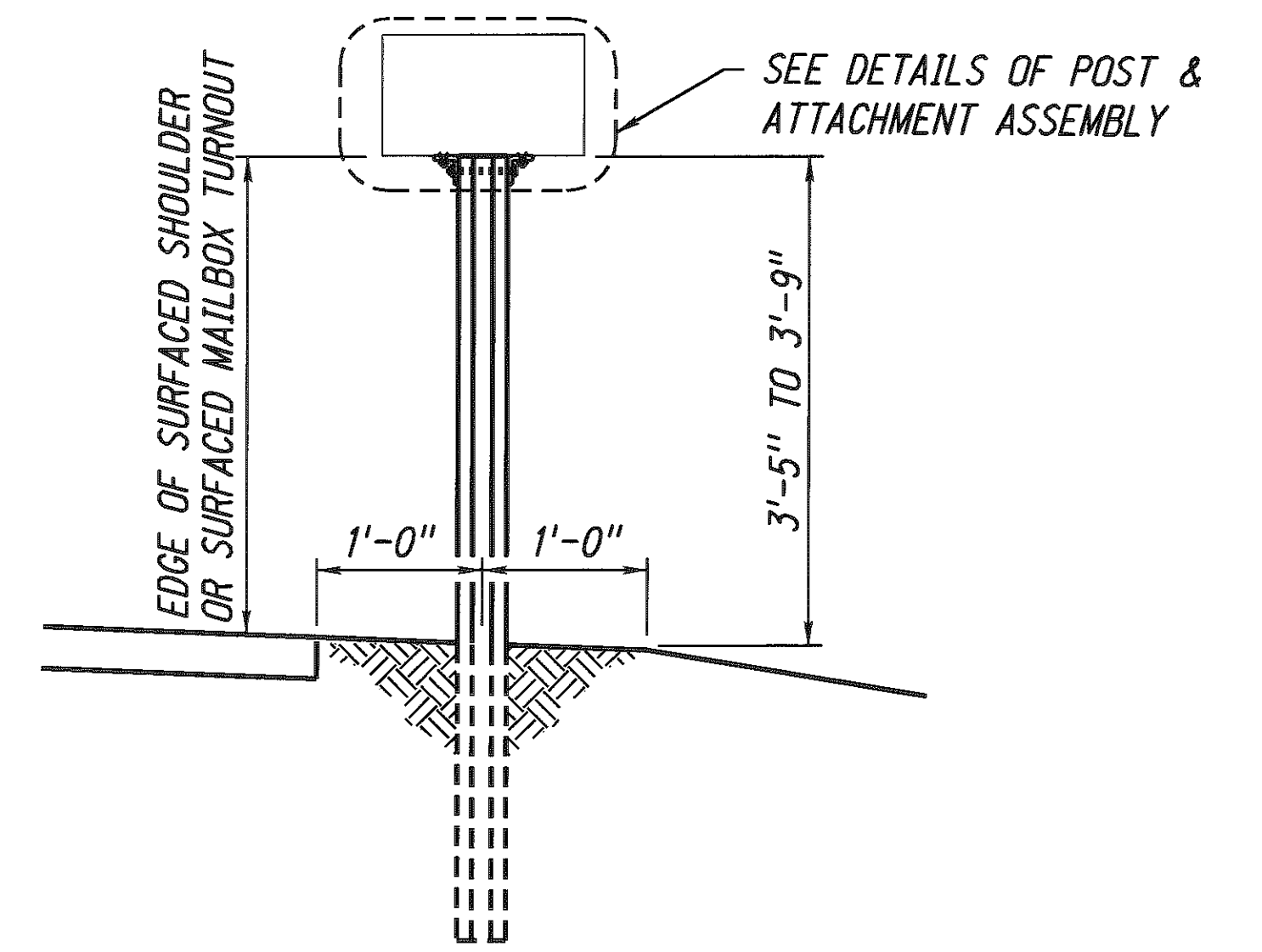
DETAILS OF POST AND ATTACHMENT ASSEMBLY



DETAILS OF PLATFORM ASSEMBLY FOR 12" MAILBOX



CURBED SECTION DETAIL



MAILBOX SUPPORT DETAIL

NOTES:

MAILBOXES SHALL BE LOCATED SO THAT THEY ARE ON THE RIGHT-HAND SIDE OF THE ROADWAY AS DETERMINED BY THE DIRECTION OF TRAVEL AS DESIGNATED BY THE LOCAL POSTMASTER FOR EACH DELIVERY ROUTE. ON ONE WAY STREETS MAILBOXES MAY BE ON THE LEFT SIDE IF DESIGNATED BY THE LOCAL POSTMASTER.

WHERE A MAILBOX IS LOCATED AT A DRIVEWAY, IT SHALL BE PLACED ON THE FAR SIDE OF THE DRIVEWAY AS DETERMINED BY THE DIRECTION OF TRAVEL AS DESIGNATED BY THE LOCAL POSTMASTER FOR EACH DELIVERY ROUTE.

NO MORE THAN TWO MAILBOXES MAY BE MOUNTED ON A SUPPORT STRUCTURE.

MOUNTING INSTRUCTIONS:

MOUNT BRACKETS TO POST WITH 2- $\frac{5}{16}$ " x 2 $\frac{1}{4}$ " HEX BOLTS AND LOCK WASHERS.

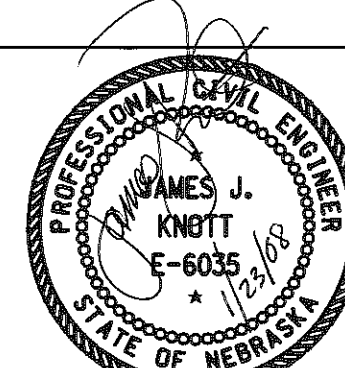
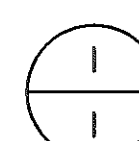
FASTEN PLATFORM TOGETHER WITH 2- $\frac{3}{8}$ " CARRIAGE BOLTS, FLAT WASHERS AND LOCK WASHERS THROUGH PLATFORM END SLOTS.

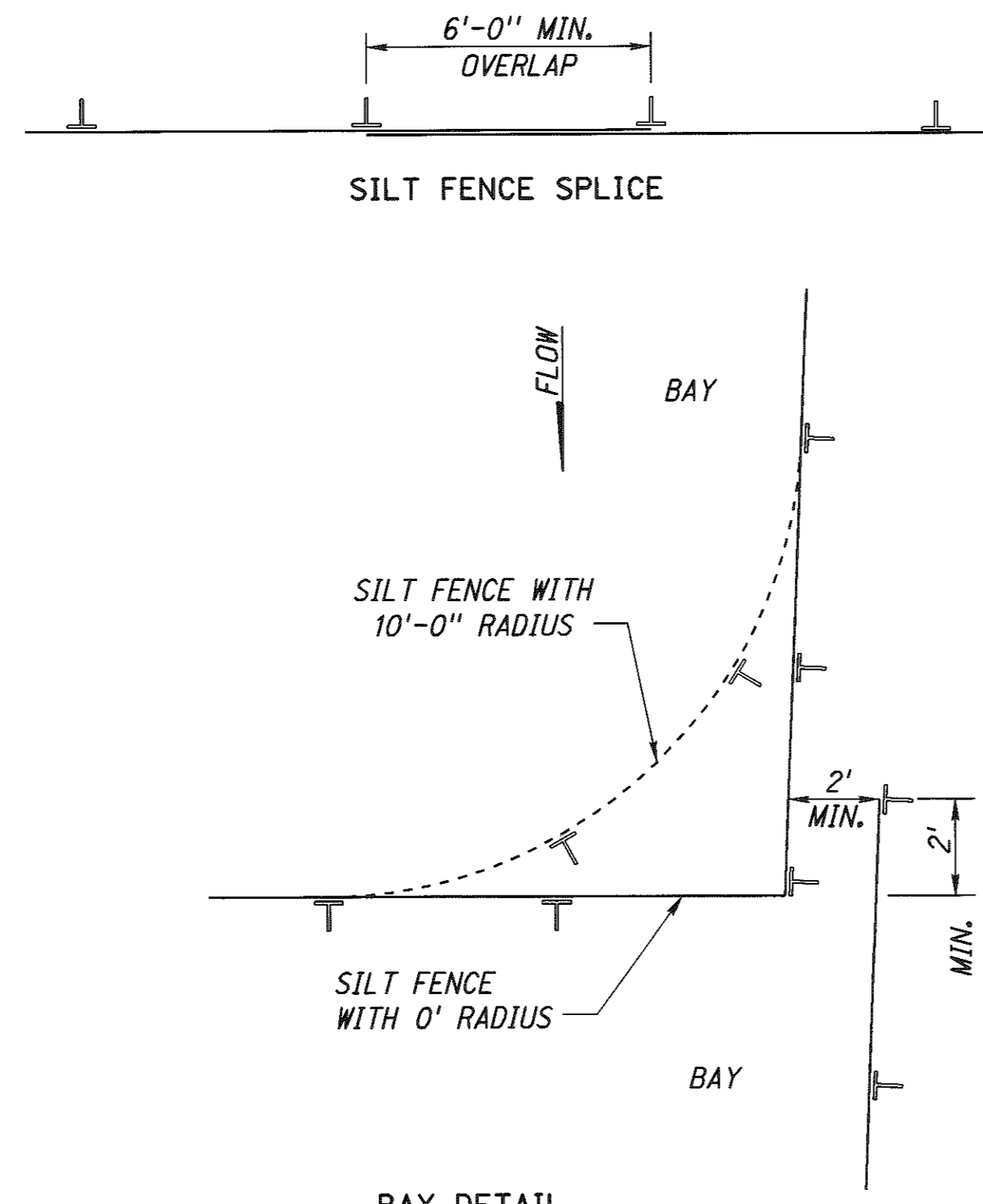
FASTEN PLATFORM TO BRACKETS WITH 2- $\frac{3}{8}$ " CARRIAGE BOLTS, FLAT WASHERS AND LOCK WASHERS THROUGH PLATFORM CENTER SLOTS.

FOR DUAL MAILBOX INSTALLATIONS, FASTEN PLATFORMS AND ADAPTER PLATES TO BRACKETS WITH 4- $\frac{3}{8}$ " CARRIAGE BOLTS, FLAT WASHERS AND LOCK WASHERS THROUGH PLATFORM CENTER SLOTS.

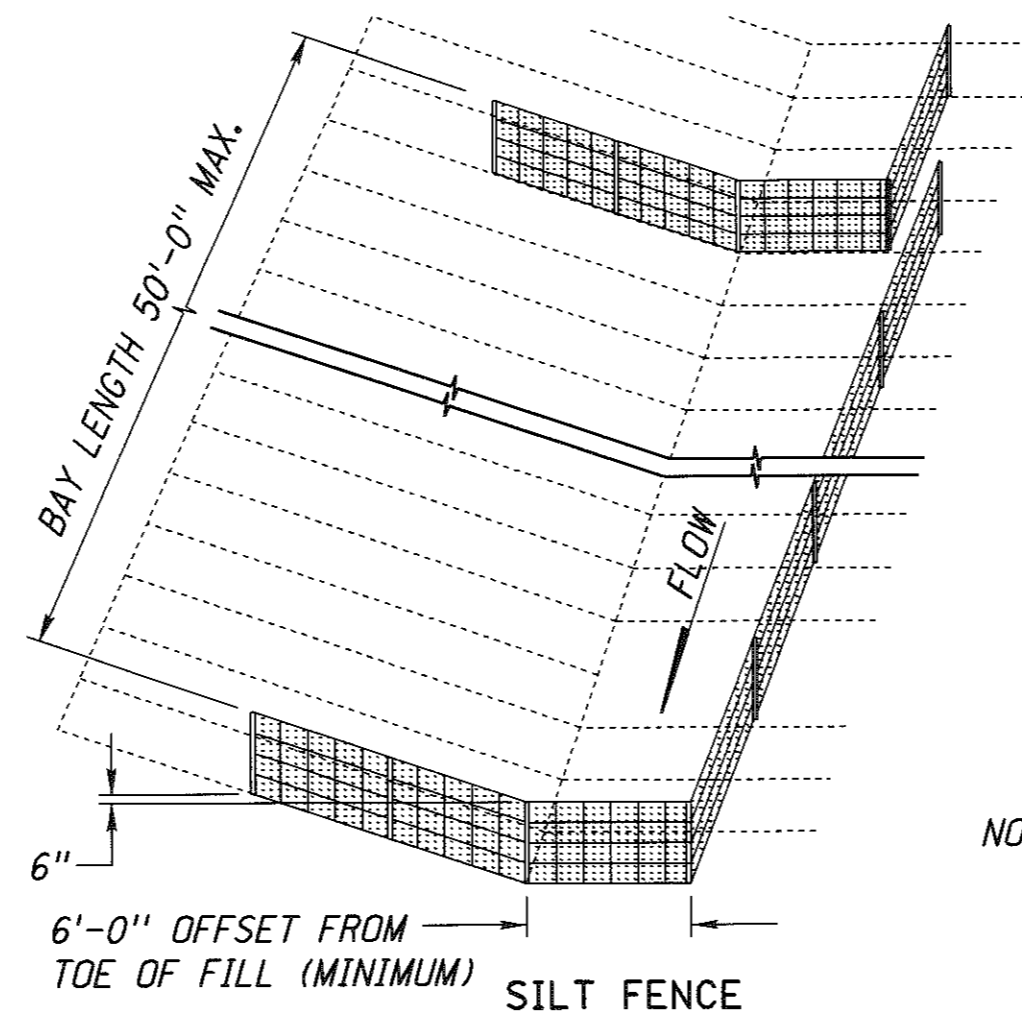
TO FASTEN MAILBOX TO PLATFORM:

- TYPE 1: USE 4- $\frac{1}{4}$ " x $\frac{3}{4}$ " HEX BOLTS WITH FLAT WASHERS AND LOCK WASHERS
- TYPE 1A: USE 6- $\frac{1}{4}$ " x $\frac{3}{4}$ " HEX BOLTS WITH FLAT WASHERS AND LOCK WASHERS
- TYPE 2: USE 6- $\frac{1}{4}$ " x $\frac{3}{4}$ " HEX BOLTS WITH FLAT WASHERS AND LOCK WASHERS

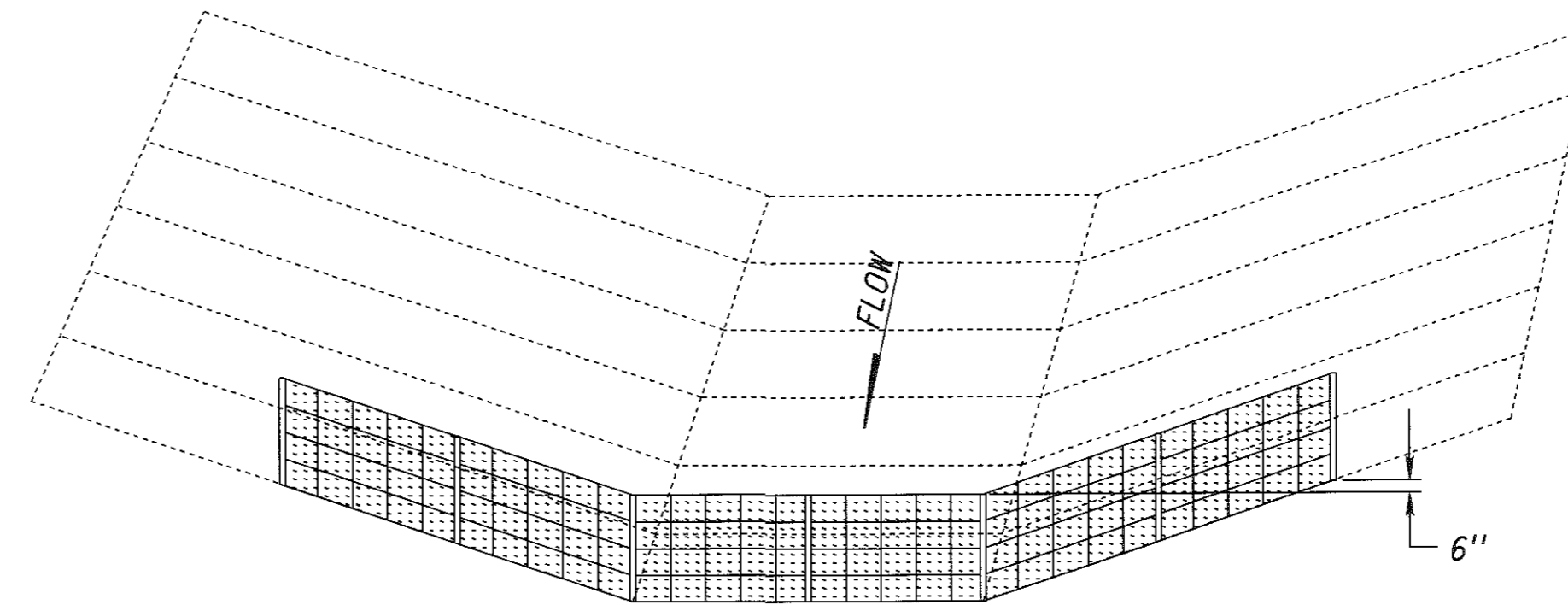
REV. NO.	DATE	DESCRIPTION OF REVISION
NEBRASKA DEPARTMENT OF ROADS STANDARD PLAN NO. 309		
MAILBOX SUPPORT POST		
		ORIGINAL: JANUARY 23, 2008 DATE
		



