

LEGEND

- TYPE I DELINEATOR
- TYPE II DELINEATOR
- TYPE III DELINEATOR
- DIRECTION OF TRAVEL
- ↔ CHEVRON ALIGNMENT SIGN

TABLE A SPACING FOR HIGHWAY DELINEATORS ON HORIZONTAL CURVES						
RADIUS (FT.)	DEGREE OF CURVE (D)	DELINEATOR SPACING (S) ON CURVE (FT.)	CHEVRON SPACING (FT.)	SPACING IN ADVANCE AND BEYOND CURVE		
				1ST (FT.)	2ND (FT.)	3RD (FT.)
5,730	1°00'	225	-	300	300	300
4,585	1°15'	205	-	300	300	300
3,820	1°30'	185	-	300	300	300
3,275	1°45'	170	-	300	300	300
2,865	2°00'	160	200	300	300	300
2,545	2°15'	150	200	300	300	300
2,290	2°30'	140	200	280	300	300
2,085	2°45'	135	200	270	300	300
1,910	3°00'	130	195	260	300	300
1,765	3°15'	125	190	250	300	300
1,635	3°30'	120	180	240	300	300
1,530	3°45'	115	175	230	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

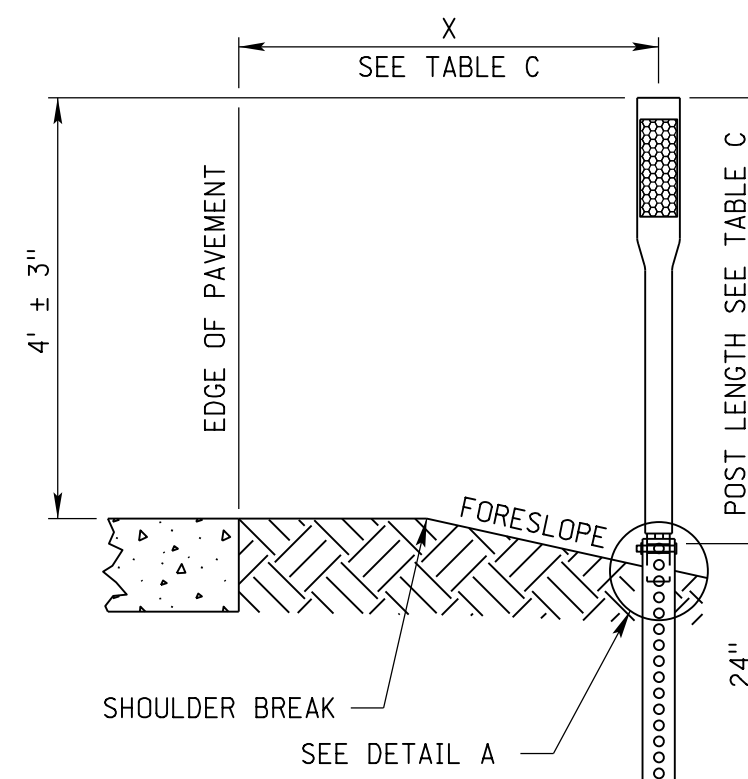
TABLE B TYPE III DELINEATOR SPACING FOR TANGENT FILL SECTIONS WITHOUT GUARDRAIL	
LENGTH (FT.)	SPACING (FT.)
150-250	50
OVER 250	100

WHEN FILL SECTIONS ARE DEEPER THAN 10 FT., LONGER THAN 150 FT., AND HAVE SHOULDER SECTIONS LESS THAN 6 FT., WITH A FORESLOPE STEEPER THAN 1:3.

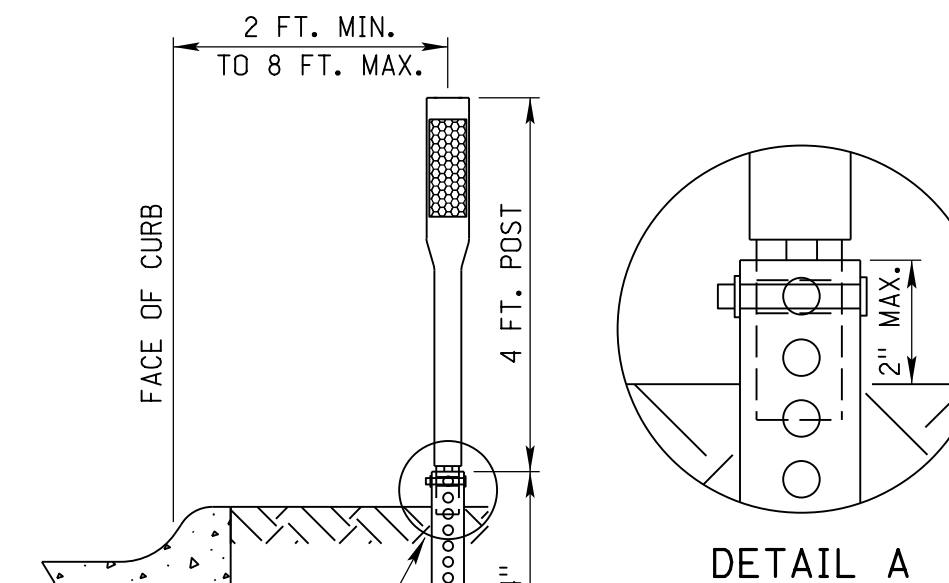
DELINEATOR SPACING FOR SPECIFIC CURVES NOT SHOWN SHOULD BE ROUNDED DOWN TO THE NEAREST DISTANCE AS SHOWN IN TABLE A. SPACINGS WHICH FALL OUTSIDE THE VALUES SHOWN IN THE TABLE SHOULD BE COMPUTED FROM THE FORMULA $S=3\sqrt{\text{RADIUS OF CURVE}}$ AND ROUNDED DOWN TO THE NEAREST 5 FT. INCREMENT. THE MINIMUM SPACING SHOULD BE 20 FT. THE SPACING ON CURVES SHOULD NOT EXCEED 300 FT. THE SPACING OF THE FIRST DELINEATOR APPROACHING A CURVE IS 2S, THE SECOND 3S, AND THE THIRD IS 6S, BUT NOT TO EXCEED 300 FT. IF A SPACING LESS THAN 300 FT. IS USED APPROACHING THE CURVE, THE DISTANCES SHOWN ABOVE SHOULD BE ADJUSTED ACCORDINGLY.

CHEVRONS SHOULD BE INSTALLED AT 1 1/2 DELINEATOR SPACING, NOT TO EXCEED 200 FT.

TABLE C FLEXIBLE DELINEATOR POST					
X (FT.)	POST LENGTH & FORESLOPE				
	1:10 (FT.)	1:6 (FT.)	1:4 (FT.)	1:3 (FT.)	1:3 (FT.)
2	4	4	4	4	4
4	4	5	5	5	5
6	5	5	5	5	6
8	5	5	6	6	6

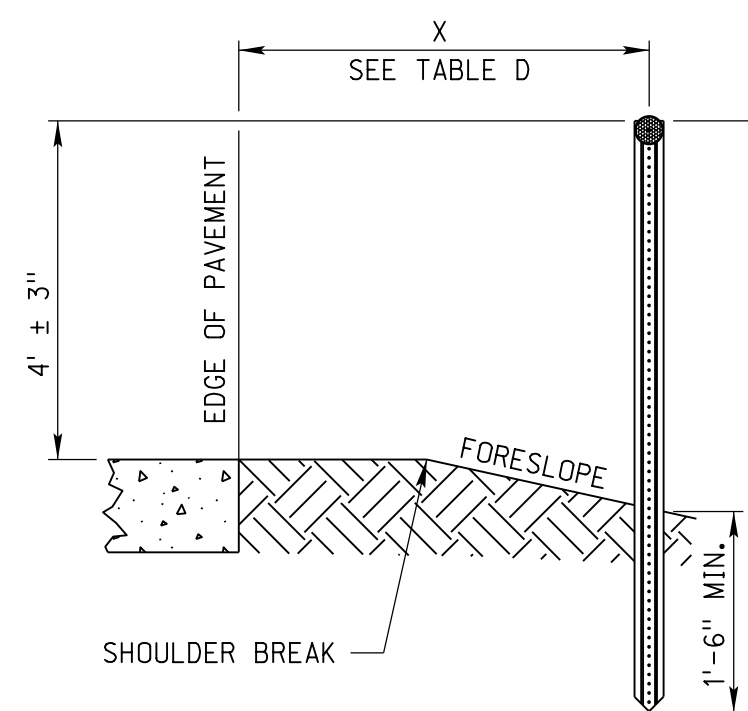


FLEXIBLE DELINEATOR POST

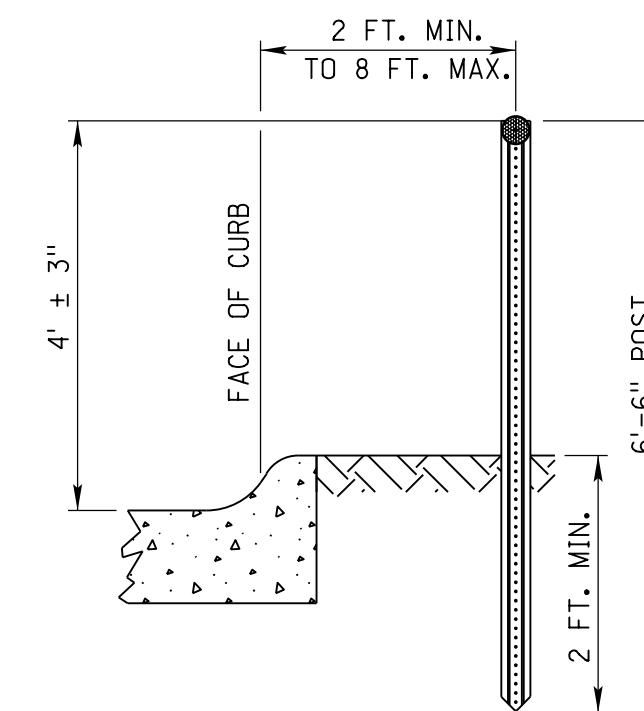


FLEXIBLE DELINEATOR POST

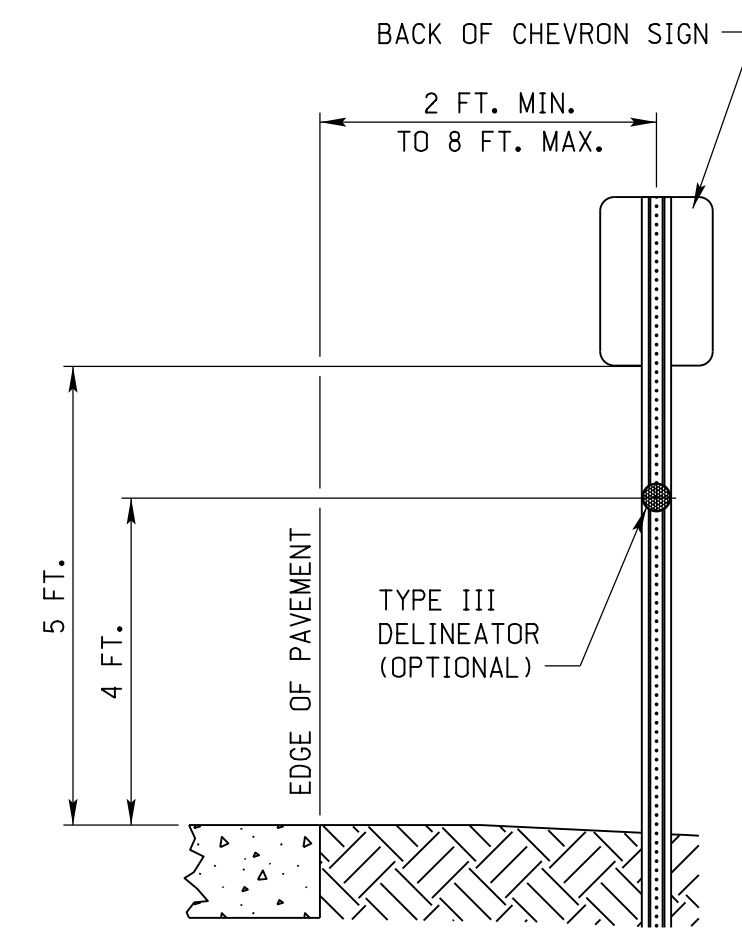
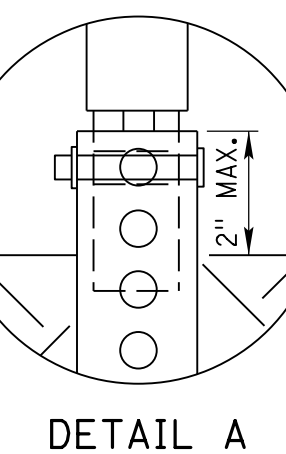
TABLE D STEEL DELINEATOR POST					
X (FT.)	POST LENGTH & FORESLOPE				
	1:10 (FT.)	1:6 (FT.)	1:4 (FT.)	1:3 (FT.)	1:3 (FT.)
2	6.5	6.5	6.5	6.5	6.5
4	6.5	7.0	7.0	7.0	7.0
6	6.5	7.0	7.5	8.0	8.0
8	6.5	7.5	8.0	8.5	8.5



STEEL DELINEATOR POST

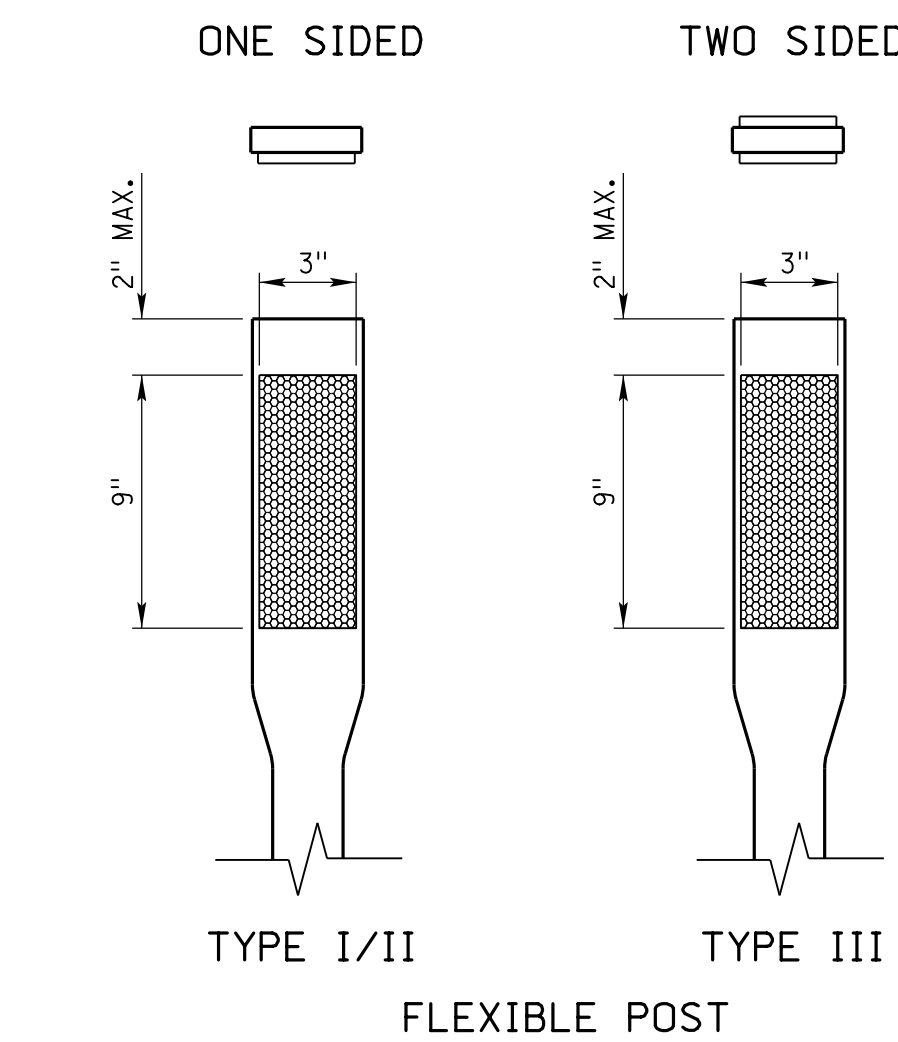


STEEL DELINEATOR POST



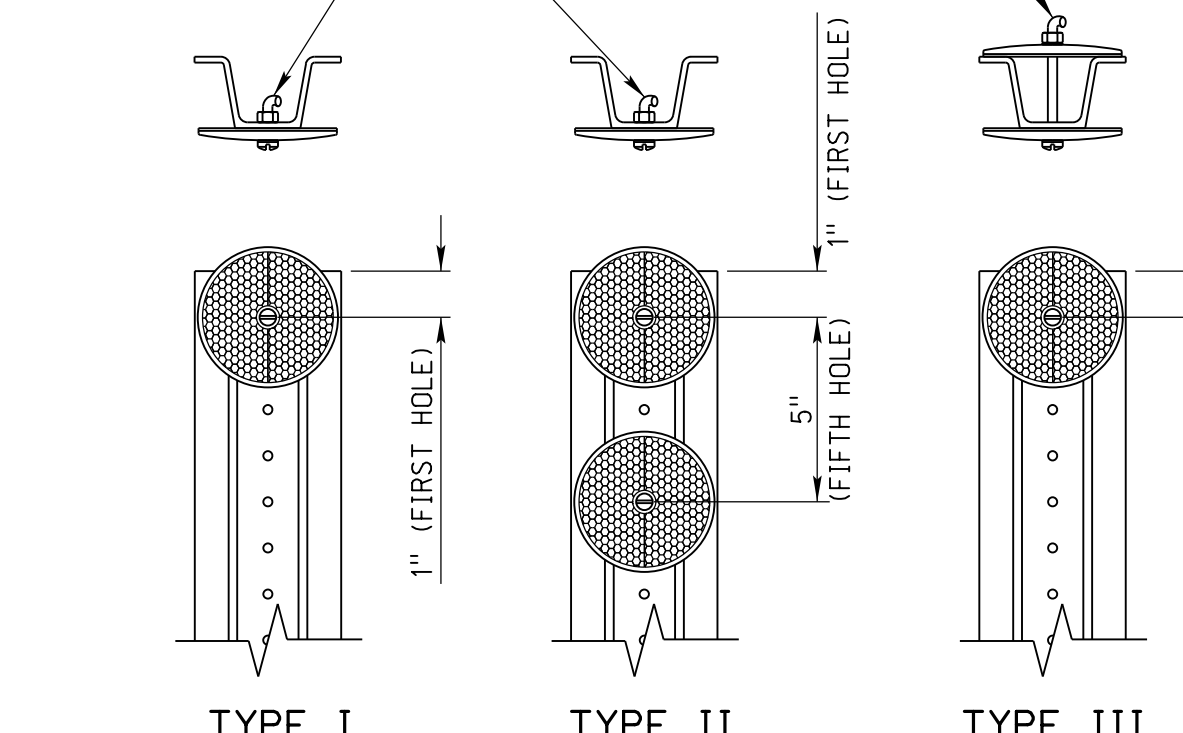
CHEVRON SIGN POSTS

DELINEATOR POST LOCATIONS



3/16" x 1" CADMIUM PLATED SCREW TYPE I & II DELINEATORS (BEND BOLT AFTER INSTALLATION)

3/16" x 3" CADMIUM PLATED SCREW (SNUG FIT AND CAREFULLY BEND BOLT TO AVOID BREAKING DELINEATOR)



NOTES

DELINEATORS

- DELINEATOR REFLECTOR COLOR SHALL CONFORM TO THE COLOR OF THE ADJACENT STRIPED EDGE LINE UNLESS OTHERWISE NOTED.
- ALL DELINEATORS SHALL BE MOUNTED TRULY VERTICAL.
- ALL STEEL U-CHANNEL DELINEATOR POSTS SHALL BE PAINTED BLACK OR DARK GREEN WITH ENAMEL PAINT. THEIR WEIGHT SHALL BE 1.12 TO 3 LBS./FT. ALL FLEXIBLE DELINEATOR POSTS SHALL BE BLACK UNLESS OTHERWISE NOTED.
- DELINEATORS SHALL BE PLACED 2 FT. TO 8 FT. OUTSIDE THE OUTER EDGE OF THE PAVEMENT. DELINEATORS FOR RAMPS AND GORES SHALL BE PLACED 6 FT. OUTSIDE THE OUTER EDGE OF THE PAVEMENT. 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 C OR D FOR DELINEATOR POST LENGTHS.
- TYPICALLY, DELINEATORS WILL NOT BE REQUIRED ON CURVES OF LESS THAN 1°.
- WHEN UNIFORM SPACING IS INTERRUPTED BY SUCH FEATURES AS DRIVEWAYS AND INTERSECTIONS, DELINEATORS WHICH WOULD ORDINARILY BE LOCATED WITHIN THE FEATURES MAY BE RELOCATED IN EITHER DIRECTION FOR A DISTANCE NOT EXCEEDING ONE QUARTER OF THE UNIFORM SPACING. DELINEATORS STILL FALLING WITHIN SUCH FEATURES MAY BE ELIMINATED.
- INSTALL DELINEATOR REFLECTORS ON THE SAME POST AS THE CHEVRON SIGN WHEN THE DELINEATOR LOCATION IS WITHIN 25 FT. OF THE CHEVRON SIGN. (STEEL POST ONLY).
- TYPE I DELINEATORS SHALL BE INSTALLED AT 100 FT. INTERVALS ALONG ON RAMPS, EXCEPT FOR CURVES SHARPER THAN 5° WHERE THE SPACING WILL BE IN ACCORDANCE WITH TABLE A.
- TYPE II DELINEATORS SHALL BE INSTALLED AT 100 FT. INTERVALS ALONG TRANSITION LANES, ACCELERATION LANES, DECELERATION LANES, AND ALONG OFF RAMPS, EXCEPT FOR CURVES SHARPER THAN 5° WHERE SPACING WILL BE IN ACCORDANCE WITH TABLE A.
- WHEN USED ON EXPRESSWAY OR FREEWAY-TYPE FACILITIES, TYPE I DELINEATORS SHALL BE SPACED AT 0.05 MILE ALONG THE THROUGH ROAD, INCLUDING CURVES UP TO 1°30' (RADIUS 3,820 FT.). 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).
- WHEN INSTALLED ON CURVES OF 3° OR GREATER, STEEL TYPE III DELINEATORS SHALL BE INSTALLED ON MOUNTING BRACKETS, TO HOLD THE DELINEATORS PERPENDICULAR TO APPROACHING TRAFFIC. 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 APPROACHING TRAFFIC, APPROXIMATELY 200 FT. FROM THE DELINEATOR POST.
- 3" x 9" RETROREFLECTIVE PANELS MAY BE USED IN LIEU OF ROUND REFLECTORS ON STEEL POST DELINEATORS. IF USED, 3" x 9" PANELS MAY BE USED FOR TYPE I, II OR III DELINEATORS.

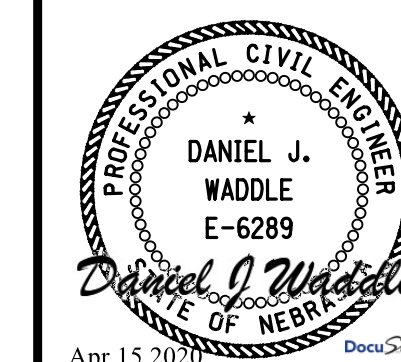
CHEVRONS

- ALL CHEVRON SIGNS SHALL BE MOUNTED TRULY VERTICAL.
- ALL POSTS USED FOR CHEVRONS SHALL BE 10 FT. STEEL, HEAVY BLACK OR DARK GREEN ENAMEL TYPE, AND POST'S WEIGHT SHALL NOT BE LESS THAN 2.5 LB./FT.
- FOR CURVES OF 2° 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 FT. POSTS (SUPPLIED BY THE CONTRACTOR). INSTALLATION OF THE CHEVRON SIGNS, 10 FT. 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 THE REQUIRED SPACING.
- CHEVRONS ARE NOT REQUIRED ON CURVES LESS THAN 2°.
- WHEN AN ADVISORY SPEED PLAQUE INDICATES A REDUCTION OF SPEED GREATER THAN 15 MILES PER HOUR, THE ONE-DIRECTIONAL LARGE ARROW SIGN (W1-6-48) SHOULD BE USED INSTEAD OF THE CHEVRON SIGN. WHEN USED, INSTALL A MINIMUM OF TWO ARROWS STARTING WITH THE SECOND CHEVRON LOCATION BEYOND THE BEGINNING OF THE CURVE.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	CHANGES MADE TO NOTE #3
R11	JAN 19	MULTIPLE CHANGES & PAGE 2 ADDED
R10	JAN 18	NDDOR BORDER TO NDOT BORDER

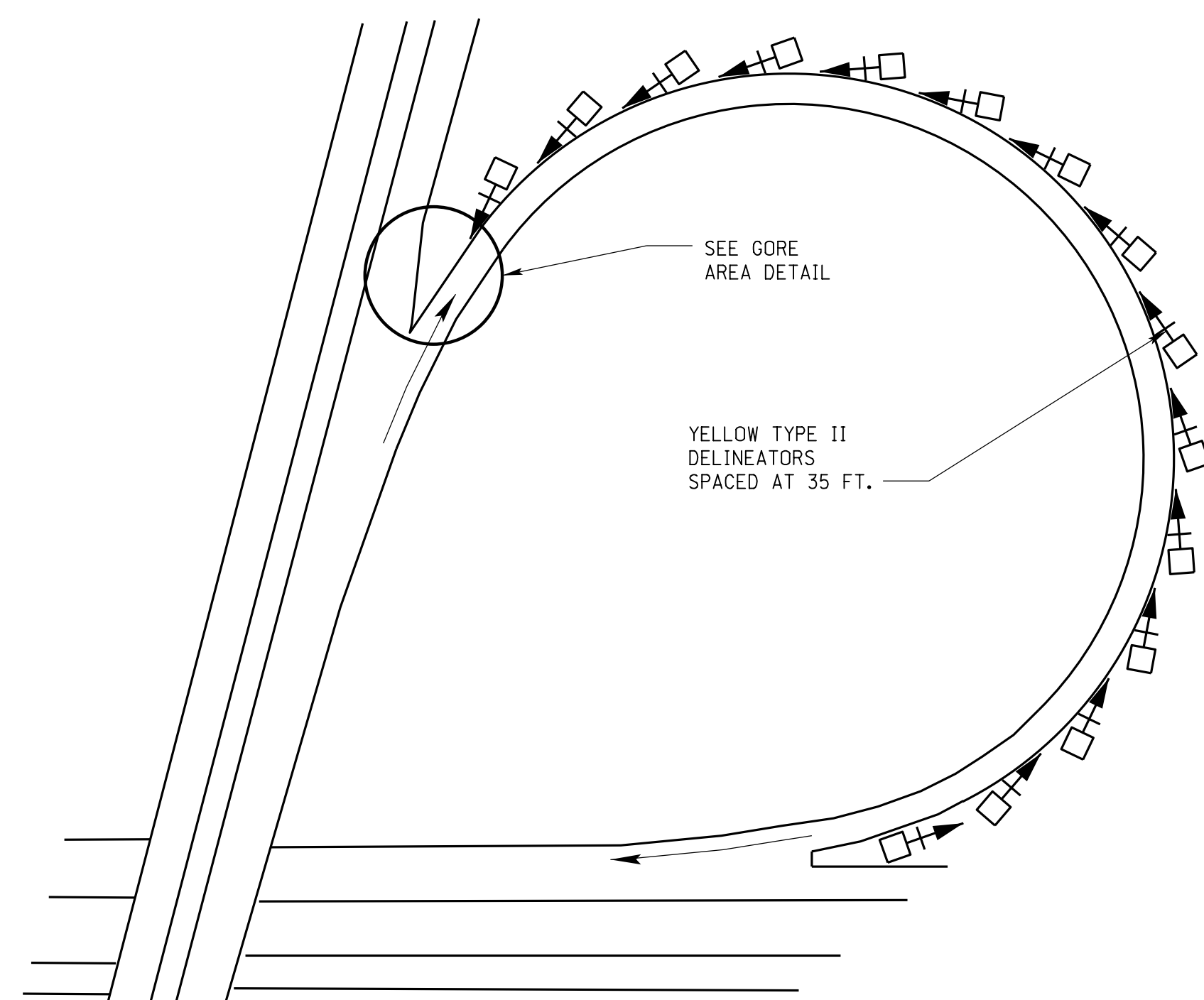
NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 901-R12
HIGHWAY DELINEATORS
AND CHEVRONS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

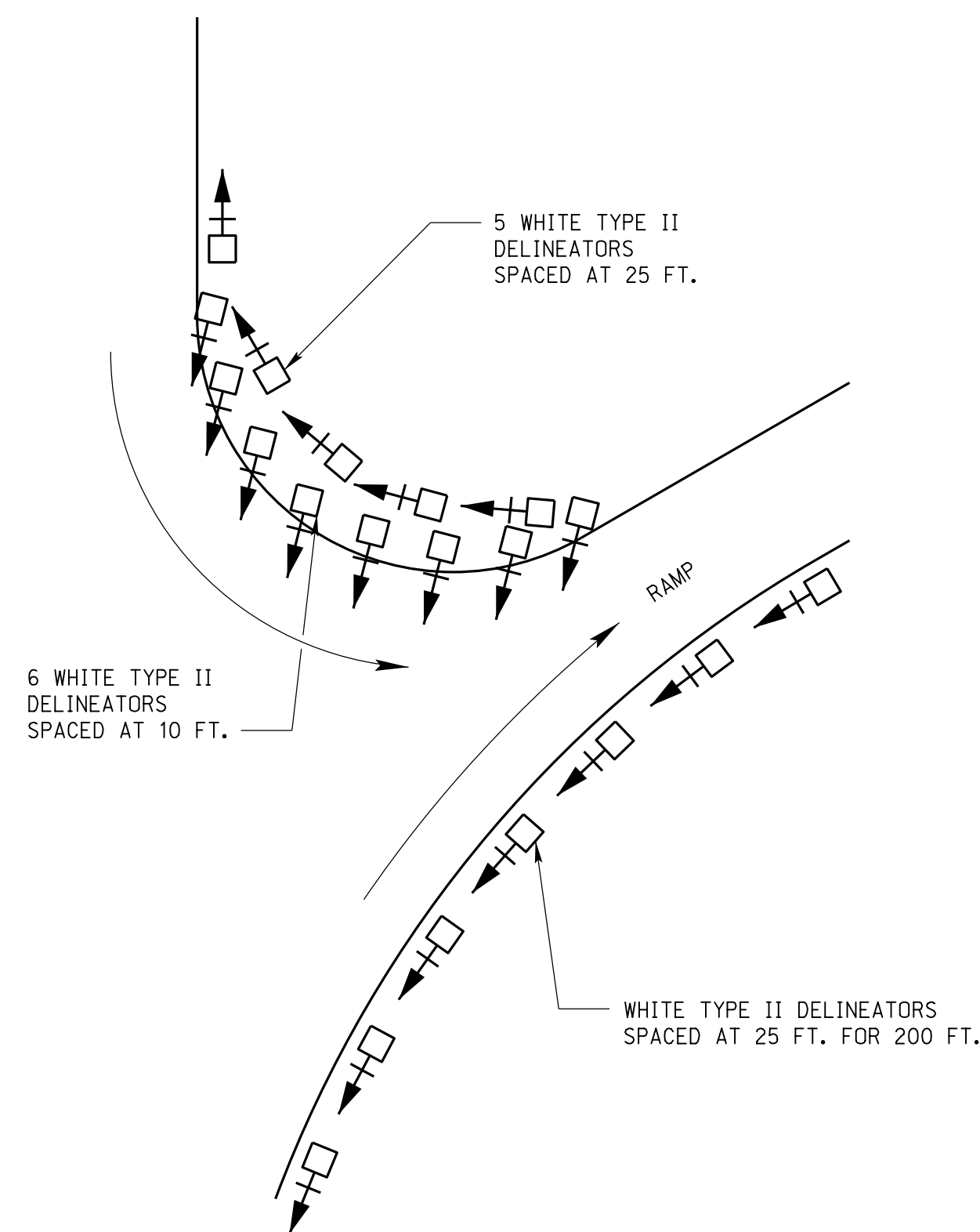


4/15/2020
DATE

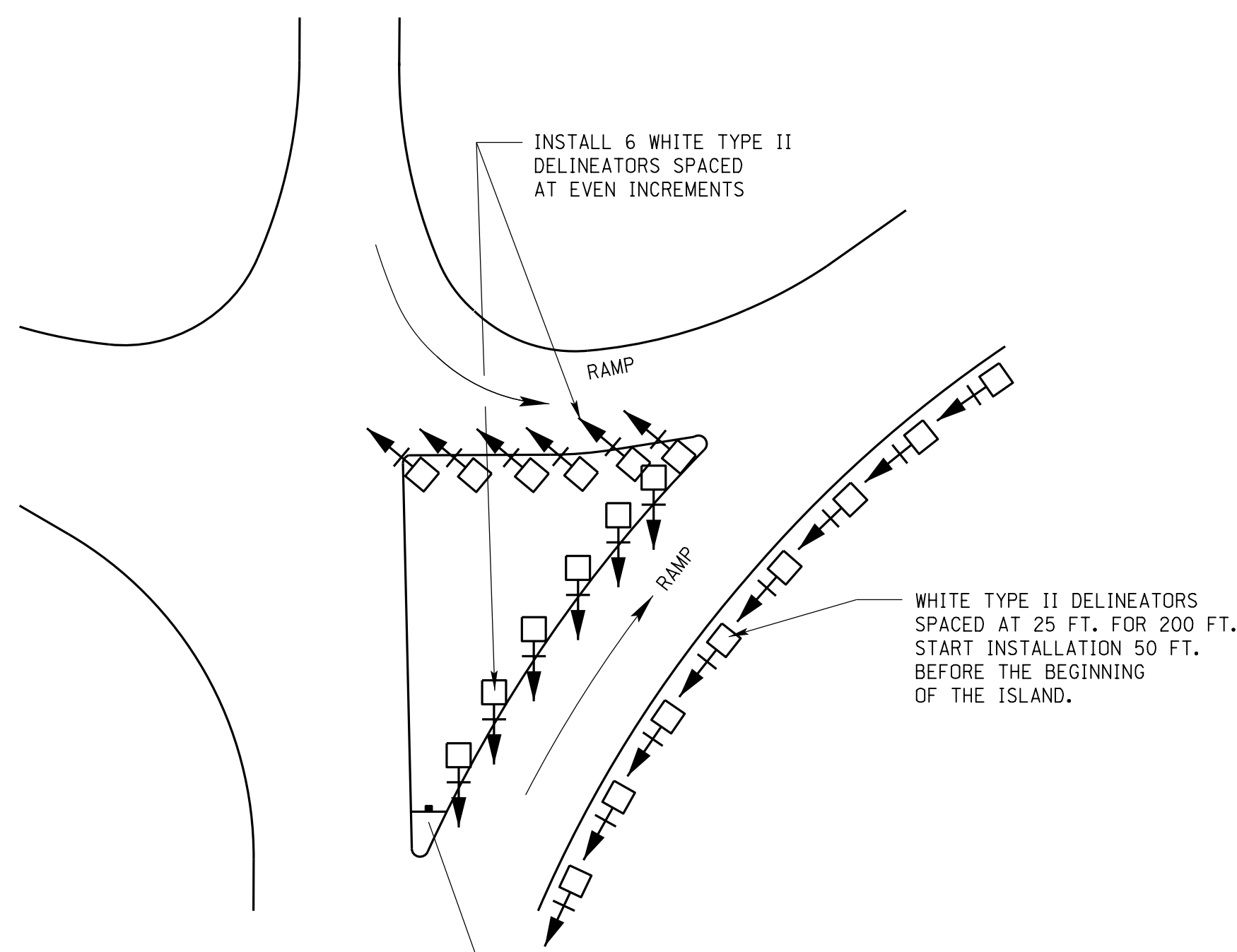
ORIGINAL:
JUNE 11, 1975
DATE



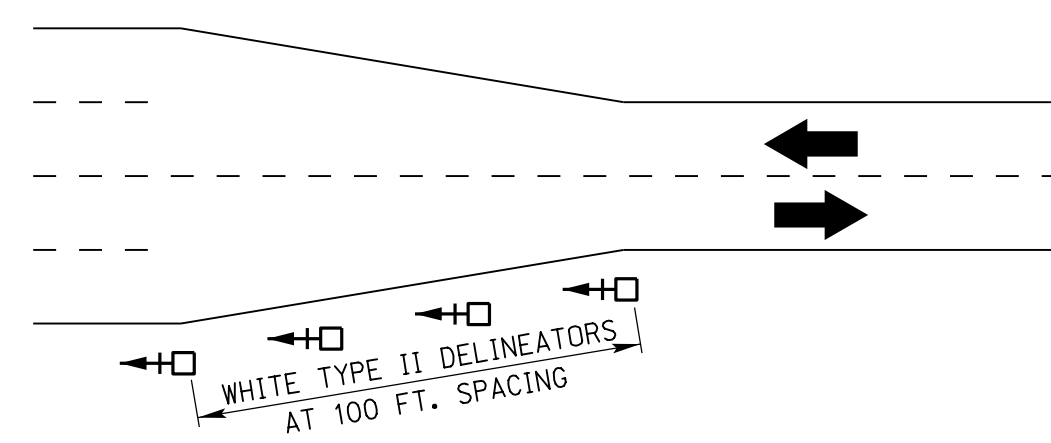
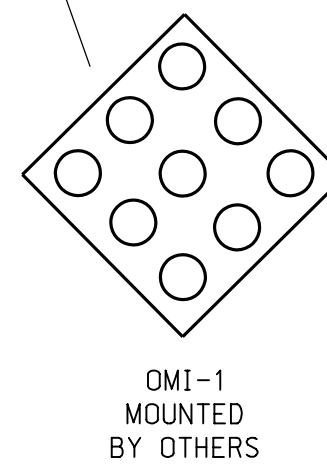
LOOP



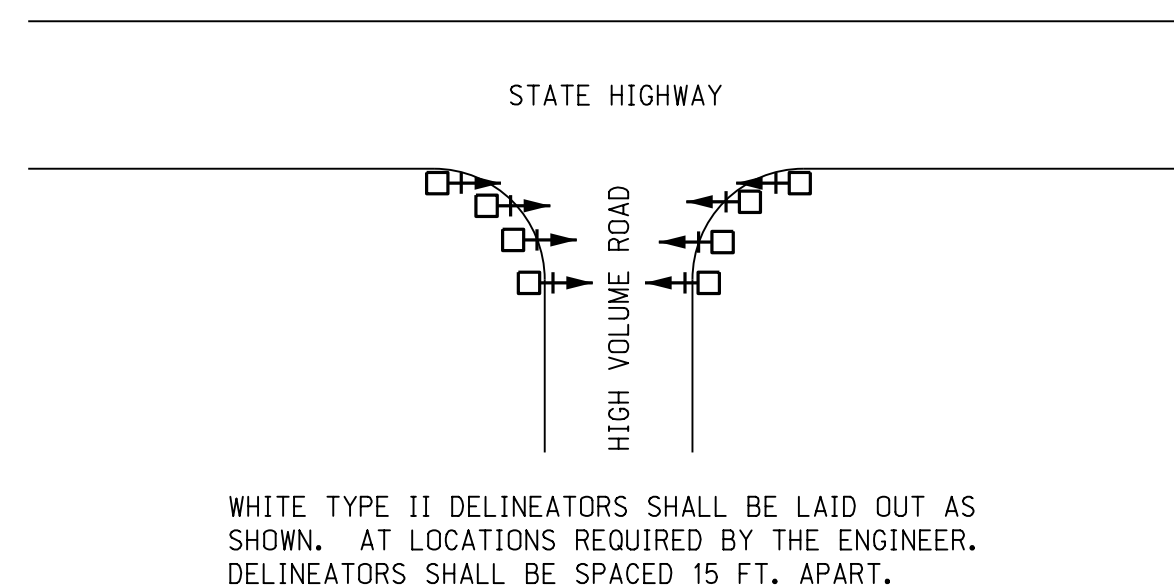
RAMP



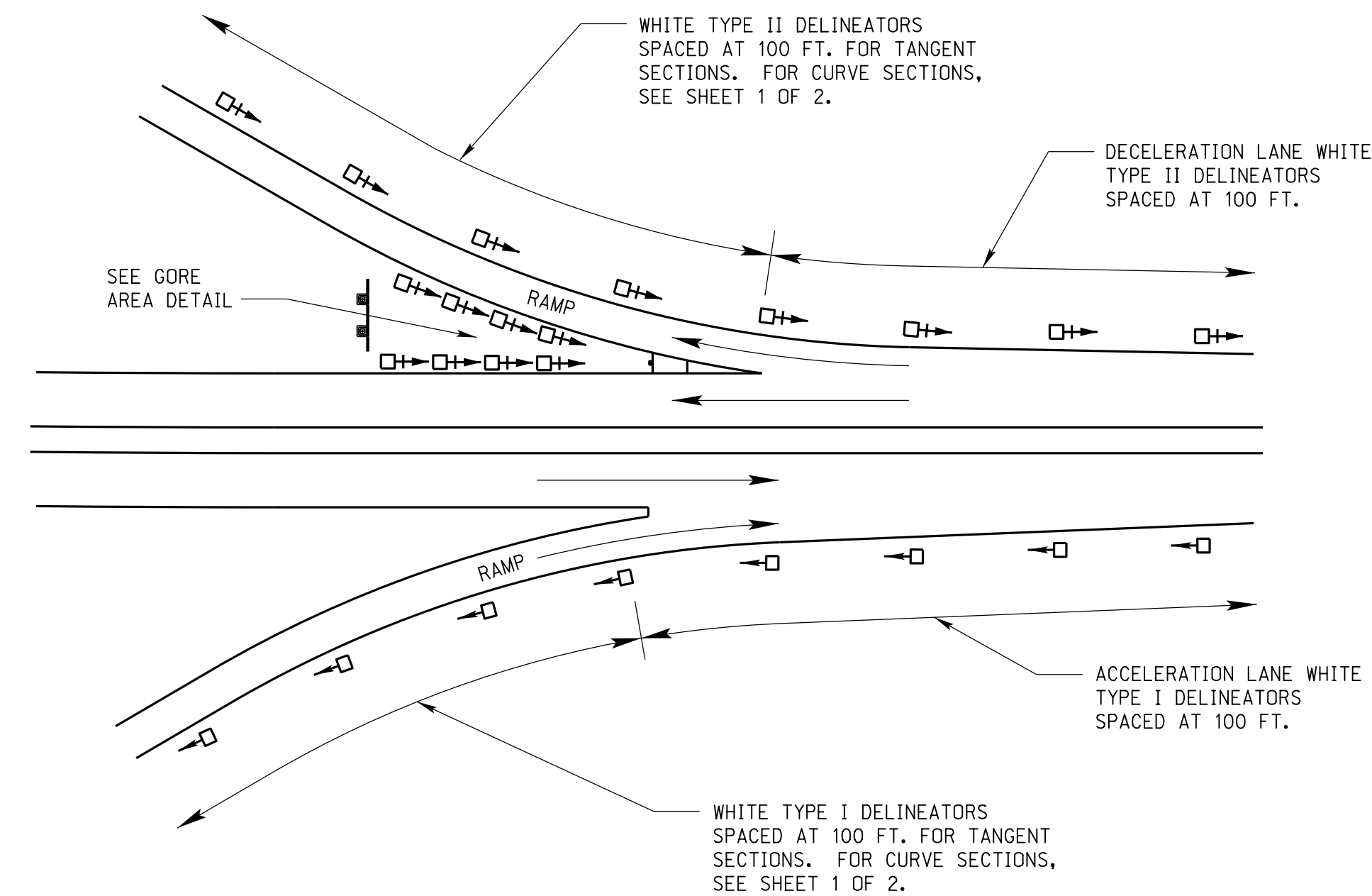
ISLAND



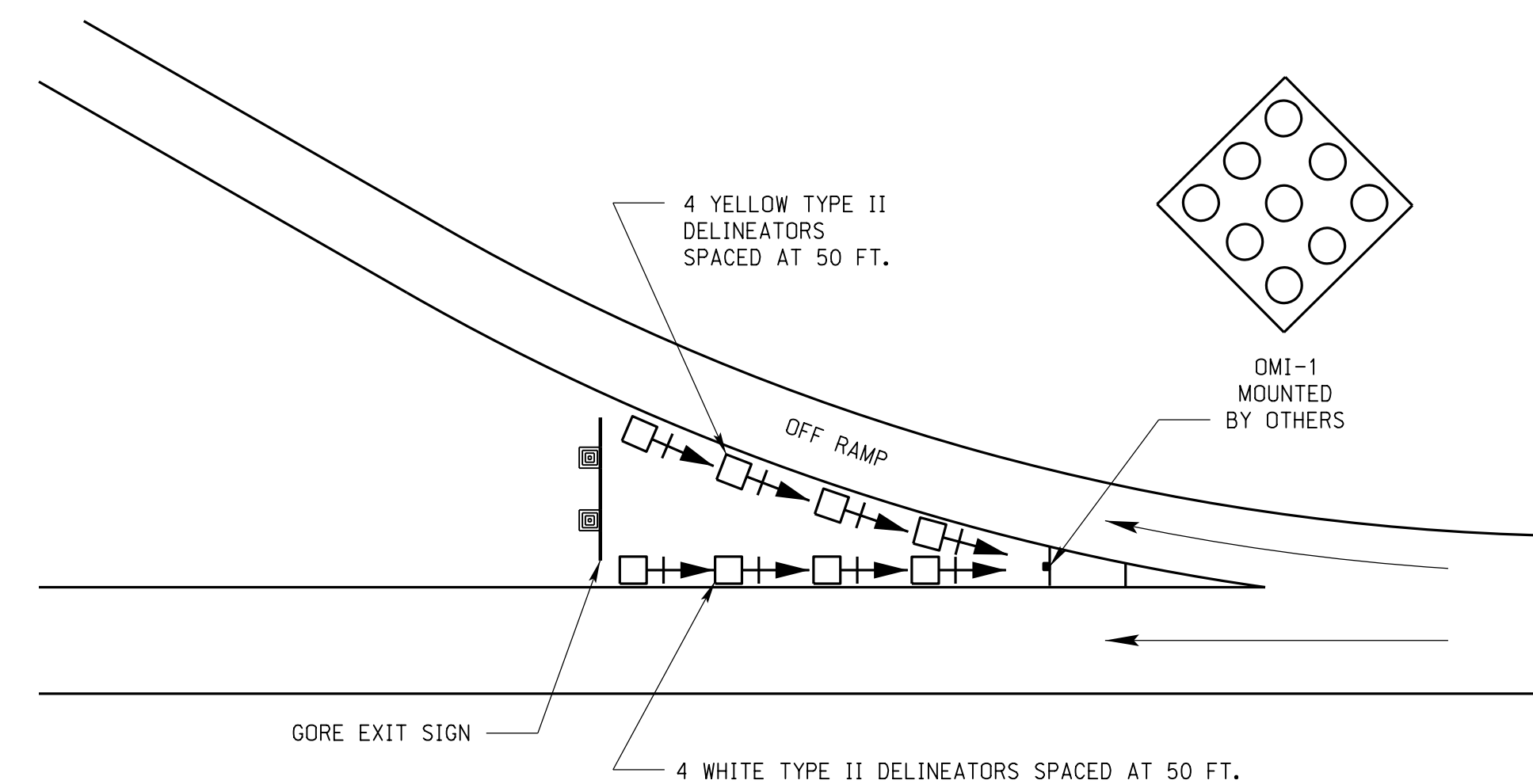
TYPICAL DELINEATOR LAYOUT FOR TRANSITION LANE



TYPICAL DELINEATOR LAYOUT FOR HIGH VOLUME RURAL ROADS AND STATE HIGHWAYS



ON/OFF RAMP



GORE AREA DETAIL

R12	JUL 20	CHANGES MADE TO NOTE #3
R11	JAN 19	MULTIPLE CHANGES & PAGE 2 ADDED
R10	JAN 18	NDOR BORDER TO NDOT BORDER
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 901-R12
HIGHWAY DELINEATORS AND CHEVRONS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

Daniel J. Waddle
PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
OF NEBRASKA
Apr 15 2020

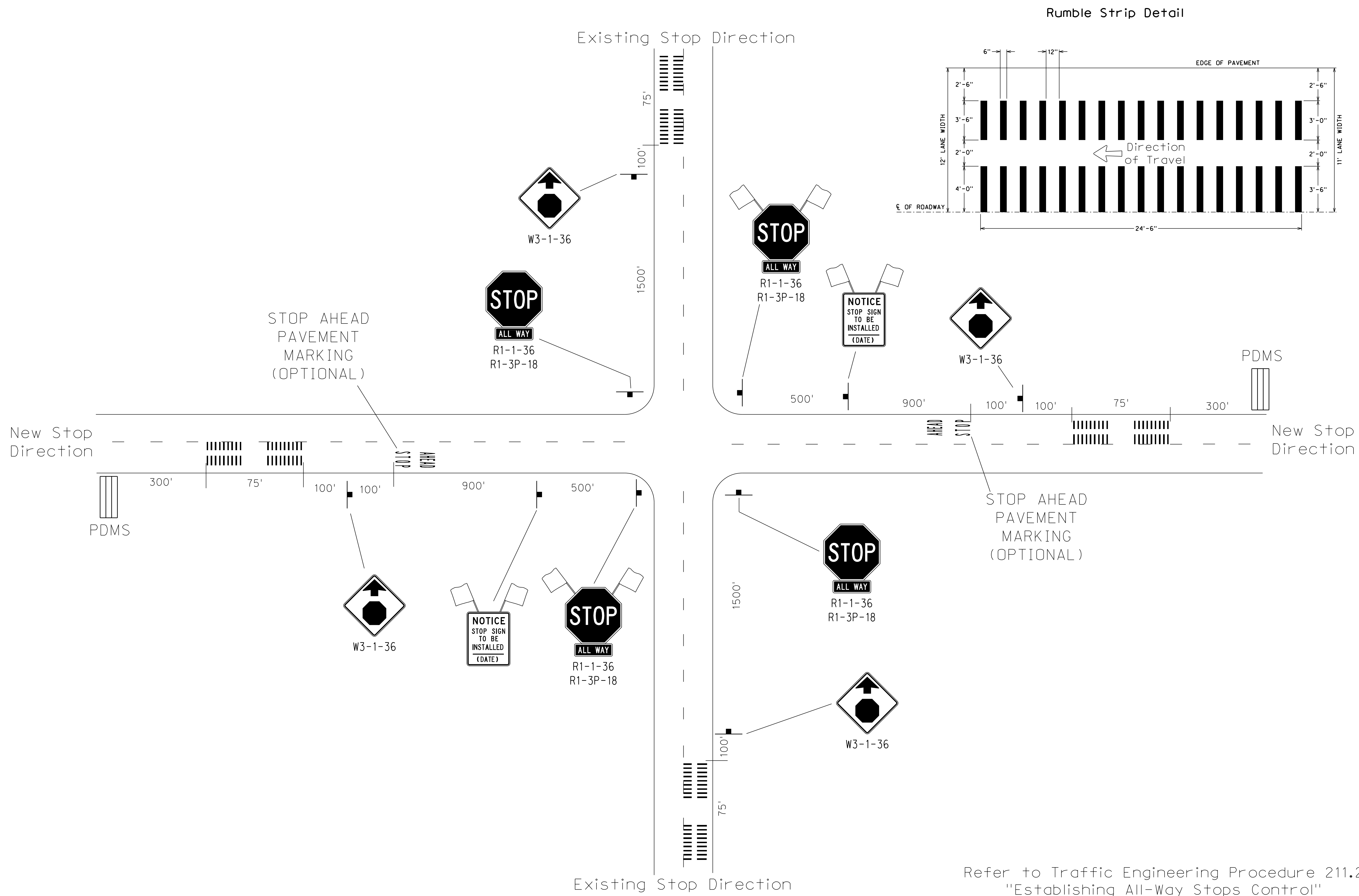
May Bury
4/15/2020
DATE
ORIGINAL:
JUNE 11, 1975
DATE

2
2

COMPUTER: BG0419M498

DATE: 30-OCT-2024 14:33

FILE: All-Way Stop.dgn



Refer to Traffic Engineering Procedure 211.2
 "Establishing All-Way Stops Control"
 for Details on Sign Placements

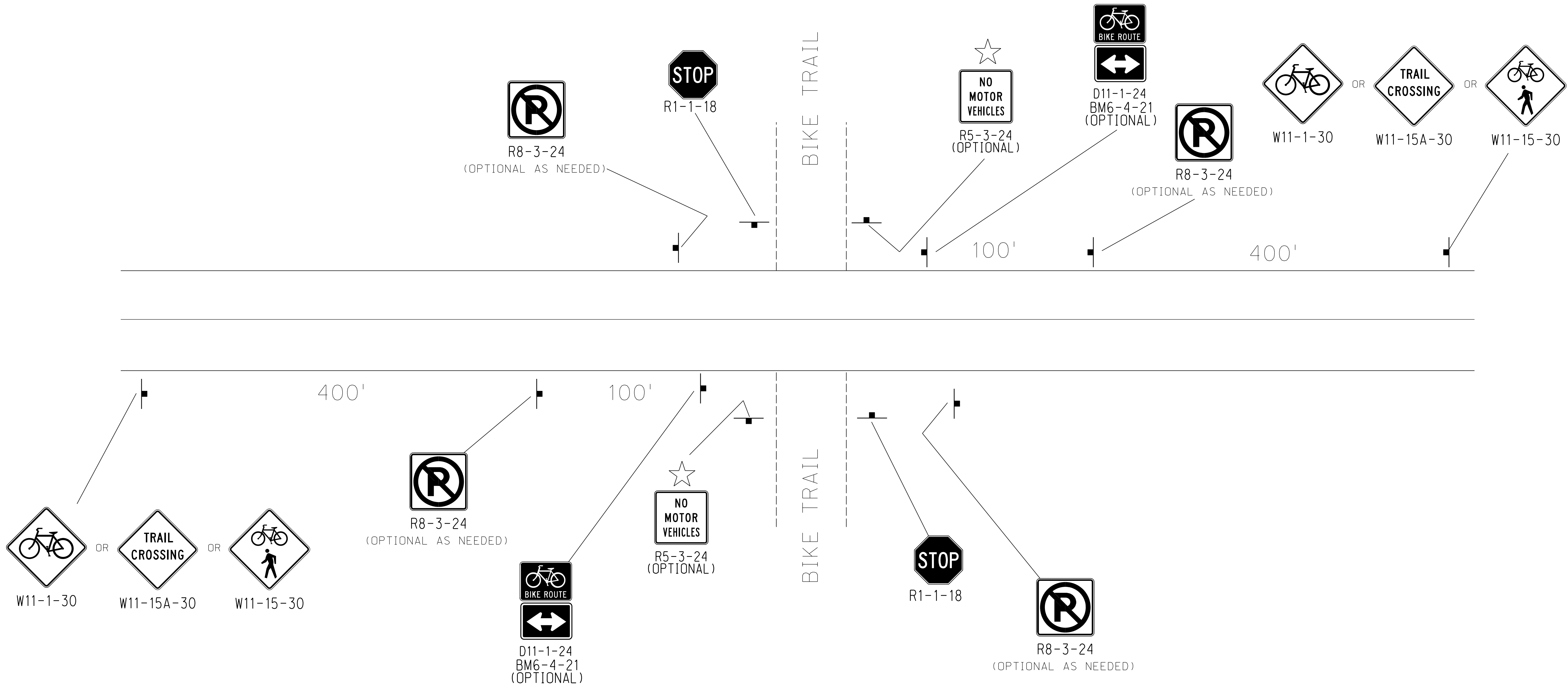
XX	
Project Number ###-#(###)	
C.N. ####	
TYPICAL SIGNING PLAN ESTABLISHING ALL-WAY STOP CONTROL	
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION	
DESIGNED BY AJM	DATE 08/23
PLAN SHEET NUMBER	1 / 1

COMPUTER: BG0419M498

DATE: 30-OCT-2024 14:33

FILE: Bike Trail - 2 Lane Rural.dgn

☆ TO BE MAINTAINED BY OTHERS



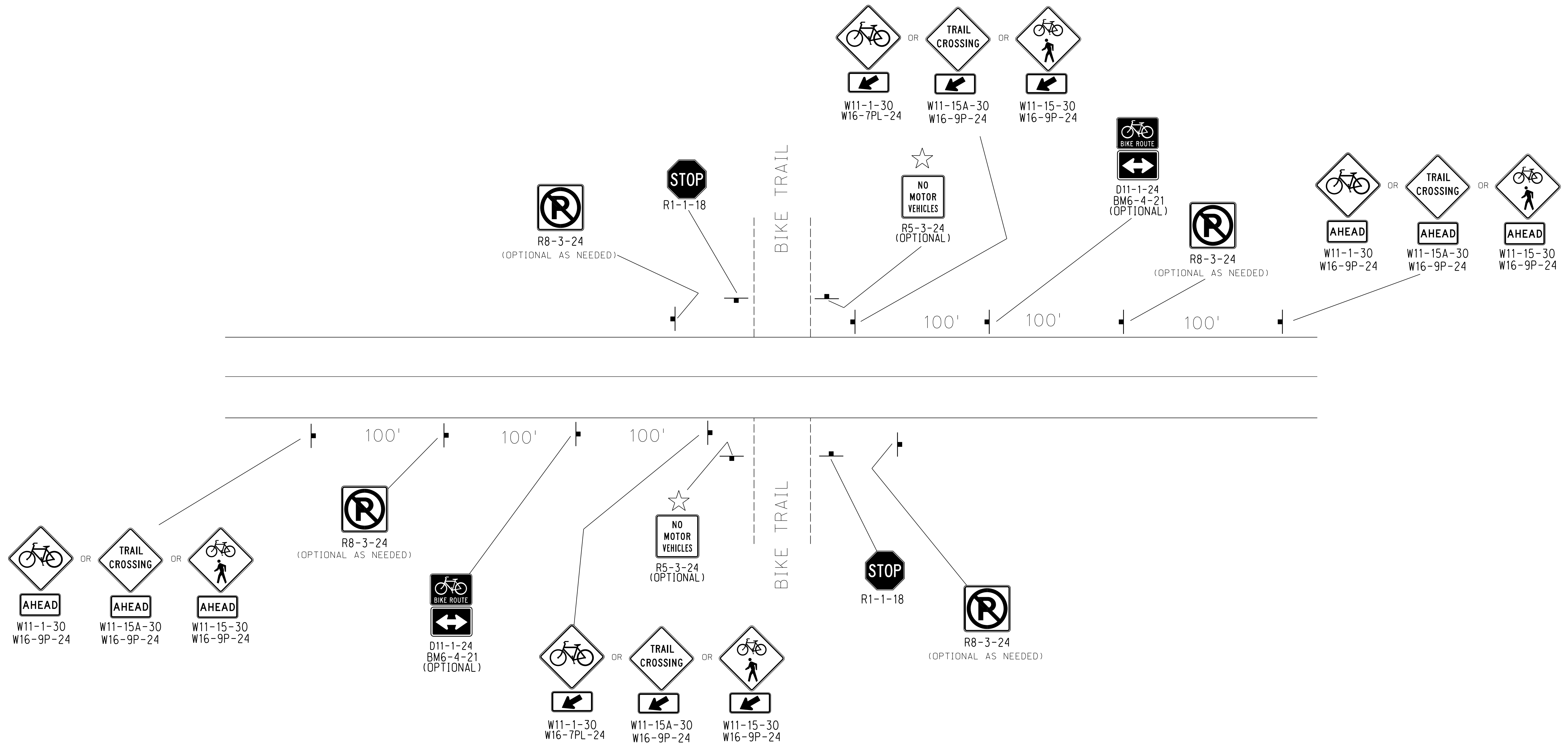
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C.N. ####	
SIGNING PLAN BIKE TRAIL - RURAL 2 LANE HIGHWAY	
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION	
DESIGNED BY AJM	DATE 08/23
PLAN SHEET NUMBER	1/1

COMPUTER: BG0419M498

DATE: 30-OCT-2024 14:33

FILE: Bike Trail - 2 Lane Urban.dgn

☆ TO BE MAINTAINED BY OTHERS.

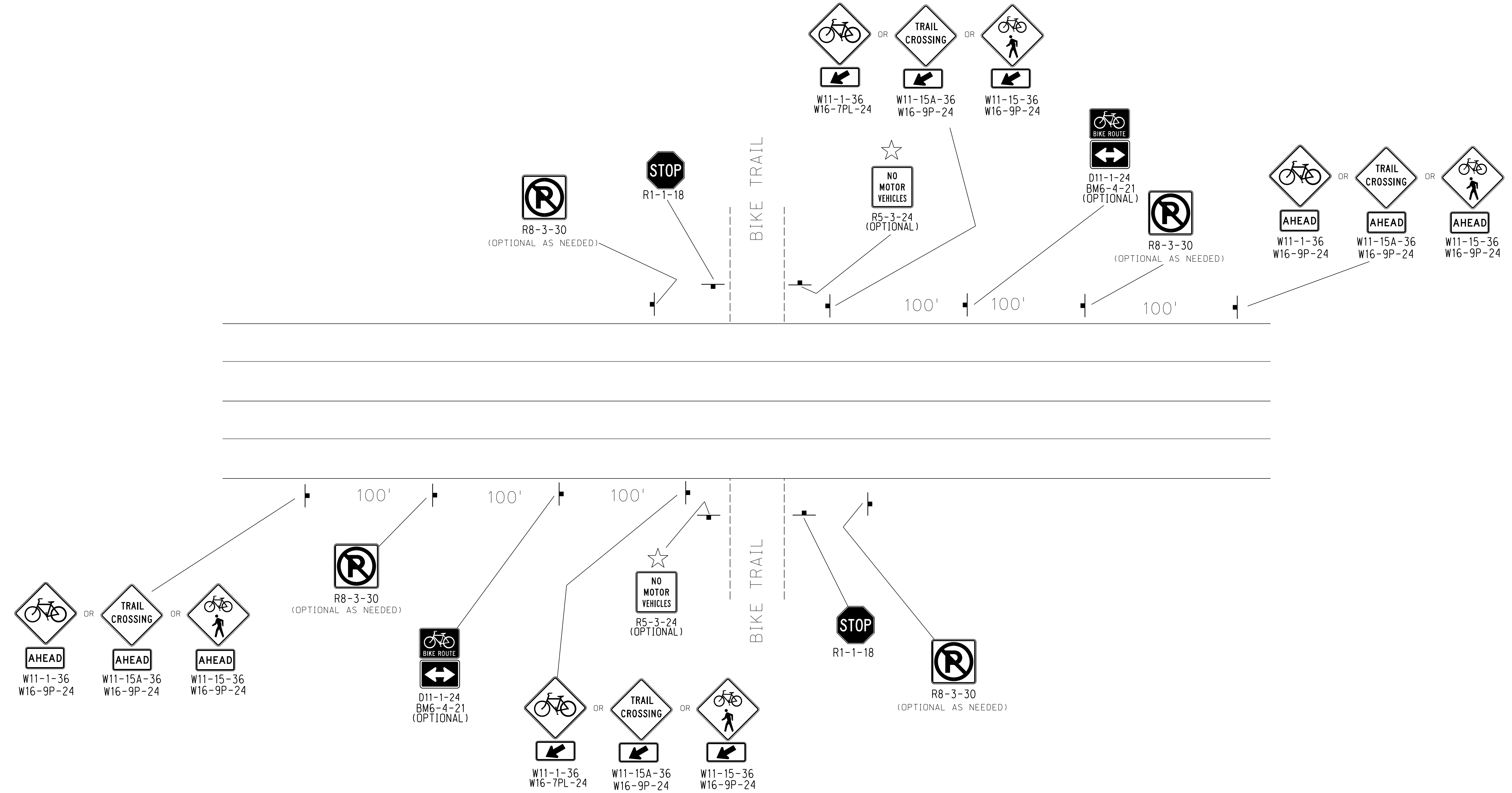


XX	
Project Number ###-#(###)	
C.N. ####	
SIGNING PLAN BIKE TRAIL - URBAN 2 LANE HIGHWAY	
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION	
DESIGNED BY AJM	DATE 08/23
PLAN SHEET NUMBER	1 / 1

COMPUTER: BG0419M498

DATE: 30-OCT-2024 14:33

FILE: Bike Trail - 4 Lane Urban.dgn



☆ TO BE MAINTAINED BY OTHERS.

XX	
Project Number ###-##(###)	
C.N. #####	
SIGNING PLAN BIKE TRAIL - URBAN 4 LANE HIGHWAY	
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION	
DESIGNED BY AJM	DATE 08/23
PLAN SHEET NUMBER	1 / 1

COMPUTER: BG0419M687

DATE: 13-OCT-2023 13:27

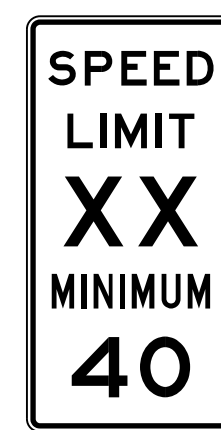
FILE: z_Border_Signs.dgn

STATE BORDER



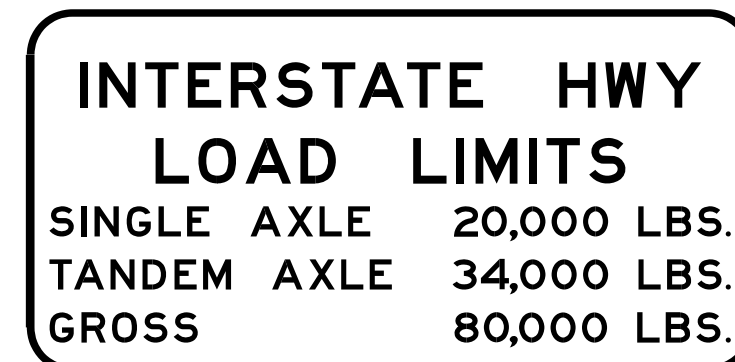
R4-3R-48
MOUNT IN MEDIAN

750'



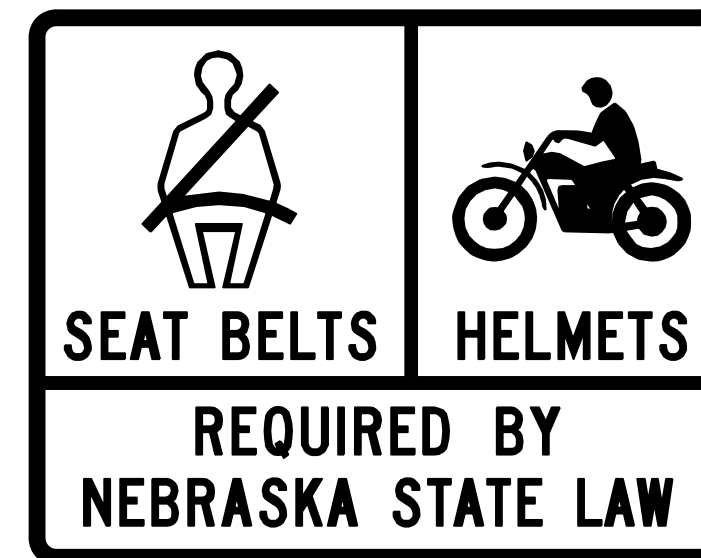
* R2-4A-48

750'



R12-5A-96

750'



R16-1C-60

750'



ROUTEMARKER
ASSEMBLY

750'

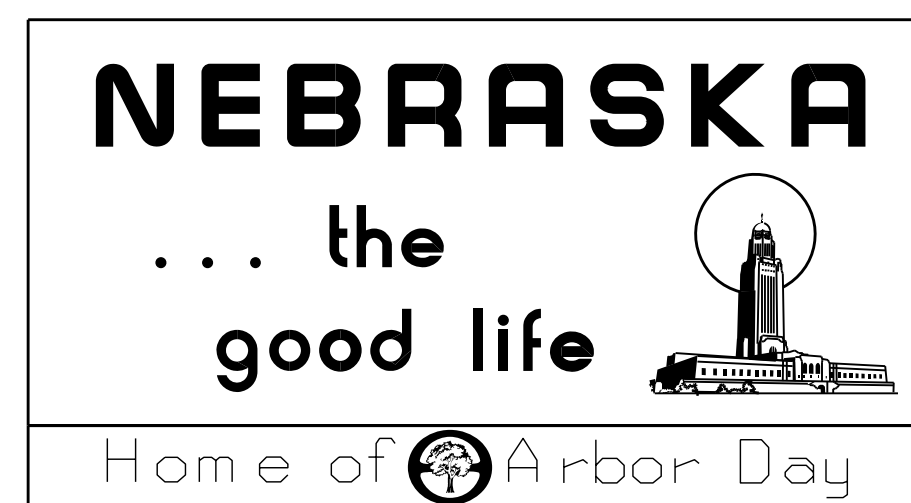


D12-1A-48

750'



R17-1-48
(OPTIONAL)



N12-2A: SCENIC DESIGN MAY VARY,
DEPENDING ON LOCATION.
20' x 11'

SIGN SPACINGS ARE APPROXIMATE AND MAY
BE ADJUSTED TO MATCH FIELD CONDITIONS.

* SEE SPEED ZONE PLATS FOR APPROPRIATE SPEEDS.

XX

Project Number
###-#(###)

C.N. ####

TYPICAL SIGNING PLAN
STATE BORDERS
(INTERSTATE)
DESIGNED BY AJM
DATE 10/23
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

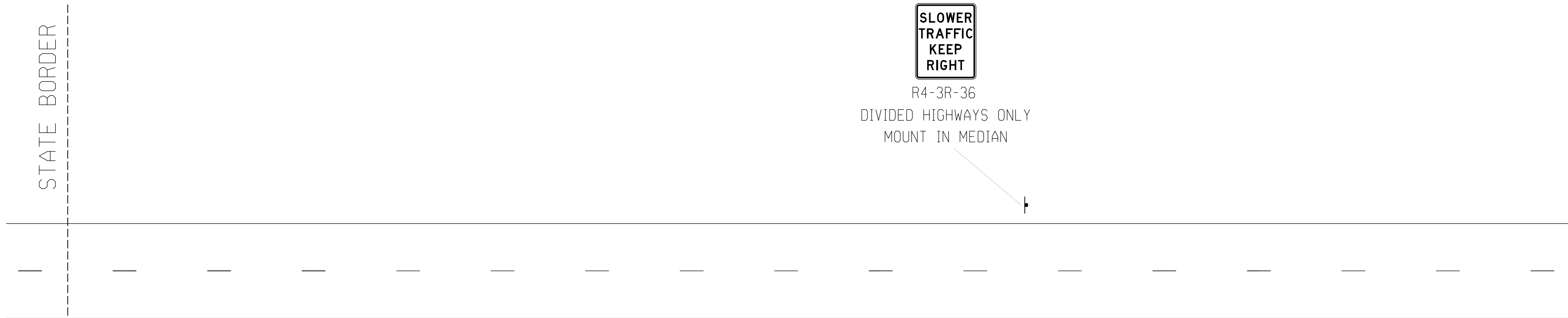
PLAN SHEET NUMBER
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COMPUTER: BG0419M687

DATE: 13-OCT-2023 13:27

FILE: z_Border_Signs.dgn

STATE BORDER



500'

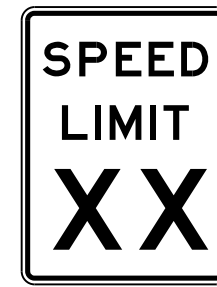
500'

500'

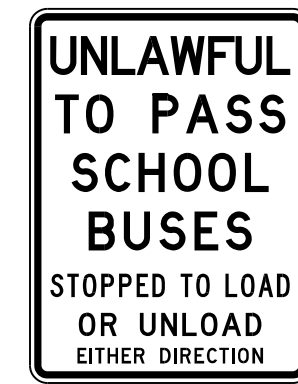
500'

500'

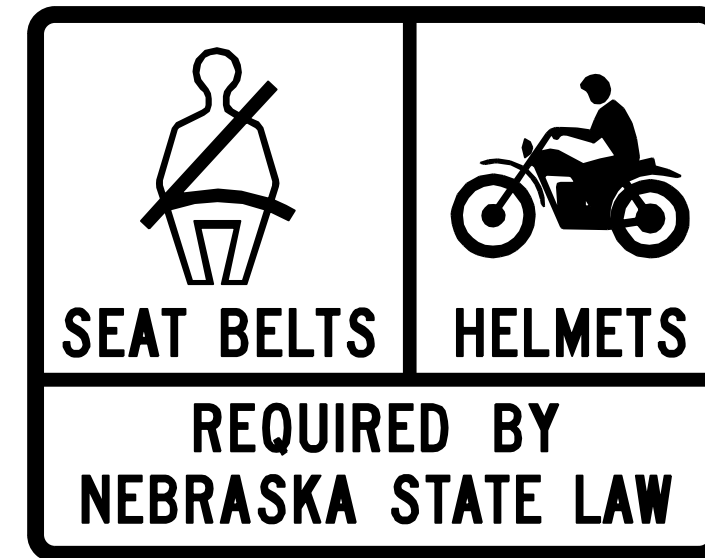
500'



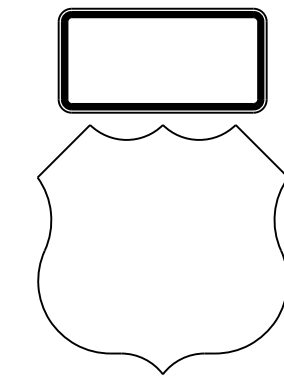
* R2-1-30



S6-1-30



R16-1C-60



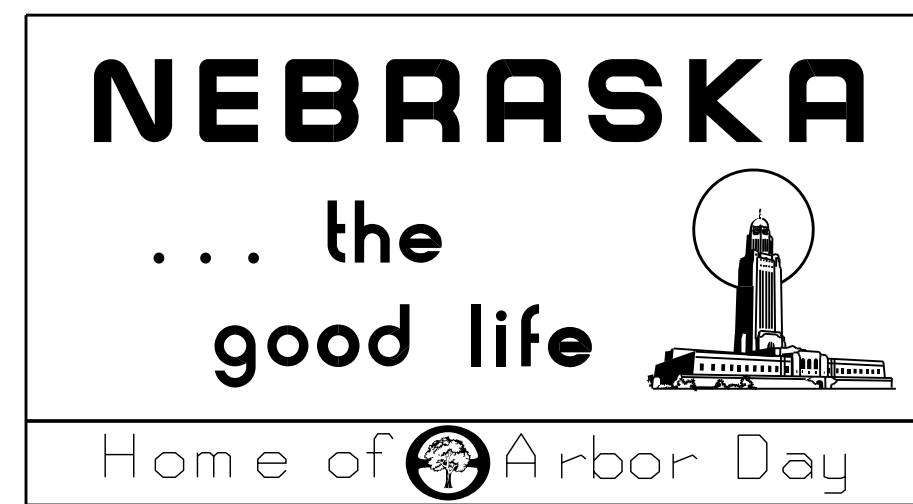
ROUTEMARKER ASSEMBLY



D12-1A-48



R17-1-30 (OPTIONAL)



NI2-2A (13.5' X 7')
 SCENIC DESIGN MAY VARY,
 DEPENDING ON LOCATION.
 SECONDARY ROAD SIGNS
 ARE 8' X 5'

SIGN SPACINGS ARE APPROXIMATE AND MAY
 BE ADJUSTED TO MATCH FIELD CONDITIONS.

