

DESIGN DATA CMC 3327: 33rd Ave, Jct ND 25 S 2.1 Miles			
Traffic	Average Daily		
Current 2025	Pass: _____	Trucks: _____	Total: 424
DESIGN DATA CMC 3331: 28th Ave, Jct ND 200 S 10.5 Miles to Jct 25			
Traffic	Average Daily		
Current 2025	Pass: _____	Trucks: _____	Total: 774
DESIGN DATA CMC 3339: 22nd Ave, Jct CMC 3304 N 2.1 Miles			
Traffic	Average Daily		
Current 2025	Pass: _____	Trucks: _____	Total: 57
DESIGN DATA CMC 3304: 16th St, Jct CMC 3331 E 4.4 Miles to Jct CMC 3339			
Traffic	Average Daily		
Current 2025	Pass: 59	Trucks: 7	Total: 66
Preventive Maintenance			

# NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

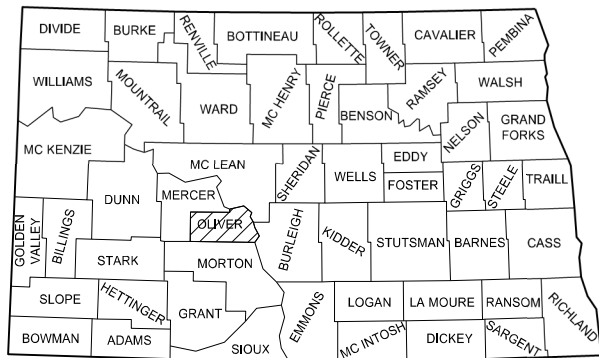
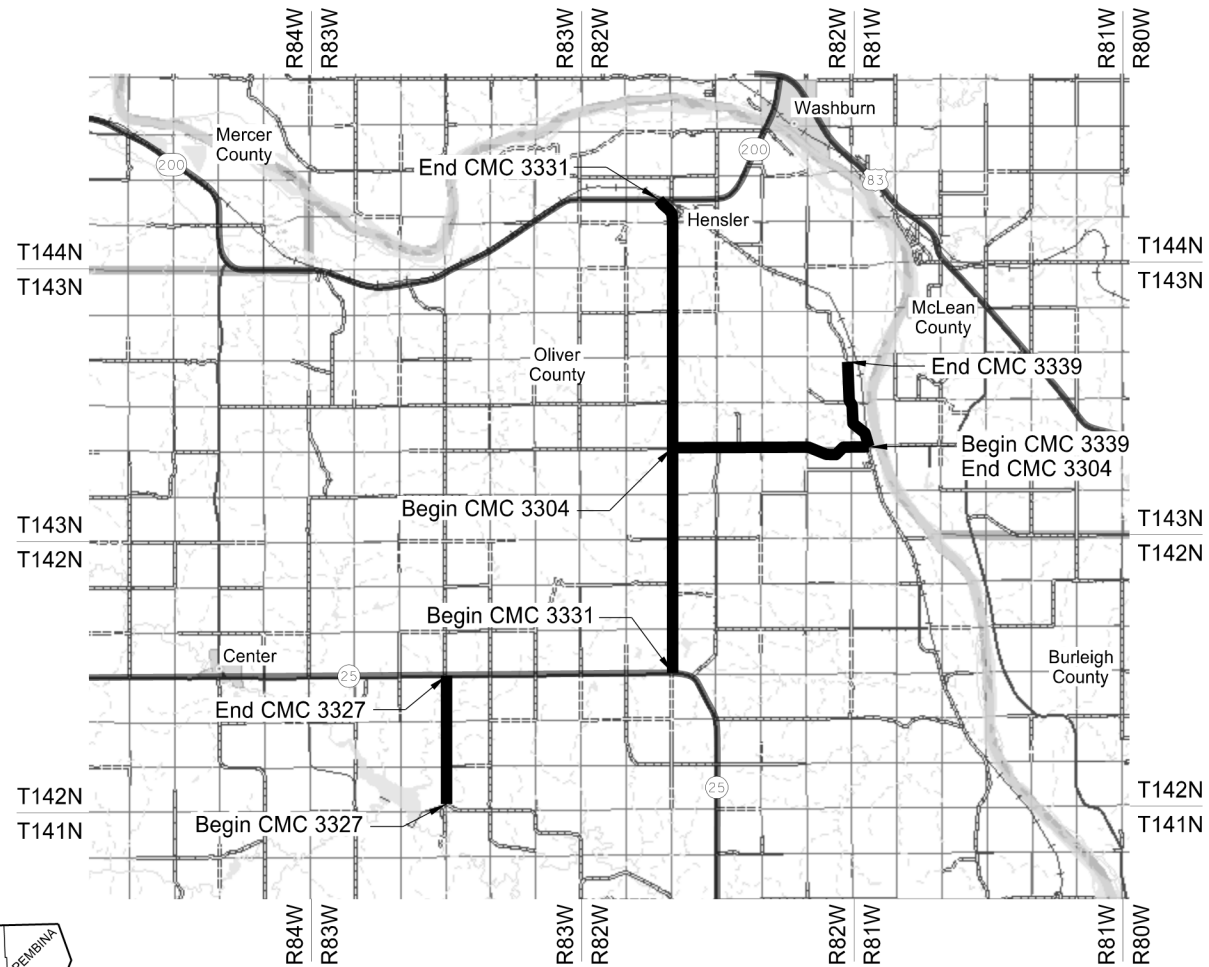
## Federal Aid Project SC-3300(020)

Oliver County  
 CMC 3327: 33rd Ave, From Hwy 25 South 2.8 Miles  
 CMC 3331: 28th Ave  
 CMC 3339: 22nd Ave, Sanger Campground to Cross Ranch  
 CMC 3304: 16th St, East-West Section to Sanger Campground  
 Seal Coat

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SC-3300(020)	24653	1	1

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2025
Supplemental Specifications	NONE

PROJECT DESCRIPTION	NET MILES	GROSS MILES
CMC 3327: 33rd Ave	2.8	2.8
CMC 3331: 28th Ave	10.5	10.5
CMC 3339: 22nd Ave	2.1	2.1
CMC 3304: 16th St	4.4	4.4
<b>TOTAL</b>	<b>19.8</b>	<b>19.8</b>



STATE COUNTY MAP

DESIGNER Chris Schatz
DESIGNER
DESIGNER

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am duly registered professional engineer under the laws of the state of ND.  
 APPROVED DATE 8/4/2025  
*Jordan M. Nehls*  
 Moore Engineering Inc.



MOORE ENGINEERING INC.

REGISTERED PROFESSIONAL ENGINEER

**Jordan M Nehls**  
*Jordan M. Nehls*  
 PE-8782

DATE  
**08/04/2025**

NORTH DAKOTA

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ND	SC-3300(020)	2	1

**PLAN SECTIONS**

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2	1	Table of Contents
4	1	Scope of Work
6	1	Notes
8	1	Quantities
10	1	Basis of Estimate
20	1	General Details
30	1	Typical Sections
100	1-2	Work Zone Traffic Control

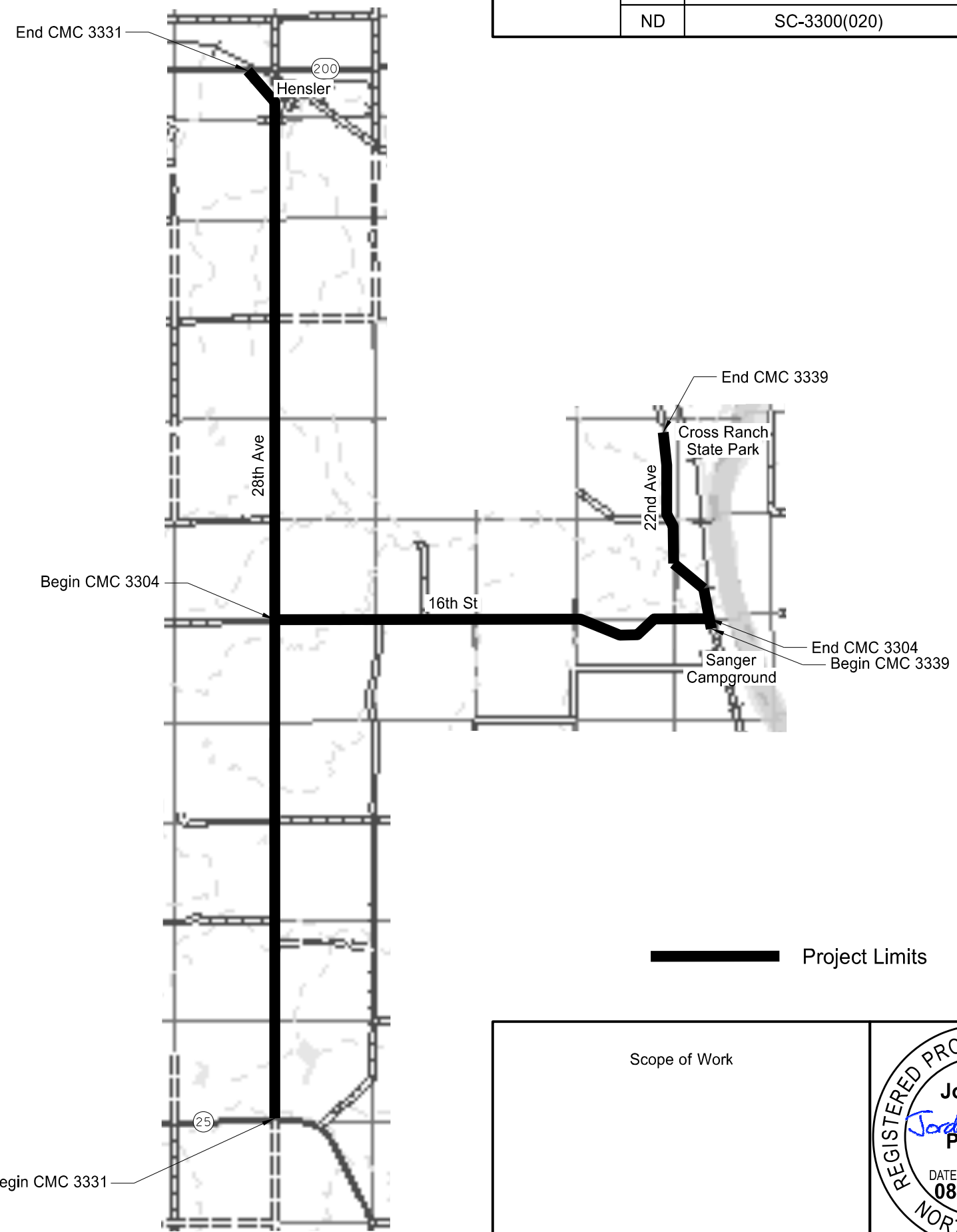
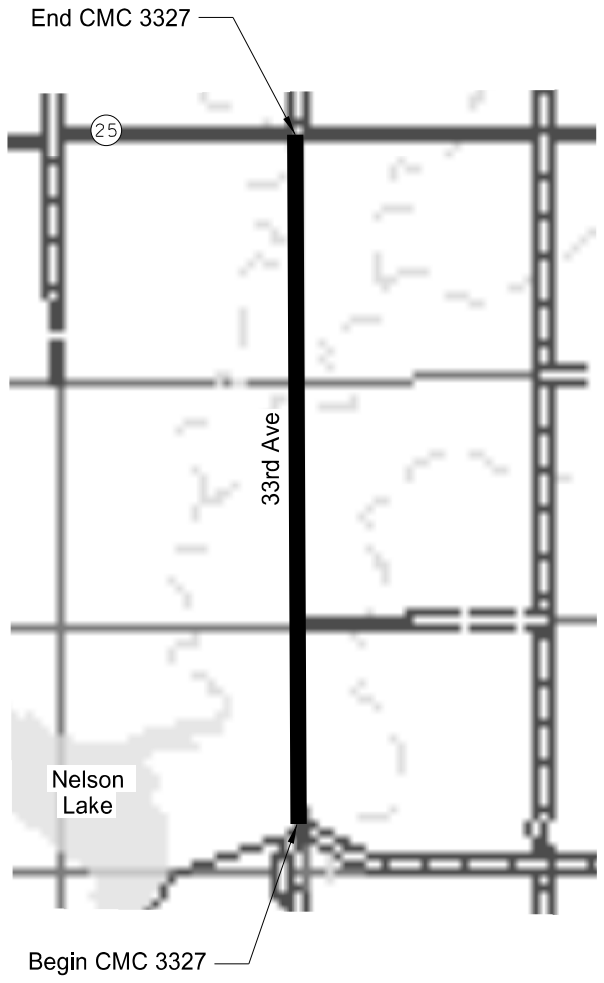
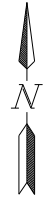
**LIST OF STANDARD DRAWINGS**

Number	Description
D-101-1, 2, 3, 4	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31, 32, 33	Symbols
D-704-3	Lane Markers (Spotting Tab For Seal Projects Only)
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11, 11A	Construction Sign Details - Warning Signs
D-704-14	Construction Sign Punching And Mounting Details
D-704-20	Terminal And Seal Coat Sign Layouts
D-704-22	Construction Truck And Temporary Detour Layouts
D-704-27	Mobile Operation (Pavement Marking)
D-704-33	Two-Lane Roadway Portable Rumble Strips
D-704-50	Portable Sign Support Assembly
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-762-5	Pavement Marking for Standard 90 Degree Flared Intersection-(No Center Left Turn Lane on Major Road)
D-762-11	Short-Term Pavement Marking

**SPECIAL PROVISIONS**

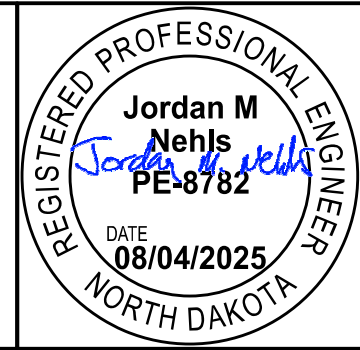
Number	Description
SP 18(25)	Warranty Chip Seal

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SC-3300(020)	4	1



**Project Limits**

Scope of Work



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**NOTES**

401-P01 FOG SEAL: Apply the fog seal with the following requirements:

1. Apply the fog seal after the final sweeping of the chip seal.
2. The dilution of the fog seal is 50% water and 50% CSS-1H.

420-P01 CHIP SEAL EXCEPTION AREA: Slotted Rumble Strips are located at the junction of ND 25 with CMC 3331. Apply a Fog Seal only over the rumble strips. Ensure the aggregate on nearby areas do not track onto the rumble strips.

420-P02 SWEEPING: Remove excess seal coat material accumulated along or under guardrail and from bridge surfaces.

704-500 PORTABLE RUMBLE STRIPS (PRS): Use PRS made of rubber or engineered polymers.

Install PRS as part of the temporary traffic control when the following signs are also part of the required traffic control set up:

- "Be Prepared to Stop" (W3-4); and
- "Flagger" symbol (W20-7)

Install PRS that meet the following criteria:

- Have no adhesives or fasteners required for placement;
- Have a manufacture's speed rating that meets or exceeds the posted speed limit; and
- Each strip in the array must weigh a minimum of 100 pounds.
- Use individual PRS constructed in one of the following manners:
  - A single piece;
  - Interlocking segments; or
  - Two pieces hinged at the midpoint.

An installed array of PRS consists of a minimum of 3 individual strips.

Move rumble strips with the flagging operation. Do not place rumble strips on horizontal curves.

The Engineer will count and measure each array as one unit. Include the cost of providing, installing, maintaining, and relocating PRS in the unit price bid for "Portable Rumble Strips".

704-P01 TRAFFIC CONTROL FOR SEAL COATS: Provide traffic control consisting of a temporary lane closure, flagging, and a pilot car.

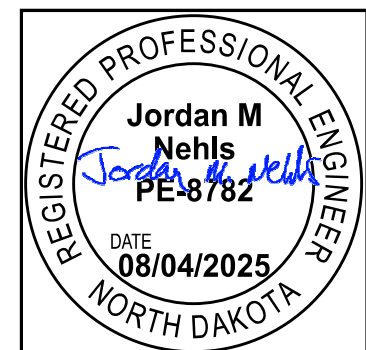
Traffic control quantities are based on the following list:

1. Standard D-704-33
2. Standard D-704-20, layout G & H, see sheet 100-2 for locations
3. Standard D-704-22, Layout K & L

Maintain speed limit shown on sheet 100-2 during and after the chip seal application. Re-establish the speed limit to preconstruction condition after the fog seal.

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.

762-P01 SHORT TERM PAVEMENT MARKING: Two applications of short-term pavement marking has been provided. One application after the chip seal and one application after the fog coat. If the Contractor's operation requires a third application, it will be at the Contractor's expense.



**Estimated Quantities**

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-3300(020)	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
420	0405	SEAL COAT	SY	311165	311165
702	0100	MOBILIZATION	L SUM	1	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	4780	4780
704	1048	PORTABLE RUMBLE STRIPS	EA	2	2
762	0103	PVMT MK PAINTED-MESSAGE	SF	104	104
762	0460	SHORT TERM PAINTED LINE-SEAL JOBS	LF	199108	199108
762	1104	PVMT MK PAINTED 4IN LINE	LF	307222	307222

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SC-3300(020)	10	1

Material	Unit	CMC 3327			CMC 3331			CMC 3339			CMC 3304			Totals	Units
		Length of Section = 2.8 Miles	Length of Section = 10.5 Miles	Length of Section = 2.1 Miles	Length of Section = 4.4 Miles	Width (ft)	Quantity per Mile	Quantity	Width (ft)	Quantity per Mile	Quantity	Width (ft)	Quantity per Mile		
CRS2P Emulsified Asphalt @ 0.40 Gal/SY	GAL	23.5	5,515	15,441	25	5,867	61,600	24.5	5,749	12,074	24.5	5,726	25,297	114,412	GAL
Cover Coat Material CI 41 @ 23 LB/SY	TONS	23.5	159	444	25	169	1771	24.5	165	347	24.5	165	727	3,289	TONS
Fog Seal CSS-1H @ 0.05 Gal/SY	GAL	25	733	2,053	27	792	8,316	26	763	1,602	25.5	748	3,291	15,262	GAL
Seal Coat	SY	25	14,667	41,067	27	15,840	166,320	26	15,253	32,032	25.5	14,960	65,824	305,243	SY

**CMC 3327 Permanent Pavement Marking**

Mainline	Basis	Quantity	Unit
Pvmt MK Painted 4 IN Line - Centerline Skips - Yellow	Measured (LF)	3,375	LF
Pvmt MK Painted 4 IN Line - Centerline Barrier - Yellow	Measured (LF)	12,910	LF
Pvmt MK Painted 4 IN Line - Edge Line -White	Measured (LF)	29,440	LF
<b>Total</b>		<b>45,725</b>	<b>LF</b>

**CMC 3327 Short Term Painted Line Seal Jobs**

Mainline (2 Applications-1Ea. For Seal Coat & Fog Coat)	Basis	Quantity	Unit
Short Term Painted Line Seal Jobs - Centerline Skips - Yellow	Measured (LF)	3,375	LF
Short Term Painted Line Seal Jobs - Centerline Barrier - Yellow	Measured (LF)	12,910	LF
<b>Total</b>		<b>16,285</b>	<b>LF</b>
<b>Total w/ 2 Application</b>		<b>32,570</b>	<b>LF</b>

**CMC 3331 Permanent Pavement Marking**

Mainline	Basis	Quantity	Unit
Pvmt MK Painted 4 IN Line - Centerline Skips - Yellow	Measured (LF)	12,624	LF
Pvmt MK Painted 4 IN Line - Centerline Barrier - Yellow	Measured (LF)	38,299	LF
Pvmt MK Painted 4 IN Line - Edge Line -White	Measured (LF)	109,524	LF
<b>Total</b>		<b>160,447</b>	<b>LF</b>

**CMC 3331 Short Term Painted Line Seal Jobs**

Mainline (2 Applications-1Ea. For Seal Coat & Fog Coat)	Basis	Quantity	Unit
Short Term Painted Line Seal Jobs - Centerline Skips - Yellow	Measured (LF)	12,624	LF
Short Term Painted Line Seal Jobs - Centerline Barrier - Yellow	Measured (LF)	38,299	LF
<b>Total</b>		<b>50,923</b>	<b>LF</b>
<b>Total w/ 2 Application</b>		<b>101,846</b>	<b>LF</b>

**Misc. Pavement Marking**

	Basis	Quantity	Unit
Pvmt MK Painted Message - "Stop Ahead"	Measured (SF)	104	SF

**CMC 3339 Permanent Pavement Marking**

Mainline	Basis	Quantity	Unit
Pvmt MK Painted 4 IN Line - Centerline Skips - Yellow	Measured (LF)	2,442	LF
Pvmt MK Painted 4 IN Line - Centerline Barrier - Yellow	Measured (LF)	7,402	LF
Pvmt MK Painted 4 IN Line - Edge Line -White	Measured (LF)	21,720	LF
<b>Total</b>		<b>31,564</b>	<b>LF</b>

**CMC 3339 Short Term Painted Line Seal Jobs**

Mainline (2 Applications-1Ea. For Seal Coat & Fog Coat)	Basis	Quantity	Unit
Short Term Painted Line Seal Jobs - Centerline Skips - Yellow	Measured (LF)	2,442	LF
Short Term Painted Line Seal Jobs - Centerline Barrier - Yellow	Measured (LF)	7,402	LF
<b>Total</b>		<b>9,844</b>	<b>LF</b>
<b>Total w/ 2 Application</b>		<b>19,688</b>	<b>LF</b>

**CMC 3304 Permanent Pavement Marking**

Mainline	Basis	Quantity	Unit
Pvmt MK Painted 4 IN Line - Centerline Skips - Yellow	Measured (LF)	5,558	LF
Pvmt MK Painted 4 IN Line - Centerline Barrier - Yellow	Measured (LF)	16,944	LF
Pvmt MK Painted 4 IN Line - Edge Line -White	Measured (LF)	46,984	LF
<b>Total</b>		<b>69,486</b>	<b>LF</b>

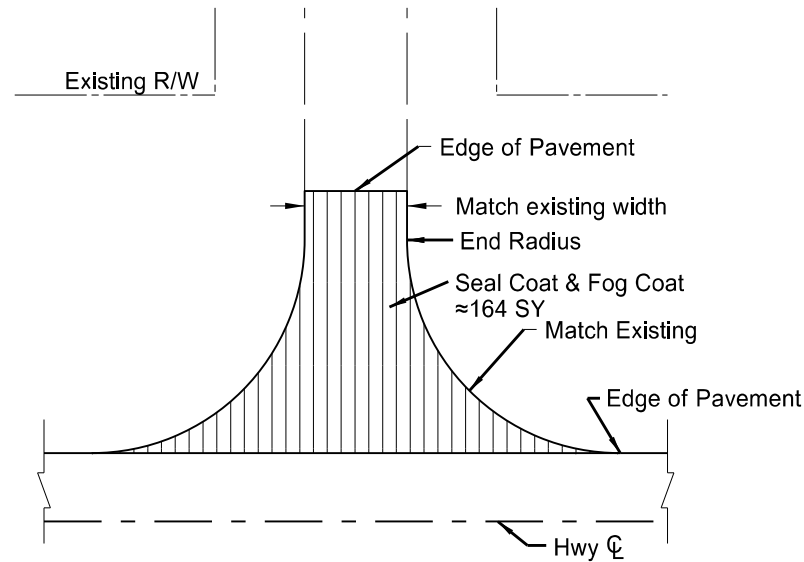
**CMC 3304 Short Term Painted Line Seal Jobs**

