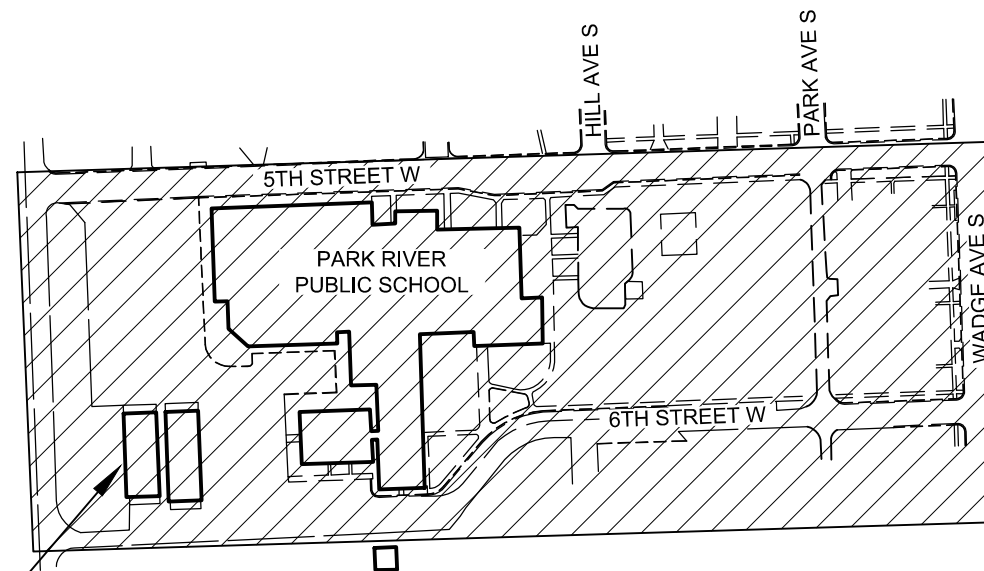


## ADA RAMPS, CROSSWALKS, SIGNING, PAVEMENT MARKING & INCIDENTALS

DESIGN SPEED	25 MPH
MINIMUM SIGHT DISTANCE (STOPPING)	155 FEET

2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT	GROSS MILES	NET MILES
TAC-0050(054)	0.442	0.442
TOTAL	0.442	0.442



**TAC-0050(054)**  
**PROJECT AREA**  
**\*SEE SCOPE OF WORK (SECTION 4 SHEET 1)**  
**FOR STATIONING & LOCATION DETAILS**

PS&E Corrections Made	<u>January 2018</u>
Surveyed & Designed Date	<u>November 2017/ May 2018</u>

DESIGNER	<u>Jeff Daley</u>
DESIGNER	<u>Jon Markusen</u>
DESIGNER	<u>-</u>
DESIGNER	<u>-</u>
DESIGNER	<u>-</u>

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH DAKOTA.

JEFFREY D. DALEY  
KADRMAS, LEE & JACKSON, INC.

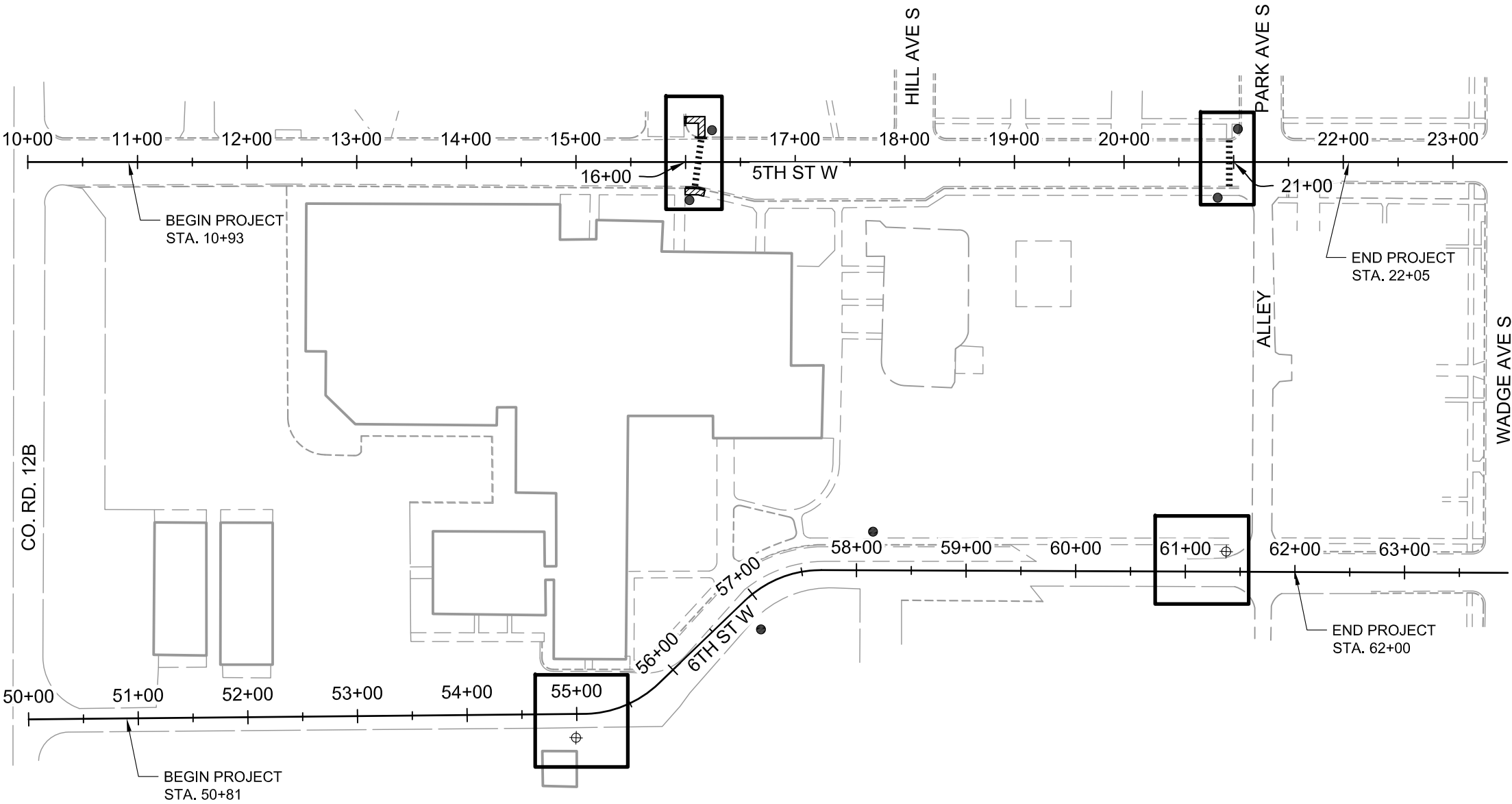
DATE	05/21/18	REGISTRATION NUMBER	PE-7865
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864 W. 12th Street  
GRAFTON, ND 58237-0229  
(701) 352-1555, FAX (855) 288-8055

TABLE OF CONTENTS						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	TAC-0050(054)	2	1
PLAN SECTIONS					LIST OF STANDARD DRAWINGS				
Section	Page(s)	Description	Number	Description					
1	1	Title Sheet	D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube					
2	1	Table of Contents	D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post					
4	1	Scope of Work	D-704-11	Construction Sign Details - Warning Signs					
6	1	Plan Notes	D-704-13	Barricade And Channelizing Device Details					
8	1	Estimate of Quantities	D-704-14	Construction Sign Punching And Mounting Details					
20	1	General Details	D-704-25	Lane Closures On Urban Streets Layouts					
40	1	Removals	D-704-50	Portable Sign Support Assembly					
90	1 - 2	Sidewalk Layout	D-748-1	Curb & Gutter And Valley Gutter					
100	1	Traffic Control Devices List	D-750-2	Sidewalk					
110	1	Sign Summary	D-750-3	Curb Ramp Details					
110	2 - 7	Signing Layout	D-762-1	Pavement Marking Message Details					

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	4	1





- FLASHING BEACON
- ⊕ DYNAMIC SPEED DISPLAY
- |||| CROSSWALK
- ▨ SIDEWALK
- CURB & GUTTER

\*SIGNS WILL BE INSTALLED THROUGHOUT THE PROJECT AREA.  
SEE SIGNING LAYOUT SHEETS FOR LOCATIONS.



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<b>TAC-0050(054)</b> PARK RIVER PUBLIC SCHOOL PARK RIVER, ND		
 <b>SCOPE OF WORK</b>		
DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221


<div>PLAN NOTES</div>			STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND		TAC-0050(054)	6	1
202-P01	<b>SAW CONCRETE OR BITUMINOUS SURFACING:</b> The sawing of concrete or bituminous surfacing will not be measured for payment but shall be included in the price bid for the removal items.					
202-P02	<b>REMOVAL OF CURB &amp; GUTTER:</b> If Contractor operations require the removal of existing pavement and aggregate base adjacent to curb and gutter removals, the maximum width of each removal area shall not exceed 1 foot as designated in the removal sheets. This work will not be measured separately but shall be included in the price bid for “REMOVAL OF CURB & GUTTER”.					
203-P01	<b>TOPSOIL:</b> Grade adjacent to sidewalk and/or curb and gutter with existing topsoil to eliminate any vertical edges and blend into existing ground. All disturbed areas shall be graded and seeded with a NDDOT Class I seed mixture. Include all costs for labor, equipment and materials necessary to complete this work in the price bid for “SIDEWALK CONCRETE 4IN” or “CURB & GUTTER-TYPE 1”.					
704-P01	<b>CONSTRUCTION SIGNING:</b> The Contractor will be responsible for traffic control during construction. Tubular Markers (as specified in Standard Drawing D-704-13) have been included for the Contractor’s use to delineate their work zone and close the sidewalk as needed. Equipment Working signs (W20-51-48) have been included to provide advance warning of the work zone to the traveling public, and Sidewalk Closed signs (R9-9-12) have been provided for sidewalk closures as needed. Layout W on Standard Drawing D-704-25 shall be used as guidance for establishing the work zone.					
750-P01	<b>SIDEWALK CONCRETE 4IN:</b> All excavation necessary to construct the sidewalk to the grade established by the Engineer shall be included in the Contractor's bid price for “SIDEWALK CONCRETE 4IN”. The excavated material shall be removed by the Contractor and disposed of in a location approved by the Engineer.  The Contractor shall provide temporary signing and/or a supervisor along the fresh concrete sidewalk in order to prevent pedestrian use until such time that the sidewalk has cured to support such traffic. Cost of signing and/or supervisor shall be incidental to the bid price for “SIDEWALK CONCRETE 4IN”.  Concrete shall be used in the areas where existing pavement is removed due to curb & gutter and/or sidewalk work.  All costs for labor, equipment and materials to complete this work, including preparing the base shall be included in the price bid for “SIDEWALK CONCRETE 4IN”.					
754-P01	<b>DYNAMIC SPEED DISPLAY SIGN (DSDS):</b> The dynamic speed display sign shall meet the following specifications: <ul style="list-style-type: none"><li>- The minimum height from the bottom of the signs to the edge of the driving lane shall be 7'. The sign should face oncoming traffic at an appropriate angle for the radar to be picked up by passing motorists (specified by the manufacturer).</li><li>- The DSDS static sheeting shall include the legend “YOUR SPEED” centered on the sign. The legend and background shall match the regulatory sign it is paired with. The static sheeting for the speed limit (R2-1) shall be white with a black legend. For the school speed limit assemblies (R2-1 with S4-3), the static sheeting shall be fluorescent yellow-green with black legend.</li><li>- The changeable message display shall have a black background with an amber (yellow) illuminated legend.</li><li>- The changeable display shall be programmed to read “XX” or have no display when the vehicle speed exceeds 15 MPH over the posted speed.</li><li>- When activated, the DSDS shall give drivers immediate feedback on their individual driving speed when the posted speed is exceeded. The flash rate shall be between 50 &amp; 60 cycles per minute.</li><li>- The DSDS shall operate only when the school speed zone is in effect. The Contractor shall set the DSDS so they will operate only on days that schools are in session, thirty minutes before and thirty minutes after the time in which the school day begins, and thirty minutes before and thirty minutes after the time in which the school day ends.</li><li>- The DSDS shall be constructed of materials that withstand extreme temperatures and are vandalism resistant. Lenses shall be shatter proof plexi-glass with water tight seals and a locked access to the interior electronics.</li><li>- All elements of the DSDS shall conform to the guidance and standards as outlined in the latest edition of the MUTCD adopted by the NDDOT.</li><li>- Identification and contact information for the Park River Public School/City of Park River shall be displayed on the case of the DSDS.</li><li>- Power Supply: DSDS shall be powered from a solar panel (Sized by the manufacturer) to charge batteries to operate the DSDS system. The batteries shall be sized to operate the DSDS for a minimum of 10 days. Batteries and charger system shall be housed inside an insulated enclosure rated for outdoor weatherproof application. Included shall be all the required fusing and disconnects as needed by code and as recommended by the manufacturer.</li></ul> <ul style="list-style-type: none"><li>- Work drawings shall be submitted and accepted in accordance with Section 105.08 of the Standard Specifications.</li><li>- All costs for labor, equipment, and material shall be included in the price bid for “DYNAMIC SPEED DISPLAY SIGN”.</li></ul> <b>754-P02 EXISTING SIGNS:</b> All existing signs and posts designated to be removed shall become property of the Contractor. All costs associated with removing the signs shall be included in the price bid for “TRAFFIC CONTROL”.  <b>772-P01 FLASHING BEACON-POST MOUNTED-SCHOOL:</b> The flashing beacon shall be a Standard Flashing Beacon. The flashing beacon shall meet the conditions set forth by FHWA for interim approval for optional use of flashing beacon as well as all current FHWA interpretations. Each flashing beacon assembly shall include a S1-1 sign, W16-7P plaque and LED-array based light source mounted back to back for each direction of travel. There shall be a total of six assemblies as shown on section 110 sheets. Flashing beacon and signs shall be mounted on a mounting structure as shown in the detail and as required by NDDOT specifications.  The flashing beacons shall be solar and battery power type. The flashing beacon shall flash yellow. The control enclosures shall be provided and installed as recommended by the manufacturer. All enclosures and equipment shall be outdoor rated with enclosures being a minimum NEMA 3R rated. The battery shall be rated to operate up to 10 days without direct sunlight. The batteries shall be rated for a minimum of 2 years of operation. The flashing cabinet and battery enclosure shall be rated to withstand the winter conditions experienced in the region. The Contractor shall supply shop drawings for the flashing beacon to the Engineer prior to ordering materials.  The Contractor shall set the flashing beacons so they will operate only on days that schools are in session, thirty minutes before and thirty minutes after the time in which the school day begins, and thirty minutes before and thirty minutes after the time in which the school day ends.  All costs associated with supplying and installing six functional flashing beacon assemblies shall be included in the price bid for “FLASHING BEACON-POST MOUNTED-SCHOOL”.					
<div>This document was originally issued and sealed by Jeffrey D. Daley Registration Number PE- 7865, on 05/04/2018 and the original document is stored at the Park River Schools Business office.</div>						
<div>TAC-0050(054)</div>						
<div><div></div><div>PLAN NOTES</div></div>						
<div><div>DRWN. BY ZV</div><div>CHKD. BY JM</div><div>PROJECT NO. 6617221</div></div>						

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	8	1

ESTIMATE OF QUANTITIES

SPEC	CODE	DESCRIPTION	UNIT	TOTAL
103	0100	CONTRACT BOND	L SUM	1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	11
202	0130	REMOVAL OF CURB & GUTTER	LF	38
702	0100	MOBILIZATION	L SUM	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	94
704	1067	TUBULAR MARKERS	EA	10
748	0140	CURB & GUTTER-TYPE 1	LF	38
750	0115	SIDEWALK CONCRETE 4IN	SY	31
750	2115	DETECTABLE WARNING PANELS	SF	30
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	132.2
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	245.6
754	8010	DYNAMIC SPEED DISPLAY SIGN	EA	2
762	1124	PVMT MK PAINTED 24IN LINE	LF	84
772	2120	FLASHING BEACON-POST MOUNTED SCHOOL	EA	6