* SEE SPEED ZONE PLATS FOR APPROPRIATE SPEEDS.

XX

Project Number
 ###-#(###)

C.N. ####

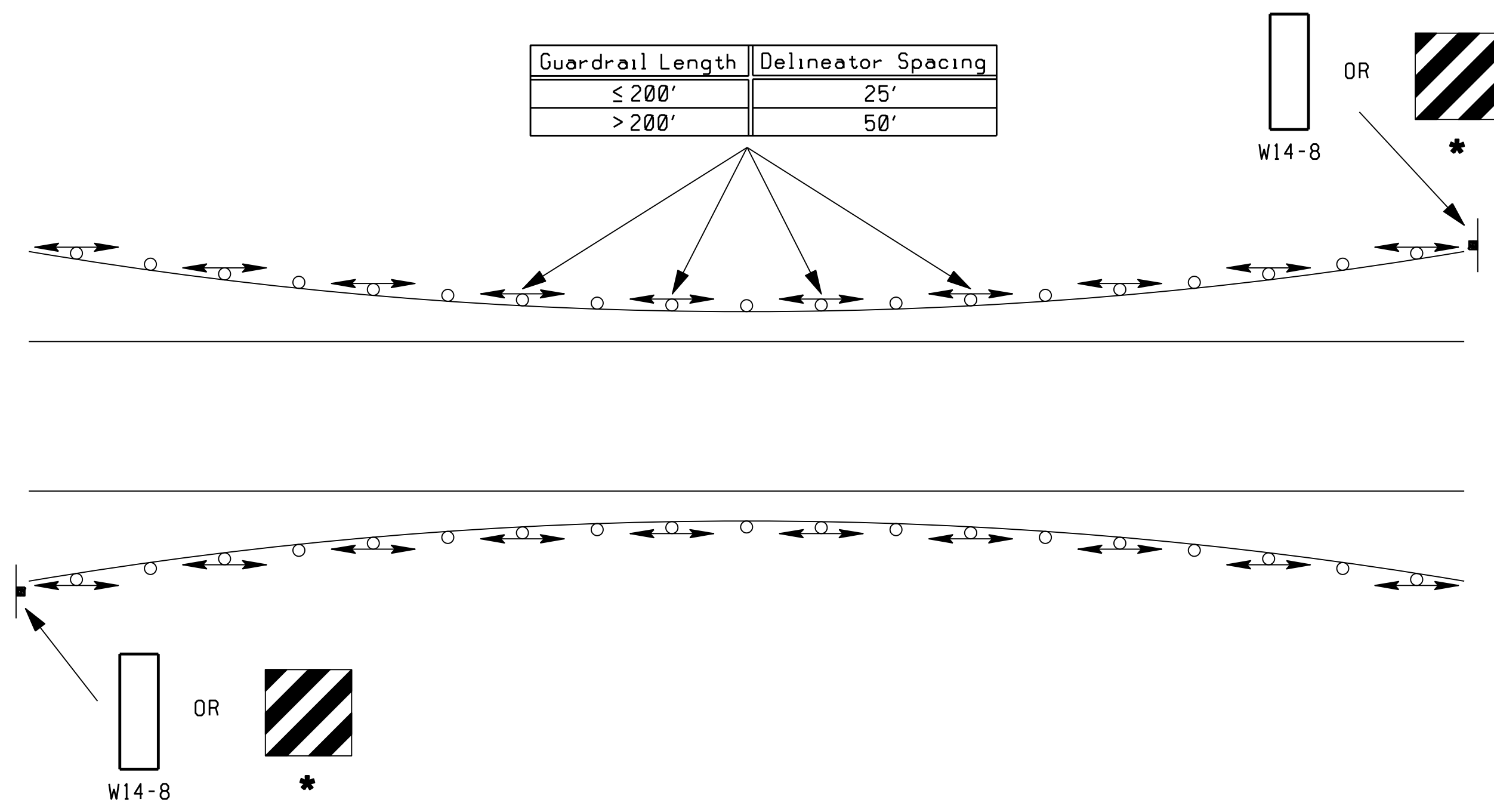
TYPICAL SIGNING PLAN
 STATE BORDERS
 (PRIMARY HIGHWAYS)

DESIGNED BY AJM DATE 10/23

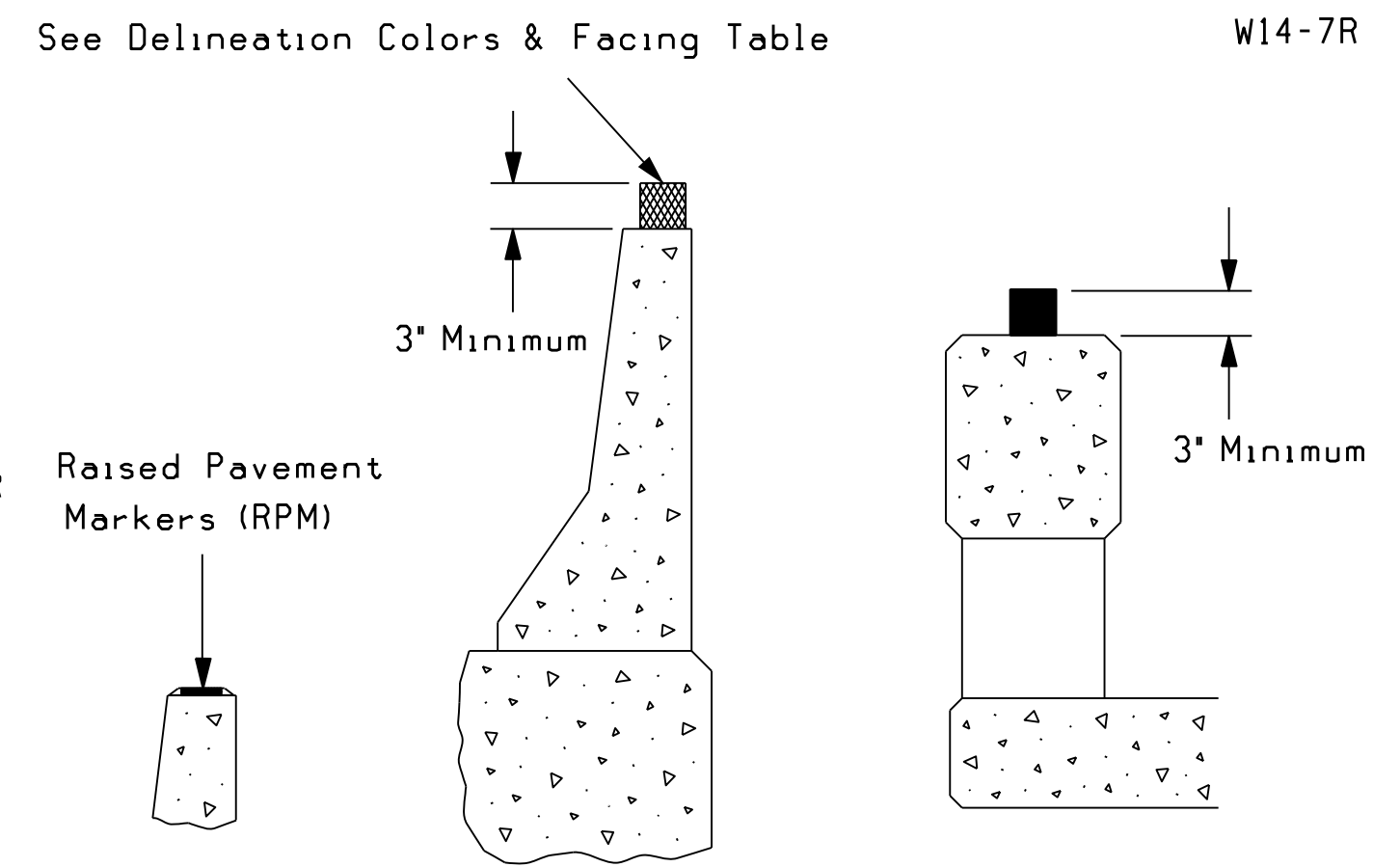
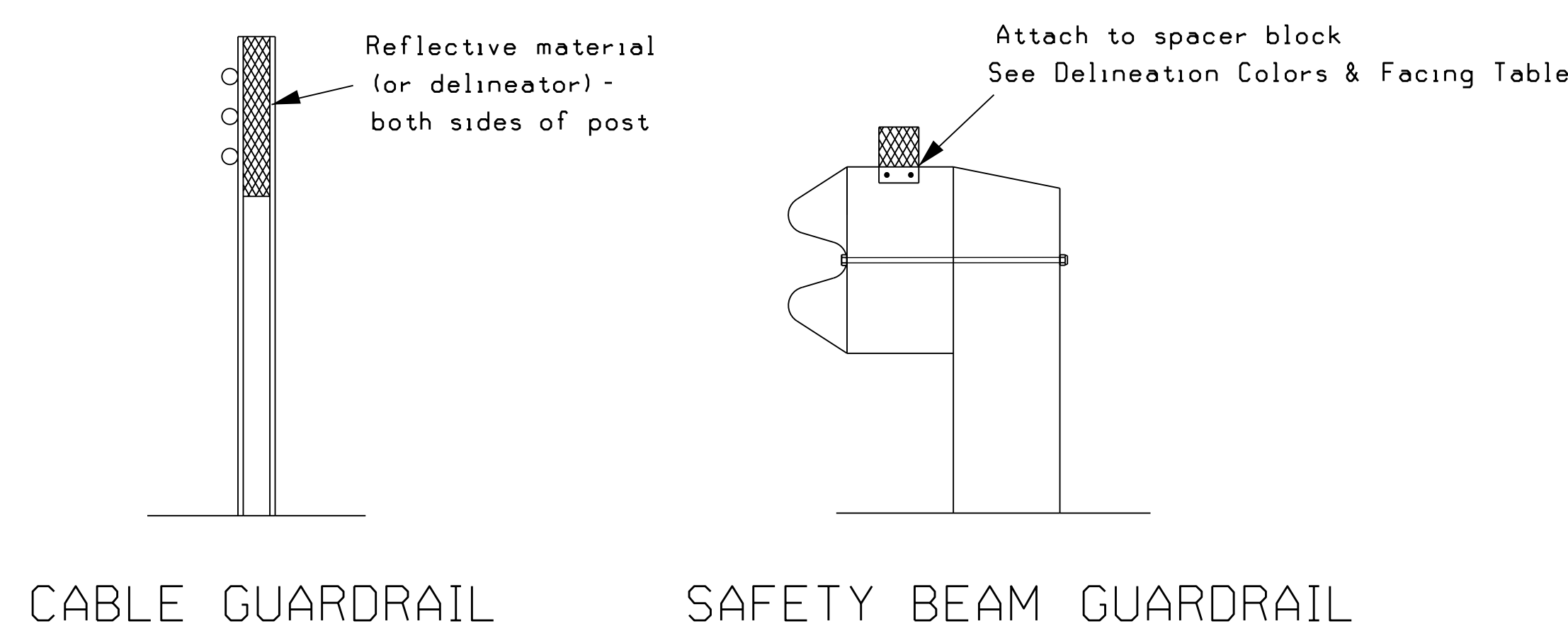
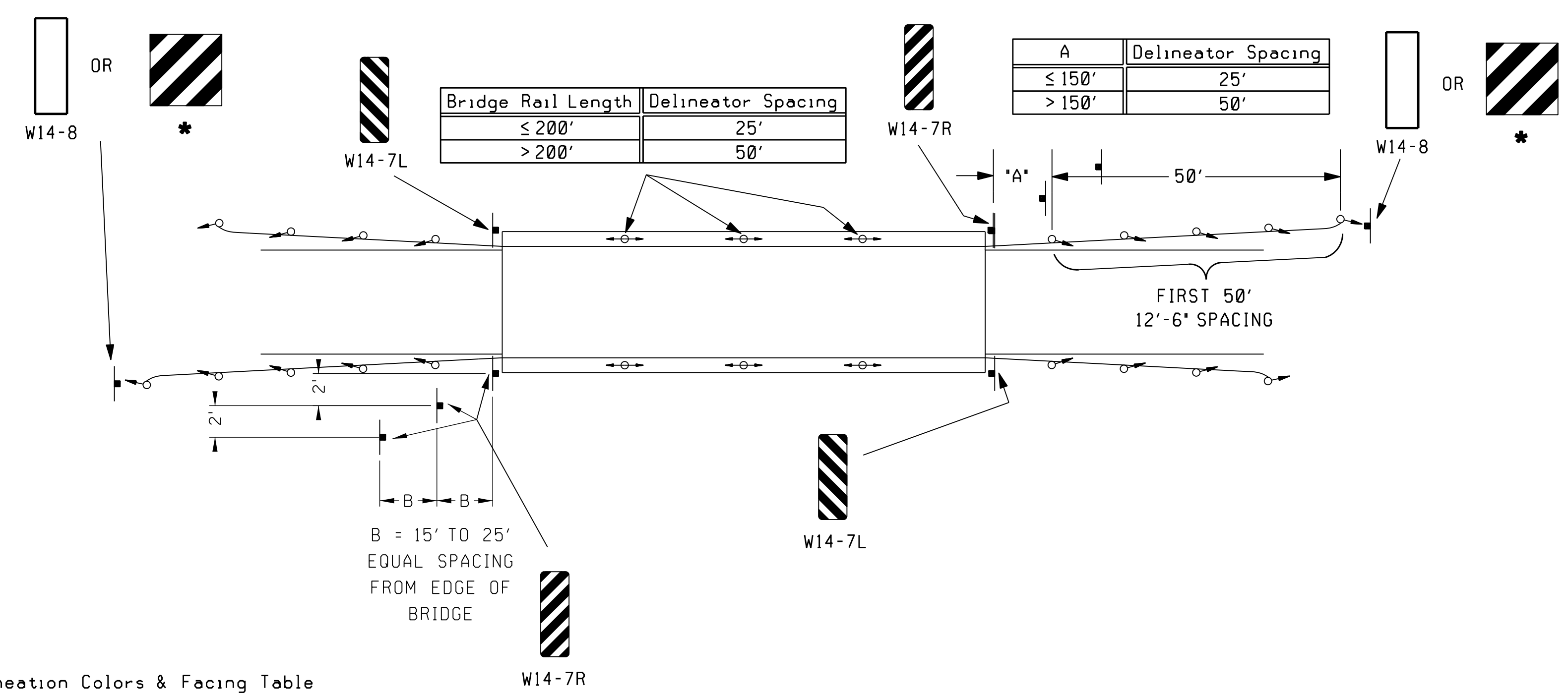
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER 2/2

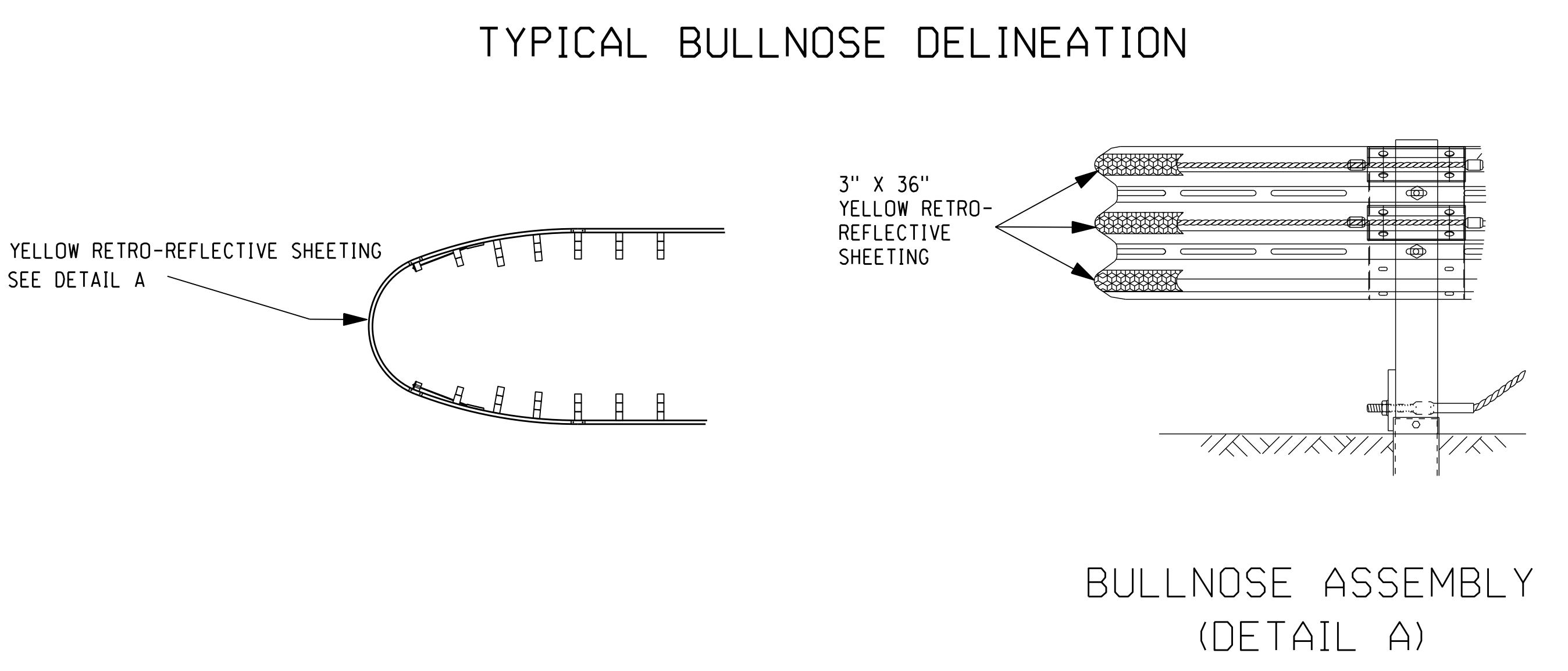
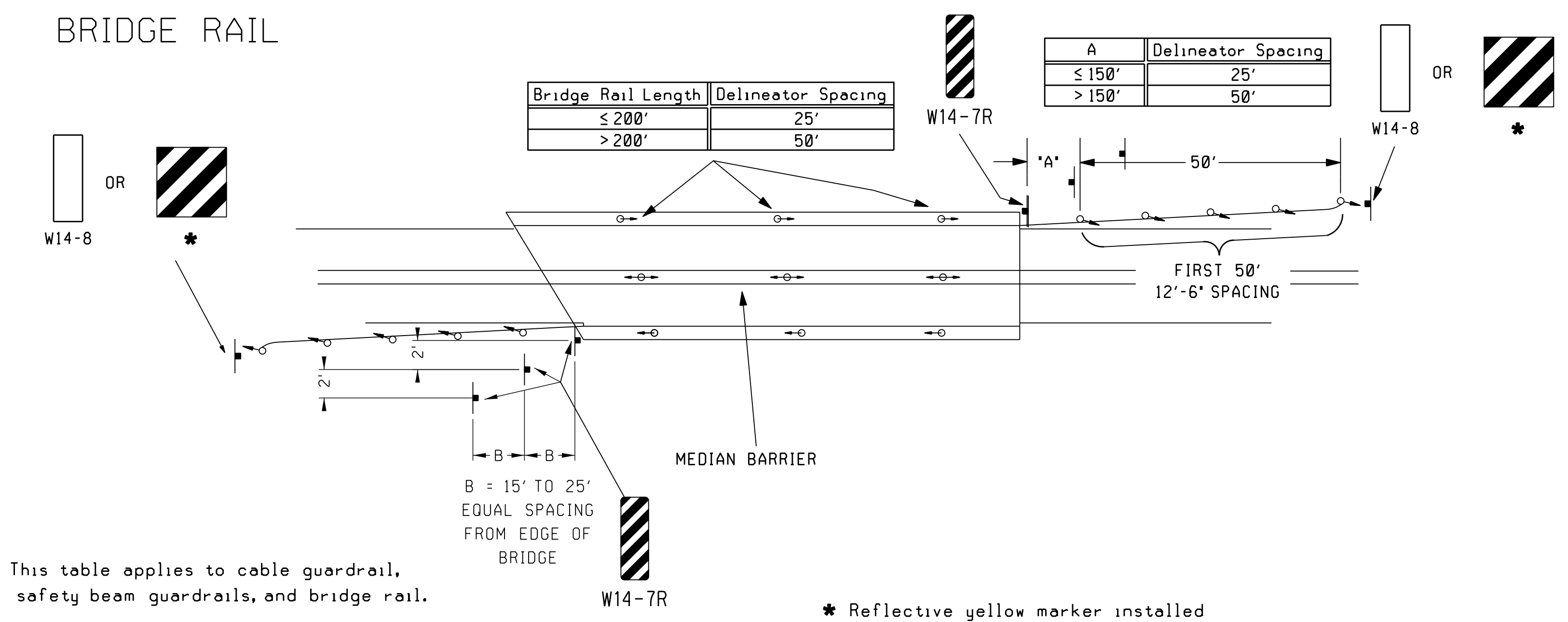
TYPICAL GUARDRAIL DELINEATION



TYPICAL BRIDGE DELINEATION



TYPICAL BRIDGE DELINEATION (MEDIAN BARRIER)



This table applies to cable guardrail, safety beam guardrails, and bridge rail.

Delineation Colors & Facing			
	Left Side	Right Side	Facing
Two-Way Roadway	Silver/White	Silver/White	Double Faced
Multi-Lane Divided Roadway	Yellow	Silver/White	Single Faced

* Reflective yellow marker installed on the end of guardrail end terminal shall have alternating black and retroreflective yellow stripes sloping downward at an angle of 45° toward the side on which traffic is to pass.

COMPUTER: BG0419M498
DATE: 30-OCT-2024 14:33
FILE: Bridge Delineator Detail.dgn

XX
Project Number ###-##(###)
C.N. #####

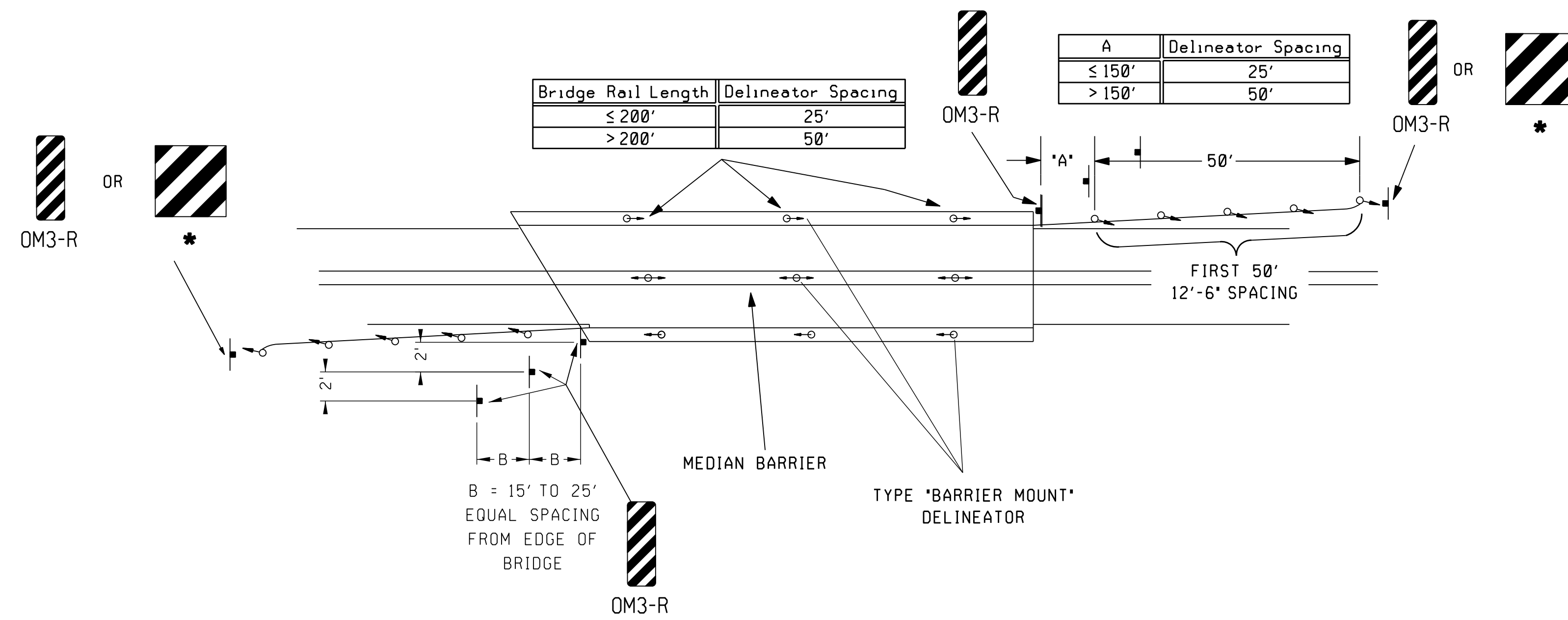
BRIDGE AND GUARDRAIL DELINEATION PLAN

DESIGNED BY AJM
DATE 08/23
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER 1/1

DELINEATION FOR MEDIAN BARRIER SECTION OF INTERSTATE

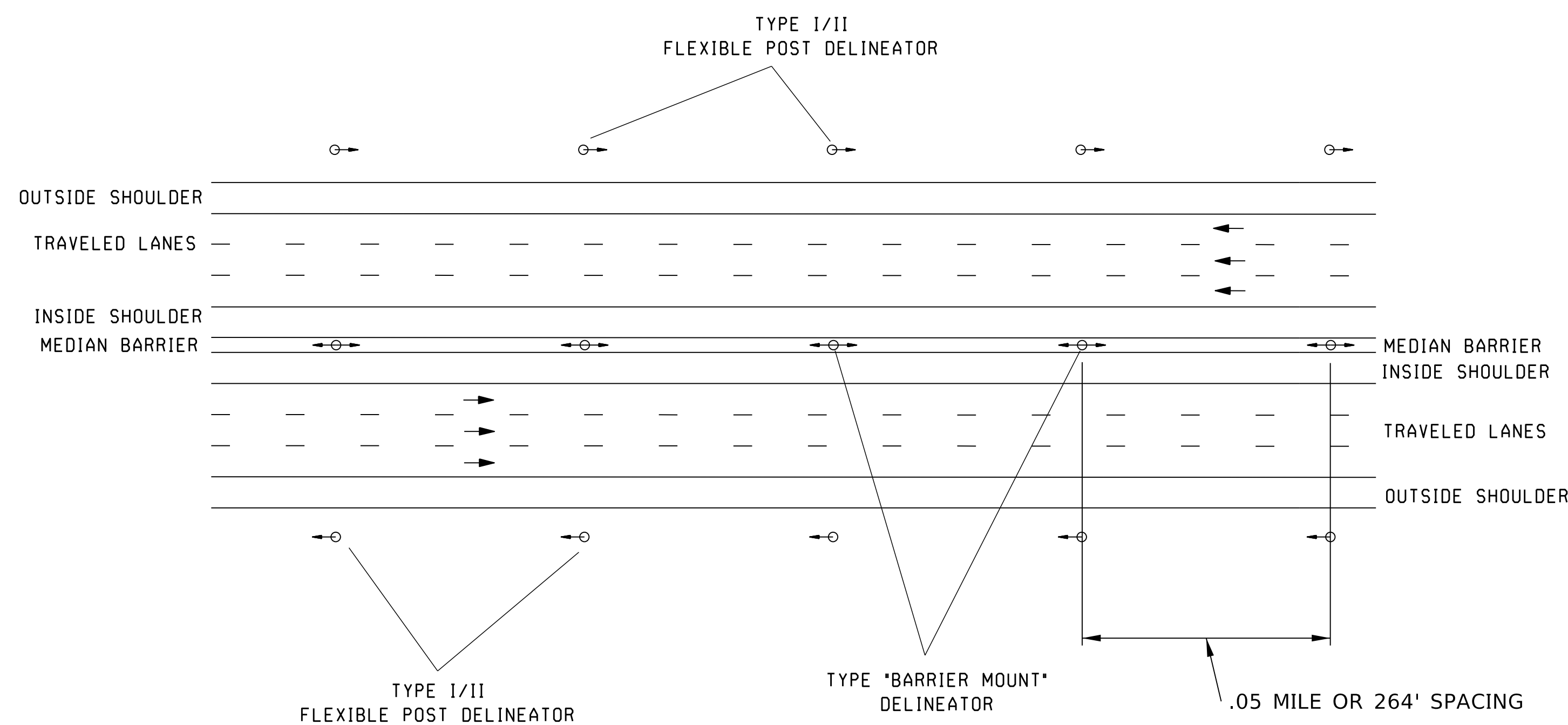
TYPICAL BRIDGE DELINEATION (MEDIAN BARRIER)



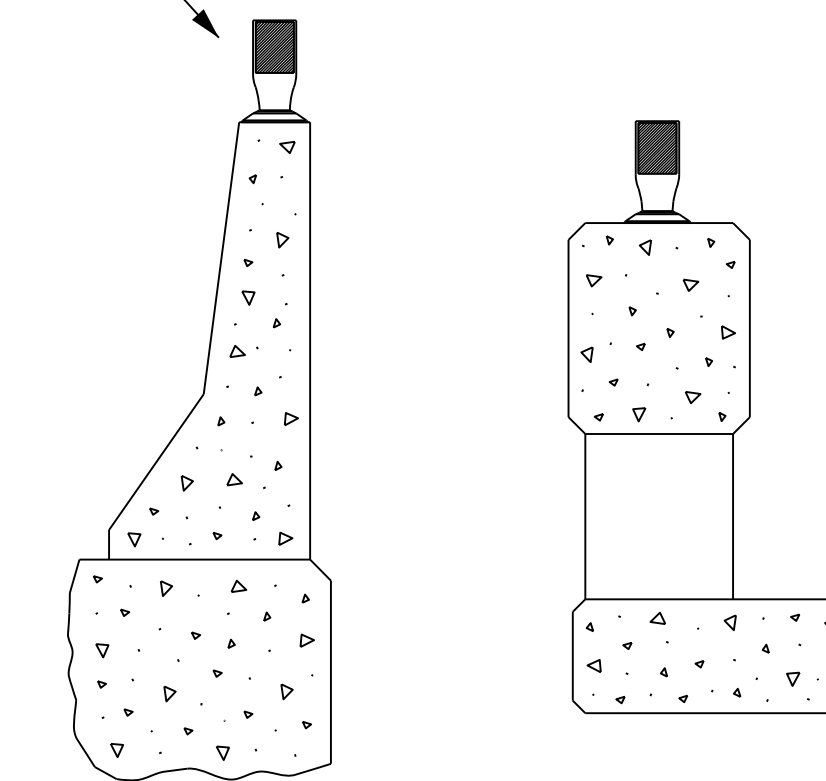
GENERAL NOTES

1. SPACING SHALL BE .05 MILE OR 264' ALONG THE THRU ROAD, INCLUDING CURVES UP TO 1° 30' (RADIUS 3820 FT.). SEE TABLE A ON STANDARD PLAN 901 FOR DELINEATOR SPACING FOR CURVES BEYOND 1° 30'.
2. SEE STANDARD PLAN 901 FOR INFORMATION ON DELINEATOR HEIGHT, OFFSET AND FOR OTHER INFORMATION NOT SHOWN.
3. DELINEATOR COLOR SHALL CONFORM TO THE COLOR OF THE ADJACENT STRIPED EDGE LINE.

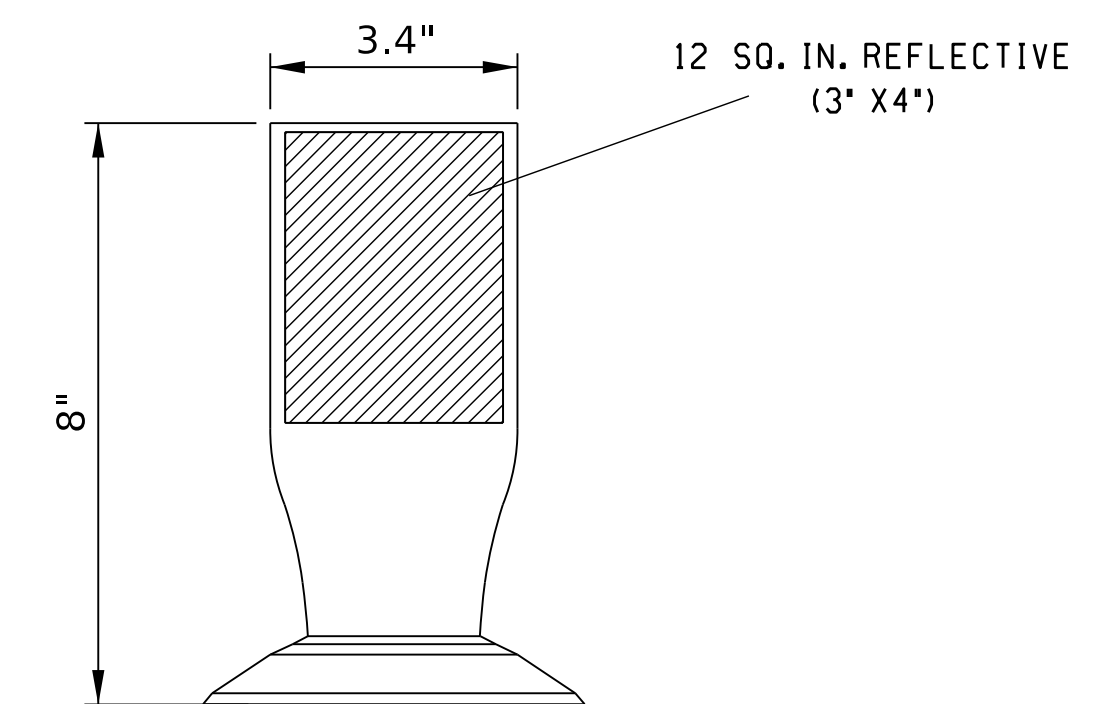
TYPICAL NON BRIDGE SECTION DELINEATION



MATCH COLOR TO ADJACENT EDGELINE



BRIDGE RAIL



BARRIER MOUNT DELINEATOR DETAIL

Project Number

C.N.

BRIDGE AND GUARDRAIL DELINEATION PLAN
FOR MEDIAN BARRIER SECTION ON INTERSTATE

DESIGNED BY NRI DATE 09/23

NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN
SHEET
NUMBER

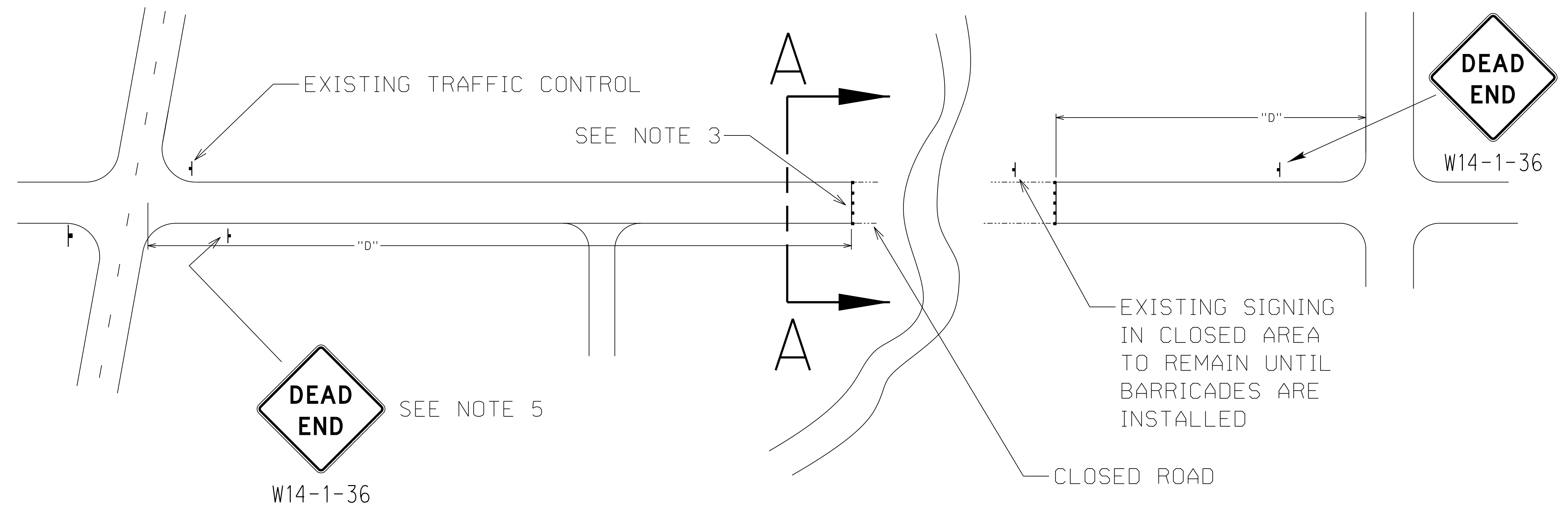
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Project Number
###-###

C.N. #####

ROAD CLOSURE RESULTING IN DEAD END

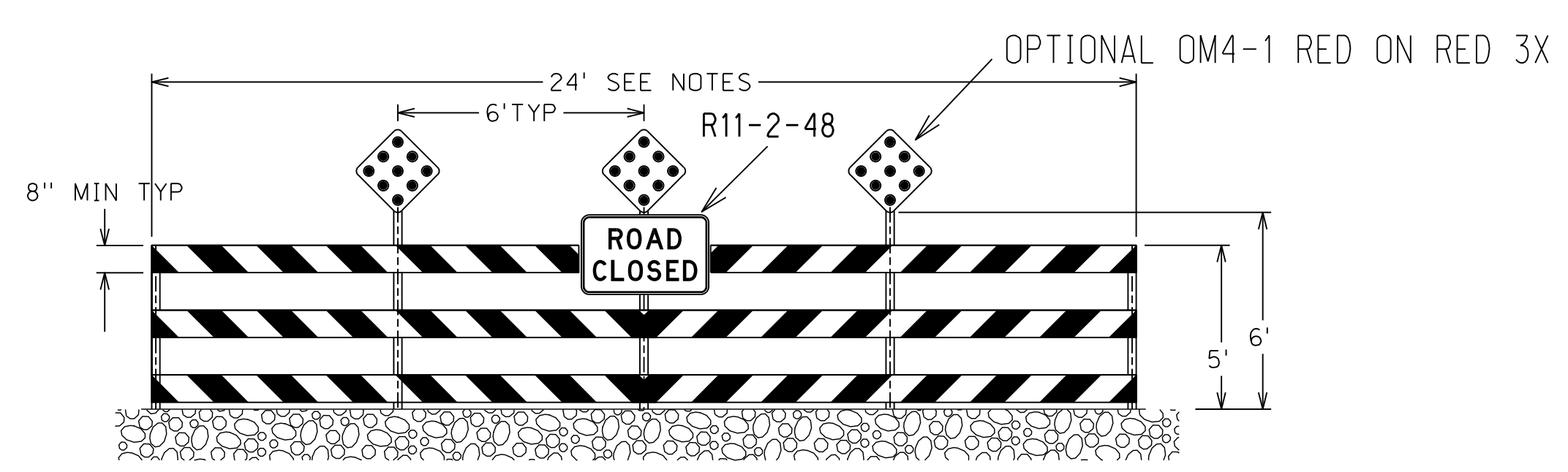
SEE NOTE 5



COMPUTER: BG0419M687

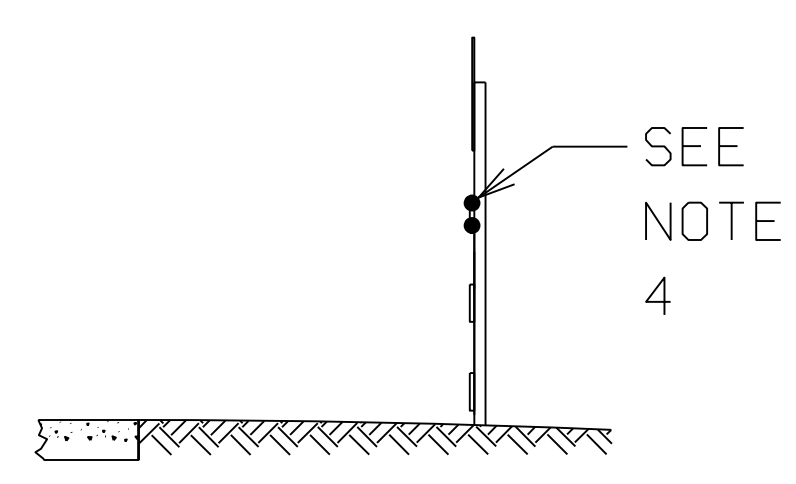
DATE: 30-OCT-2024 14:52

FILE: Bridge Out.dgn



VIEW A

BARRICADE SIGNING ASSEMBLY
TYPICAL 2X



END VIEW OF BARRICADE

NOTES

- BARRICADE SPECS:
 - *NCHRP 350 OR MASH COMPLIANT
 - *6" STRIPE WIDTH
 - *ALTERNATING RED AND WHITE RETROREFLECTIVE STRIPES SLOPE DOWNWARD AT 45 DEGREE ANGLE TOWARD CENTER. SEE DETAILS BELOW
- WARNING SIGN COLORS: YELLOW AND BLACK
- PLACE BARRICADE SIGNING ASSY PERPENDICULAR TO APPROACH ROAD.
- INSTALL TWO YELLOW RETROREFLECTORS AT EACH END OF TOP BARRICADE SLAT.
- INSTALL DEAD END SIGN WHEN DISTANCE "D" TO BARRICADE EXCEEDS 250 FT

BRIDGE OUT ROAD CLOSURE
RESULTING IN DEAD END

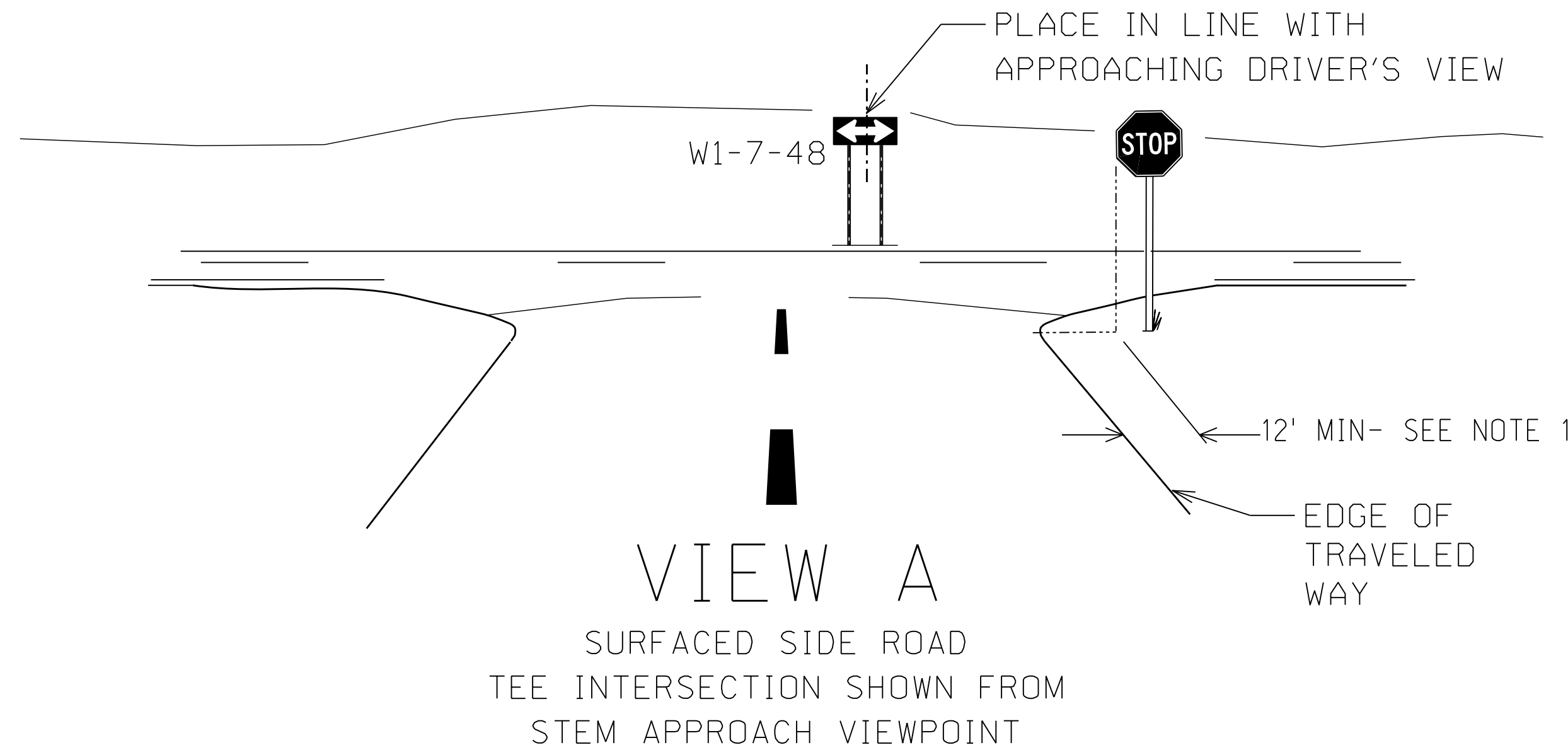
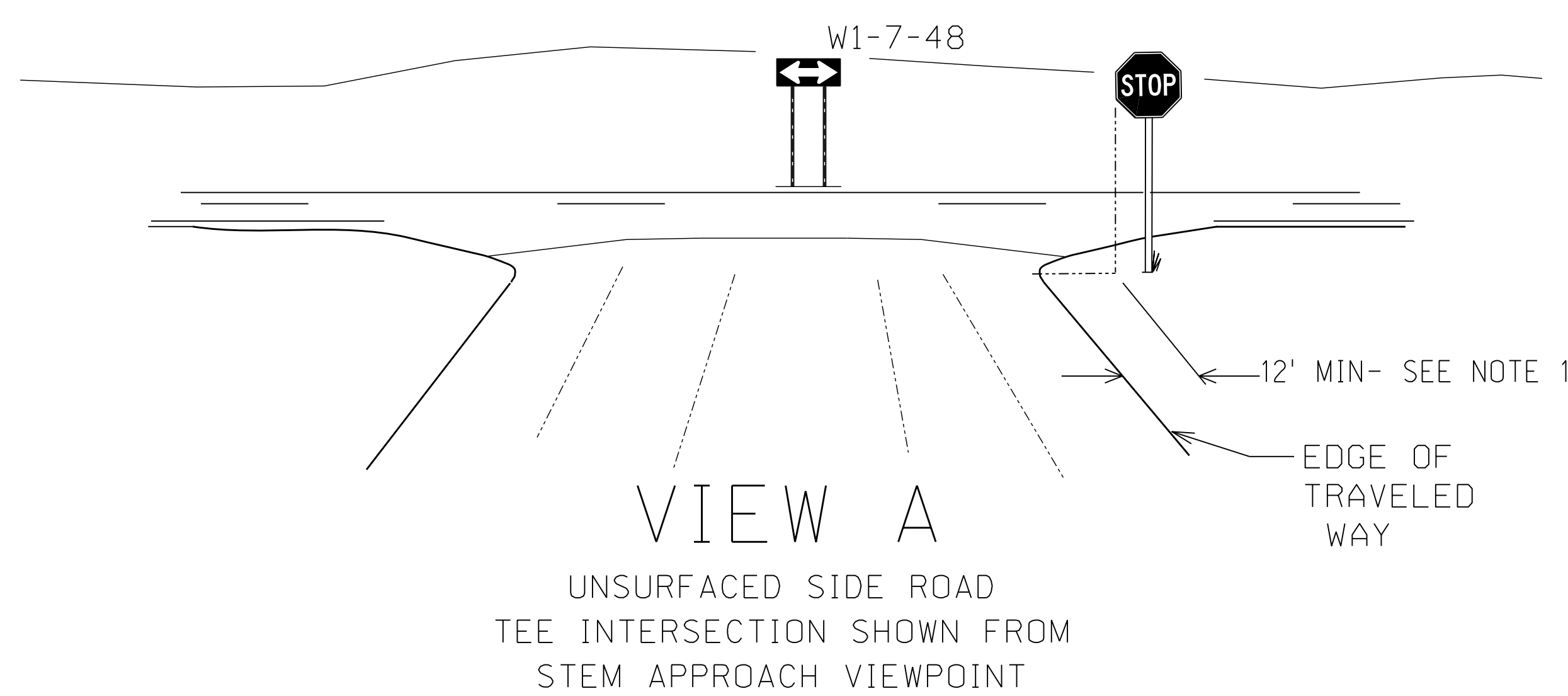
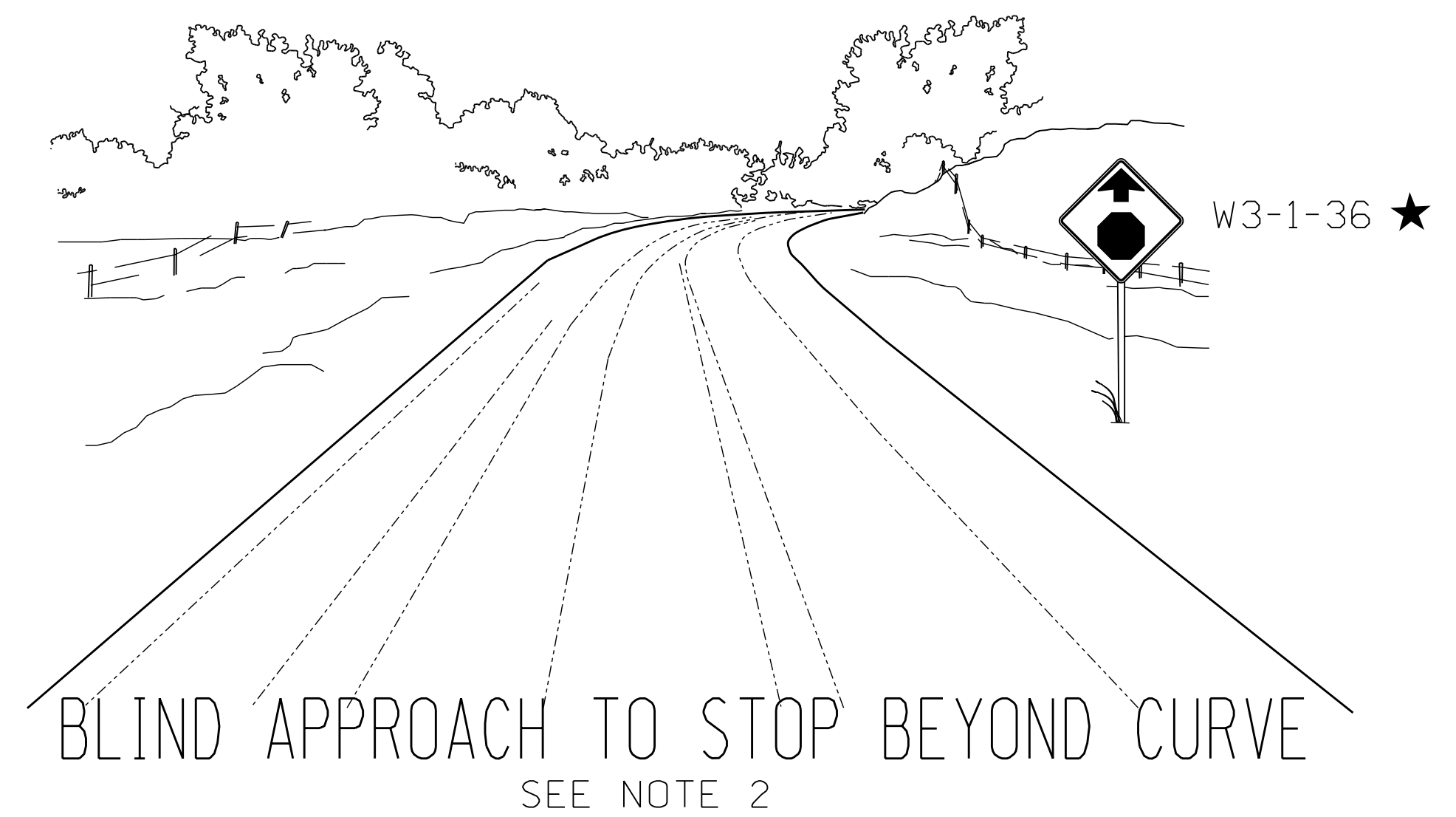
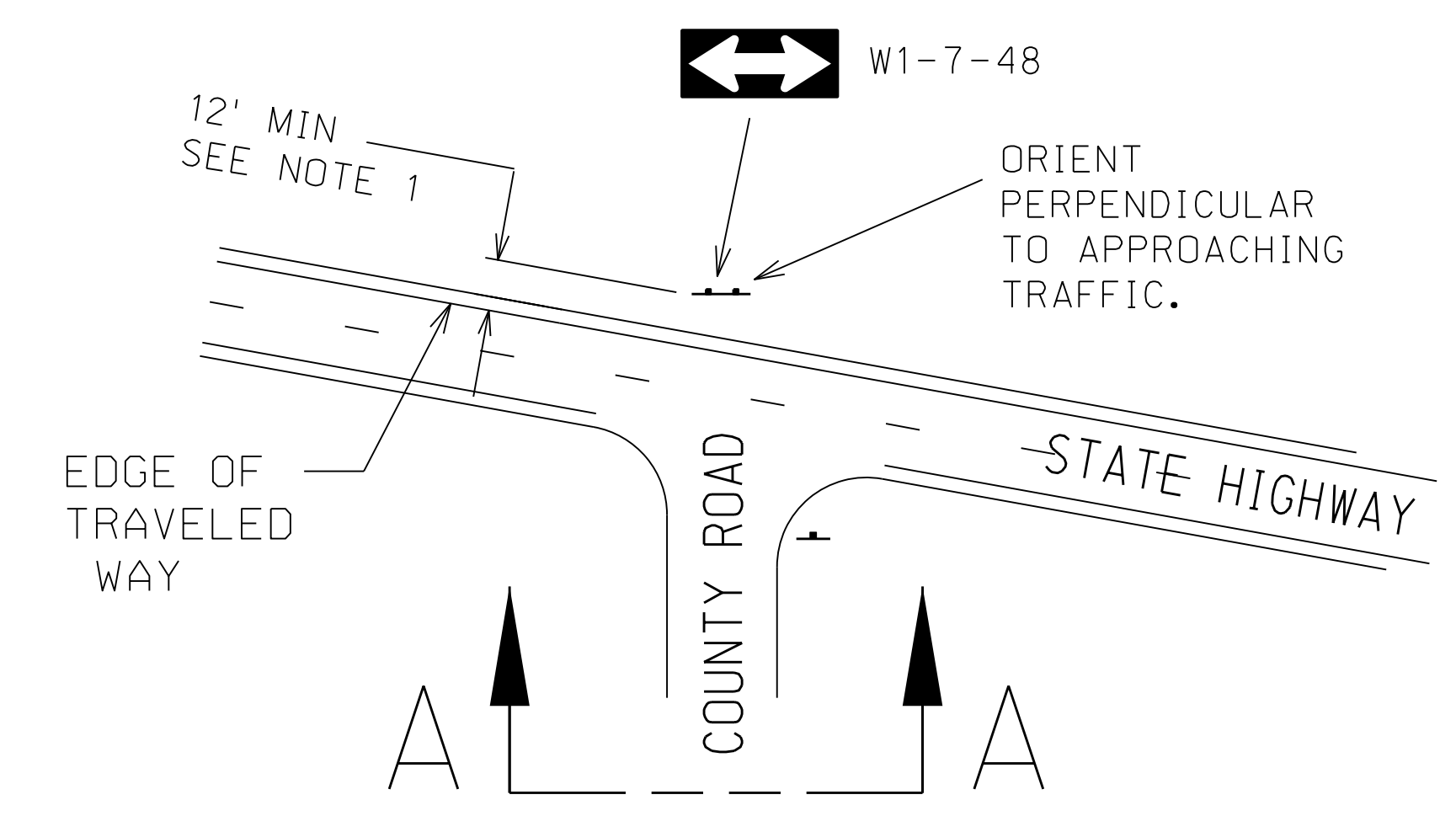
DATE 08/23

DESIGNED BY AJM

NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER
1 / 1

TEE INTERSECTION WITH STATE HIGHWAY

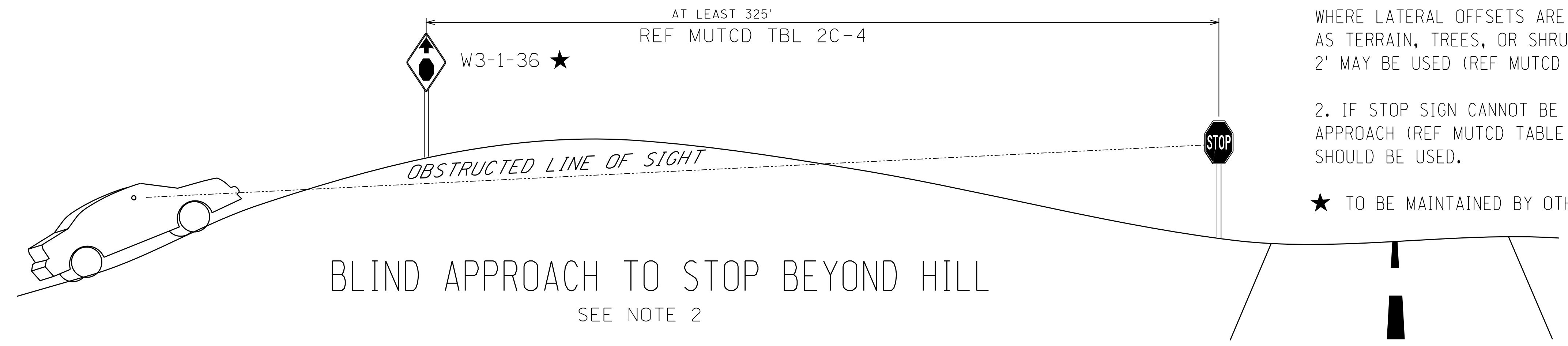


NOTE

1. IF A SHOULDER WIDER THAN 6' EXISTS, THE MINIMUM OFFSET SHOULD BE 6' FROM THE EDGE OF THE SHOULDER. HOWEVER, IN AREAS WHERE LATERAL OFFSETS ARE LIMITED BY SUCH ROADSIDE FEATURES AS TERRAIN, TREES, OR SHRUBBERY, A MINIMUM LATERAL OFFSET OF 2' MAY BE USED (REF MUTCD 2A.19).

2. IF STOP SIGN CANNOT BE SEEN FROM AT LEAST 325' ON THE APPROACH (REF MUTCD TABLE 2C-4), THEN A W3-1 STOP AHEAD SIGN SHOULD BE USED.

★ TO BE MAINTAINED BY OTHERS



COMPUTER: BG0419M498
DATE: 30-OCT-2024 14:33
FILE: County Road Intersection.dgn

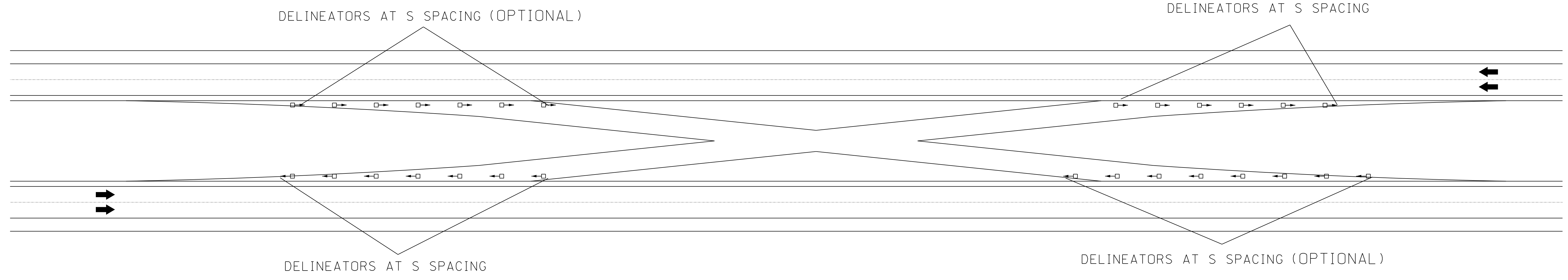
TYPICAL TRAFFIC CONTROL PLAN
COUNTY ROAD/STATE HIGHWAY TEE INTERSECTION SIGNING

DESIGNED BY AJM
DATE 08/23
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

XX

Project Number
###-#(###)

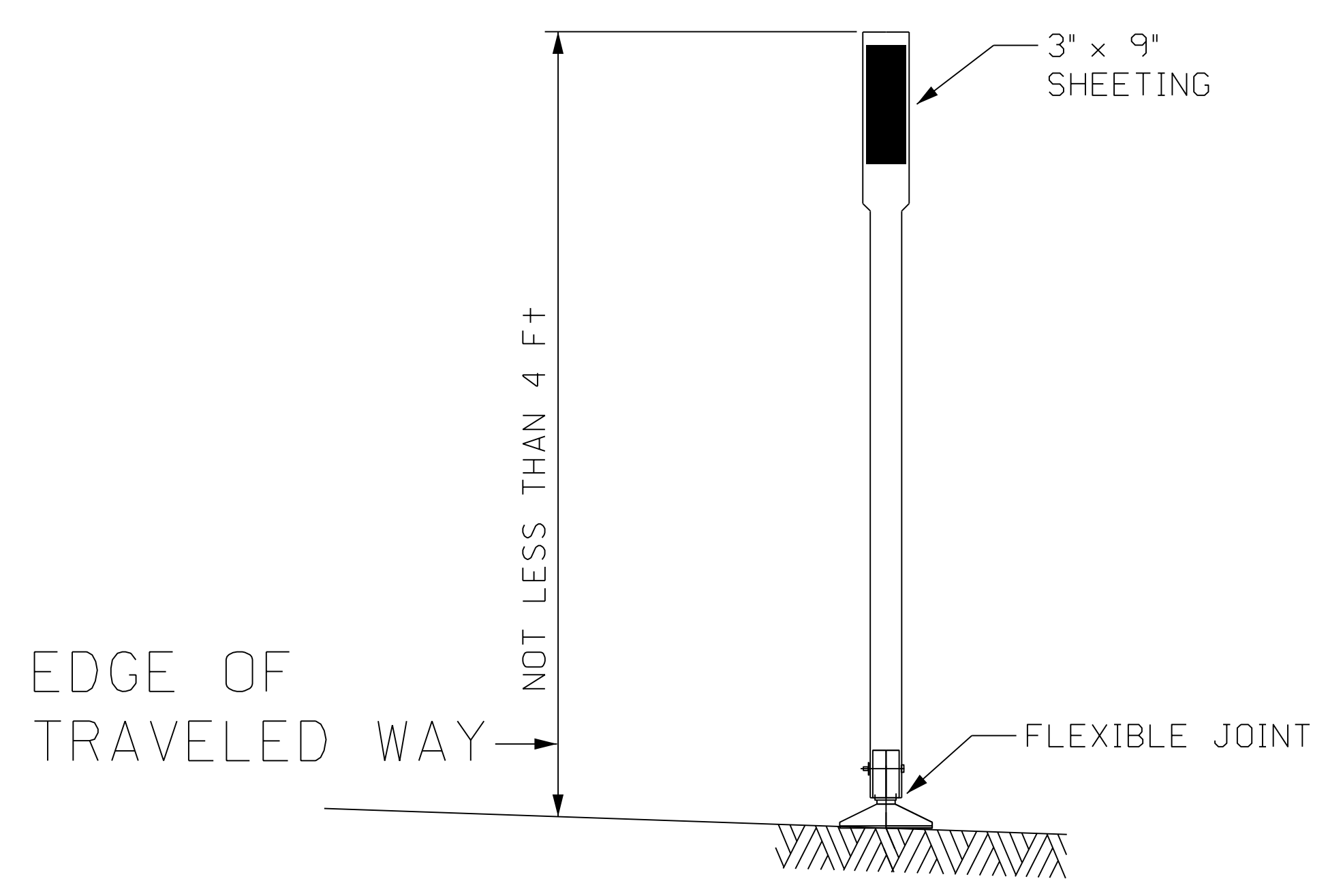
C.N. ####



LEGEND

- → FLEXIBLE DELINEATOR
- ➔ DIRECTION OF TRAVEL
- S = NUMERICAL VALUE OF POSTED SPEED LIMIT

SURFACE MOUNT TYPE



NOTES

1. LOCATE EDGE OF DELINEATORS 10' OUTSIDE OF THE EDGELINE.
2. COLOR OF RETROREFLECTIVE MATERIAL AND POSTS SHALL BE YELLOW.