Mainline (2 Applications-1Ea. For Seal Coat & Fog Coat)	Basis	Quantity	Unit
Short Term Painted Line Seal Jobs - Centerline Skips - Yellow	Measured (LF)	5,558	LF
Short Term Painted Line Seal Jobs - Centerline Barrier - Yellow	Measured (LF)	16,944	LF
<b>Total</b>		<b>22,502</b>	<b>LF</b>
<b>Total w/ 2 Application</b>		<b>45,004</b>	<b>LF</b>

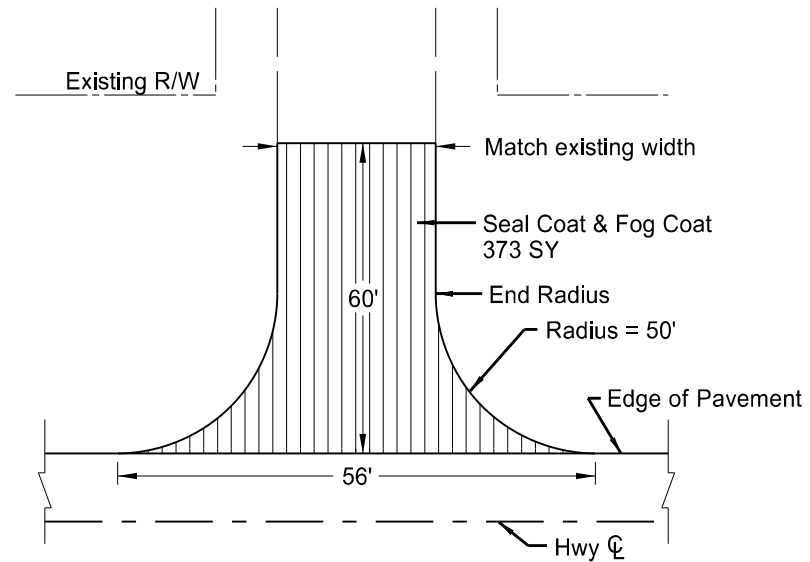
Basis of Estimate



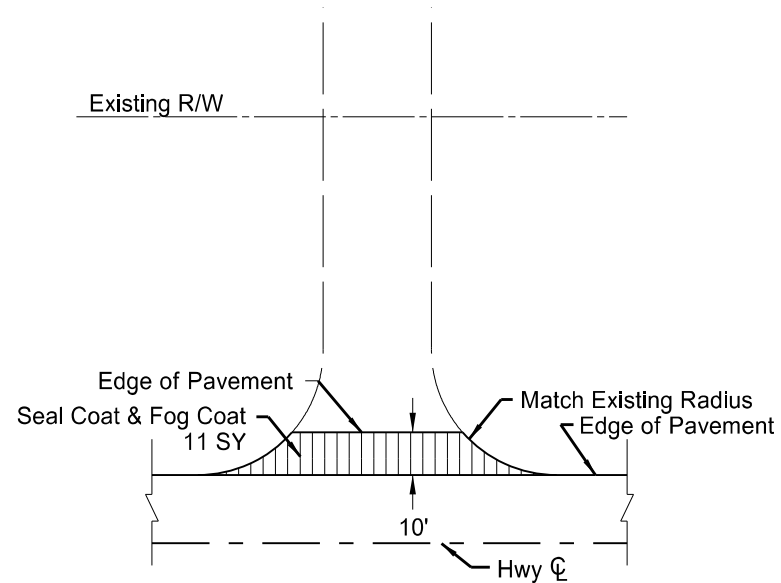
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(1) Gravel Section Line, County Road, or Street Approach



(2) Paved Section Line, County Road, or Street Approach

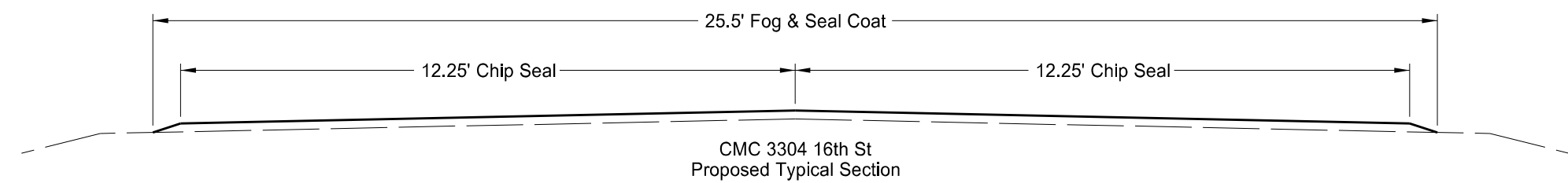
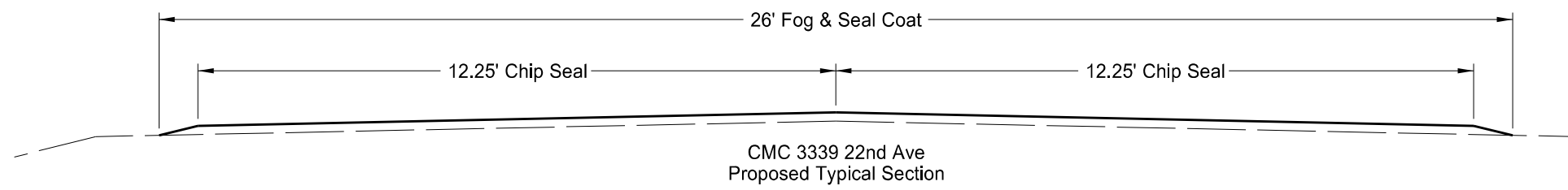
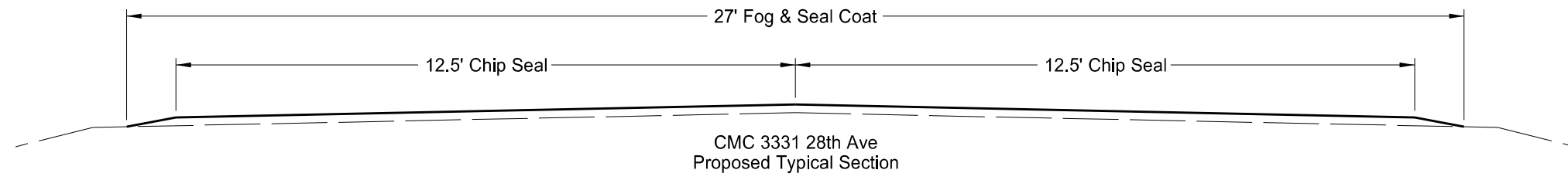
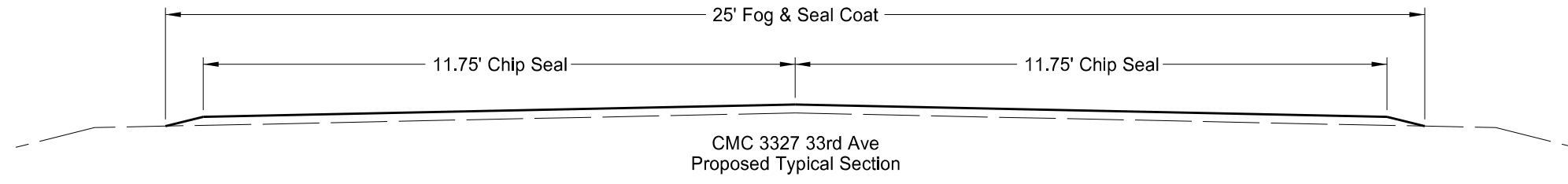


(3) Field Drive Approach

BASIS OF ESTIMATE		(1)	(2)	(3)	TOTALS	UNIT
ITEM	UNIT	Gravel Section Line	Paved Section Line	Field Drive		
Number of Locations	#	8	10	80	98	#
CRS2P Emulsified Asphalt @ 0.40 Gal/SY	GAL	525	1,492	352	2,369	GAL
Cover Coat Material CI 41@23 LB/SY	TON	15	43	10	68	TON
Fog Seal CSS-1H @ 0.05 Gal/SY	GAL	66	187	44	296	GAL
Seal Coat	SY	1,312	3,730	880	5,922	SY

Approach Details

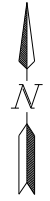
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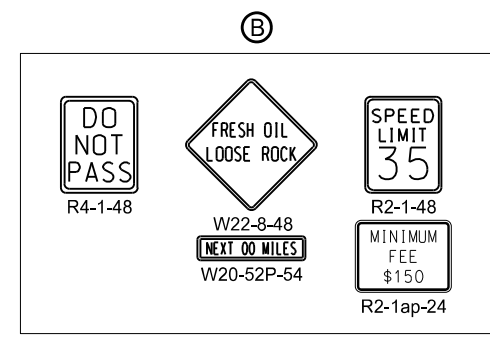
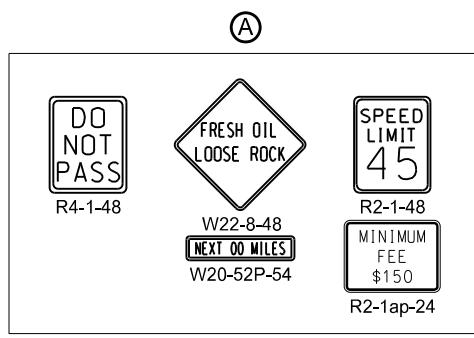
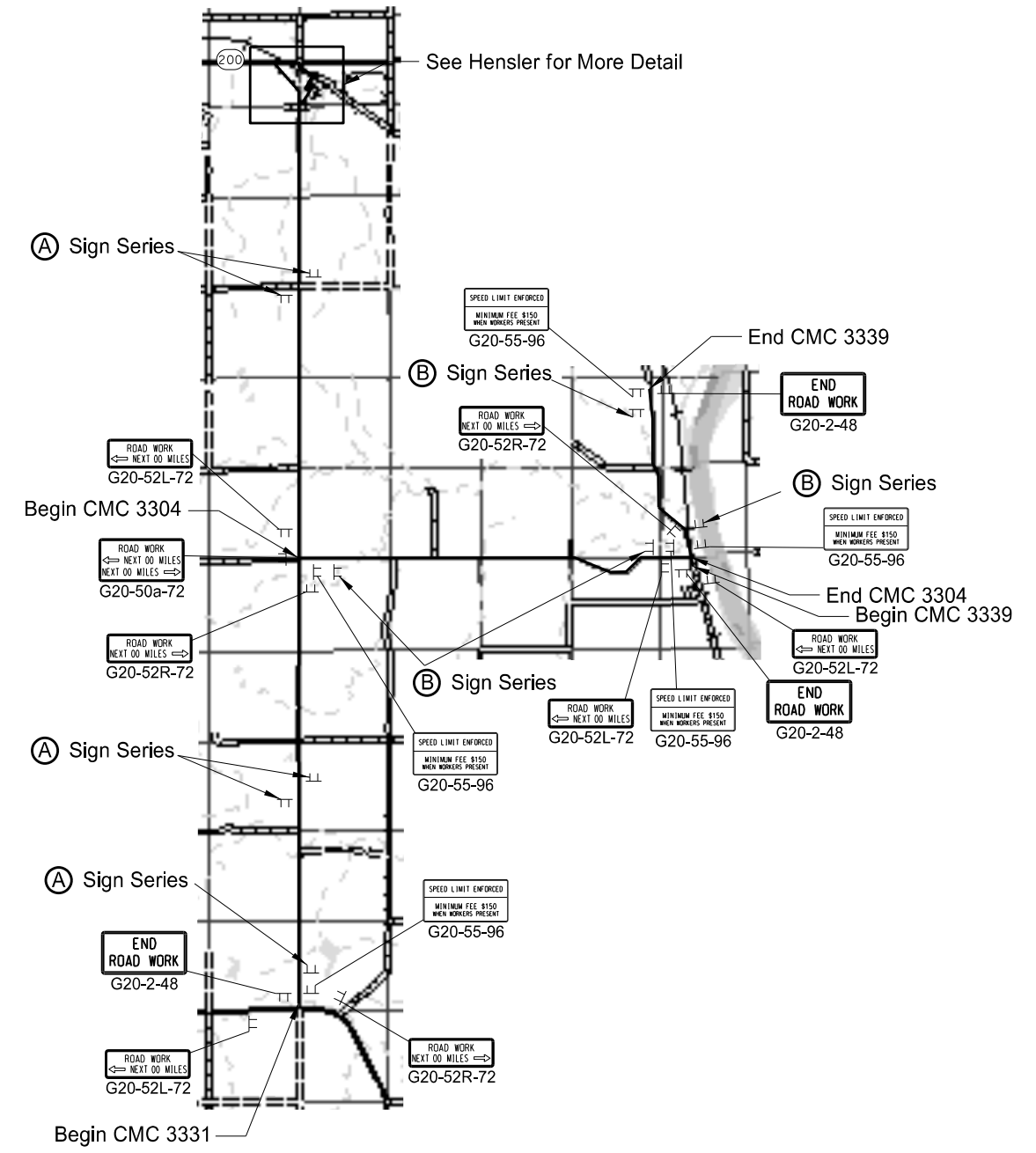
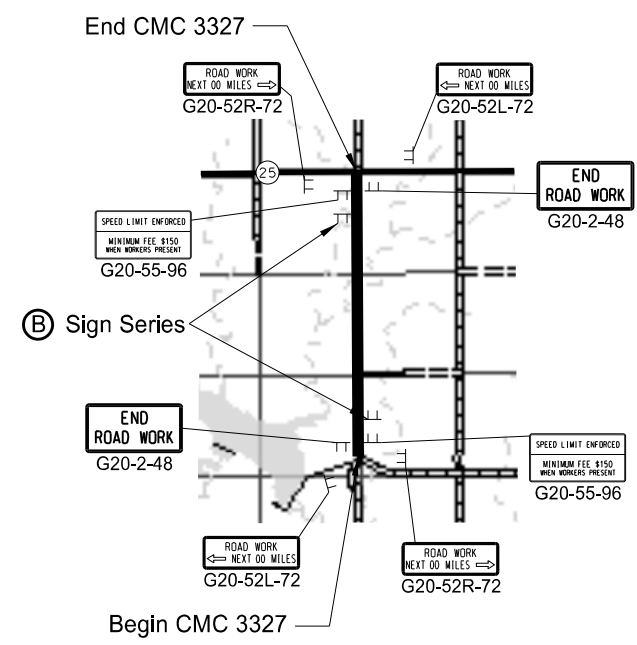
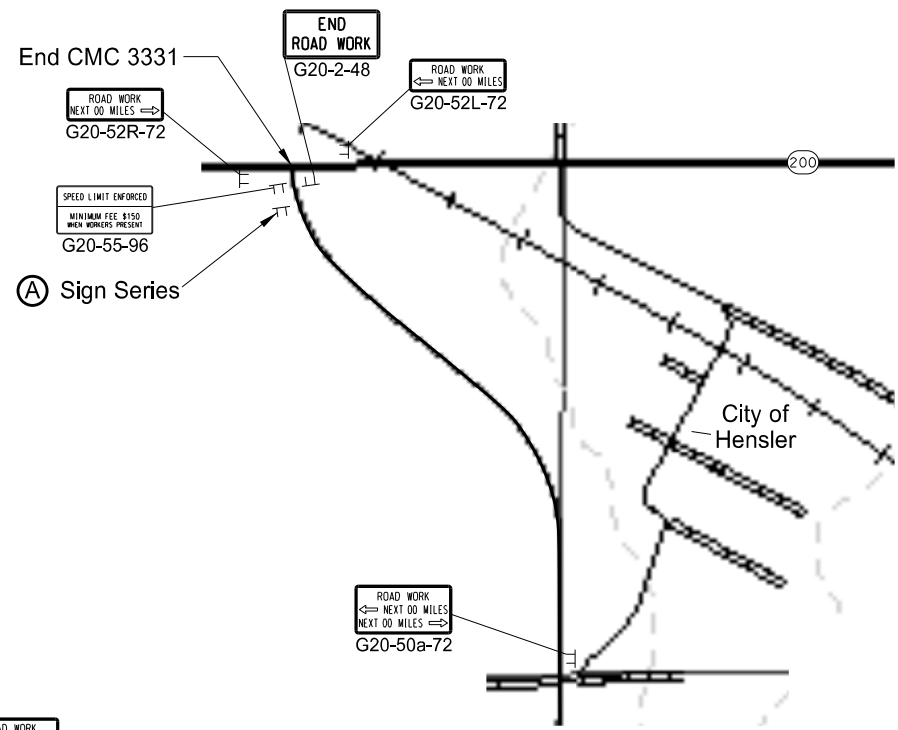
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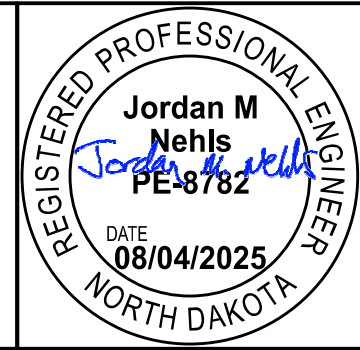
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City of Hensler



Construction Signs



NDDOT ABBREVIATIONS

? This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.

Abn abandoned  
 Abut abutment  
 Adj adjusted  
 Aggr aggregate  
 Ahd ahead  
 ARV air release valve  
 Align alignment  
 Al alley  
 Alt alternate  
 Alum aluminum  
 ADA Americans with Disabilities Act  
 & and  
 Appr approach  
 Approx approximate  
 ACP asbestos cement pipe  
 Asph asphalt  
 AC asphalt cement  
 Assmd assumed  
 @ at  
 Atten attenuation  
 ATR automatic traffic recorder  
 Ave Avenue  
 Avg average  
 ADT average daily traffic

C Gdrl cable guardrail  
 Calc calculate  
 CIP cast iron pipe  
 CB catch basin  
 CRS cationic rapid setting  
 C Gd cattle guard  
 C To C center to center  
 CL or  $\text{C}$  centerline  
 Ch chain  
 Chnlk chain-link  
 Ch Blk channel block  
 Ch Ch channel change  
 Chk check  
 Chsld chiseled  
 Cir circle  
 Cl class  
 Clnt clean-out  
 Clr clear  
 Cl&gr clearing & grubbing  
 Comb. combination  
 Coml commercial  
 Compr compression  
 CADD computer aided drafting & design  
 Conc concrete  
 CECB concrete erosion control blanket  
 Cond conductor  
 Const construction  
 Cont continuous  
 CSB continuous split barrel sample  
 Contr contraction  
 Contr contractor  
 CP control point  
 Coord coordinate  
 Cor corner  
 Corr corrected  
 CAES corrugated aluminum end section  
 CAP corrugated aluminum pipe  
 CMES corrugated metal end section  
 CMP corrugated metal pipe  
 CPVCP corrugated poly-vinyl chloride pipe  
 CSES corrugated steel end section  
 CSFES corrugated steel flared end section  
 CSP corrugated steel pipe  
 CSTES corrugated steel traversable end section  
 Co County  
 Crse course  
 Ct Court  
 Xarm cross arm  
 Xbuck cross buck  
 Xsec cross sections  
 Xing crossing  
 Xrd crossroad  
 Crn crown

Culv culvert  
 C&G curb & gutter  
 CI curb inlet  
 CR curb ramp  
 C cut  
 Dd Ld dead load  
 Defl deflection  
 Defm deformed  
 DInt delineate  
 DIntr delineator  
 Depr depression  
 Desc description  
 Det detail  
 DWP detectable warning panel  
 Dtr detour  
 Dia or  $\emptyset$  diameter  
 Dir direction  
 Dist distance  
 DM disturbed material  
 DB ditch block  
 DG ditch grade  
 Dbl double  
 Dn down  
 Dwg drawing  
 Dr drive  
 Drwy driveway  
 DI drop inlet  
 D dry density  
 Ea each  
 Esmt easement  
 E East  
 EB Eastbound  
 Elast elastomeric  
 EL electric locker  
 E Mtr electric meter  
 EVSE electric vehicle supply equipment  
 Elec electric/al  
 EDM electronic distance meter  
 Elev or El elevation  
 Ellipt elliptical  
 Emb embankment  
 Emuls emulsion/emulsified  
 ES end section  
 Engr engineer  
 ESS environmental sensor station  
 Eq equal  
 Evgr evergreen  
 Exc excavation  
 Exst existing  
 Exp expansion  
 Expy Expressway  
 E external of curve  
 Extru extruded

FOS factor of safety  
 Fed Federal  
 FP feed point  
 Fn fence  
 Fn P fence post  
 FO fiber optic  
 FD field drive  
 F fill  
 FAA fine aggregate angularity  
 FH fire hydrant  
 Fl flange  
 Flrd flared  
 FES flared end section  
 F Bcn flashing beacon  
 FA flight auger sample  
 FL flow line  
 Ftg footing  
 FM force main  
 Fnd found  
 Fdn foundation  
 Frac fractional  
 Frwy freeway  
 Frt front  
 FF front face  
 F Disp fuel dispenser  
 FFP fuel filler pipes  
 FLS fuel leak sensor  
 Furn furnish/ed

Bk back  
 BF back face  
 Balc balcony  
 B Wire barbed wire  
 Barr barricade  
 Btry battery  
 BI beehive inlet  
 Beg begin  
 BG below grade  
 BM bench mark  
 Bkwy bikeway  
 Bit bituminous  
 Blk block  
 BH bore hole  
 Bot bottom  
 Blvd Boulevard  
 Bndry boundary  
 Brkwy breakaway  
 Br bridge  
 Bldg building  
 Bus. business  
 BV butterfly valve  
 Byp bypass

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
04-23-18	General Revisions
09-20-18	General Revisions
12-18-20	General Revisions
08-16-22	General Revisions
04-14-25	General Revisions