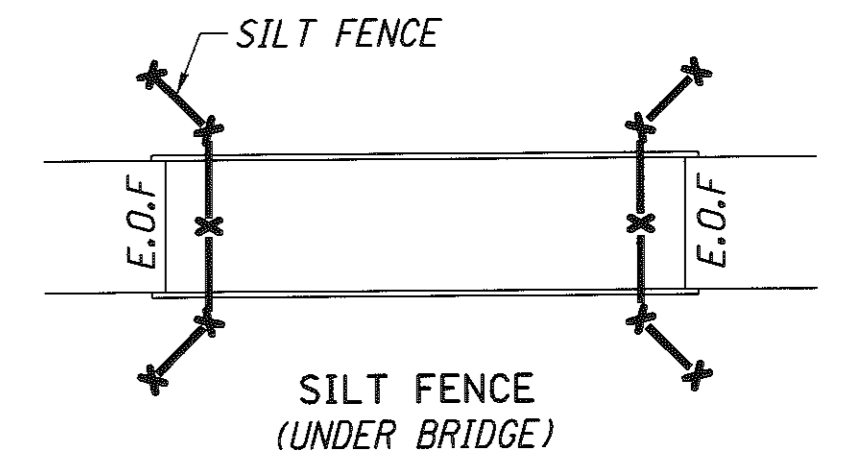
BAY DETAIL
NOTE: SILT FENCE AT CORNERS SHALL HAVE A RADIUS OF 0' MIN. TO 10'-0" MAX.



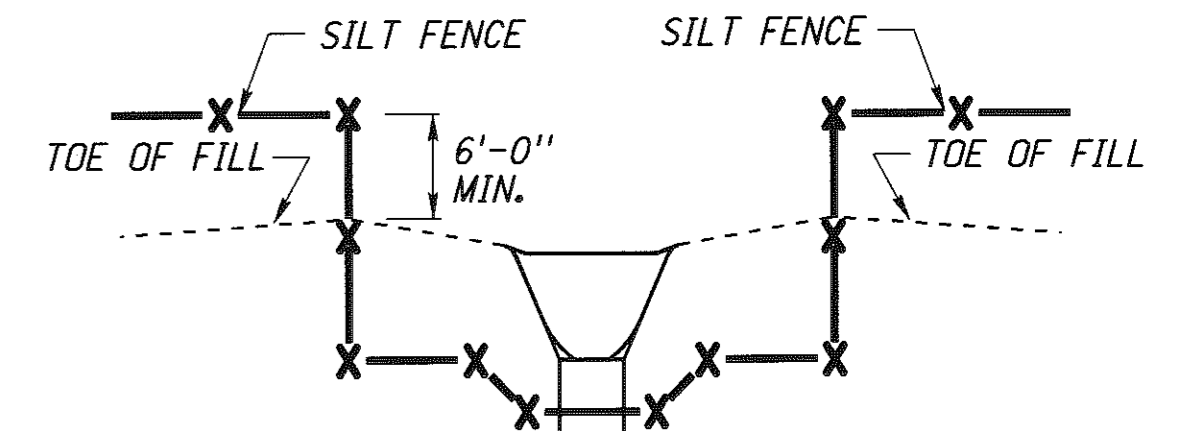
NOTE: POST SPACING 6'-0" MAX. MULTIPLE BAYS MAY BE USED



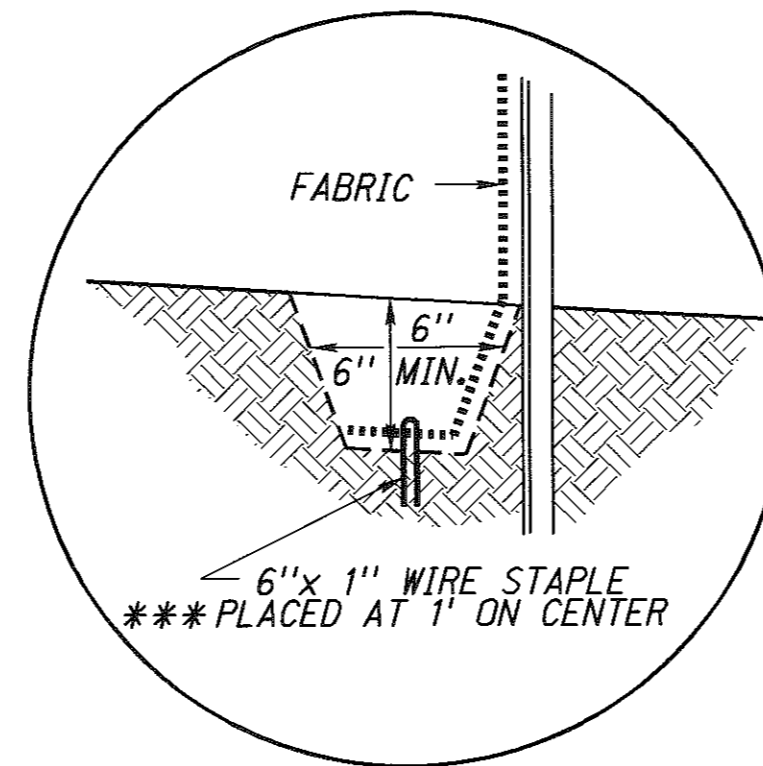
HIGH POROSITY SILT FENCE (ACROSS DITCH)



SILT FENCE (UNDER BRIDGE)

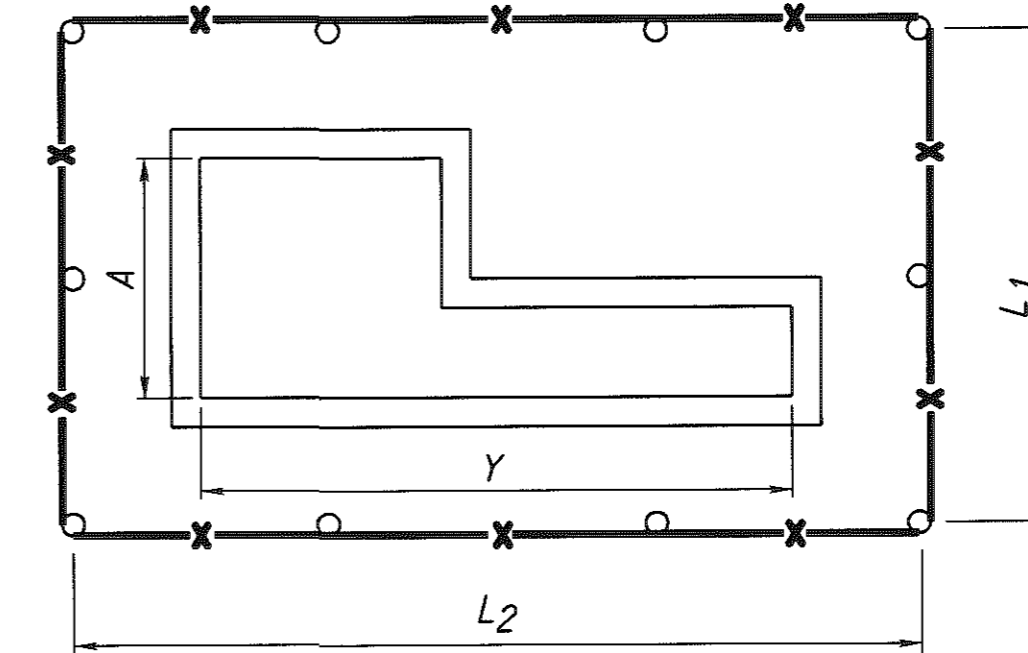


SILT FENCE (AT DRAINAGE STRUCTURE)

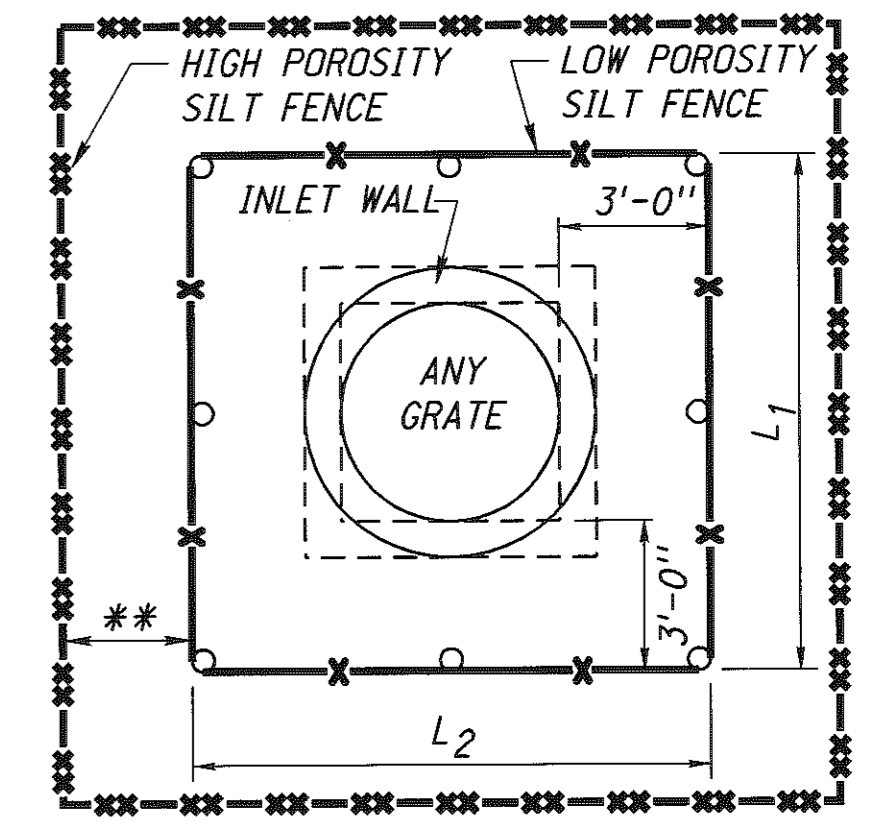


TRENCH DETAIL

*** SILT FENCE MAY ALSO BE INSTALLED WITH A SILT FENCE PLOW. NO STAPLING IS REQUIRED WHEN THE SILT FENCE PLOW IS USED.



$L_1 = A + 6'-0"$
 $L_2 = Y + 6'-0"$
CURB INLET

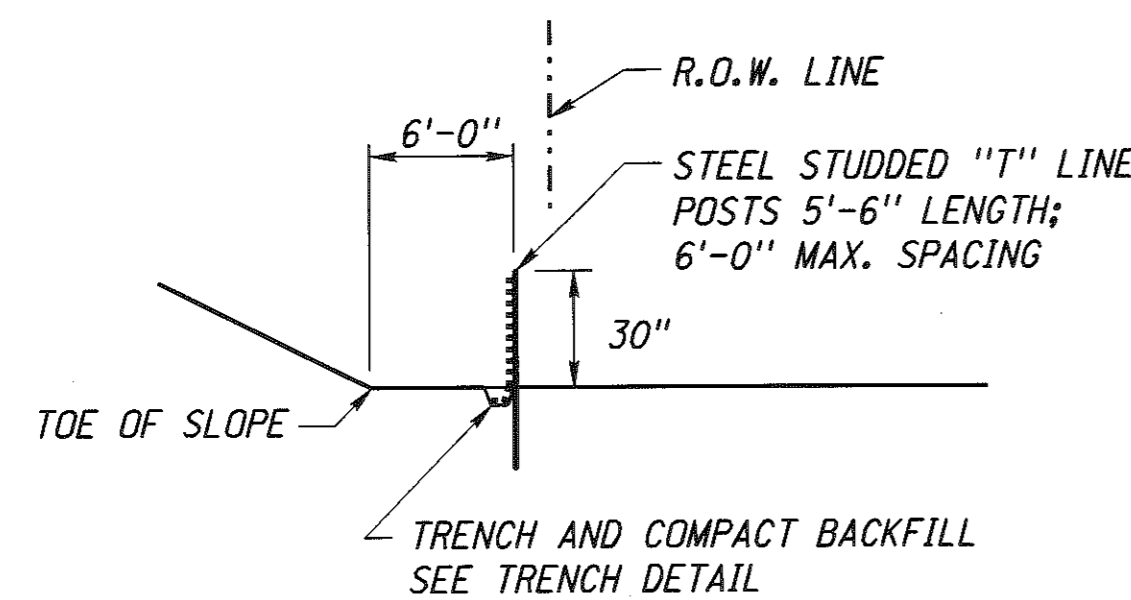


L_1 & L_2 = FACE OF INSIDE WALL + 6'-0"

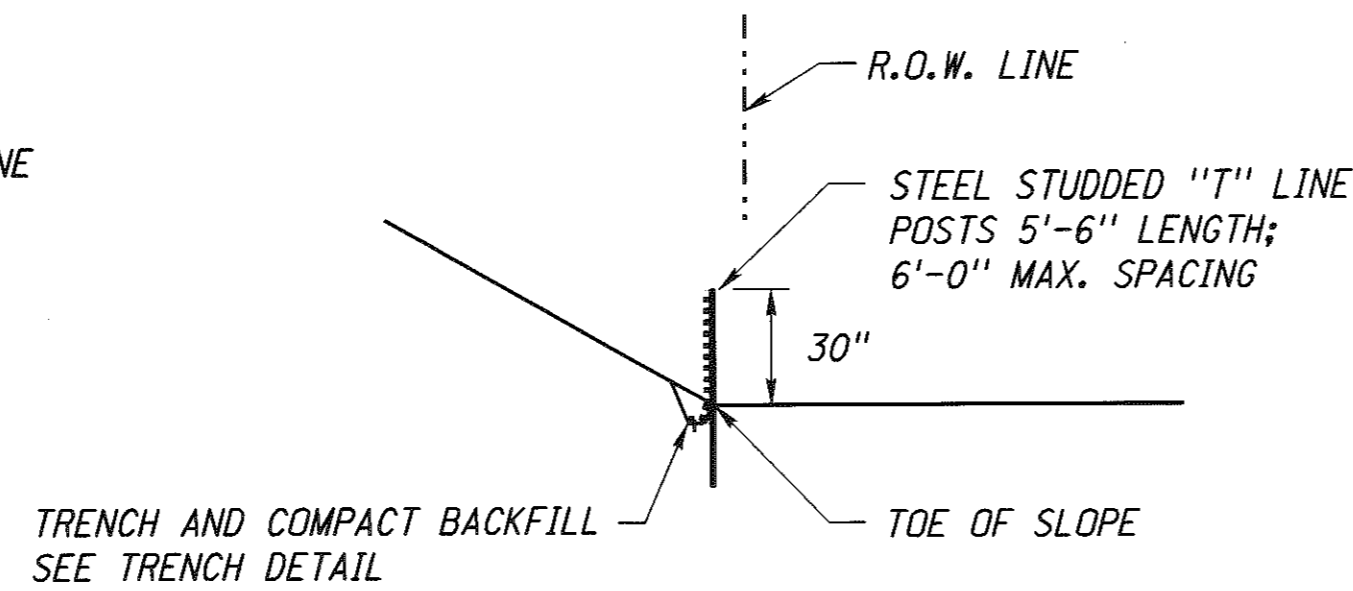
GRATE, AREA, MEDIAN INLETS OR JUNCTION BOXES