FILE: Crossover Permanent TCP.dgn DATE: 30-OCT-2024 14:34 COMPUTER: BG0419M498

TYPICAL TRAFFIC CONTROL PLAN
CROSSOVER CLOSURE DETAILS

DESIGNED BY AJM DATE 03/24

NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER 1/1

XX

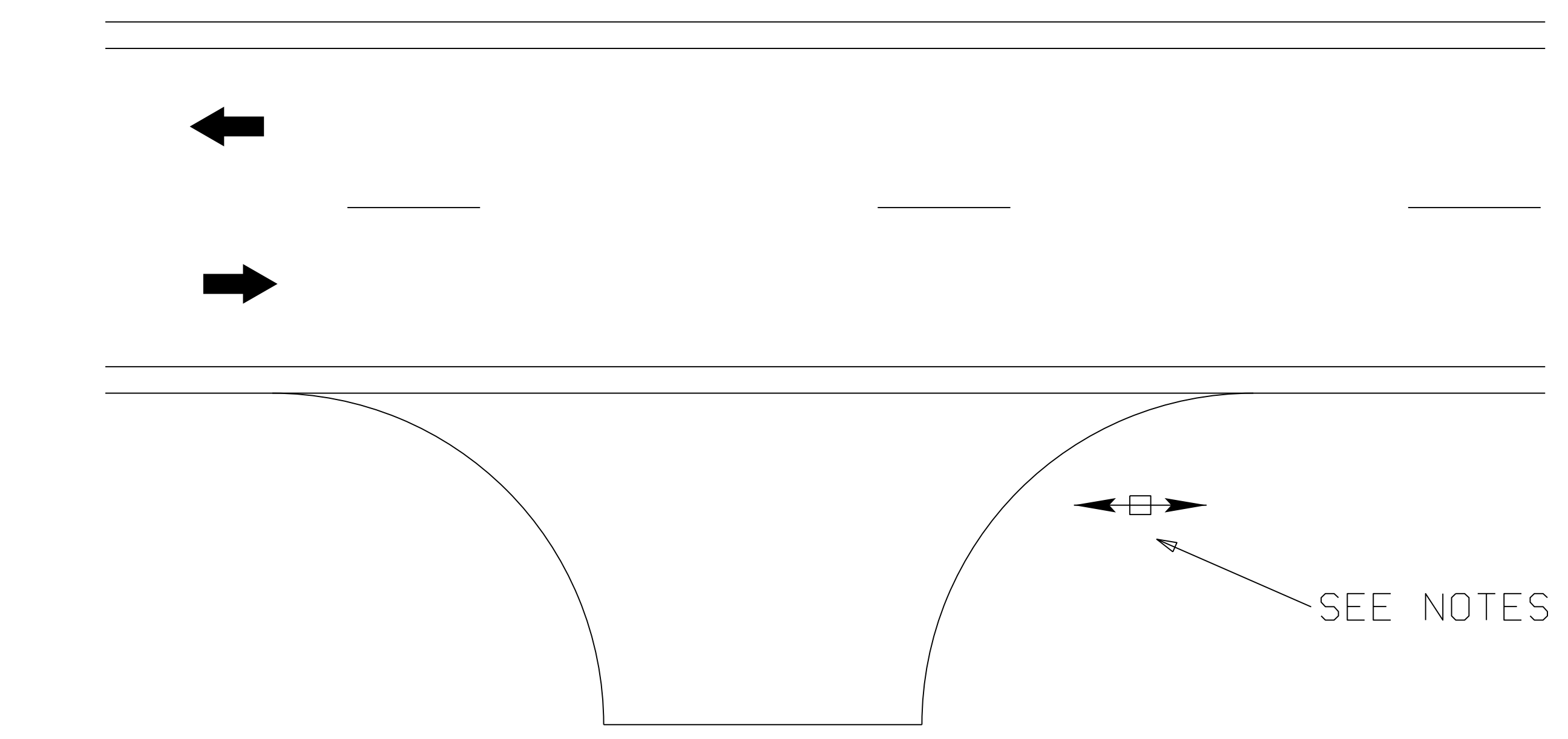
Project Number
###-#(###)

C.N. ####

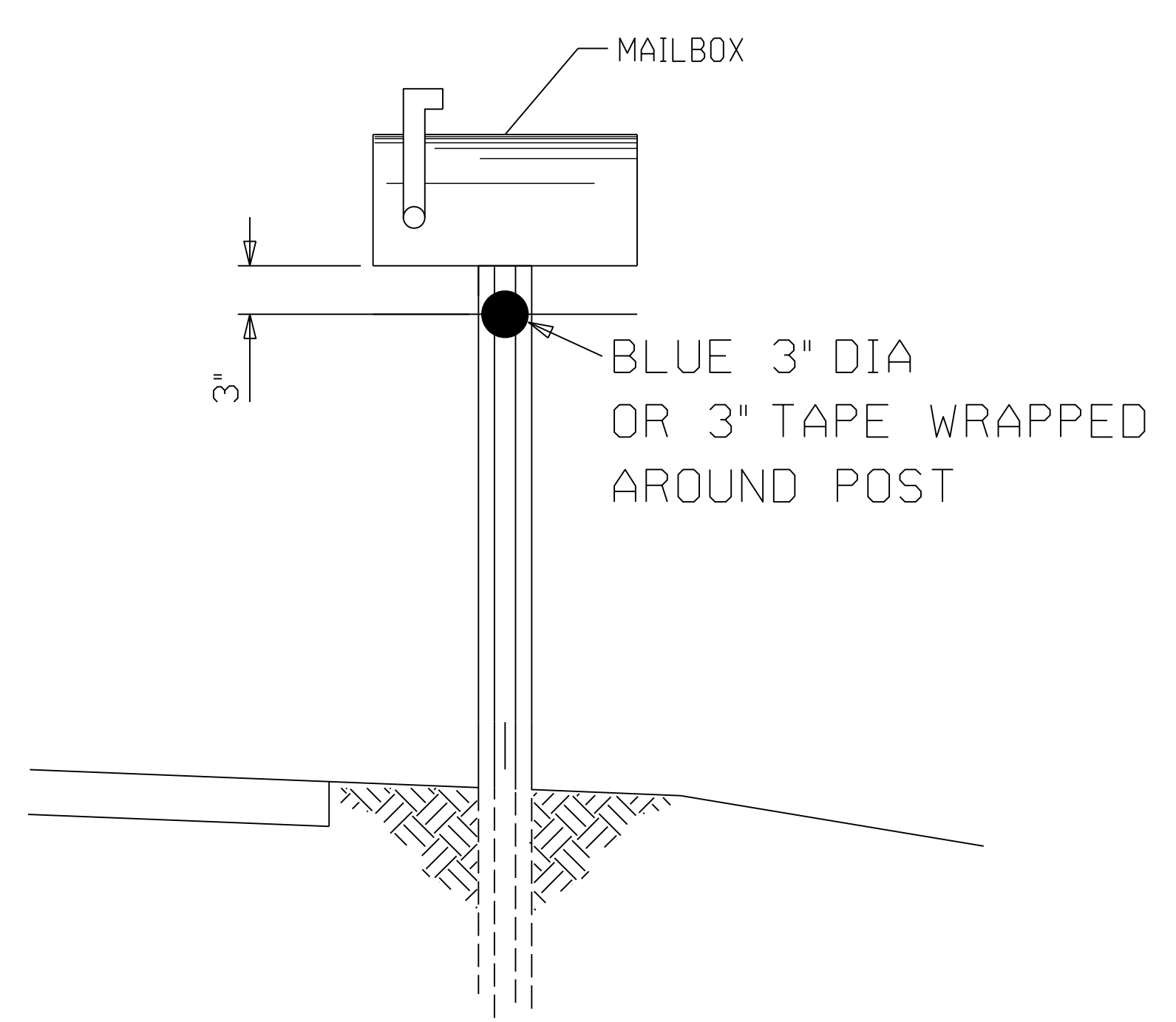
SIGN DETAIL PLAN
DRIVEWAY DELINEATION
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

DESIGNED BY AJM
DATE 08/23

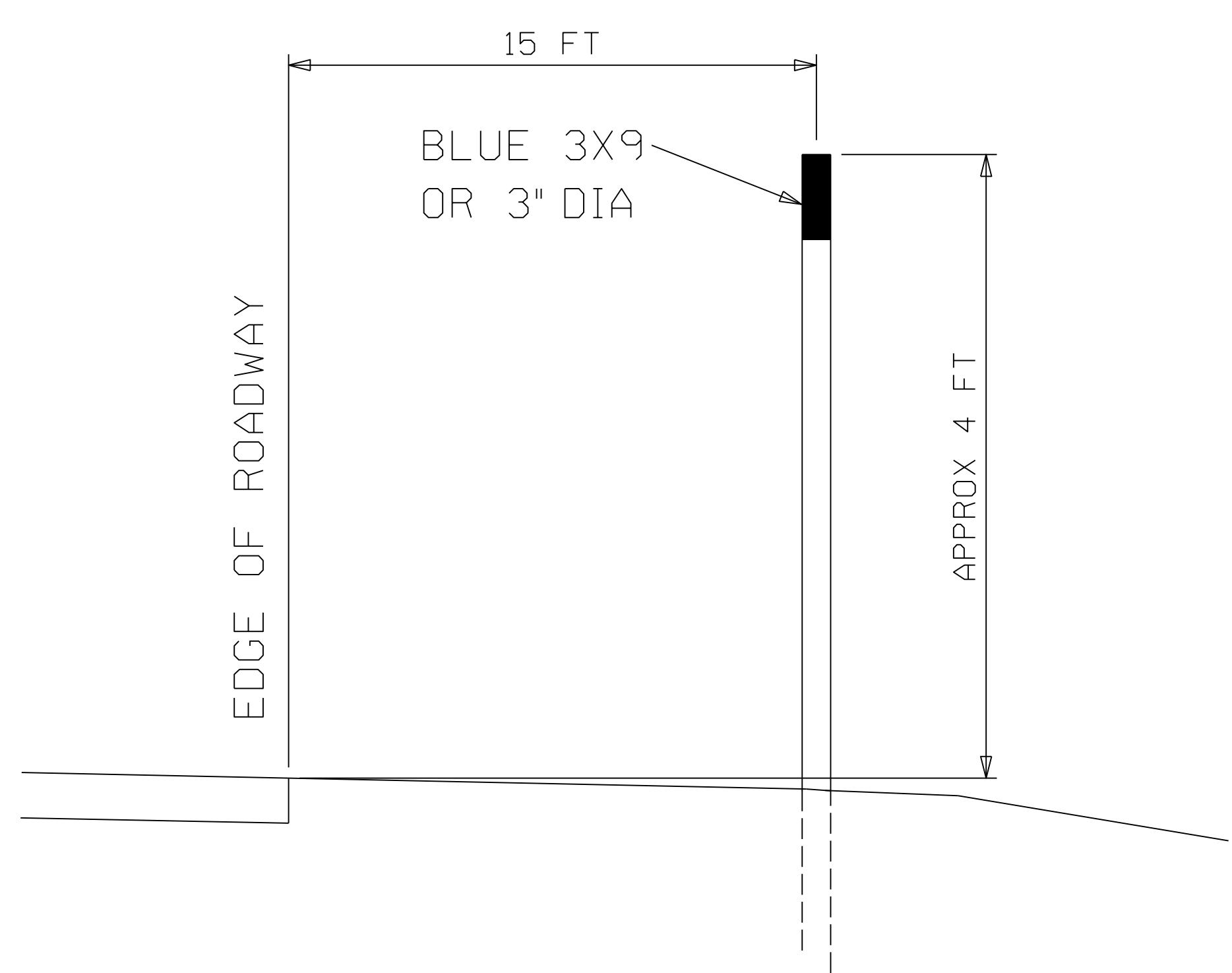
PLAN SHEET NUMBER
1
5



DRIVEWAY DELINEATION



DELINEATOR
ON MAILBOX POST

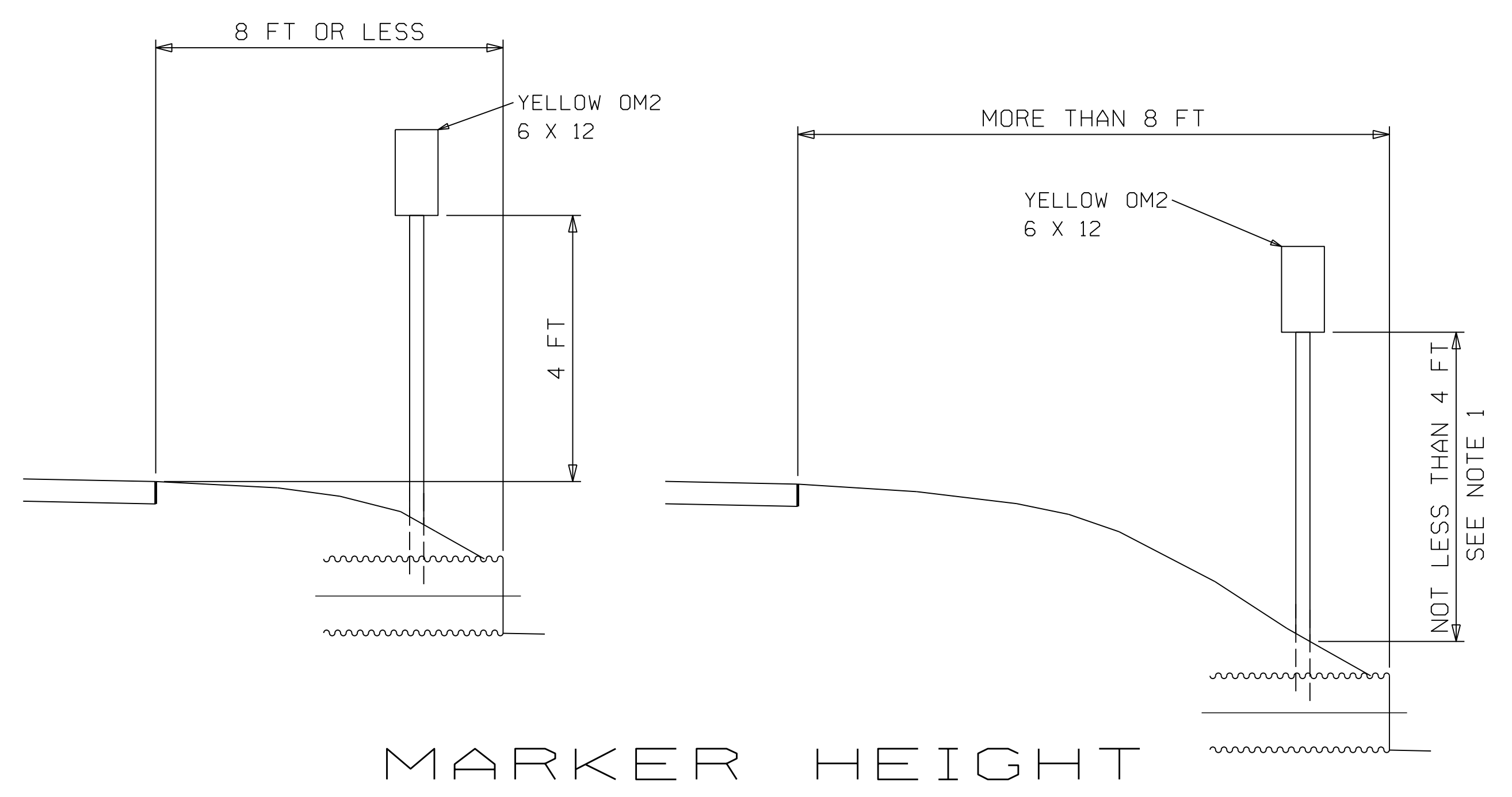
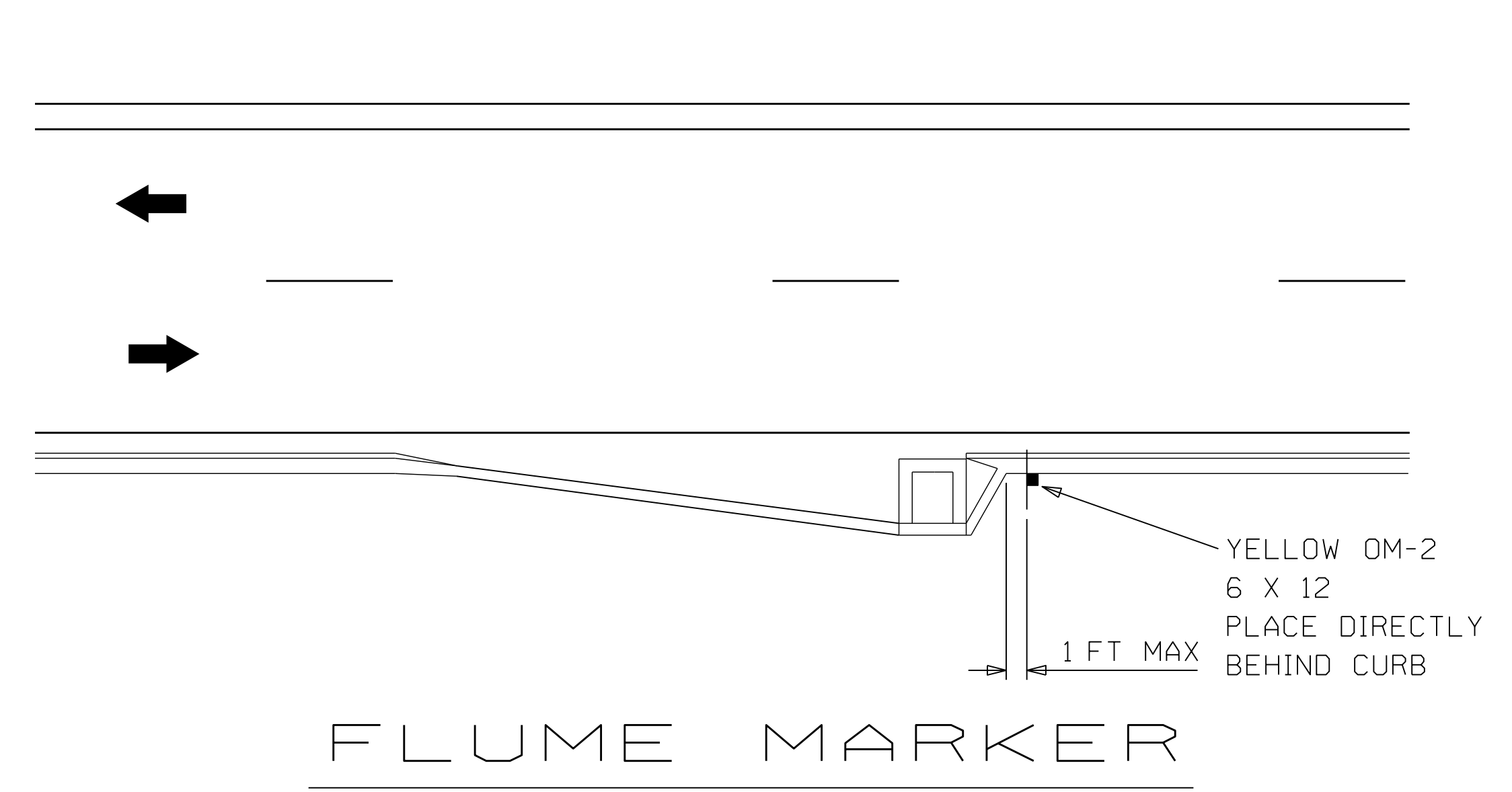
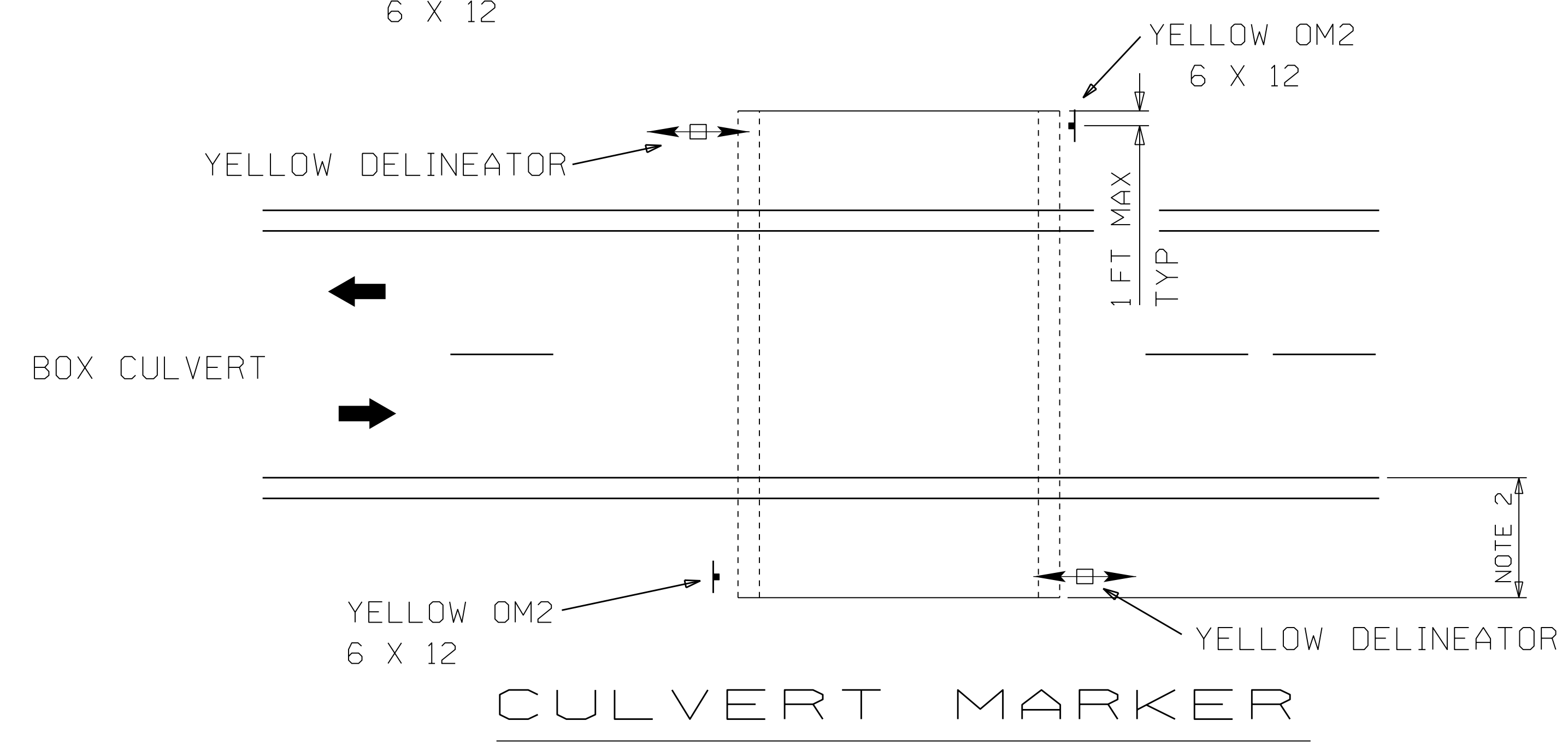
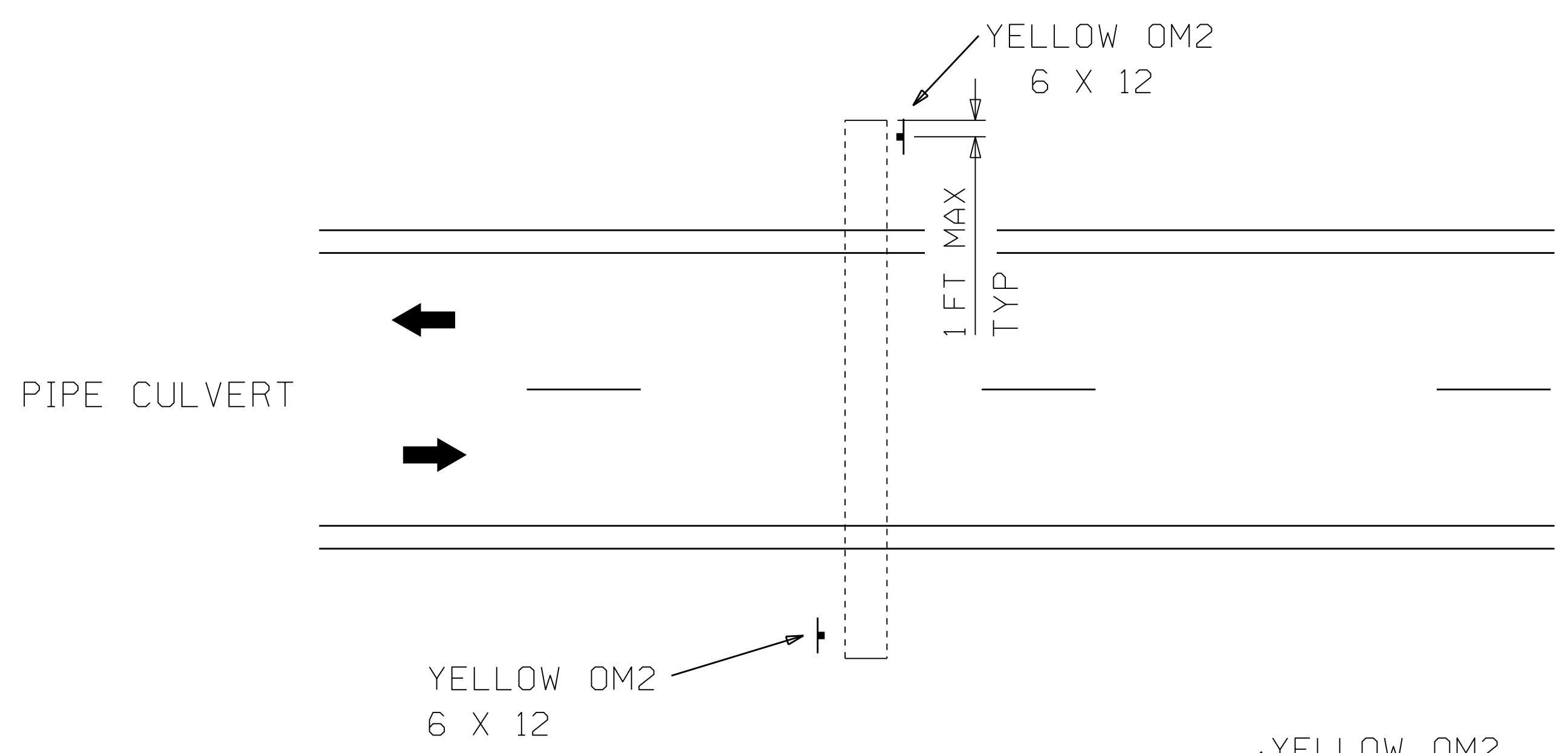
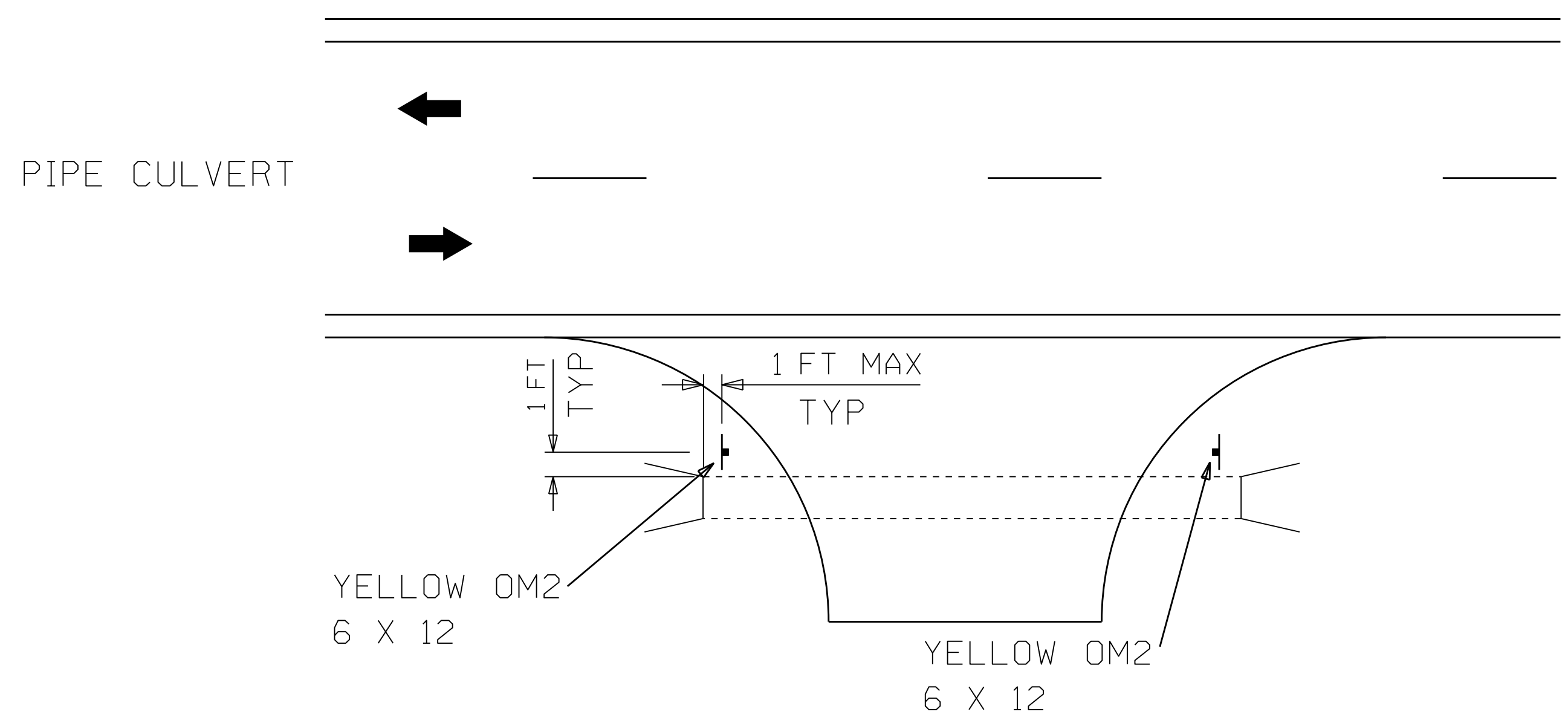


DRIVEWAY
DELINEATOR
(NO MAILBOX)

- NOTES
1. NO RED REFLECTORS OR TAPE TO BE INSTALLED.
 2. IF MAILBOX IS PRESENT ON DRIVEWAY SIDE OF ROADWAY, INSTALL 3" BLUE REFLECTIVE TAPE AROUND POST, OR 3" DIA. BUTTONS ON MAILBOX POST FACING TRAFFIC IN BOTH DIRECTIONS. DO NOT INSTALL SEPARATE DELINEATOR. IF NO MAILBOX IS PRESENT, INSTALL DUAL DIRECTION BLUE DELINEATOR AT FAR SIDE OF DRIVEWAY.
 3. FOR SITUATIONS NOT SHOWN SEE THESE RESOURCES:
 - STD PLAN 901 FOR CURVE AND FILL DELINEATION DETAILS.
 - 2009 MUTCD SECTIONS 2C.63, 2C.65, AND 3F.01 FOR OBJECT MARKERS AND DELINEATORS.
 - BRIDGE AND GUARDRAIL DELINEATION PLAN.

- LEGEND
- DELINEATOR OR OBJECT MARKER
 - ◄◻► DUAL DIRECTION
 - ◄◻ SINGLE DIRECTION
 - ┆ OM2 OBJECT MARKER

FILE: Delineate and Obviate.dgn
DATE: 16-OCT-2023 13:23
COMPUTER: BG0419M687

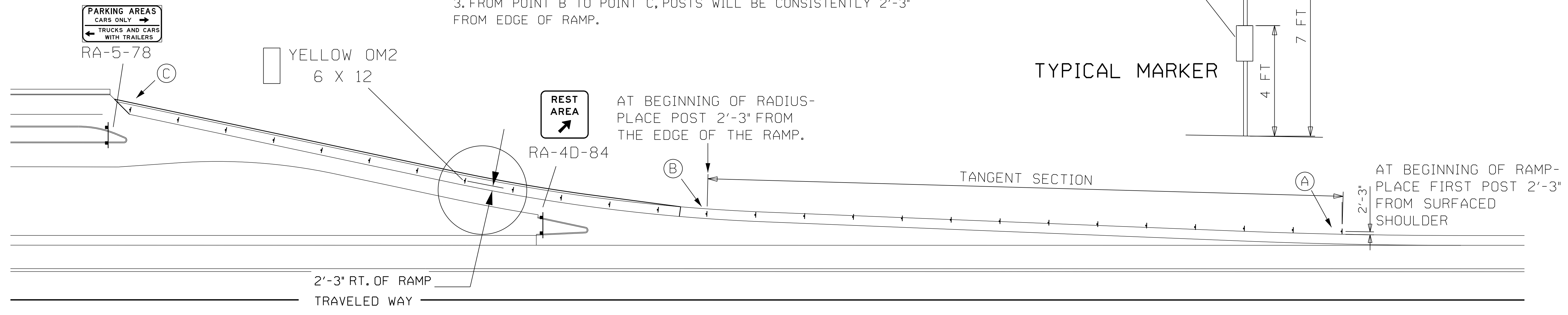
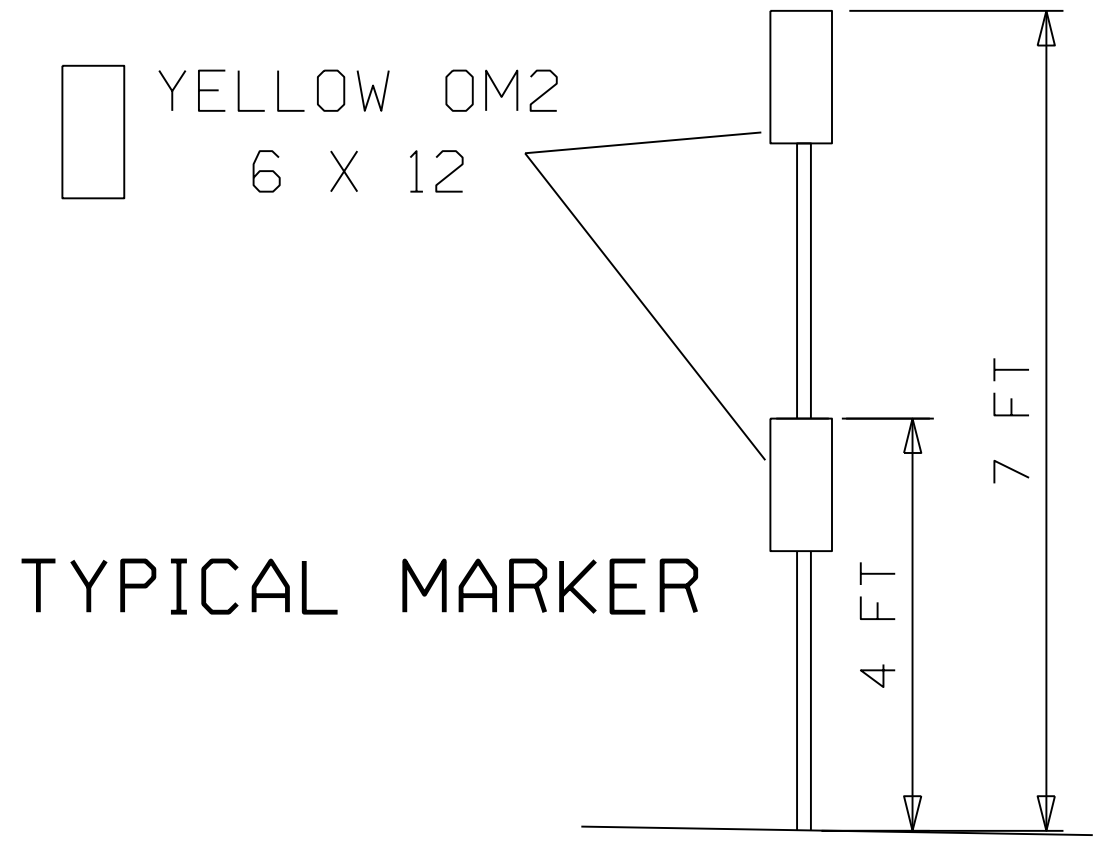


MARKER HEIGHT DEPENDS ON OBJECT
DISTANCE FROM EDGE OF ROADWAY

- NOTES
1. WHEN USED TO MARK OBSTRUCTIONS MORE THAN 8FT FROM SHOULDER OR CURB, THE CLEARANCE FROM THE GROUND TO THE BOTTOM OF THE OBJECT MARKER SHOULD BE AT LEAST 4FT.
 2. INSTALL OBJECT MARKERS WHEN END OF CULVERT IS IN THE CLEAR ZONE, AND OPTIONALLY OUT TO ROW BOUNDARY

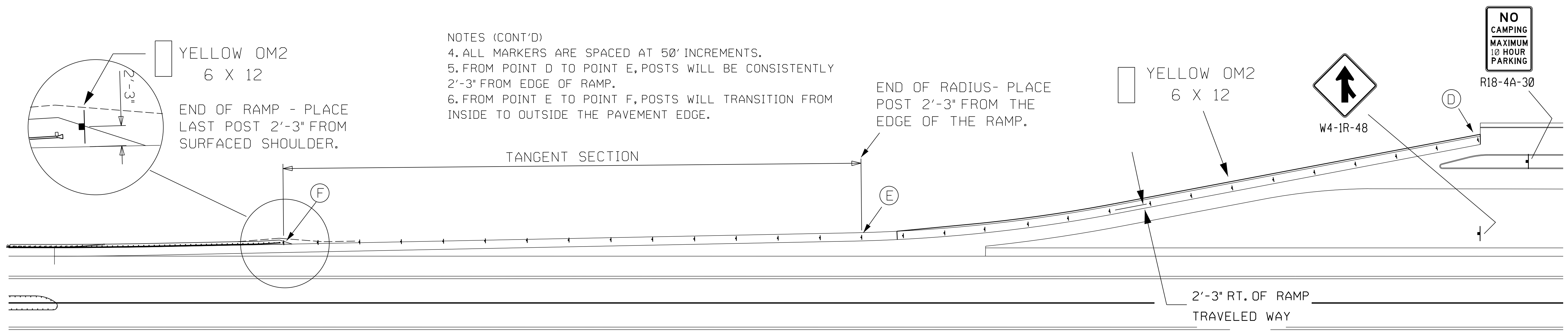
COMPUTER: BG0419M687
DATE: 16-OCT-2023 13:23
FILE: Delineate and Obviate.dgn

NOTES
1. ALL MARKERS ARE SPACED AT 50' INCREMENTS.
2. FROM POINT A TO POINT B, POSTS WILL TRANSITION FROM OUTSIDE THE PAVEMENT EDGE TO INSIDE.
3. FROM POINT B TO POINT C, POSTS WILL BE CONSISTENTLY 2'-3" FROM EDGE OF RAMP.



OFF-RAMP DELINEATION

NOTES (CONT'D)
4. ALL MARKERS ARE SPACED AT 50' INCREMENTS.
5. FROM POINT D TO POINT E, POSTS WILL BE CONSISTENTLY 2'-3" FROM EDGE OF RAMP.
6. FROM POINT E TO POINT F, POSTS WILL TRANSITION FROM INSIDE TO OUTSIDE THE PAVEMENT EDGE.

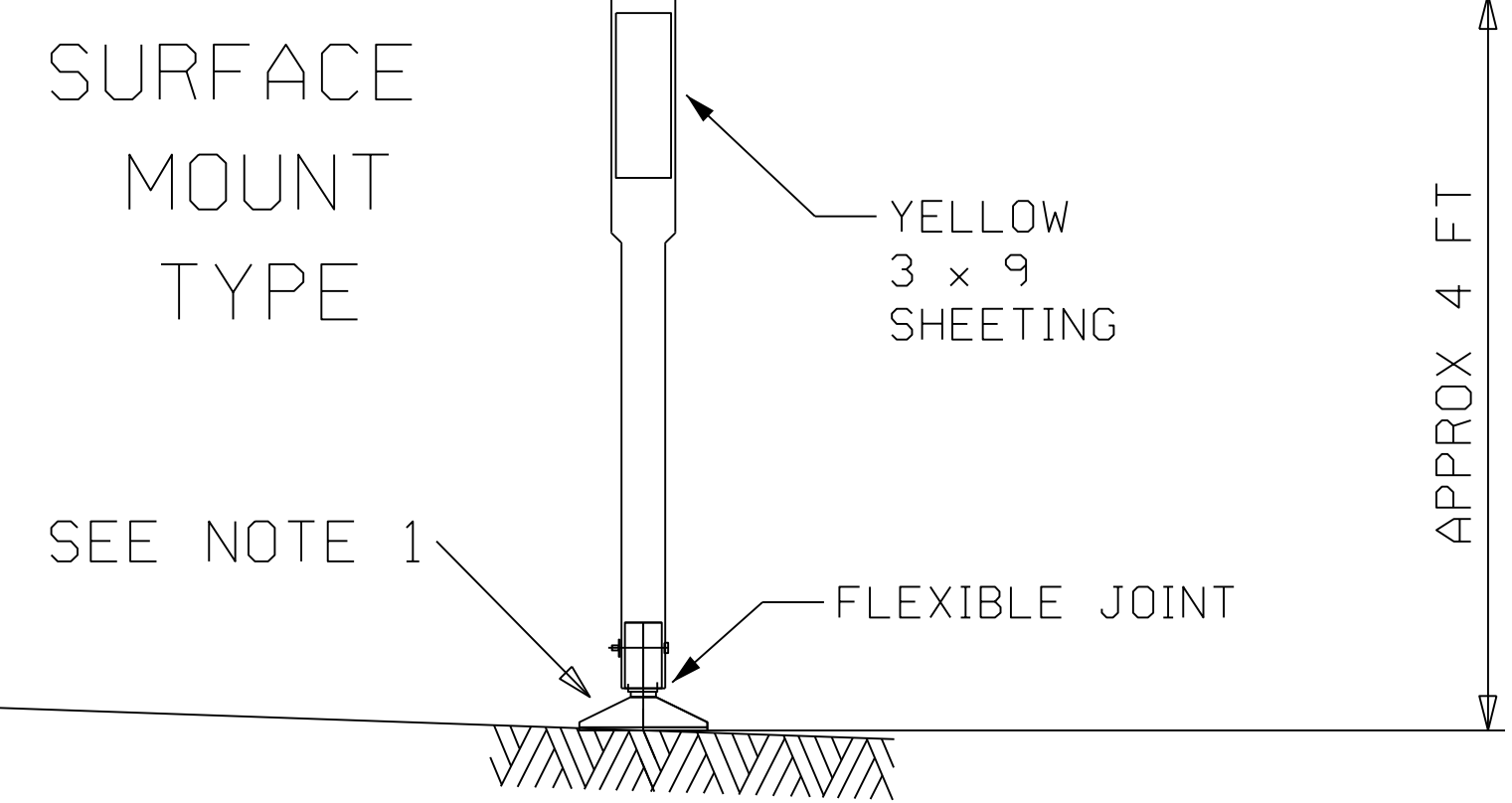
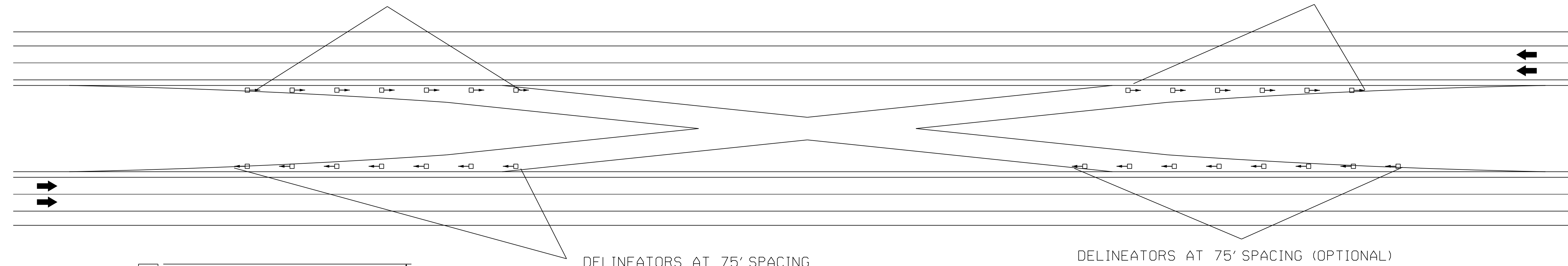


ON-RAMP DELINEATION

COMPUTER: BG0419M687
DATE: 16-OCT-2023 13:23
FILE: Delineate and Obviate.dgn

DELINEATORS AT 75' SPACING (OPTIONAL)

DELINEATORS AT 75' SPACING



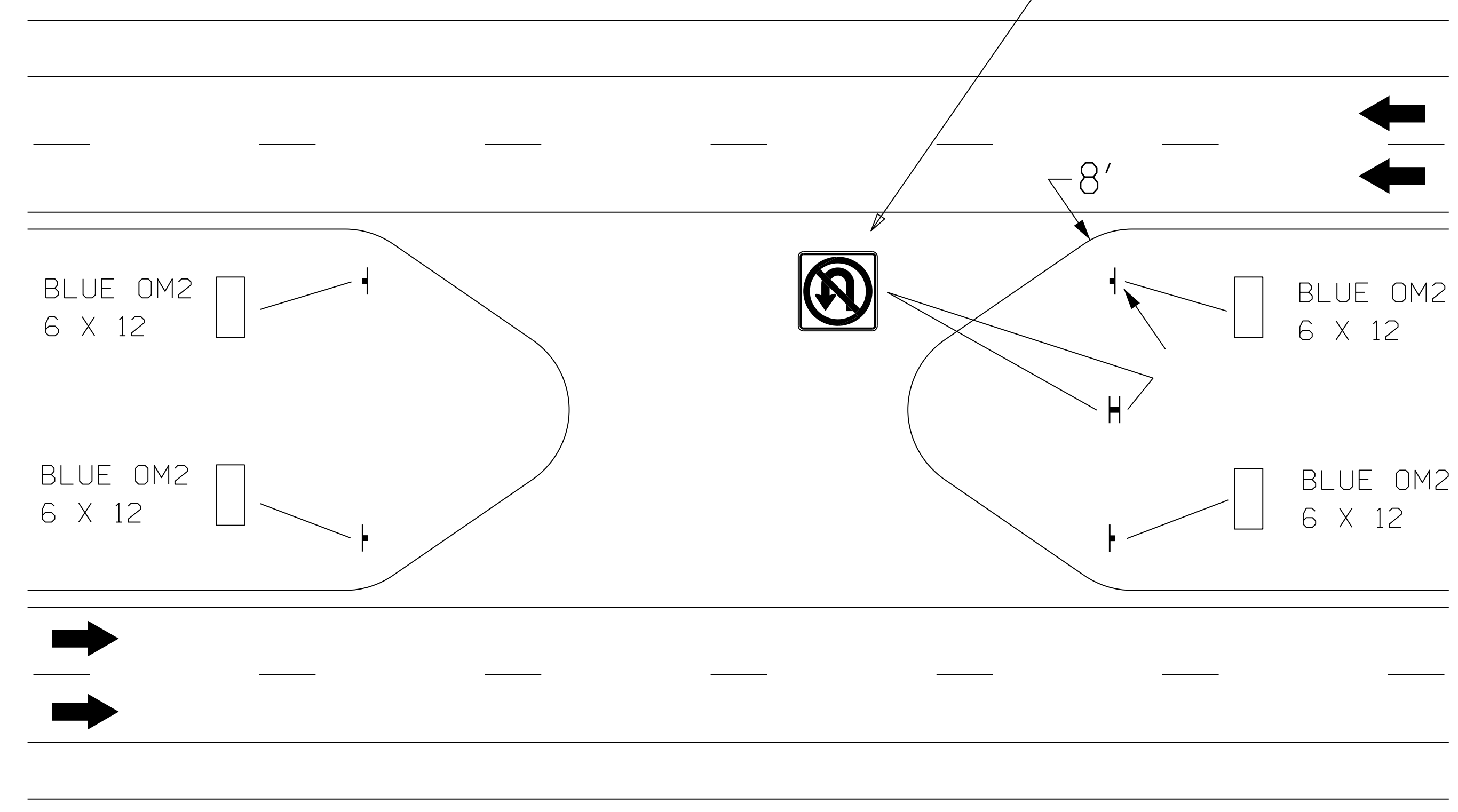
NOTES
1. USE SURFACE TYPE MOUNT. DO NOT CORE PAVEMENT OF CROSSOVER.

LEGEND

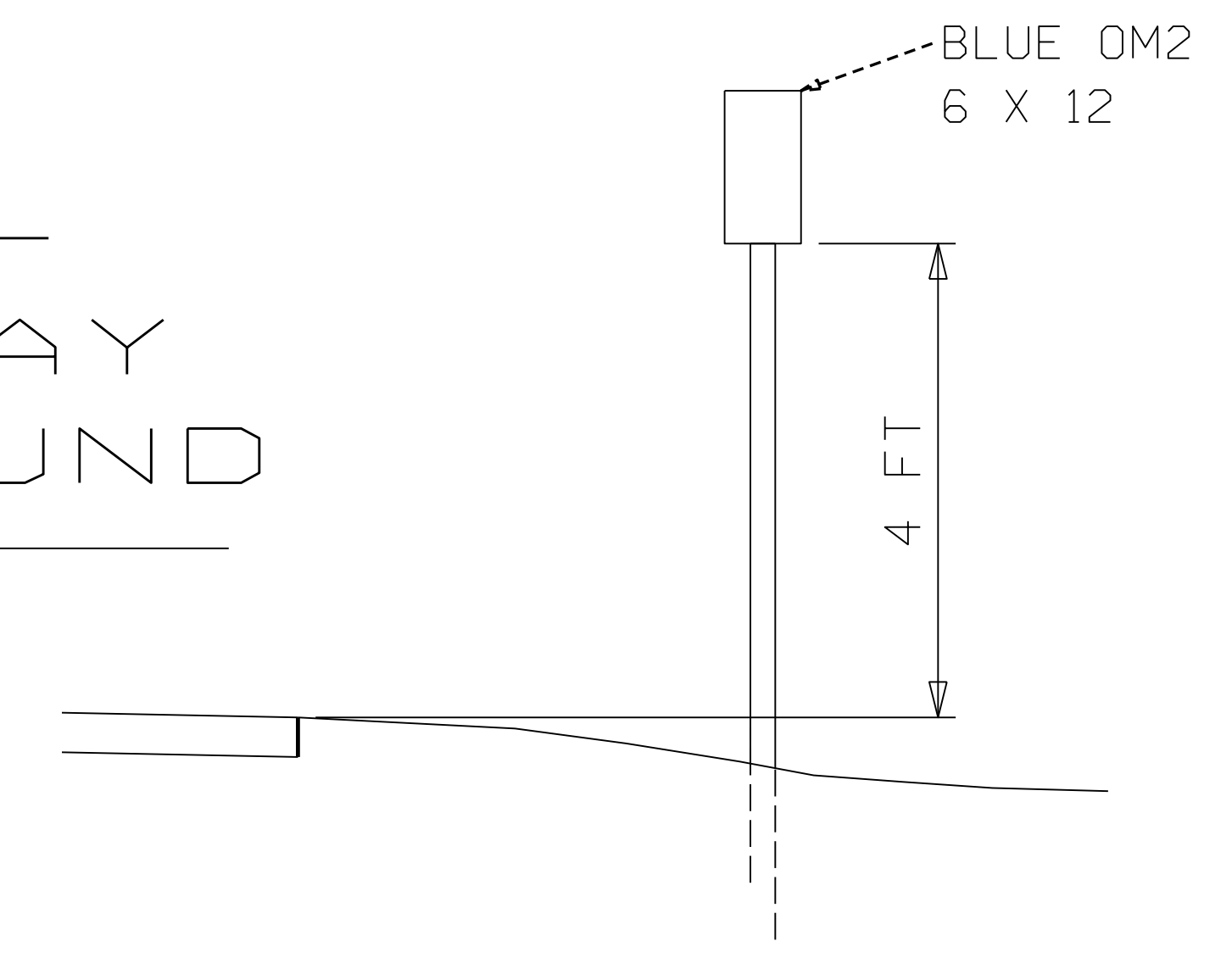
- FLEXIBLE DELINEATOR
- ➔ DIRECTION OF TRAVEL

CROSS-OVER CLOSURE DELINEATION

LOCATE THIS SIGN ON THE EAST OR NORTH SIDE OF THE TURNAROUND

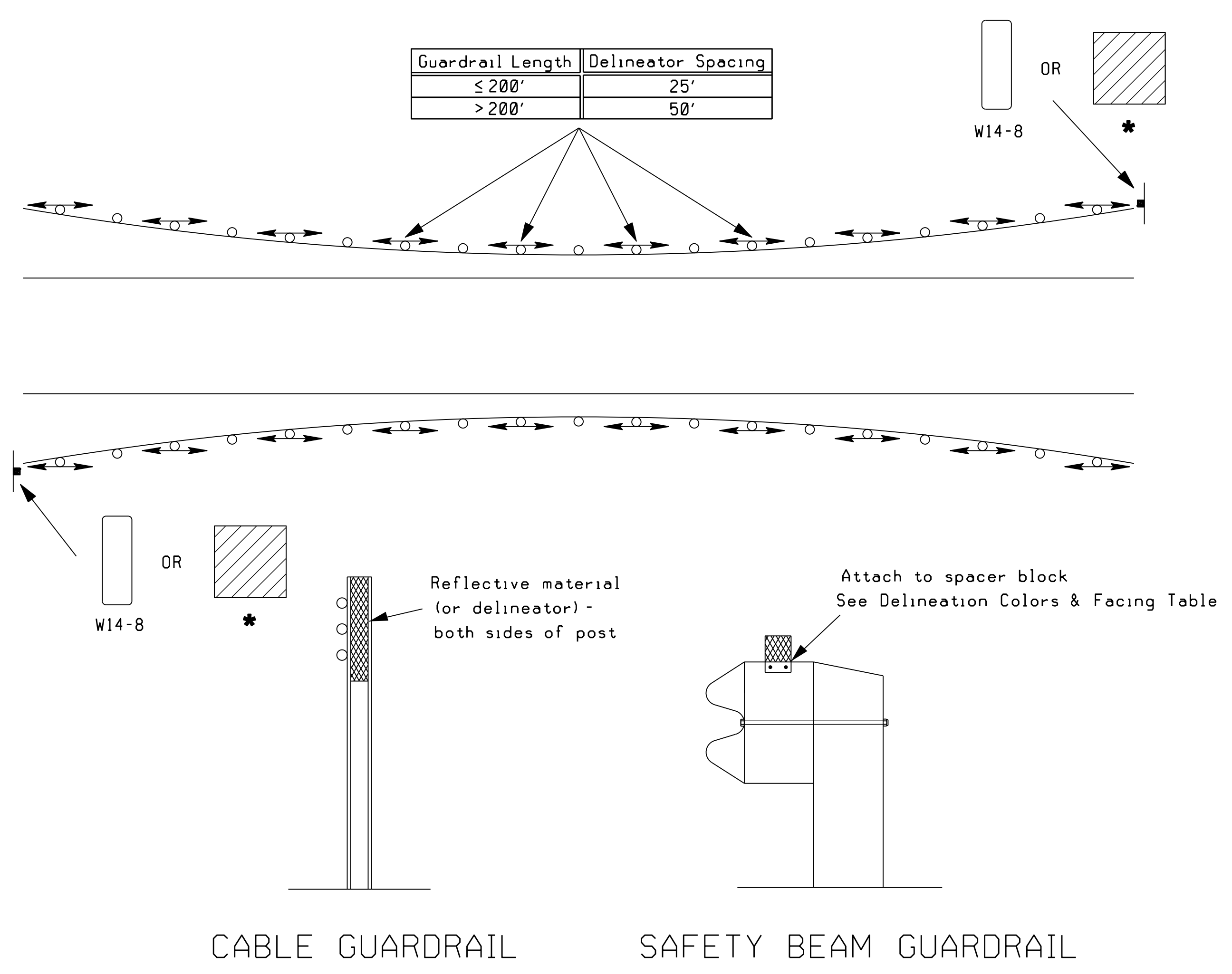


FREEWAY-EXPRESSWAY TURN-AROUND

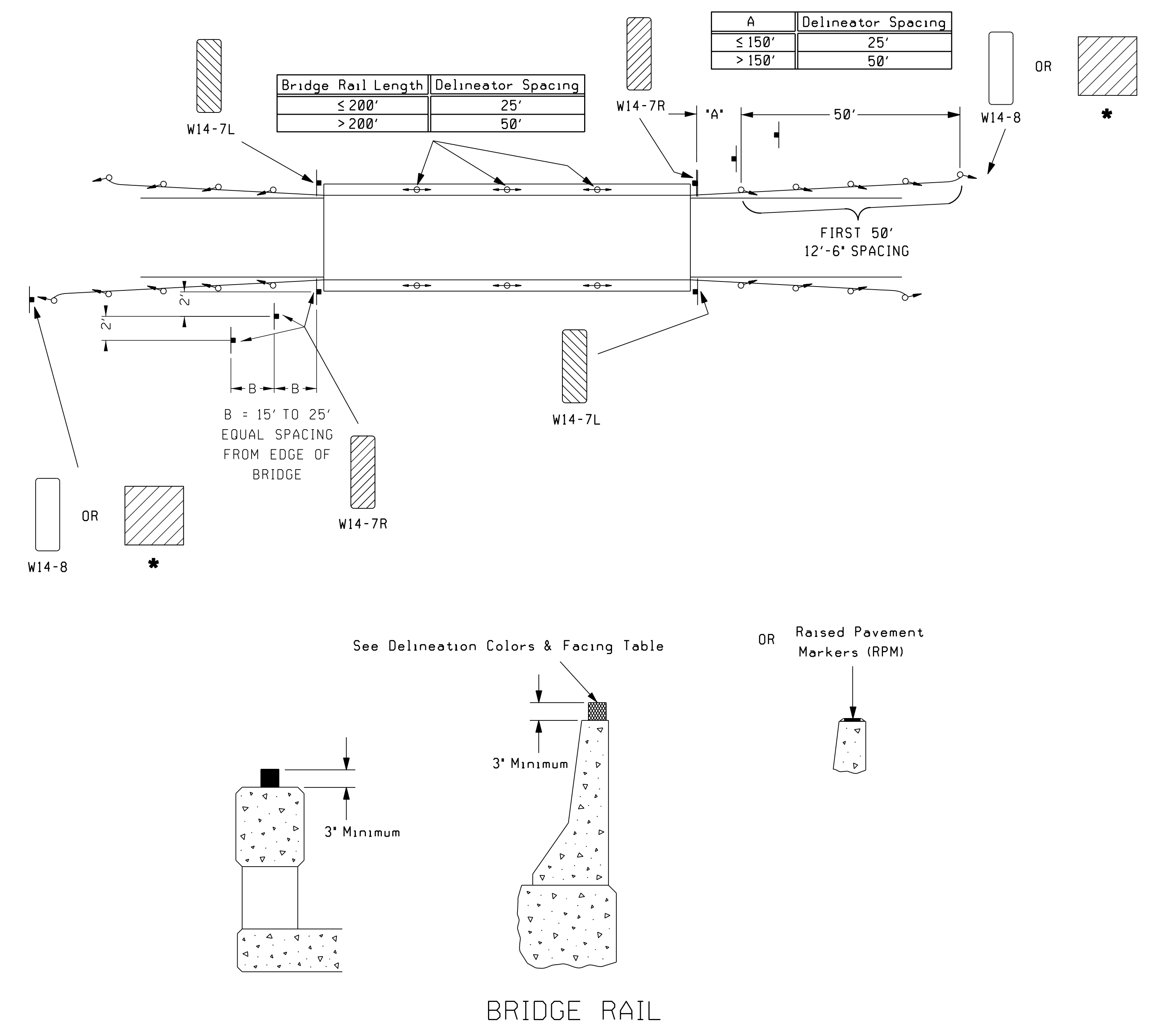


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FILE: Delineate and Obviate.dgn

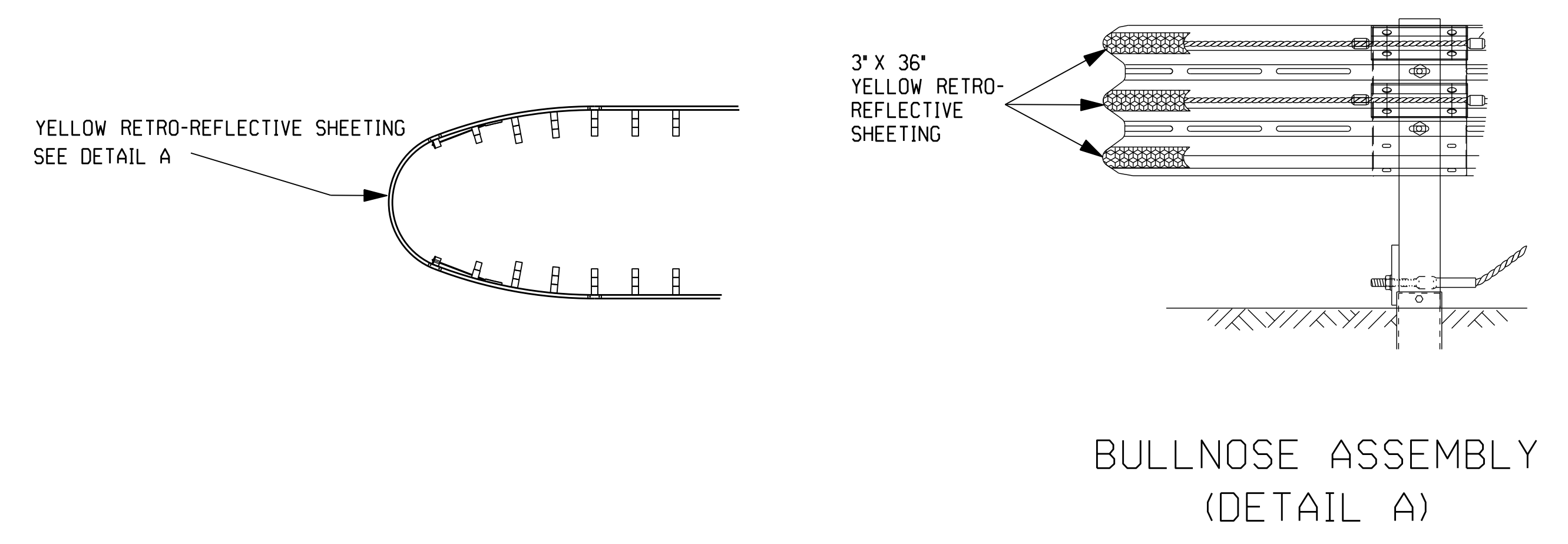
TYPICAL GUARDRAIL DELINEATION



TYPICAL BRIDGE DELINEATION



TYPICAL BULLNOSE DELINEATION



This table applies to cable guardrail, safety beam guardrails, and bridge rail.

Delineation Colors & Facing			
	Left Side	Right Side	Facing
Two-Way Roadway	Silver/White	Silver/White	Double Faced
Multi-Lane Divided Roadway	Yellow	Silver/White	Single Faced

* Reflective yellow marker installed on the end of guardrail end terminal shall have alternating black and retroreflective yellow stripes sloping downward at an angle of 45° toward the side on which traffic is to pass.

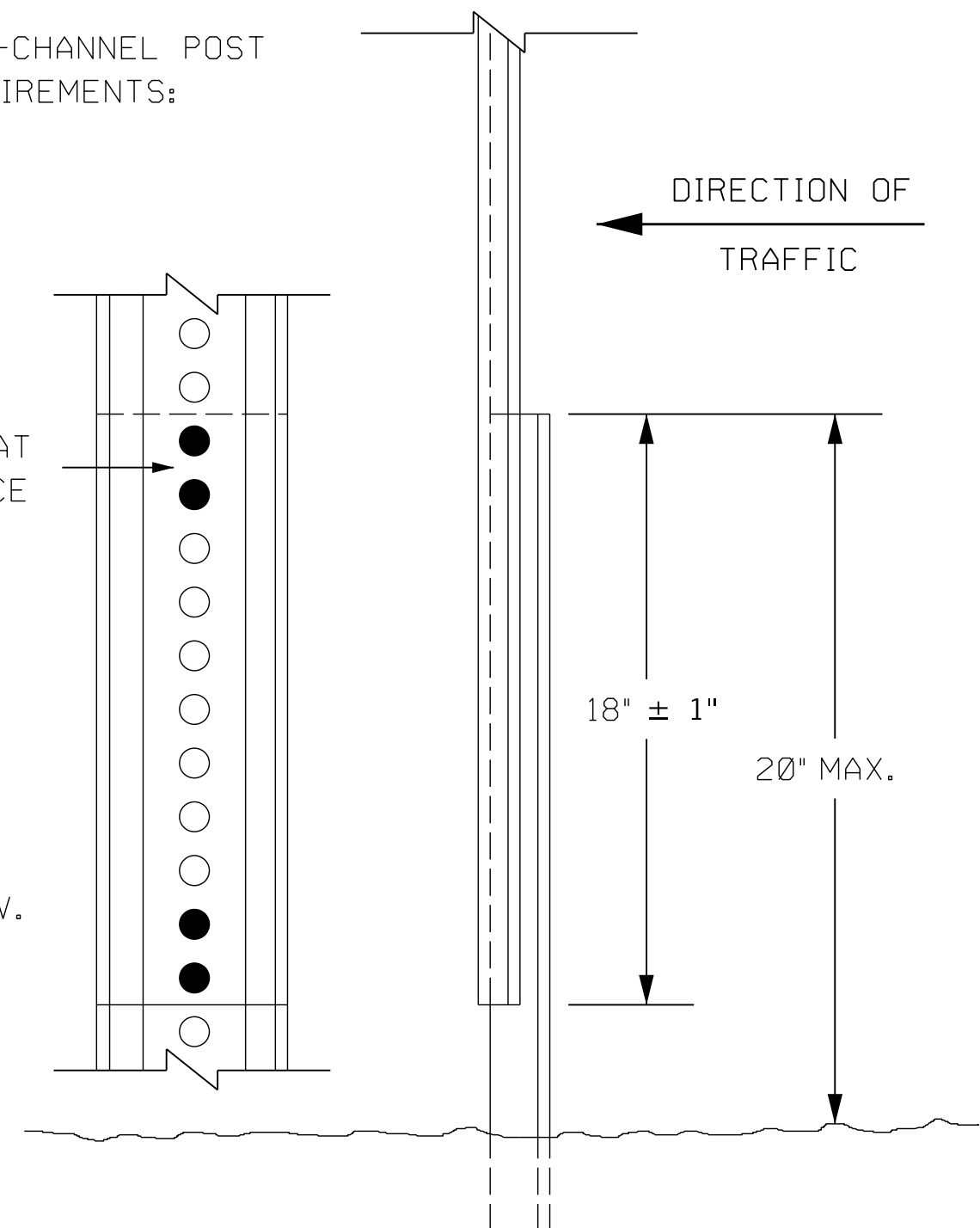
U-CHANNEL POSTS

TWO-PIECE SPLICE

DETAIL ONLY APPLIES TO A U-CHANNEL POST MEETING THE FOLLOWING REQUIREMENTS:
- RE-ROLLED RAIL STEEL
- UP TO 4 LBS. PER FOOT

TWO 5/16" BOLTS *AT EACH END OF SPLICE

*A449 GALV. OR A325 GALV.



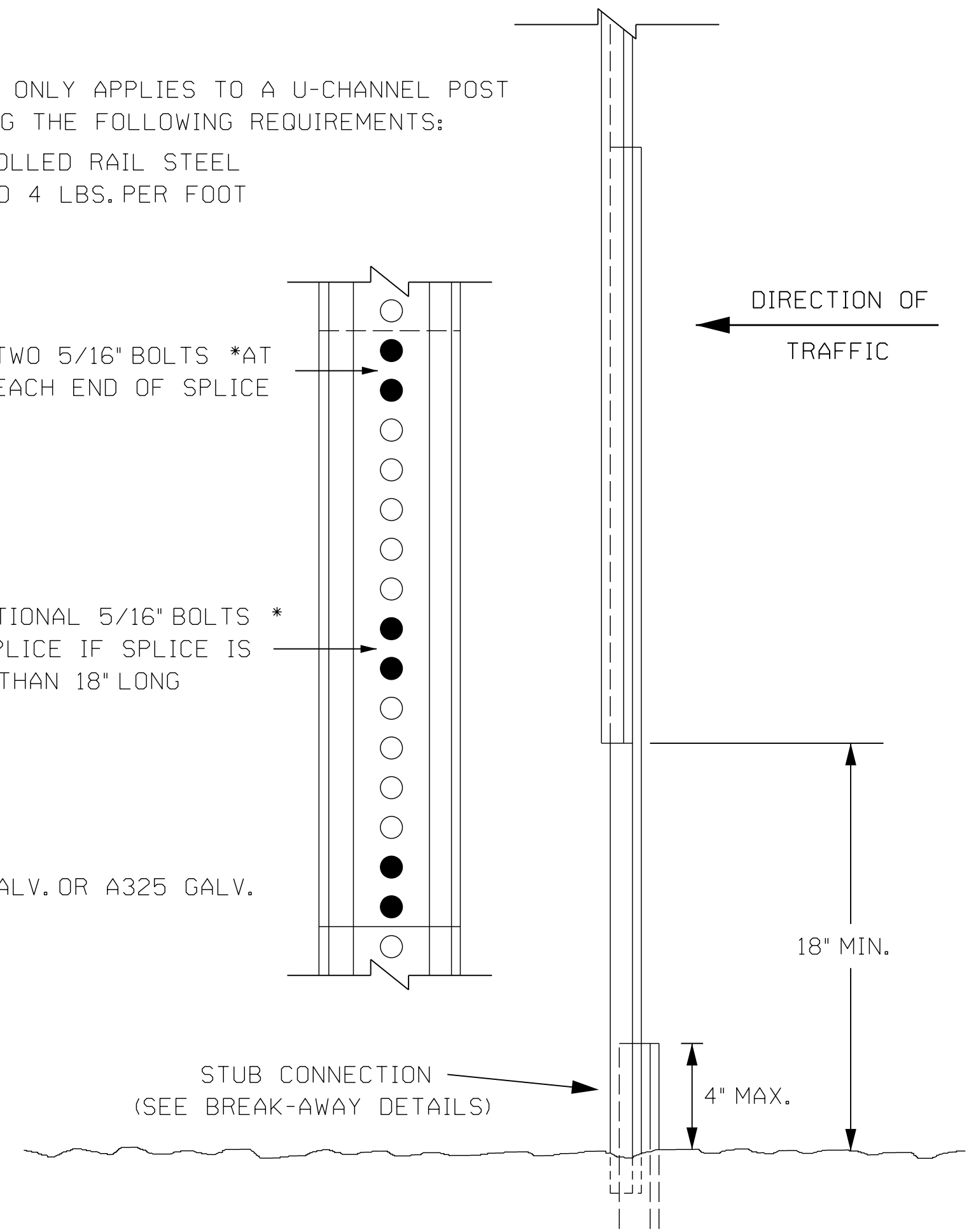
THREE-PIECE SPLICE

DETAIL ONLY APPLIES TO A U-CHANNEL POST MEETING THE FOLLOWING REQUIREMENTS:
- RE-ROLLED RAIL STEEL
- UP TO 4 LBS. PER FOOT

TWO 5/16" BOLTS *AT EACH END OF SPLICE

TWO ADDITIONAL 5/16" BOLTS * AT MID-SPLICE IF SPLICE IS GREATER THAN 18" LONG

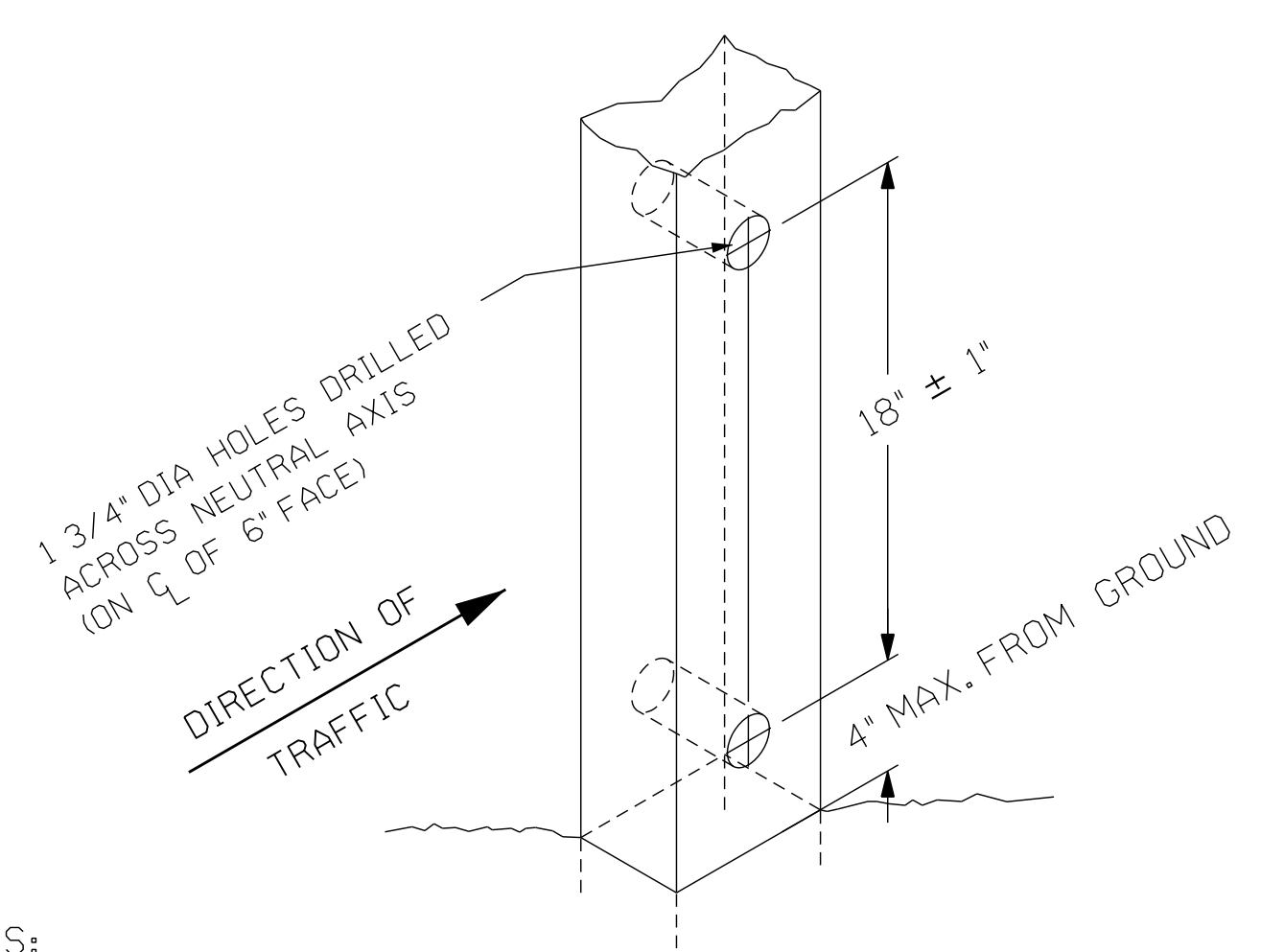
*A449 GALV. OR A325 GALV.



GENERAL NOTES

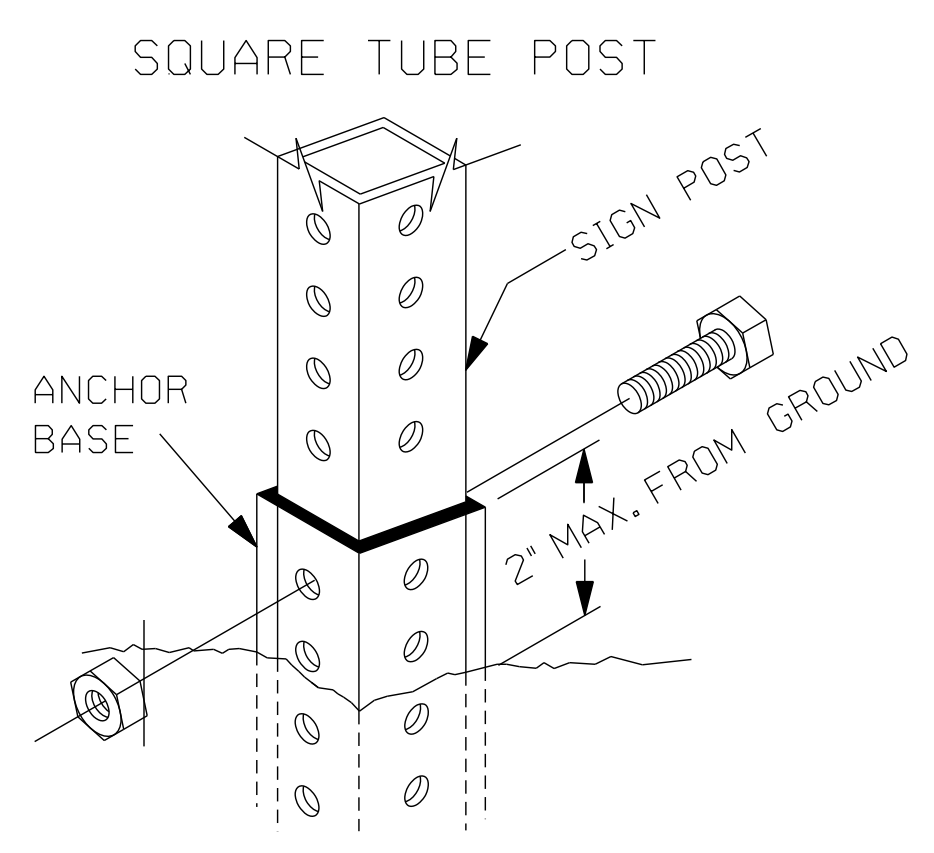
1. TRAFFIC CONTROL DEVICES SHALL BE CRASHWORTHY AND QUALIFY AS SUCH ACCORDING TO THE TESTING AND ACCEPTANCE GUIDELINES OF THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
 2. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A COPY OF THE FHWA ACCEPTANCE LETTER FOR ALL NCHRP 350 OR MASH (TL-3) CATEGORY 3 DEVICES WHEN SUPPLIED BY THE CONTRACTOR.
 3. FIXED BREAKAWAY SIGN SUPPORTS FOR WORK ZONES SHALL BE TESTED UNDER THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, AND ACCEPTED BY THE FHWA.
 4. STUB STEEL POSTS USED FOR ERECTING SIGNS SHALL NOT BE INSTALLED PRIOR TO THE PLACEMENT OF THE SIGNS OR BE LEFT IN PLACE WHEN SIGNS ARE REMOVED UNLESS THEY ARE IMMEDIATELY AND CLEARLY IDENTIFIED. STUB STEEL POSTS MAY BE IDENTIFIED BY A 42 INCH REFLECTIVE CONE, 36 INCH (MINIMUM) DELINEATOR POST WITH BUTTON REFLECTOR, OR OTHER WARNING DEVICE ACCEPTABLE TO THE ENGINEER. NO PAYMENT WILL BE MADE FOR THE ITEMS USED TO IDENTIFY THE STUB STEEL POSTS.
- FHWA WORK ZONE ACCEPTANCE LETTERS ARE AVAILABLE AT:
http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/

BREAK-AWAY TYPE WOOD POST DETAILS

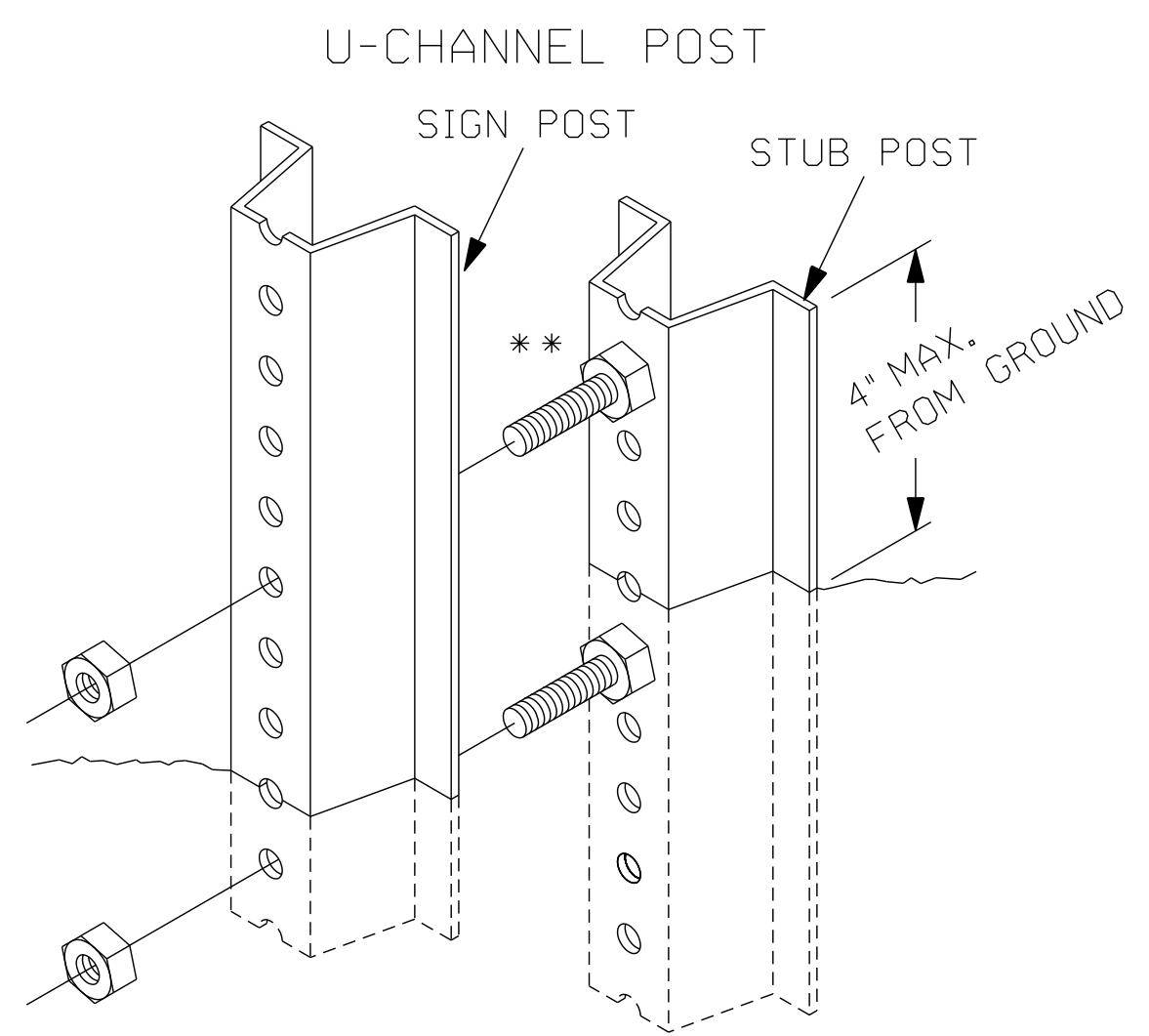


- NOTES:
- (1) 6" x 4" Posts shall be drilled for Break-Away.
 - (2) 4" x 4" Posts do not need to be drilled for Break-Away.
 - (3) Minimum Depth of Posts Shall be 36".
 - (4) Ground to Be Firmly Tamped.

