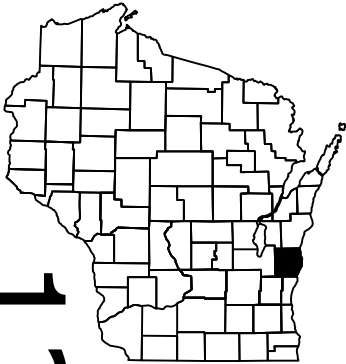


ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 188



DESIGN DESIGNATION 4015-22-71

A.A.D.T.	2026	=	9820
A.A.D.T.	2046	=	10910
D.H.V.		=	1943
D.D.		=	60/40
T.		=	21.2%
DESIGN SPEED		=	60 MPH
ESALS		=	4,300,000

CONVENTIONAL SYMBOLS

PLAN

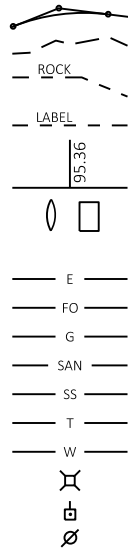
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

GRADE LINE
ORIGINAL GROUND
MARSH OR ROCK PROFILE
(To be noted as such)
SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)
UTILITIES
ELECTRIC
FIBER OPTIC
GAS
SANITARY SEWER
STORM SEWER
TELEPHONE
WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

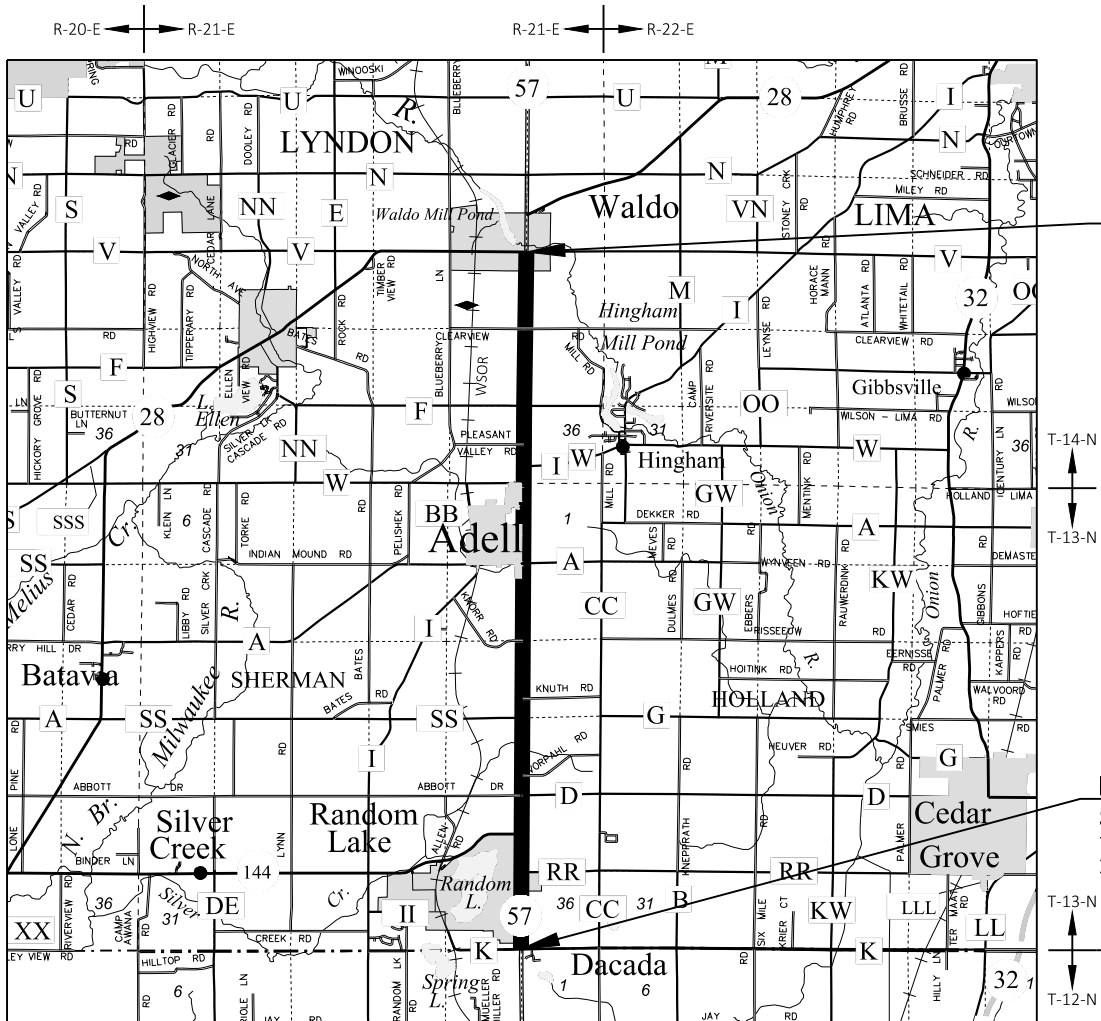
RANDOM LAKE-WALDO

SCL-STH 28

STH 57

SHEBOYGAN COUNTY

STATE PROJECT NUMBER
4015-22-71



END PROJECT
STA 537+17.29'NB'
Y= 144,719.062
X= 158,540.284

BEGIN PROJECT
STA 100+71.81'NB'
Y= 101,077.064
X= 158,287.951

SHEBOYGAN COUNTY
OZAUKEE COUNTY

LAYOUT

TOTAL NET LENGTH OF CENTERLINE = 8.269 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), SHEBOYGAN NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4015-22-71		

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	NE REGION
Designer	E. HOEFFERLE
Project Manager	N. UITENBROEK
Regional Examiner	NE REGION
Regional Supervisor	S. EBEL

APPROVED FOR THE DEPARTMENT

DATE: 4/28/2026 
(Signature)

E I

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE.

BEARINGS SHOWN ARE BASED ON THE COUNTY COORDINATE SYSTEM.

CURVE DATA IS BASED ON THE ARC DEFINITION.

RADIUS DIMENSIONS FOR THE CURB AND GUTTER ARE TO THE FLANGE LINE UNLESS OTHERWISE NOTED.

CURB AND GUTTER PLAN GRADES ARE AT THE FLANGE LINE UNLESS OTHERWISE NOTED.

THE EXACT LOCATION AND WIDTH OF DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. DRIVEWAYS SHALL BE REPLACED IN KIND UNLESS DIRECTED BY THE ENGINEER OR AS SHOWN IN THE PLANS.

THE PROPOSED SHOULDER WIDTH SHOWN IN THE TYPICAL SECTIONS ARE MINIMUM WIDTH TYPICAL. PERPETUATE EXISTING SHOULDERS THAT ARE WIDER THAN WHAT IS SHOWN IN THE TYPICAL SECTIONS.

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS, FLOODPLAINS, OR WATERWAYS.

ORDER OF SECTION 2 DETAIL

SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- BEAMGUARD DETAILS
- EROSION CONTROL
- TRAFFIC CONTROL
- DETOUR PLAN

CONTACTS

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2984 SHAWANO AVENUE
GREEN BAY, WI 54313
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jeremiah.schiefelbein@wisconsin.gov

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W5741 CTH J
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(920) 459-3822
bryan.olson@sheboygancountywi.gov

NE REGION SURVEY COORDINATOR

CORMAC MCINNIS, P.L.S.
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NE REGION DESIGN PROJECT MANAGER

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nicholas.uitenbroek@dot.wi.gov

UTILITY
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adelldpw@gmail.com

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sgarcia@everstream.net

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(847) 243-9243
jeremy.zehm@ftr.com

JOHN BALDE
SPECTRUM - COMMUNICATION LINE
1320 N DR MARTIN LUTHER KING JR DR
MILWAUKEE, WI 53212
(414) 908-1333 & (414) 430-6712
john.balde@charter.com

PETER LEDERER
VILLAGE OF RANDOM LAKE - WATER/SEWER
96 RUSSELL DRIVE
PO BOX 344
RANDOM LAKE, WI 53075
(920) 980-0598 & (920) 994-4852
plederer@randomlakewi.com

BRUCE NEERHOF
VILLAGE OF WALDO - WATER/SEWER
810 SECOND ST
WALDO, WI 53093
(920) 946-4448
bruce.neerhof@villageofwaldo.com

BRADLEY ENGNATH
WE ENERGIES - GAS/PETROLEUM
500 S 116TH ST
WEST ALLIS, WI 53214
(414) 944-5767 & (414) 588-7641
bradley.engnath@we-energies.com

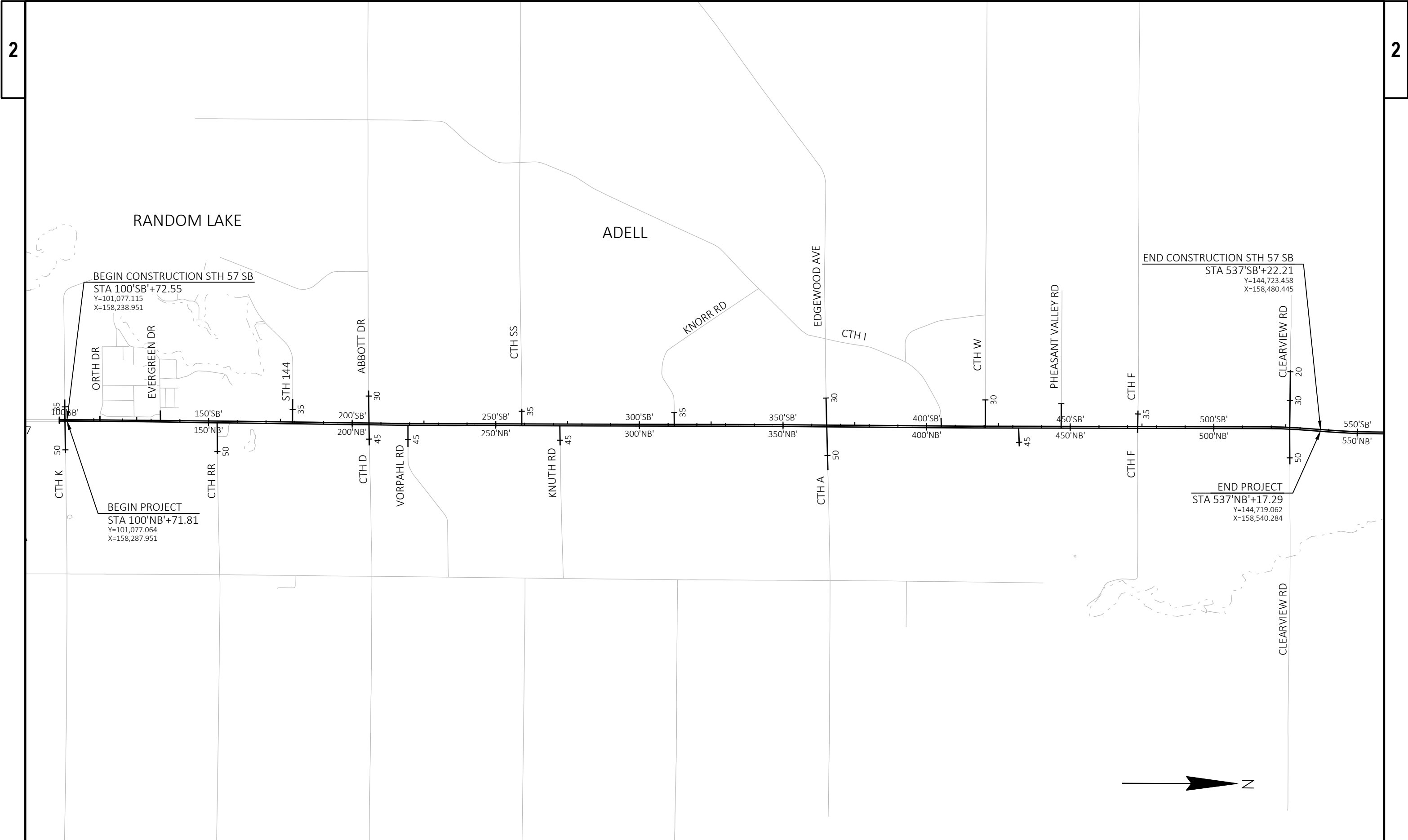
JOE FELLEENZ
WE ENERGIES - ELECTRICITY
W140 N9100 LILLY ROAD
MENOMONEE FALLS, WI 53051
(262) 502-6831 & (414) 322-8928
joseph.fellenz@we-energies.com

RUNOFF COEFFICIENT TABLE

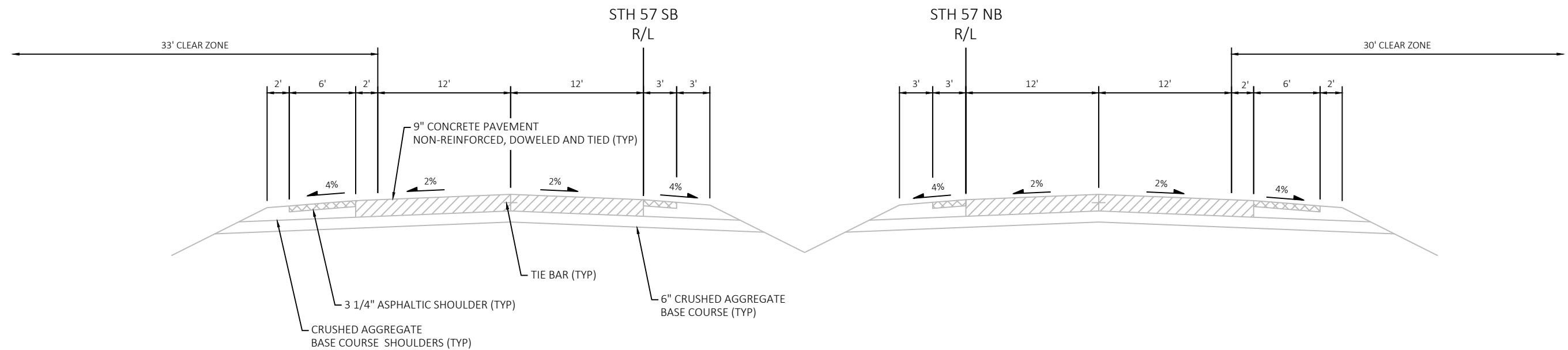
LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIPTURF:	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPETURF:			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT:	.70 - .95											
CONCRETE:	.80 - .95											
BRICK:	.70 - .80											
DRIVES, WALKS:	.75 - .85											
ROOFS:	.75 - .95											
GRAVEL ROADS, SHOULDERS:	.40 - .60											

TOTAL PROJECT AREA = 91.20 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.42 ACRES



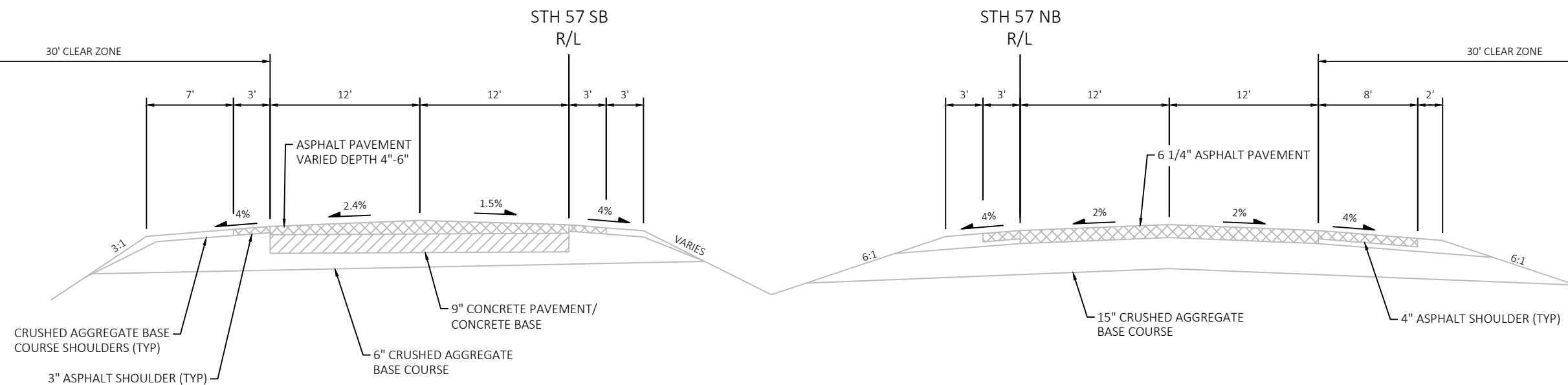


PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	PROJECT OVERVIEW	SHEET 3	E
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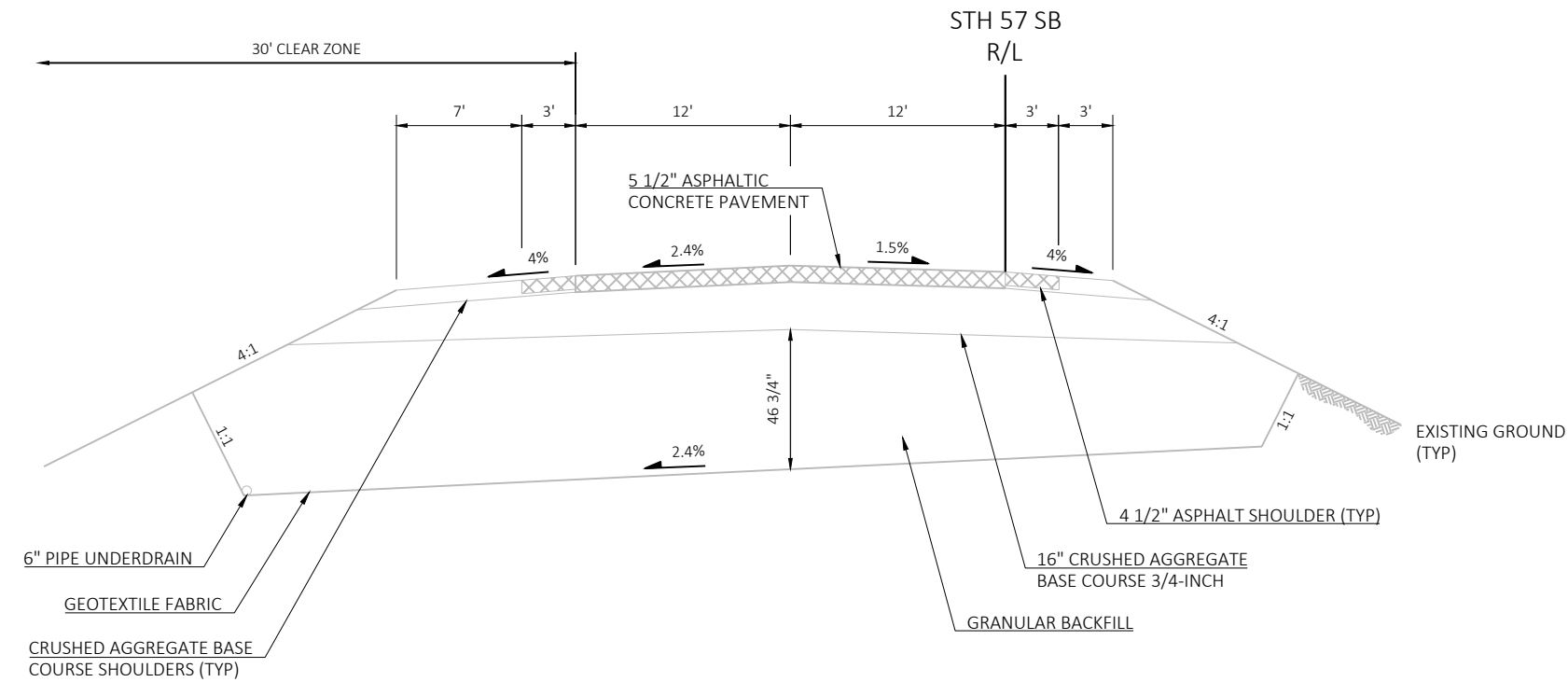
EXISTING TYPICAL SECTION STH 57

STA 100+71.81 TO STA 144+56.00 NB
STA 100.72.55 TO STA 147+73.00 SB

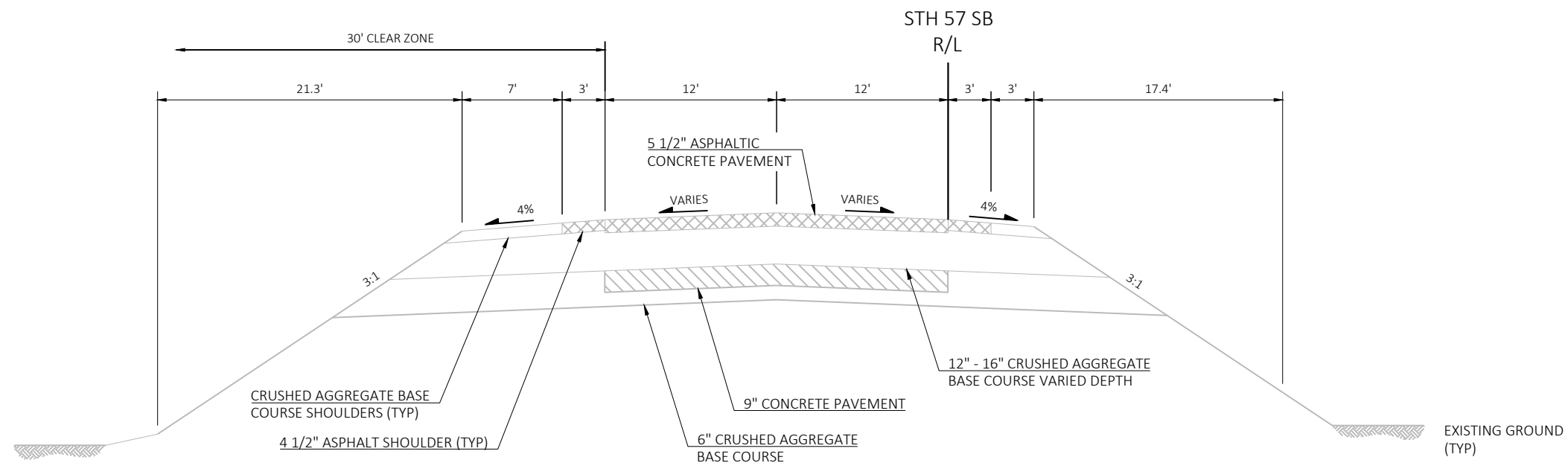


EXISTING TYPICAL SECTION STH 57

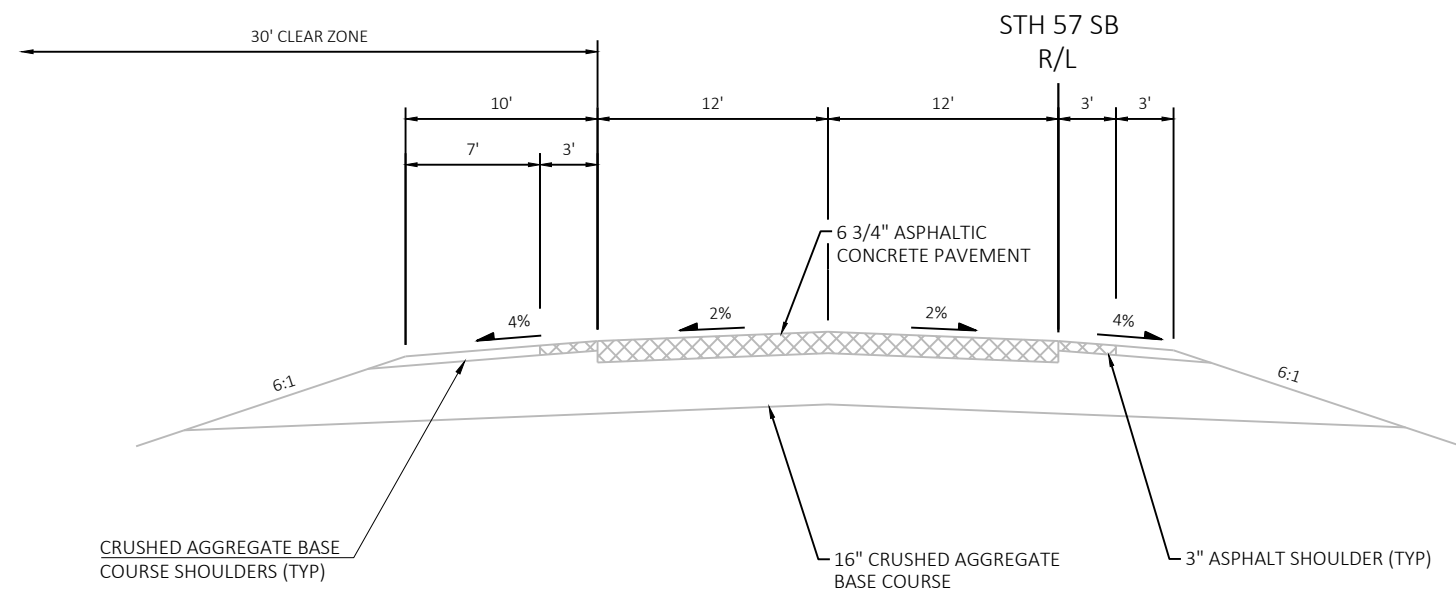
STA 144+56.00 TO STA 537+17.29 NB
STA 147+73.00 TO STA 225+58.10 SB
STA 229+51.80 TO STA 253+56.65 SB
STA 256+25.68 TO STA 298+41.55 SB
STA 300+05.60 TO STA 536+34.38 SB



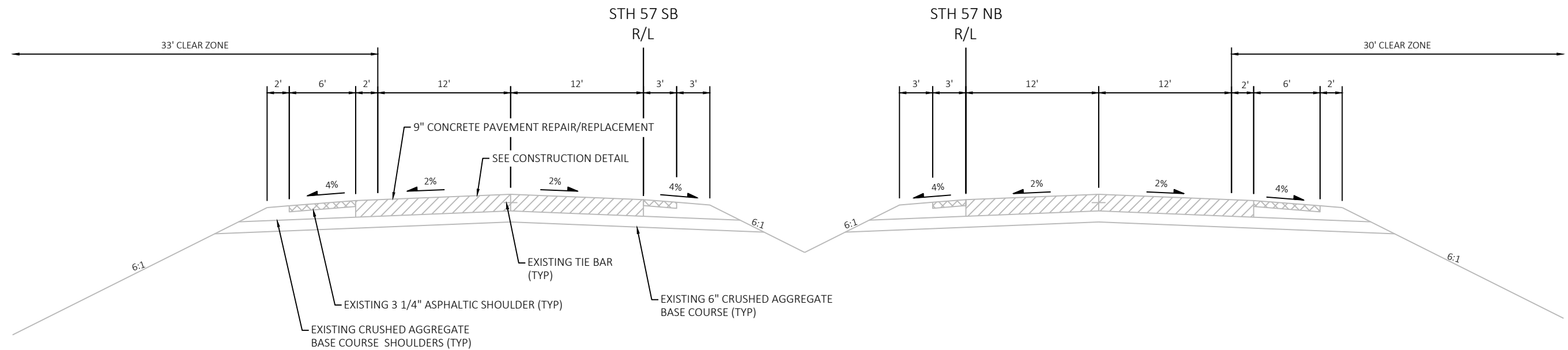
EXISTING TYPICAL SECTION STH 57 EBS AREA
STA 225+58.10 TO STA 229+51.80 SB



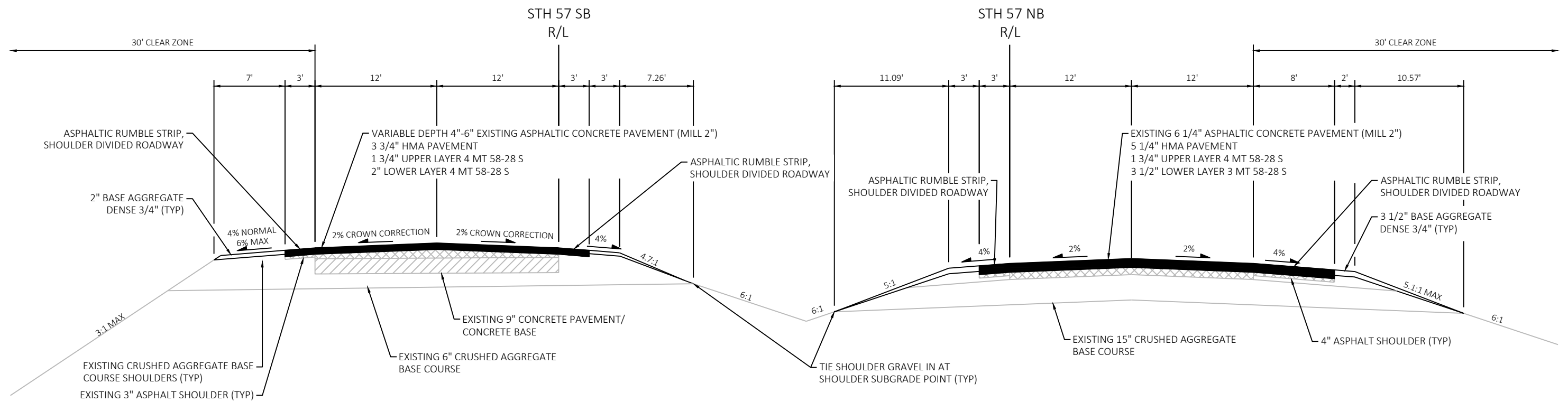
EXISTING TYPICAL SECTION STH 57
STA 253+56.65 TO STA 256+25.68 SB
STA 298+41.55 TO STA 300+05.60 SB



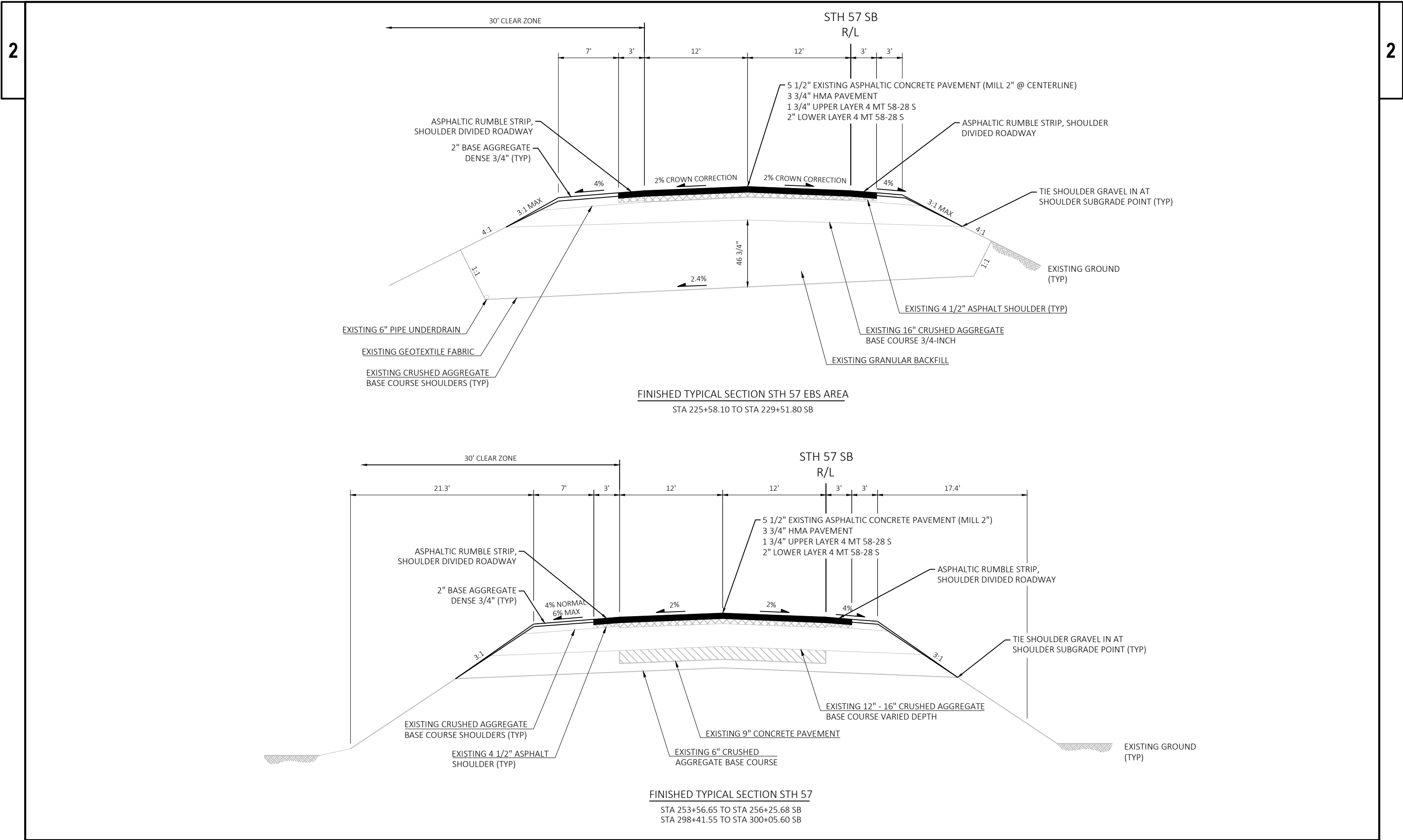
EXISTING TYPICAL SECTION STH 57
STA 536+34.68 TO STA 537+22.21 SB

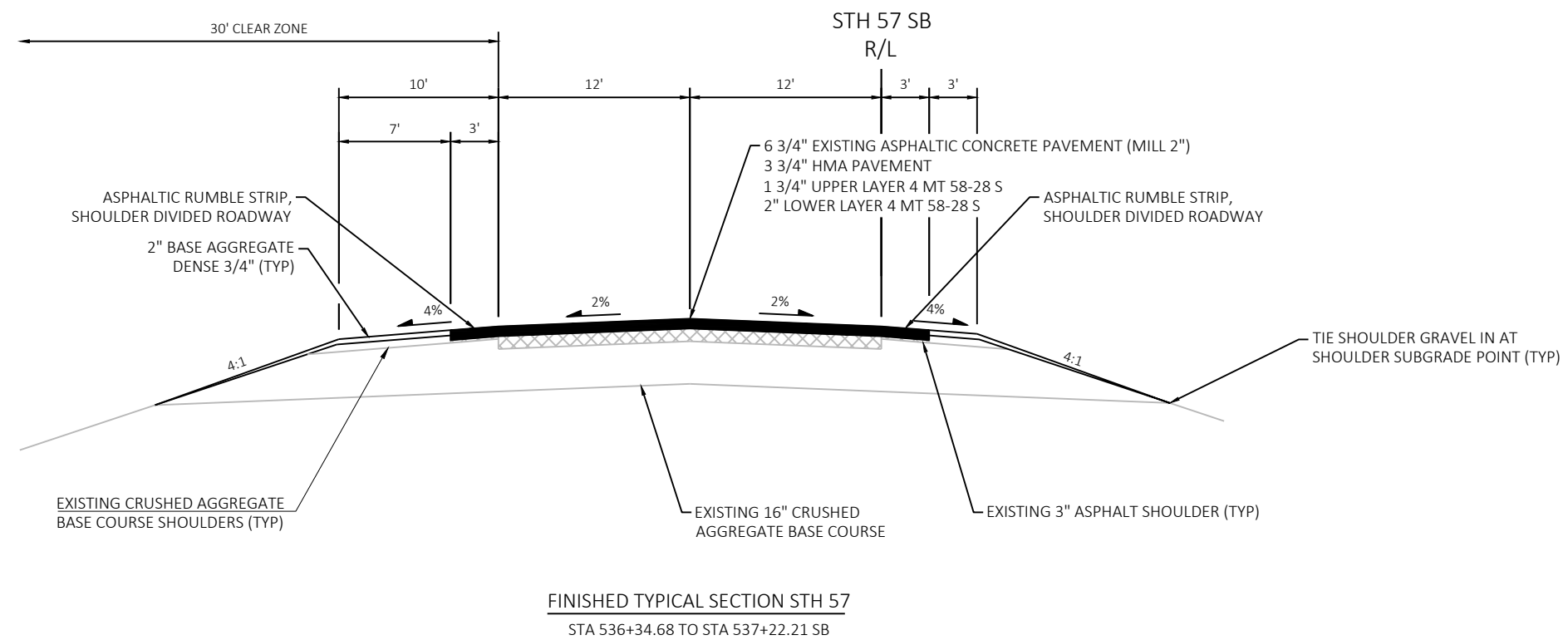
**FINISHED TYPICAL SECTION STH 57**

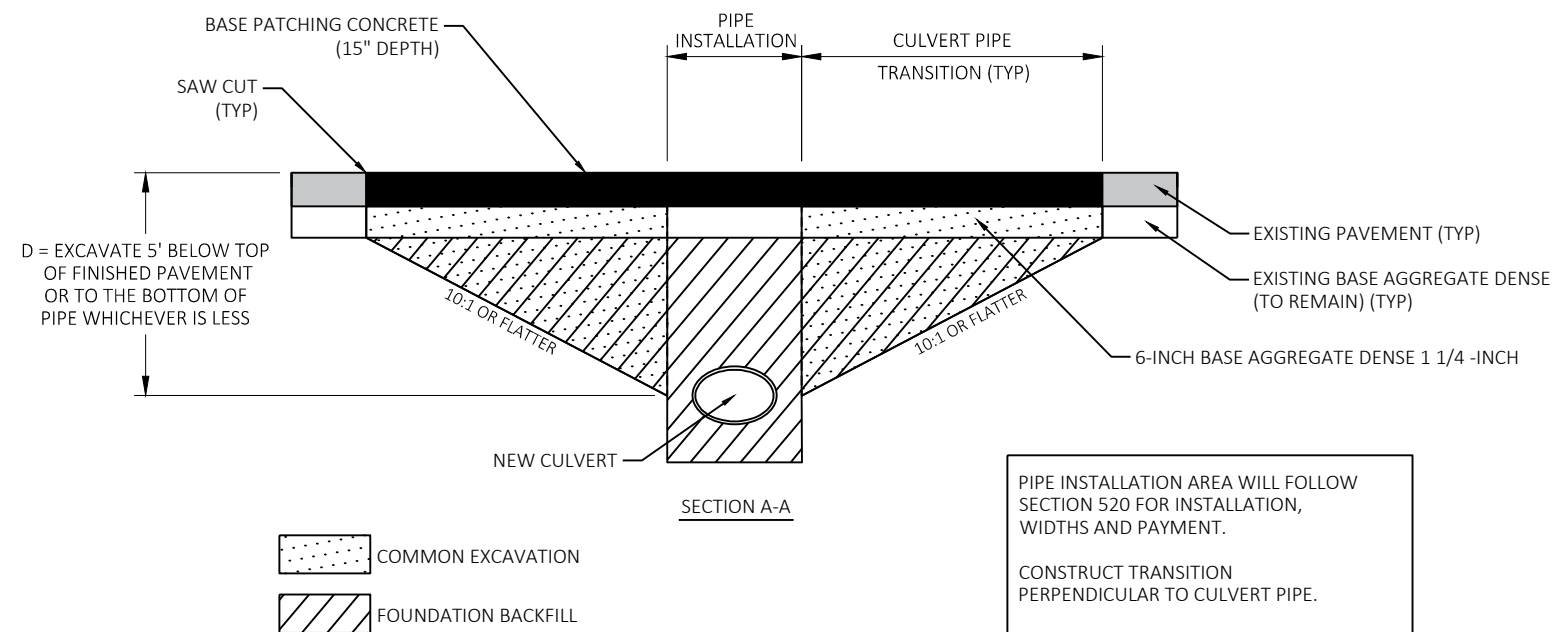
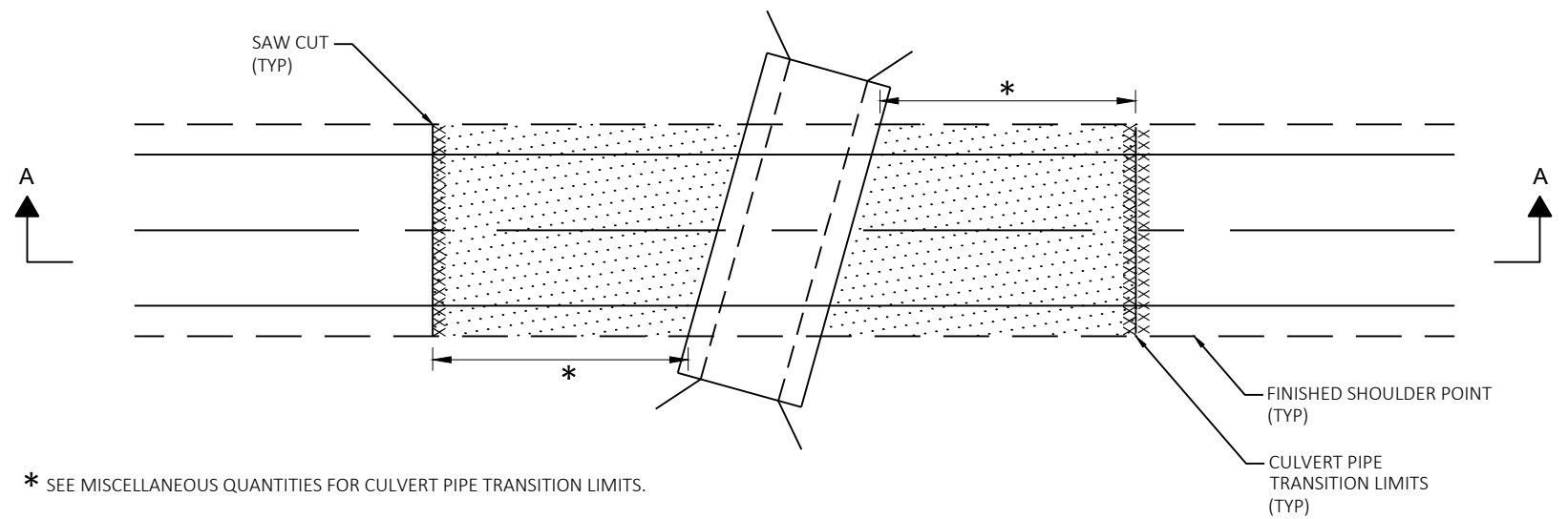
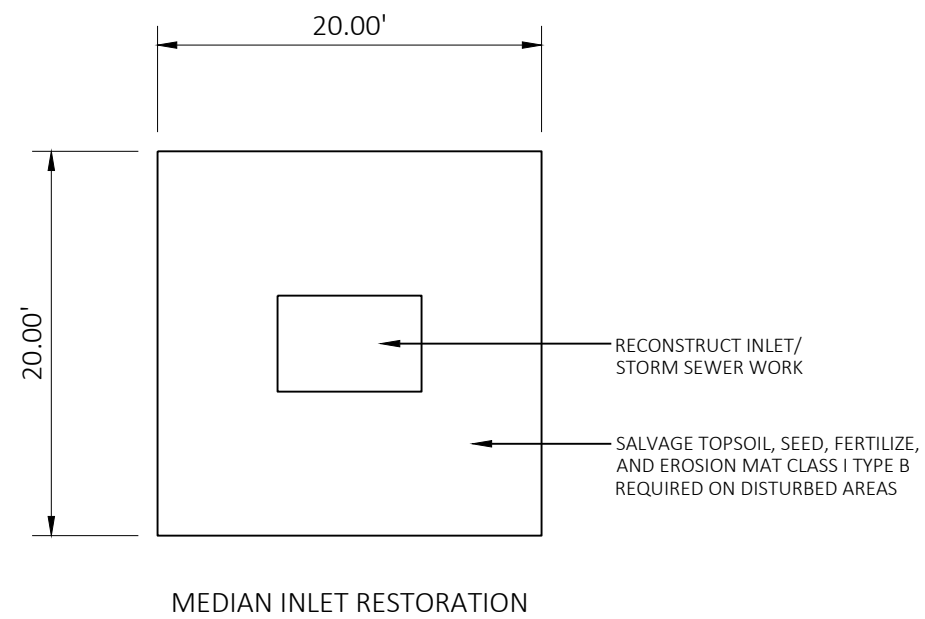
STA 100+71.81 TO STA 144+56.00 NB
STA 100.72.55 TO STA 147+73.00 SB

**FINISHED TYPICAL SECTION STH 57**

STA 144+56.00 TO STA 537+32.80 NB
STA 147+73.00 TO STA 225+58.10 SB
STA 229+51.80 TO STA 253+56.65 SB
STA 256+25.68 TO STA 298+41.55 SB
STA 300+05.60 TO STA 536+34.38 SB





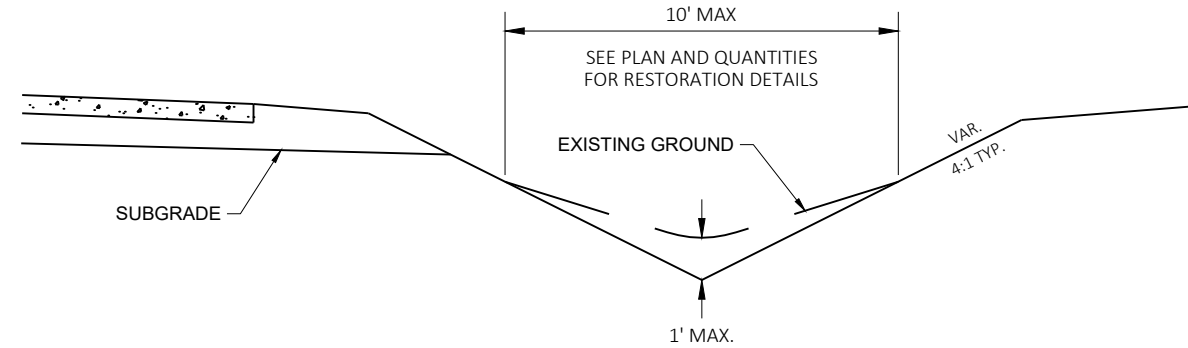


PIPE INSTALLATION AREA WILL FOLLOW
SECTION 520 FOR INSTALLATION,
WIDTHS AND PAYMENT.

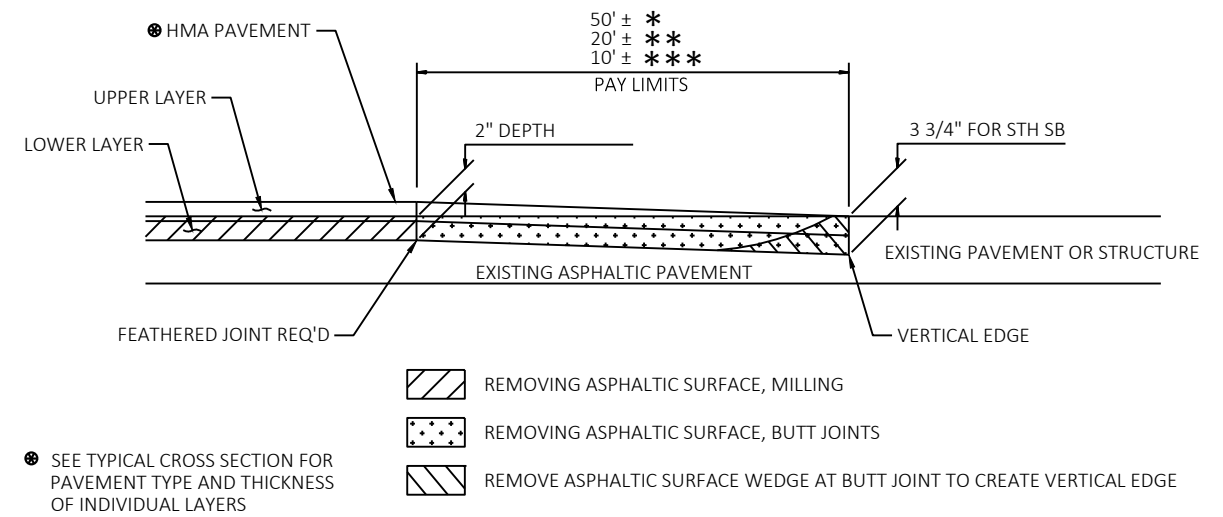
CONSTRUCT TRANSITION
PERPENDICULAR TO CULVERT PIPE.

CULVERT PIPE TRANSITION AREAS WILL
BE PAID BY COMMON EXCAVATION &
SPV FOUNDATION BACKFILL.

PAVEMENT SAW CUT TO BE
PERPENDICULAR TO ROADWAY ALIGNMENT.

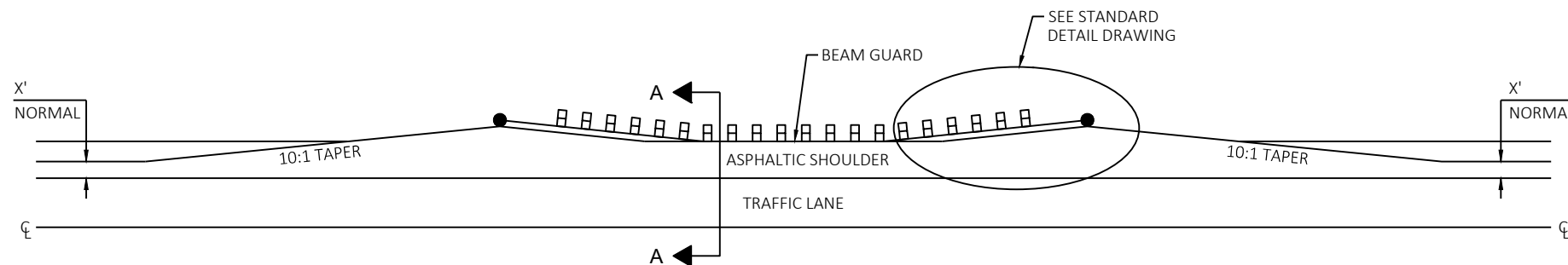
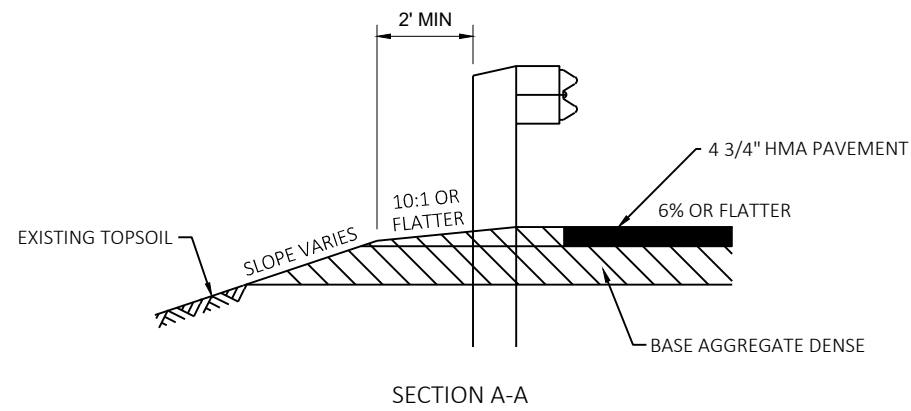


DETAIL FOR GRADING AND SHAPING FOR DITCH

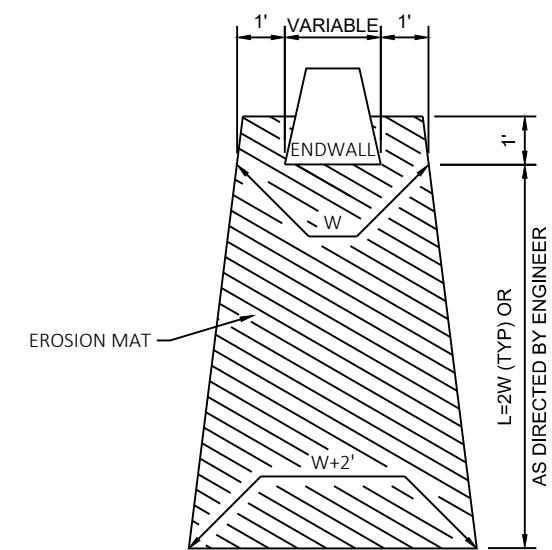


BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS (PROFILE CHANGE)

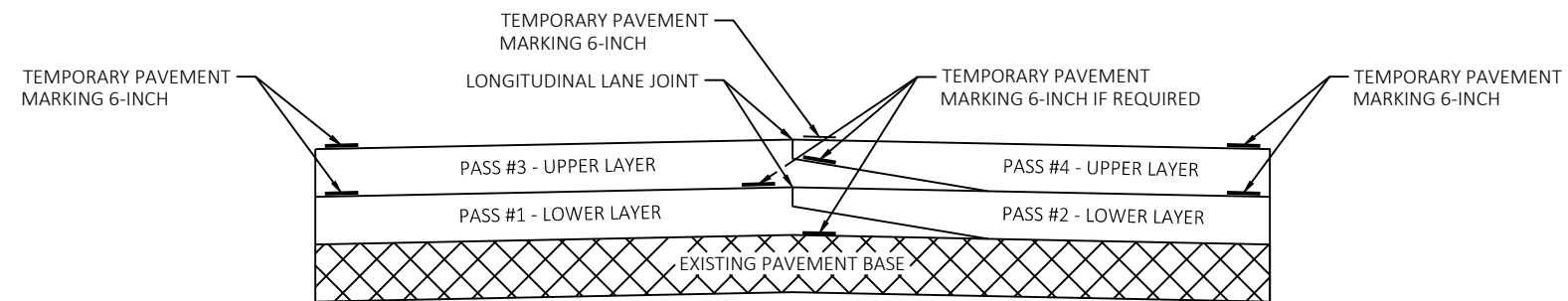
* MAINLINE
** SIDEROADS
*** PRIVATE ENTRANCES



DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



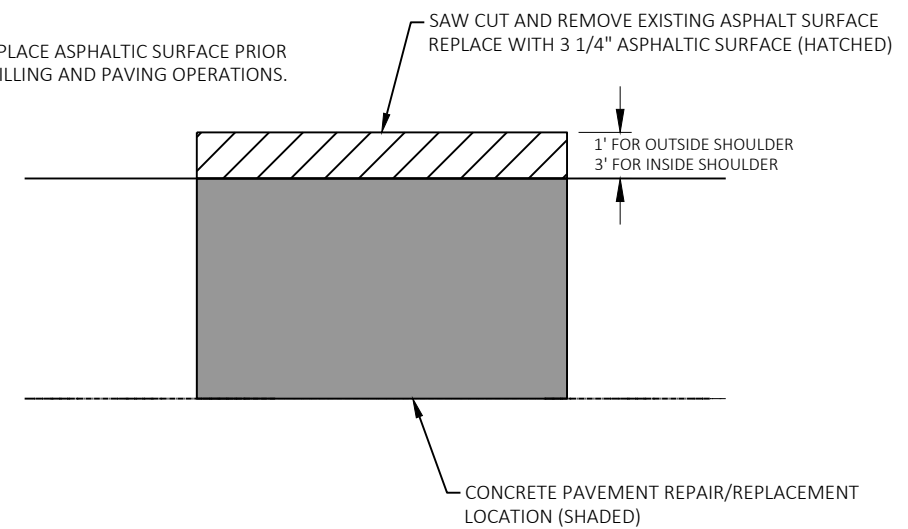
EROSION MAT TREATMENT AT CULVERTS



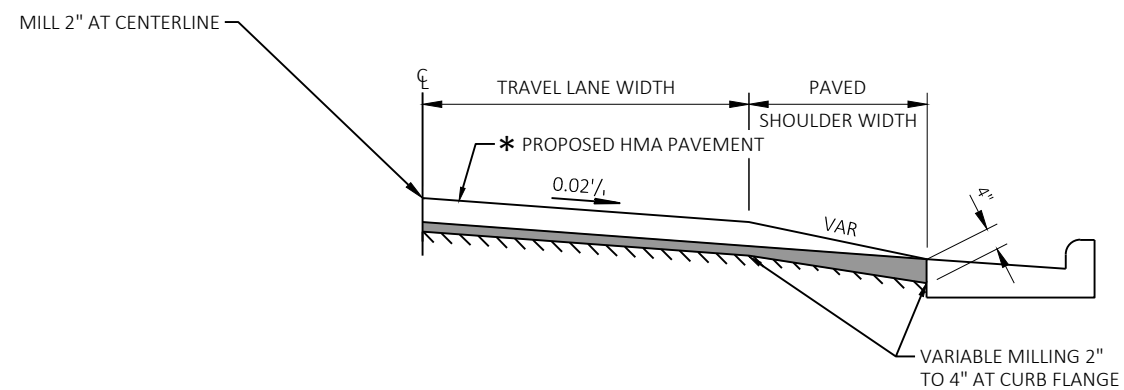
PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS

NOTE

REMOVE AND REPLACE ASPHALTIC SURFACE PRIOR TO SHOULDER MILLING AND PAVING OPERATIONS.



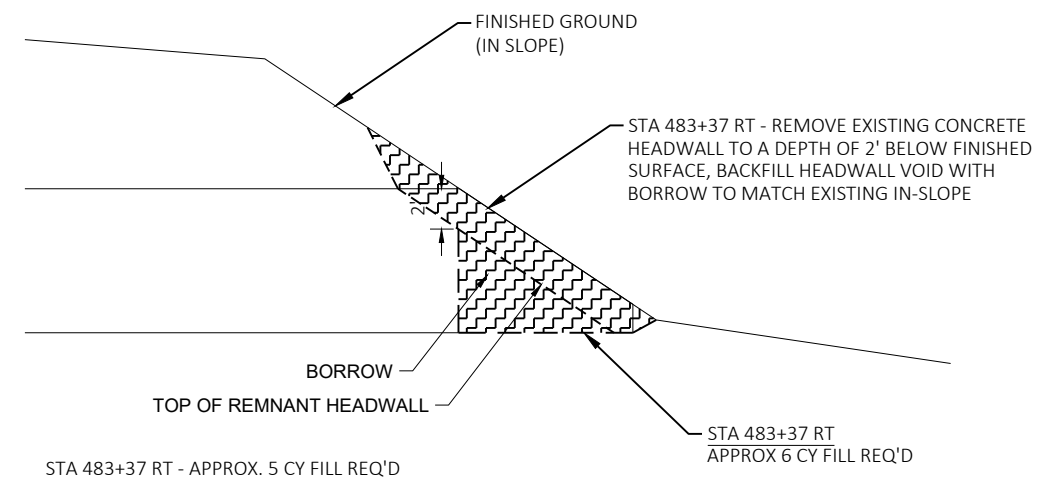
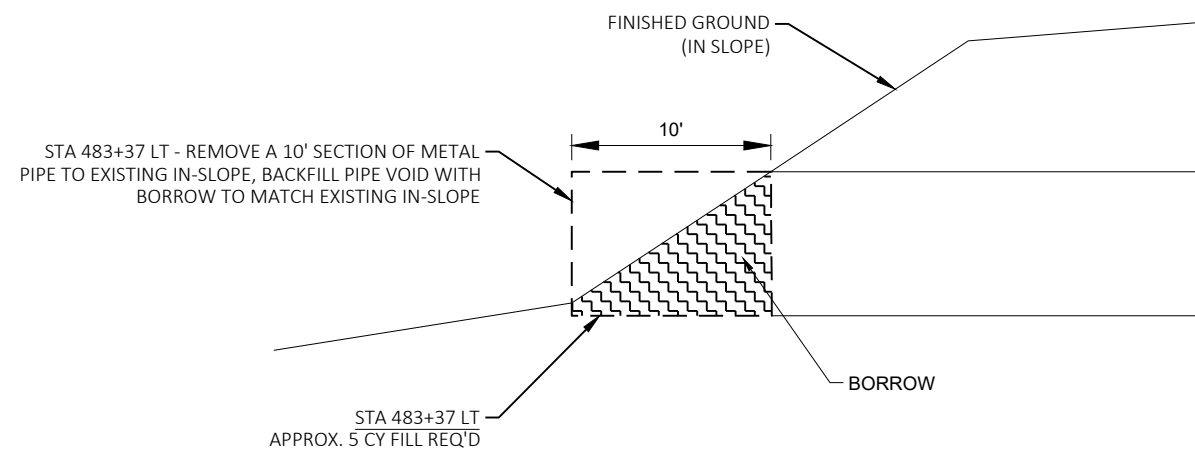
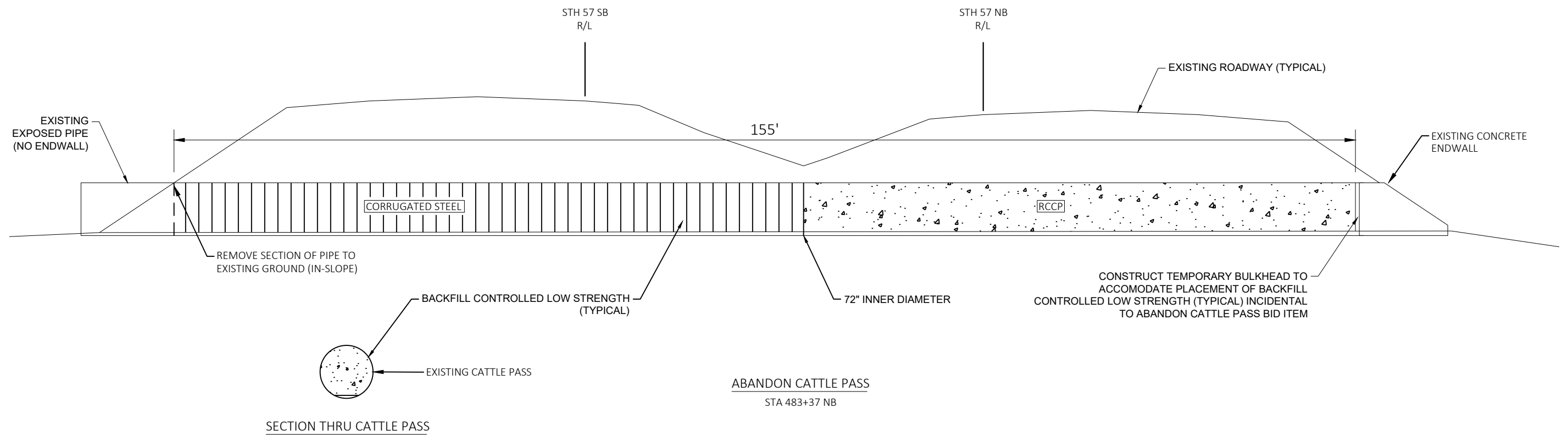
DETAIL FOR ASPHALT SHOULDER AT CONCRETE PAVEMENT/REPLACEMENT



* SEE TYPICAL SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

TYPICAL CROSS SECTION WITH CURB & GUTTER (MILLED)

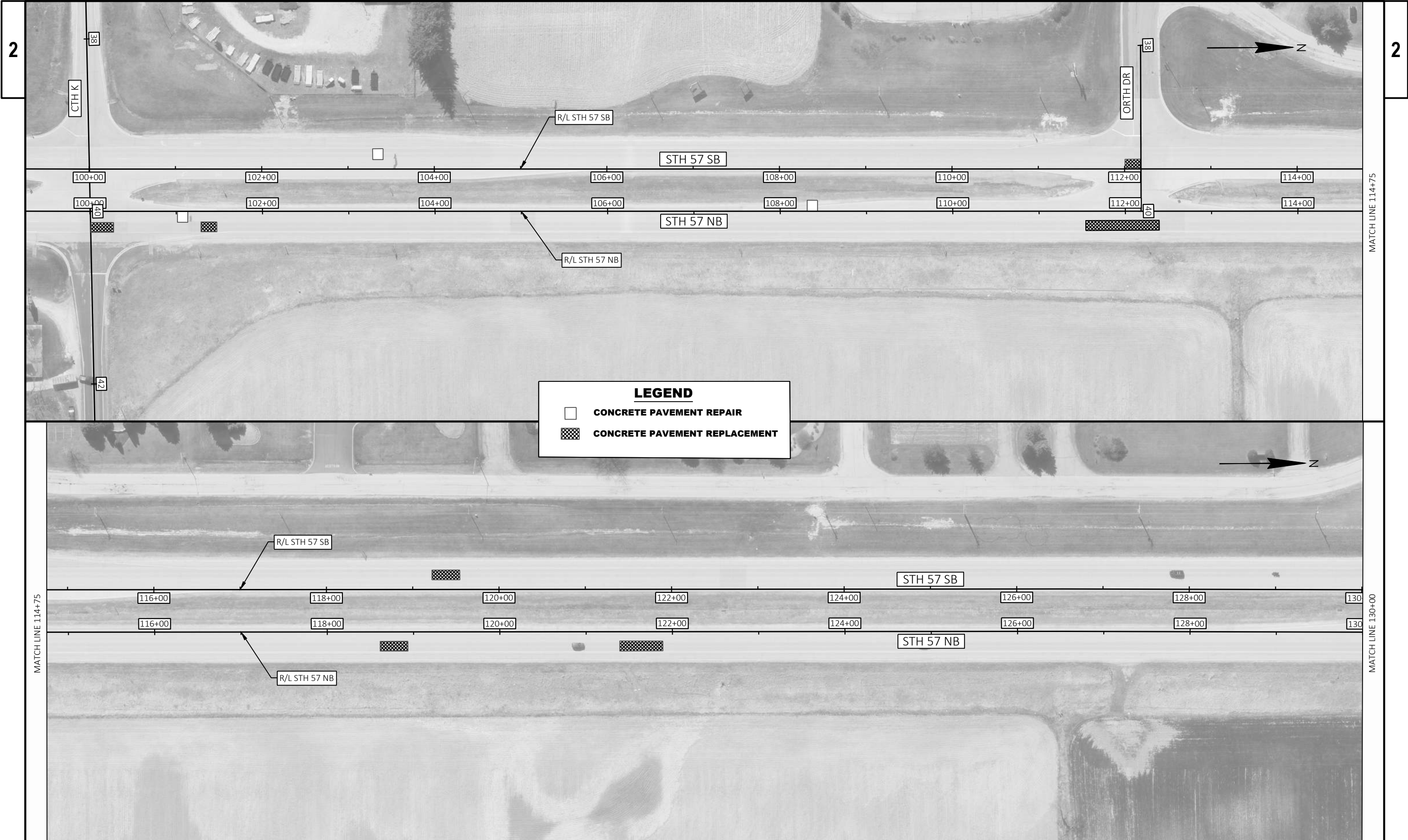


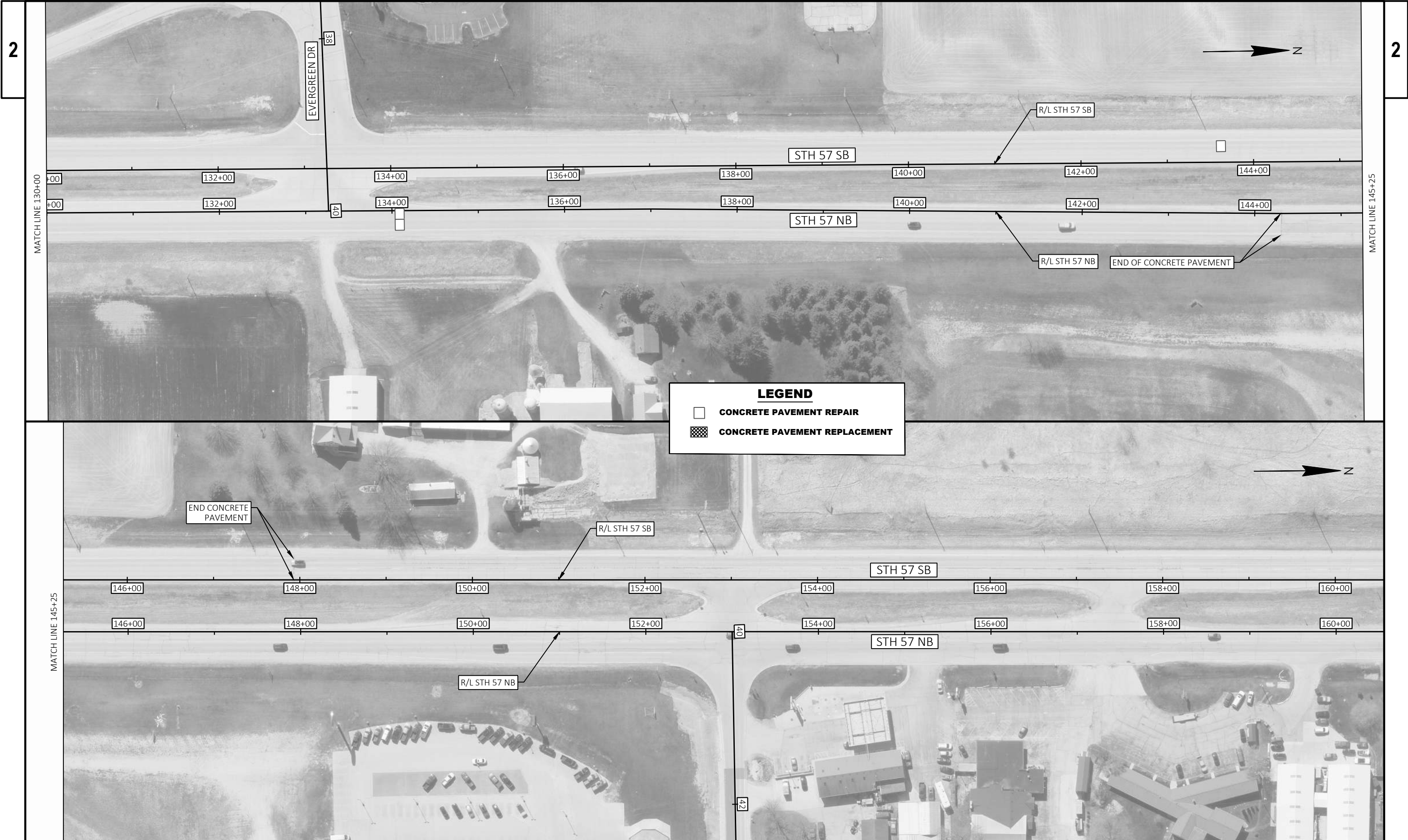


CATTLE PASS END CLOSURE

STA 483+37 NB

















PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	PLAN DETAIL - GUARDRAIL REPLACEMENT	SHEET 21	E
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LEGEND

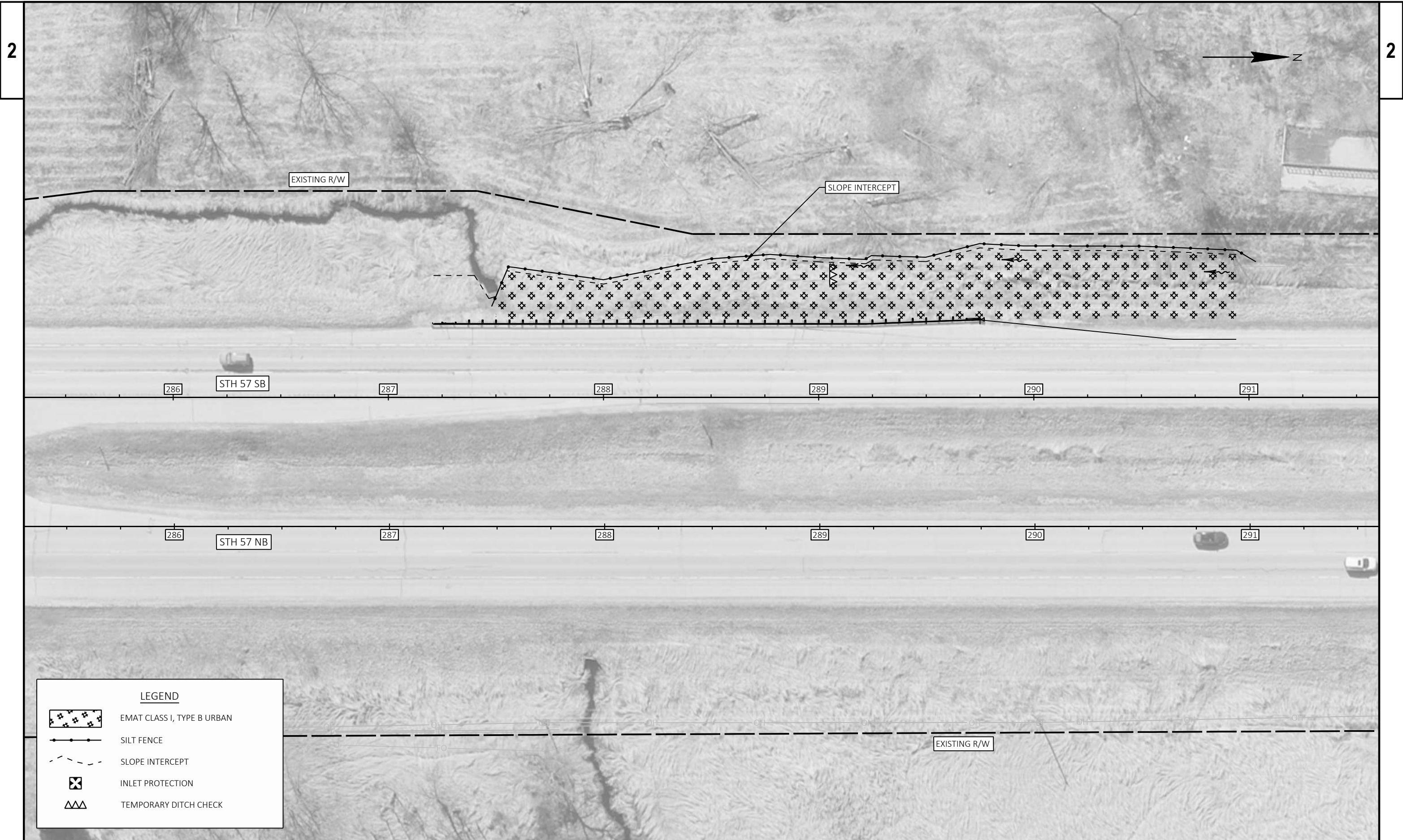
EMAT CLASS I, TYPE B URBAN

SILT FENCE

SLOPE INTERCEPT

INLET PROTECTION

TEMPORARY DITCH CHECK



LEGEND

EMAT CLASS I, TYPE B URBAN

SILT FENCE

SLOPE INTERCEPT

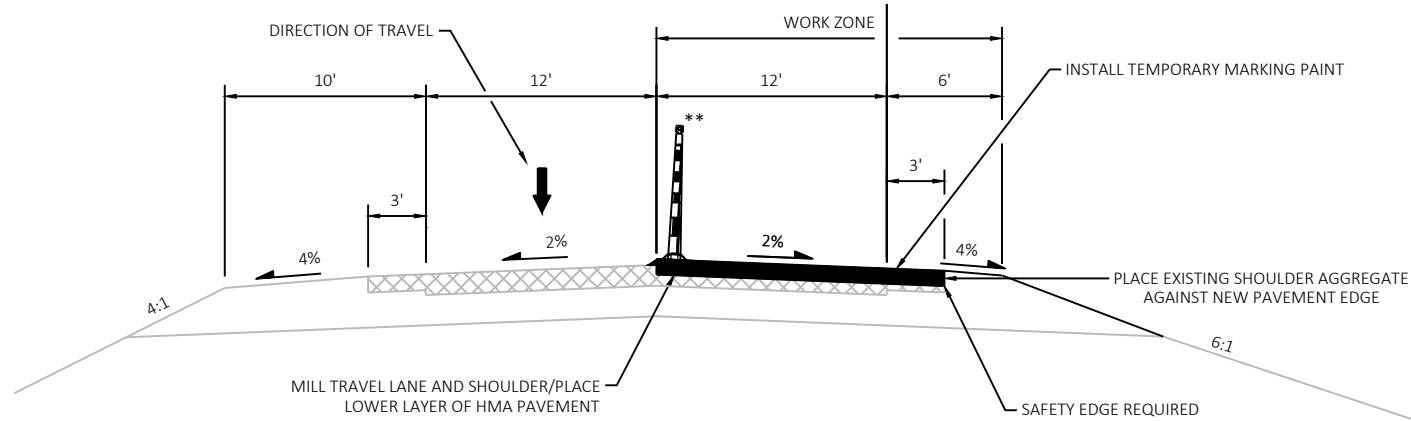
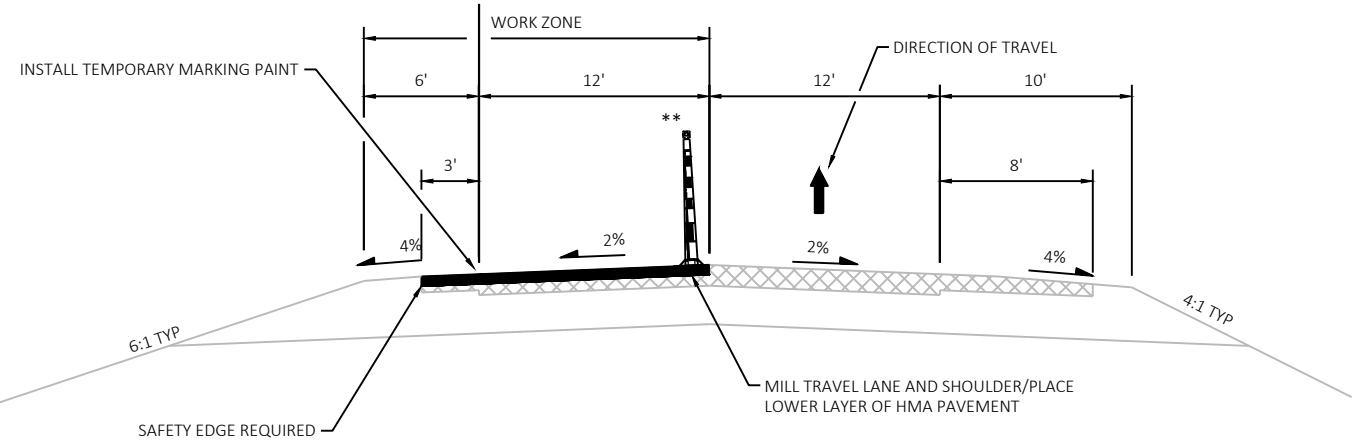
INLET PROTECTION

TEMPORARY DITCH CHECK

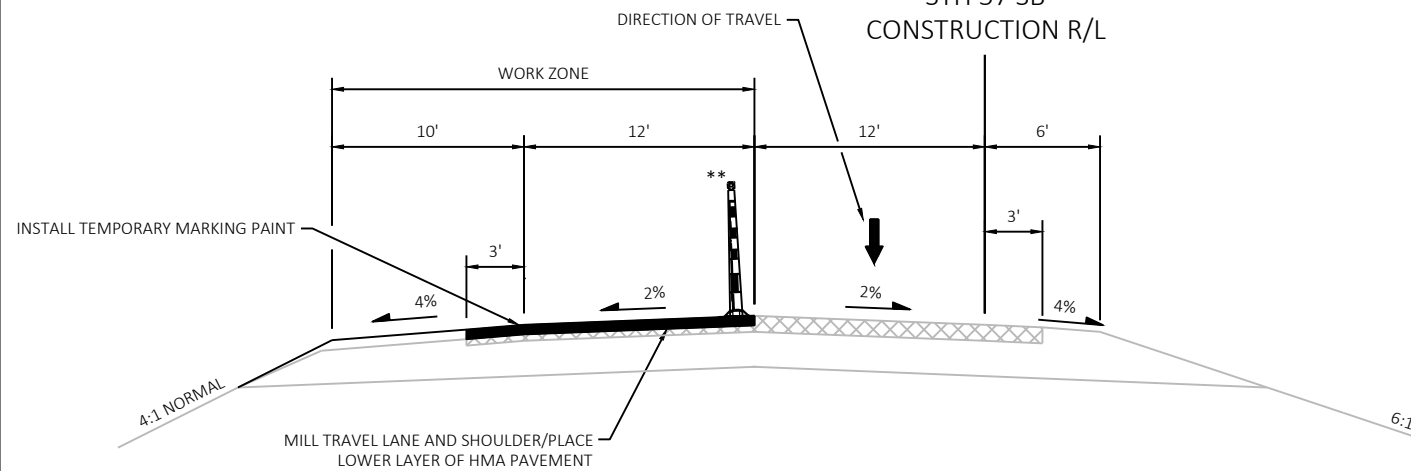
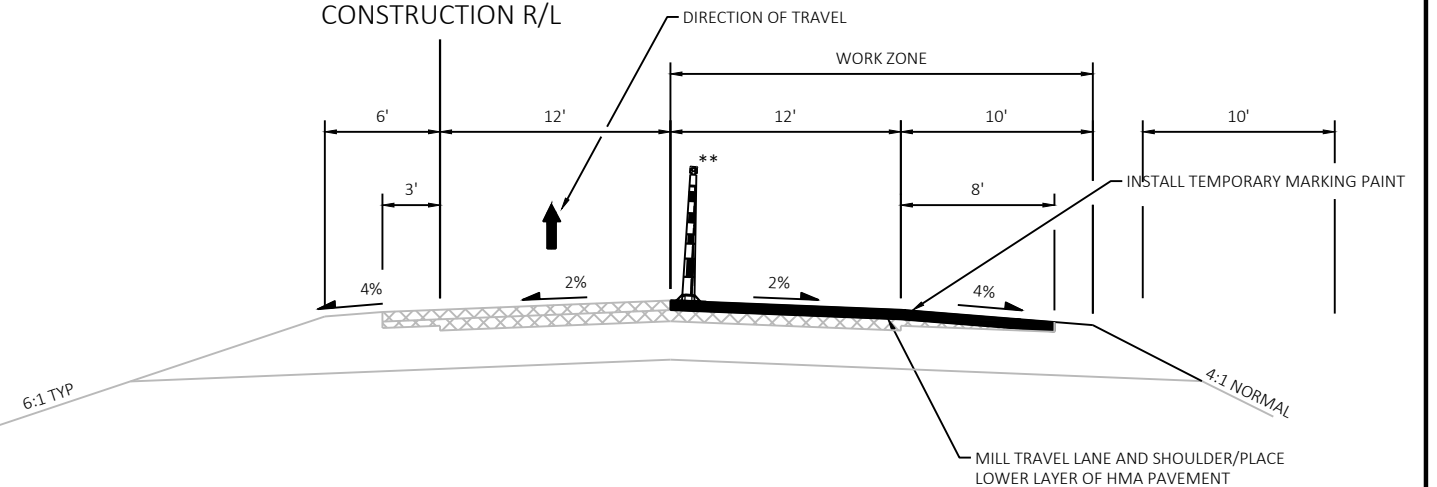