TAC-0050(054)  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND



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ZV

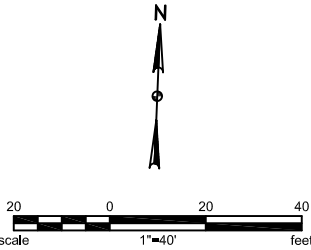
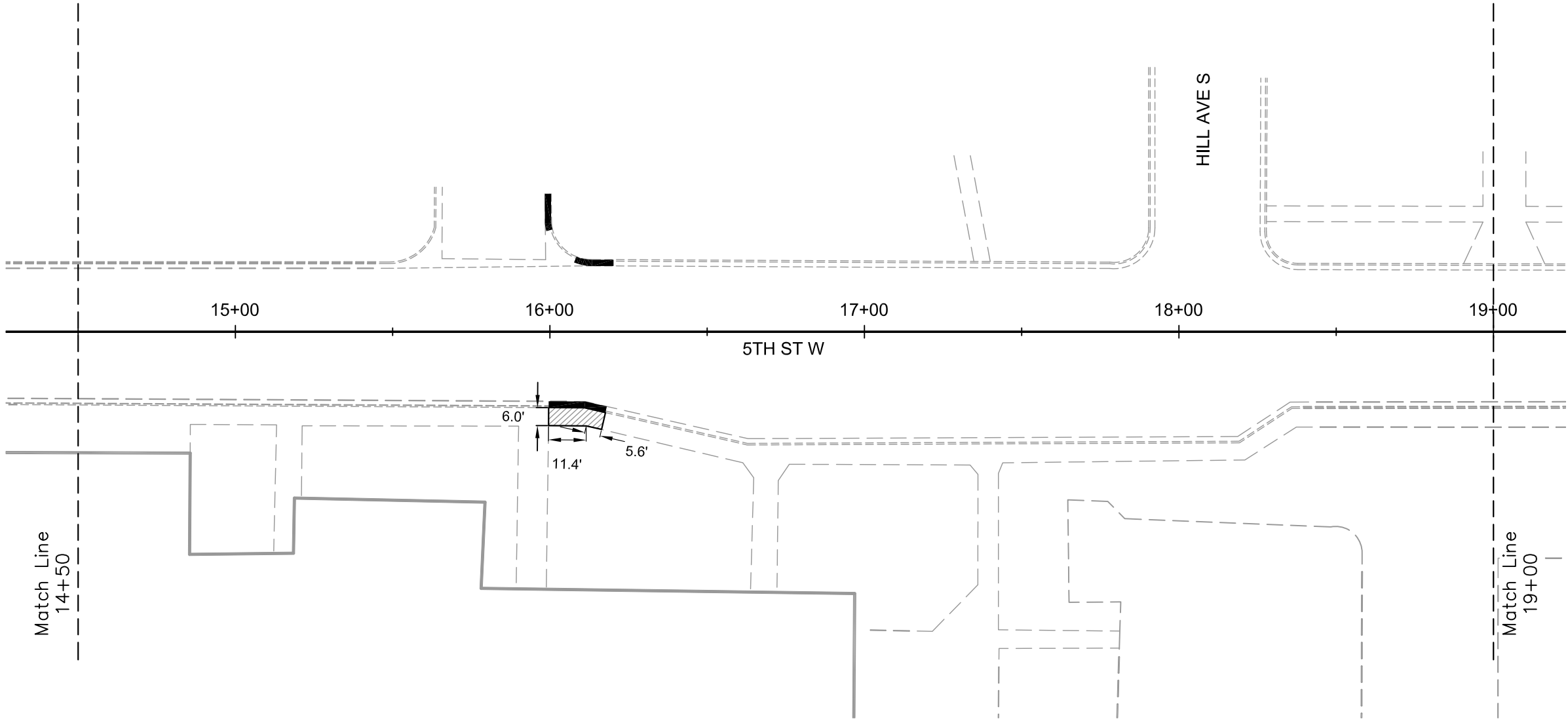
CHKD BY  
JM

PROJECT NO.  
6617221



ESTIMATE OF QUANTITIES



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	40	1



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-  REMOVAL OF CURB & GUTTER
-  REMOVAL OF CONCRETE PAVEMENT

202 0114	REMOVAL OF CONCRETE PAVEMENT	
	STA. 16+00 TO 16+18 ~ RT	11 SY
202 0130	REMOVAL OF CURB & GUTTER	
	STA. 16+00 TO 16+18 ~ RT	18 LF
	STA. 16+00 TO 16+18 ~ LT	20 LF
		38 LF

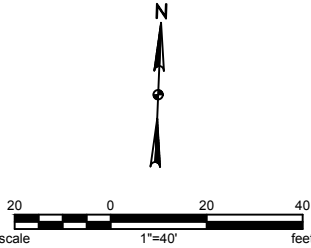
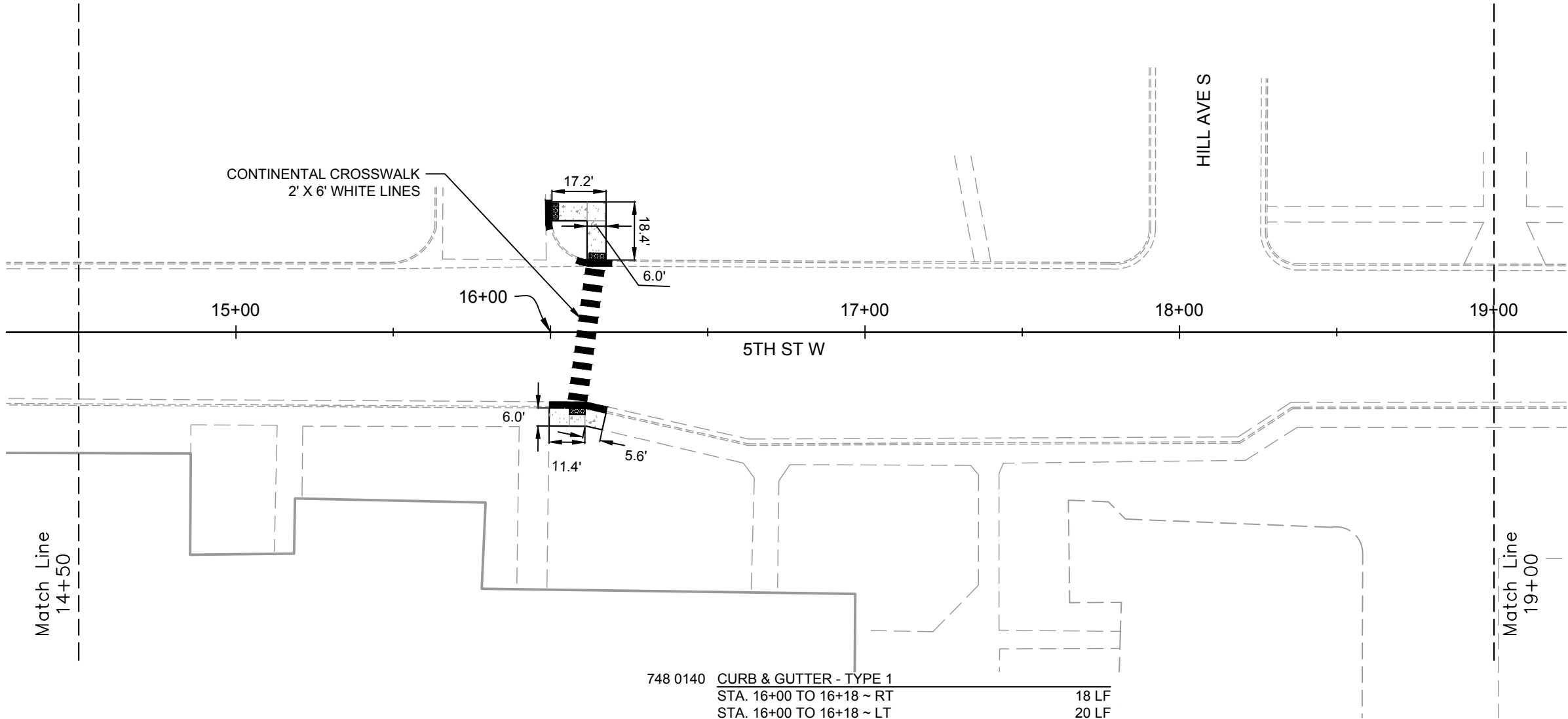
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PARK RIVER PUBLIC SCHOOL  
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**REMOVALS**  
**STA. 14+50 TO 19+00**

DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	90	1



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**TAC-0050(054)**  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND

**SIDEWALK LAYOUT**  
**STA. 14+50 TO 19+00**

DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221
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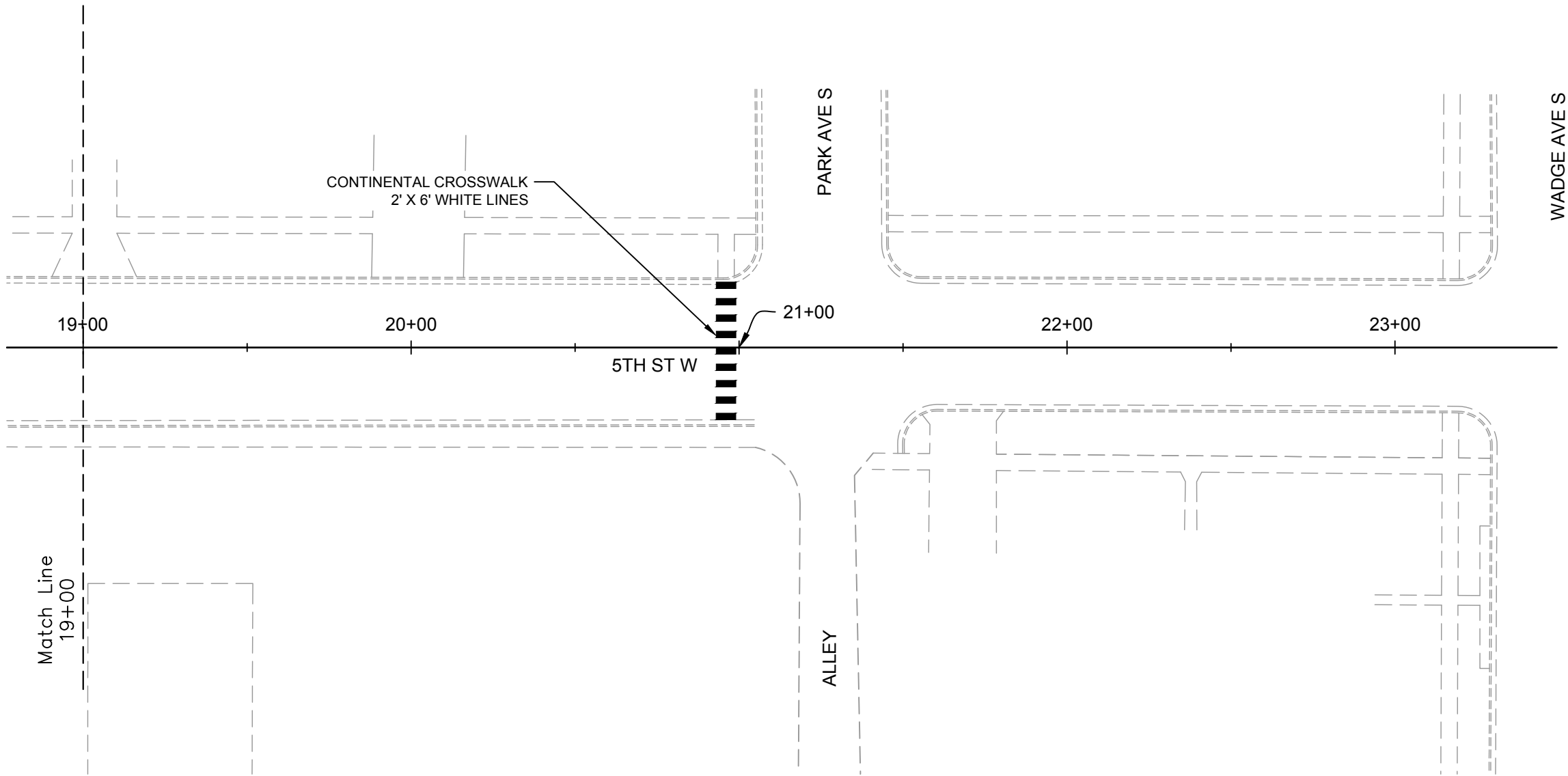


748 0140	CURB & GUTTER - TYPE 1	
	STA. 16+00 TO 16+18 ~ RT	18 LF
	STA. 16+00 TO 16+18 ~ LT	20 LF
		<u>38 LF</u>
750 0115	SIDEWALK CONCRETE 4IN	
	STA. 16+00 TO 16+18 ~ RT	11 SY
	STA. 16+00 TO 16+18 ~ LT	20 SY
		<u>31 SY</u>
750 2115	DETECTABLE WARNING PANEL	
	STA. 16+00 ~ LT	10 SF
	STA. 16+09 ~ RT	10 SF
	STA. 16+12 ~ LT	10 SF
		<u>30 SF</u>
762 1124	PVMT MK PAINTED 24IN LINE	
	STA. 16+10	<u>42 LF</u>

-  CURB & GUTTER - TYPE 1 (SEC A)
-  SIDEWALK CONCRETE 4IN
-  DETECTABLE WARNING PANELS
-  PVMT MK PAINTED 24IN LINE



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	90	2



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**TAC-0050(054)**  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND



**SIDEWALK LAYOUT**  
**STA. 19+00 TO 23+50**

DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221
----------------	---------------	------------------------

- CURB & GUTTER - TYPE 1 (SEC A)
- SIDEWALK CONCRETE 4IN
- DETECTABLE WARNING PANELS
- PVMT MK PAINTED 24IN LINE

762 1124 PVMT MK PAINTED 24IN LINE  
STA. 20+96 42 LF

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
<b>ND</b>	<b>TAC-0050(054)</b>	<b>100</b>	<b>1</b>

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES		34	
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	48"x24"	END ROAD WORK		19	
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		64	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		37	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		30	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back		5	
R1-2-60	60"x60"	YIELD		29	
R2-1-48	48"x60"	SPEED LIMIT __		39	
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)		10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R9-9-12	24"x12"	SIDEWALK CLOSED	2	12	24
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD		35	
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	48"x48"	BUMP		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT.		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT.		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	48"x48"	ROAD WORK AHEAD or __FT or __ MILE		35	
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.		35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	48"x48"	FLAGGING SYMBOL		35	
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING	2	35	70
W20-52-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	48"x48"	FRESH OIL		35	

[illegible][illegible]

SPEC & CODE			
704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	94

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	TYPE III BARRICADES	EACH	
704-1060	DELINEATOR DRUMS	EACH	
704-1065	TRAFFIC CONES	EACH	
704-1067	<b>TUBULAR MARKERS</b>	<b>EACH</b>	<b>10</b>
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

**NOTE:**  
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.  
<http://www.dot.nd.gov/>

This document is preliminary and for construction or implementation purposes.

## Traffic Control Devices List

																				STATE	PROJECT NO.			SECTION NO.	SHEET NO.	
																				N.D.	TAC-0050(054)			110	1	
Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Vert Clear- ance FT	Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments			
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF				1st LF	2nd LF	3rd LF	4th LF											
10+93 Rt	S1-1	8		8.8	8.2				5.0	2 x 2 12 ga	8.5						1	4	2.25 x 2.25 12 ga							
12+20 Rt	R2-1			6.3	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga							
15+85 Rt	R7-1			3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga							
16+00 Rt	S1-1			8.8	11.2				7.0	2.5 x 2.5 10 ga	12.0						1	4	2.75 x 2.75 10 ga							
16+20 Lt	S1-1			8.8	11.2				7.0	2.5 x 2.5 10 ga	12.0						1	4	2.75 x 2.75 10 ga							
16+31 Rt	R7-1	8		3.0	9.2				7.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga							
16+38 Lt	R7-11	8		3.0	7.2				5.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga							
20+90 Rt	S1-1			8.8	11.2				7.0	2.5 x 2.5 10 ga	12.0						1	4	2.75 x 2.75 10 ga							
21+00 Lt	S1-1			8.8	11.2				7.0	2.5 x 2.5 10 ga	12.0						1	4	2.75 x 2.75 10 ga							
21+55 Lt	R2-1			6.3	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga							
21+55 Rt	S5-2		32		5.0	9.2				7.0	2 x 2 12 ga	10.6						1	4	2.25 x 2.25 12 ga						
22+05 Lt	S1-1	32		8.8	10.2				7.0	2.25 x 2.25 12 ga	11.0						1	4	2.5 x 2.5 12 ga							
50+81 Rt	S1-1			8.8	8.2				5.0	2 x 2 12 ga	8.5						1	4	2.25 x 2.25 12 ga							
55+00 Rt	R2-1			6.3	8.2				5.0	2 x 2 12 ga	10.0						1	4	2.25 x 2.25 12 ga							
56+80 Rt	S1-1			8.8					5.0														Mount on Light Standard			
58+15 Lt	S1-1				8.8	11.2				7.0	2.5 x 2.5 10 ga	12.0						1	4	2.75 x 2.75 10 ga						
61+35 Rt	S5-2	32		5.0	7.2				5.0	2 x 2 12 ga	10.6						1	4	2.25 x 2.25 12 ga							
61+35 Lt	R2-1			6.3	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga							
62+00 Lt	S1-1			8.8	10.2				7.0	2.25 x 2.25 12 ga	11.0						1	4	2.5 x 2.5 12 ga							
Sub Total			0.0	132.2		Total	173.6										Total	72		0	0	0				
Grand Total			0.0	132.2		Total	173.6										Total	72	0	0	0	0				
																			This document was originally issued and sealed by Jeffrey D. Daley, Registration Number PE-7865, on 5/4/2018 and is stored at the Park Rive Schools Business Office..					Sign Summary Perforated Tube		
5/4/2018 8:40:42AM																										
Page 1 of 1																										

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	110	2



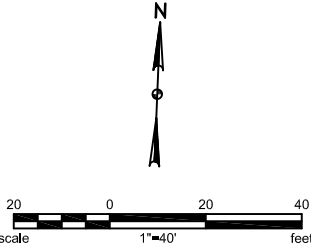
TO REMAIN  
STA. 10+26 ~ LT

CO. RD. 12B

10+00 11+00 12+00 13+00 14+00

5TH ST W

Match Line  
14+50



754 0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	
	STA. 10+93 ~ RT	8.8 SF
	STA. 12+20 ~ RT	6.3 SF
		15.1 SF
754 0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	
	STA. 10+93 ~ RT	12.2 LF
	STA. 12+20 ~ RT	14.2 LF
		26.4 LF