BREAK-AWAY TYPE STEEL POST DETAILS

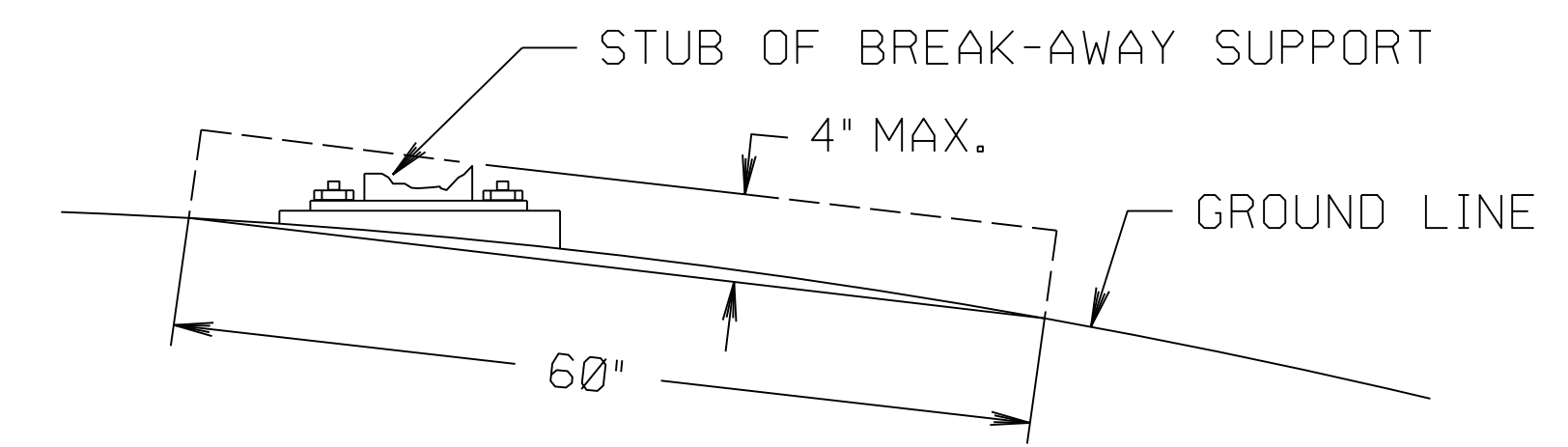


- NOTES:
1. BREAK-AWAY DEVICE SHALL BE FEDERALLY APPROVED.
 2. POST DEPTH IS MINIMUM 36".



- NOTES:
1. POSTS SHALL BE OVERLAPPED 6"-8" FOR STUB CONNECTION.
 2. BOLTS SHALL HAVE A 4" TO 6" SPACING.

BREAK-AWAY SUPPORT STUB HEIGHT STEEL H-POST



Post Size (# / ft)	Spacer Length (inches)
2	3/8
2 1/2	5/16
2 3/4	1/4
3	5/8
4	1/2

** SPACERS ARE REQUIRED FOR THE BREAK-AWAY LAP SPLICE.

COMPUTER: BG0419M687

DATE: 11-SEP-2023 13:02

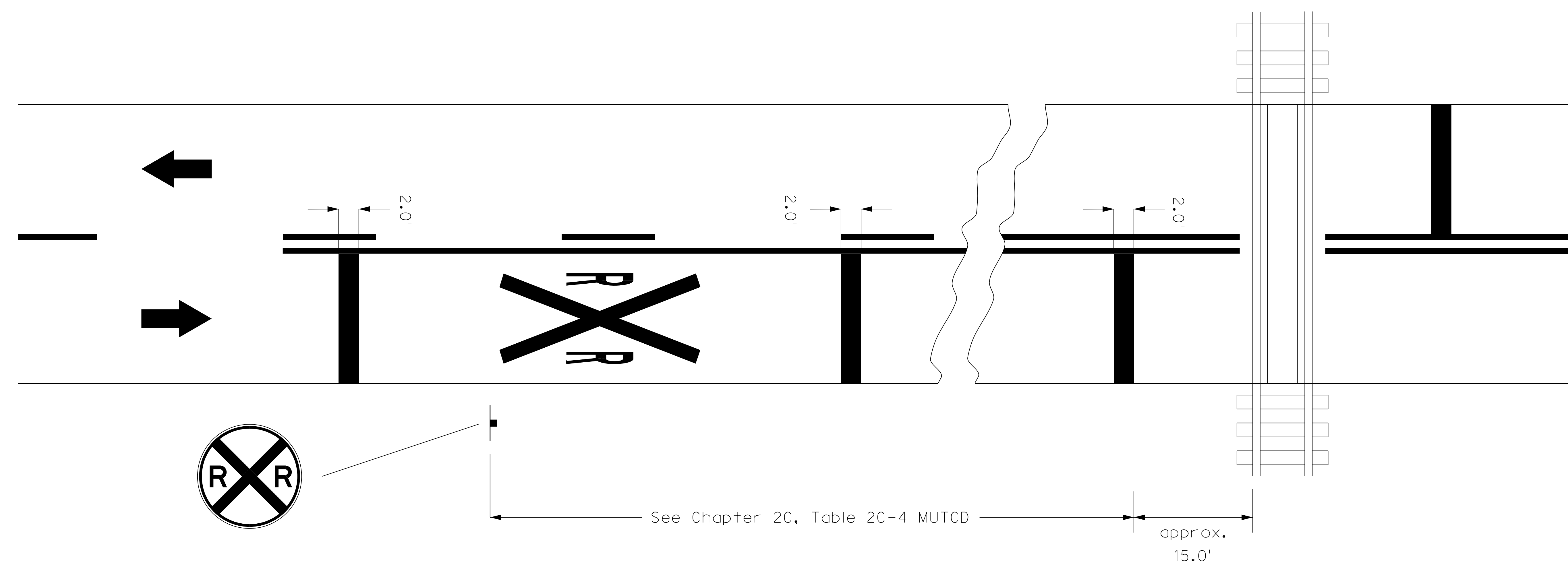
FILE: Fixed Sign Supports.dgn

TYPICAL SIGN INSTALLATION
FIXED SIGN SUPPORTS

DATE 08/23

DESIGNED BY AJM

NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

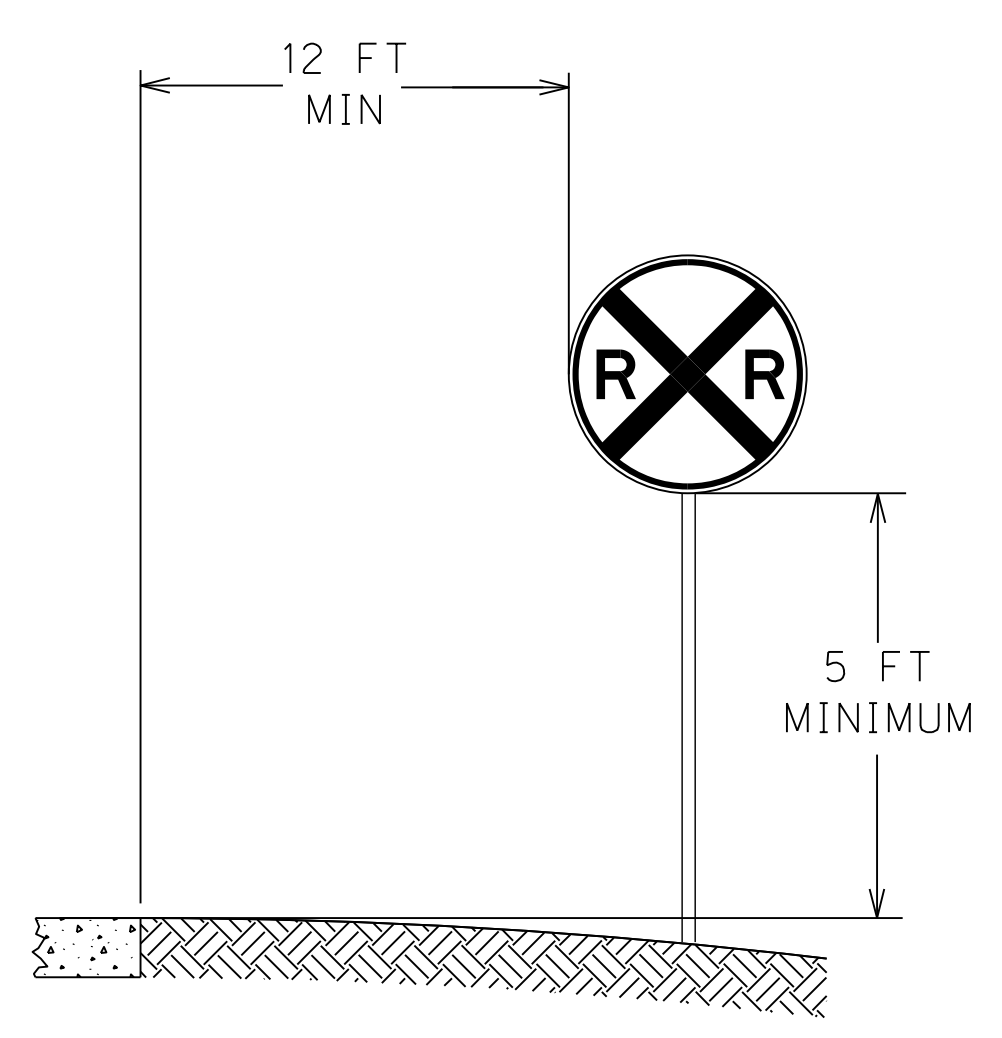


See Chapter 2C, Table 2C-4 MUTCD

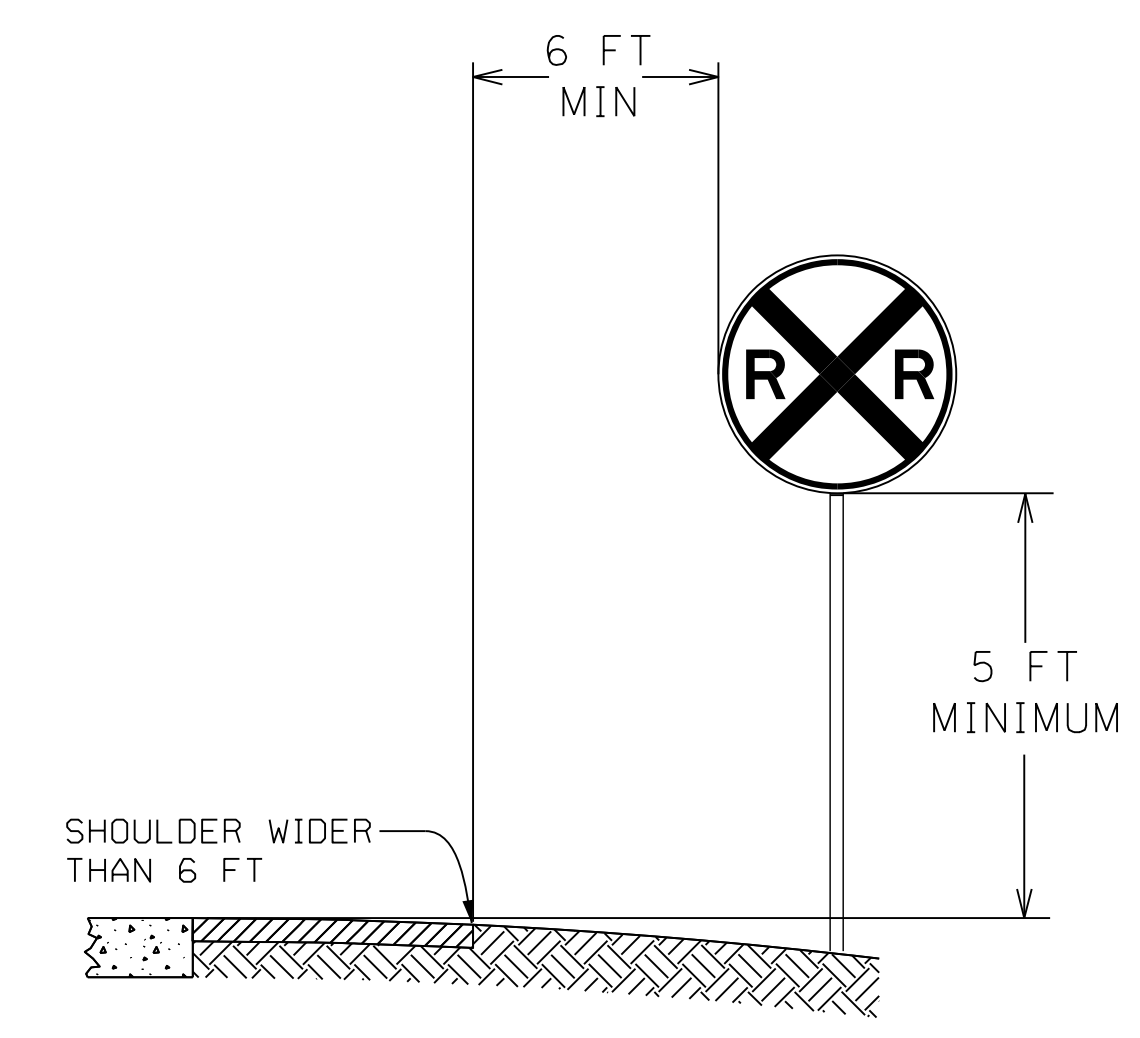
approx.
15.0'

TABLE 2C-4

POSTED SPEED	ADVANCE PLACEMENT DISTANCE
20 MPH	100 FEET
25 MPH	100 FEET
30 MPH	100 FEET
35 MPH	100 FEET
40 MPH	125 FEET
45 MPH	175 FEET
50 MPH	250 FEET
55 MPH	325 FEET
60 MPH	400 FEET

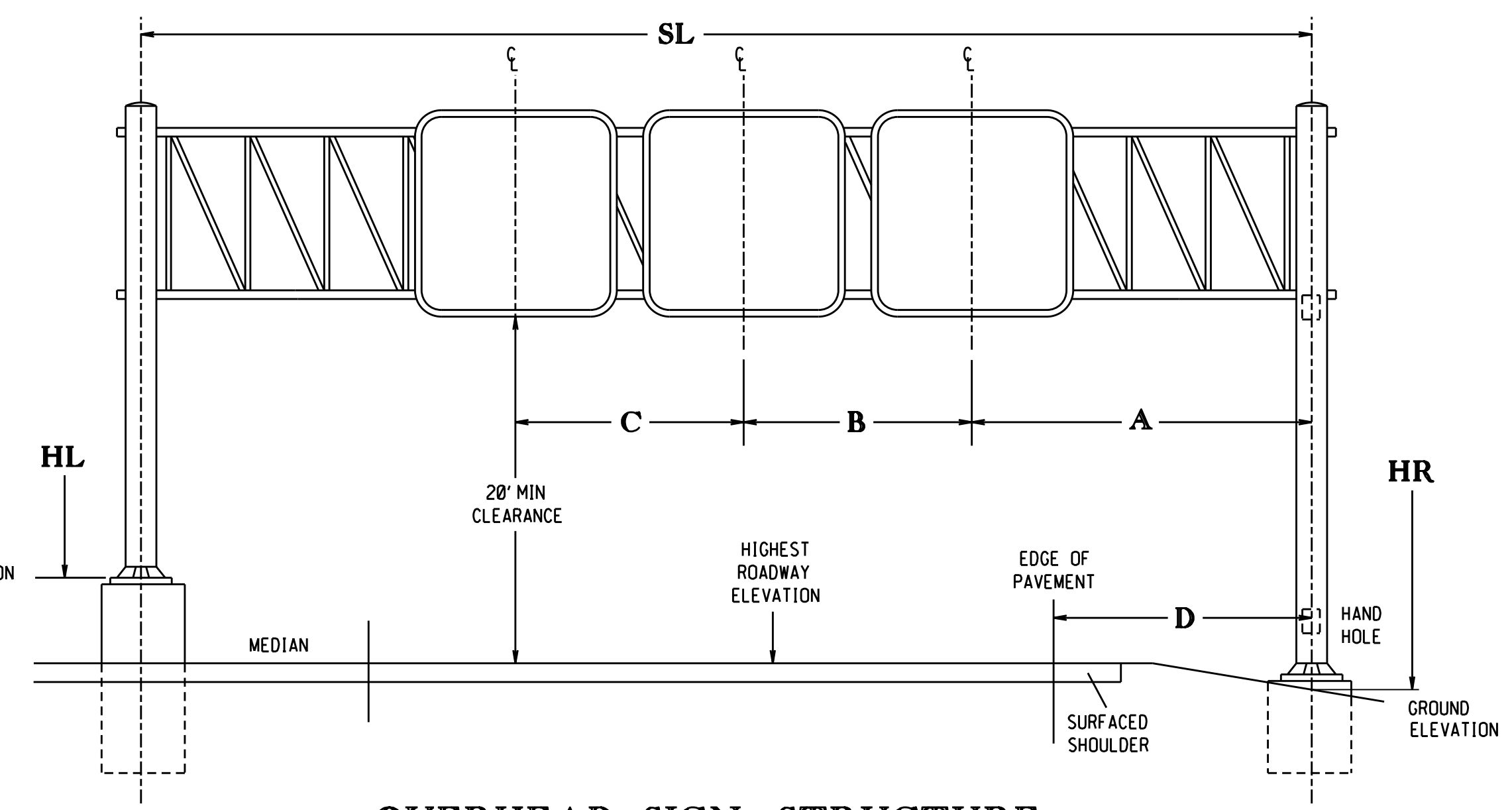


RURAL AREA
EARTHEN SHOULDER



RURAL AREA
PAVED SHOULDER
WIDER THAN 6'

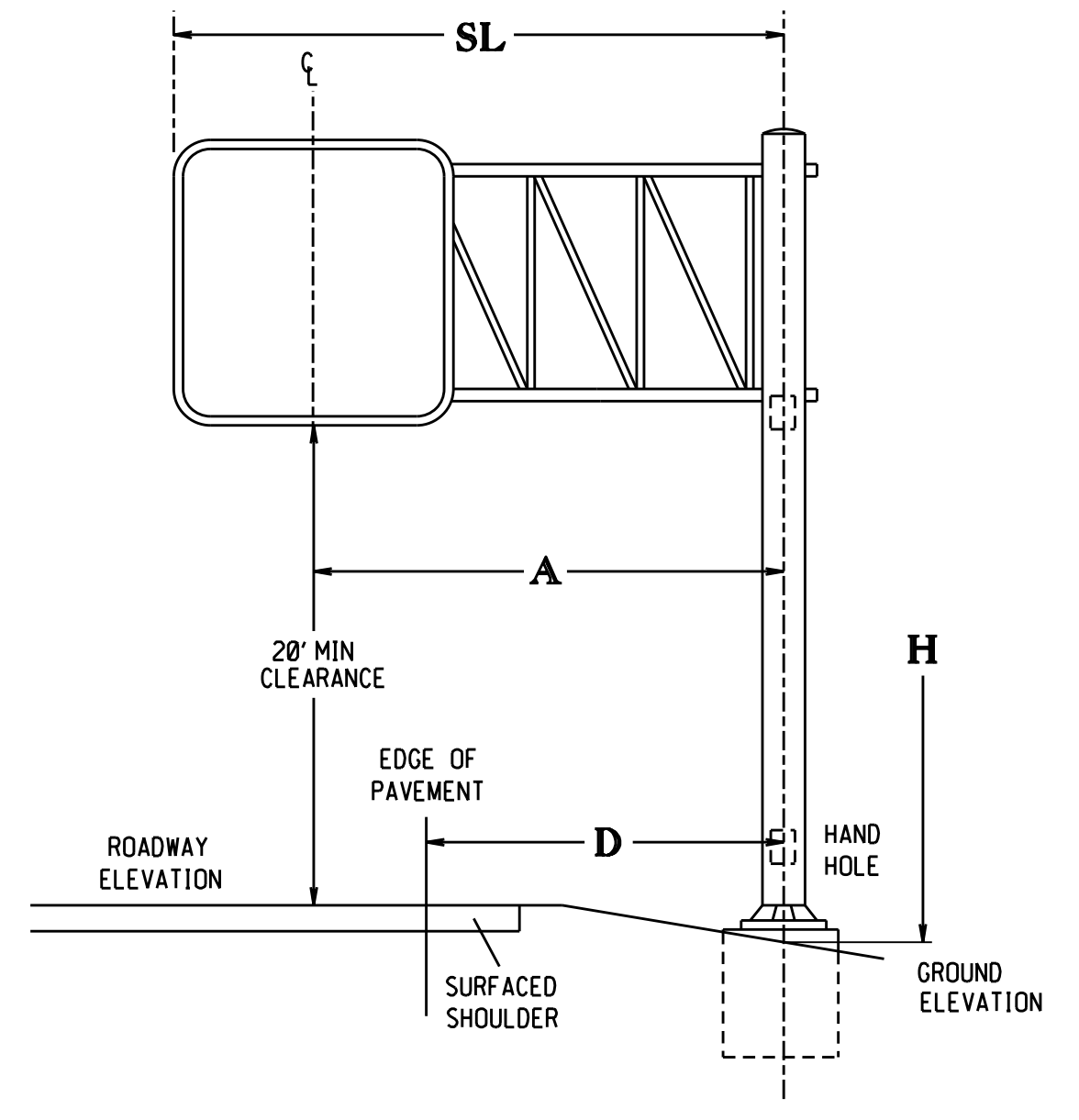
NOTES: PAVEMENT MARKINGS SHOWN FOR INFORMATION ONLY.
 ROAD SURFACE MAY BE PAVED OR GRAVEL.



OVERHEAD SIGN STRUCTURE

LOC. NO.	STATION NO.	SIGN SIZE	SL	A	B	C	D	ELEVATIONS			REMARKS	
								HL	HR	ROADWAY		
#	#####	#'-#" x #'-#"	#	#	#	#	#	#	#	#	#	

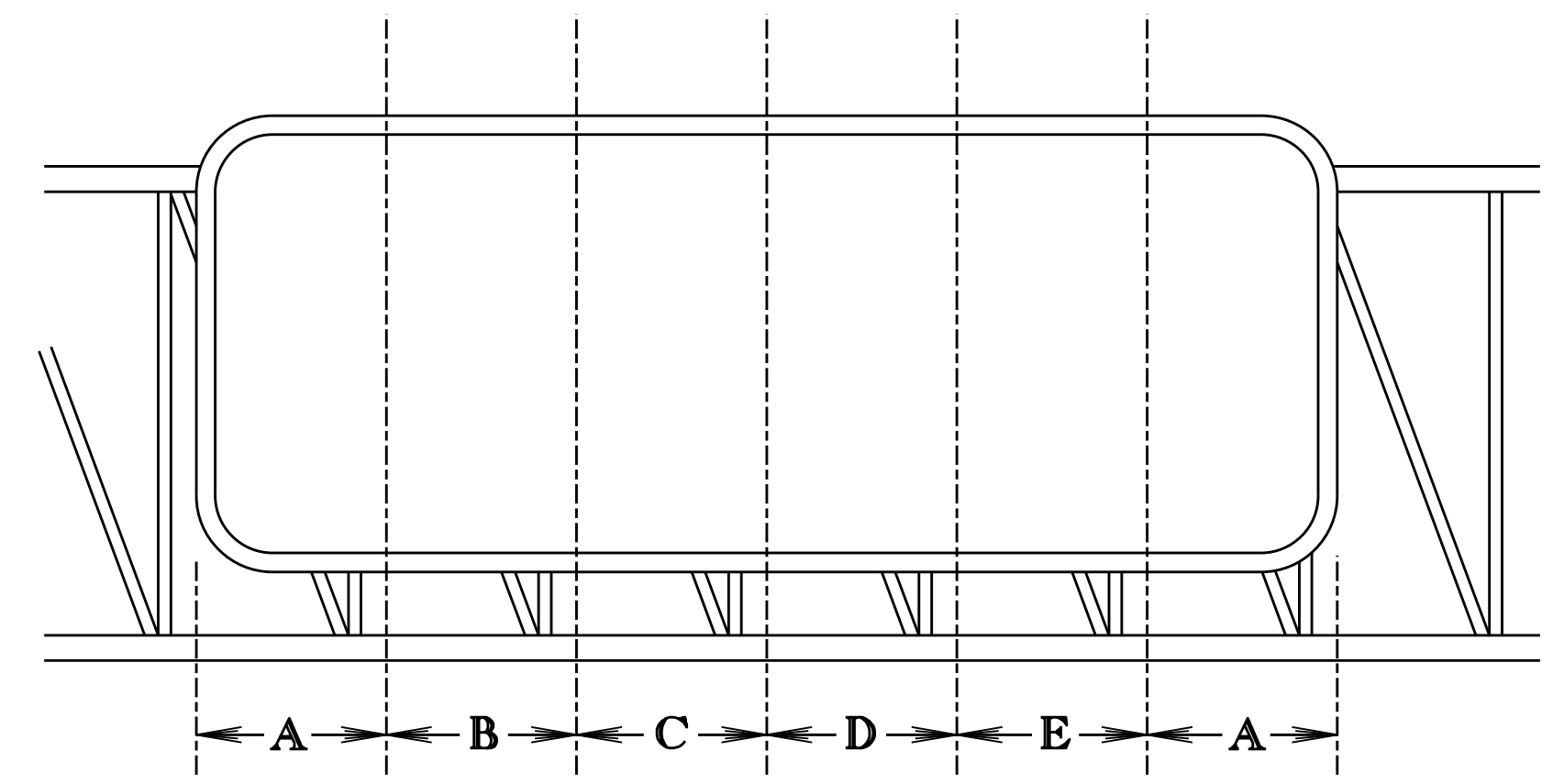
THE DESIGN AREAS USED FOR CALCULATIONS SHALL BE THE SIGN AREAS PLUS 30 PERCENT.
* ALL MEASUREMENTS SHALL BE VERIFIED BY THE CONTRACTOR.



OVERHEAD CANTILEVER STRUCTURES

LOC. NO.	STATION NO.	SIGN SIZE	SL	A	D	H	ELEVATIONS		REMARKS
							ROADWAY		
#	#####	#'-#" x #'-#"	#	#	#	#	#	#	

THE DESIGN AREAS USED FOR CALCULATIONS SHALL BE THE SIGN AREAS PLUS 30 PERCENT.
* ALL MEASUREMENTS SHALL BE VERIFIED BY THE CONTRACTOR.



OVERHEAD SIGN VERTICAL SUPPORT SPACING

LOC. NO.	SIGN NO.	SUPPORTS REQUIRED	SIGN HEIGHT	VERTICAL SUPPORT SPACING (IN INCHES)			
				A	B	C	D
#	#	#	#'-#"	#	#	#	#

● SIGN SUPPORTS SHALL BE CUT-OFF FLUSH WITH THE TOP OF THE SIGN.
▲ ADDITIONAL SIGN SUPPORTS SHALL BE ADDED TO MATCH PLANS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS.

SIGN WIDTH (FT)	NO. VERTICAL SUPPORTS REQUIRED	(INCHES)					
		A	B	C	D	E	F
6'-0"	2	9	54				
6'-6"	2	12	54				
7'-0"	2	12	60				
7'-6"	2	18	60				
8'-0"	3	6	42	42			
8'-6"	3	9	42	42			
9'-0"	3	12	42	42			
9'-6"	3	12	45	45			
10'-0"	3	12	48	48			
10'-6"	3	12	51	51			
11'-0"	3	12	54	54			
11'-6"	3	12	57	57			
12'-0"	3	18	54	54			
12'-6"	3	18	57	57			
13'-0"	3	18	60	60			
13'-6"	4	12	46	46	46		
14'-0"	4	12	48	48	48		
14'-6"	4	12	50	50	50		
15'-0"	4	18	48	48	48		
15'-6"	4	18	50	50	50		
16'-0"	4	18	52	52	52		
16'-6"	4	18	54	54	54		
17'-0"	4	18	56	56	56		
17'-6"	4	18	58	58	58		
18'-0"	4	18	60	60	60		
18'-6"	5	15	48	48	48	48	
19'-0"	5	18	48	48	48	48	
19'-6"	5	17	50	50	50	50	
20'-0"	5	18	51	51	51	51	
20'-6"	5	15	54	54	54	54	
21'-0"	5	18	54	54	54	54	
21'-6"	5	15	57	57	57	57	
22'-0"	5	18	57	57	57	57	
22'-6"	5	17	59	59	59	59	

FIELD INSTALLATION OF SIGN STRUCTURES:

THE ENGINEER OR HIS DESIGNATED REPRESENTATIVE SHALL BE PRESENT AT ALL TIMES DURING TOWER AND STRUCTURE INSTALLATION. THE CONTRACTOR SHALL NOTIFY THE PHYSICAL TESTS SECTION OF THE MATERIALS AND RESEARCH DIVISION (402-479-4746) AND/OR THE TRAFFIC ENGINEERING DIVISION (402-479-4594) TO ARRANGE FOR INSPECTION NO LESS THAN 3 DAYS PRIOR TO POLE INSTALLATION. MEMBERS OF THE PHYSICAL TESTS SECTION WILL VISIT THE PROJECT SITE TO OBSERVE THE CONTRACTOR'S METHODOLOGY OF ANCHOR BOLT INSTALLATION AND ANCHOR BOLT TENSIONING AND WILL RANDOMLY TEST NUTS FOR PROPER TIGHTNESS. NO POLES OR STRUCTURES INSTALLED WITHOUT PROPER INSPECTION WILL BE ACCEPTED BY THE STATE FOR FINAL PAYMENT.

ANCHOR BOLTS, NUTS & WASHERS

THE STRUCTURE MANUFACTURER SHALL DESIGN AND FURNISH THE ANCHOR BOLTS IN ACCORDANCE WITH AASHTO M314 GRADE 55 AND DESIGNED FOR FATIGUE. THE CONTRACTOR SHALL FURNISH AN EXTRA BOLT SAMPLE (INCLUDING NUTS AND WASHERS) FROM EACH HEAT OF STEEL USED ON THE PROJECT (OR MULTIPLE PROJECTS) TO THE MATERIALS AND RESEARCH DIVISION FOR DESTRUCTIVE TESTING. THREADS ON ANCHOR BOLTS SHALL BE ROLLED IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE; THE USE OF CUT THREADS SHALL NOT BE PERMITTED. THE TOP 24 INCHES OF THE ANCHOR BOLT SHALL BE CLEANED AND PAINTED WITH ZINC RICH PAINT PRIOR TO SHIPMENT WITH A MINIMUM DRY FILM THICKNESS OF 4 MILS. THE TYPE OF PAINT AND THE METHOD OF APPLICATION SHALL BE AS APPROVED BY THE MATERIALS AND RESEARCH DIVISION. AFTER INSTALLATION THE CONTRACTOR SHALL TOUCH-UP PAINT THREADS USING APPROVED METHODS.

ANCHOR BOLTS OF THE SPECIFIED SIZE SHALL BE SUPPLIED IN A CAGED ASSEMBLY BY THE MANUFACTURER (NO WELDING ON THE ANCHOR BOLTS WILL BE PERMITTED) TO ENSURE PROPER BOLT SPACING AND ALIGNMENT. ANCHOR BOLTS MUST BE OF SUFFICIENT LENGTH ABOVE THE BASE PLATE TO ALLOW FOR THE THICKNESS OF A HARDENED STEEL WASHER AND THE CAPTURE OF TWO FULL HOLD-DOWN NUTS PLUS 1/2". THIS ASSEMBLY SHALL BE DETAILED ON THE SHOP PLANS. THE ANCHOR ASSEMBLY CAGE SHALL BE PLACED AT THE DEPTH SHOWN IN THE SHOP PLANS, PROPERLY ALIGNED AND SECURED IN PLACE BEFORE PLACING CONCRETE. ONCE THE CONCRETE HAS SET, NO ADJUSTMENTS OR REALIGNMENTS SHALL BE MADE TO THE ANCHOR BOLTS. FIELD STRAIGHTENING OF ANCHOR BOLTS WILL NOT BE PERMITTED. THE BOLTS SHALL BE PLUMB, WITH NO MORE THAN A 1/8" DEVIATION IN 12' OF LENGTH PERMITTED.

- * ALL CANTILEVER SIGN STRUCTURES SHALL USE A MINIMUM OF EIGHT (8), 2-INCH DIAMETER ANCHOR BOLTS.
- * * ALL OTHER OVERHEAD SIGN STRUCTURES SHALL USE A MINIMUM OF FOUR (4); 2-INCH DIAMETER ANCHOR BOLTS (4 FOR EACH SUPPORT).
- * * WHEN THE DESIGN FOR THE OVERHEAD SIGN SUPPORT STRUCTURE REQUIRES MORE THAN 4 BOLTS (AS SHOWN ON THE PLANS), THE BOTTOM OF THE HORIZONTAL BRACE SHALL BE PLACED AT A MINIMUM HEIGHT OF 18 INCHES ABOVE THE TOP OF THE BASE PLATE. THE PLACEMENT OF THE HORIZONTAL BRACE SHALL NOT INTERFERE WITH THE ANCHOR BOLT TIGHTENING PROCEDURE.

THE CONTRACTOR'S ACTUAL DESIGN MAY REQUIRE A GREATER NUMBER OF ANCHOR BOLTS, ANCHOR BOLTS OF LARGER DIAMETER OR BOTH. IN ALL CASES, HOWEVER, ANCHOR BOLTS MUST MEET AASHTO M-314, GRADE 55 REQUIREMENTS.

THE HEAVY HEX NUTS SHALL MEET THE REQUIREMENTS OF ASTM A 563, GRADE C3 OR DH3.

THE PLAIN HARDENED STEEL WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F 436 TYPE 3. IF TYPE 3 PLAIN HARDENED STEEL WASHERS ARE NOT AVAILABLE FOR THE SPECIFIED BOLT DIAMETER, MECHANICALLY DEPOSITED ZINC COATED HARDENED STEEL WASHERS CONFORMING TO THE REQUIREMENTS OF ASTM F 436 SHALL BE USED. ONLY FLAT WASHERS SHALL BE USED. THE USE OF LOCK WASHERS SHALL NOT BE PERMITTED.

THE STRUCTURE SUPPORTS SHALL BE ERECTED ON THE LEVELING NUTS TO A PLUMB POSITION AND THEN THE TOP NUTS SECURELY TIGHTENED TO THE PLATE. THE GROUT SHALL NOT BE PLACED UNTIL THE TRUSS HAS BEEN ERECTED, ADJUSTED, AND BOLTED TO FINAL POSITION. THE FINAL PROJECTION OF THE BASE PLATE ABOVE THE CONCRETE FOUNDATION SHALL BE NO GREATER THAN THE THICKNESS OF TWO LEVELING NUTS.

PROPER TENSIONING OF SIGN STRUCTURE ANCHOR BOLTS AND CONNECTING BOLTS

IN ORDER TO PROVIDE THE CORRECT TENSION TO ANCHOR BOLTS, THE CONTRACTOR WILL BE REQUIRED TO HAVE ON HAND THE FOLLOWING ITEMS:

- (A) A STANDARD COMBINATION WRENCH (BOX END/OPEN END) 36 INCHES IN LENGTH.
- (B) A DEEP WELL IMPACT SOCKET FOR FINAL TIGHTENING, FOR EACH SIZE NUT BEING INSTALLED.
- (C) A TORQUE MULTIPLIER (PLATE REACTION STYLE) WITH THE FOLLOWING MINIMUM REQUIREMENTS:

GEAR RATIO: 60:1
TORQUE RATIO: 52:1
OUTPUT CAPACITY: 8000 FT.-LB.

IN LIEU OF A PLATE REACTION STYLE TORQUE MULTIPLIER (AS DESCRIBED ABOVE), THE CONTRACTOR MAY USE A HYDRAULIC TORQUE WRENCH OR OTHER DEVICE AS APPROVED BY THE MATERIALS AND RESEARCH DIVISION.

ANCHOR BOLT HOLD-DOWN NUTS SHALL BE TIGHTENED BY THE TURN-OF-THE-NUT METHOD AS DESCRIBED BELOW, BUT ONLY AFTER DETERMINING THAT THE LEVELING NUT/FLAT HARDENED WASHERS FOR THE ANCHOR BOLTS ARE IN FULL CONTACT WITH THE UNDERSIDE OF A LEVEL BASE PLATE.

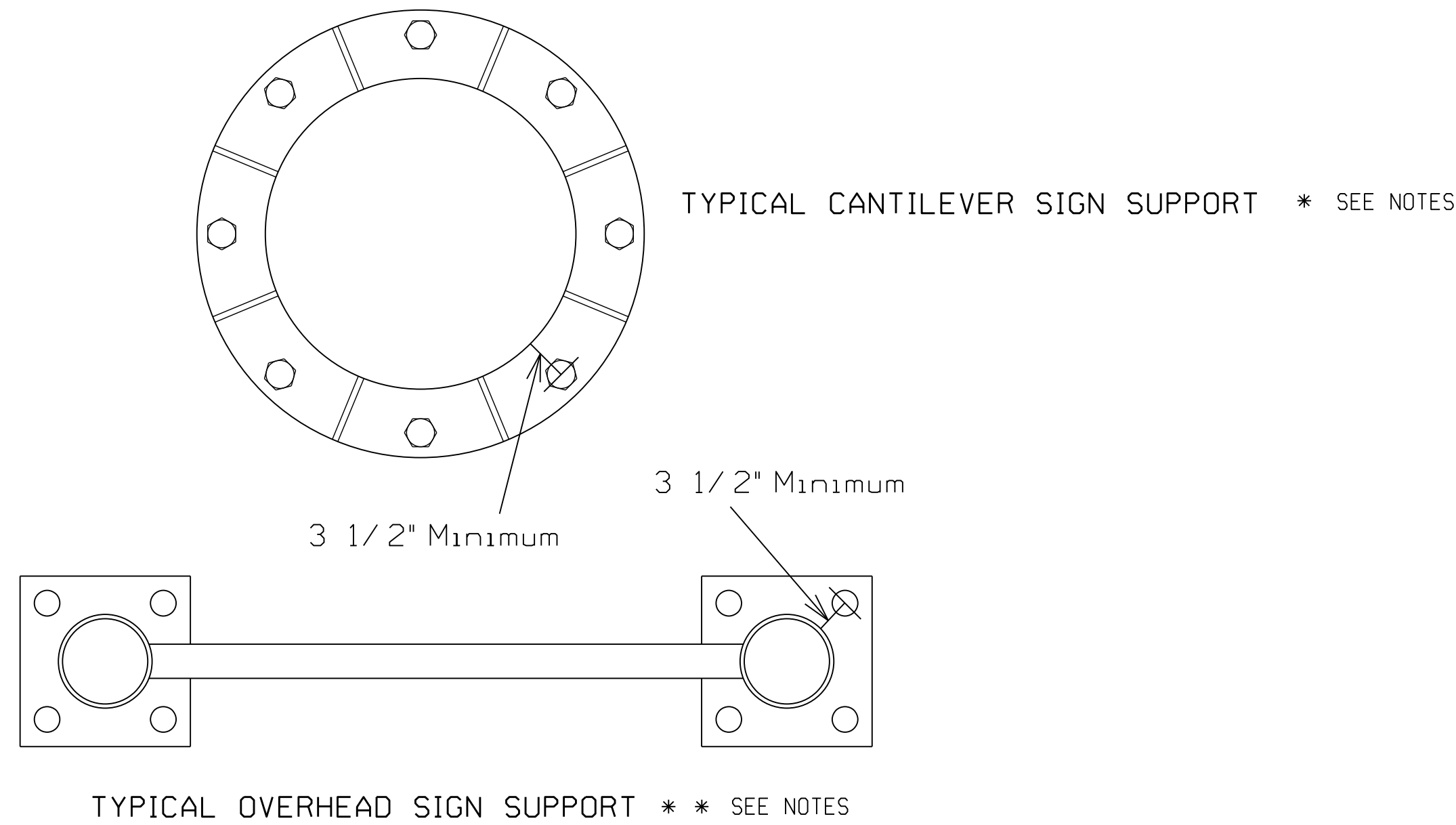
TURN-OF-THE-NUT METHOD

- (A) LUBRICATE THE BOLT THREADS AND NUT THREADS WITH A HIGH-PRESSURE LUBRICANT (I.E.: SAE 90 GEAR OIL OR APPROVED EQUAL). SNUG TIGHTEN (BOTH HOLD DOWN AND LEVELING NUTS) AND FINAL TIGHTEN ALL NUTS IN A "STAR" PATTERN.
- (B) USING THE APPROPRIATE COMBINATION WRENCH, APPLY FULL EFFORT OF A WORKMAN TO THE END OF THE WRENCH TO "SNUG TIGHTEN" THE NUT. AFTER THE ANCHOR BOLT HOLD-DOWN NUTS ARE SNUG TIGHTENED, ALL LEVELING NUTS SHOULD BE RETIGHTENED (TO THE SNUG TIGHT POSITION) TO ASSURE THAT FULL CONTACT HAS BEEN MAINTAINED WITH THE BOTTOM OF THE BASE PLATE.
- (C) MARK THE LOCATION OF ONE CORNER OF THE NUT ON THE BASE PLATE.
- (D) USING THE TORQUE MULTIPLIER AND THE MARK PLACED ON THE BASE PLATE; TIGHTEN THE NUT ONTO THE ANCHOR BOLT BY GIVING THE NUT 1/6TH OF A TURN (THIS IS EQUAL TO TURNING THE NUT ONTO THE ANCHOR BOLT A DISTANCE EQUAL TO THE LENGTH OF ONE FLAT OR UNTIL THE NEXT CORNER OF THE NUT IS EVEN WITH THE MARK ON THE BASE PLATE).
- (E) INSTALL A "LOCK NUT" OR "JAM NUT" ON EACH OF THE ANCHOR BOLTS BY REPEATING STEPS (A) THROUGH (D).
- (F) AFTER THE TOP NUTS ARE FULLY TIGHTENED, ALL LEVELING NUTS SHOULD BE RETIGHTENED TO ASSURE THAT FULL CONTACT HAS BEEN MAINTAINED WITH THE BOTTOM OF THE BASE PLATE.

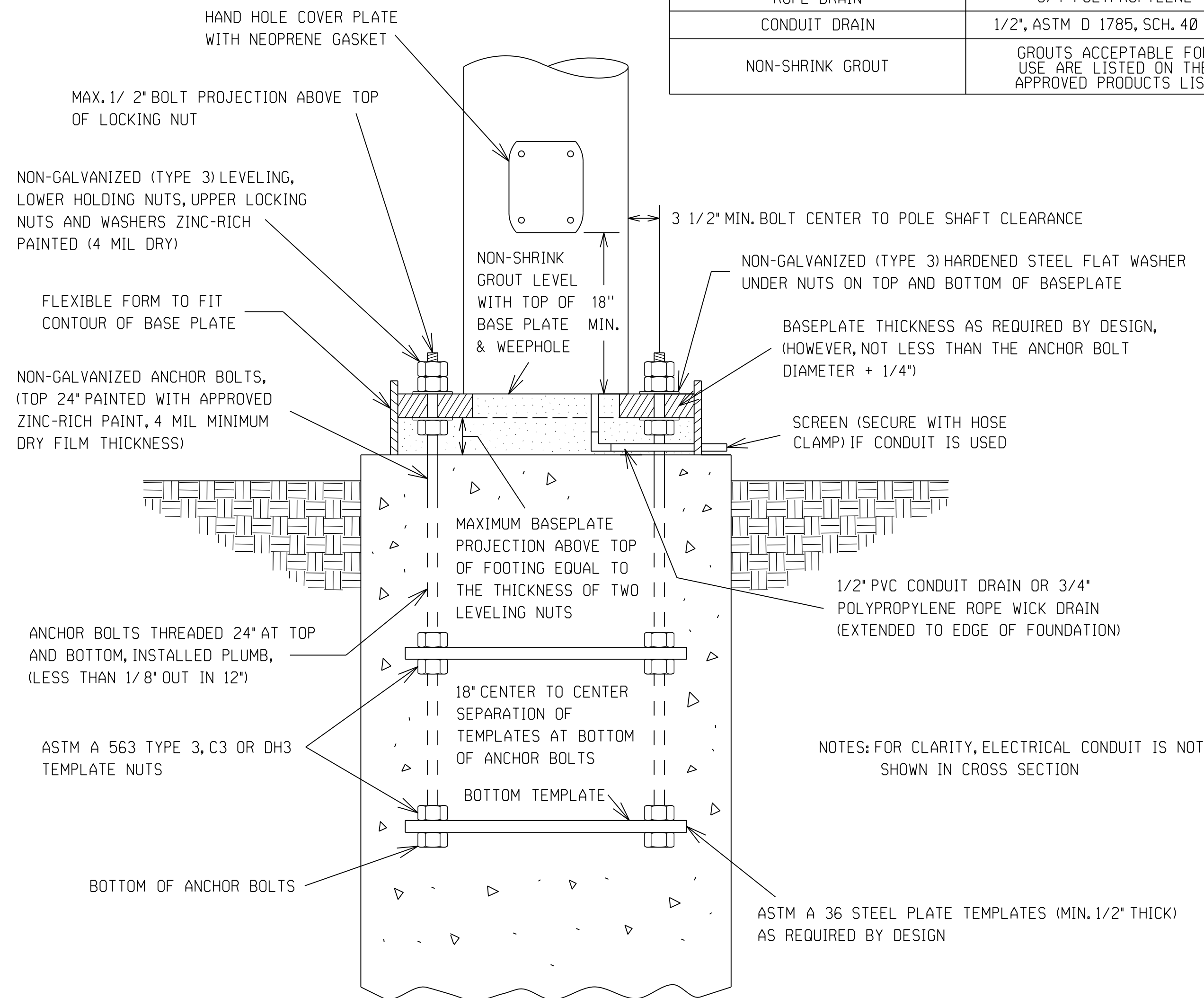
CONNECTING BOLT NUTS SHALL BE TIGHTENED BY THE SAME TURN-OF-THE-NUT METHOD AS DESCRIBED FOR ANCHOR BOLTS WITH THE EXCEPTION THAT THE BOLT HEAD MUST BE HELD STATIONARY WHILE APPLYING THE TORQUE. TURN-OF-NUT REQUIREMENTS FOR CONNECTING BOLTS SHALL BE AS PER NDOT STANDARD SPECIFICATIONS SECTION 708.

ANCHOR BOLT NUTS SHALL BE RECHECKED FOR TIGHTNESS BY THE CONTRACTOR, IN THE PRESENCE OF THE ENGINEER, NO LESS THAN 14 DAYS NOR MORE THAN 30 DAYS FOLLOWING THEIR INSTALLATION.

AFTER THE ANCHOR BOLT NUTS HAVE BEEN RECHECKED FOR TIGHTNESS, THE AREA BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE ANCHOR BASE PLATE SHALL BE FILLED (AS SHOWN ON THE APPROVED SHOP PLAN USING FORMS AND CONDUIT / WICK DRAINS) WITH A HIGH STRENGTH, NON-SHRINK GROUT FROM THE APPROVED PRODUCTS LIST.



ITEM	DESCRIPTION
ANCHOR BOLTS	AASHTO M 314, GR 55 (ROLLED THREADS ONLY PERMITTED)
HEAVY HEX NUTS	ASTM A 563 TYPE 3, C3, OR DH3
HARDENED STEEL FLAT WASHERS	ASTM F 436, TYPE 3
ROPE DRAIN	3/4" POLYPROPYLENE
CONDUIT DRAIN	1/2", ASTM D 1785, SCH. 40 PVC
NON-SHRINK GROUT	GROUTS ACCEPTABLE FOR USE ARE LISTED ON THE APPROVED PRODUCTS LIST

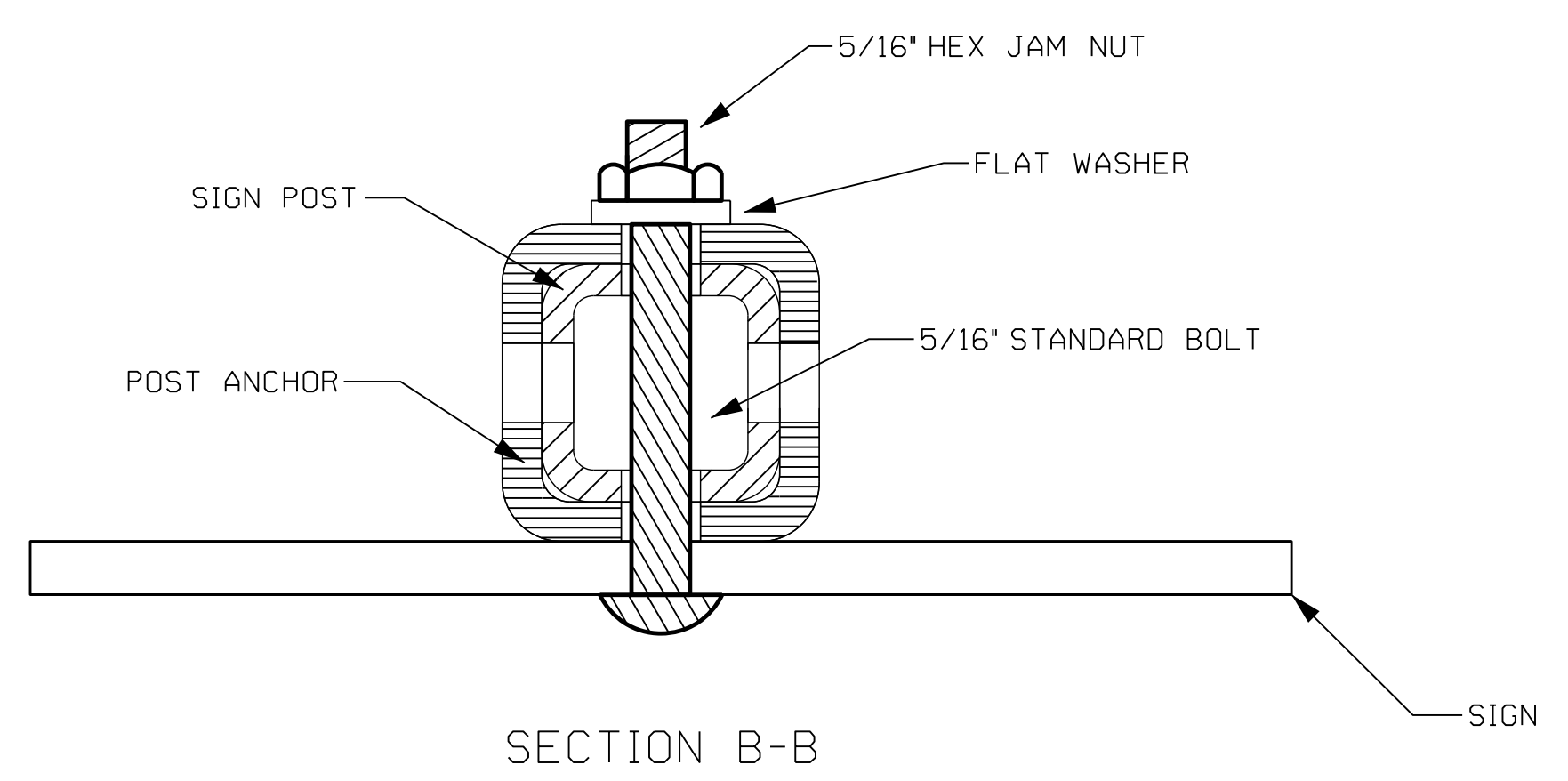
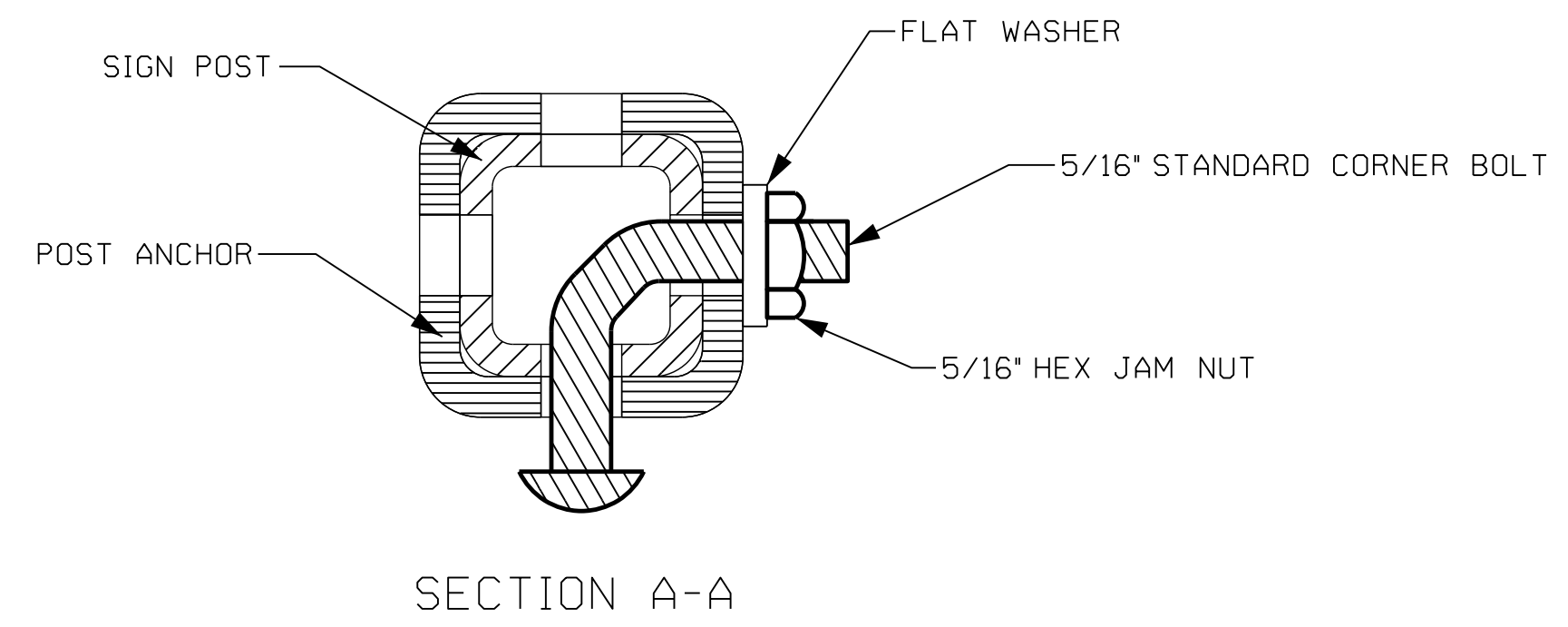
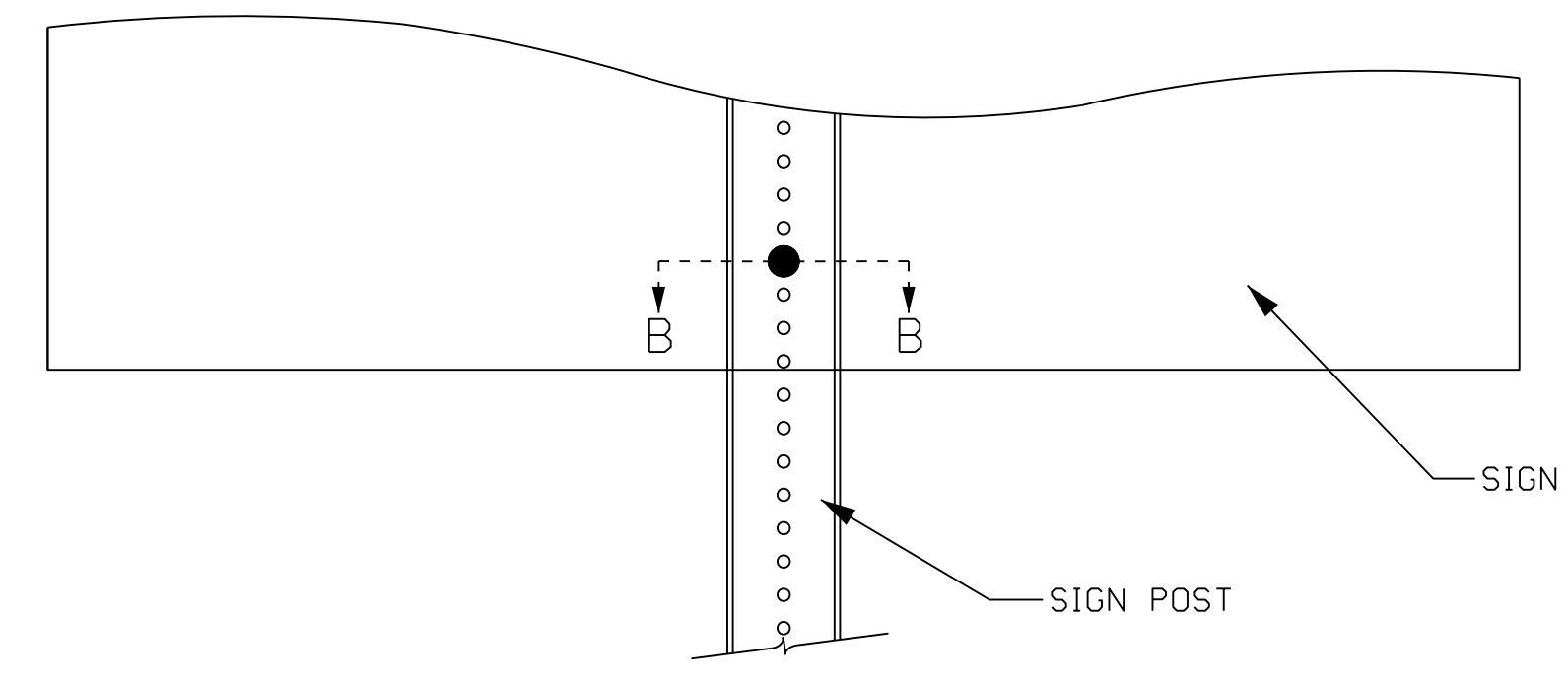


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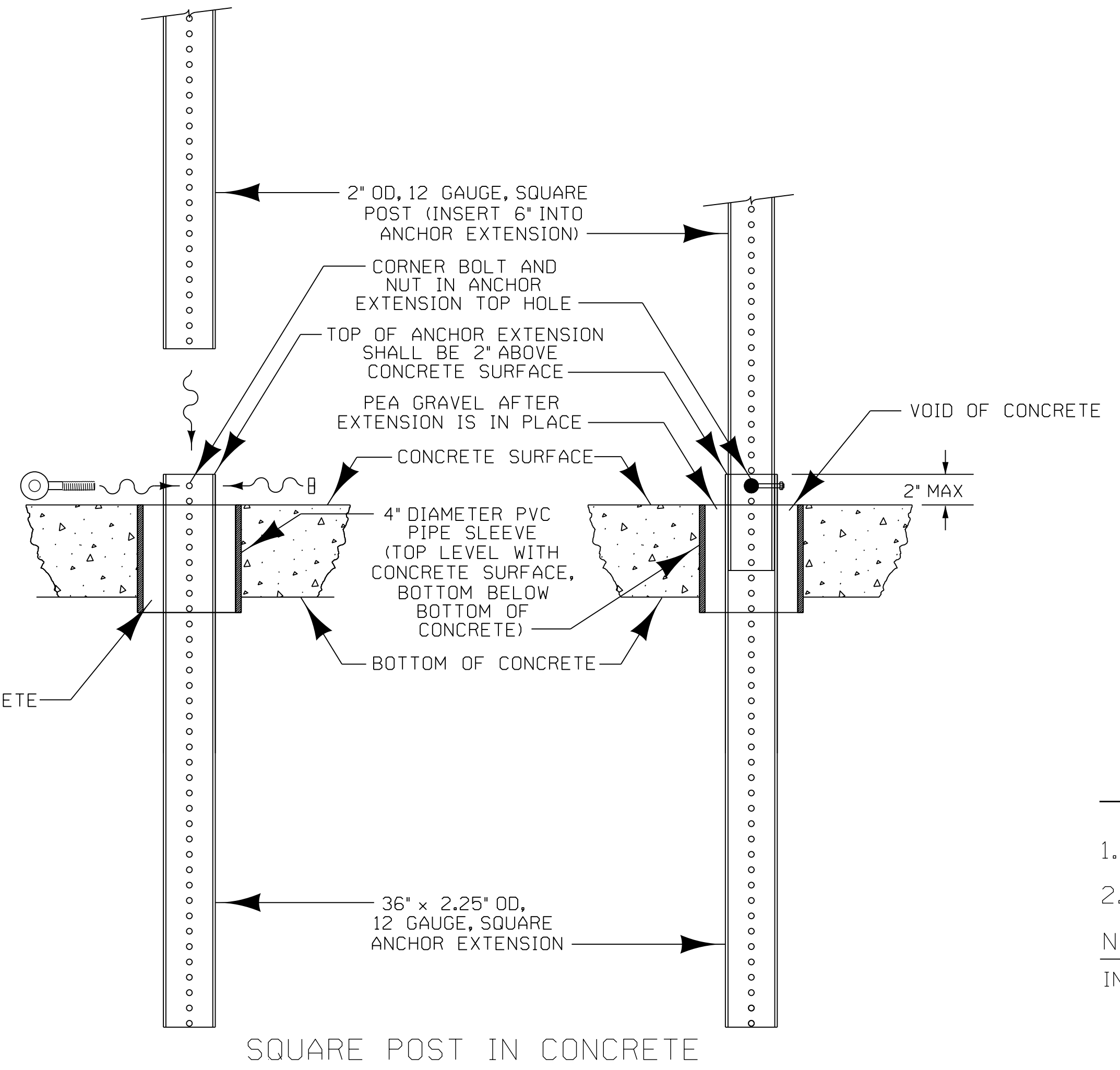
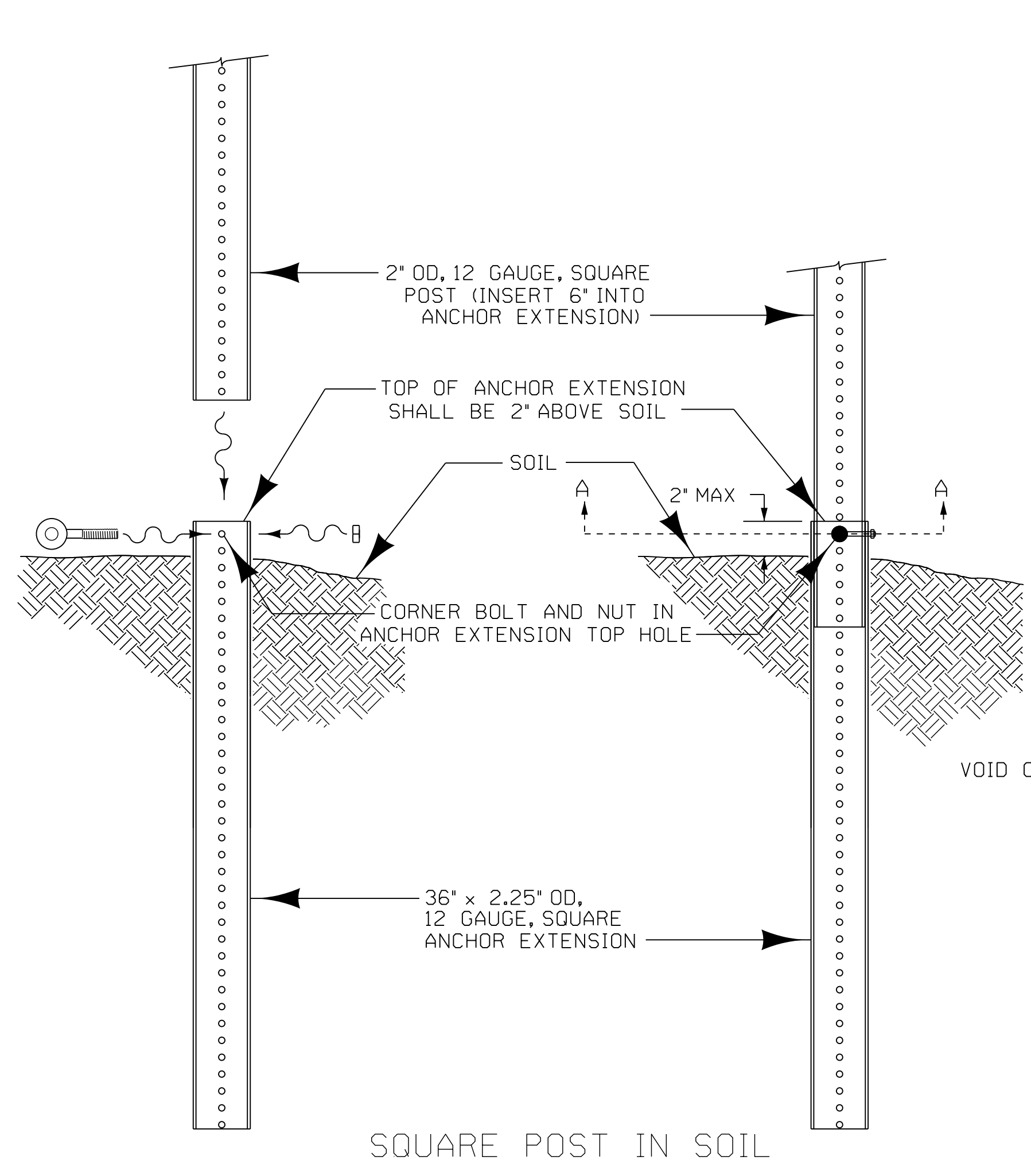
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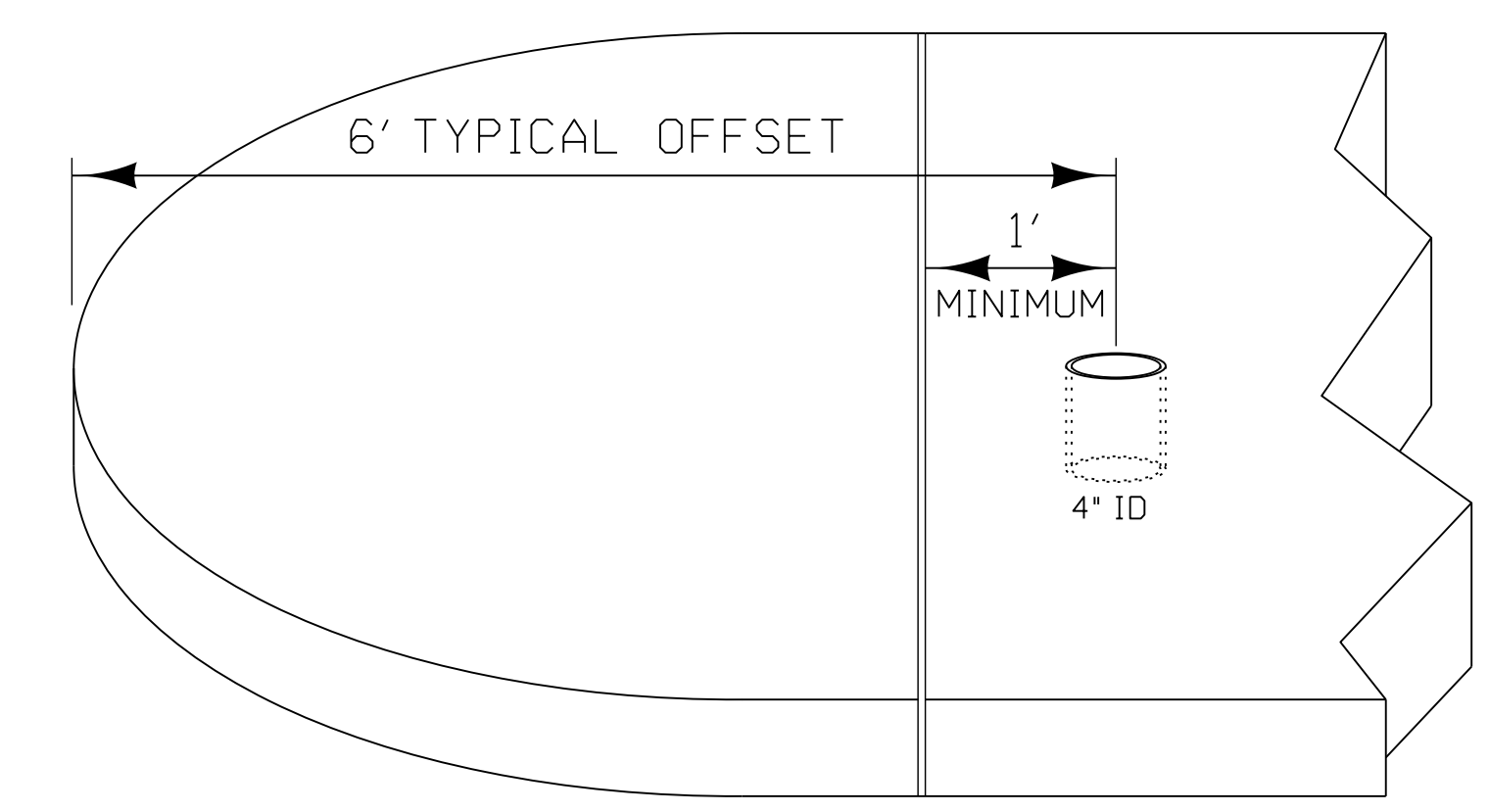
SIGN AND SIGN POST CONNECTION DETAIL



PERFORATED SQUARE STEEL SIGN POSTS AND ANCHORS



MEDIAN NOSE SIGN INSTALLATION DETAIL



ANCHOR EXTENSION SLEEVE
ANCHOR EXTENSION SLEEVE SHALL BE MADE OF 4\"/>

MATERIALS TABLE FOR SIGN POST AND FOOTING

SIGN POST GALVANIZED (GA.) 10 GA. OR 12 GA.	FOOTING
	POST ANCHOR
1 3/4" x 1 3/4"	2" x 2" x 12 GA.
2" x 2"	2 1/4" x 2 1/4" x 12 GA.
2 1/4" x 2 1/4"	2 1/2" x 2 1/2" x 12 GA.
2 1/2" x 2 1/2"	3" x 3" x 7 GA.

NOTE: GALVANIZED (GA.) POSTS MUST MEET CERTIFIED MINIMUM YIELD STRENGTH OF 60,000 POUNDS PER SQUARE INCH (P.S.I.)

INSTALLATION SEQUENCE

1. DRIVE POST ANCHOR INTO SUBGRADE.
2. INSTALL SIGN POST INTO THE POST ANCHOR.

NOTE:
IN ALL INSTALLATIONS; THE FIRST HOLE ABOVE THE GROUND LINE IN THE SIGN POST AND IN THE POST ANCHOR MUST BE IN LINE WITH EACH OTHER FOR INSERTION OF THE CORNER BOLT.

FILE: Post_Details_Perforated_no_sleeve.dgn
DATE: 28-SEP-2023 14:17
COMPUTER: BG0419M687

MATERIAL REQUIREMENTS

PERFORATED SQUARE STEEL TUBE (PSST) POST

1. TRAFFIC CONTROL DEVICES SHALL BE CRASHWORTHY AND QUALIFY AS SUCH ACCORDING TO THE TESTING AND ACCEPTANCE GUIDELINES OF THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP_ REPORT 350 RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A COPY OF THE FHWA ACCEPTANCE LETTER FOR ALL NCHRP 350 OR MASH (TL-3) CATEGORY 3 DEVICES WHEN SUPPLIED BY THE CONTRACTOR.
3. FIXED BREAKAWAY SIGN SUPPORTS FOR WORK ZONES SHALL BE TESTED UNDER AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, AND BE ACCEPTED BY THE FHWA.
4. STUB STEEL POSTS USED FOR ERECTING SIGNS SHALL NOT BE INSTALLED PRIOR TO PLACEMENT OF THE SIGNS OR BE LEFT IN PLACE WHEN SIGNS ARE REMOVED UNLESS THEY ARE IMMEDIATELY AND CLEARLY IDENTIFIED. STUB STEEL POSTS MAY BE IDENTIFIED BY 42" REFLECTIVE CONE, 36" (MINIMUM) DELINEATOR POST WITH BUTTON REFLECTOR, OR OTHER WARNING DEVICE ACCEPTABLE TO THE ENGINEER. PAYMENT FOR ITEMS USED TO IDENTIFY THE STUB STEEL POSTS SHALL BE SUBSIDIARY TO THE INSTALLATION OR REMOVAL OF THE SIGN POST.

FHWA WORK ZONE ACCEPTANCE LETTERS ARE AVAILABLE AT-
http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/
5. SQUARE POST WILL BE MANUFACTURED FROM HOT-ROLLED CARBON SHEET STEEL, STRUCTURAL QUALITY, ASTM DESIGNATION A570, GRADE 50. AVERAGE MINIMUM YIELD STRENGTH AFTER COLD FORMING IS 60,000 PSI. POST SHALL BE MANUFACTURED FROM HOT-DIPPED GALVANIZED STEEL CONFORMING TO ASTM A653, G90, GRADE 50, CLASS 1. CORNER WELD IS ZINC COATED AFTER SCARFING OPERATION. THE STEEL COATED WITH CHROMATE CONVERSION COATING AND CLEAR ORGANIC POLYMER TOPCOAT. BOTH INTERIOR AND EXTERIOR OF THE POST SHALL BE GALVANIZED.
6. SIGN POSTS SHALL HAVE $\frac{7}{16}$ +/- $\frac{1}{64}$ INCH DIAMETER HOLES ON 1" CENTERS ON ALL FOUR SIDES DOWN THE ENTIRE LENGTH OF THE POST. HOLES SHALL BE ON CENTERLINE OF EACH SIDE IN TRUE ALIGNMENT AND OPPOSITE OTHER DIRECTLY AND DIAGONALLY.
7. POST ANCHORS AND POST ANCHOR SLEEVES MAY BE FURNISHED WITHOUT BOLT HOLES ON ALL FOUR SIDES WITH THE EXCEPTION OF THE HOLES IMMEDIATELY ABOVE THE GROUND LINE.
8. ALL HOLES SHALL BE DRILLED OR PUNCHED AND ALL WELDS, CUTS, BURRS, AND SHARP EDGES ARE TO BE SMOOTHED OFF BEFORE APPLICATION OF FINISH. POST ENDS SHALL BE CUT SQUARE.
9. BOLTS, NUTS, AND WASHERS SHALL COMPLY WITH SECTION 1071 OF NDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2017 EDITION).
10. PAYMENT FOR BOLTS, NUTS, AND WASHERS SHALL BE SUBSIDIARY TO PAY ITEM, " _____ SQUARE STEEL TUBE POST".
11. ACCEPTANCE OF STEEL SIGN POSTS, POST ANCHORS, POST ANCHOR SLEEVES, AND FASTENERS FURNISHED TO COMPLY WITH THE ABOVE REQUIREMENTS WILL BE BASED ON RECEIPT AND APPROVAL OF CERTIFICATION AS DESCRIBED IN SECTION 106 OF NDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2017 EDITION), AND VISUAL INSPECTION FOR CONDITION AND DIMENSIONAL REQUIREMENTS.
12. SYSTEM SHALL CONSIST OF SIGN POST, AND ANCHOR.
13. FINISHED POST SHALL BE STRAIGHT AND HAVE SMOOTH, UNIFORM FINISH. IT SHALL BE POSSIBLE TO TELESCOPE ALL CONSECUTIVE SIZES OF SQUARE TUBES FREELY AND FOR NOT LESS THAN 10 FEET OF THEIR LENGTH WITHOUT THE NECESSITY OF MATCHING ANY PARTICULAR FACE TO ANY OTHER FACE. THE PERMISSIBLE TOLERANCE FOR STRAIGHTNESS WILL BE WITHIN $\frac{1}{16}$ " IN 3 FEET. STANDARD CORNER RADIUS SHALL BE $\frac{5}{32}$ OF AN INCH +/- $\frac{1}{64}$ INCH.
14. CROSS SECTION OF POST SHALL BE SQUARE TUBE FORMED OF 12 GAUGE (.105 U.S.S. GAUGE) AND 10 GAUGE (.135 U.S.S. GAUGE) STEEL, CAREFULLY ROLLED TO SIZE AND SHALL BE WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING AND EXTERNALLY SCARFED TO AGREE WITH CORNER RADII.
15. PERMISSIBLE VARIATION WALL THICKNESS TOLERANCE IS +.010", - .005" CONVEXITY & CONCAVITY MEASURED IN THE CENTER OF THE FLAT SIDES. A TOLERANCE IN +/- .010" DETERMINED IN THE CORNER.