NDDOT ABBREVIATIONS

D-101-2

Galv	galvanized	Ln	lane	Obsc	obscure(d)	Qty	quantity
Gar	garage	Lg	large	Ocpd	occupied	Qtr	quarter
Gs L	gas line	Lat	latitude	Ocpy	occupy		
G Reg	gas line regulator	Lt	left	O/s	offset		
GMV	gas main valve	Lens	lenses	OC	on center	Rad or R	radius
G Mtr	gas meter	Lvl	level	C	one dimensional consolidation	RR	railroad
GSV	gas service valve	Lvng	leveling	OC	organic content	Rlwy	railway
GVP	gas vent pipe	Lht	light	Orig	original	Rsd	raised
GV	gate valve	LP	light pole	O To O	out to out	RC	rapid curing
Ga	gauge	Ltg	lighting	OD	outside diameter	Rec	record
Gov	government	Liq	liquid	OH	overhead	Recy	recycle
Grd	graded/grade	LL	liquid limit			RAP	recycled asphalt pavement
Grnd	ground	Loc	location			RPCC	recycled portland cement concrete
GWM	ground water monitor	Long.	longitude	PMT	pad mounted transformer	Ref	reference
Gdrl	guardrail	Lp	loop	Pg	pages	R Mkr	reference marker
Gtr	gutter	LD	loop detector	Pntd	painted	RM	reference monument
		Lum	luminaire	Pr	pair	RP	reference point
				Pnl	panel	Refl	reflectorized
				Pk	park	RCB	reinforced concrete box
H Plg	H piling	Mb	mailbox	PSD	passing sight distance	RCES	reinforced concrete end section
Hdwl	headwall	ML	main line	Pvmt	pavement	RCFES	reinforced concrete flared end section
Ht	height	MH	manhole	Ped	pedestal	RCP	reinforced concrete pipe
Hel	helical	Mkd	marked	Ped	pedestrian	RCPS	reinforced concrete pipe sewer
HDPE	high density polyethylene	Mkr	marker	PPP	pedestrian pushbutton post	RCTES	reinforced concrete traversable end section
HM	high mast	Mkg	marking	Pen.	penetration	Reinf	reinforcement
HP	high pressure	Mkg	marking	Perf	perforated	Res	reservation
HPS	high pressure sodium	MA	mast arm	Per.	perimeter	Res	residence
HTCG	high tension cable guardrail	Matl	material	Perm	permanent	Ret	retaining
Hwy	highway	Max	maximum	PL	pipeline	Rev	reverse
Hor	horizontal			PI	place	Rt	right
HBP	hot bituminous pavement	Meas	measure	P&P	plan & profile	R/W	right of way
HMA	hot mix asphalt	Mdn	median	PL	plastic limit	Riv	river
Hyd	hydrant	MD	median drain	PI or $\overline{P}$	plate	Rd	road
Ph	hydrogen ion content	MC	medium curing	Pt	point	Rdbd	road bed
		MGS	Midwest Guardrail System	PE	polyethylene	Rdwy	roadway
		MM	mile marker	PVC	polyvinyl chloride	RWIS	roadway weather information system
Id	identification	MP	mile post	PCC	Portland Cement concrete	Rk	rock
Incl	inclinometer tube	Min	minimum	PP	power pole	Rt	route
IMH	inlet manhole	Misc	miscellaneous	Preempt	preemption		
ID	inside diameter	Mon	monument	Prefab	prefabricated		
Inst	instrument	Mnd	mound	Prfmd or Pref	performed		
Intchg	interchange	Mtbl	mountable	Prep	preparation		
Intmdt	intermediate	Mtd	mounted	Press.	pressure		
Intscn	intersection	Mtg	mounting	PRV	pressure relief valve		
Inv	invert	Mk	muck	Prestr	prestressed		
IP	iron pipe			Pvt	private		
				PD	private drive		
Jt	joint	Neop	neoprene	Prod.	production/produce		
Jct	junction	Ntwk	network	Prog	programmed		
		N	North	Prop.	property		
		NE	Northeast	Ppsd	proposed		
		NW	Northwest	PB	pull box		
		NB	Northbound				
		No. or #	number				

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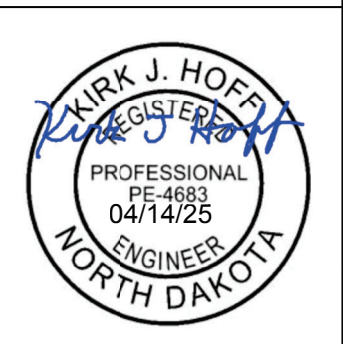


NDDOT ABBREVIATIONS

D-101-3

Salv	salvage(d)	Tel	telephone
San	sanitary sewer line	Tel B	Telephone Booth
Sec	section	Tel P	telephone pole
SL	section line	Tv	television
Sep	separation	Temp	temperature
Seq	sequence	Temp	temporary
Serv	service	TBM	temporary bench mark
Sht	sheet	T	thinwall tube sample
Shtng	sheeting	Ts	topsoil
Shldr	shoulder	Traf	traffic
Sw or Sdwk	sidewalk	TSCB	traffic signal control box
SD	sight distance	Tr	trail
SN	sign number	Transf	transformer
Sig	signal	Trans	transition
Sgl	single	TT	transmission tower
SRCP	slotted reinforced concrete pipe	TES	traversable end section
SC	slow curing	Trans	transverse
SS	slow setting	Trtd	treated
Sm	small	Trmt	treatment
S	South	Qc	triaxial compression
SE	Southeast	TERO	tribal employment rights ordinance
SW	Southwest	Tpl	triple
SB	Southbound	Typ	typical
Sp	spaces		
Spcl	special	Qu	unconfined compressive strength
SA	special assembly	Ugrnd	underground
SP	special provisions	Util	utility
G	specific gravity		
Spk	spike	VG	valley gutter
SB	split barrel sample	Vap	vapor
SH	sprinkler head	Vert	vertical
SV	sprinkler valve	VCP	vitrified clay pipe
Sq	square	Vol	volume
Stk	stake	VSFS	vehicle speed feedback sign
Std	standard		
N	standard penetration test	Wkwy	walkway
Std Specs	standard specifications	W	water content
Stm L	steam line	WGV	water gate valve
SEC	steel encased concrete	WL	water line
SMA	stone matrix asphalt	WM	water main
SSD	stopping sight distance	WMV	water main valve
SD	storm drain	W Mtr	water meter
St	street	WSV	water service valve
SPP	structural plate pipe	WW	water well
SPPA	structural plate pipe arch	Wrng	wearing
Str	structure	WIM	weigh in motion
Subd	subdivision	W	west
Sub	subgrade	WB	westbound
Sub Prep	subgrade preparation	Wrng	wiring
Ss	subsoil	W/	with
SS	supplement specification	W/o	without
Supp	supplemental		
Surf	surfacing		
Surv	survey		
Sym	symmetrical		

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NDDOT ABBREVIATIONS

D-101-4

MEASUREMENTS

ac acres  
 A ampere  
 Bd Ft board feet  
 Cd candela  
 cm centimeter  
 C coulomb  
 CF cubic feet  
 m3 cubic meter  
 m3/s cubic meters per second  
 CY cubic yard  
 CY/mi cubic yards per mile  
 D or Deg degree  
 F Fahrenheit  
 F farad  
 ft feet/foot  
 Gal gallon  
 G giga  
 Ha hectare  
 H henry  
 Hz hertz  
 hr hour(s)  
 in. inch  
 J joule  
 K kelvin  
 kN kilo newton  
 kPa kilo pascal  
 kg kilogram  
 kg/m3 kilogram per cubic meter  
 km kilometer  
 K Kip(s)  
 LF linear foot  
 L litre  
 Lm lumen  
 L sum lump sum  
 Lx lux  
 M Hr man hour  
 M mega  
 m meter  
 m/s meters per second  
 mi mile  
 mL milliliter  
 mm millimeter  
 mm/hr millimeters per hour  
 n nano  
 N newton  
 Pa pascal  
 lb pounds  
 sec seconds  
 S siemens  
 SF square feet  
 km2 square kilometer  
 m2 square meter  
 SY square yard  
 Sta Yd station yards  
 SI Systems International

T tesla  
 T/mi tons per mile  
 V volt  
 W watt  
 Wb weber

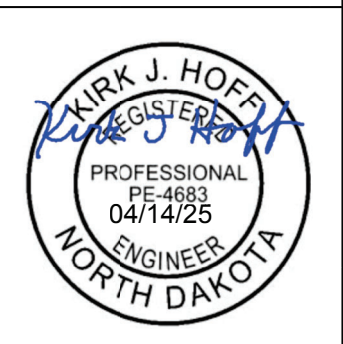
SURVEY DESCRIPTIONS

Az azimuth  
 Bs backsight  
 Brg bearing  
 BP Cap blue plastic cap  
 BS both sides  
 BC brass cap  
 CC closing corner  
 CS curve to spiral  
 Eq equation  
 E external of curve  
 FS far side  
 FB field book  
 Fs foresight  
 Geod geodetic  
 GIS Geographical Information System  
 GPS Global Positioning System  
 HI height of instrument  
 IM iron monument  
 I Pn iron pin  
 LS Land Surveyor (licensed)  
 LSIT Land Surveyor In Training  
 L length of curve  
 LC long chord  
 LB level book  
 MC meander corner  
 Mer meridian  
 M mid ordinate of curve  
 NGS National Geodetic Survey  
 NS near side  
 Obsn observation  
 Off Loc office location  
 OP Cap orange plastic cap  
 PK Parker-Kalon nail  
 P Cap plastic cap  
 PP Cap pink plastic cap  
 PCC point of compound curve  
 PC point of curve  
 PI point of intersection  
 PRC point of reverse curvature  
 PT point of tangent  
 POC point on curve  
 POT point on tangent  
 RTP random traverse point  
 Rge range  
 RP Cap red plastic cap  
 SC spiral to curve  
 SC standard corner  
 ST spiral to tangent  
 Sta station  
 SE superelevation  
 Tan tangent  
 T tangent (semi)  
 TS tangent to spiral  
 Twp township  
 TB transit book  
 TP traverse point  
 TP turning point  
 USC&G US Coast & Geodetic Survey  
 USGS US Geologic Survey  
 VC vertical curve  
 WC witness corner  
 WGS World Geodetic System  
 YP Cap yellow plastic cap  
 Z zenith

SOIL TYPES

Cl clay  
 Cl F clay fill  
 Cl Hvy clay heavy  
 Cl Lm clay loam  
 Co S coal slack  
 C Gr coarse gravel  
 CS coarse sand  
 FS fine sand  
 Gr gravel  
 Lig Co lignite coal  
 Lig Sl lignite slack  
 Lm loam  
 Rk rock  
 Sd sand  
 Sdy Cl sandy clay  
 Sdy Cl Lm sandy clay loam  
 Sdy Fl sandy fill  
 Sdy Lm sandy loam  
 Sc scoria  
 Sh shale  
 Si Cl silt clay  
 Si Cl Lm silty clay loam  
 Si Lm silty loam

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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

702COM 702 Communications  
 ACCENT Accent Communications  
 AGASSIZ WU Agassiz Water Users District  
 AGC Associated General Contractors of America  
 ALL PL Alliance Pipeline  
 ALL SEAS WU All Seasons Water Users District  
 AMOCO PI Amoco Pipeline Company  
 AMRDA HESS Amerada Hess Corporation  
 AT&T AT&T Corporation  
 B PAW Bear Paw Energy Incorporated  
 BAKER ELEC Baker Electric  
 BASIN ELEC Basin Electric Cooperative Incorporated  
 BEK TEL Bek Communications Cooperative  
 BELLE PL Belle Fourche Pipeline Company  
 BLM Bureau of Land Management  
 BNSF Burlington Northern Santa Fe Railway  
 BOEING Boeing  
 BRNS RWD Barnes Rural Water District  
 BURK-DIV ELEC Burke-Divide Electric Cooperative  
 BURL WRD Burleigh County Water Resource District  
 CABLE ONE Cable One  
 CABLE SERV Cable Services  
 CAP ELEC Capital Electric Cooperative Incorporated  
 CASS CO ELEC Cass County Electric Cooperative  
 CASS RWU Cass Rural Water Users District  
 CAV ELEC Cavalier Rural Electric Cooperative  
 CBLCOM Cablecom Of Fargo  
 CENEX PL Cenex Pipeline  
 CENT PL WATER DIST Central Pipe Line Water District  
 CENT PWR ELEC Central Power Electric Cooperative  
 CENTURYLINK CenturyLink  
 COE Corps of Engineers  
 CONS COMM Consolidated Communications  
 CONS TELCOM Consolidated Telcom  
 CONT RES Continental Resource Inc  
 CPR Canadian Pacific Railway  
 D O E Department Of Energy  
 DAK CARR Dakota Carrier Network  
 DAK CENT TEL Dakota Central Telephone  
 DAK RWD Dakota Rural Water District  
 DGC Dakota Gasification Company  
 DICKEY R NET Dickey Rural Networks  
 DICKEY WRD Dickey County Water Resource District  
 DICKEY TEL Dickey Telephone  
 DNRR Dakota Northern Railroad  
 DOME PL Dome Pipeline Company  
 DVELEC Dakota Valley Electric Cooperative  
 DVMW Dakota, Missouri Valley & Western  
 E CENT REG WD East Central Water District  
 ENBRDG Enbridge Pipelines Incorporated  
 ENVENTIS Enventis Telephone  
 EQUINOR Equinor Pipeline  
 FALK MNG Falkirk Mining Company  
 FHWA Federal Highway Administration  
 G FKS-TRL WD Grand Forks-traill Water District  
 GETTY TRD & TRAN Getty Trading & Transportation  
 GLDN W ELEC Golden West Electric Cooperative

GTR RAMSEY WD Greater Ramsey Water District  
 GT PLNS NAT GAS Great Plains Natural Gas Company  
 HALS TEL Halstad Telephone Company  
 IDEA1 Idea1  
 INT-COMM TEL Inter-Community Telephone Company  
 KANEB PL Kaneb Pipeline Company  
 KEM ELEC Kem Electric Cooperative Incorporated  
 KOCH GATH SYS Koch Gathering Systems Incorporated  
 LKHD PL Lakehead Pipeline Company  
 LWR YELL R ELEC Lower Yellowstone Rural Electric  
 LUMEN Lumen Technologies Incorporated  
 MCKNZ CON McKenzie Consolidated Telcom  
 MCKNZ ELEC McKenzie Electric Cooperative  
 MCKNZ WRD McKenzie County Water Resource District  
 MCLEOD McLeod USA  
 MCLN ELEC McLean Electric Cooperative  
 MCLN-SHRDN R WAT McLean-Sheridan Rural Water District  
 MDU Montana-dakota Utilities  
 MIDCO MidContinent Communications  
 MIDSTATE TEL Midstate Telephone Company  
 MINOT CABLE Minot Cable Television  
 MINOT TEL Minot Telephone Company  
 MISS VALL COMM Missouri Valley Communications Incorporated  
 MISS W W S Missouri West Water System  
 MNKOTA PWR Minnkota Power  
 MOR-GRAN-SOU ELEC Mor-gran-sou Electric Cooperative  
 MOUNT-WILLI ELEC Mountrail-williams Electric Cooperative  
 MLGC Moore & Liberty - Griggs County  
 MUNICIPAL City Water And Sewer  
 MUNICIPAL City Of '.....'  
 N CENT ELEC North Central Electric Cooperative  
 N PRAIR REG WD North Prairie Regional Water District  
 ND PKS & REC North Dakota Parks And Recreation  
 ND TEL North Dakota Telephone Company  
 NDDOT North Dakota Department of Transportation  
 NE REG WD Northeast Regional Water District  
 NDSU SOIL SCI DEPT NDSU Soil Science Department  
 NEMONT TEL Nemont Telephone  
 NODAK R ELEC Nodak Rural Electric Cooperative  
 NOON FRMS TEL Noonan Farmers Telephone Company  
 NPR Northern Plains Railroad  
 NSP Northern States Power  
 NTHN BRDR PL Northern Border Pipeline  
 NTHN PLNS ELEC Northern Plains Electric Cooperative Incorporated  
 NTHWSTRN REF Northwestern Refinery Company  
 NW COMM Northwest Communication Cooperation  
 NWRWD Northwest Rural Water District  
 ONEOK Oneok gas  
 OSHA Occupational Safety and Health Administration  
 OTTR TL PWR Otter Tail Power Company  
 PAAP Plains All American Pipeline  
 P L E M Prairielands Energy Marketing  
 POLAR COM Polar Communications  
 PVT ELEC Private Electric  
 QWEST Qwest Communications  
 R&T REG WD R & T Water District

RED RIV COMM Red River Communications  
 RESVTN TEL Reservation Telephone  
 ROBRTS TEL Roberts Company Telephone  
 R-RIDER ELEC Roughrider Electric Cooperative  
 RRVW Red River Valley & Western Railroad  
 S CENT REG WD South Central Regional Water District  
 SE W U Southeast Water Users Incorporated  
 SCOTT CABLE Scott Cable Television Dickinson  
 SHERDN ELEC Sheridan Electric Cooperative  
 SHEYN VLY ELEC Sheyenne Valley Electric Cooperative  
 SKYTECH Skyland Technologies Incorporated  
 SLOPE ELEC Slope Electric Cooperative Incorporated  
 SOURIS RIV TELCOM Souris River Telecommunications  
 ST WAT COMM State Water Commission  
 STATE LN WATER State Line Water Cooperative  
 STER ENG Sterling Energy  
 STUT RWD Stutsman Rural Water District  
 SW PL PRJ Southwest Pipeline Project  
 SWWA Southwest Water Authority  
 SUNOCO Sunoco LP  
 T M C Turtle Mountain Communications  
 TCI TCI of North Dakota  
 TESORO HGH PLNS PL Tesoro High Plains Pipeline  
 TRI-CNTY WU Tri-County Water Users Incorporated  
 TRL CO WRD Traill County Water Resource District  
 UNTD TEL United Telephone  
 UPPR SOUR WD Upper Souris Water District  
 US SPRINT U.S. Sprint  
 USAF MSL CABLE U.S.A.F. Missile Cable  
 USFWS US Fish and Wildlife Service  
 USW COMM U.S. West Communications  
 VRNDRY ELEC Verendrye Electric Cooperative  
 W RIV TEL West River Telephone Incorporated  
 WAPA Western Area Power Administration  
 WAWSA Western Area Water Supply Authority  
 WEB W. E. B. Water Development Association  
 WILLI WRD Williams County Water Resource District  
 WILSTN BAS PL Williston Basin Interstate Pipeline Company  
 WLSH RWD Walsh Water Rural Water District  
 WOLVRTN TEL Wolverton Telephone  
 XLENER Xcel Energy  
 YSVR Yellowstone Valley Railroad

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# LINE STYLES

D-101-20

## Existing Topography

- Existing Ground Void
- Existing Cemetery Boundary
- Existing Box Culvert Bridge
- Existing Concrete Surface
- Existing Drainage Structure
- Existing Gravel Surface
- Existing Riprap
- Existing Dirt Surface
- Existing Asphalt Surface
- Existing Tie Point Line
- Existing Railroad Centerline
- Existing Guardrail Cable
- Existing Guardrail Metal
- Existing Edge of Water
- Existing Fence
- Existing Railroad
- Existing Field Line
- Exst Flow
- Existing Curb
- Existing Valley Gutter
- Existing Driveway Gutter
- Existing Curb and Gutter
- Existing Mountable Curb and Gutter

## Proposed Topography

- Existing 3-Cable w Posts
- Site Boundary
- Existing Berm, Dike, Pit, or Earth Dam
- Existing Ditch Block
- Existing Tree Boundary
- Existing Brush or Shrub Boundary
- Existing Retaining Wall
- Existing Planter or Wall
- Existing W-Beam Guardrail with Posts
- Existing Railroad Switch
- Gravel Pit - Borrow Area
- Existing Wet Area-Vegetation Break
- Existing High Tension Cable Guardrail
- Existing High Tension Cable Guardrail with Posts
- 3-Cable w Posts
- Flow
- Fence
- Remove Line
- Wall
- Retaining Wall (Plan View)
- W-Beam w Posts
- High Tension Cable Guardrail with Posts

## Existing Utilities

- Existing Electrical
- Existing Fiber Optic Line
- Existing TV Fiber Optic
- Existing Gas Pipe
- Existing Overhead Utility Line
- Existing Power
- Existing Fuel Pipeline
- Existing Undefined Above Ground Pipe Line
- Existing Sanitary Sewer
- Existing Sanitary Force Main
- Existing Storm Drain
- Existing Storm Drain Force Main
- Existing Culvert
- Existing Telephone Line
- Existing TV Line
- Existing Water or Steam Line
- Existing Under Drain
- Existing Slotted Drain
- Existing Conduit
- Existing Conductor
- Existing Down Guy Wire Down Guy
- Existing Underground Vault or Lift Station

## Proposed Utilities

- 24 Inch Pipe
- Reinforced Concrete Pipe
- Under Drain
- Edge Drain

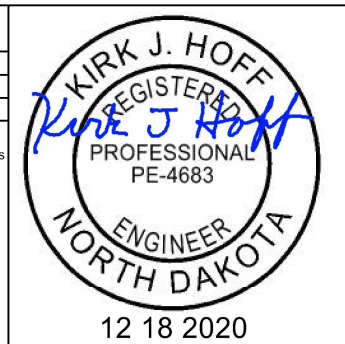
## Traffic Utilities

- Conductor
- Fiber Optic
- Existing Loop Detector
- Existing Double Micro Loop Detector
- Micro Loop Detector Double
- Existing Micro Loop Detector
- Micro Loop Detector
- Signal Head with Mast Arm
- Existing Signal Head with Mast Arm

## Sign Structures

- Existing Overhead Sign Structure
- Existing Overhead Sign Structure Cantilever
- Overhead Sign Structure Cantilever

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09-23-16	Added and Revised Items, Organized by Functional Groups General Revisions
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# LINE STYLES

D-101-21

## Right Of Way

- Easement
- Existing Easement
- Right of Way
- Existing Right of Way
- Existing Right of Way Railroad
- Existing Right of Way Not State Owned
- Existing Government Lot Line
- ..... Existing Adjacent Block Lines
- ..... Existing Adjacent Lot Lines
- ..... Existing Adjacent Property Line
- ..... Existing Adjacent Subdivision Lines
- ..... Sight Distance Triangle Line
- Dimension Leader

## Boundary Control

- ////// Existing City Corporate Limits or Reservation Boundary
- Existing State or International Line
- Existing Township
- Existing County
- Existing Section Line
- Existing Quarter Section Line
- Existing Sixteenth Section Line
- Existing Centerline
- Tangent Line

## Cross Sections and Typical

- Existing Ground
- Existing Topsoil (Cross Section View)
- void - void - void - v Existing Ground Void (Not Surveyed)
- Existing Concrete
- Existing Aggregate (Cross Section View)
- Existing Curb and Gutter (Cross Section View)
- Existing Asphalt (Cross Section View)
- Existing Reinforcement Rebar

## Geotechnical

- D ----- D ----- Geotextile Fabric Type D
- **Geo** ----- **Geo** ----- Geogrid
- R ----- R ----- Geotextile Fabric Type R
- R ----- R ----- Geotextile Fabric Type R1
- RR ----- RR ----- Geotextile Fabric Type RR
- S ----- S ----- Geotextile Fabric Type S