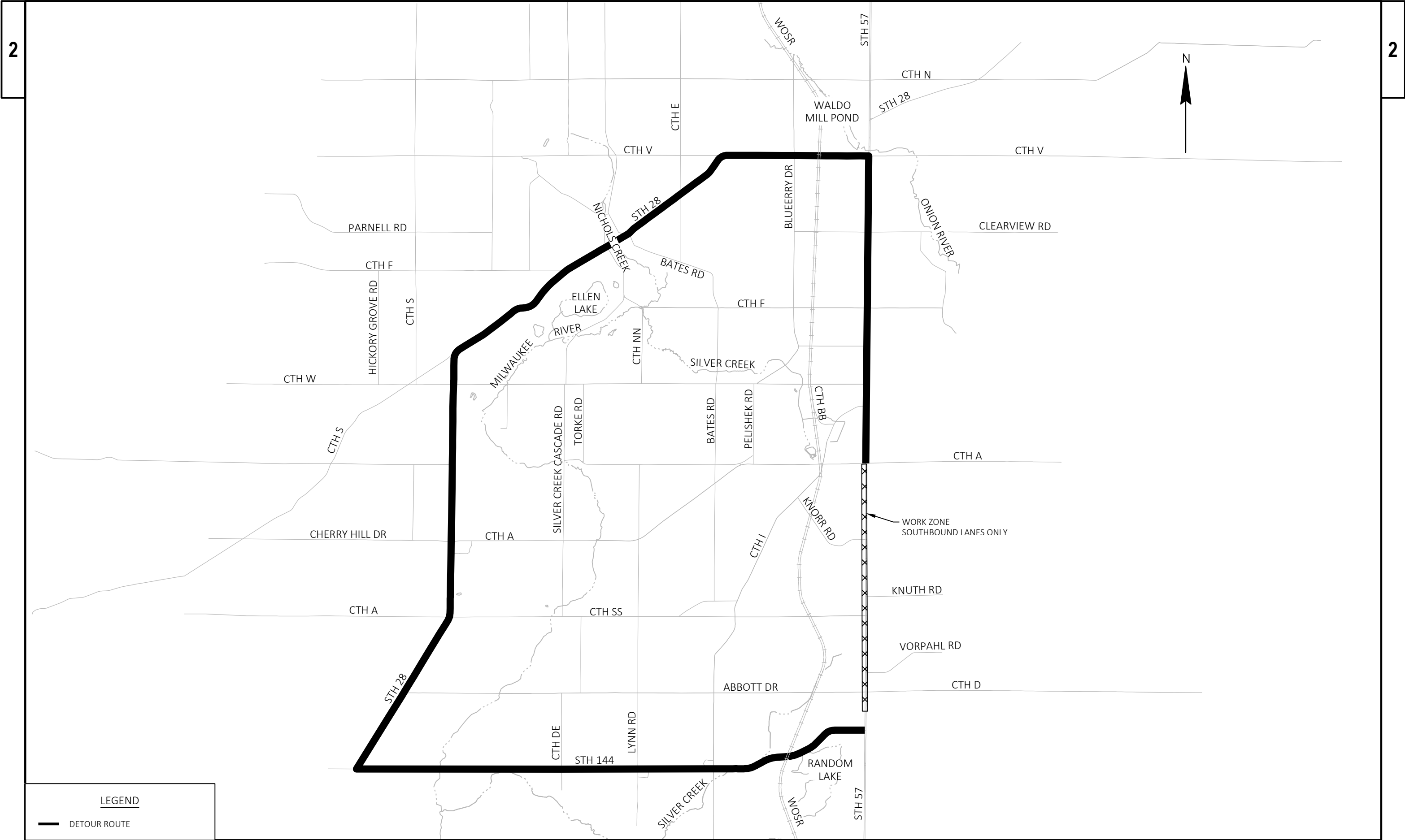


STH 57 SB
CONSTRUCTION R/LSTH 57 NB
CONSTRUCTION R/L

STAGE 1A FOR STH 57 MAINLINE
**CONES CAN BE MOVED TO
TRAFFIC SIDE OF WORK ZONE
DURING WORK OPERATIONS
AT A PARTICULAR LOCATION

STH 57 SB
CONSTRUCTION R/LSTH 57 NB
CONSTRUCTION R/L

STAGE 1B FOR STH 57 MAINLINE
**CONES CAN BE MOVED TO
TRAFFIC SIDE OF WORK ZONE
DURING WORK OPERATIONS
AT A PARTICULAR LOCATION



LEGEND

DETOUR ROUTE

PROJECT NO: 4015-22-71

HWY: STH 57

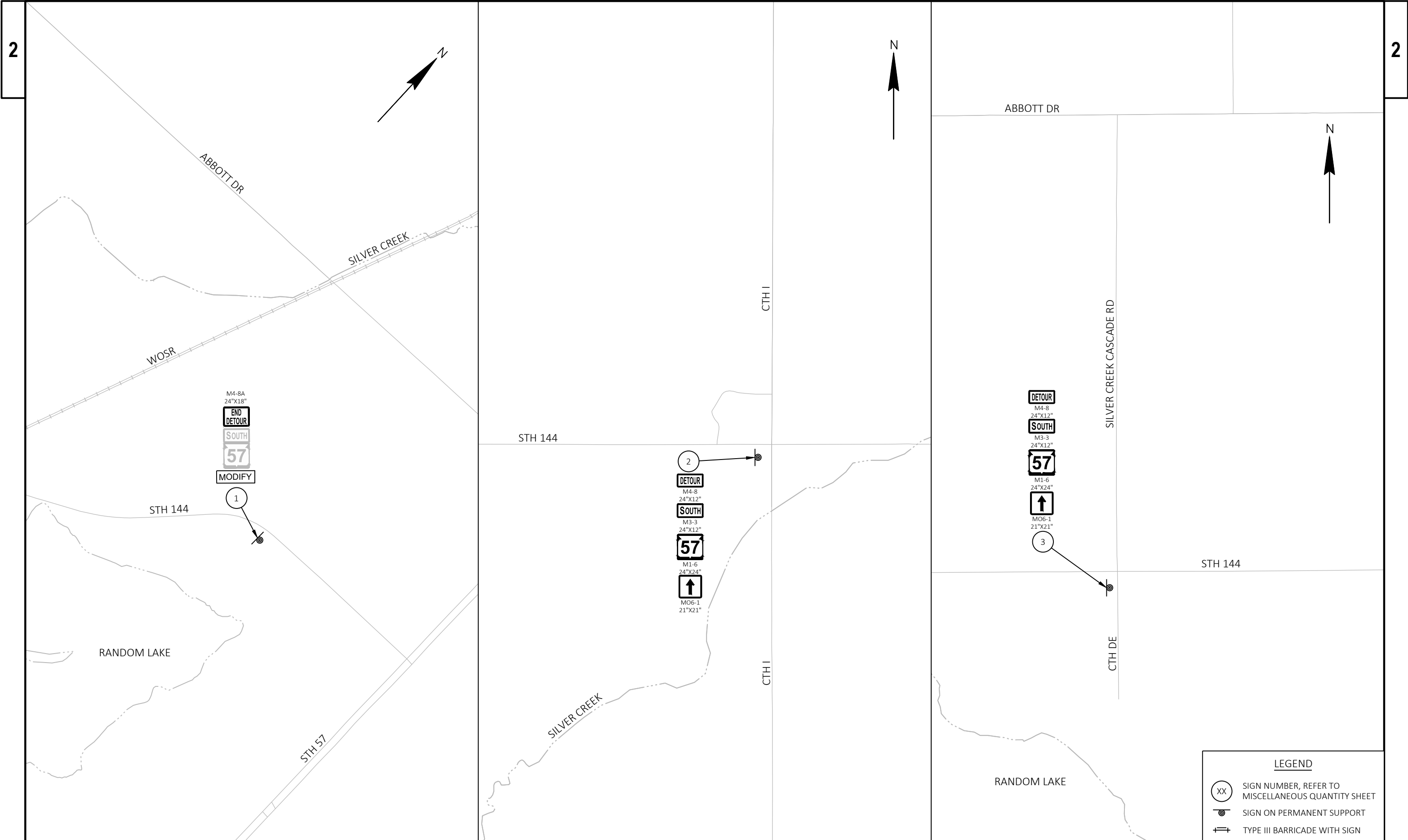
COUNTY: SHEBOYGAN

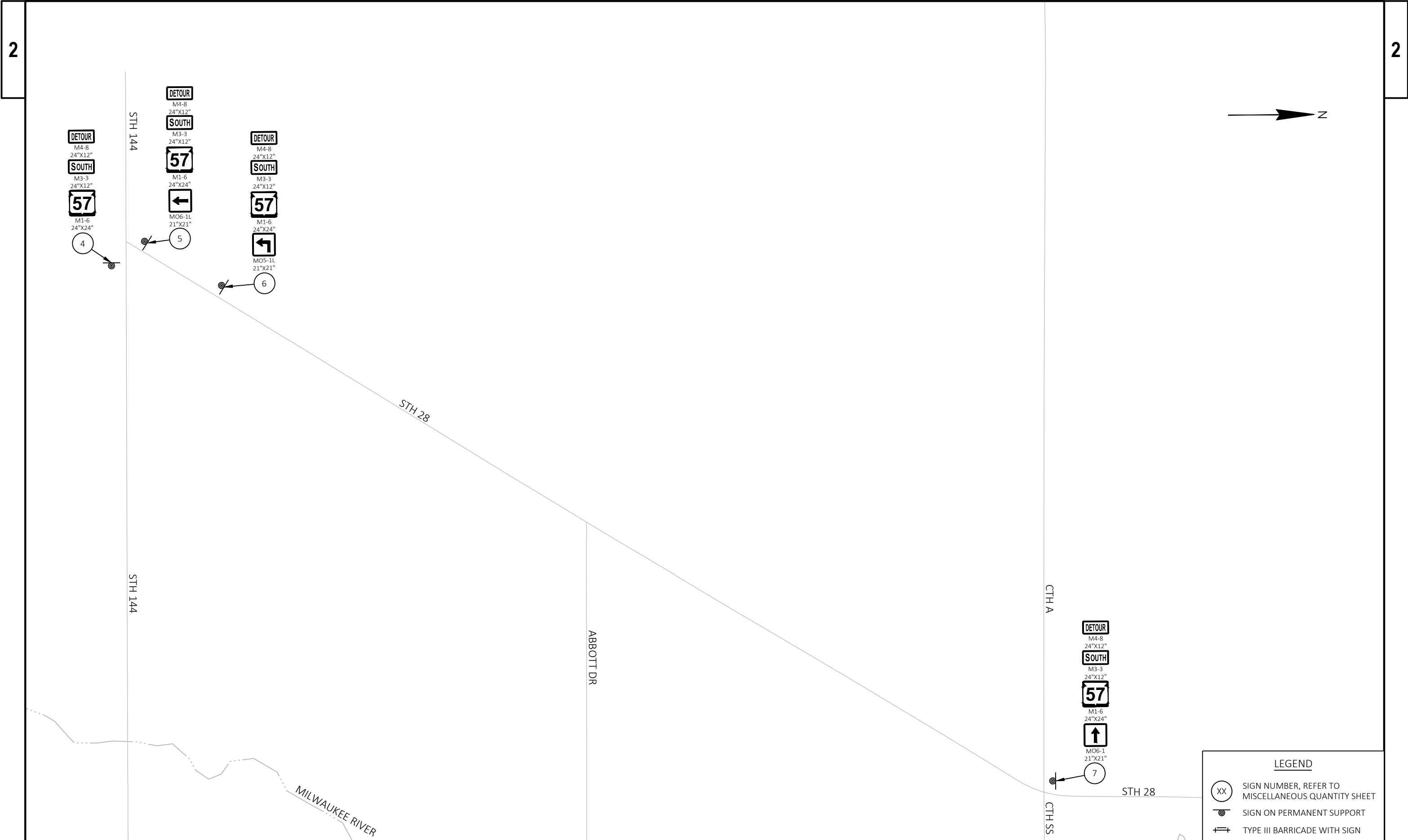
DETOUR ROUTE OVERVIEW

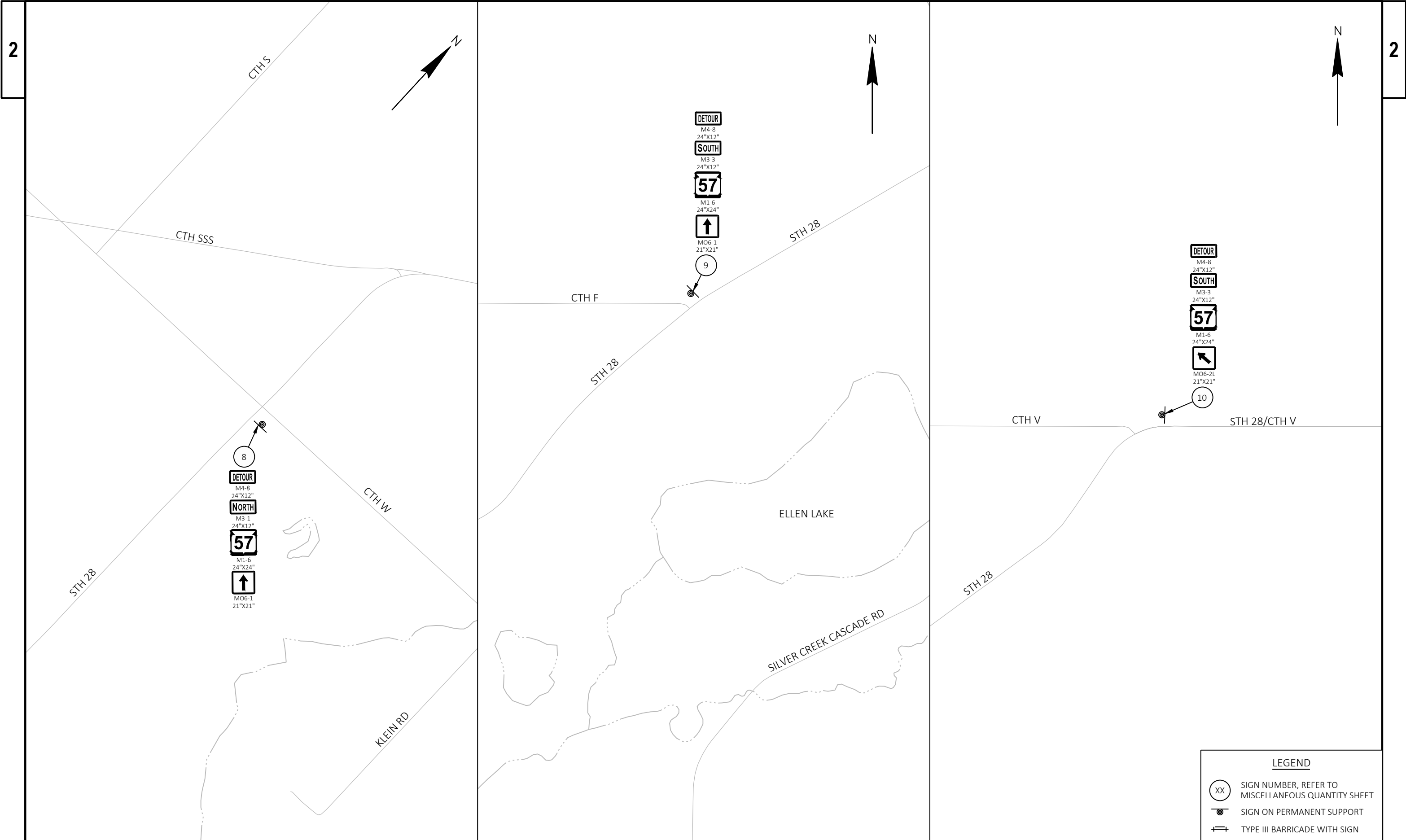
SHEET

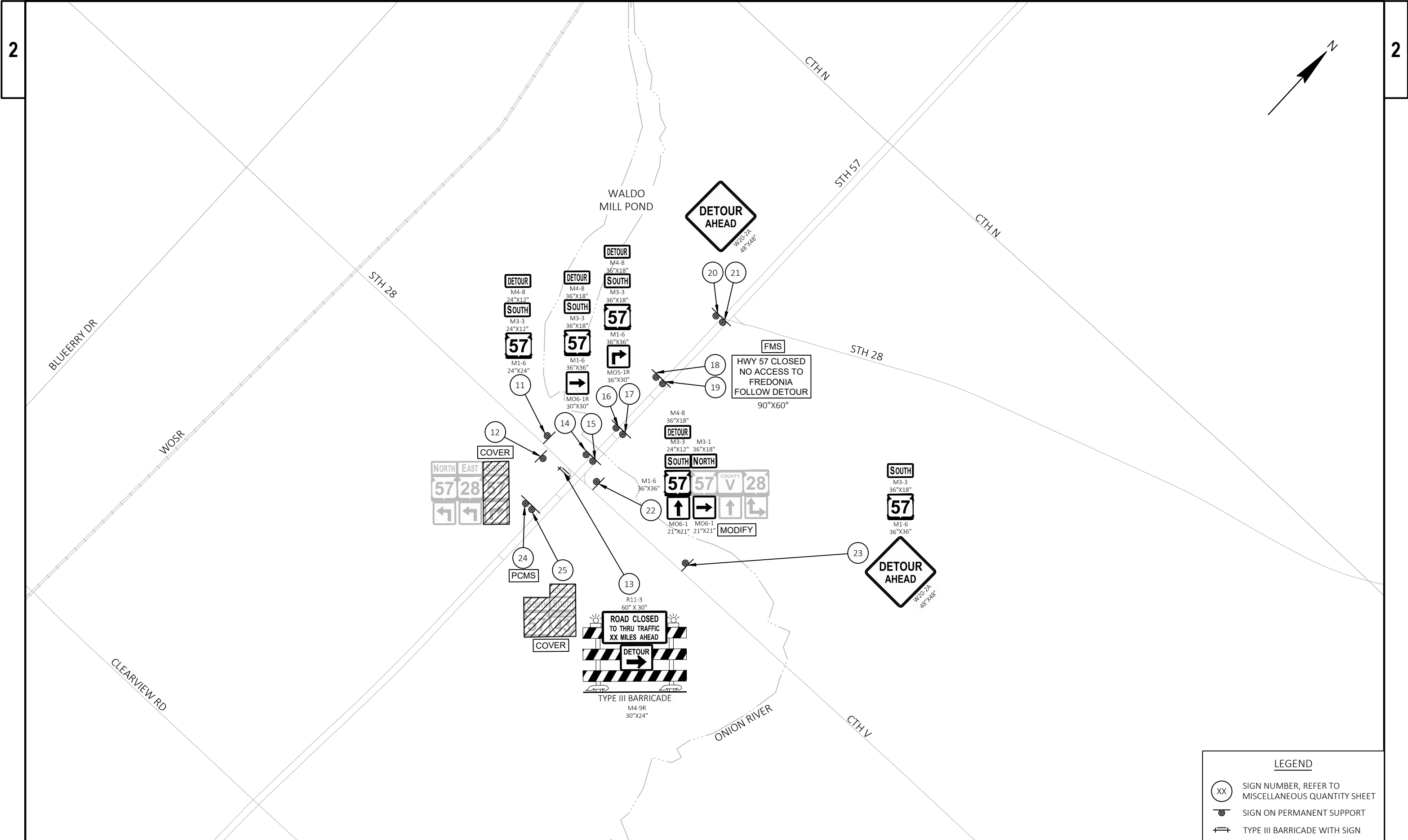
35

E



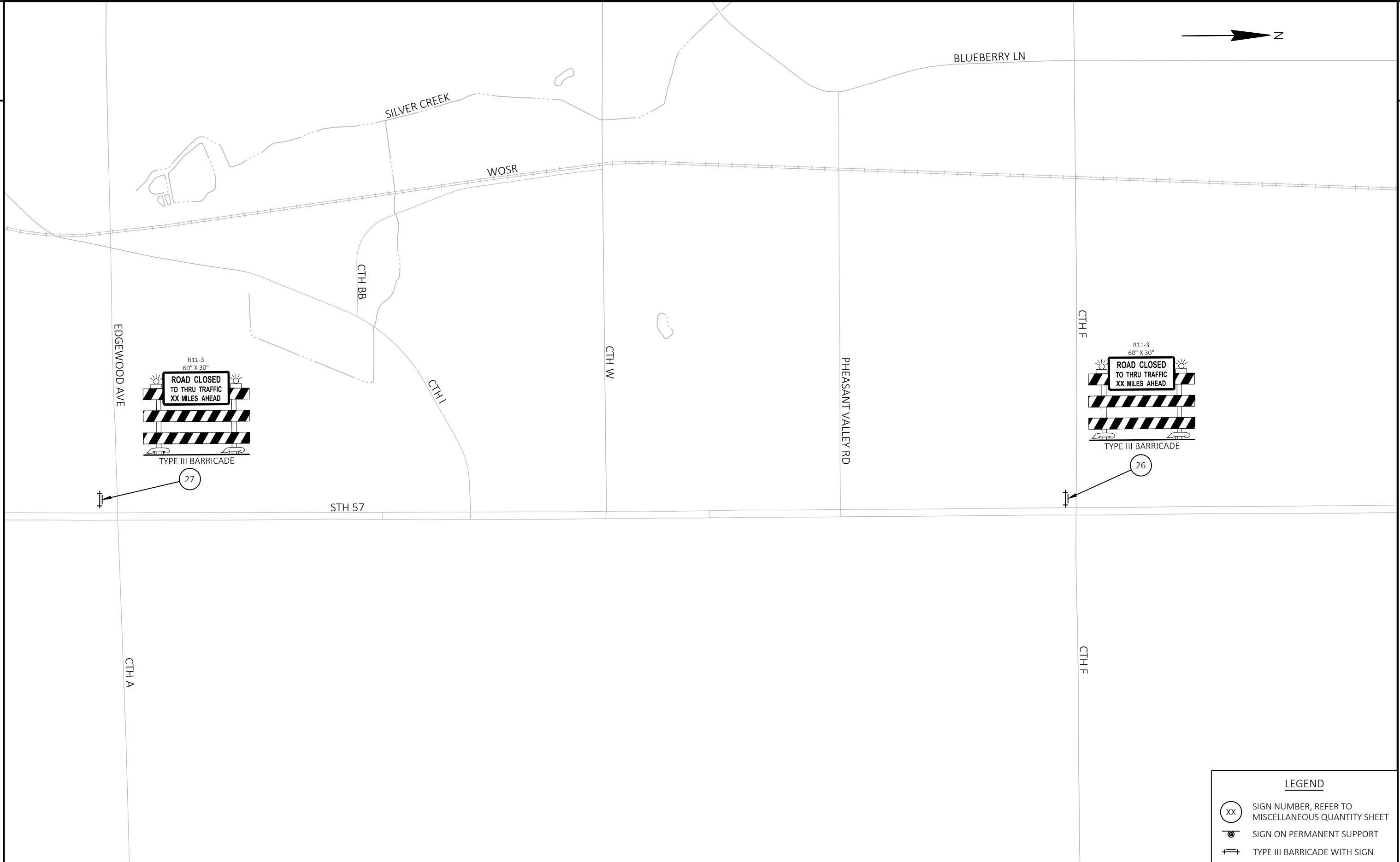






2

2



PROJECT NO:	4015-22-71
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HWY: STH 57

COUNTY: SHEBOYGAN

DETOUR SIGNING DETAIL

SHEET 40

E

FILE NAME : N:\PDS\C3D\40152200\SHEETSPLAN\027001-DT.DWG
LAYOUT NAME - 027005-dt

PLOT DATE : 4/28/2025 9:41 AM

PLOT BY : STEINMETZ, CAMERON M

PLOT NAME :

PLOT SCALE : 1 IN:1000 FT

WISDOT/CADDS SHEET 42

Estimate Of Quantities

4015-22-71

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	3.000	3.000
0004	204.0100	Removing Concrete Pavement	SY	400.000	400.000
0006	204.0110	Removing Asphaltic Surface	SY	180.000	180.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	2,010.000	2,010.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	328,790.000	328,790.000
0012	204.0130	Removing Curb	LF	24.000	24.000
0014	204.0165	Removing Guardrail	LF	2,224.000	2,224.000
0016	205.0100	Excavation Common	CY	536.000	536.000
0018	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 4015-22-71	EACH	1.000	1.000
0020	213.0100	Finishing Roadway (project) 01. 4015-22-71	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	15,800.000	15,800.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	600.000	600.000
0026	390.0305	Base Patching Concrete HES	CY	400.000	400.000
0028	416.0610	Drilled Tie Bars	EACH	105.000	105.000
0030	416.0620	Drilled Dowel Bars	EACH	354.000	354.000
0032	416.1710	Concrete Pavement Repair	SY	50.000	50.000
0034	416.1720	Concrete Pavement Replacement	SY	430.000	430.000
0036	450.4000	HMA Cold Weather Paving	TON	10,000.000	10,000.000
0038	455.0605	Tack Coat	GAL	38,860.000	38,860.000
0040	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0042	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	4.000	4.000
0044	460.2005	Incentive Density PWL HMA Pavement	DOL	54,687.000	54,687.000
0046	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	30,746.000	30,746.000
0048	460.2010	Incentive Air Voids HMA Pavement	DOL	85,605.000	85,605.000
0050	460.6223	HMA Pavement 3 MT 58-28 S	TON	53,870.000	53,870.000
0052	460.6224	HMA Pavement 4 MT 58-28 S	TON	31,740.000	31,740.000
0054	465.0105	Asphaltic Surface	TON	9.000	9.000
0056	465.0305	Asphaltic Surface Safety Islands	TON	2.000	2.000
0058	465.0510	Asphaltic Rumble Strips, Shoulder Divided Roadway	LF	118,850.000	118,850.000
0060	520.9700.S	Culvert Pipe Liners (size) 01. 18-INCH	LF	106.000	106.000
0062	520.9700.S	Culvert Pipe Liners (size) 02. 30-INCH	LF	80.000	80.000
0064	520.9700.S	Culvert Pipe Liners (size) 03. 42-INCH	LF	82.000	82.000
0066	520.9750.S	Cleaning Culvert Pipes for Liner Verification	EACH	3.000	3.000
0068	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	1.000	1.000
0070	521.1042	Apron Endwalls for Culvert Pipe Steel 42-Inch	EACH	1.000	1.000
0072	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0074	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	1.000	1.000
0076	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	1.000	1.000
0078	601.0120	Concrete Curb Type J	LF	24.000	24.000
0080	608.0336	Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	LF	86.000	86.000
0082	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	92.000	92.000
0084	608.0430	Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch	LF	90.000	90.000
0086	611.0430	Reconstructing Inlets	EACH	2.000	2.000
0088	614.0010	Barrier System Grading Shaping Finishing	EACH	4.000	4.000
0090	614.2300	MGS Guardrail 3	LF	1,855.000	1,855.000
0092	614.2330	MGS Guardrail 3 K	LF	100.000	100.000
0094	614.2340	MGS Guardrail 3 L	LF	73.000	73.000
0096	614.2350	MGS Guardrail Short Radius	LF	25.000	25.000
0098	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000

Estimate Of Quantities

4015-22-71					
Line	Item	Item Description	Unit	Total	Qty
0100	614.2620	MGS Guardrail Terminal Type 2	EACH	5.000	5.000
0102	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0104	618.0100	Maintenance and Repair of Haul Roads (project) 01. 4015-22-71	EACH	1.000	1.000
0106	619.1000	Mobilization	EACH	1.000	1.000
0108	624.0100	Water	MGAL	235.000	235.000
0110	628.1504	Silt Fence	LF	830.000	830.000
0112	628.1520	Silt Fence Maintenance	LF	1,660.000	1,660.000
0114	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0116	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0118	628.7005	Inlet Protection Type A	EACH	4.000	4.000
0120	628.7504	Temporary Ditch Checks	LF	70.000	70.000
0122	630.0500	Seed Water	MGAL	29.000	29.000
0124	633.5200	Markers Culvert End	EACH	5.000	5.000
0126	638.2102	Moving Signs Type II	EACH	1.000	1.000
0128	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0130	642.5401	Field Office Type D	EACH	1.000	1.000
0132	643.0300	Traffic Control Drums	DAY	68,992.000	68,992.000
0134	643.0420	Traffic Control Barricades Type III	DAY	4,271.000	4,271.000
0136	643.0705	Traffic Control Warning Lights Type A	DAY	8,542.000	8,542.000
0138	643.0715	Traffic Control Warning Lights Type C	DAY	4,256.000	4,256.000
0140	643.0810	Traffic Control Connected Arrow Boards	DAY	194.000	194.000
0142	643.0900	Traffic Control Signs	DAY	15,886.000	15,886.000
0144	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
0146	643.1000	Traffic Control Signs Fixed Message	SF	75.000	75.000
0148	643.1050	Traffic Control Signs PCMS	DAY	63.000	63.000
0150	643.1070	Traffic Control Cones 42-Inch	DAY	55,708.000	55,708.000
0152	643.1220	Traffic Control Connected Work Zone Start and End Location Markers	DAY	304.000	304.000
0154	643.3165	Temporary Marking Line Paint 6-Inch	LF	146,360.000	146,360.000
0156	643.5000	Traffic Control	EACH	1.000	1.000
0158	646.1020	Marking Line Epoxy 4-Inch	LF	133.000	133.000
0160	646.2025	Marking Line Grooved Black Epoxy 6-Inch	LF	19,643.000	19,643.000
0162	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	146,360.000	146,360.000
0164	646.2050	Marking Line Grooved Permanent Tape 6-Inch	LF	19,643.000	19,643.000
0166	646.4050	Marking Line Grooved Permanent Tape 10-Inch	LF	11,476.000	11,476.000
0168	646.6120	Marking Stop Line Epoxy 18-Inch	LF	73.000	73.000
0170	650.4000	Construction Staking Storm Sewer	EACH	3.000	3.000
0172	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	24.000	24.000
0174	650.8000	Construction Staking Resurfacing Reference	LF	78,215.000	78,215.000
0176	650.9911	Construction Staking Supplemental Control (project) 01. 4015-22-71	EACH	1.000	1.000
0178	690.0150	Sawing Asphalt	LF	390.000	390.000
0180	690.0250	Sawing Concrete	LF	1,050.000	1,050.000
0182	740.0440	Incentive IRI Ride	DOL	118,509.090	118,509.090
0184	SPV.0035	Special 01. Foundation Backfill	CY	220.000	220.000
0186	SPV.0060	Special 01. Grading Shaping Finishing Endwalls	EACH	5.000	5.000
0188	SPV.0060	Special 02. Abandon Cattle Pass	EACH	1.000	1.000
0190	SPV.0060	Special 03. Median Inlet Restoration	EACH	4.000	4.000
0192	SPV.0090	Special 01. Grading Shaping for Ditch	LF	1,150.000	1,150.000

REMOVALS SUMMARY

				203.0100	204.0130	204.0165	SPV.0060.02	REMARKS
				REMOVING SMALL PIPE CULVERTS	REMOVING CURB	REMOVING GUARDRAIL	ABANDON CATTLE PASS	
STATION	TO	STATION	LOCATION	EACH	LF	LF	EACH	
179+05			STH 57 SB LT		24			SAFETY ISLAND ON STH 144 DEEP PIPE REPLACEMENT CMCP PIPE 36" CMCP PIPE APPRX. 165 CY GROUT REQUIRED
192+79			STH 57 SB	1				
206+87			STH 57 SB	1				
364+69			STH 57 SB	1				
483+37			STH 57 SB				1	
164+55	-	170+23	STH 57 SB LT			568		
233+08	-	233+89	STH 57 SB LT			81		
234+80	-	244+12	STH 57 SB LT			932		
270+08	-	273+36	STH 57 SB LT			328		
286+59	-	289+74	STH 57 SB LT			315		
PROJECT TOTAL 0010				3	24	2224	1	

EARTHWORK SUMMARY

		205.0100	SPV.0035.01	REMARKS
		EXCAVATION COMMON CY	FOUNDATION BACKFILL CY	
STATION	LOCATION			
206+86	STH 57 SB	243	95	Shallow pipe transition
364+70	STH 57 SB	293	125	Shallow pipe transition
PROJECT TOTAL 0010		536	220	

PROJECT TOTAL 0010 = PROJECT CATEGAORY

ASPHALT MILLING SUMMARY

				204.0115	204.0120
				REMOVING	REMOVING
				ASPHALTIC	ASPHALTIC
				SURFACE	SURFACE
				BUTT	BUTT
				JOINTS	JOINTS
				SY	SY
STATION	TO	STATION	LOCATION	SY	SY
144+31	-	152+17	MAINLINE NB	194	3,392
152+17	-	155+00	CTH RR INT	51	1,857
155+00	-	178+40	MAINLINE NB		10,819
178+40	-	205+00	MAINLINE NB		11,785
205+00	-	207+40	CTH D INT	41	1,752
207+40	-	218+63	MAINLINE NB		4,837
218+63	-	220+75	VORPAHL RD INT	58	1,617
220+75	-	271+54	MAINLINE NB		22,016
271+54	-	273+74	KNUTH RD INT	66	1,475
273+74	-	364+50	MAINLINE NB		39,158
364+50	-	366+65	CTH A INT	70	1,466
366+65	-	431+15	MAINLINE NB		27,507
431+15	-	433+50	CTH I & W INT	77	1,579
433+50	-	472+69	MAINLINE NB		17,043
472+69	-	475+04	CTH F INT-EAST	71	1,579
475+04	-	525+63	MAINLINE NB		21,352
525+63	-	527+75	CLEARVIEW RD INT -EAST	70	1,506
527+75	-	537+17	MAINLINE NB	255	3,628
147+93	-	177+35	MAINLINE SB	167	11,743
177+35	-	183+52	STH 144 INT	93	3,677
183+52	-	204+48	MAINLINE SB		7,289
204+48	-	210+30	ABBOTT DR INT	54	3,510
210+30	-	257+58	MAINLINE SB		18,141
257+58	-	263+44	CTH SS INT	59	3,315
263+44	-	310+80	MAINLINE SB		17,827
310+80	-	316+35	KNORR RD INT	79	3,192
316+35	-	363+83	MAINLINE SB		16,864
363+83	-	369+00	EDGEWOOD AVE. INT	59	3,028
369+00	-	403+60	MAINLINE SB		12,109
403+60	-	409+42	CTH I INT	59	3,431
409+42	-	419+00	MAINLINE SB		3,145
419+00	-	425+60	CTH W INT	68	3,162
425+60	-	445+31	MAINLINE SB		7,415
445+31	-	451+16	PHEASANT VALLEY RD INT	60	3,330
451+16	-	472+00	MAINLINE SB		7,315
472+00	-	477+78	CTH F INT-WEST	65	3,243
477+78	-	524+91	MAINLINE SB		17,226
524+91	-	531+00	CLEARVIEW RD. INT	65	3,536
531+00	-	537+22	MAINLINE SB	229	1,924
PROJECT TOTAL 0010				2,010	328,790

PROJECT TOTAL 0010 = PROJECT CATEGAORY

BASE AGGREGATE SUMMARY

				305.0110	305.0120	624.0100		
				BASE	BASE			
				AGGREGATE	AGGREGATE			
				DENSE 3/4-	DENSE 1			
				INCH	1/4-INCH	WATER		
				TON	TON	MGAL		
STATION TO	STATION	LOCATION					REMARKS	
100+00	144+31	STH 57 NB		148		2	INSIDE SHOULDER MINUS INTERSECTIONS	
100+00	144+31	STH 57 NB		108		2	OUTSIDE SHOULDERS MINUS INTERSECTIONS	
144+31	161+00	STH 57 NB		144		2	INSIDE SHOULDER MINUS INTERSECTIONS	
144+31	161+00	STH 57 NB		131		2	OUTSIDE SHOULDER MINUS INTERSECTIONS	
161+00	191+50	STH 57 NB		474		7	INSIDE SHOULDER MINUS INTERSECTIONS	
161+00	191+50	STH 57 NB		463		7	OUTSIDE SHOULDER MINUS INTERSECTIONS	
191+50	222+00	STH 57 NB		404		6	INSIDE SHOULDER MINUS INTERSECTIONS	
191+50	222+00	STH 57 NB		342		5	OUTSIDE SHOULDER MINUS INTERSECTIONS	
222+00	252+50	STH 57 NB		427		6	INSIDE SHOULDER MINUS INTERSECTIONS	
222+00	252+50	STH 57 NB		470		7	OUTSIDE SHOULDER MINUS INTERSECTIONS	
252+50	283+00	STH 57 NB		393		6	INSIDE SHOULDER MINUS INTERSECTIONS	
252+50	283+00	STH 57 NB		393		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
283+00	313+50	STH 57 NB		365		5	INSIDE SHOULDER MINUS INTERSECTIONS	
283+00	313+50	STH 57 NB		470		7	OUTSIDE SHOULDER MINUS INTERSECTIONS	
313+50	344+00	STH 57 NB		493		7	INSIDE SHOULDER MINUS INTERSECTIONS	
313+50	344+00	STH 57 NB		470		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
344+00	374+50	STH 57 NB		415		6	INSIDE SHOULDER MINUS INTERSECTIONS	
344+00	374+50	STH 57 NB		394		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
374+50	405+00	STH 57 NB		422		6	INSIDE SHOULDER MINUS INTERSECTIONS	
374+50	405+00	STH 57 NB		460		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
405+00	435+50	STH 57 NB		365		5	INSIDE SHOULDER MINUS INTERSECTIONS	
405+00	435+50	STH 57 NB		392		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
435+50	466+00	STH 57 NB		406		6	INSIDE SHOULDER MINUS INTERSECTIONS	
435+50	466+00	STH 57 NB		470		7	OUTSIDE SHOULDER MINUS INTERSECTIONS	
466+00	496+50	STH 57 NB		420		6	INSIDE SHOULDER MINUS INTERSECTIONS	
466+00	496+50	STH 57 NB		390		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
496+50	527+00	STH 57 NB		426		6	INSIDE SHOULDER MINUS INTERSECTIONS	
496+50	527+00	STH 57 NB		401		6	OUTSIDE SHOULDER MINUS INTERSECTIONS	
527+00	537+17	STH 57 NB		174		3	INSIDE SHOULDER MINUS INTERSECTIONS	
527+00	537+17	STH 57 NB		149		2	OUTSIDE SHOULDER MINUS INTERSECTIONS	
100+00	147+93	STH 57 SB		157		2	INSIDE SHOULDER MINUS INTERSECTIONS	
100+00	147+93	STH 57 SB		105		2	OUTSIDE SHOULDER MINUS INTERSECTIONS	
147+93	161+00	STH 57 SB		42		1	INSIDE SHOULDER MINUS INTERSECTIONS	
147+93	161+00	STH 57 SB		99		1	OUTSIDE SHOULDER MINUS INTERSECTIONS	
161+00	191+50	STH 57 SB		158		2	INSIDE SHOULDER MINUS INTERSECTIONS	
161+00	191+50	STH 57 SB		146		2	OUTSIDE SHOULDER MINUS INTERSECTIONS	
191+50	222+00	STH 57 SB		129		2	INSIDE SHOULDER MINUS INTERSECTIONS	
192+63	192+95	STH 57 SB			50	1	SB ROADWAY FOR PIPE REPLACEMENT	
206+63	207+06	STH 57 SB			287	4	SB ROADWAY FOR PIPE REPLACEMENT	
191+50	222+00	STH 57 SB		196		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
222+00	252+50	STH 57 SB		164		2	INSIDE SHOULDER MINUS INTERSECTIONS	
222+00	252+50	STH 57 SB		154		2	OUTSIDE SHOULDER MINUS INTERSECTIONS	
252+50	283+00	STH 57 SB		146		2	INSIDE SHOULDER MINUS INTERSECTIONS	
252+50	283+00	STH 57 SB		194		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
283+00	313+50	STH 57 SB		152		2	INSIDE SHOULDER MINUS INTERSECTIONS	
283+00	313+50	STH 57 SB		195		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
313+50	344+00	STH 57 SB		176		3	INSIDE SHOULDER MINUS INTERSECTIONS	
313+50	344+00	STH 57 SB		214		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
344+00	374+50	STH 57 SB		159		2	INSIDE SHOULDER MINUS INTERSECTIONS	
364+50	364+90	STH 57 SB			263	3	SB ROADWAY FOR PIPE REPLACEMENT	
344+00	374+50	STH 57 SB		193		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
374+50	405+00	STH 57 SB		191		3	INSIDE SHOULDER MINUS INTERSECTIONS	
374+50	405+00	STH 57 SB		221		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
405+00	435+50	STH 57 SB		121		2	INSIDE SHOULDER MINUS INTERSECTIONS	
405+00	435+50	STH 57 SB		168		2	OUTSIDE SHOULDER MINUS INTERSECTIONS	
435+50	466+00	STH 57 SB		152		2	INSIDE SHOULDER MINUS INTERSECTIONS	
435+50	466+00	STH 57 SB		196		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
466+00	496+50	STH 57 SB		160		2	INSIDE SHOULDER MINUS INTERSECTIONS	
466+00	496+50	STH 57 SB		195		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
496+50	527+00	STH 57 SB		175		3	INSIDE SHOULDER MINUS INTERSECTIONS	
496+50	527+00	STH 57 SB		217		3	OUTSIDE SHOULDER MINUS INTERSECTIONS	
527+00	537+22	STH 57 SB		43		1	INSIDE SHOULDER MINUS INTERSECTIONS	
527+00	537+22	STH 57 SB		62		1	OUTSIDE SHOULDER MINUS INTERSECTIONS	
147+93	537+22	DRIVEWAYS		139		2		
PROJECT TOTAL 0010				15,800	600	235		

PAVEMENT REPAIR SUMMARY

STATION	TO	STATION	LOCATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0110 REMOVING ASPHALTIC SURFACE SY	390.0305 BASE PATCH CONCRETE HES SY	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH	416.1710 CONCRETE PAVEMENT REPAIR SY	416.1720 CONCRETE PAVEMENT REPLACEMENT SY	465.0105 ASPHALTIC SURFACE TON	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF	REMARKS
100+72	-	101+00	STH 57 NB		4		11	18	0	48	0.61	32	115	NB DRIVING LANE AT CTH K
101+10	-	101+16	STH 57 NB		2		-	16	8	-	0.36	12	30	NB PASSING LANE
101+30	-	101+48	STH 57 NB		2		11	18	0	28	0.36	20	0	NB DRIVING LANE
111+50	-	112+33	STH 57 NB		9		32	18	0	130	1.68	85	265	NB DRIVING LANE
118+63	-	118+93	STH 57 NB		3		11	18	0	50	0.61	32	115	NB DRIVING LANE
121+43	-	121+88	STH 57 NB		5		17	18	0	70	0.91	47	160	NB DRIVING LANE
134+05	-	134+11	STH 57 NB		2		-	16	9	-	0.36	12	30	NB PASSING LANE
134+05	-	134+11	STH 57 NB		1		-	18	9	-	0.12	8	0	NB DRIVING LANE
135+58	-	135+81	STH 57 NB		4		8	18	0	36	0.47	25	95	NB DRIVING LANE
137+43	-	137+49	STH 57 NB		2		-	16	8	-	0.36	12	30	NB PASSING LANE
103+31	-	103+37	STH 57 SB		2		-	16	8	-	0.36	12	30	SB PASSING LANE
112+02	-	112+17	STH 57 SB		2		11	18	0	20	0.30	17	0	SB PASSING LANE
119+25	-	119+55	STH 57 SB		10		4	16	0	48	1.82	36	0	SB DRIVING LANE
143+59	-	143+65	STH 57 SB		2		-	16	8	-	0.36	12	0	SB PASSING LANE
192+63	-	192+95	STH 57 SB	64	21	64		38					60	SB PIPE REPLACEMENT
206+57	-	207+17	STH 57 SB	160	52	160		38					60	SB PIPE REPLACEMENT
364+36	-	365+02	STH 57 SB	176	57	176		38					60	SB PIPE REPLACEMENT
39+03	-	39+11	STH 144 @ STH 57									28		SAFETY ISLAND REPLACEMENT ON STH 144
PROJECT TOTAL 0010				400	180	400	105	354	50	430	9	390	1,050	

PROJECT TOTAL 0010 = PROJECT CATEGAORY

HMA SUMMARY

				450.4000	455.0605	460.0105.S	460.0110.S	460.6223	460.6224		
						HMA	HMA				
						PERCENT	PERCENT				
						WITHIN	WITHIN				
						LIMITS	LIMITS				
						(PWL) TEST	(PWL) TEST				
						STRIP	STRIP				
						VOLUMETRIC	DENSITY	HMA PAVEMENT	HMA PAVEMENT		
						S	EACH	3 MT 58-28 S	4 MT 58-28 S		
STATION	TO	STATION	LOCATION	HMA COLD WEATHER PAVING TON	TACK COAT GAL	EACH	EACH	TON	TON	REMARKS	
144+31	-	537+17	STH 57 NB	5,000	12,572	2	4	21,581	10,267	MAINLINE (DRIVE & PASSING)	
144+31	-	537+17	STH 57 NB		1,045			1,793	853	LT SHOULDER	
144+31	-	537+17	STH 57 NB		3,723			6,390	3,040	RT SHOULDER	
153+56	-	157+77	STH 57 NB		56			96	46	RT SHOULDER FULL WIDTH	
144+31	-	537+17	STH 57 NB		1,088			1,867	888	INT LEFT TURN LANES	
144+31	-	537+17	STH 57 NB		364			624	297	INT RIGHT TURN LANES	
144+31	-	537+17	STH 57 NB		708			1,215	578	MEDIAN OPENINGS	
152+17	-	154+20	STH 57 NB		125			215	102	CTH RR INT.	
205+00	-	207+22	STH 57 NB		141			241	115	CTH D INT. (EAST)	
218+63	-	220+75	STH 57 NB		132			226	108	VORPAHL RD. INT.	
271+45	-	273+48	STH 57 NB		108			185	88	KNUTH RD. INT.	
364+44	-	366+61	STH 57 NB		110			189	90	CTH A INT.	
431+15	-	433+33	STH 57 NB		117			201	95	CTH I/W INT.	
472+69	-	474+75	STH 57 NB		115			198	94	CTH F INT.	
525+59	-	527+65	STH 57 NB		114			196	93	CLEARVIEW RD. INT (EAST)	
147+92	-	537+22	STH 57 SB	5,000	12,458			12,665	10,174	MAINLINE (DRIVE & PASSING)	
147+92	-	537+22	STH 57 SB		1,265			1,286	1,033	LT SHOULDER	
147+92	-	537+22	STH 57 SB		1,017			1,034	831	RT SHOULDER	
147+92	-	537+22	STH 57 SB		306			311	250	LT SHLDER AT BEAMGUARD	
147+92	-	537+22	STH 57 SB		962			978	785	INT LEFT TURN LANES	
147+92	-	537+22	STH 57 SB		361			367	295	INT RIGHT TURN LANES	
147+92	-	537+22	STH 57 SB		693			705	566	MEDIAN OPENINGS	
177+58	-	179+93	STH 57 SB		146			148	119	STH 144 INT.	
204+48	-	206+63	STH 57 SB		142			144	116	ABBOTT DR. INT.	
257+60	-	259+90	STH 57 SB		129			131	106	CTH SS INT.	
310+65	-	312+90	STH 57 SB		121			123	99	KNORR RD INT.	
363+65	-	365+98	STH 57 SB		116			118	94	EDGEWOOD AVE. INT.	
403+55	-	405+90	STH 57 SB		146			149	120	CTH I INT.	
419+00	-	421+19	STH 57 SB		119			121	97	CTH W INT.	
445+00	-	447+69	STH 57 SB		126			128	103	PLEASANT VALLEY RD. INT.	
472+00	-	474+26	STH 57 SB		114			116	93	CTH F INT.	
524+80	-	527+10	STH 57 SB		123			125	100	CLEARVIEW RD. INT (WEST)	
	-										
PROJECT TOTAL 0010				10,000	38,860	2	4	53,870	31,740		

PROJECT TOTAL 0010 = PROJECT CATEGAORY

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PWL MIXTURE USE TABLE

										QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
LOCATION	STATION			MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE	
2-12 FOOT DRIVING LANES (NB)	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	10,267	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005	
2-12 FOOT DRIVING LANES (NB)	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	21,581	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005	
3 FOOT LT SHOULDER (NB)	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	853	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
3 FOOT LT SHOULDER (NB)	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,793	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
8 FOOT & FULL WIDTH RT SHOULDER (NB)	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	3,086	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
8 FOOT & FULL WIDTH RT SHOULDER (NB)	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	6,486	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
MEDIAN OPENINGS	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	578	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
MEDIAN OPENINGS	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,215	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
LT TURN LANES	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	888	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
LT TURN LANES	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,867	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
RT TURN LANES	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	297	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
RT TURN LANES	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	624	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
SIDEROADS	144+31	-	537+17	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	785	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
SIDEROADS	144+31	-	537+17	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,651	3 1/2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
2-12 FOOT DRIVING LANES (SB)	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	10,174	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005	
2-12 FOOT DRIVING LANES (SB)	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	12,665	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005	
3 FOOT & FULL WIDTH LT SHOULDER (SB)	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	1,283	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
3 FOOT & FULL WIDTH LT SHOULDER (SB)	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,597	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
3 FOOT RT SHOULDER (SB)	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	831	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
3 FOOT RT SHOULDER (SB)	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,034	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
MEDIAN OPENINGS	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	566	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
MEDIAN OPENINGS	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	705	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
LT TURN LANES	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	785	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
LT TURN LANES	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	978	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
RT TURN LANES	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	295	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
RT TURN LANES	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	367	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
SIDEROADS	147+92	-	537+22	UPPER LAYER	3 MT 58-28 S	4 MT 58-28 S	1,047	1 3/4"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
SIDEROADS	147+92	-	537+22	LOWER LAYER	MILLED SURFACE	3 MT 58-28 S	1,303	2"	PWL INCENTIVE AIR VOIDS HMA PVT 460.2010	DEPARTMENT ACCEPTANCE (SS460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE	
SHOULDERS FOR PAVEMENT REPAIRS	100+00	-	143+65	PATCH	BASE AGGREGATE	ASPHALTIC SURFACE	9	3 1/4"	SS 460.2.8	ORDINARY COMPACTION (SS 450.3.2.6.2)	

SAFETY ISLAND SUMMARY

			465.0305	601.0120	638.2102	638.4000					
			ASPHALTIC								
			SURFACE	CONCRETE	MOVING	MOVING					
			SAFETY	CURB TYPE	SIGNS TYPE	SMALL SIGN					
			ISLANDS	J	II	SUPPORTS					
STATION	TO STATION	LOCATION	TON	LF	EACH	EACH	REMARKS				
39+03	- 39+11	STH 144 @ STH 57	2	24	1	1	ADJUST FOR 1.75" HMA OVERLAY				
PROJECT TOTAL 0010			2	24	1	1					

PROJECT TOTAL 0010 = PROJECT CATEGAORY

SHOULDER RUMBLE STRIPS

465.0510
ASPHALTIC
RUMBLE STRIPS,
SHOULDER
DIVIDED
ROADWAY

STATION TO	STATION	LOCATION	LF	REMARKS
144+31	- 161+00	STH 57 NB	653	INSIDE SHOULDER MINUS INTERSECTIONS
144+31	- 161+00	STH 57 NB	656	OUTSIDE SHOULDER MINUS INTERSECTIONS
161+00	- 191+50	STH 57 NB	2,129	INSIDE SHOULDER MINUS INTERSECTIONS
161+00	- 191+50	STH 57 NB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
191+50	- 222+00	STH 57 NB	1,562	INSIDE SHOULDER MINUS INTERSECTIONS
191+50	- 222+00	STH 57 NB	1,991	OUTSIDE SHOULDER MINUS INTERSECTIONS
222+00	- 252+50	STH 57 NB	2,049	INSIDE SHOULDER MINUS INTERSECTIONS
222+00	- 252+50	STH 57 NB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
252+50	- 283+00	STH 57 NB	2,190	INSIDE SHOULDER MINUS INTERSECTIONS
252+50	- 283+00	STH 57 NB	2,497	OUTSIDE SHOULDER MINUS INTERSECTIONS
283+00	- 313+50	STH 57 NB	1,883	INSIDE SHOULDER MINUS INTERSECTIONS
283+00	- 313+50	STH 57 NB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
313+50	- 344+00	STH 57 NB	2,703	INSIDE SHOULDER MINUS INTERSECTIONS
313+50	- 344+00	STH 57 NB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
344+00	- 374+50	STH 57 NB	2,119	INSIDE SHOULDER MINUS INTERSECTIONS
344+00	- 374+50	STH 57 NB	2,449	OUTSIDE SHOULDER MINUS INTERSECTIONS
374+50	- 405+00	STH 57 NB	2,222	INSIDE SHOULDER MINUS INTERSECTIONS
374+50	- 405+00	STH 57 NB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
405+00	- 435+50	STH 57 NB	1,822	INSIDE SHOULDER MINUS INTERSECTIONS
405+00	- 435+50	STH 57 NB	2,463	OUTSIDE SHOULDER MINUS INTERSECTIONS
435+50	- 466+00	STH 57 NB	2,011	INSIDE SHOULDER MINUS INTERSECTIONS
435+50	- 466+00	STH 57 NB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
466+00	- 496+50	STH 57 NB	2,182	INSIDE SHOULDER MINUS INTERSECTIONS
466+00	- 496+50	STH 57 NB	2,474	OUTSIDE SHOULDER MINUS INTERSECTIONS
496+50	- 527+00	STH 57 NB	2,188	INSIDE SHOULDER MINUS INTERSECTIONS
496+50	- 527+00	STH 57 NB	2,556	OUTSIDE SHOULDER MINUS INTERSECTIONS
527+00	- 537+17	STH 57 NB	932	INSIDE SHOULDER MINUS INTERSECTIONS
527+00	- 537+17	STH 57 NB	932	OUTSIDE SHOULDER MINUS INTERSECTIONS
SUBTOTAL 0010			60,963	

SHOULDER RUMBLE STRIPS- CONTINUED

465.0510
ASPHALTIC
RUMBLE STRIPS,
SHOULDER
DIVIDED
ROADWAY

STATION TO	STATION	LOCATION	LF	REMARKS
147+93	- 161+00	STH 57 SB	399	INSIDE SHOULDER MINUS INTERSECTIONS
147+93	- 161+00	STH 57 SB	1,307	OUTSIDE SHOULDER MINUS INTERSECTIONS
161+00	- 191+50	STH 57 SB	2,073	INSIDE SHOULDER MINUS INTERSECTIONS
161+00	- 191+50	STH 57 SB	2,461	OUTSIDE SHOULDER MINUS INTERSECTIONS
191+50	- 222+00	STH 57 SB	1,403	INSIDE SHOULDER MINUS INTERSECTIONS
191+50	- 222+00	STH 57 SB	2,513	OUTSIDE SHOULDER MINUS INTERSECTIONS
222+00	- 252+50	STH 57 SB	1,907	INSIDE SHOULDER MINUS INTERSECTIONS
222+00	- 252+50	STH 57 SB	3,050	OUTSIDE SHOULDER MINUS INTERSECTIONS
252+50	- 283+00	STH 57 SB	1,731	INSIDE SHOULDER MINUS INTERSECTIONS
252+50	- 283+00	STH 57 SB	2,521	OUTSIDE SHOULDER MINUS INTERSECTIONS
283+00	- 313+50	STH 57 SB	1,833	INSIDE SHOULDER MINUS INTERSECTIONS
283+00	- 313+50	STH 57 SB	2,765	OUTSIDE SHOULDER MINUS INTERSECTIONS
313+50	- 344+00	STH 57 SB	2,305	INSIDE SHOULDER MINUS INTERSECTIONS
313+50	- 344+00	STH 57 SB	2,809	OUTSIDE SHOULDER MINUS INTERSECTIONS
344+00	- 374+50	STH 57 SB	2,044	INSIDE SHOULDER MINUS INTERSECTIONS
344+00	- 374+50	STH 57 SB	2,477	OUTSIDE SHOULDER MINUS INTERSECTIONS
374+50	- 405+00	STH 57 SB	2,378	INSIDE SHOULDER MINUS INTERSECTIONS
374+50	- 405+00	STH 57 SB	2,902	OUTSIDE SHOULDER MINUS INTERSECTIONS
405+00	- 435+50	STH 57 SB	1,551	INSIDE SHOULDER MINUS INTERSECTIONS
405+00	- 435+50	STH 57 SB	2,096	OUTSIDE SHOULDER MINUS INTERSECTIONS
435+50	- 466+00	STH 57 SB	1,969	INSIDE SHOULDER MINUS INTERSECTIONS
435+50	- 466+00	STH 57 SB	2,526	OUTSIDE SHOULDER MINUS INTERSECTIONS
466+00	- 496+50	STH 57 SB	2,029	INSIDE SHOULDER MINUS INTERSECTIONS
466+00	- 496+50	STH 57 SB	2,525	OUTSIDE SHOULDER MINUS INTERSECTIONS
496+50	- 527+00	STH 57 SB	2,281	INSIDE SHOULDER MINUS INTERSECTIONS
496+50	- 527+00	STH 57 SB	2,863	OUTSIDE SHOULDER MINUS INTERSECTIONS
527+00	- 537+22	STH 57 SB	510	INSIDE SHOULDER MINUS INTERSECTIONS
527+00	- 537+22	STH 57 SB	661	OUTSIDE SHOULDER MINUS INTERSECTIONS
SUBTOTAL 0010			57,889	
PROJECT TOTAL 0010			118,850	

PROJECT TOTAL 0010 = PROJECT CATEGAORY

DRAINAGE SUMMARY

		520.9700.S.01	520.9700.S.02	520.9700.S.03	520.9750.S	521.1024	521.1042	522.1018	522.1030	522.1036	608.0336	608.0418	608.0430	611.0430	633.5200		
		CULVERT PIPE LINERS (18-INCH) .01 LF	CULVERT PIPE LINERS (30- INCH) .02 LF	CULVERT PIPE LINERS (42- INCH) .03 LF	CLEANING CULVERT PIPES FOR LINER VERIFICATI ON EACH	APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE STEEL 42-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18- INCH EACH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30- INCH EACH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH EACH	608.0336 (*) STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH LF	608.0418 (*) STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH LF	608.0430 (*) STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 30-INCH LF	611.0430 RECONSTRUCTING INLETS EACH	633.5200 MARKERS CULVERT END EACH		
STATION	LOCATION															REMARKS	
110+80	STH 57 Median													1		REGRADE/REPAIR HOLES	
150+16	STH 57 SB		80		1											LINER FROM ENDWALL TO INLET	
165+14	STH 57 SB	106			1											LINER FROM ENDWALL TO INLET	
192+79	STH 57 SB								1				90			SEE NEW CULVERT TRANSITION DETAIL	
206+87	STH 57 SB											92			1	SEE NEW CULVERT TRANSITION DETAIL	
215+70	STH 57 Median													1		REGRADE/REPAIR HOLES	
317+11	STH 57 SB														1	MARKER FOR EXISTING ENDWALL	
330+51	STH 57 SB					1									1	NEW ENDWALL FOR EXISTING PIPE	
364+69	STH 57 SB									1	86				1	SEE NEW CULVERT TRANSITION DETAIL	
502+42	STH 57 SB			82	1		1								1	LINER FROM ENDWALL TO INLET	
PROJECT TOTAL 0010		106	80	82	3	1	1	1	1	1	86	92	90	2	5		

(*) = CONNECTION TO EXISTING INLET IS INCIDENTAL TO THIS BID ITEM

BEAMGUARD SUMMARY

				614.2300	614.2330	614.2340	614.2350	614.2610	614.2620	614.2630		
				MGS GUARDRAIL 3 LF	MGS GUARDRAIL 3 K LF	MGS GUARDRAIL 3 L LF	MGS GUARDRAIL SHORT RADIUS LF	MGS GUARDRAIL TERMINAL EAT EACH	MGS GUARDRAIL TERMINAL TYPE 2 EACH	MGS GUARDRAIL SHORT RADIUS TERMINAL EACH	MARKER POST FLEXIBLE FOR GUARD RAIL TERMINAL EACH	
STATION	TO	STATION	LOCATION									
164+57	-	171+31	STH 57 SB LT	500			0	1	1	---	1	
233+70	-	234+37	STH 57 SB LT	77			25		1	1		
234+78	-	245+27	STH 57 SB LT	875			---	1	1	---	1	
271+00	-	275+74	STH 57 SB LT	240	100	35	---	1	1	---	1	
287+20	-	290+94	STH 57 SB LT	163		38	---	1	1	---	1	
PROJECT TOTAL 0010				1,855	100	73	25	4	5	1	4	

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TRAFFIC CONTROL SUMMARY

		643.0300		* 643.0420		* 643.0705		643.0715		643.0810		* 643.0900		* 643.1050		643.1070		643.1220			
STATION	TO STATION	LOCATION	CLOSURE DURATION DAYS	TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL WARNING LIGHTS TYPE C		CONNECTED ARROW BOARD		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS PCMS		TRAFFIC CONTROL CONES 42-INCH		CONNECTED WORK ZONE START & END LOCATION MARKERS	
				EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY
144+31	- 537+17	STH 57 NB OUTSIDE LANE CLOSURE	34	392	13,328	28	952	56	1,904	28	952	1	34	58	1,972	4	28	368	12,512	2	68
144+31	- 537+17	STH 57 NB INSIDE LANE CLOSURE	42	504	21,168	28	1,176	56	2,352	28	1,176	1	42	112	4,704	---		368	15,456	2	84
147+93	- 537+22	STH 57 SB OUTSIDE LANE CLOSURE	34	392	13,328	28	952	56	1,904	28	952	1	34	58	1,972	4	28	365	12,410	2	68
147+93	- 537+22	STH 57 SB INSIDE LANE CLOSURE	42	504	21,168	28	1,176	56	2,352	28	1,176	1	42	112	4,704	---		365	15,330	2	84
147+93	- 537+22	STH 57 SIDEROADS	42									1	42	52	2,184	-					
PROJECT TOTAL 0010				68,992		4,256		8,512		4,256		194		15,536		56		55,708		304	

(*) ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC CONTROL DETOUR SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 5 DAYS	643.0900 SIGNS * DAYS	643.0420 BARRICADES TYPE III * DAYS	643.0705 WARNING LIGHTS TYPE A * DAYS	643.1000 FIXED MESSAGE SIGN SF	643.1050 SIGNS PORTABLE CHANGEABLE MESSAGE DAYS	NO OF CYCLES	643.0920 COVERING SIGNS TYPE II EACH	REMARKS
1	STH 144, W. OF STH 57, MODIFY EXISTING J1-2 SIGN AS SHOWN	M 4-8A	24"X18"	1	5	5							
2	STH 144, W. OF CTH I, PLACE 150' W. OF CTH I INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							AHEAD
3	STH 144, W. OF CTH E, PLACE 150' W. OF CTH E INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							AHEAD
4	STH 144, E. OF STH 28, PLACE 250' E. OF STH 28 INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
5	STH 28, AT STH 144, PLACE RIGHT OF EXISTING J3-2 SIGN	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							RIGHT
6	STH 28, N. OF STH 144, PLACE 500' N. OF STH 144 INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 5-1L	21"X21"	1	5	5							
7	STH 28, N. OF CTH A/SS, PLACE 150' N. OF CTH A/SS INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							AHEAD
8	STH 28, N. OF CTH W, PLACE 150' N. OF CTH W INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							AHEAD
9	STH 28, N. OF CTH F, PLACE 150' N. OF CTH F INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							AHEAD
PAGE SUBTOTALS				32		160	0	0	0	0		0	

(*) ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT TOTAL 0010 = PROJECT CATEGAORY

PROJECT NO: 4015-22-71

HWY: STH 57

COUNTY: SHEBOYGAN

MISCELLANEOUS QUANTITIES

SHEET: 50

E

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TRAFFIC CONTROL DETOUR SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 5 DAYS	643.0900 SIGNS * DAYS	643.0420 BARRICADES TYPE III * DAYS	643.0705 WARNING LIGHTS TYPE A * DAYS	643.1000 FIXED MESSAGE SIGN SF	643.1050 SIGNS PORTABLE CHANGEABLE MESSAGE DAYS	NO OF CYCLES	643.0920 COVERING SIGNS TYPE II EACH	REMARKS
10	STH 28, N. OF CTH V, PLACE 150' N. OF CTH V INTERSECTION	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-2	21"X21"	1	5	5							TILT LEFT
11	STH 28, W. OF STH 57, PLACE RIGHT OF EXISTING J4-1 SIGN	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
12	STH 28, AT STH 57, COVER EXISTING J3-3 SIGN AS SHOWN										1	1	COVER "SOUTH 57 RIGHT"
13	STH 57, AT STH 28 SOUTH INTERSECTION, PLACE IN SW QUADRANT OF RIGHT SHOULDER	R 11-3	60"X30"	1	5	5	5	10					XX MILES AHEAD (CHANGE AS WORK LOCATIONS CHANGE)
	"	M 4-9R	30"X24"	1	5	5							
14	STH 57, AT STH 28 SOUTH INTERSECTION, PLACE RIGHT OF EXISTING J3-1 SIGN ON RIGHT SHOULDER	M 4-8	36"X18"	1	5	5							
	"	M 3-3	36"X18"	1	5	5							
	"	M 1-6	36"X36"	1	5	5							57
	"	MO 6-1R	30"X30"	1	5	5							RIGHT
15	STH 57, AT STH 28 SOUTH INTERSECTION, PLACE RIGHT OF EXISTING J3-1 SIGN IN MEDIAN	M 4-8	36"X18"	1	5	5							
	"	M 3-3	36"X18"	1	5	5							
	"	M 1-6	36"X36"	1	5	5							
	"	MO 6-1R	30"X30"	1	5	5							
16	STH 57, N. OF STH 28 SOUTH INTERSECTION, PLACE 750' N. OF STH 28 SOUTH INTERSECTION ON RIGHT SHOULDER	M 4-8	36"X18"	1	5	5							
	"	M 3-3	36"X18"	1	5	5							
	"	M 1-6	36"X36"	1	5	5							57
	"	MO 5-1R	30"X30"	1	5	5							
17	STH 57, N. OF STH 28 SOUTH INTERSECTION, PLACE 750' N. OF STH 28 SOUTH INTERSECTION IN MEDIAN	M 4-8	36"X18"	1	5	5							
	"	M 3-3	36"X18"	1	5	5							
	"	M 1-6	36"X36"	1	5	5							57
	"	MO 5-1R	30"X30"	1	5	5							
18	STH 57, N. OF STH 28 SOUTH INTERSECTION, PLACE 1500' N. OF STH 28 SOUTH INTERSECTION ON RIGHT SHOULDER	FMS	90"X60"	1					37.5				SEE SIGN DETAIL SHEET
19	STH 57, N. OF STH 28 SOUTH INTERSECTION, PLACE 1500' N. OF STH 28 SOUTH INTERSECTION IN MEDIAN	FMS	90"X60"	1					37.5				SEE SIGN DETAIL SHEET
20	STH 57, N. OF STH 28 SOUTH INTERSECTION, PLACE 2500' N. OF STH 28 SOUTH INTERSECTION ON RIGHT SHOULDER	W 20-2A	48"X48"	1	5	5							
21	STH 57, N. OF STH 28 SOUTH INTERSECTION, PLACE 2500' N. OF STH 28 SOUTH INTERSECTION IN MEDIAN	W 20-2A	48"X48"	1	5	5							
22	CTH V, AT STH 57, MODIFY EXISTING J13-3 SIGN AS SHOWN	M 4-8	24"X12"	1	5	5							
	"	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	MO 6-1	21"X21"	1	5	5							AHEAD
	"	M 3-1	24"X12"	1	5	5							
	"	MO 6-1	21"X21"	1	5	5							RIGHT
23	CTH V, E. OF STH 57, PLACE 750' E. OF STH 57 INTERSECTION	M 3-3	24"X12"	1	5	5							
	"	M 1-6	24"X24"	1	5	5							57
	"	W 20-2A	48"X48"	1	5	5							
24	STH 57, S. OF STH 28 SOUTH INTERSECTION, COVER EXISTING J4-1 SIGN AS SHOWN										1	1	COVER ENTIRE SIGN
25	STH 57, S. OF STH 28 SOUTH INTERSECTION, PLACE ON RIGHT SHOULDER	PCMS		1						7			PLACE IN ADVANCE OF FULL CLOSURE
26	STH 57, AT CTH F, PLACE IN SW QUADRANT OF INTERSECTION ON RIGHT SHOULDER	R 11-3	60"X30"	1	5	5	5	10					XX MILES AHEAD (CHANGE AS WORK LOCATIONS CHANGE)
27	STH 57, AT CTH A, PLACE IN SW QUADRANT OF INTERSECTION ON RIGHT SHOULDER	R 11-3	60"X30"	1	5	5	5	10					XX MILES AHEAD (CHANGE AS WORK LOCATIONS CHANGE)
PAGE SUBTOTALS						190	15	30	75	7		2	
DETOUR TOTALS						350	15	30	75	7		2	

(*) ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT TOTAL 0010 = PROJECT CATEGAORY

EROSION CONTROL SUMMARY

				628.1504	628.1520	628.1905	628.1910 MOBILIZATI ONS	628.7005	628.7504		
				SILT FENCE	SILT FENCE	MOBILIZATIONS	EMERGENCY	INLET	TEMPORARY		
				LF	MAINTENANCE	EROSION	EROSION	PROTECTION	DITCH		
STATION	TO	STATION	LOCATION	LF	LF	CONTROL	CONTROL	TYPE A	CHECKS		
						EACH	EACH	EACH	LF		
164+55	-	168+21	STH 57 SB LT	175	350					BEAMGUARD TERMINAL	
192+67	-	193+00	STH 58 SB RT					1		MEDIAN INLET	
206+80	-	206+90	STH 57 SB RT					1		MEDIAN INLET	
215+65	-	215+75	STH 57 SB RT					1		MEDIAN INLET	
243+65	-	245+34	STH 57 SB LT	169	338				15	BEAMGUARD TERMINAL	
270+08	-	273+24	STH 57 SB LT	169	338				15	BEAMGUARD TERMINAL	
286+59	-	289+75	STH 57 SB LT	169	338				15	BEAMGUARD TERMINAL	
364+65	-	364+75	STH 57 SB RT					1		MEDIAN INLET	
483+30	-	483+40	STH 57 RT & LT UNDISTRIBUTED	148	296	2	1		10	CATTLE PASS END CLOSURE PROJECT WIDE	
PROJECT TOTAL 0010				830	1,660	2	1	4	70		

PAVEMENT MARKING

			646.1020	646.2040		646.2050	646.2025	646.4050	646.6120	643.3165		
				MARKING LINE	MARKING LINE			MARKING LINE				
				GROOVED WET REF EPOXY	GROOVED WET REF EPOXY	LINE GROOVED	LINE GROOVED	GROOVED PERMANENT	MARKING STOP LINE	TEMPORARY MARKING LINE PAINT		
			MARKING LINE EPOXY 4-INCH	WHITE 6-INCH	YELLOW 6-INCH	PERMANENT TAPE 6-INCH	BLACK EPOXY 6-INCH	TAPE 10- INCH	EPOXY 18- INCH	WHITE 6-INCH	YELLOW 6-INCH	
STATION TO	STATION	LOCATION	LF	LF	LF	LF	LF	LF	LF	LF	LF	REMARKS
144+31	- 537+17	STH 57 NB		37,855	35,614							EDGELINES
147+93	- 537+22	STH 57 SB		37,634	35,257				73	37,634	35,257	EDGELINES
144+31	- 537+17	STH 57 NB				9,822	9,822					CENTERLINE SKIPS
144+32	- 537+18	STH 57 SB				9,822	9,822					CENTERLINE SKIPS
144+33	- 537+19	STH 57 NB						5,913				TURN LANE-MEDIAN OPENINGS
144+34	- 537+20	STH 57 SB						5,563				TURN LANE-MEDIAN OPENINGS
144+34	- 537+20	CTHA, RR, D, SS, W, F	133									COUNTY HIGHWAY EDGELINES
PROJECT TOTAL 0010			133	146,360		19,643	19,643	11,476	73	146,360		

PROJECT TOTAL 0010 = PROJECT CATEGAORY

CONSTRUCTION STAKING SUMMARY

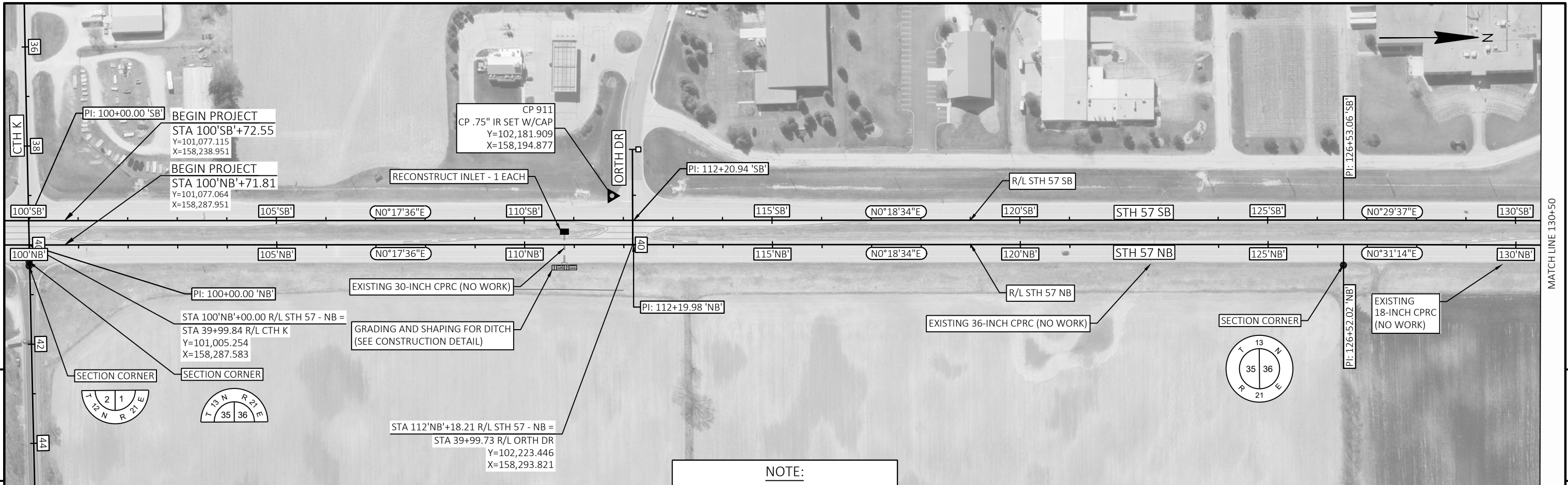
STATION TO	STATION	LOCATION	650.4000 CONSTRUCTION STAKING STORM SEWER EACH	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF	650.9911 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (4015-22-71) EACH	REMARKS
39+03	- 39+11	STH 144		24			SAFETY ISLAND, ADJUSTED FOR HMA OVERLAY
144+31	- 537+17	STH 57 NB			39,286	1	NORTHBOUND ROADWAY & REPLACEMENT CULVERTS
147+93	- 537+22	STH 57 SB	3		38,929		SOUTHBOUND ROADWAY & REPLACEMENT CULVERTS
PROJECT TOTAL 0010			3	24	78,215	1	

GRADING & FINISHING SUMMARY

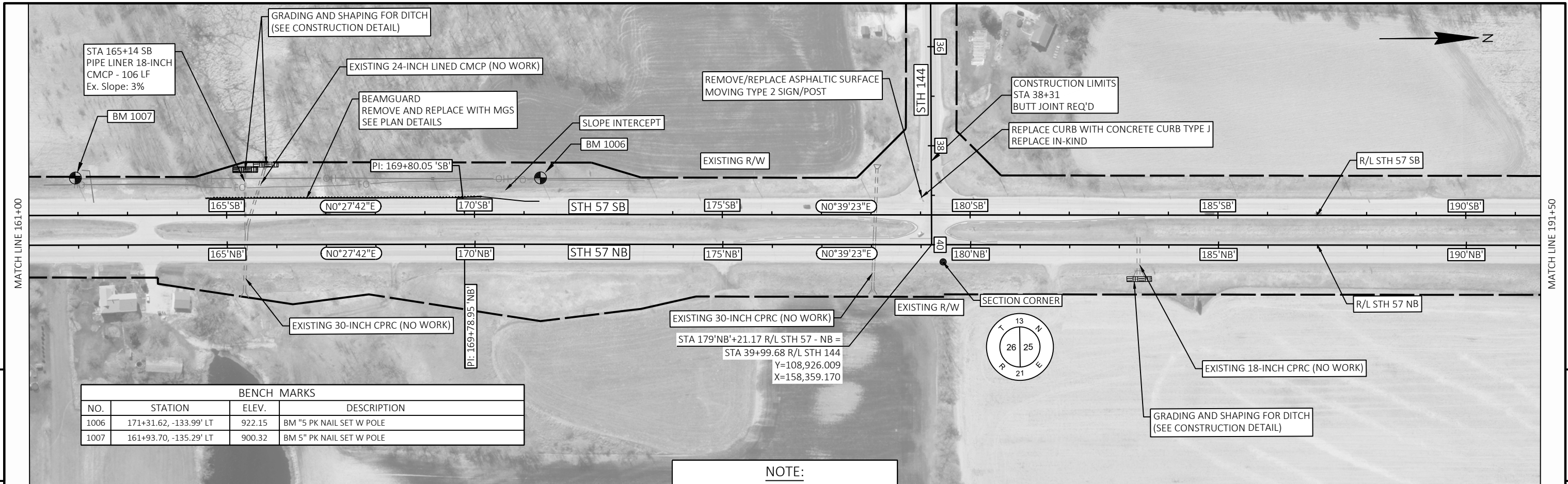
STATION	LOCATION	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	630.0500 SEED WATER MGAL	SPV.0060.01 GRADING, SHAPING, FINISHING ENDWALLS EACH	SPV.0060.03 MEDIAN INLET RESTORATION EACH	SPV.0090.01 GRADING, SHAPING FOR DITCH LF	* EXCAVATION COMMON CY	* BORROW CY	* TOPSOIL SY	* FERTILIZER TYPE B CWT	* SEEDING MIXTURE NO. 20 LB	* EROSION MAT CLASS I TYPE B URBAN SY	REMARKS
164+55	STH 57 SB	1	1				29	18	251	0.16	4.50	251	BEAMGUARD END TERMINAL
192+79	STH 57 SB		0	1				5	7	0.06	0.20	1	ENDWALL REPLACEMENT
192+83	STH 57 NB		0		1				25	0.80	0.66	25	MEDIAN INLET
206+92	STH 57 NB		0		1				25	0.75	0.66	25	MEDIAN INLET
215+63	STH 57 NB		0		1				25	0.75	0.32	25	MEDIAN INLET
234+80	STH 57 SB	1	2				31	21	375	0.24	6.80	375	BEAMGUARD END TERMINAL
270+08	STH 57 SB	1	2				30	20	460	0.29	8.40	460	BEAMGUARD END TERMINAL
286+59	STH 57 SB	1	2				28	17	255	0.16	4.50	255	BEAMGUARD END TERMINAL
206+87	STH 57 SB		0	1				3	6	0.04	0.20	6	ENDWALL REPLACEMENT
330+51	STH 57 SB		0	1				4	4	0.04	0.20	7	ENDWALL REPLACEMENT
364+69	STH 57 SB		0	1				7	7	0.06	0.40	7	ENDWALL REPLACEMENT
502+25	STH 57 SB		0	1				5	7	0.06	0.20	5	ENDWALL REPLACEMENT
110+79	STH 57 NB		1			100	18		3	0.07	2.00	110	RT & LT AT ENDWALL
165+36	STH 57 SB		1			50	9		2	0.04	1.00	55	LT AT ENDWALL
165+79	STH 57 SB		1			50	9		2	0.04	1.00	55	LT AT ENDWALL
183+40	STH 57 NB		1			50	9		2	0.04	1.00	55	RT AT ENDWALL
205+00	STH 57 SB		1			50	9		2	0.04	1.00	55	LT AT ENDWALL
282+54	STH 57 NB		1			50	9		2	0.04	1.00	55	LT AT ENDWALL
285+63	STH 57 NB		1			50	9		2	0.04	1.00	55	RT AT ENDWALL
360+00	STH 57 NB		1			100	18		3	0.07	2.00	110	RT & LT AT ENDWALL
364+74	STH 57 NB		0		1				68	0.75	1.79	68	MEDIAN INLET
415+40	STH 57 NB		1			100	18		3	0.07	2.00	110	RT & LT AT ENDWALL
445+81	STH 57 SB		1			50	9		2	0.04	1.00	55	LT AT ENDWALL
466+90	STH 57 NB		1			100	18		3	0.07	2.00	110	RT & LT AT ENDWALL
478+87	STH 57 NB		1			100	18		3	0.07	2.00	110	RT & LT AT ENDWALL
483+20	STH 57 NB		1			50	9		2	0.04	1.00	55	RT AT ENDWALL
483+30	STH 57 NB		1						196	0.07	2.00	196	CATTLE PASS END CLOSURE
488+49	STH 57 NB		1			50	9		2	0.04	1.00	55	RT AT ENDWALL
495+19	STH 57 NB		1			50	9		2	0.04	1.00	55	RT AT ENDWALL
516+15	STH 57 NB		1			100	18		3	0.04	2.00	110	RT & LT AT ENDWALL
525+41	STH 57 SB		1			50	9		2	0.04	1.00	55	LT AT ENDWALL
PROJECT TOTAL 0010		4	29	5	4	1,150	325	99	1748	5	54	2971	