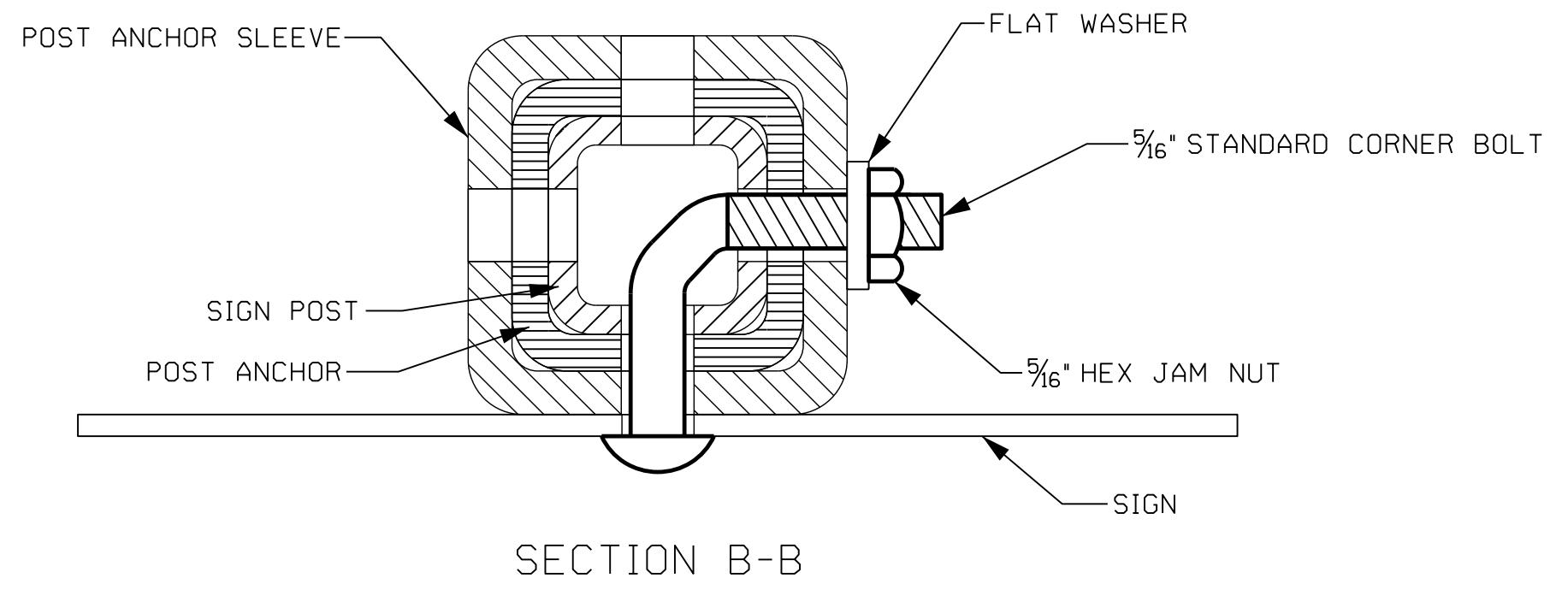
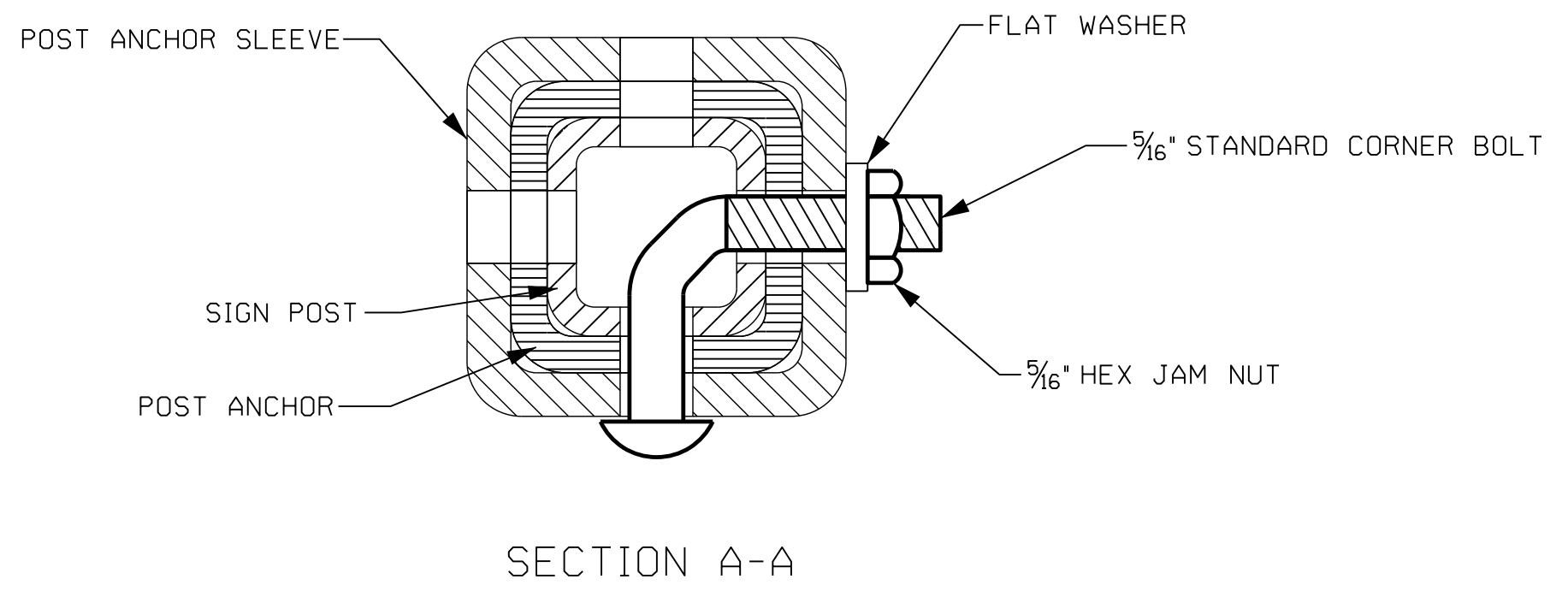
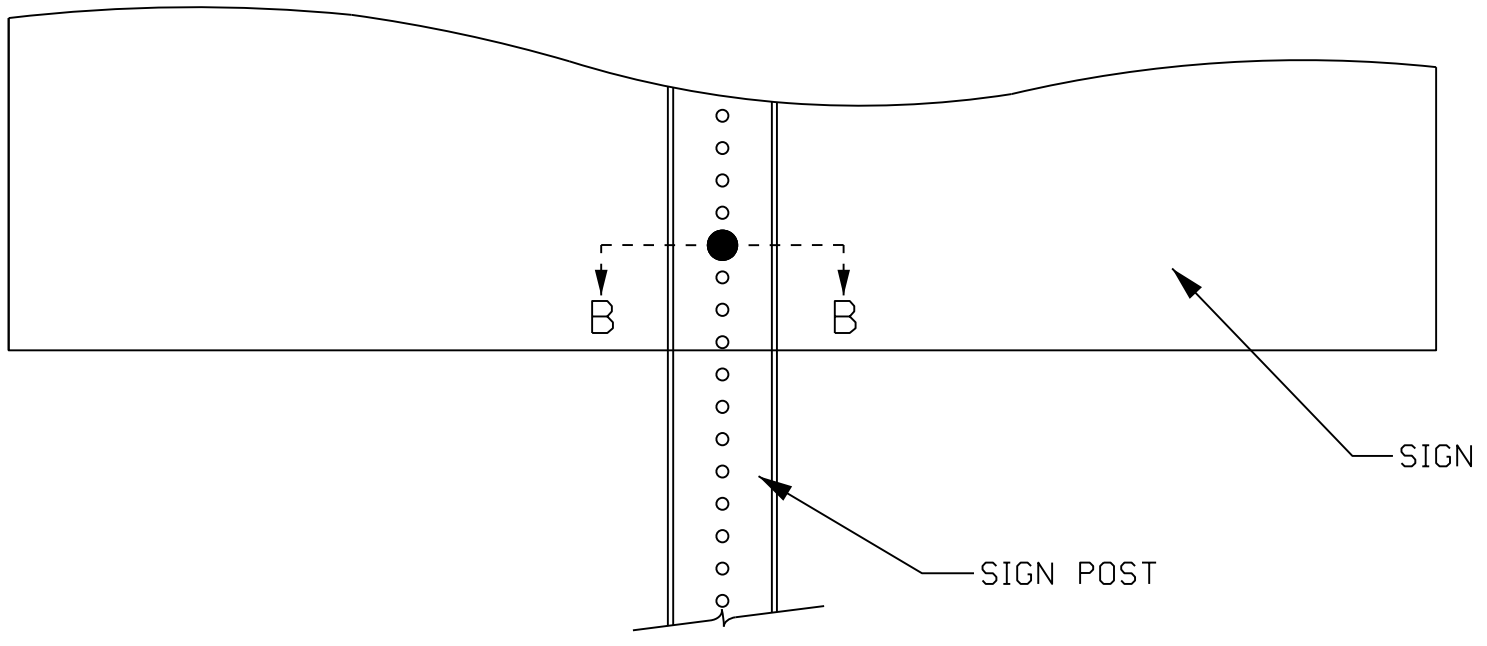
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Project Number ###-###	
C.N. #####	
TYPICAL SIGN POST INSTALLATION PERFORATED SQUARE TUBE POST DETAILS (NO SLEEVE)	
DESIGNED BY AJM	DATE 09/23
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION	
PLAN SHEET NUMBER	2 2

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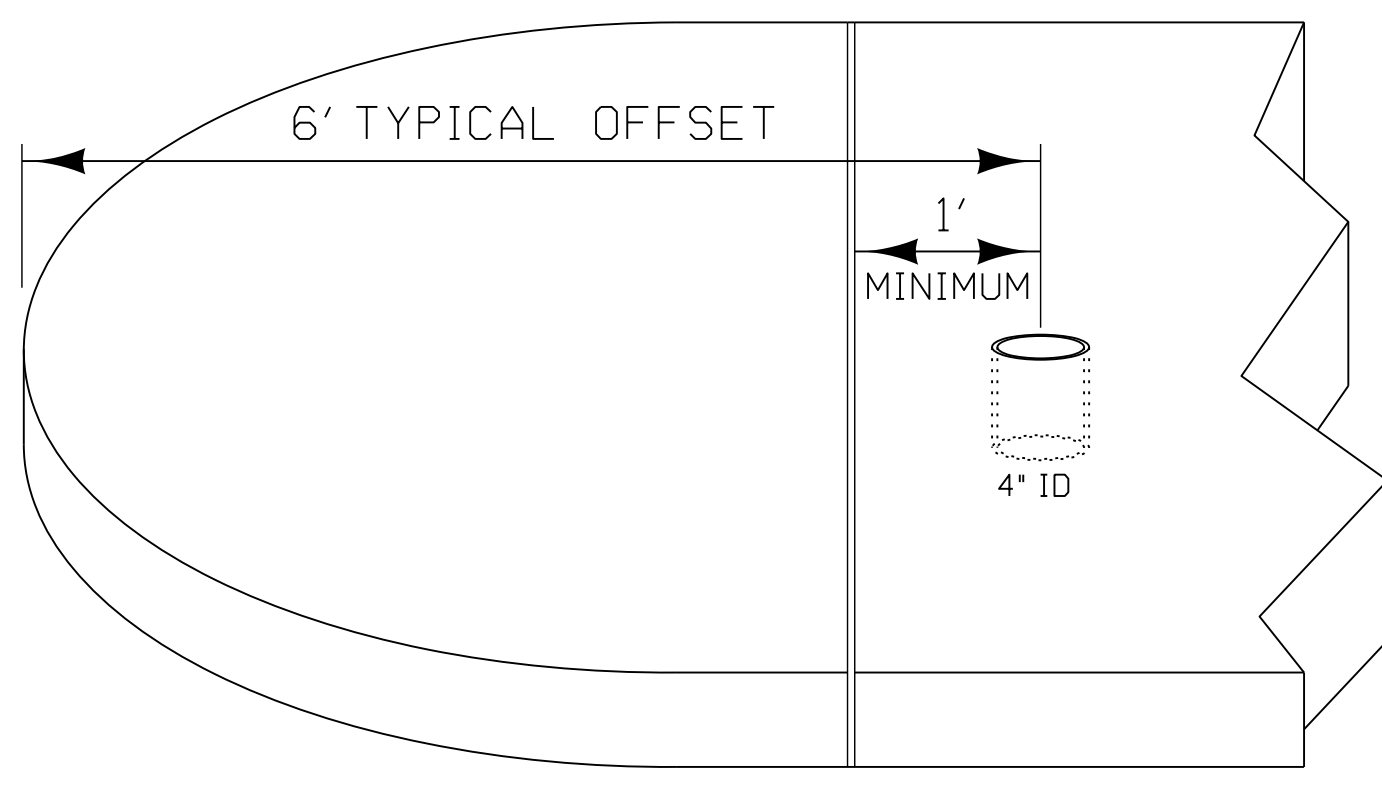
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SIGN AND SIGN POST CONNECTION DETAIL



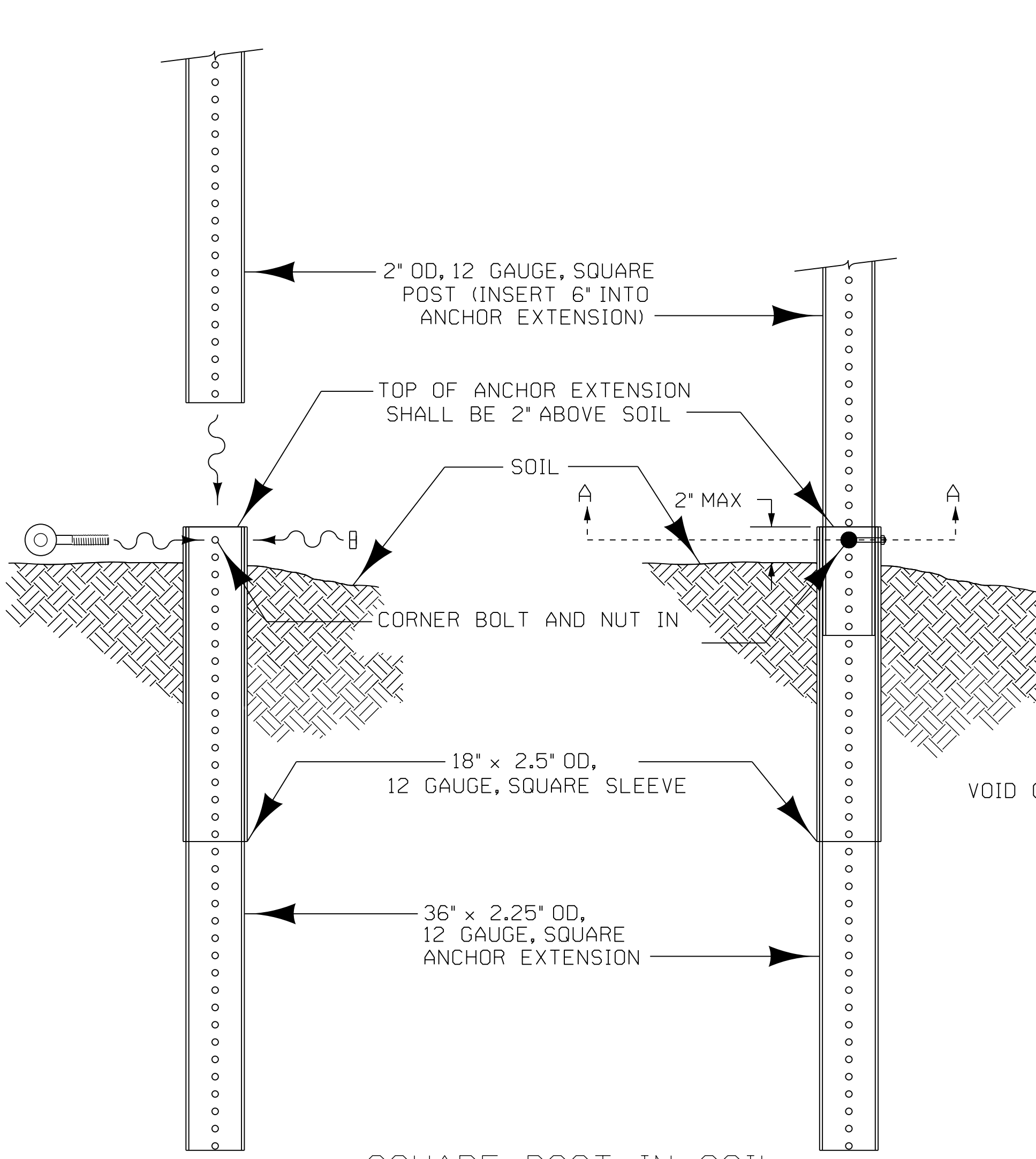
MEDIAN NOSE SIGN INSTALLATION DETAIL



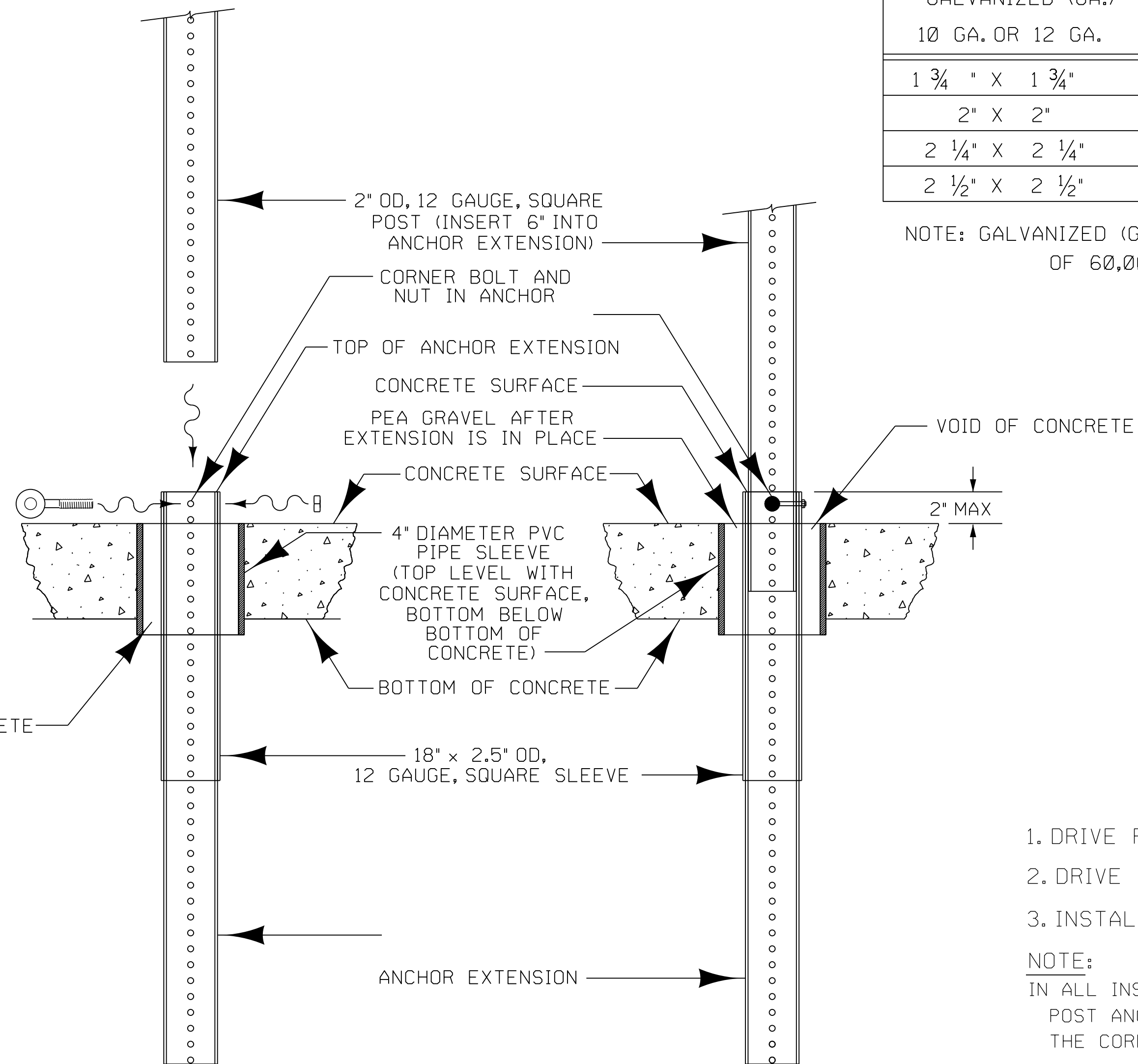
ANCHOR EXTENSION SLEEVE

ANCHOR EXTENSION SLEEVE SHALL BE MADE OF 4\"/>

PERFORATED SQUARE STEEL SIGN POSTS, SLEEVES, AND ANCHORS



SQUARE POST IN SOIL



SQUARE POST IN CONCRETE

SIGN POST GALVANIZED (GA.) 10 GA. OR 12 GA.	FOOTING	
	POST ANCHOR	POST ANCHOR SLEEVE
1 3/4\"/>		

NOTE: GALVANIZED (GA.) POSTS MUST MEET CERTIFIED MINIMUM YIELD STRENGTH OF 60,000 POUNDS PER SQUARE INCH (P.S.I.)

INSTALLATION SEQUENCE

1. DRIVE POST ANCHOR INTO SUBGRADE.
2. DRIVE POST ANCHOR SLEEVE INTO SUBGRADE OVER THE POST ANCHOR.
3. INSTALL SIGN POST INTO THE POST ANCHOR.

NOTE:
IN ALL INSTALLATIONS; THE FIRST HOLE ABOVE THE GROUND LINE IN THE SIGN POST, POST ANCHOR, AND THE POST ANCHOR SLEEVE MUST BE IN LINE FOR INSERTION OF THE CORNER BOLT.

TYPICAL SIGN POST INSTALLATION
 PERFORATED SQUARE TUBE POST DETAILS
 DESIGNED BY NRL
 DATE 04/23
 NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

MATERIAL REQUIREMENTS

PERFORATED SQUARE STEEL TUBE (PSST) POST

1. TRAFFIC CONTROL DEVICES SHALL BE CRASHWORTHY AND QUALIFY AS SUCH ACCORDING TO THE TESTING AND ACCEPTANCE GUIDELINES OF THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP_ REPORT 350 RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
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FHWA WORK ZONE ACCEPTANCE LETTERS ARE AVAILABLE AT-
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6. SIGN POSTS SHALL HAVE $\frac{7}{16}$ +/- $\frac{1}{64}$ INCH DIAMETER HOLES ON 1" CENTERS ON ALL FOUR SIDES DOWN THE ENTIRE LENGTH OF THE POST. HOLES SHALL BE ON CENTERLINE OF EACH SIDE IN TRUE ALIGNMENT AND OPPOSITE OTHER DIRECTLY AND DIAGONALLY.
7. POST ANCHORS AND POST ANCHOR SLEEVES MAY BE FURNISHED WITHOUT BOLT HOLES ON ALL FOUR SIDES WITH THE EXCEPTION OF THE HOLES IMMEDIATELY ABOVE THE GROUND LINE.
8. ALL HOLES SHALL BE DRILLED OR PUNCHED AND ALL WELDS, CUTS, BURRS, AND SHARP EDGES ARE TO BE SMOOTHED OFF BEFORE APPLICATION OF FINISH. POST ENDS SHALL BE CUT SQUARE.
9. BOLTS, NUTS, AND WASHERS SHALL COMPLY WITH SECTION 1071 OF NDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2017 EDITION).
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12. SYSTEM SHALL CONSIST OF SIGN POST, ANCHOR, AND SLEEVE.
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Project Number
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C.N. #####

TYPICAL SIGN POST INSTALLATION
PERFORATED SQUARE TUBE POST DETAILS

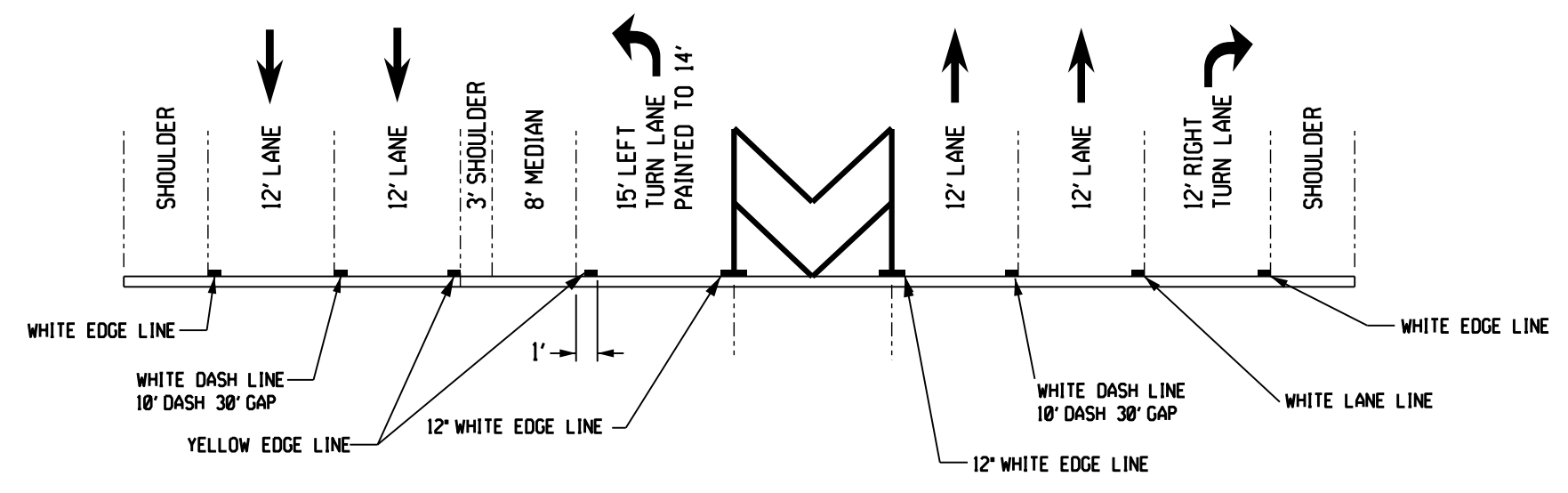
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DESIGNED BY NRL

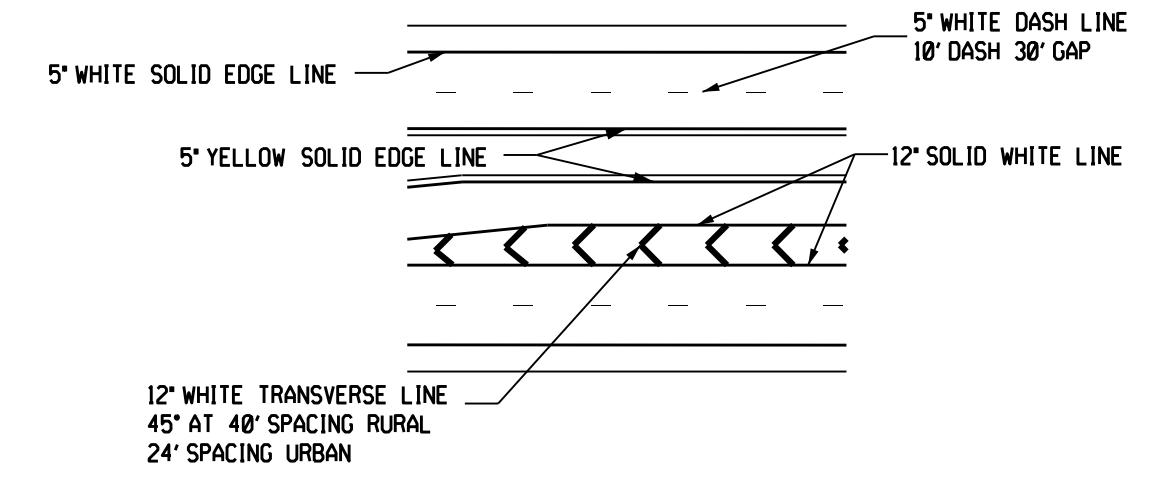
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER	2
	2

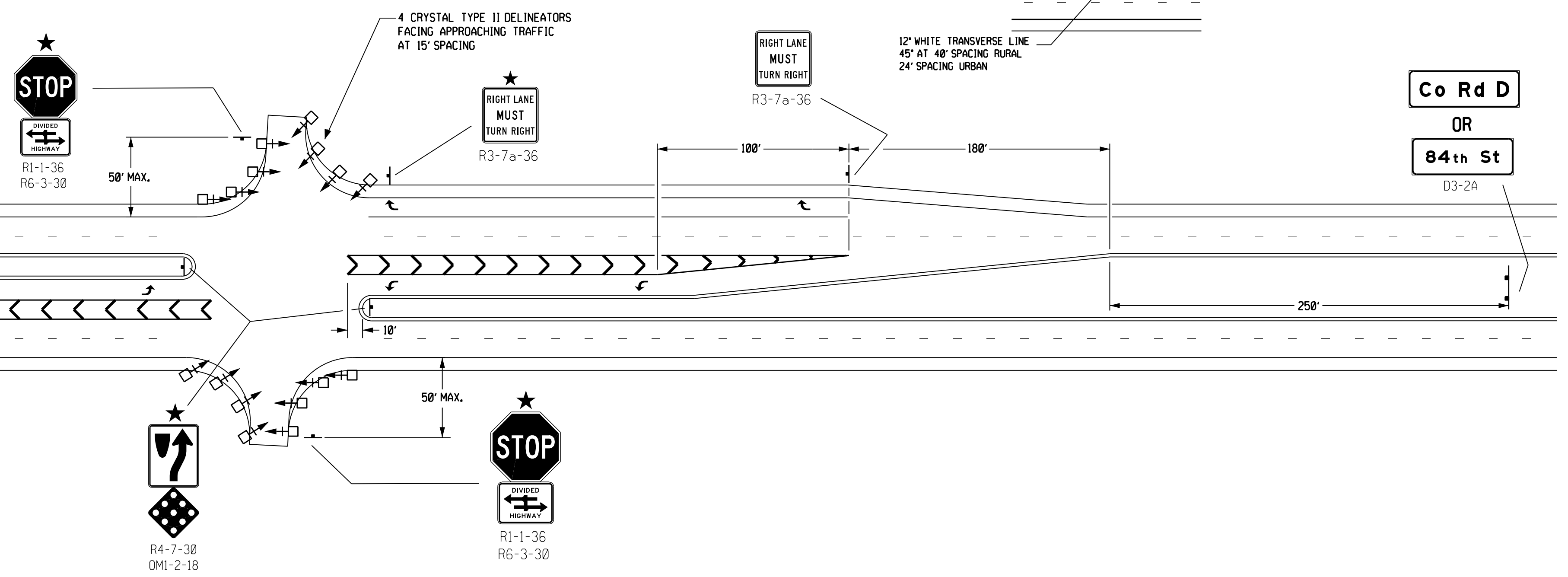
TYPICAL PAVEMENT MARKING LOCATION
OFFSET LEFT TURN BAY WITH 12" WHITE LINES



TYPICAL PAVEMENT MARKING DETAIL
OFFSET LEFT TURN BAY WITH 12" WHITE LINES

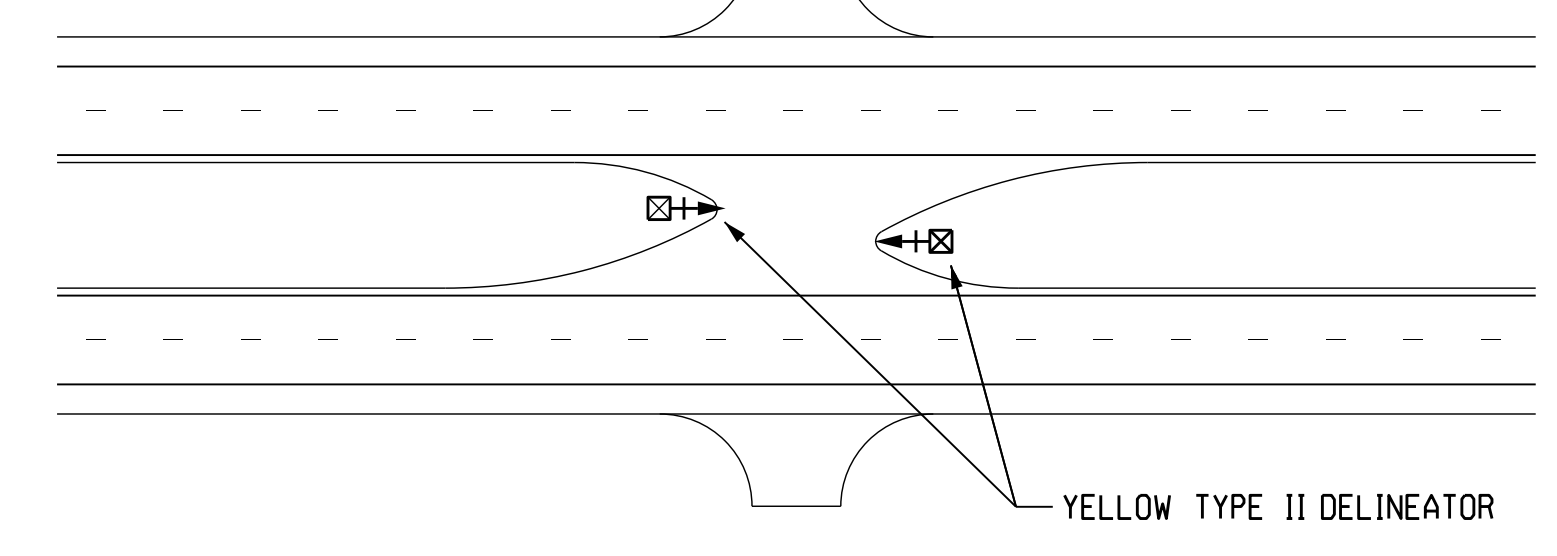


OFFSET LEFT TURN BAY
WIDE MEDIAN ONLY

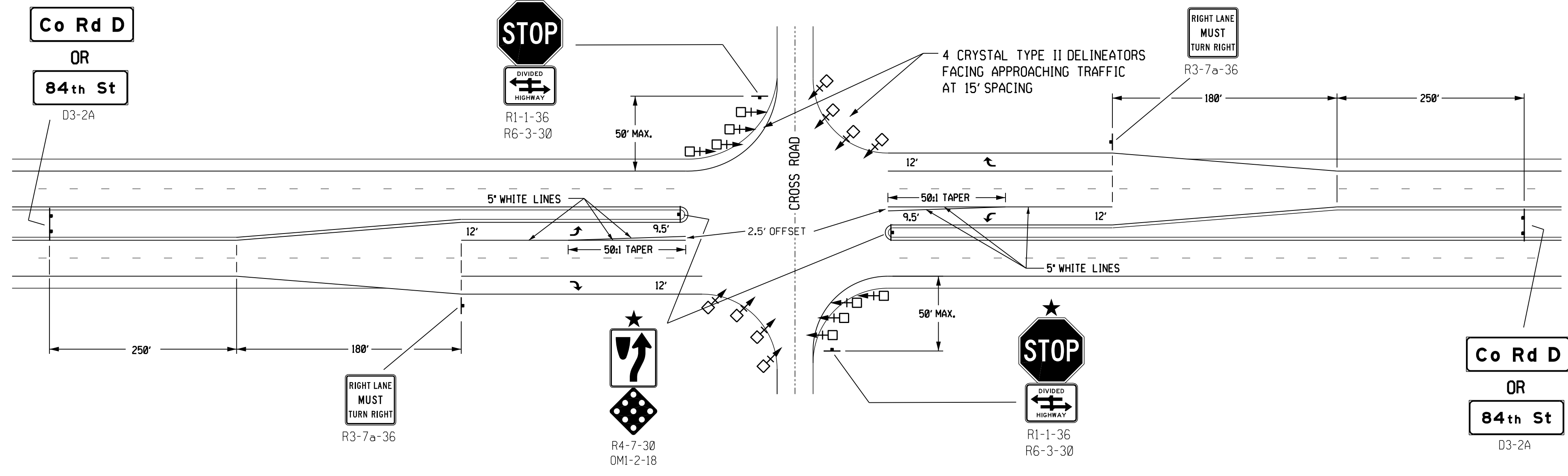


Co Rd D
OR
84th St
D3-2A
NO TURN BAY
NO SIGNING FOR FIELD ACCESS

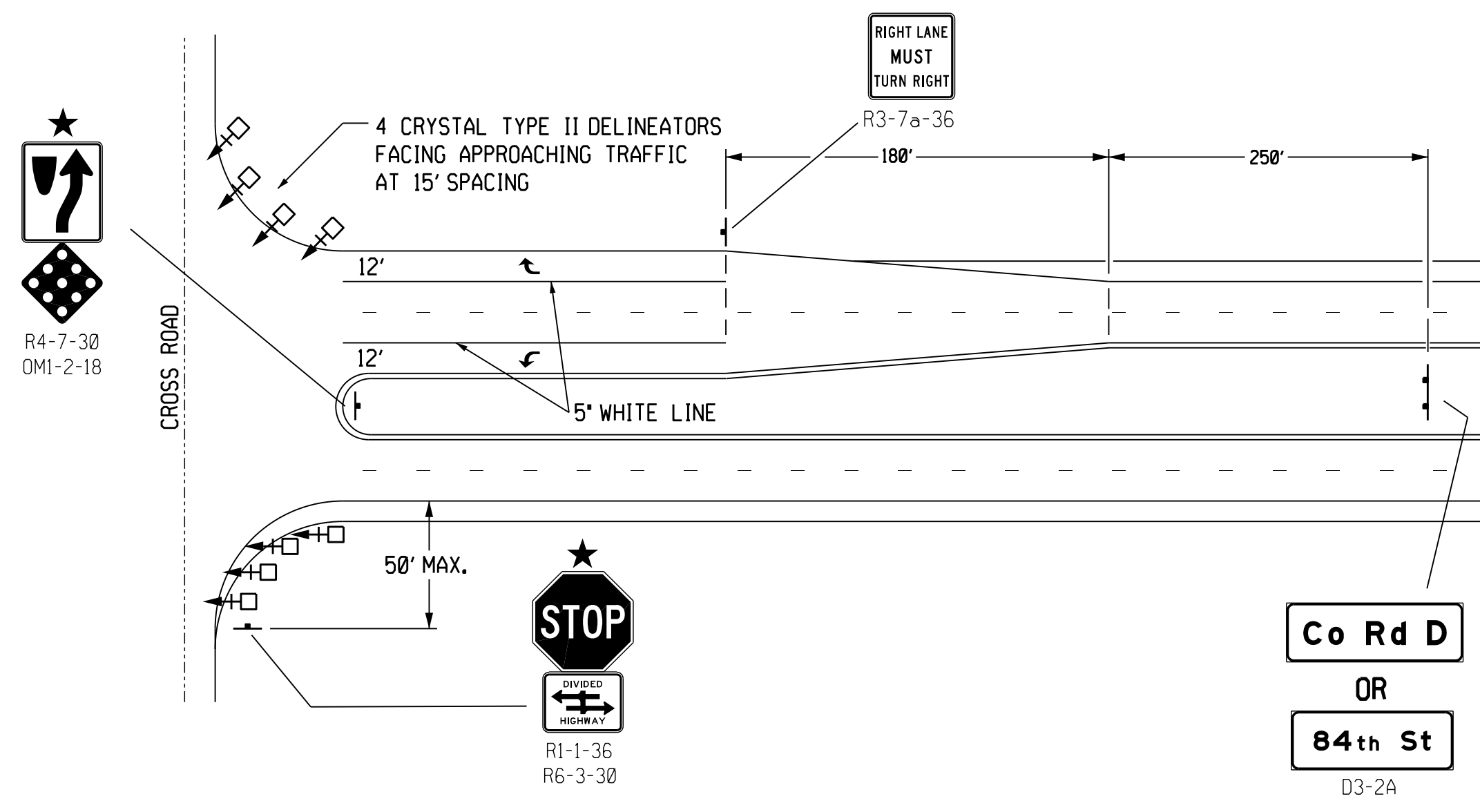
IF ONE SIDE HAS A LEFT TURN BAY, INSTALL A KEEP RIGHT SIGN (R4-7-30) AND OBJECT MARKER (W14-6-18) IN BOTH MEDIANS.



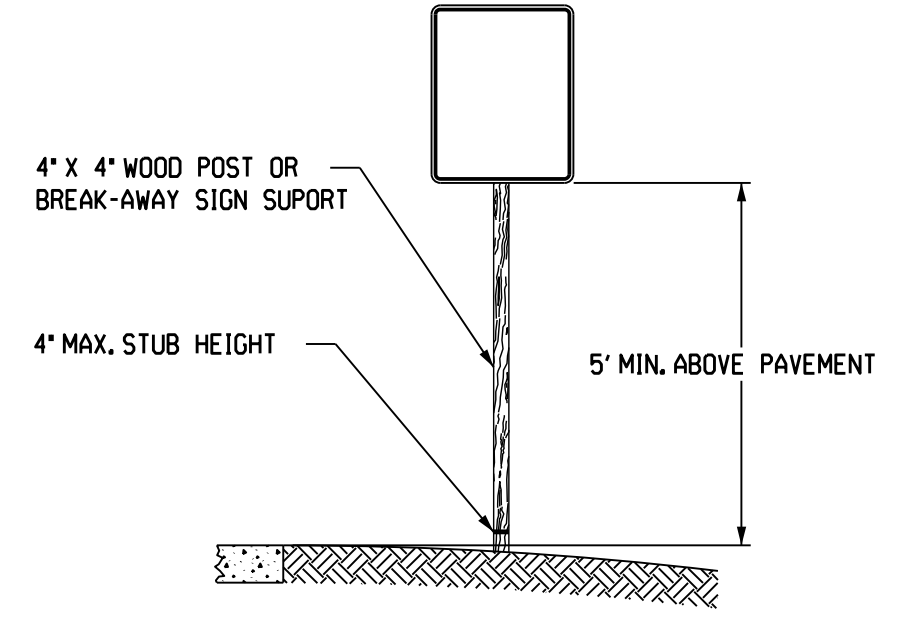
STANDARD OPPOSING LEFT TURN BAYS
TYPICAL NARROW MEDIAN



STANDARD LEFT TURN BAY
TYPICAL WIDE OR NARROW MEDIAN



TYPICAL SIGN MOUNTING DETAIL

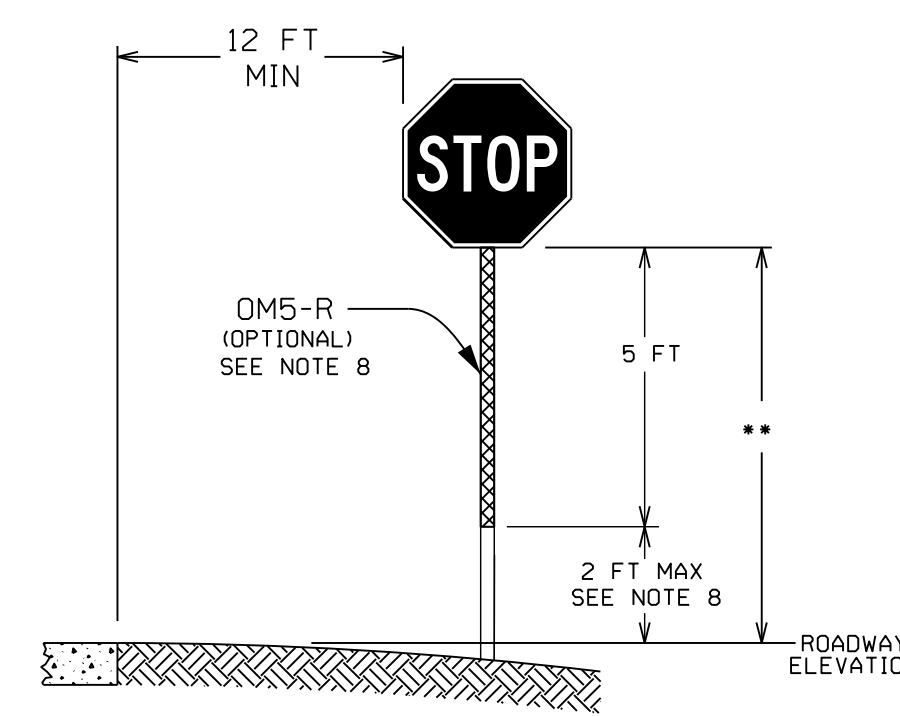


GENERAL NOTES

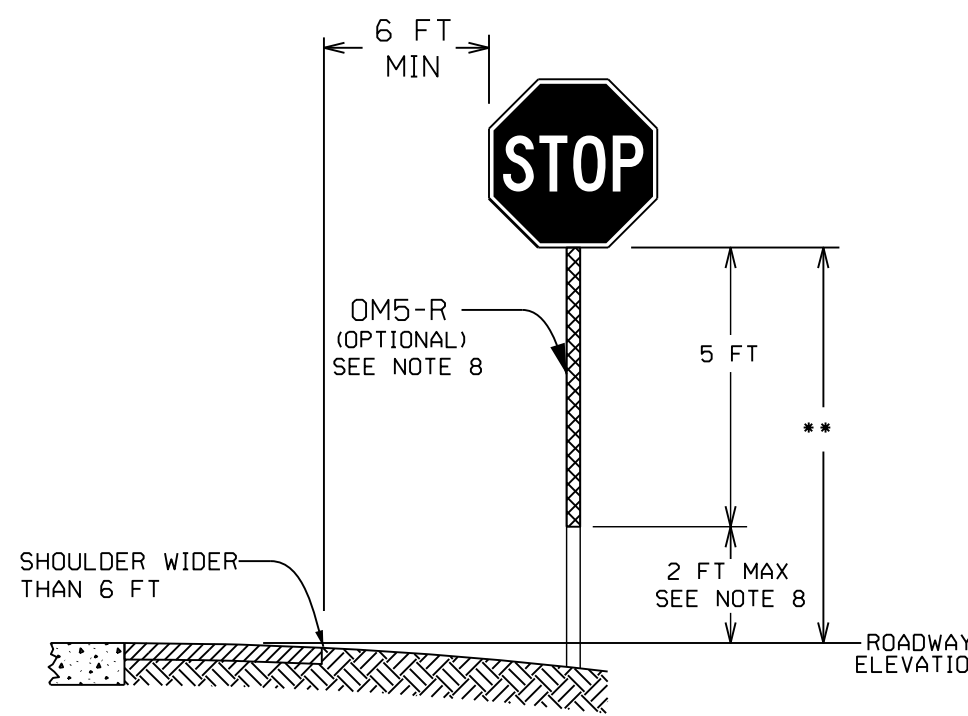
1. LENGTH AND WIDTH OF TURN LANES MAY VARY FROM THESE PLANS. ADJUST LOCATIONS AND QUANTITIES ACCORDINGLY.
2. SIGNS SHOWN ON THIS PLAN SHALL BE INSTALLED BY OTHERS.
3. SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS.
4. SIGN D3-2A SHOULD BE PLACED IN THE MEDIAN AT HIGHWAY INTERSECTIONS AND AT "T" INTERSECTION TO THE LEFT. FOR "T" INTERSECTION TO THE RIGHT, PLACE SIGN ON THE RIGHT SIDE OF THE ROADWAY 500' PRIOR TO THE INTERSECTION.
5. AT HIGHWAY JUNCTIONS SIGN D3-2A WILL BE DELETED AND REPLACED WITH STANDARD HIGHWAY JUNCTION SIGNING.
- ★ 6. MINIMUM 7 FT MOUNTING HEIGHT.

LEGEND

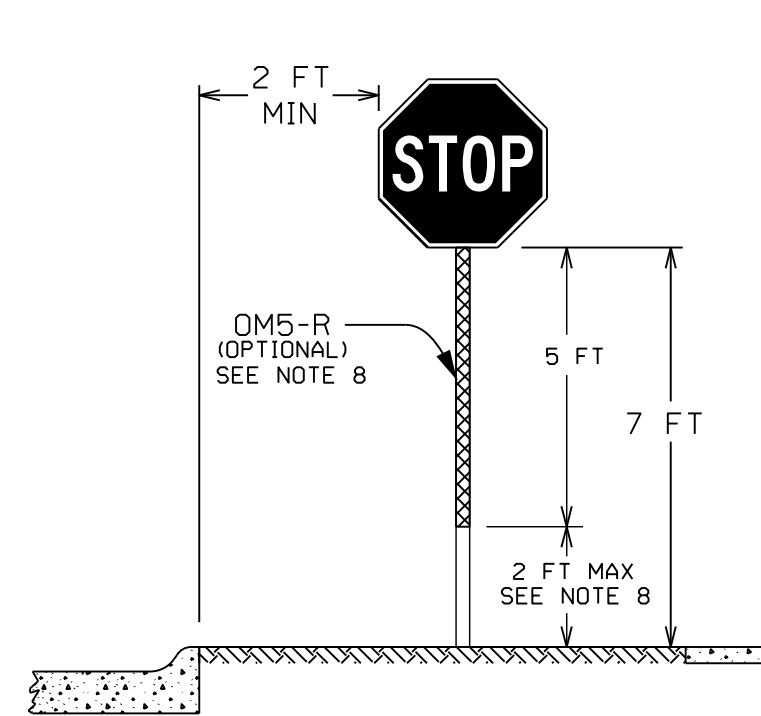
- SINGLE POST SIGN
- DOUBLE POST SIGN
- ➔ TRAFFIC FLOW



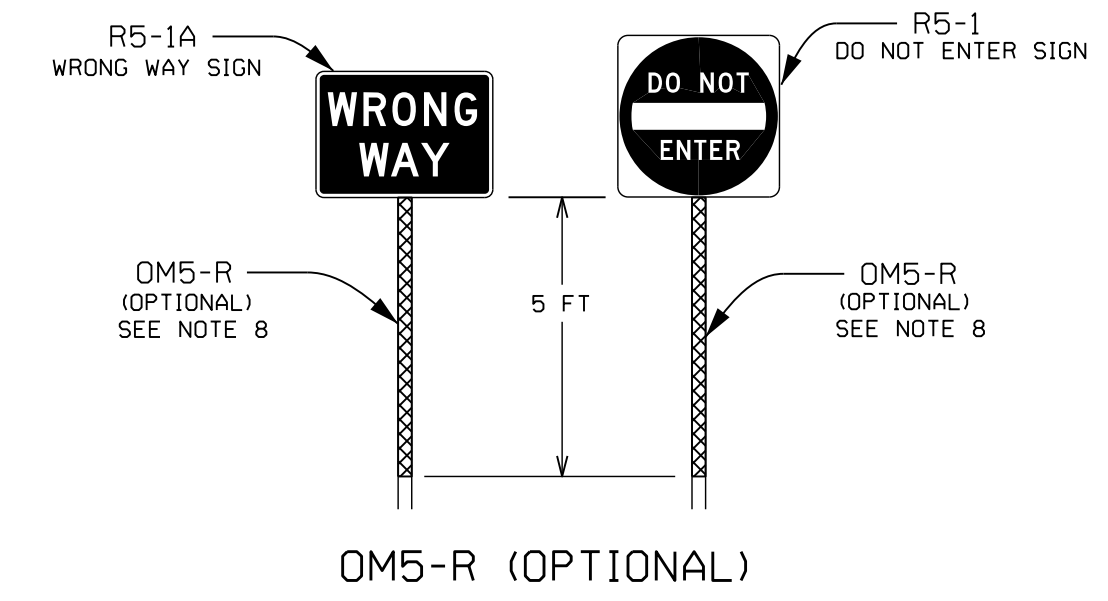
RURAL OR URBAN AREA
EARTHEN SHOULDER



RURAL OR URBAN AREA
PAVED SHOULDER
WIDER THAN 6'



URBAN AREA
WHERE CURB IS PRESENT

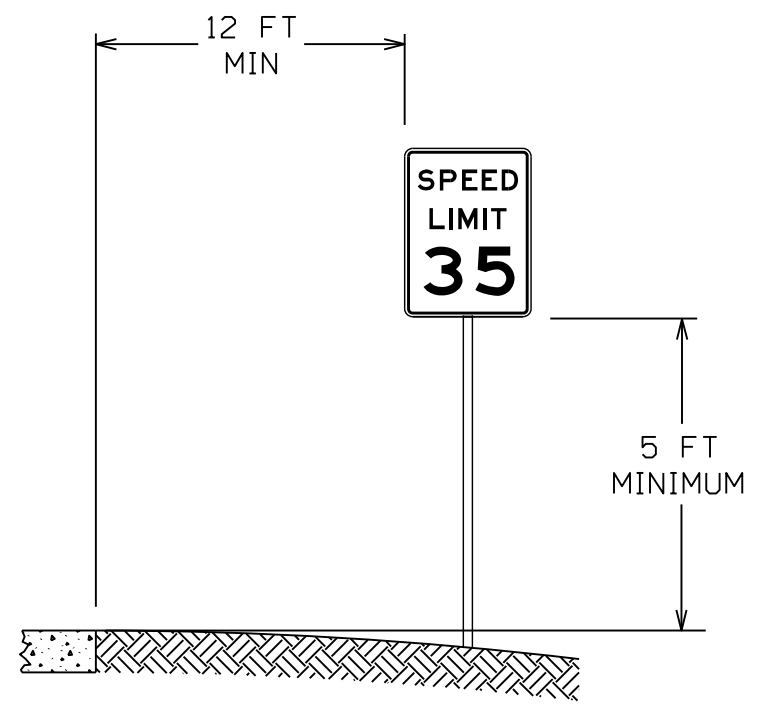


OM5-R (OPTIONAL)

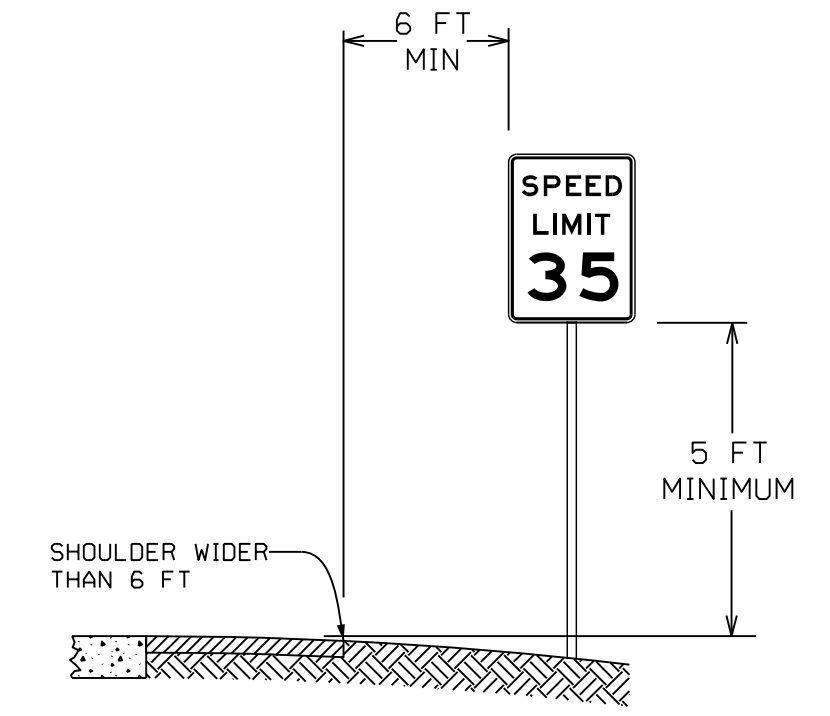
STOP SIGN

••SIGN HEIGHT (MINIMUMS):
URBAN - 7 FT
HIGHWAY JUNCTION - 7 FT
RURAL (NON-HWY JCT) - 5 FT

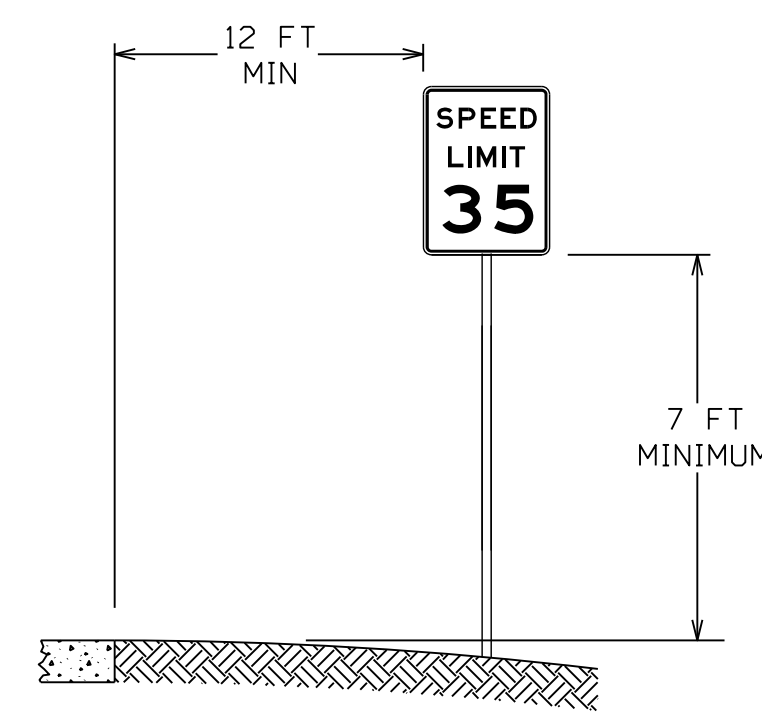
**WRONG WAY AND
DO NOT ENTER SIGN**



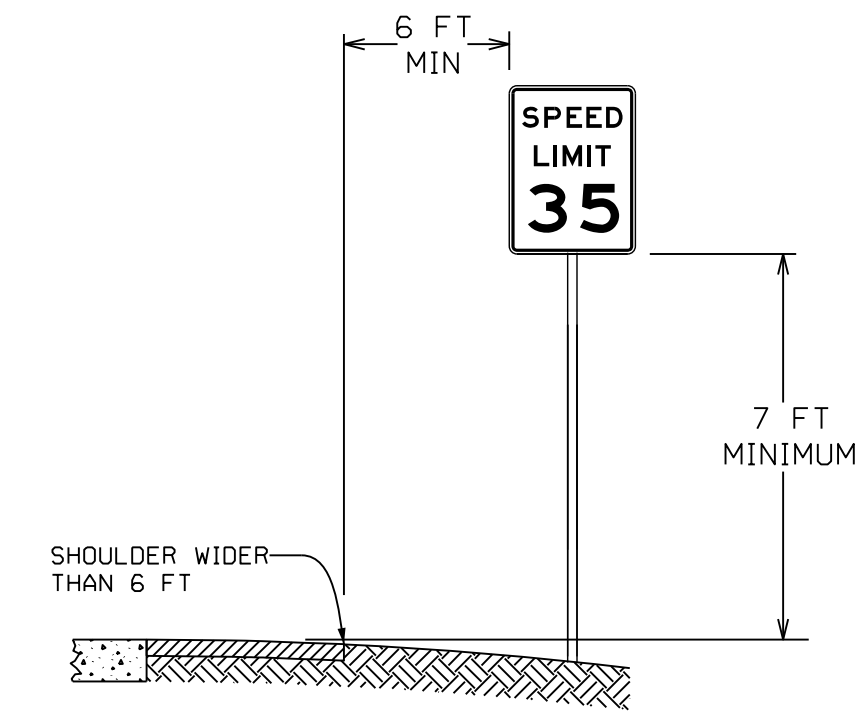
RURAL AREA
EARTHEN SHOULDER



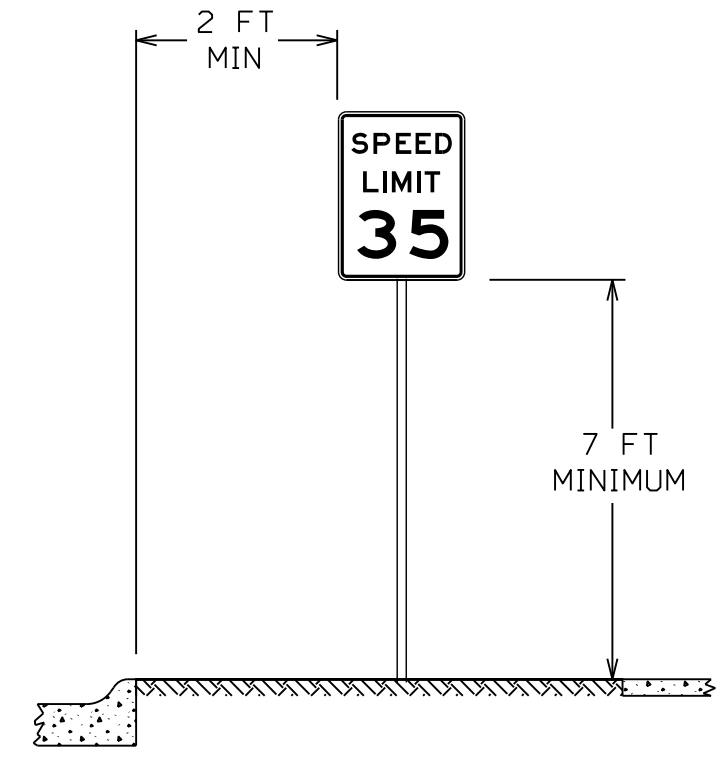
RURAL AREA
PAVED SHOULDER
WIDER THAN 6'



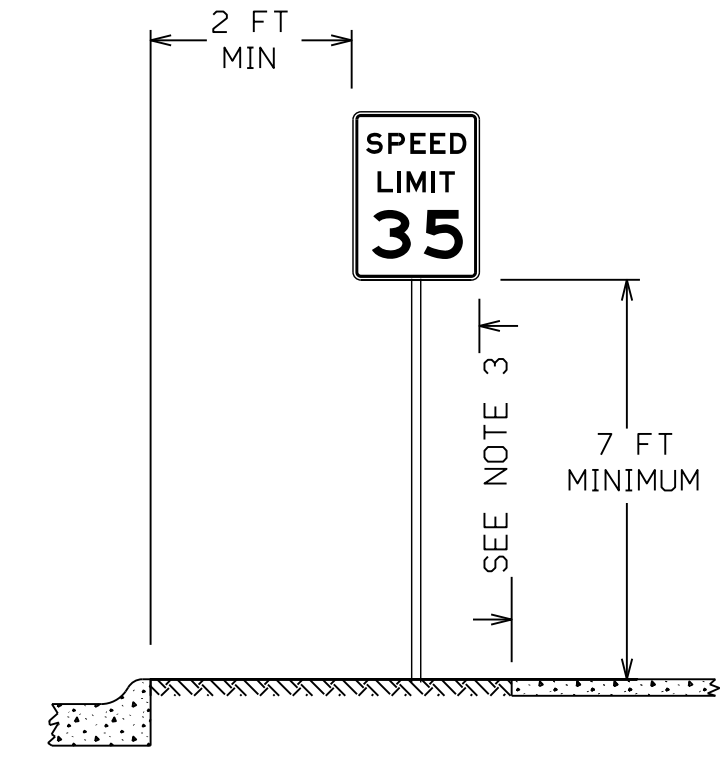
URBAN AREA
WHERE THERE IS
NO CURB PRESENT



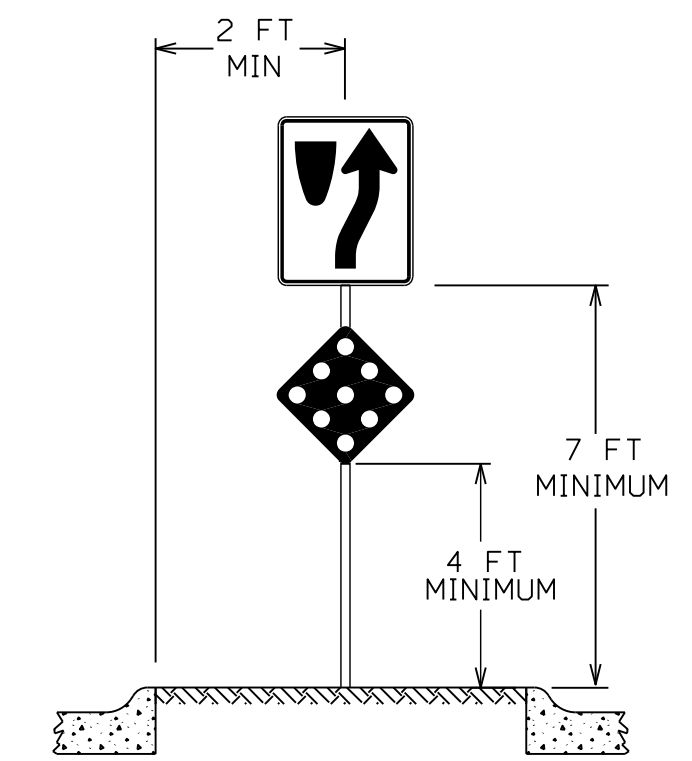
URBAN AREA
PAVED SHOULDER
WIDER THAN 6'



URBAN AREA
WHERE CURB IS PRESENT

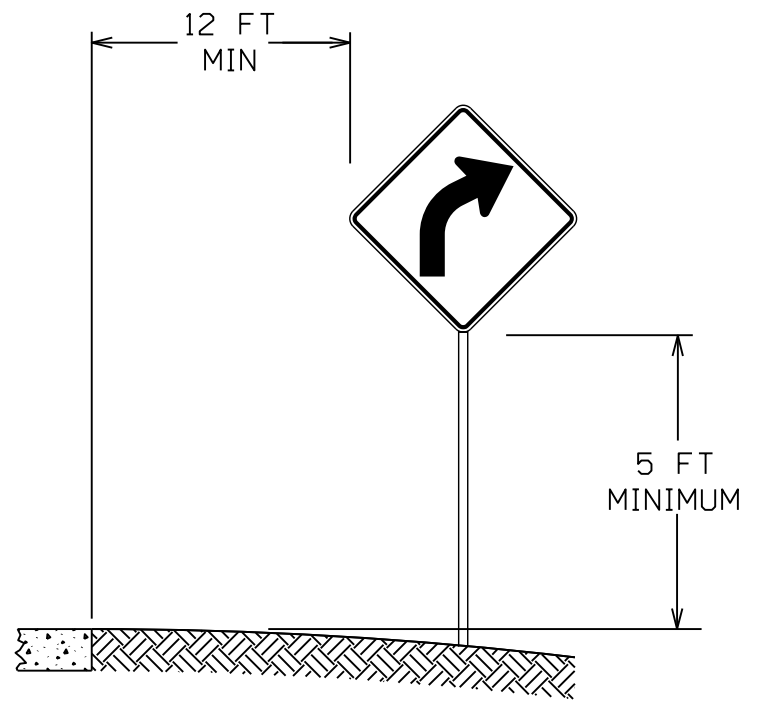


URBAN AREA
WITH SIDEWALK AND CURB

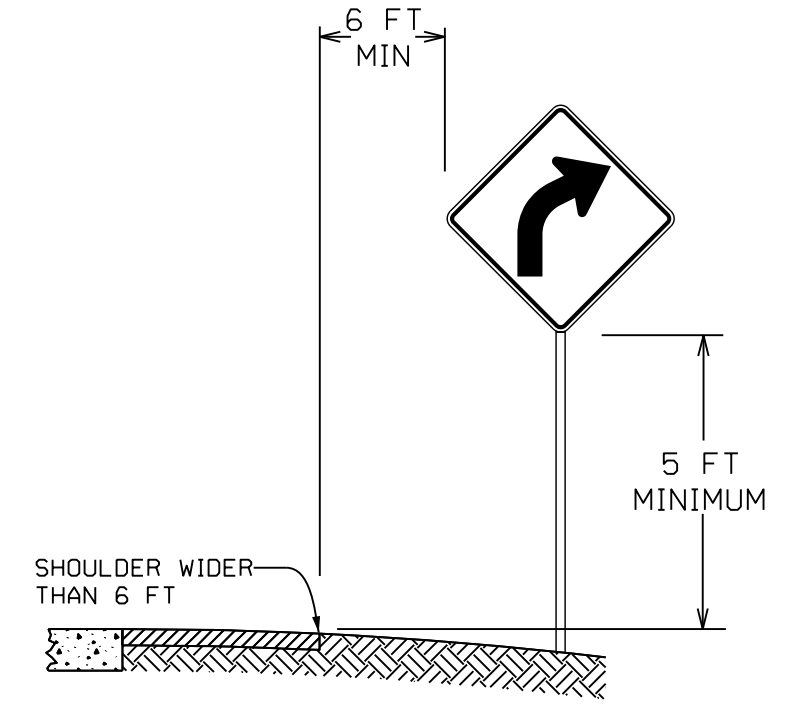


KEEP RIGHT SIGN

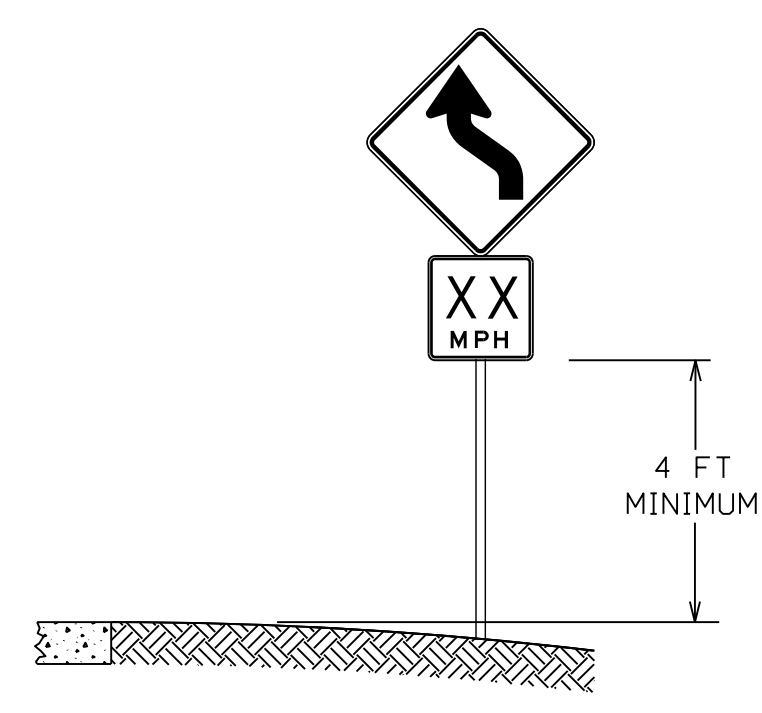
REGULATORY SIGN



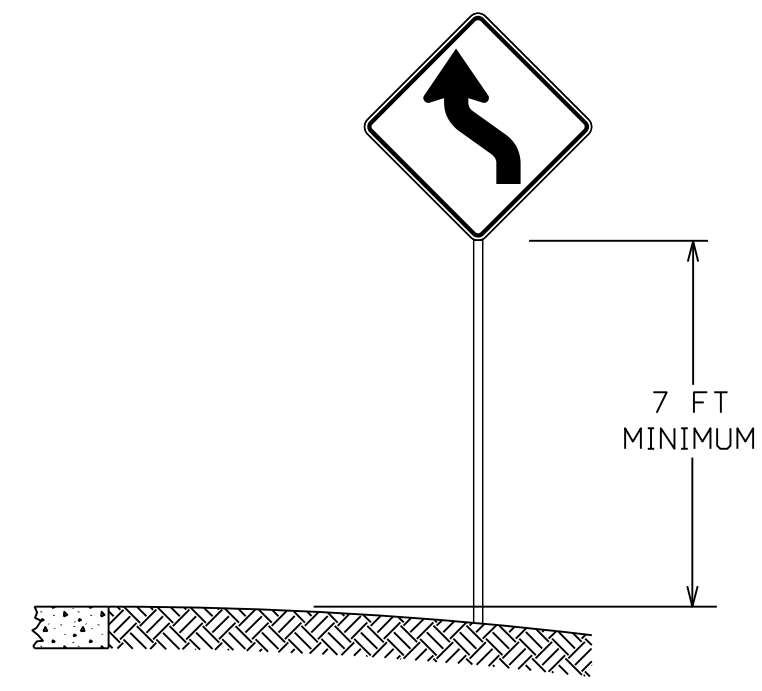
RURAL AREA
EARTHEN SHOULDER



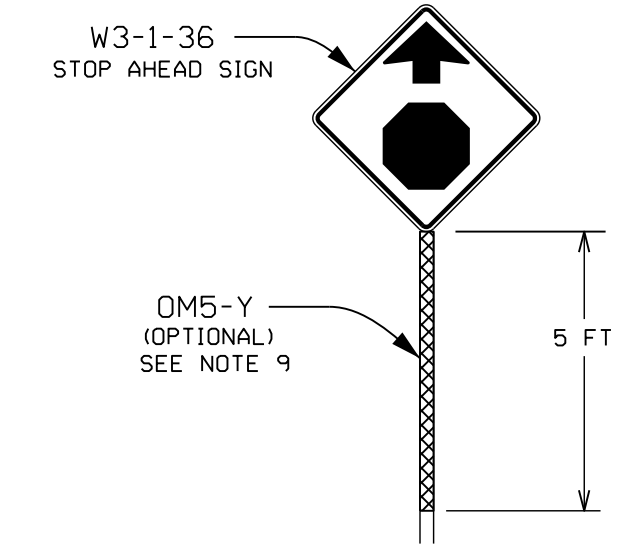
RURAL AREA
PAVED SHOULDER
WIDER THAN 6'



RURAL AREA
WARNING SIGN WITH
ADVISORY SPEED PLAQUE



URBAN AREA
WITHOUT CURB



OM5-Y (OPTIONAL)

GENERAL NOTES

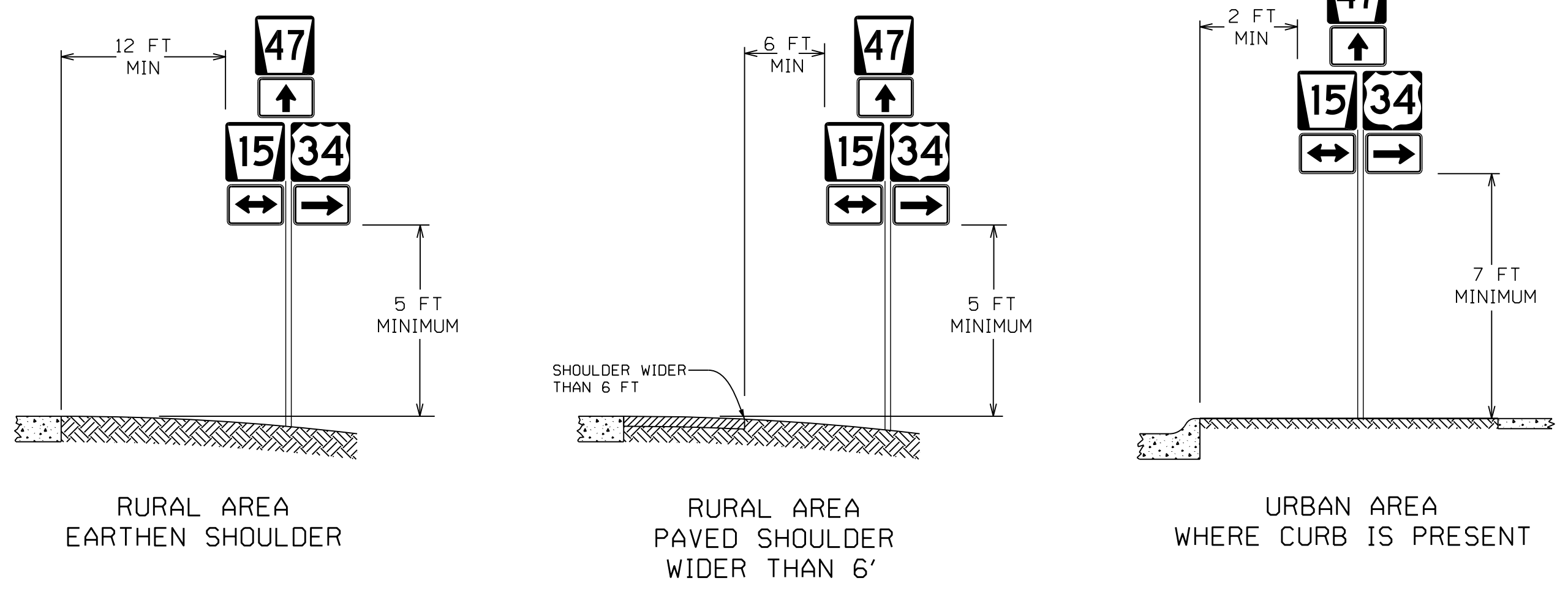
1. A MAXIMUM OF FOUR ADDITIONAL SIGNS MAY BE INSTALLED BELOW THE POPULATION SIGN; REFERENCE NDOT SIGNING POLICY 239.2 FOR MORE DETAILS.
2. SIGNS ARE TO BE INSTALLED SO AS TO NOT RESTRICT THE MOTORIST'S VIEW; FOLLOW SIGN HEIGHT RESTRICTIONS AND SIGN LATERAL LOCATIONS, AS NECESSARY.
3. SIGN(S) SHOULD NOT ENCR OACH UPON/OVER SIDEWALKS.
4. IN URBAN AREAS (BUSINESS, COMMERCIAL, OR RESIDENTIAL) WHERE THE SIDEWALK WIDTH IS LIMITED OR EXISTING UTILITY POLES ARE LOCATED NEAR THE CURB, A MINIMUM 1 FT LATERAL OFFSET FROM THE FACE OF CURB MAY BE USED.
5. A 2 FT LATERAL OFFSET MAY BE USED WHERE THERE ARE WIDTH RESTRICTIONS NOT ALLOWING FOR THE MINIMUM OFFSET SHOWN ON THESE PLANS.
6. CONNECTING ROADWAYS SHALL HAVE A MINIMUM 6 FT OFFSET OF A SIGN FROM THE EDGE OF ROADWAY.
7. REFERENCE MUTCD FIGURE 2A-2, FIGURE 2A-3, SECTION 2A.18, AND SECTION 2A.19 FOR MORE DETAILS ON SIGN HEIGHTS AND SIGN LATERAL LOCATIONS.
8. OM5-R RETROREFLECTIVE MATERIAL ON THE SIGN SUPPORT IS OPTIONAL. IF USED, OM5-R SHALL BE PLACED ON THE SIGN SUPPORT AS FOLLOWS:
 - FOR 5 FT MOUNTING HEIGHTS, OM5-R RETROREFLECTIVE MATERIAL SHALL BE PLACED ON THE SIGN SUPPORT FROM THE BOTTOM OF THE SIGN TO THE TOP OF ROADWAY ELEVATION.
 - FOR 7 FT MOUNTING HEIGHTS, OM5-R RETROREFLECTIVE MATERIAL SHALL BE PLACED ON THE SIGN SUPPORT FROM THE BOTTOM OF THE SIGN TO WITHIN A MAXIMUM 2 FT ABOVE ROADWAY ELEVATION.
9. OM5-Y RETROREFLECTIVE MATERIAL ON THE SIGN SUPPORT IS OPTIONAL. IF USED, OM5-Y RETROREFLECTIVE MATERIAL SHALL BE PLACED ON THE SIGN SUPPORT FROM THE BOTTOM OF THE SIGN TO THE TOP OF ROADWAY ELEVATION.