INSTALL  
S1-1-36  
W16-9P-24  
STA. 10+93 ~ RT



REMOVE  
STA. 10+93 ~ RT



SPEED  
LIMIT  
15

WHEN  
CHILDREN  
ARE PRESENT

INSTALL  
S4-3P-24  
R2-1-24  
STA. 12+20 ~ RT



SPEED  
LIMIT  
15

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REGISTRATION NUMBER  
PE-7865  
ON 05/04/2018 AND THE  
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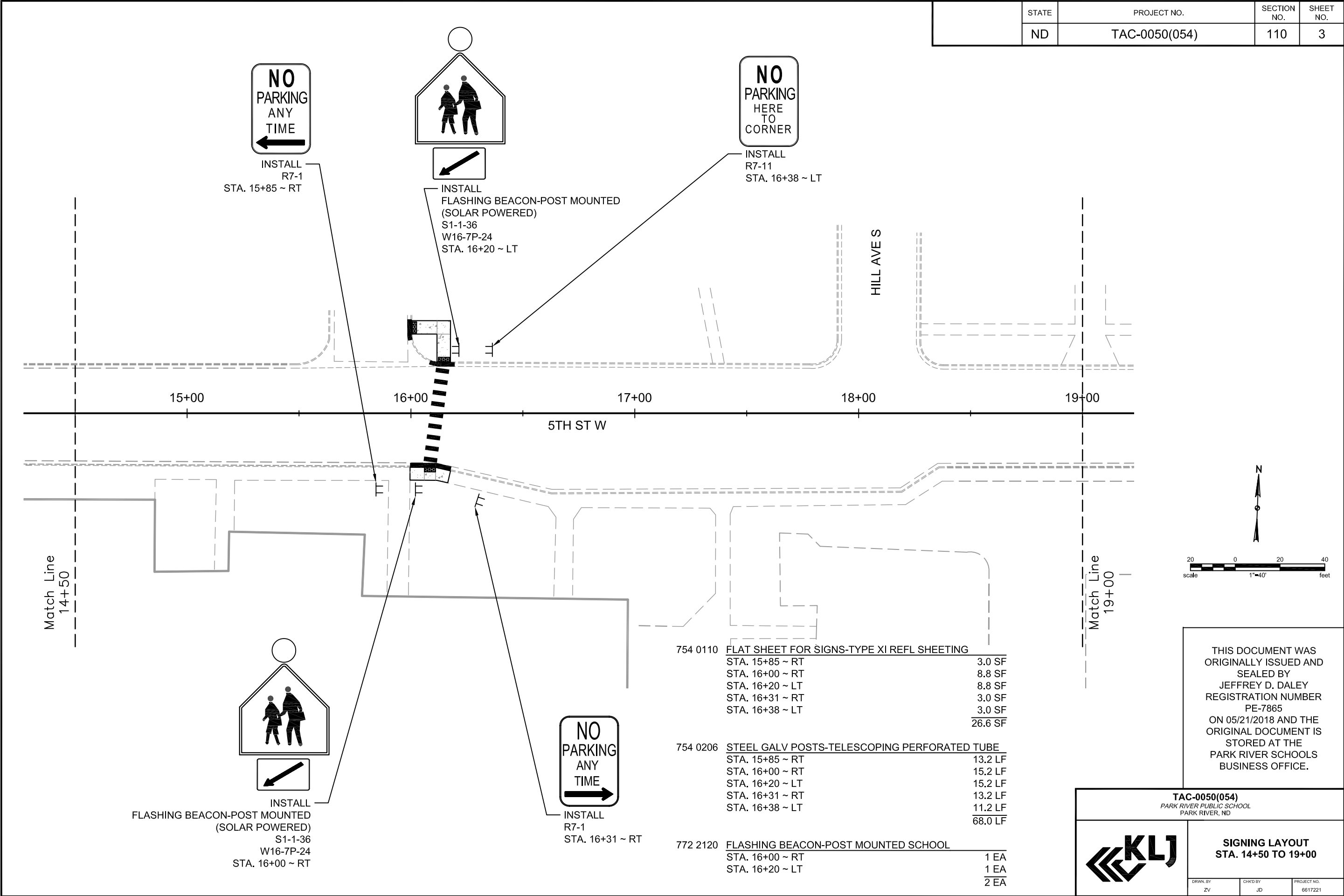
TAC-0050(054)  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND

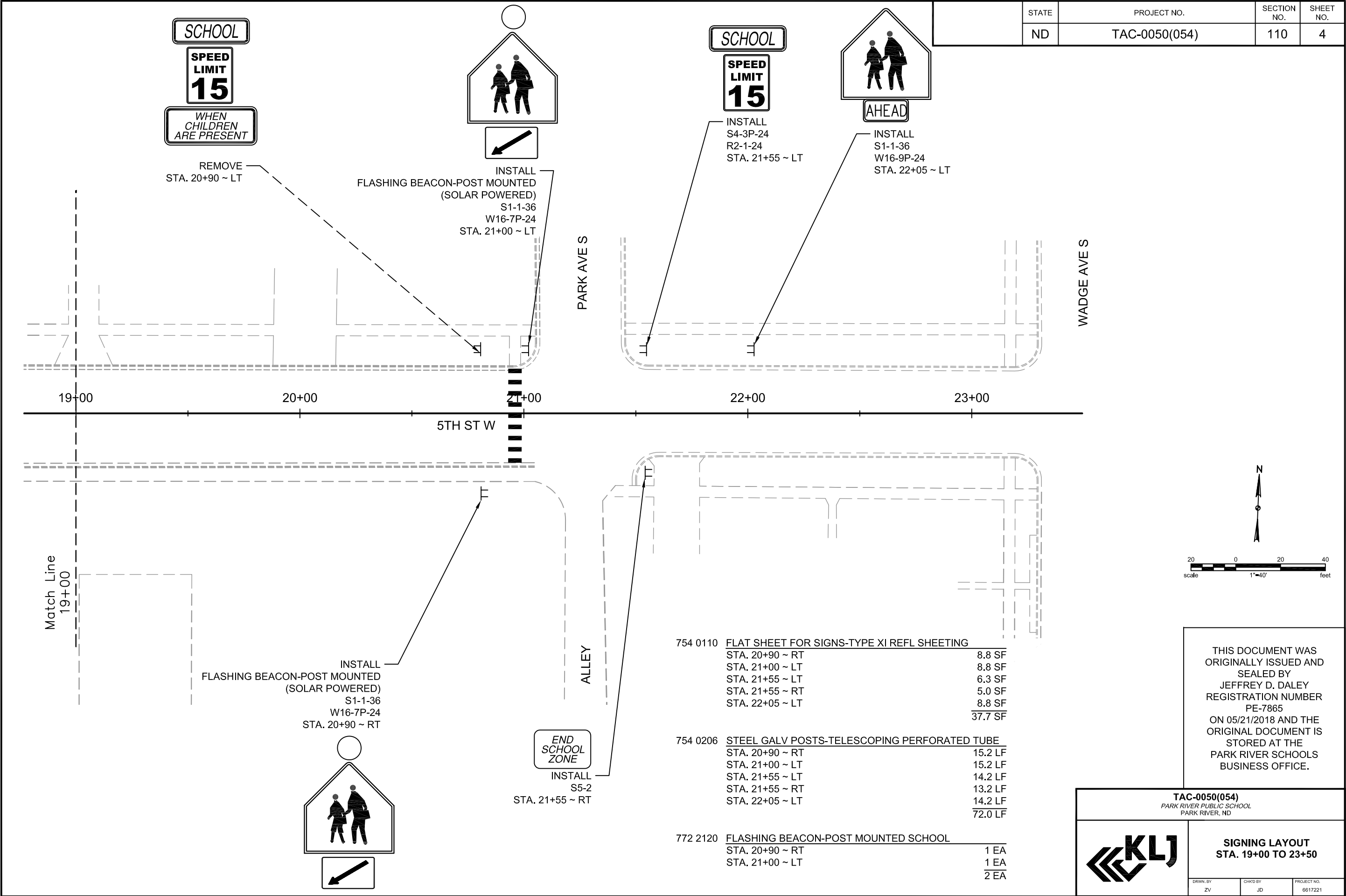


SIGNING LAYOUT  
STA. 10+00 TO 14+50

DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221
----------------	---------------	------------------------

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	110	3





19+00

20+00

21+00

22+00

23+00

5TH ST W

PARK AVE S

WADGE AVE S

ALLEY

Match Line  
19+00

754 0110

FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING

STA. 20+90 ~ RT

8.8 SF

STA. 21+00 ~ LT

8.8 SF

STA. 21+55 ~ LT

6.3 SF

STA. 21+55 ~ RT

5.0 SF

STA. 22+05 ~ LT

8.8 SF

37.7 SF

754 0206

STEEL GALV POSTS-TELESCOPING PERFORATED TUBE

STA. 20+90 ~ RT

15.2 LF

STA. 21+00 ~ LT

15.2 LF

STA. 21+55 ~ LT

14.2 LF

STA. 21+55 ~ RT

13.2 LF

STA. 22+05 ~ LT

14.2 LF

72.0 LF

772 2120

FLASHING BEACON-POST MOUNTED SCHOOL

STA. 20+90 ~ RT

1 EA

STA. 21+00 ~ LT

1 EA

2 EA

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TAC-0050(054)  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND

KLJ

SIGNING LAYOUT  
STA. 19+00 TO 23+50

DRWN. BY  
ZV

CHKD BY  
JD

PROJECT NO.  
6617221

STATE

PROJECT NO.

SECTION NO.

SHEET NO.

ND

TAC-0050(054)

110

4

scale

20

0

20

40

1"=40'

feet

May 21, 2018 - 1:33pm - P:\Private\ND\City\Park River\2017\6617221-PR School TAP\Cadd\Plans\6617221\_110SNG.dwg

© KLJ 2018

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	110	5



TO REMAIN  
STA. 50+42 ~ LT

CO. RD. 12B

50+00

51+00

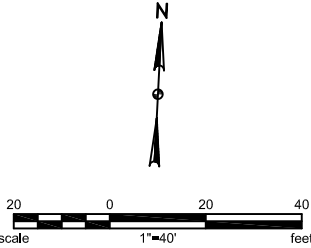
52+00

53+00

54+00

6TH ST W

Match Line  
54+50



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INSTALL  
S1-1-36  
W16-9P-24  
STA. 50+81 ~ RT



REMOVE  
STA. 50+81 ~ RT



754 0110 FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING  
STA. 50+81 ~ RT 8.8 SF

754 0206 STEEL GALV POSTS-TELESCOPING PERFORATED TUBE  
STA. 50+81 ~ RT 12.2 LF

TAC-0050(054)  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND



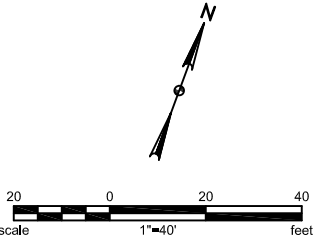
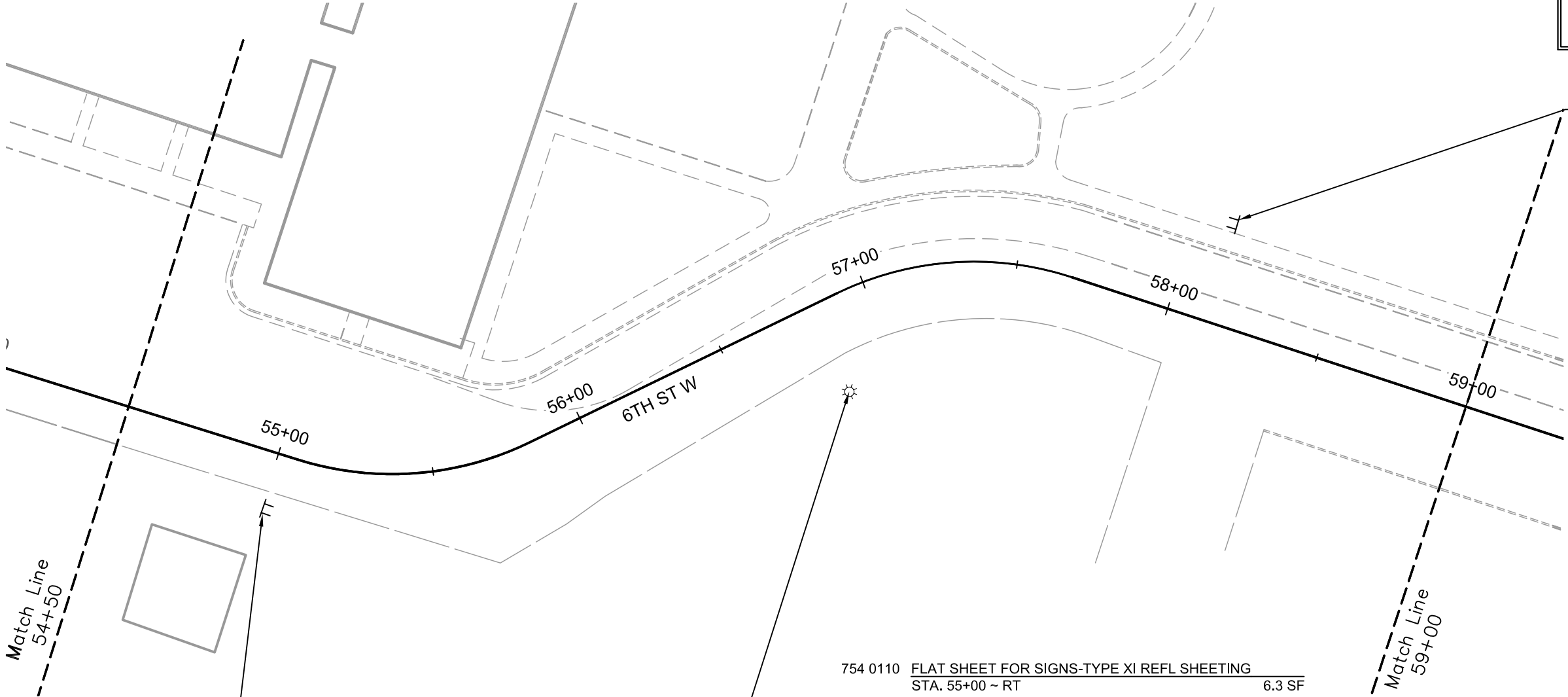
SIGNING LAYOUT  
STA. 50+00 TO 54+50

DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	110	6



INSTALL  
FLASHING BEACON - POST MOUNTED  
(SOLAR POWERED)  
S1-1-36  
W16-9P-24  
STA. 58+15 ~ LT



INSTALL  
S4-3P-24  
R2-1-24  
DSDS (SOLAR POWERED)  
STA. 55+00 ~ RT



INSTALL  
FLASHING BEACON - POST MOUNTED  
(SOLAR POWERED)  
(MOUNTED ON LIGHT POLE)  
S1-1-36  
W16-9P-24  
STA. 56+80 ~ RT

754 0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	
	STA. 55+00 ~ RT	6.3 SF
	STA. 56+80 ~ RT	8.8 SF
	STA. 58+15 ~ LT	8.8 SF
		<u>23.9 SF</u>
754 0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	
	STA. 55+00 ~ RT	12.2 LF
	STA. 56+80 ~ RT (MOUNTED ON LIGHT STANDARD)	0.0 LF
	STA. 58+15 ~ LT	15.2 LF
		<u>27.4 LF</u>
754 8010	DYNAMIC SPEED DISPLAY SIGN	
	STA. 55+00 ~ RT	1 EA
772 2120	FLASHING BEACON-POST MOUNTED SCHOOL	
	STA. 56+80 ~ RT	1 EA
	STA. 58+15 ~ LT	1 EA
		<u>2 EA</u>

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TAC-0050(054)  
PARK RIVER PUBLIC SCHOOL  
PARK RIVER, ND

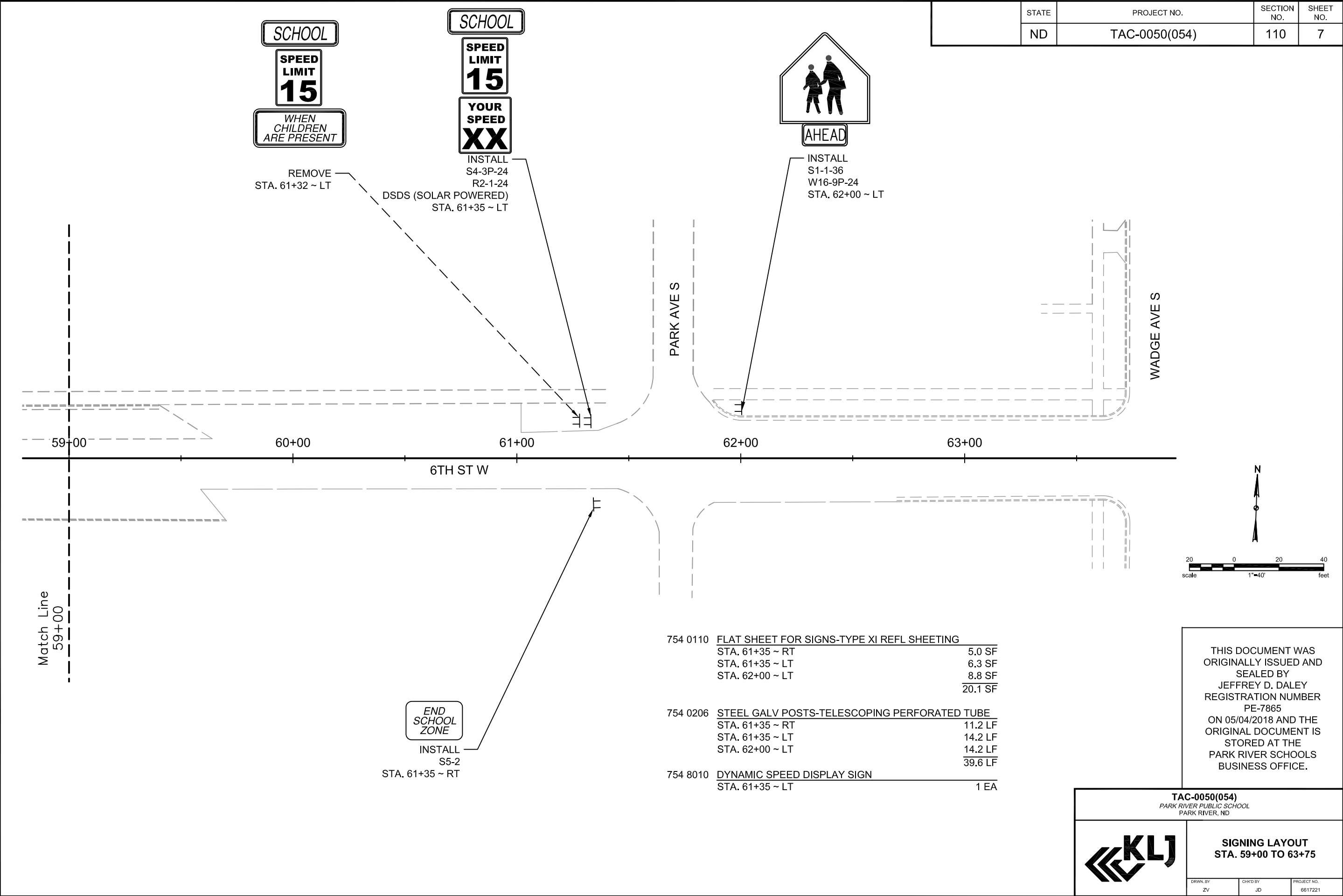


SIGNING LAYOUT  
STA. 54+50 TO 59+00

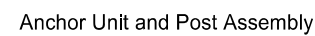
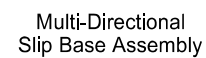
DRWN. BY ZV	CHKD BY JD	PROJECT NO. 6617221
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-0050(054)	110	7



## D-704-7



Notes:

1. Slip base bolts shall be torqued as specified by the manufacturer.
2. Anchor shall have a yield strength of 43.9 KSI and tensile strength of 59.3 KSI.
3. The 4" vertical clearance is required for the anchor or breakaway base. The 4"x60" measurement shall be made above and below post location and also back and ahead of the post.
4. When used in concrete sidewalk, anchor shall be same except without the wings.
5. Four post signs shall have over 7' between the first and the fourth posts.