PROJECT TOTAL 0010 = PROJECT CATEGAORY

* ITEMS & QUANTITIES LISTED FOR BID INFORMATION ONLY

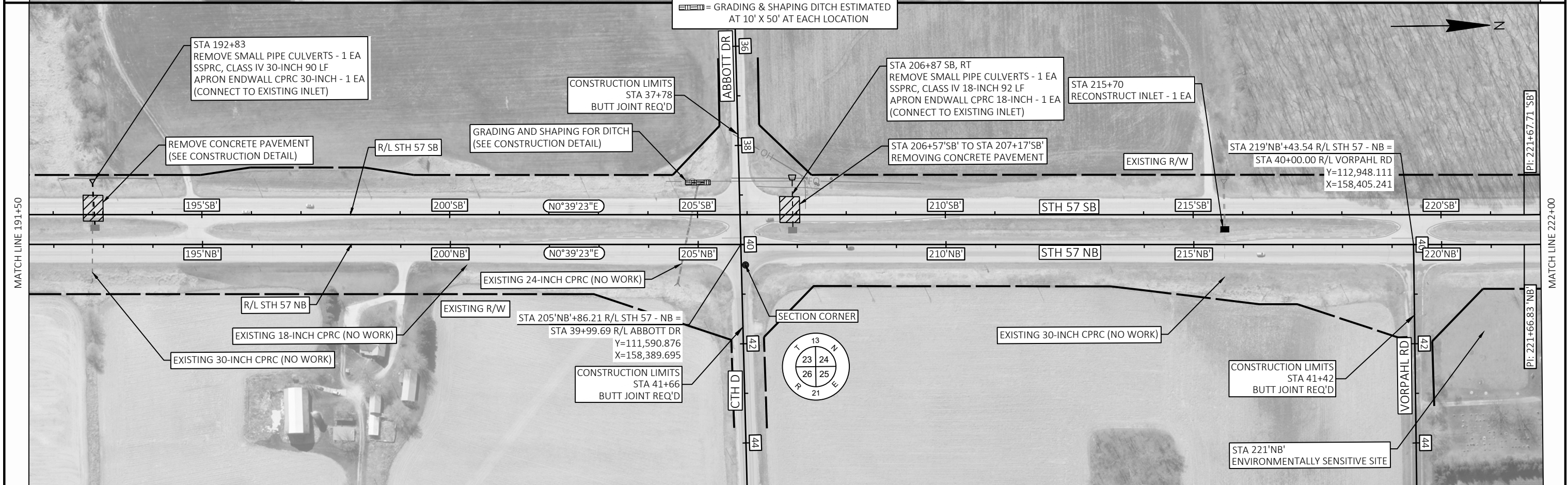


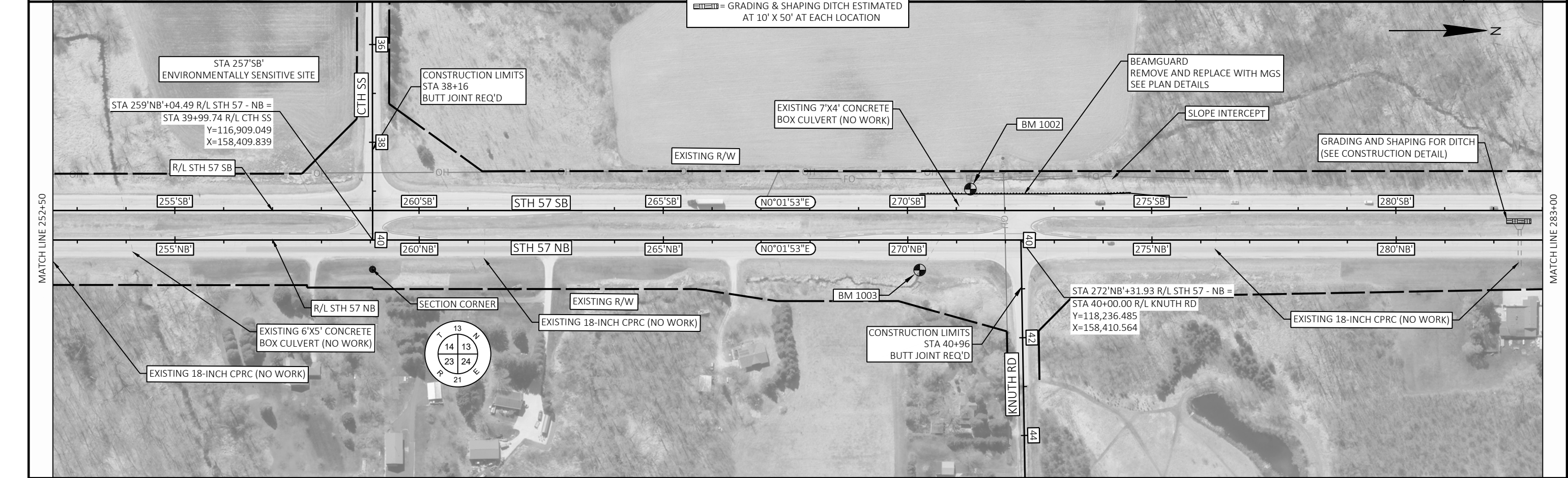
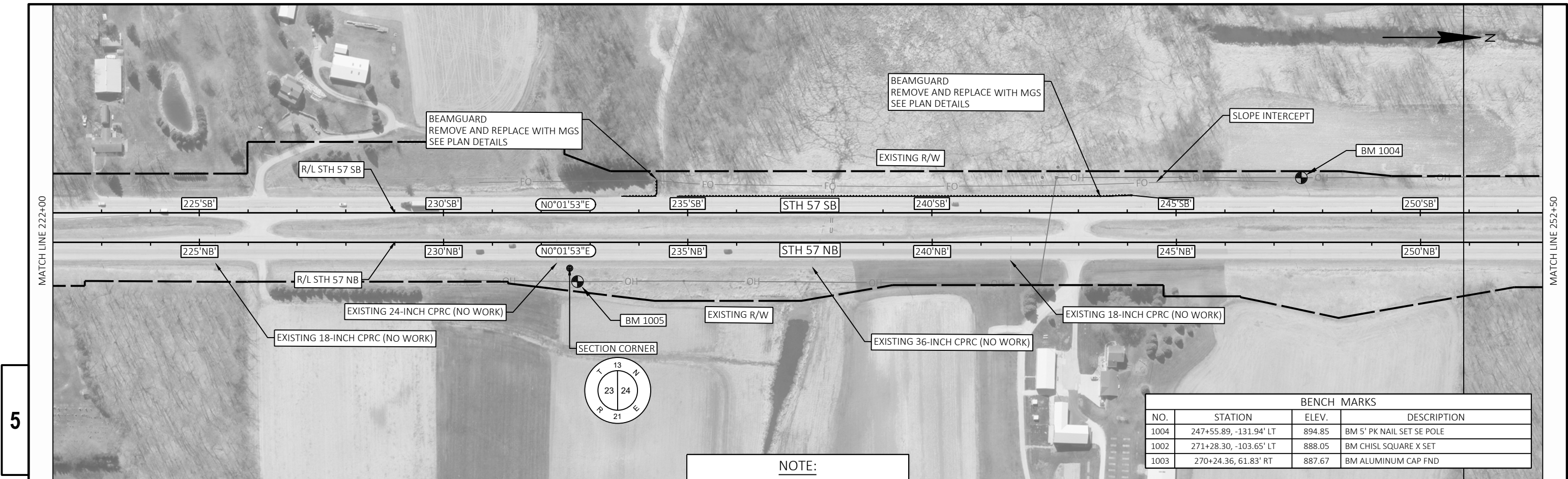
PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	PLAN SHEETS	SHEET 54	E
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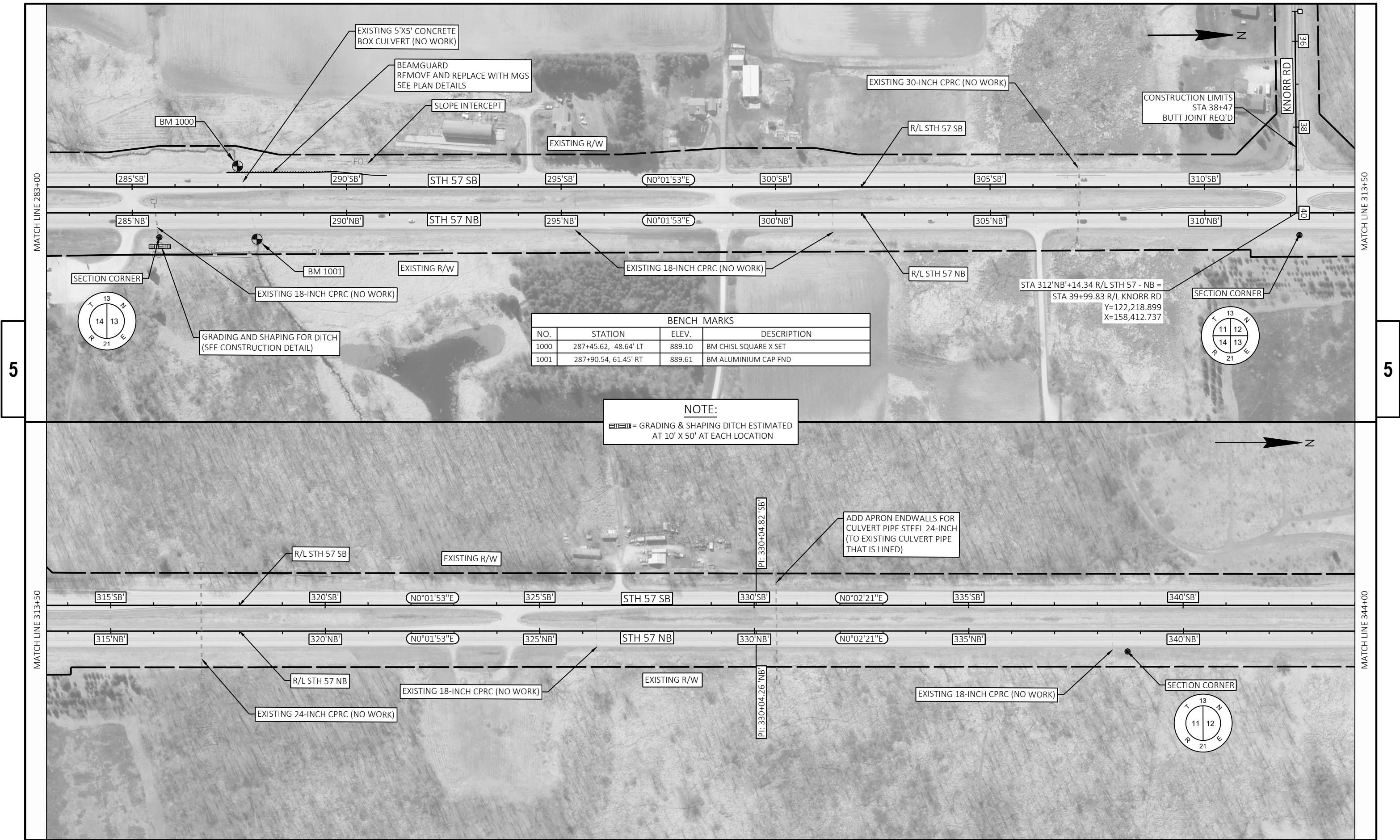


BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
1006	171+31.62, -133.99' LT	922.15	BM "5" PK NAIL SET W POLE
1007	161+93.70, -135.29' LT	900.32	BM 5" PK NAIL SET W POLE

NOTE:
[Symbol] = GRADING & SHAPING DITCH ESTIMATED AT 10' X 50' AT EACH LOCATION

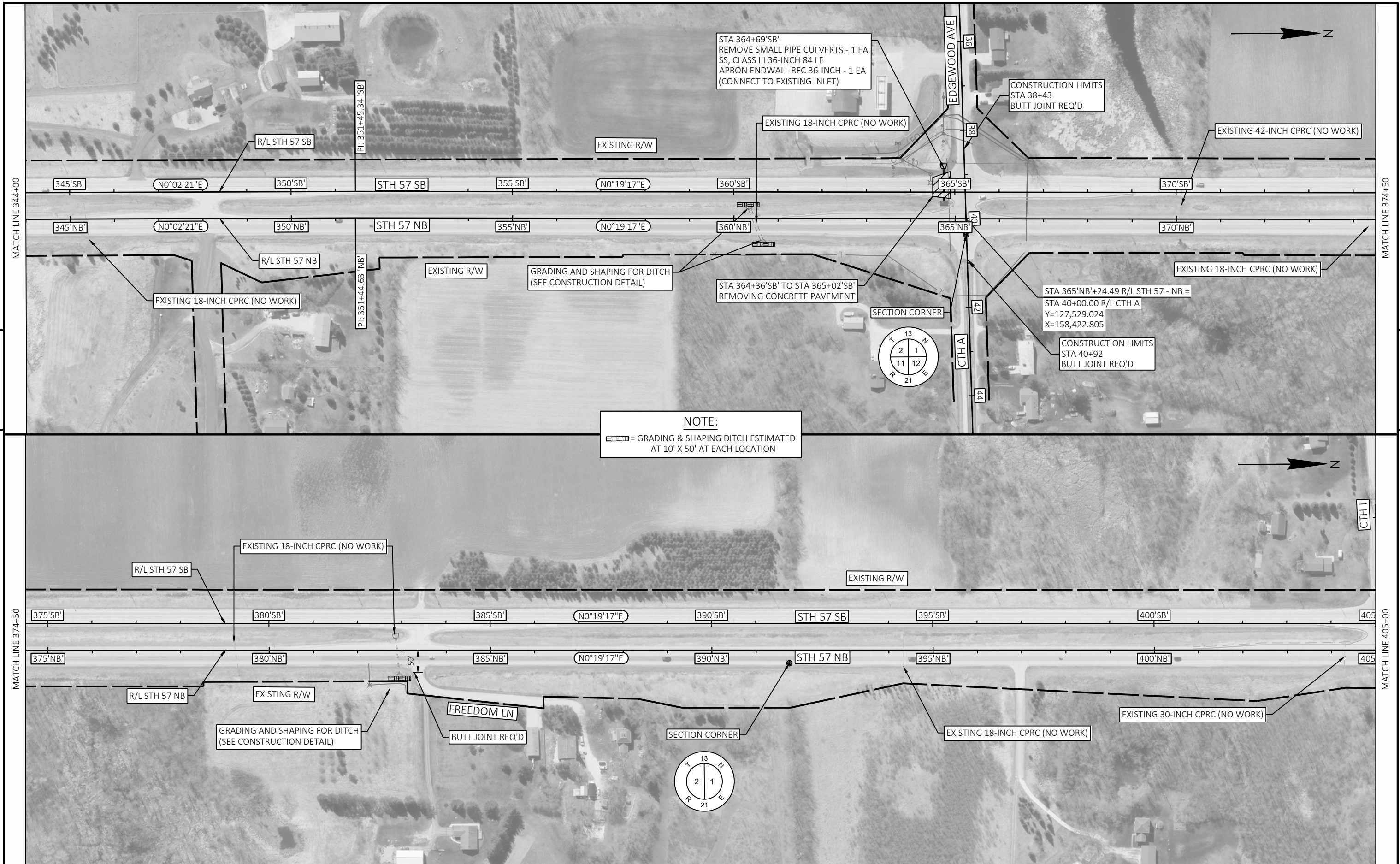




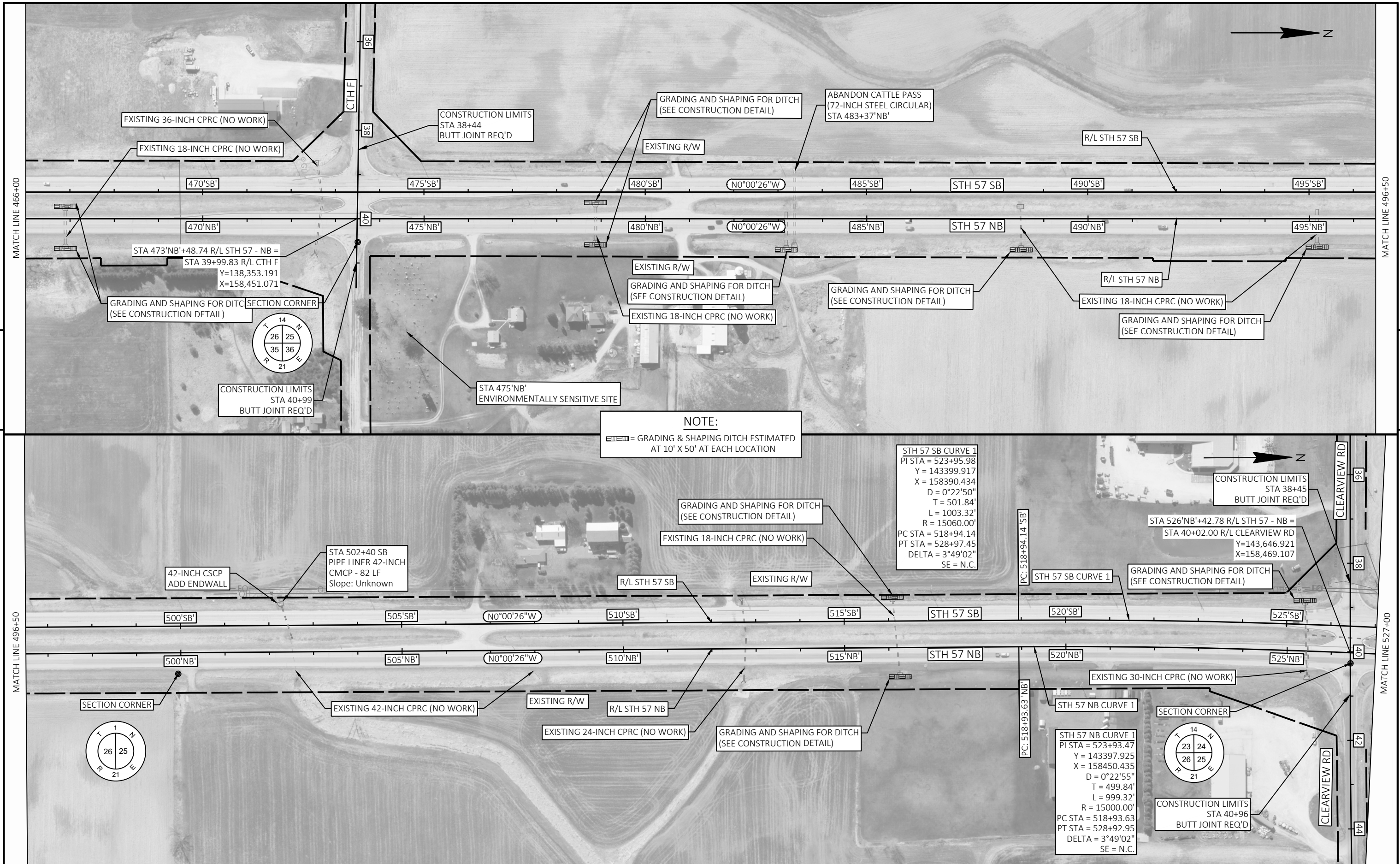


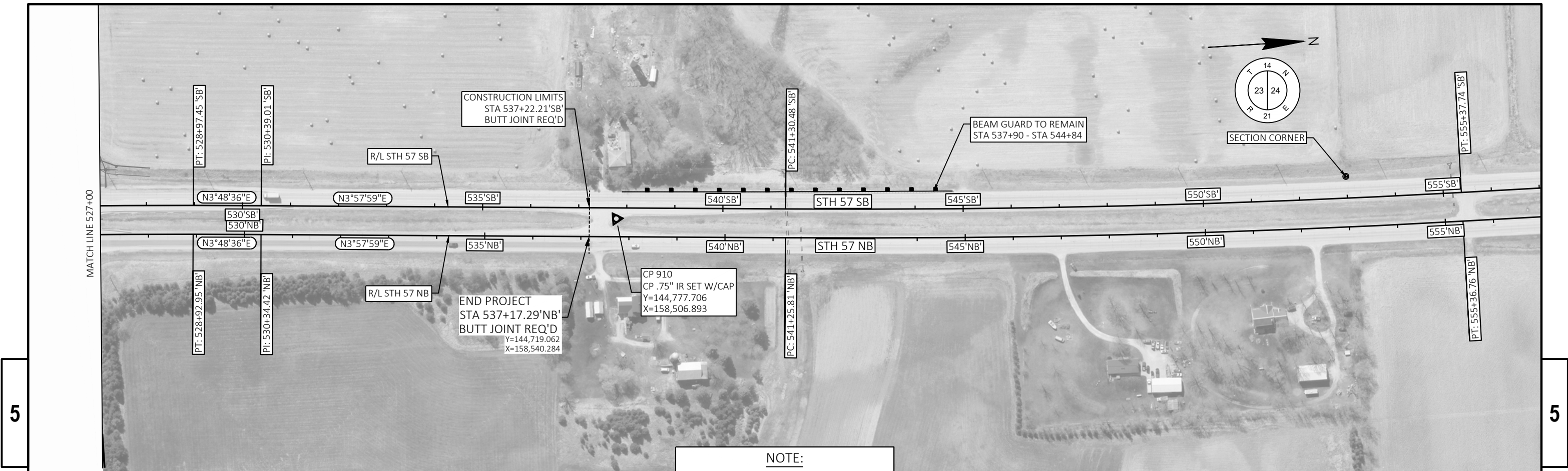
BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
1000	287+45.62, -48.64' LT	889.10	BM CHISL SQUARE X SET
1001	287+90.54, 61.45' RT	889.61	BM ALUMINIUM CAP FND

NOTE:
= GRADING & SHAPING DITCH ESTIMATED
AT 10' X 50' AT EACH LOCATION



NOTE:
[Symbol] = GRADING & SHAPING DITCH ESTIMATED
AT 10' X 50' AT EACH LOCATION





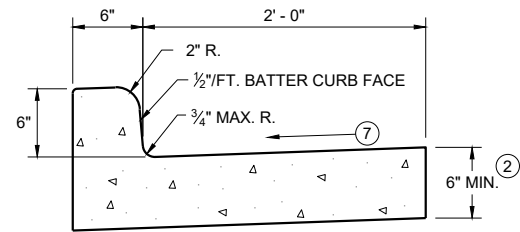
NOTE:
[Symbol] = GRADING & SHAPING DITCH ESTIMATED
AT 10' X 50' AT EACH LOCATION

Standard Detail Drawing List

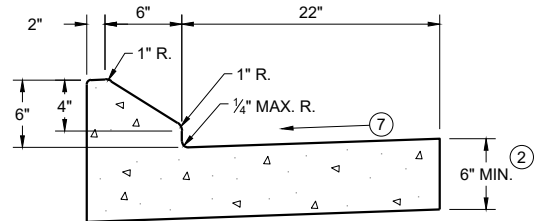
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A05-06A	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13A05-06B	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13A10-03G	SHOULDER AND EDGE LINE RUMBLE STRIPS - CROSSINGS, INTERSECTIONS, BRIDGES, DRIVEWAYS
13A10-03H	SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES
13C09-18A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-18B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-18C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-18D	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C14-07A	BASE PATCHING CONCRETE
13C14-07B	BASE PATCHING CONCRETE
13C14-07C	BASE PATCHING CONCRETE
13C19-03	HMA LONGITUDINAL JOINTS
14B29-01	SAFETY EDGE
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B43-04A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04B	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B47-06A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B53-03A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-10A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-10C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-24C	PAVEMENT MARKING (TURN LANES)
15C08-24D	PAVEMENT MARKING (TURN LANES)
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C19-11C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D12-16A	TRAFFIC CONTROL, LANE CLOSURE
15D20-11A	TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-05	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D39-03	TRAFFIC CONTROL, DROP-OFF SIGNING
15D43-03	TRAFFIC CONTROL, SHORT DURATION MOBILE OPERATIONS

Standard Detail Drawing List

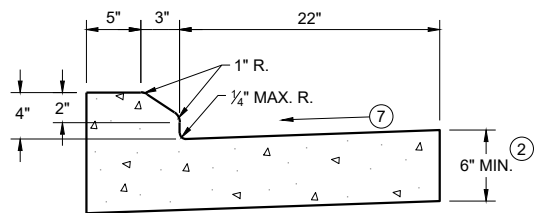
15D44-02 TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES



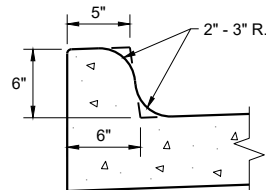
TYPES A^① & D



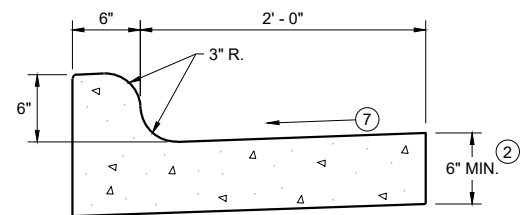
6" SLOPED CURB TYPES G^① & J



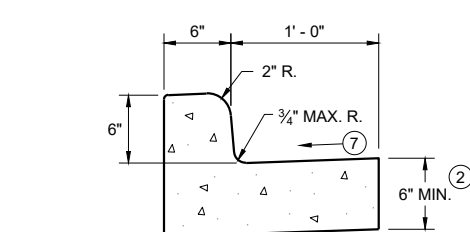
4" SLOPED CURB TYPES G^① & J



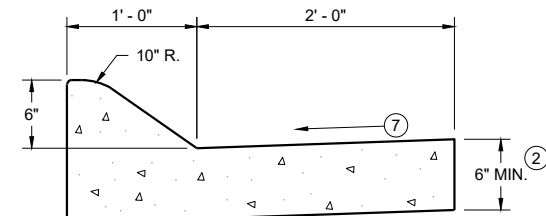
TYPES K^① & L
(OPTIONAL CURB SHAPE)



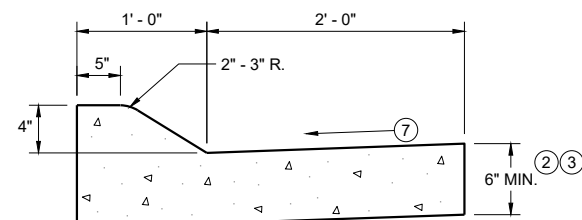
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



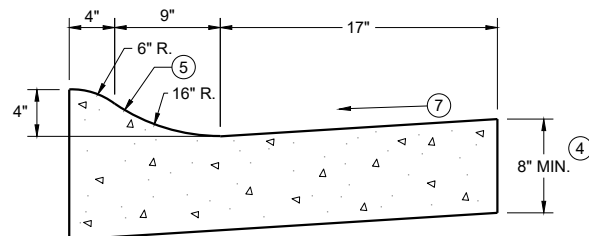
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

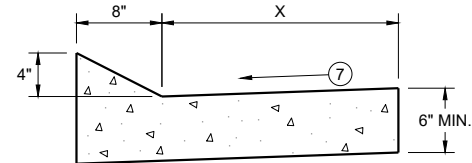


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

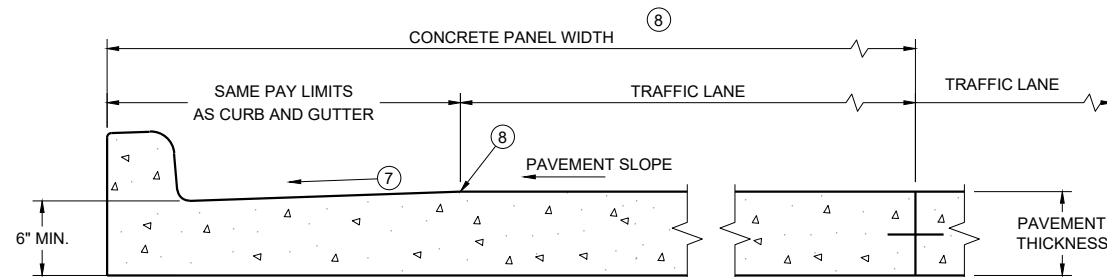
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

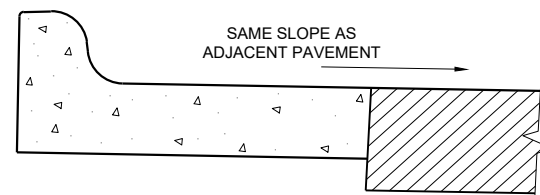
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

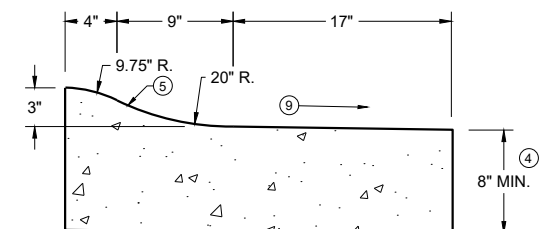


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

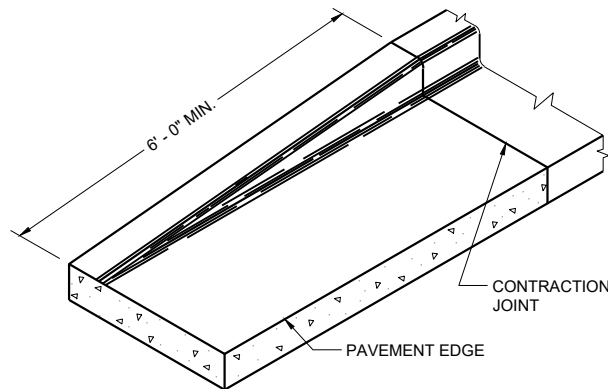
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

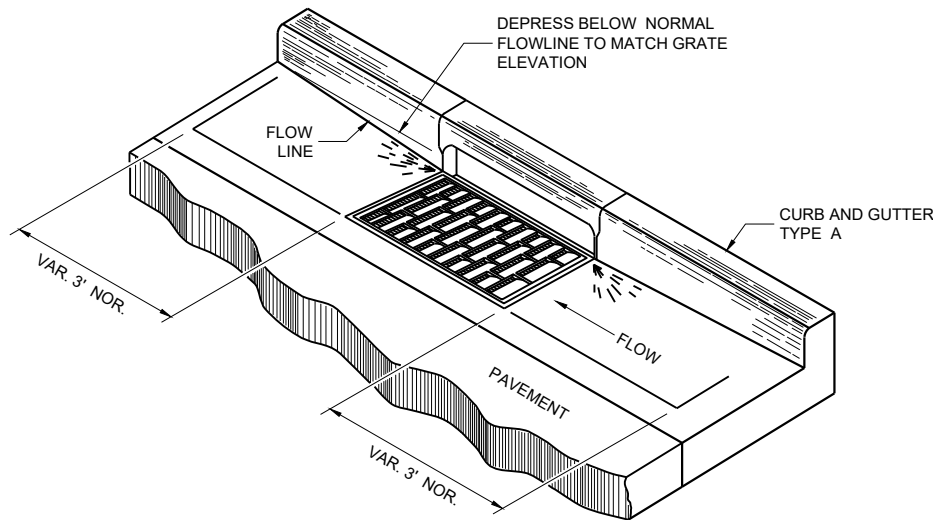
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

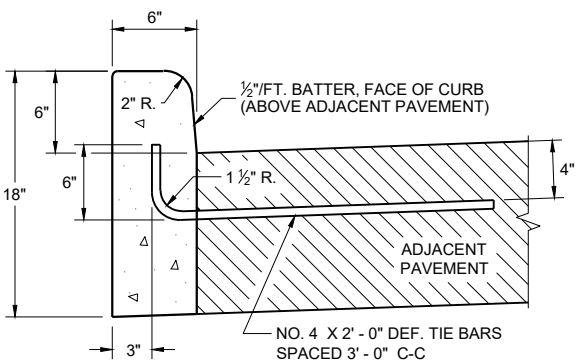


END SECTION CURB AND GUTTER

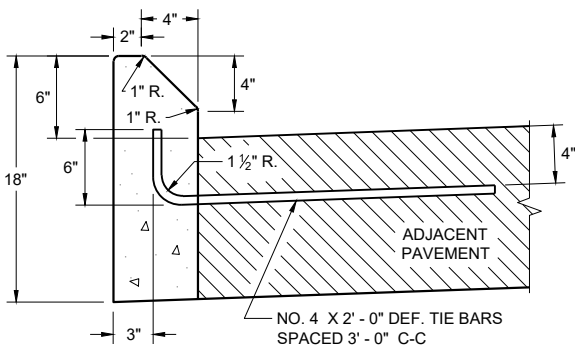


DETAIL OF CURB AND GUTTER AT INLETS

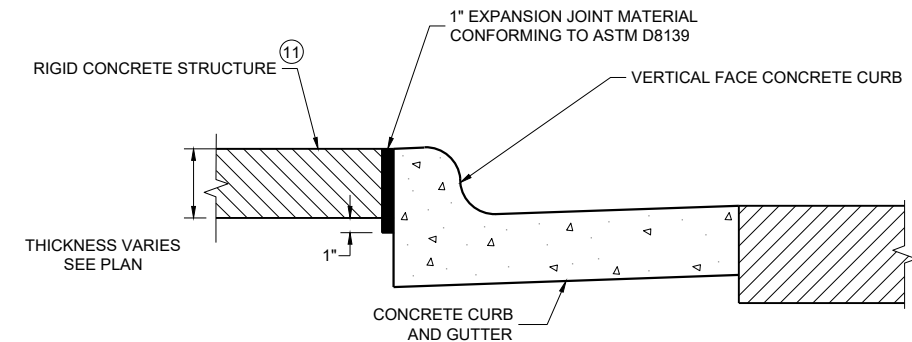
(TYPICAL H INLET COVER SHOWN)



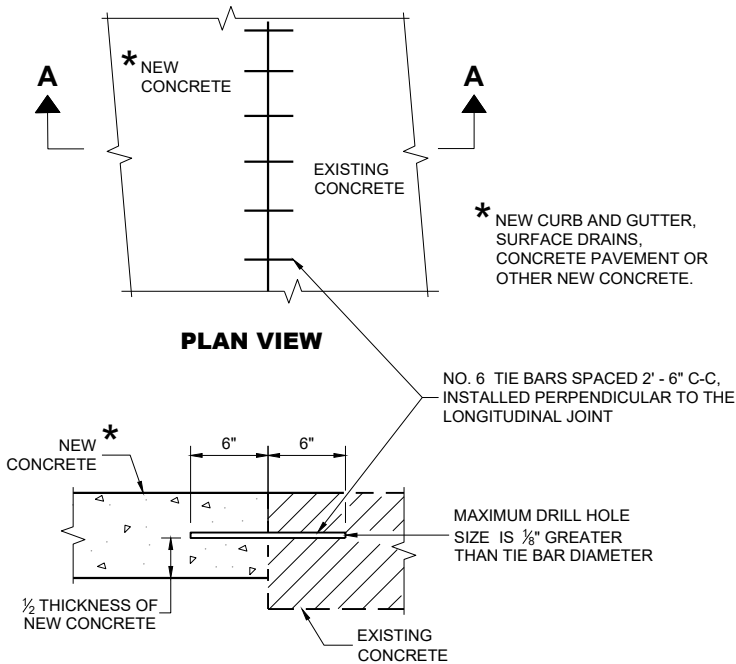
TYPES A^① & D



TYPES G^① & J
CONCRETE CURB



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

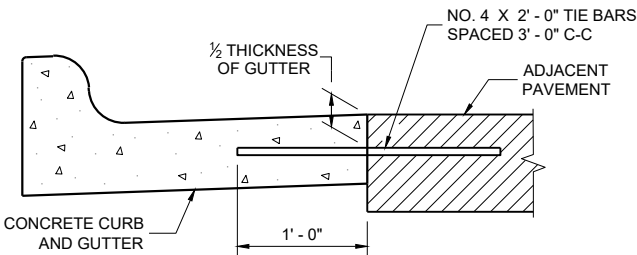
GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

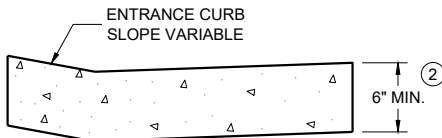
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



TYPICAL TIE BAR LOCATION^①



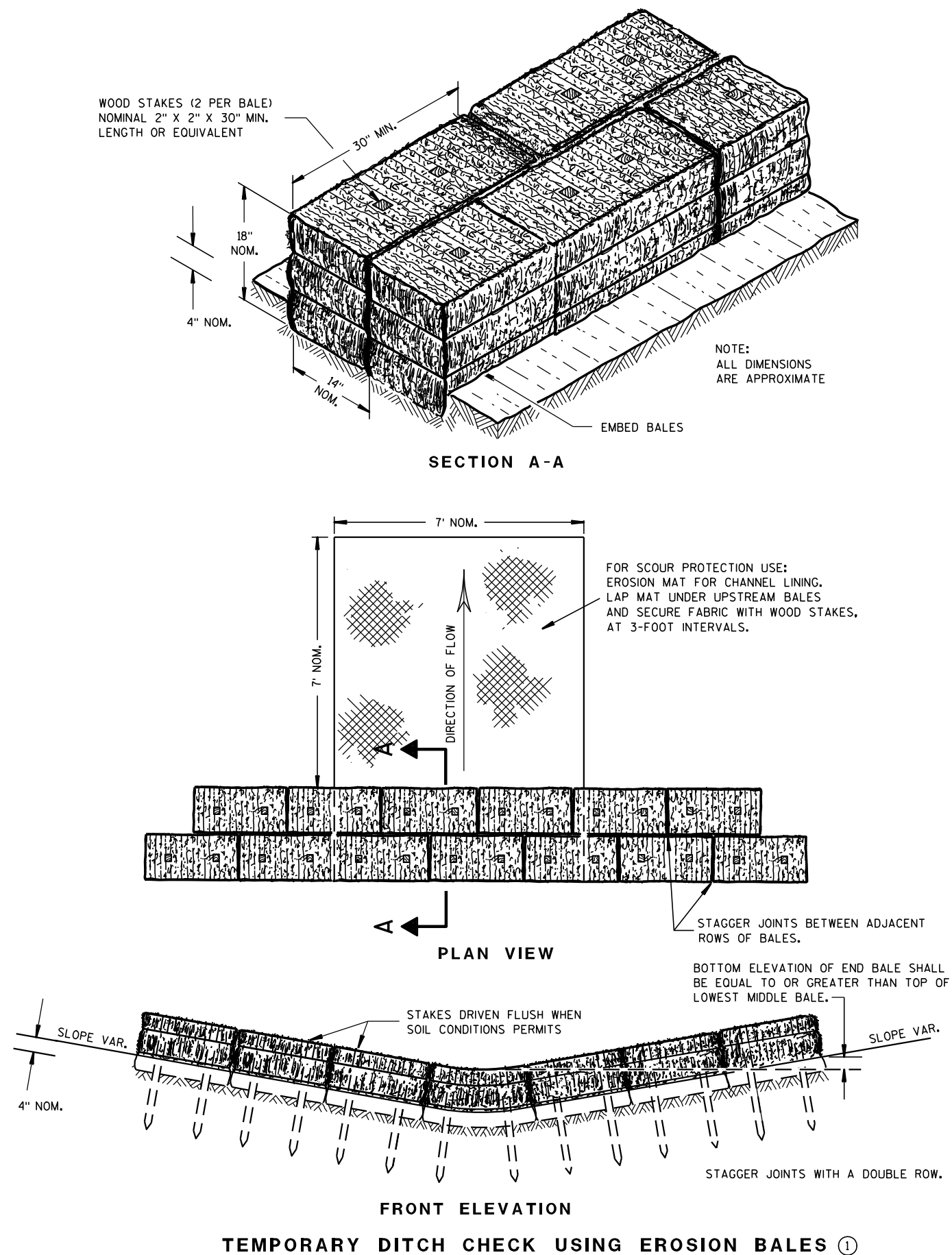
DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

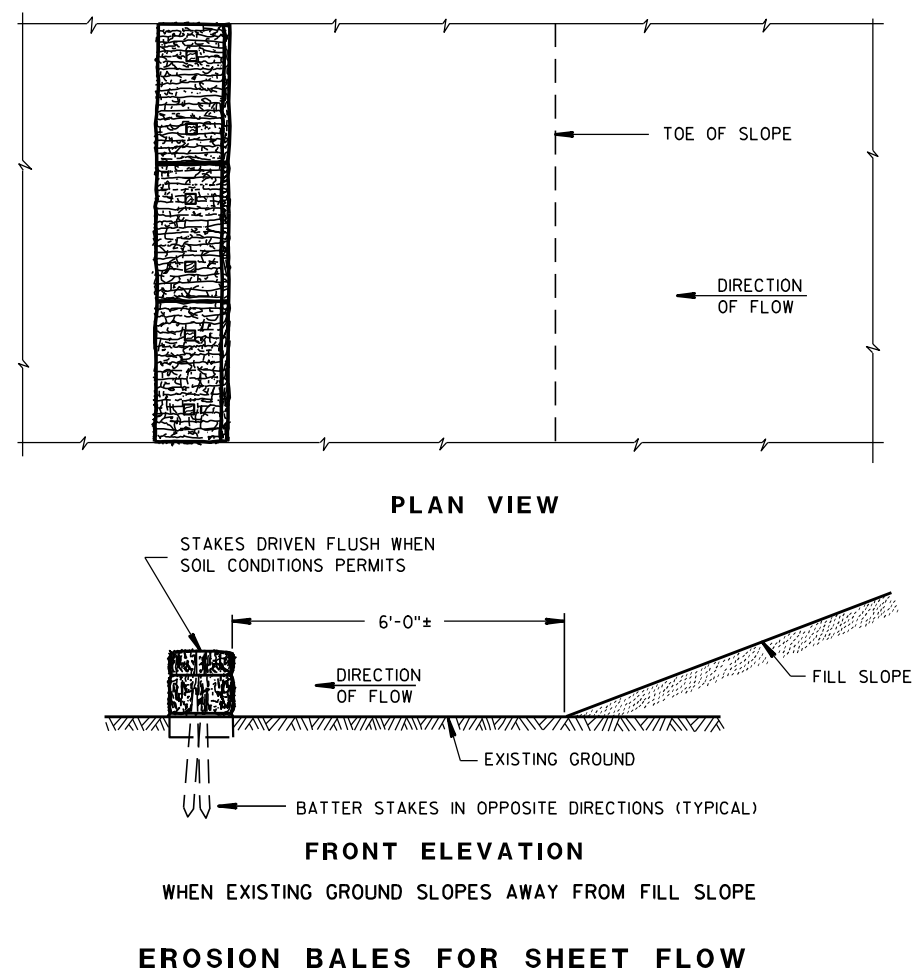
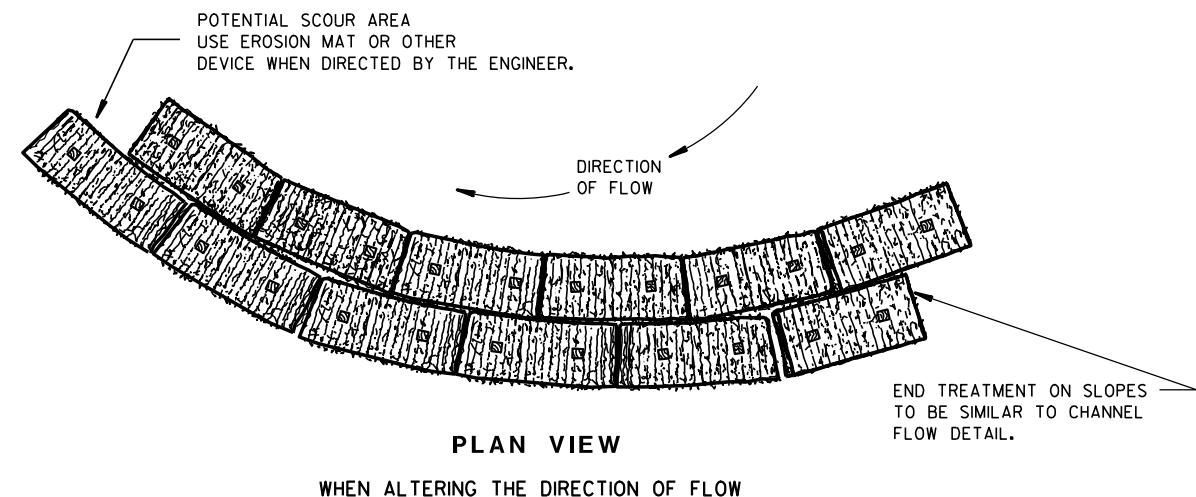
FHWA



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.



TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

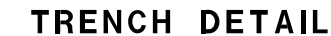
6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 66 ENGINEER

FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

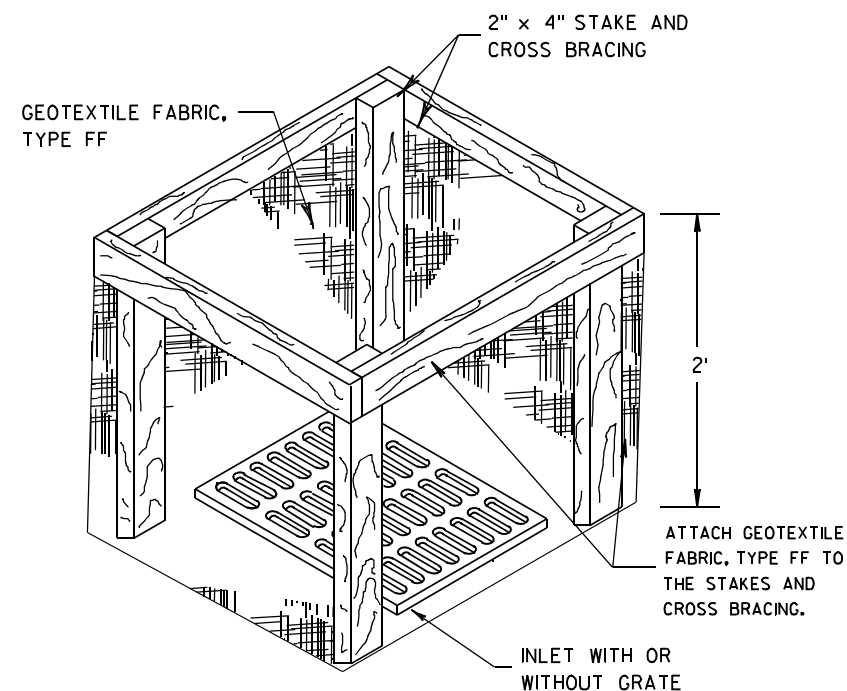
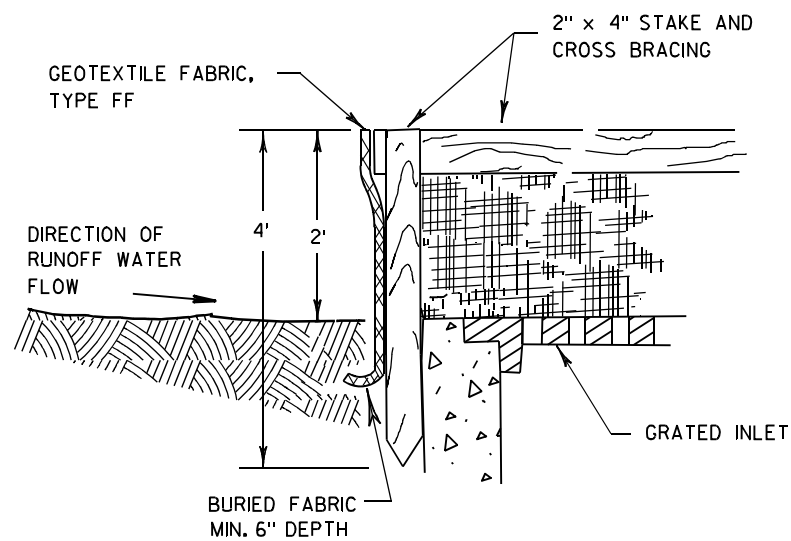


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Connolly
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



INLET PROTECTION, TYPE A

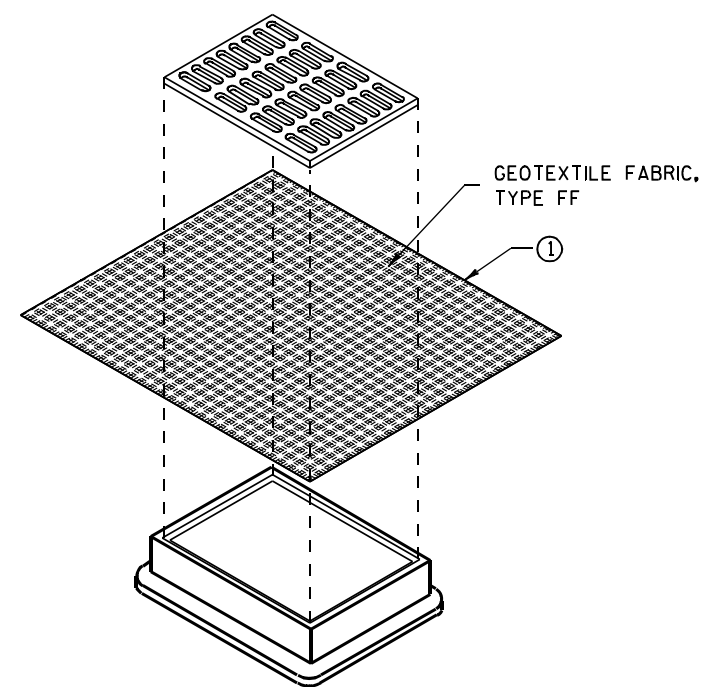
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

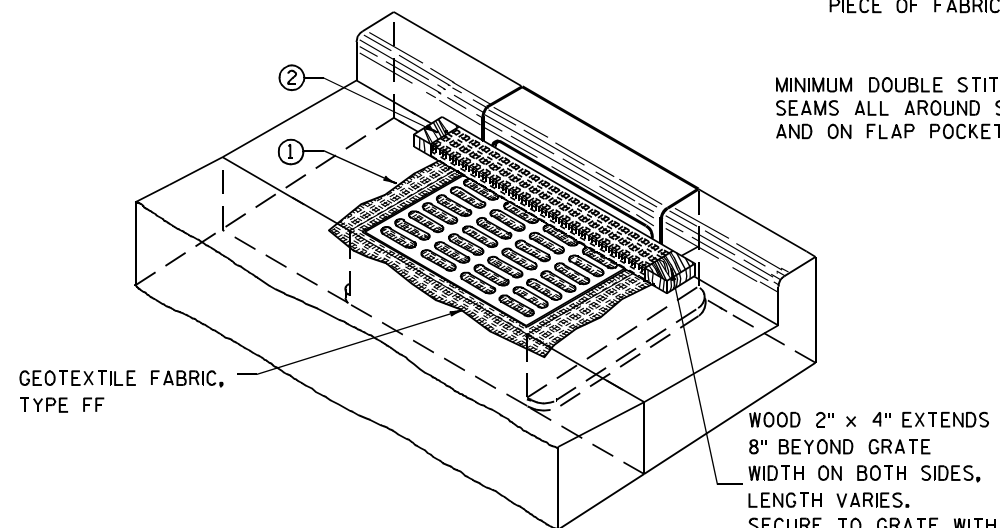
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

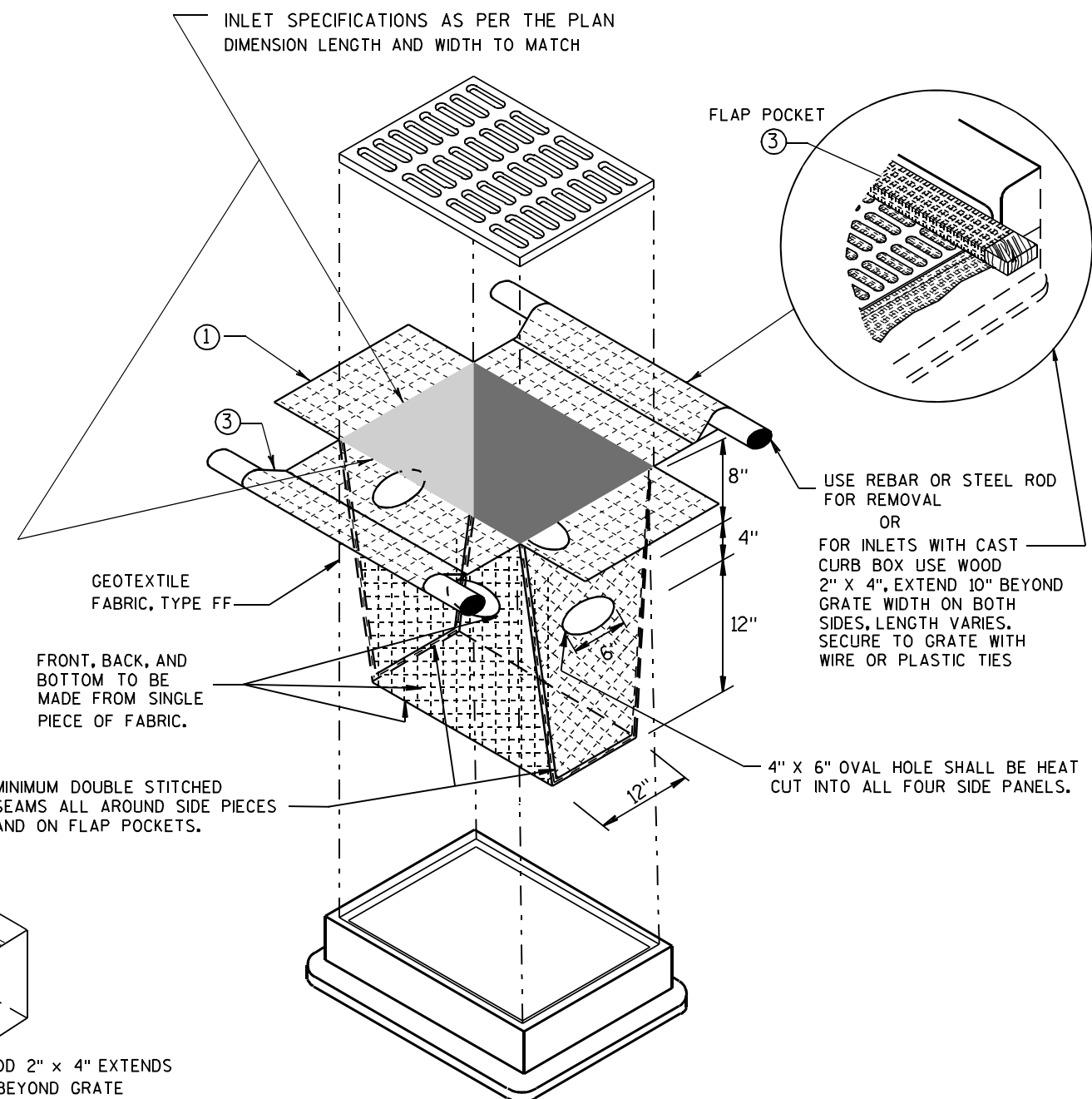
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

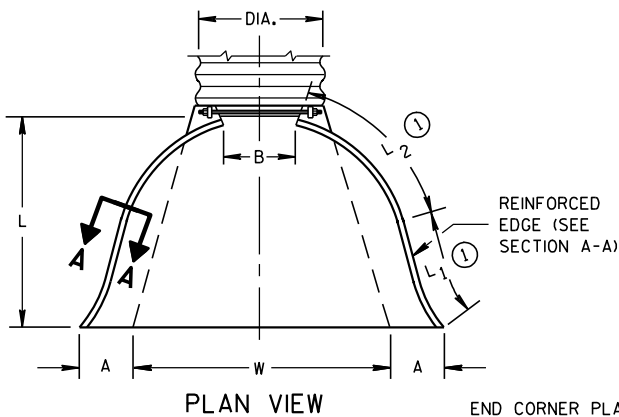
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 68
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE		BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2	Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2	Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3	Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3	Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3	Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3	Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3	Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3	Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3	Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3	Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3	Pc.

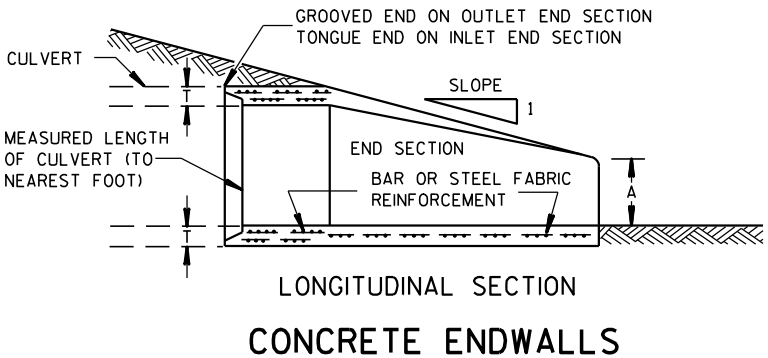
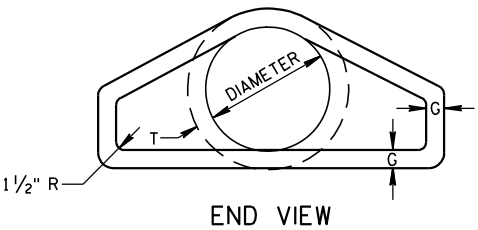
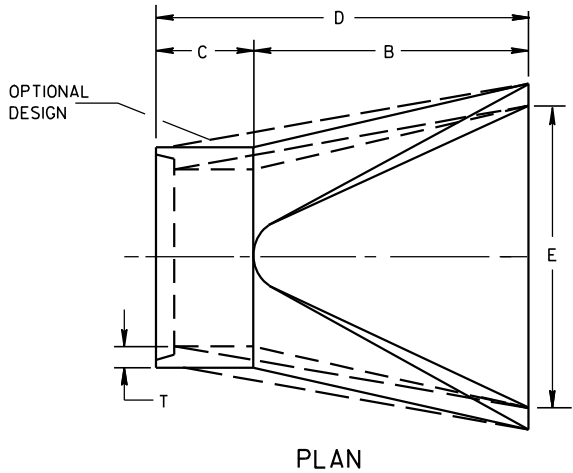
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



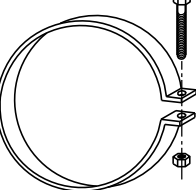
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1				
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1				
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1				
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1				
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1				
48	5	24	72	26	98	84	5	3 to 1				
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 2/5 to 1				
60	6	30-35	60	39	99	96	5	2 to 1				
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1				
72	7	24-36	78	21	99	108	6	2 to 1				
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1				
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1				
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1				

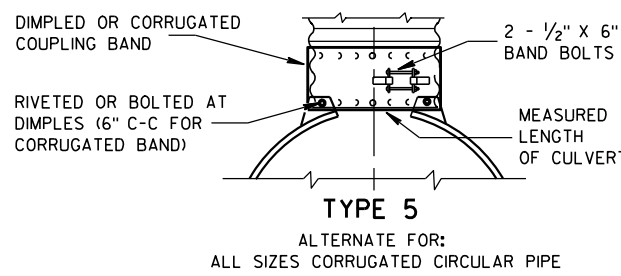
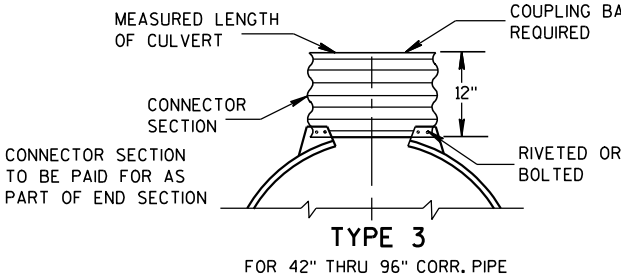
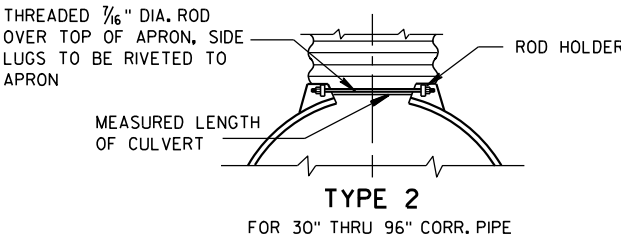
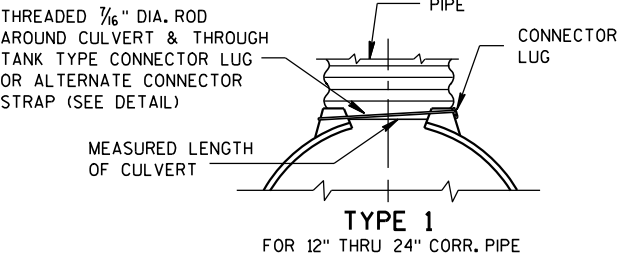
* MINIMUM
** MAXIMUM



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



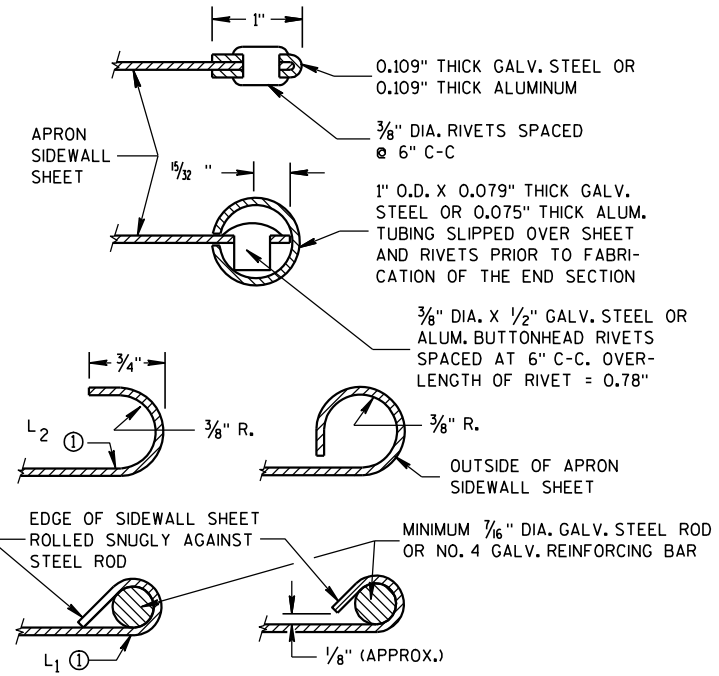
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

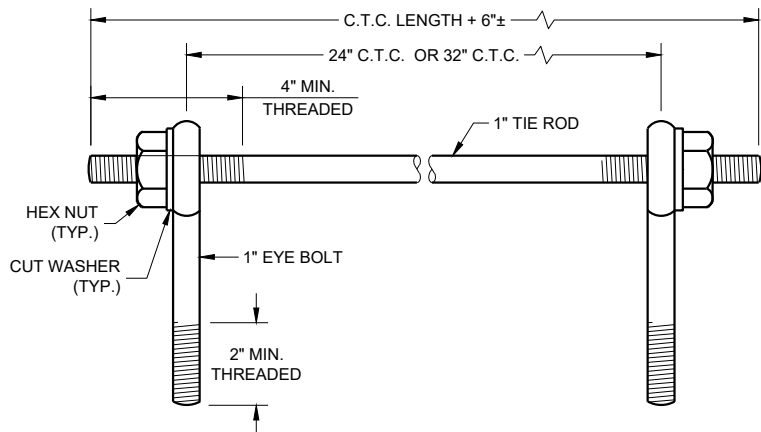
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

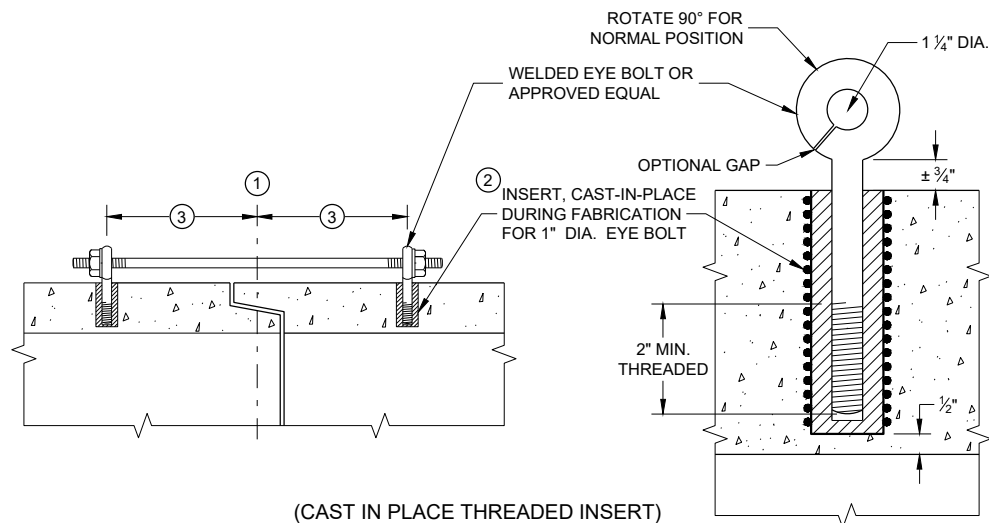
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP 69	NEER	
FHWA			



Eye Bolts and Tie Rod

Eye Bolt and Tie Rod Assembly (Alternate No. 1)



(Cast in Place Threaded Insert)

Longitudinal Sections

GENERAL NOTES

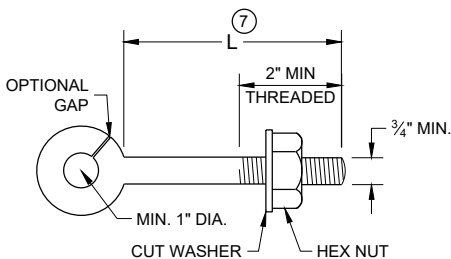
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

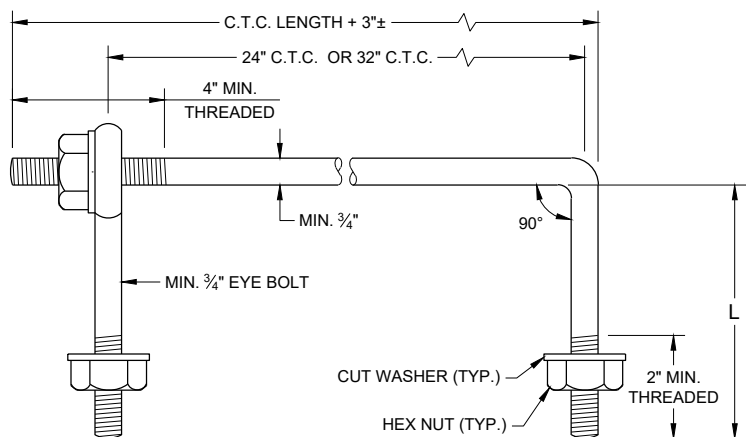
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- 2 THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 3 HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 4 BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- 5 OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- 6 LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

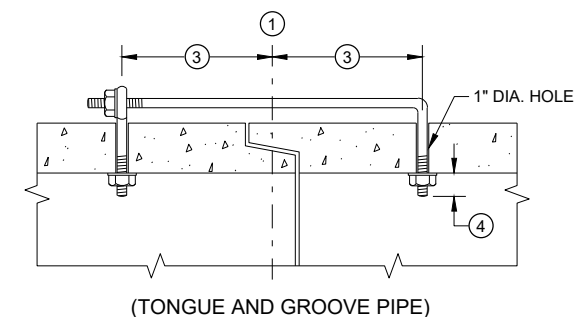


Eye Bolt

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



Eye Bolt and Tie Rod

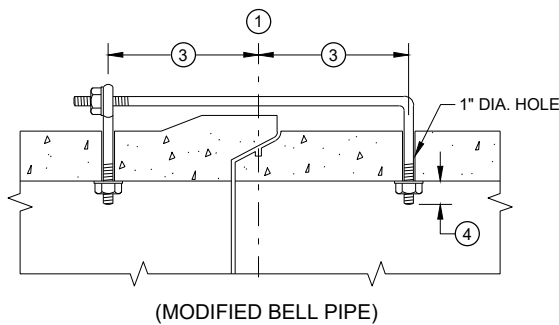


(Tongue and Groove Pipe)

Longitudinal Section

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

Eye Bolt and Tie Rod Assembly (Alternate No. 2)

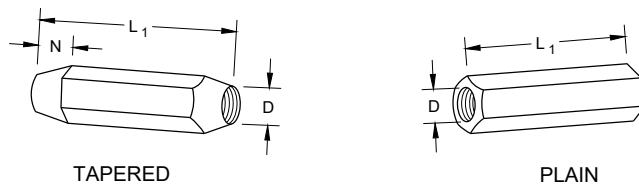


(Modified Bell Pipe)

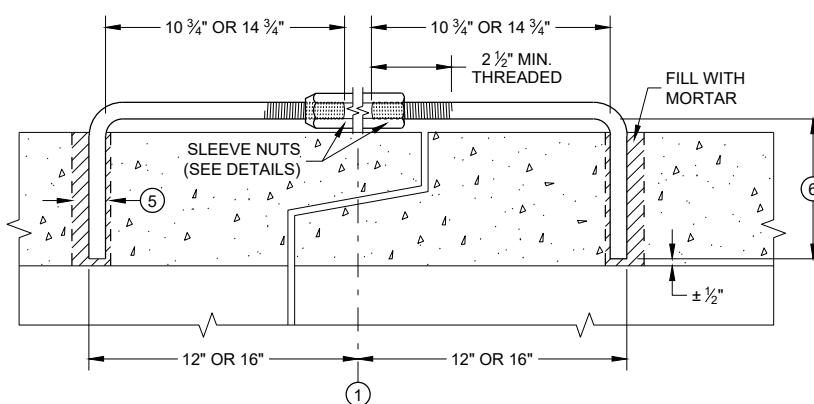
Adjustable Tie Rod Table

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES

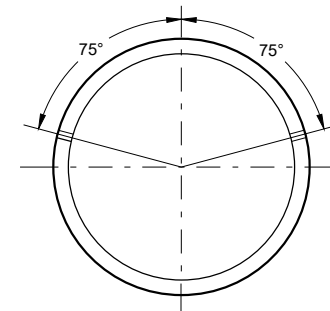


Right and Left Threads
Sleeve Nuts



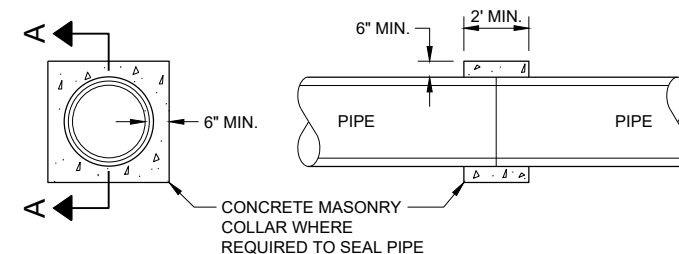
Longitudinal Section

Adjustable Tie Rod (Alternate No. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

Transverse Section



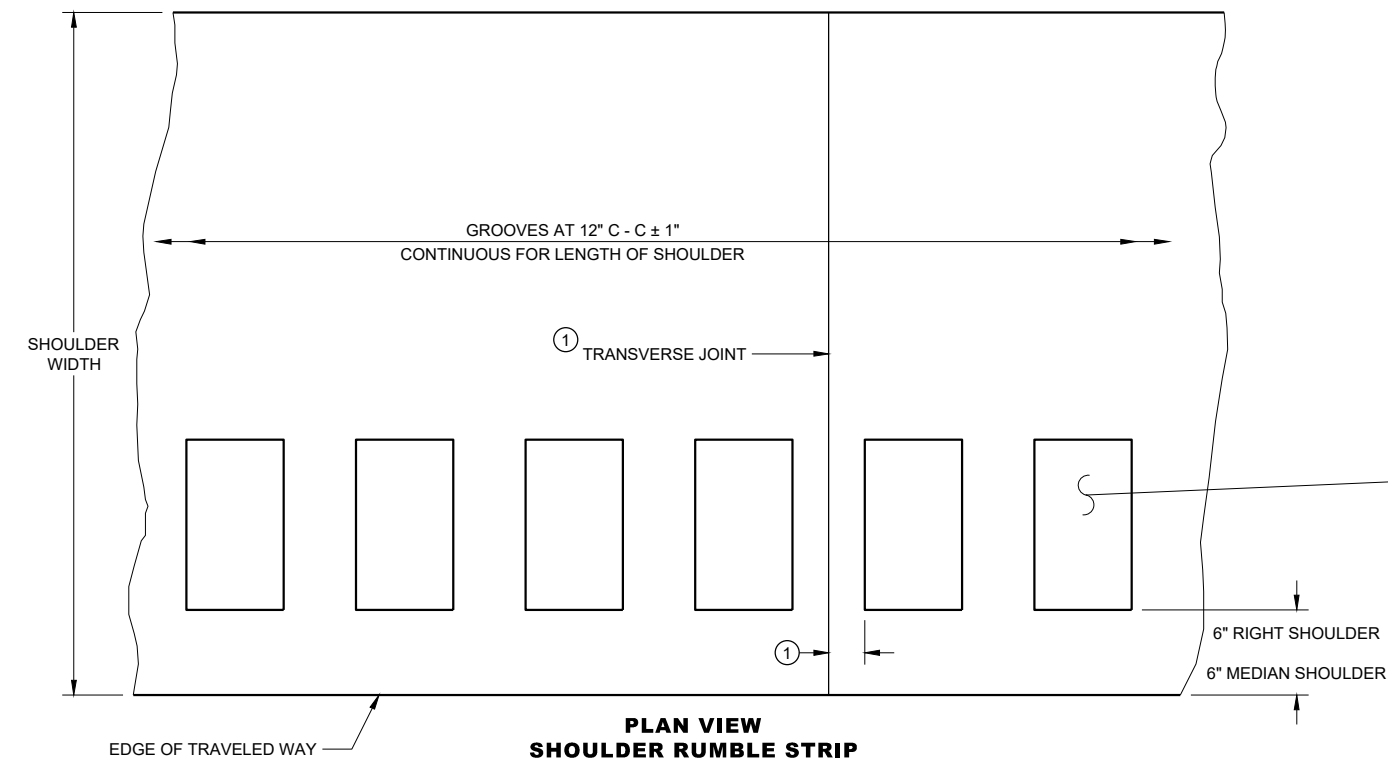
Section A - A

Concrete Collar Detail

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

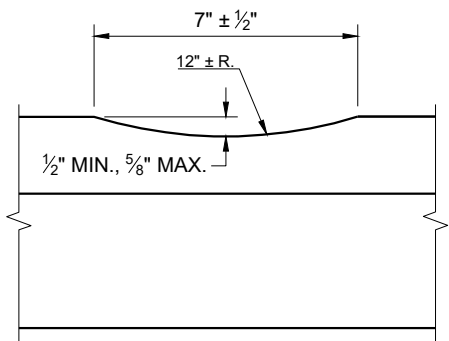
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 70
FHWA

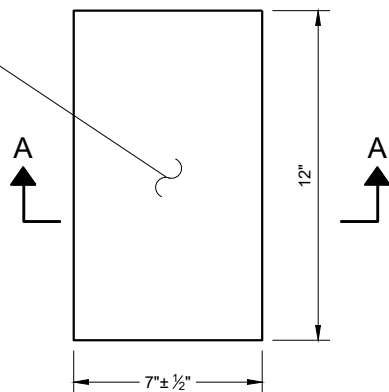


6

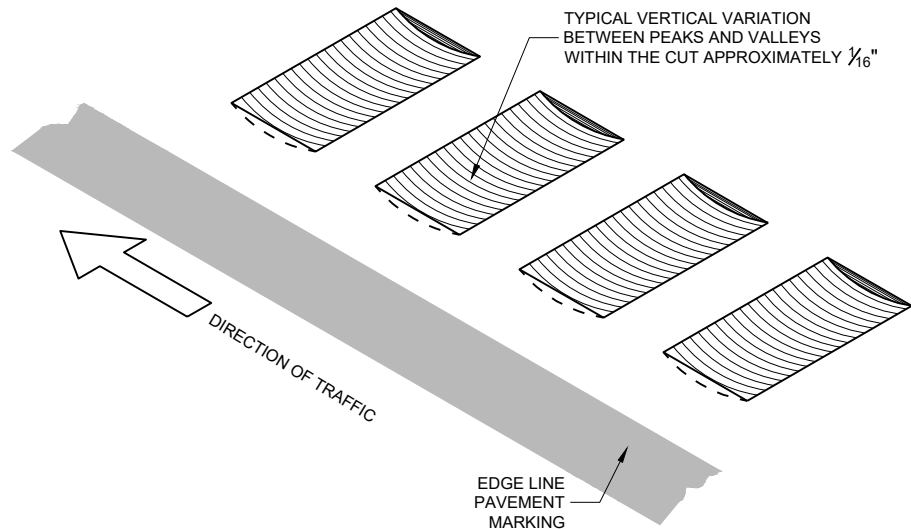
PLACEMENT DETAIL FOR RUMBLE STRIP



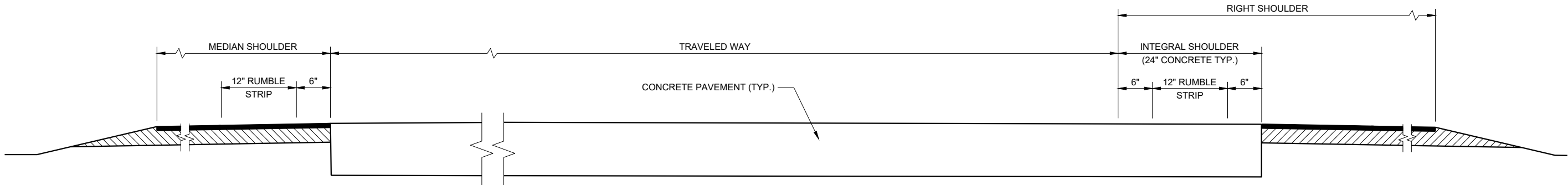
SECTION A - A



PLAN VIEW
(SINGLE GROOVE)



ISOMETRIC



SECTION VIEW

TYPICAL SHOULDER RUMBLE STRIPS
(ONE ROADWAY IS SHOWN)

GENERAL NOTES

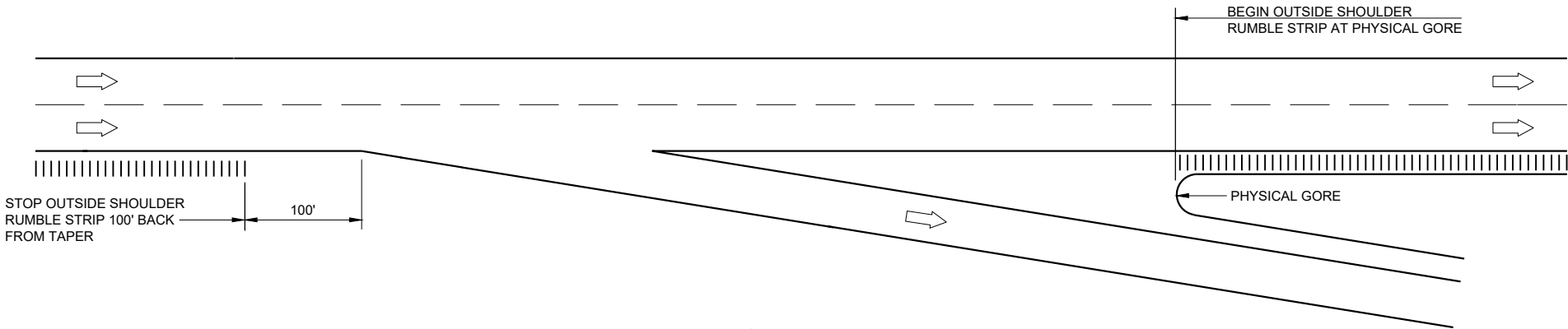
SDD 13A5, SHEET "b" SHOWS THE LOCATION OF THE RUMBLE STRIPS AT RAMP AND GORE LOCATIONS.

RUMBLE STRIPS ON EXPRESSWAYS:
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

- ① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6 INCHES AWAY FROM TRANSVERSE JOINTS.