NOTE: ** 3'-0" IF POSSIBLE (MAY VARY)
SILT FENCE SHOULD BE 30" ABOVE GRADE (MAY VARY)
SILT FENCE MINIMUM ROLL WIDTH:
LOW POROSITY = 42"
HIGH POROSITY = 42"
LOW PROFILE = 36"
COIR SILT FENCE = 36"

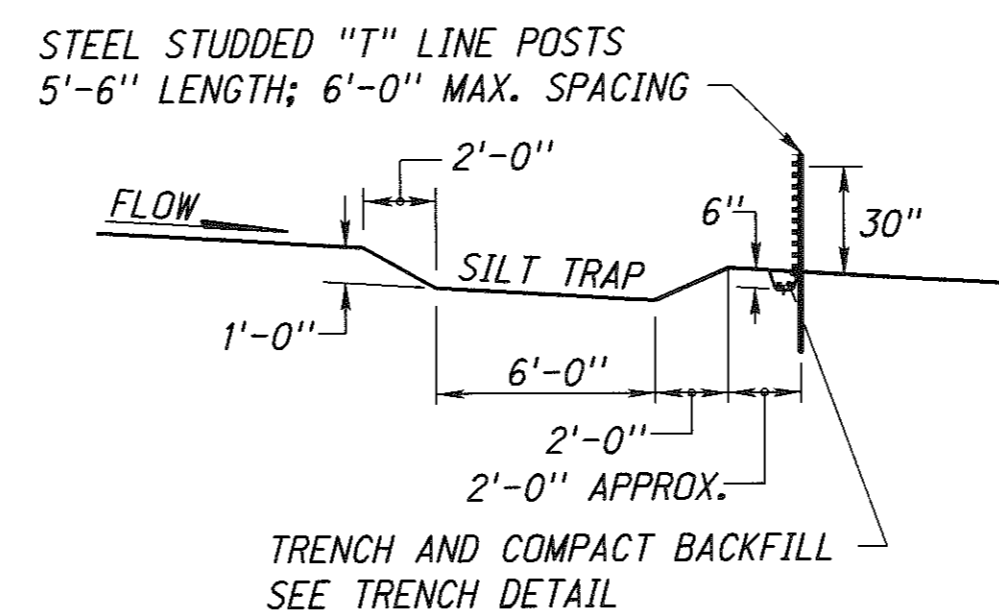
FOR EACH STEEL STUDDED "T" LINE POST, 3 PLASTIC CABLE TIES ARE REQUIRED.



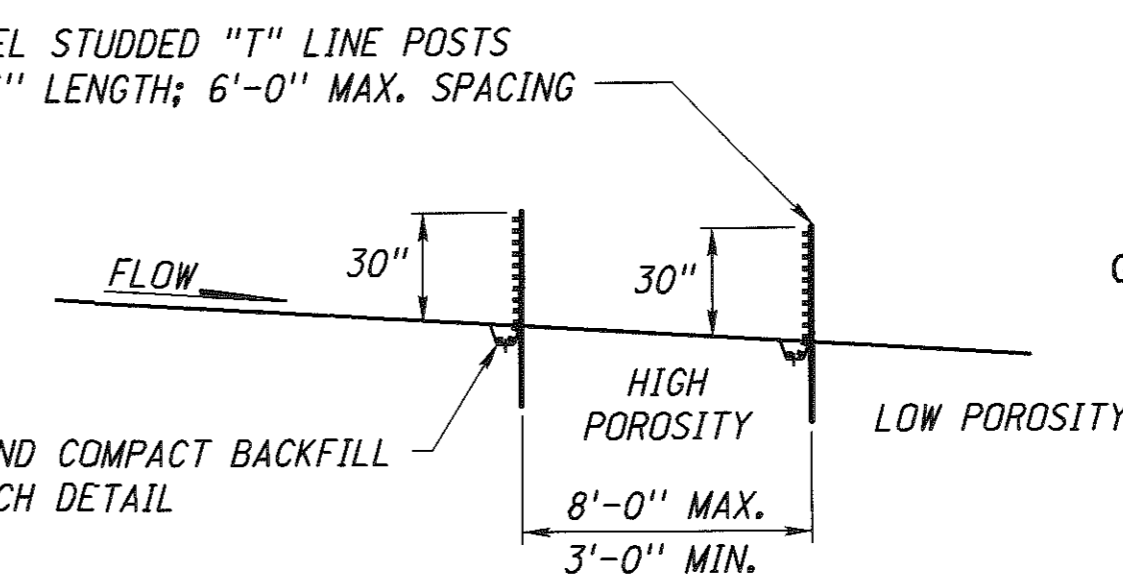
OPTION ONE (PREFERRED) SILT FENCE
(6'-0" OFFSET FROM TOE OF FILL)



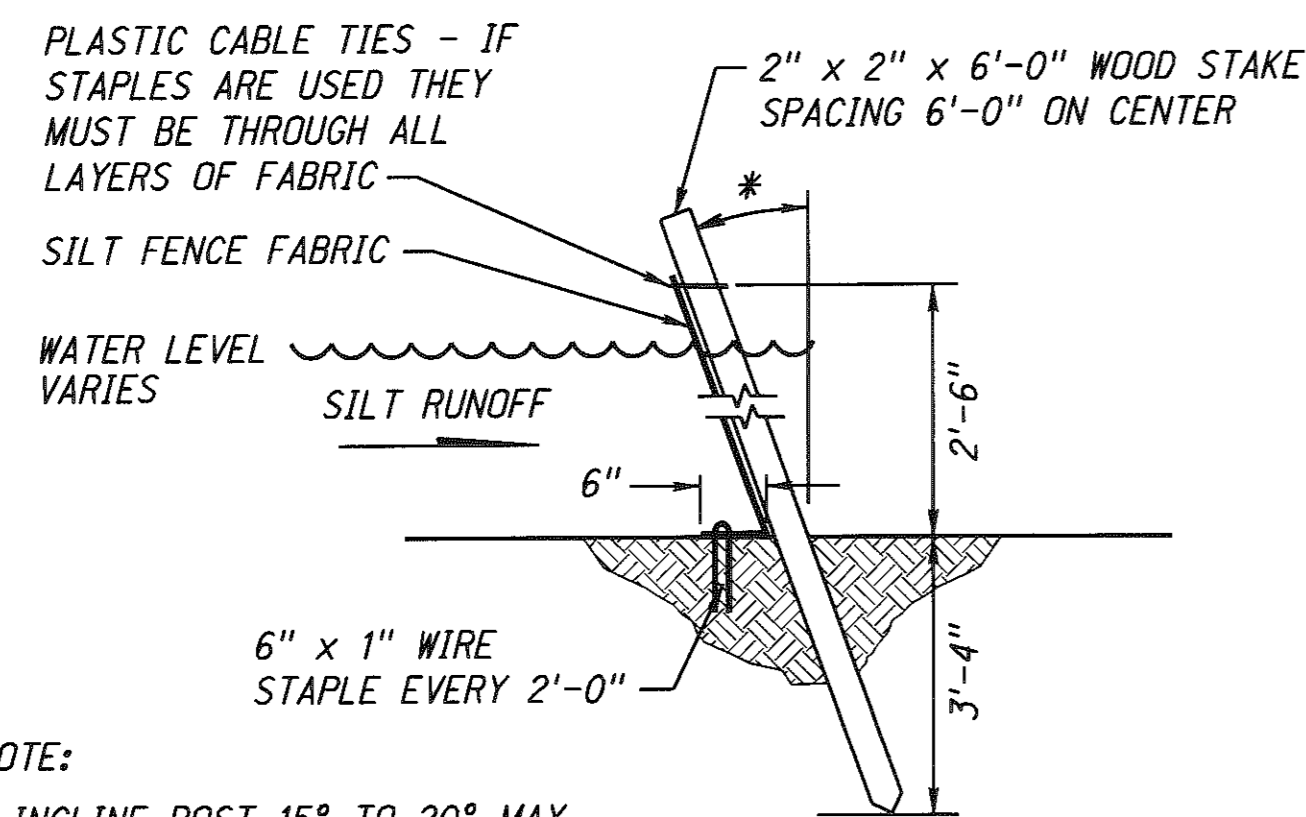
OPTION TWO (WITH LIMITED R.O.W.) SILT FENCE
(AT TOE OF FILL)



SILT FENCE WITH SILT TRAP (ACROSS DITCH)

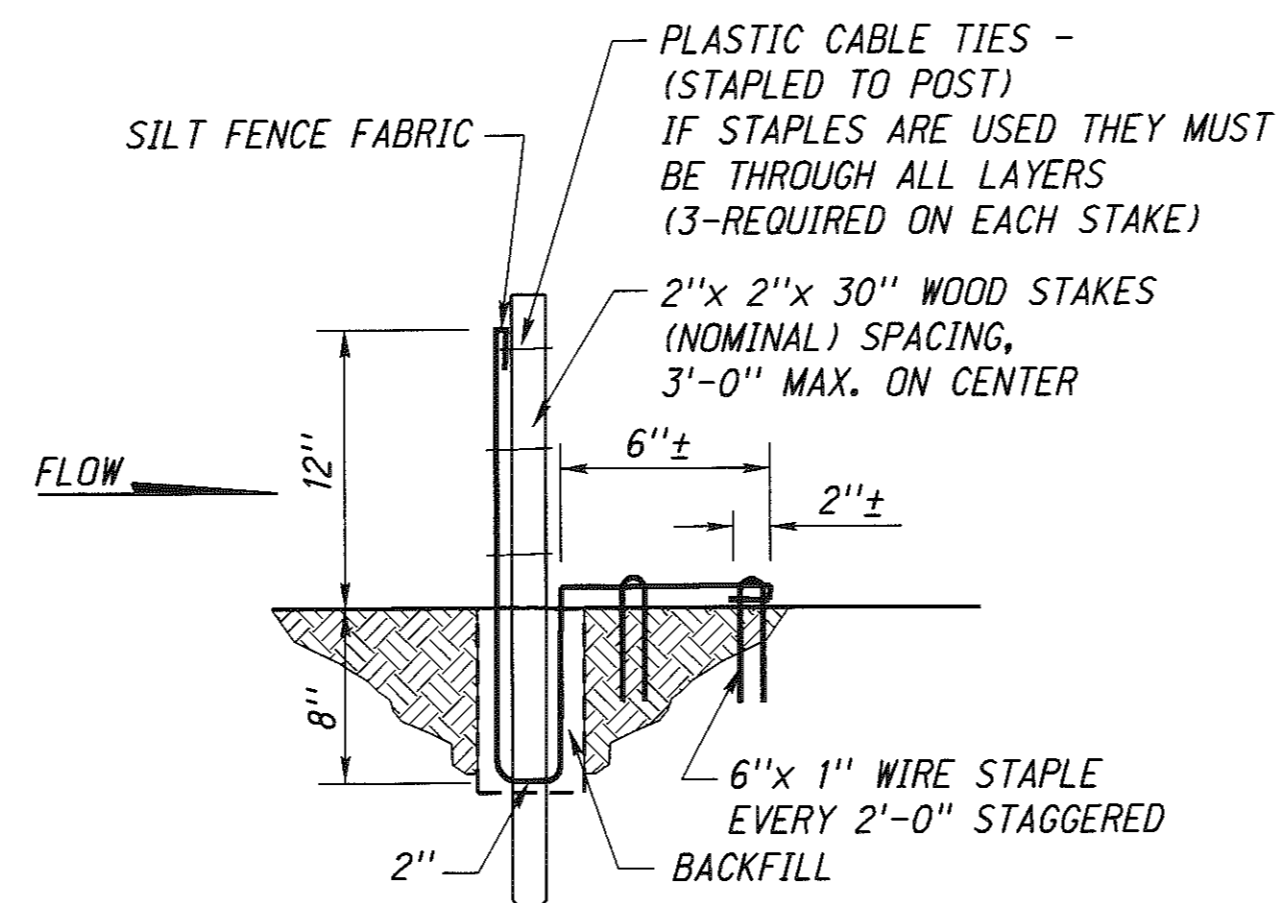


SILT FENCE (ACROSS DITCH)

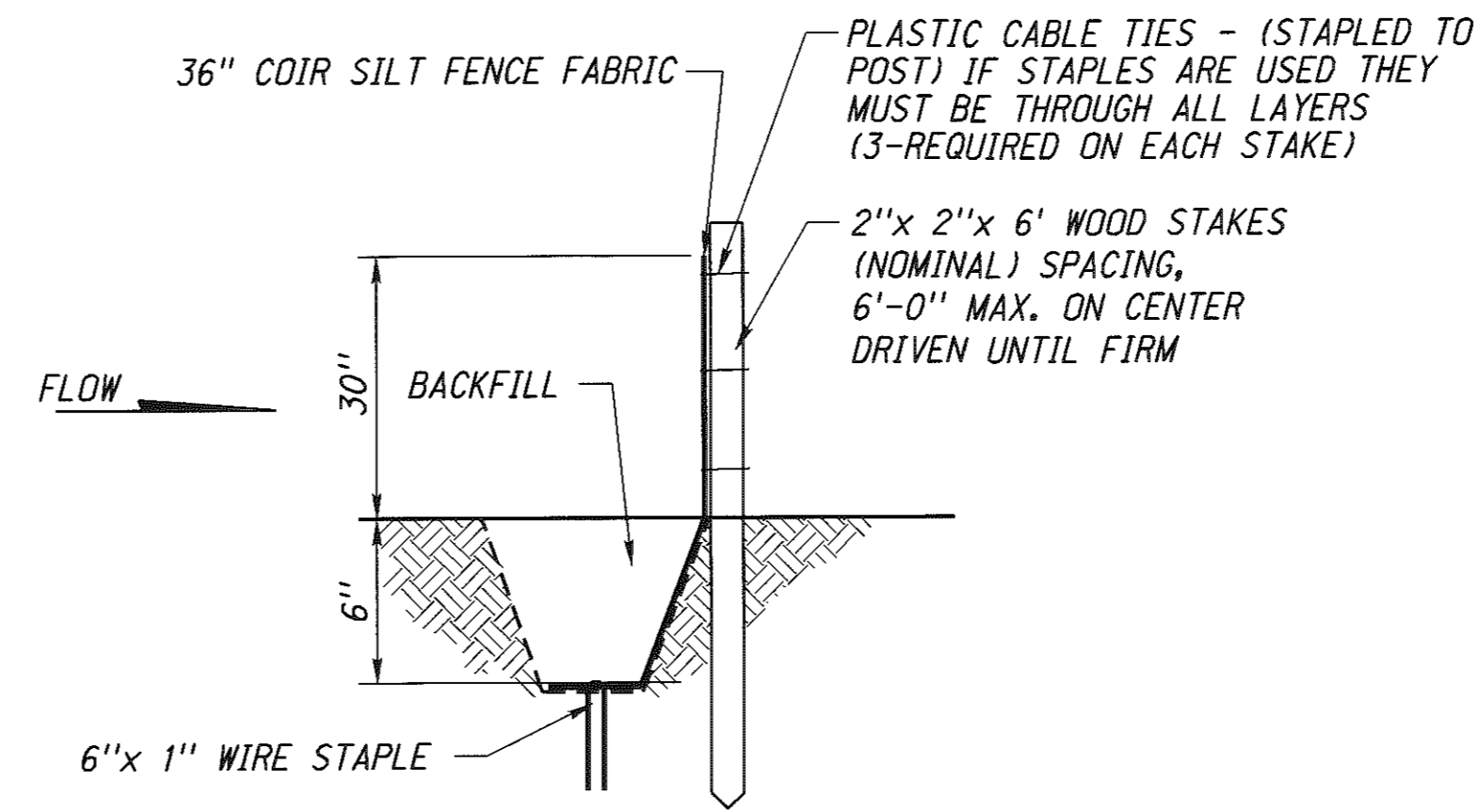


NOTE: * INCLINE POST 15° TO 20° MAX. FROM VERTICAL, TOWARD FLOW.