WARNING SIGN

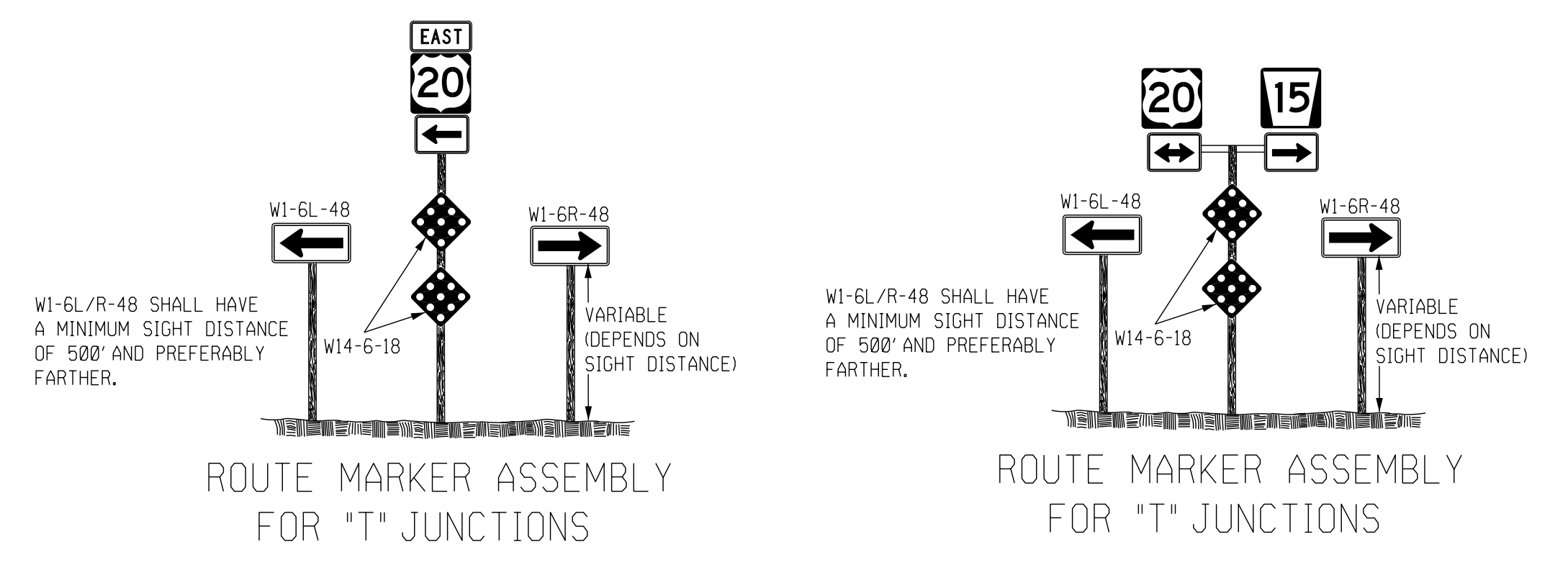
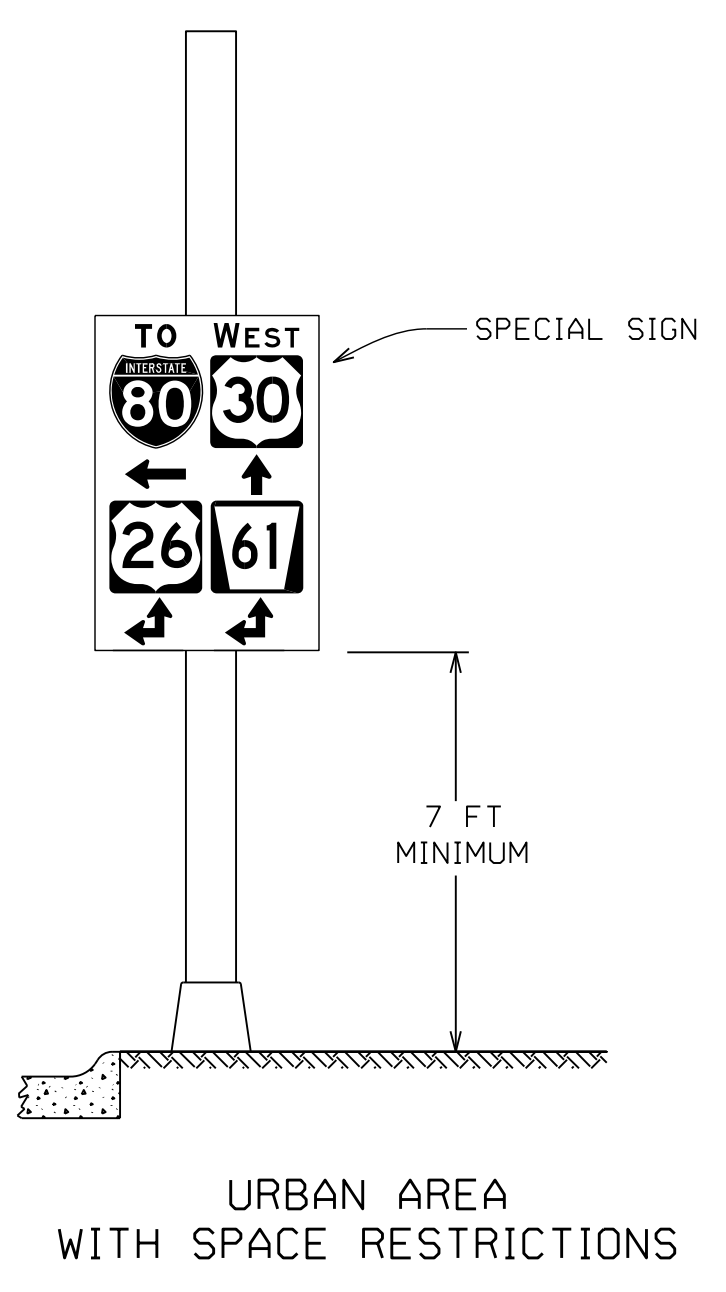
COMPUTER: BG0419M687

DATE: 11-SEP-2023 13:02

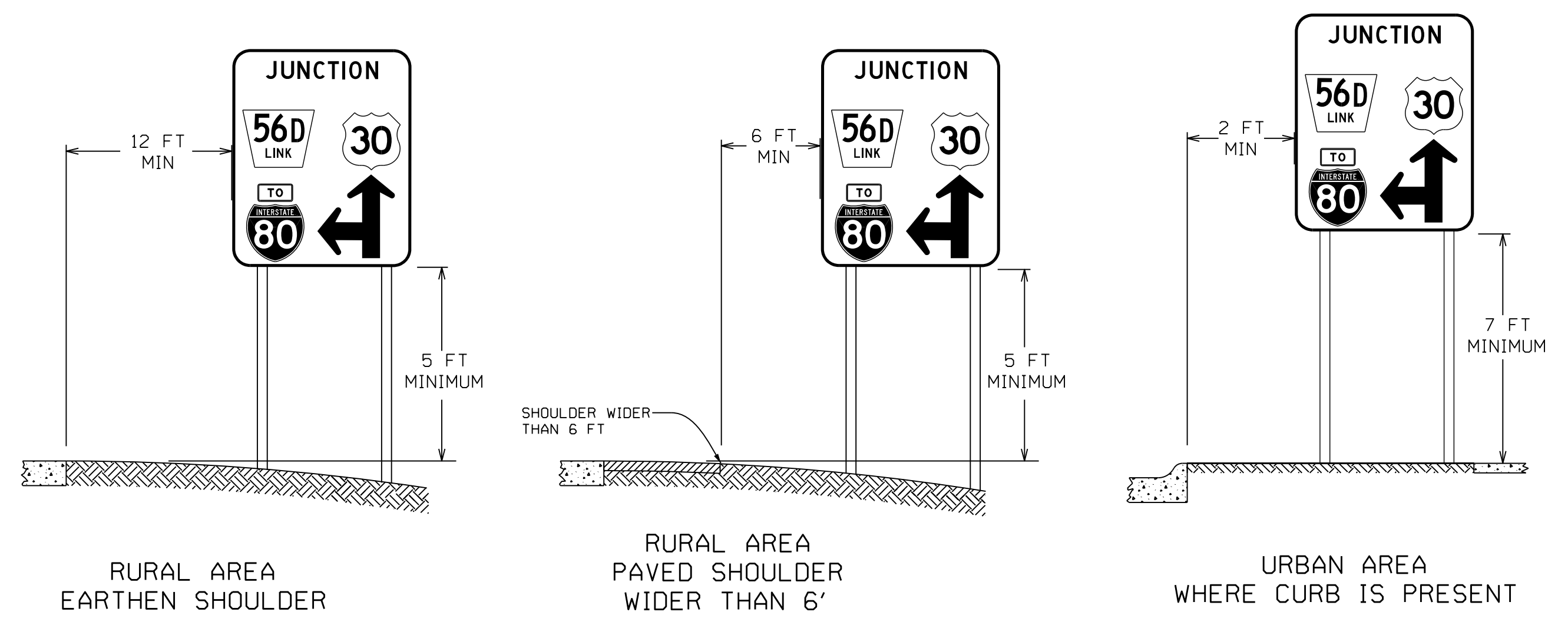
FILE: Sign Location Plan Details.dgn



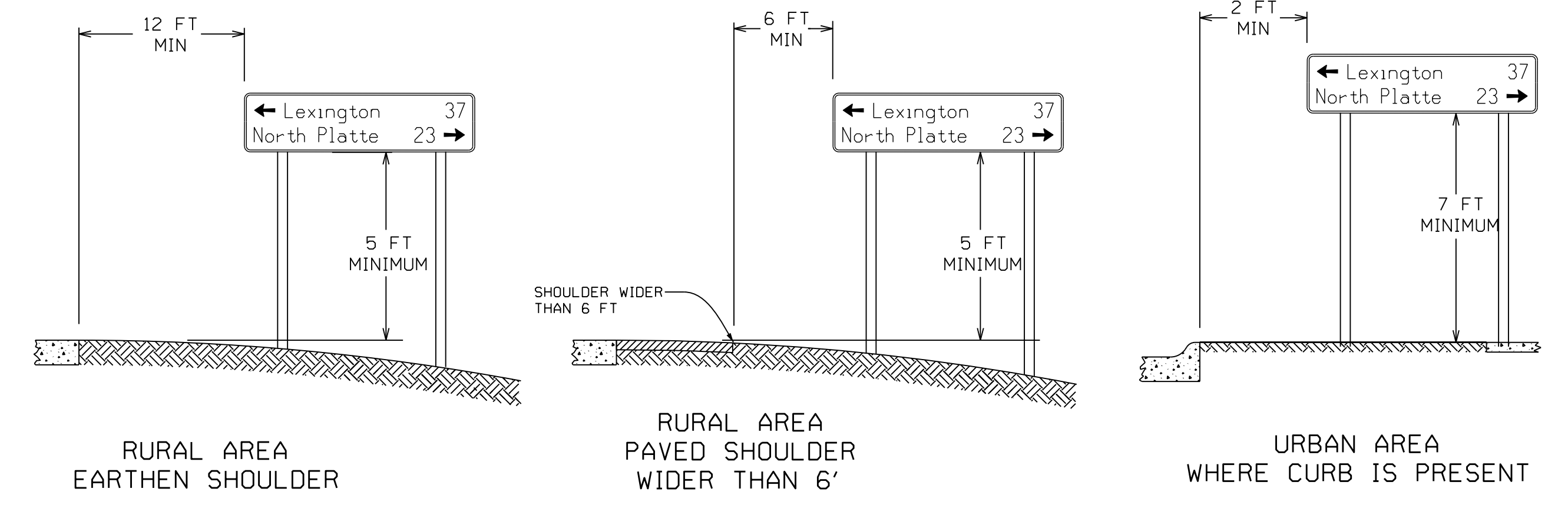
ROUTE SIGN ASSEMBLIES



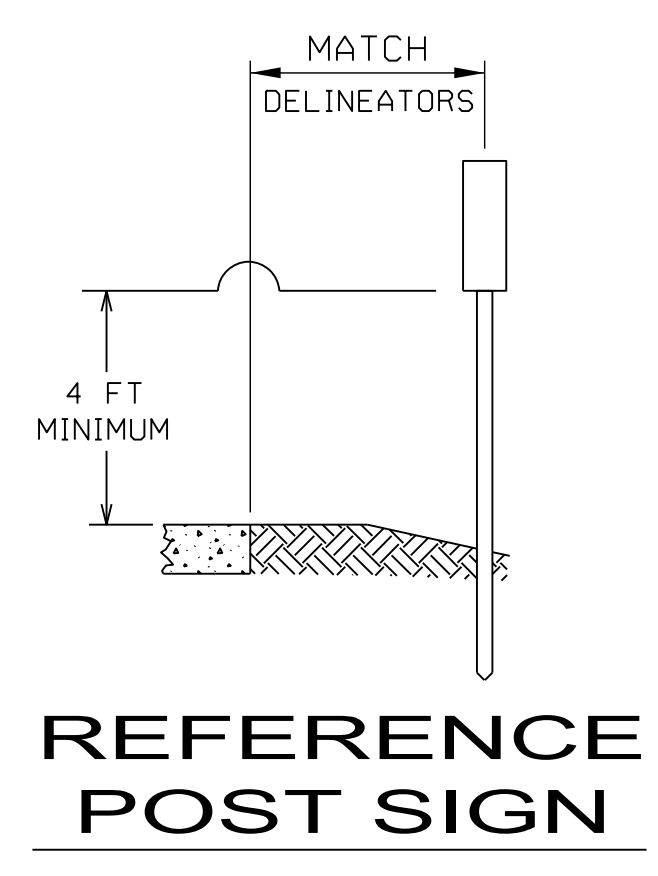
"T" JUNCTION SIGNS



JUNCTION SIGN

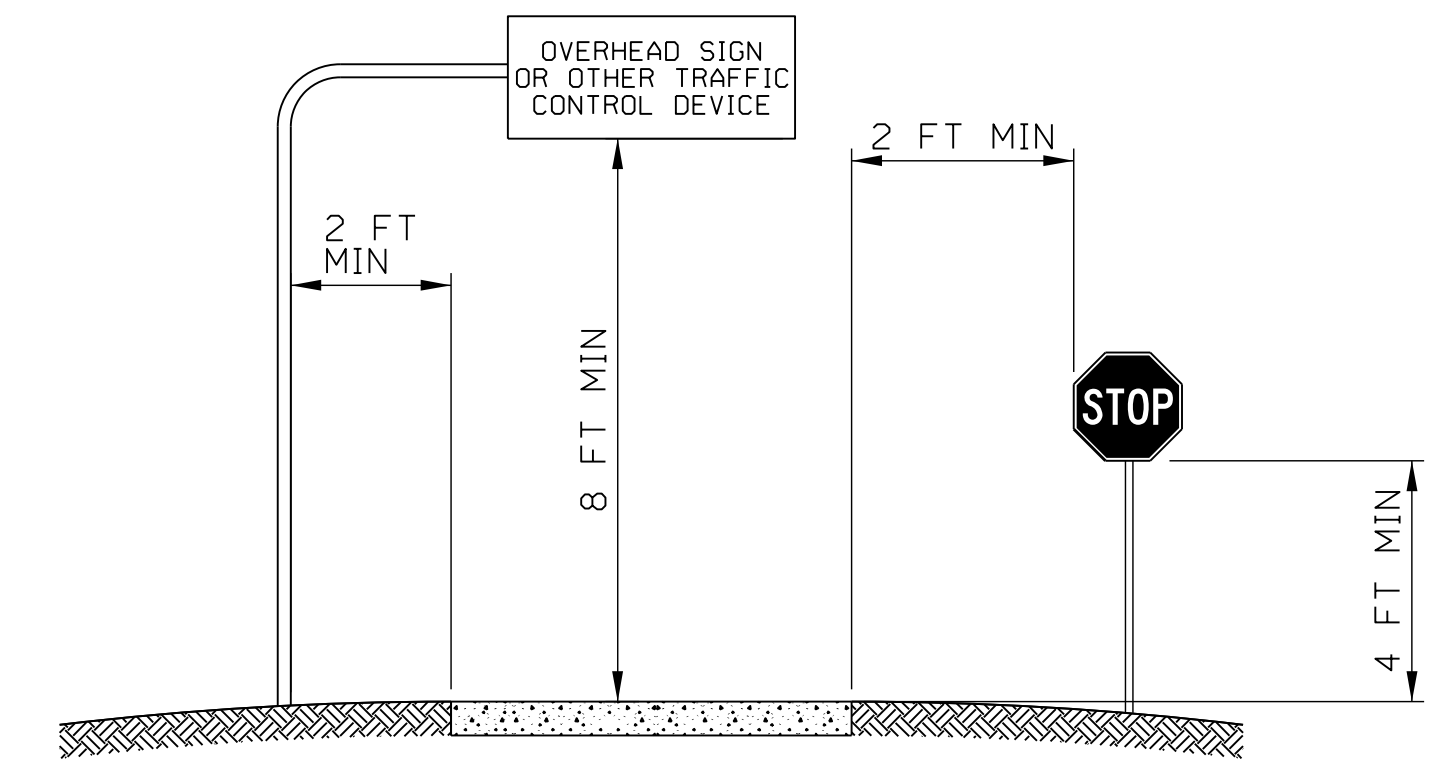


DESTINATION SIGN



GENERAL NOTES

1. A MAXIMUM OF FOUR ADDITIONAL SIGNS MAY BE INSTALLED BELOW THE POPULATION SIGN; REFERENCE NDOT SIGNING POLICY 239.2 FOR MORE DETAILS.
2. SIGNS ARE TO BE INSTALLED SO AS TO NOT RESTRICT THE MOTORIST'S VIEW; FOLLOW SIGN HEIGHT RESTRICTIONS AND ADJUST THE SPACING BETWEEN SIGNS, AS NECESSARY.
3. SIGN(S) SHOULD NOT ENCROACH UPON/OVER SIDEWALKS.
4. IN URBAN AREAS (BUSINESS, COMMERCIAL, OR RESIDENTIAL) WHERE THE SIDEWALK WIDTH IS LIMITED OR EXISTING UTILITY POLES ARE LOCATED NEAR THE CURB, A MINIMUM 1' LATERAL OFFSET FROM THE FACE OF CURB MAY BE USED.
5. A 2' LATERAL OFFSET MAY BE USED WHERE THERE ARE WIDTH RESTRICTIONS NOT ALLOWING FOR THE MINIMUM OFFSET SHOWN ON THESE PLANS.
6. CONNECTING ROADWAYS SHALL HAVE A MINIMUM 6' OFFSET OF A SIGN FROM THE EDGE OF ROADWAY.
7. REFERENCE MUTCD FIGURE 2A-2, FIGURE 2A-3, SECTION 2A.18, AND SECTION 2A.19 FOR MORE DETAILS ON SIGN HEIGHTS AND SIGN LATERAL LOCATIONS.



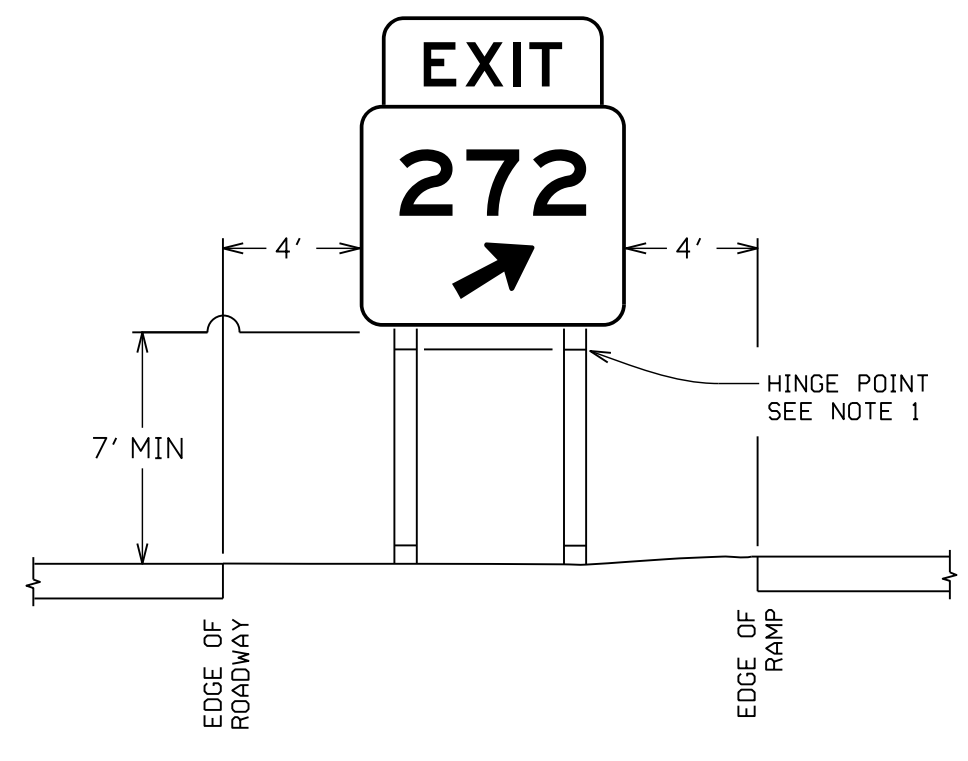
BIKE/PED PATH

ON APPROACH TO HIGHWAY CROSSING
NOTES 4, 5, AND 6 DO NOT APPLY TO BIKE/PED PATH

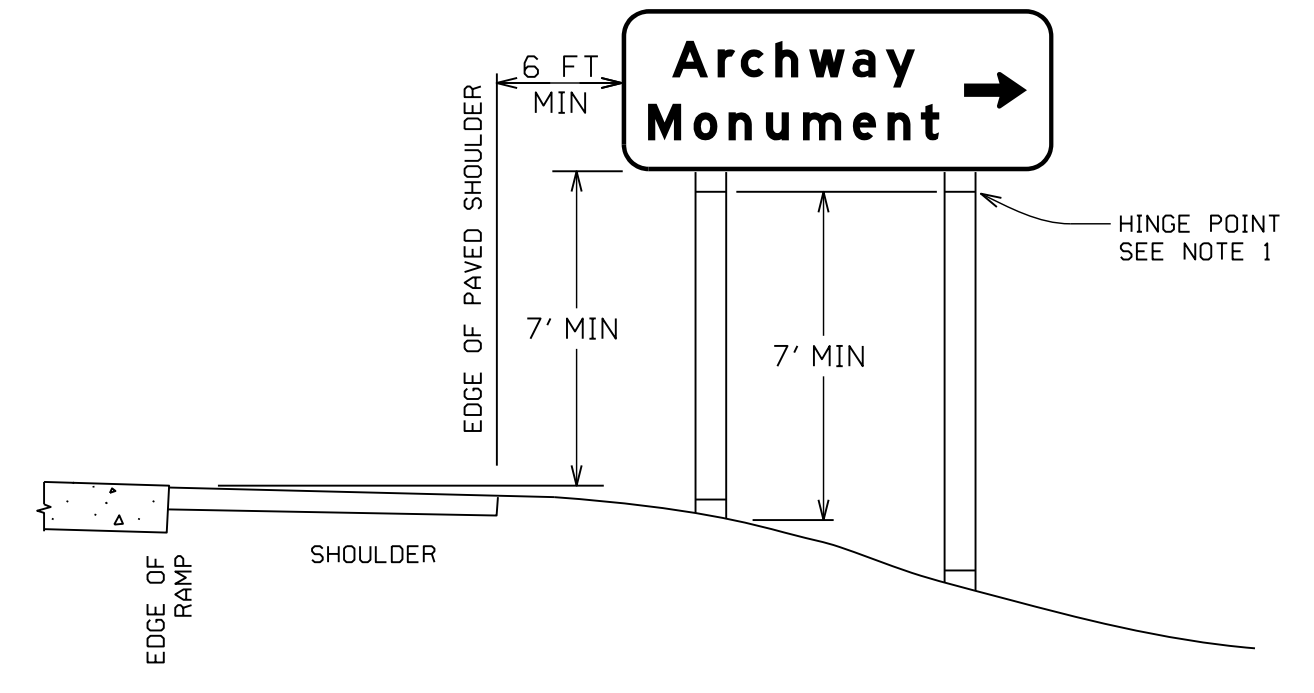
COMPUTER: BG0419M687
DATE: 11-SEP-2023 13:02
FILE: Sign Location Plan Details.dgn

SIGN DETAIL PLAN
SIGN HEIGHT AND LATERAL PLACEMENT

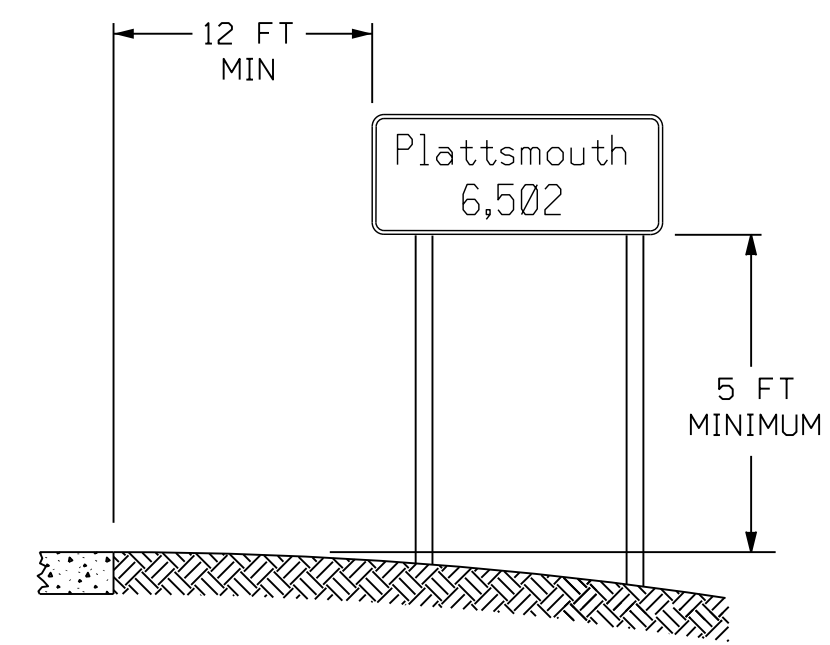
DESIGNED BY NRL
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION
DATE 03/23



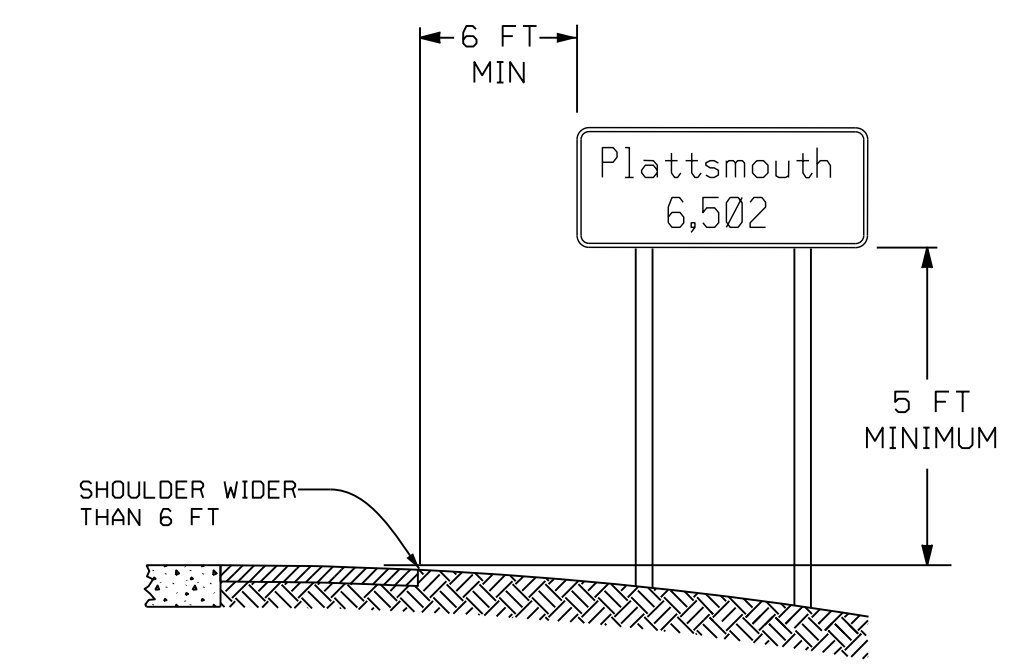
EXIT SIGNS AT CORE AREA



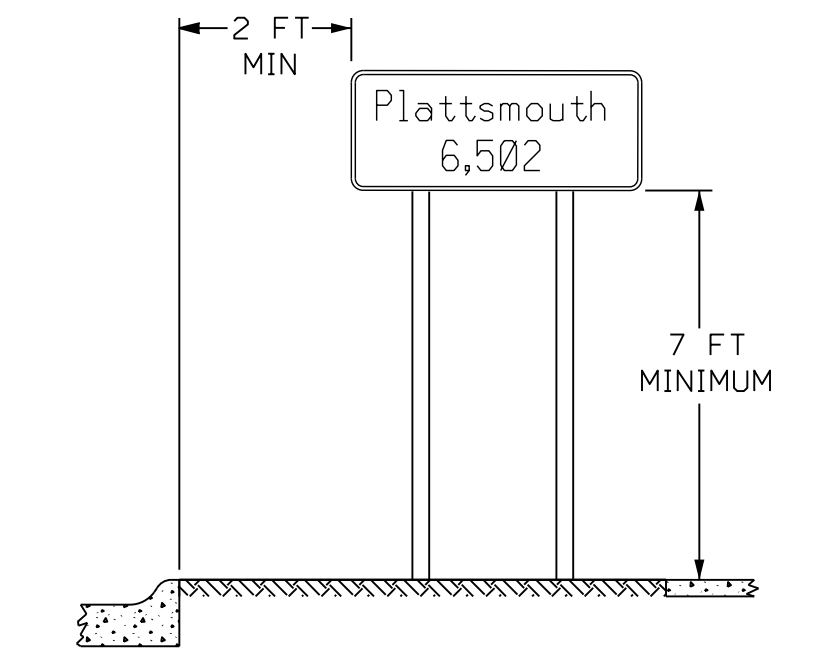
RAMP SIGNS LOCATED OFF FREEWAY



RURAL AREA EARTHEN SHOULDER



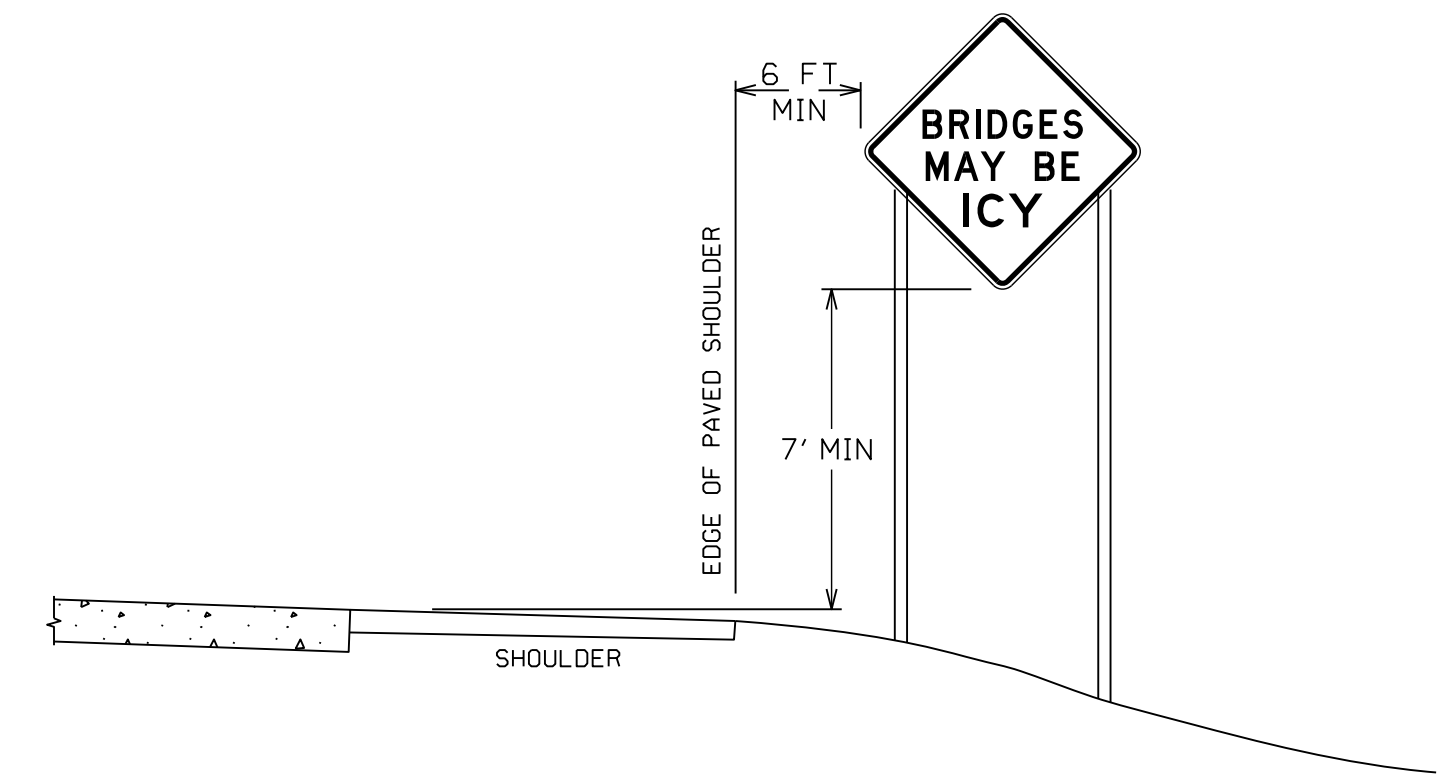
RURAL AREA PAVED SHOULDER WIDER THAN 6'



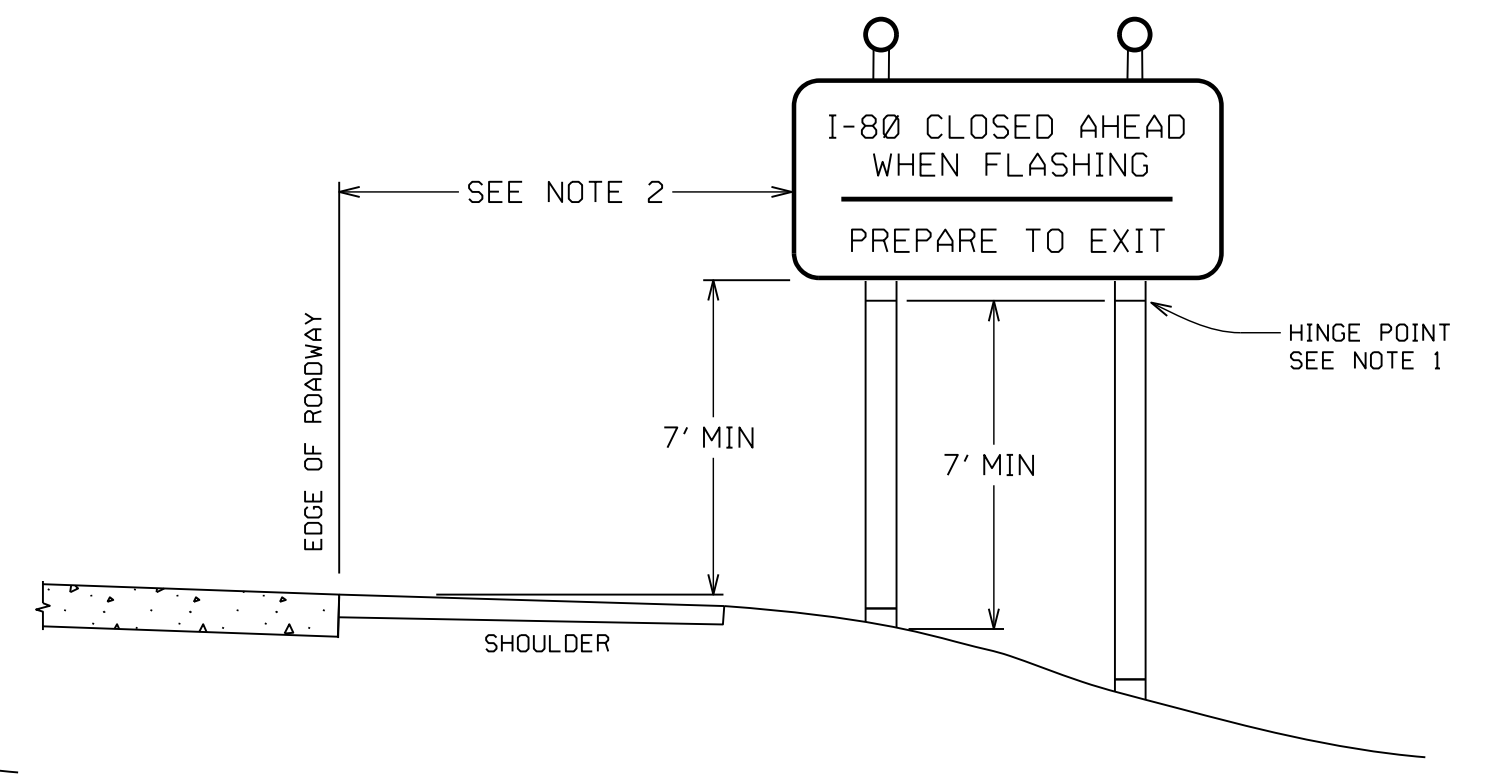
URBAN AREA WHERE CURB IS PRESENT

FREEWAY GORE AND RAMP SIGNING

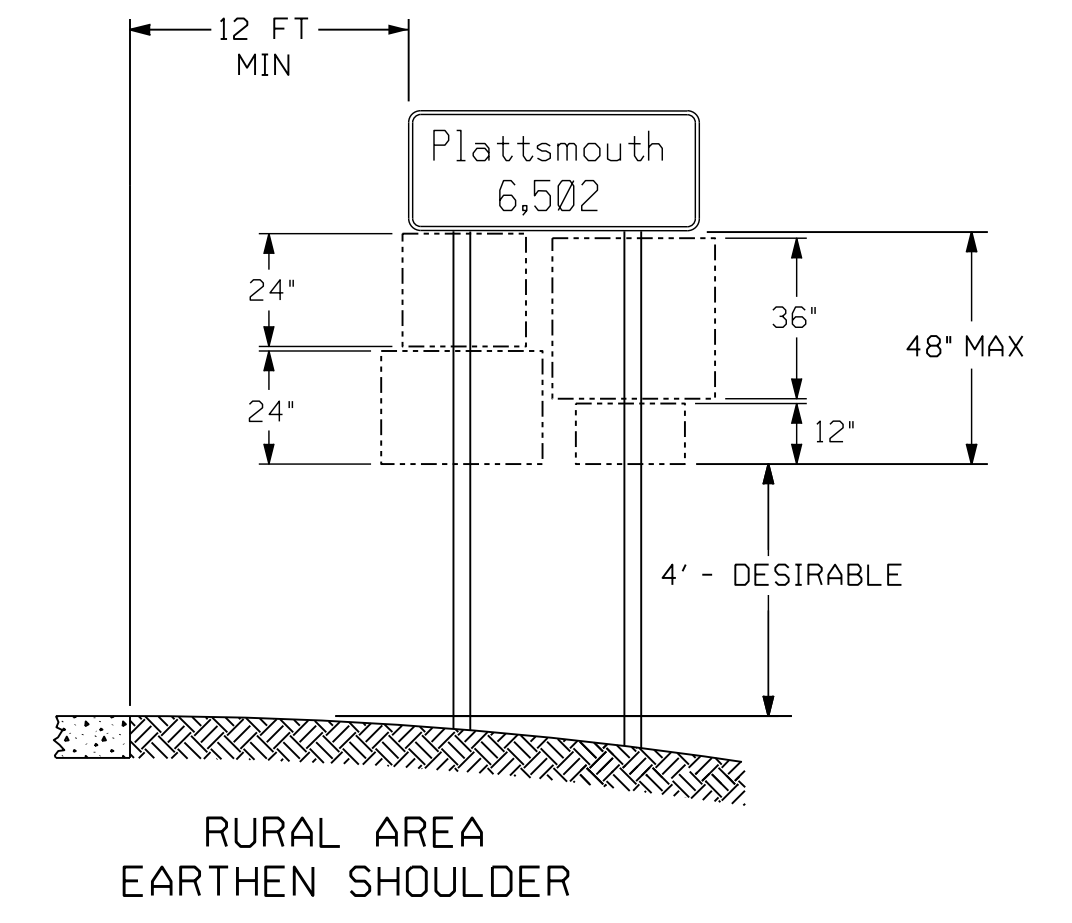
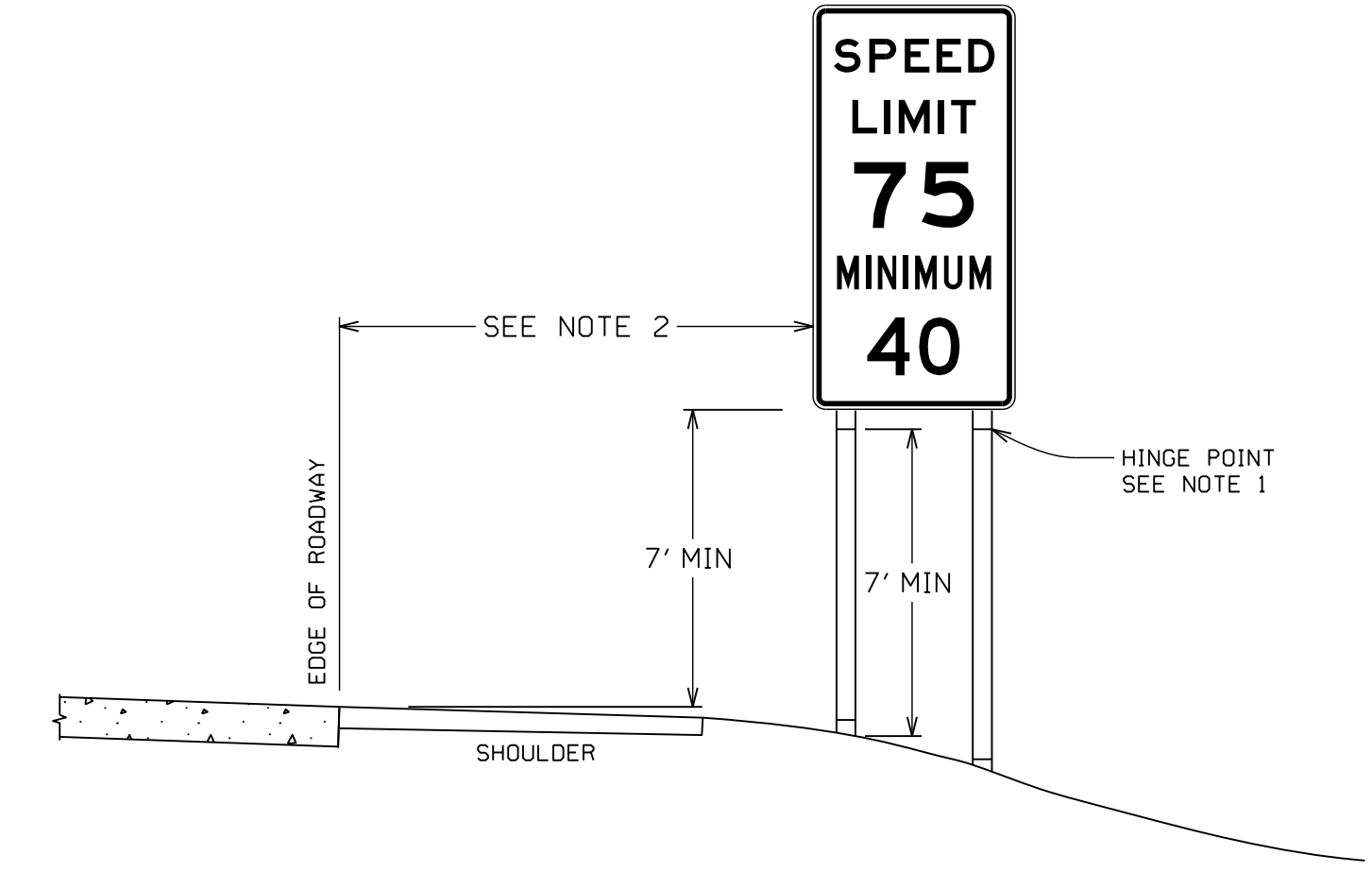
POPULATION SIGN



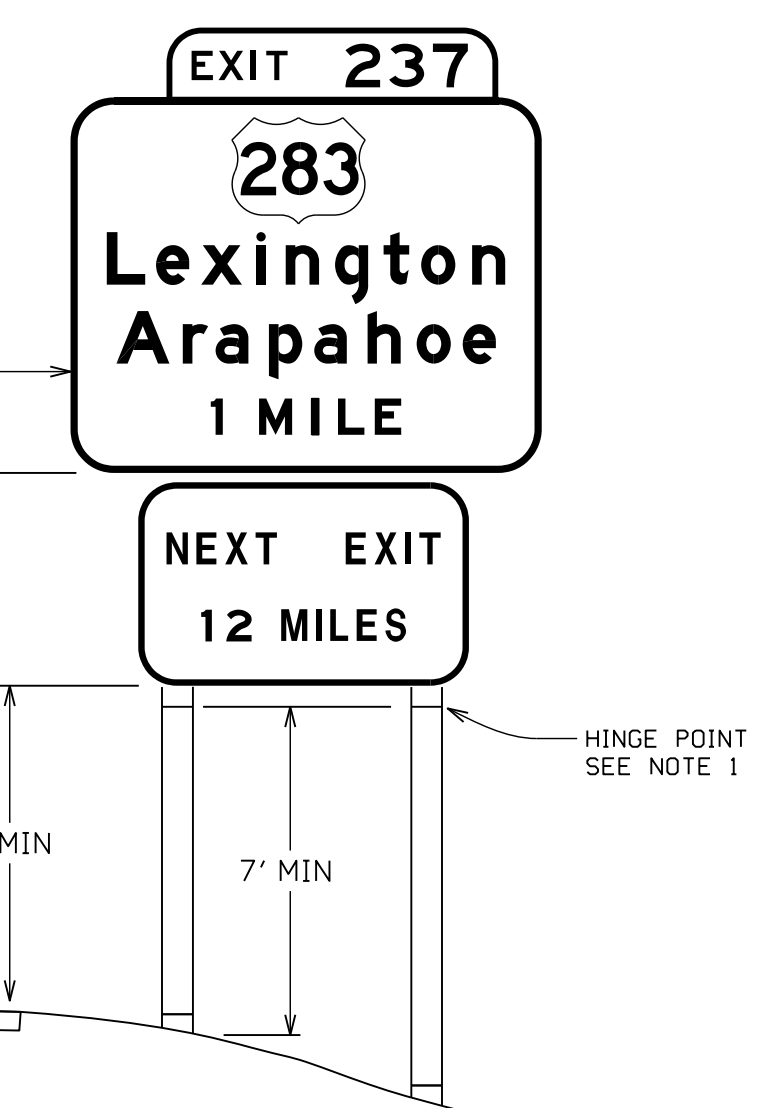
FREEWAY WARNING SIGNING



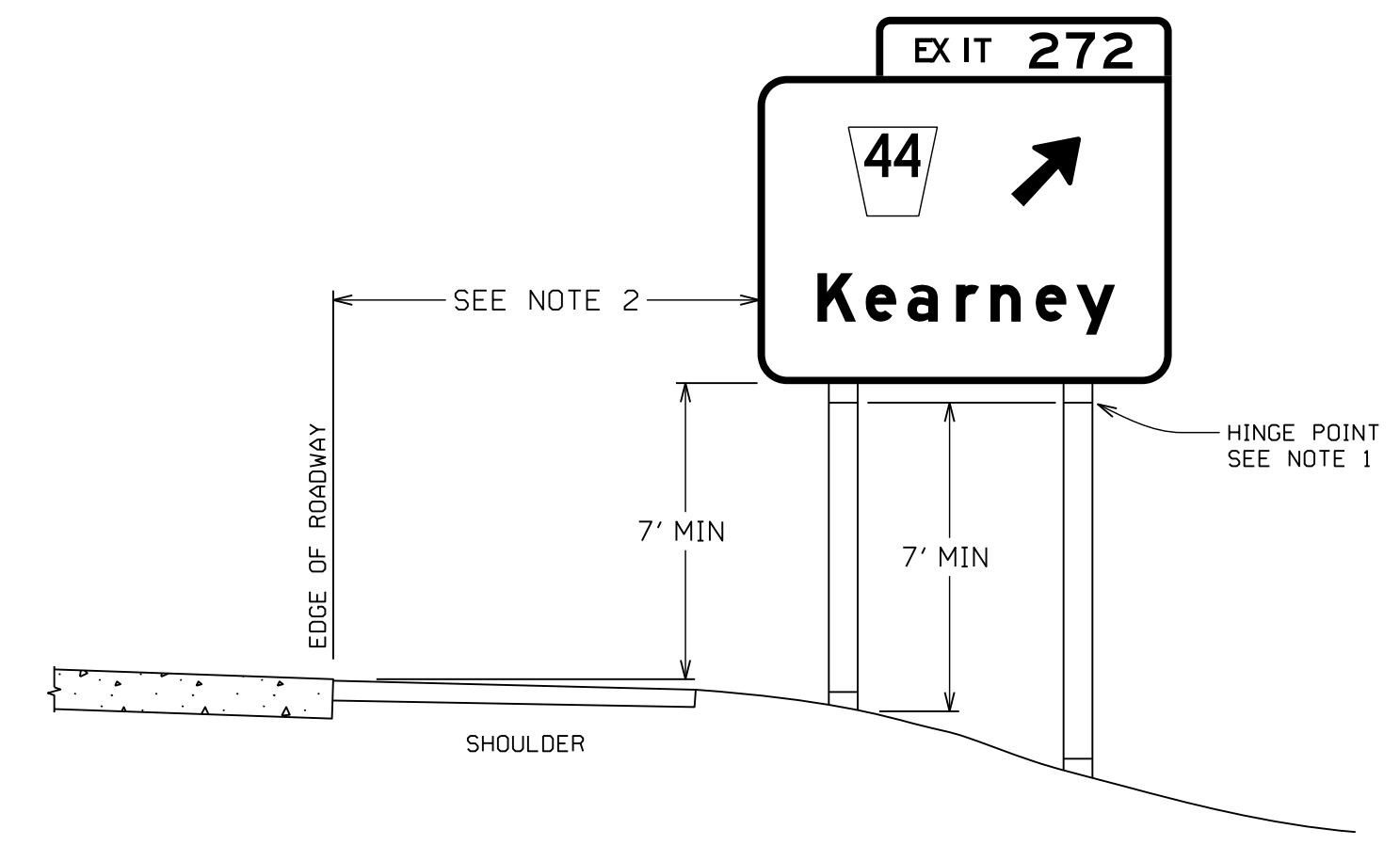
FREEWAY REGULATORY SIGNING



RURAL AREA EARTHEN SHOULDER

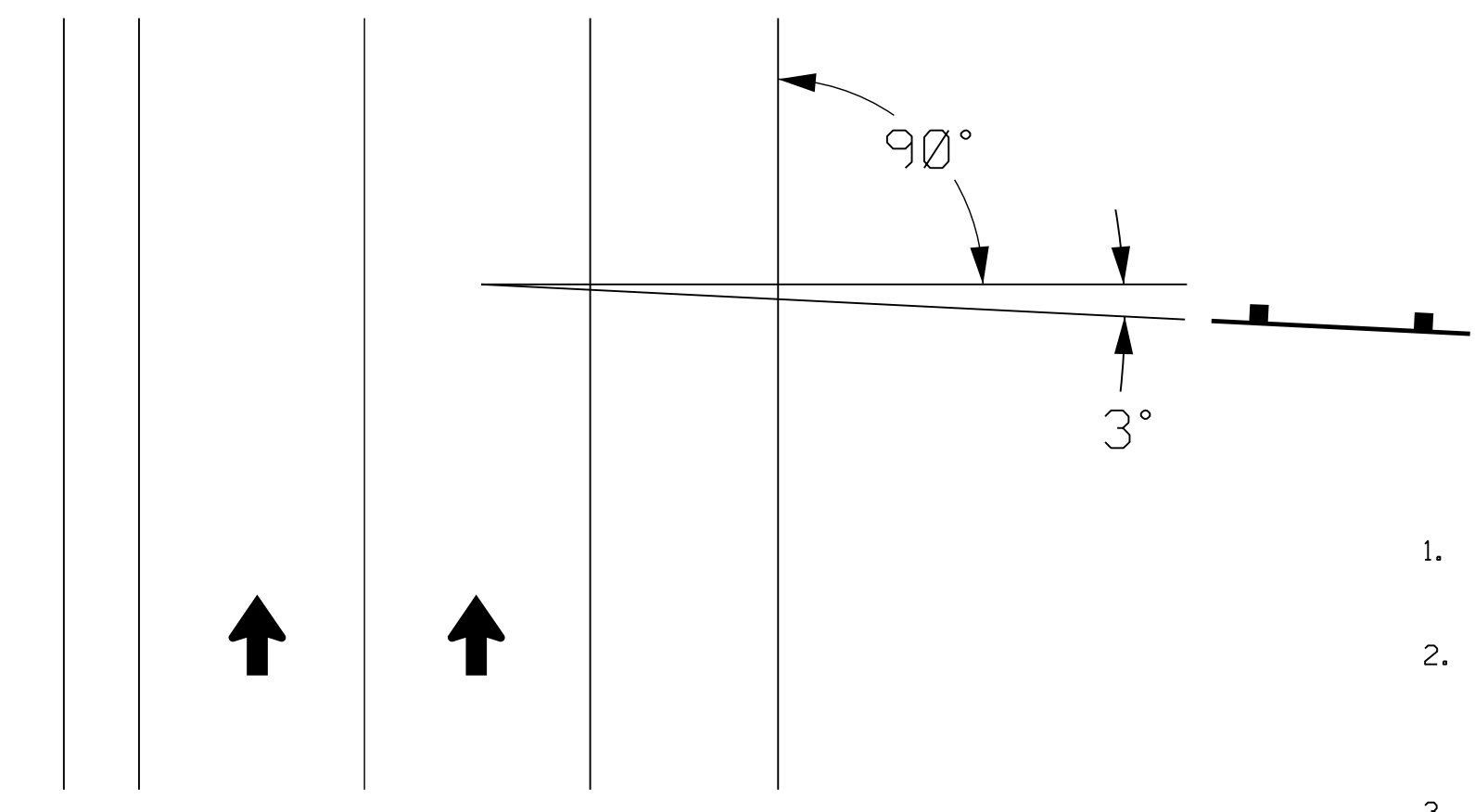


SUPPLEMENTARY SIGN MOUNTING FOR SIGNS LOCATED ON FREEWAY



SIGNS LOCATED ON FREEWAY

FREEWAY GUIDE SIGNING



SIGN ORIENTATION

SEE NOTE 3

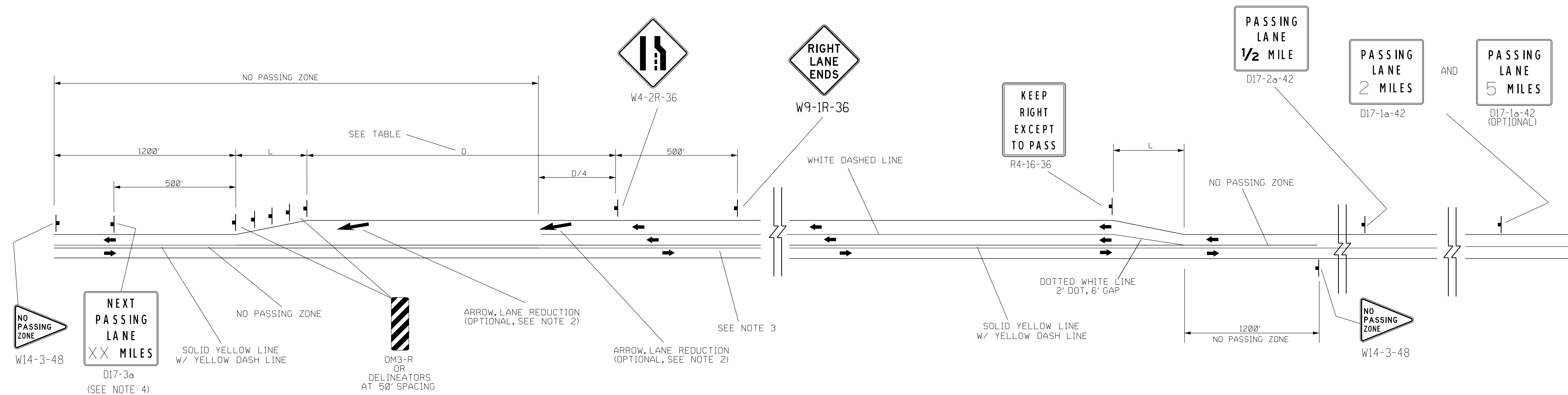
GENERAL NOTES

1. THE HINGE POINT SHALL BE A MINIMUM 7' ABOVE GROUND ELEVATION AND NO SUPPLEMENTAL SIGNS ARE TO BE INSTALLED BELOW THE HINGE POINT.
2. MINIMUM DISTANCE FROM THE EDGE OF ROADWAY TO THE SIGN'S EDGE SHALL BE:
35' ON RURAL FREEWAY/INTERSTATE,
30' ON URBAN FREEWAY/INTERSTATE
30' ON RURAL OR URBAN EXPRESSWAY
3. SIGN-FACE ORIENTATION SHALL BE ANGLED AS SHOWN TO REDUCE RETROREFLECTIVE GLARE.
4. REFERENCE MUTCD FIGURE 2A-2, FIGURE 2A-3, SECTION 2A.18, AND SECTION 2A.19 FOR MORE DETAILS ON SIGN HEIGHTS AND SIGN LATERAL LOCATIONS.

COMPUTER: BG0419M687

DATE: 11-SEP-2023 13:02

FILE: Sign Location Plan Details.dgn



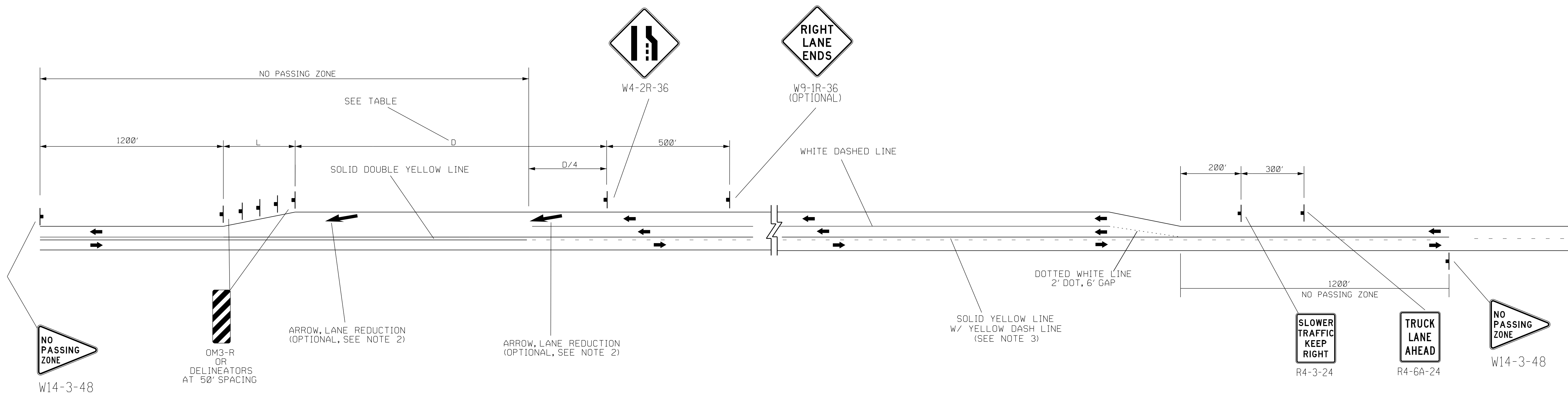
GENERAL NOTES

- SEE SECTION 2C.05 OF THE MUTCD FOR GUIDELINES ON ADVANCE PLACEMENT OF WARNING SIGNS.
- LANE-REDUCTION ARROWS ARE OPTIONAL FOR SPEEDS OF LESS THAN 45 MPH.
- IF CONDITIONS WARRANT, A NORMAL BROKEN YELLOW LINE INDICATING PASSING WITH CARE MAY BE USED AT THE APPROPRIATE LOCATIONS IN THE SIGNAL LANE DIRECTION. OTHERWISE, A DOUBLE SOLID YELLOW (NO PASSING) MARKING SHOULD BE USED FOR BOTH DIRECTIONS OF TRAVEL.
- D17-3A SHALL BE USED WHEN DISTANCE TO NEXT PASSING LANE IS GREATER THAN 5 MILES.

TAPER RATE FORMULA
 $L = W \text{ (LANE WITH)} \times S \text{ (POSTED SPEED)}$

DISTANCE "D"	
POSTED OR 85TH PERCENTILE SPEED	CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC
45 MPH	775 FT
50 MPH	885 FT
55 MPH	990 FT
60 MPH	1100 FT
65 MPH	1200 FT
70 MPH	1250 FT

COMPUTER: BG0419M687
 DATE: 16-OCT-2023 15:19
 FILE: Super2 Highway.dgn



GENERAL NOTES

- SEE SECTION 2C.05 OF THE MUTCD FOR GUIDELINES ON ADVANCE PLACEMENT OF WARNING SIGNS.
- LANE-REDUCTION ARROWS ARE OPTIONAL FOR SPEEDS OF LESS THAN 45 MPH.
- IF CONDITIONS WARRANT, A NORMAL BROKEN YELLOW LINE INDICATING PASSING WITH CARE MAY BE USED AT THE APPROPRIATE LOCATIONS IN THE SINGLE LANE DIRECTION. OTHERWISE, A DOUBLE SOLID YELLOW (NO PASSING) MARKING SHOULD BE USED FOR BOTH DIRECTIONS OF TRAVEL.