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>
1½ x 1½	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
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2⅜ x 2⅜	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

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

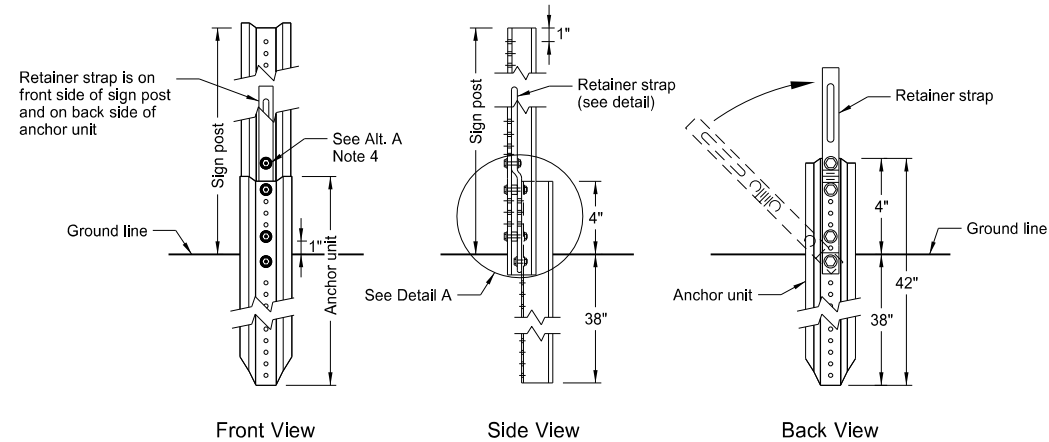
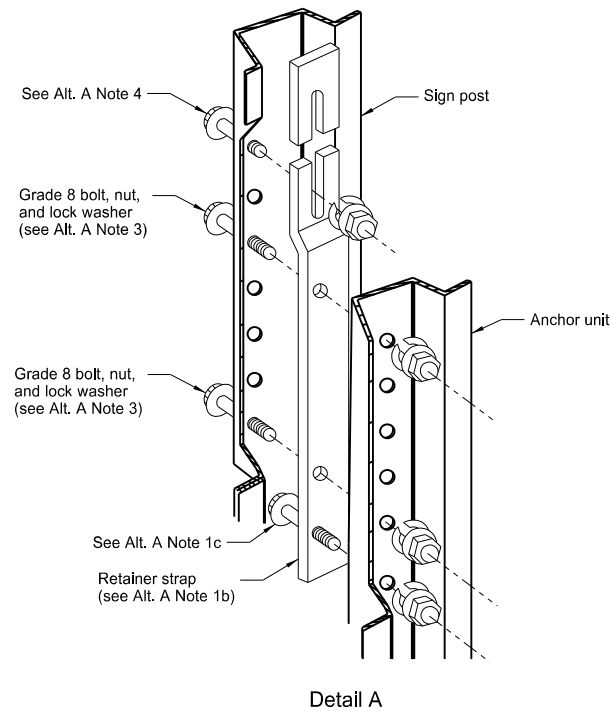
(A) The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak.

(B) The  $2\frac{3}{16}$ "x10 ga. may be inserted into  $2\frac{1}{2}$ "x10 ga. for additional wind load.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE

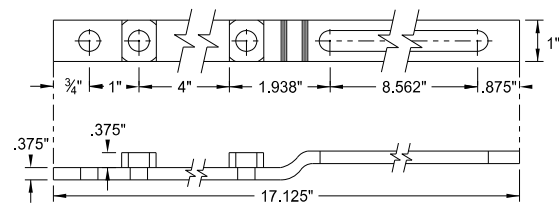
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U-Channel Post

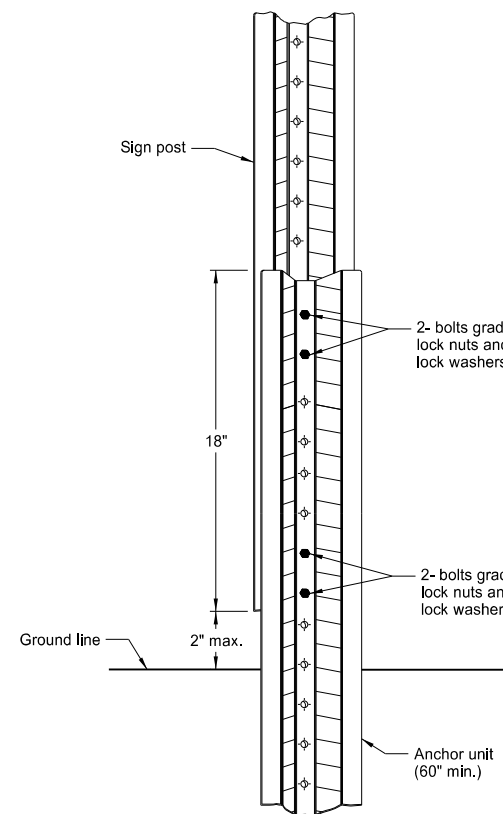


Breakaway U-Channel Detail Alternate A

A maximum of 2 posts shall be installed within 7'.

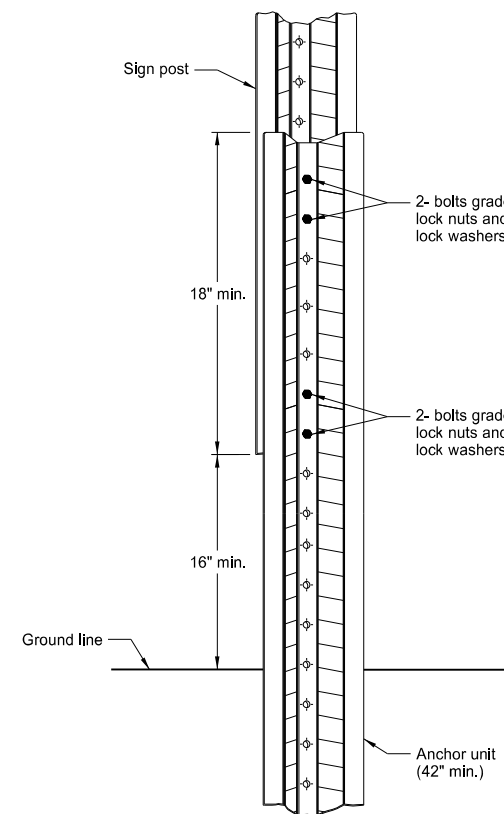


Retainer Strap Detail



Breakaway U-Channel Splice Detail Alternate B (2.5 and 3 lb/ft)

A maximum of 3 posts shall be installed within 7'.



Breakaway U-Channel Splice Detail Alternate C (2.5 and 3 lb/ft)

A maximum of 3 posts shall be installed within 7'.

Alternate A Steps of Installation:

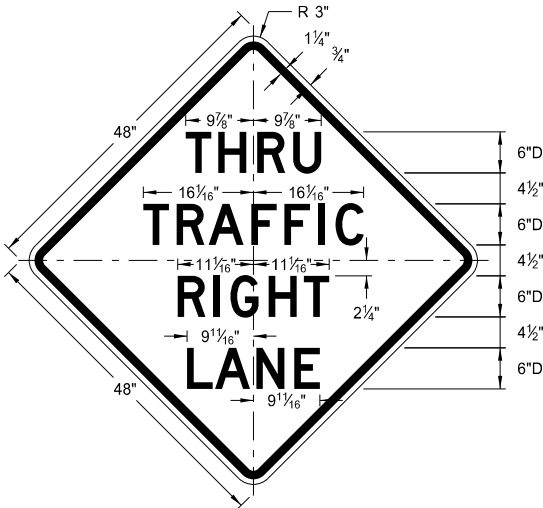
- a) Drive anchor unit to within 12" of ground level.  
b) Proper assembly established by lining up the bottom hole of retainer strap with the 6th hole from the top of the anchor unit.  
c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.  
d) Rotate strap 90° to left.
- a) Drive anchor unit to 4" above ground.  
b) Rotate strap to vertical position.
- a) 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.  
b) Alternately tighten two connector bolts.
- Complete assembly by tightening 5/16"x2" bolt (this fastens sign post to retainer strap).
- The base post, strap and sign post shall be properly nested. 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

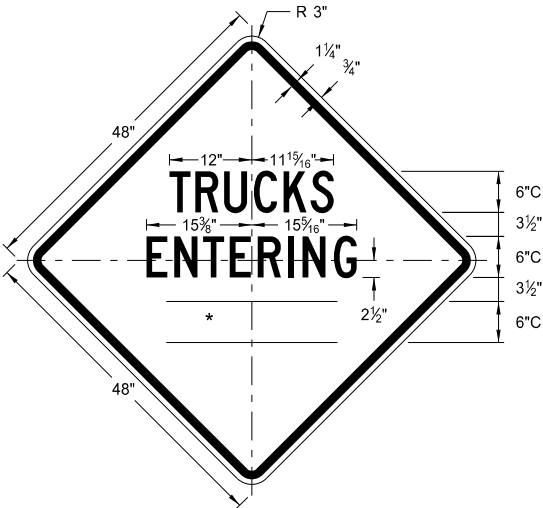
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Registration Number  
PE- 2930 ,  
on 2/28/14 and the original document is stored at the  
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of Transportation

CONSTRUCTION SIGN DETAILS  
WARNING SIGNS

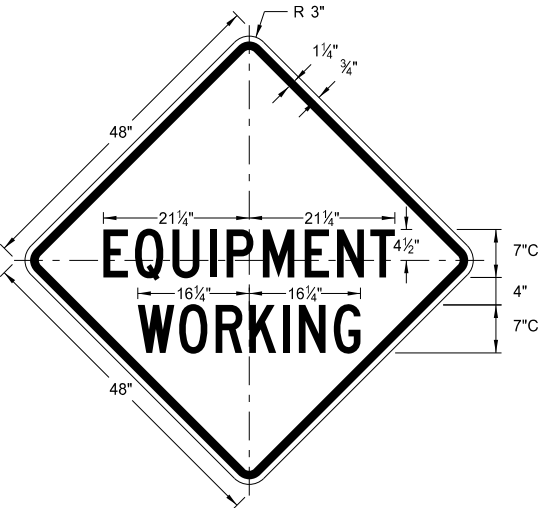
D-704-11



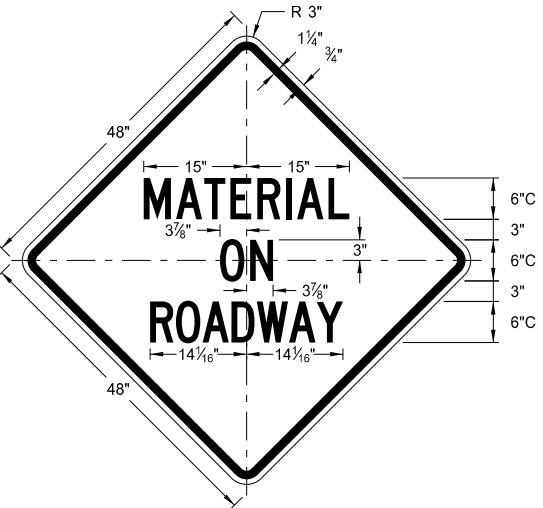
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Legend: black (non-refl)  
Background: orange



W8-54-48  
Legend: black (non-refl)  
Background: orange



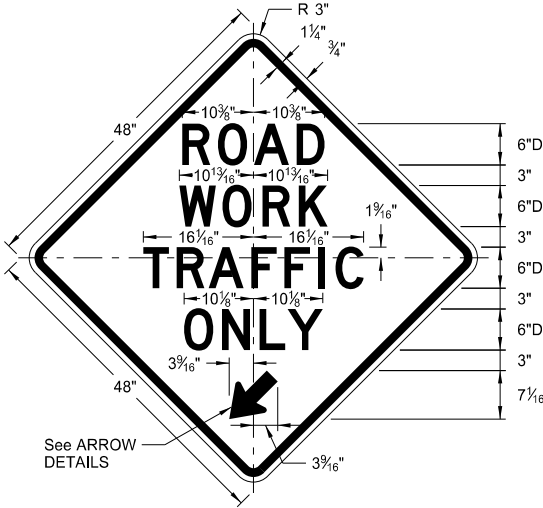
W20-51-48  
Legend: black (non-refl)  
Background: orange



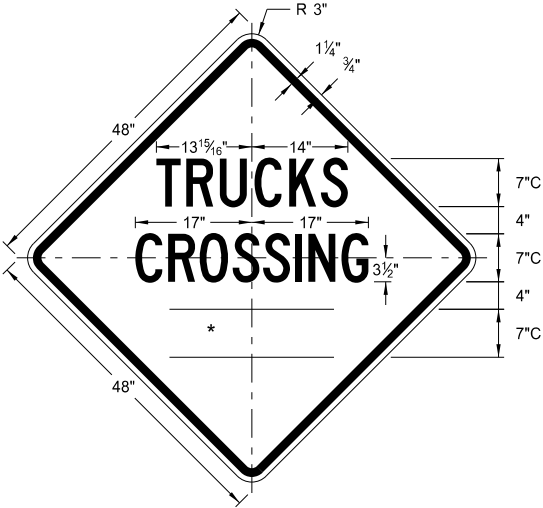
W21-51-48  
Legend: black (non-refl)  
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
1/2 MILE	Reduce 50%
1 MILE	Standard

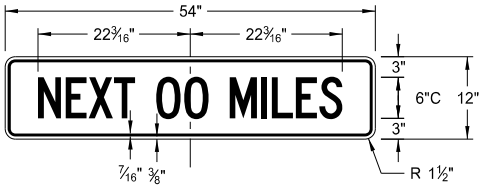
\* DISTANCE MESSAGES



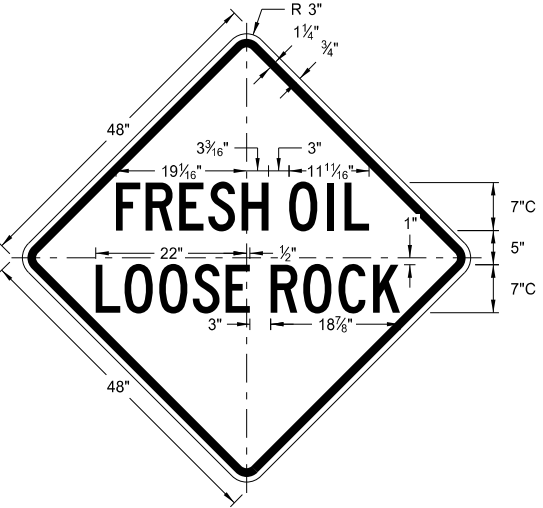
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Background: orange



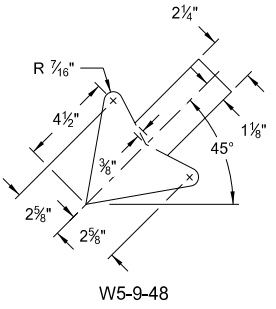
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Background: orange