SILT FENCE (WET & BELOW WATER INSTALLATION)



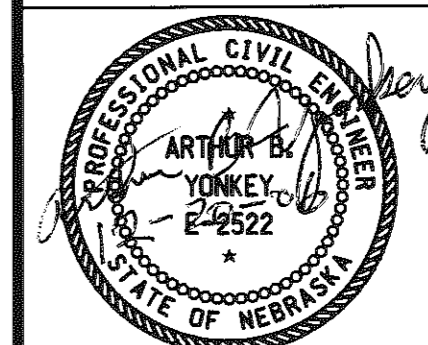
SILT FENCE - LOW PROFILE (LOW AND/OR HIGH POROSITY)



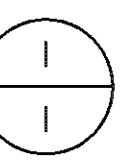
COIR SILT FENCE - ON WOOD POSTS - DRY INSTALLATION

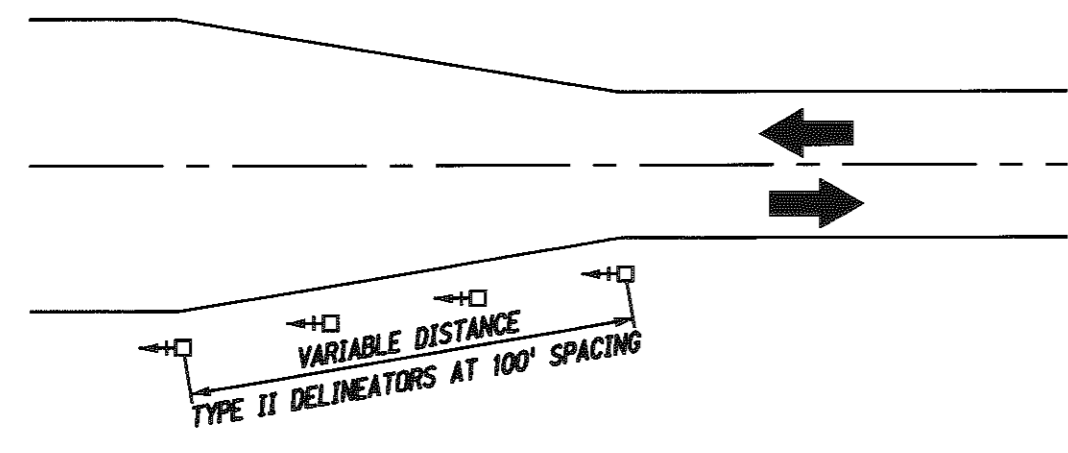
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 502
SILT FENCE DETAILS



APPROVED:
DECEMBER 18, 2006
DATE





TYPICAL DELINEATOR LAYOUT FOR TRANSITION LANE

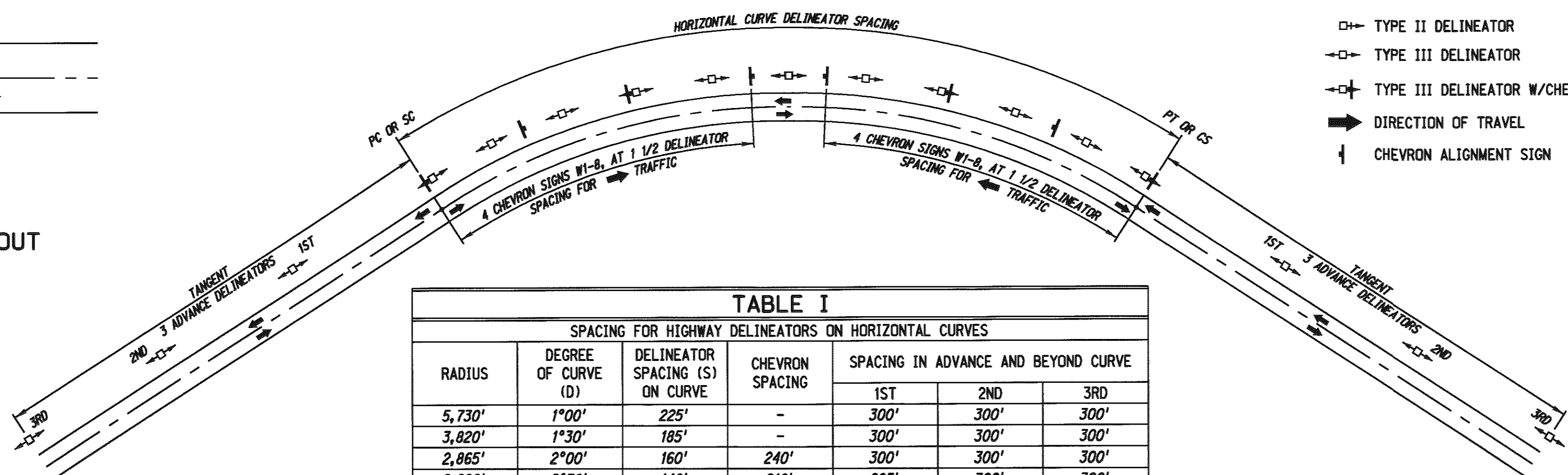
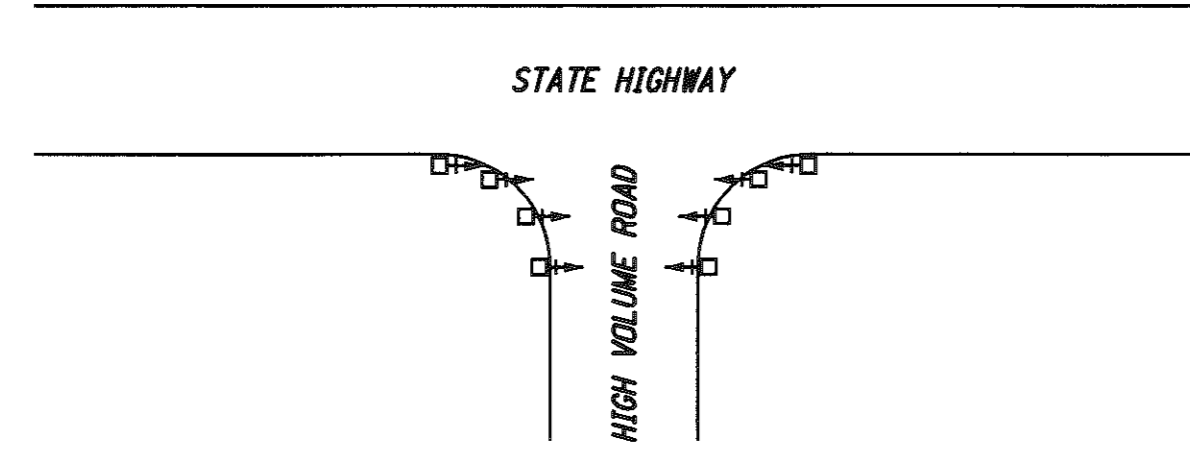


TABLE I
SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES

RADIUS	DEGREE OF CURVE (D)	DELINEATOR SPACING (S) ON CURVE	CHEVRON SPACING	SPACING IN ADVANCE AND BEYOND CURVE		
				1ST	2ND	3RD
5,730'	1°00'	225'	-	300'	300'	300'
3,820'	1°30'	185'	-	300'	300'	300'
2,865'	2°00'	160'	240'	300'	300'	300'
2,290'	2°30'	140'	210'	285'	300'	300'
1,910'	3°00'	130'	195'	260'	300'	300'
1,635'	3°30'	120'	180'	240'	300'	300'
1,430'	4°00'	110'	165'	220'	300'	300'
1,275'	4°30'	105'	155'	210'	300'	300'
1,145'	5°00'	100'	150'	200'	300'	300'
1,040'	5°30'	95'	140'	190'	285'	300'
955'	6°00'	90'	135'	180'	270'	300'
820'	7°00'	85'	125'	170'	255'	300'
715'	8°00'	80'	120'	160'	240'	300'
640'	9°00'	75'	110'	150'	225'	300'
575'	10°00'	70'	105'	140'	210'	300'

SPACING FOR SPECIFIC CURVES NOT SHOWN MAY BE INTERPOLATED FROM TABLE OR COMPUTED FROM THE FORMULA $S=3\sqrt{\text{RADIUS OF CURVE} - 50}$. THE MINIMUM SPACING SHOULD BE 20'. THE SPACING ON CURVES SHOULD NOT EXCEED 300'. THE SPACING OF THE FIRST DELINEATOR APPROACHING A CURVE IS 2S, THE SECOND 3S, AND THE THIRD IS 6S BUT NOT TO EXCEED 300'. IF A SPACING LESS THAN 300' IS USED APPROACHING THE CURVE, DISTANCE SHOWN ABOVE SHOULD BE ADJUSTED ACCORDINGLY.



TYPE II DELINEATORS SHALL BE LAID OUT AS SHOWN AT LOCATIONS REQUIRED BY THE ENGINEER. DELINEATORS SHALL BE SPACED 15' APART.

TYPICAL DELINEATOR LAYOUT FOR HIGH VOLUME RURAL ROADS AND STATE HIGHWAYS

- LEGEND**
- TYPE I DELINEATOR
 - TYPE II DELINEATOR
 - TYPE III DELINEATOR
 - TYPE III DELINEATOR W/CHEVRON SIGN
 - DIRECTION OF TRAVEL
 - ↑ CHEVRON ALIGNMENT SIGN

NOTES

- DELINEATORS AND CHEVRONS**
- TYPE II DELINEATORS SHALL BE SPACED AT 100' INTERVALS ALONG ACCELERATION AND DECELERATION LANES AND ALONG OFF RAMP, EXCEPT FOR CURVES SHARPER THAN 5° WHERE SPACING WILL BE IN ACCORDANCE WITH TABLE I. TYPE I DELINEATORS SHALL BE SPACED AT 100' INTERVALS ALONG THE ON RAMP, EXCEPT FOR CURVES SHARPER THAN 5° WHERE THE SPACING WILL BE IN ACCORDANCE WITH TABLE I.
 - WHERE NORMAL SPACING IS INTERRUPTED BY DRIVEWAYS, CROSS ROADS, ETC., AND WHERE UNDER THE NORMAL SPACING, A DELINEATOR OR CHEVRON WOULD FALL WITHIN SUCH AN AREA, THE DELINEATOR OR CHEVRON MAY BE MOVED IN EITHER DIRECTION A DISTANCE NOT EXCEEDING ONE QUARTER OF THE NORMAL SPACING. IF EITHER STILL FALLS WITHIN THAT AREA, IT SHOULD BE ELIMINATED.
 - WHERE USED ON EXPRESSWAY OR FREEWAY-FACILITIES, THE TYPE I & FLEXIBLE POST DELINEATOR SHALL BE SPACED AT .05 MILE ALONG THE THROUGH ROAD, INCLUDING CURVES UP TO 1°30' (RADIUS 3,820'). DELINEATOR MEASUREMENTS SHALL BE MADE TO CORRESPOND WITH THE HIGHWAY REFERENCE POST, I.E. EVERY 20TH DELINEATOR SHALL BE MOUNTED ON THE REFERENCE POST AT THE RECOMMENDED HEIGHT WITH THE REFERENCE NUMBER PLACED ABOVE.
 - DELINEATORS SHALL BE YELLOW ON THE LEFT EDGE OF EACH ROADWAY OF DIVIDED STREETS, HIGHWAYS, AND ONE-WAY ROADWAYS IN THE DIRECTION OF TRAVEL, ALL OTHER DELINEATORS SHALL BE WHITE.
 - DELINEATORS SHALL BE PLACED 2' TO 8' OUTSIDE THE OUTER EDGE OF SHOULDER; EXCEPT WHEN DELINEATORS ARE TO BE INSTALLED WHERE GUARDRAIL IS IN PLACE, THE DELINEATOR POST SHALL BE DRIVEN IN LINE AND ADJACENT TO GUARDRAIL POSTS. SEE TABLE II FOR DELINEATOR POST LENGTHS.
 - ALL DELINEATORS AND CHEVRON SIGNS SHALL BE MOUNTED TRULY VERTICAL.
 - TYPE III DELINEATORS SHALL BE INSTALLED ON MOUNTING BRACKETS, TO HOLD THE DELINEATORS PERPENDICULAR TO APPROACHING TRAFFIC, 200' FROM THE DELINEATOR, WHEN INSTALLED ON CURVES OF 3° OR GREATER.
 - NORMALLY, DELINEATORS AND CHEVRONS WILL NOT BE REQUIRED ON CURVES OF LESS THAN 1°.
 - INSTALL DELINEATOR ON THE SAME POST WITH THE CHEVRON SIGN WHEN THE DELINEATOR LOCATION IS WITHIN 25' OF THE CHEVRON SIGN.
 - A LIGHT ALUMINUM STRAP 1/2" TO 1 1/2" WIDE MAY BE USED FOR THE "BRACKET" TO ADJUST THE ANGLE OF THE DELINEATOR TO THE TRAFFIC, APPROXIMATELY 200' FROM THE DELINEATOR POST.

TABLE III
TYPE III DELINEATOR SPACING FOR FILL SECTIONS WITHOUT GUARDRAIL

LENGTH	SPACING
150'-250'	50'
OVER 250'	100'

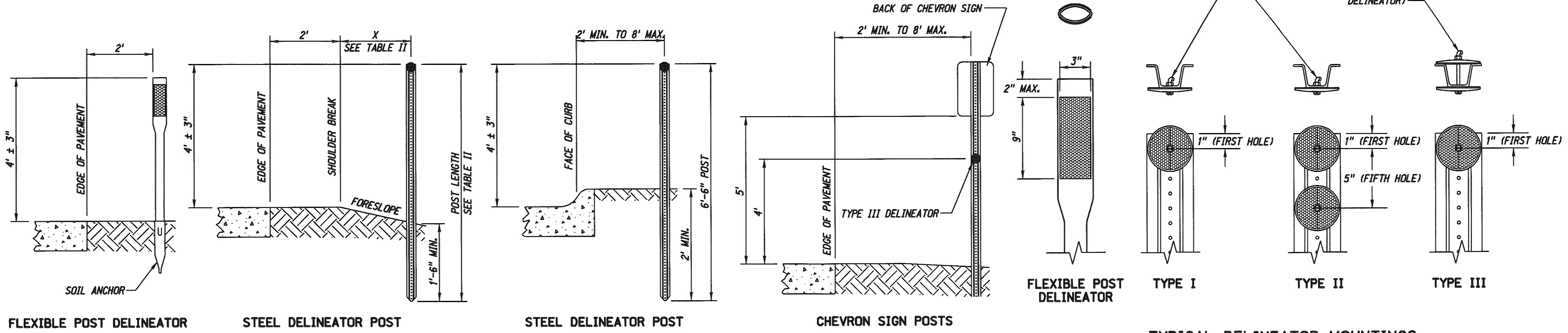
USE DELINEATOR SPACING IN TABLE I FOR FILL SECTIONS ON CURVES. FILL SECTIONS MUST BE DEEPER THAN 10', LONGER THAN 150', AND HAVE SHOULDER SECTIONS LESS THAN 6', WITH A FORESLOPE STEEPER THAN 1:3.

DELINEATORS AND CHEVRONS ON CURVES (TWO-LANE TWO-WAY ROADWAYS ONLY)

- ALL POSTS USED FOR CHEVRONS SHALL BE 10' STEEL, HEAVY BLACK ENAMEL TYPE, AND POST'S WEIGHT SHALL NOT BE LESS THAN 2.5 LB/FT.
- FOR CURVE OF 4° OR MORE, FOUR CHEVRON SIGNS (W1-8) SHALL BE USED FOR EACH DIRECTION OF TRAVEL ON THE CURVE.
- THE CONTRACTOR WILL INSTALL CHEVRON SIGNS (FURNISHED BY THE STATE) ON 10' POSTS (SUPPLIED BY THE CONTRACTOR). INSTALLATION OF THE CHEVRON SIGNS, 10' POSTS, HARDWARE AND DELINEATOR BUTTONS WHEN REQUIRED, ON THE SAME POST, ARE INCLUDED IN THE PAY ITEM INSTALL CHEVRON.
- THE FIRST CHEVRON SIGN SHALL BE PLACED AT THE BEGINNING OF THE CURVE FOLLOWED BY THE NEXT THREE CHEVRON SIGNS AT 1 1/2 DELINEATOR SPACING.
- WHEN AN ADVISORY SPEED SIGN INDICATES A REDUCTION OF SPEED, GREATER THAN TEN MILES PER HOUR, THE ONE-DIRECTIONAL LARGE ARROW SIGN (W1-6-4B) WILL BE USED INSTEAD OF THE CHEVRON SIGN. TWO OR THREE ARROWS ARE SUFFICIENT IN THIS SITUATION.