TAPER RATE FORMULA

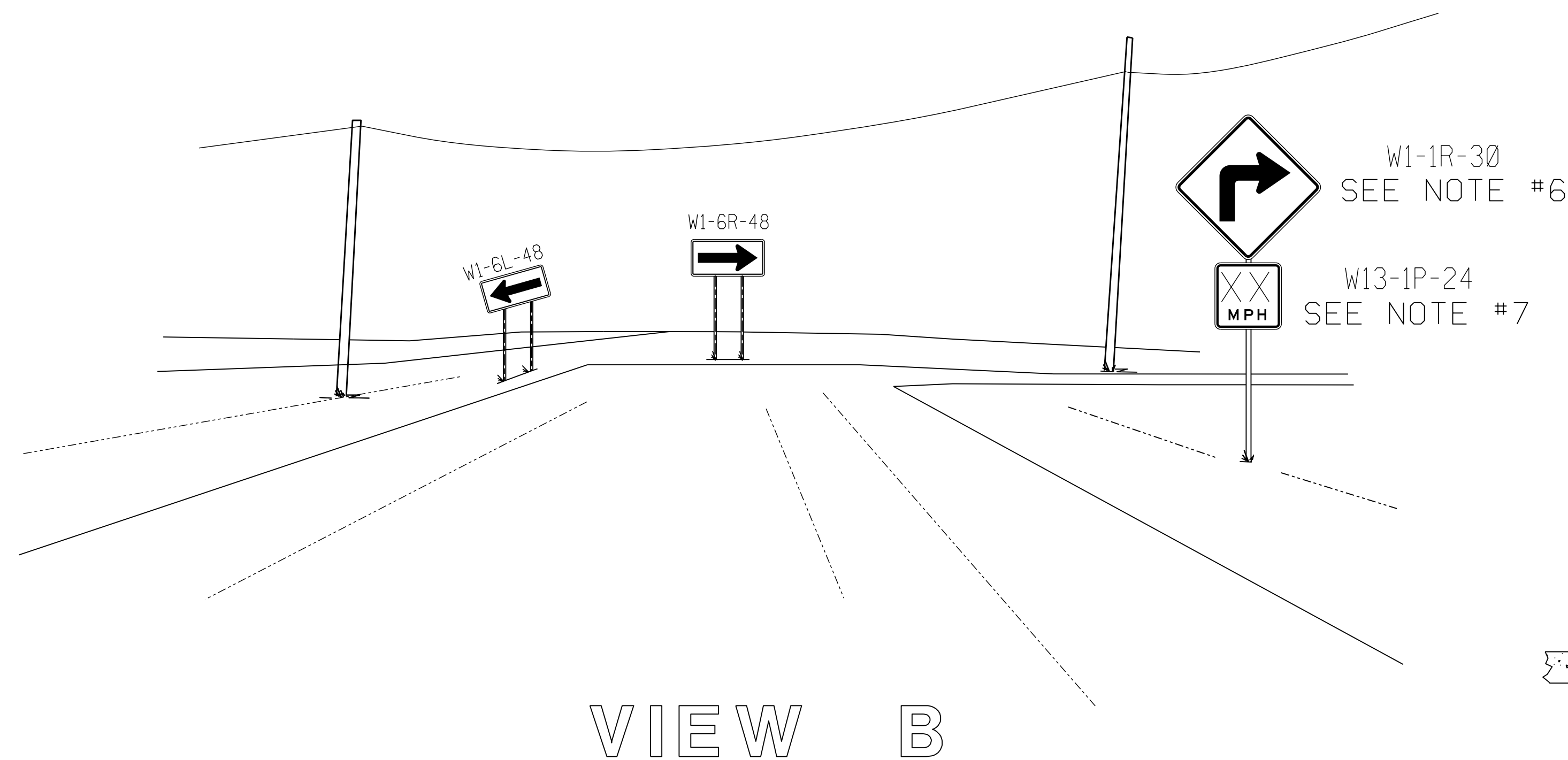
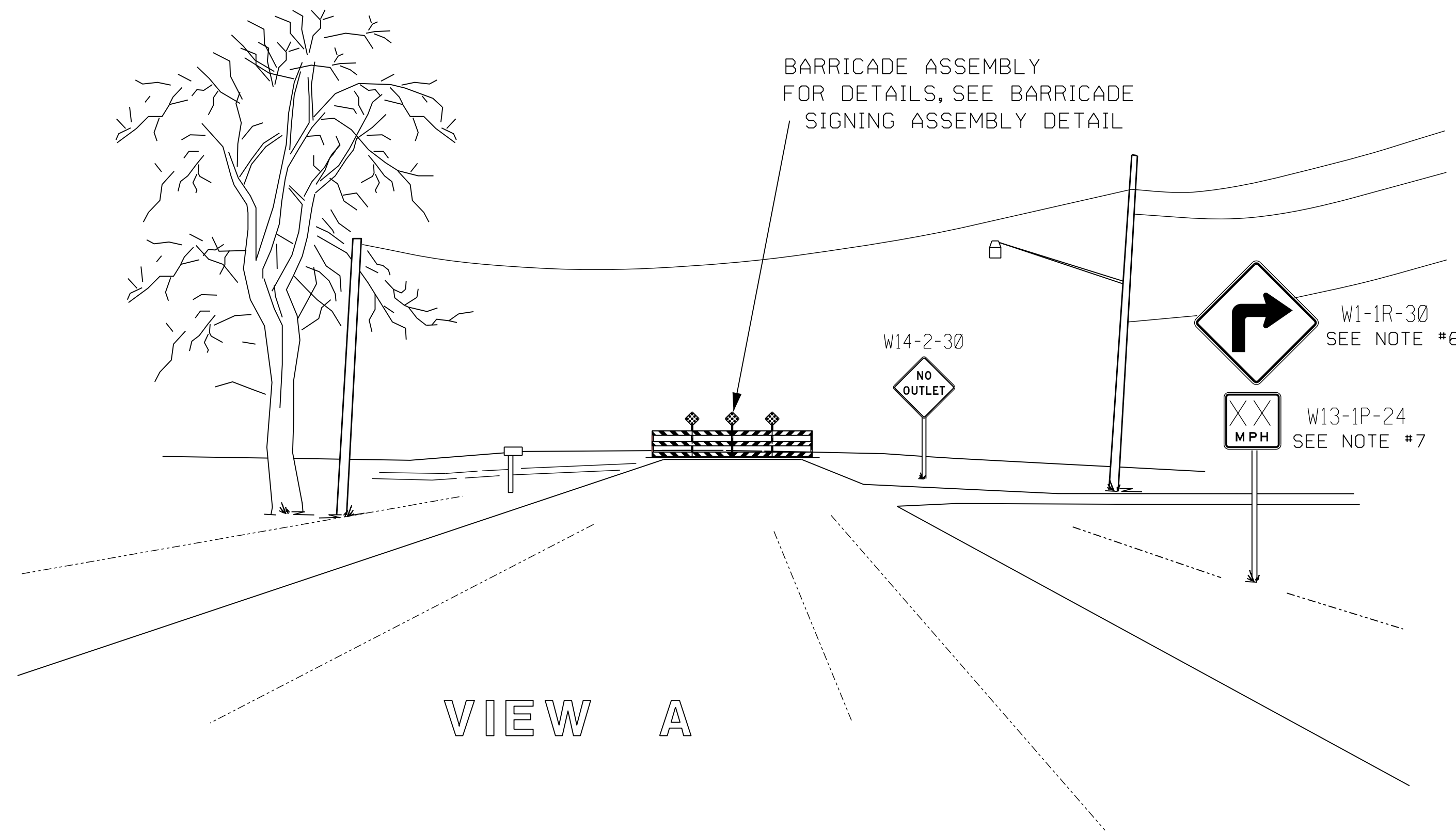
$$L = W (\text{LANE WIDTH}) \times S (\text{POSTED SPEED})$$

DISTANCE "D"

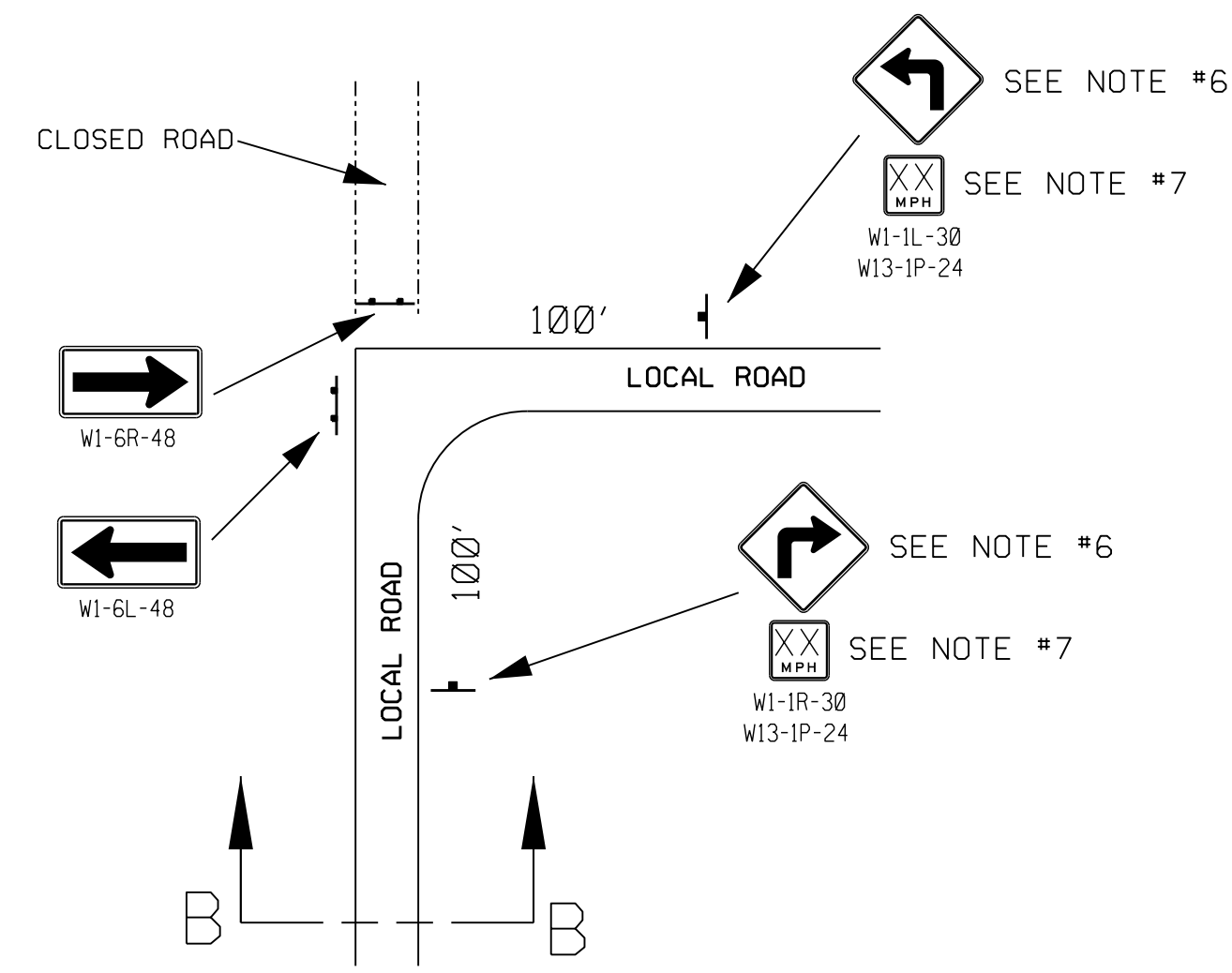
POSTED OR 85TH PERCENTILE SPEED	CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC
45 MPH	775 FT
50 MPH	885 FT
55 MPH	990 FT
60 MPH	1100 FT
65 MPH	1200 FT
70 MPH	1250 FT

COMPUTER: BG0419M687
DATE: 11-SEP-2023 13:00
FILE: Truck Climbing Lane.dgn

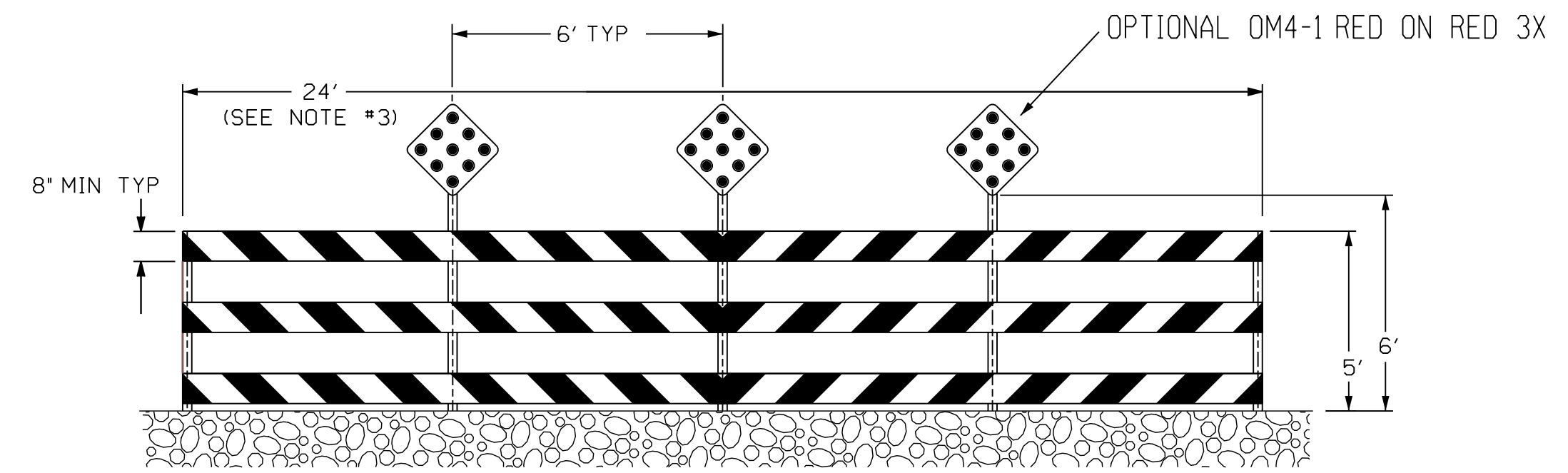
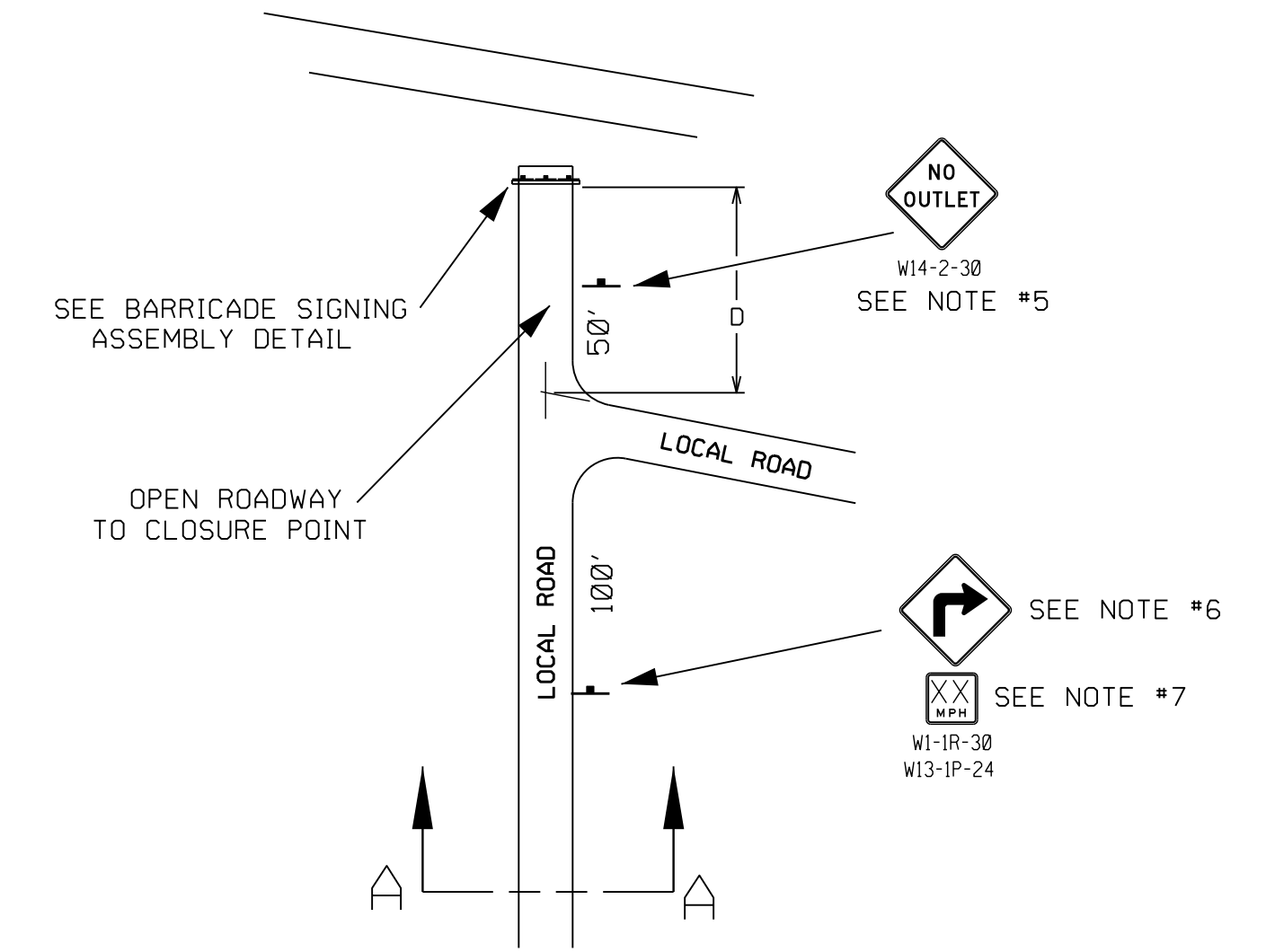
URBAN LOW SPEED ROAD CLOSURES



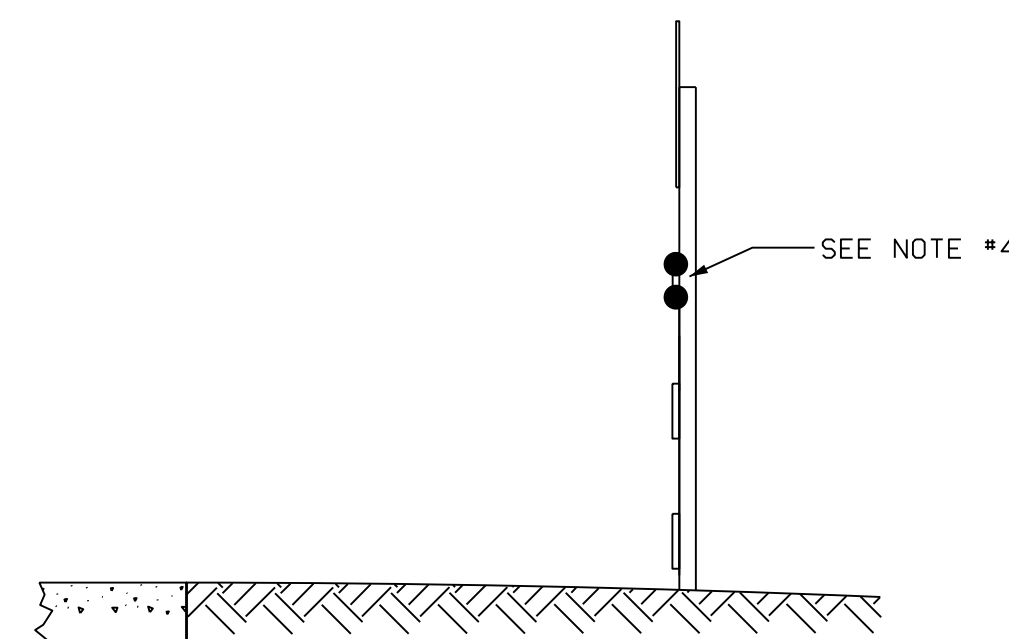
CLOSED "T" INTERSECTION NO ACCESS



OPEN "T" INTERSECTION WITH LOCAL ACCESS TO DEAD END



BARRICADE SIGNING ASSEMBLY



END VIEW OF BARRICADE

GENERAL NOTES

1. BARRICADE SPECIFICATIONS:
 - NCHRP 350 COMPLIANT
 - 6' STRIPE WIDTH
 - ALTERNATING RETROREFLECTIVE RED STRIPES WITH RETROREFLECTIVE WHITE STRIPES, SLOPING DOWNWARD AT 45° ANGLE TOWARD CENTER OF BARRIERS. SEE 'VIEW A' BELOW.
2. WARNING SIGN COLORS SHALL BE BLACK TEXT ON A FLUORESCENT YELLOW BACKGROUND.
3. INSTALL BARRICADE SIGNING ASSEMBLY PERPENDICULAR TO APPROACH ROAD.
4. INSTALL TWO YELLOW RETROREFLECTORS AT EACH END OF BARRICADE SLAT OF BARRICADE SIGNING ASSEMBLY.
5. OMIT 'NO OUTLET' SIGN (W14-2-30) IF DISTANCE 'D' IS LESS THAN 300'.
6. HORIZONTAL ALIGNMENT SIGNS (W1-1L-30 AND W1-1R-30) ARE TO BE INSTALLED FOR SPEED LIMITS 30 MPH OR LOWER (REFERENCE MUTCD TABLE 2C-5).
7. ADVISORY SPEED PLAQUE (W13-1P-18) IS OPTIONAL. BALL-BANKING TEST SHALL BE USED TO DETERMINE ADVISORY SPEED.

XX

Project Number
###-##(###)

C.N. #####

TYPICAL TRAFFIC CONTROL PLAN
PERMANENT URBAN ROAD CLOSURE
"T" INTERSECTIONS

DESIGNED BY AJM
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION
DATE 10/23

PLAN SHEET NUMBER	1 1
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COMPUTER: BG0419M687

DATE: 17-OCT-2023 07:44

FILE: urbclose-1.dgn

XX

Project Number
###-##(###)

C.N. #####

TYPICAL TRAFFIC CONTROL PLAN
PERMANENT URBAN ROAD CLOSURE
PEDESTRIAN STRUCTURE
DESIGNED BY AJM
DATE 10/23
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER
1
1

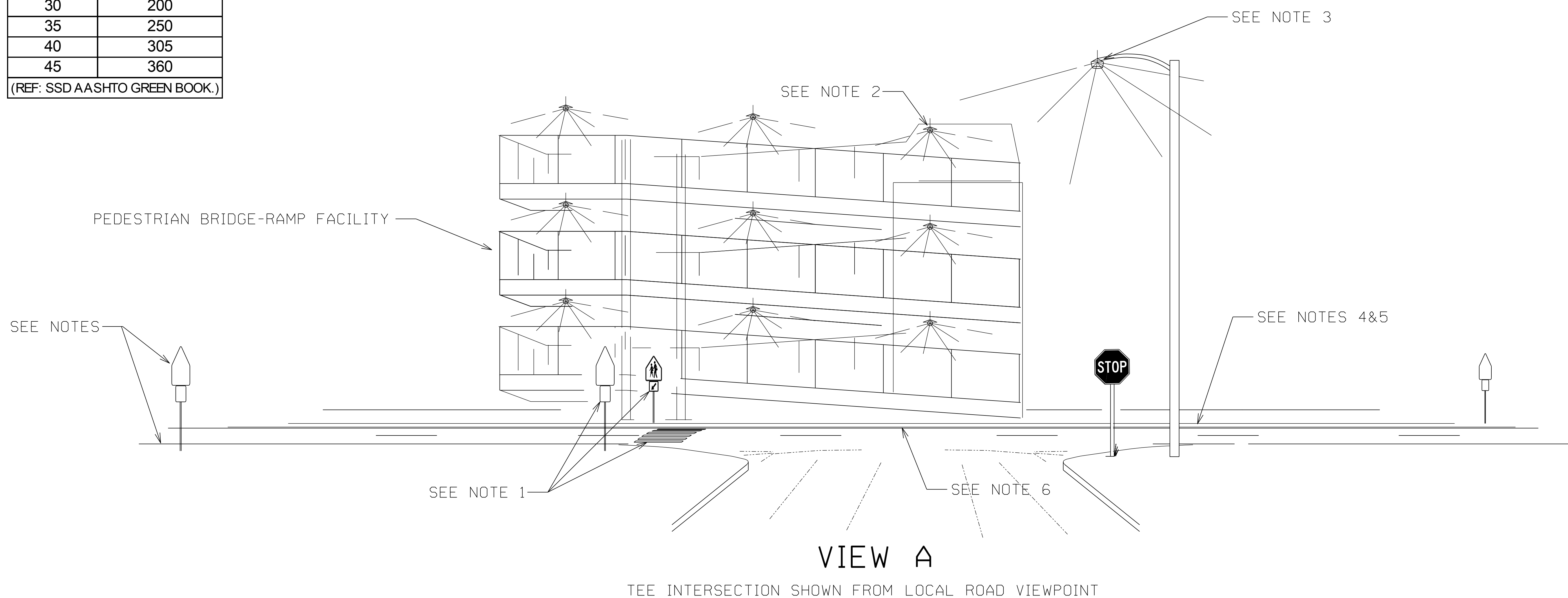
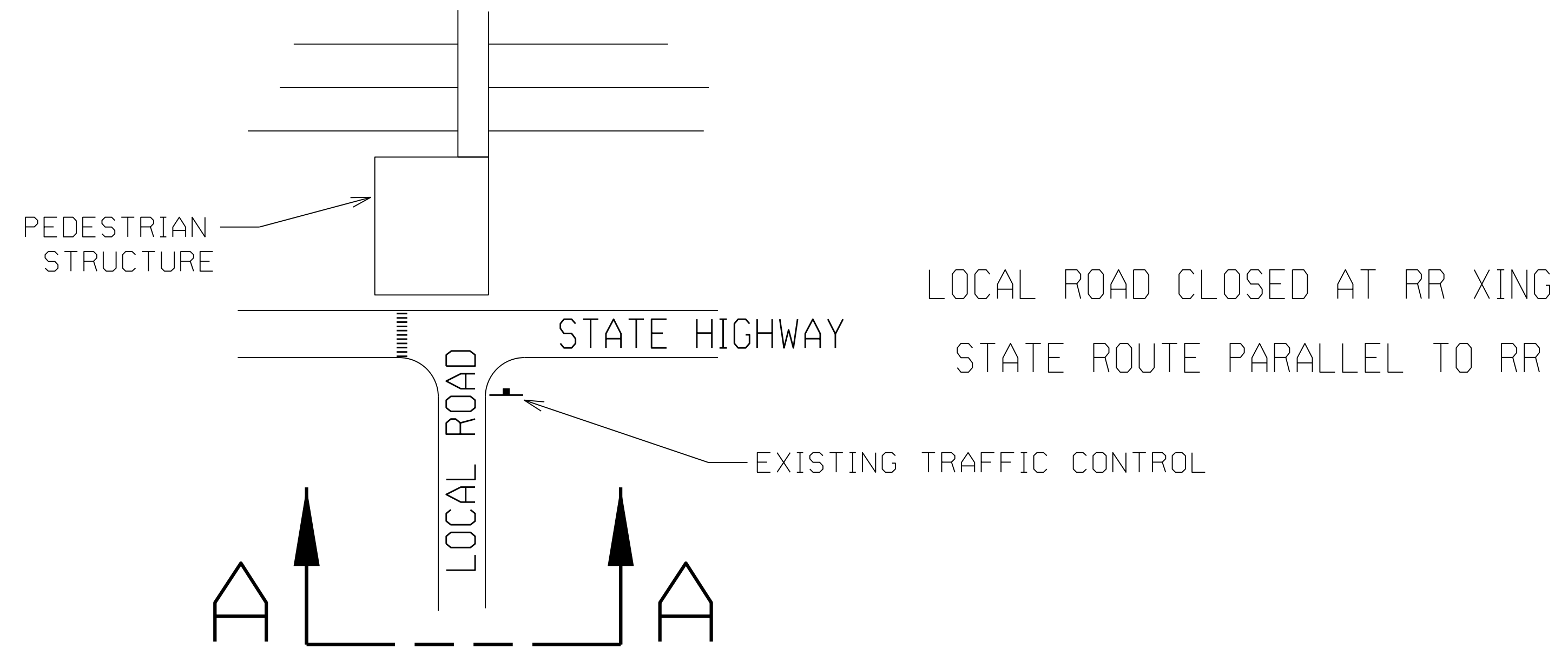
NOTES

1. SEE NEBRASKA MUTCD SUPPLEMENT FOR SCHOOL ZONE OR PEDESTRIAN SIGNING AND CROSSWALK MARKING REQUIREMENTS.
2. IF PEDESTRIAN STRUCTURE IS LIGHTED AND IS WITHIN THE CONE OF VISION OF APPROACHING DRIVERS, THEN NO ADDITION SIGNING OR MARKINGS ARE NEEDED TO OFFSET CLOSED ROAD CONDITION.
3. IF AREA INTERSECTION LIGHTING IS PRESENT, THEN NO ADDITION SIGNING OR MARKINGS ARE NEEDED TO OFFSET CLOSED ROAD CONDITION.
4. IF NO AREA LIGHTING EXISTS, INSTALL YELLOW CURB MARKINGS ACROSS FROM APPROACH ROAD.
5. INSTALL NO PARKING ZONE ON STATE HIGHWAY IN ADVANCE OF PEDESTRIAN CROSSING. SEE TABLE BELOW FOR LENGTH OF PARKING PROHIBITION ZONE.
6. INSTALL OR RESTORE CONTINUOUS EDGELINE ON STATE ROAD ACROSS INTERSECTION ON CLOSED ROAD SIDE.

IF SPEED LIMIT IS (mph)	MIN LENGTH OF NO PARKING ZONE ON APPROACHES (ft)
25	155
30	200
35	250
40	305
45	360

(REF: SSD AASHTO GREEN BOOK.)

URBAN RR CROSSING CLOSURE WITH PEDESTRIAN BRIDGE

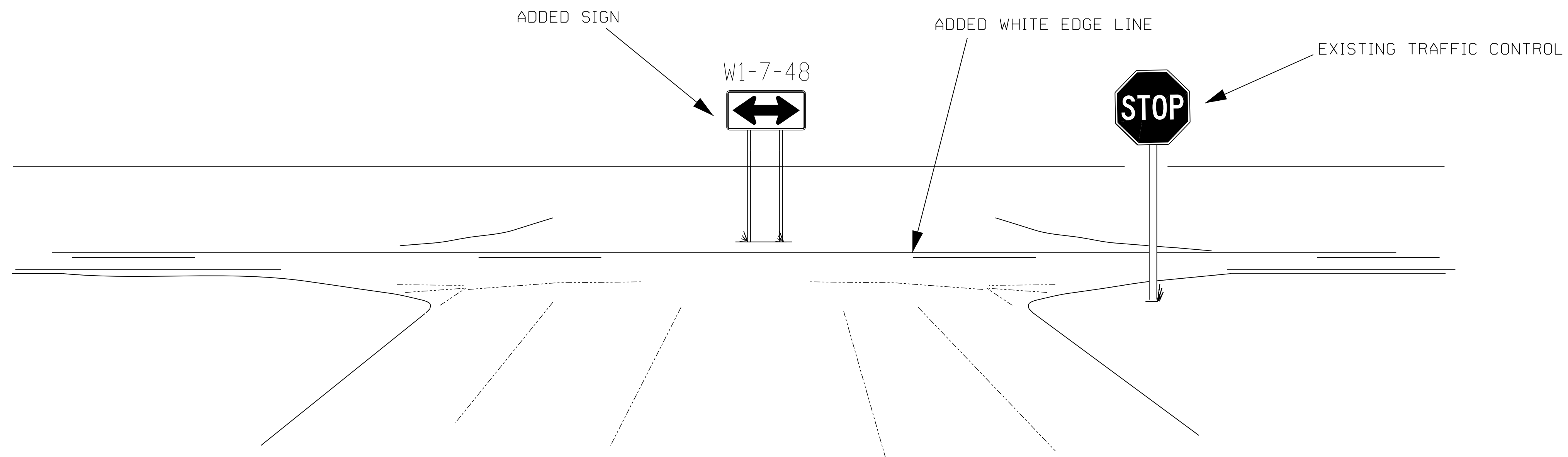
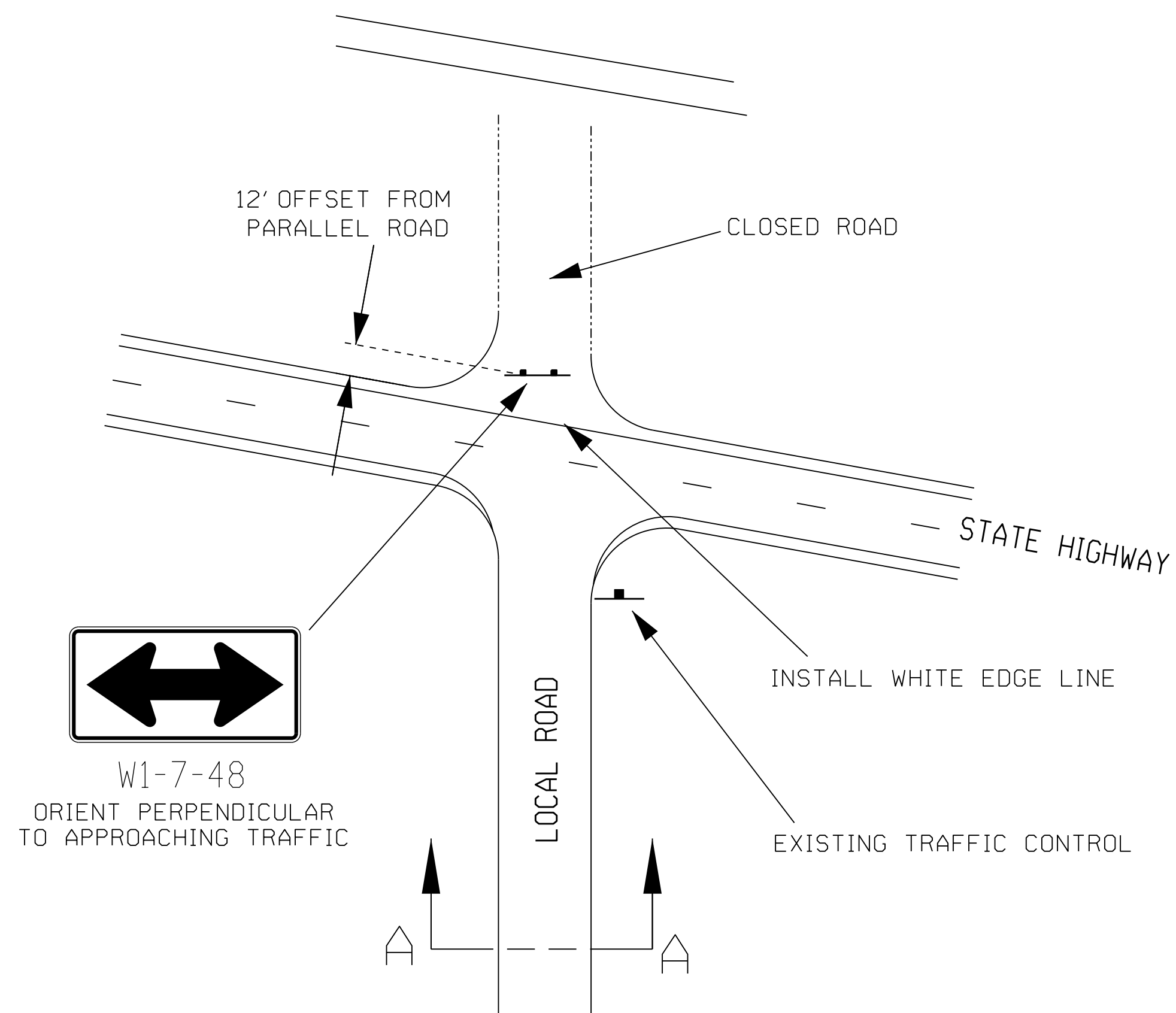


COMPUTER: BG0419M687

DATE: 17-OCT-2023 07:44

FILE: urbclose-2.dgn

URBAN ROAD CLOSURE AT STATE ROUTE JUNCTION



VIEW A

"T" INTERSECTION SHOWN FROM LOCAL ROAD VIEWPOINT

XX

Project Number
###-#(###)

C.N. #####

TYPICAL TRAFFIC CONTROL PLAN
PERMANENT URBAN ROAD CLOSURE
LOCAL ROAD JCT WITH STATE ROUTE

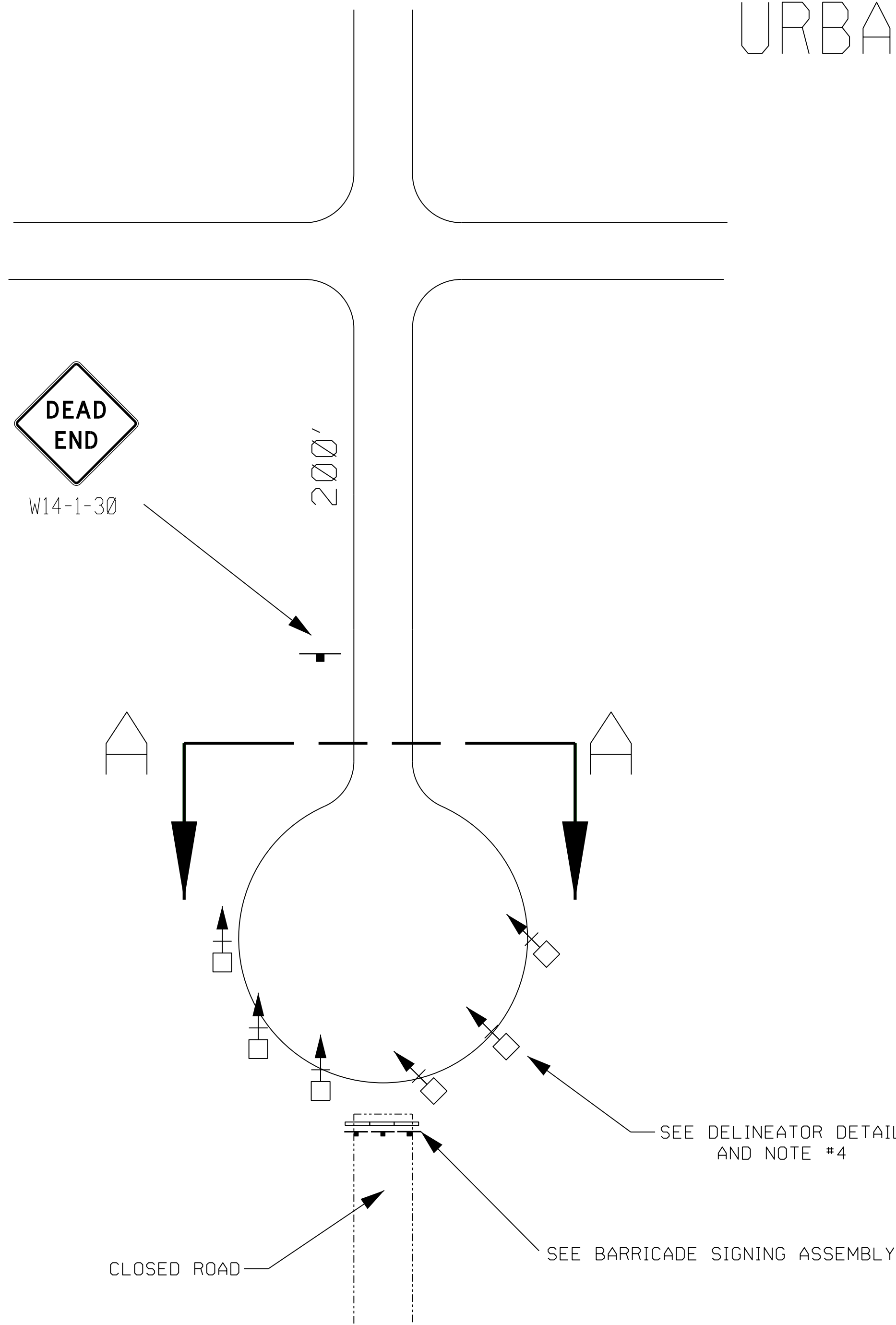
DATE 10/23

DESIGNED BY AJM

NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

PLAN SHEET NUMBER
1 / 1

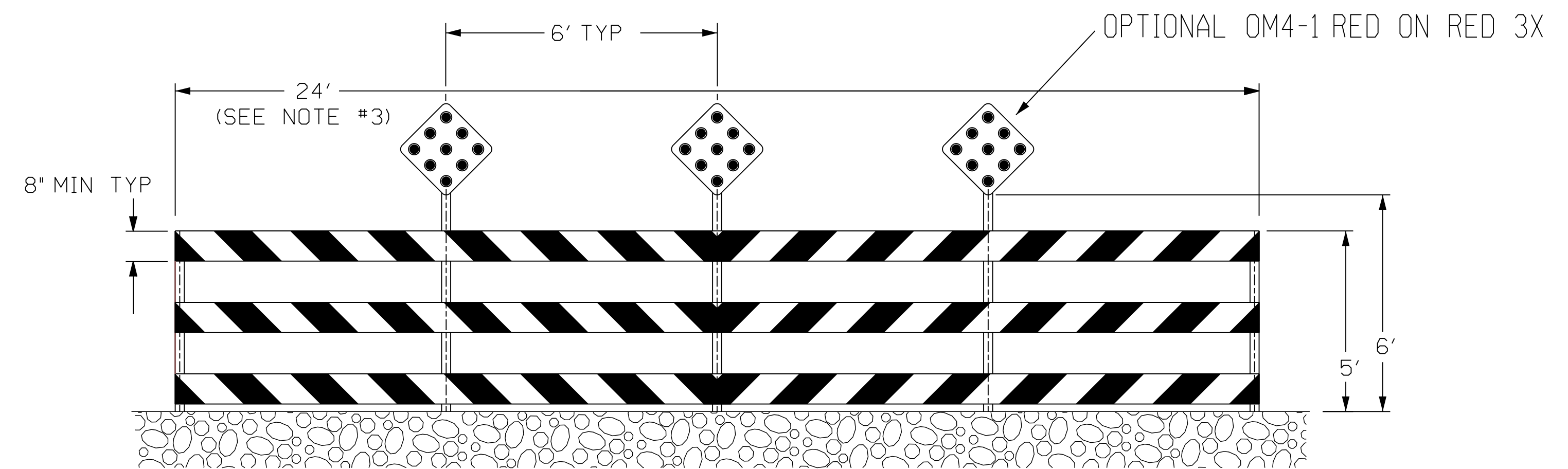
URBAN LOW SPEED ROAD CLOSURE RESULTING IN CUL-DE-SAC



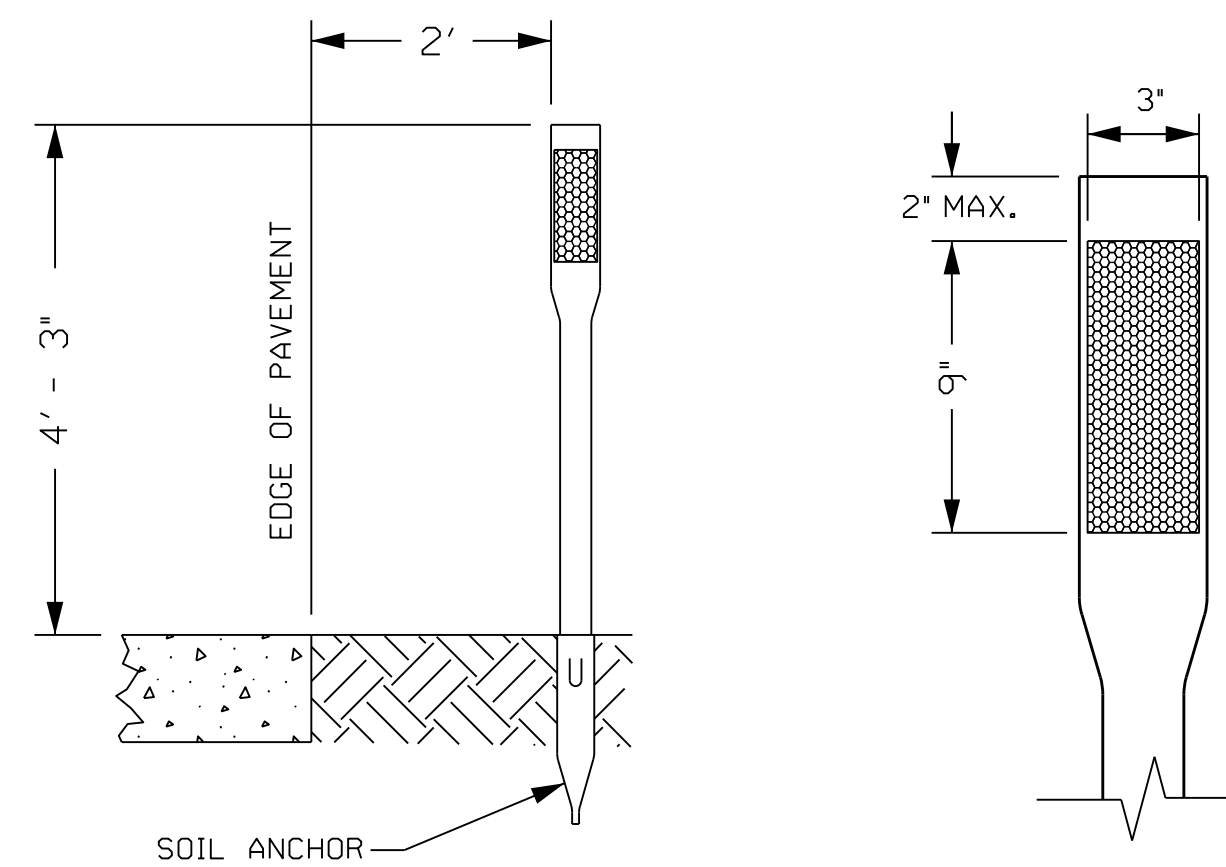
GENERAL NOTES

1. BARRICADE SPECIFICATIONS:
 - * NCHRP 350 COMPLIANT.
 - * 6" STRIPE WIDTH.
 - * ALTERNATING RETROREFLECTIVE RED STRIPES WITH RETROREFLECTIVE WHITE STRIPES, SLOPING DOWNWARD AT 45° ANGLE TOWARD CENTER OF BARRIER.
 - * SEE "VIEW A" DETAIL.
2. WARNING SIGN COLORS SHALL BE BLACK TEXT ON A FLUORESCENT YELLOW BACKGROUND.
3. INSTALL BARRICADE SIGNING ASSEMBLY PERPENDICULAR TO APPROACH ROAD.
4. TYPE II FLEXIBLE POST DELINEATORS LOCATED AS SHOWN. SPACE DELINEATORS 15' APART. OMIT USE OF DELINEATORS IF AREA IS LIGHTED OR CURBING IS PRESENT AND HAS RETROREFLECTIVE FACE.
5. INSTALL TWO YELLOW RETROREFLECTORS AT EACH END OF BARRICADE SLAT OF BARRICADE SIGNING ASSEMBLY.

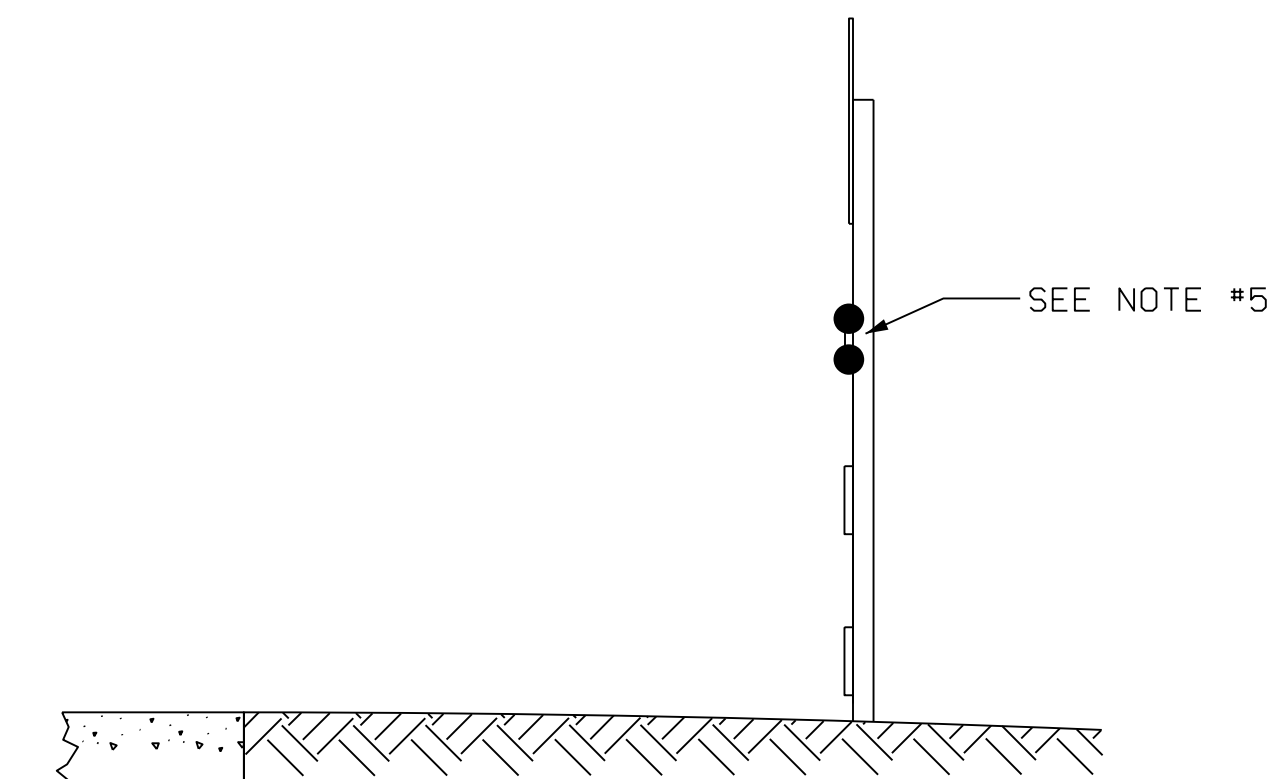
VIEW A



BARRICADE SIGNING ASSEMBLY



↑ FLEXIBLE POST DELINEATOR



END VIEW OF BARRICADE

XX

Project Number
###-#(###)

C.N. #####

TYPICAL TRAFFIC CONTROL PLAN
 PERMANENT URBAN ROAD CLOSURE
 RESULTING IN CUL-DE-SAC
 NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

DATE 10/23

DESIGNED BY AJM

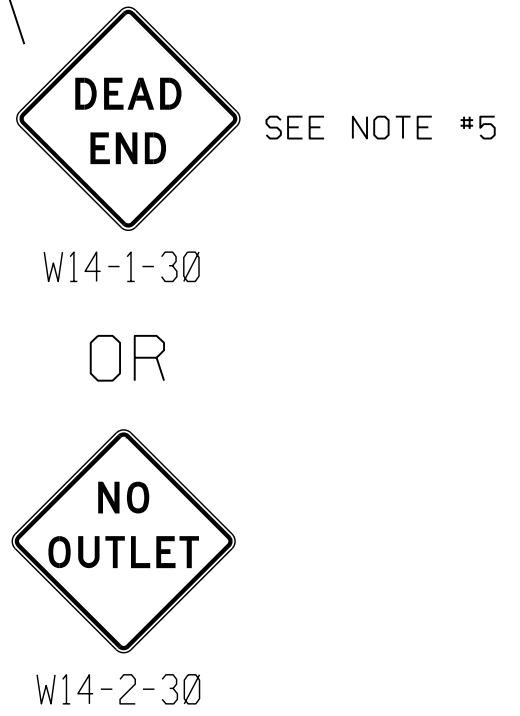
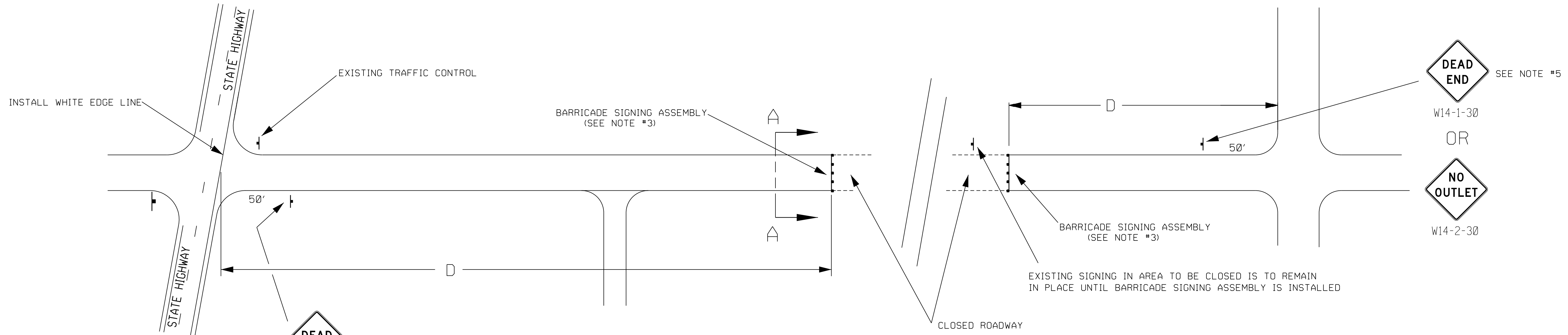
PLAN SHEET NUMBER
1 / 1

COMPUTER: BG0419M687

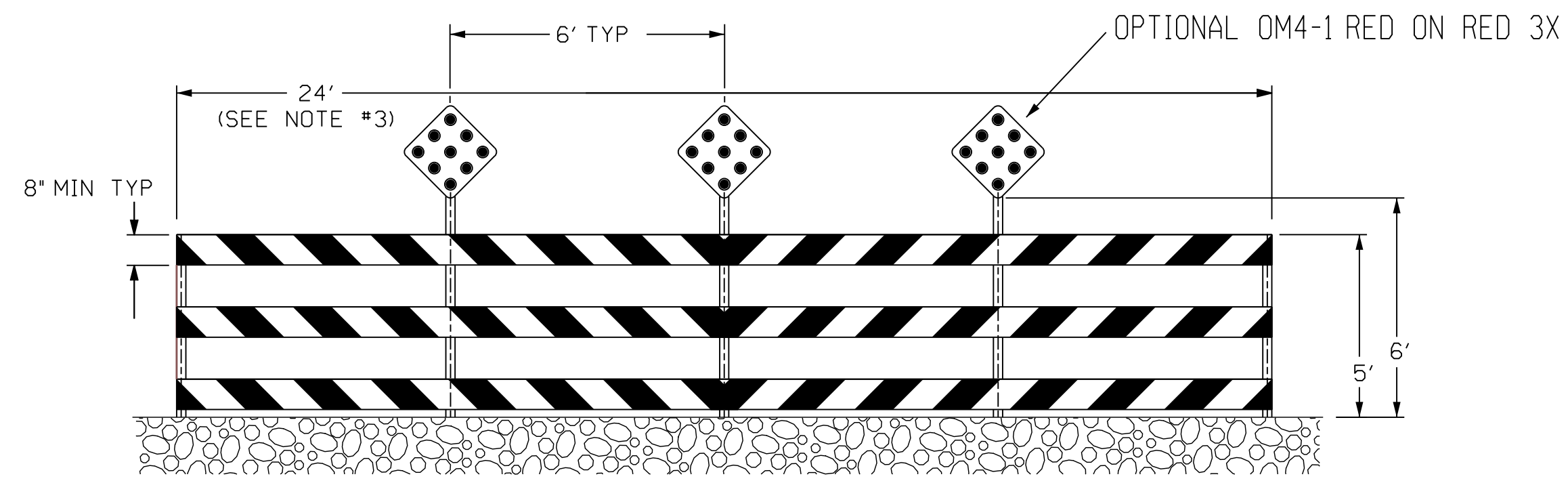
DATE: 17-OCT-2023 07:45

FILE: urbclose-4.dgn

ROAD CLOSURE RESULTING IN DEAD END



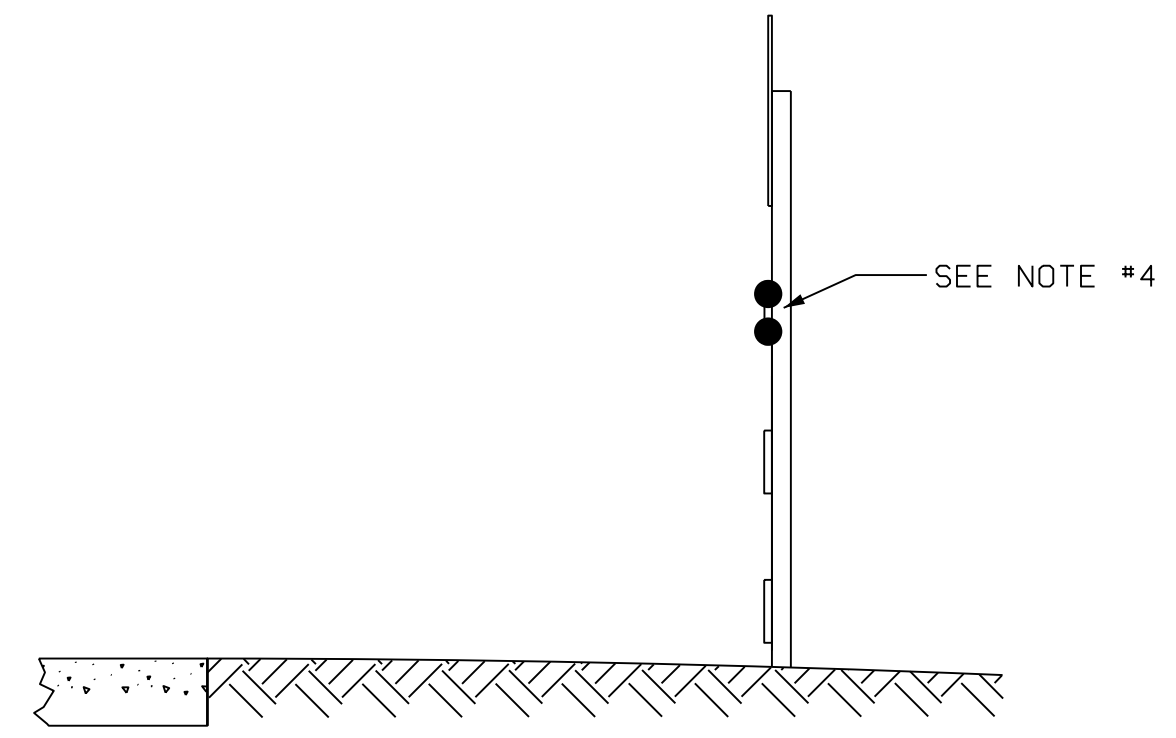
VIEW A



BARRICADE SIGNING ASSEMBLY

GENERAL NOTES

- BARRICADE SPECIFICATIONS:
 - NCHRP 350 COMPLIANT
 - 6" STRIPE WIDTH
 - ALTERNATING RETROREFLECTIVE RED STRIPES WITH RETROREFLECTIVE WHITE STRIPES, SLOPING DOWNWARD AT 45 ° ANGLE TOWARD CENTER OF BARRIER. SEE "VIEW A" BELOW.
- WARNING SIGN COLORS SHALL BE BLACK TEXT ON A FLUORESCENT YELLOW BACKGROUND.
- INSTALL BARRICADE SIGNING ASSEMBLY PERPENDICULAR TO APPROACH ROAD.
- INSTALL TWO YELLOW RETROREFLECTORS AT EACH END OF BARRICADE SLAT OF BARRICADE SIGNING ASSEMBLY.
- INSTALL "DEAD END" SIGN (W14-1-30) IF DISTANCE "D" IS GREATER THAN 250'.

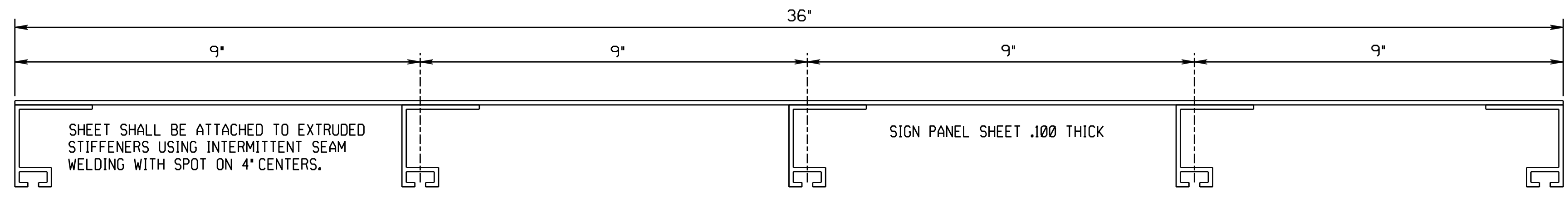


END VIEW OF BARRICADE

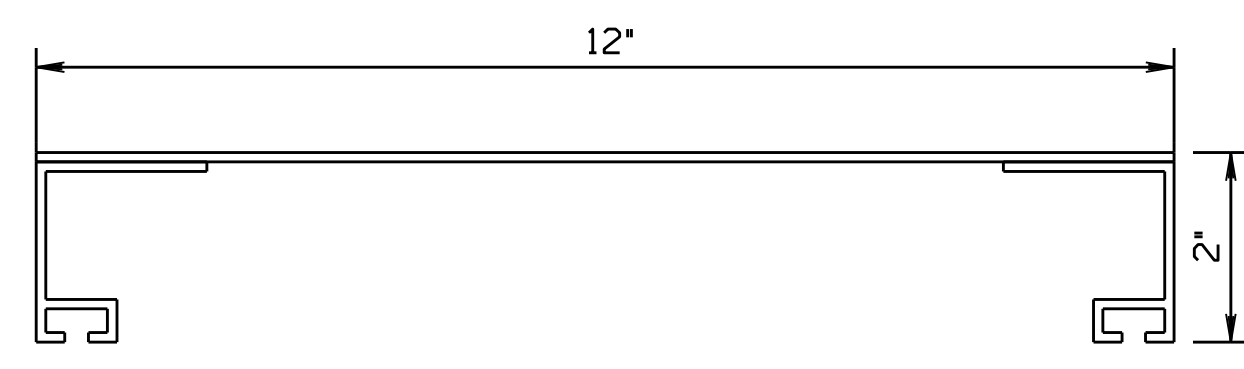
COMPUTER: BG0419M687
DATE: 17-OCT-2023 07:45
FILE: urbclose-5.dgn

TYPICAL TRAFFIC CONTROL PLAN
PERMANENT RURAL ROAD CLOSURE
NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION

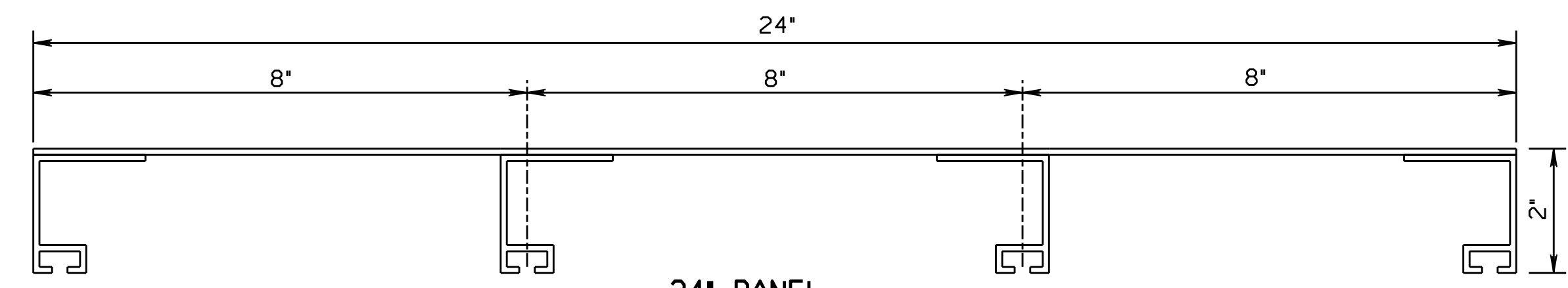
DESIGNED BY AJM
DATE 10/23



36" PANEL

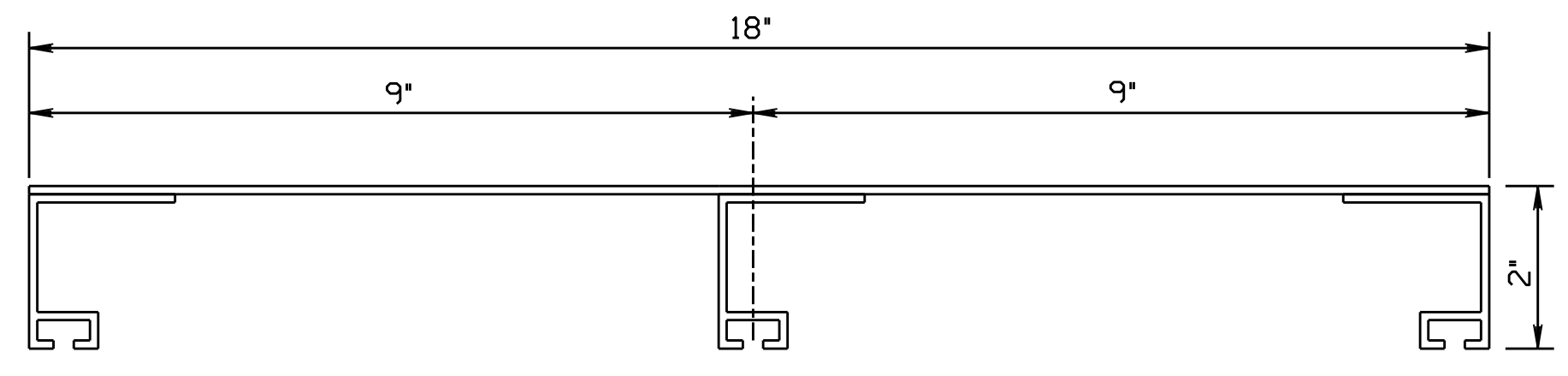


12" PANEL



24" PANEL

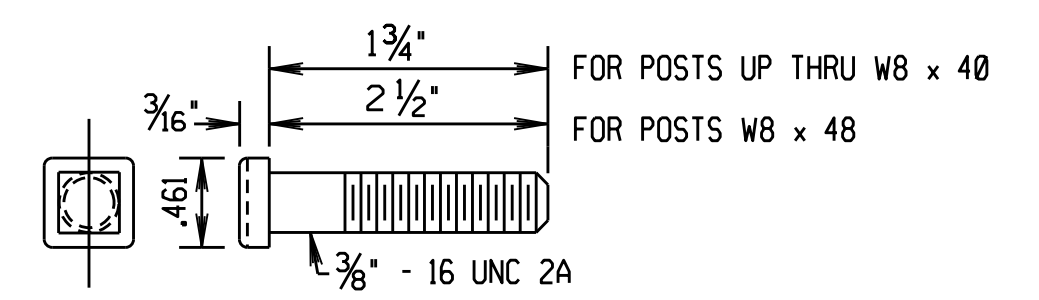
ALUMINUM SPECIFICATIONS:
 FLAT SHEETS-ALLOY 3003-H18 OR 5052-H38 (ASTM B209)
 EXTRUDED STIFFENERS-ALLOY 6063-T6 (ASTM B221)



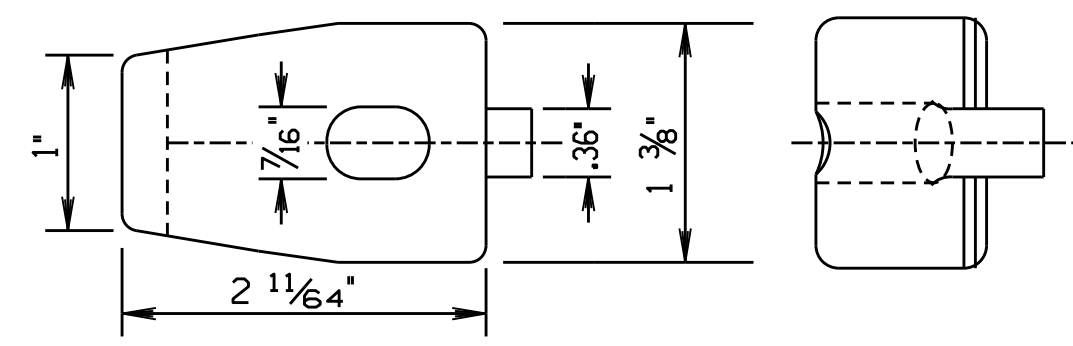
18" PANEL

EXTRUSHEET PANEL WIDTHS

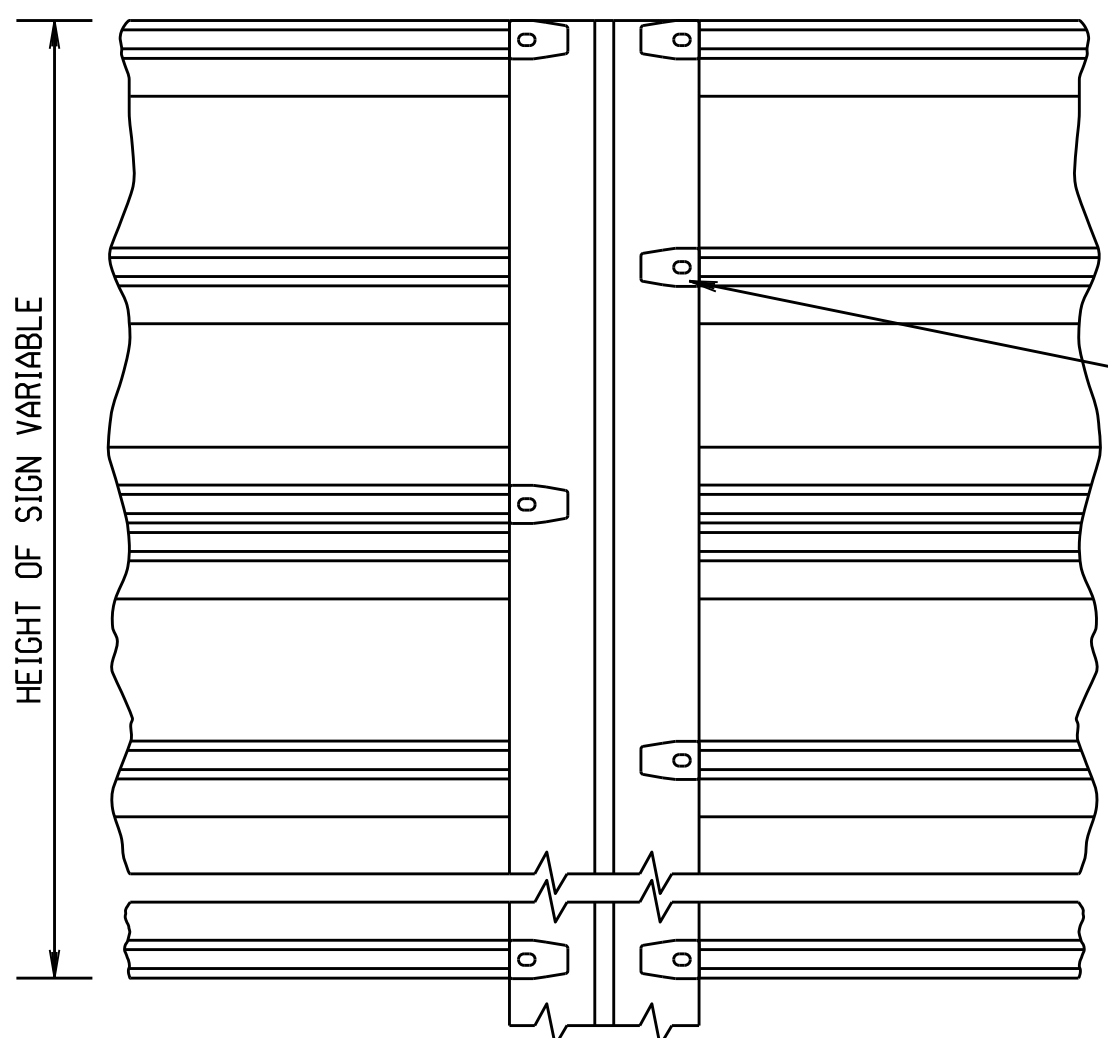
(MOLDED EXTRUDED PANELS MAY BE SUBMITTED AS AN ALTERNATE TO EXTRUSHEET PANELS)



POST CLIP BOLT



* POST CLIP



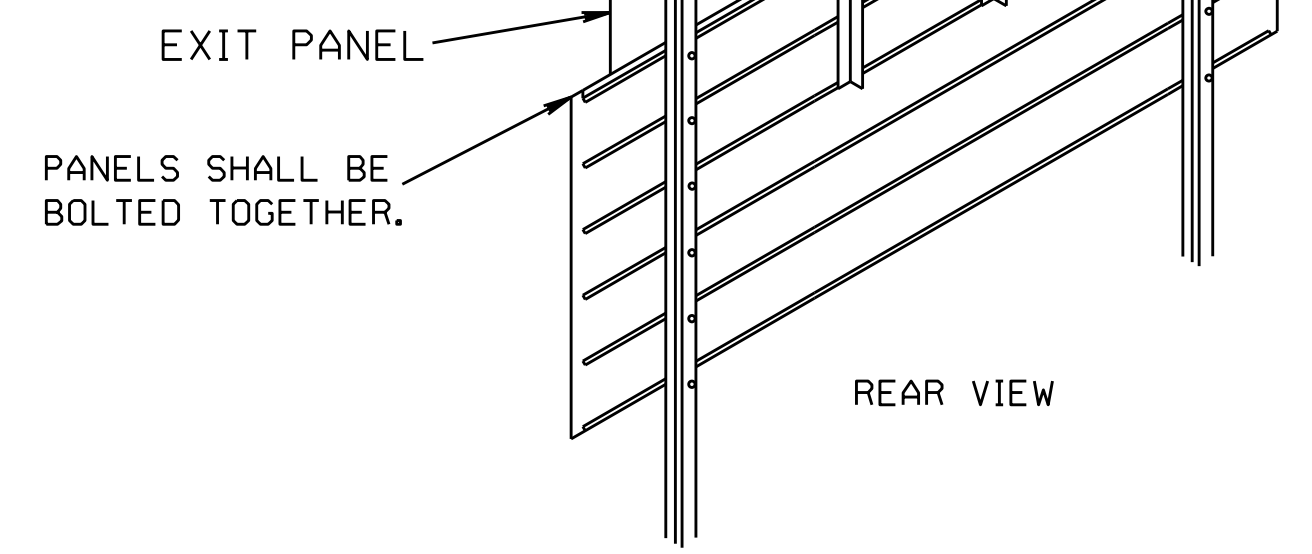
TYPICAL MOUNTING FOR EXTRUSHEET SIGN PANEL

NOTE: USE ALUMINUM ANGLES FOR SUPPORTING EXIT PANEL WHEN VERTICAL SUPPORT SPACING IS GREATER THAN THE WIDTH OF THE PANEL.

● ALUMINUM \angle 1 1/2" x 1 1/2" x .188" x 4'
 OVERHANG: MIN 12", MAX 15".
 SPACE BETWEEN CENTERS: MIN 24", MAX 30".

EXTEND VERTICAL SUPPORTS TO TOP OF EXIT PANEL WHERE APPLICABLE.

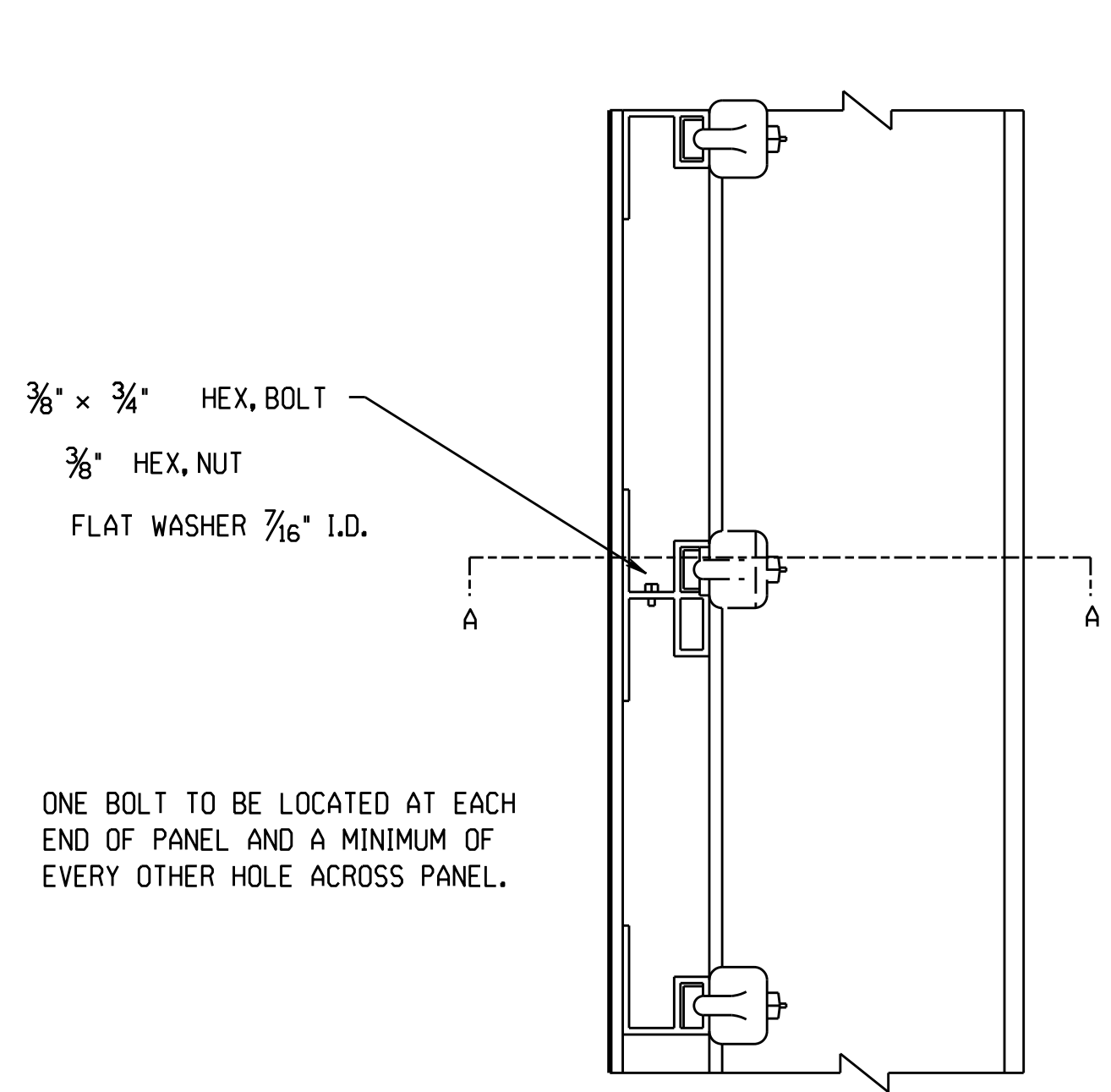
ALL SIGN SUPPORTS SHALL BE CUT OFF FLUSH WITH THE TOP OF THE SIGN.



MOUNTING DETAILS FOR EXIT PANEL

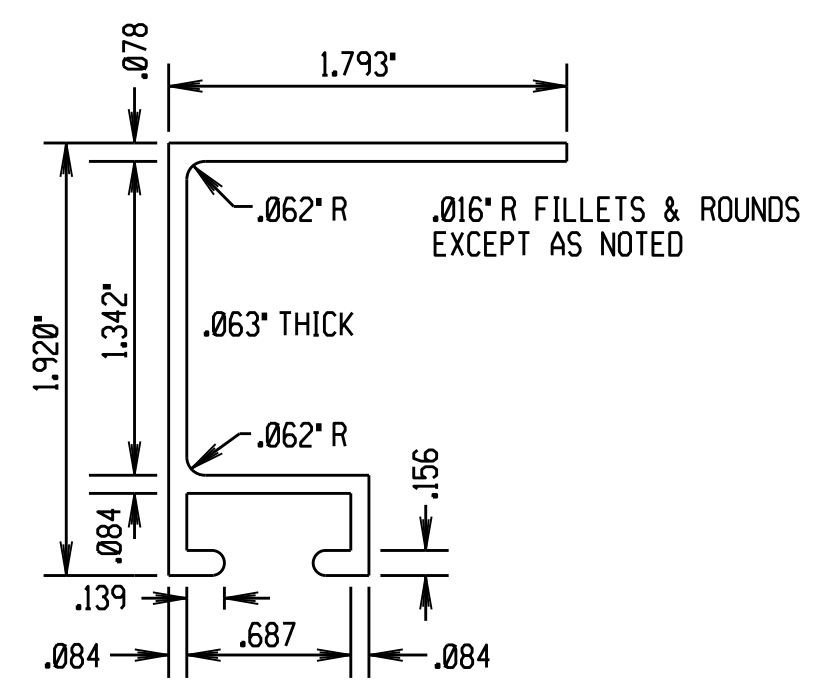
● AN ALUMINUM ANGLE, 1 1/2 INCH x 1 1/2 INCH x .188 INCH THICK FOR USE WITH EXTRUSHEET AND EXTRUDED SIGN BRACKETS ON WOOD POSTS, SHALL BE ALLOY 6061-T6 COMPLYING WITH ASTM B 308.

* POSTS CLIPS SHALL BE ALUMINUM ALLOY 356.0 CONFORMING TO ASTM B 108. POST CLIPS AND SIGN BRACKET BOLTS SHALL BE ALUMINUM ALLOY 2024-T4 CONFORMING TO ASTM B 211. LOCKNUTS FOR ALUMINUM BOLTS SHALL BE ALUMINUM ALLOY 2017-T4 CONFORMING TO ASTM B 211.