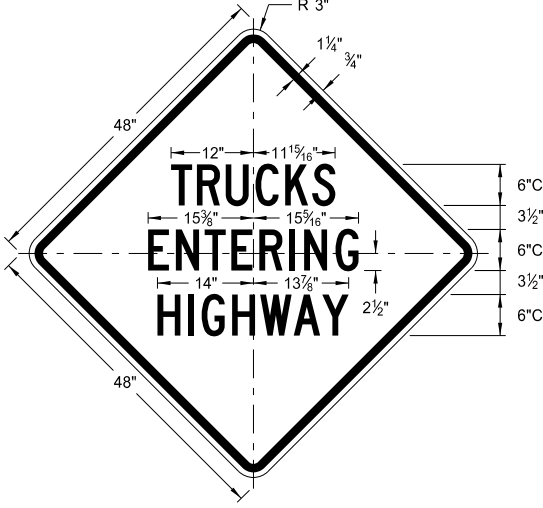
W20-52-54  
Legend: black (non-refl)  
Background: orange



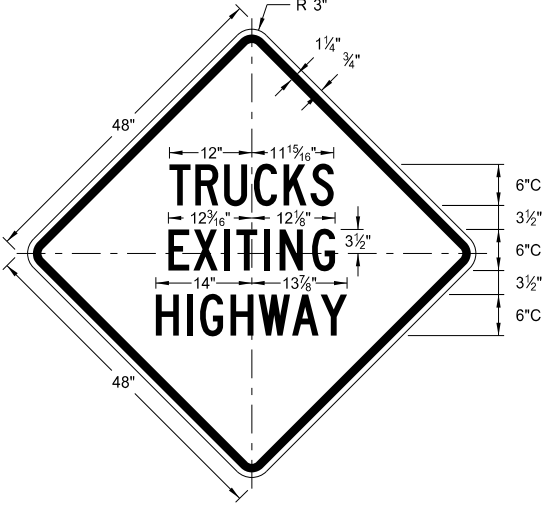
W22-8-48  
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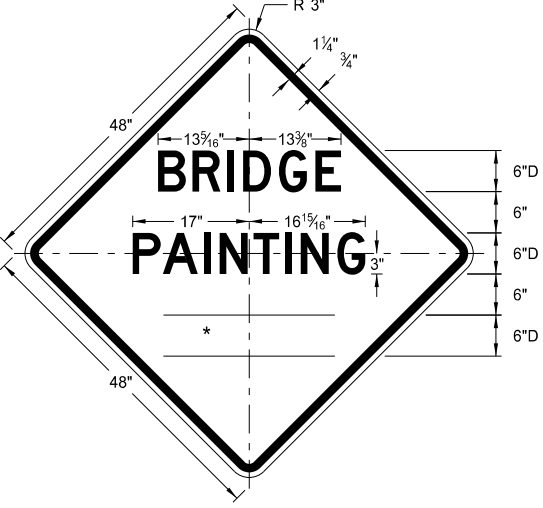
W5-9-48  
ARROW DETAILS



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



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



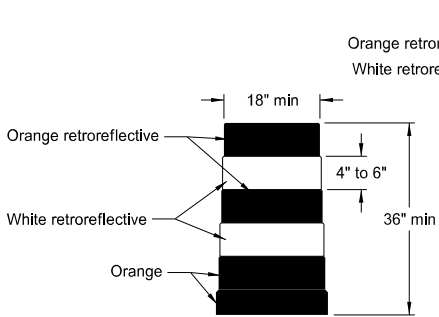
W21-50-48  
Legend: black (non-refl)  
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE

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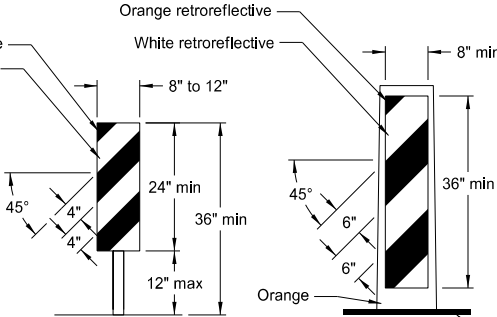
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



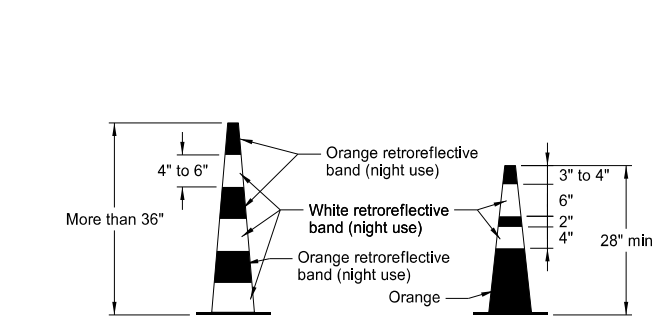
DELINEATOR DRUM

The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide. Each drum shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectORIZED spaces between the horizontal orange and white stripes shall not exceed 3" wide. Stripes shall not be placed on ribs or indentations in the drum. Drums shall have closed tops that will not allow collection of construction debris or other debris. Ballast shall not be placed on the top of a drum.



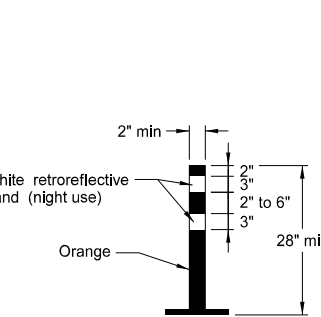
VERTICAL PANEL

Markings for vertical panels shall be alternating orange and white retroreflective stripes, sloping downward in the direction vehicular traffic is to pass. Retroreflective sheeting shall be placed on both sides of panel and shall have a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, a stripe width of 6 inches shall be used.



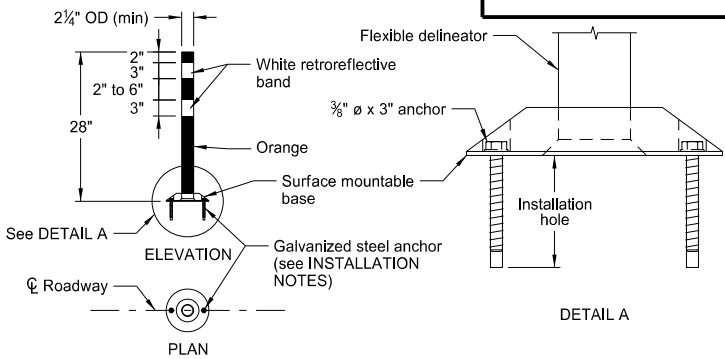
TRAFFIC CONE

RetroreflectORIZATION of cones more than 36" in height shall be provided by alternating orange and white retroreflective stripes. Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectORIZED space between the orange and white stripes shall not exceed 3" wide.



TUBULAR MARKER

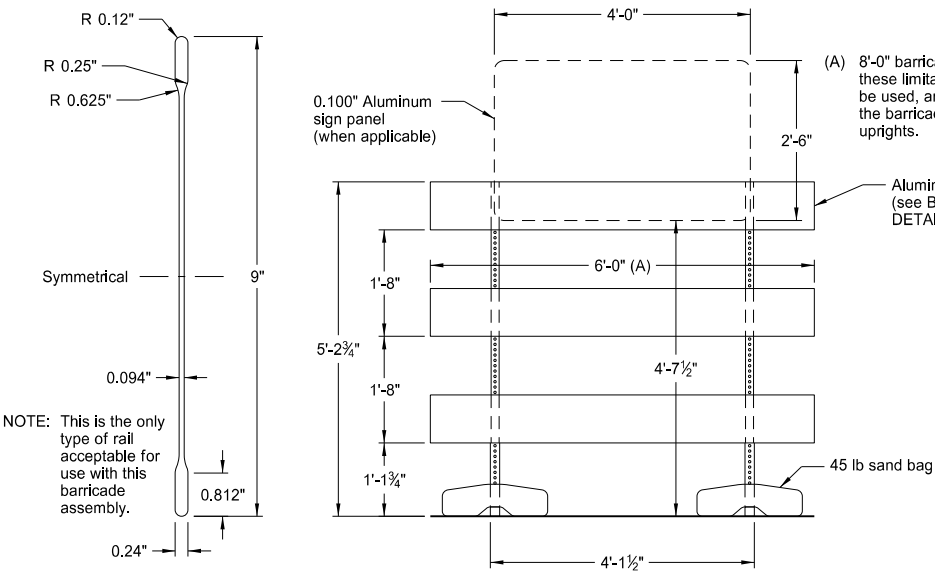
RetroreflectORIZATION of tubular markers more than 42" in height shall be provided by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



FLEXIBLE DELINEATOR

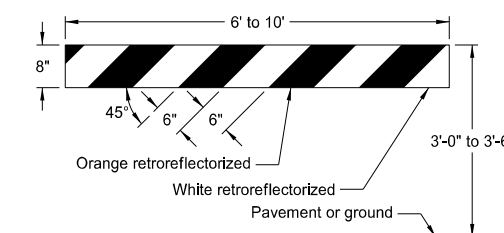
INSTALLATION NOTES:

1. Drill installation holes to diameter and depth as required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, the contractor may use an 8" x 8" butyl pad or hot melt butyl. Butyl shall be removed as close as possible to pavement surface.

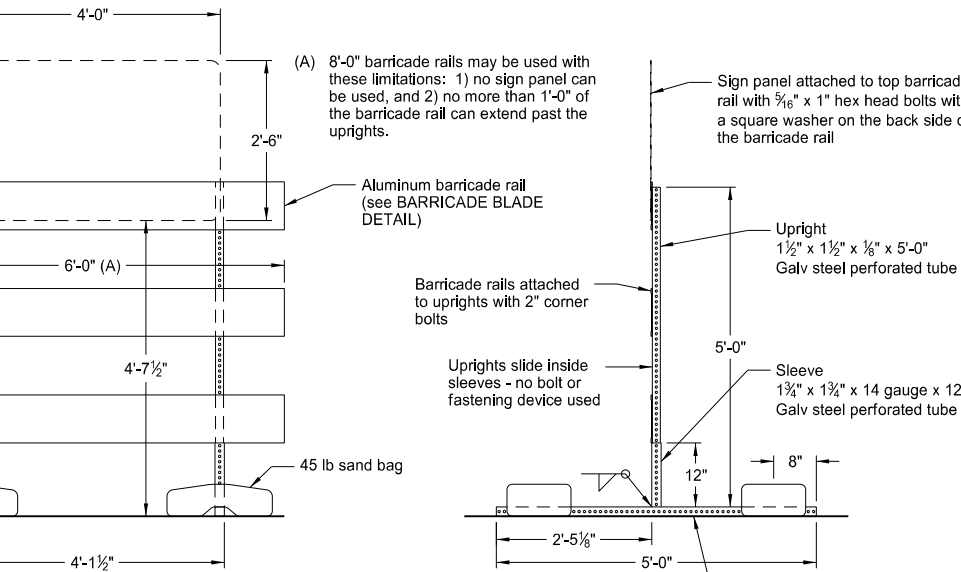


BARRICADE BLADE DETAIL

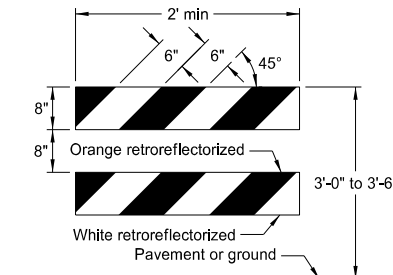
NOTE: This is the only type of rail acceptable for use with this barricade assembly.



TYPE I BARRICADE

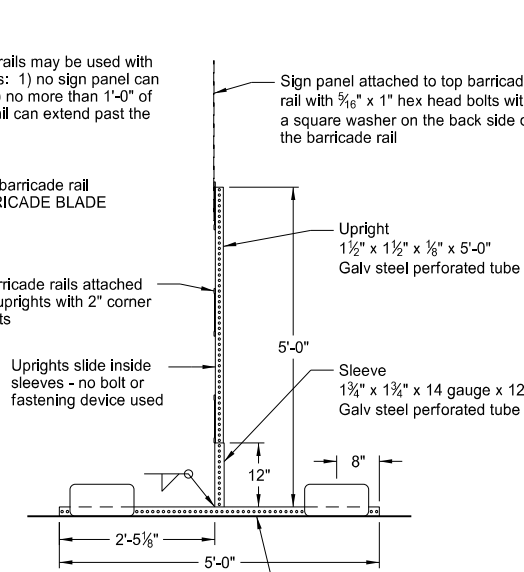


BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

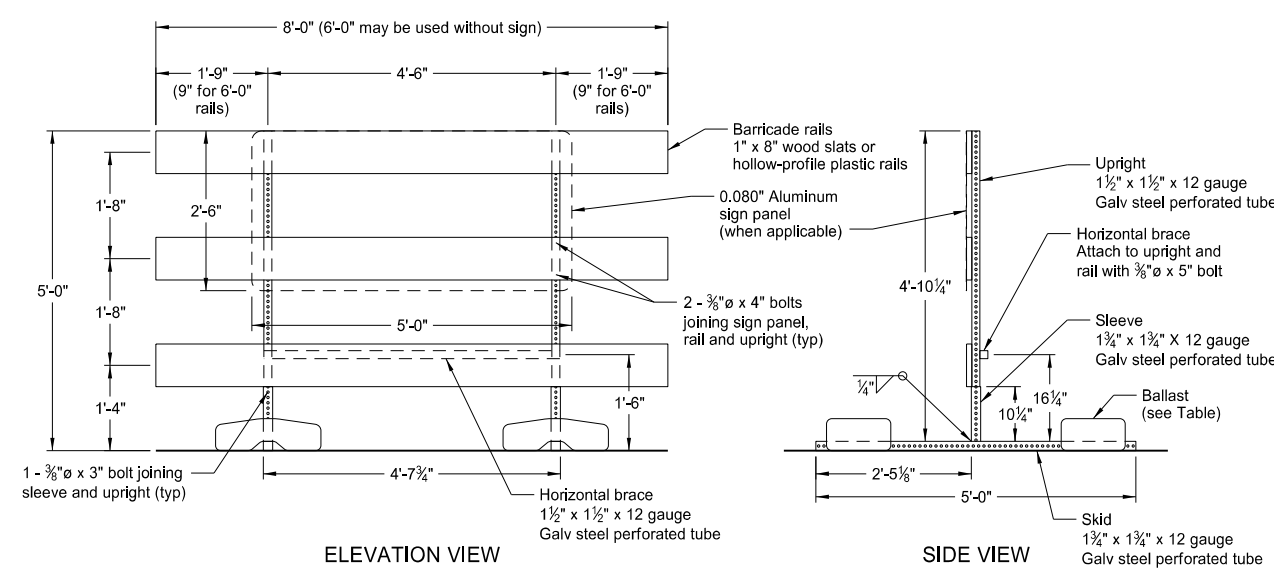


TYPE II BARRICADE

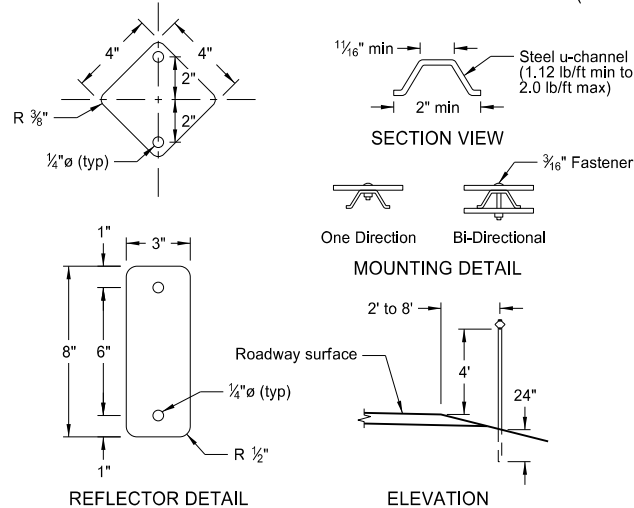
BARRICADE RAIL DETAILS



TYPE III BARRICADE



BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)



DELINEATORS

MINIMUM BALLAST (For each side of barricade support)

Without Sign	4 - 25 lb sandbags
With Sign	6 - 25 lb sandbags

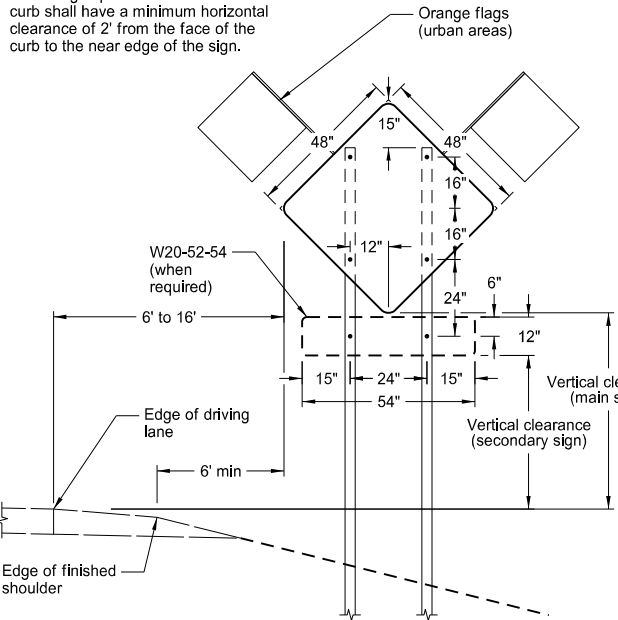
Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

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10-3-13	
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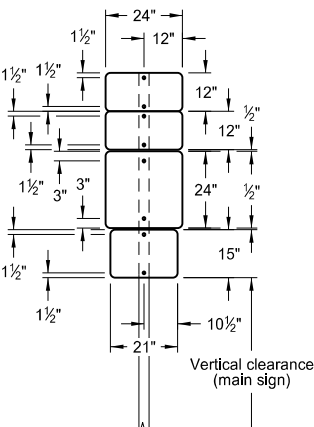
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# CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

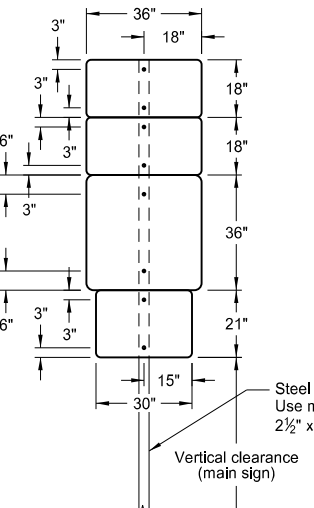
Note: Signs placed in sections with curb shall have a minimum horizontal clearance of 2' from the face of the curb to the near edge of the sign.