TABLE II

X	POST LENGTH FORESLOPE			
	1:10	1:6	1:4	1:3
0'	6.5'	6.5'	6.5'	6.5'
2'	6.5'	7.0'	7.0'	7.0'
4'	6.5'	7.0'	7.5'	8.0'
6'	6.5'	7.5'	8.0'	8.5'
8'	7.0'	8.0'	8.5'	9.0'



R9	JUN.04	MULTIPLE CHANGES
R8	OCT.93	CHANGED CHEVRON SIGN LAYOUT NOTE
R7	OCT.87	CHANGED DELINEATORS ON CURVE
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 901-R9
HIGHWAY DELINEATORS

ORIGINAL:
JUNE 11, 1975
DATE

CHANNELIZATION DEVICES

THE FUNCTION OF CHANNELIZATION DEVICES IS TO WARN DRIVERS OF CONDITIONS CREATED BY WORK ACTIVITIES IN OR NEAR THE TRAVELED WAY, TO PROTECT WORKERS IN THE TEMPORARY TRAFFIC CONTROL ZONE, AND TO GUIDE DRIVERS AND PEDESTRIANS SAFELY. CHANNELIZING DEVICES INCLUDE BUT ARE NOT LIMITED TO CONES, TUBULAR MARKERS, VERTICAL PANELS, DRUMS, BARRICADES, TEMPORARY RAISED ISLANDS, AND BARRIERS.

DEVICES USED FOR CHANNELIZATION SHOULD PROVIDE FOR SMOOTH AND GRADUAL TRAFFIC MOVEMENT FROM ONE LANE TO ANOTHER, ONTO A BYPASS OR DETOUR, OR TO REDUCE THE WIDTH OF THE TRAVELED WAY. THEY MAY ALSO BE USED TO SEPARATE TRAFFIC FROM THE WORK SPACE, PAVEMENT DROP-OFFS, PEDESTRIAN PATHS, OR OPPOSING DIRECTIONS OF TRAFFIC.

CHANNELIZING DEVICES SHOULD BE CONSTRUCTED AND BALLASTED TO PERFORM IN A PREDICTABLE MANNER WHEN INADVERTENTLY STRUCK BY A VEHICLE. IF STRUCK, THE DEVICE SHOULD YIELD OR BREAK AWAY, AND FRAGMENTS OR OTHER DEBRIS FROM THE DEVICE SHOULD NOT PENETRATE THE PASSENGER COMPARTMENT OF THE VEHICLE OR BE A POTENTIAL HAZARD TO WORKERS OR PEDESTRIANS IN THE IMMEDIATE AREA.

SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO THE SPEED WHEN USED FOR THE TAPER CHANNELIZATION, AND A DISTANCE IN FEET OF TWICE THE SPEED WHEN USED FOR TANGENT CHANNELIZATION.

SPACING OF CHANNELIZATION DEVICES

SPEED (MPH) S	SPACING OF DEVICES IN FEET	
	TAPER	TANGENT
25	25 FT	50 FT
35	35 FT	70 FT
45	45 FT	90 FT
55	55 FT	110 FT
65	65 FT	130 FT
70	70 FT	140 FT
75	75 FT	150 FT

WARNING LIGHTS ON CHANNELIZING DEVICES. CONSIDERATION SHOULD BE GIVEN TO FOG OR SNOW AREAS, SEVERE ROADWAY CURVATURE, AND USUALLY CLUTTERED ENVIRONMENTS. FLASHING WARNING LIGHTS SHALL BE PLACED ON CHANNELIZING DEVICES USED SINGLY OR IN GROUPS TO MARK A SPOT CONDITION. STEADY-BURN WARNING LIGHTS MAY BE USED ON CHANNELIZING DEVICES USED IN A SERIES.

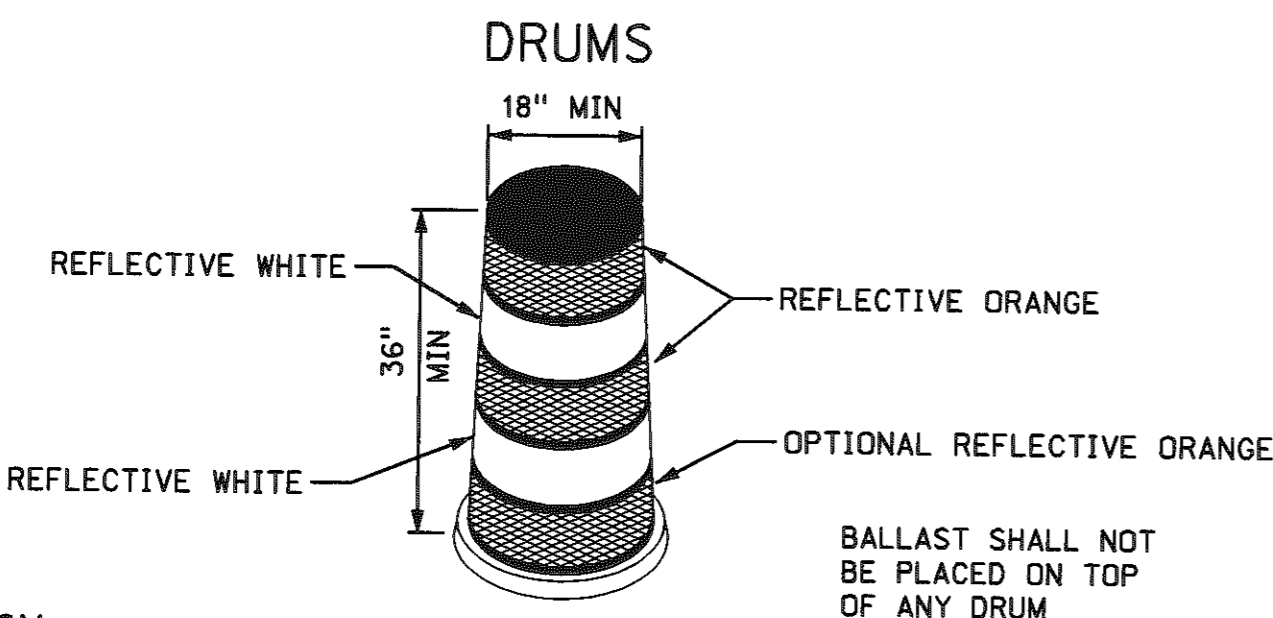
THE RETROREFLECTIVE MATERIAL USED ON CHANNELIZING DEVICES SHALL HAVE A SMOOTH, SEALED OUTER SURFACE, MEETING THE REQUIREMENTS OF THE ASTM SPECIFICATION: D4956, FOR TYPE III SHEETING. THE COEFFICIENT OF RETROREFLECTION OF CHANNELIZING DEVICES SHALL HAVE THE FOLLOWING MINIMUM BRIGHTNESS VALUES MEASURED AT 0.2° OBSERVATION ANGLE AND -4° ENTRANCE ANGLE. CANDELAS PER LUX PER SQUARE METER.

COEFFICIENT OF RETROREFLECTION			
WHITE	ORANGE	RED	YELLOW
125	50	22.5	85

IN ADDITION TO THE MINIMUM COEFFICIENT OF RETROREFLECTION, THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) "QUALITY STANDARD FOR WORK ZONE TRAFFIC CONTROL DEVICES" MAY BE USED AS A VISUAL GUIDE FOR DETERMINING IF A TRAFFIC CONTROL DEVICE IS ACCEPTABLE, MARGINAL OR UNACCEPTABLE.

THE NAME AND TELEPHONE NUMBER OF THE AGENCY, CONTRACTOR, OR SUPPLIER MAY BE SHOWN ON THE CHANNELIZING DEVICE BACK OR SUPPORT, BUT NOT ON THE DEVICES FACE. THE LETTERS AND NUMBERS SHALL BE A NON-REFLECTIVE COLOR AND NOT OVER 100 SQUARE CENTIMETERS IN TOTAL AREA.

PARTICULAR ATTENTION SHOULD BE GIVEN TO ASSURING THAT CHANNELIZING DEVICES ARE MAINTAINED AND KEPT CLEAN, VISIBLE, AND PROPERLY POSITIONED AT ALL TIMES. DEVICES SHALL BE REPLACED THAT ARE DAMAGED AND HAVE LOST A SIGNIFICANT AMOUNT OF THEIR RETROREFLECTIVITY AND EFFECTIVENESS.



DESIGN

DRUMS USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE CONSTRUCTED OF LIGHT-WEIGHT, FLEXIBLE, AND DEFORMABLE MATERIALS AND BE A MINIMUM OF 36 INCHES IN HEIGHT AND HAVE AT LEAST A 18 INCHES MINIMUM WIDTH, REGARDLESS OF ORIENTATION. THE PREDOMINANT COLOR OF THE DRUM SHALL BE ORANGE. STEEL DRUMS SHALL NOT BE USED. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, CIRCUMFERENTIAL, ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES 6 INCHES TO 8 INCHES WIDE. EACH DRUM SHALL HAVE A MINIMUM OF TWO ORANGE AND TWO WHITE STRIPES. ANY NON-RETROREFLECTIVE SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, SHALL NOT EXCEED 2 INCHES WIDE. DRUMS SHALL HAVE CLOSED TOPS THAT WILL NOT ALLOW COLLECTION OF ROADWORK OR OTHER DEBRIS.

APPLICATION

DRUMS ARE MOST COMMONLY USED TO CHANNELIZE OR DELINEATE TRAFFIC FLOW BUT MAY ALSO BE USED SINGLY OR IN GROUPS TO MARK SPECIFIC LOCATIONS. DRUMS ARE HIGHLY VISIBLE AND HAVE GOOD TARGET VALUE, GIVEN THE APPEARANCE OF BEING FORMIDABLE OBSTACLES AND, THEREFORE, COMMAND THE RESPECT OF DRIVERS.

DRUMS SHOULD NOT BE WEIGHTED WITH SAND, WATER, OR ANY MATERIAL TO AN EXTENT THAT WOULD MAKE THEM HAZARDOUS TO MOTORISTS, PEDESTRIANS, OR WORKERS. WHEN THEY ARE USED IN REGIONS SUSCEPTIBLE TO FREEZING, THEY SHOULD HAVE DRAINAGE HOLES IN THE BOTTOM SO WATER WILL NOT ACCUMULATE AND FREEZE, CAUSING A HAZARD IF STRUCK BY A MOTORIST. BALLAST SHALL NOT BE PLACED ON TOP OF THE DRUM.

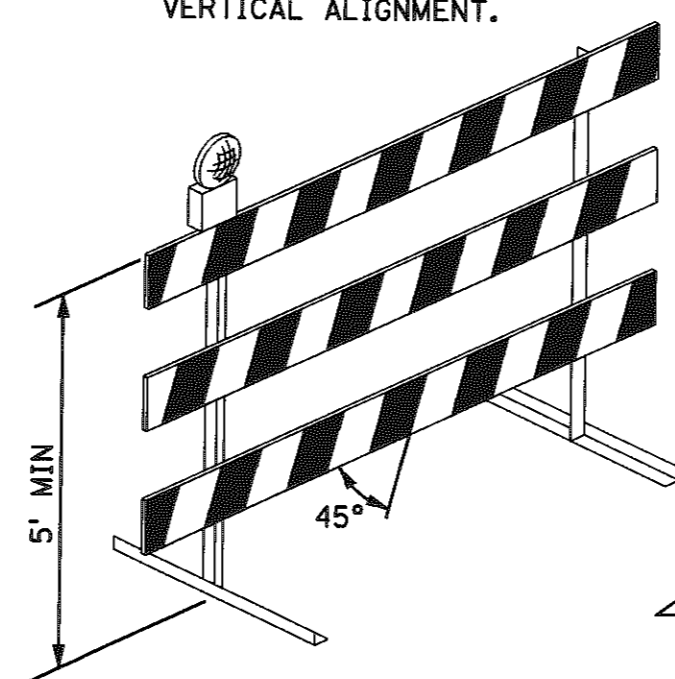
BARRICADES

BARRICADE TYPE	TYPE II	TYPE III
WIDTH OF RAIL *	8 INCHES MIN - 12 INCHES MAX	8 INCHES MIN - 12 INCHES MAX
LENGTH OF RAIL	36 INCHES	8 FEET **
WIDTH OF STRIPES	6 INCHES	6 INCHES
HEIGHT	36 INCHES	5 FEET
REFLECTIVE SHEETING	TYPE III	TYPE III
NUMBER OF REFLECTORIZED RAIL FACES	4 (TWO EACH DIRECTION)	6 (THREE EACH DIRECTION)

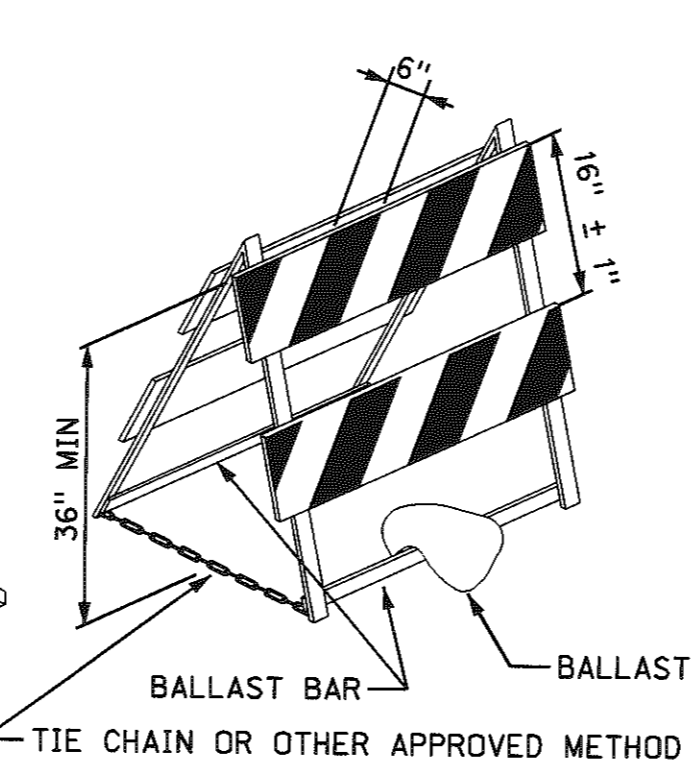
* NOMINAL DIMENSIONS ARE PERMISSIBLE WHEN CONSTRUCTED FROM LUMBER.
** WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

TYPE III BARRICADE

TYPICAL MOUNTING OF FLASHING WARNING LIGHTS. LIGHTS SHALL ALWAYS BE IN VERTICAL ALIGNMENT.



TYPE II BARRICADE



DESIGN

A BARRICADE IS A PORTABLE OR FIXED DEVICE HAVING TWO OR THREE RAILS WITH APPROPRIATE MARKINGS. IT IS USED TO CONTROL TRAFFIC BY CLOSING, RESTRICTING, OR DELINEATING ALL OR A PORTION OF THE RIGHT-OF-WAY.

BARRICADES SHALL BE ONE OF TWO TYPES: TYPE II, OR TYPE III.

STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS). THE STRIPES SHALL BE 6 INCHES WIDE. THE MINIMUM RAIL LENGTH IS 36 INCHES.

WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE STRIPES MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE MOTORIST AND PROVIDE A STABLE SUPPORT NOT EASILY BLOWN OVER BY THE WIND OR TRAFFIC.

BARRICADES ARE LOCATED ADJACENT TO TRAFFIC AND ARE THEREFORE SUBJECT TO IMPACT BY ERRANT VEHICLES. BECAUSE OF THEIR VULNERABLE POSITION AND THE HAZARD THEY CREATE, THEY SHOULD BE CONSTRUCTED OF LIGHTWEIGHT MATERIALS AND HAVE NO RIGID STAY BRACING FOR A-FRAME DESIGNS. TYPE II BARRICADES SHALL BE BUILT WITH LEGS OR SUPPORTS THAT WILL COLLAPSE WHEN THE BARRICADE IS TIPPED OVER OR HAS BEEN LAID DOWN.