END VIEW

SECTION "A-A"



EXTRUDED SIGN BRACKET

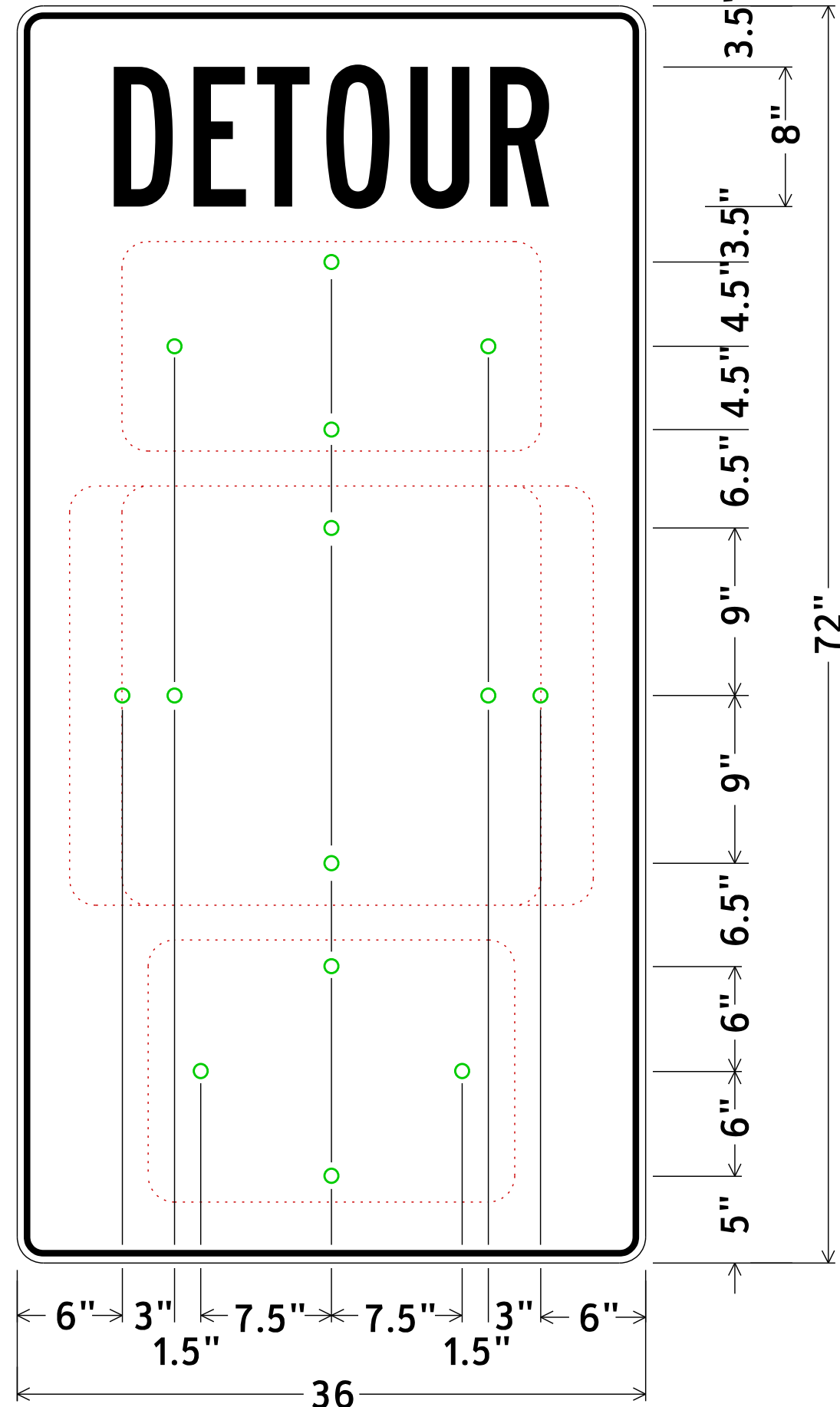
COMPUTER: BG0419M687

DATE: 11-SEP-2023 13:01

FILE: yalum.dgn

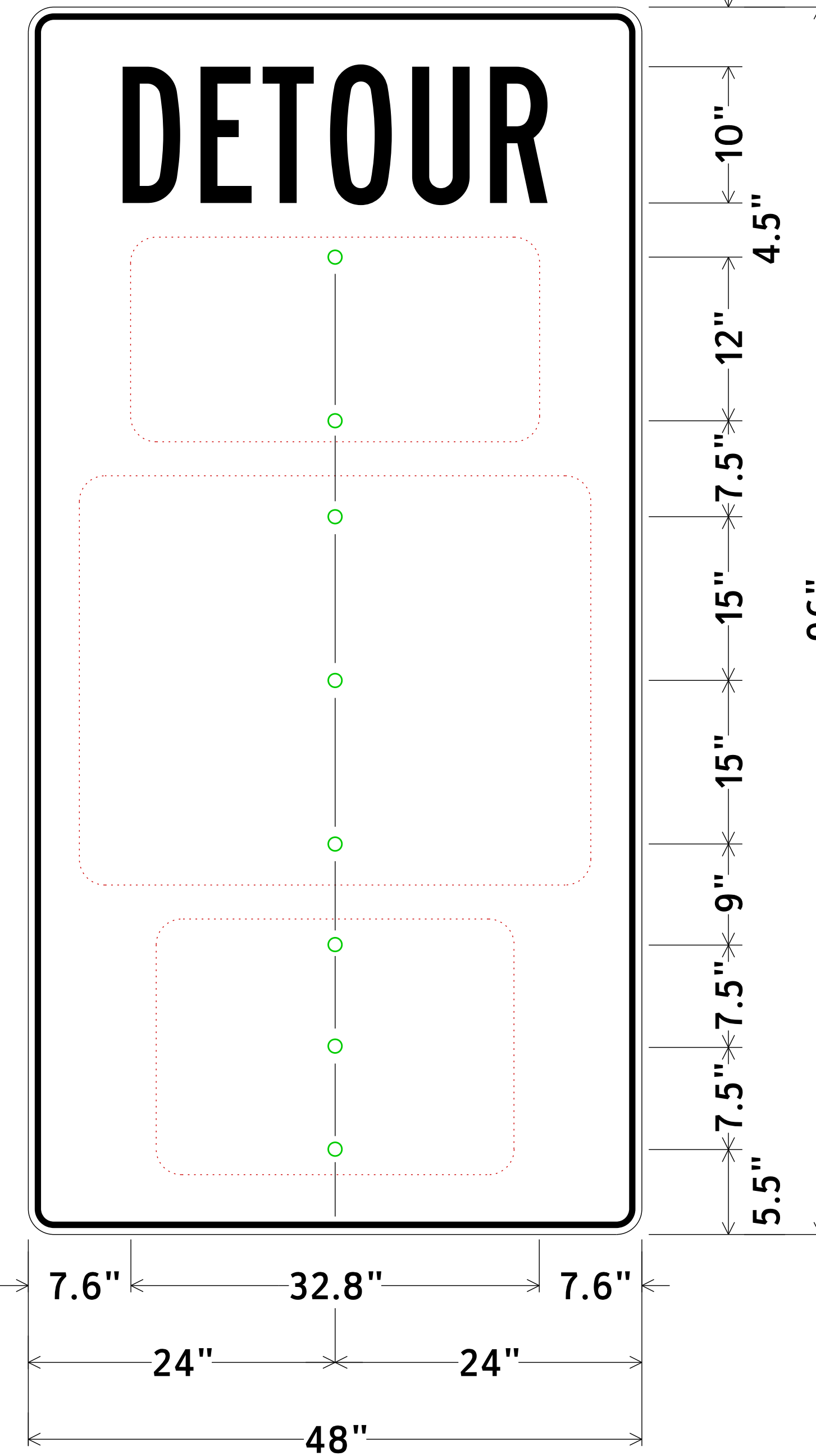
SIGN DESIGN DETAILS
 FABRICATION AND MOUNTING DETAILS
 TYPE "B" & "C" GUIDE SIGN PANELS

DESIGNED BY NRL
 DATE 12/22
 NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION



1.5" Radius, 0.4" Border, 0.4" Indent, Black on Orange;
 [DETOUR] B 80% spacing;
 Table of letter and object lefts.

D	E	T	O	U	R
5.5	10.1	13.7	17.7	22.5	27.1



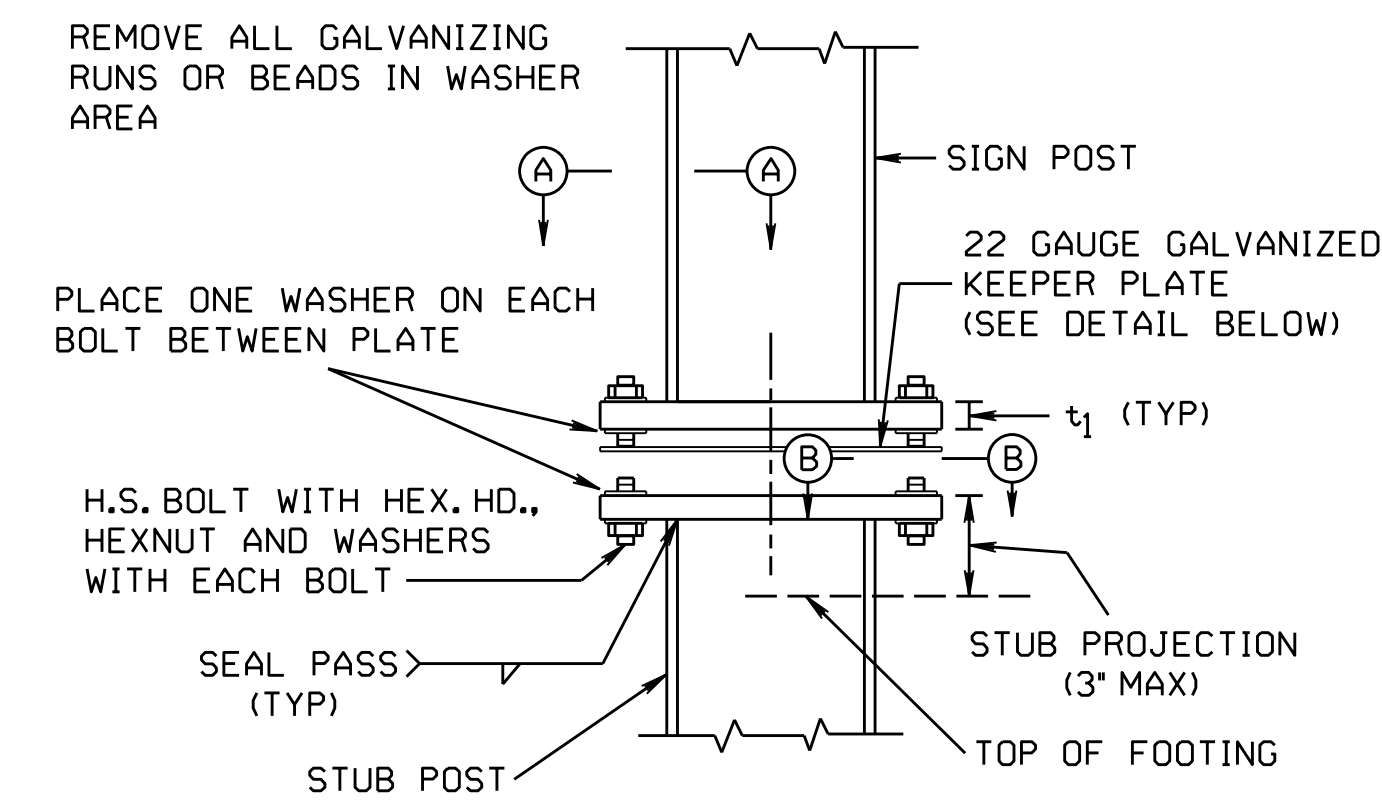
2.3" Radius, 0.9" Border, 0.6" Indent, Black on Orange;
 [DETOUR] B 100% spacing;
 Table of letter and object lefts.

D	E	T	O	U	R
7.6	13.7	18.4	23.7	30.1	36.2

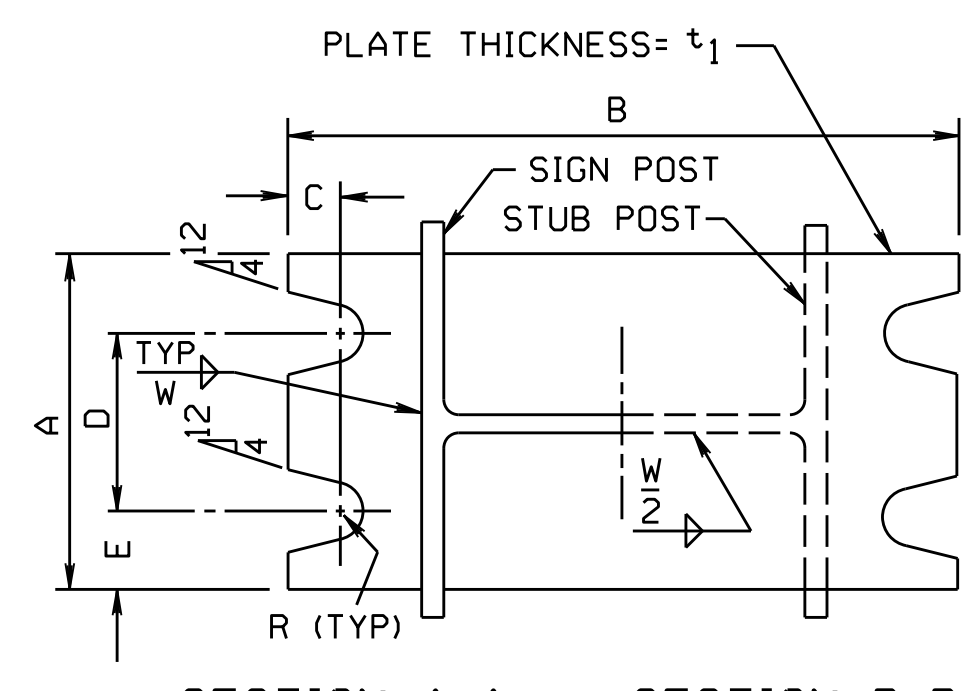
NOTES

- HOLE SIZES ARE 3/8" DIA. FOR 36" AND 13/32" DIA. FOR 48" UNLESS SPECIFIED OTHERWISE.

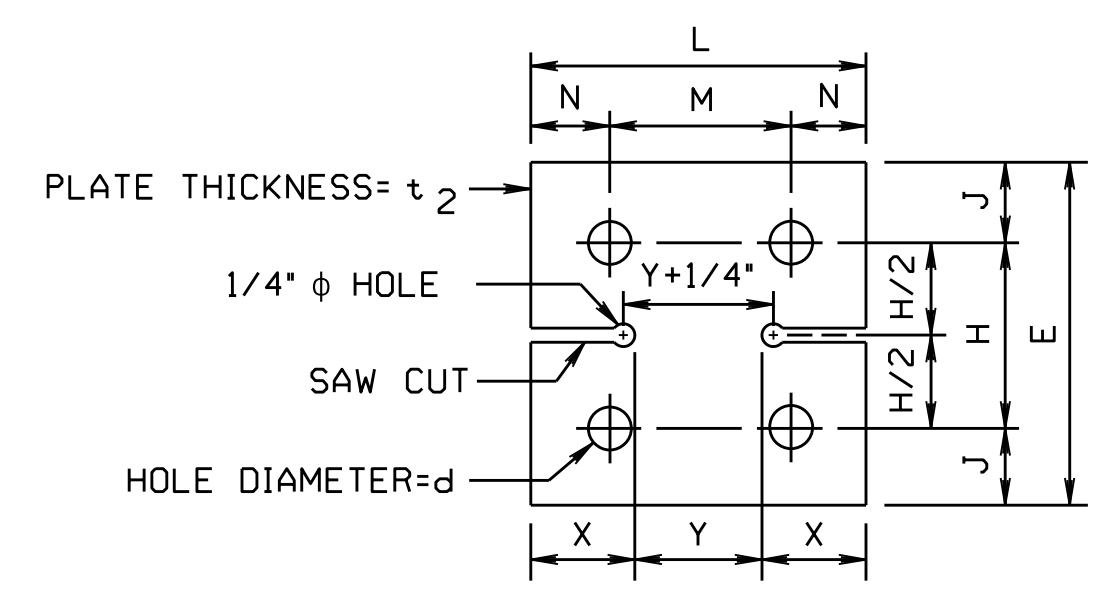
XX
Project Number ###-#(###)
C.N. #####
TYPICAL SIGN INSTALLATION DESIGN DETAILS DETOUR BLANK STANDARDS & HOLE LOCATIONS
DESIGNED BY AJM DATE 10/23 NEBRASKA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING DIVISION
PLAN SHEET NUMBER 1 / 1



SIGN POST & STUB POST ELEVATION

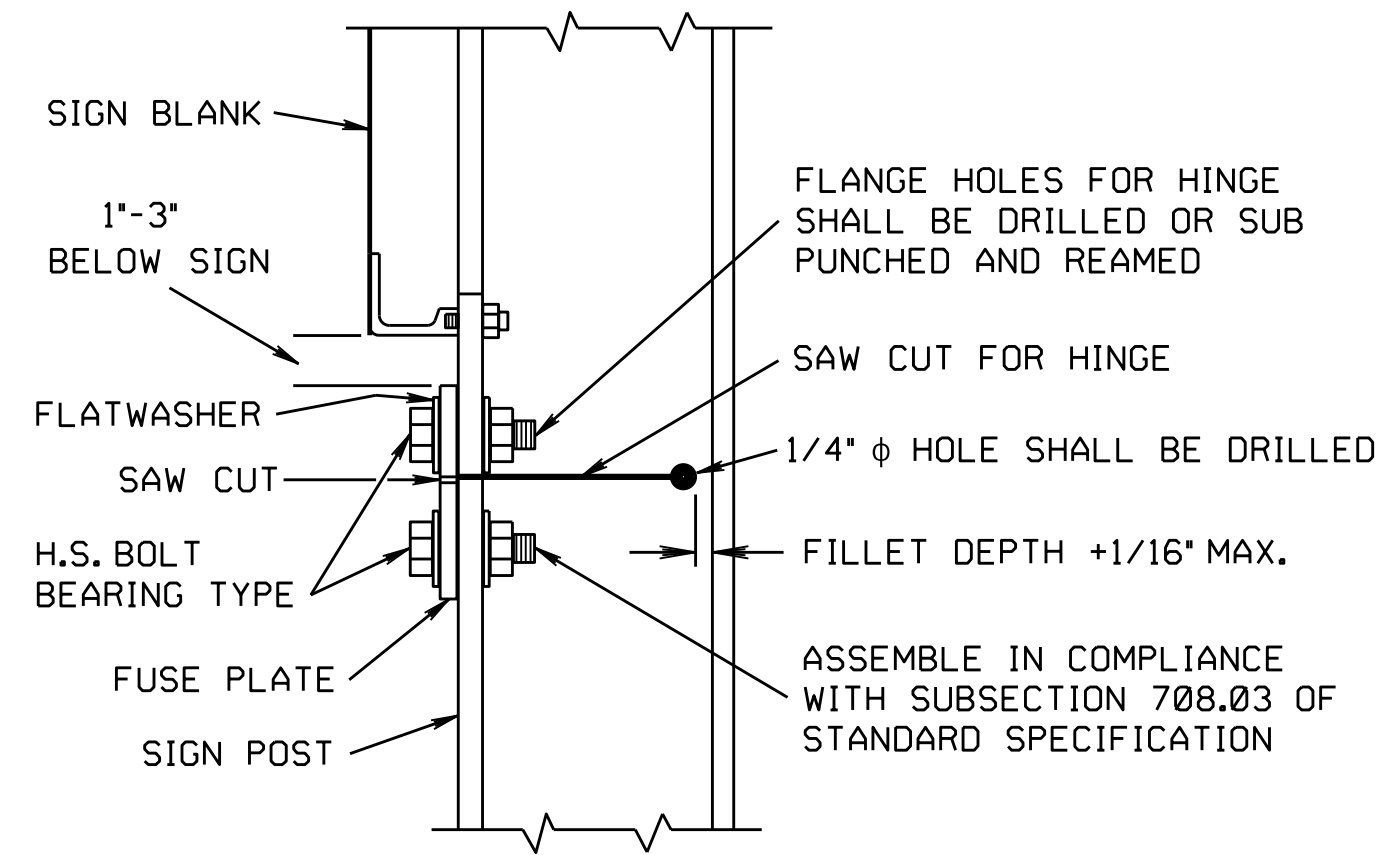


SECTION A-A SECTION B-B



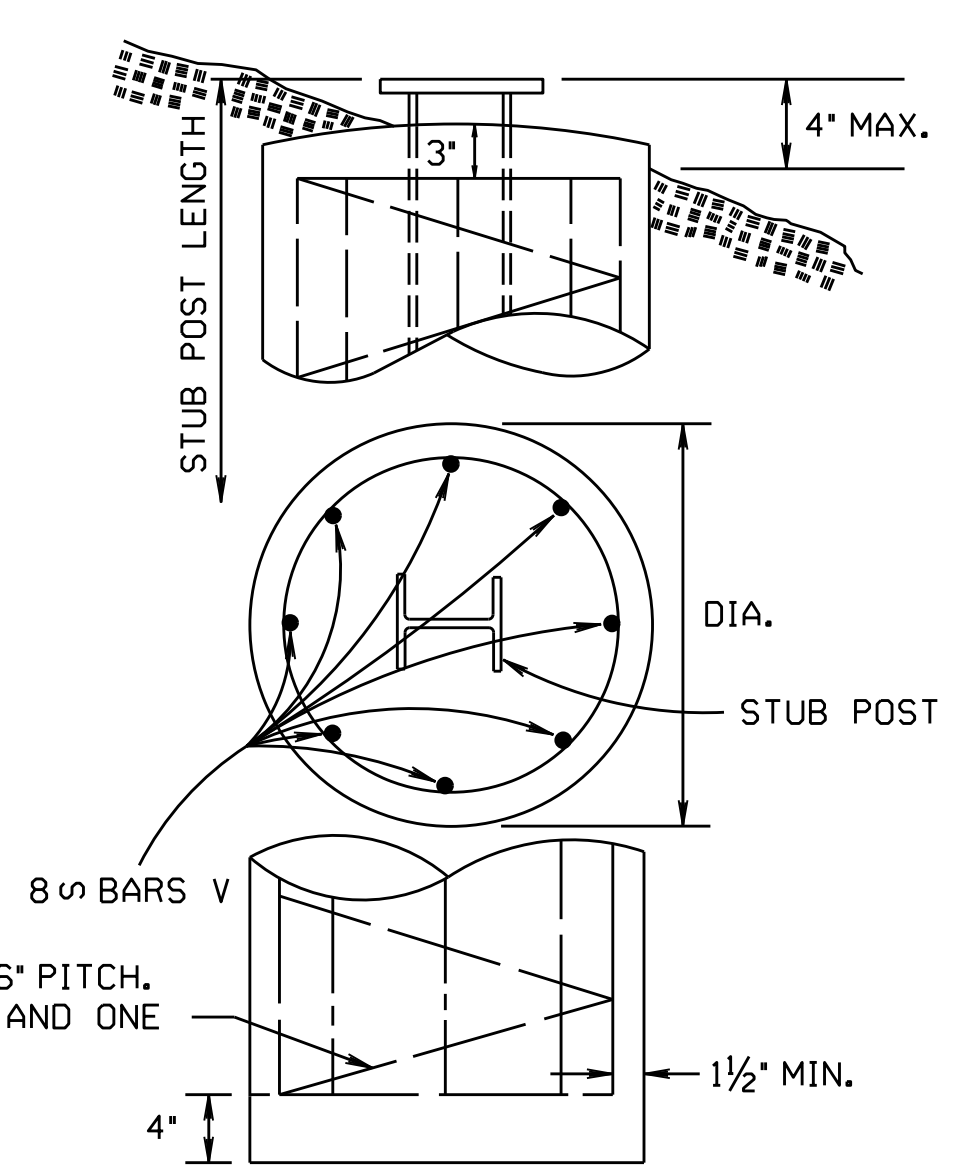
FUSE LINK PLATE DETAIL

USE H.S. BOLTS WITH HEX. HD. & HEX. NUT, ONE FLAT WASHER UNDER EACH BOLT HEAD AND UNDER EACH NUT.

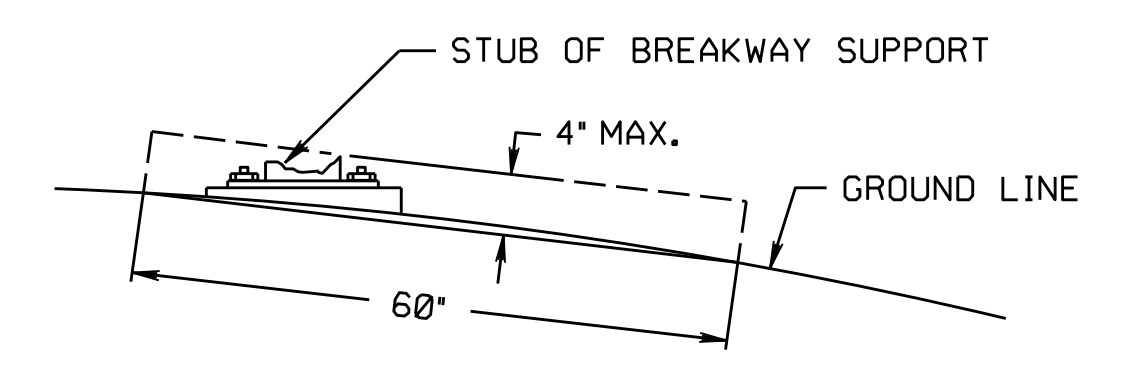


FUSE LINK PLATE INSTALLED

NO. 2 PLAIN SPIRAL 6" PITCH, THREE FLAT TURNS TOP AND ONE FLAT TURN BOTTOM.



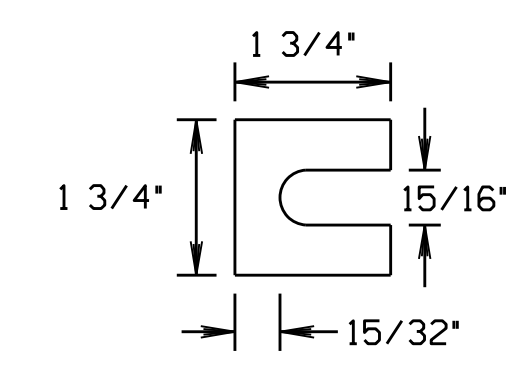
FOOTING DETAIL



BREAKAWAY SUPPORT STUB HEIGHT MEASUREMENT

SIGN AREA SQ. FT.	POST NO.	W SHAPES	BOLT SIZE, LENGTH & MAX. TORQUE	A	B	C	D	E	T ₁	W	R	* CONNECTION WT. IN LBS.
0-85	I	W6 x 15	3/4" x 3-1/4"	6	10 1/4	3/4"	3 1/2	1 1/4	1	5/16	13/32	88
86-120	II	W8 x 18	80 FT.-LB.	6	12 1/2	3/4"	3 1/2	1 1/4	1	5/16	13/32	105
121-170	III	W8 x 24	7/8" x 4"	8	13 1/8	7/8"	4	2	1 1/4	3/8	15/32	164
171-225	IV	W8 x 31	100 FT.-LB.	8	13 1/4	7/8"	4	2	1 1/4	3/8	15/32	184
OVER 225	V	W8 x 48		8	13 3/4	7/8"	4	2	1 1/4	3/8	15/32	238

* INCLUDES WEIGHTS OF 2 BASE CONNECTION PLATES, BOLTS, WASHERS, STUB POST, FUSE PLATE AND WELDING. WEIGHT OF POST, ABOVE BASE CONNECTION, SHALL BE COMPUTED AND ADDED FOR EACH LOCATION.

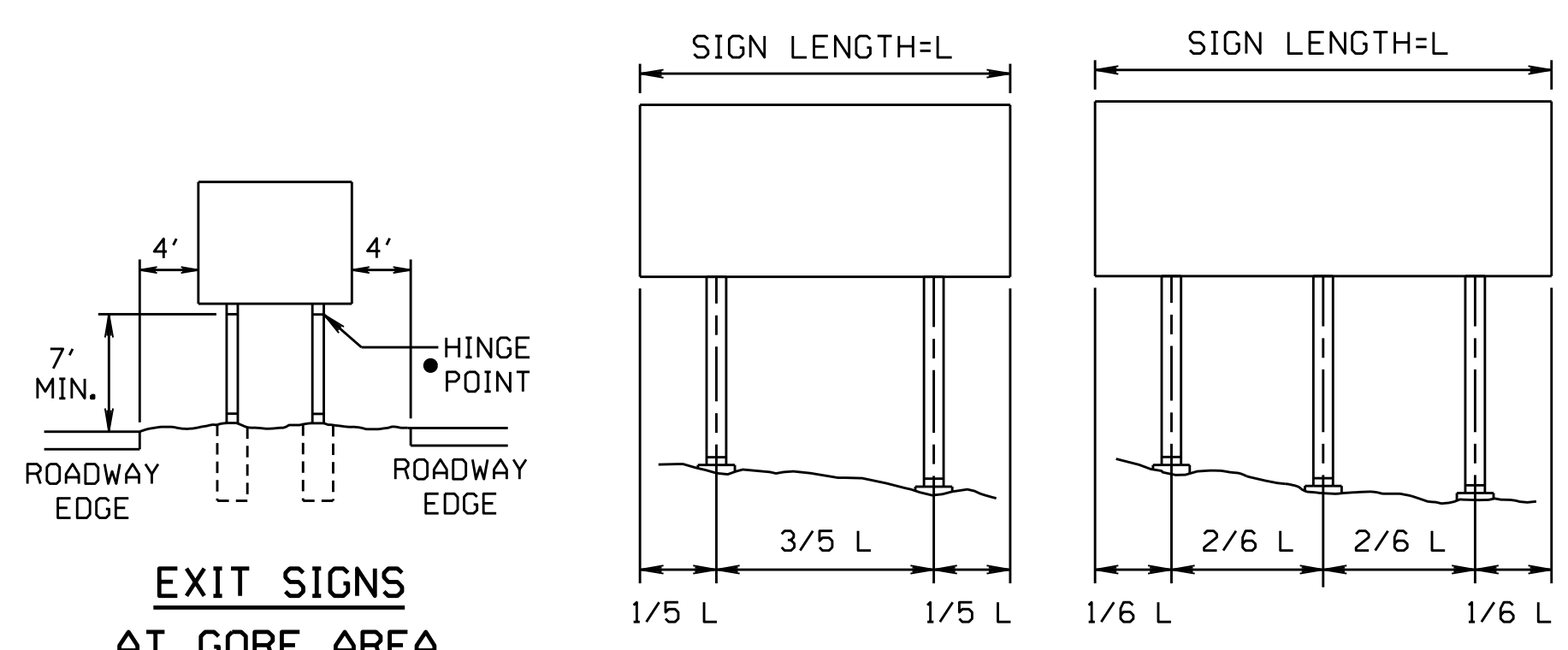


SHIM DETAIL

FURNISH 2 # .012" ± THICK AND 2 # .032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M.-B36.

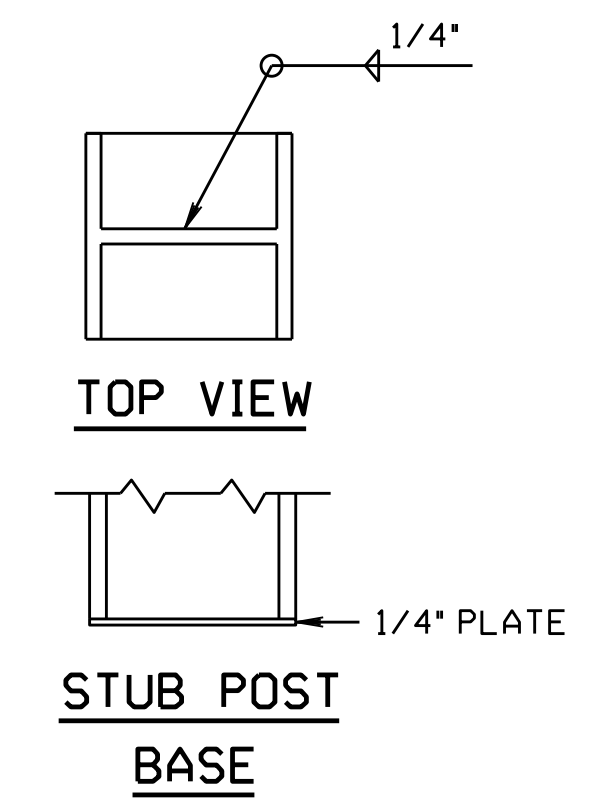
POST NO.	E	H	J	L	M	N	X	Y	d	t	BOLT		PLATE
											DIA.	MIN. LENGTH	wt. in lbs.
I	5 1/4	2 3/4	1 1/4	5	2 3/4	1 1/8	2 1/16	7/8	11/16	3/8	5/8	2 1/4	2.54
II	5 1/4	2 3/4	1 1/4	5	2 3/4	1 1/8	2 1/16	7/8	11/16	3/8	5/8	2 1/4	2.54
III	6 1/2	3 1/2	1 1/2	6 1/2	3 1/2	1 1/2	2	2 1/2	15/16	1/2	7/8	2 3/4	5.63
IV	6 1/2	3 1/2	1 1/2	6 1/2	3 1/2	1 1/2	2	2 1/2	15/16	1/2	7/8	3	5.63
V	6 1/2	3 1/2	1 1/2	6 1/2	3 1/2	1 1/2	2	2 1/2	15/16	1/2	7/8	3	5.63

IF MINIMUM BOLT LENGTHS AS SHOWN IN TABLE ARE NOT AVAILABLE, USE NEXT LONGER STANDARD BOLT LENGTH.



EXIT SIGNS AT GORE AREA

POST SPACING



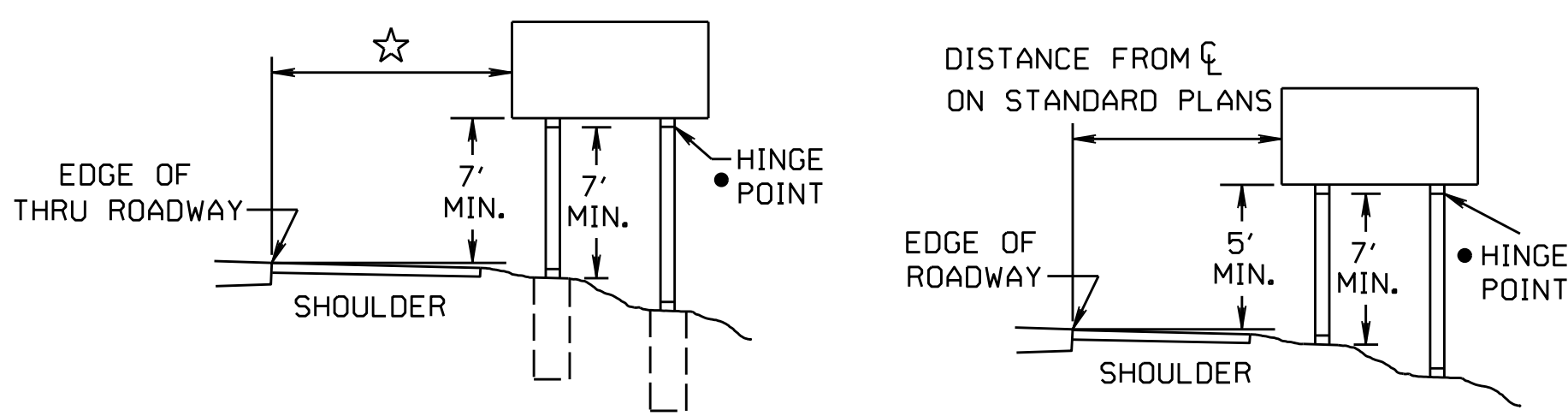
FOR ALL W SHAPES

BOLT SIZE	REQUIRED MIN. BOLT TENSION (lbs.)	EQUIVALENT TENSION
1/2	12,050	*
5/8	19,200	*
3/4	28,400	*
7/8	39,250	*
1	51,500	*

* SEE NOTE 9

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

- ASSEMBLE POST TO STUB WITH BOLTS, WITH ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
- SHIM AS REQUIRED TO PLUMB POST.
- TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS; THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER. THIS PROCEDURE SHALL BE REPEATED UNTIL ALL BOLTS HAVE BEEN PROPERLY TENSIONED BY THE TURN-OF-NUT METHOD (SEE NOTE 9).
- BURR THREAD AT JUNCTION WITH NUT, USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

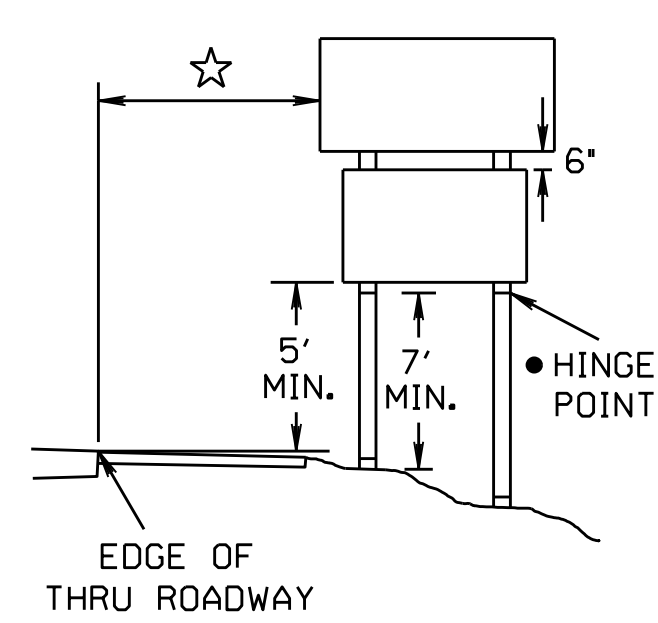


★ RURAL FREEWAY (INTERSTATE): EDGE OF SIGN SHALL BE LOCATED A MINIMUM OF 35 FT. FROM EDGE OF ROADWAY.
RURAL EXPRESSWAY: EDGE OF SIGN SHALL BE LOCATED A MINIMUM OF 30 FT. FROM EDGE OF ROADWAY.
URBAN FREEWAY (INTERSTATE) OR EXPRESSWAY: EDGE OF SIGN SHALL BE LOCATED A MINIMUM OF 30 FT. FROM EDGE OF THRU ROADWAY.

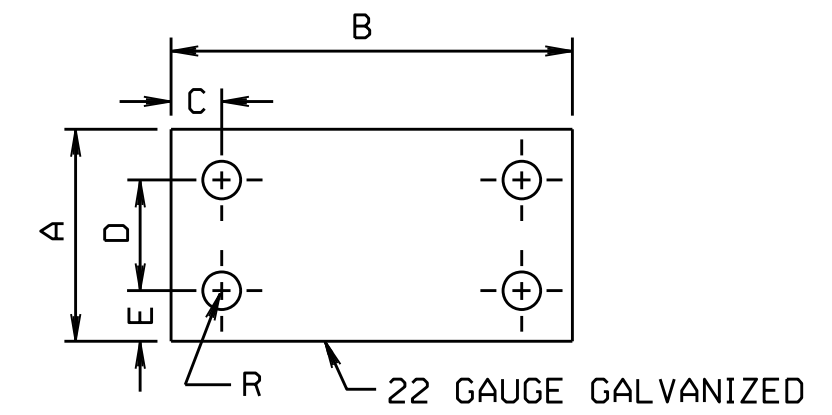
SIGNS LOCATED ADJACENT TO ROADWAY

RAMP SIGNS LOCATED OFF INTERSTATE

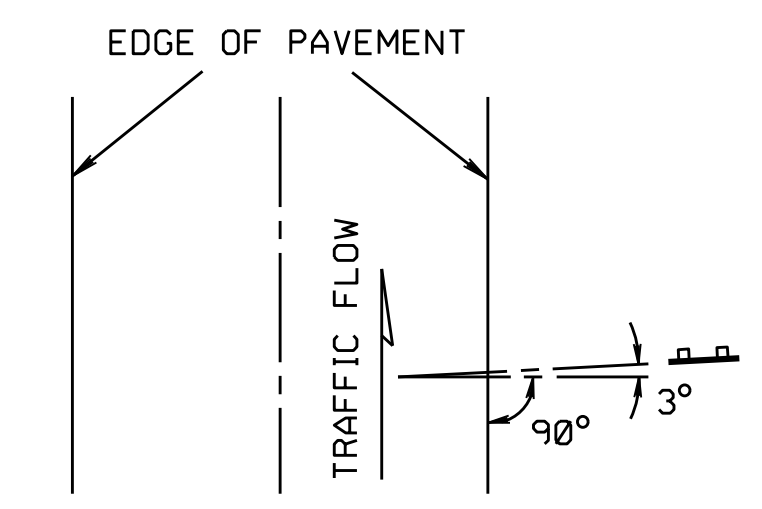
• THE HINGE POINT SHOULD BE AT LEAST 7 FEET ABOVE THE GROUND
NO SUPPLEMENTARY SIGN SHALL BE PLACED BELOW THE HINGES



SUPPLEMENTARY SIGN MOUNTING

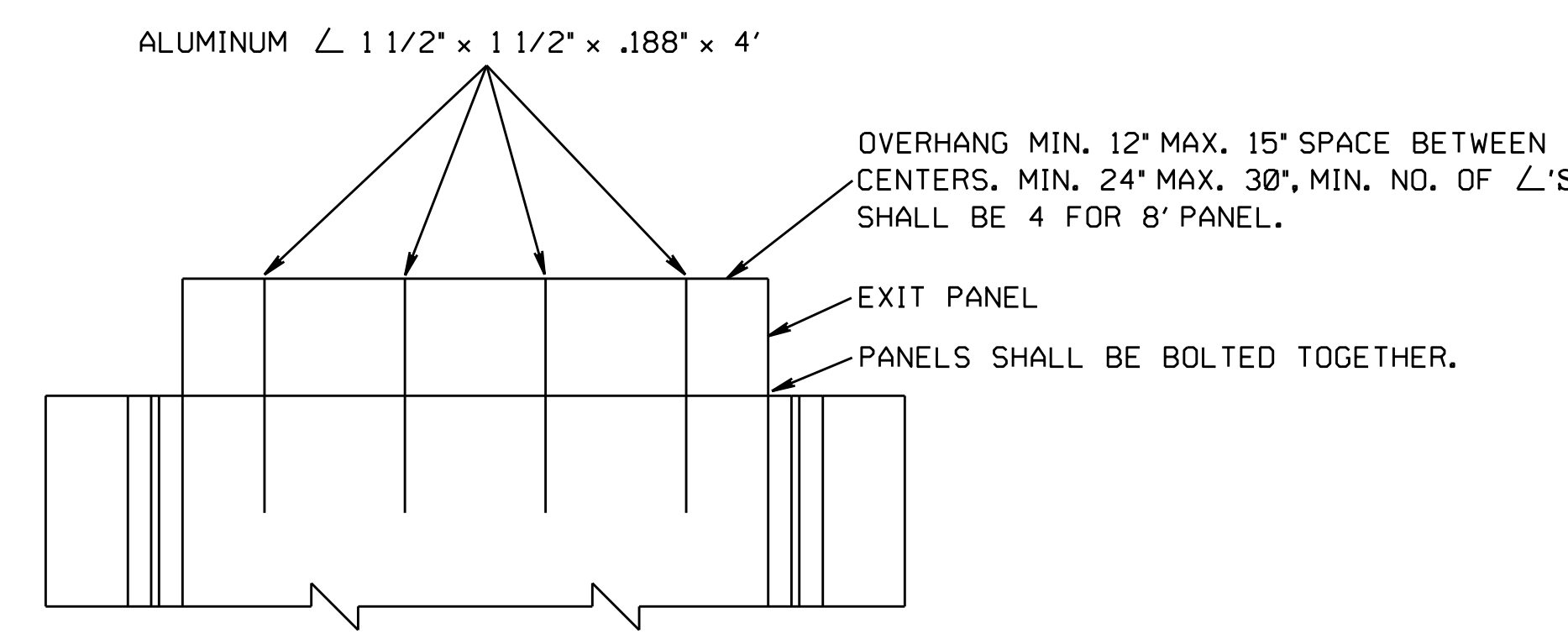
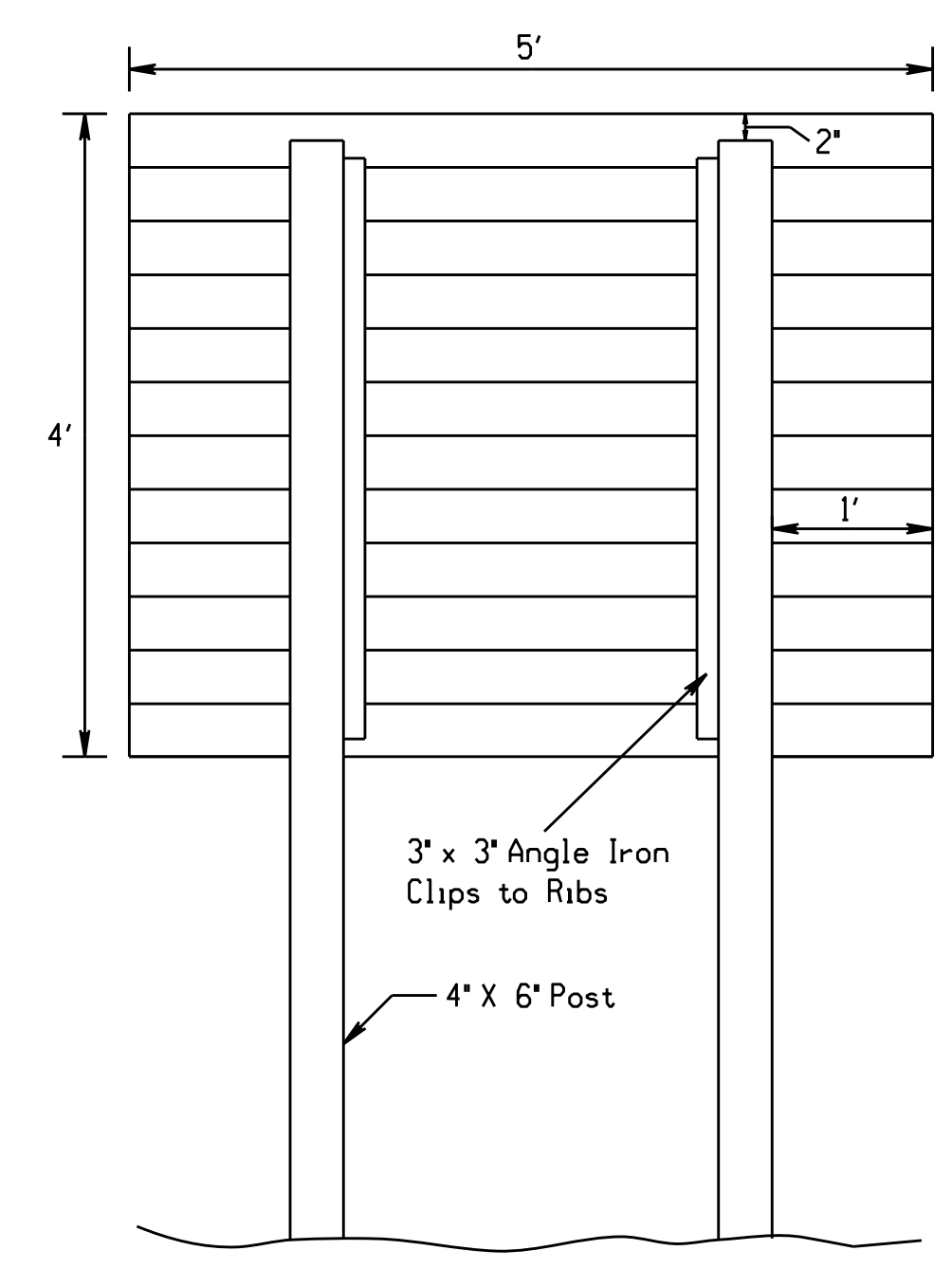
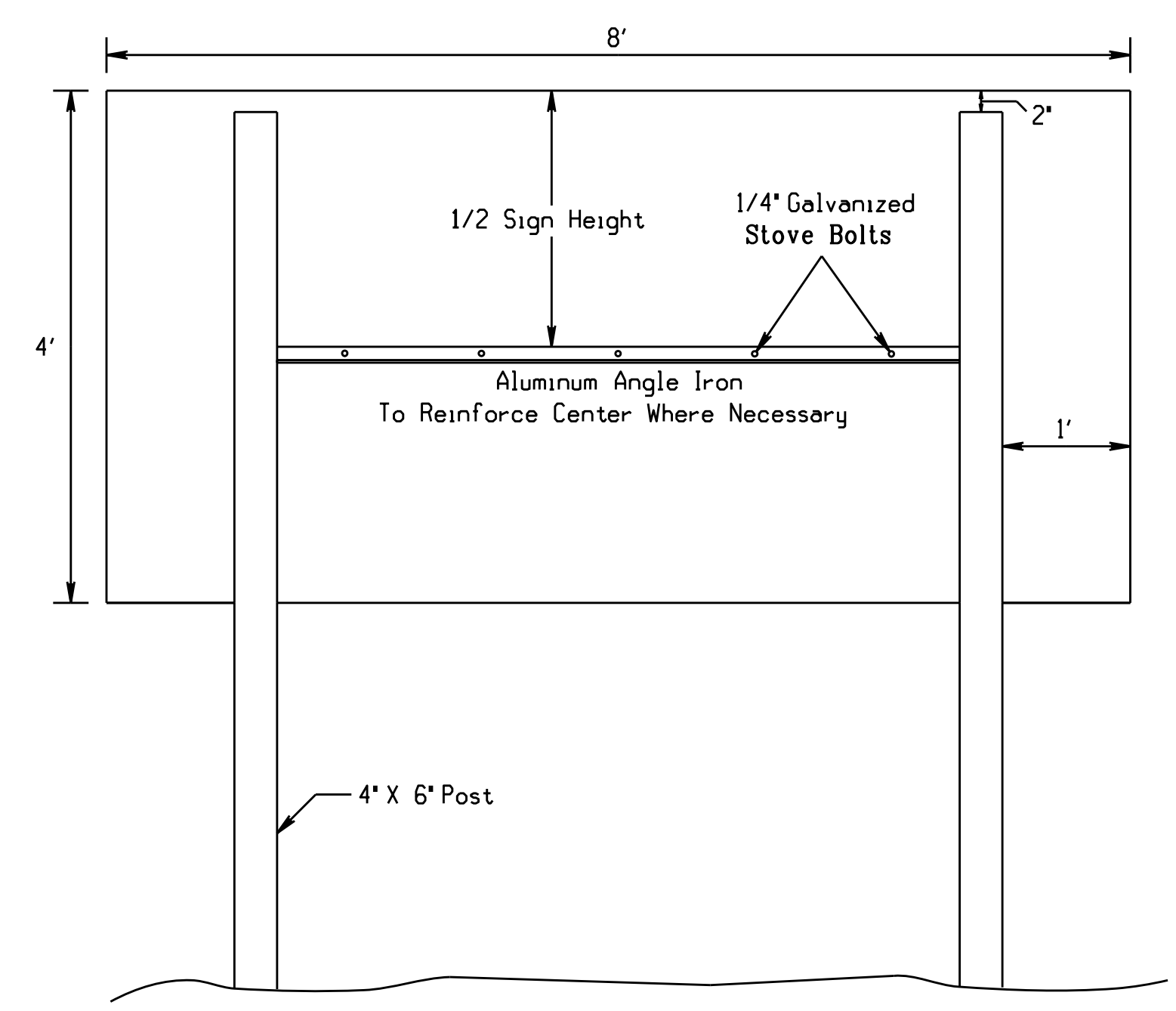
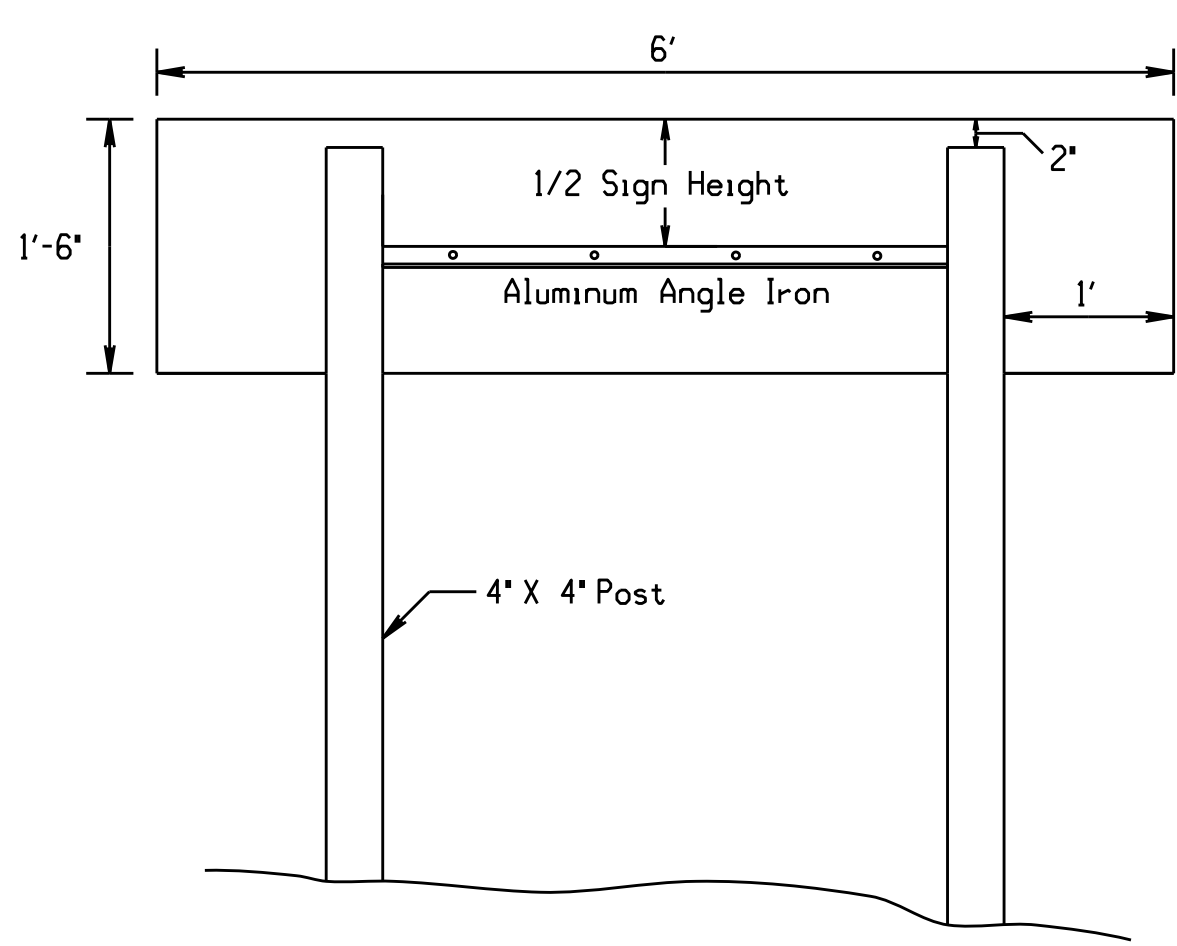
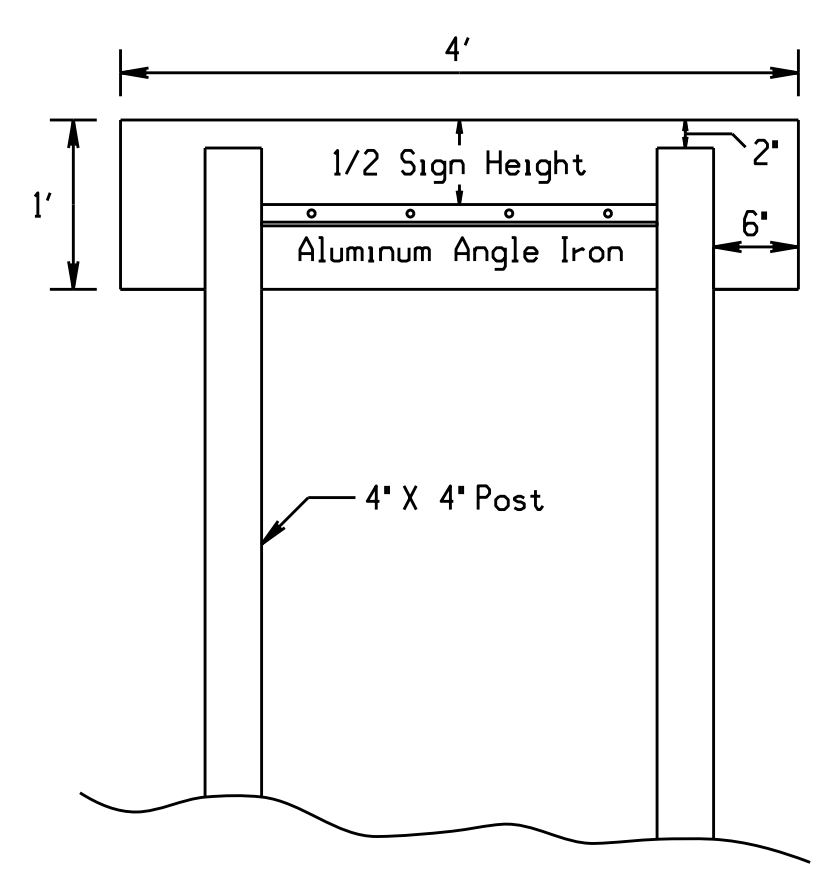
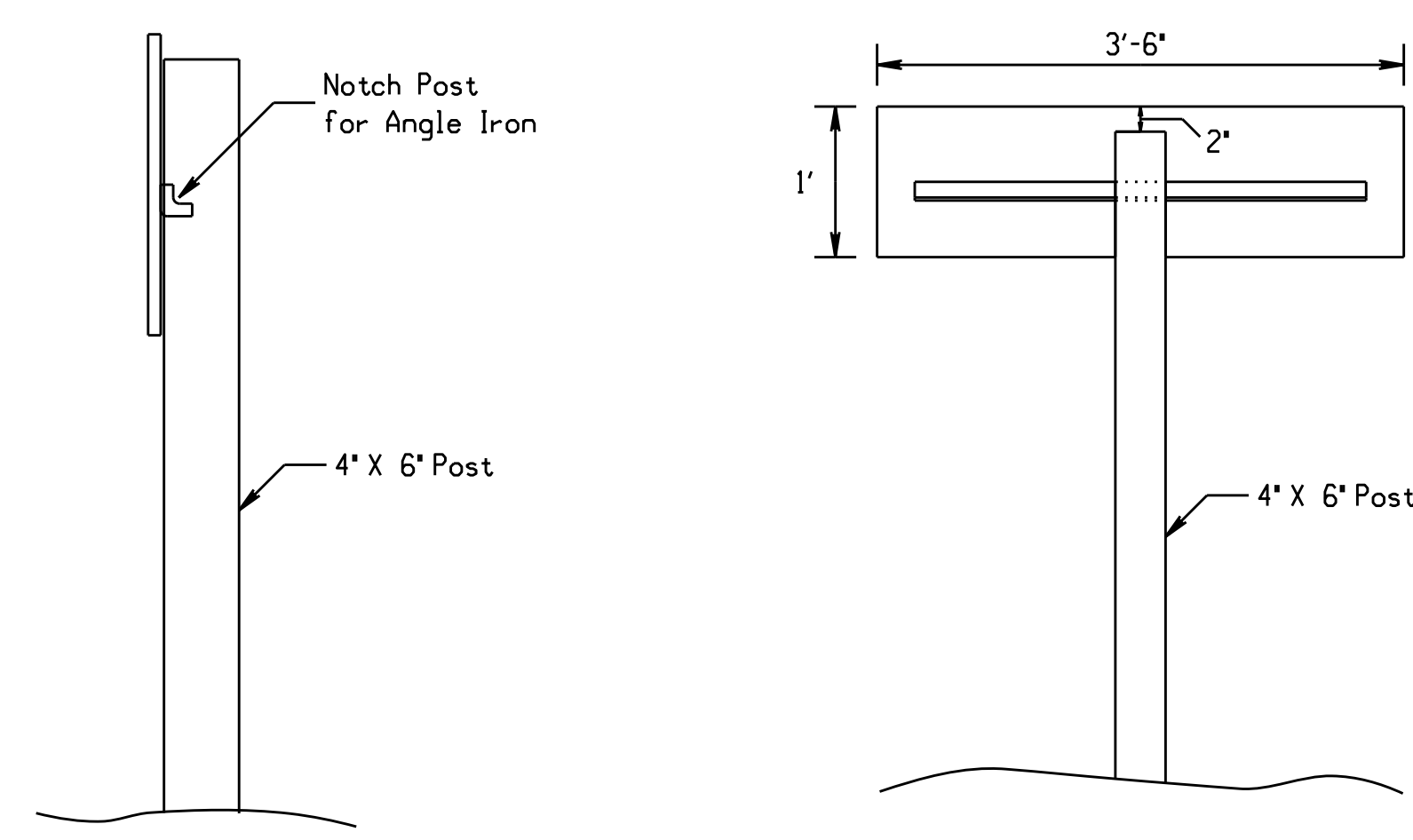


KEEPER PLATE

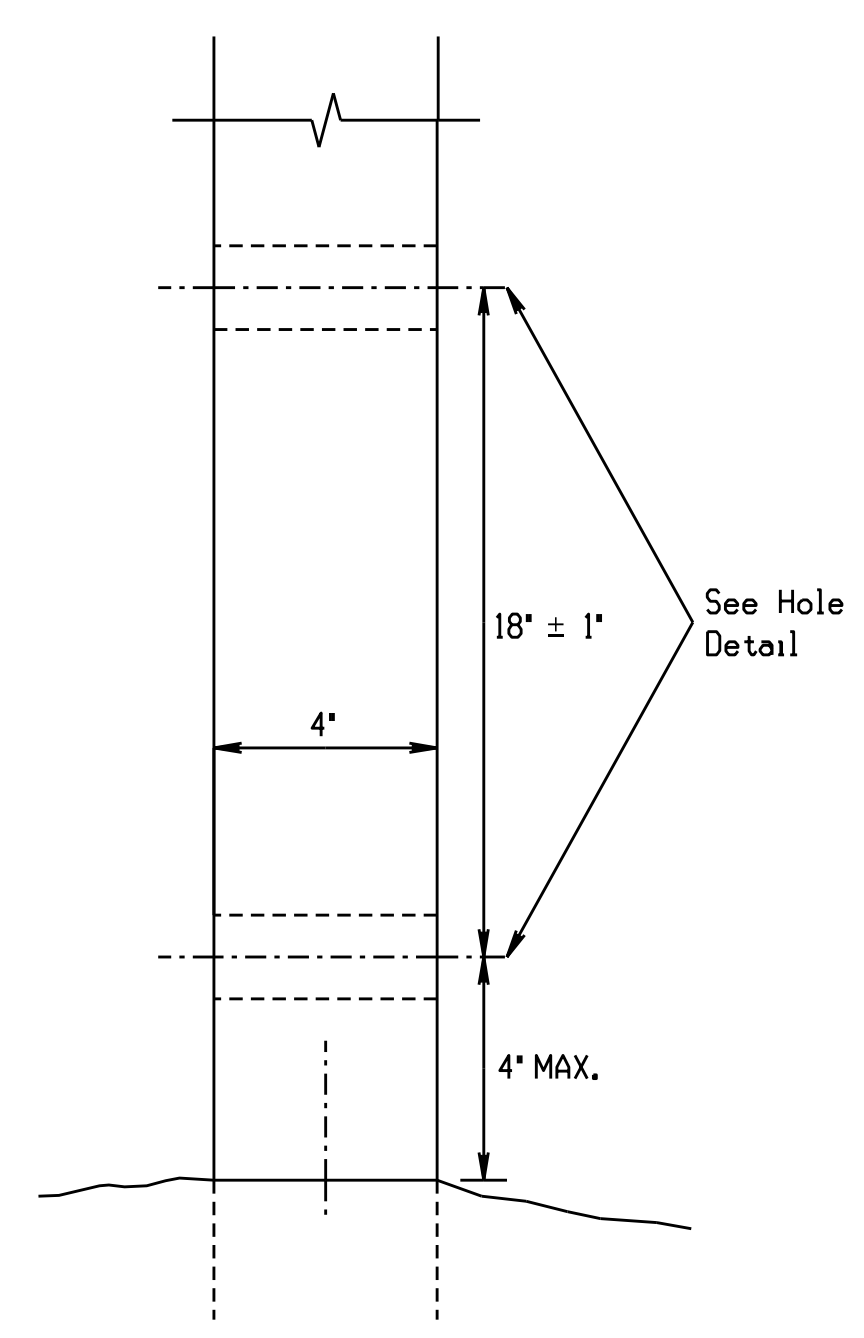
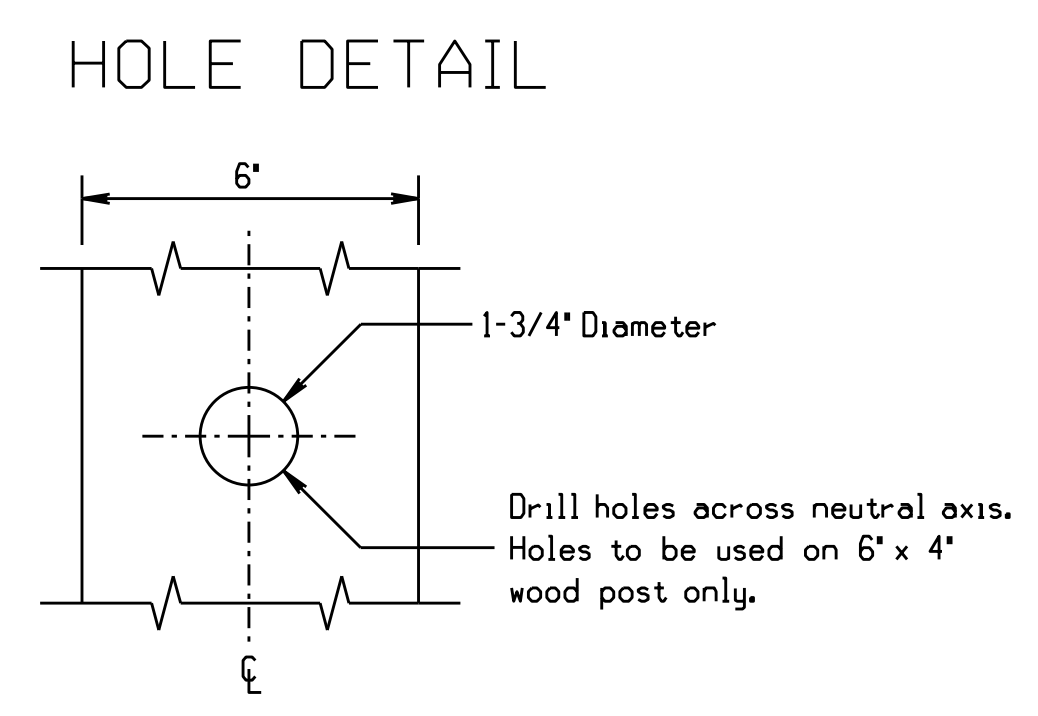


SIGN PLACEMENT

• SEE NOTE 2

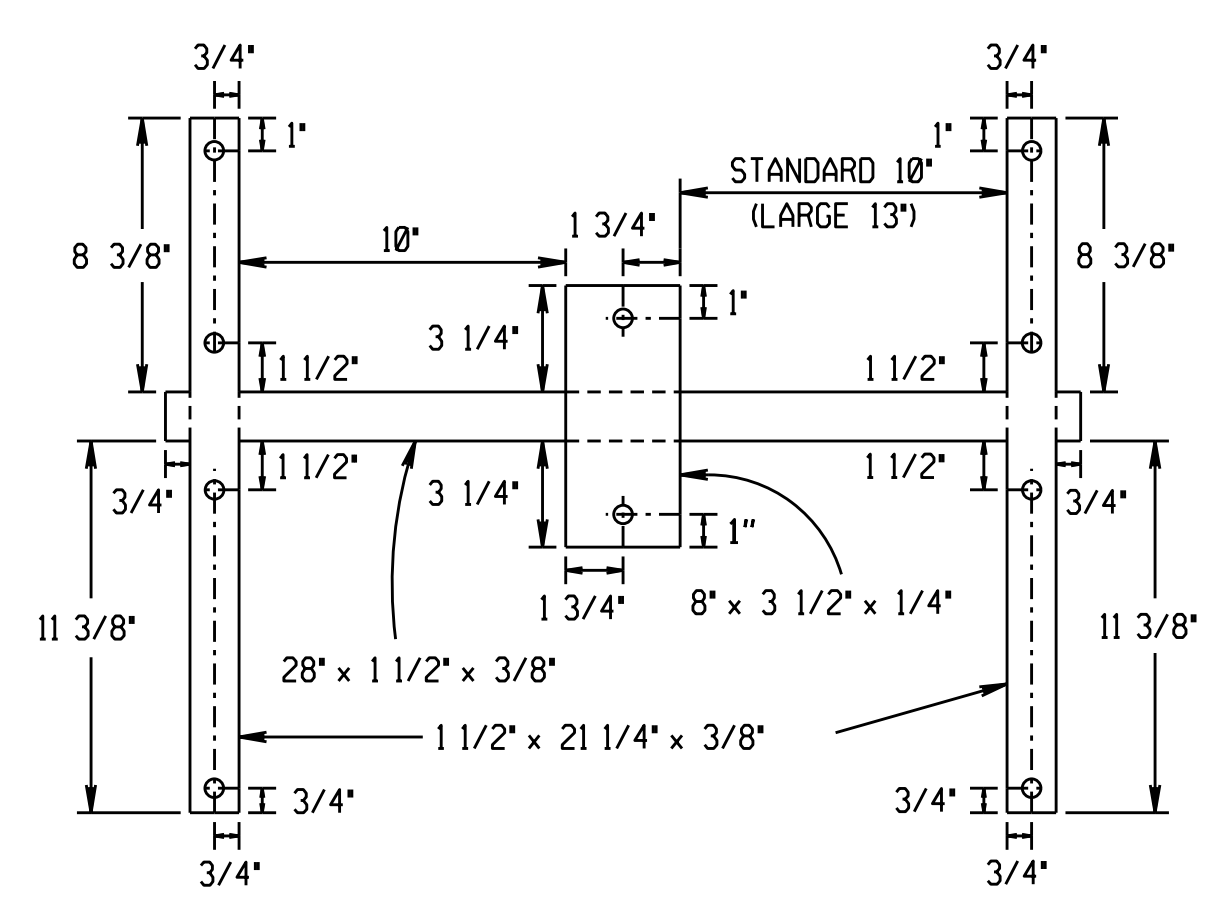


NOTE: USE ALUMINUM ANGLES FOR SUPPORTING EXIT PANEL WHEN NORMAL SUPPORT SPACING IS GREATER THAN THE WIDTH OF THE PANEL.



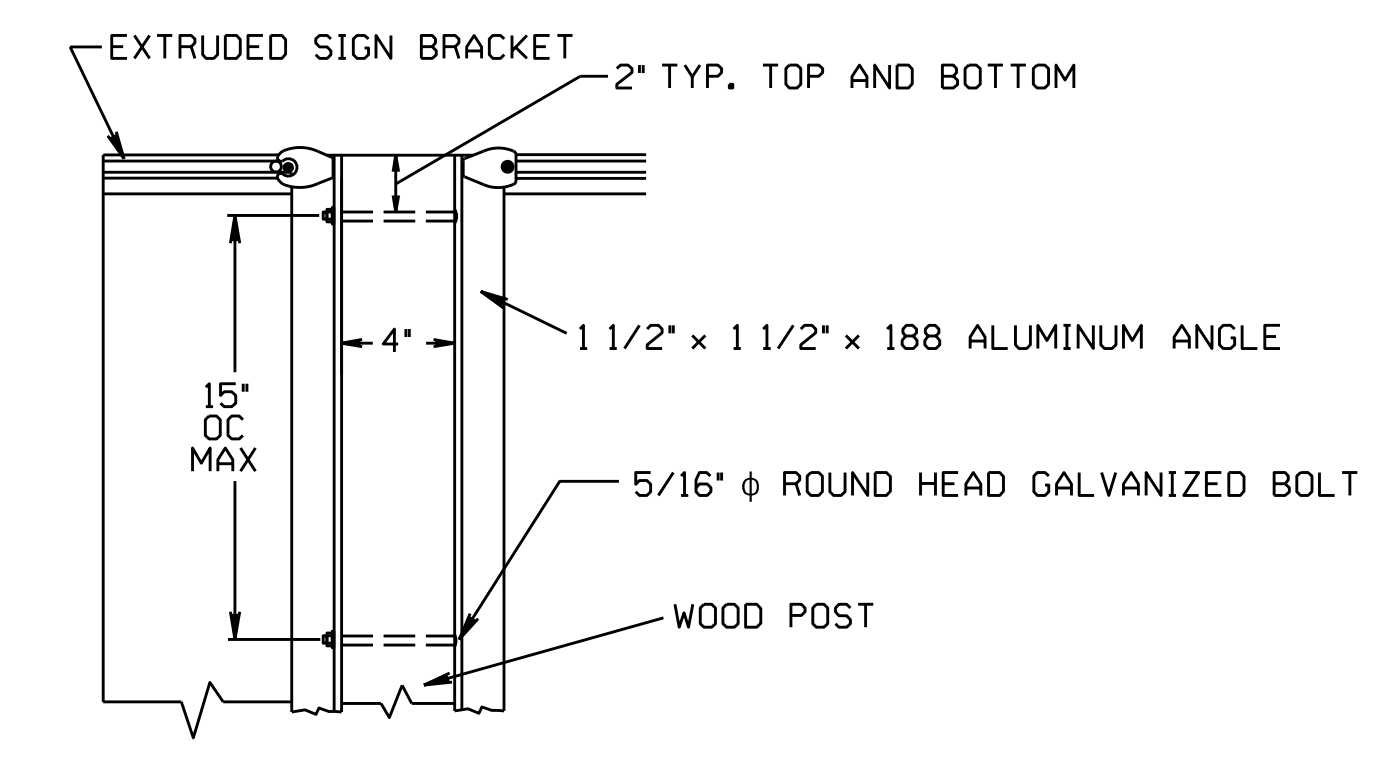
- NOTES
1. 4' X 4' Posts Not Required To Be Break-Away.
 2. 4' X 6' Posts Shall Be Drilled For Break-Away.
 3. Minimum Depth of Posts Shall Be 36".
 4. Ground To Be Firmly Tamped.

BREAK-AWAY DETAIL



NOTE: FILLET WELD ALL SIDES OF LAP JOINTS.

FRONT VIEW OF "H" BRACKET
(FOR ROUTEMARKER ASSEMBLY)



NOTE:
A CLIP SHALL BE PLACED ON EACH SIDE OF THE POST AT EACH EXTRUDED SIGN BRACKET.