## Countours

- Depression Contours
- Supplemental Contour

## Profile

- Subgrade, Subcut or Ditch Grade
- Topsoil Profile

## Striping

- Centerline Pavement Marking
- ===== Barrier with Centerline Pavement Marking
- ===== Barrier Pavement Marking
- - - - - Stripe 4 IN Dotted Extension White
- - - - - Stripe 8 IN Dotted Extension White
- - - - - Stripe 8 IN Lane Drop

## Pavement Joints

- ===== Doweled Joint
- +++++ Tie Bar 30 Inch 4 Foot Center to Center
- +++++ Tie Bar 18 Inch 3 Foot Center to Center
- +++++ Tie Bar at Random Spacing

## Bridge Details

- Small Hidden Object
- Large Hidden Object
- Phantom Object
- Existing Conditions Object
- Centerline Main
- Centerline Secondary
- Excavation Limits
- Proposed Ground
- Sheet Piling

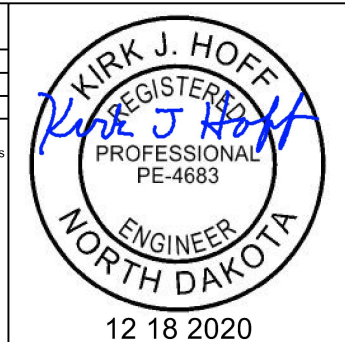
## Erosion Control

- Limits of Const Transition Line
- Bale Check
- Rock Check
- s ----- s ----- Floating Silt Curtain
- SF ----- SF ----- Silt Fence
- Excavation Limits
- Fiber Rolls

## Environmental

- Wetland Mitigation
- Existing Wetland Easement USFWS
- Existing Wetland Jurisdictional
- Existing Wetland
- Tree Row

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SYMBOLS



North Arrow (Half Scale)



Alignment Data Point



Alignment Monument



Spot Elevation



Existing Miscellaneous Spot



Existing Access Control Arrow



Existing Benchmark



Reset USGS Marker



Iron Monument Found



Iron Pin R/W Monument



Property Corner



Iron Pin Reference Monument



Right of Way Marker (Exst, Ppsd, Reset)



Existing Federal Reference Corner



Existing Section Corner (Full, Quarter, Sixteenth, Meander)



Existing Witness Corner



Existing Control Point (CP, GPS-RTK, TRI)



Existing Traverse PI Aerial Panel



Existing Reference Marker Point NGS



Existing EFB Misc



Existing Bush or Shrub



Existing Large Evergreen Tree



Existing Small Evergreen Tree



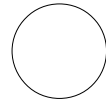
Existing Large Tree



Existing Small Tree



Existing Tree Trunk



Cairn or Stone Circle



Existing Artifact



Existing Satellite Dish



Existing Weather Station



Existing Windmill or Tower



Reinforced Pavement



Continuous Split Barrel Sample



Flight Auger Sample



Split Barrel Sample



Thinwall Tube Sample



Standard Penetration Test



Inclinometer Tube



Excavation Unit



Existing Ground Water Well Bore Hole

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
















































































12 18 2020



# SYMBOLS

D-101-32

	Existing Luminaire				Existing Traffic Signal Standard			
	Luminaire LED						Pull Box (Exst-Ppsd-Undefined)	
	Existing Light Standard Luminaire						Intelligent Transportation Pull Box (Exst, Ppsd)	
	Relocate Light Standard						Transformer (Exst, Ppsd)	
	Light Standard Light LED Luminaire						Power Pole (Exst-Ppsd-with Transformer)	
	Light Standard 35 Watt High Pressure Sodium Vapor Luminaire						Wood Pole (Exst, Ppsd)	
	Light Standard 50 Watt High Pressure Sodium Vapor Luminaire						Pedestrian Push Button Post (Exst, Ppsd)	
	Light Standard 70 Watt High Pressure Sodium Vapor Luminaire						Existing Pole	
	Light Standard 100 Watt High Pressure Sodium Vapor Luminaire						Existing Telephone Pole	
	Light Standard 150 Watt High Pressure Sodium Vapor Luminaire						Existing Post	
	Light Standard 200 Watt High Pressure Sodium Vapor Luminaire							Connection Conductor (Ground, Neutral, Phase 1, Phase 2)
	Light Standard 250 Watt High Pressure Sodium Vapor Luminaire							
	Light Standard 310 Watt High Pressure Sodium Vapor Luminaire							
	Light Standard 400 Watt High Pressure Sodium Vapor Luminaire							
	Light Standard 700 Watt High Pressure Sodium Vapor Luminaire							
	Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire							
	Emergency Vehicle Detector							
	Video Detection Camera							
								
								
								
								

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
12-18-20	General Revisions



KIRK J. HOFF  
REGISTERED  
PROFESSIONAL  
ENGINEER  
NORTH DAKOTA  
PE-4683

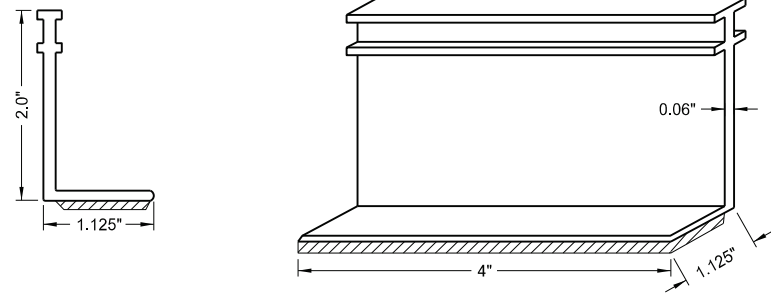
12 18 2020



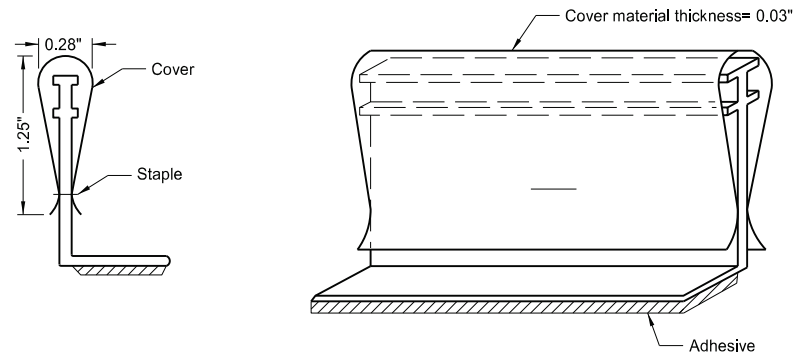
### LANE MARKERS (Spotting Tab for Seal Projects only)

**Notes:**

1. Install lane line markers as shown, prior to beginning the seal coat.
2. Attach cover to vertical part of marker so traffic does not cause it to detach, but it can be easily removed manually.
3. Remove protective covers immediately after seal coat is applied.
4. Remove markers after permanent pavement marking is installed.
5. Use marker body and cover manufactured from polyurethane material.
6. Marker types:  
 Type Y - Yellow body and cover with yellow reflective tape on both sides.  
 Type W - White body and cover with white reflective tape on one side.
7. Use retroreflective tape with a minimum reflectance of 1200 candle power per foot-candle per square foot, using a .1 degree observation angle and 0 degree entrance angle.
8. Use adhesive conforming to AASHTO M 237.



Marker Body



Marker Body with Protective Cover

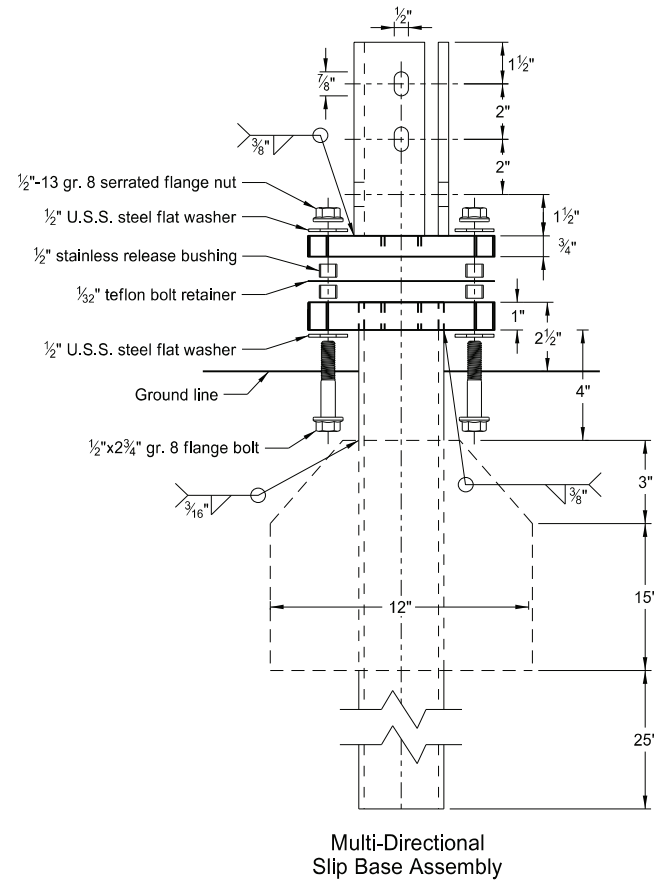
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature



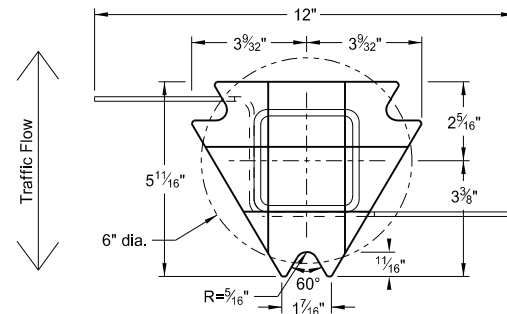
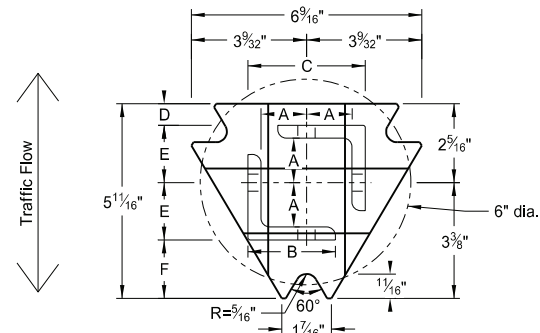
08/01/24

# BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

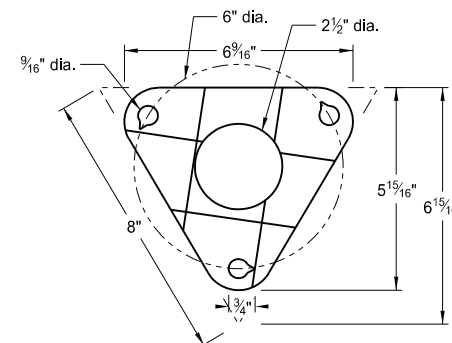
D-704-7



## Perforated Tube



**Bottom Soil Stub**  
Tube - 3"x3"x7 gauge ASTM A500 grade B tube  
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011  
Plate - ASTM A572 grade 50



**Notes:**

1. Torque slip base bolts as specified by manufacturer.
2. Use anchor with 43.9 KSI yield strength and 59.3 KSI tensile strength.
3. Provide 4" vertical clearance for anchor or breakaway base. Measure the 4"x60" measurement above and below post location and back and ahead of post.
4. In concrete sidewalk, use same anchor without wings.
5. Provide more than 7' between the first and fourth posts of a four post sign.

### Telescoping Perforated Tube

Number of Posts	Post Size in.	Wall Thickness Gauge	Sleeve Size in.	Wall Thickness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2 1/4
1	2 1/4	12			No	2 1/2
1	2 1/2	12			(A)	3
1	2 1/2	10			Yes	
1	2 1/4	12	2	12	Yes	
1	2 1/2	12	2 1/4	12	Yes	
2	2	12			No	2 1/4
2	2 1/4	12			No	2 1/2
2	2 1/2	12			Yes	
2	2 1/2	12			Yes	
2	2 1/4	10	2	12	Yes	
3 & 4	2 1/2	12			Yes	
3 & 4	2 1/2	10			Yes	
3 & 4	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/4	12	2	12	Yes	
3 & 4	2 1/2	10	2 3/16	10	Yes	

### Properties of Telescoping Perforated Tube

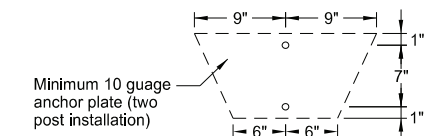
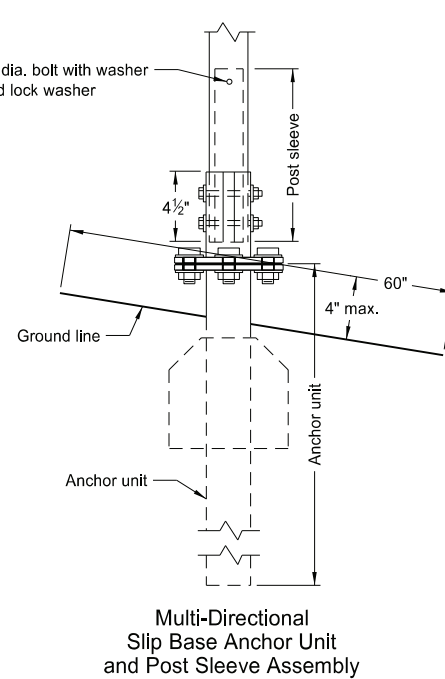
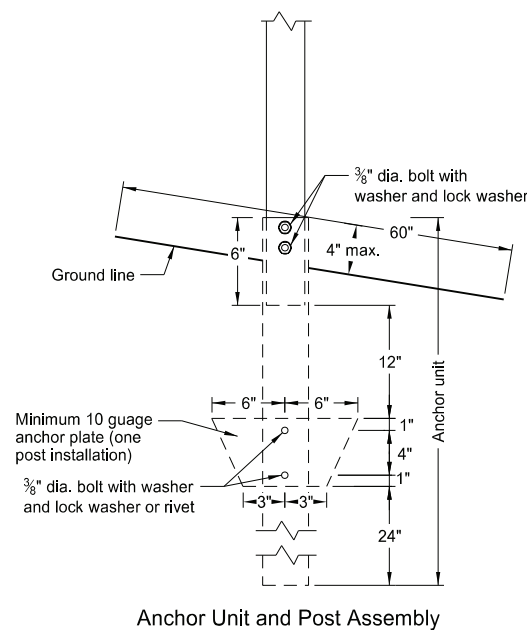
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in. <sup>4</sup>	Cross Sec. Area in. <sup>2</sup>	Section Modulus in. <sup>3</sup>
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643
2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.785

### Top Post Receiver Data Table

Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 5/64"	2 1/2"	3 1/32"	2 5/32"	1 33/64"	1 7/8"
2 1/2"x10 ga.	1 3/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2 3/16"x10 ga. into 2 1/2"x10 ga.



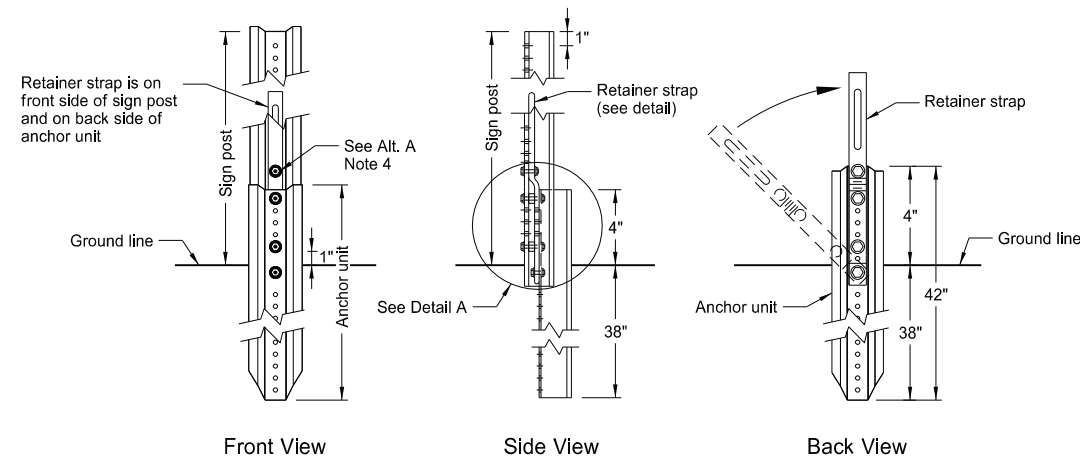
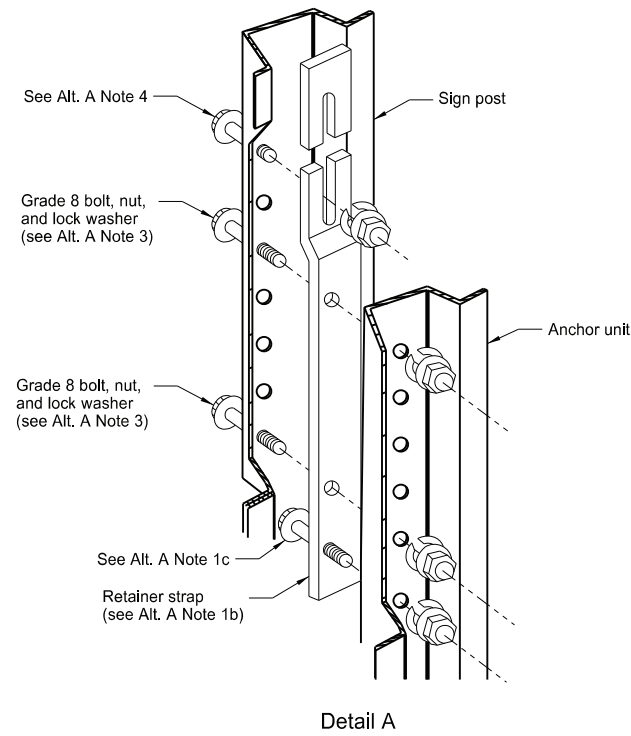
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature



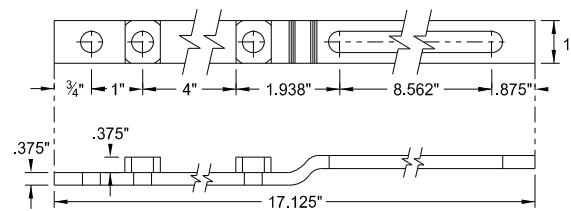
# BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

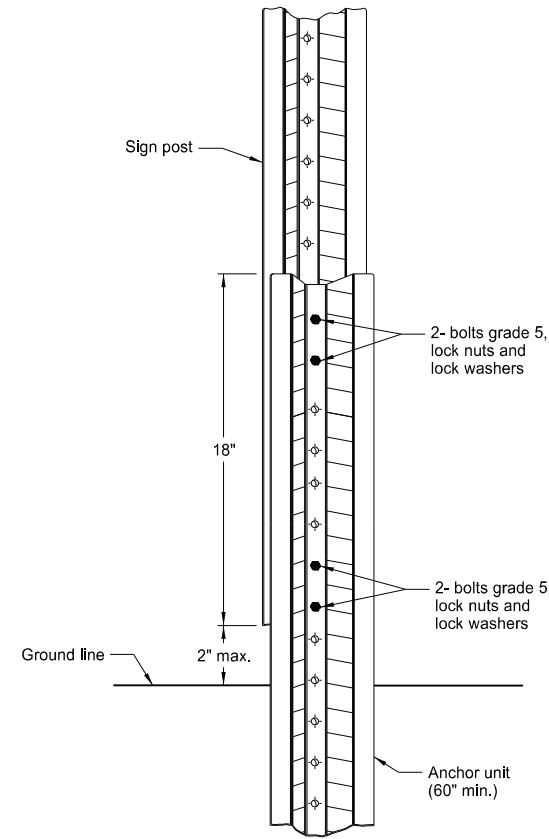
## U-Channel Post



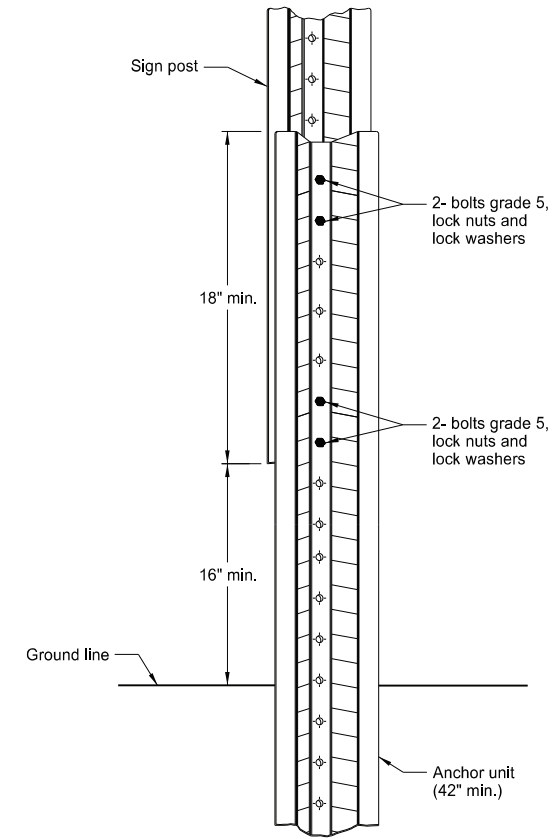
**Breakaway U-Channel Detail Alternate A**  
Install a maximum of 2 posts within 7'.