SHOULDER RUMBLE STRIPS,
DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TYPICAL EXIT RAMP

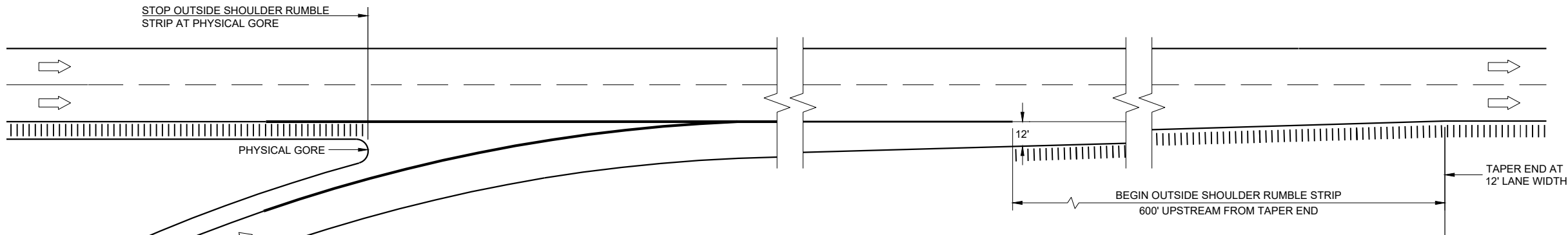
GENERAL NOTES

NO RUMBLE STRIP ON EXIT, DIRECTIONAL OR ENTRANCE RAMP, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

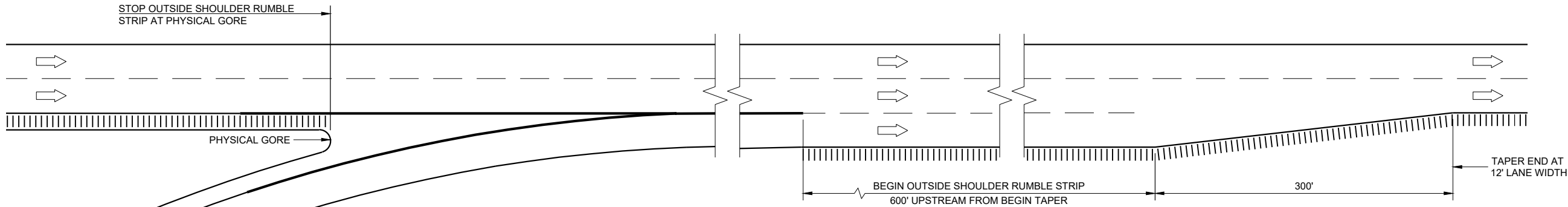
RUMBLE STRIPS ON EXPRESSWAYS:
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

LEGEND

➡ DIRECTION OF TRAFFIC



TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS

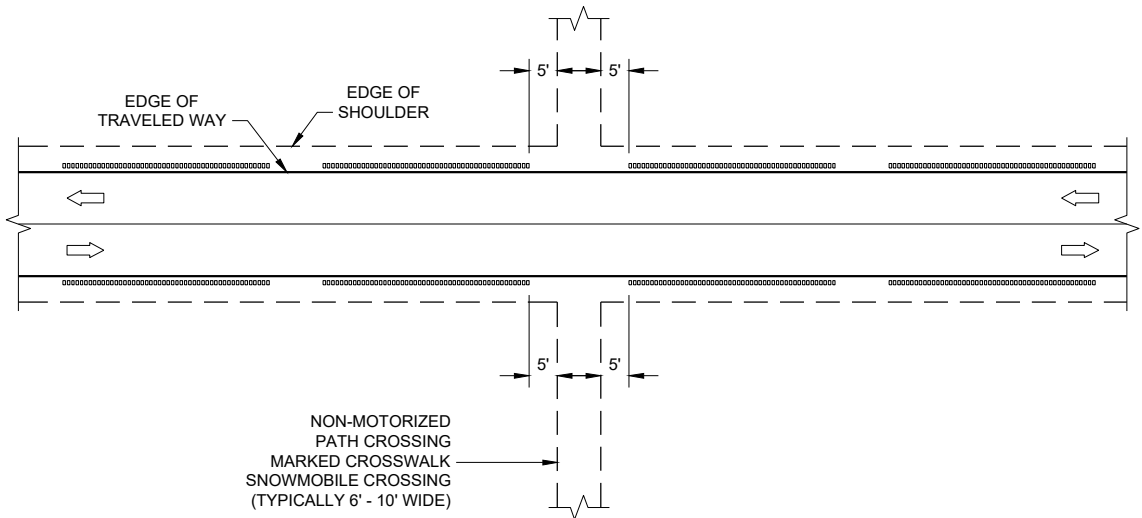


TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS

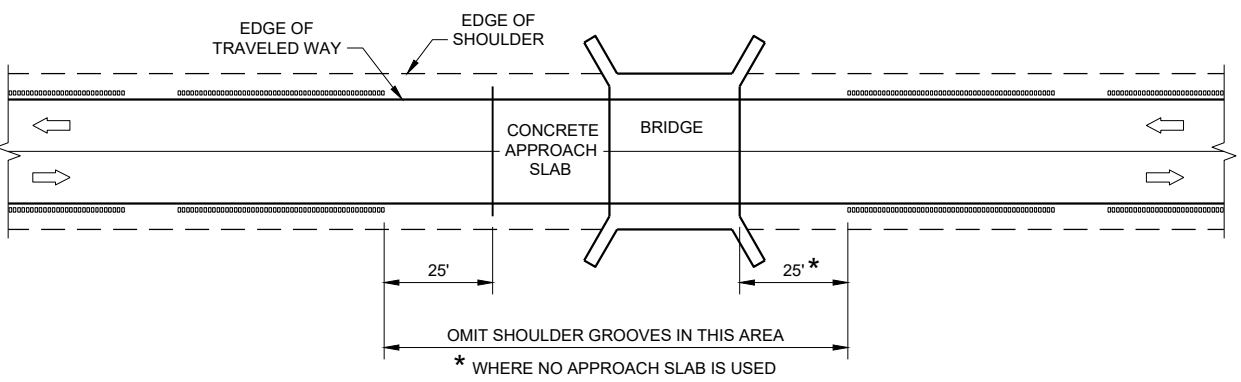
SHOULDER RUMBLE STRIPS,
DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

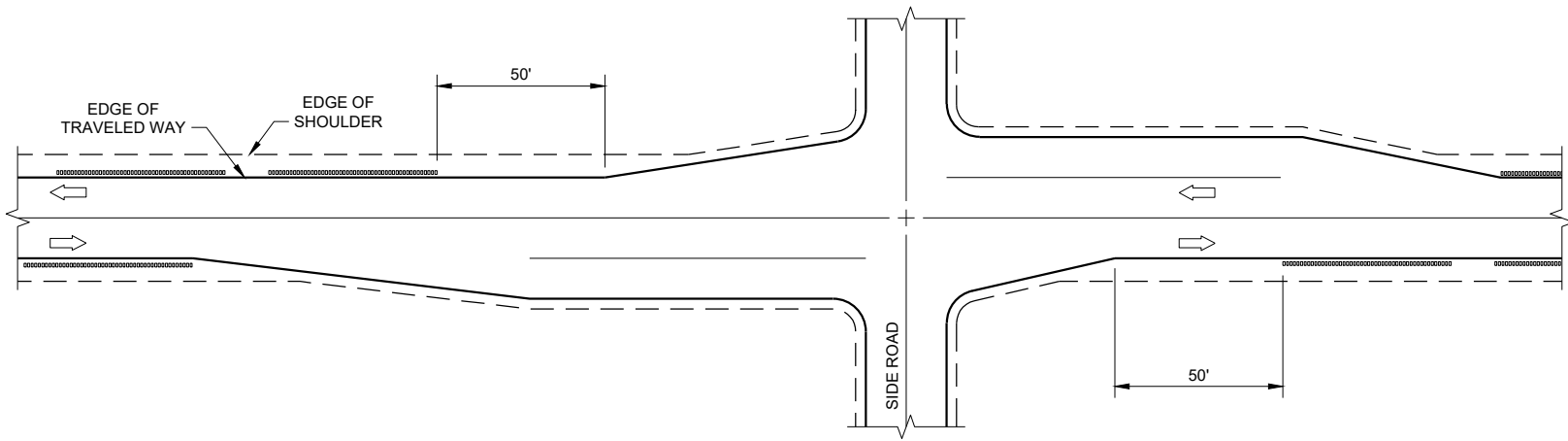
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY DESIGN STAFF
FHWA UNIT SUPERVISOR 72



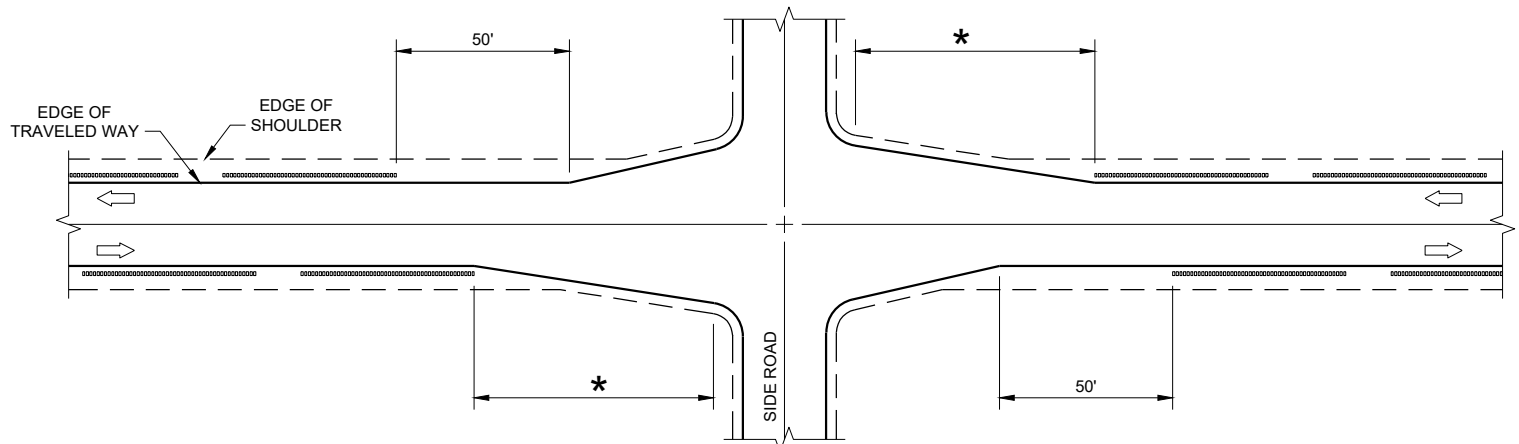
GROOVES AT MISCELLANEOUS CROSSINGS



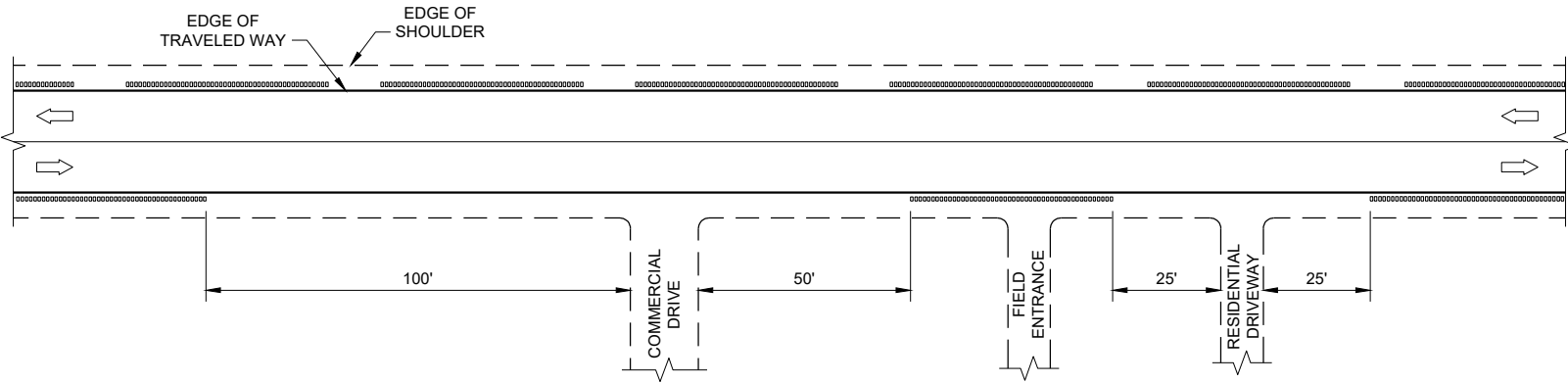
GROOVES AT BRIDGES



GROOVES AT RIGHT TURN LANE



GROOVES AT INTERSECTIONS WITH APPROACH TAPER



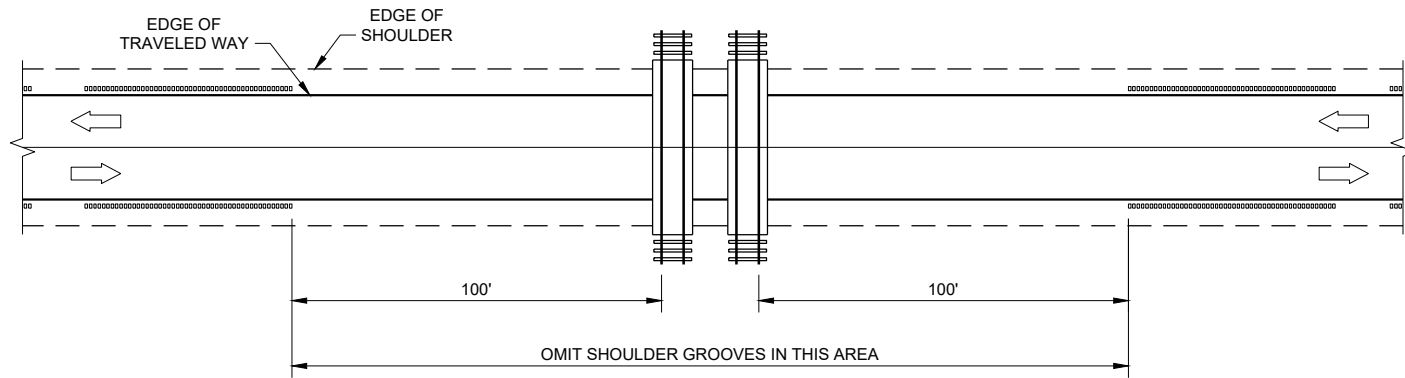
GROOVES AT DRIVEWAYS

GENERAL NOTES

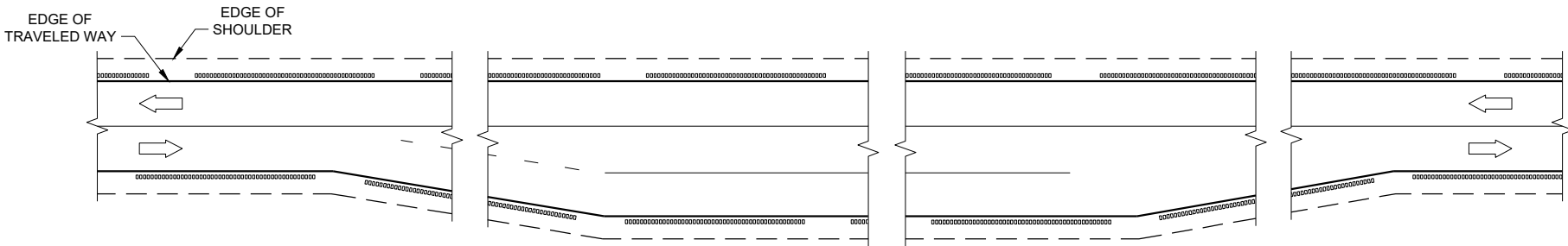
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

SHOULDER AND EDGE LINE
RUMBLE STRIPS
CROSSINGS, INTERSECTIONS,
BRIDGES, DRIVEWAYS

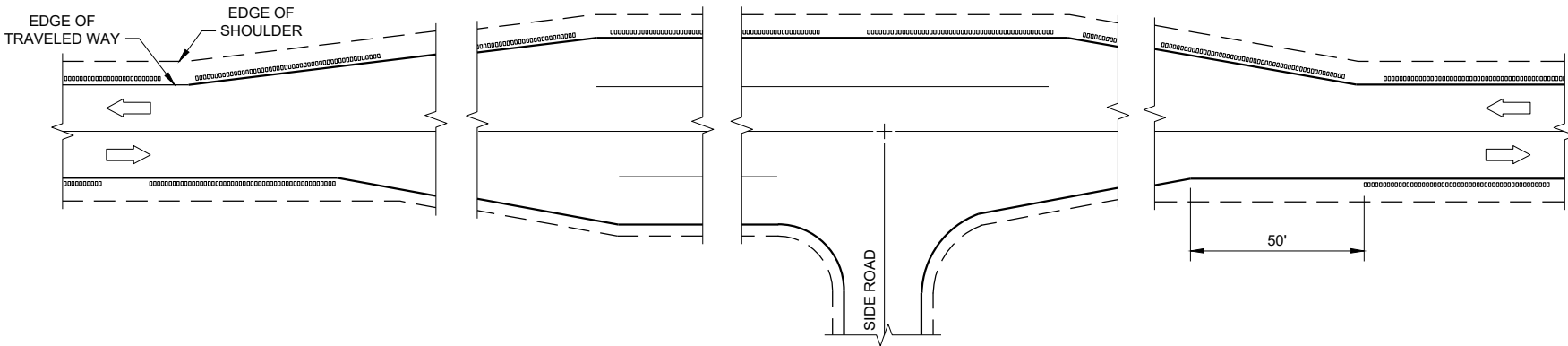
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GROOVES AT RAILROADS



GROOVES AT PASSING AND CLIMBING LANES

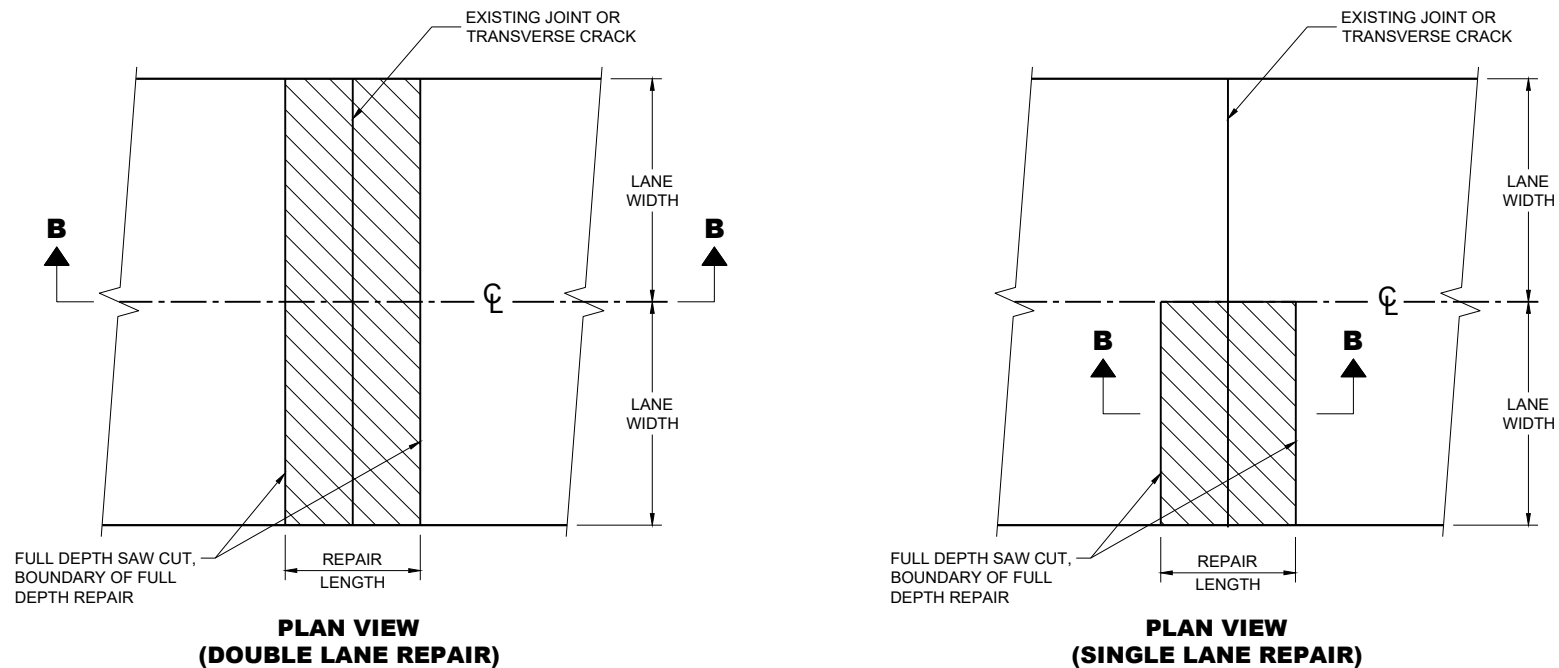


GROOVES AT BYPASS LANES

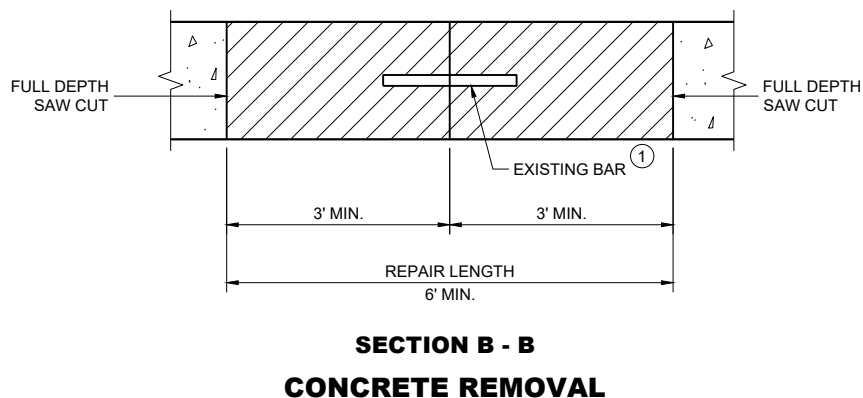
**SHOULDER AND EDGE LINE
RUMBLE STRIPS -
RAILROAD, PASSING,
CLIMBING AND BYPASS LANES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 74
FHWA



FULL DEPTH CONCRETE PAVEMENT REMOVAL



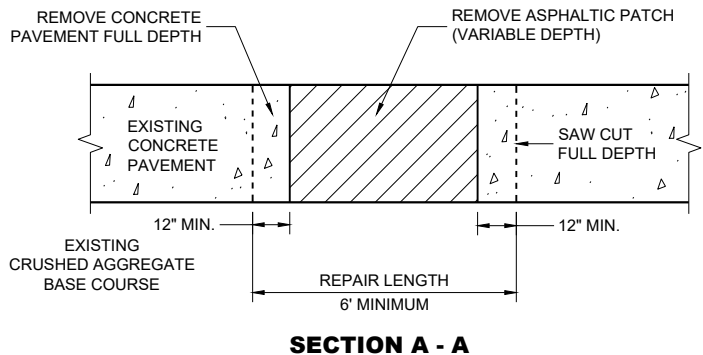
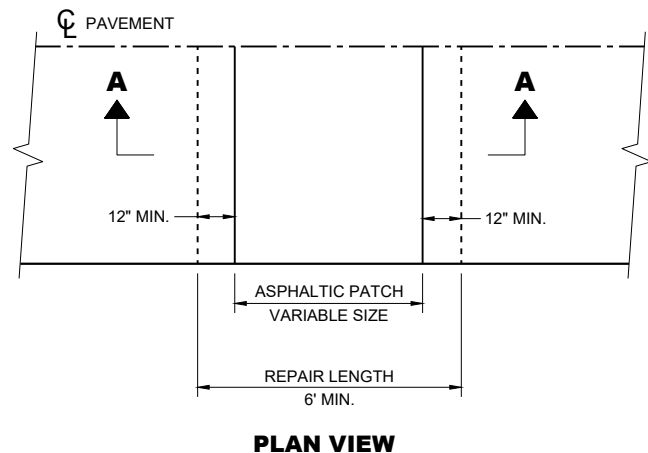
GENERAL NOTES

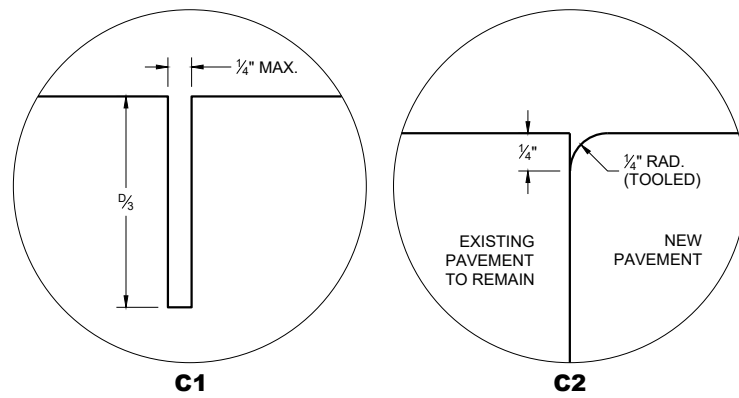
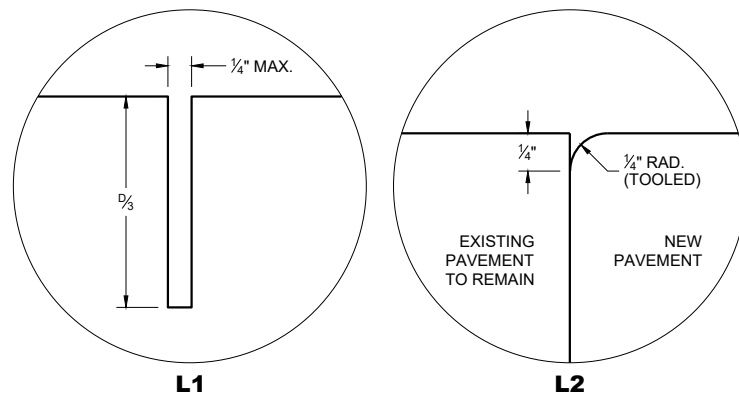
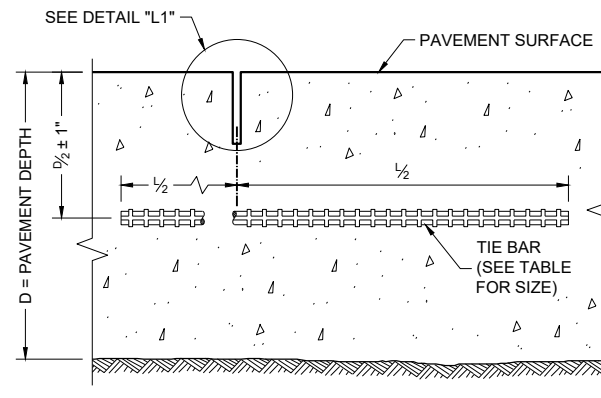
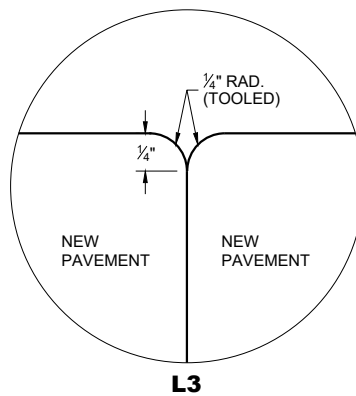
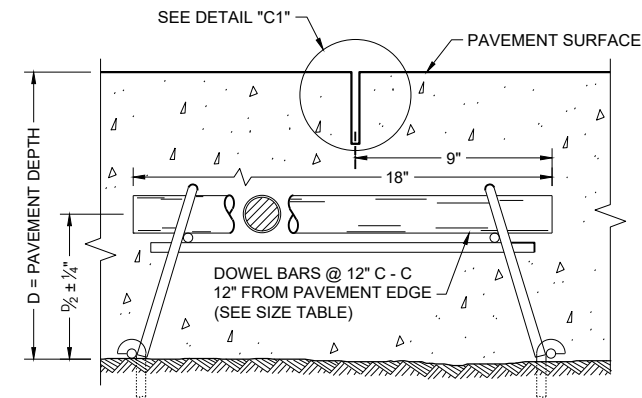
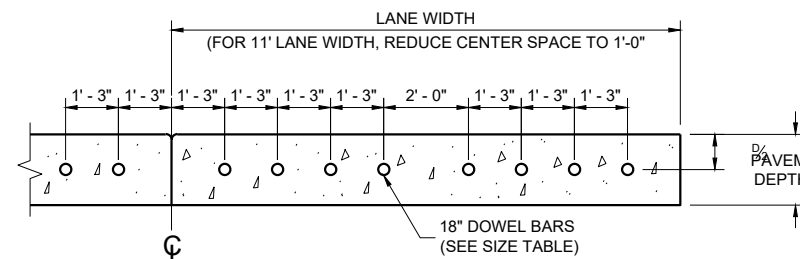
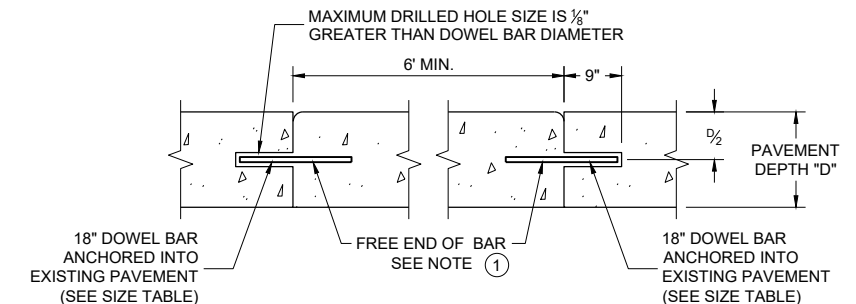
SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



**TRANSVERSE JOINTS****LONGITUDINAL JOINTS****SECTION C - C
SAWED LONGITUDINAL JOINT****SECTION F - F
DOWELED CONTRACTION JOINT****SECTION E - E
DRILLED DOWEL BAR CONSTRUCTION JOINT****SECTION D - D****TIE BAR TABLE**

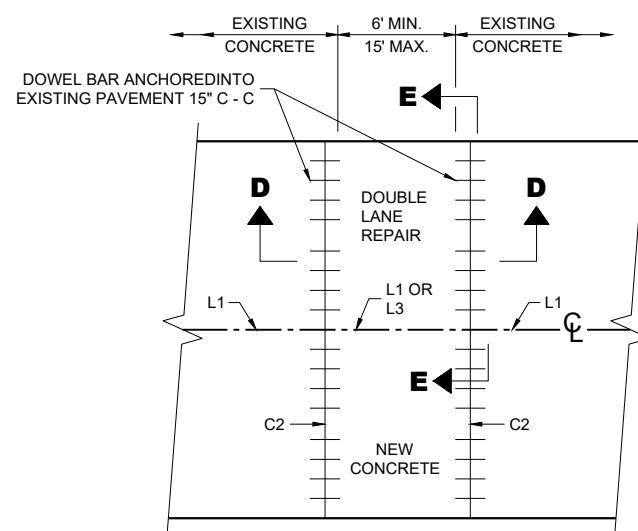
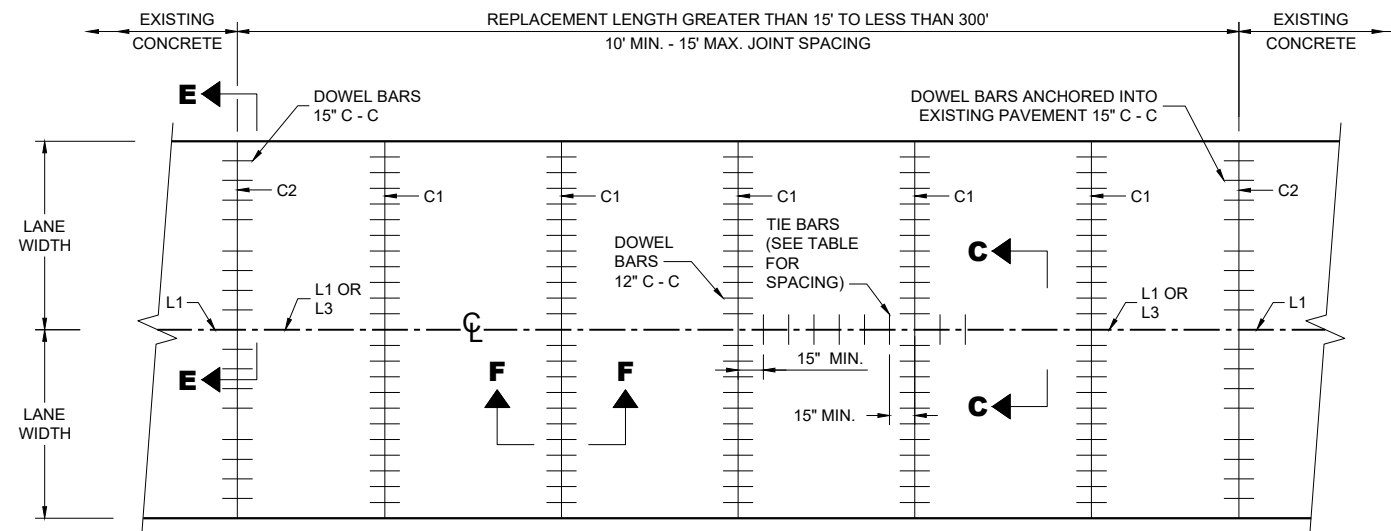
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE**

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	NONE	12'
7", 7 1/2"	1"	1"	14'
8" & ABOVE	1 1/4"	1 1/4"	15'

**PLAN VIEW
MULTILANE CONCRETE PAVEMENT REPAIR****PLAN VIEW
MULTILANE CONCRETE PAVEMENT REPLACEMENT****CONCRETE PAVEMENT
REPAIR AND REPLACEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

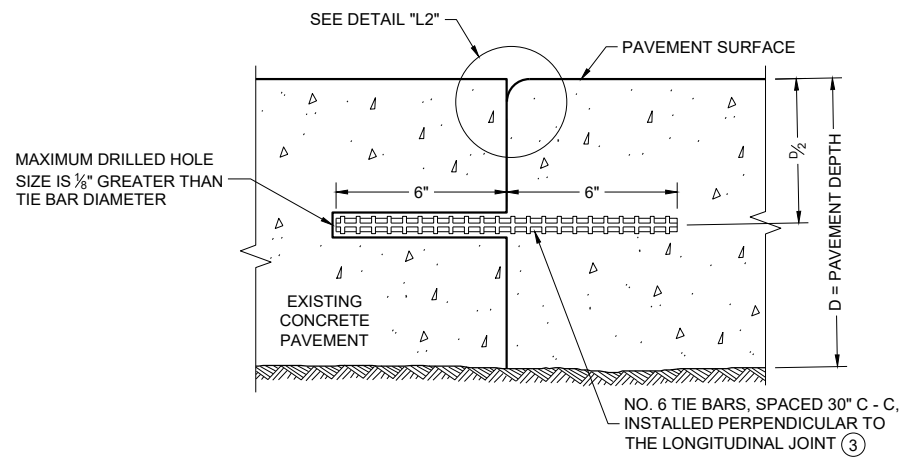
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NON-DOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

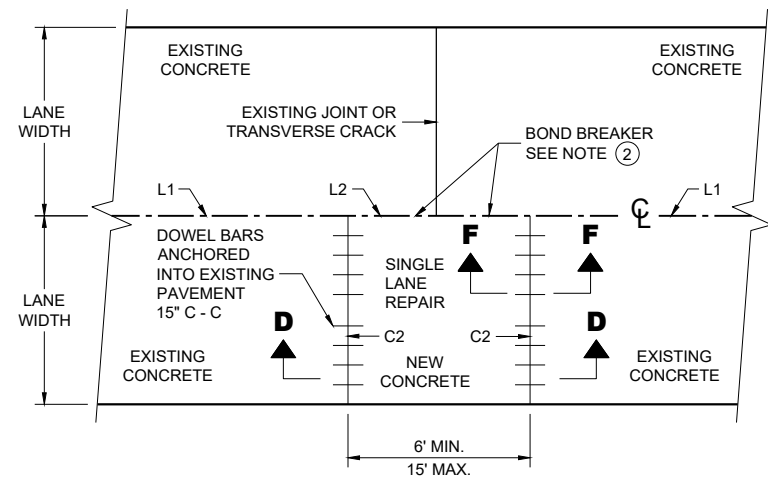
- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



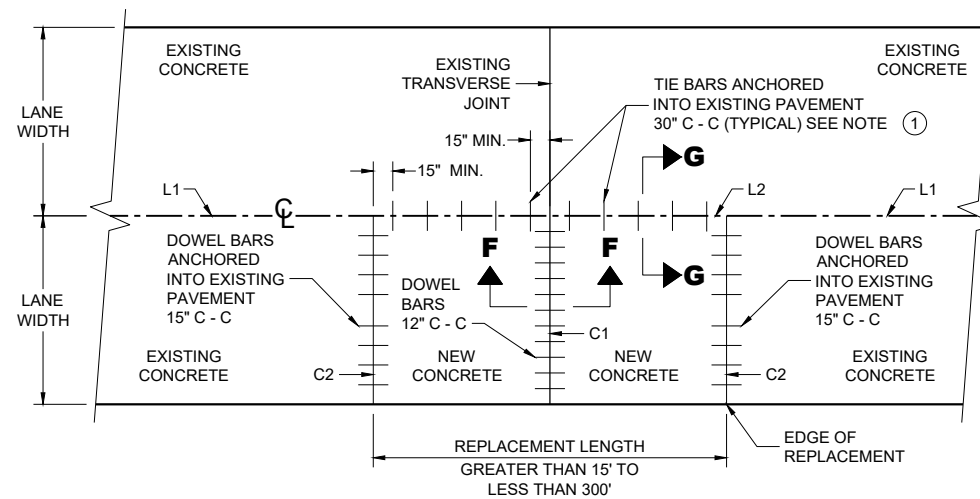
SECTION G - G
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



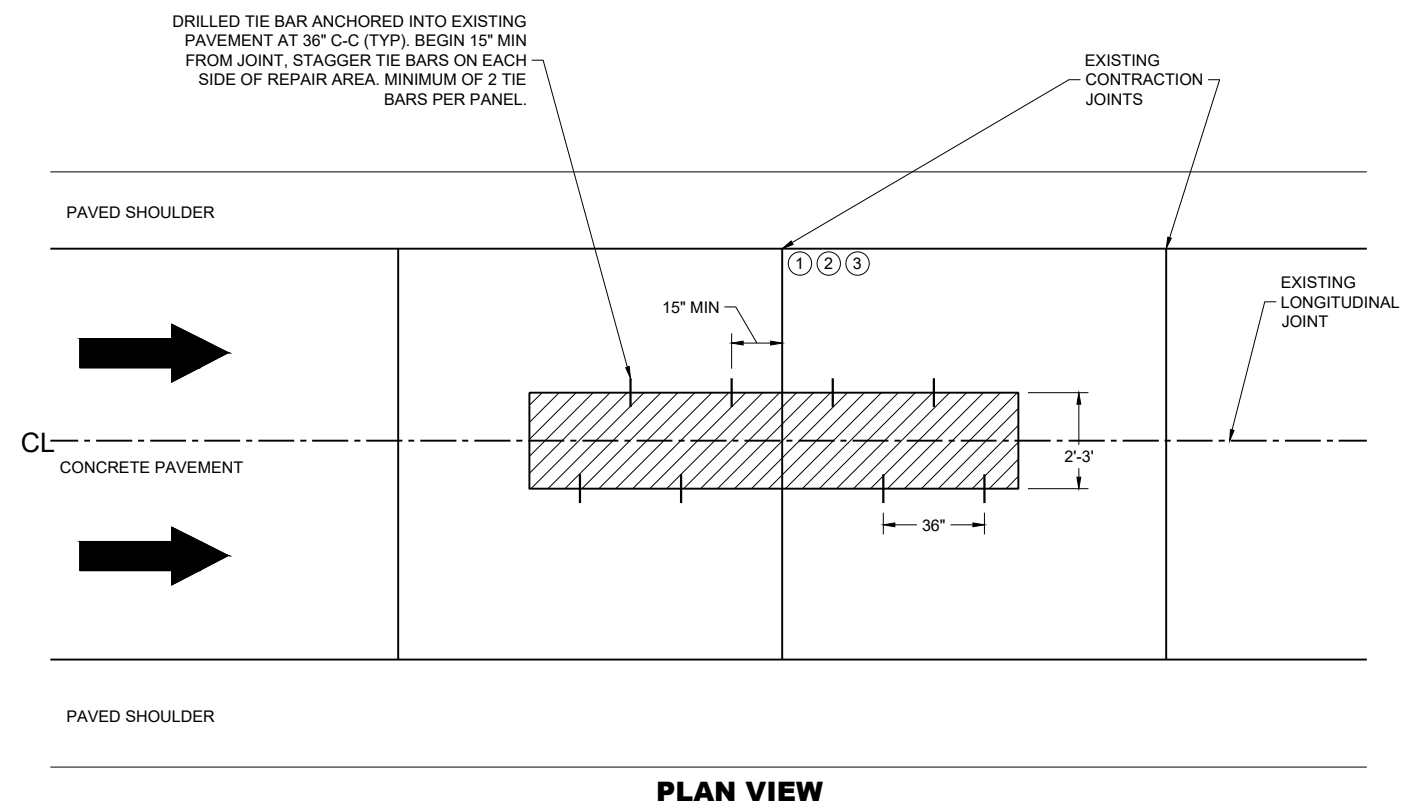
PLAN VIEW
SINGLE LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW
SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

- ① TIE BARS MIN 15" FROM JOINT.
- ② LOCATION AND WIDTH OF PATCH ARE VARIABLE DEPENDING ON FIELD CONDITION
- ③ PRESERVE OR REESTABLISH EXISTING CONTRACTION JOINTS, KEEPING PATCH MATERIALS OUT OF REMAINING CONTRACTION JOINT.

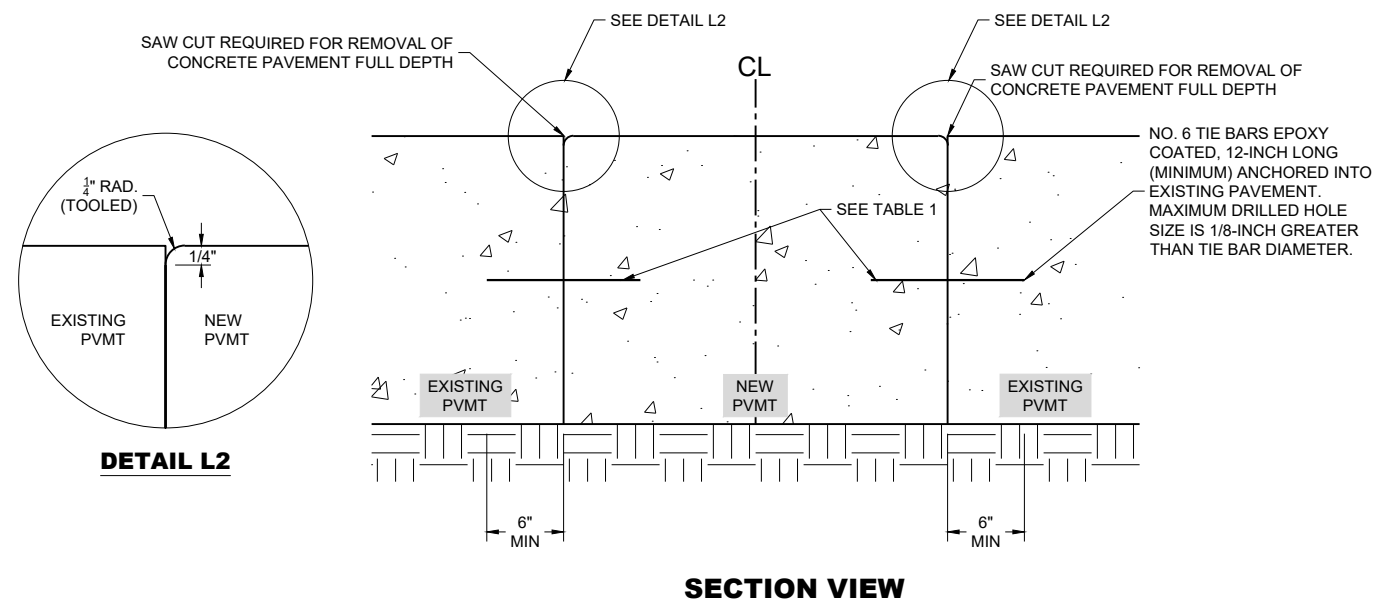
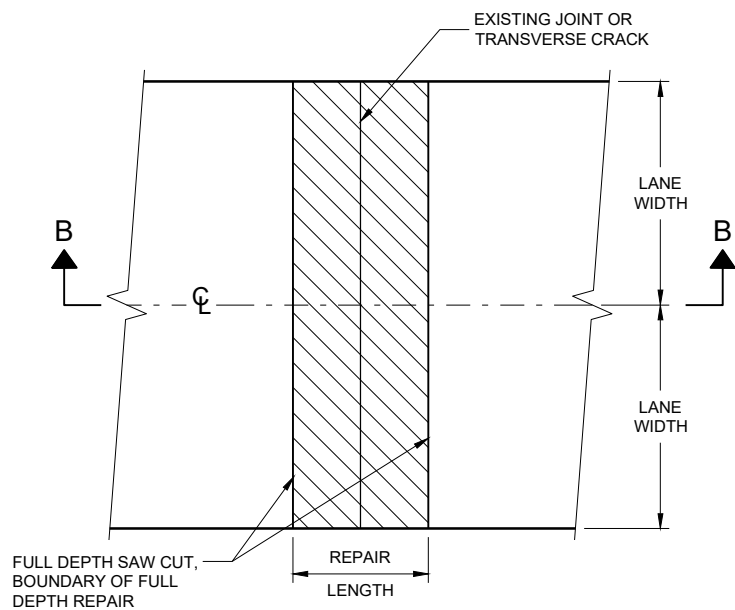
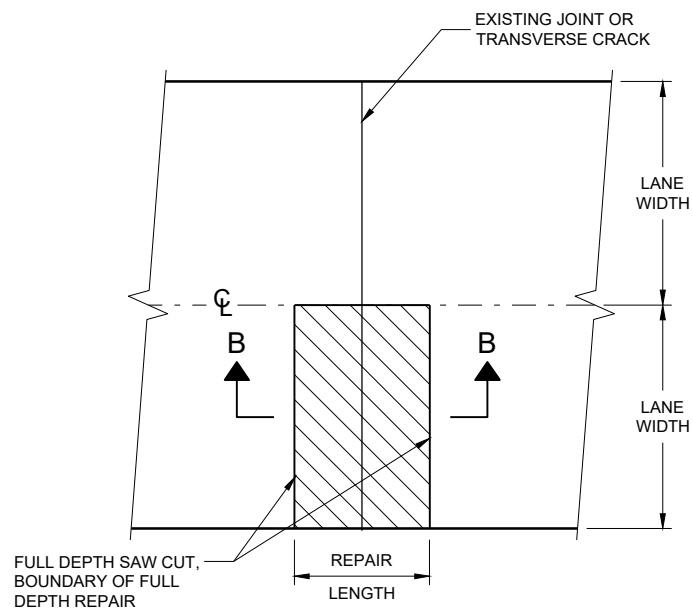


TABLE 1	
PATCH WIDTH	TIE BAR LENGTH
24"	12"
36"	18"

CENTRAL CONCRETE PAVEMENT CENTERLINE JOINT REPAIR	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>NOVEMBER 2025</u> DATE	<u>/S/ Peter Kemp P.E.</u> PAVEMENT SUPERVISOR
FHWA	79

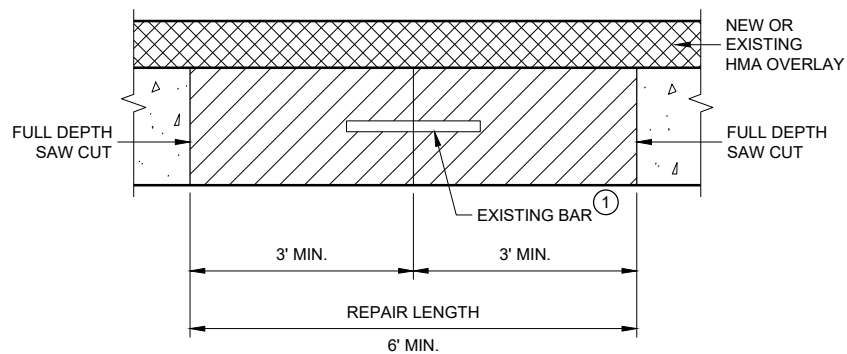


**PLAN VIEW
DOUBLE LANE REPAIR**



**PLAN VIEW
SINGLE LANE REPAIR**

FULL DEPTH CONCRETE PAVEMENT REMOVAL



**SECTION B - B
CONCRETE REMOVAL**

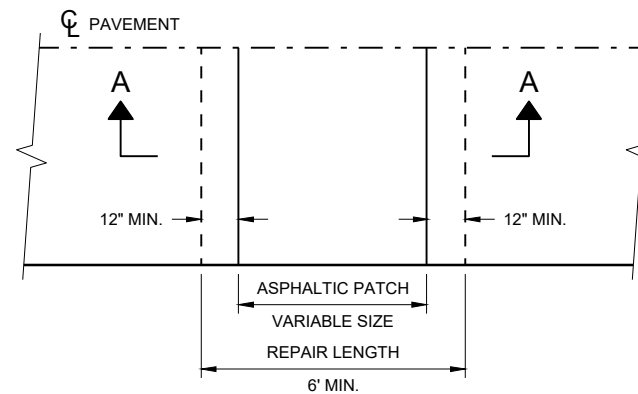
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

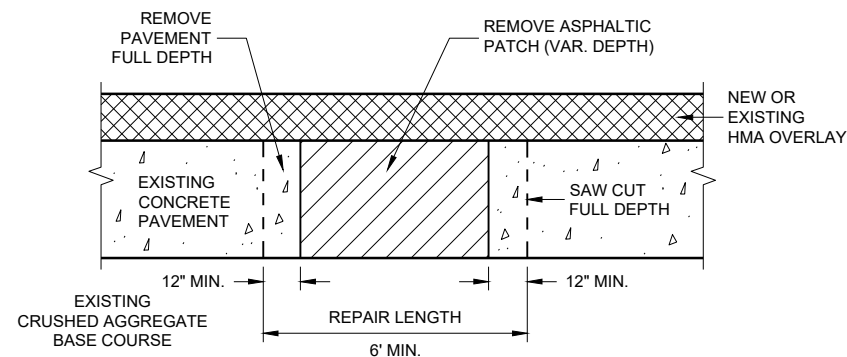
PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



PLAN VIEW

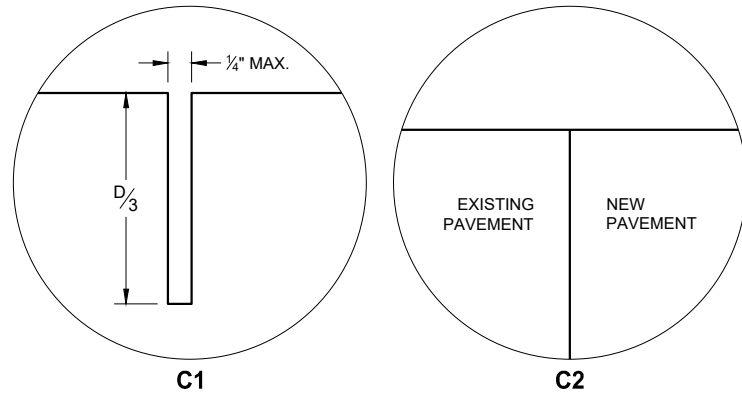


SECTION A - A

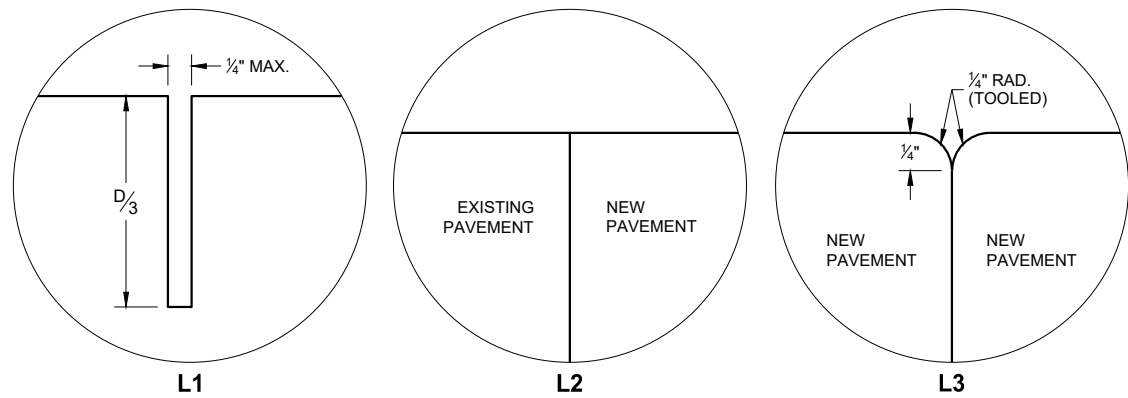
HMA PATCH REMOVAL

BASE PATCHING CONCRETE

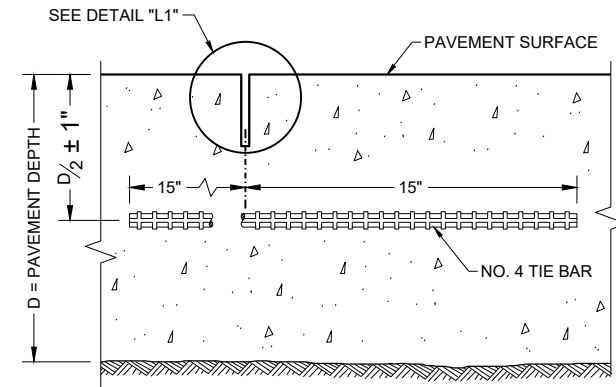
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



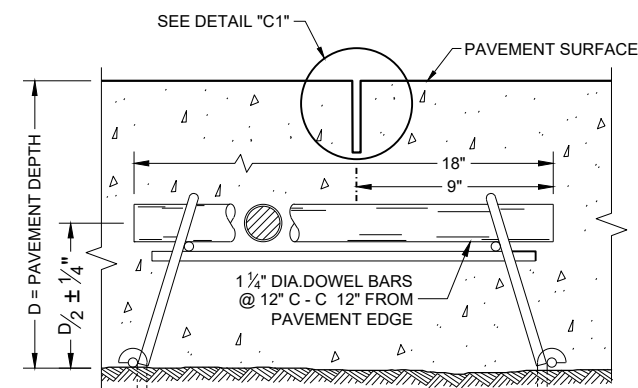
TRANSVERSE JOINTS



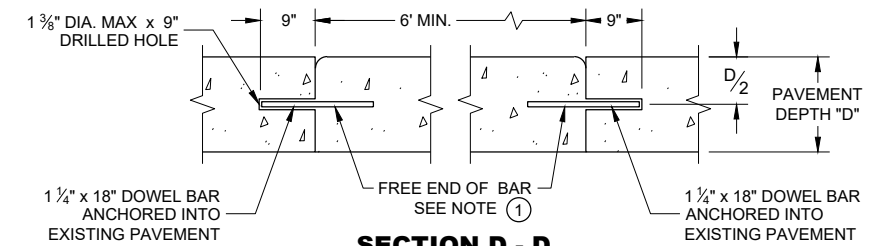
LONGITUDINAL JOINTS



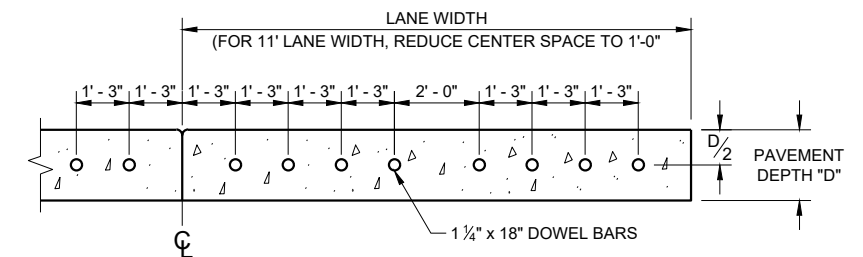
SECTION C - C
SAWED LONGITUDINAL JOINT



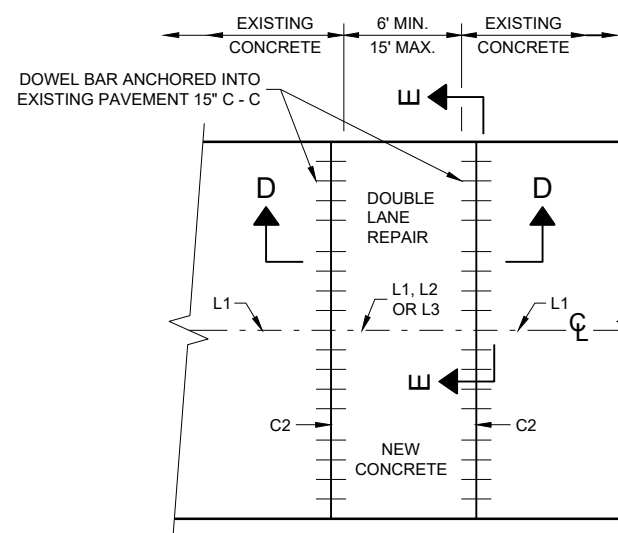
SECTION F - F
CONTRACTION JOINT



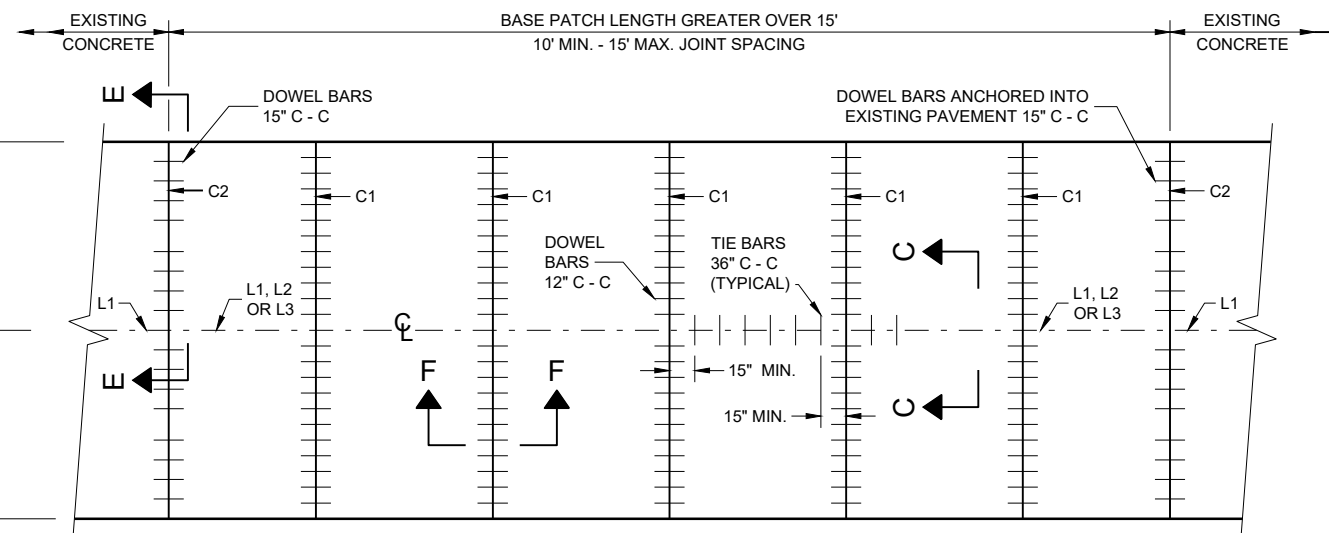
SECTION D - D



SECTION E - E
SPACING OF DOWEL BARS
ANCHORED INTO EXISTING PAVEMENT



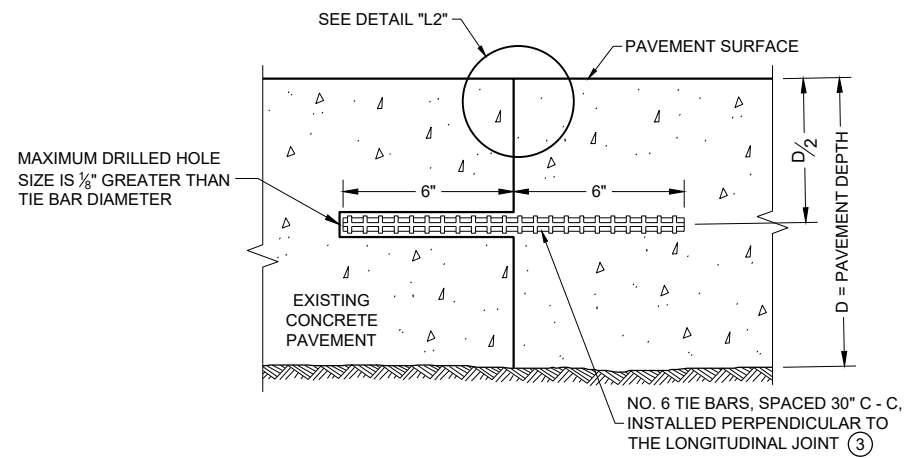
PLAN VIEW
MULTILANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



PLAN VIEW
MULTILANE CONCRETE BASE PATCH
GREATER THAN 15' IN LENGTH

BASE PATCHING CONCRETE

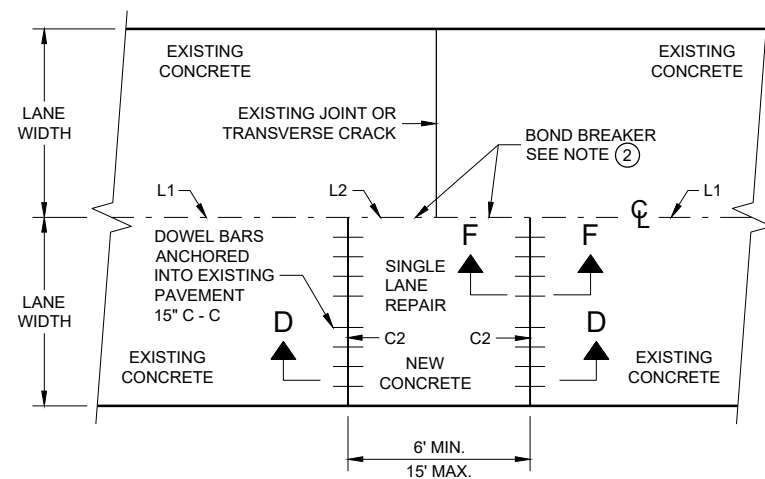
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



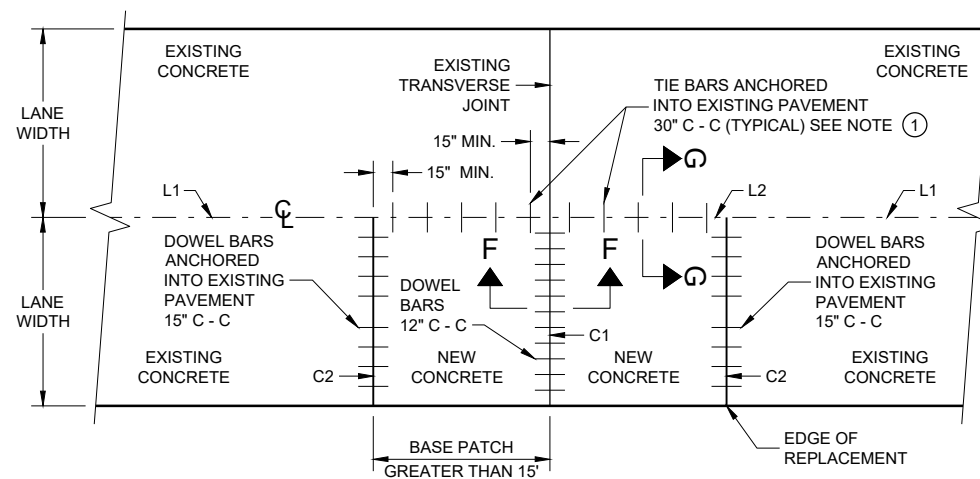
SECTION G - G
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOES WITH AN EPOXY.



PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



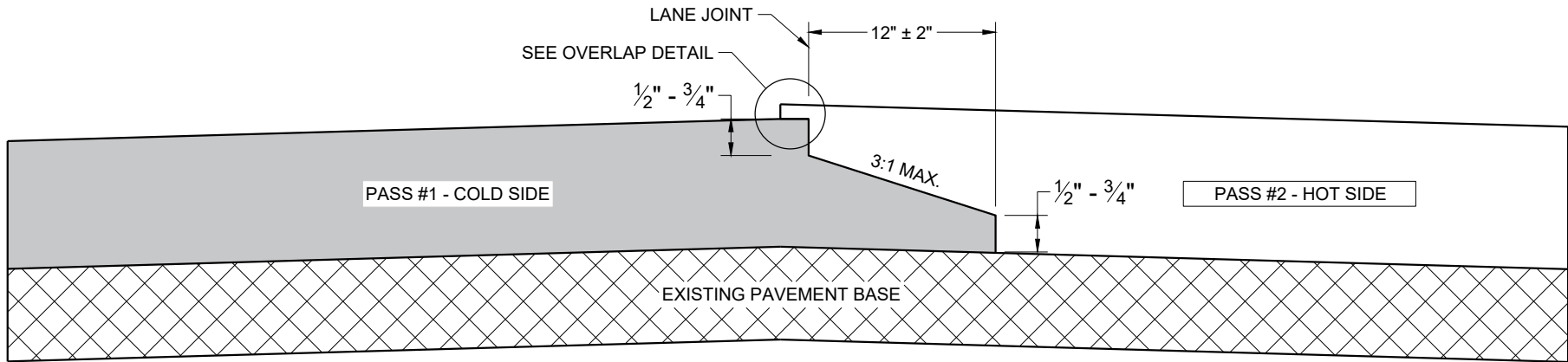
PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
GREATER THAN 15' LENGTH

BASE PATCHING CONCRETE

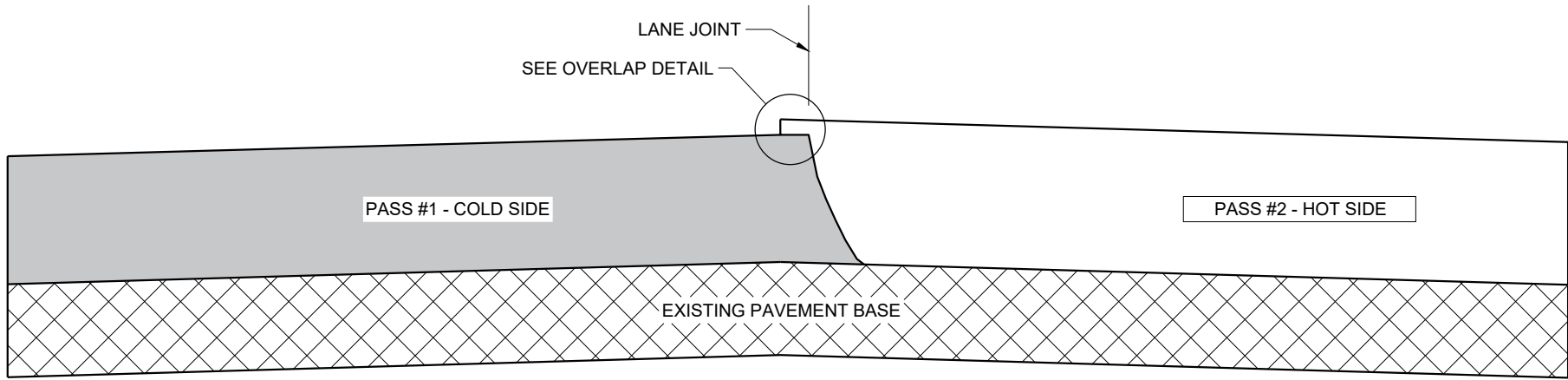
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 81

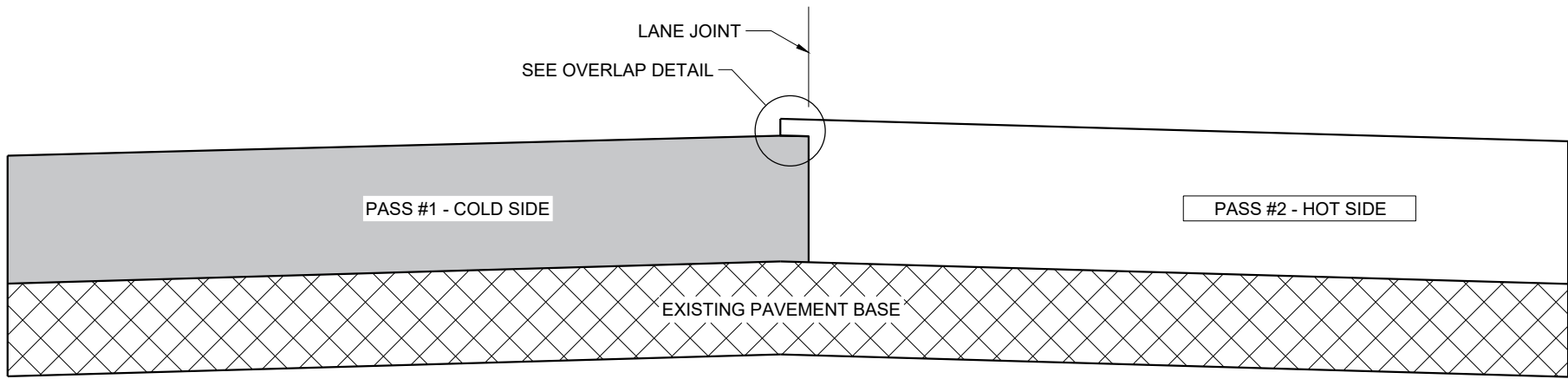
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

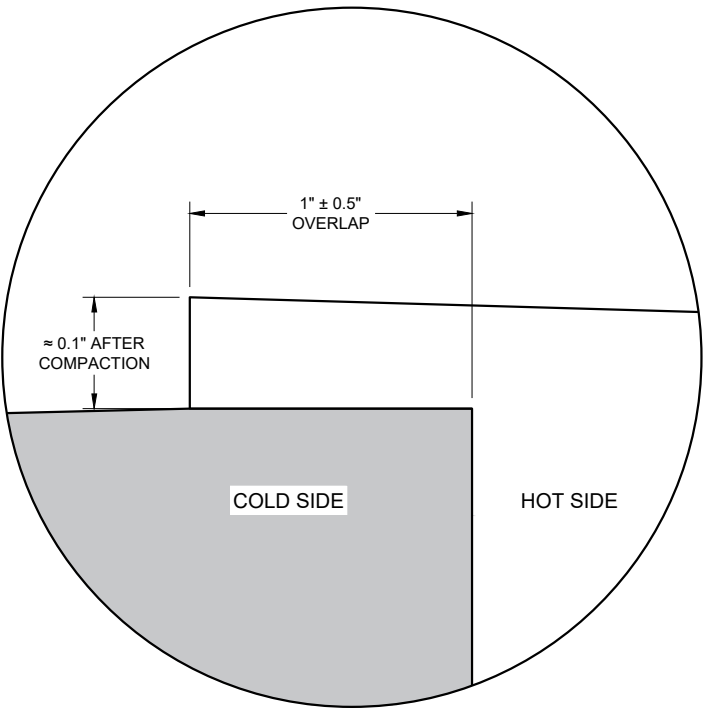
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.