ON HIGH-SPEED ROADWAYS OR IN OTHER SITUATIONS WHERE BARRICADES MAY BE SUSCEPTIBLE TO OVERTURNING IN THE WIND, SANDBAGS SHOULD BE USED FOR BALLASTING. SANDBAGS MAY BE PLACED ON LOWER PARTS OF THE FRAME OR STAYS TO PROVIDE THE REQUIRED BALLAST BUT SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY HEAVY OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE.

ON THE INTERSTATE, FREEWAY AND EXPRESSWAY SYSTEM, TYPE II BARRICADES SHALL NOT BE USED FOR CHANNELIZATION.

THE BARRICADE OWNERS NAME, NOT TO EXCEED 15 SQUARE INCHES SHALL BE SHOWN ON THE BARRICADE BACK OR SUPPORT, BUT NOT ON ITS FACE.

APPLICATION

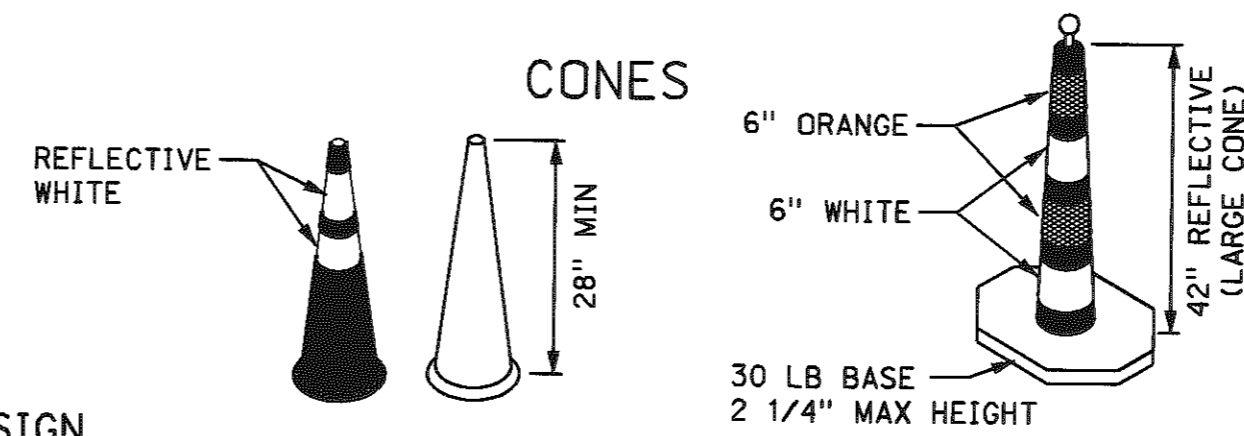
TYPE II BARRICADES ARE INTENDED FOR USE IN SITUATIONS WHERE TRAFFIC IS MAINTAINED THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE. THEY MAY BE USED SINGLY OR IN GROUPS TO MARK A SPECIFIC CONDITION, OR THEY MAY BE USED IN A SERIES FOR CHANNELIZING TRAFFIC. TYPE III BARRICADES SHALL BE SUPPLEMENTED, WITH A LIGHTING DEVICE UNLESS SPECIFICALLY DELETED BY THE ENGINEER TO USE SOME BARRICADES WITHOUT LIGHTS.

TYPE III BARRICADES USED AT A ROAD CLOSURE MAY EXTEND COMPLETELY ACROSS A ROADWAY OR FROM CURB TO CURB. WHERE PROVISION IS MADE FOR ACCESS OF AUTHORIZED EQUIPMENT AND VEHICLES, THE RESPONSIBILITY FOR THE TYPE III BARRICADES SHOULD BE ASSIGNED TO A PERSON TO ENSURE PROPER CLOSURE AT THE END OF EACH WORK DAY.

WHEN A HIGHWAY IS LEGALLY CLOSED BUT ACCESS MUST STILL BE ALLOWED FOR LOCAL TRAFFIC, THE TYPE III BARRICADE SHOULD NOT BE EXTENDED COMPLETELY ACROSS A ROADWAY. A SIGN WITH THE APPROPRIATE LEGEND CONCERNING PERMISSIBLE USE BY LOCAL TRAFFIC SHALL BE MOUNTED.

NORMALLY PERMANENT SIGNS MOUNTED ON BARRICADES SHALL BE ERECTED ABOVE THE BARRICADE. THE SIGNS "ROAD CLOSED", OR "ROAD CONSTRUCTION AHEAD", FOR EXAMPLE CAN EFFECTIVELY BE MOUNTED ABOVE THE BARRICADE THAT CLOSURE THE ROADWAY. TYPE III BARRICADES SHALL BE SUPPLEMENTED WITH A LIGHTING DEVICE UNLESS SPECIFICALLY OMITTED BY THE ENGINEER. DETOUR ARROW AND LARGE WARNING ARROW SIGNS SHOULD BE PLACED ON THE FACE OF BARRICADE.

CONES



DESIGN

CONES SHALL BE PREDOMINANTLY ORANGE, FLOURESCENT RED-ORANGE, OR FLOURESCENT YELLOW/ORANGE, NOT LESS THAN 28 INCHES IN HEIGHT, AND SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT. CONES WHEN ALLOWED ON THE INTERSTATE, FREEWAY OR EXPRESSWAY SYSTEM SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

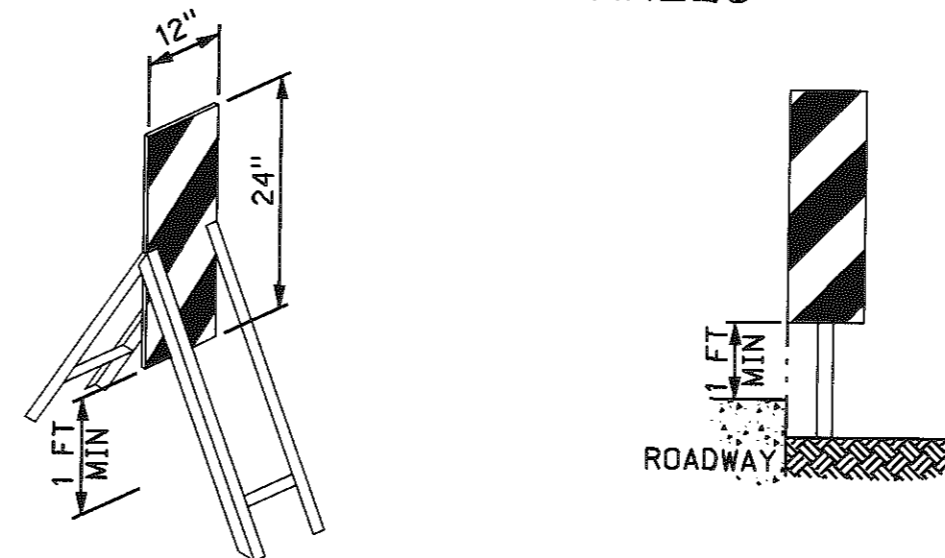
FOR NIGHTTIME USE, CONES SHALL BE RETROREFLECTIVE OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY. RETROREFLECTION OF 28 INCH OR 36 INCH CONES SHALL BE PROVIDED BY A WHITE BAND 6 INCHES WIDE, NO MORE THAN 3 INCHES TO 4 INCHES FROM THE TOP OF THE CONE, AND AN ADDITIONAL 4 INCHES WIDE WHITE BAND A MINIMUM OF 2 INCHES BELOW THE 6 INCHES BAND. LARGE REFLECTIVE CONES SHALL BE PROVIDED WITH FOUR REFLECTIVE BANDS 6 INCHES EACH, ALTERNATING FROM THE TOP, ORANGE, WHITE, ORANGE, WHITE, WITH A TWO INCH SEPARATION BETWEEN BANDS. WHEN APPROVED BY THE ENGINEER, LARGE CONES MAY BE USED IN PLACE OF VERTICAL PANELS. LARGE CONES SHALL NOT BE USED IN PLACE OF DRUMS OR TYPE II BARRICADES.

APPLICATION

TRAFFIC CONES ARE USED TO CHANNELIZE TRAFFIC, DIVIDE OPPOSING TRAFFIC LANES, DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION, AND DELINEATE SHORT-DURATION MAINTENANCE AND UTILITY WORK. CONES SHALL NOT BE USED AT NIGHT ON RURAL HIGHWAYS, UNLESS SHOWN ON THE PLANS OR AS APPROVED OR DIRECTED BY THE ENGINEER.

STEPS SHOULD BE TAKEN TO ENSURE THAT CONES WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. CONES CAN BE DOUBLED UP TO INCREASE THEIR WEIGHT. SOME CONES ARE CONSTRUCTED WITH BASES THAT CAN BE FILLED WITH BALLAST. OTHERS HAVE SPECIAL WEIGHTED BASES, OR WEIGHTS SUCH AS SANDBAG RINGS THAT CAN BE DROPPED OVER THE CONES AND ONTO THE BASE TO PROVIDE ADDED STABILITY. BALLAST, HOWEVER, SHOULD NOT PRESENT A HAZARD IF THE CONES ARE INADVERTENTLY STRUCK.

VERTICAL PANELS



DESIGN

VERTICAL PANELS SHALL BE 12 INCHES WIDE AND AT LEAST 24 INCHES HIGH. THEY SHALL HAVE ORANGE AND WHITE STRIPES, AND BE RETROREFLECTIVE. PANEL STRIPE WIDTHS SHALL BE 6 INCHES, EXCEPT WHERE PANEL HEIGHTS ARE LESS THAN 36 INCHES, THEN 4 INCHES STRIPES MAY BE USED. IF USED FOR TWO-WAY TRAFFIC, BACK-TO-BACK PANELS SHALL BE USED.

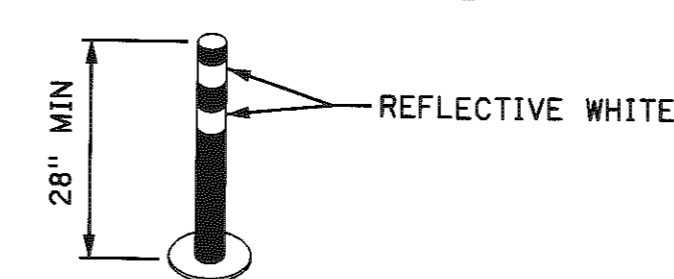
MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTORIZED STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).

VERTICAL PANELS SHALL BE MOUNTED UPRIGHT WITH THE TOP A MINIMUM OF 36 INCHES ABOVE THE ROADWAY. VERTICAL PANELS NOT MOUNTED ABOVE CONCRETE BARRIERS SHALL HAVE LEGS OR SUPPORTS THAT WILL BREAK AWAY UPON IMPACT.

APPLICATION

VERTICAL PANELS MAY BE USED TO CHANNEL TRAFFIC, DIVIDE OPPOSING LANES OF TRAFFIC, DIVIDE TRAFFIC LANES OR IN PLACE OF BARRICADES WHERE SPACE IS LIMITED. WHEN APPROVED BY THE ENGINEER, VERTICAL PANELS MAY BE POST-MOUNTED ALONG THE SIDE OF THE ROADWAY.

TUBULAR MARKERS



DESIGN

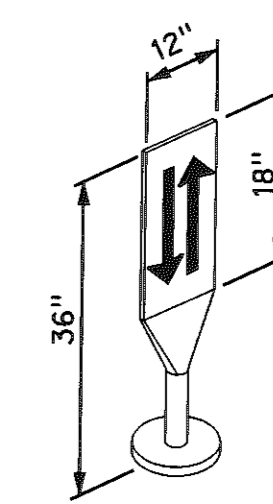
TUBULAR MARKERS SHALL BE PREDOMINANTLY ORANGE, NOT LESS THAN 28 INCHES HIGH, MINIMUM 2 INCHES WIDE WHEN FACING TRAFFIC, AND MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES.

FOR NIGHTTIME USE, TUBULAR MARKERS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR MARKERS SHALL BE PROVIDED BY TWO 3 INCHES WIDE WHITE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP, WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. THE BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 2 INCHES.

APPLICATION

TUBULAR MARKERS HAVE LESS VISIBLE AREA THAN OTHER DEVICES AND SHOULD BE USED ONLY WHERE SPACE RESTRICTIONS DO NOT ALLOW FOR THE USE OF OTHER MORE VISIBLE DEVICES. THEY MAY BE USED EFFECTIVELY TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION. STEPS SHOULD BE TAKEN TO ASSURE THAT TUBULAR MARKERS WILL NOT BE BLOWN OVER OR DISPLACED BY TRAFFIC BY EITHER AFFIXING THEM TO THE PAVEMENT WITH ANCHOR BOLTS OR ADHESIVE, USING WEIGHTED BASES, OR WEIGHTS THAT CAN BE DROPPED OVER THE TUBULAR MARKERS AND ONTO THE BASE TO PROVIDE ADDED STABILITY. BALLAST, HOWEVER, SHOULD NOT BE ALLOWED TO PRESENT A HAZARD IF THE TUBULAR MARKERS ARE INADVERTENTLY STRUCK. IF A NONCYLINDRICAL DEVICE IS USED, AND IT COULD BE DISPLAYED WITH A WIDTH LESS THAN THE MINIMUM FACING TRAFFIC, IT SHALL BE ATTACHED TO THE PAVEMENT TO ENSURE THAT THE WIDTH FACING TRAFFIC MEETS THE MINIMUM REQUIREMENTS.

OPPOSING TRAFFIC LANE DIVIDERS



DESIGN

OPPOSING TRAFFIC LANE DIVIDER SHALL BE A TWO SIDED UPRIGHT REFLECTORIZED ORANGE PANEL, WITH A 12 INCHES WIDTH AND 18 INCHES HEIGHT. THE TOP OF THE PANEL SHALL BE 36 INCHES ABOVE THE PAVEMENT. THE SYMBOL ON EACH SIDE SHALL BE TWO OPPOSING BLACK ARROWS. THE LANE DIVIDER SHALL BE MADE OF LIGHTWEIGHT MATERIAL THAT WILL YIELD UPON IMPACT BY A VEHICLE. THE LANE DIVIDER BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 2 INCHES. THE BASE SHALL BE ATTACHED TO THE EXISTING SURFACE BY EPOXY OR OTHER SUITABLE ADHESIVE, TO ENSURE THAT THE PANEL REMAINS FACING TRAFFIC.

APPLICATION

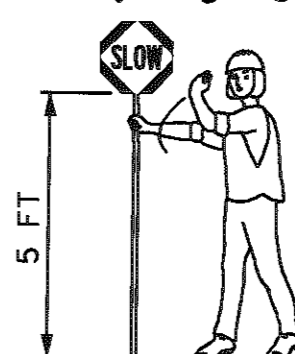
OPPOSING TRAFFIC LANE DIVIDERS ARE DELINEATION DEVICES USED AS CENTER LANE DIVIDERS TO SEPARATE OPPOSING TRAFFIC ON A TWO-LANE, TWO-WAY OPERATION.

FLAGGERS

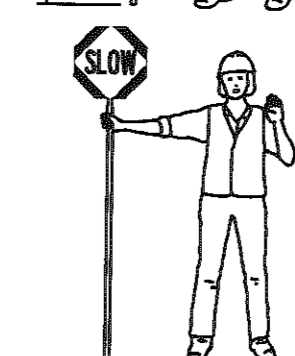
REQUIRED METHOD



TO STOP TRAFFIC

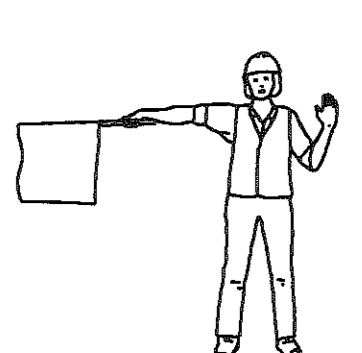


TRAFFIC PROCEED



TO ALERT AND SLOW TRAFFIC

EMERGENCY USE ONLY



FLAGGER PADDLES

FLAGGER PADDLES SHALL BE A MINIMUM 18 INCH WIDE OCTAGON WITH LETTERS AT LEAST 6 INCHES HIGH, WITH A 5 FOOT RIGID HANDLE. FLAGS AND PADDLES SHALL NOT BE USED AT THE SAME TIME. IN EMERGENCIES WHERE THE STANDARD SIGN IS NOT AVAILABLE, A RED FLAG MAY BE USED BY FLAGGERS IN ACCORDANCE WITH THE FLAGGERS HANDBOOK. TO IMPROVE CONSPICUITY, THE STOP/SLOW PADDLES MAY BE SUPPLEMENTED BY ONE OR TWO SYMMETRICALLY POSITIONED FLASHING WHITE HIGH-INTENSITY LAMPS.