**Retainer Strap Detail**



**Breakaway U-Channel Splice Detail Alternate B**  
(2.5 and 3 lb/ft)  
Install a maximum of 3 posts within 7'.



**Breakaway U-Channel Splice Detail Alternate C**  
(2.5 and 3 lb/ft)  
Install a maximum of 3 posts within 7'.

**Alternate A Steps of Installation:**

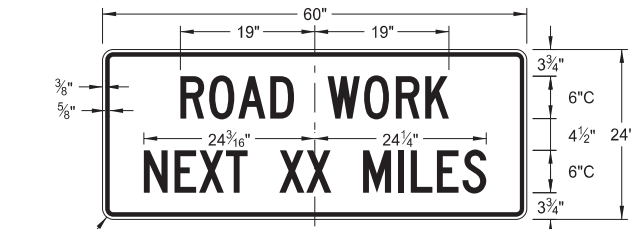
- Drive anchor unit to within 12" of ground level.
  - Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
  - Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
  - Rotate strap 90° to left.
- Drive anchor unit to 4" above ground.
  - Rotate strap to vertical position.
- Place 5/16"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
  - Alternately tighten two connector bolts.
- Complete assembly by tightening 5/16"x2" bolt (this fastens sign post to retainer strap).
- Properly nest base post, strap, and sign post. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

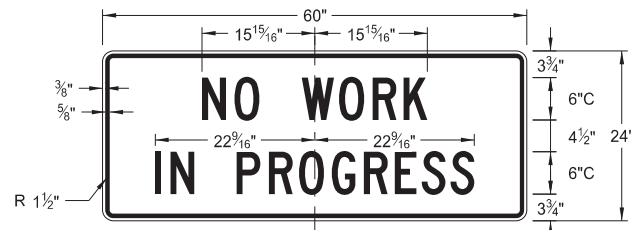


08/01/24

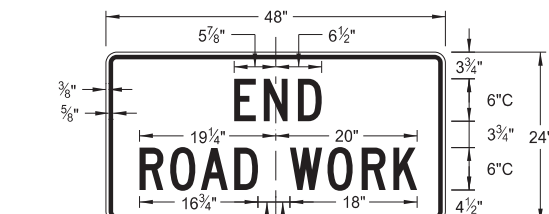
CONSTRUCTION SIGN DETAILS  
TERMINAL AND GUIDE SIGNS



G20-1-60  
Legend: black (non-refl)  
Background: orange



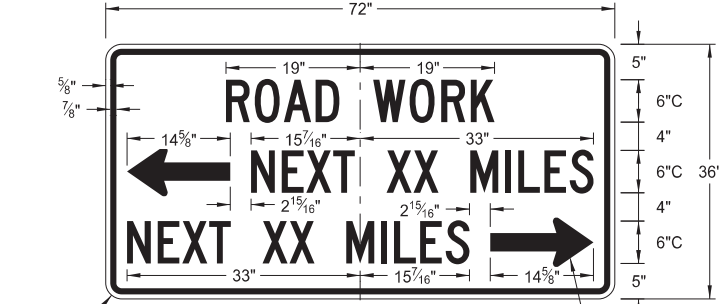
G20-1b-60  
Legend: black (non-refl)  
Background: orange



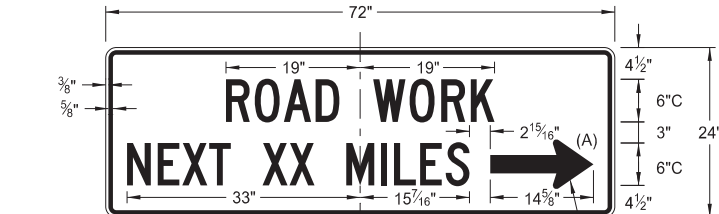
G20-2-48  
Legend: black (non-refl)  
Background: orange



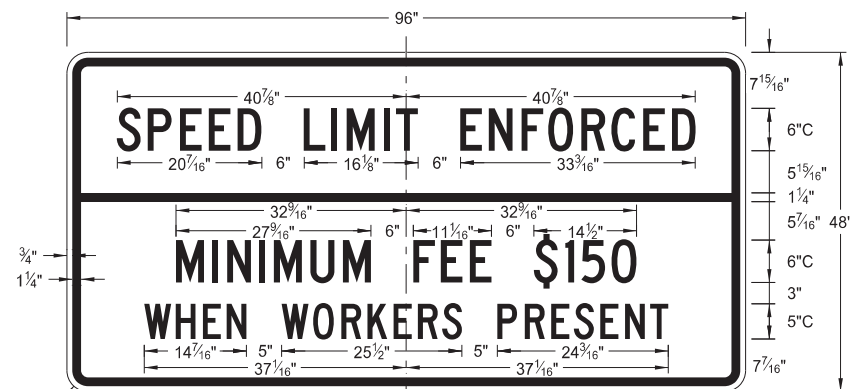
G20-4b-36  
Legend: black (non-refl)  
Background: orange



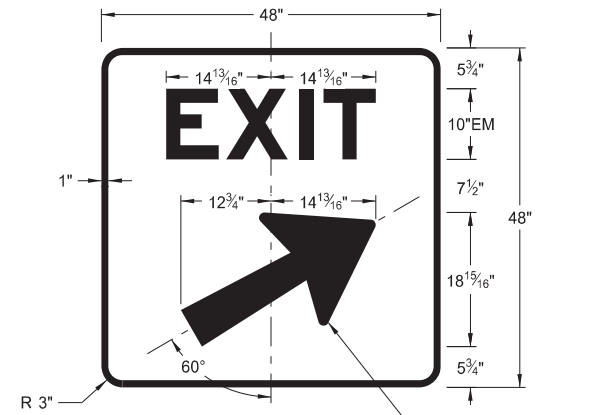
G20-50a-72  
Legend: black (non-refl)  
Background: orange



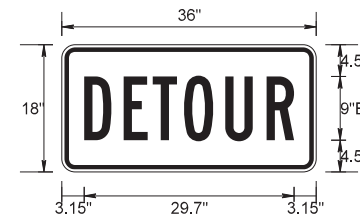
G20-52a-72  
Legend: black (non-refl)  
Background: orange



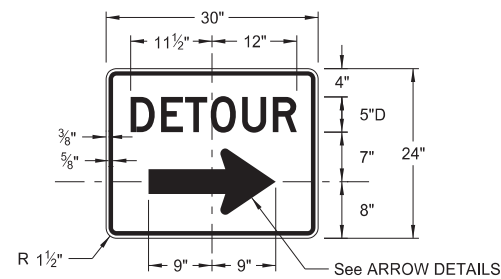
G20-55-96  
Legend: black (non-refl)  
Background: orange



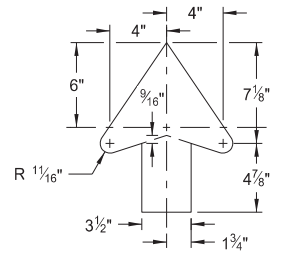
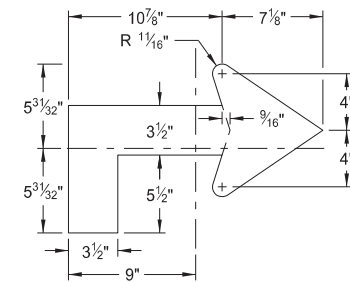
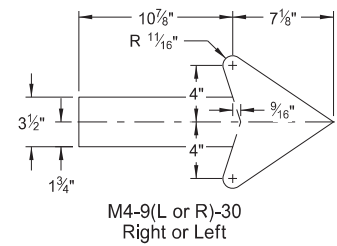
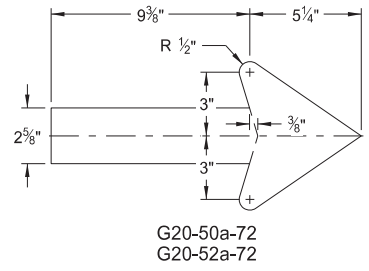
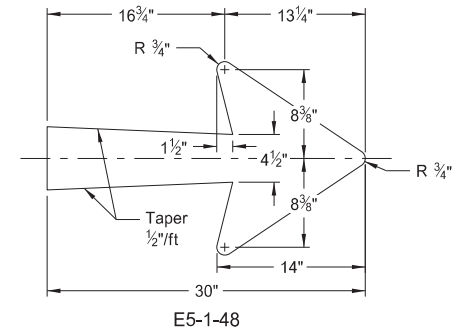
E5-1(L or R)-48  
Legend: white  
Background: green (orange optional)



M4-8-36  
Legend: black (non-refl)  
Background: orange



M4-9(L or R)-30 & M4-9-30  
Legend: black (non-refl)  
Background: orange



ARROW DETAILS

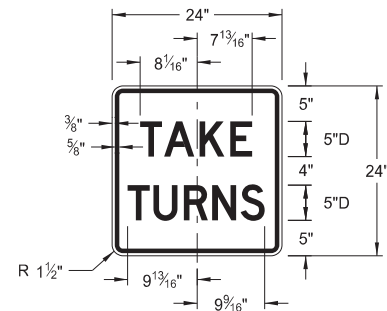
NOTES:

(A) Arrow may be right or left of the legend to indicate construction to the right or left.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Added sign & background color
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes



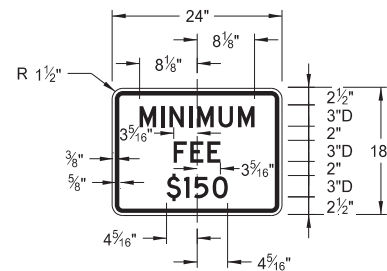
CONSTRUCTION SIGN DETAILS  
REGULATORY SIGNS



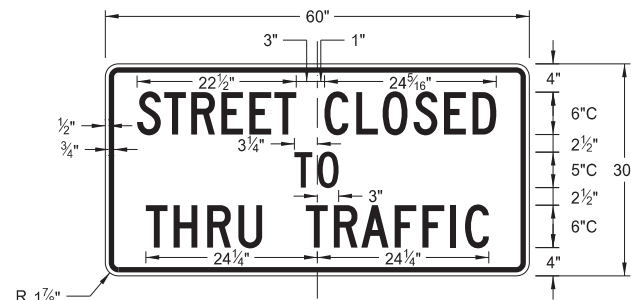
R1-50P-24  
Legend: black (non-refl)  
Background: white



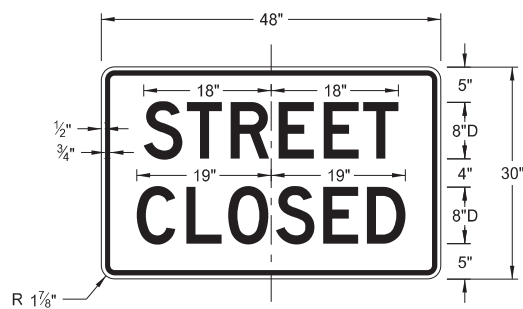
R11-3c-60  
Legend: black (non-refl)  
Background: white



R2-1aP-24  
Legend: black (non-refl)  
Background: white



R11-4a-60  
Legend: black (non-refl)  
Background: white

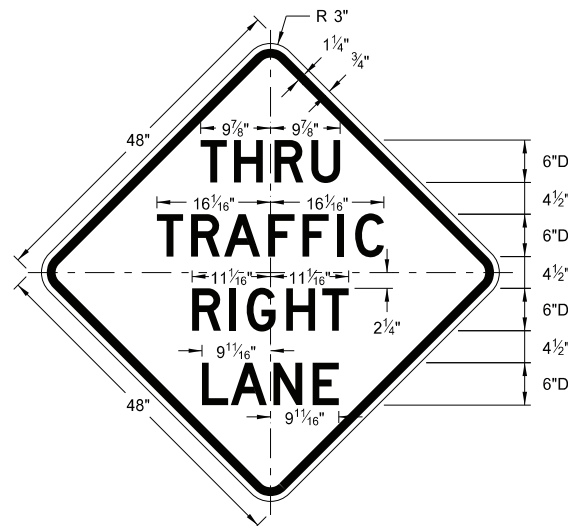


R11-2a-48  
Legend: black (non-refl)  
Background: white

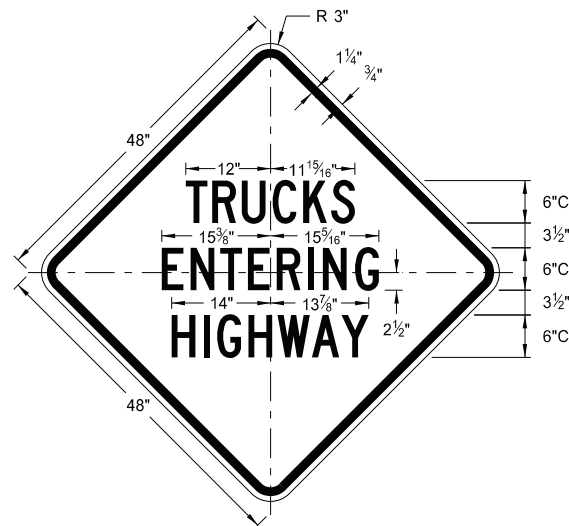
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Revised sign number
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes



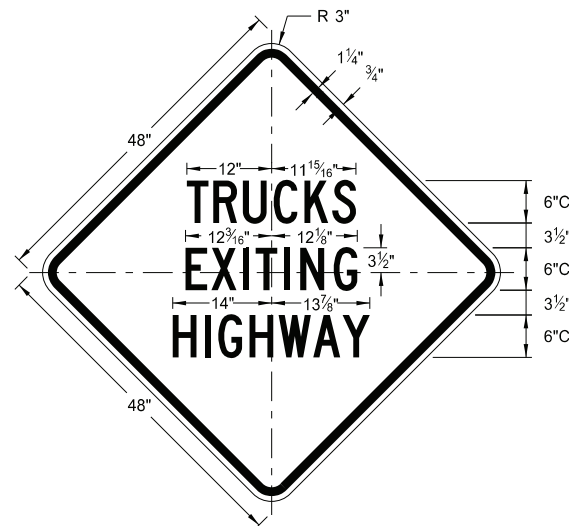
CONSTRUCTION SIGN DETAILS  
WARNING SIGNS



W5-8-48  
Legend: black (non-refl)  
Background: orange



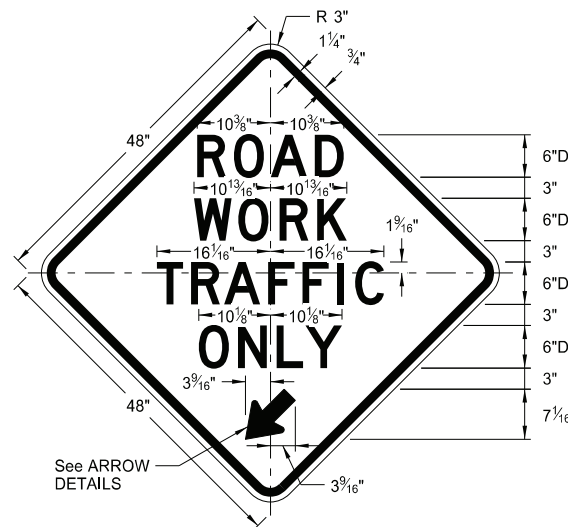
W8-53-48  
Legend: black (non-refl)  
Background: orange



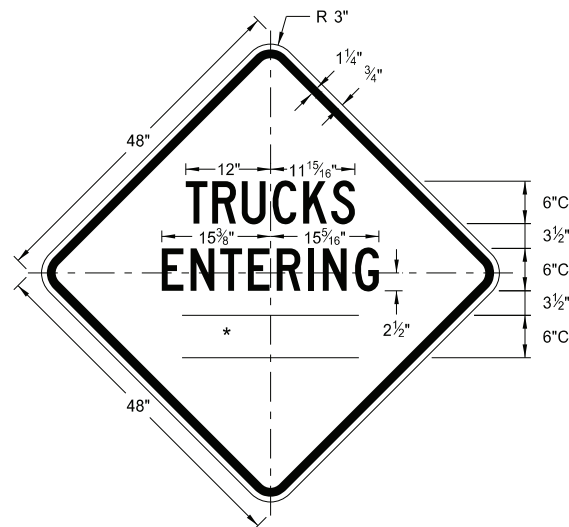
W8-56-48  
Legend: black (non-refl)  
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

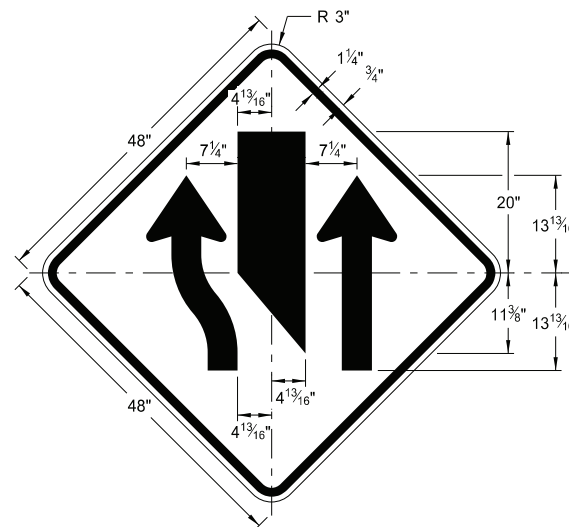
\* DISTANCE MESSAGES



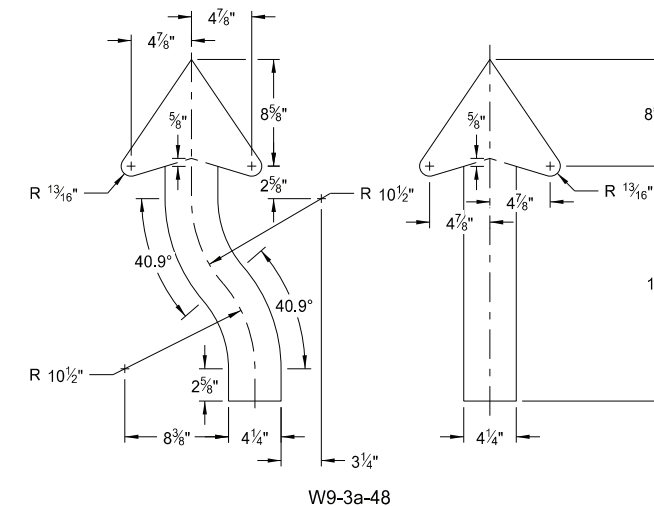
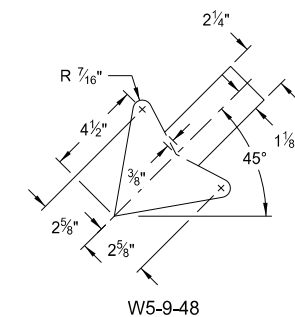
W5-9-48  
Legend: black (non-refl)  
Background: orange



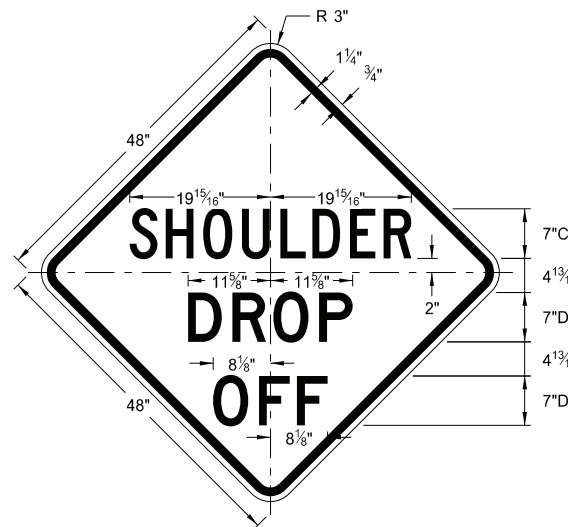
W8-54-48  
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Background: orange



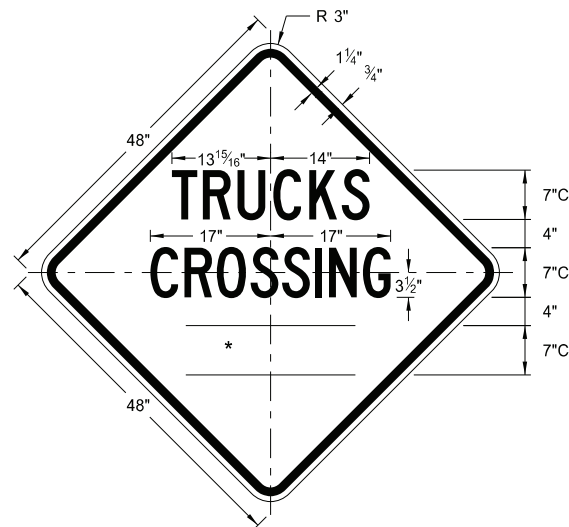
W9-3a-48  
Legend: black (non-refl)  
Background: orange



ARROW DETAILS



W8-9a-48  
Legend: black (non-refl)  
Background: orange



W8-55-48  
Legend: black (non-refl)  
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp
8-01-24	Electronic Stamp/Signature