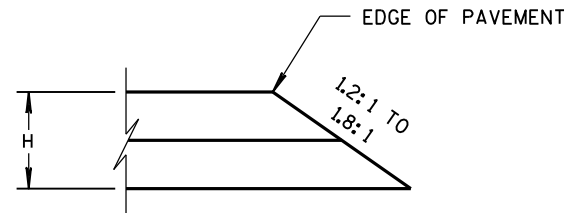


OVERLAP DETAIL (TYPICAL)

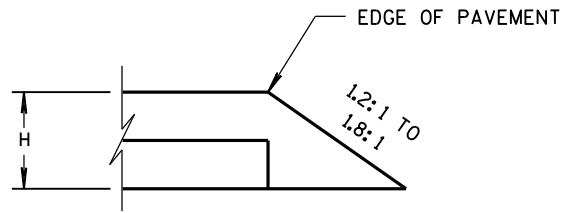
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

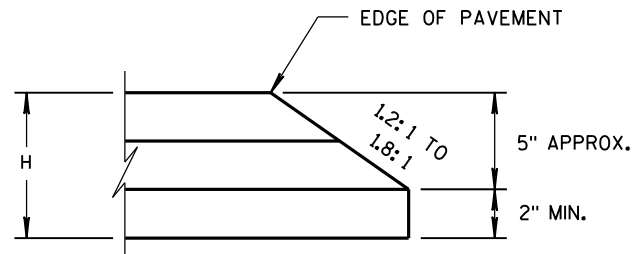
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 82
FHWA



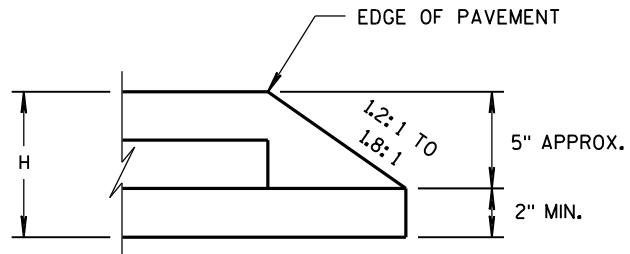
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

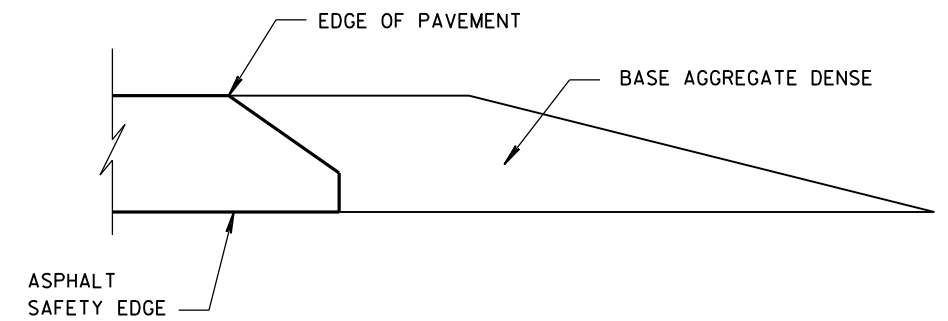


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012

DATE

FHWA

/s/ Jerry H. Zoaga

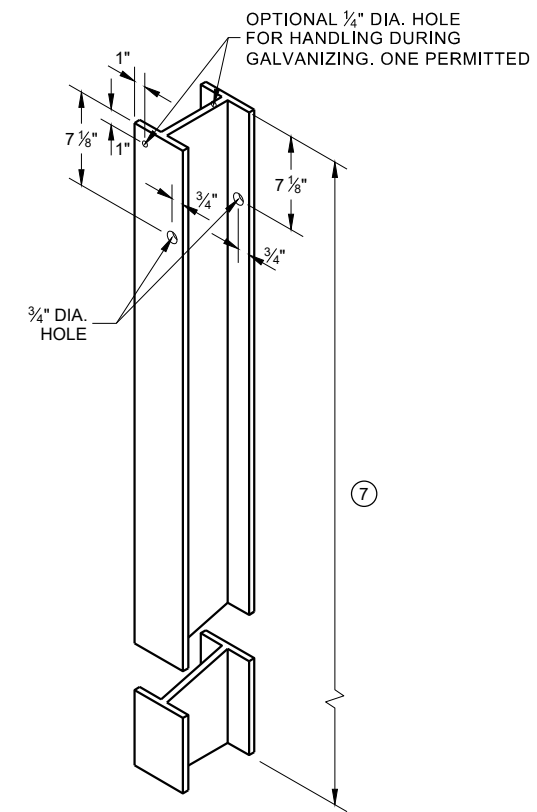
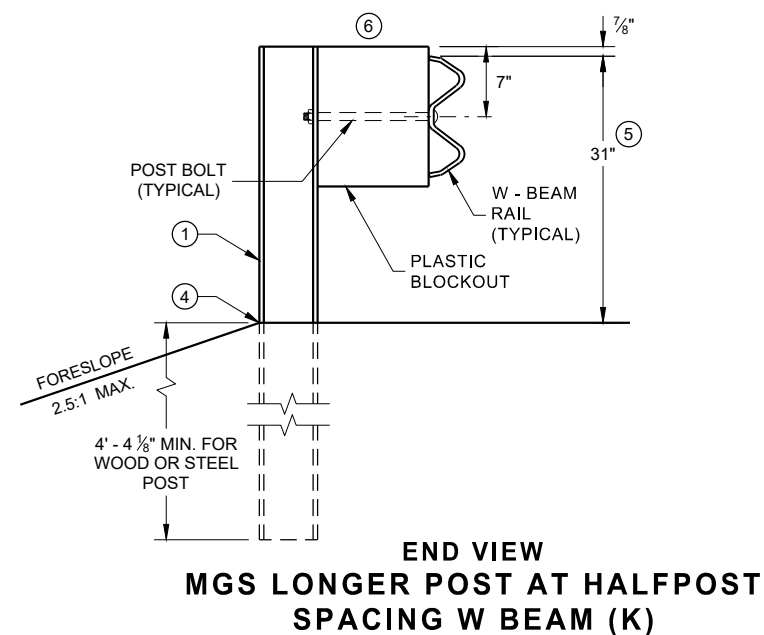
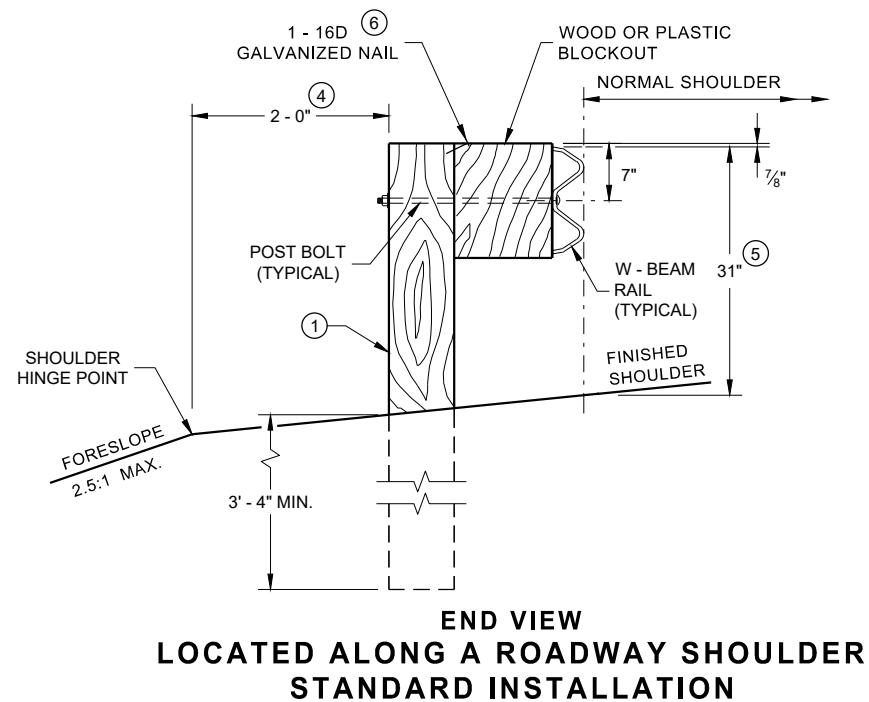
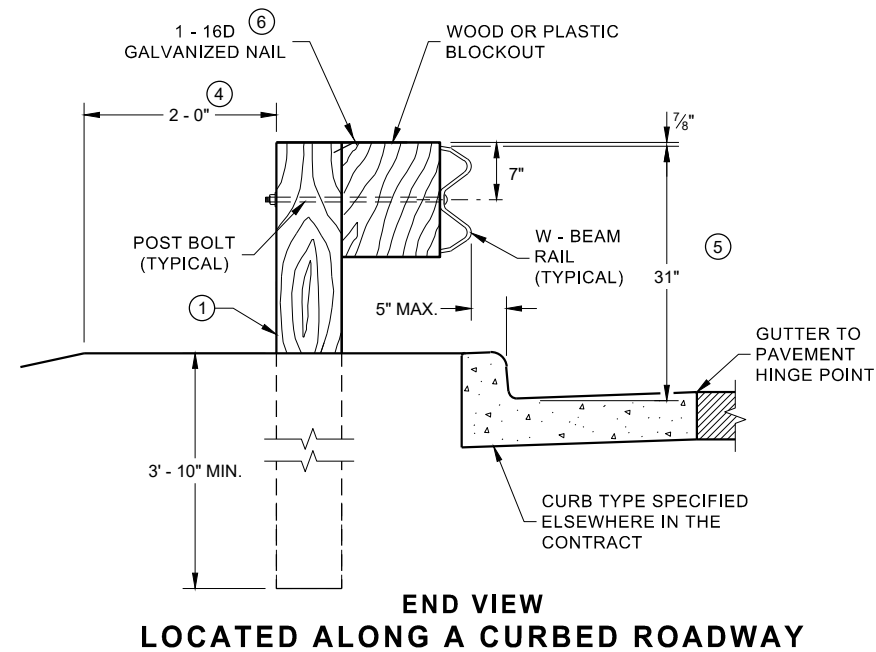
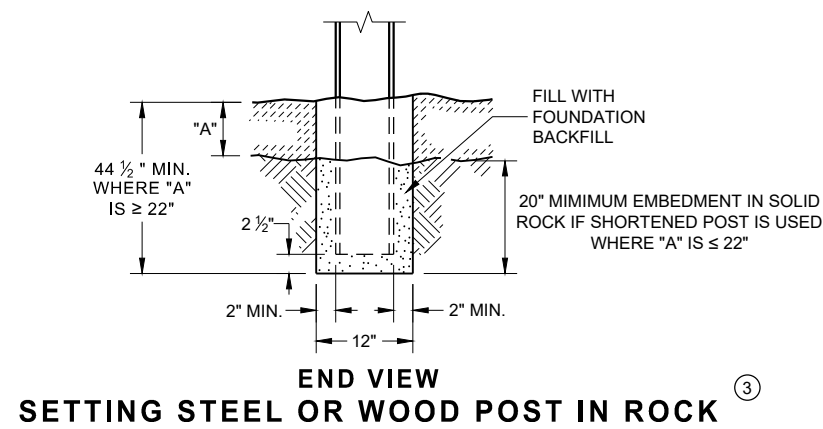
ROADWAY STANDARDS

ENGINEER

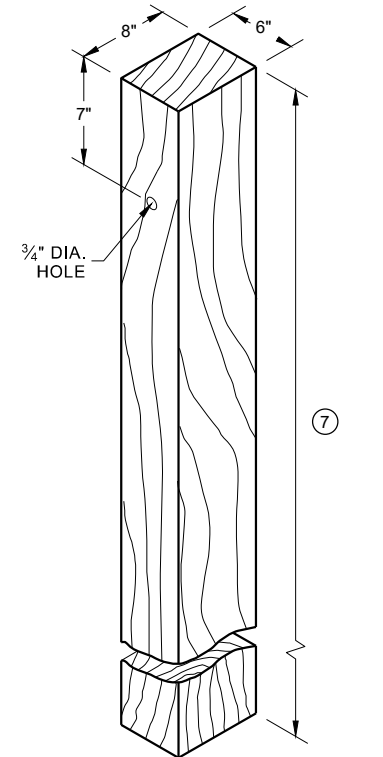
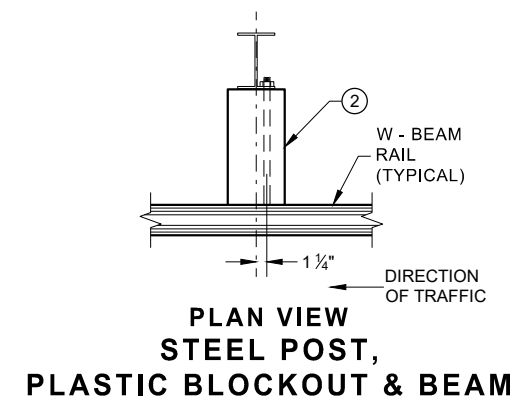
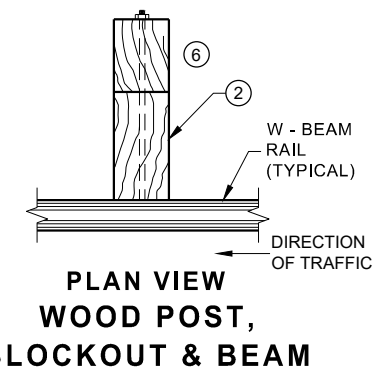
83

INT

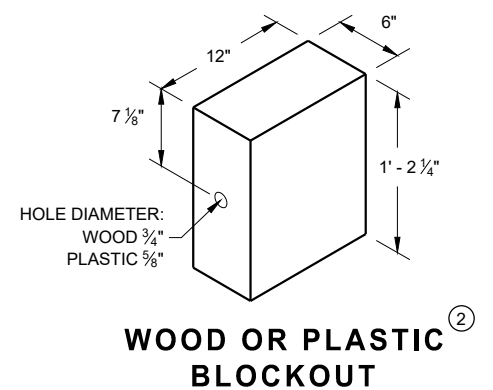
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**



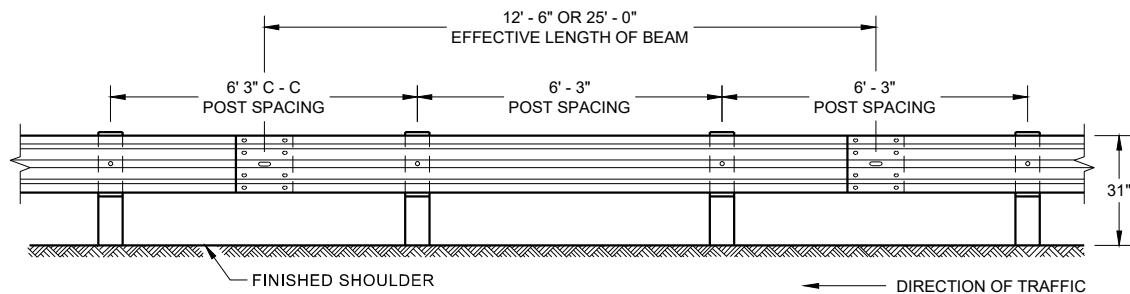
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



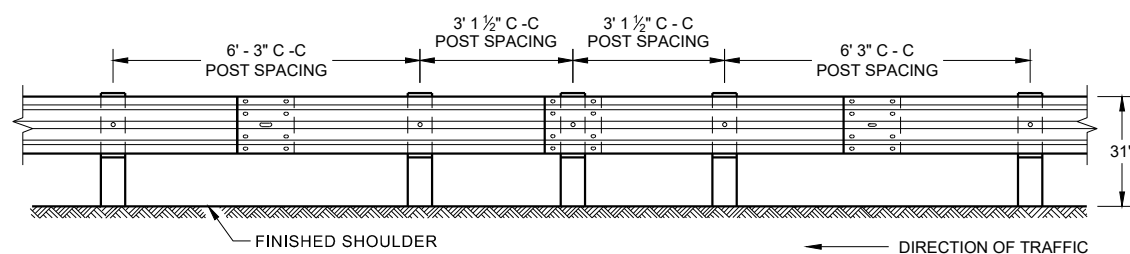
**WOOD OR PLASTIC
BLOCKOUT**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

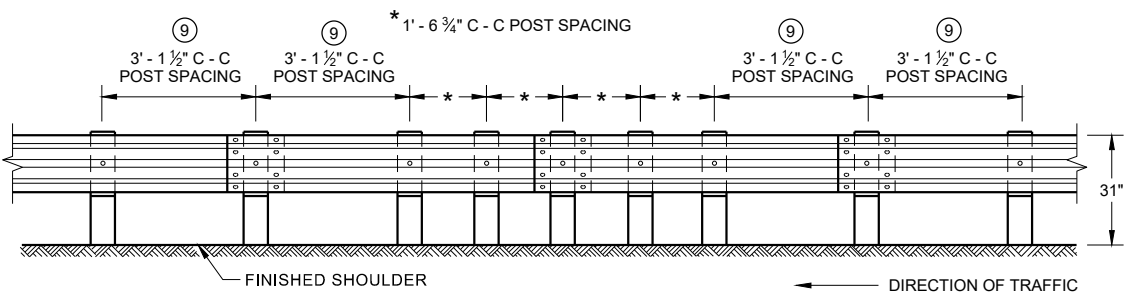
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 84



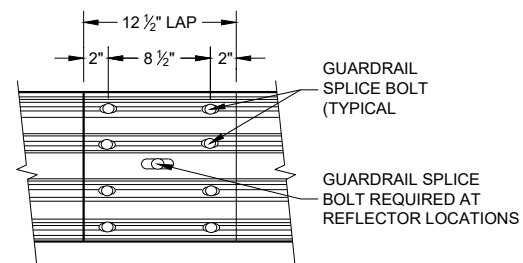
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



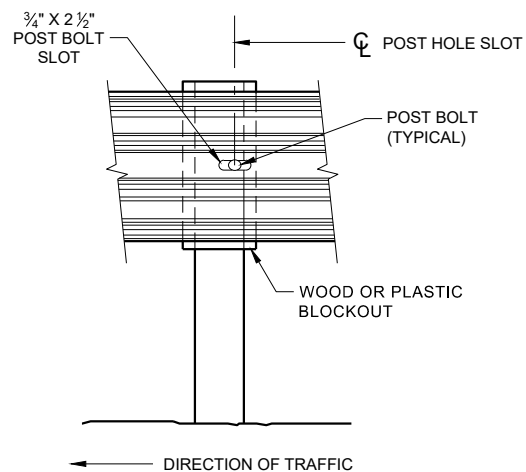
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



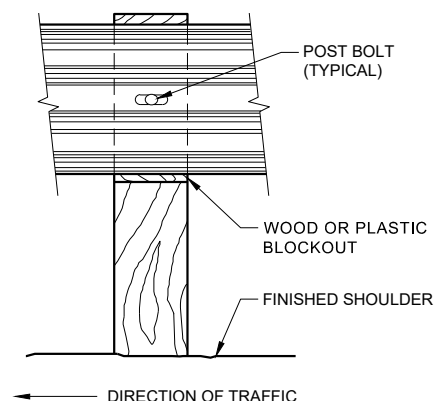
**FRONT VIEW
QUARTER POST SPACING (QS)**



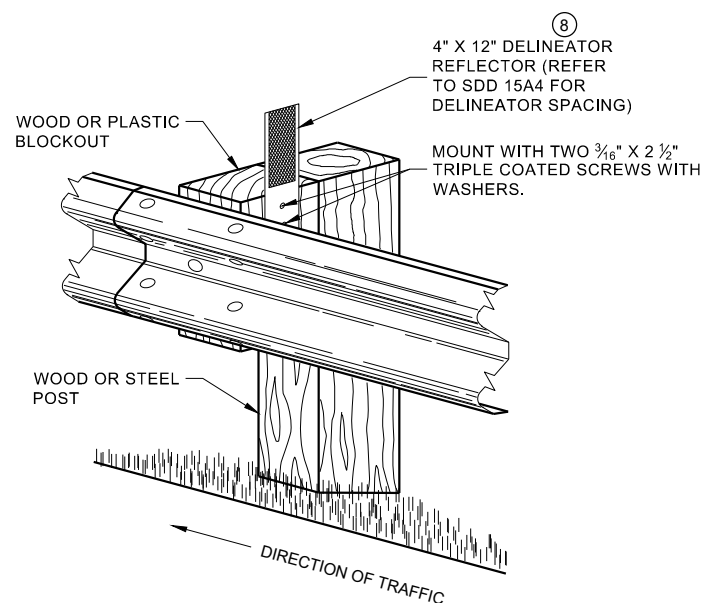
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



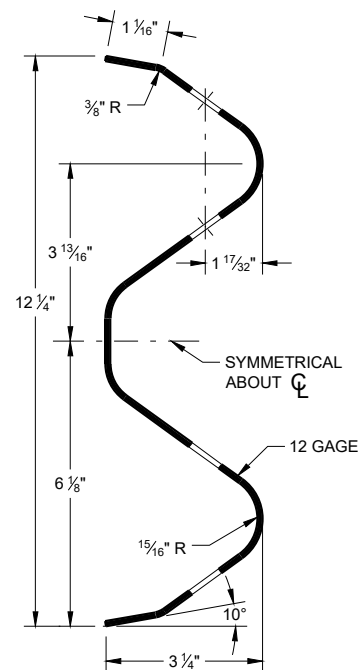
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

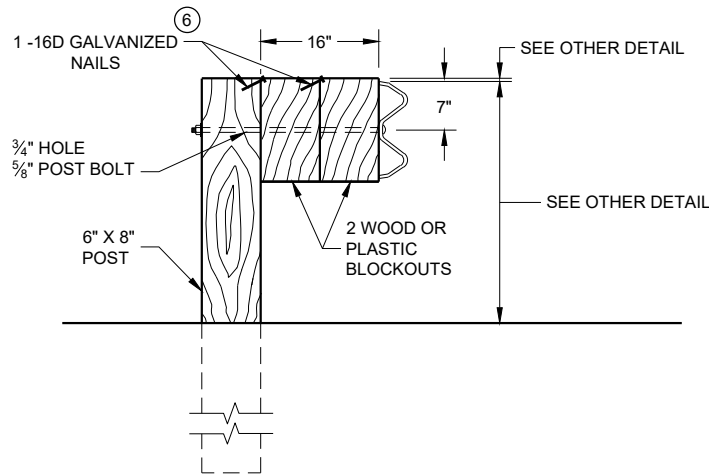
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

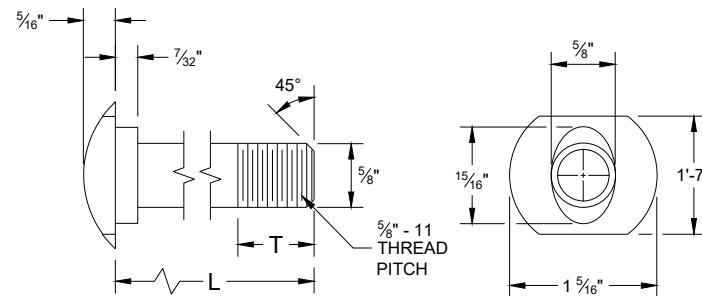
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 85



DETAIL FOR 16" BLOCKOUT DEPTH

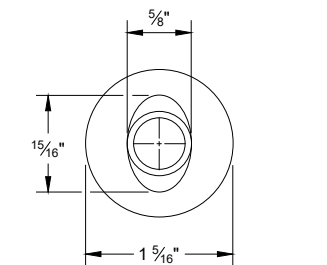
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

- NOTE:
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF $\frac{3}{16}$ ".
 2. IF THE BOLT EXTENDS MORE THAN $\frac{1}{4}$ " FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

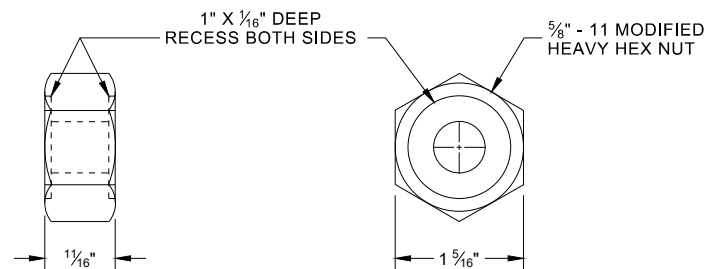


POST BOLT TABLE

L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"

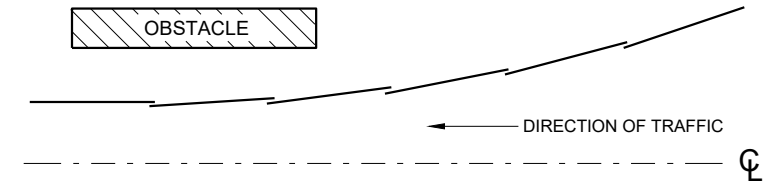


ALTERNATE BOLT HEAD

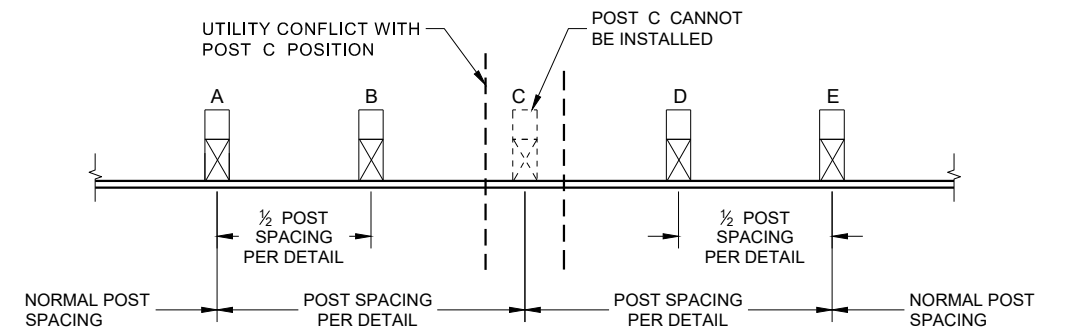


POST BOLT, SPLICE BOLT
AND RECESS NUT

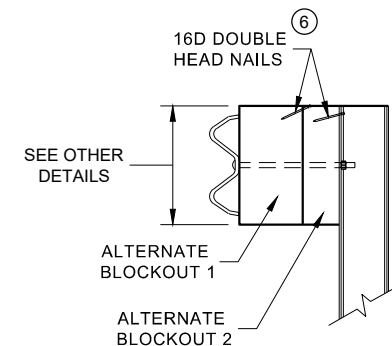
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



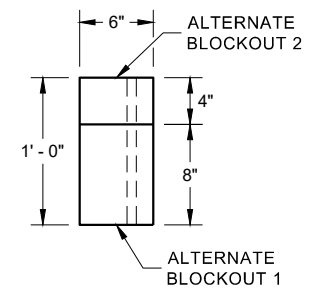
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



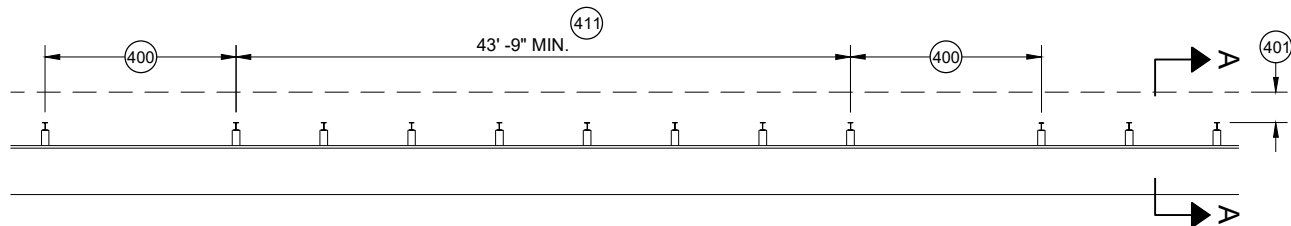
PLAN VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

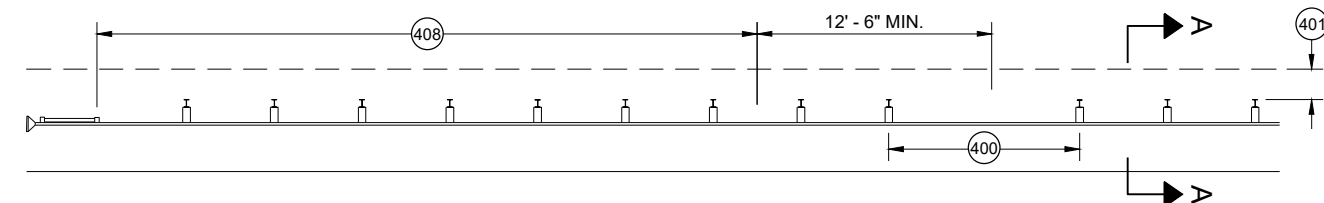
- NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
- DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

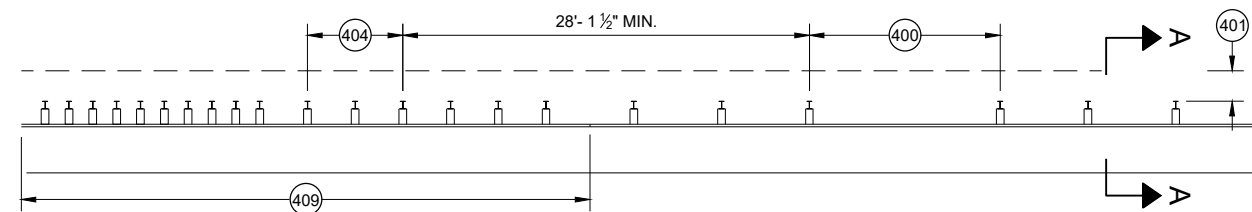
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 86



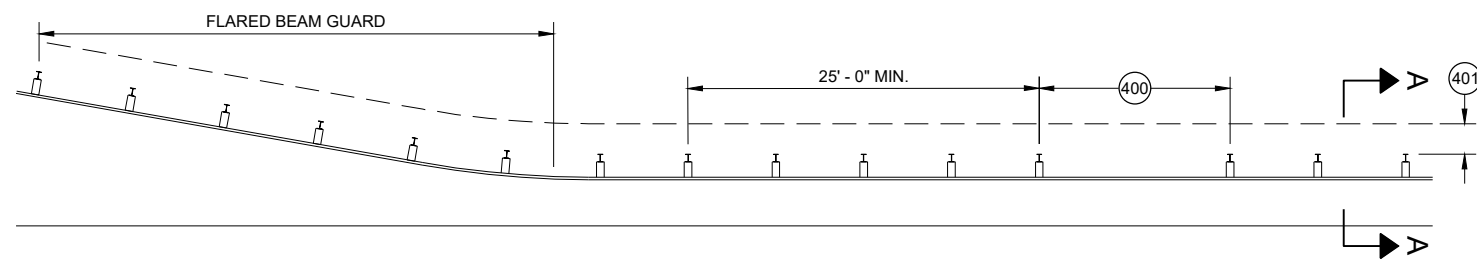
MISSING POST IN MGS GUARDRAIL



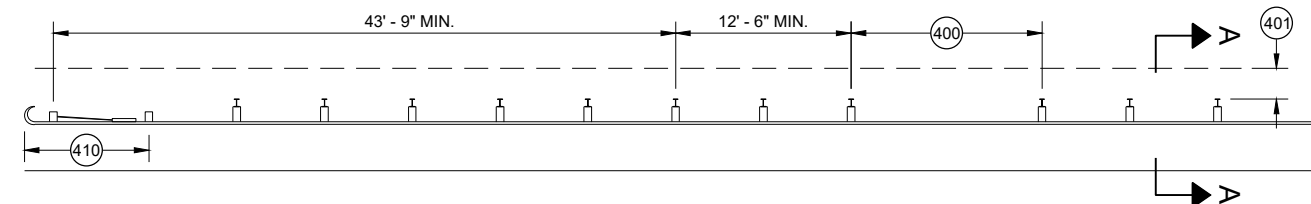
MISSING POST IN MGS GUARDRAIL NEAR EAT



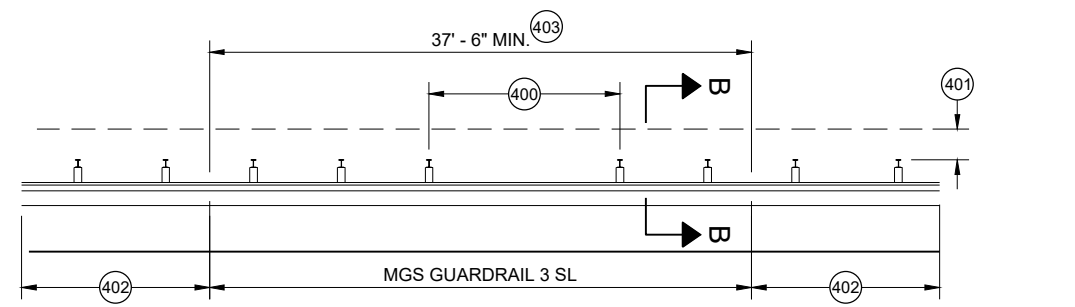
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

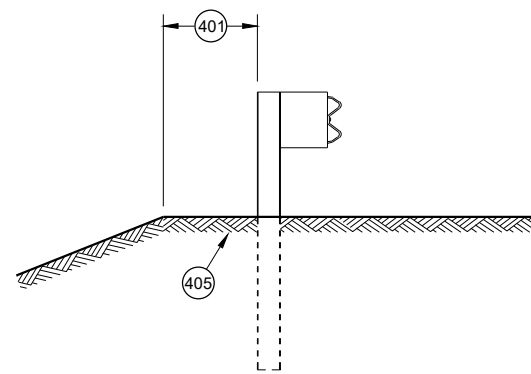


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

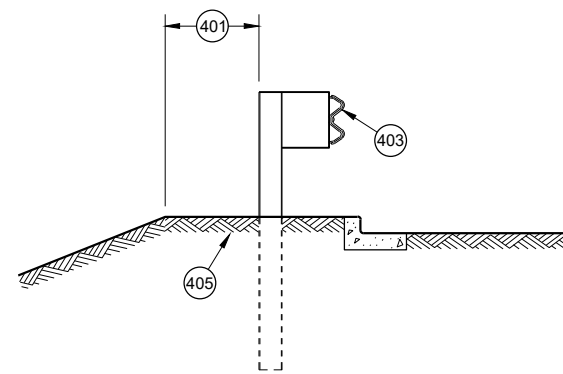


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR 87
FHWA	

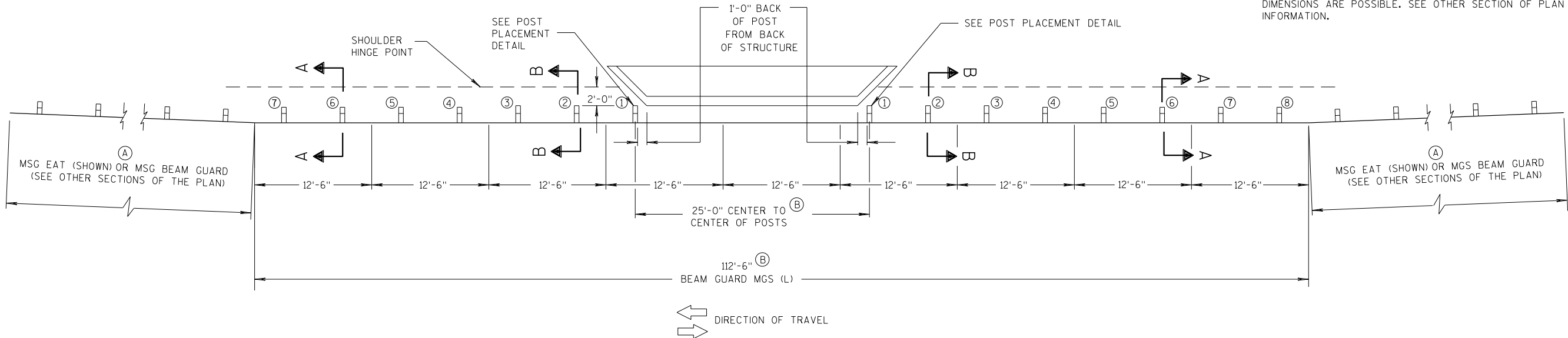
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

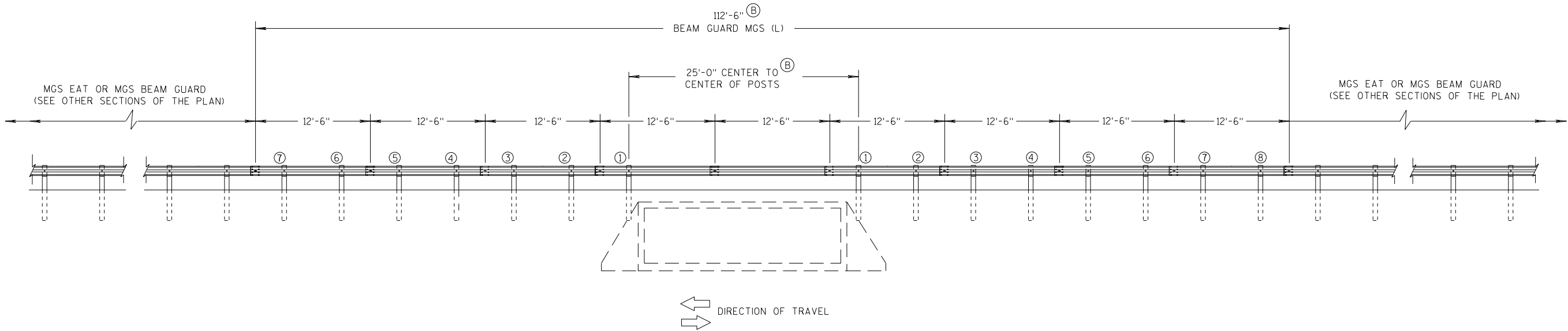
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN, IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

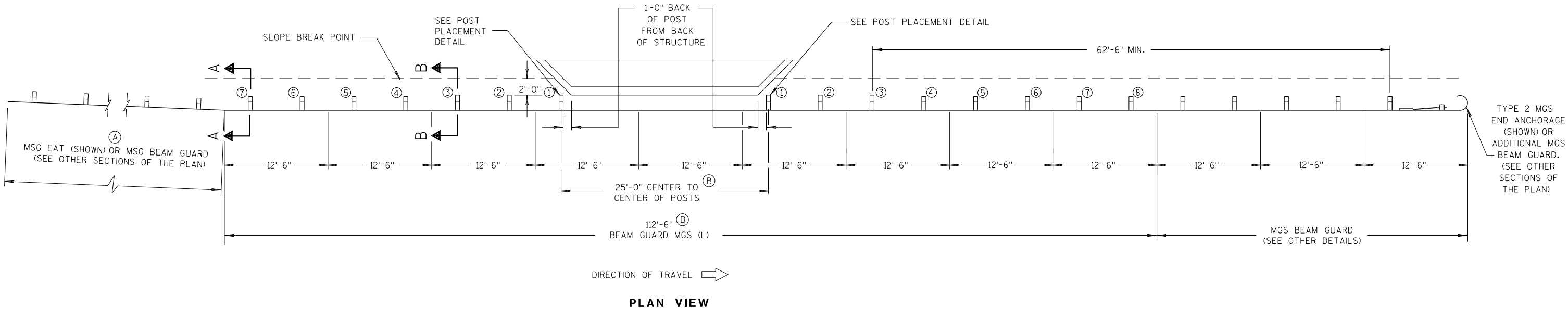
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

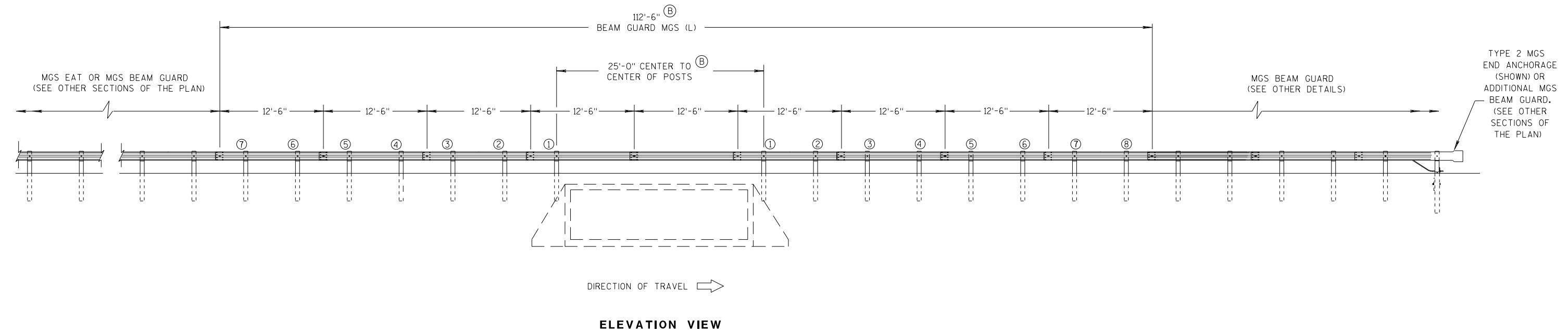
POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD 14 B 42 FOR MORE DETAILS.

- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW

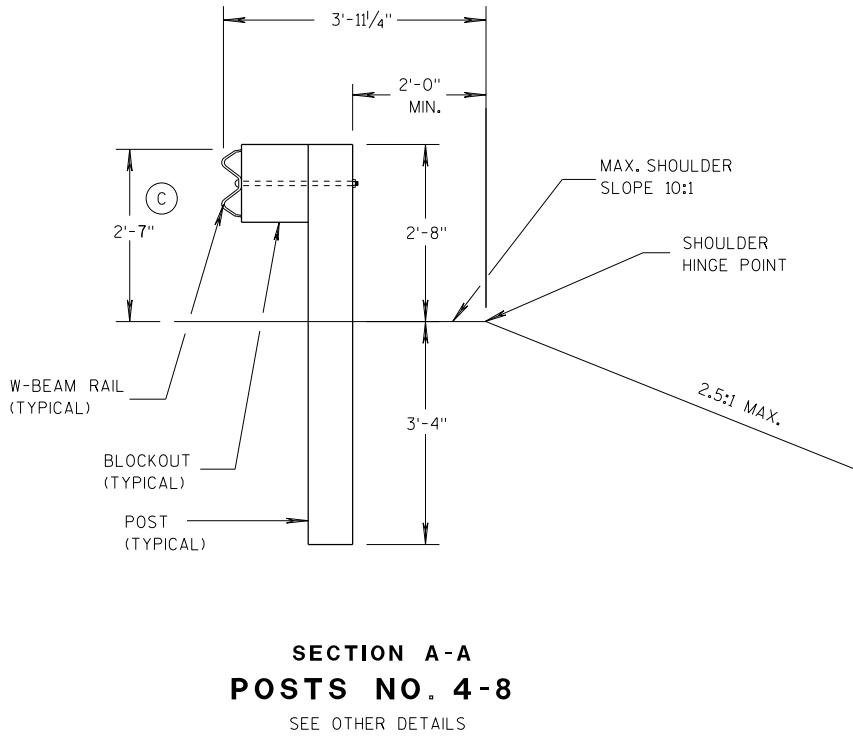
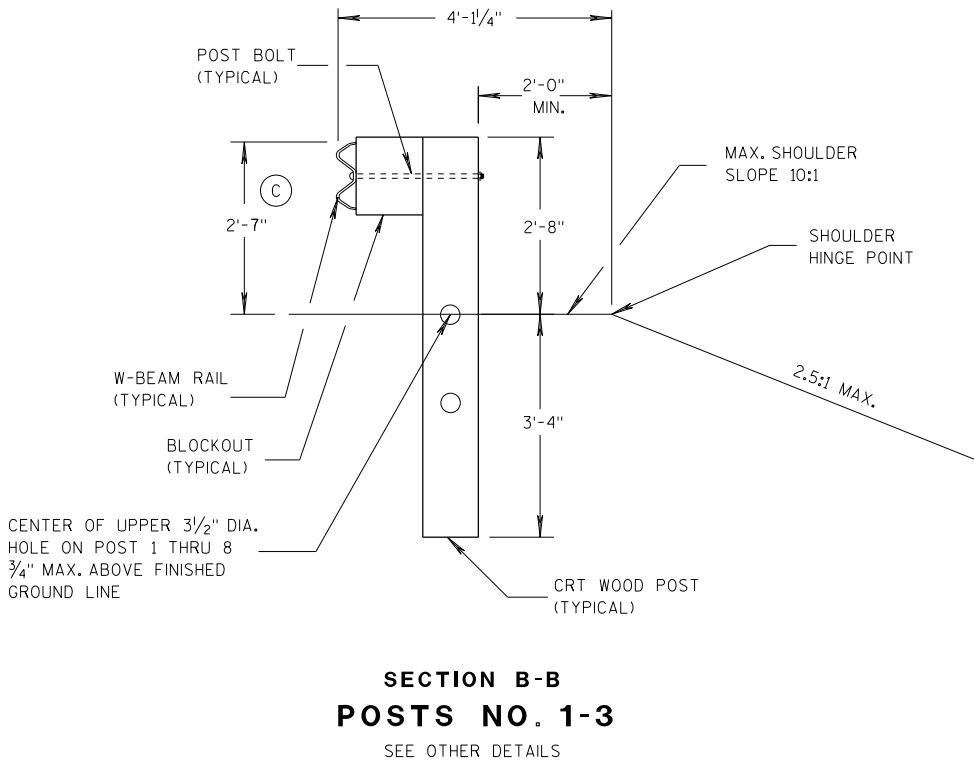
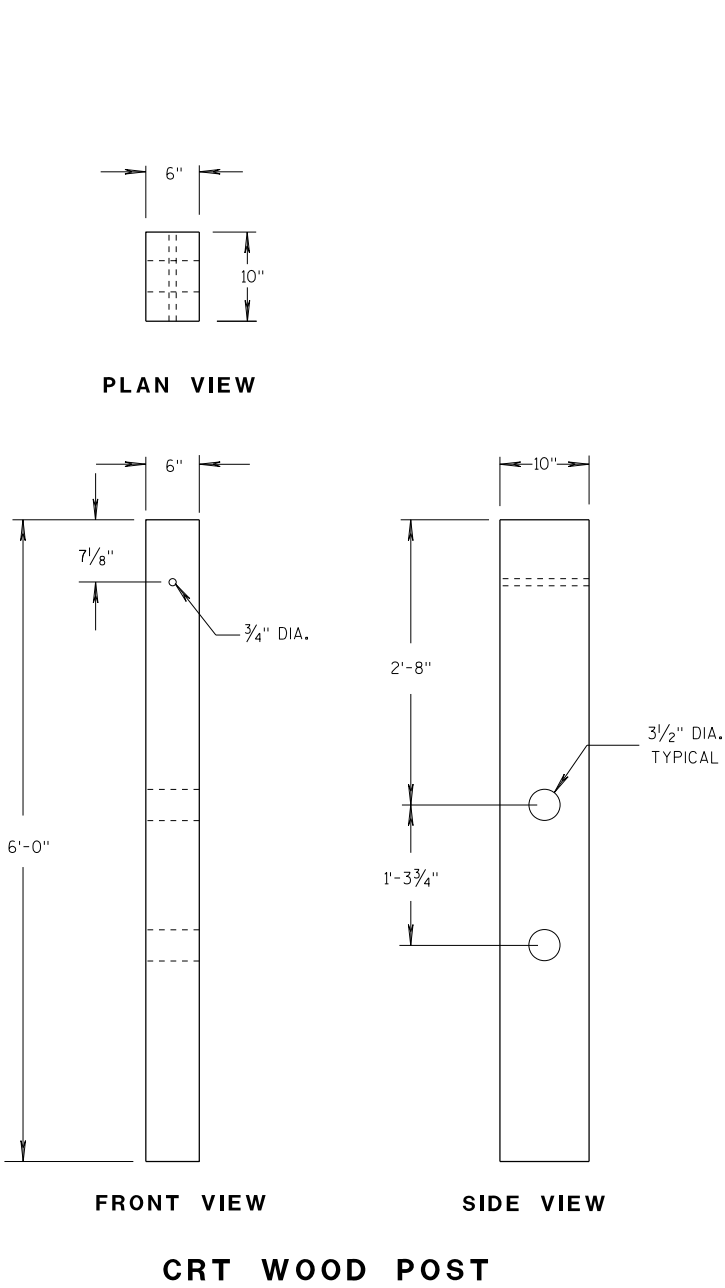


ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

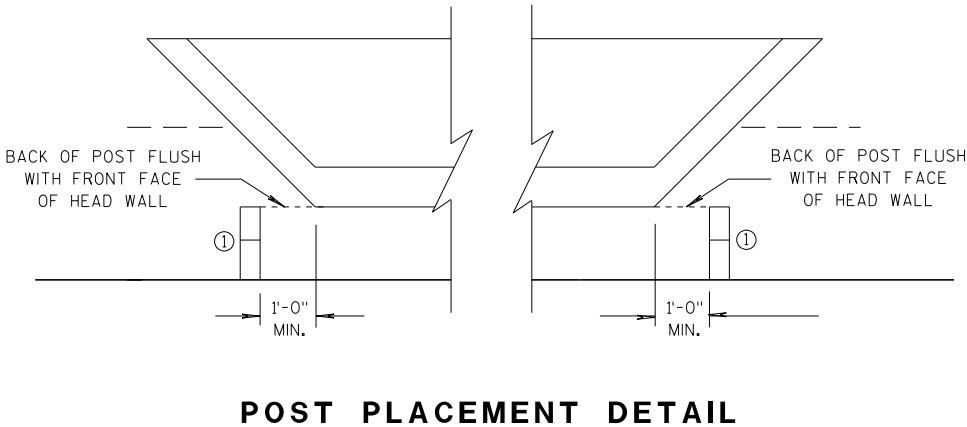
MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

(C) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 07/2018	/S/ Rodney Taylor ROADWAY STANDARDS ENGINEER	90 NT
FHWA		

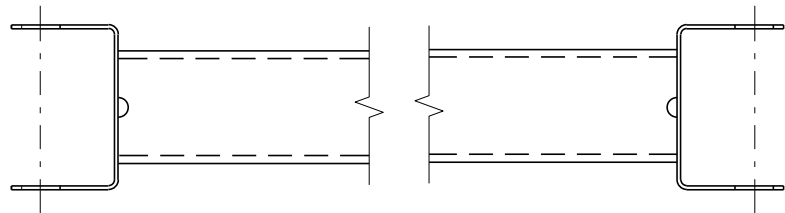
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS, ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

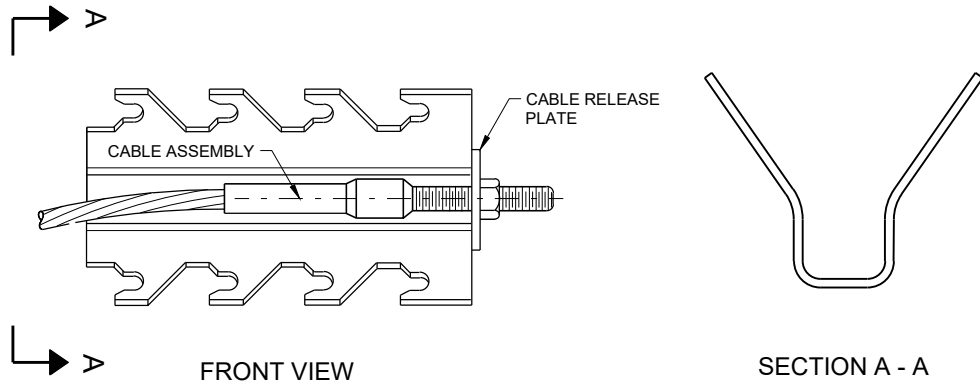


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 91

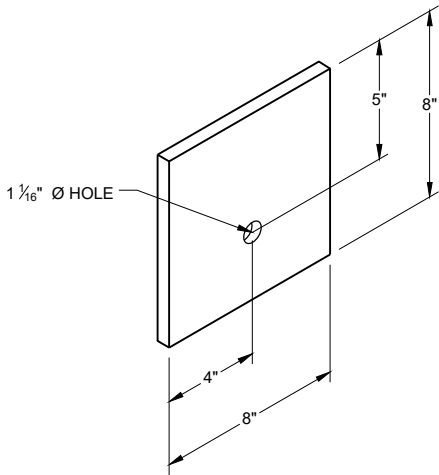


GENERIC GROUND STRUT^{⑨ ⑥}

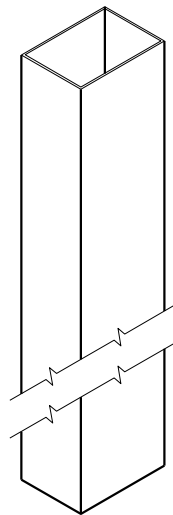
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



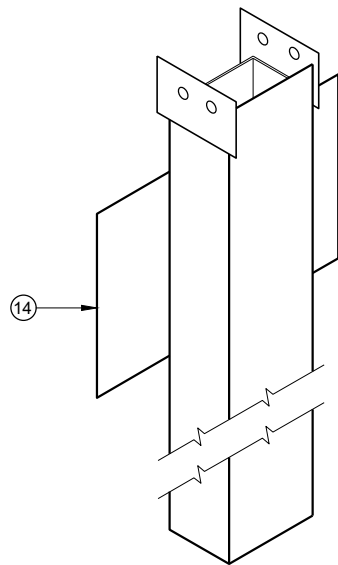
GENERIC ANCHOR CABLE BOX^{⑨ ⑥}



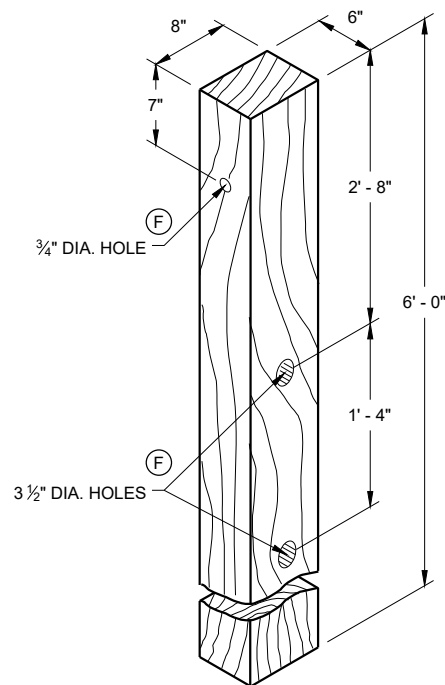
BEARING PLATE^{⑥ ⑥}



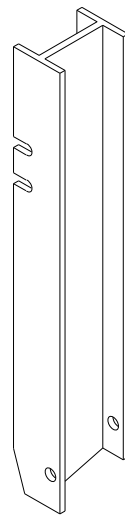
UPPER POST NO. 1 ⁽¹⁾ (E)



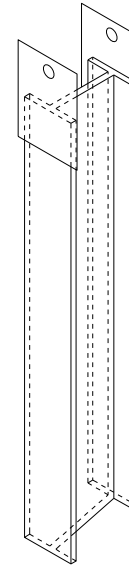
LOWER POST NO. 1 ⁽²⁾ (E)



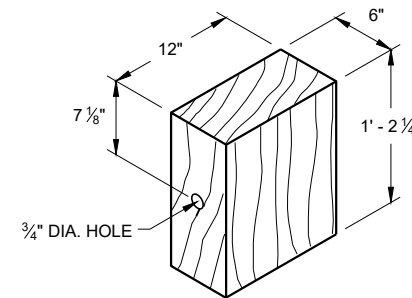
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



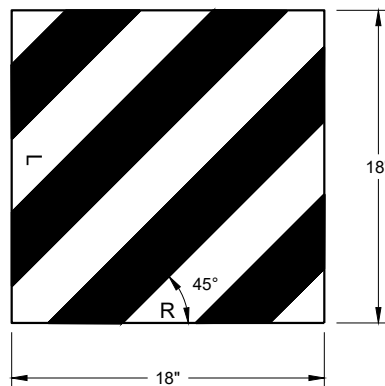
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



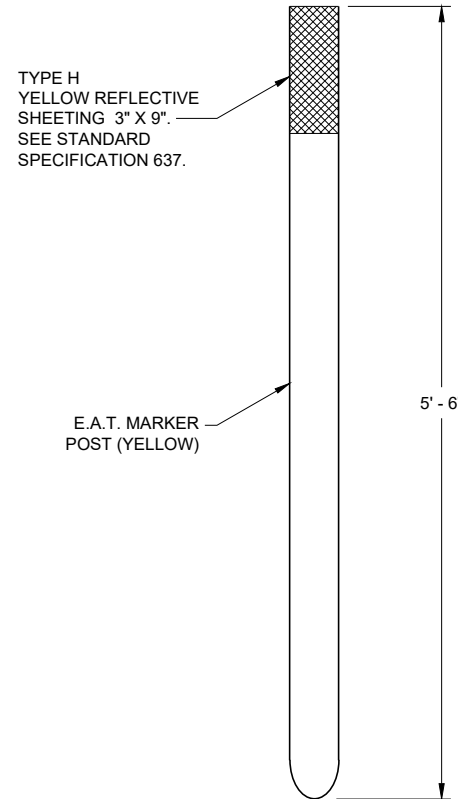
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL ^(E)

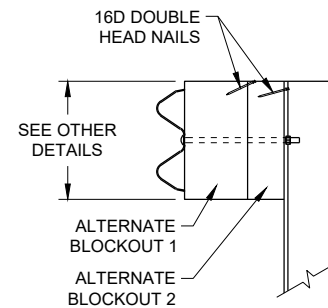


FRONT VIEW

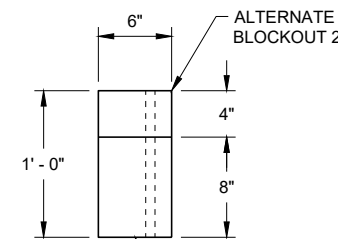


SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



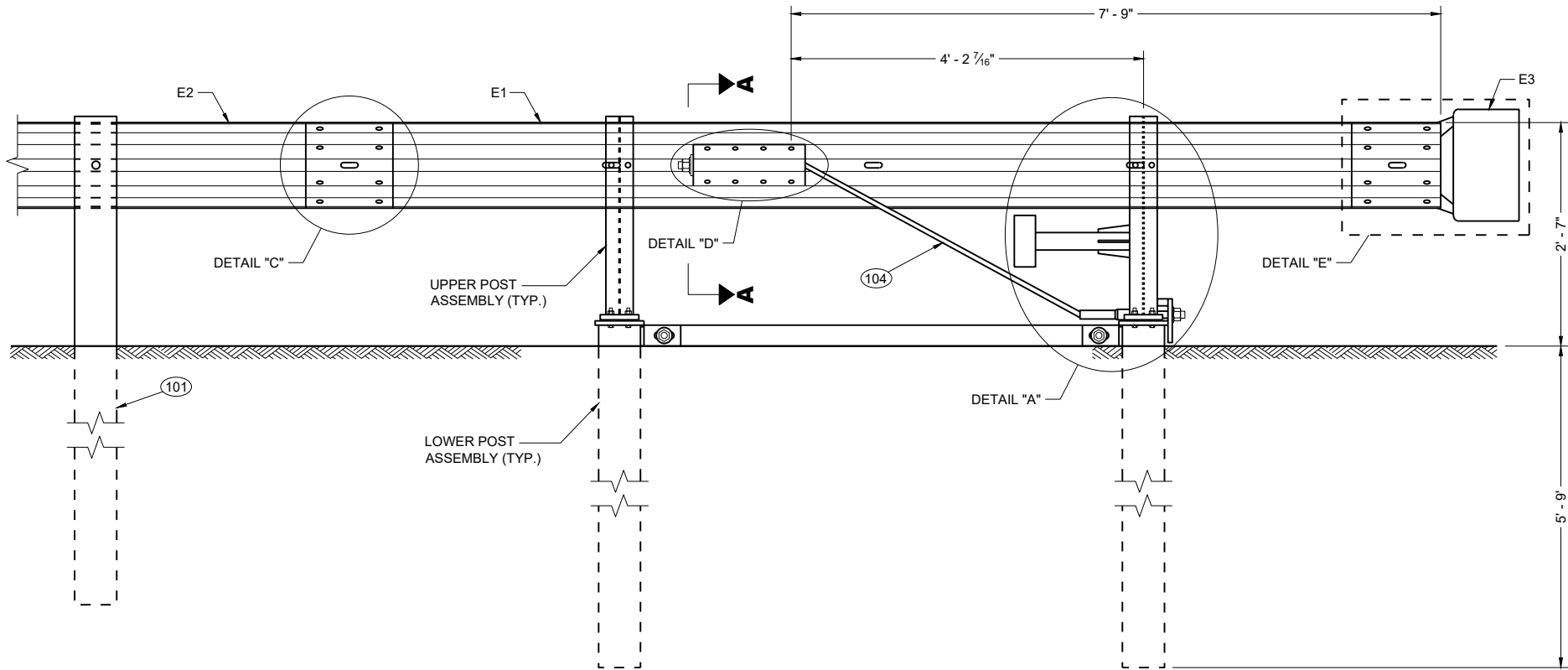
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

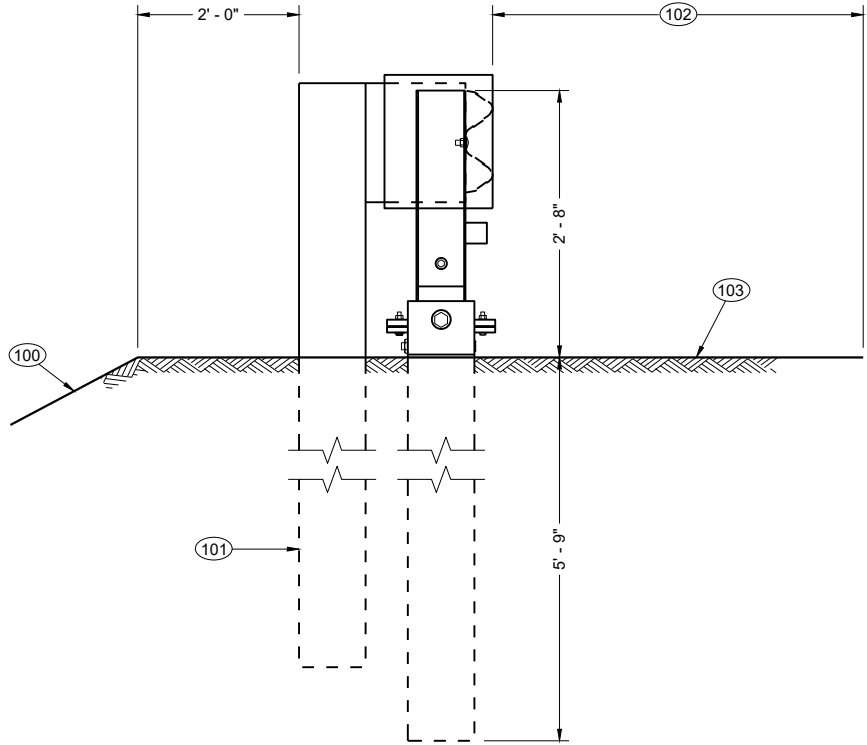
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

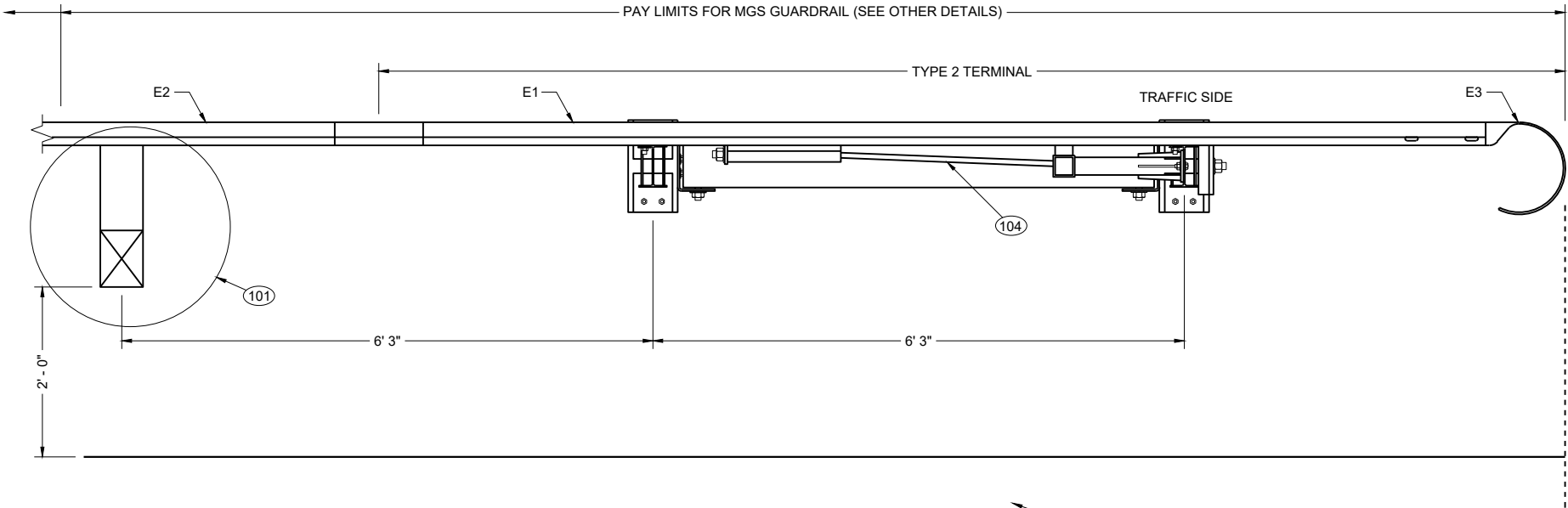
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



BACK VIEW
TYPE 2 TERMINAL



SIDE VIEW
TYPE 2 TERMINAL



TOP VIEW
TYPE 2 TERMINAL

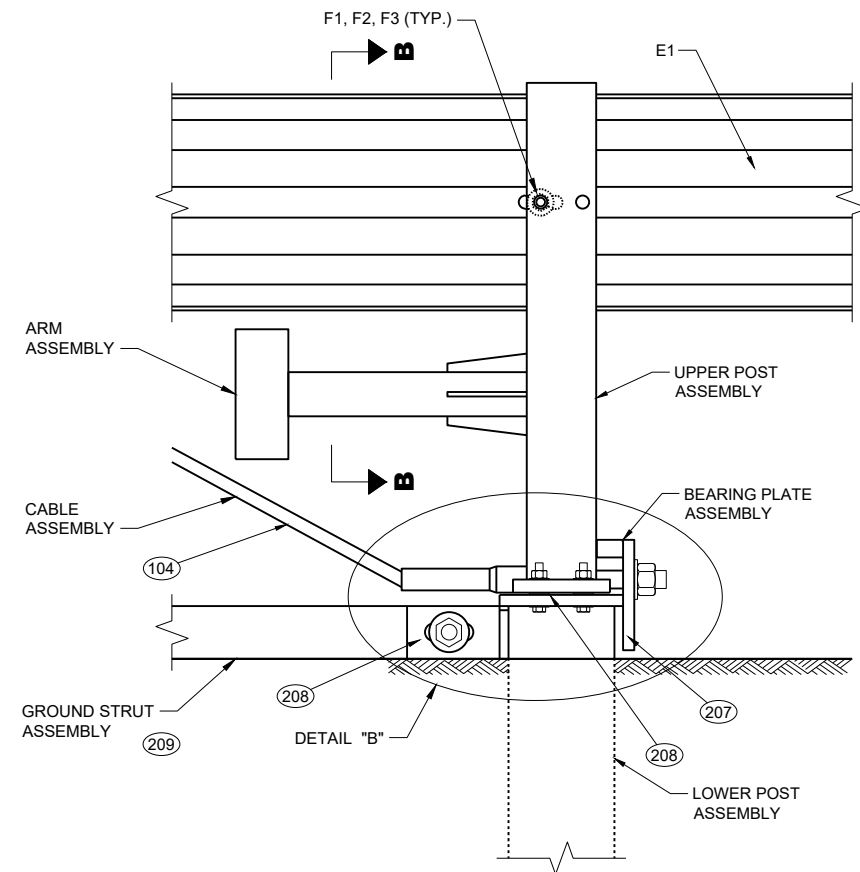
GENERAL NOTES

SEE SDD 14B42 FOR MORE INFORMATION

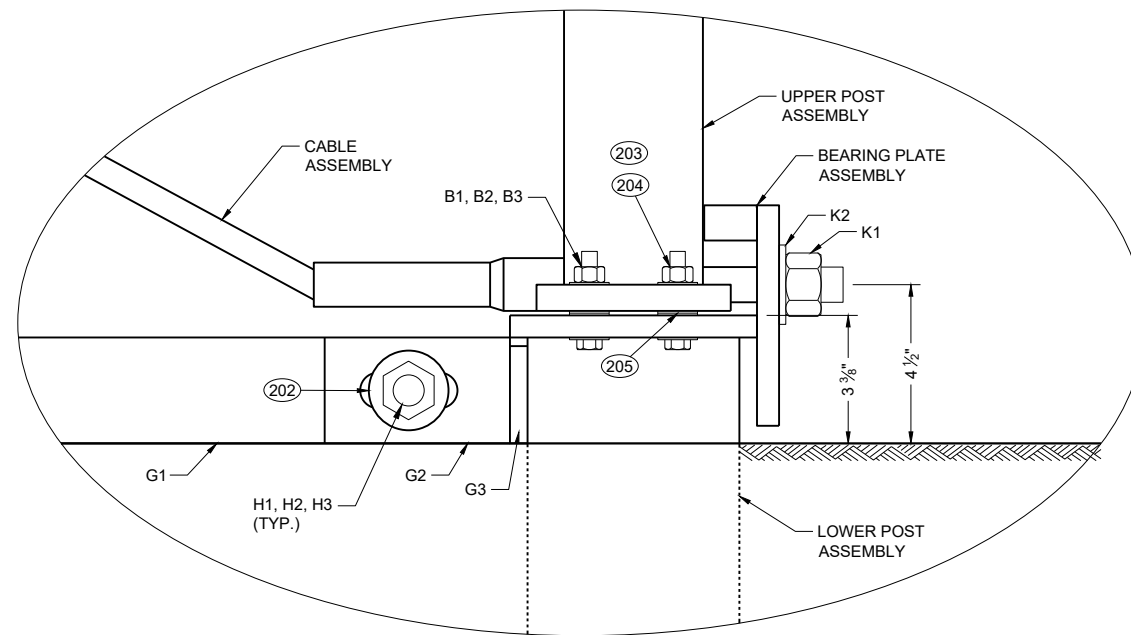
- 100 MAXIMUM SLOPE IS 2.5:1.
- 101 SEE SDD 14B42 FOR MORE INFORMATION.
- 102 SHOULDER
- 103 MAXIMUM SLOPE IS 10:1.
- 104 AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

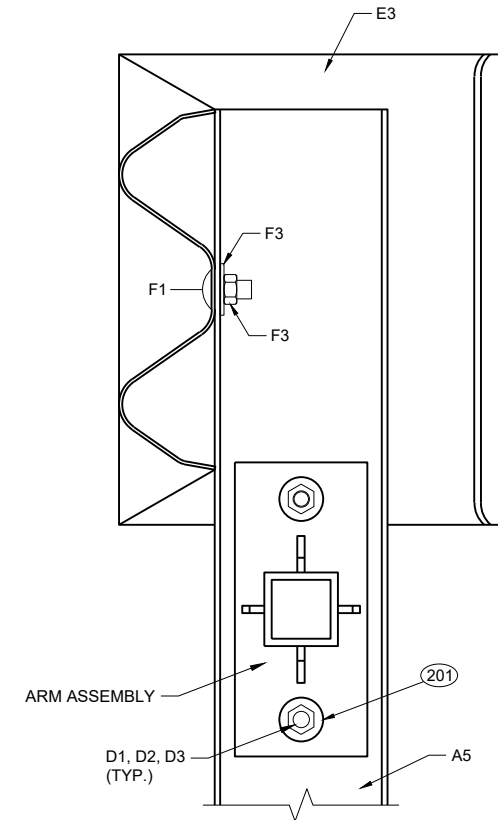
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL "A"



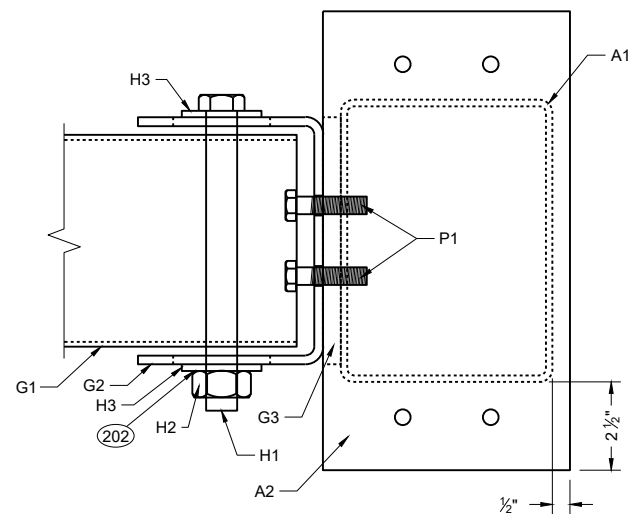
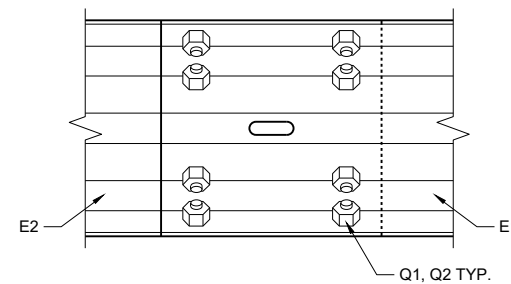
DETAIL "B"



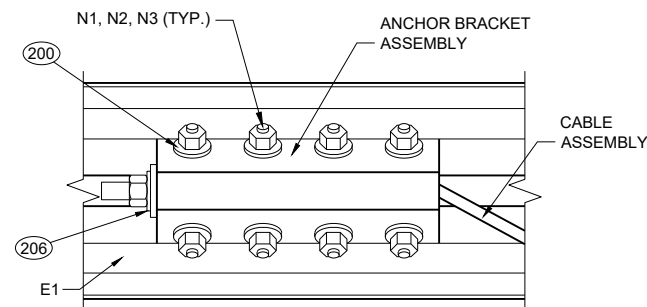
SECTION B - B

GENERAL NOTES

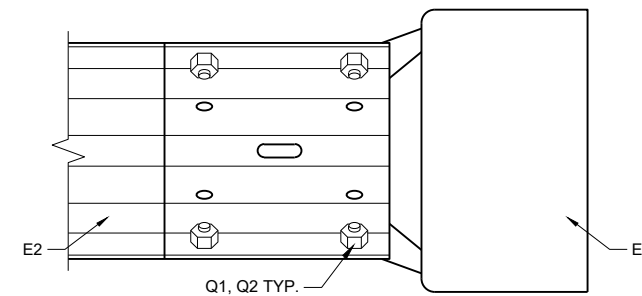
- (200) INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (201) INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- (202) INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- (203) INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- (204) TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- (205) TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- (206) INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (207) NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
- (208) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST ASSEMBLIES AND GROUND STRUT.
- (209) PREVENT OR REMOVE MATERIALS THAT IMPEDE REMOVAL OF GROUND STRUT.

TOP VIEW
GROUND STRUT
CONNECTION DETAIL

DETAIL "C"

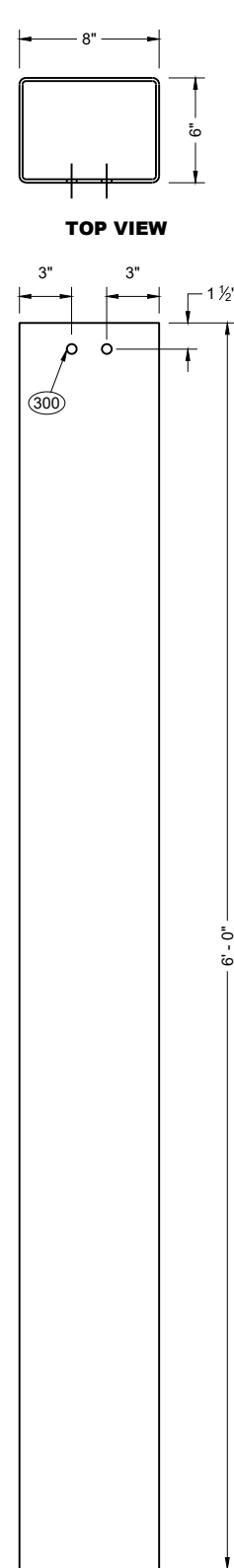


DETAIL "D"

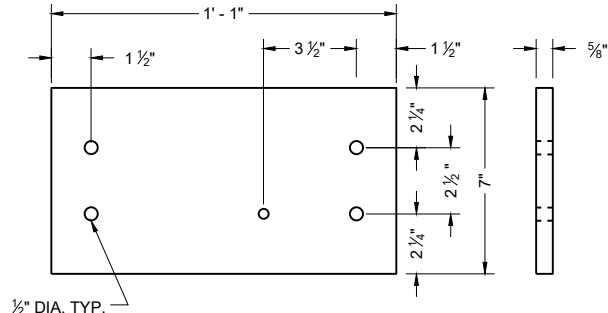


DETAIL "E"

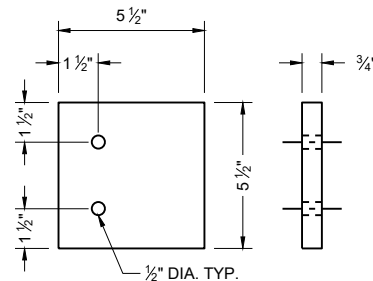
MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINALSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



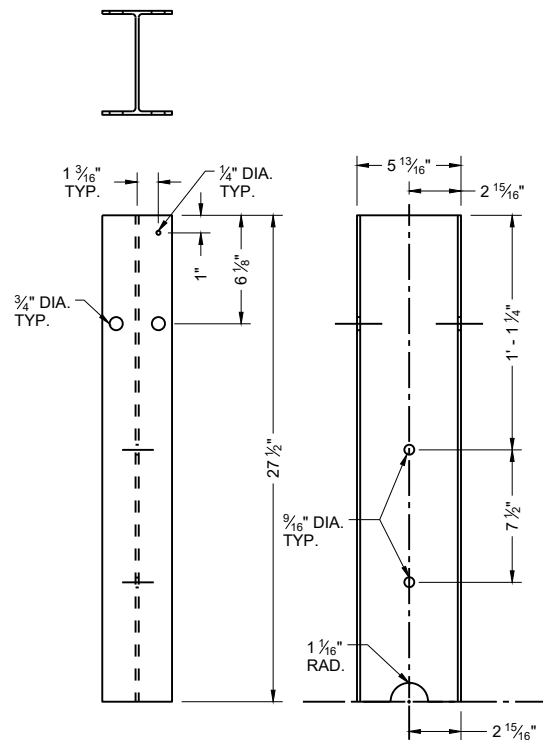
FOUNDATION
TUBE (A1)



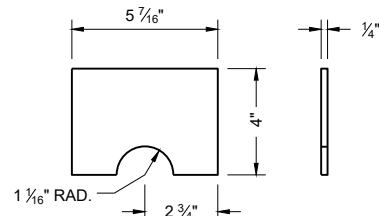
LOWER PLATE (A2)



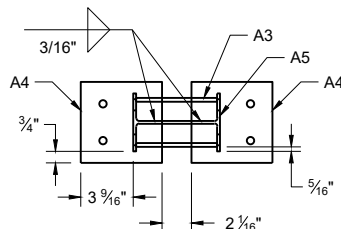
UPPER PLATE (A4)



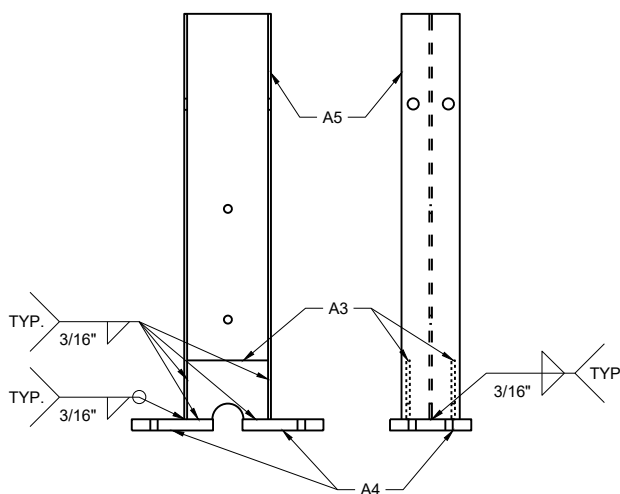
TYPE 2 POST (A5)



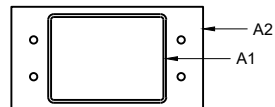
POST GUSSET (A3)



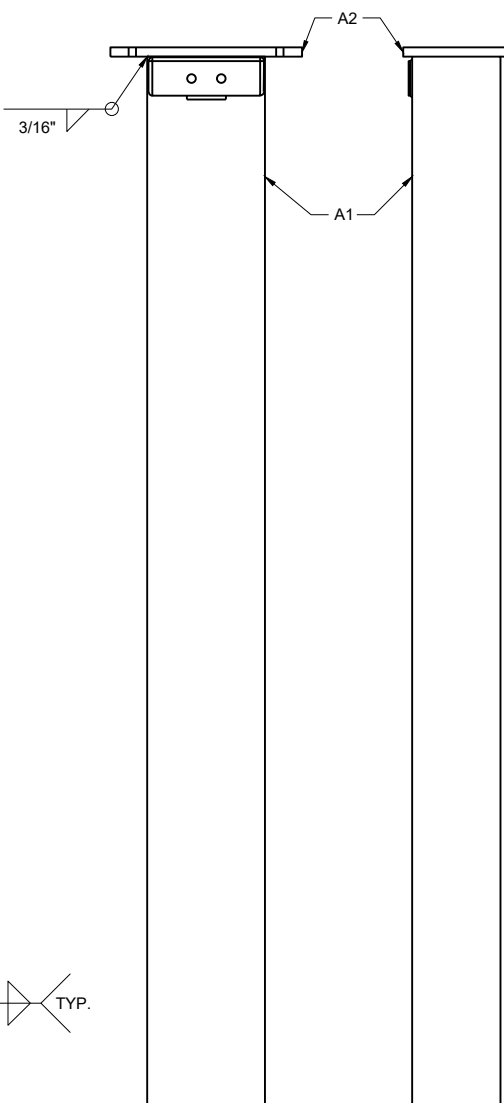
PLAN VIEW



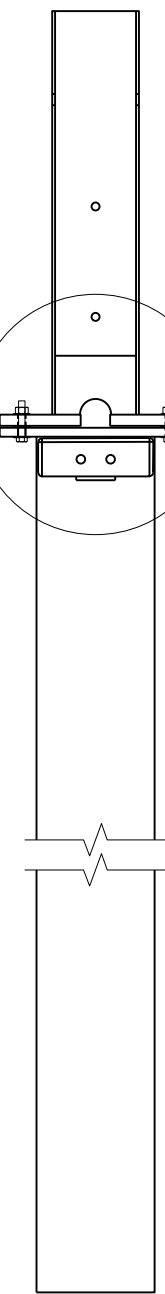
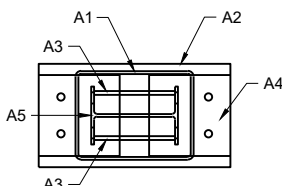
UPPER POST ASSEMBLY



PLAN VIEW



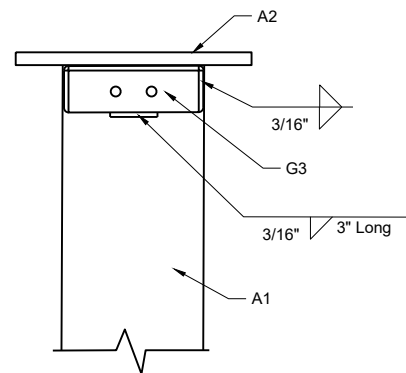
LOWER POST ASSEMBLY



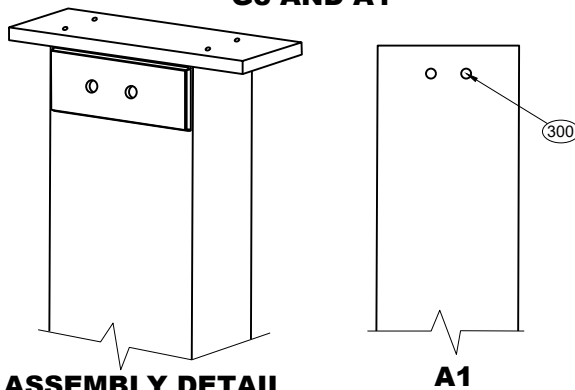
ASSEMBLED POST

GENERAL NOTES

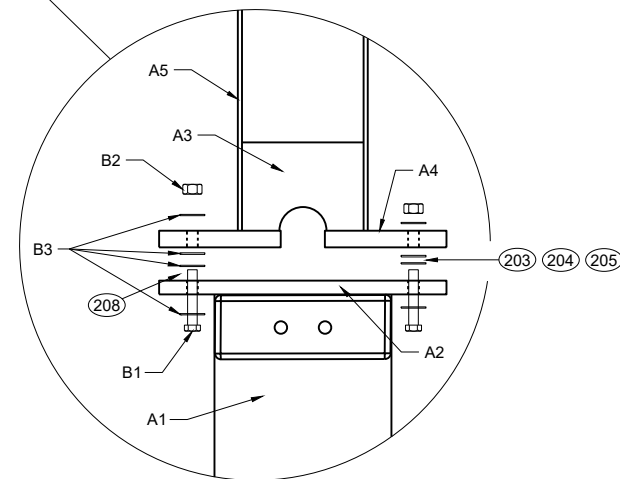
(300) TAP FOR 1/2" AFTER GALVANIZATION



WELDING DETAIL
G3 AND A1



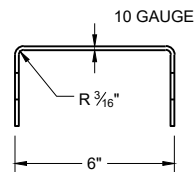
ASSEMBLY DETAIL
ISOMETRIC



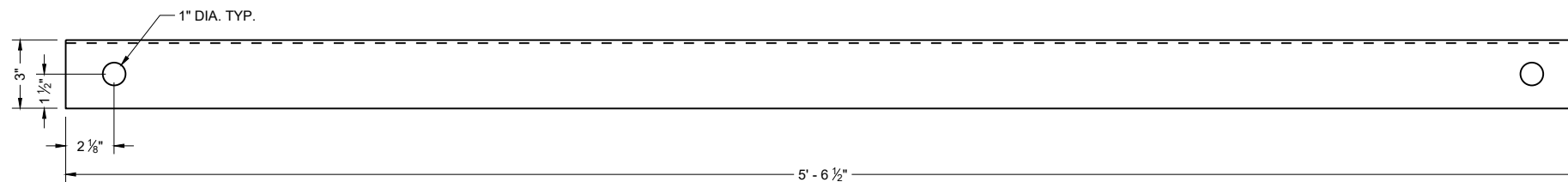
POST CONNECTION DETAIL

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

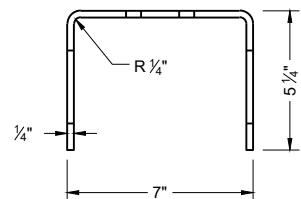


SIDE VIEW

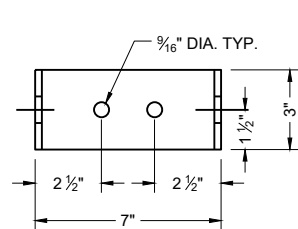


FRONT VIEW

GROUND STRUT CHANNEL (G1)

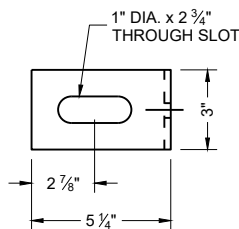


TOP VIEW

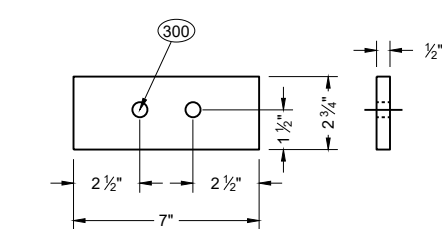


FRONT VIEW

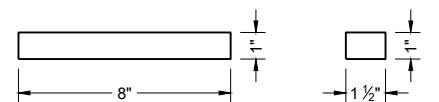
GROUND STRUT CONNECTOR (G2)



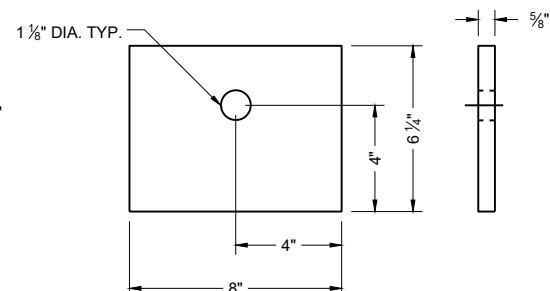
SIDE VIEW



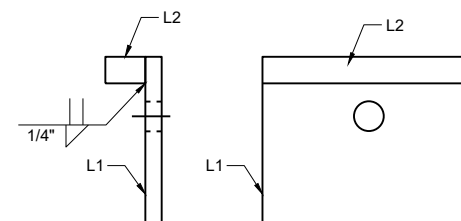
GROUND STRUT PLATE (G3)



BEARING PLATE FLANGE (L2)



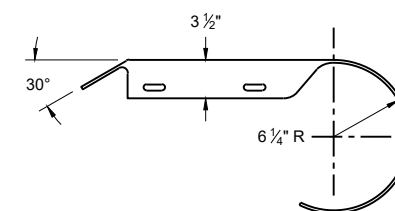
BEARING PLATE (L1)



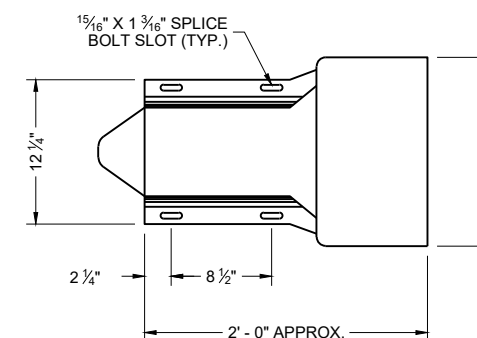
SIDE VIEW

FRONT VIEW

BEARING PLATE ASSEMBLY

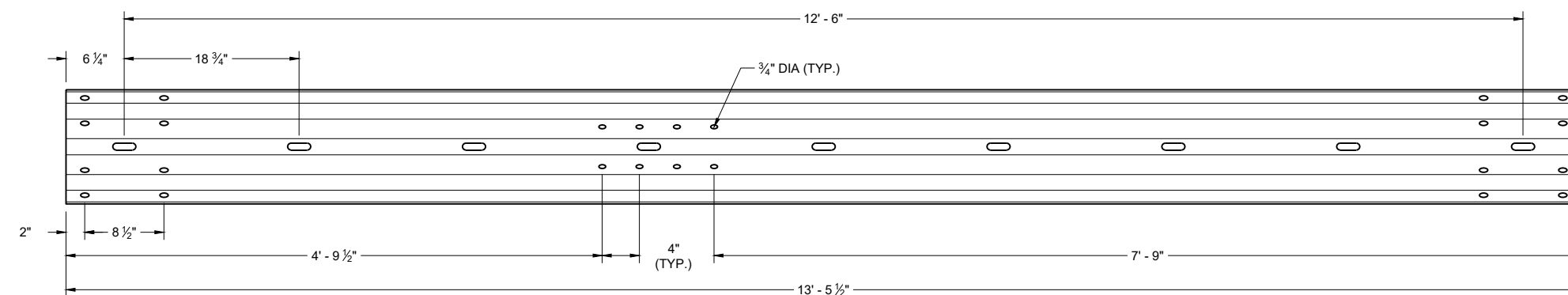


PLAN VIEW

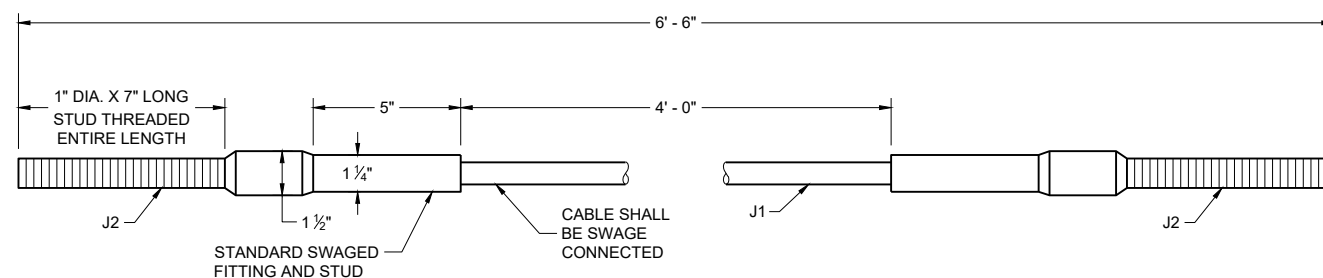


ELEVATION VIEW

ROUNDED BUFFER END (E3)