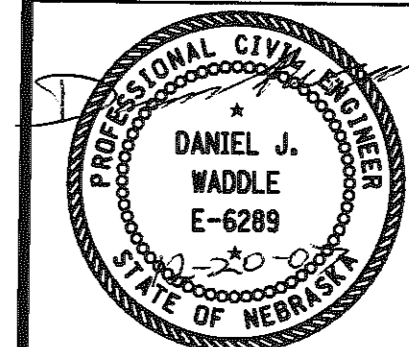
FLAGGERS

A FLAGGER MUST BE DRESSED FOR SAFETY. TO BE EASILY VISIBLE A FLAGGER MUST WEAR A VEST, SHIRT, OR JACKET, AND A CAP OR HARD HAT THAT IS BRIGHT ORANGE, YELLOW, YELLOW GREEN OR FLOURESCENT VERSIONS OF THESE COLORS (FADED OR SOILED GARMENT WILL NOT BE ALLOWED). FOR NIGHTTIME FLAGGING THE GARMENT SHALL BE REFLECTORIZED. FLAGGERS SHALL BE INSTRUCTED IN THE PROPER LOCATION, DUTIES AND PROCEDURES FOR FLAGGERS AS OUTLINED IN THE CURRENT MUTCD AND THE DEPARTMENT OF ROADS FLAGGER'S HANDBOOK. AS REQUIRED BY THE DEPARTMENT OF ROADS, THE FLAGGER SHALL BE CERTIFIED, AND HAVE IN THEIR POSSESSION, A VALID FLAGGER CERTIFICATION CARD.

R5	OCT. 98	REVISE CHANNELIZATION DEVICES, TAPER
R4	JAN. 95	REWRITE
R3	AUG. 88	WORDING, REFLECTIVITY
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 920-R5

**TRAFFIC CONTROL
CONSTRUCTION AND MAINTENANCE**



ORIGINAL:
OCTOBER 1998
DATE

1
2

LIGHTING DEVICES

FUNCTION

CONSTRUCTION AND MAINTENANCE ACTIVITIES OFTEN CREATE CONDITIONS ON OR NEAR THE TRAVELED WAY THAT ARE PARTICULARLY HAZARDOUS AT NIGHT. IT IS OFTEN DESIRABLE AND NECESSARY TO SUPPLEMENT THE REFLECTORIZED SIGNS, BARRIERS, AND CHANNELIZING DEVICES WITH LIGHTING DEVICES. STROBE TYPE LIGHTS ARE NOT PERMITTED.

BARRICADE WARNING LIGHTS DESIGN (BATTERY OPERATED)

TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS ARE MOST COMMONLY MOUNTED ON BARRICADES, OR WITH SIGNS AND ARE INTENDED TO WARN THE DRIVER THAT THEY ARE PROCEEDING IN A HAZARDOUS AREA. THESE LIGHTS SHALL NOT BE USED FOR DELINEATION, AS A SERIES OF FLASHING LIGHTS IN A ROW WOULD TEND TO OBSCURE THE DESIRED PATH.

TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS ARE NORMALLY MOUNTED ON THE ADVANCE WARNING SIGNS. EXTREMELY HAZARDOUS SITE CONDITIONS WITHIN THE CONSTRUCTION AREA MAY REQUIRE THAT THE LIGHTS BE MOUNTED ON TYPE III BARRICADES, SIGNS, OR OTHER SUPPORTS. AS THESE LIGHTS ARE EFFECTIVE IN DAYLIGHT, THEY ARE DESIGNED TO OPERATE 24 HOURS PER DAY.

TYPE "C" STEADY BURN LIGHTS AS USED HEREIN, SHALL MEAN A SERIES OF LOW WATTAGE YELLOW ELECTRIC LIGHTS. WHERE LIGHTS ARE NEEDED TO DELINEATE OR MARK THE TRAVELED WAY THROUGH AND AROUND OBSTRUCTIONS IN A CONSTRUCTION MAINTENANCE AREA, THE DELINEATION SHALL BE ACCOMPLISHED BY USE OF STEADY BURNING LIGHTS.

FLASHING ARROW PANEL (DISPLAY)

AN ARROW PANEL IS A SIGN WITH A MATRIX OF ELEMENTS. THE MATRIX, CAPABLE OF EITHER FLASHING OR SEQUENTIAL DISPLAYS, IS INTENDED TO PROVIDE ADDITIONAL WARNING AND DIRECTIONAL INFORMATION TO ASSIST IN MERGING AND CONTROLLING TRAFFIC THROUGH OR AROUND A TEMPORARY TRAFFIC CONTROL ZONE. AN ARROW PANEL SHOULD BE USED IN COMBINATION WITH APPROPRIATE SIGNS, BARRICADES, OR OTHER TRAFFIC CONTROL DEVICES.

DESIGN

ARROW PANELS SHALL MEET THE SIZE AND SPECIFICATIONS OF THE MUTCD FOR TYPE C ARROW DISPLAYS.

FLASHING ARROW PANEL SHALL BE RECTANGULAR, OF SOLID APPEARANCE AND FINISHED IN NONREFLECTIVE BLACK. THE PANEL SHALL BE MOUNTED ON A VEHICLE, TRAILER OR OTHER SUITABLE SUPPORT. MINIMUM MOUNTING HEIGHT SHALL BE 7 FEET FROM THE ROADWAY TO THE BOTTOM OF THE PANEL, EXCEPT ON VEHICLE-MOUNTED PANELS, WHICH SHOULD BE AS HIGH AS PRACTICABLE.

THE FOLLOWING SELECTIONS SHALL BE PROVIDED ON THE ARROW PANEL	
OPERATING MODE	PANEL DISPLAY
FLASHING ARROW	RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL ARROW	RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL CHEVRON	RIGHT SHOWN; LEFT OPPOSITE
FLASHING DOUBLE ARROW	
FLASHING OR ALTERNATING CAUTION	OR

THE ARROW PANEL SHALL HAVE A MINIMUM SIZE OF 96 INCHES WIDE AND 48 INCHES HIGH. THE MINIMUM LEGIBILITY DISTANCE SHALL BE 1 MILE. THE PANEL SHALL CONTAIN 25 LAMP ELEMENTS. ARROW PANEL ELEMENTS SHALL BE CAPABLE OF A MINIMUM 50 PERCENT DIMMING, AUTOMATICALLY WHEN AMBIENT LIGHT FALLS BELOW 50 LUX.

THE MINIMUM ELEMENT "ON TIME" SHALL BE 50 PERCENT FOR THE FLASHING MODE AND EQUAL INTERVALS OF 25 PERCENT FOR EACH SEQUENTIAL CHEVRON PHASE. THE FLASHING RATE SHALL BE NO FEWER THAN 25 NOR MORE THAN 40 FLASHES PER MINUTE.

APPLICATION

A FLASHING ARROW OR SEQUENTIAL CHEVRON MAY BE USED FOR STATIONARY OR MOVING LANE CLOSURES. AN ARROW DISPLAY IN THE CAUTION MODE SHALL BE USED ONLY FOR SHOULDER WORK, BLOCKING THE SHOULDER, OR ROADSIDE WORK NEAR THE SHOULDER. AN ARROW DISPLAY SHALL NOT BE USED ON A TWO-LANE TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION OR LANE SHIFTS. AN ARROW DISPLAY SHALL NOT BE USED ON A MULTILANE ROADWAY TO LATERALLY SHIFT ALL LANES OF TRAFFIC, BECAUSE UNNECESSARY LANE CHANGING MAY RESULT.

TRAFFIC SIGNALS

TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN EQUIPMENT CROSSINGS WHERE THE VOLUME OF FILL MATERIAL AND THE NUMBER OF EQUIPMENT CROSSINGS PER HOUR IS HIGH. TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN BRIDGE CONSTRUCTION SITES WHERE A COMBINATION OF ONE-WAY TRAFFIC AND HIGH TRAFFIC VOLUMES WOULD BE BEST SERVED WITH THIS TYPE OF TRAFFIC CONTROL.

ALL TRAFFIC SIGNAL REQUESTS AND METHOD OF INSTALLATION ON THE STATE HIGHWAY SYSTEM SHALL BE IN COMPLIANCE WITH THE MUTCD AND MUST BE APPROVED BY THE STATE TRAFFIC ENGINEER.

FLOOD LIGHTS

WHEN NIGHTTIME WORK IS REQUIRED, FLOODLIGHTS SHOULD BE USED TO ILLUMINATE FLAGGER STATIONS, EQUIPMENT CROSSINGS, AND OTHER AREAS WHERE EXISTING LIGHT IS NOT ADEQUATE FOR THE WORK TO BE PERFORMED SAFELY.

IN NO CASE SHALL FLOODLIGHTING BE PERMITTED TO CREATE A DISABLING GLARE FOR DRIVERS. THE ADEQUACY OF THE FLOODLIGHT PLACEMENT AND ELIMINATION OF POTENTIAL GLARE SHOULD BE CHECKED BY DRIVING THROUGH THE PROJECT.

PAVEMENT MARKING

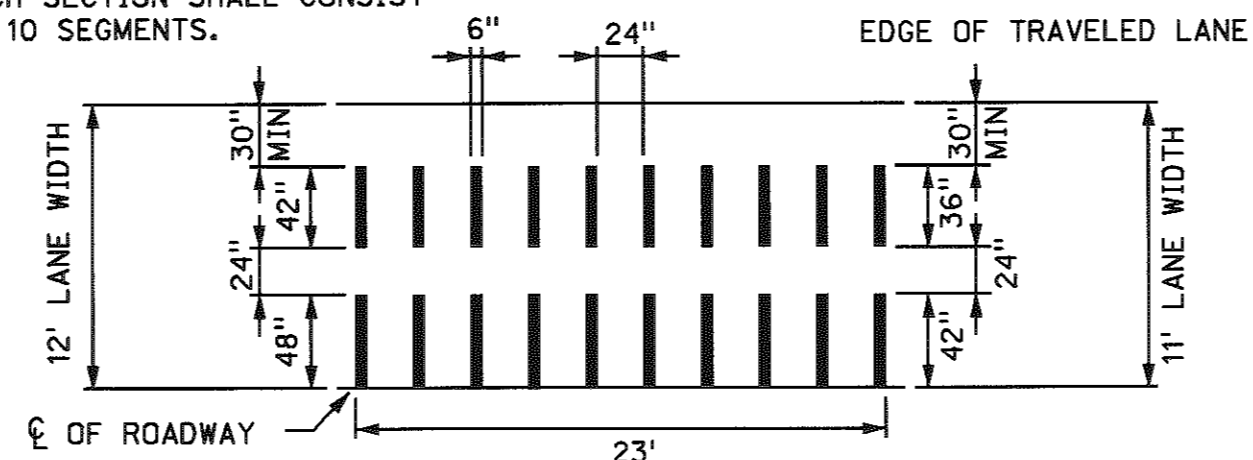
IT IS INTENDED TO THE EXTENT POSSIBLE, THAT MOTORISTS BE PROVIDED MARKINGS WITHIN A WORK AREA COMPARABLE TO THE MARKINGS NORMALLY MAINTAINED ALONG ADJACENT ROADWAYS, PARTICULARLY AT EITHER END OF THE WORK AREA.

ALL MARKINGS AND DEVICES USED TO DELINEATE VEHICLE AND PEDESTRIAN PATHS SHALL BE CAREFULLY REVIEWED DURING DAYTIME AND NIGHTTIME PERIODS TO AVOID INADVERTENTLY LEADING DRIVERS OR PEDESTRIANS FROM THE INTENDED PATH.

PAVEMENT MARKINGS NO LONGER APPLICABLE SHALL BE REMOVED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

RUMBLE STRIPS

EACH SECTION SHALL CONSIST OF 10 SEGMENTS.



DESIGN

RUMBLE STRIPS MAY BE MADE OF ASPHALT PAVING MATERIAL, EPOXY AND AGGREGATE OR OTHER SUITABLE MATERIAL WHICH WILL MAINTAIN A DESIRABLE RUMBLE EFFECT. THE RUMBLE STRIP SHOULD HAVE AN INSTALLED HEIGHT OF 5/8". PREFORMED RUMBLE STRIPS MAY BE USED PROVIDED THEY HAVE A MINIMUM 1/2" HEIGHT.

TAPERS

TAPERS ARE CREATED USING A SERIES OF CHANNELIZING DEVICES OR PAVEMENT MARKINGS PLACED TO MOVE TRAFFIC OUT OF OR INTO ITS NORMAL PATH.

MERGING TAPER

A MERGING TAPER REQUIRES THE LONGEST DISTANCE BECAUSE DRIVERS ARE REQUIRED TO MERGE WITH AN ADJACENT LANE OF TRAFFIC AT THE PREVAILING SPEED. THE TAPER SHOULD BE LONG ENOUGH TO ENABLE MERGING DRIVERS TO ADJUST THEIR SPEEDS AND MERGE INTO A SINGLE LANE BEFORE THE END OF THE TRANSITION.

SHIFTING TAPER

A SHIFTING TAPER IS USED WHEN MERGING IS NOT REQUIRED, BUT A LATERAL SHIFT IS NEEDED. APPROXIMATELY ONE-HALF L HAS BEEN FOUND TO BE ADEQUATE. WHERE MORE SPACE IS AVAILABLE, IT MAY BE BENEFICIAL TO USE LONGER TAPERS. GUIDANCE FOR CHANGES IN ALIGNMENT MAY ALSO BE ACCOMPLISHED BY USING HORIZONTAL CURVES DESIGNED FOR NORMAL HIGHWAY SPEEDS.

SHOULDER TAPERS

A SHOULDER TAPER MAY BE BENEFICIAL ON HIGH-SPEED ROADWAYS WITH IMPROVED SHOULDERS THAT MAY BE MISTAKEN FOR DRIVING LANES (WHEN WORK IS OCCURRING IN THE SHOULDER AREAS). IF USED, SHOULDER TAPERS APPROACHING THE ACTIVITY AREA SHOULD HAVE A LENGTH OF ABOUT ONE-THIRD L.

DOWNSTREAM TAPERS

THE DOWNSTREAM TAPER MAY BE USEFUL IN TERMINATION AREAS TO PROVIDE A VISUAL CUE TO THE DRIVER THAT ACCESS IS AVAILABLE TO THE ORIGINAL LANE/PATH THAT WAS CLOSED. WHEN USED, IT SHOULD HAVE A MINIMUM LENGTH OF ABOUT 100 FEET PER LANE, WITH DEVICES SPACED ABOUT 20 FEET APART.

ONE LANE, TWO WAY TAPER

THE ONE-LANE, TWO-WAY TRAFFIC TAPER IS USED IN ADVANCE OF AN ACTIVITY AREA THAT OCCUPIES PART OF A TWO-WAY ROADWAY IN SUCH A WAY THAT A PORTION OF THE ROAD IS USED ALTERNATELY BY TRAFFIC IN EACH DIRECTION. A SHORT TAPER HAVING A MAXIMUM LENGTH OF 100 FEET WITH CHANNELIZING DEVICES AT APPROXIMATELY 20-FOOT SPACINGS SHOULD BE USED TO GUIDE TRAFFIC INTO THE ONE-WAY SECTION.