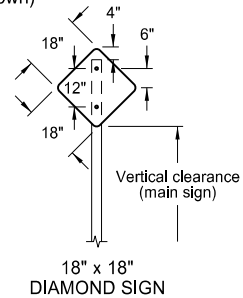
TYPICAL SECTION  
(48" x 48" diamond warning sign shown)



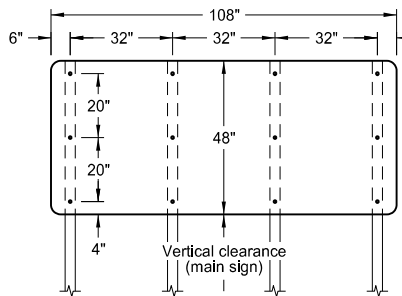
24" x 24" ROUTE MARKER ASSEMBLY



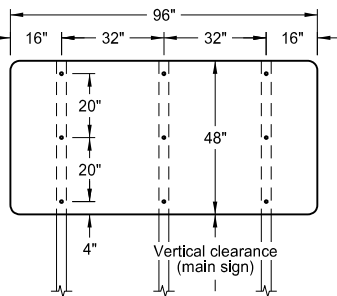
36" x 36" ROUTE MARKER ASSEMBLY



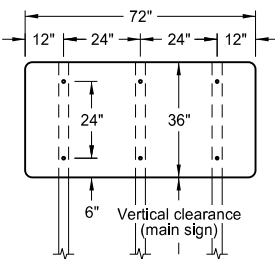
18" x 18" DIAMOND SIGN



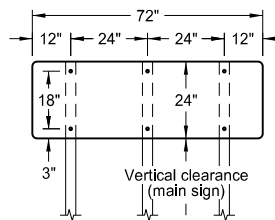
108" x 48" SIGN



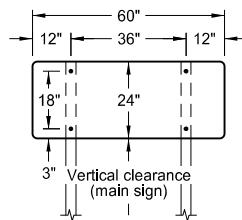
96" x 48" SIGN



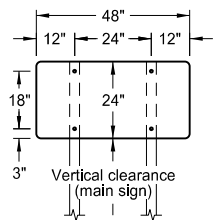
72" x 36" SIGN



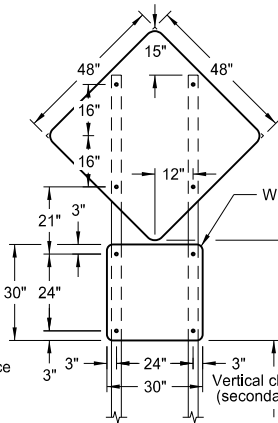
72" x 24" SIGN



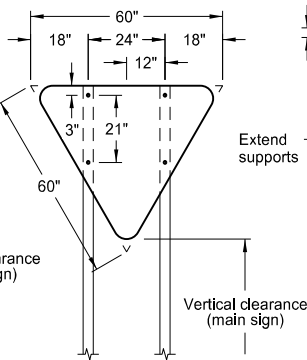
60" x 24" SIGN



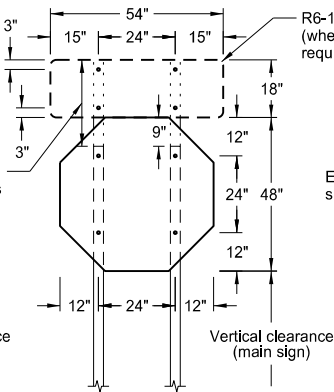
48" x 24" SIGN



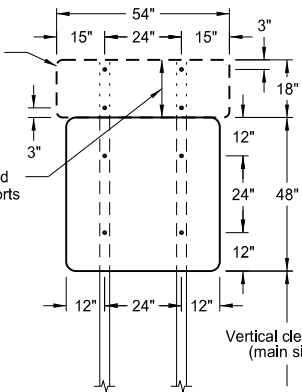
48" x 48" DIAMOND SIGN  
(with 30" x 30" secondary sign)



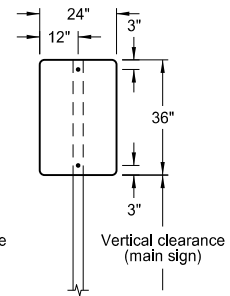
R1-2-60 - YIELD SIGN



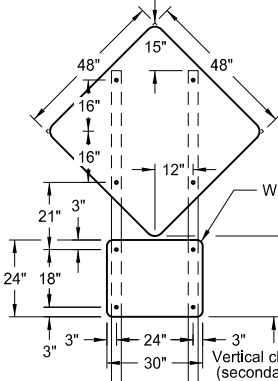
R1-1-48 - STOP SIGN  
(with R6-1-54 sign as required)



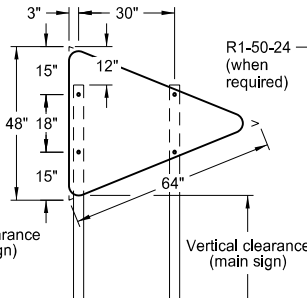
48" x 48" SIGN  
(with R6-1-54 sign as required)



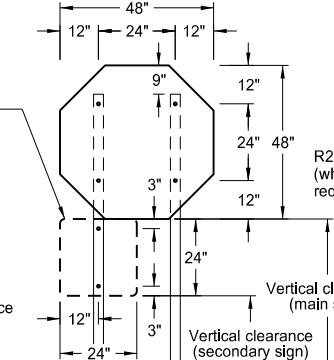
24" x 36" SIGN



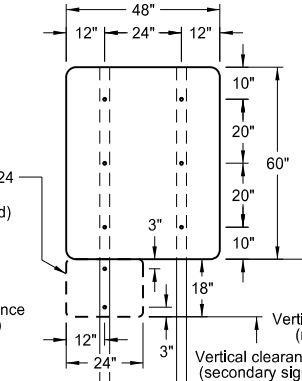
48" x 48" DIAMOND SIGN  
(with 30" x 24" secondary sign)



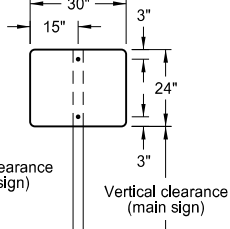
W14-3-64 - PENNANT SIGN



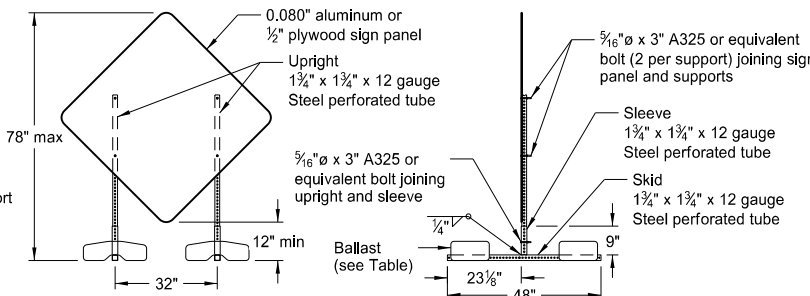
R1-1-48 - STOP SIGN  
(with R1-50-24 sign as required)



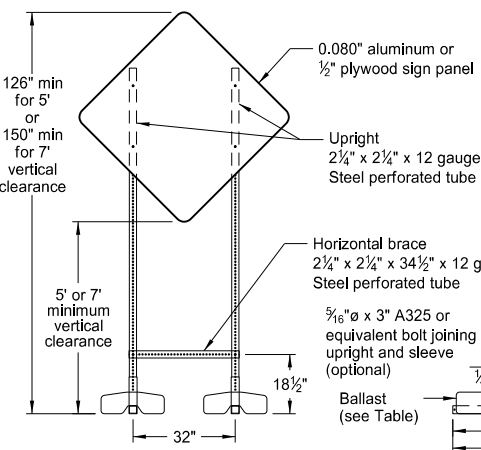
48" x 48" SIGN  
(with R2-1a-24 sign as required)



30" x 24" SIGN



PORTABLE SIGN SUPPORT  
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT  
HIGH-MOUNTING HEIGHT

## NOTES:

1. Sign Supports: Supports shall be galvanized or painted. 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, the minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes are based on a wind speed of 55 MPH.

Signs over 50 square feet should be installed on 2 1/2" x 2 1/2" perforated tube supports as a minimum.

Guy wires shall not be attached to sign supports. Wind beams may be attached to u-posts behind the sign panels.

2. Sign Panels: Provide sign panels made of 0.100" aluminum, 1/2" plywood, or other approved material, except where noted. All holes to be punched round for 3/8" bolts.

3. Alternate Messages: The signs that have alternate messages may have these alternate messages placed on a reflectorized plate (without a border) and installed and removed as required. (i.e. "Left" and "Right" message on a lane closure sign)

4. 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

5. 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 as stated above.

Large signs having an area exceeding 50 square feet shall have a minimum clearance of 7'-0" from the ground at the post.

6. Portable Signs: Provide portable signs that meet the vertical clearance as stated above. Use portable signs when it is necessary to place signs within the pavement surface.

When portable signs are used for 5 days or less, low-mounting height (minimum 12" vertical clearance) sign supports may be used 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. The R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 may be used for longer than 5 days.

Signs mounted to the portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT Details shall have 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

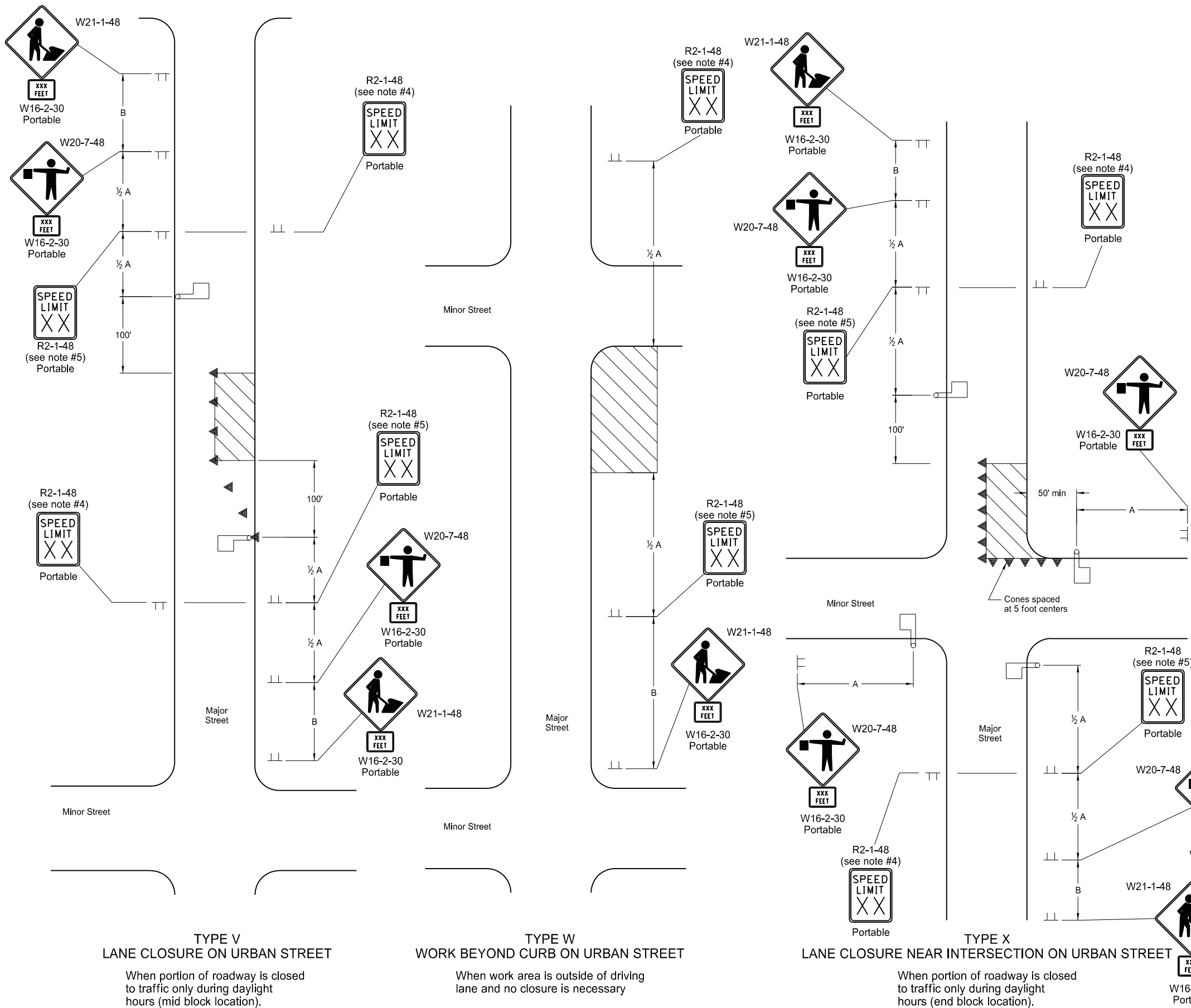
Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

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11-14-13	Revised Note 6.

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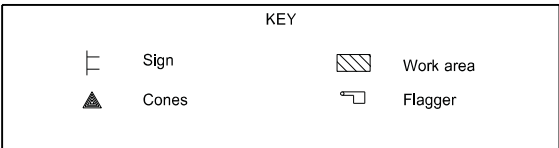
LANE CLOSURES ON URBAN STREETS LAYOUTS

D-704-25



- Notes
- For Type V: The contractor will be allowed to work only on one side of the roadway at a time so as not to block off any more than one lane of traffic.
  - When parking is present, the signs shall be placed so they are entirely visible above the parked vehicles or placed at the edge of the parking area so they are visible to oncoming traffic. These signs may be skid mounted when placed on the roadway surface.
  - Delineator cones used for tapering traffic shall be placed at 3 equal spaces. Delineator cones for tangents shall be spaced at dimension "S". "S" = the numerical value of speed limit.
  - The speed limit shall be re-established. The exact speed limit shall be determined in the field, dependent on location and conditions.
  - The reduced speed limit shall be determined dependent on the in place speed limit before construction. The speed limit reduction should not exceed 10 mph below the existing speed limit, unless the design speed of the work zone feature has been reduced below the 10 mph. In this case, the speed limit reduction shall not exceed 30 MPH. Where speed limits are to be reduced more than 30 MPH, a second speed limit sign shall be installed with the desired speed reduction but shall not exceed 30 MPH. The second speed limit sign shall be placed at  $\frac{1}{2}$  B.
  - When warning signs are used in urban areas and the signs are not portable, flags shall be installed. The flags shall be 24 inches square, mounted perpendicular to the edges of the diamond sign, and at such a distance above the edge so that when the flag is limp it will not touch the sign. Rural areas will not require flags.
  - Existing speed limit signs within a reduced speed zone shall be covered.
  - Where necessary, safe speed to be determined by the Engineer.
  - The contractor has the option of using portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Specifications.
  - Urban projects do not need the G20-55-96 and R2-1a-24 signs.