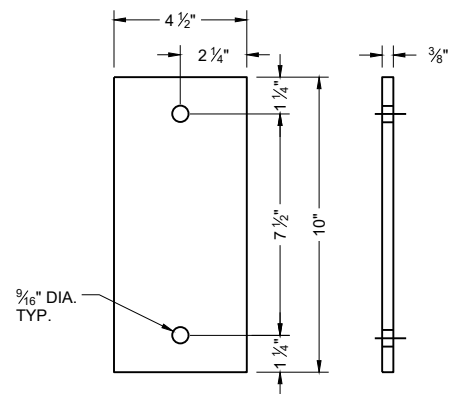
TYPE 2 GUARDRAIL (E1)



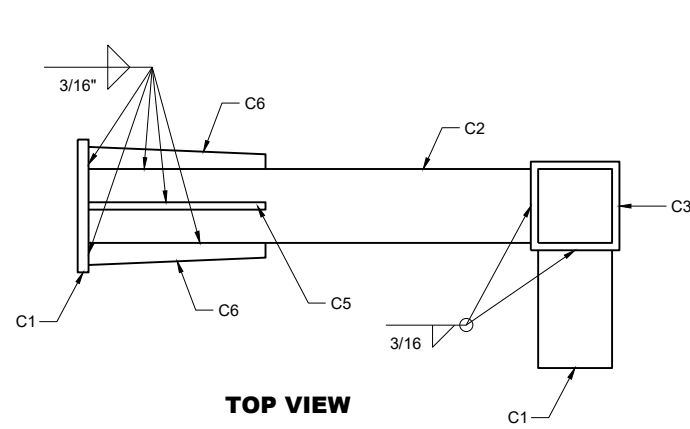
CABLE ASSEMBLY

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

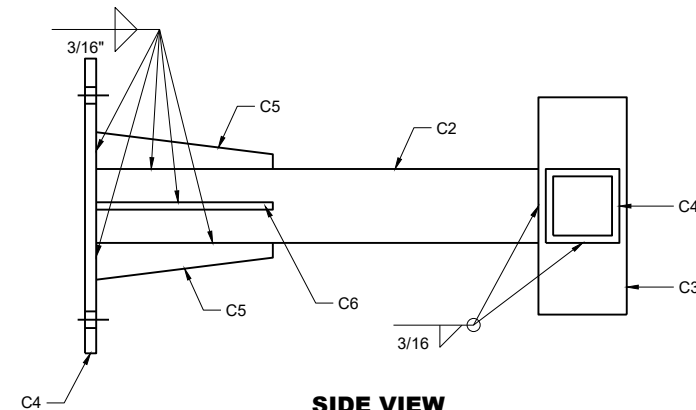
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



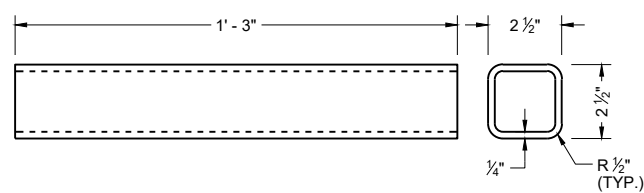
ARM PLATE (C1)



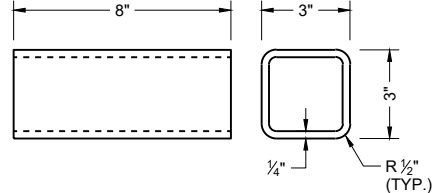
**TOP VIEW
ARM ASSEMBLY**



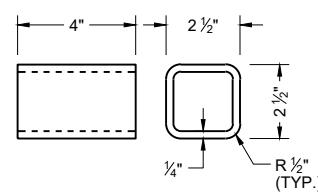
**SIDE VIEW
ARM ASSEMBLY**



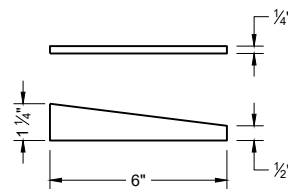
ARM TUBE 1 (C2)



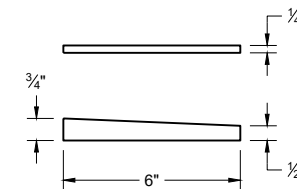
ARM TUBE 2 (C3)



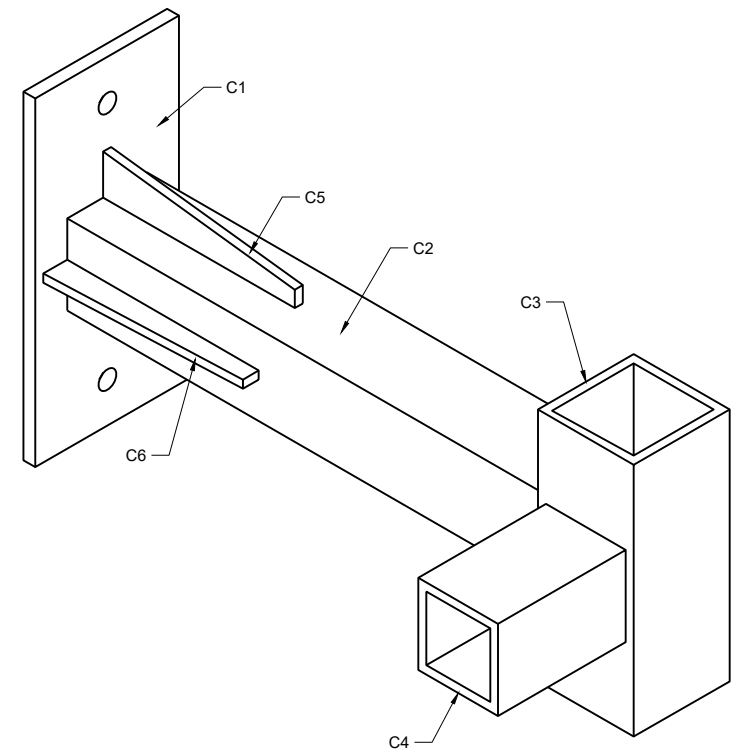
ARM TUBE 3 (C4)



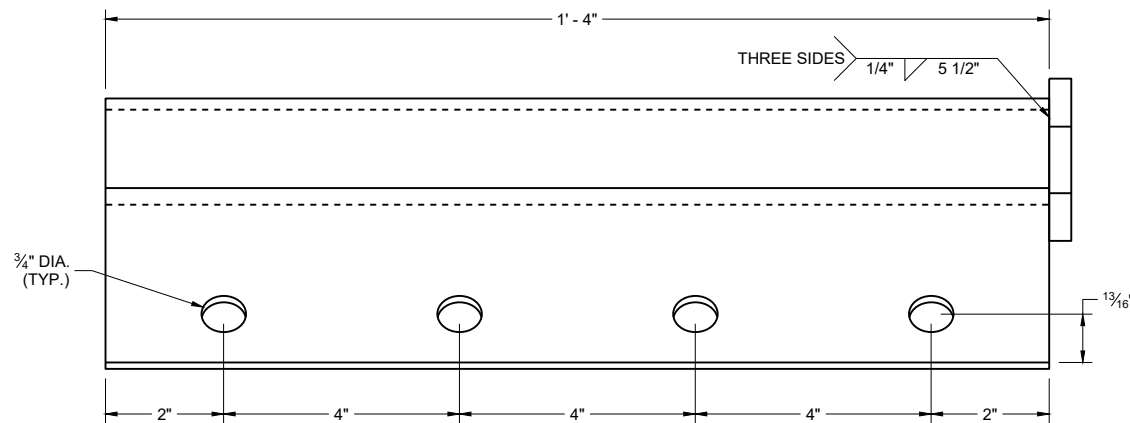
**ARM GUSSET
PLATE 1 (C5)**



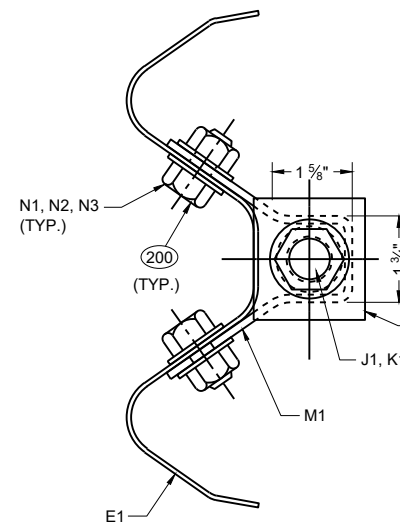
**ARM GUSSET
PLATE 2 (C6)**



**ISOMETRIC VIEW
ARM ASSEMBLY**

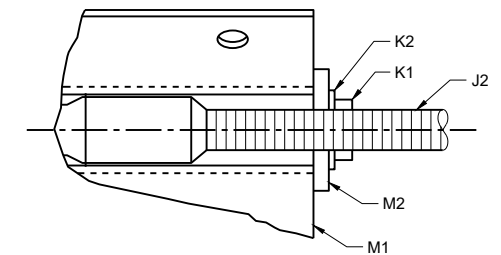


ANCHOR BRACKET (M1, M2)



ANCHOR BRACKET BEARING PLATE (M2)

SECTION A - A



**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
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SDD 14B47-07f

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	TYPE 2 FOUNDATION TUBE	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x $\frac{3}{16}$ "
A2	LOWER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{5}{8}$ " THICKNESS
A3	POST GUSSET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
A4	UPPER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{3}{4}$ " THICKNESS
A5	TYPE 2 POST	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI, w6x9 or w6x8.5	
B1	BREAKAWAY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	$\frac{7}{16}$ " DIA.
B2	BREAKAWAY BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{7}{16}$ " DIA.
B3	BREAKAWAY BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
C1	ARM ASSEMBLY PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{3}{8}$ " THICKNESS
C2	ARM ASSEMBLY TUBE 1	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x $\frac{3}{16}$ "
C3	ARM ASSEMBLY TUBE 2	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 3" x 3" x $\frac{1}{4}$ "
C4	ARM ASSEMBLY TUBE 3	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " X $\frac{1}{4}$ "
C5	ARM ASSEMBLY GUSSET PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
C6	ARM ASSEMBLY GUSSET PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
D1	ARM ASSEMBLY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	$\frac{1}{2}$ " DIA.
D2	ARM ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{1}{2}$ " DIA.
D3	ARM ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	$\frac{1}{2}$ " DIA.
E1	TYPE 2 GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E2	BEAM GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E3	BEAM GUARD ROUNDED BUFFER END	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
F1	POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	$\frac{5}{8}$ " DIA.
F2	POST BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ " DIA.
F3	POST BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
G1	GROUND STRUT CHANNEL	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{2}$ " x 11 $\frac{3}{4}$ " x 10 GAUGE
G2	GROUND STRUT CONNECTOR	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
G3	GROUND STRUT PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{2}$ " THICKNESS

6

SDD 14B47-07f

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

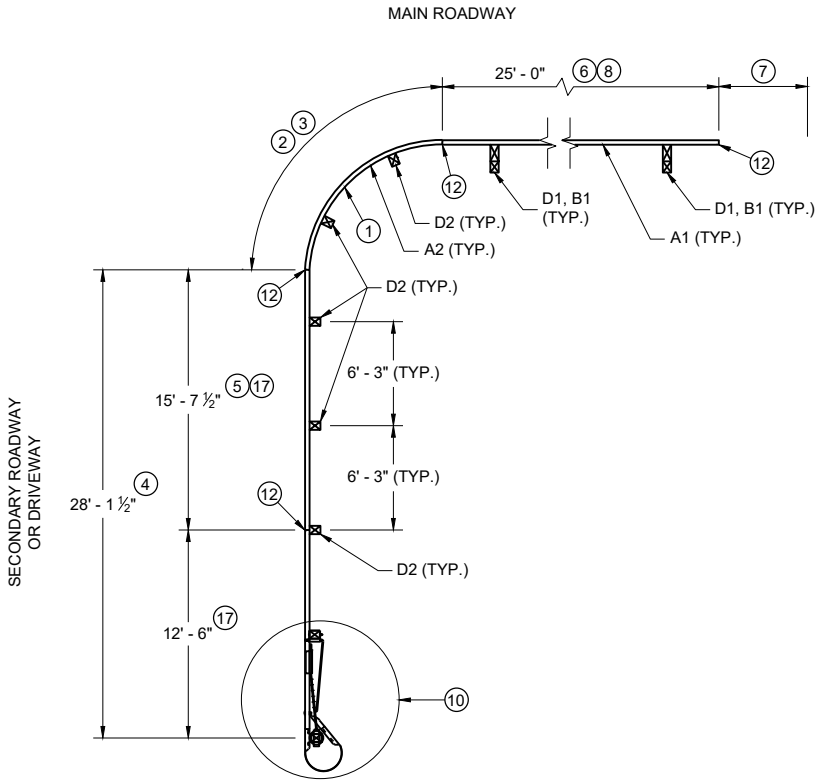
BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2	GROUND STRUT BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/8" DIA.
H3	GROUND STRUT BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
J1	BCT CABLE	AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS	3/4" DIA.
J2	BCT CABLE	UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."	
K1	CABLE ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1" DIA.
K2	CABLE ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1	1" DIA.
L1	BEARING PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
L2	BEARING PLATE FLANGE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1" THICKNESS
M1	BEAM GUARD ANCHOR BRACKET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
M2	BEAM GUARD ANCHOR END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/8" THICKNESS
N1	ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
N2	ANCHOR BRACKET BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
N3	ANCHOR BRACKET BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
P1	FOUNDATION TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
Q1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
Q2	SPLICE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	5/8" DIA.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

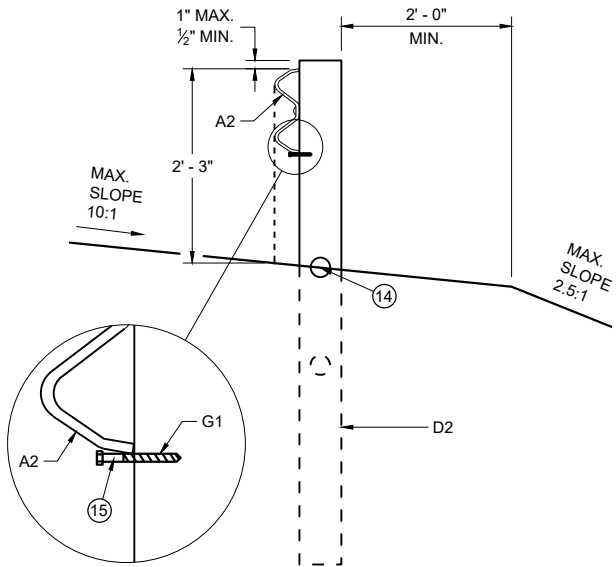
STATE OF WISCONSIN
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APPROVED
June 2025 /S/ Rodney Taylor
DATE <position>

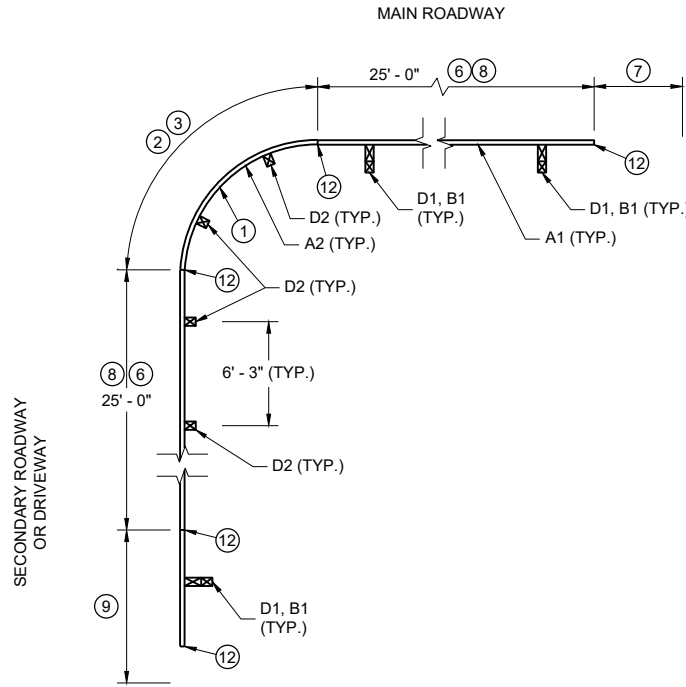


PLAN VIEW

**SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY**

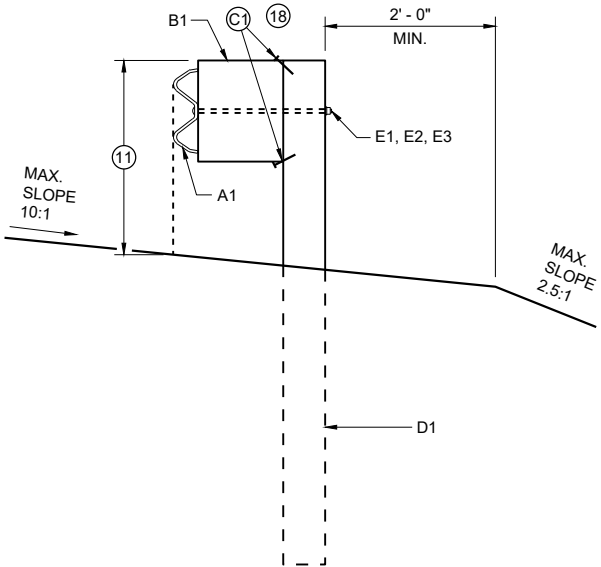


**CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS**



PLAN VIEW

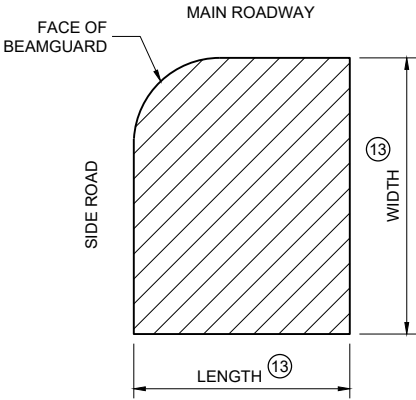
**SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY**



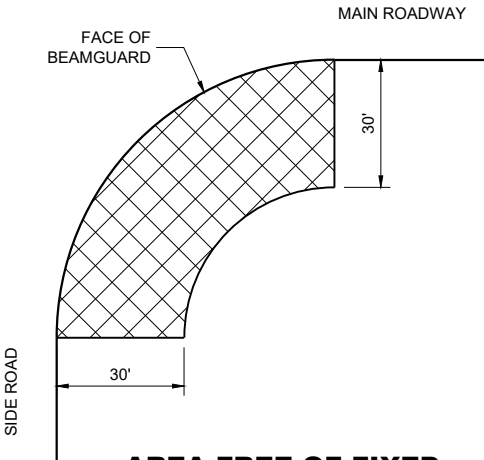
**BEAM GUARD POSTS
IN HEIGHT TRANSITION**

TABLE FOR RADIUS OF 32' AND LESS

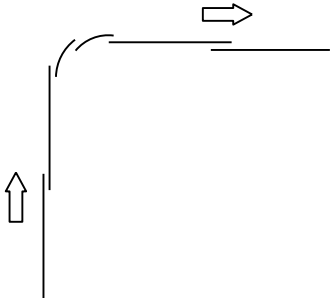
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS**



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'**



LAP SPLICE DETAIL

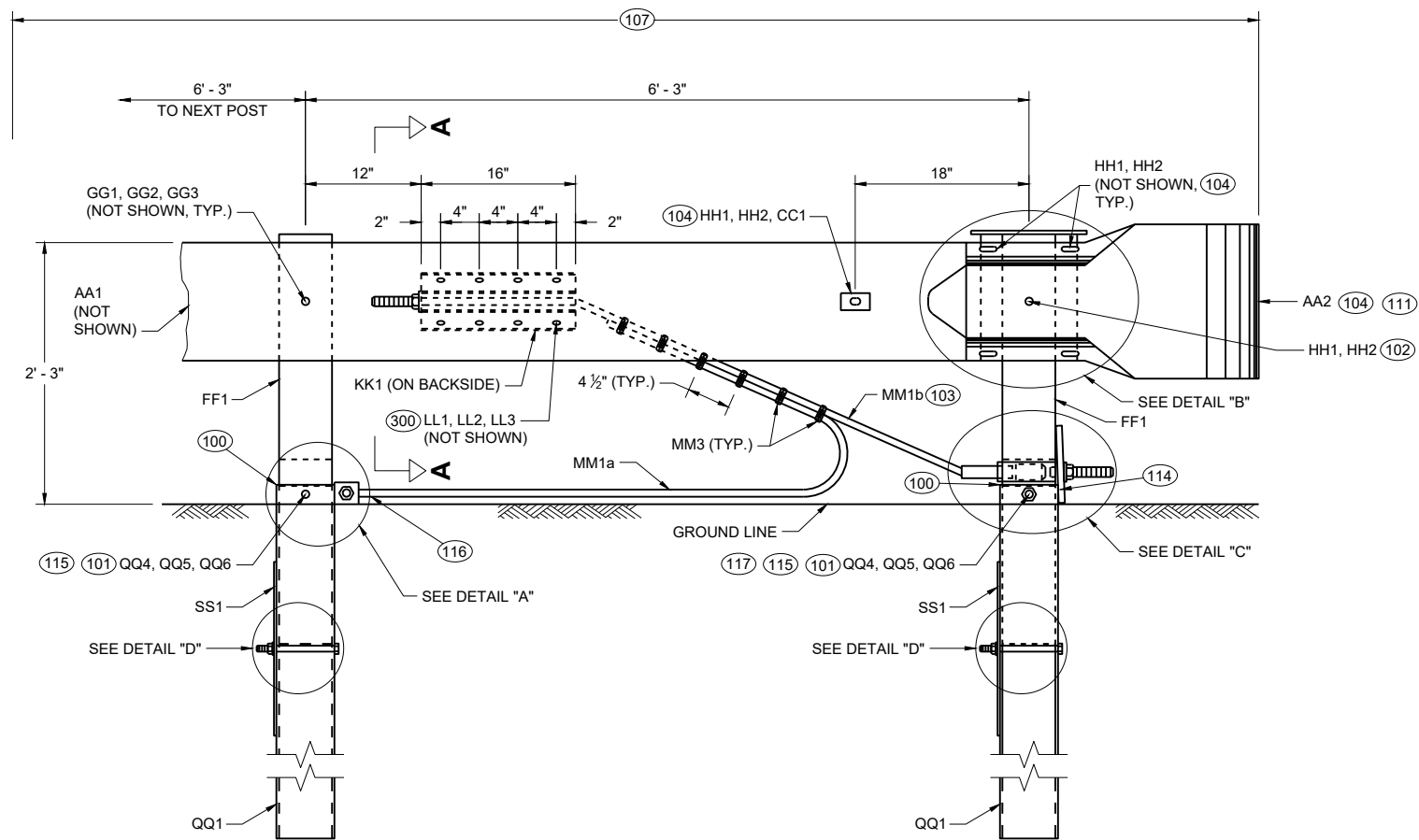
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

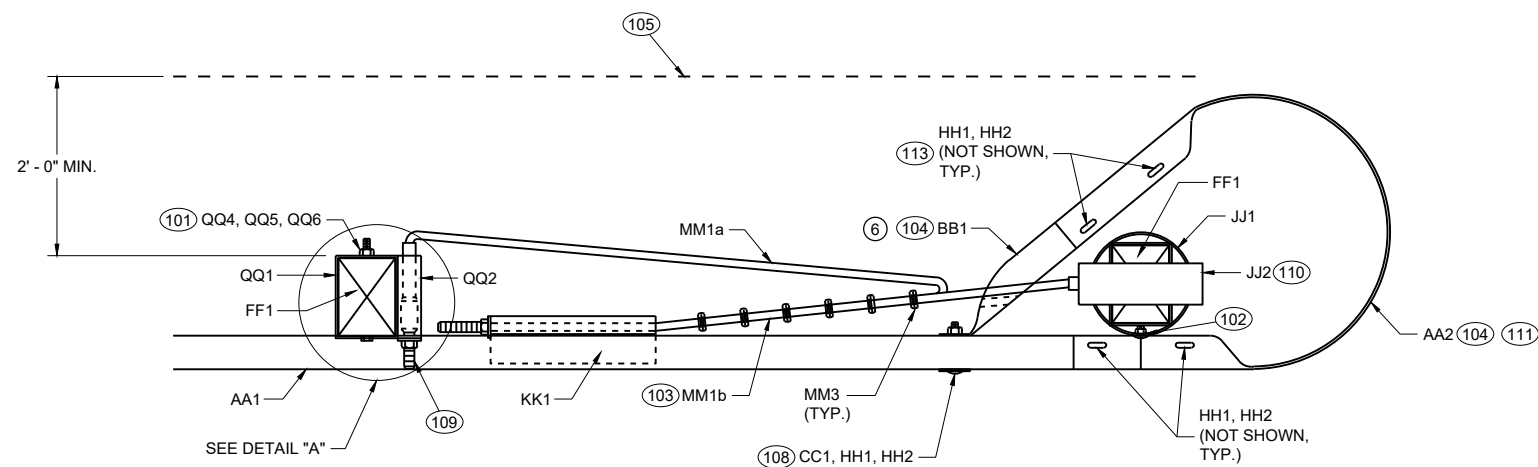
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- ③ WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- ④ MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- ⑤ ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- ⑥ MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- ⑦ BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- ⑧ TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- ⑨ ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- ⑩ SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- ⑪ HEIGHT VARIES. SEE NOTE ⑧ AND ⑪.
- ⑫ BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- ⑬ SEE TABLE FOR VALUES.
- ⑭ MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- ⑮ DRILL POST 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- ⑯ SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- ⑰ TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).
- ⑱ INITIAL 1 NAIL AT EACH CORNER OF THE BLOCK TO CONNECT BLOCKS.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

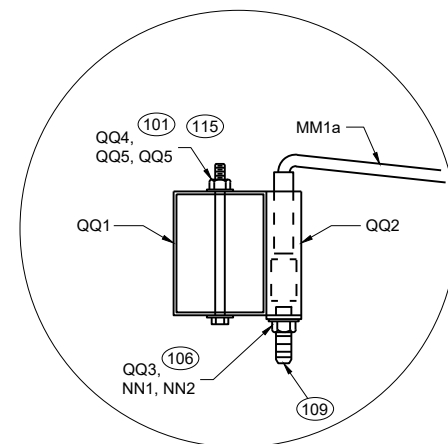
STATE OF WISCONSIN
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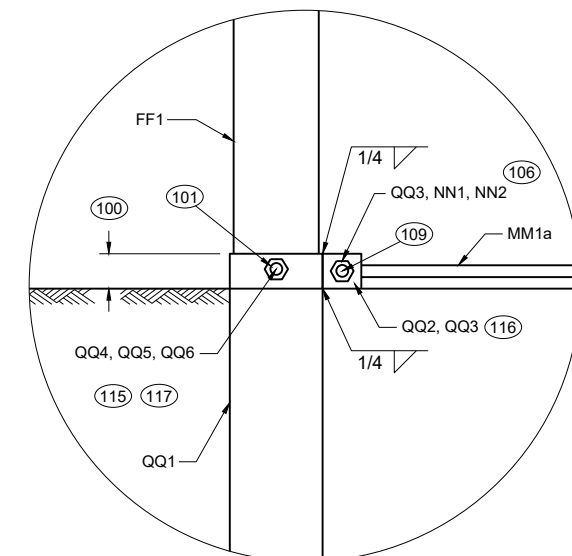
**PROFILE VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



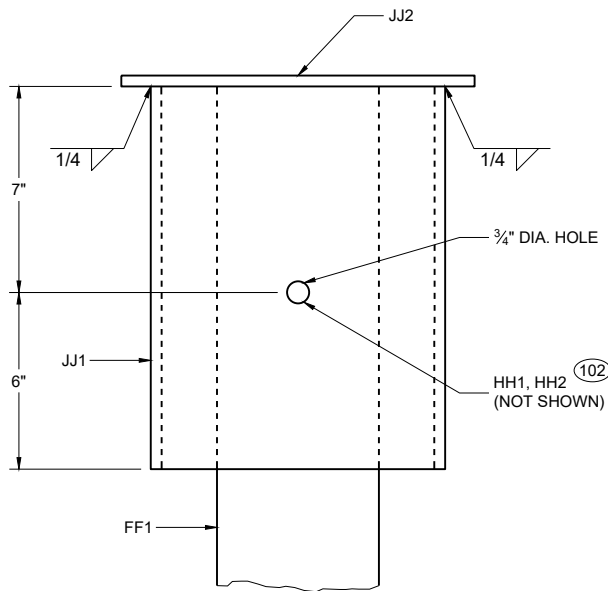
**PROFILE VIEW
DETAIL "A"**

GENERAL NOTES

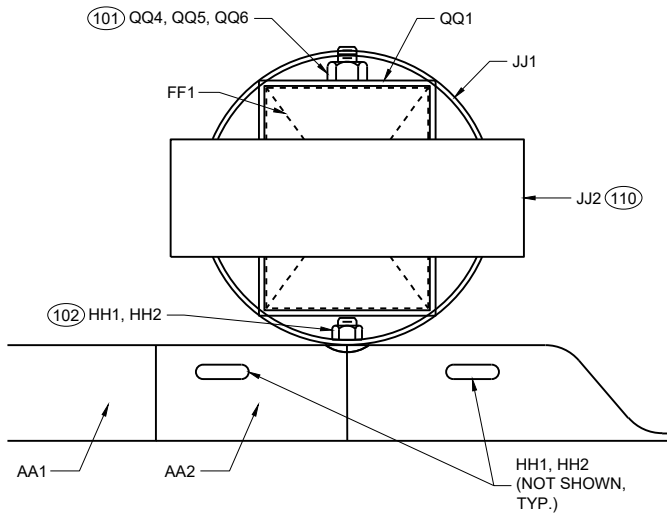
- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.
- (114) NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
- (115) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST AND SOIL TUBE.
- (116) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLT. PLACE CABLE ON TOP OF MATERIAL.
- (117) ONE WASHER BETWEEN BOLD HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

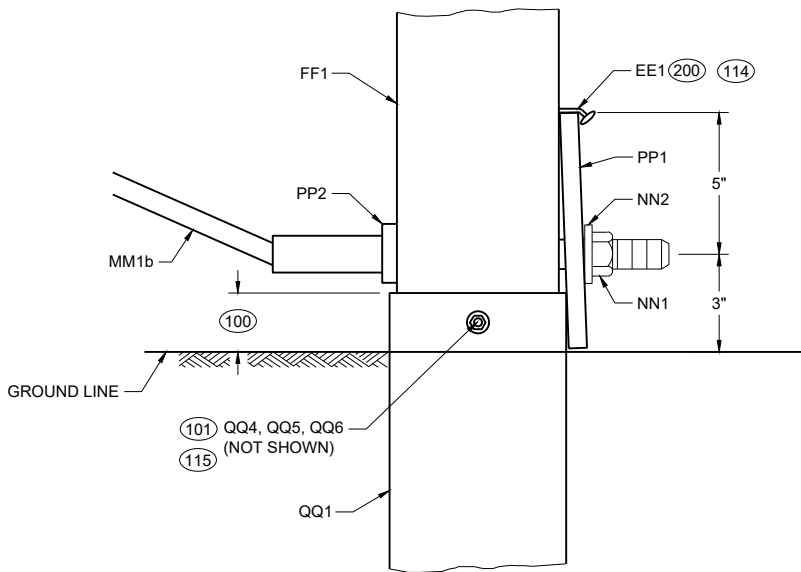
STATE OF WISCONSIN
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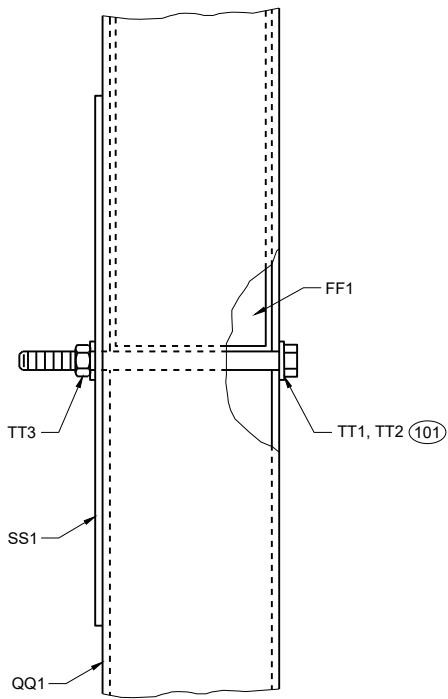
**PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



**PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY**



**PROFILE VIEW
DETAIL "C"**



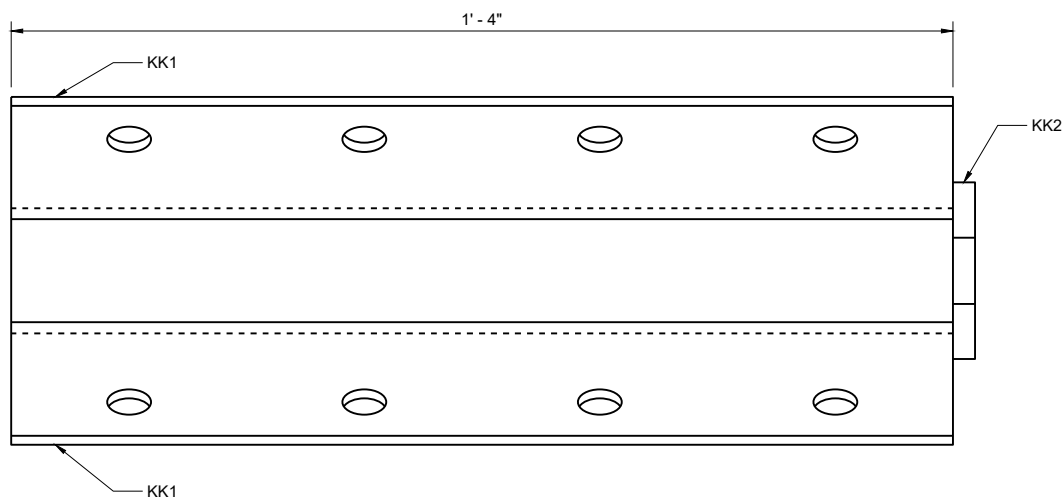
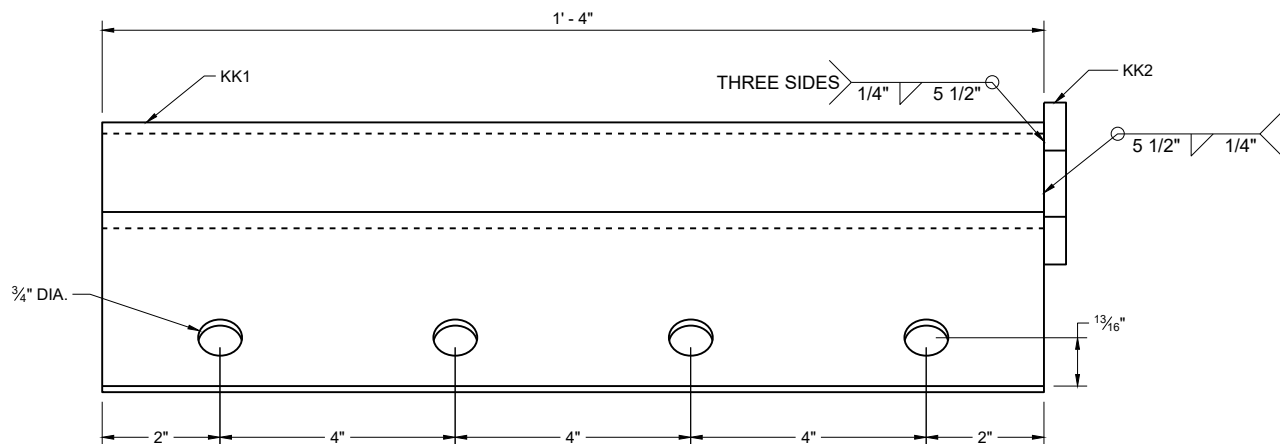
**PROFILE VIEW
DETAIL "D"**

GENERAL NOTES

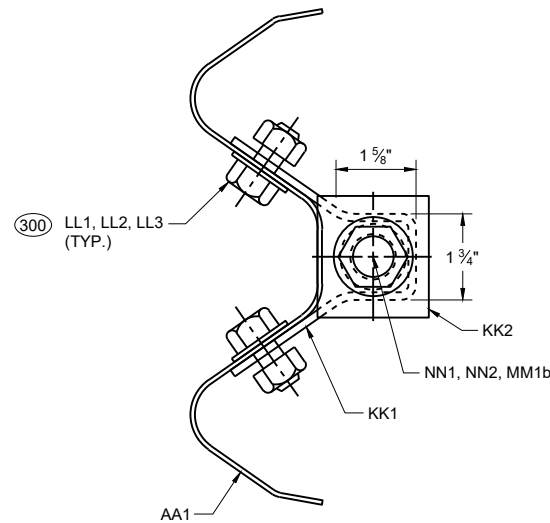
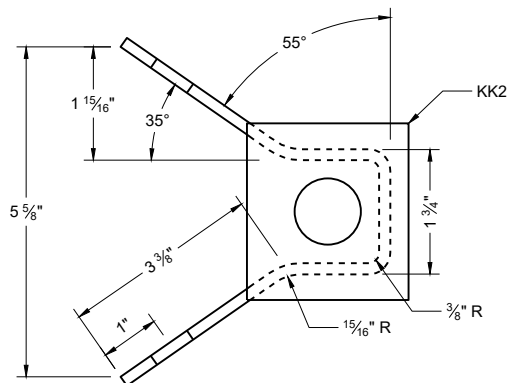
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

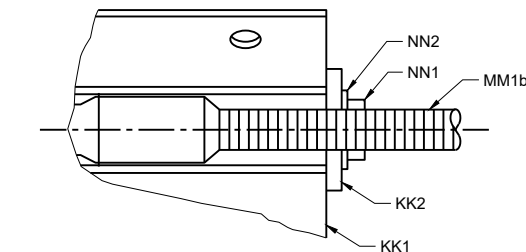


ANCHOR BRACKET (KK1, KK2)

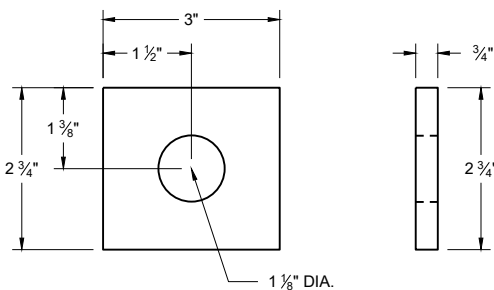


GENERAL NOTES

(300) WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



SECTION A - A



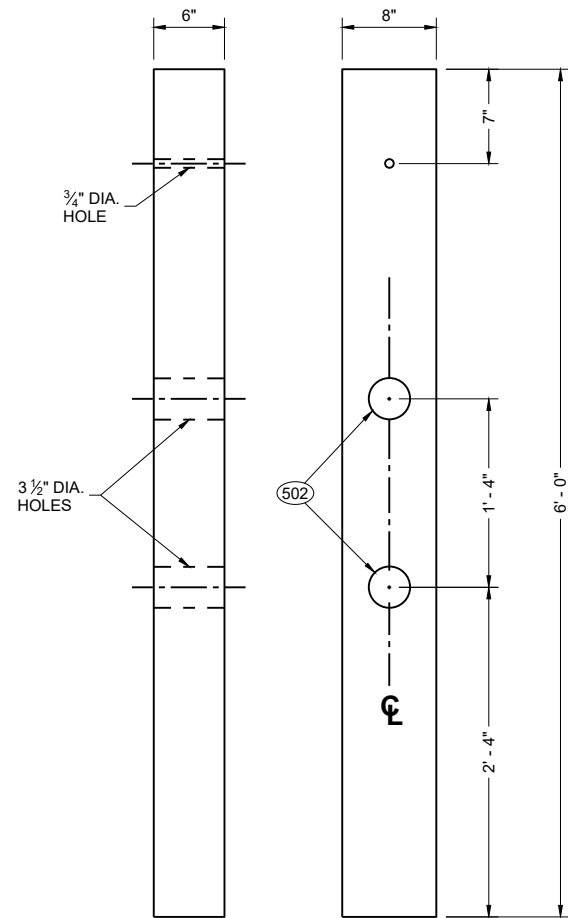
ANCHOR BRACKET BEARING PLATE (KK2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

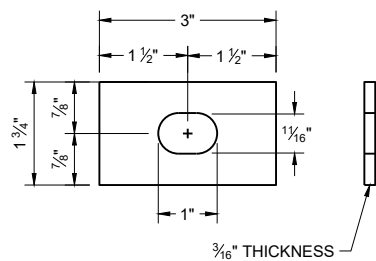
STATE OF WISCONSIN
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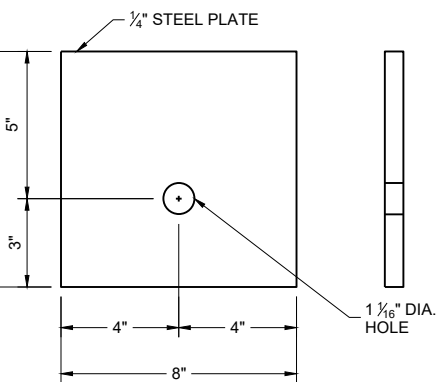
401 CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



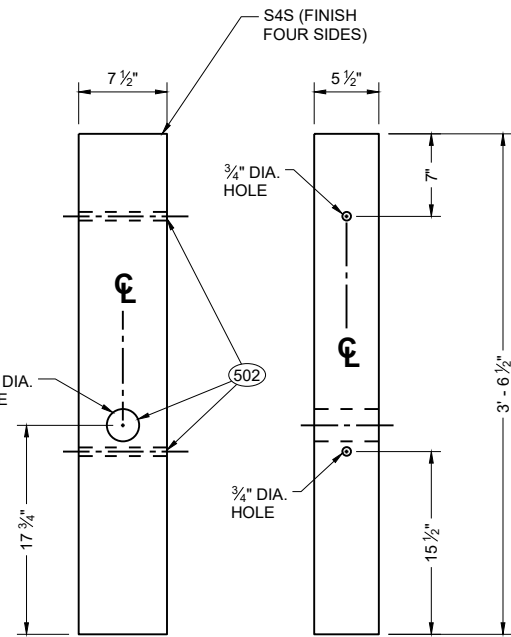
FRONT VIEW SIDE VIEW
CONTROLLED RELEASE POST (CRT) (DD2)



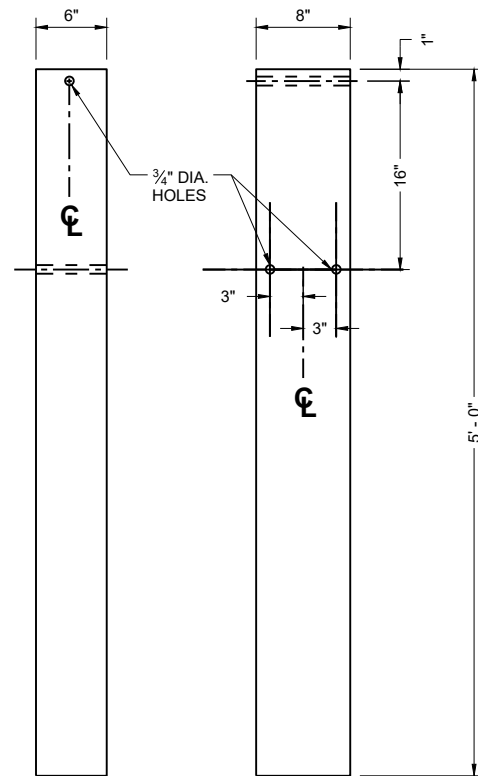
RECTANGULAR PLATE WASHER (CC1)



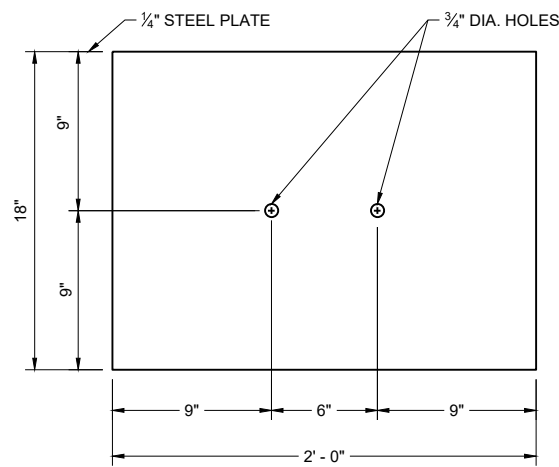
BEARING PLATE (PP1)



FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)



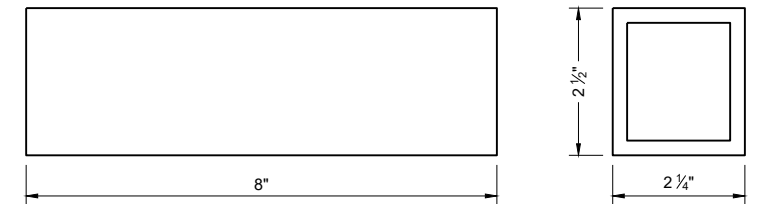
FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1) (500)



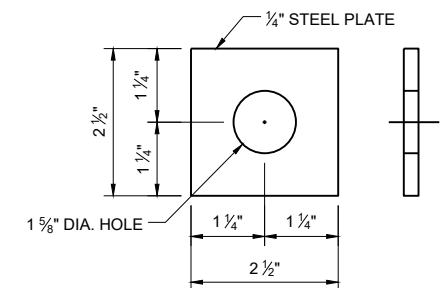
SOIL PLATE (SS1)

GENERAL NOTES

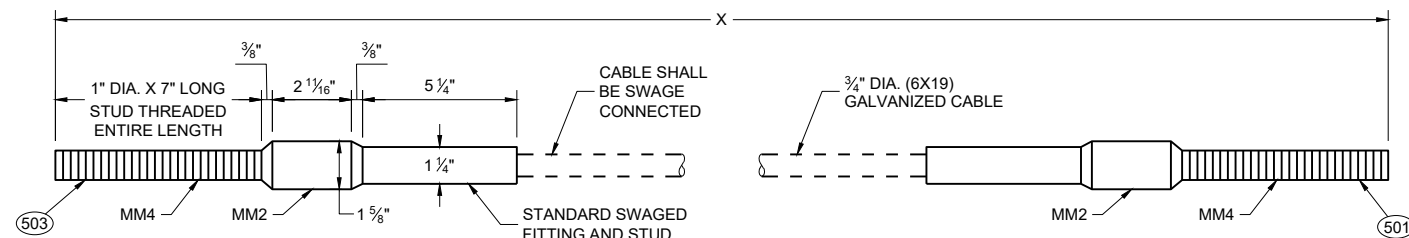
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109)



FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



ANCHOR CABLE TUBE END PLATE (QQ3)



CABLE ASSEMBLY (MM1a, MM11b)

"X" LENGTH

MM1b	9' - 0"
MM1b	6' - 8"

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPlice BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPlice BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS $\frac{3}{8}$ " X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{5}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ " DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	$\frac{5}{8}$ " DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	$\frac{3}{4}$ "
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3⁄16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 ½" X 2 ¼" X ¼" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 ½" X 2 ½" X ¼"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5⁄8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5⁄8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5⁄8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5⁄8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5⁄8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5⁄8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

December 2024

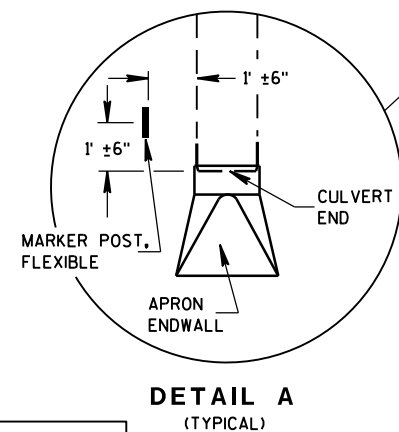
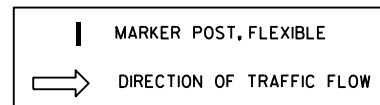
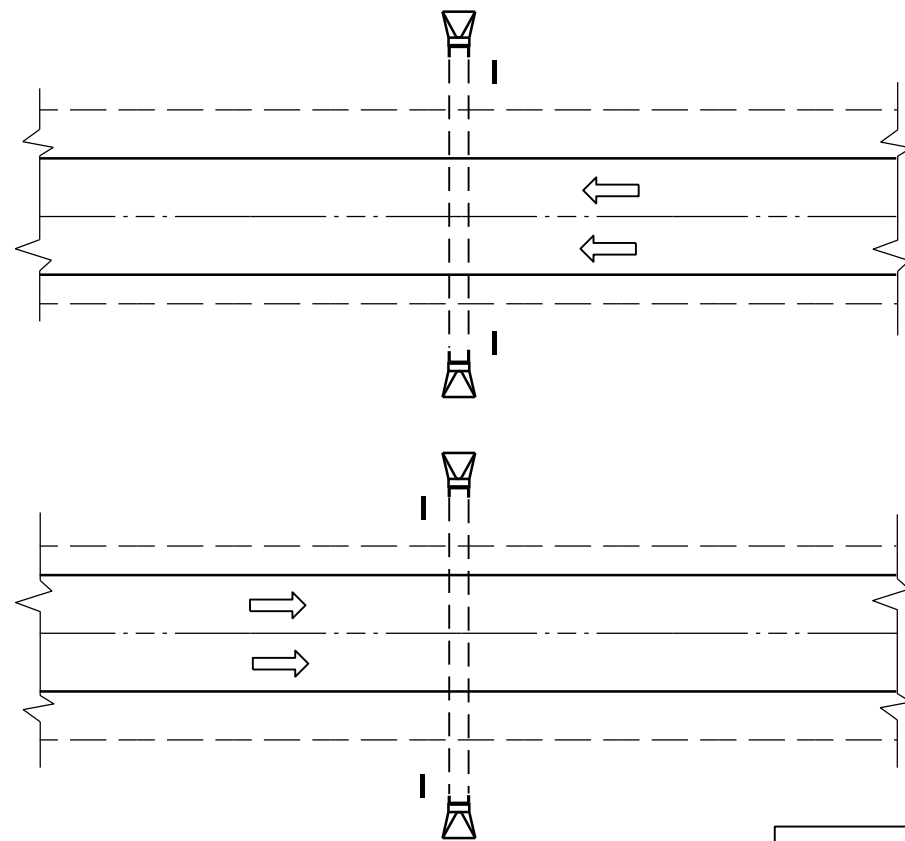
DATE

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT ENGINEER

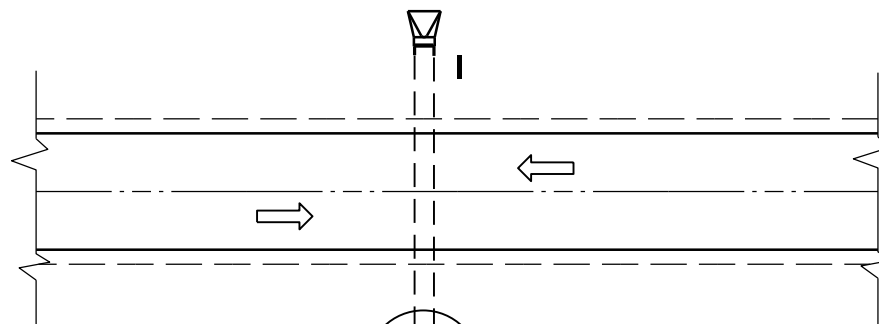
FHWA

PLAN VIEW
DIVIDED HIGHWAY

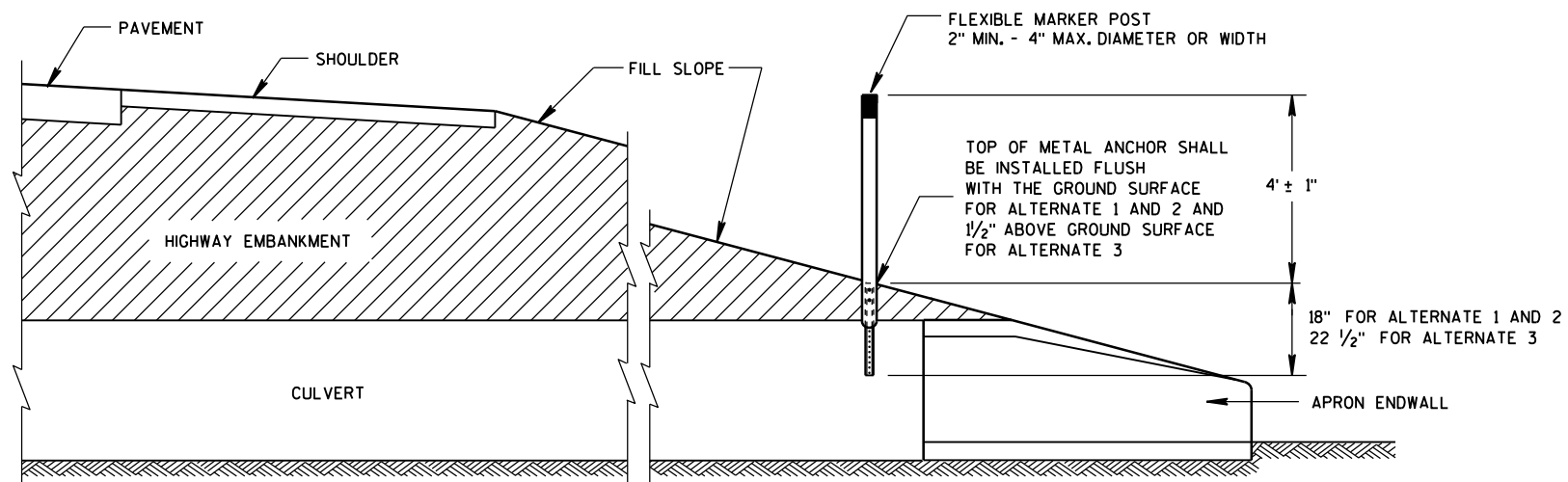


DETAIL A
(TYPICAL)

PLAN VIEW
UNDIVIDED HIGHWAY



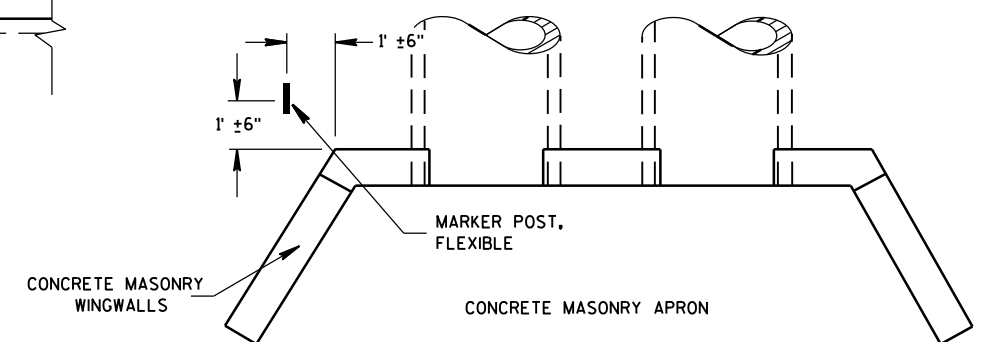
FLEXIBLE MARKER POST LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

GENERAL NOTES

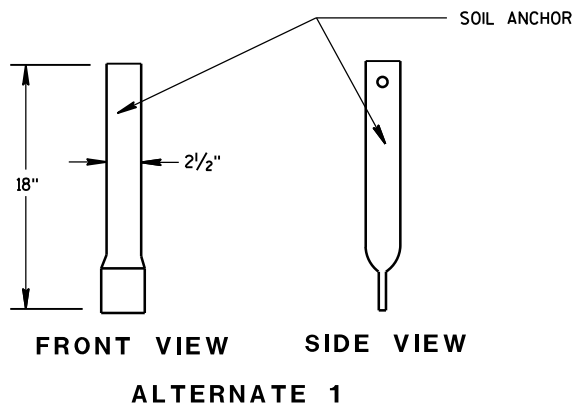
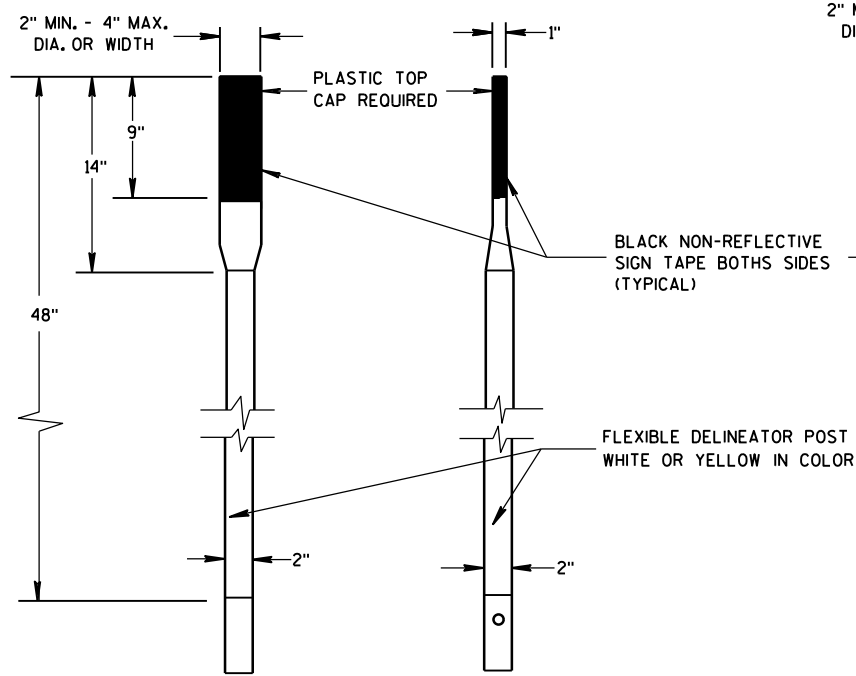
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



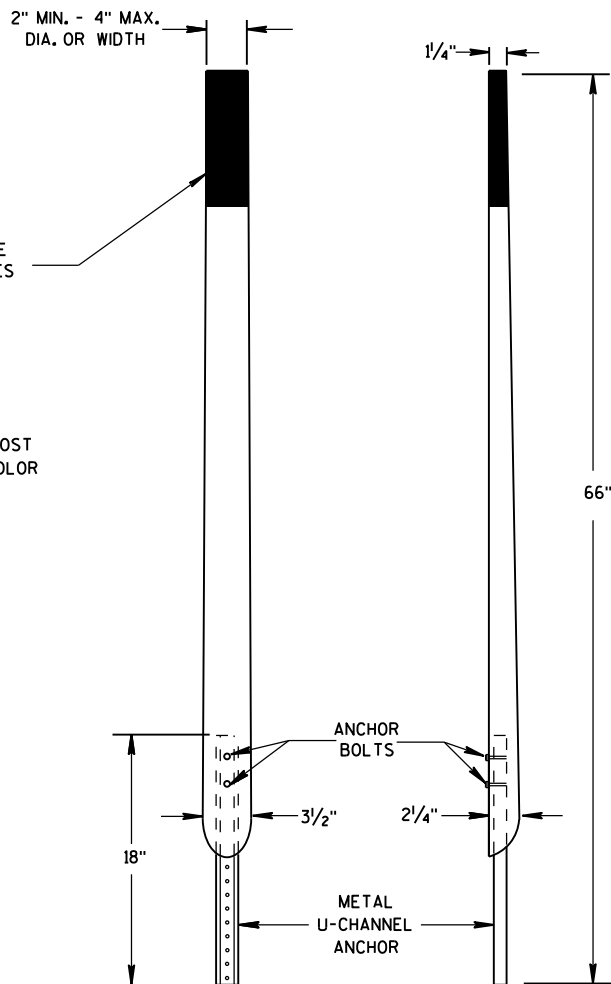
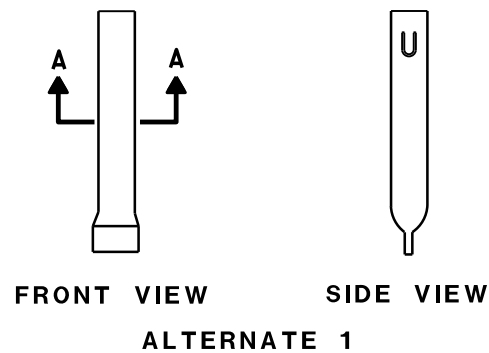
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 110

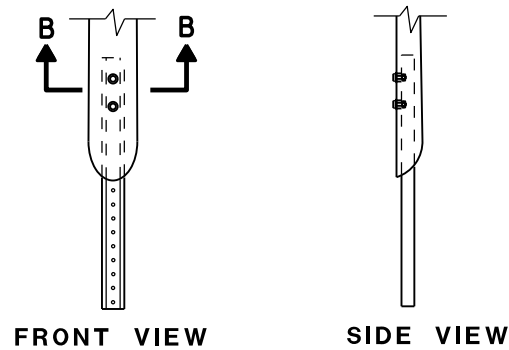
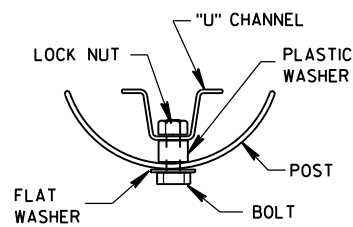


SECTION A-A

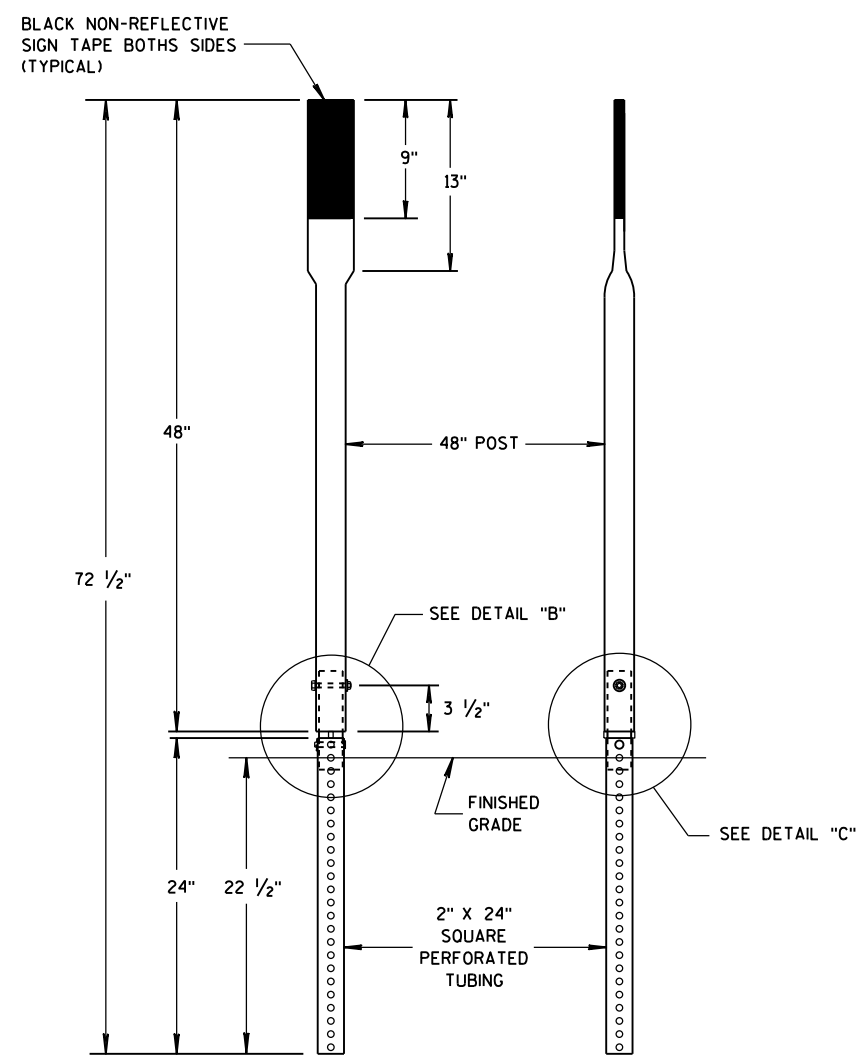


FRONT VIEW SIDE VIEW
ALTERNATE 2

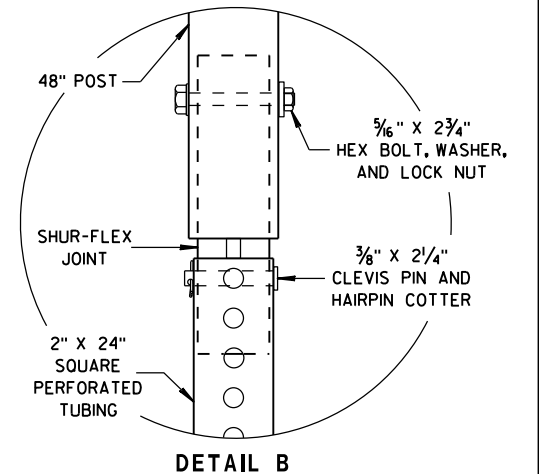
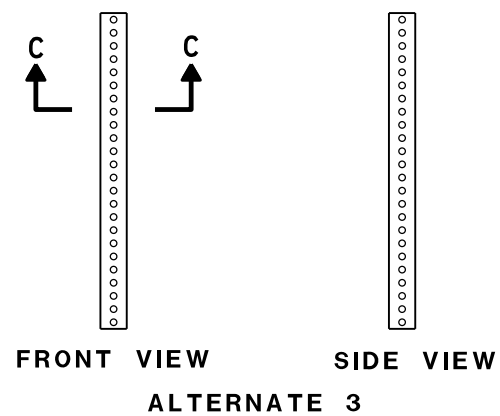
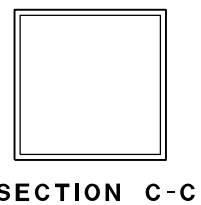
FLEXIBLE MARKER POSTS



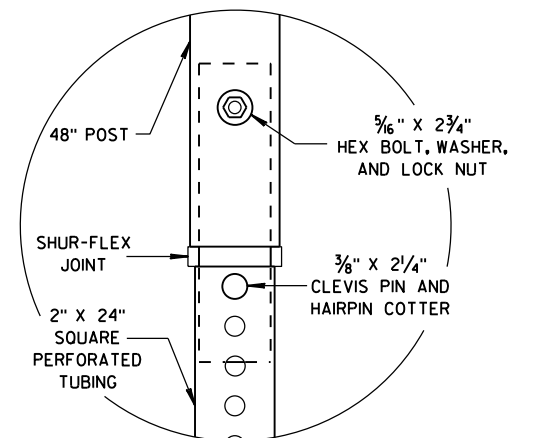
FRONT VIEW SIDE VIEW
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW
ALTERNATE 3



DETAIL B

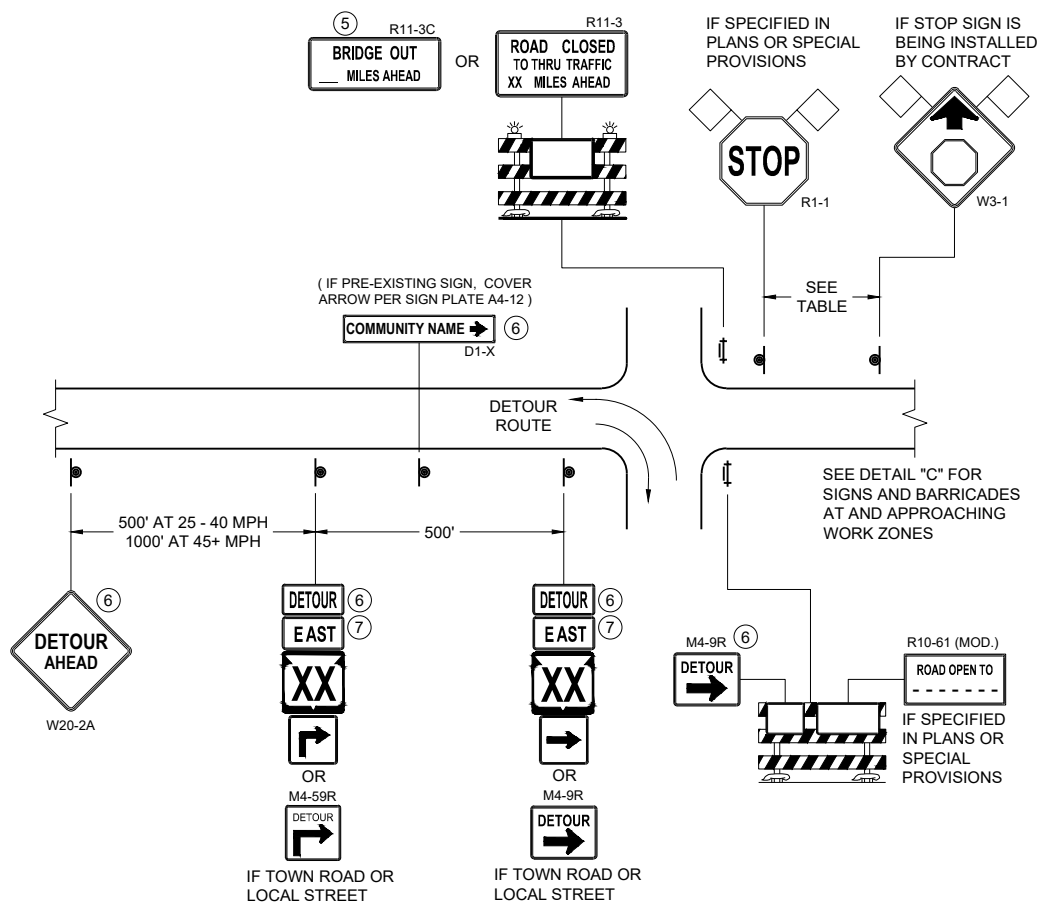


DETAIL C

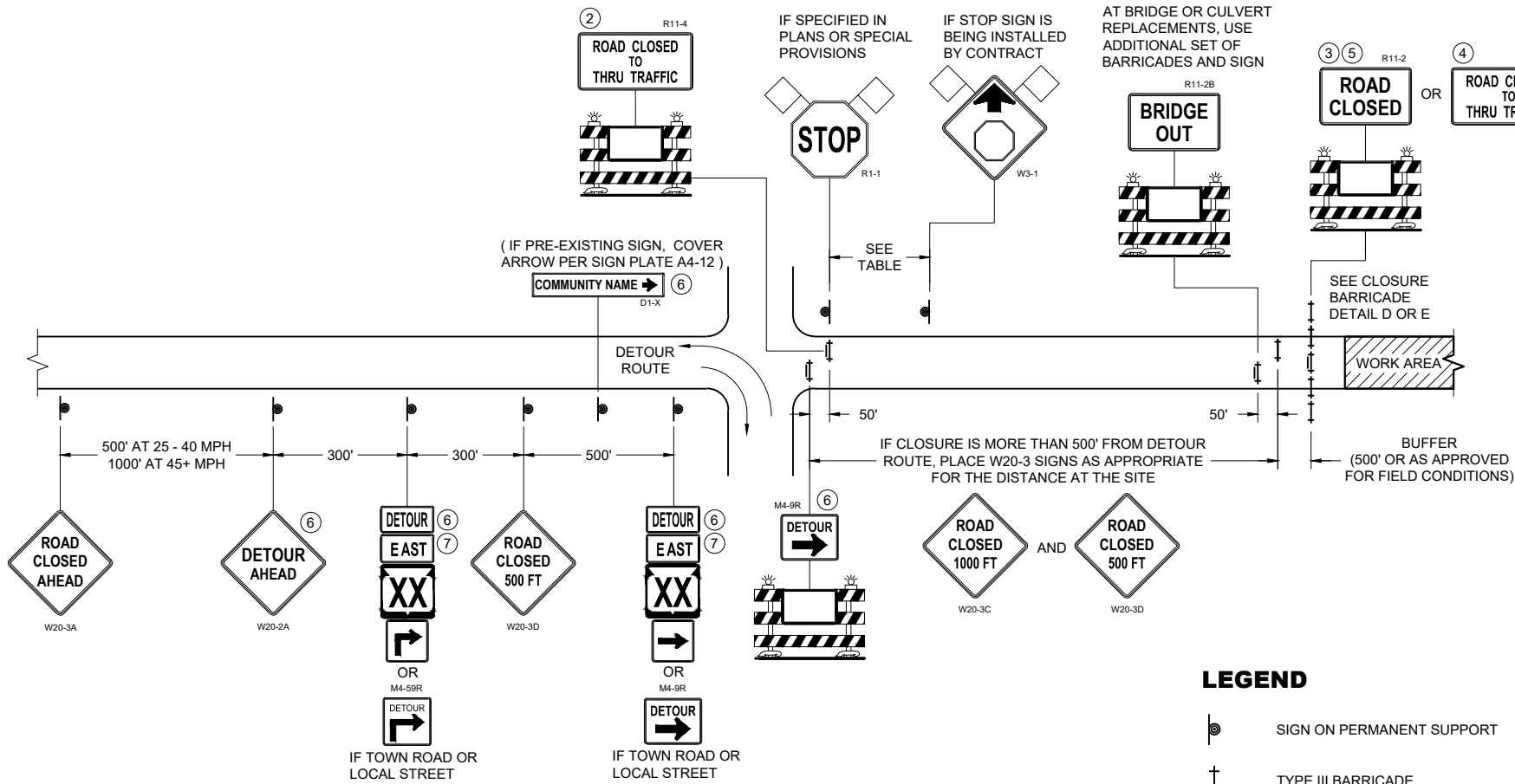
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

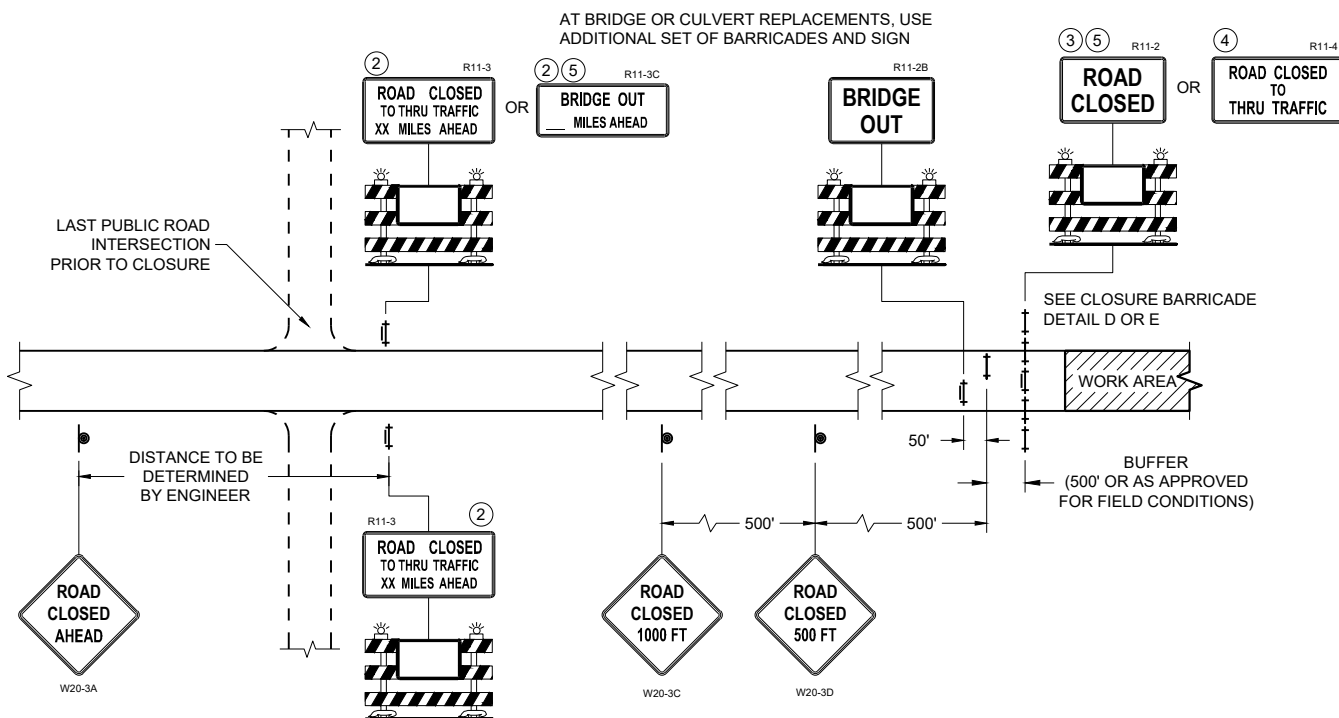
APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEE 111 IGN
FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

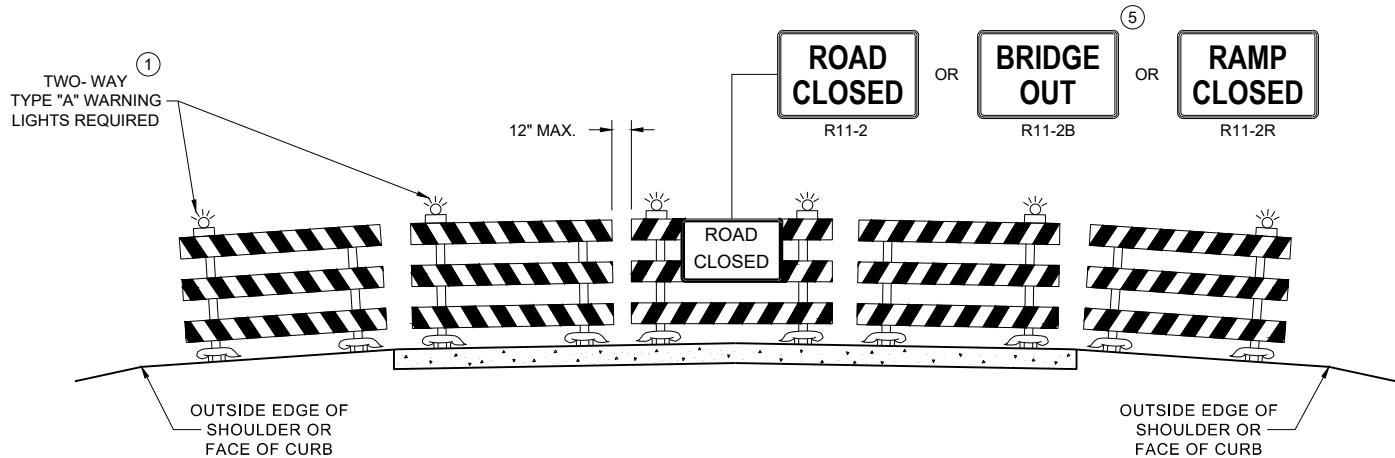
LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4
- XX M1 - 6
- COUNTY X M1 - 5A
- M05 - 1
- M06 - 1

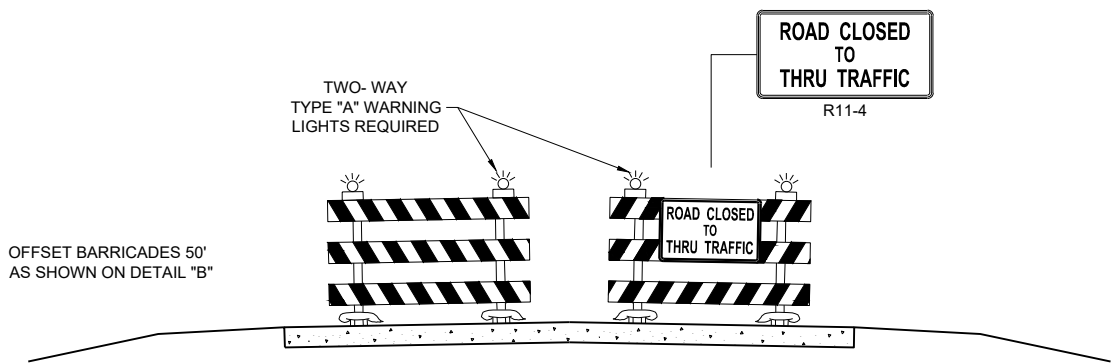
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