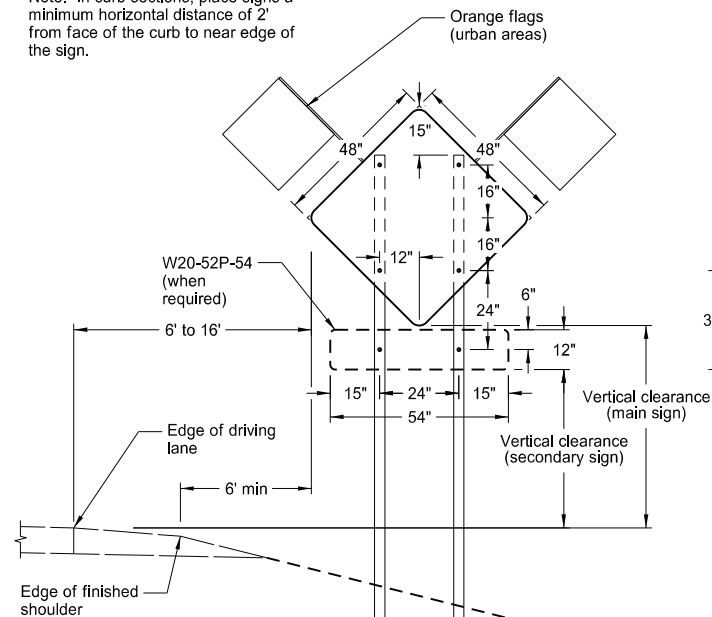


08/01/24

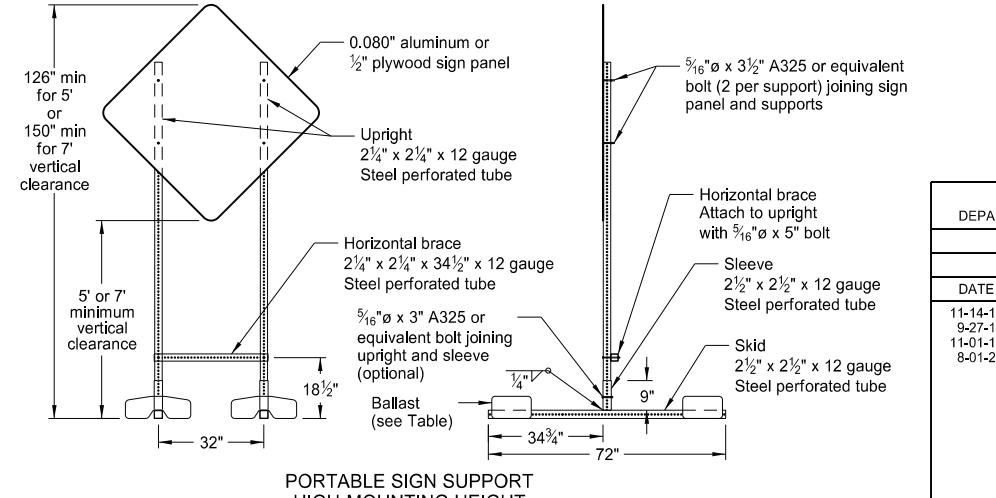
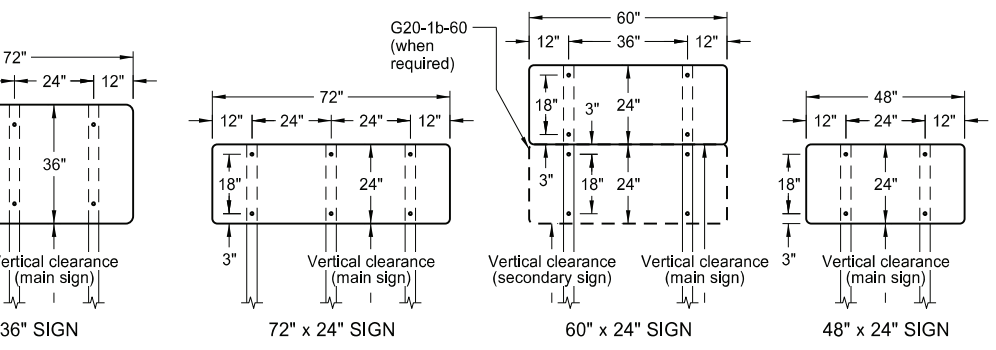
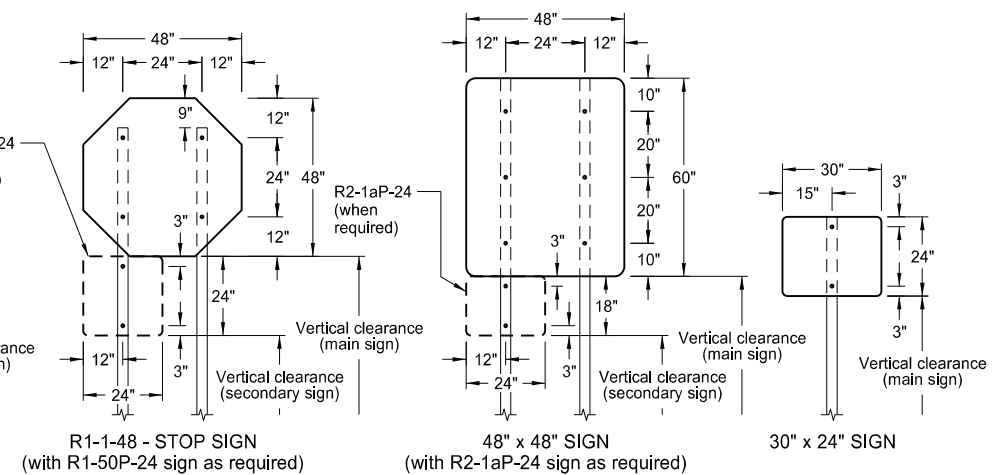
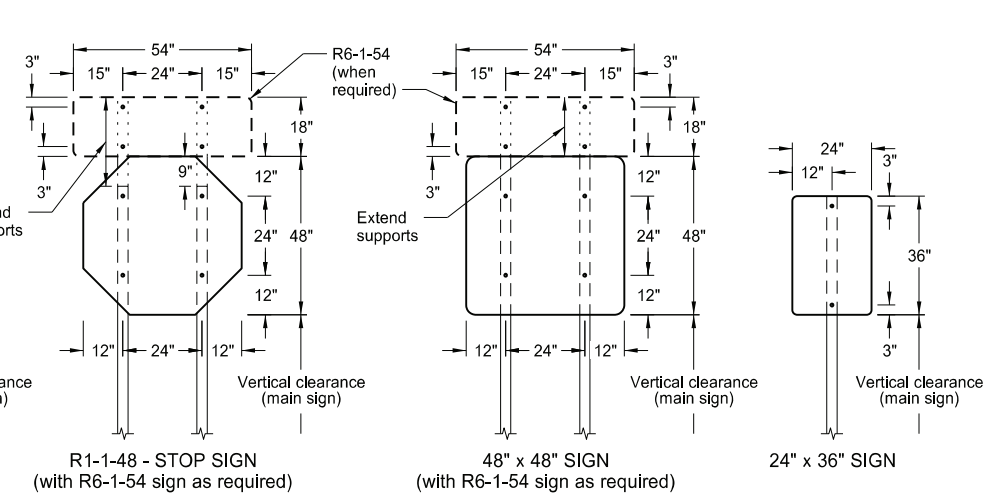
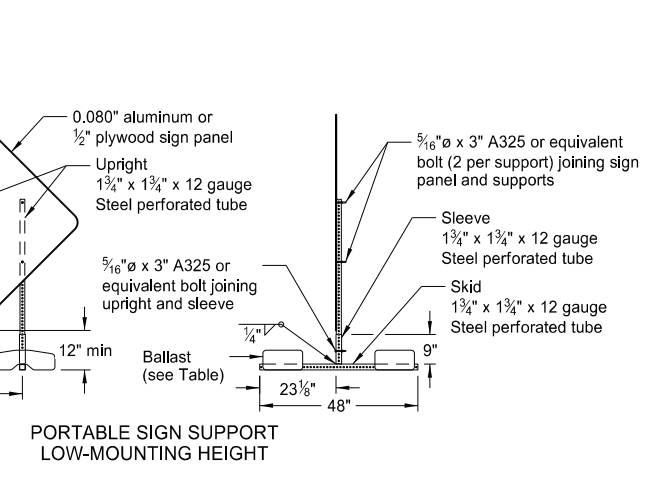
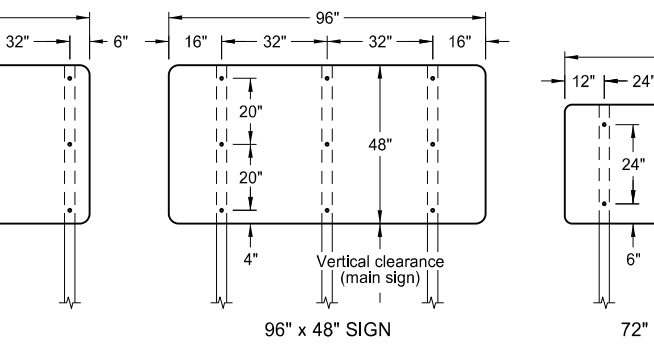
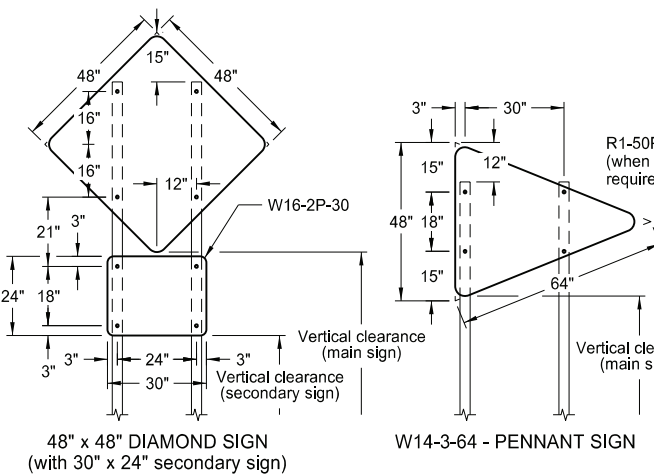
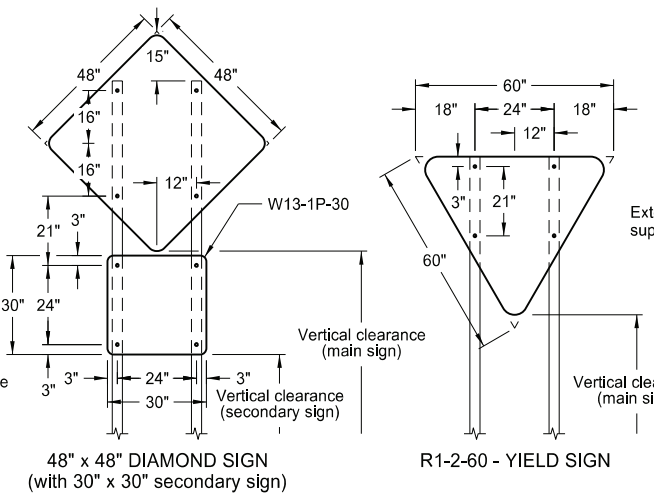
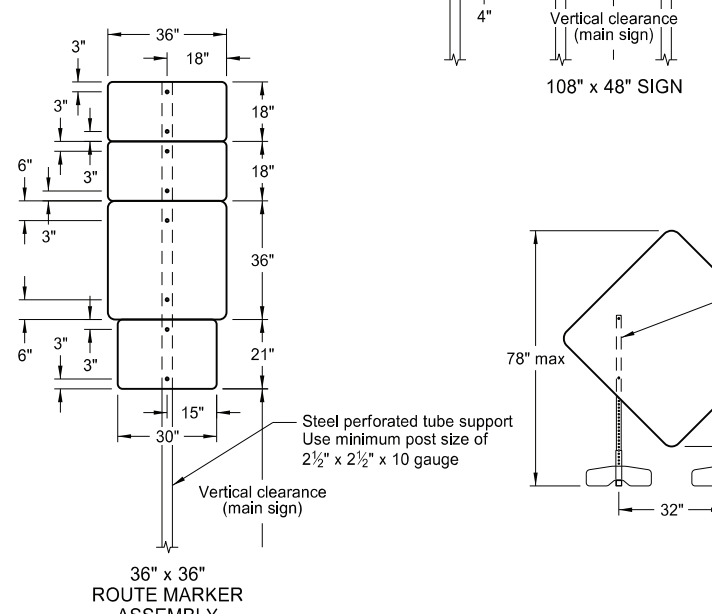
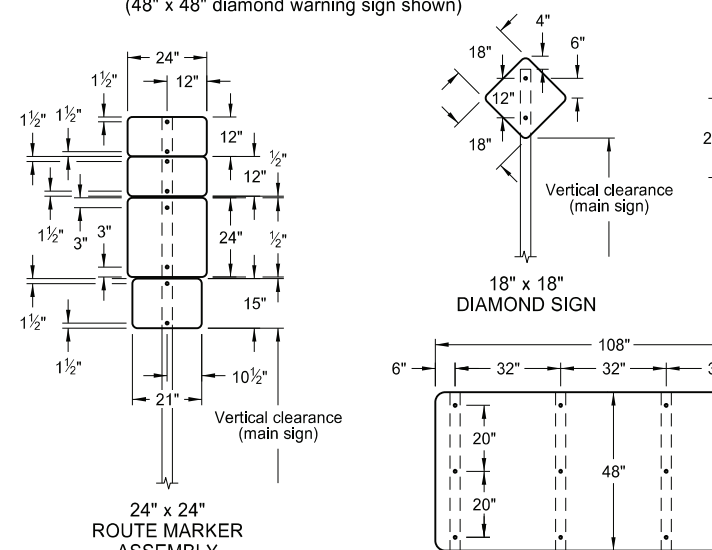


CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



TYPICAL SECTION  
(48" x 48" diamond warning sign shown)



- NOTES:
- Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.  
Place signs over 50 square feet on 2 1/2" x 2 1/2" perforated tube supports as a minimum.  
Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.
  - Sign Panels: Provide sign panels made of 0.100" aluminum, 1/2" plywood, or other approved material, except where noted. Punch all holes round for 3/8" bolts.
  - Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)
  - Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:  
Interstate - white legend on blue background  
Interstate Business Loop - white legend on green background  
US and State - black legend on white background  
County - yellow legend on blue background
  - Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.  
The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.  
Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.
  - Portable Signs: Provide portable signs that meet the vertical clearance stated above when it is necessary to place signs within the pavement surface.  
Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed as long as the view of the sign is not obstructed. Time delays caused by unforeseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.  
Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST  
(For each side of sign support base)

Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

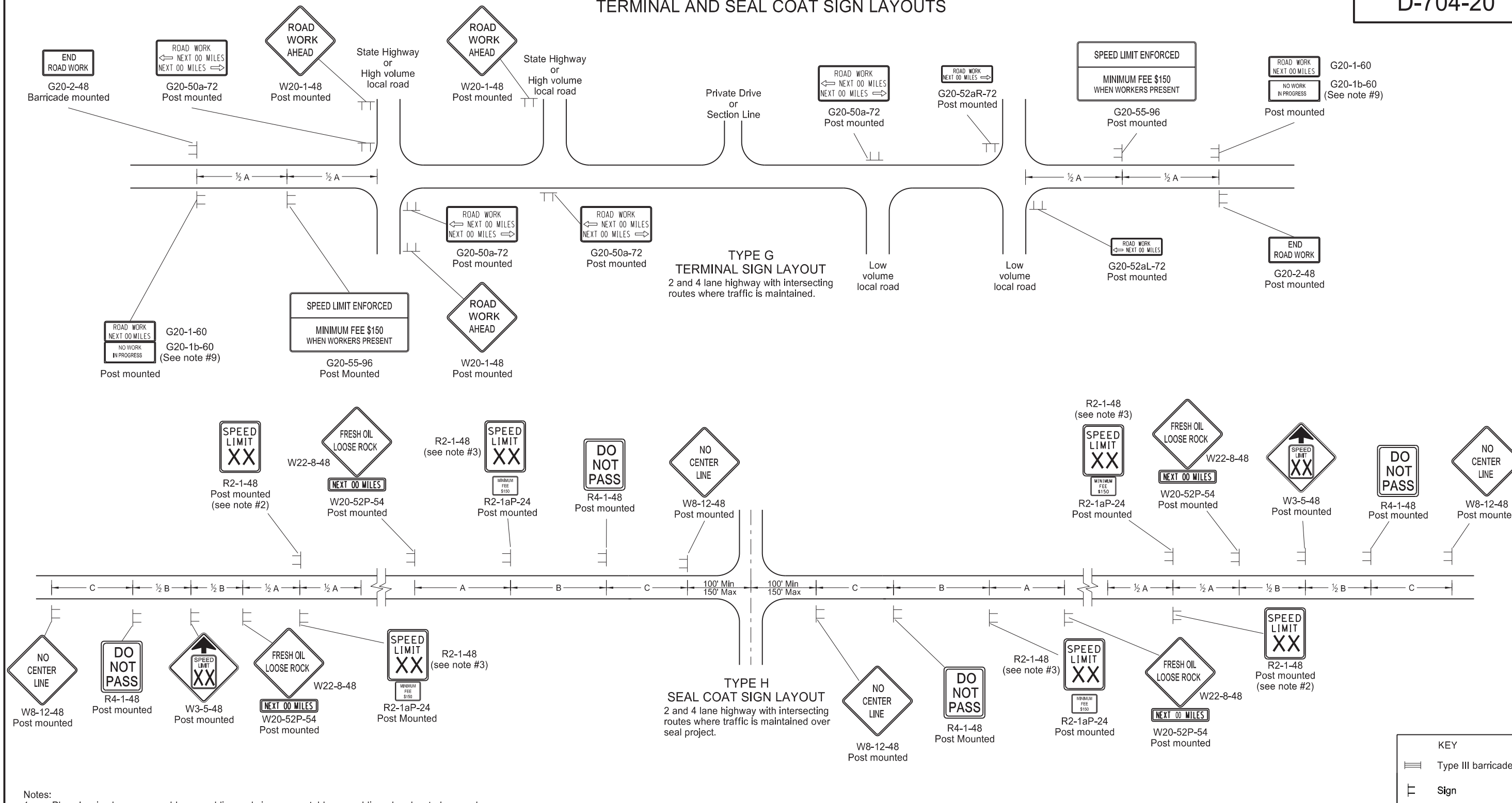
Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of sklds.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-4-13	
REVISIONS	
DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail
8-01-24	Electronic Stamp/Signature



08/01/24

TERMINAL AND SEAL COAT SIGN LAYOUTS



- Notes:
- Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
  - Determine the exact speed limit in the field, based on location and conditions.
  - Determine the reduced speed limit based on the in place speed limit before construction. Where speed limit reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at 1/2 B.
  - Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
  - Cover existing speed limit signs within a reduced speed zone.
  - On seal coat projects, place signs R2-1-48, R2-1aP-24, R4-1-48, W22-8-48 and W20-52P-54 after all important intersections and at five mile intervals. Place sign W8-12-48 after all important intersections and at 2 mile intervals until short term center line pavement marking is placed.
  - As an option, use portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Drawing D-704-14.
  - Cover or remove speed limit signs from layout Type H when loose aggregate is removed.
  - Install sign G20-1b-60 when work is suspended for winter.
  - Use other traffic control layouts in immediate work areas. Place sign R2-1aP-24 below speed limit signs in reduced speed limit work areas.
  - Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or the work is less than 15 days.
  - Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Updated notes & sign numbers
11-01-19	Updated note & sign
12-08-21	Switched order of Road Work and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

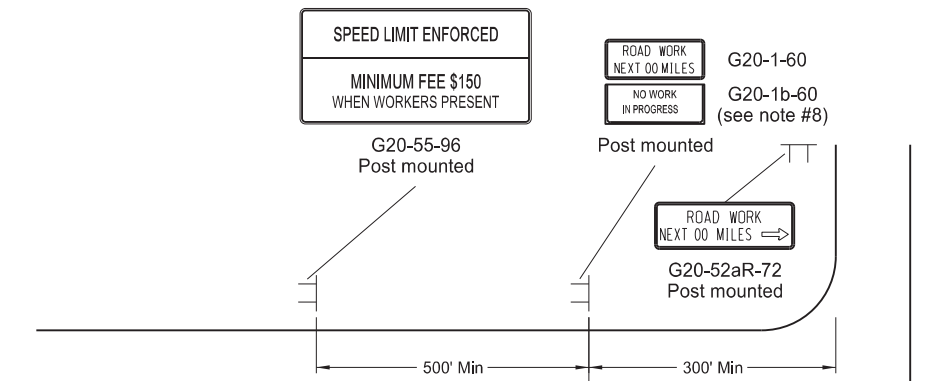
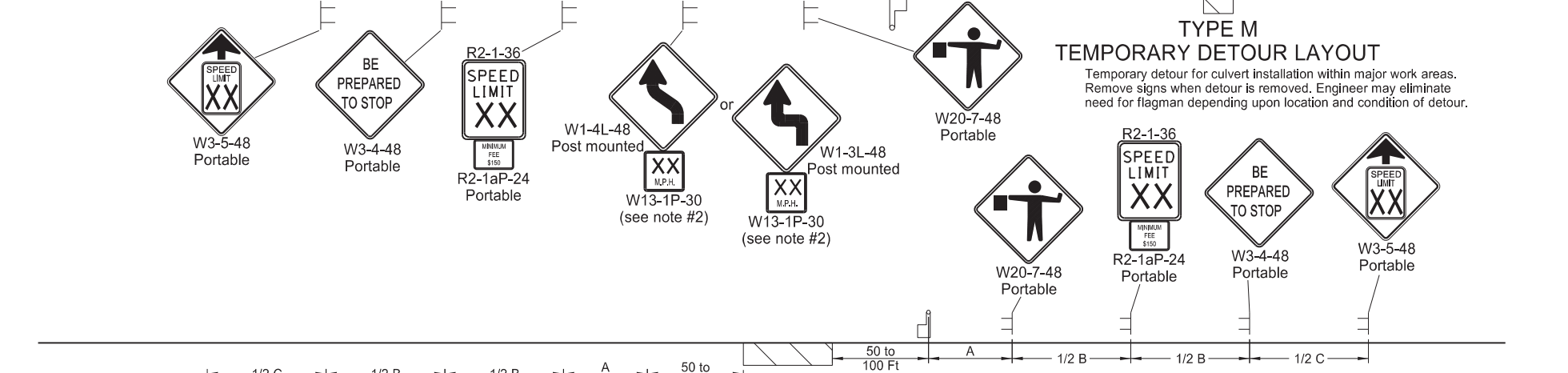
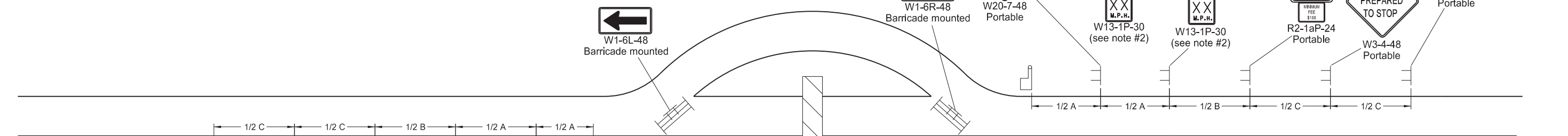
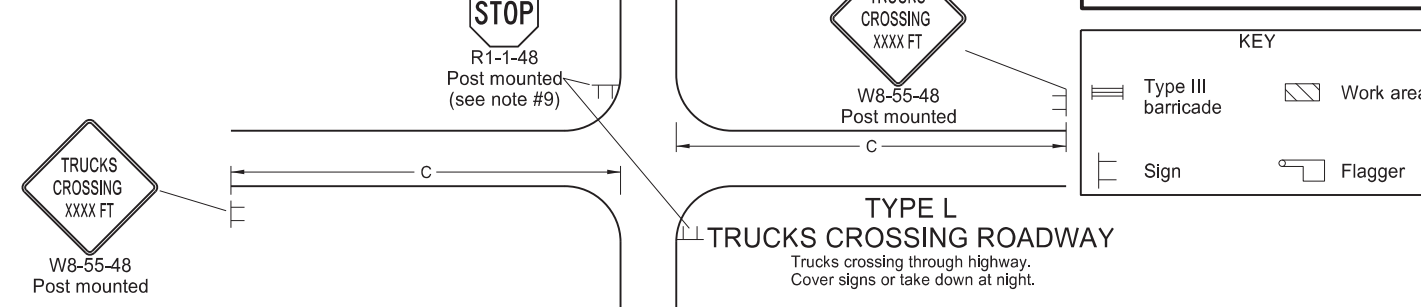
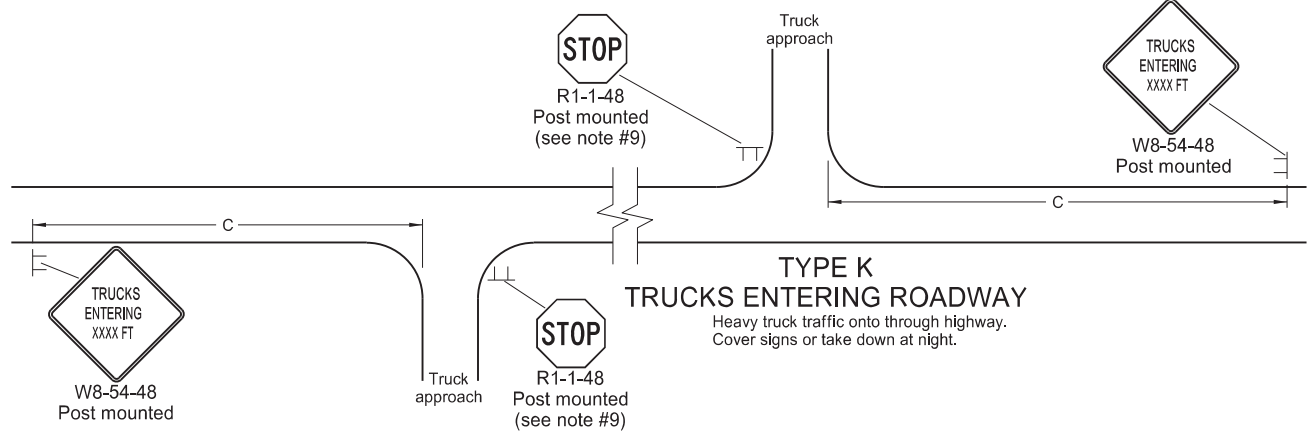


### CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

D-704-22

**KEY**

- Type III barricade
- Sign
- Work area
- Flagger



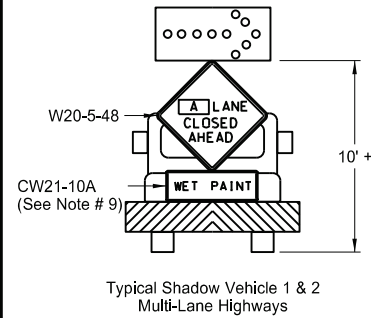
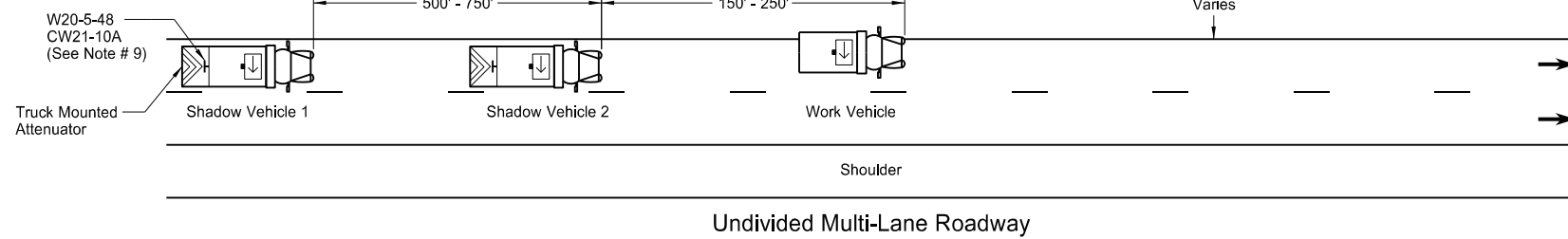
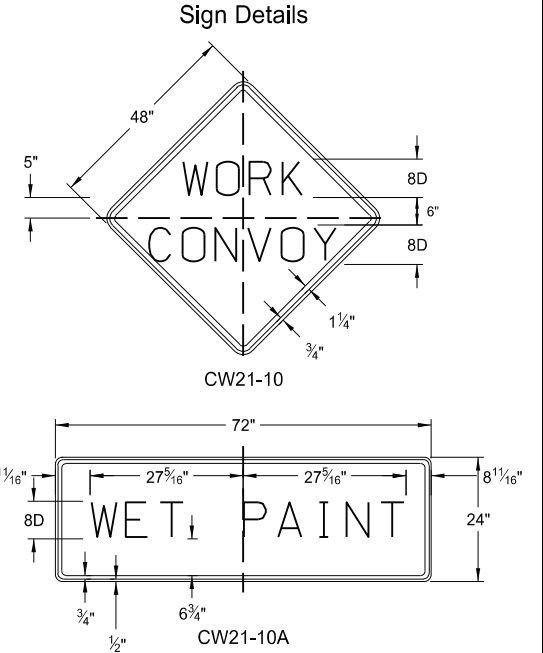
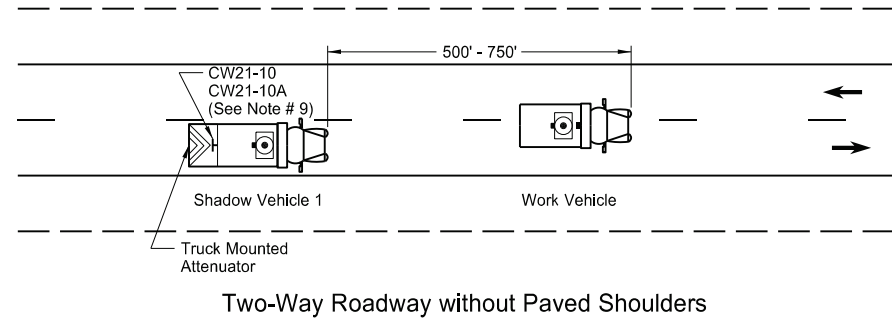
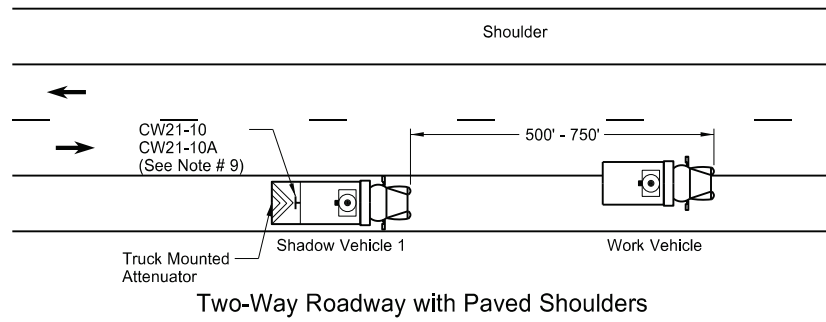
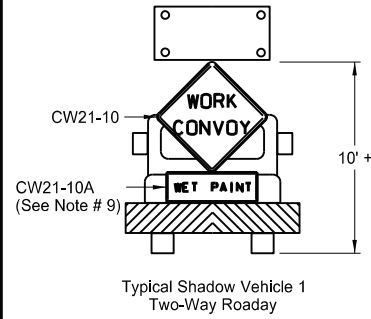
- Notes:**
- Place barricades on a moveable assemblies and signs on portable assemblies when located on roadway.
  - Where necessary, safe speed to be determined by the Engineer.
  - Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at 1/2 B.
  - Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
  - Cover existing speed limit signs within a reduced speed zone.
  - Covered (when approved by engineer) or obliterated pavement marking measured as Obliteration of Pavement Marking.
  - As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
  - Install sign G20-1b-60 when work is suspended for winter.
  - If existing stop sign is in place, a 48" stop sign is not required.
  - Sign G20-55-96 is not required if layout is part of other traffic control that contains this sign, or if work is less than 15 days.
  - Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

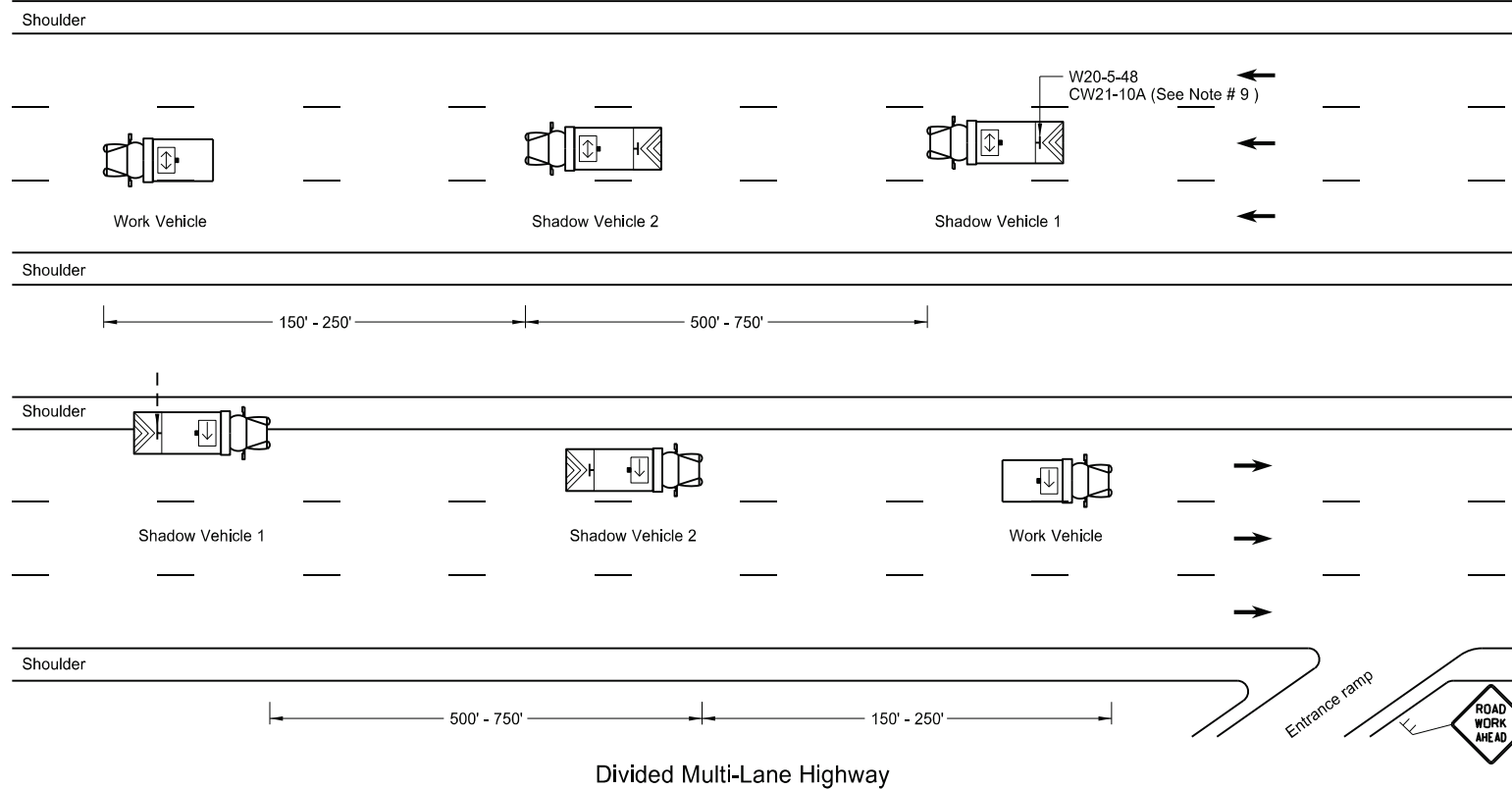
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Update notes & sign numbers
11-01-19	Revised sign numbers & note 7
12-09-21	Added Speed Limit Enforced and Dollars At Work signs
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes



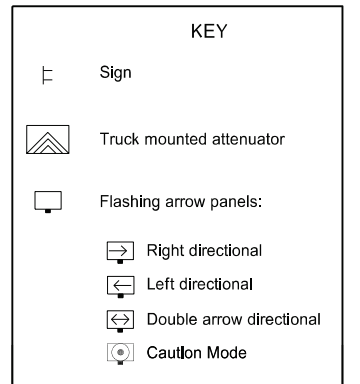
MOBILE OPERATION  
(PAVEMENT MARKING)



A =  Left  Right  Center



- Notes
- Use additional vehicles you choose to be in the convoy with truck mounted attenuators, at your own expense.
  - Display yellow rotating beacons or strobe lights on shadow and work vehicles, unless otherwise stated in the plans.
  - Use Type B or Type C flashing arrow panels controlled from inside the vehicle.
  - Provide each vehicle with two-way electronic communication capability.
  - Move shadow vehicle 1 first to shadow other convoy vehicles when convoy changes lane.
  - Vary vehicle spacing between shadow vehicle 1 and shadow vehicle 2 based on sight distance restrictions. Motorists approaching the work convoy need to see trail vehicle in time to slow down and/or change lanes as they approach shadow vehicle.
  - Sign Colors  
Letters = Black  
Border = Black  
Background = Orange
  - As an option, use shadow vehicle 2 the paint tender vehicle.
  - Use sign CW21-10A only during painting operation.
  - Pull over work and shadow vehicles periodically to allow motor vehicle traffic to pass on two lane - two way roadways.



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
6-18-14	Removed shadow vehicle 2 on two lane roadways
9-27-17	Updated to active voice
11-08-19	Changed Standard Heading
8-02-24	Electronic Stamp/Signature.



08/02/24

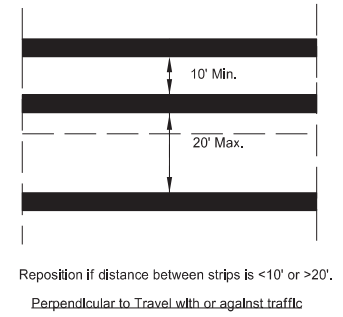
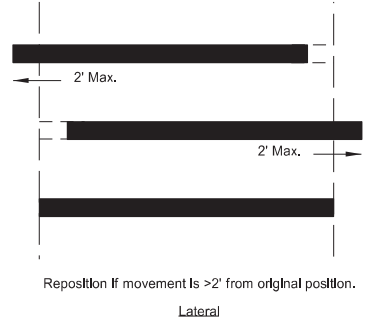
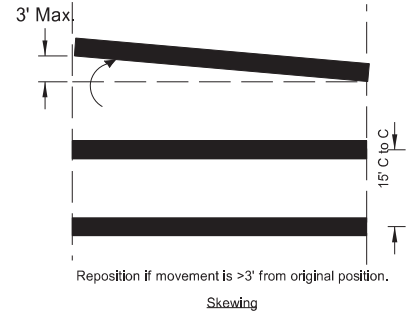
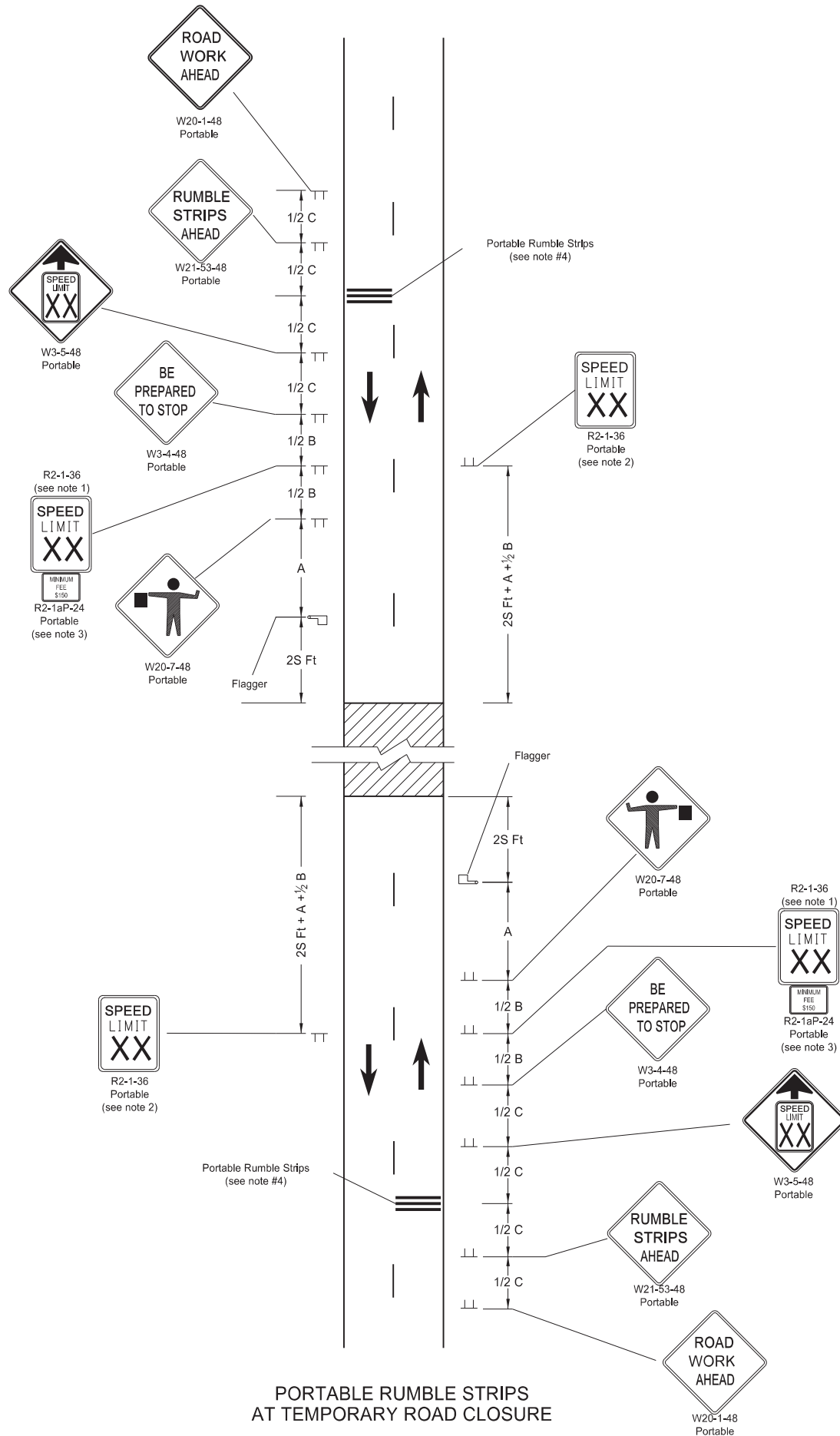
Two-Lane Roadway Portable Rumble Strips

KEY

	Work area
	Flagger
	Sign

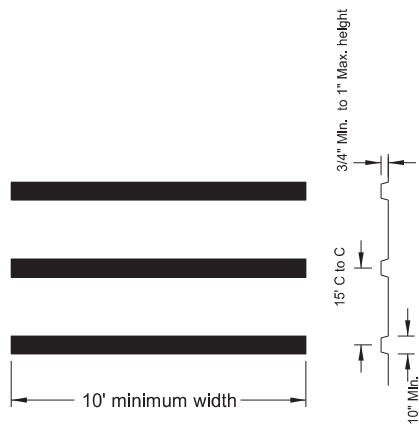
S = Numerical value of speed limit or 85th percentile.

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - High Speed (over 45 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720



PORTABLE RUMBLE STRIPS ARRAY TYPES OF MOVEMENT AND MAXIMUM ALLOWANCES

- Notes:
- Determine speed in the field based on location and conditions.
  - Re-establish the speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
  - Sign R2-1aP-24 is not required when pilot car operation is used.
  - Do not use rumble strips on a non paved surface or in a pre-construction speed zone of 45 mph or less.



PORTABLE RUMBLE STRIPS ARRAY DETAIL

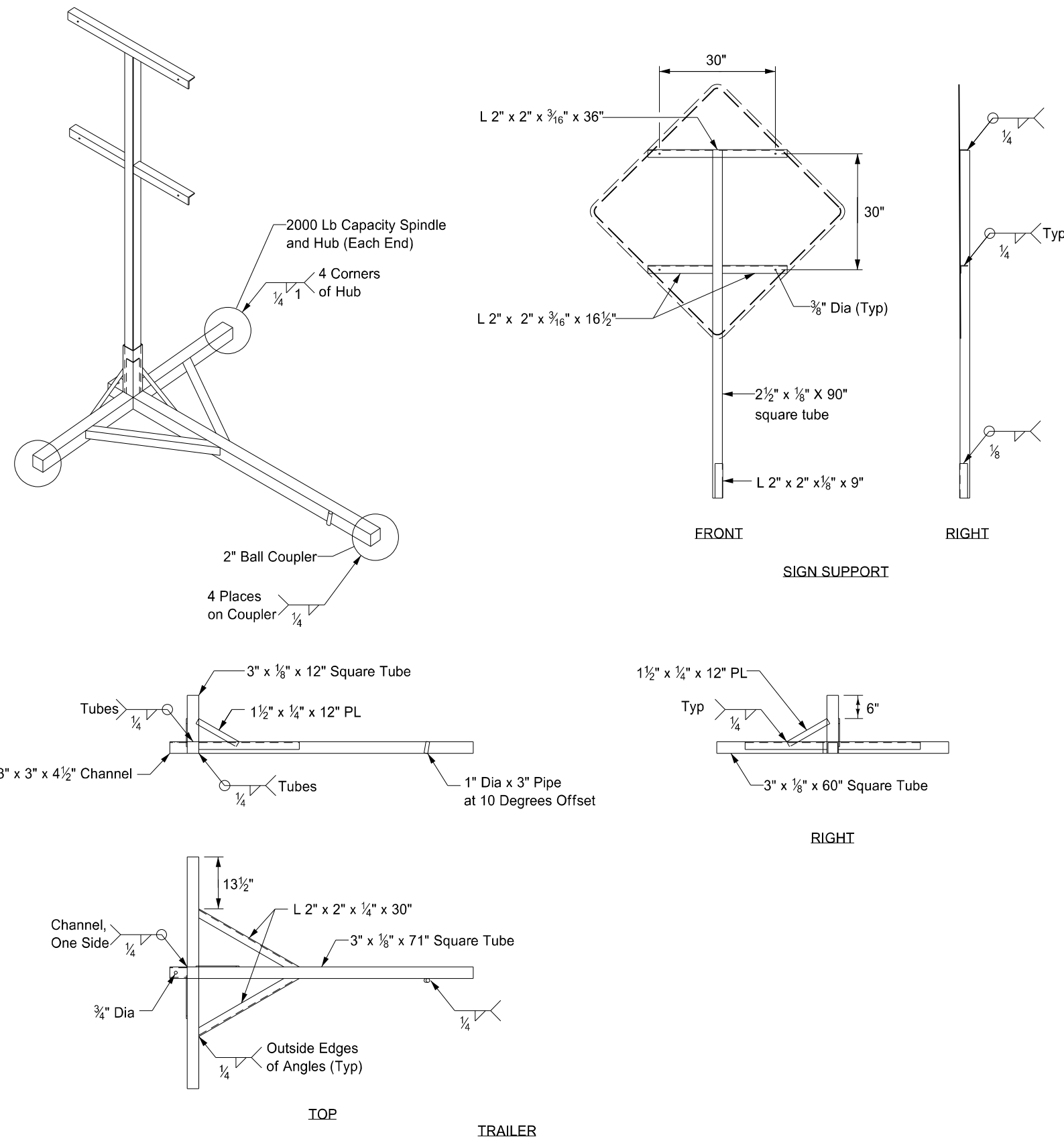
PORTABLE RUMBLE STRIPS AT TEMPORARY ROAD CLOSURE

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
02-22-22	
REVISIONS	
DATE	CHANGE
03-07-23	Use changed to min 45 mph
06-30-25	Legislative Changes



PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



Notes:

- ① Maximum 250 pound weight of assembly.
- ② Use a 14" wheel and tire.
- ③ Use no automotive and equipment axle assemblies for trailer-mounted sign supports.
- ④ Other NCHRP 350 or MASH crash tested assemblies are acceptable.

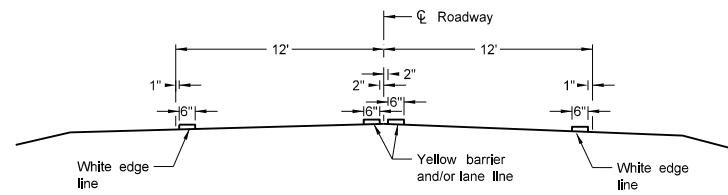
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE
12/02/2020	Updated Note to active voice.