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 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

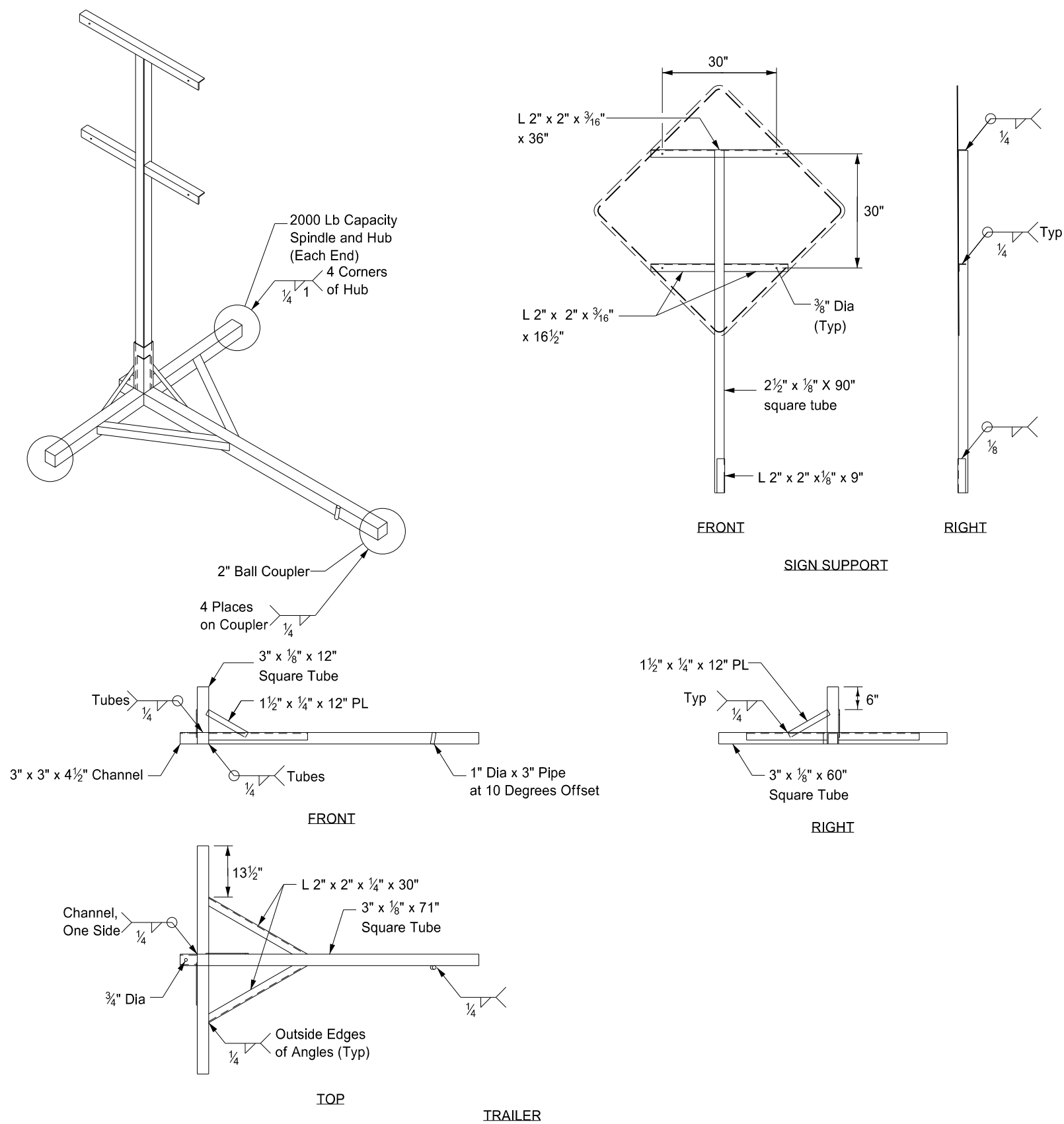


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PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



Notes:

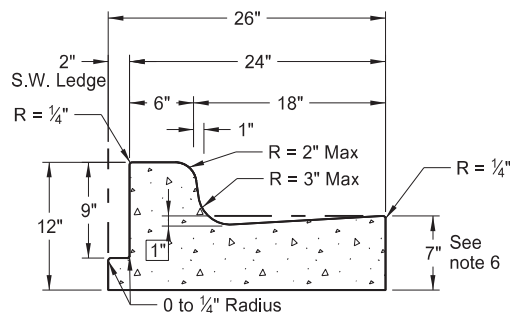
- ① The maximum weight of the assembly is 250 pounds.
- ② Use a 14" wheel and tire.
- ③ Automotive and equipment axle assemblies may not be used for trailer-mounted sign supports.
- ④ Other NCHRP 350 crash tested assemblies are acceptable.

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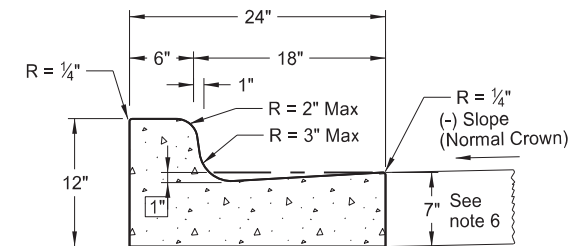
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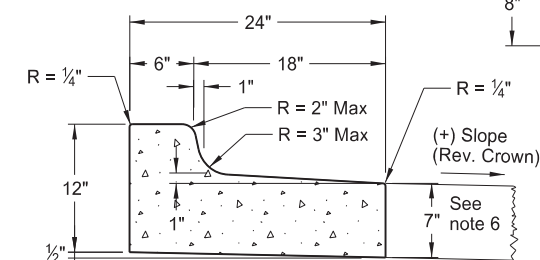
Curb & Gutter and Valley Gutter



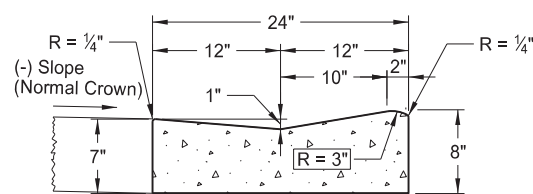
**Curb & Gutter Type 1 (Sec. A & B)**  
Adjacent to Concrete Sidewalk,  
Median, or Parking Lot.  
(Sec. A shown. See Sec B for  
additional details.)



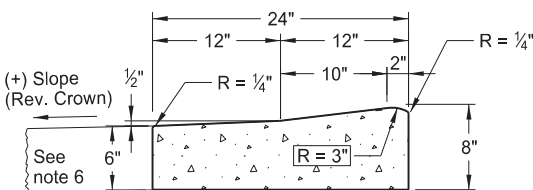
**Curb & Gutter Type 1 (Sec. A)**



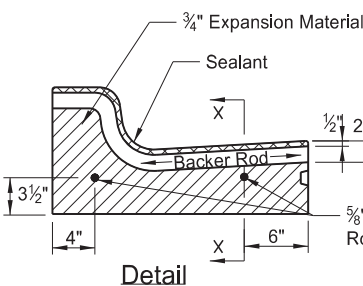
**Curb & Gutter Type 1 (Sec. B)**



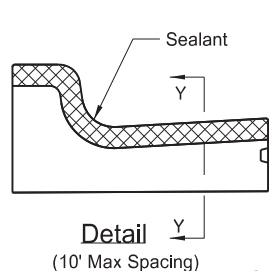
**Mountable Curb & Gutter Type 1 (Sec. A)**



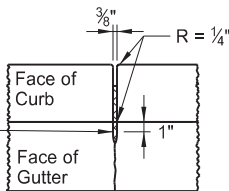
**Mountable Curb & Gutter Type 1 (Sec. B)**



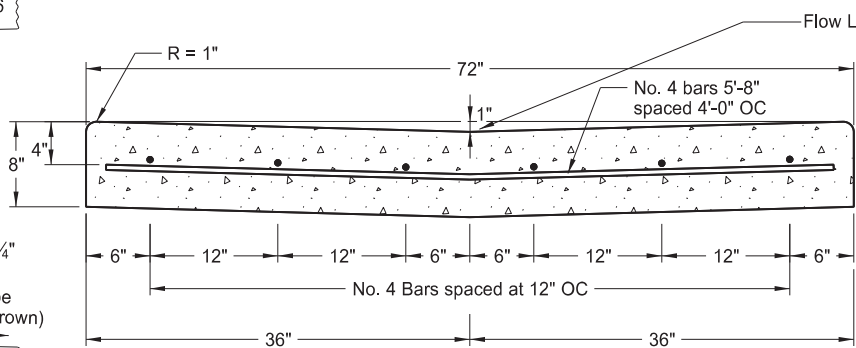
**Isolation Joint**



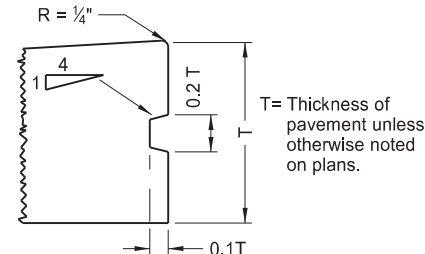
**Contraction Joint**



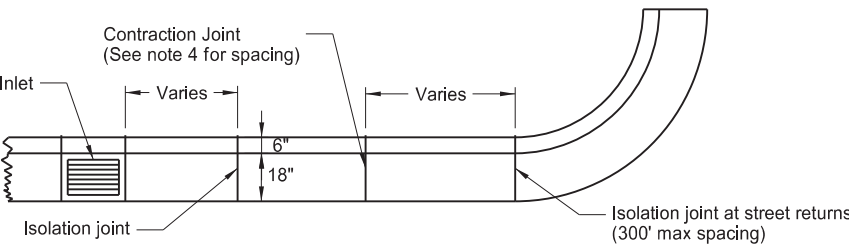
**Section Y-Y**



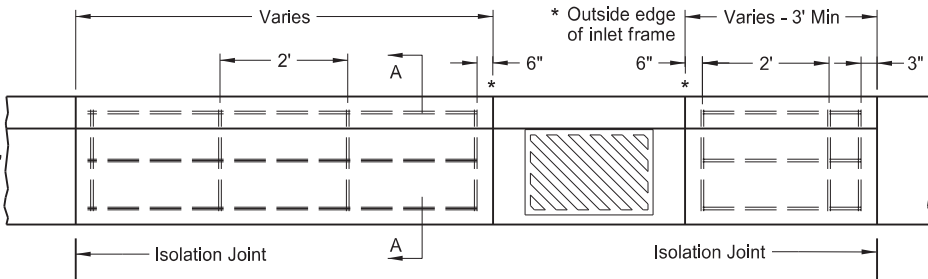
**72" Concrete Valley Gutter Detail**



**Keyway Detail for Curb & Gutter**  
(To be used with PCC Pavement and Drives)

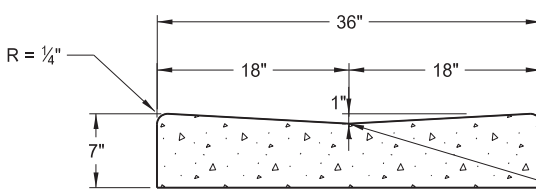


**Joint Location Detail**

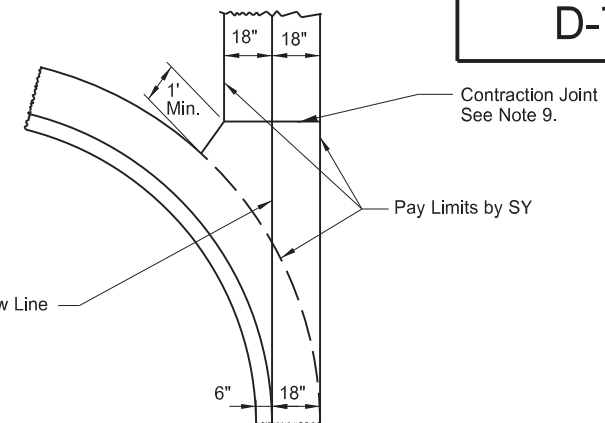


**Curb & Gutter Reinforcing at Inlets**

NOTE: All bars shall be #4 deformed reinforcing bars. Splices will not be permitted. Reinforcing bars at inlet locations will not be paid for separately, but shall be included in the price bid for "Curb and Gutter - Type 1." This includes inlets located on radii. The reinforcement shall be extended to the second joint (rebar placed through the first joint) in cases where the 3' min. panel length cannot be obtained.



**36" Concrete Valley Gutter Detail**



**36" Concrete Valley Gutter Plan**

- NOTES:**
1. Curb and Gutter Type 1 (Sec. A & B) to be used. Section "A" to be used with (-) pavement slopes and section "B" to be used with (+) pavement slopes.
  2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
  3. Isolation Joints: Isolation joint material shall be 3/4" preformed expansion joint filler conforming to the standard specifications. The opening for the backer rod and joint sealant shall be formed by a pre-cut piece of wood or other material approved by the engineer. Dowel supports are not required on the second pour at a cold joint, plastic or metal caps and greased dowels shall be installed in the cold joint for the second pour.
  4. Joint Spacing: For hot bituminous pavements the joint spacing for the curb and gutter shall be 10' max. with the panels on each side of the inlets. For concrete pavements the joint spacing for the curb and gutter shall match the pavement joint on PCC Pavements of approximately 15' spacing.
  5. Joint sealing: All contraction and isolation joints shall be sealed as shown in the details. The joint sealant for contraction joints shall conform to section 826.02B. The sealant for expansion joints shall be as specified in note 3 above. The sealant shall be tooled and installed in accordance with the manufacturer's recommendations.
  6. Depth of Face of Gutter: For hot bituminous pavement the depth of gutter shall be 7" as shown. For PCC pavements, the Contractor has the option to match the depth of gutter to the depth of the adjacent PCC pavement or to construct a 7" depth as shown.
  7. When the curb and gutter abuts PCC pavement, it shall be tied to the PCC pavement. The tie bar shall consist of a No. 3 bar, 1'-6" in length spaced 4' center to center.
  8. On street returns and other locations where the new curb and gutter ends and does not abut existing curb and gutter, the end two (2) feet of the curb shall be tapered from 6" in height to 0". A 1/2" premolded isolation joint which is full depth and the same shape as the curb and gutter shall be installed just ahead of the taper. An 18" tie bar shall be installed across the joint.
  9. Valley Gutter Joints: Contraction joints are required at approx. 10' intervals. The contraction joints shall be 1/8" min. to 3/8" max. in width. The joints shall be formed by sawing or scoring to a minimum depth of 2". The joint sealant shall be a hot poured elastic type joint sealer in accordance with Section 826.02A.2 of the Standard Specifications. The joint and sealant shall be included in the price bid for Valley Gutter.

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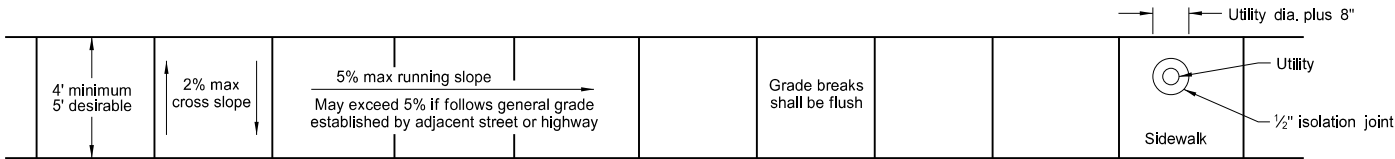
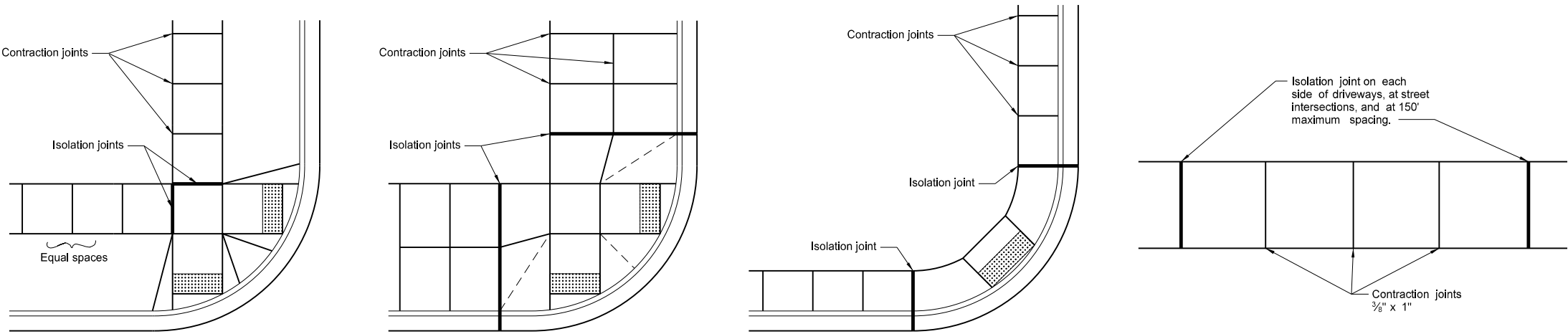
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SIDEWALK

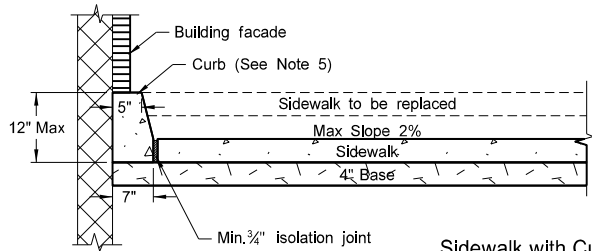
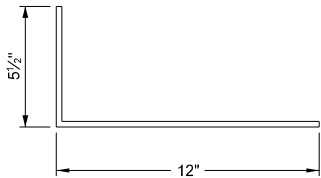
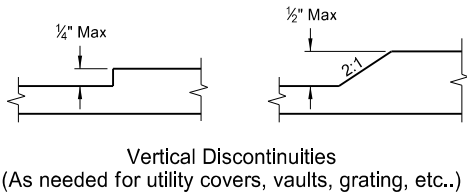
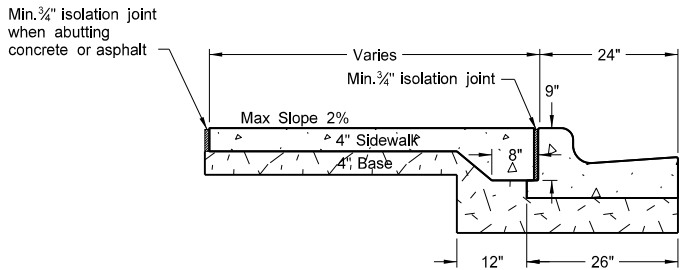
D-750-2

NOTES:

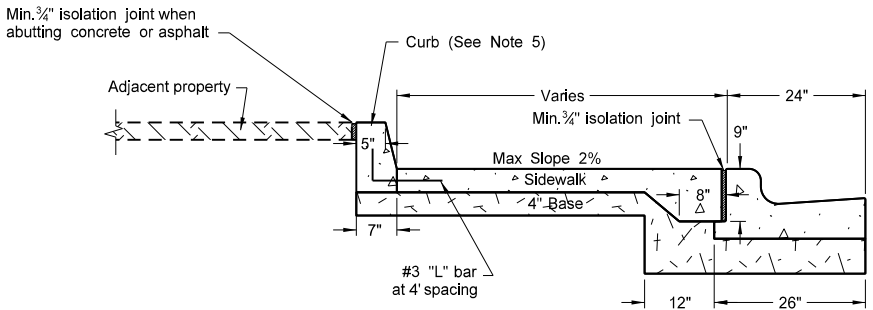
1. Curb ramp and detectable warning panel layouts are for informational purposes only. See Standard Drawing D-750-3 for curb ramp and detectable warning panel details.
2. Joint Spacing: Transverse contraction joint spacing shall vary from 4' to 6' to create approximate square panels.  
  