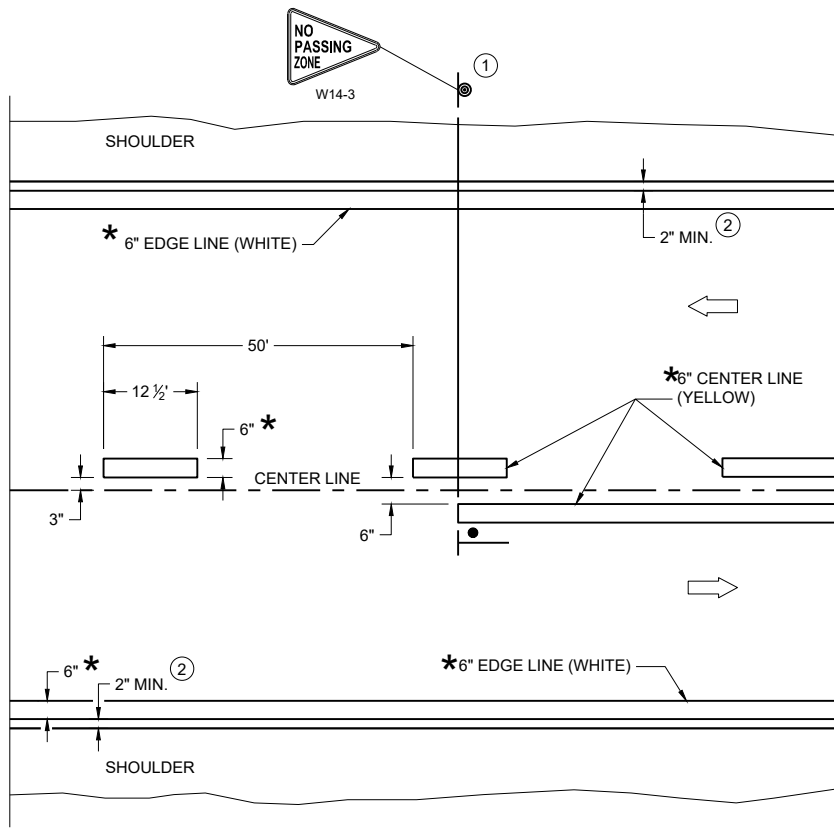
"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11 - 2 SHALL BE 48" X 30"
R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
M4 - 9 SHALL BE 30" X 24"
M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
R1 - 1 SHALL BE 36" X 36"

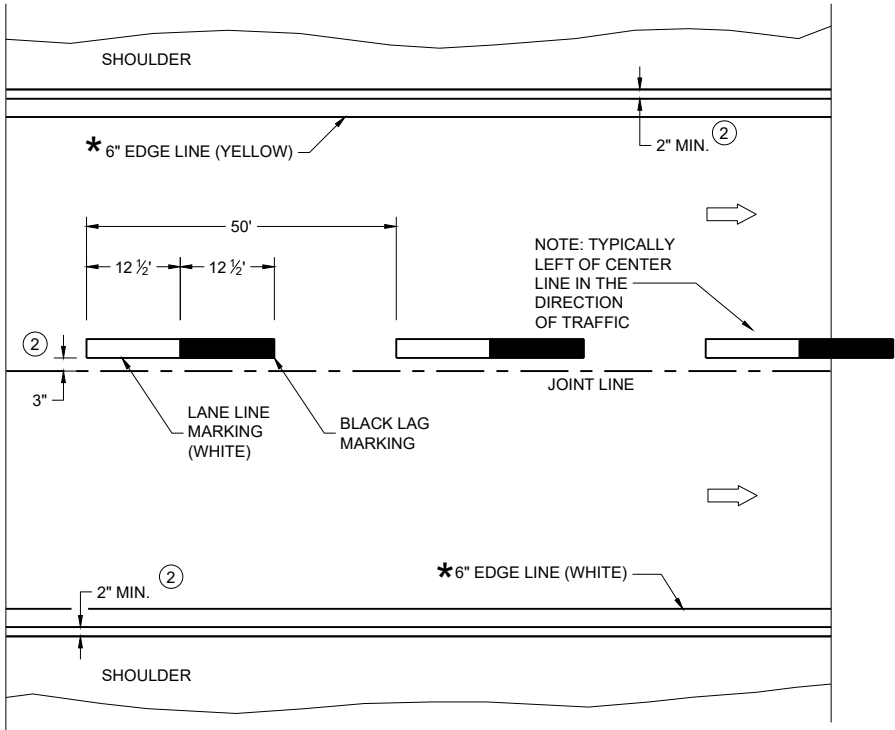
SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR VARIOUS CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

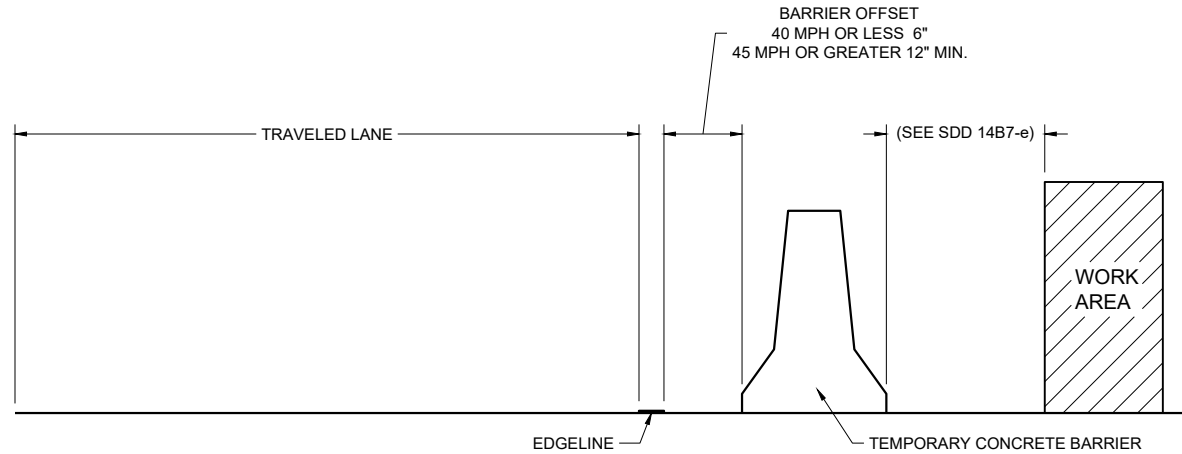
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer



TEMPORARY BARRIER OFFSET FROM EDGE LINE

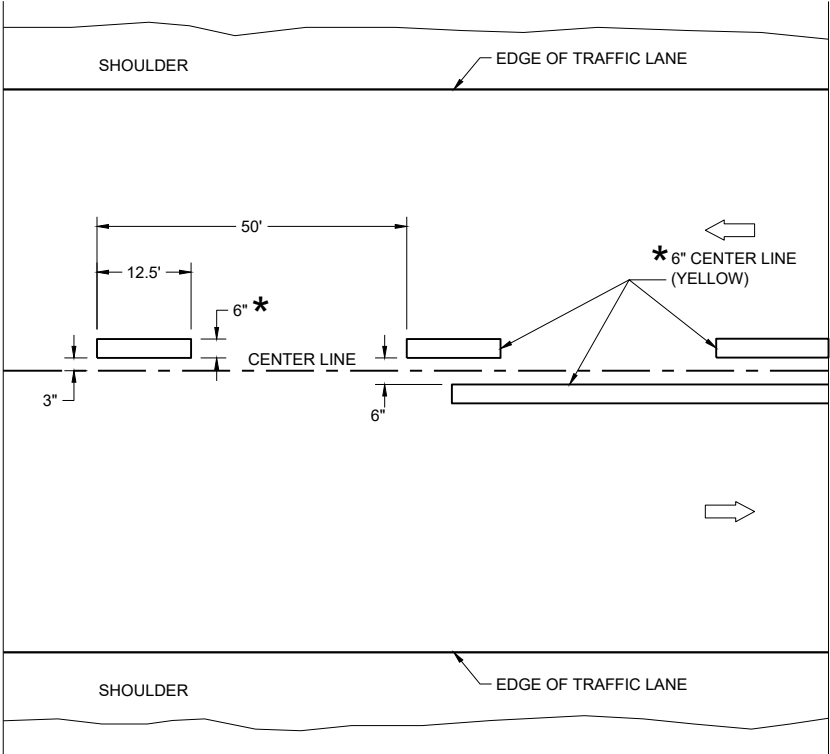
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

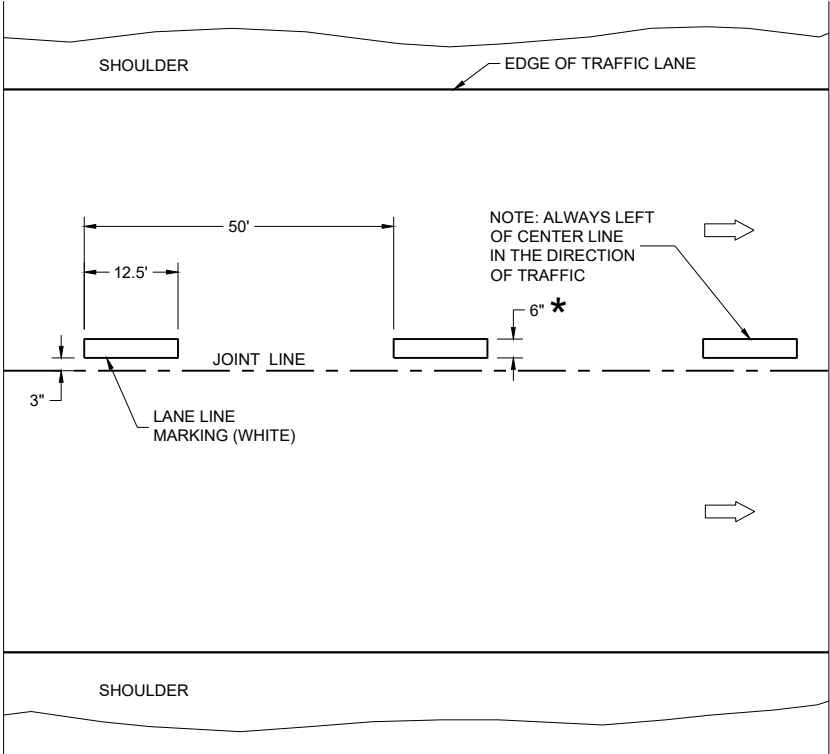
LEGEND

DIRECTION OF TRAFFIC

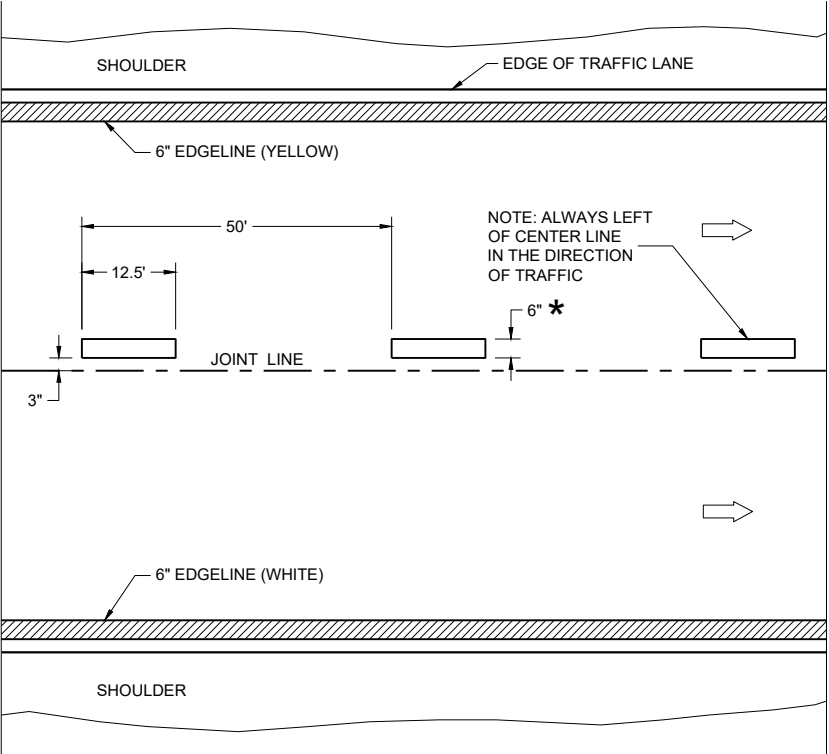
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

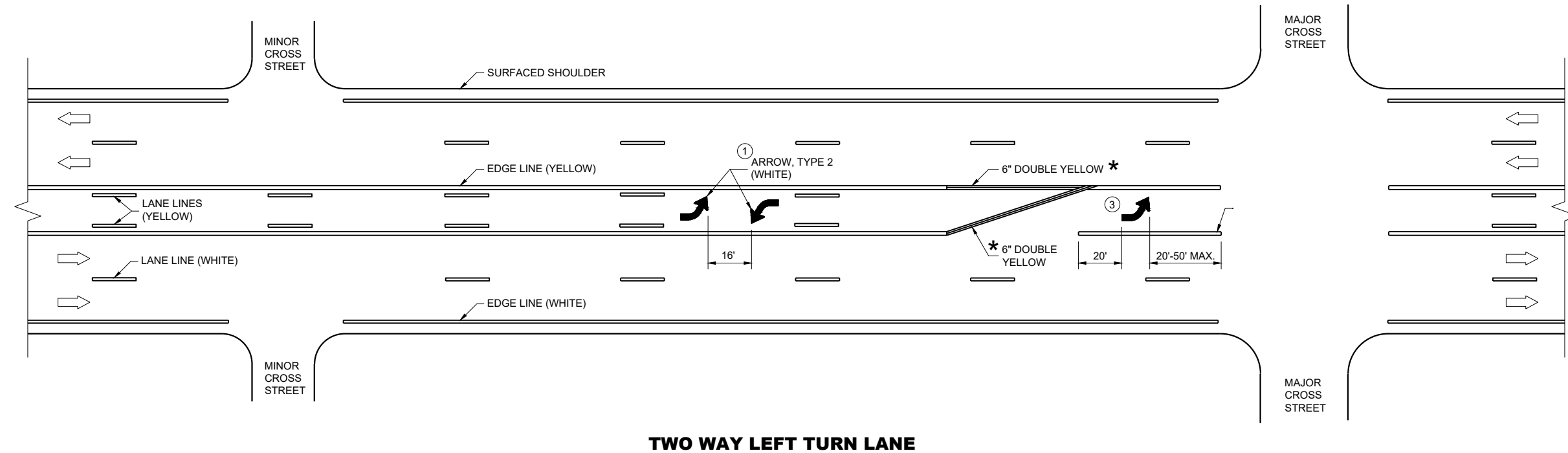
TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	116

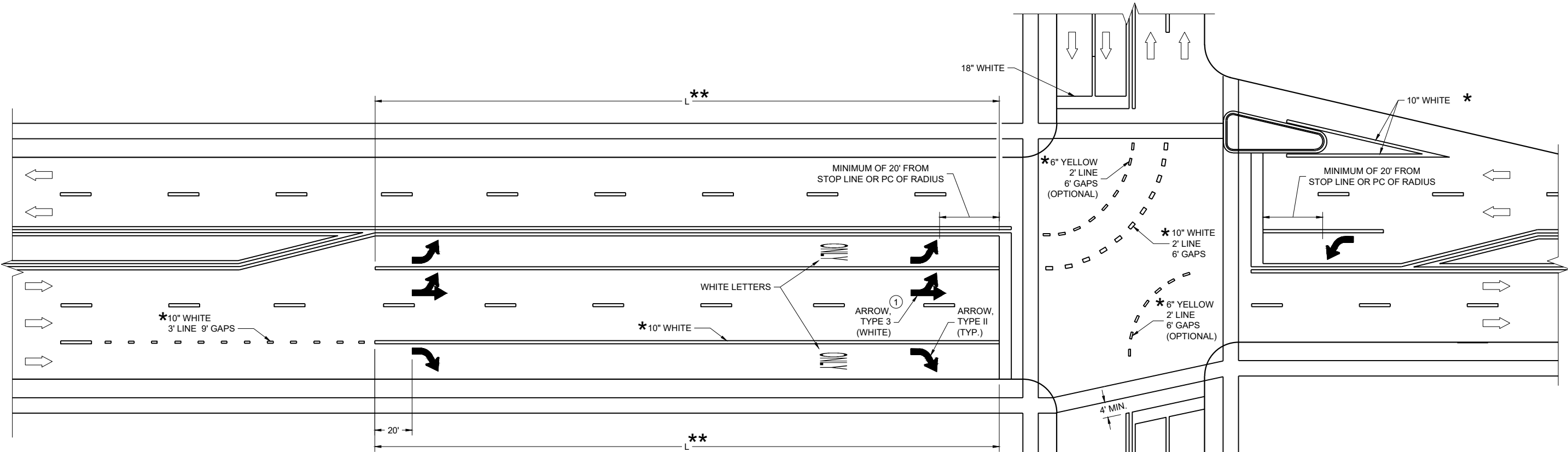
GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 10" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

➡ DIRECTION OF TRAFFIC

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

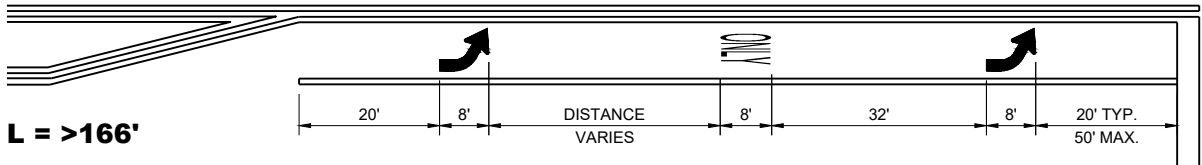
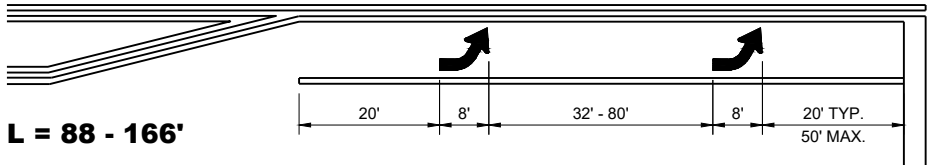
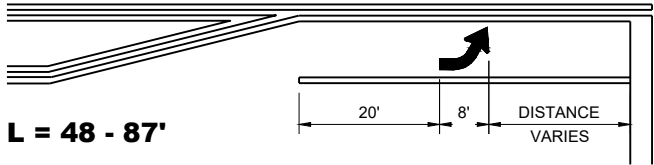




** (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

TURN LANE OPTIONS

LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



GENERAL NOTES

① QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

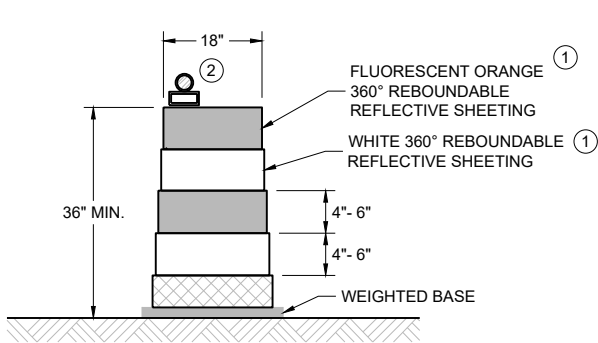
➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

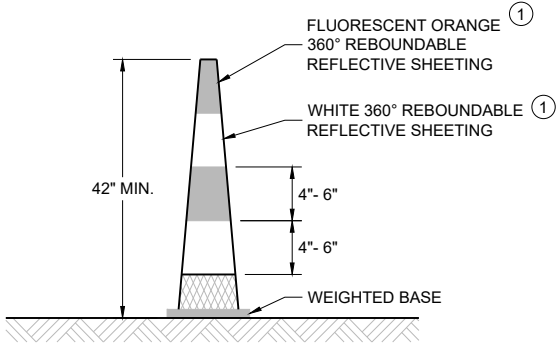
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

PAVEMENT MARKING
(TURN LANES)

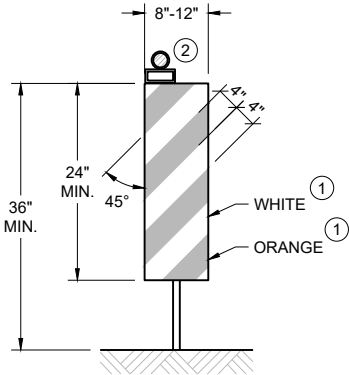
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



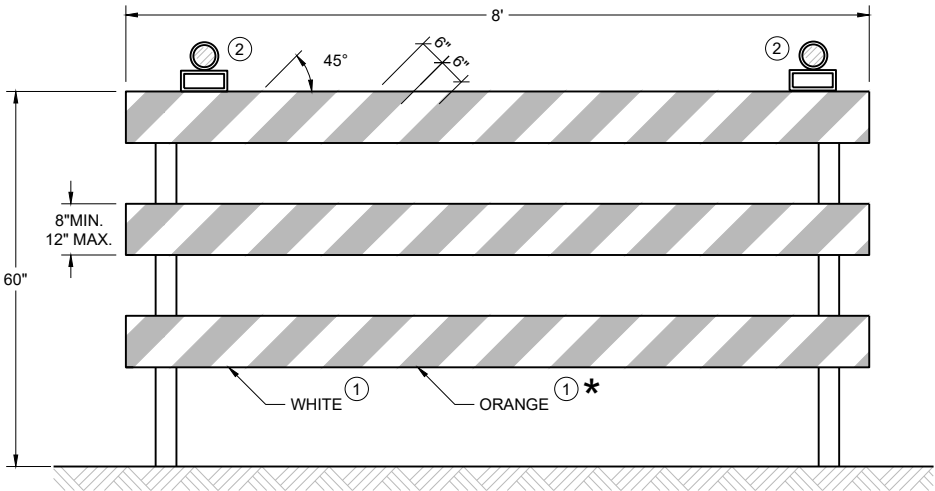
DRUM
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE
DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



VERTICAL PANEL
THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.
★ IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

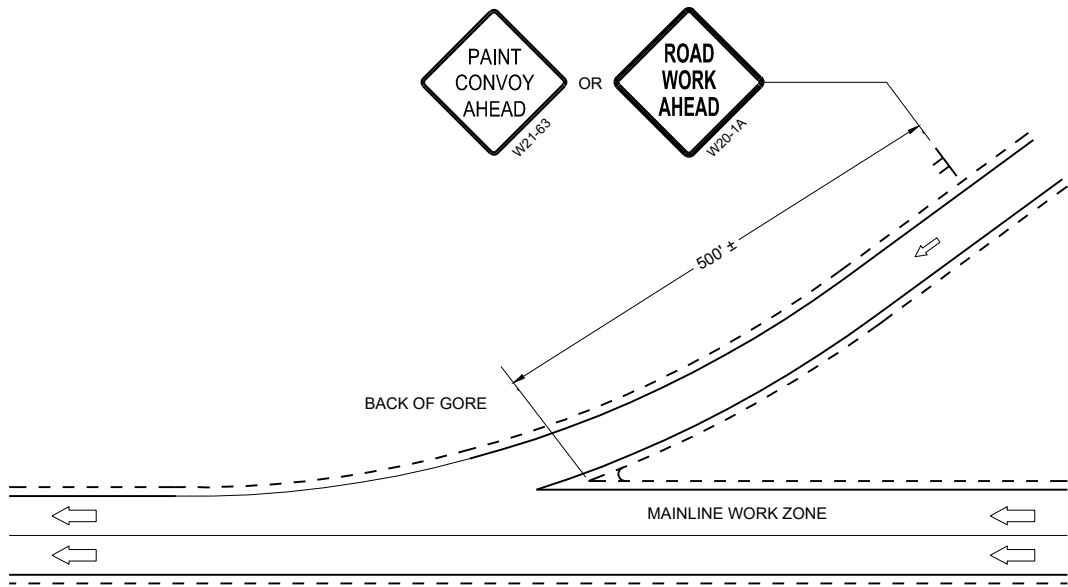
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2026 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- V1 MARKING VEHICLE
- V2 SHADOW VEHICLE
- V3 TRAIL VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- ARROW PANEL (CAUTION)



GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

IF THE SHOULDER IS TOO NARROW TO ACCOMMODATE THE LAST TRAILING VEHICLE, THE VEHICLE SHOULD STRADDLE THE EDGE LINE.

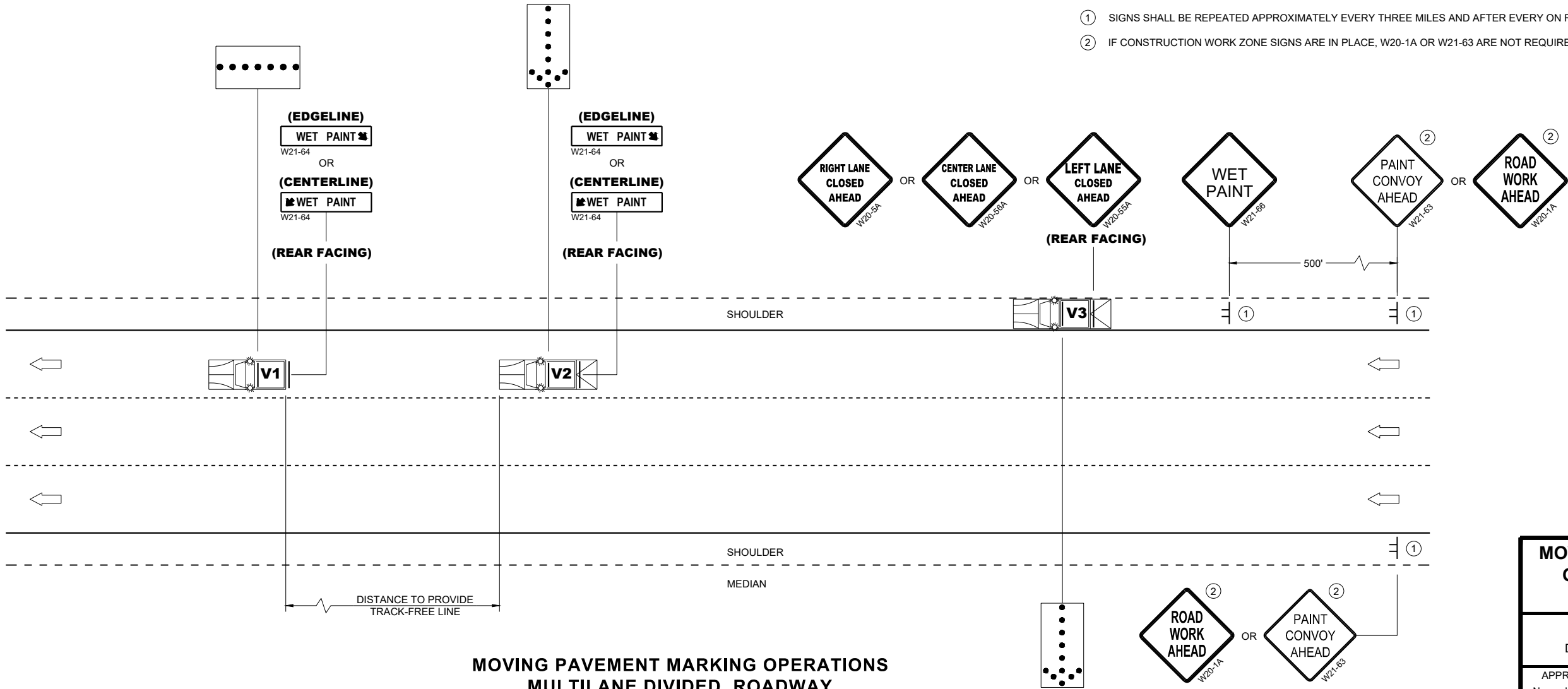
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM HEIGHT OF 28" FOR WET PAVEMENT MARKINGS

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY ON RAMP.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.

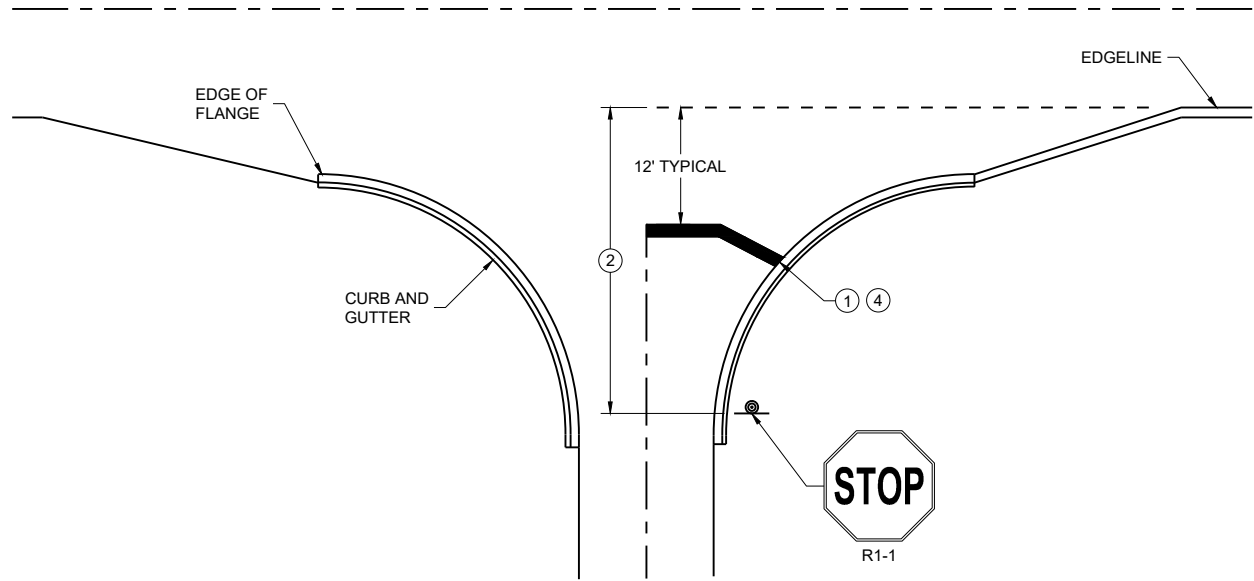


**MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
DIVIDED ROADWAY**

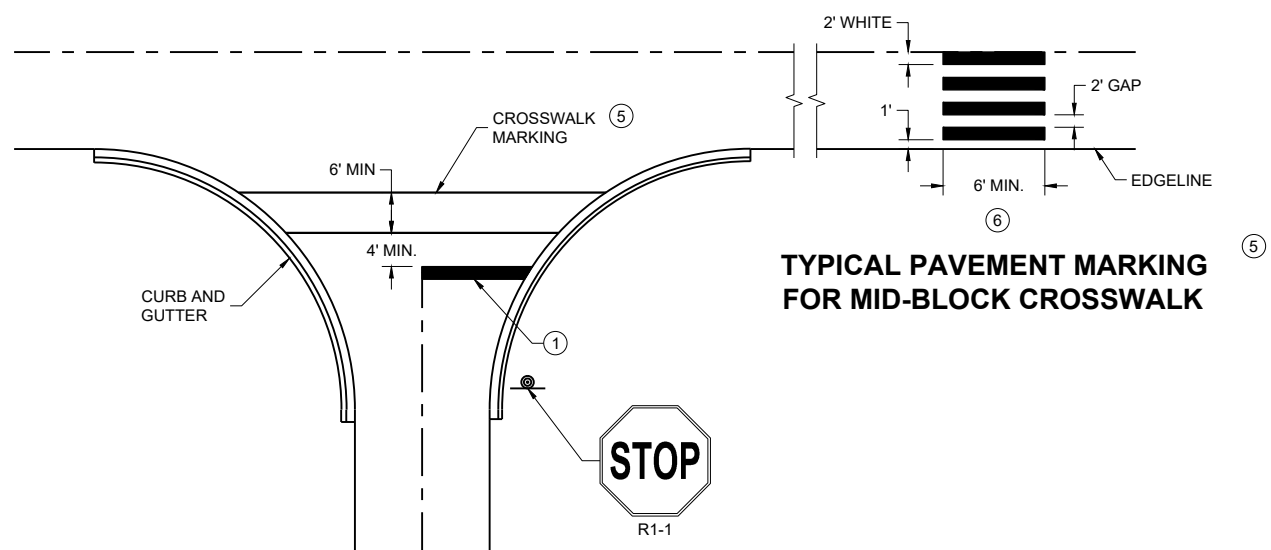
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE STATE ELECTRICAL ENGINEER

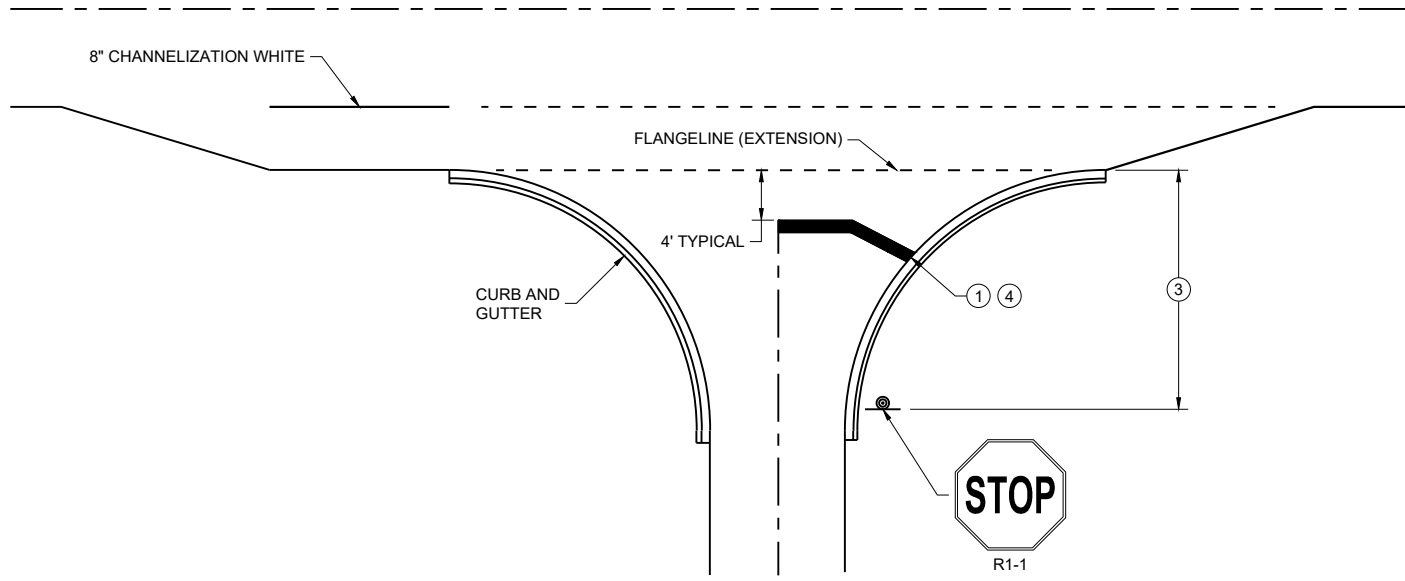
FHWA



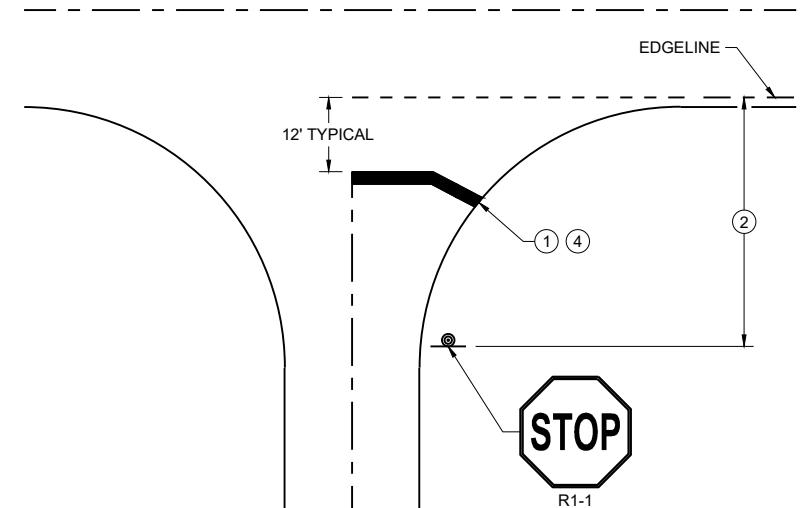
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

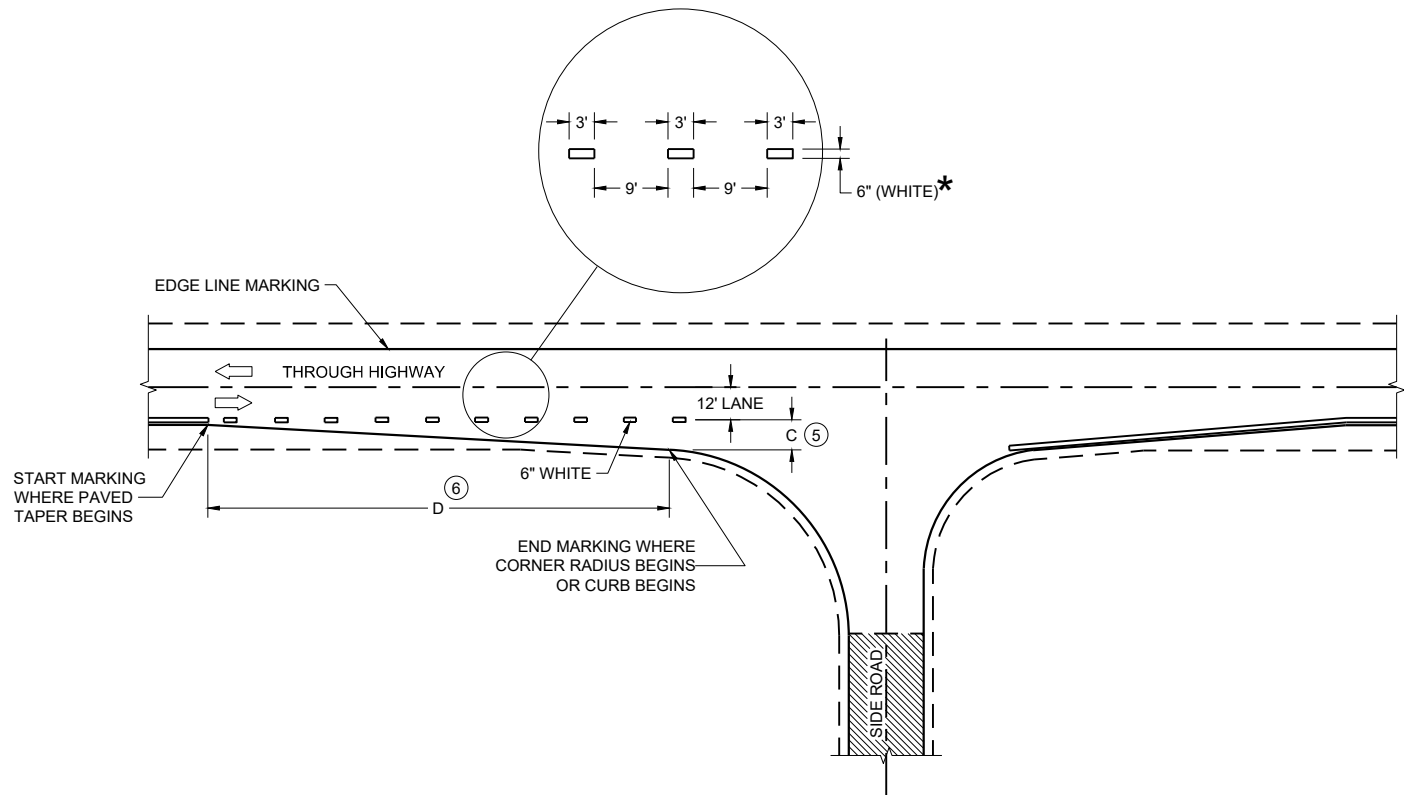
GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGE LINE LOCATION.

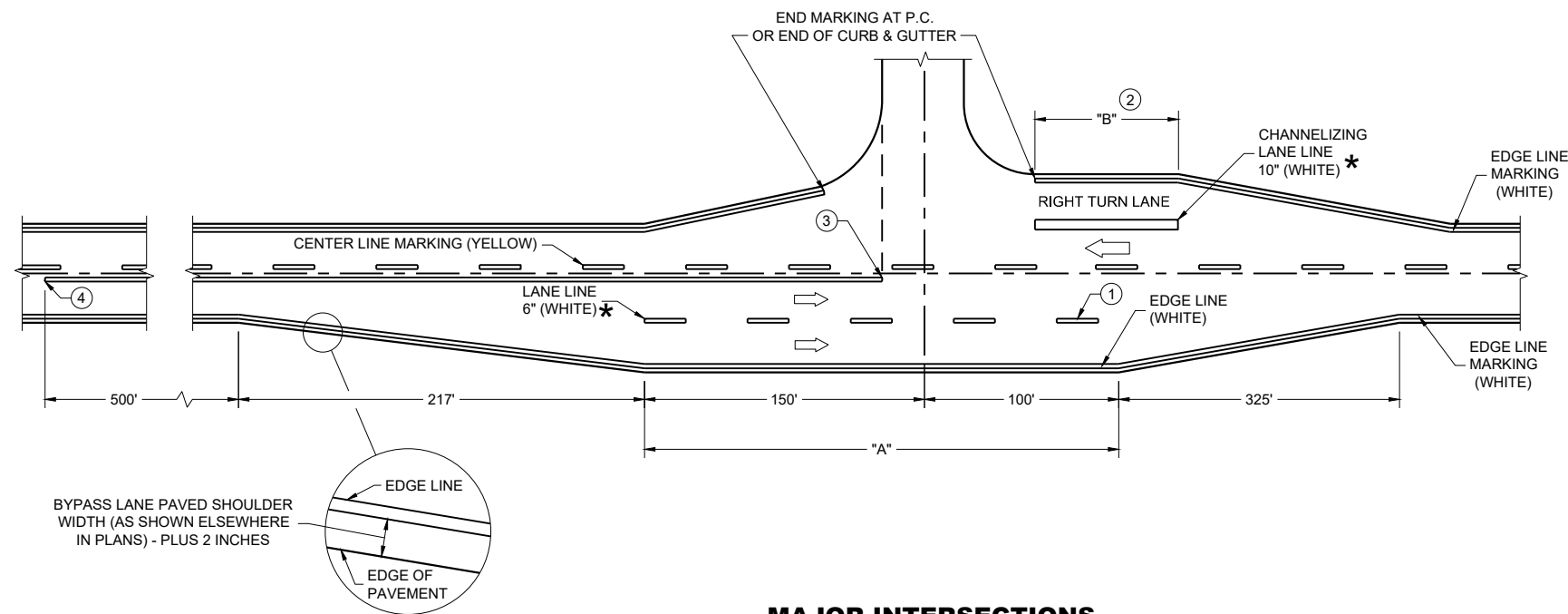
- 1 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- 2 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE.
- 3 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE EXTENSION.
- 4 MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- 5 LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES.
- 6 POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

STOP LINE AND CROSSWALK PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2024 DATE	/S/ Matthew Rauch STATE SIGNING AND MARKING ENGINEER

FHWA



MINOR INTERSECTION



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

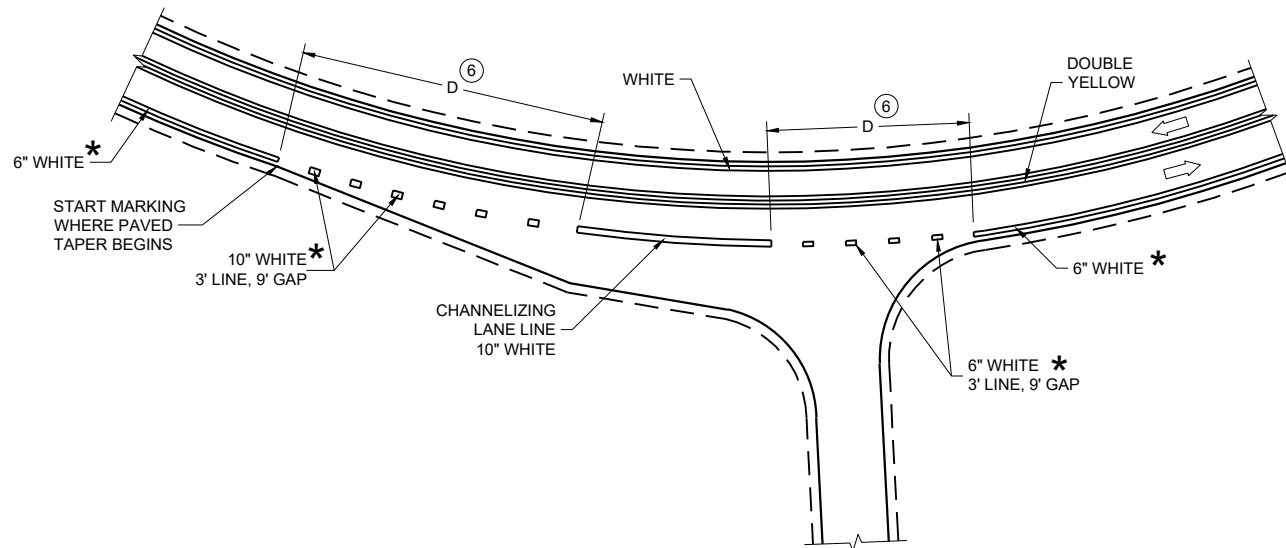
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4 FEET, OMIT DOTTED EXTENSION.
- ⑥ WHEN DISTANCE "D" IS LESS THAN 50 FEET, OMIT DOTTED EXTENSION.

LEGEND

➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

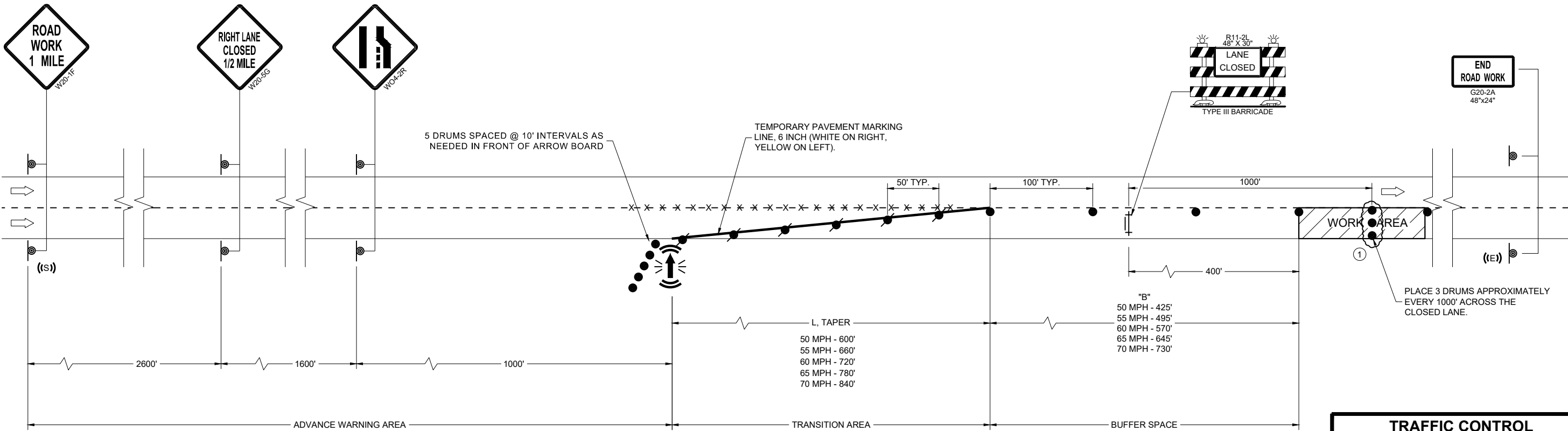
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC
- WORK AREA
- CONNECTED ARROW BOARD
- WZ START LOCATION MARKER
- WZ END LOCATION MARKER



TRAFFIC CONTROL LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TYPE III BARRICADE WITH ATTACHED SIGN
	TYPE "A" WARNING LIGHT (FLASHING)
	REMOVING PAVEMENT MARKINGS
	DIRECTION OF TRAFFIC
	WORK AREA
	CONNECTED ARROW BOARD
	WZ START LOCATION MARKER
	WZ END LOCATION MARKER

FOR WORK ON ROADWAYS WITH SPEEDS GREATER THAN 45MPH, USE SDD 15D12.

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"X 36" SIGNS MAY BE USED IF APPROVED BY REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON TEMPORARY SUPPORTS.

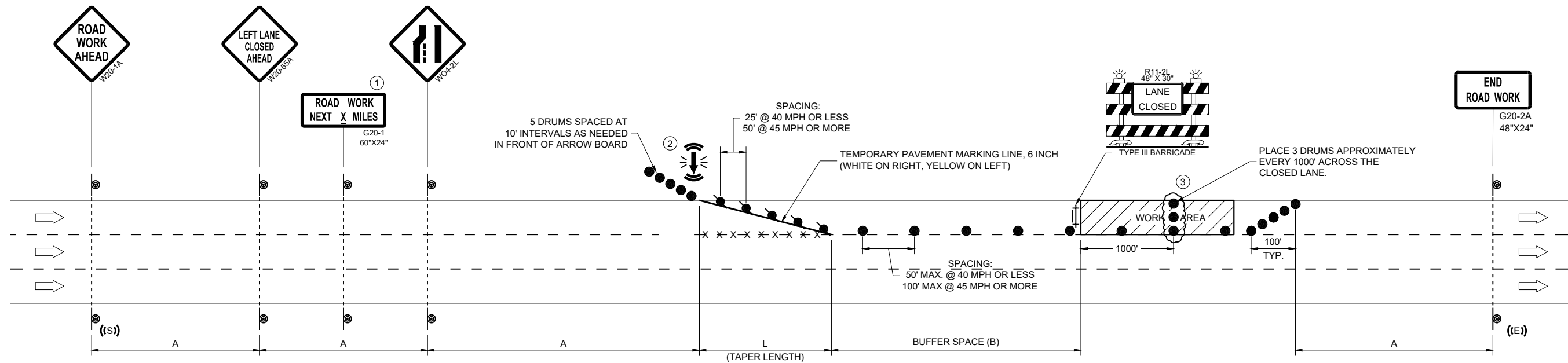
THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

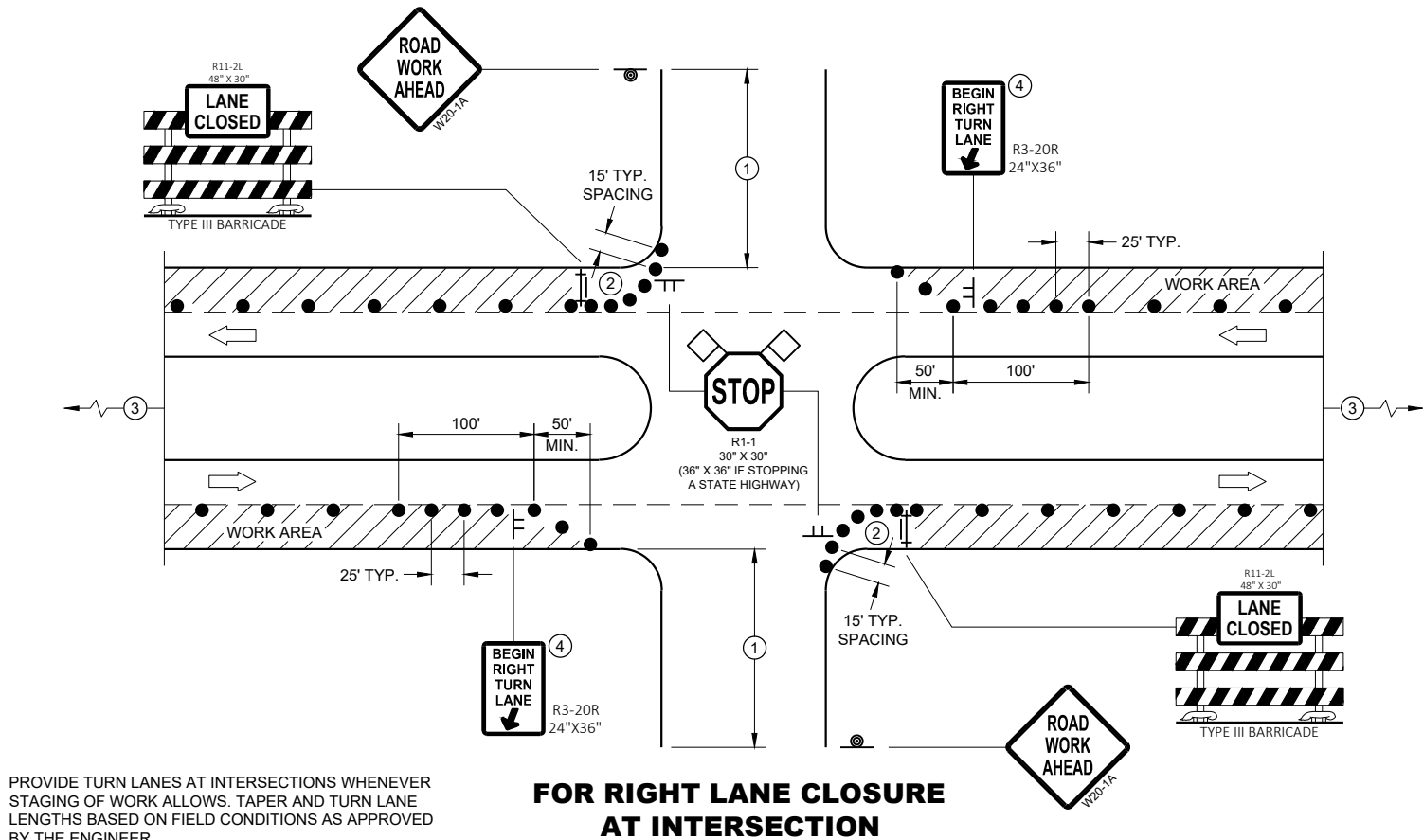
REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO PLACE THE ARROW BOARD AS SHOWN, PLACE THE ARROW BOARD AT THE END OF THE TAPER.
- ③ DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'

APPROVED	
<u>November 2025</u>	<u>/S/ Andrew Heidtke</u>
DATE	WORK ZONE ENGINEER



GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

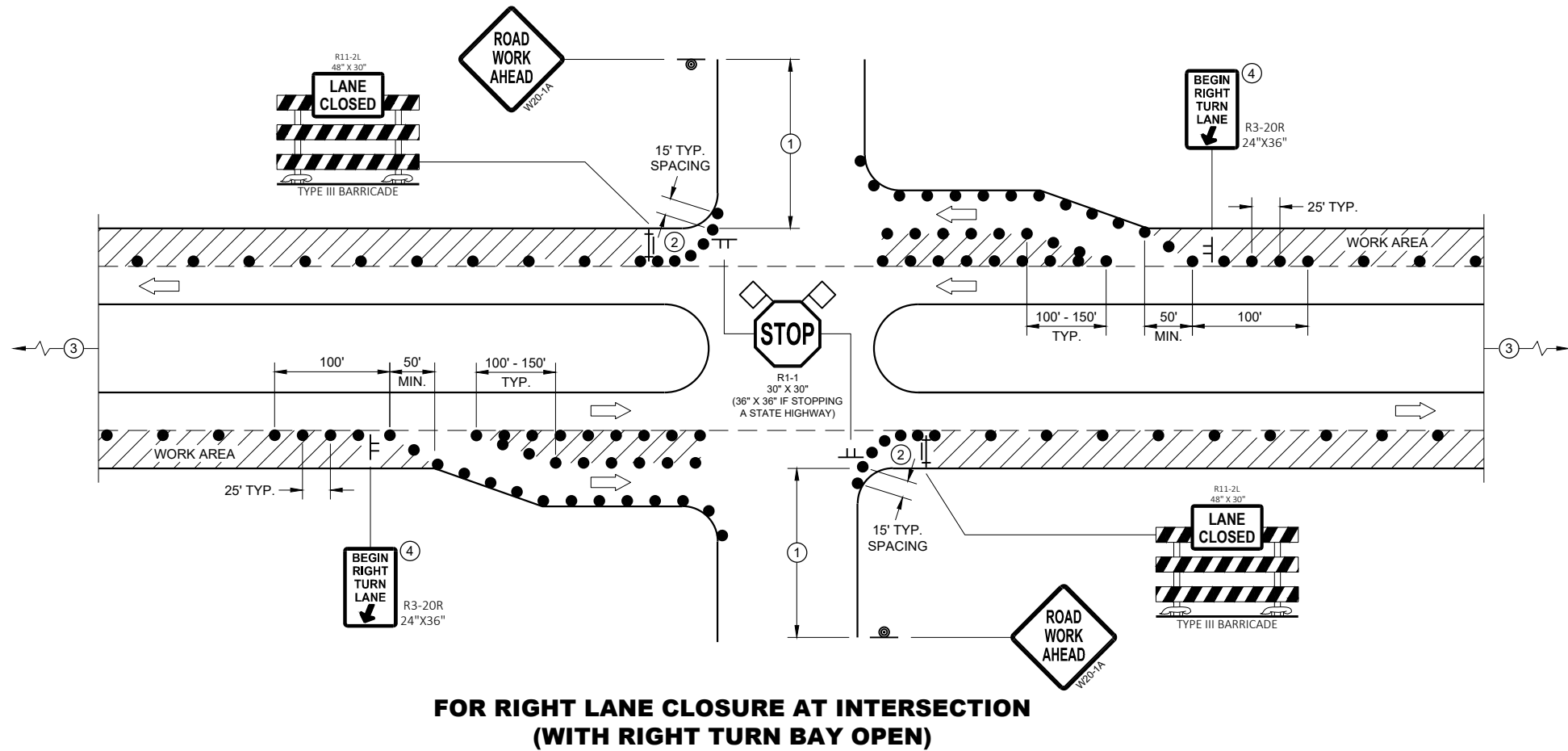
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

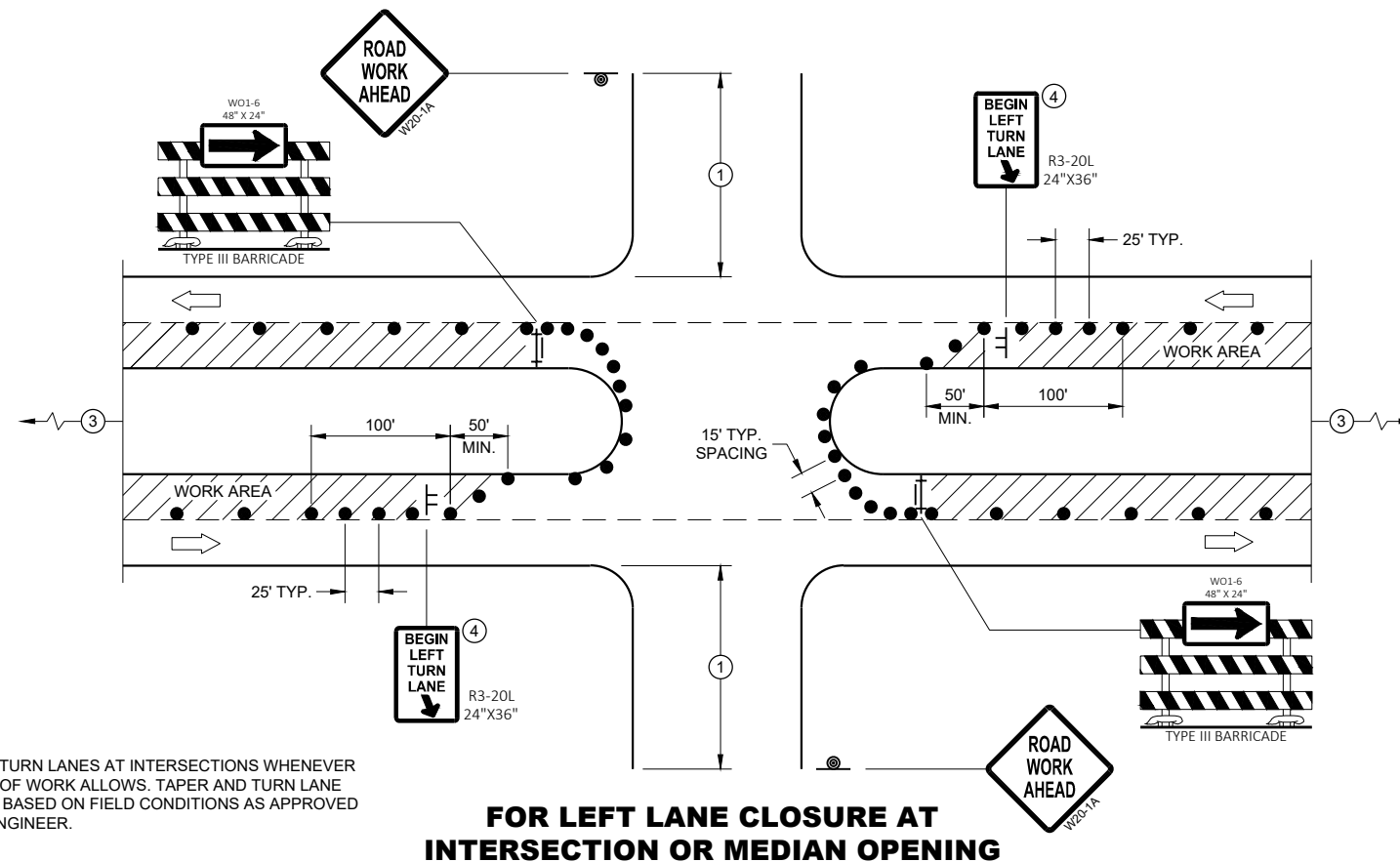


LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

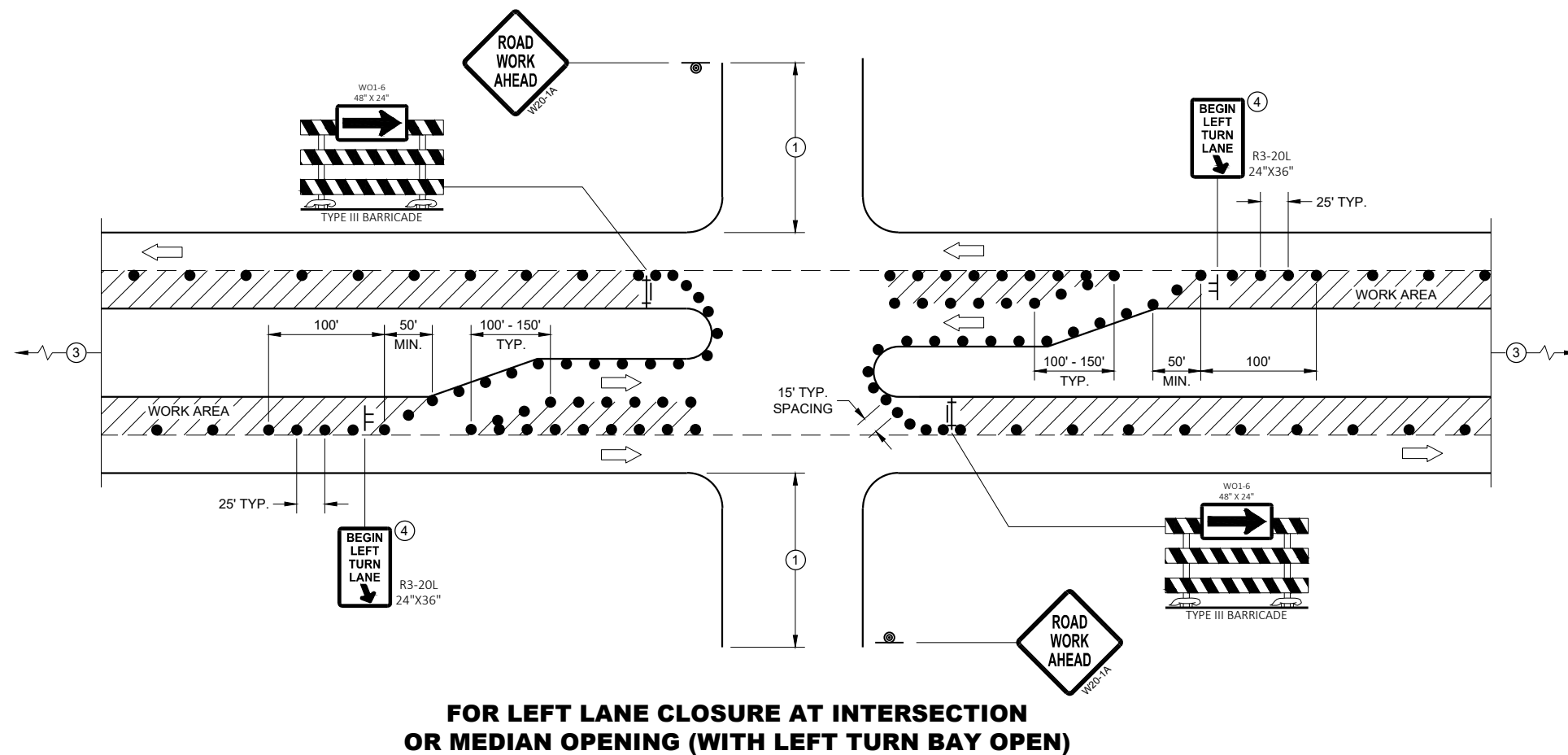
**TRAFFIC CONTROL,
INTERSECTION WITHIN SINGLE
RIGHT LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 125



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING



**FOR LEFT LANE CLOSURE AT INTERSECTION
OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)**

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

LEGEND

- | | |
|---|---------------------------------------|
|  | SIGN ON TEMPORARY SUPPORT |
|  | SIGN ON PERMANENT SUPPORT |
|  | TRAFFIC CONTROL DRUM |
|  | TYPE III BARRICADE WITH ATTACHED SIGN |
|  | DIRECTION OF TRAFFIC |
|  | FLAGS, 16" X 16" MIN., ORANGE |
|  | WORK AREA |

**TRAFFIC CONTROL,
INTERSECTION WITHIN SINGLE
LEFT LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 _____ /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 126

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  CONNECTED ARROW BOARD
-  WORK AREA
-  WZ START LOCATION MARKER
-  WZ END LOCATION MARKER

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

WHEN A RAMP OR SIDE ROAD INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

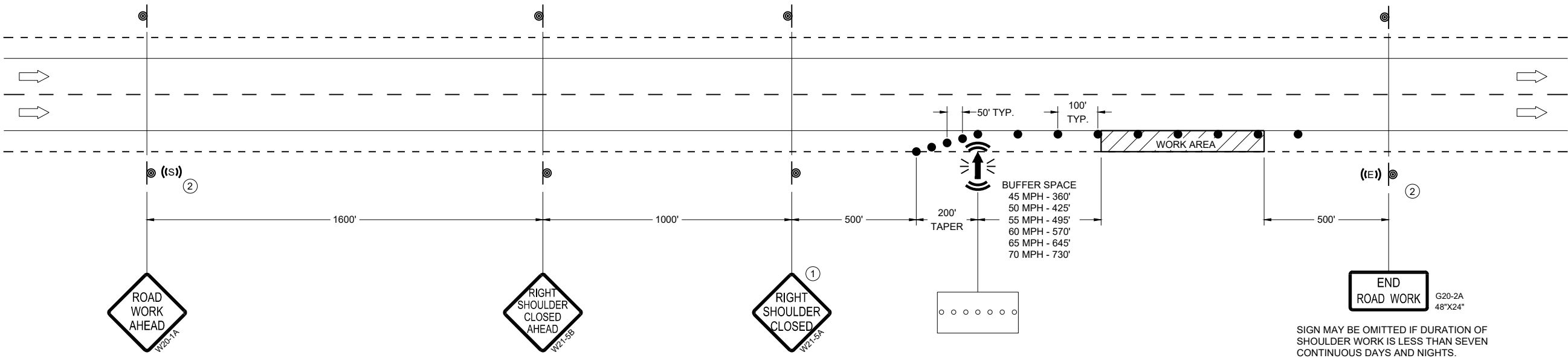
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

① FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR THE W21-5A SIGN MAY BE OMITTED.

② IF ALREADY PRESENT WITHIN PROJECT , DO NOT INCLUDE ADDITIONAL DEVICE.



TRAFFIC CONTROL,
SHOULDER CLOSURE ON
DIVIDED ROADWAY, SPEEDS
GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

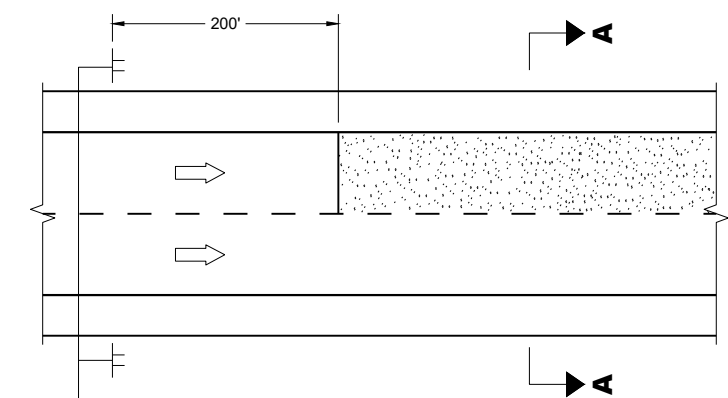
APPROVED

November 2025
DATE

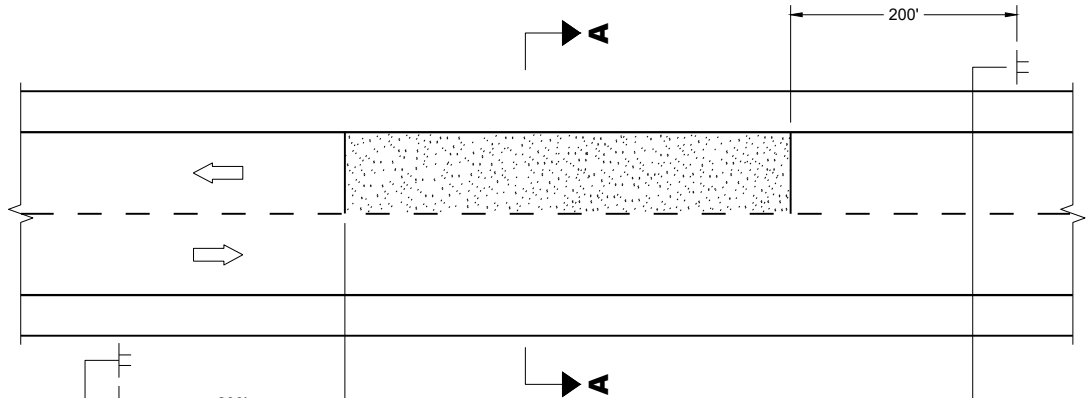
FHWA

/S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

127



MULTI-LANE

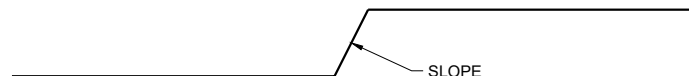


TWO-WAY TWO LANE

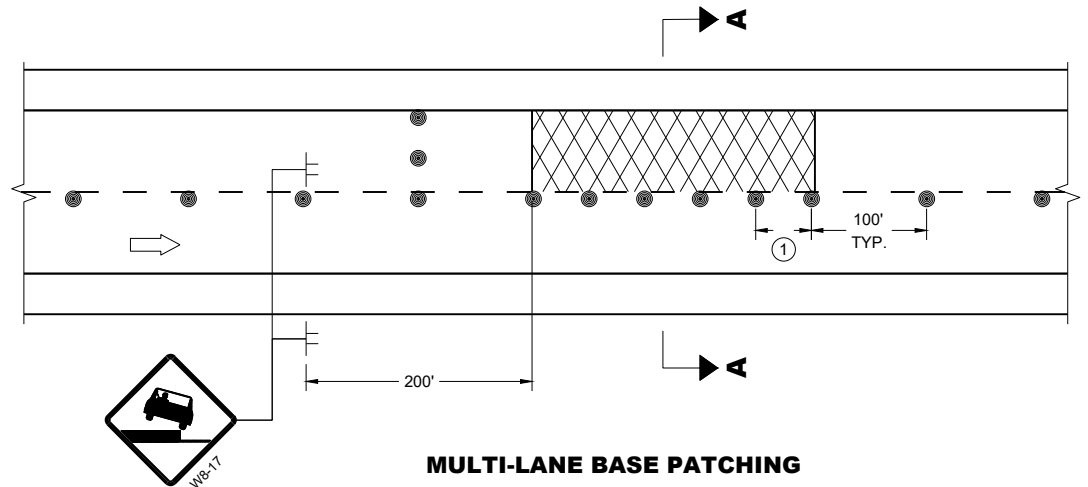


SECTION A - A

OR



SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

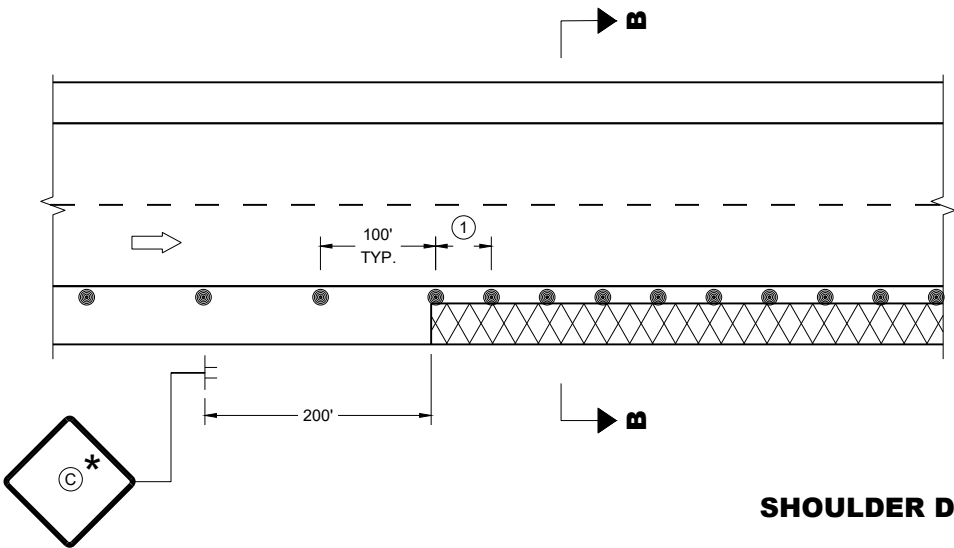
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

★ IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

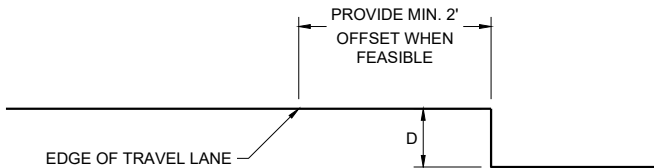
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN ©
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP - OFF W8-9A
PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT	

TRAFFIC CONTROL,
DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

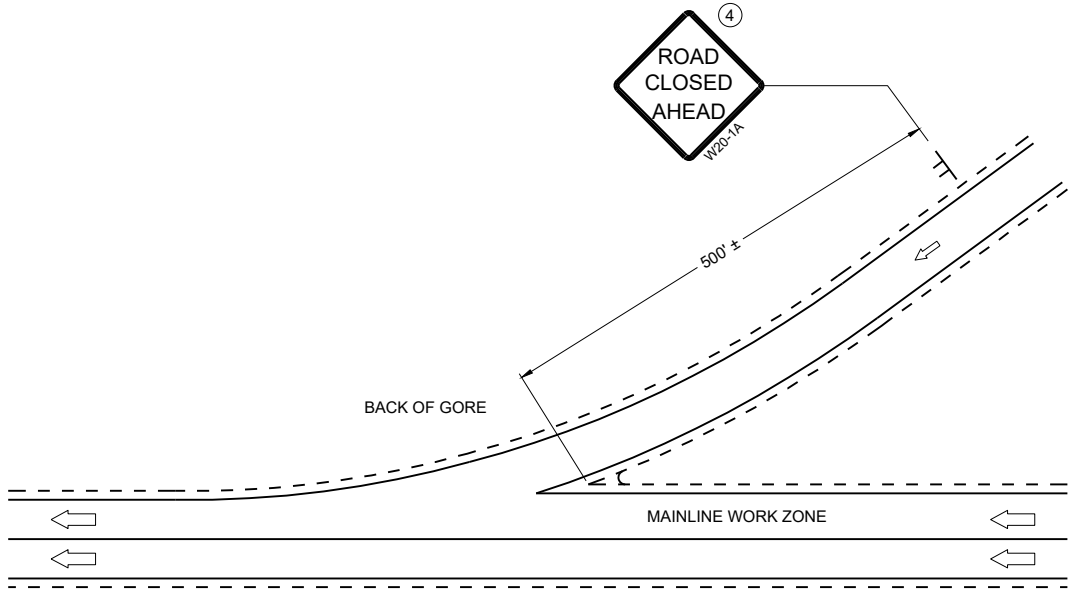
APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

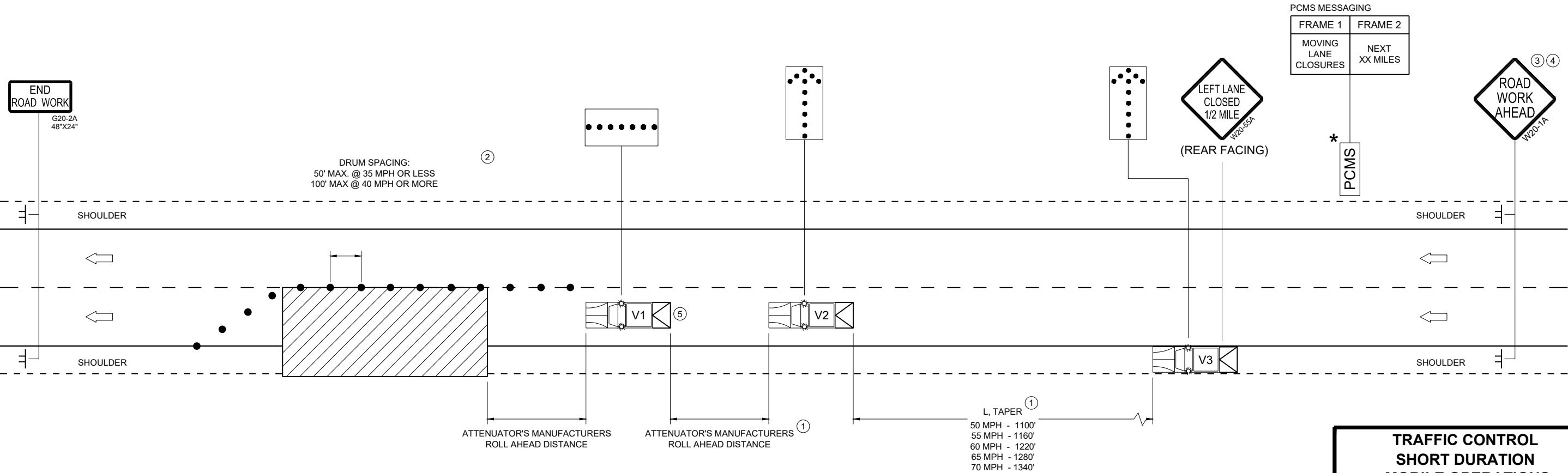
- V1 SHADOW VEHICLE 1
- V2 SHADOW VEHICLE 2
- V3 ADVANCE WARNING TRUCK
- TRAFFIC CONTROL DRUM
- ☒ TRUCK MOUNTED ATTENUATOR (TMA)
- ⊥ SIGN ON TEMPORARY SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⋯ FLASHING ARROW PANEL (MERGE)
- ⋯ FLASHING ARROW PANEL (CAUTION)
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- ▨ WORK AREA



GENERAL NOTES

SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.
ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.
ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.
WHEN WORK ACTIVITY BLOCKS THE RIGHT LANE, REVERSE TRAFFIC CONTROL.
WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.
USE DOUBLE ARROWS WHEN CONVOY IS IN CENTER LANE ONLY.
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC
WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- ① DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ② DRUMS ARE TO BE USED FOR BRIDGE DECK SEALING AND OTHER PROJECTS THAT REQUIRE DELINEATION.
- ③ WITHIN 5 MILES, RELOCATE SIGNS AS WORK PROGRESSES AND NECESSARY OR AS DIRECTED BY THE ENGINEER.
- ④ SIGN NOT REQUIRED IF MOVING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ⑤ SHADOW VEHICLE 1 (V1) IS OPTIONAL
- * PCMS OPTIONAL



TRAFFIC CONTROL
SHORT DURATION
MOBILE OPERATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

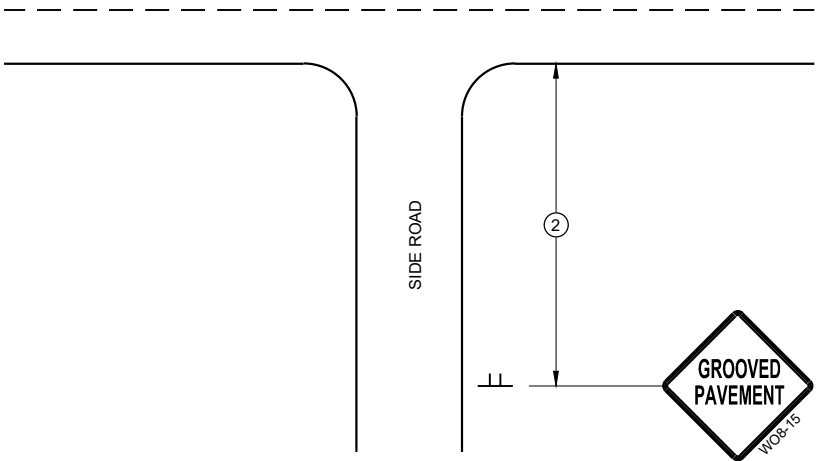
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