**KIRK J. HOFF**  
REGISTERED  
*Kirk J Hoff*  
PROFESSIONAL  
PE-4683  
ENGINEER  
NORTH DAKOTA  
12 02 2020

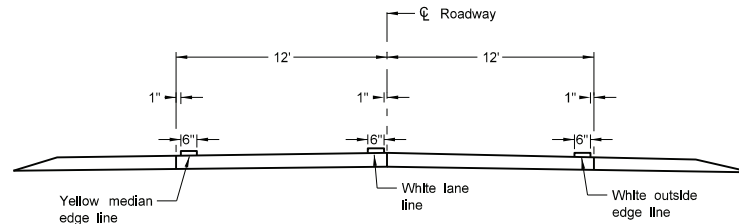


# PAVEMENT MARKING

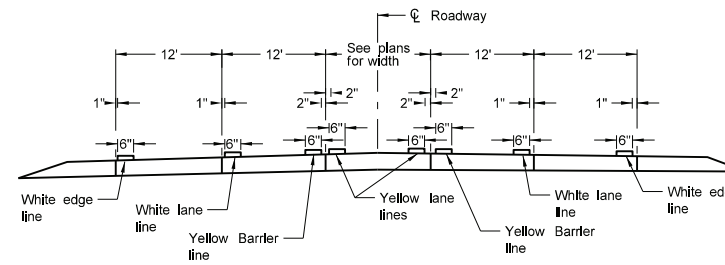
D-762-4



Two Lane Two Way  
RURAL ROADWAY



Two Lane Roadway  
INTERSTATE HIGHWAY  
Concrete Section



RURAL FIVE LANE ROADWAY  
Concrete Section

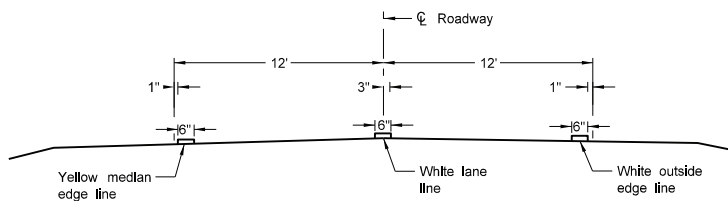
**NOTES:**

1. Continue edge lines through private drives and field drives. Break edge lines for intersections.

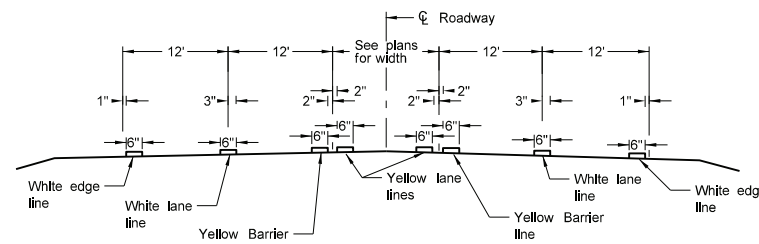
For section lines, county roads, and street approaches, stripe the radii and edge lines of the paved surface within the right of way except where curb and gutter is present.

2. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph,

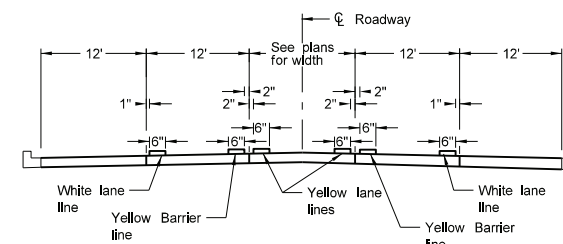
3. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits < 40 mph.



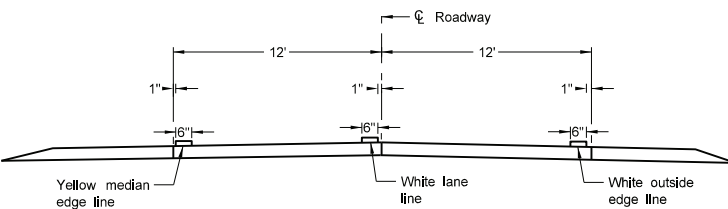
Two Lane Divided  
Rural Roadway  
PRIMARY HIGHWAY  
Asphalt Section



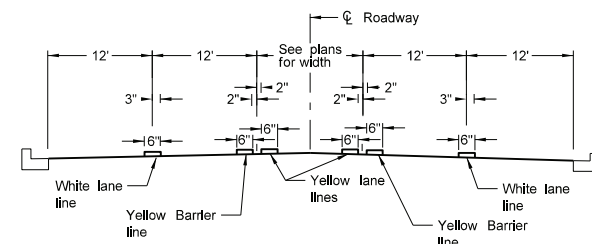
RURAL FIVE LANE ROADWAY  
Asphalt Section



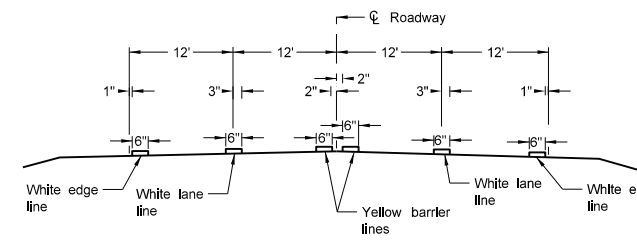
URBAN FIVE LANE SECTION  
Concrete Section



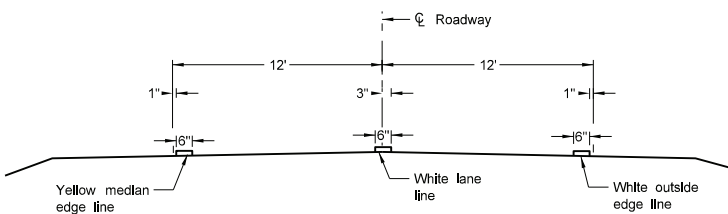
Two Lane Divided  
Rural Roadway  
PRIMARY HIGHWAY  
Concrete Section



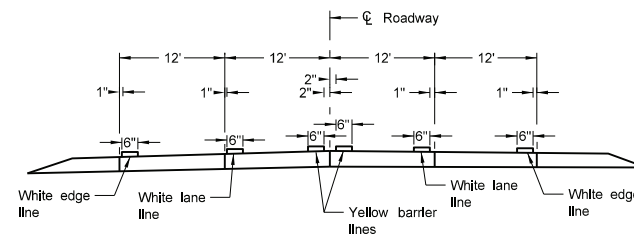
URBAN FIVE LANE SECTION  
Asphalt Section



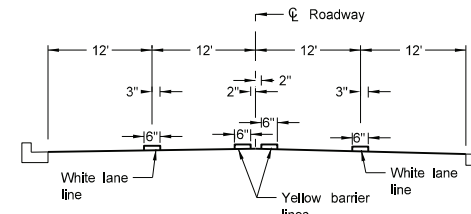
RURAL FOUR LANE ROADWAY  
Asphalt Section



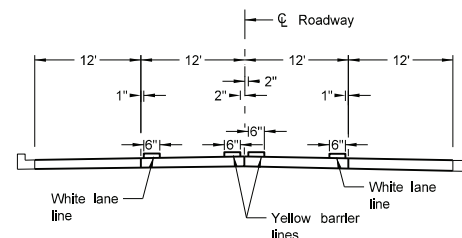
Two Lane Roadway  
INTERSTATE HIGHWAY  
Asphalt Section



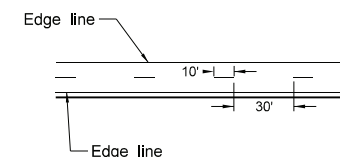
RURAL FOUR LANE ROADWAY  
Concrete Section



URBAN FOUR LANE SECTION  
Asphalt Section



URBAN FOUR LANE SECTION  
Concrete Section



CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.
11-22-23	Revised pavement marking widths.
07-09-24	Modified Note 1.

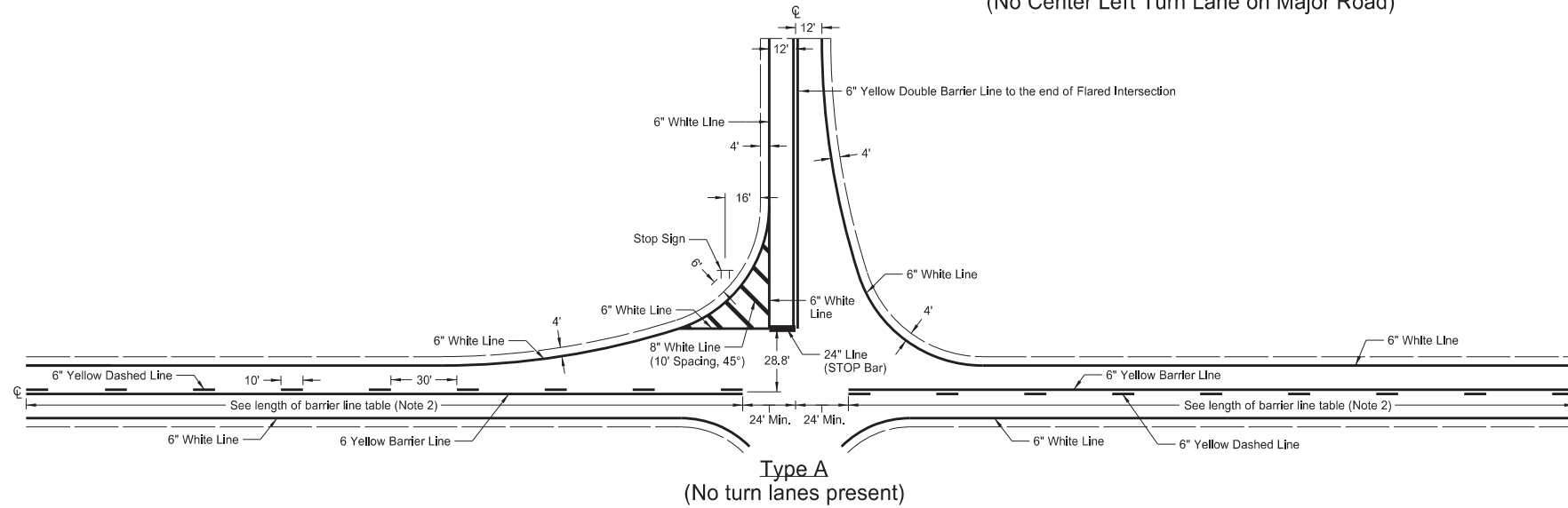


### PAVEMENT MARKING FOR STANDARD 90 DEGREE FLARED INTERSECTION

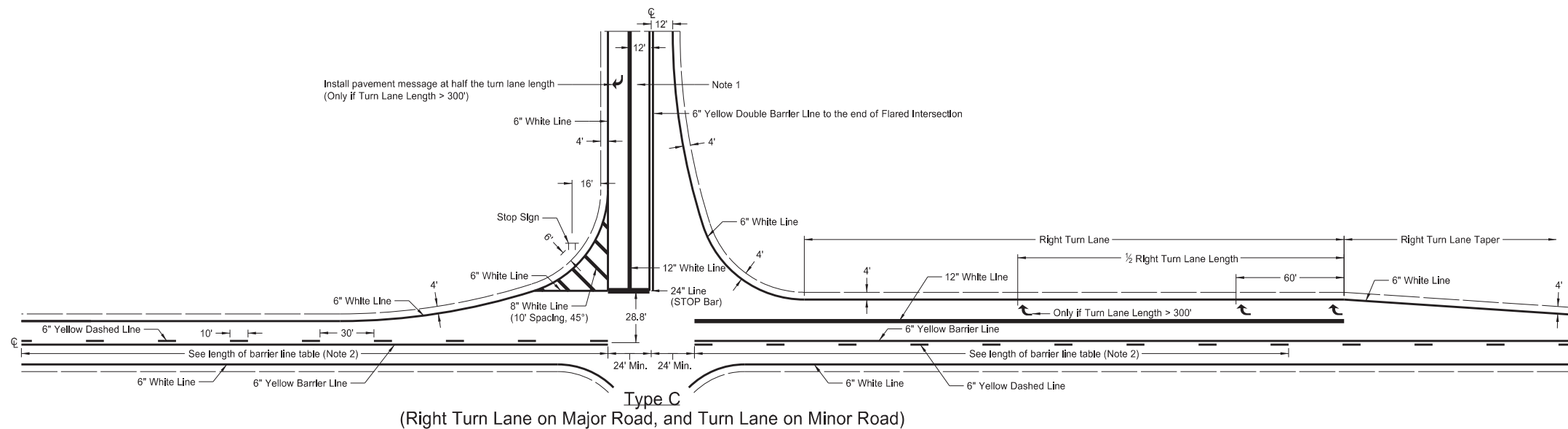
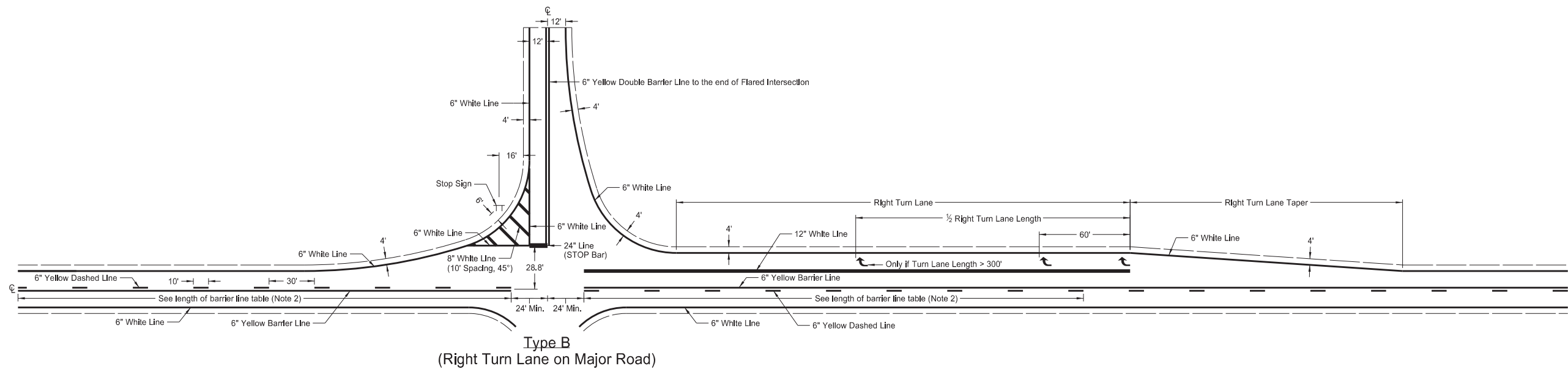
(No Center Left Turn Lane on Major Road)

**Notes**

1. At "T" intersections (3-leg), additionally install left turn pavement marking message arrow.
2. The barrier lines have variable distances dependent on speed limit. Obtain barrier line length from table below (stopping sight distance.)
3. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph.
4. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits ≤ 40.
5. Wide line - 8 inches wide if 4 inch normal width lines are used and 12 inches wide if 6 inch normal width lines are used.



Speed Limit (mph)	30	35	40	45	50	55	60	65	70
Minimum Length	200'	250'	305'	360'	425'	495'	570'	645'	730'



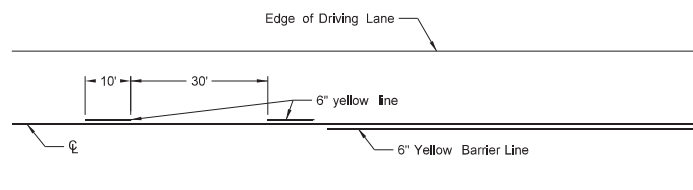
- 6" Marking
- 8" Marking
- 12" Marking
- 24" Marking

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
3-29-16	
REVISIONS	
DATE	CHANGE
8-17-17	Updated note & dimensioning.
8-30-18	Corrected pvmt mkg placement.
8-27-19	New Design Engineer PE Stamp.
11-22-23	Revised pavement marking widths.
1-17-24	Revised wide pvmt mkg width.

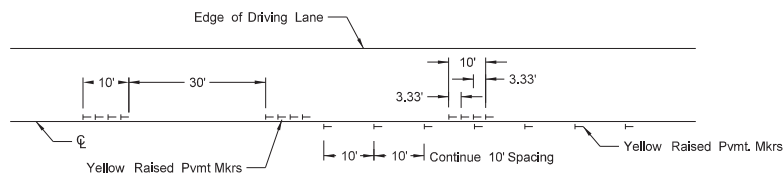


# SHORT-TERM PAVEMENT MARKING

D-762-11

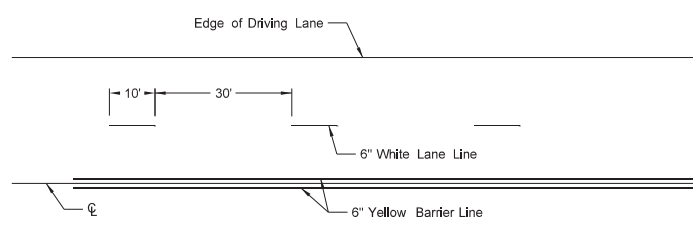


Painted or Tape Lines

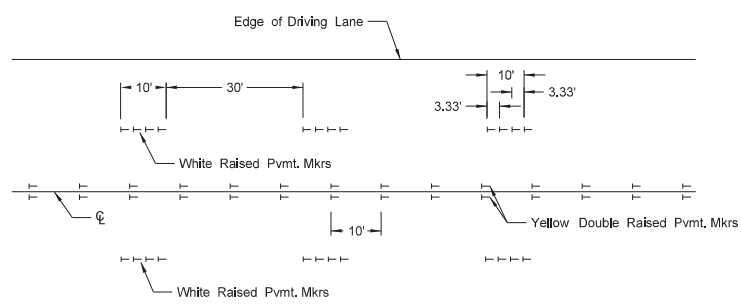


Raised Pavement Markers

TWO-LANE TWO-WAY ROADWAY

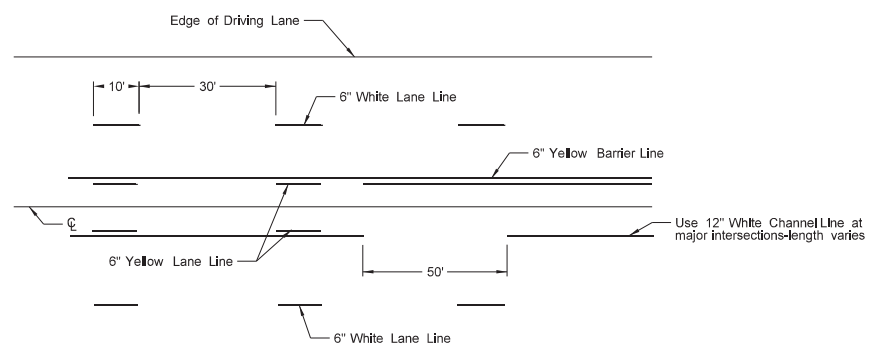


Painted or Tape Lines

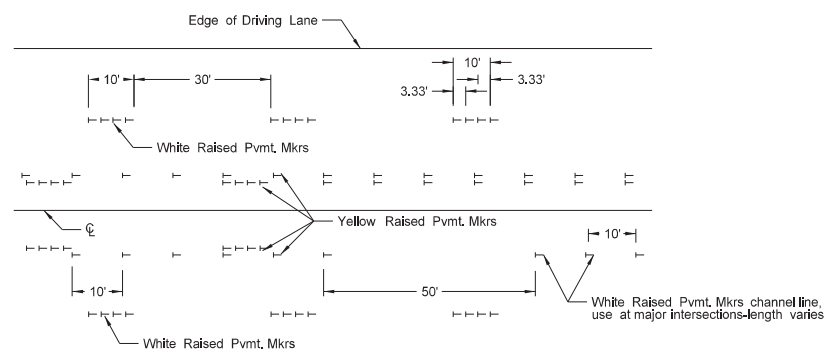


Raised Pavement Markers

FOUR LANE ROADWAY

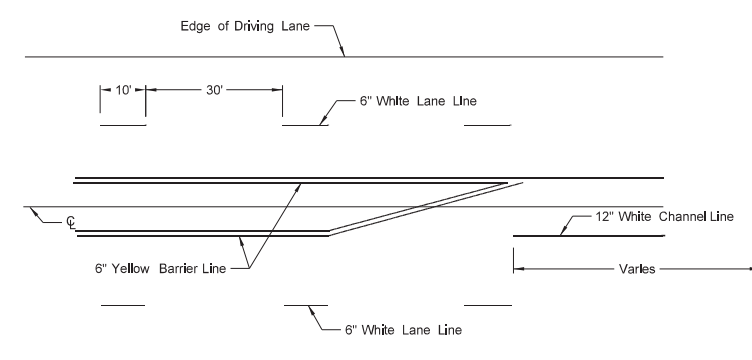


Painted or Tape Lines

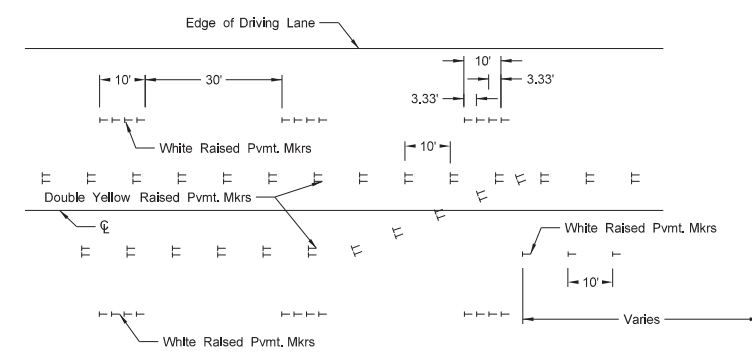


Raised Pavement Markers

FIVE LANE ROADWAY TWO WAY LEFT TURN



Painted or Tape Lines



Raised Pavement Markers

FIVE LANE ROADWAY WITH MARKED ISLANDS

NOTES:

1. Place no passing zones on two-lane two-way roadways as shown. In lieu of short term no passing zone pavement markings, place no passing zone signs. Replace no passing zone signs with short term no passing zone pavement marking within three days.
2. Place short term center line stripe (paint) on top lift to match exact placement of permanent stripe.
3. Remove raised markers and tape markings after permanent pavement marking is installed.
4. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph.
5. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits ≤ 40 mph.
6. Wide lines - 8 inches wide if 4 inch normal width lines are used and 12 inches wide if 6 inch normal width lines are used.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
3-29-16	Re-numbered to be D-762-11 (previously was D-762-6)
10-17-17	Updated to active voice.
8-27-19	New Desgn Engineer PE Stamp.
11-22-23	Revised pavement marking widths
1-17-24	Revised wide pvmt marking width.