Longitudinal contraction joints shall be used where the sidewalk width is 8' or greater, and shall be spaced at half the sidewalk width.  
  
The contraction joints may be sawed or a grooved joint, and shall be a minimum of 1/3 the depth of the concrete.  
  
When the sidewalk is adjacent to the curb & gutter, the sidewalk joint spacing shall be varied to match up with the curb & gutter joints.  
  
Isolation joints should also be used between separately poured concretes, or between old and new concrete.  
  
The cost for all labor, equipment, and material necessary to construct contraction and isolation joints shall be included in the price bid for sidewalk concrete.
3. 4" sidewalk concrete thickness to be used unless otherwise specified in the plans.
4. 4" base material thickness to be used unless otherwise specified in the plans. All labor and materials necessary to place the base material shall be included in the price bid for "Salvage Base Course" or "Aggregate Base Course CL 5."
5. Landscaping is preferred to modify existing ground slope changes as needed. If not possible, such as adjacent buildings, a vertical curb may be used as shown in the detail below. The curb will be paid for at the unit price bid for the item "Curb - Type I" per lineal foot.



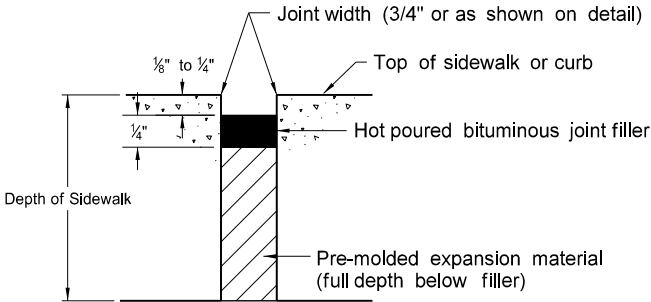
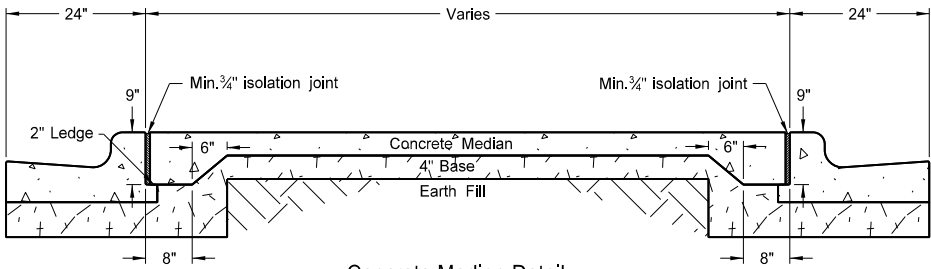
Utility Blockout



Sidewalk with Curb Detail  
(Building face application)



Sidewalk with Curb Detail  
(Adjacent property application)

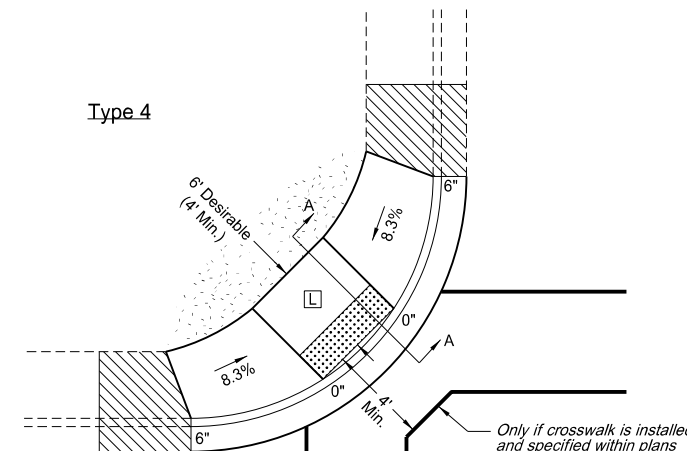









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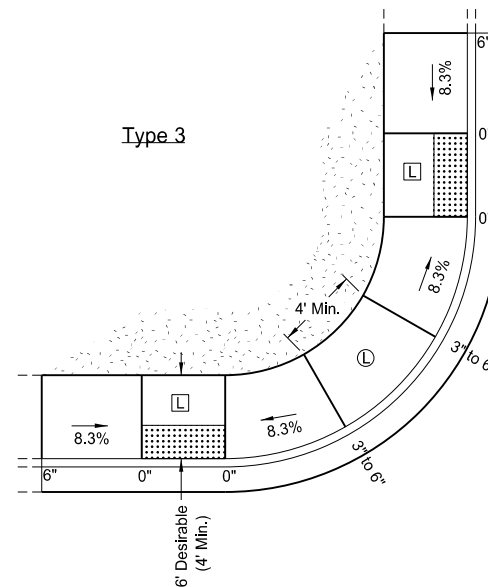
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D-750-3

### Less Right of Way-



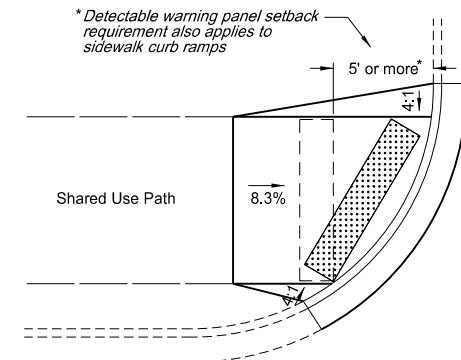
- LEGEND:**
- |   |  |
|---|--|
|  | : Detectable Warning Panel   |
|  | : Landscaping  |
|  | : Transitional tie-in segment if needed for retrofits. Max grade slope 8.3%. |
|  | : Upper Landing  |
|  | : Lower Landing  |
|  | : 0", 3", or 6" Curb Height  |
|  | : 8.3% : All slopes shown are max grades. Flatter slopes may be used.        |



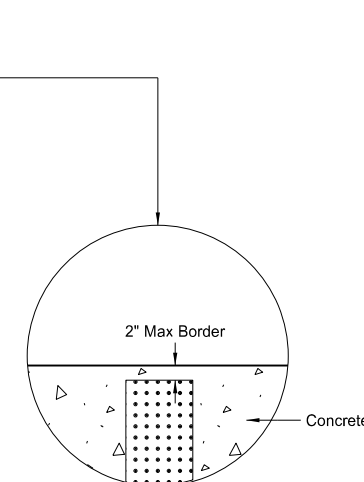
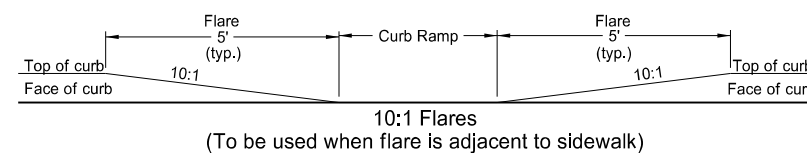
The diagram illustrates two types of concrete bridge deck cross-sections, Type A and Type B, showing reinforcement details.

**Type A:** This cross-section shows a concrete deck with a central reinforcement zone. The reinforcement consists of a central zone of 5' Min. width, flanked by two zones of 4:1 Min. width. The total width of the reinforcement zone is 9' Min. The deck thickness is 2' Min.

**Type B:** This cross-section shows a similar concrete deck with a central reinforcement zone. The reinforcement consists of a central zone of 5' Min. width, flanked by two zones of 4:1 Min. width. The total width of the reinforcement zone is 9' Min. The deck thickness is 2' Min.



Concrete Apron for Shared Use Paths without Curb and Gutter



5 1/2"

#3 "L" Bar

12"

Type I  
eded, see Note 5)

2% Max

Detectable Warning Panel

#3 x 12" Bar  
(18" spacing)

5% Max Counter Slope

12"

4" Base

Section A-A

Concrete

4" Sidewalk Concrete

Max

Detectable Warning Panel

#3 x 12" Bar  
(18" spacing)

5% Max Counter Slope

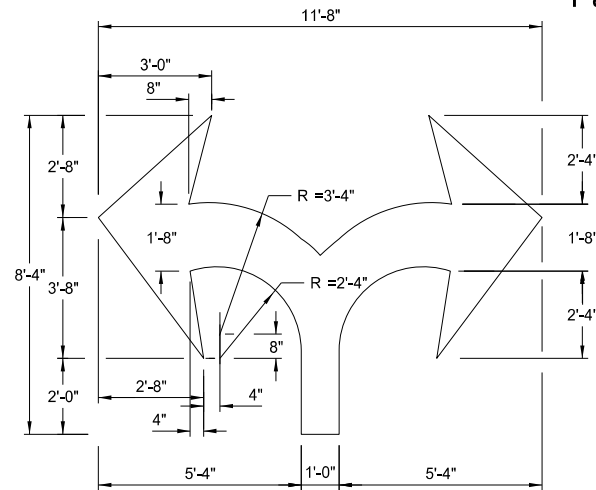
12"

Section B-B

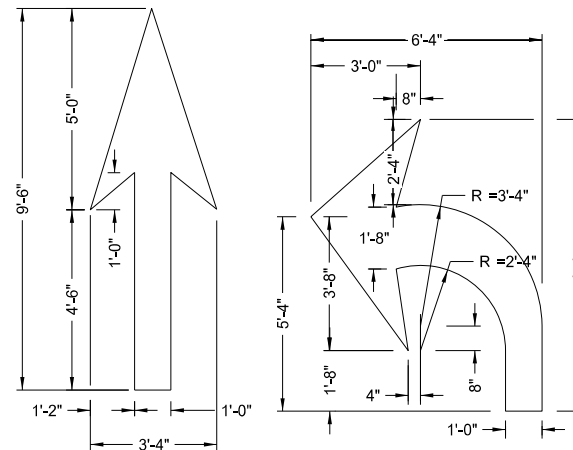
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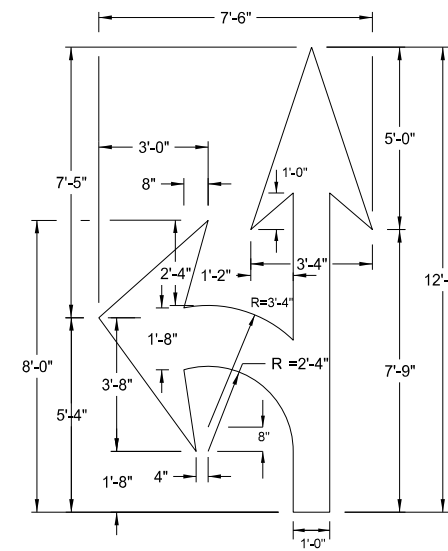
D-762-1



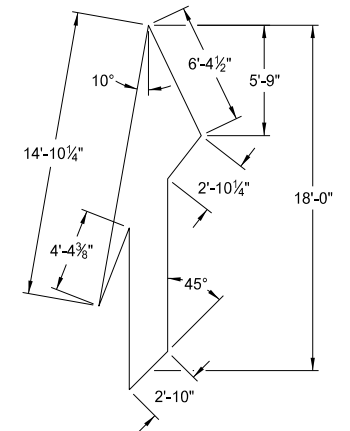
29 S. F.



16 S. F.



27 S. F.



41 S. F.

Speed Limit	Chevron Width	Chevron Spacing 45° to Traffic
0-25 mph	8"	5'
30-40 mph	8"	15'
45 mph and above	12"	25'

Diagram illustrating a 10' wide edge line with 30' spacing. The diagram shows two parallel lines representing the edge line, with a dimension of 10' between them. A dimension of 30' is shown between the edge line and the centerline.

Technical drawing of a door handle. The drawing shows a side view of the handle with the following dimensions:

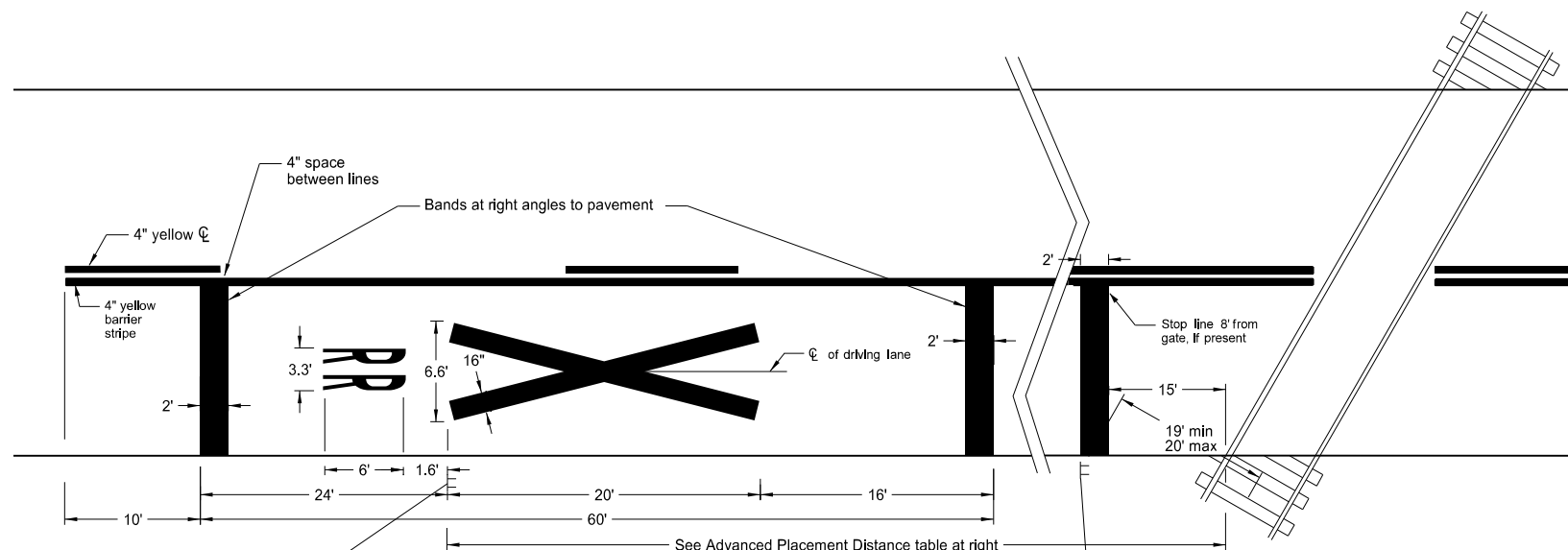
- Overall height: 6'-0"
- Top section height: 1'-0 $\frac{3}{4}$ "
- Section below top: 1'-9 $\frac{3}{4}$ "
- Section below that: 1'-0 $\frac{3}{4}$ "
- Bottom section height: 2'-0 $\frac{3}{4}$ "
- Width of the base: 1'-1"
- Width of the handle arm: 3 $\frac{3}{4}$ "

Technical drawing of a sign for "STOP". The sign is 8'-0" high and 6'-3" wide. The letters are white on a black background. Dimensions for the letters and spacing are provided in inches: 16", 4", 16", 2", 16", 5", 16" for the top spacing; 4", 6", 4", 4", 4", 4", 4" for the letter widths and internal spacing; 16", 8", 4", 16", 16", 8", 12", 16" for the right side spacing. The bottom spacing is 16".

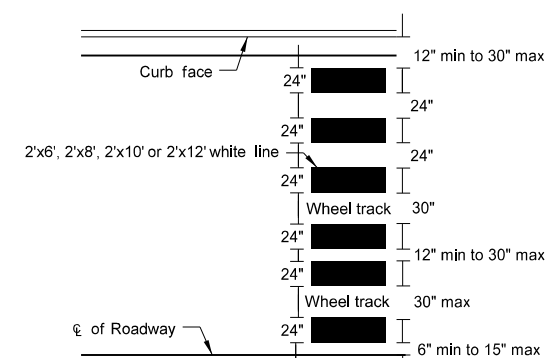
Technical drawing of a decorative wall panel. The panel features a repeating pattern of stylized, interlocking scrollwork or 'S' shapes. The overall dimensions are 9'-8" wide and 8'-0" high. The drawing includes numerous dimension lines and arrows indicating specific measurements: 16" and 4" for horizontal spacing between vertical elements, 4" for vertical spacing between horizontal elements, and 16" for the width of the central vertical sections. The panel is shown with a 3D effect, including a side view and a top view, with dimensions 16", 18", and 16" indicating the depth and thickness of the various components.

[illegible]

46 S. F.



Railroad cross & 2 R's	60.5 S.F.
3 Bands (12' lane)	72 S.F.



### Continental Crosswalk Detail

Advance Placement Distance for Railroad Warning Signs	
Posted or 85th Percentile Speed	Advance Distance
20 mph	min. 100 ft
25 mph	min. 100 ft
30 mph	min. 100 ft
35 mph	min. 100 ft
40 mph	125 ft
45 mph	175 ft
50 mph	250 ft
55 mph	325 ft
60 mph	400 ft
65 mph	475 ft
70 mph	550 ft

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See Standard  
Drawing D-754-81

Notes:  
A three lane roadway should be marked with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads, the transverse bands should extend across all approach lanes, and individual R X R symbols should be used in each approach lane.

See plans for correct message. All pavement markings shall be white unless noted otherwise.