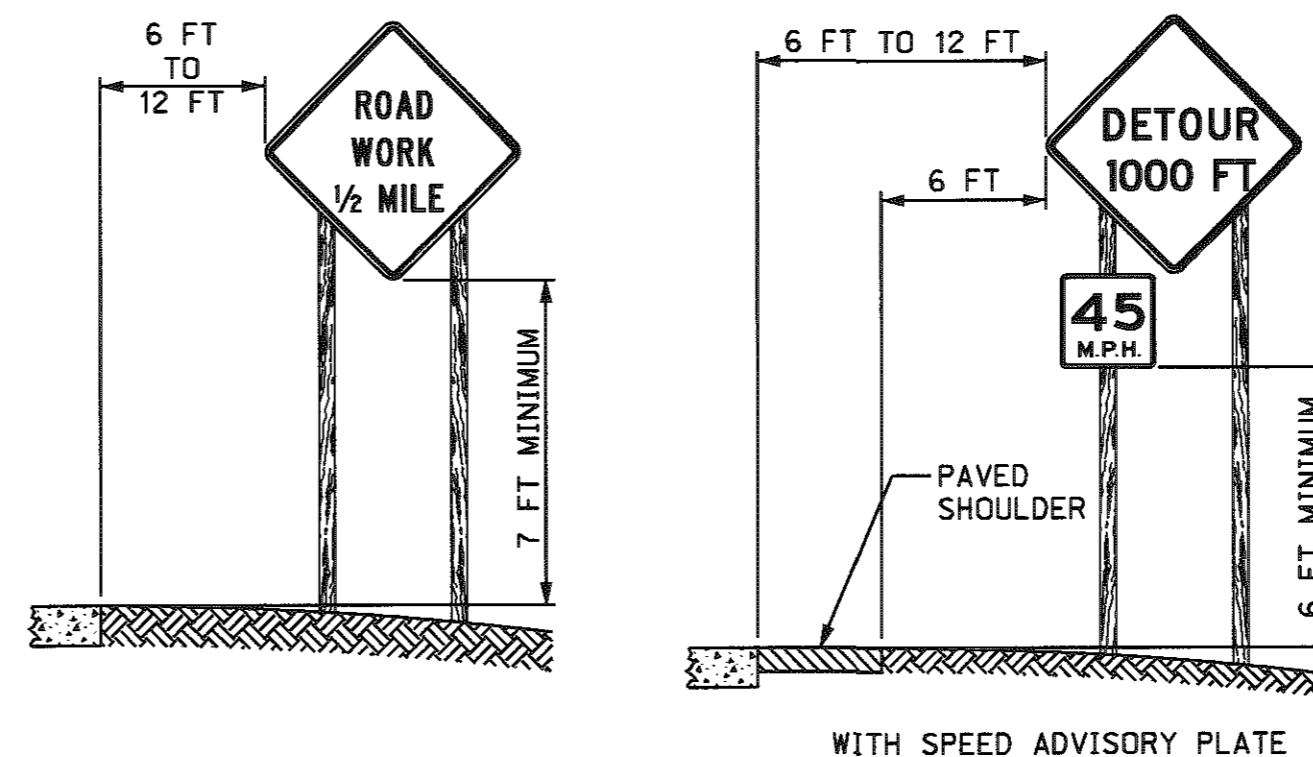
TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES	
TYPE OF TAPER	TAPER LENGTH (FEET)
MERGING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TAPER	100 FEET MAXIMUM

FORMULAS FOR L	
SPEED	FORMULA
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR GREATER	$L = WS$

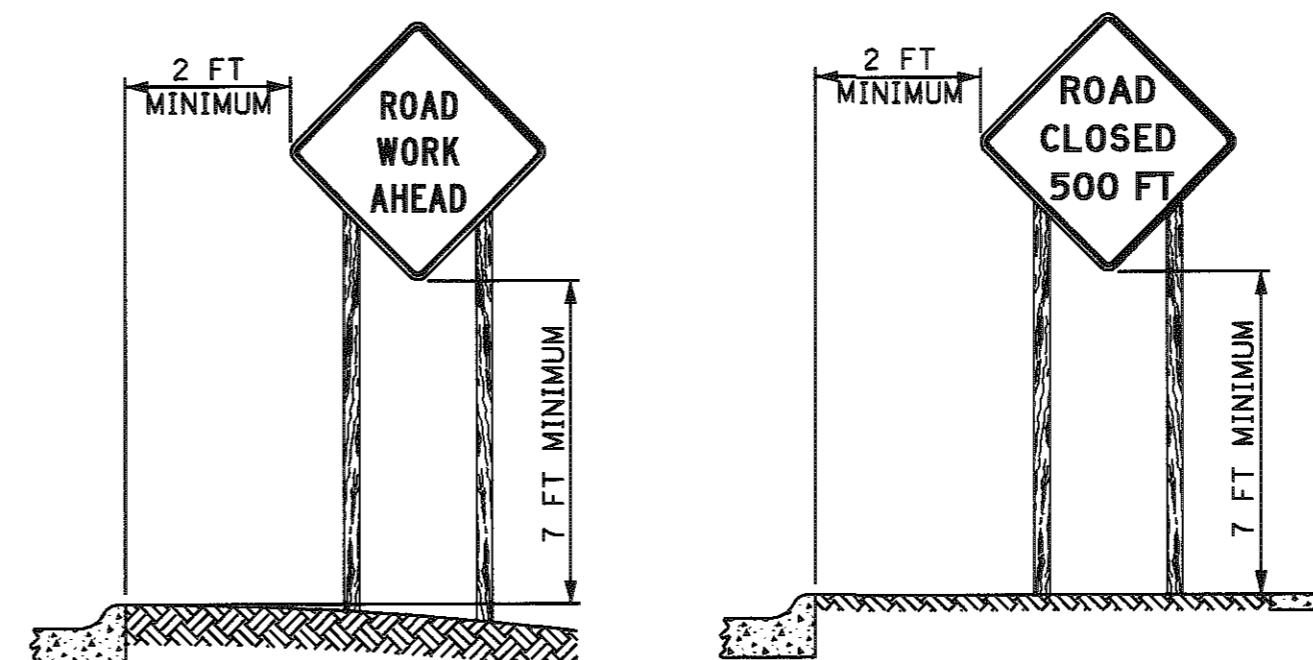
L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED LIMIT PRIOR TO WORK IN MPH

SPEED (MPH)	LANE WIDTH			
	10 FT	11 FT	12 FT	12 FT
25	105	115	125	
30	150	165	180	
35	205	225	245	
40	270	295	320	
45	450	495	540	
50	500	550	600	
55	550	605	660	
65	650	715	780	
70	700	770	840	
75	750	825	900	

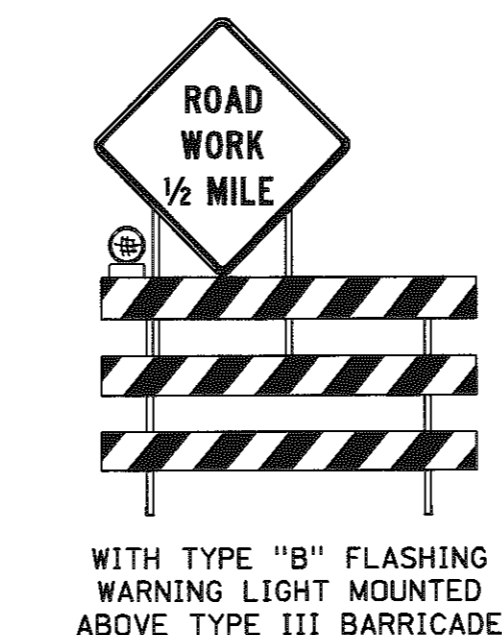
ROADSIDE SIGNS HEIGHT AND LATERAL LOCATION OF SIGNS RURAL AREA



URBAN AREA



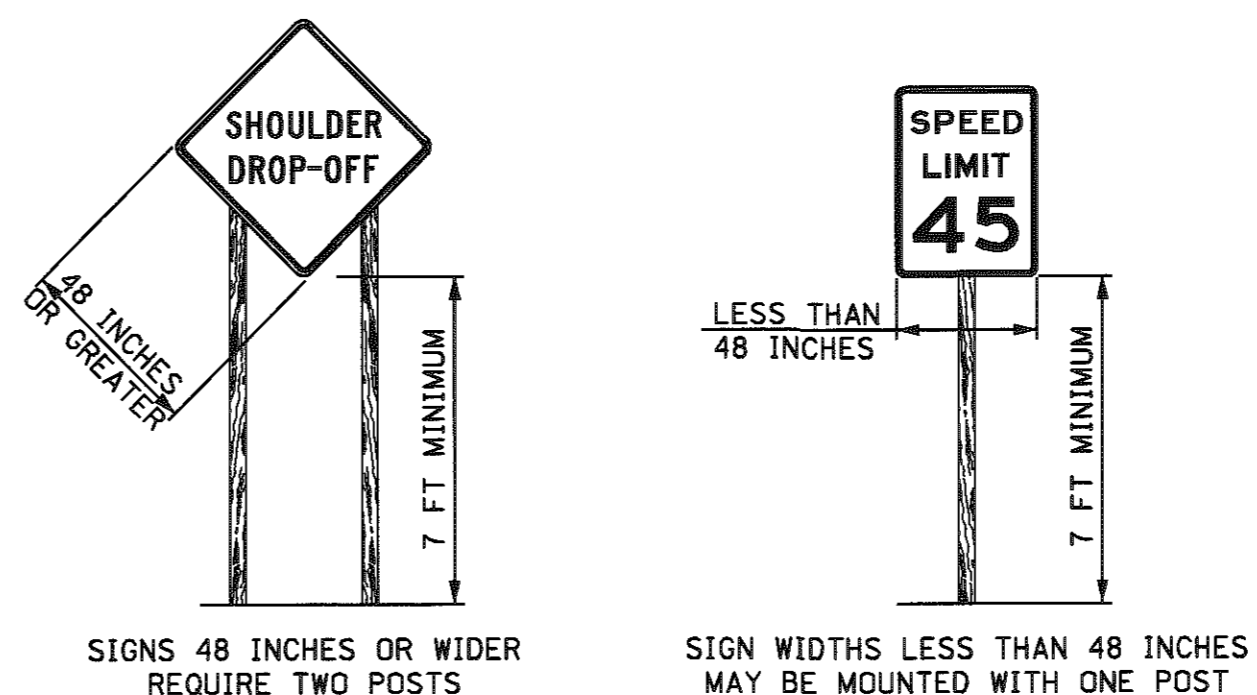
TYPICAL FIRST SIGN AT CONSTRUCTION SITE



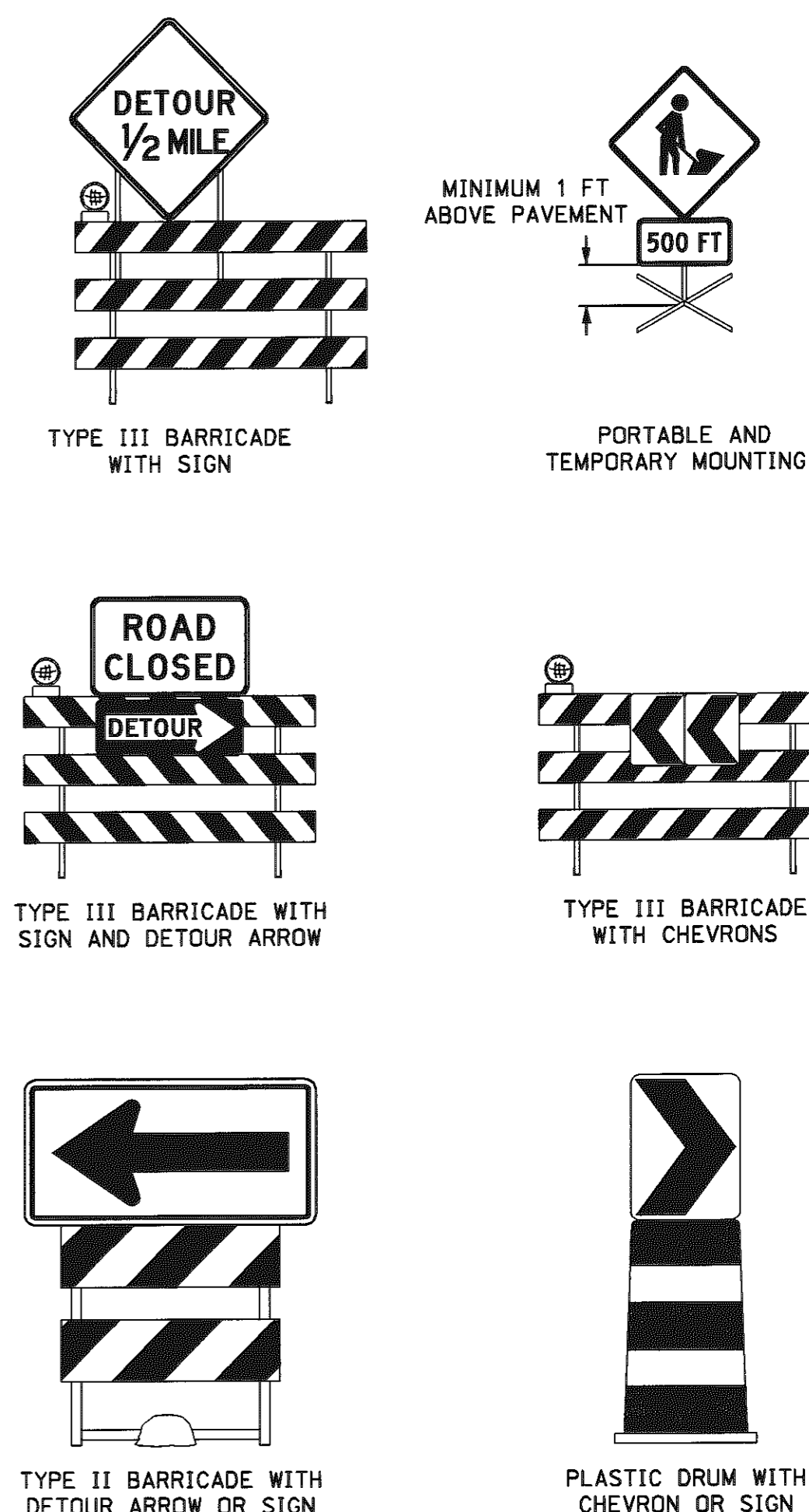
PORTABLE AND TEMPORARY MOUNTING



TYPICAL SIGN MOUNTINGS POST MOUNTED



TYPICAL SIGN MOUNTINGS OTHER THAN POST MOUNTED



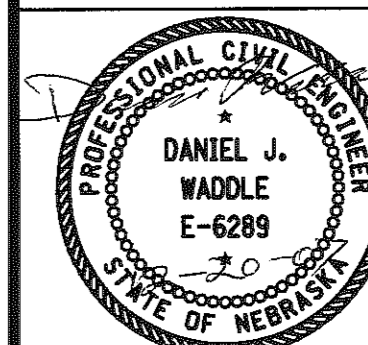
GENERAL NOTES

- ALL TRAFFIC CONTROL DEVICES SHALL MEET THE APPLICABLE STANDARDS AND SPECIFICATIONS PRESCRIBED IN PART VI OF THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD)" AND THE STATE OF NEBRASKA SUPPLEMENT TO THE MUTCD.
- TRAFFIC CONTROL PLANS AND DEVICES SHOULD FOLLOW THE PRINCIPLES SET FORTH, BUT MAY DEVIATE FROM THE TYPICAL DRAWINGS TO ALLOW FOR CONDITIONS AND REQUIREMENTS OF THE PROJECT.
- TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SO AS NOT TO OBSTRUCT THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
- THE ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE THE USE, AND APPROVE THE LOCATION OF ANY OF THE DEVICES SHOWN IN THESE PLANS.
- UNPROTECTED TEMPORARY AND POST MOUNTED SIGNS SHOULD BE CRASHWORTHY (REFER TO THE ROADSIDE DESIGN GUIDE, CHAPTER NINE, FOR ADDITIONAL GUIDANCE).

REV. NO.	DATE	DESCRIPTION OF REVISION
R5	OCT.98	REVISE CHANNELIZATION DEVICES, TAPER
R4	JAN.95	REWRITE
R3	AUG.88	WORDING, REFLECTIVITY

NEBRASKA DEPARTMENT OF ROADS
STANDARD PLAN NO. 920-R5

TRAFFIC CONTROL CONSTRUCTION AND MAINTENANCE



ORIGINAL:
OCTOBER 1998
DATE

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