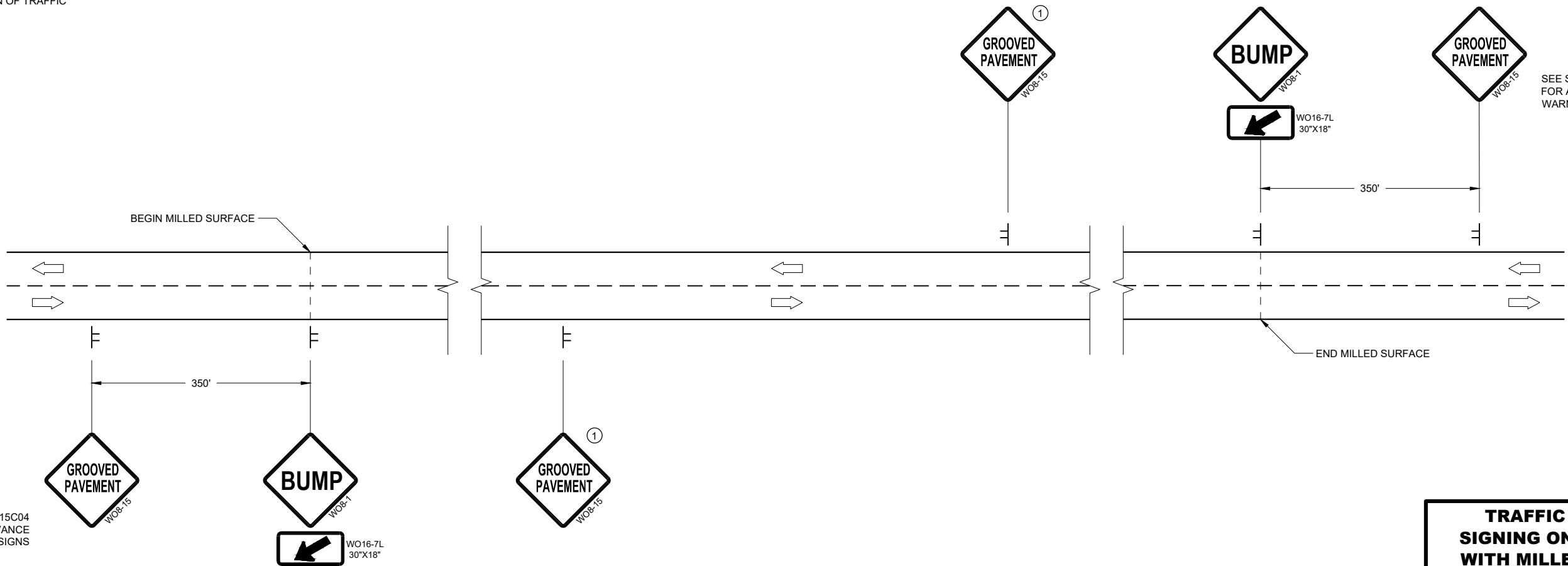
- 1 PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2 PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES

TRAFFIC CONTROL,
SIGNING ON ROADWAYS
WITH MILLED SURFACES

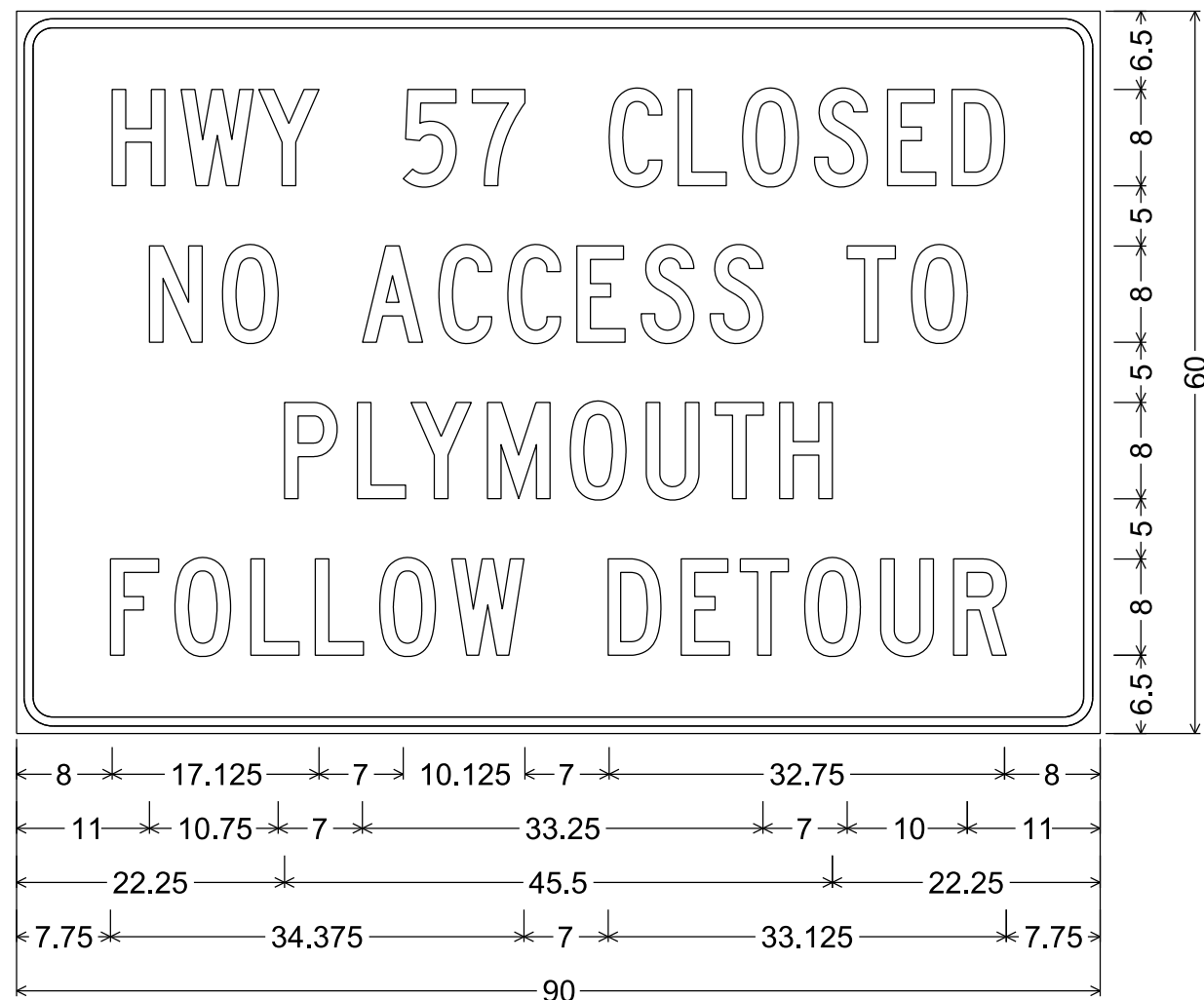
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 130

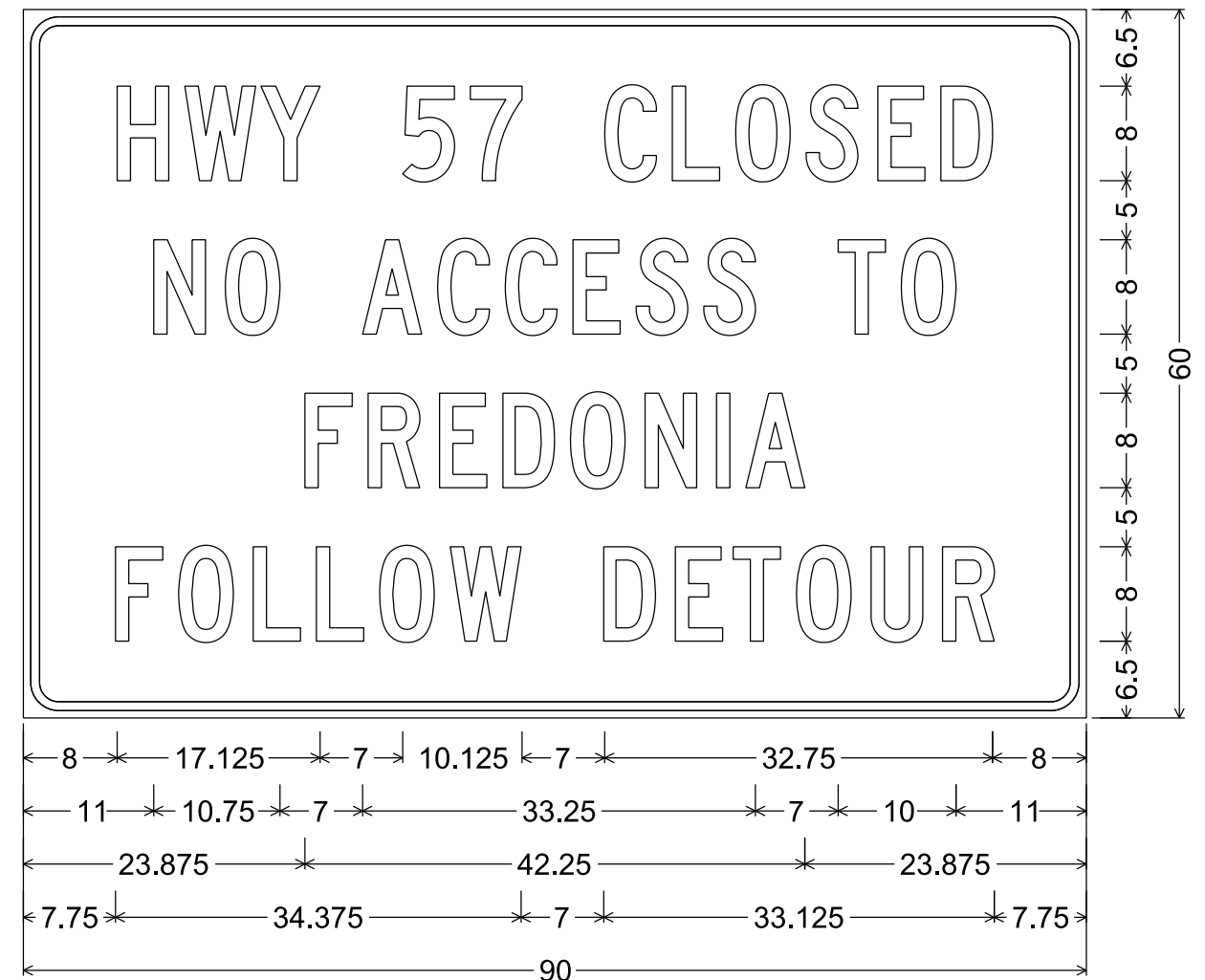
FHWA

NOTES

1. Fixed Message Signs Type II - Type F Reflective
2. Color:
 - Background - Orange
 - Message - Black
3. Message Series - C

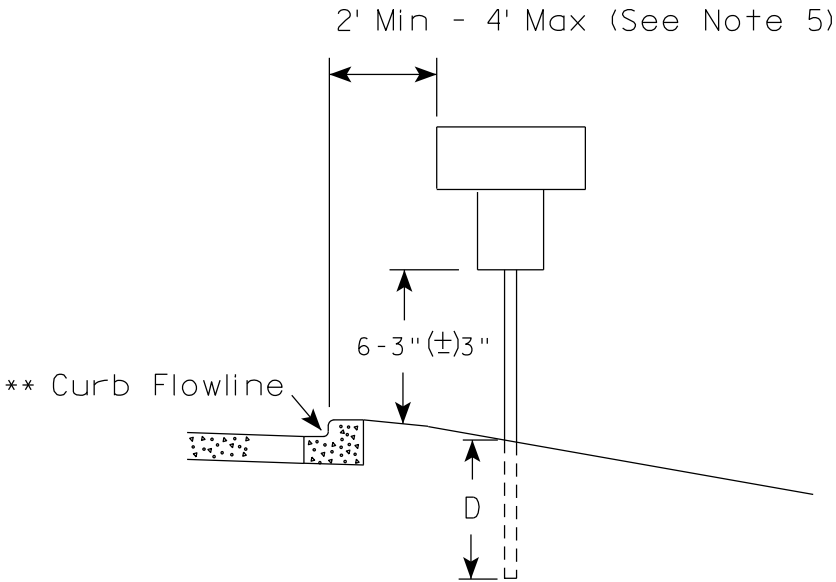
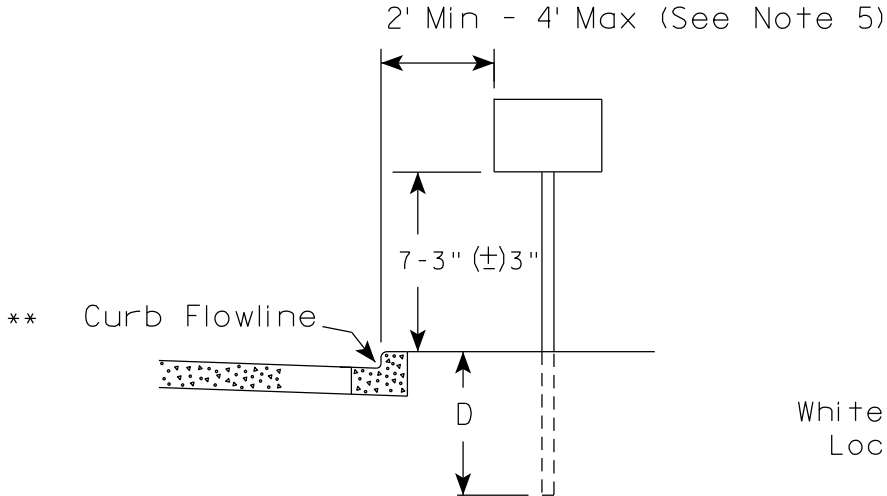


3.000" Radius, 0.750" Border, 0.625" Indent

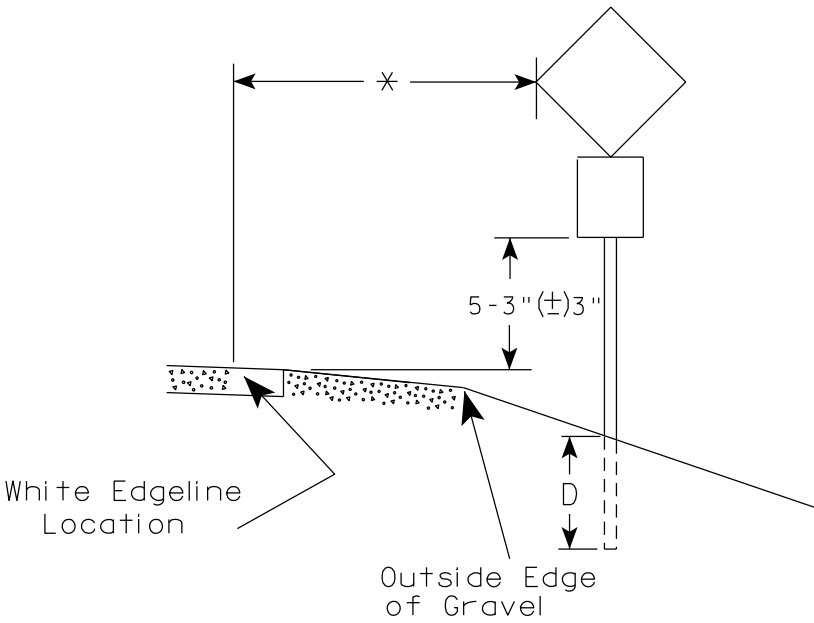
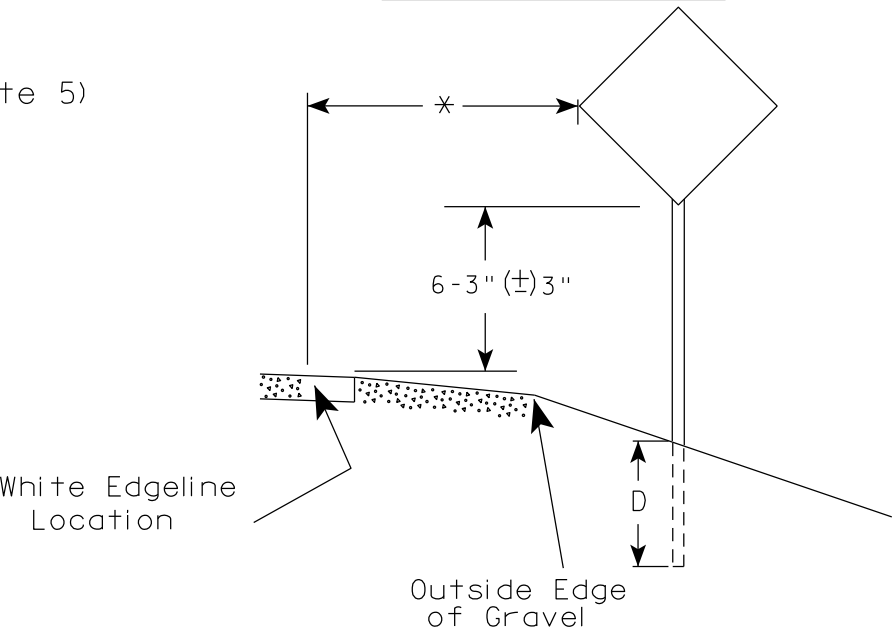


3.000" Radius, 0.750" Border, 0.625" Indent

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

* * The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

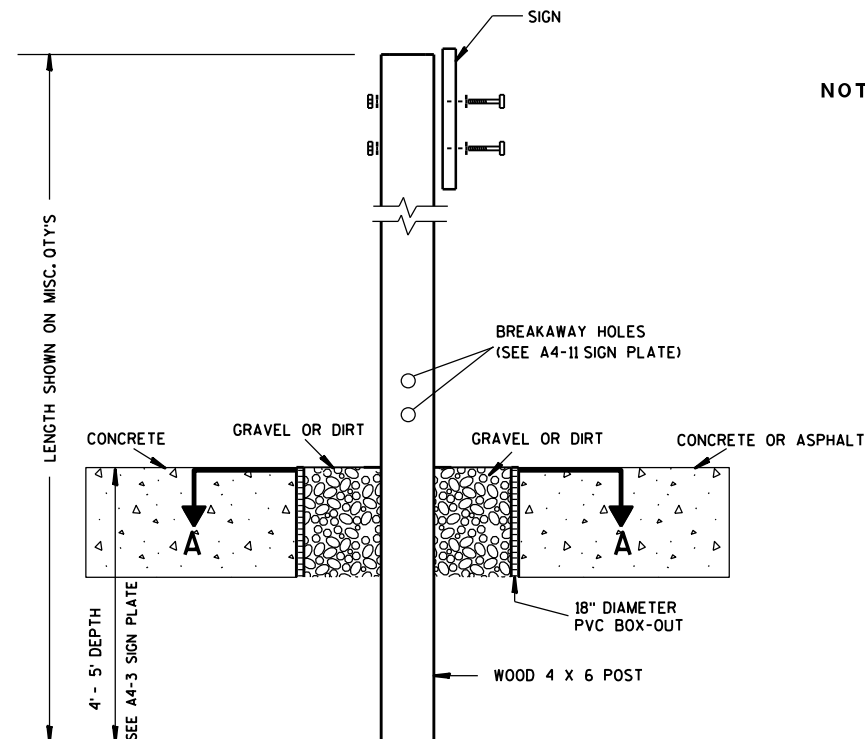
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

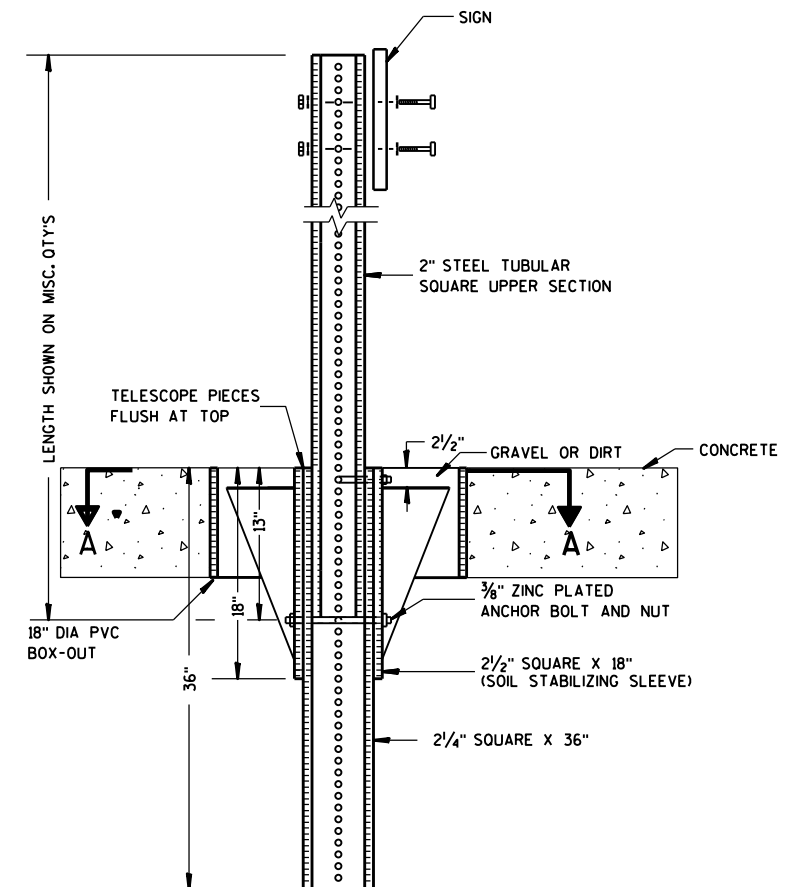
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

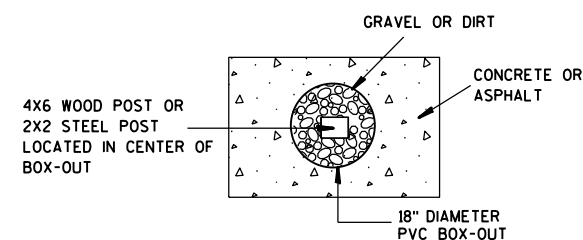
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 133 A4-3B.1

PROJECT NO:

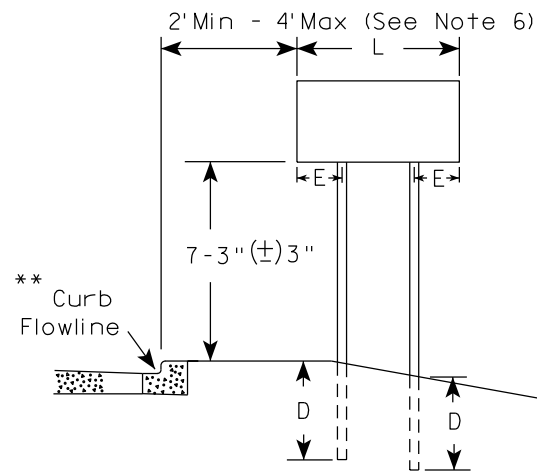
HWY:

COUNTY:

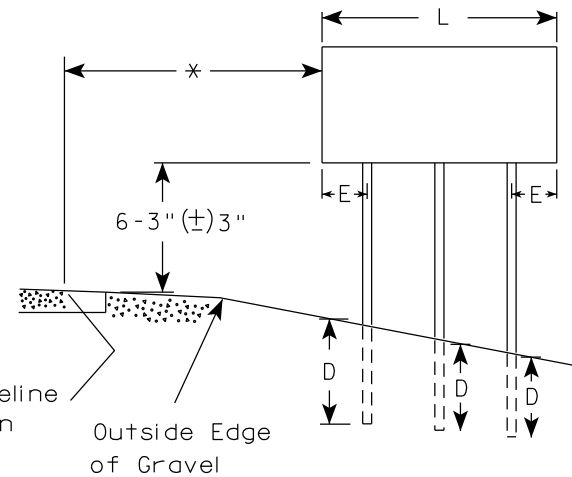
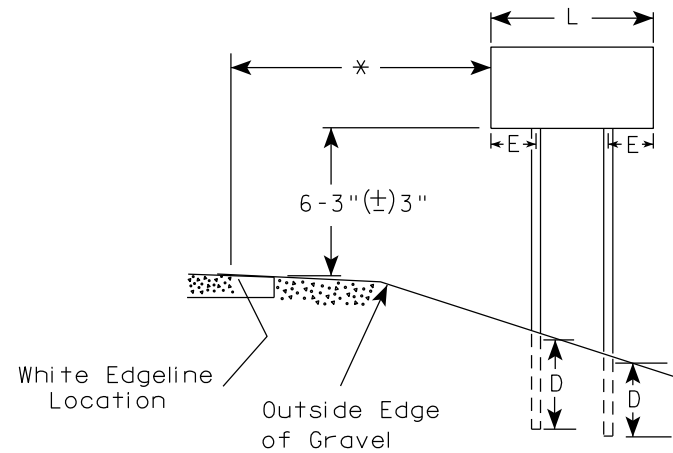
SHEET NO:

E

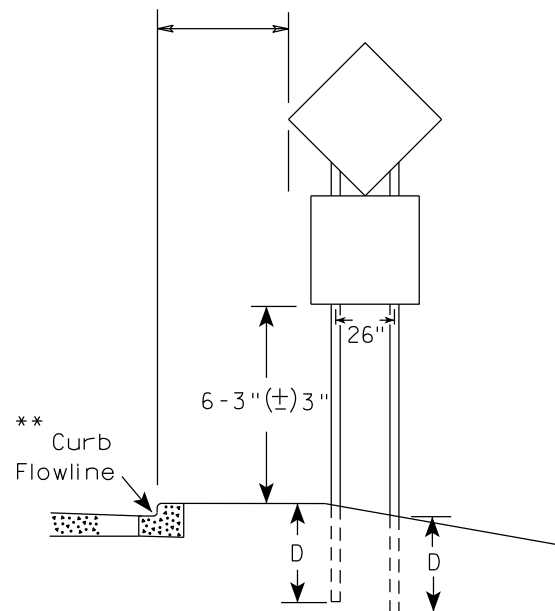
URBAN AREA



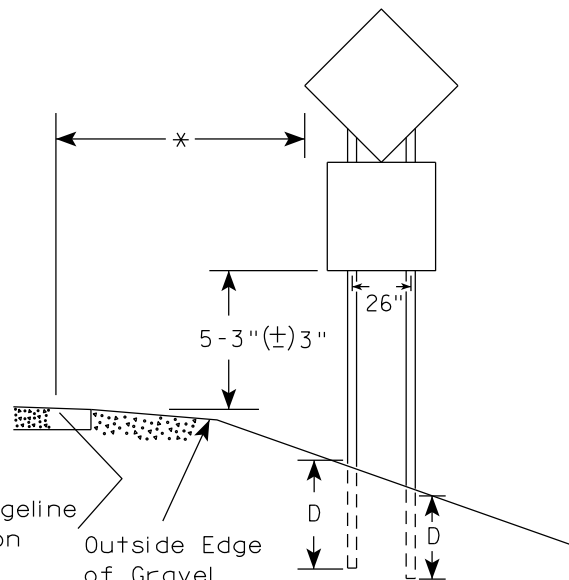
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 12/6/23	PLATE NO. A4-4.16

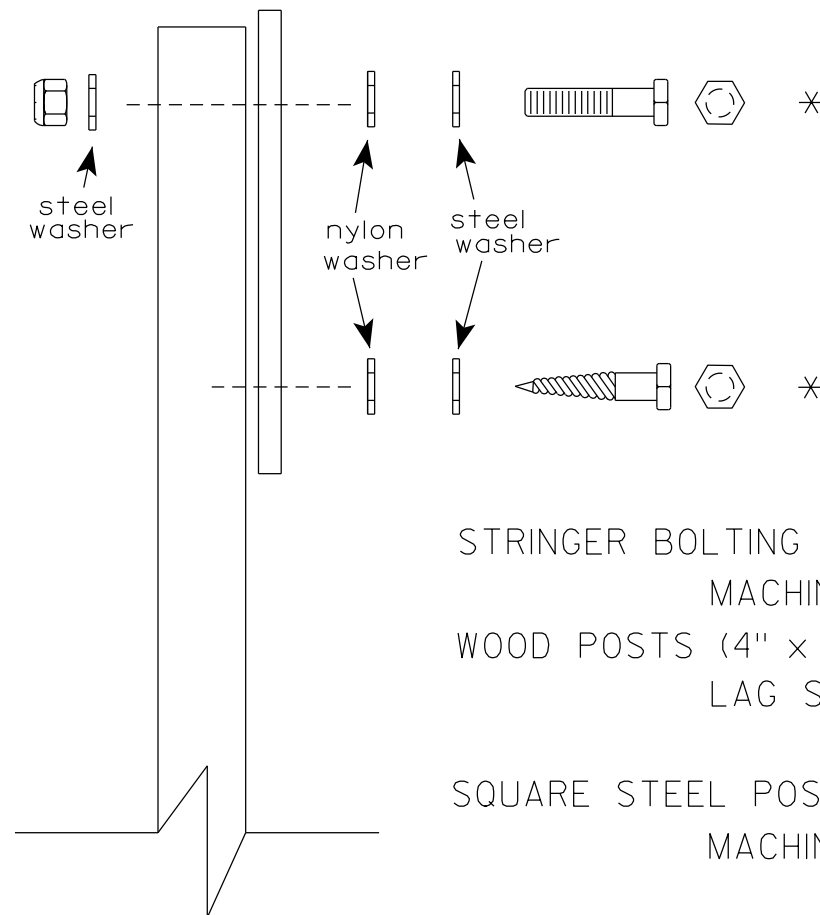
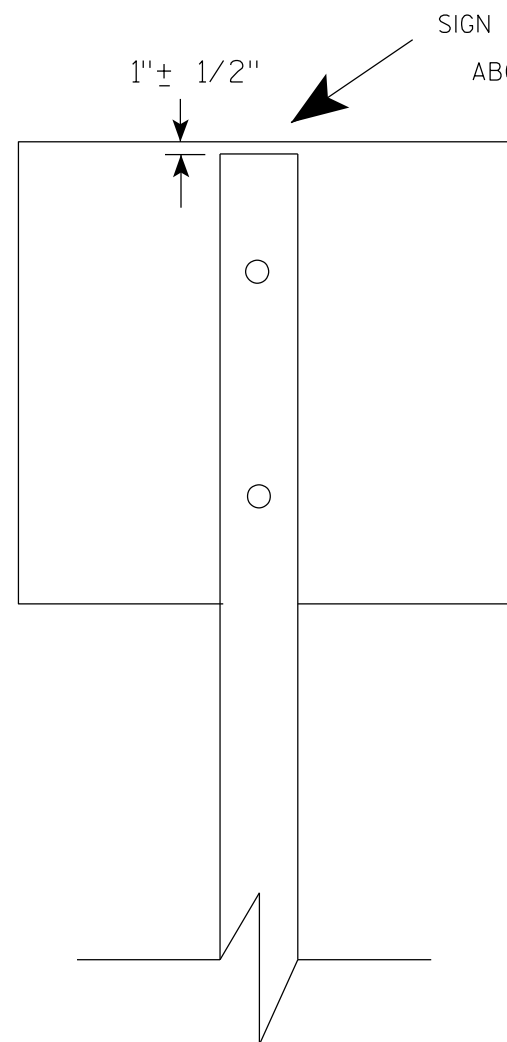
GENERAL NOTES

- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.
- J-Assemblies are considered to be one sign for mounting height.
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
- The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

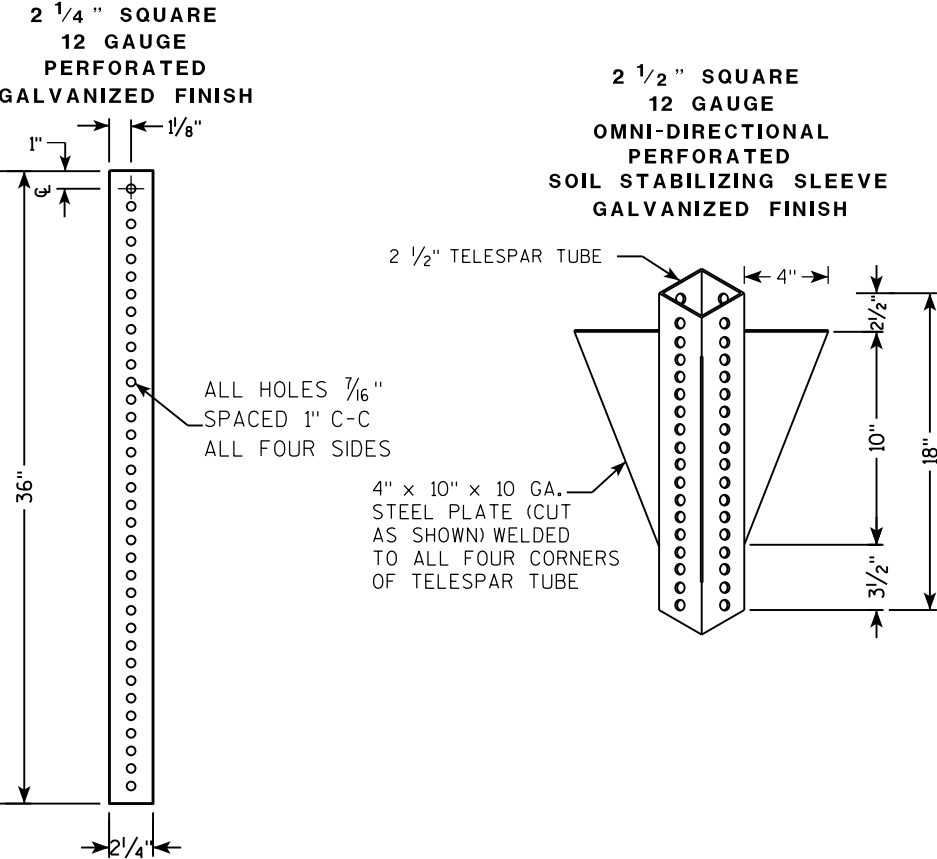
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

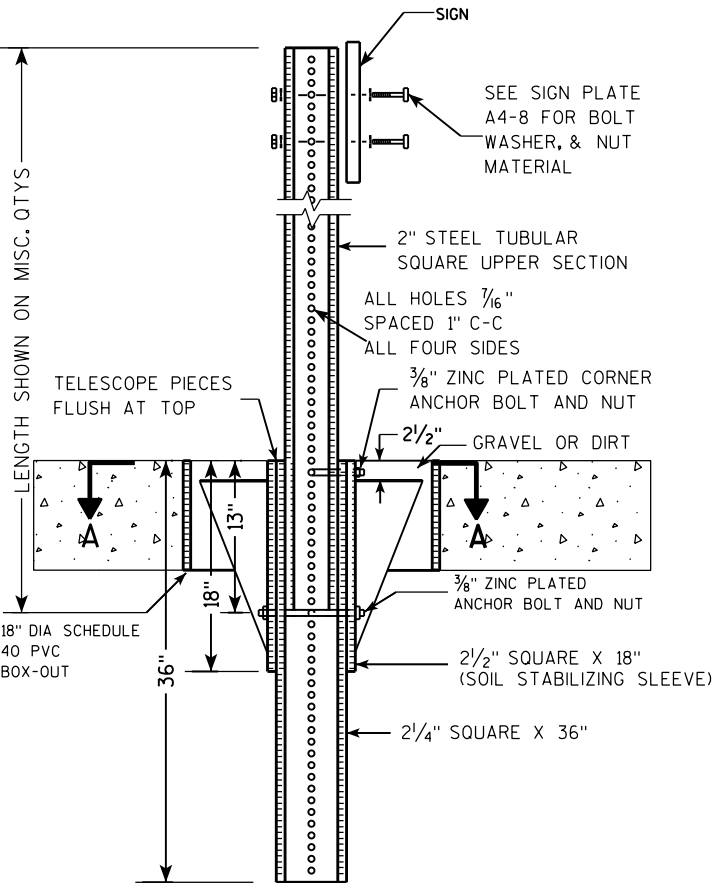
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

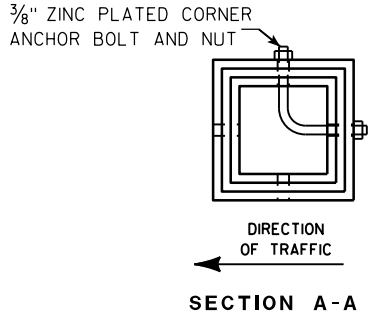
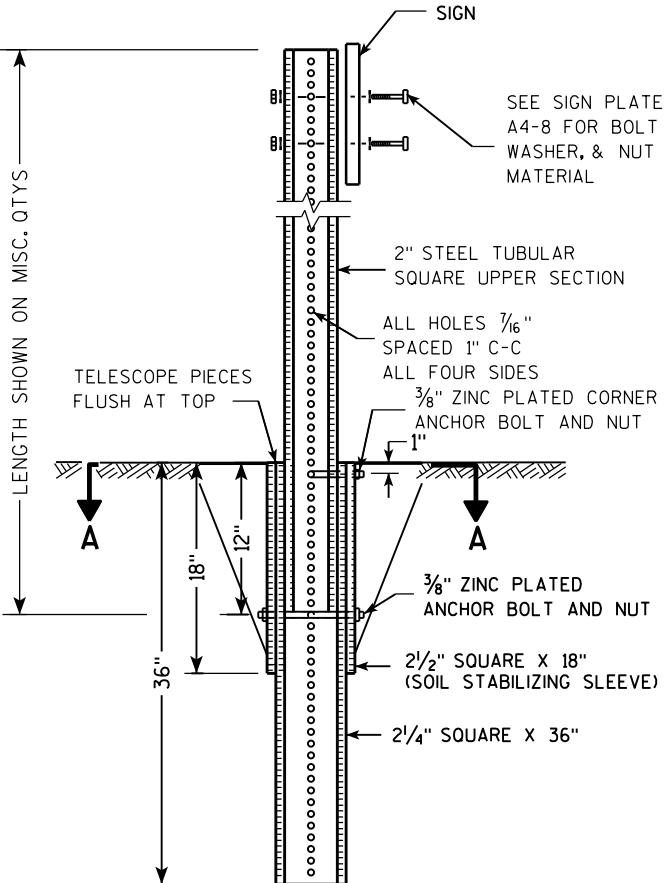
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

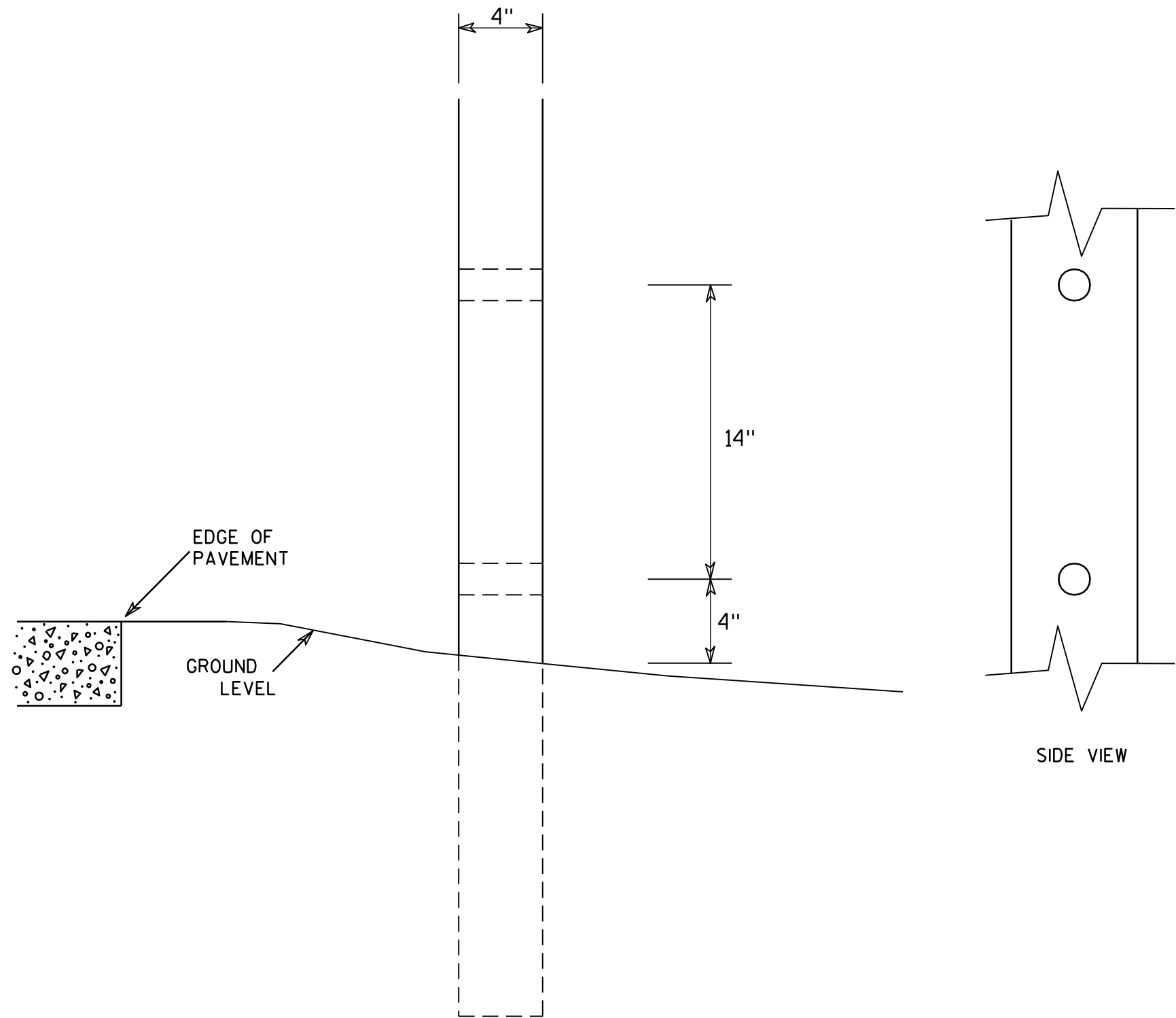
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 136 14-9.9

7



GENERAL NOTES

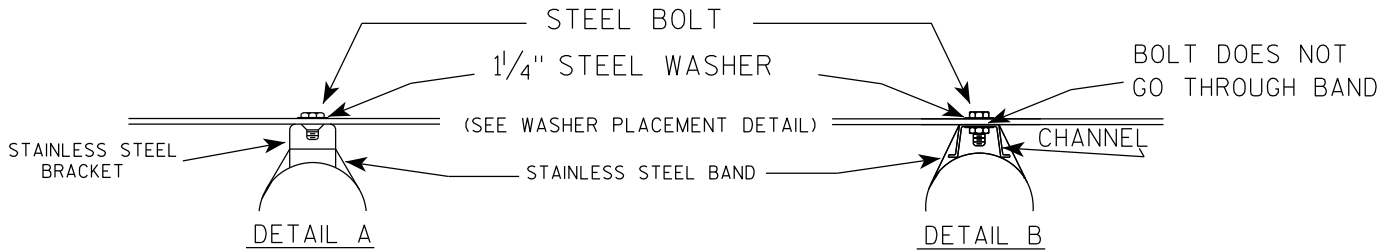
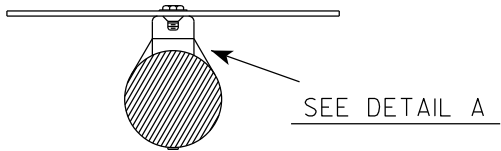
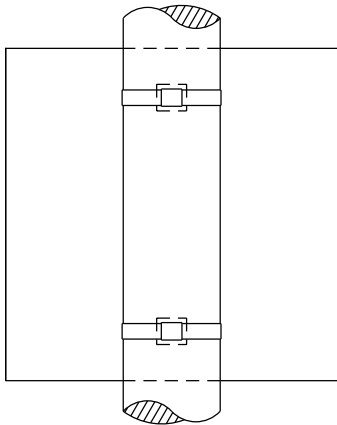
- 1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

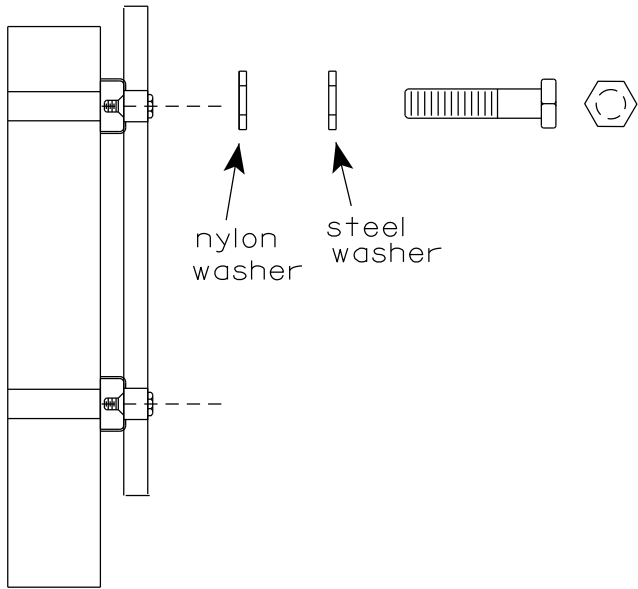
4 X 6 WOOD POST MODIFICATIONS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2

BANDING

SINGLE SIGN



WASHER PLACEMENT

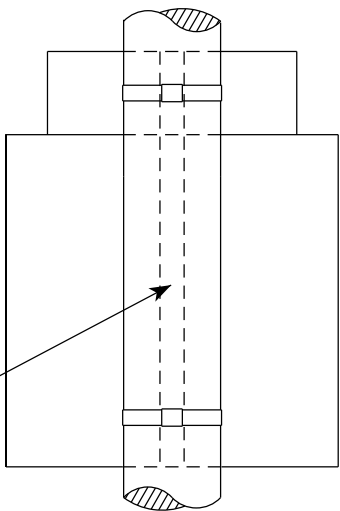


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



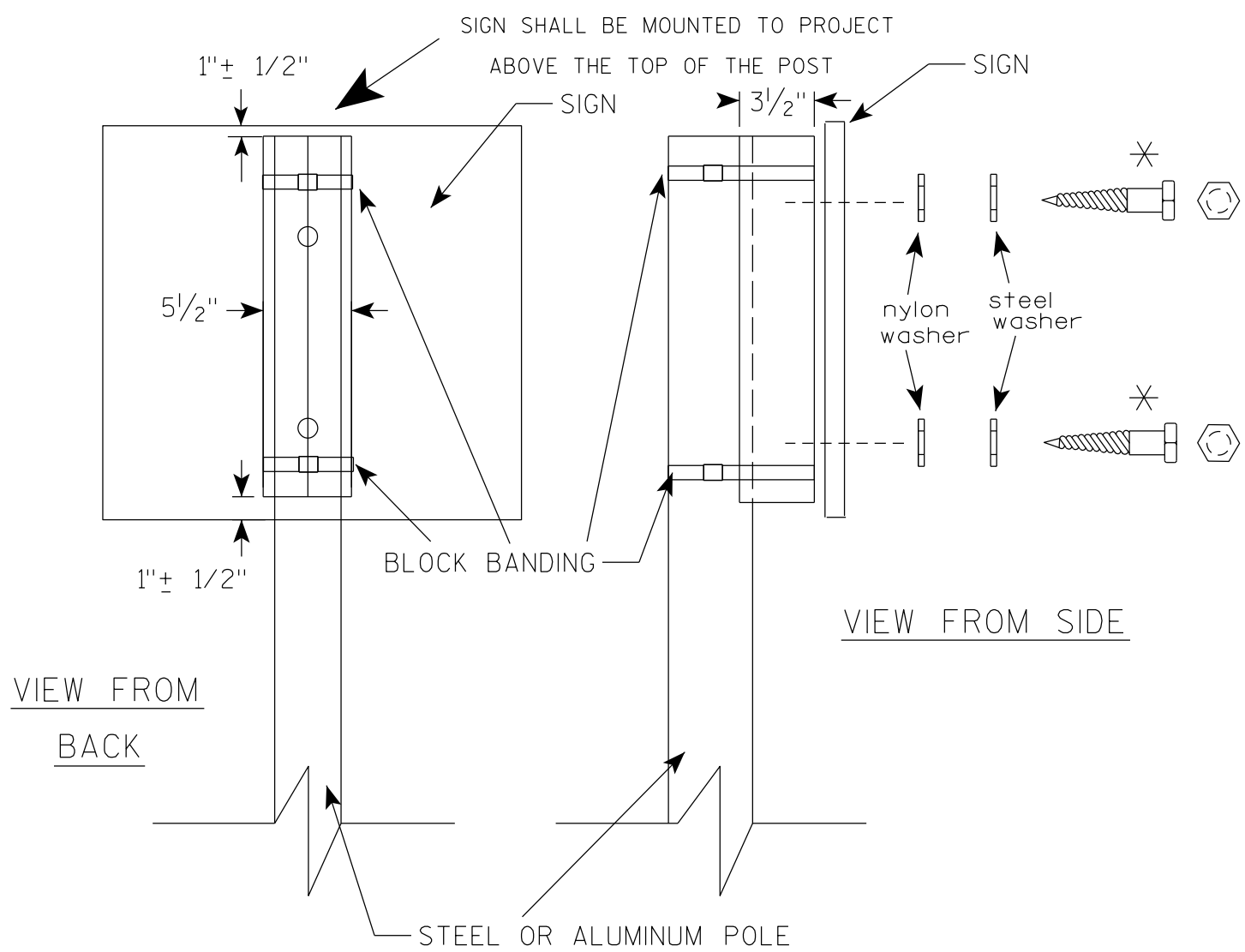
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

SEE DETAIL B

STANDARD SIGN
SIGN BANDING DETAILS

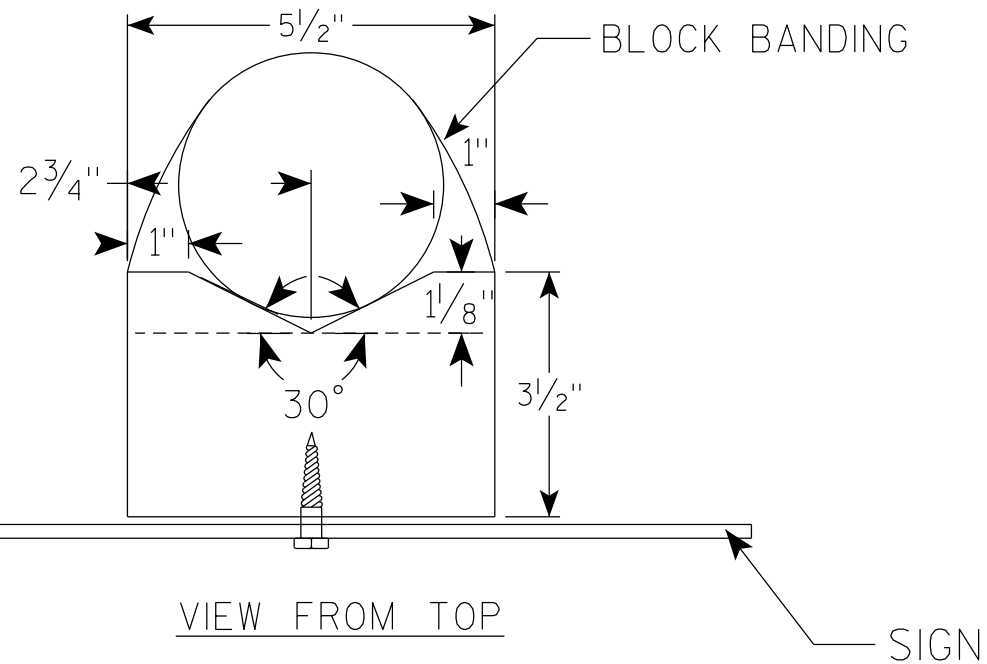
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

SIGN

GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

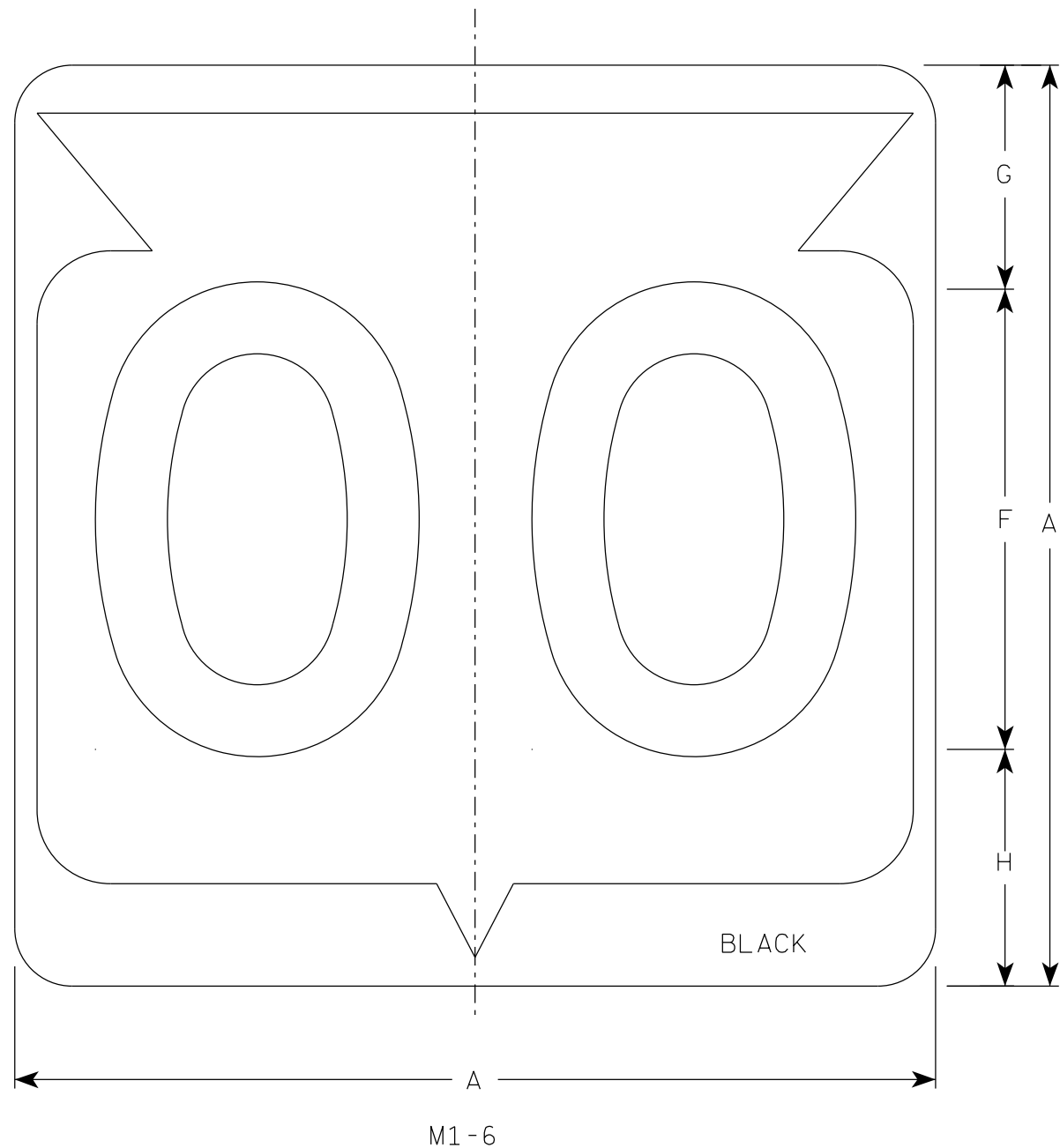
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 139

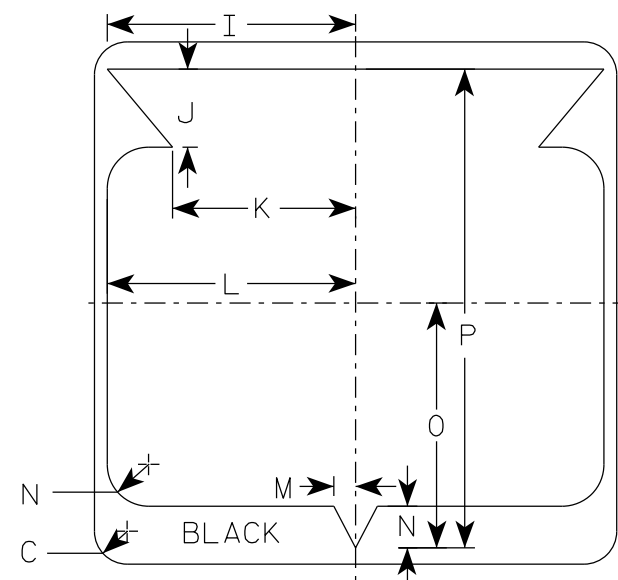
E

7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C



7

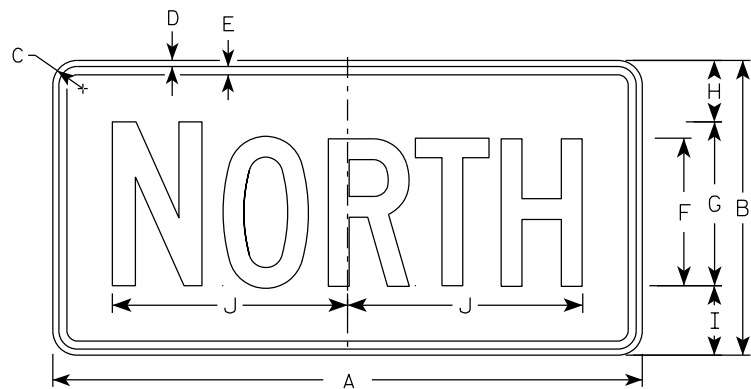
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
2M	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

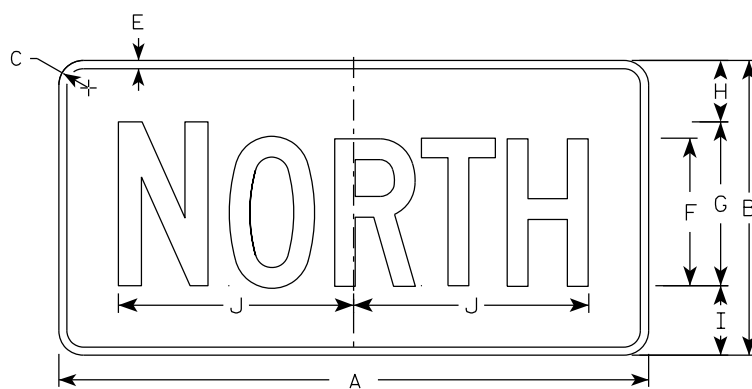
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

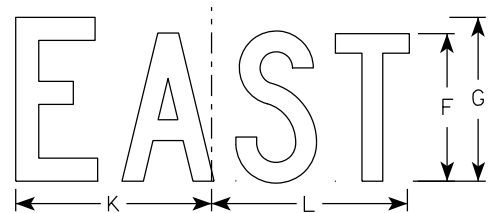
DATE 11/8/2022 PLATE NO. M1-6.11



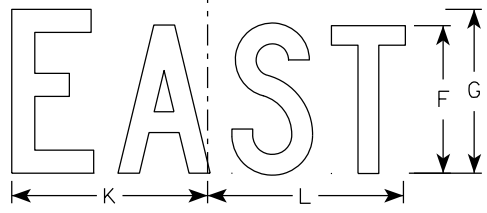
M3-1
MM3-1
MP3-1



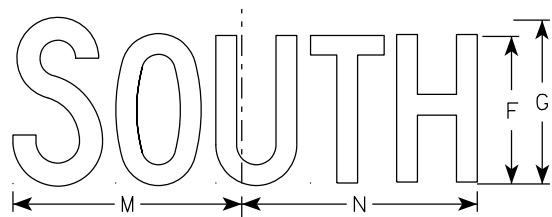
MB3-1
MK3-1
MN3-1



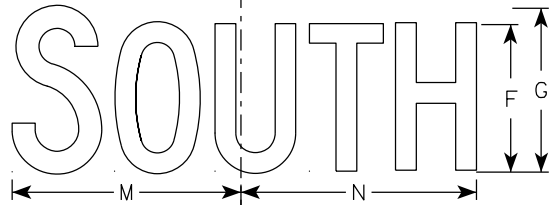
M3-2
MM3-2
MP3-2



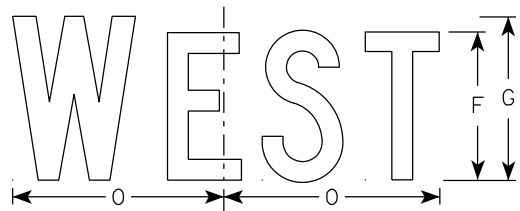
MB3-2
MK3-2
MN3-2



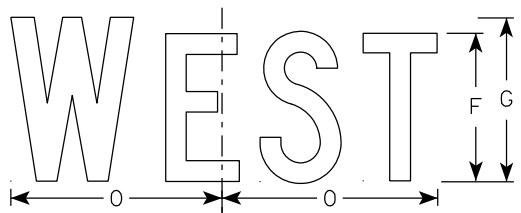
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

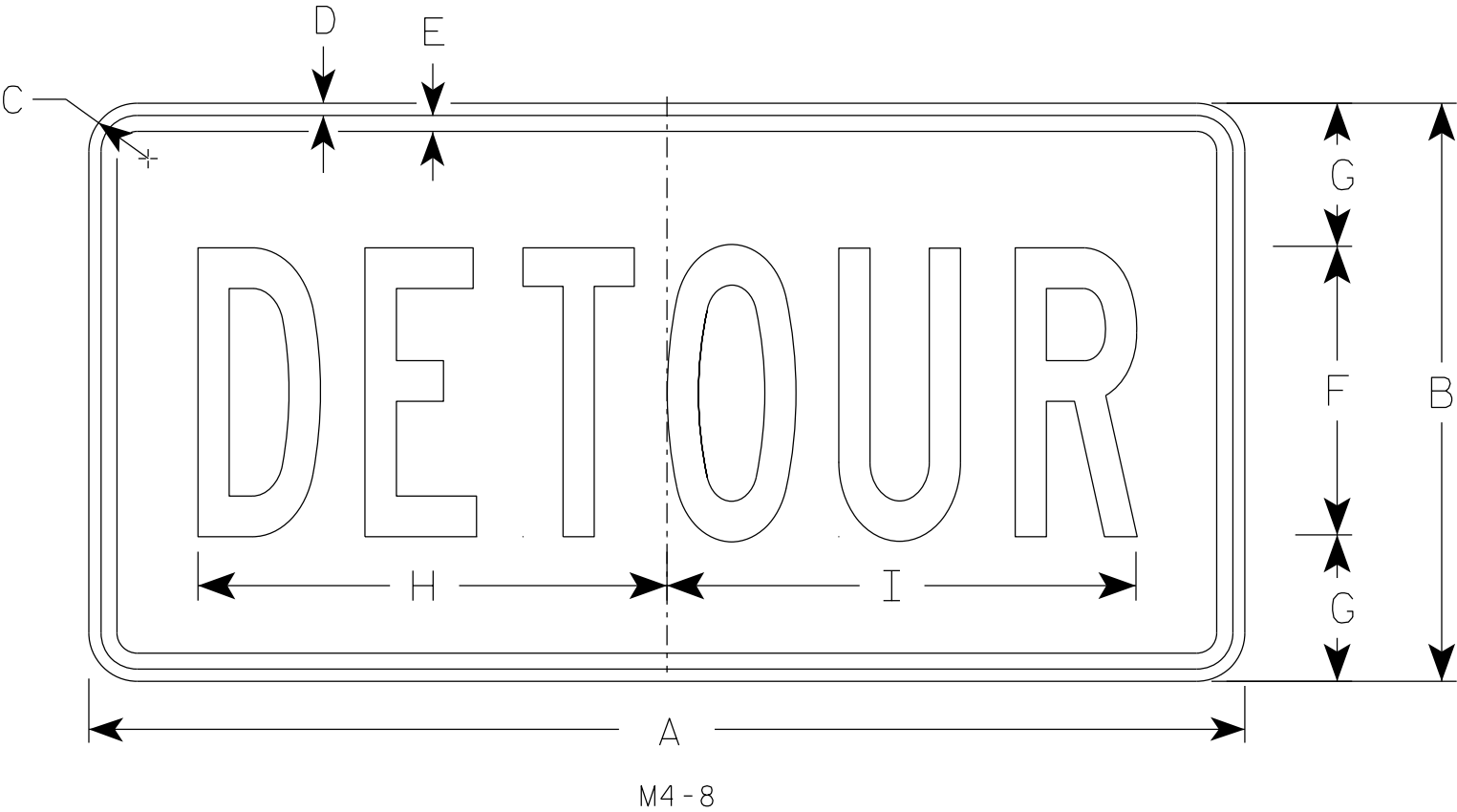
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 141	E
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7

7

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - B
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

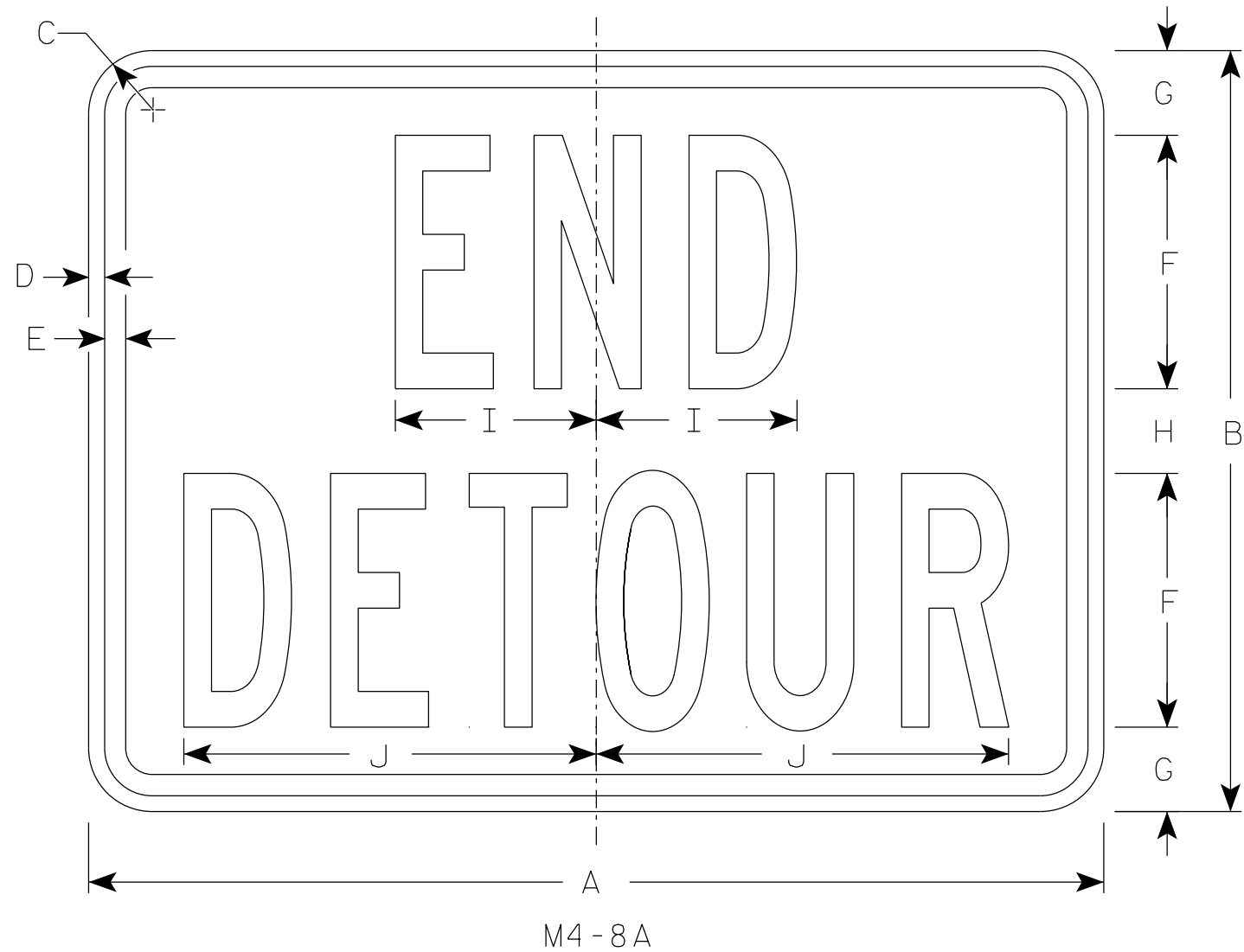
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - B
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

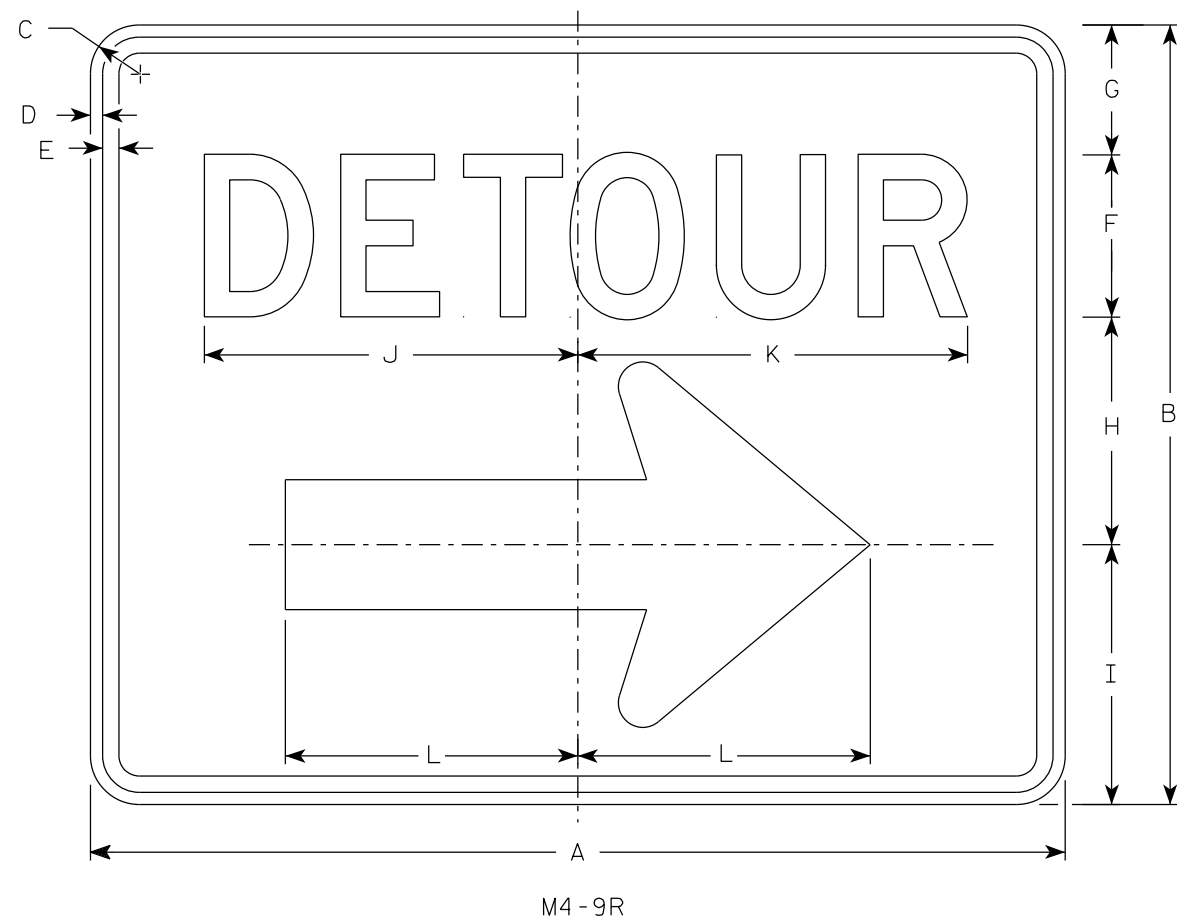
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

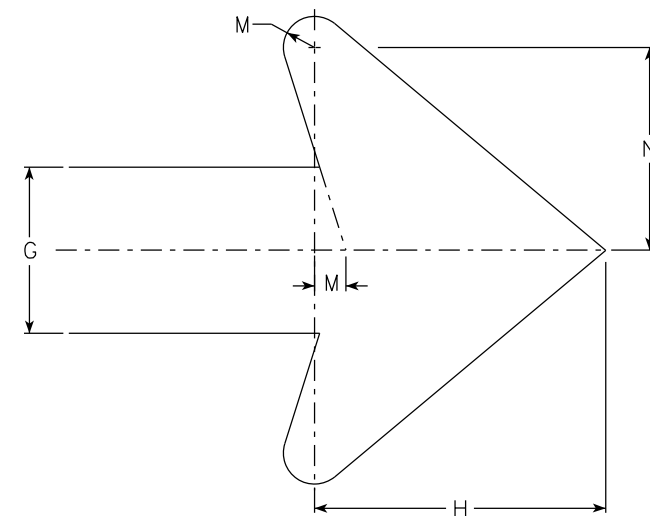
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

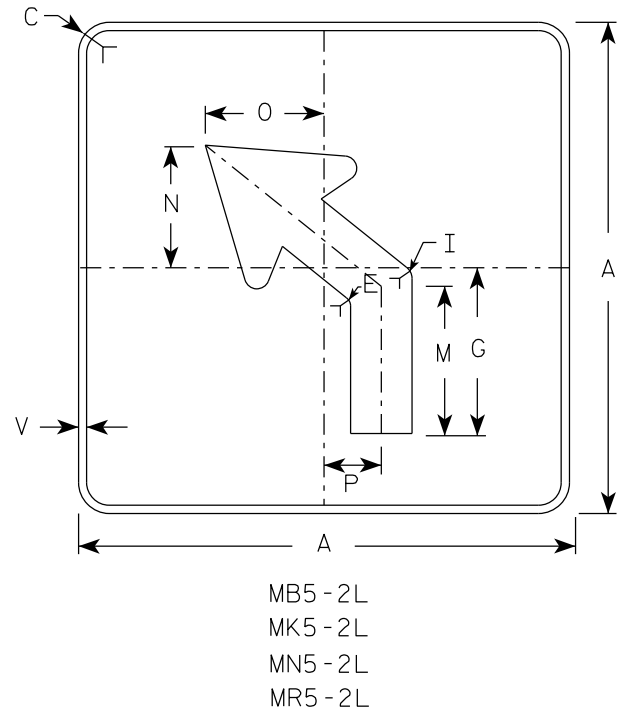
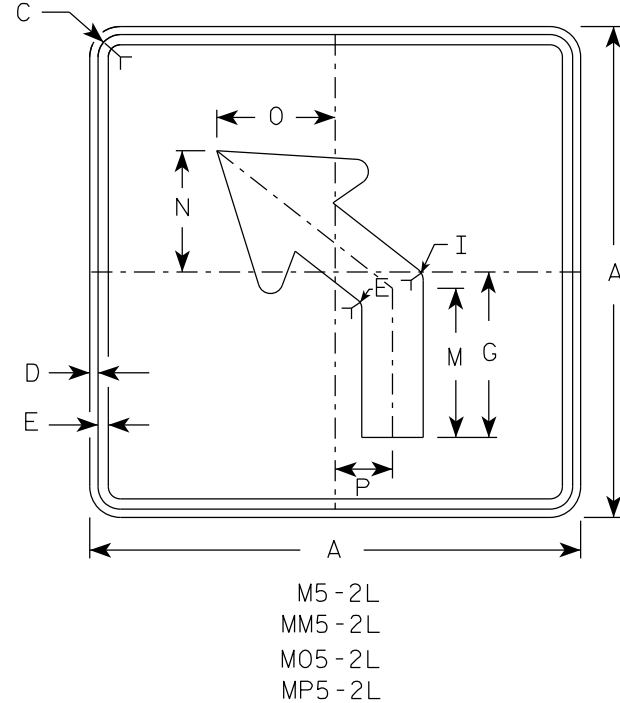
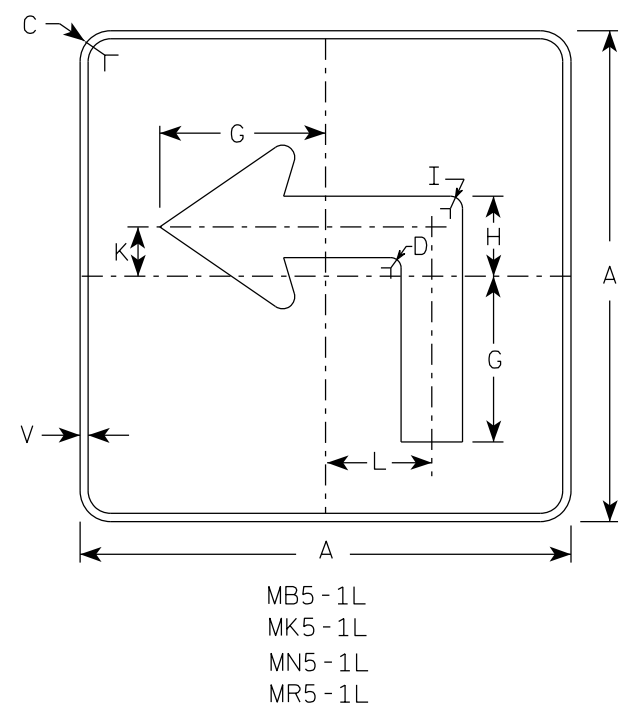
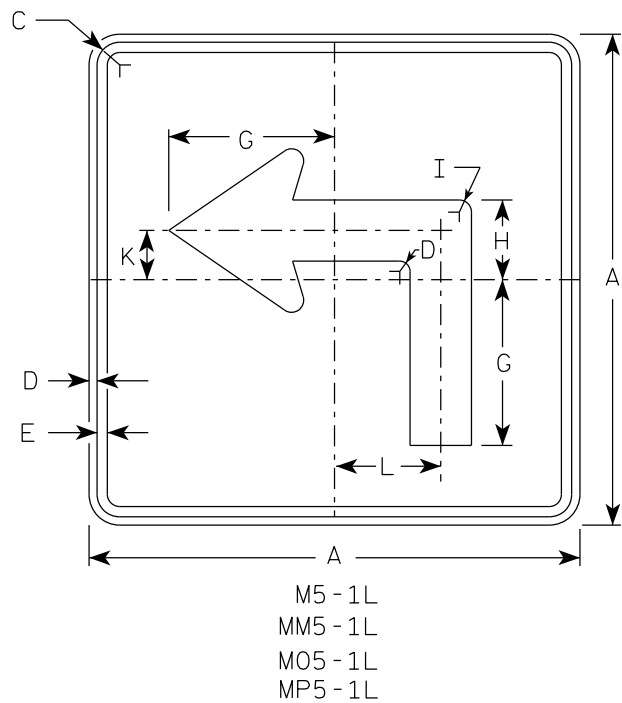
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

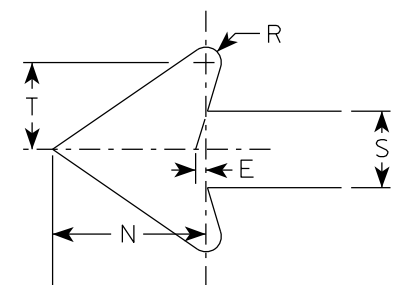
DATE 2/9/2023 PLATE NO. M4-9R.6



NOTES

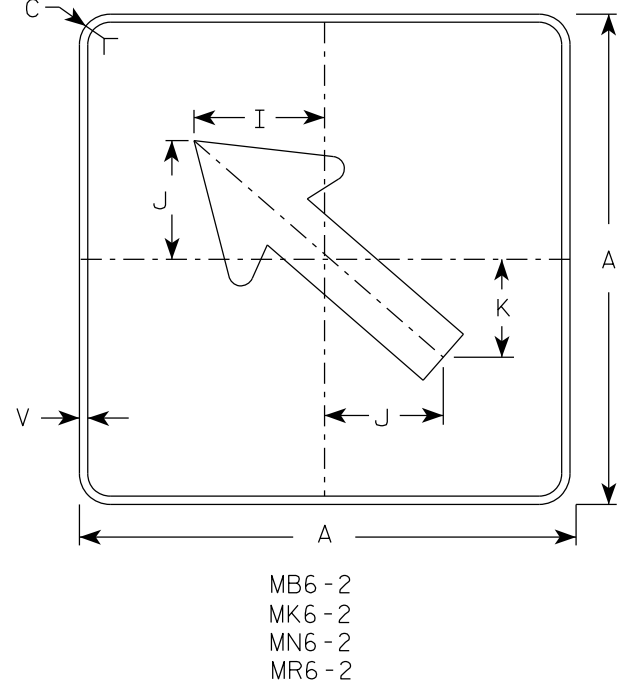
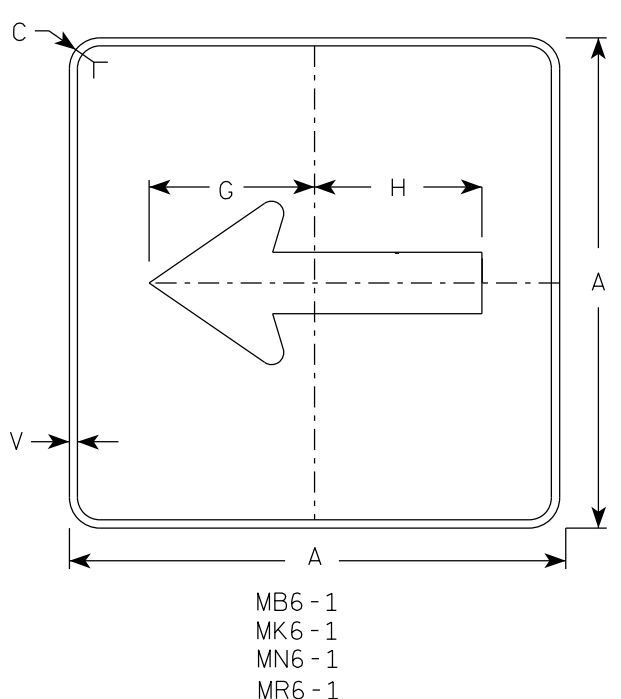
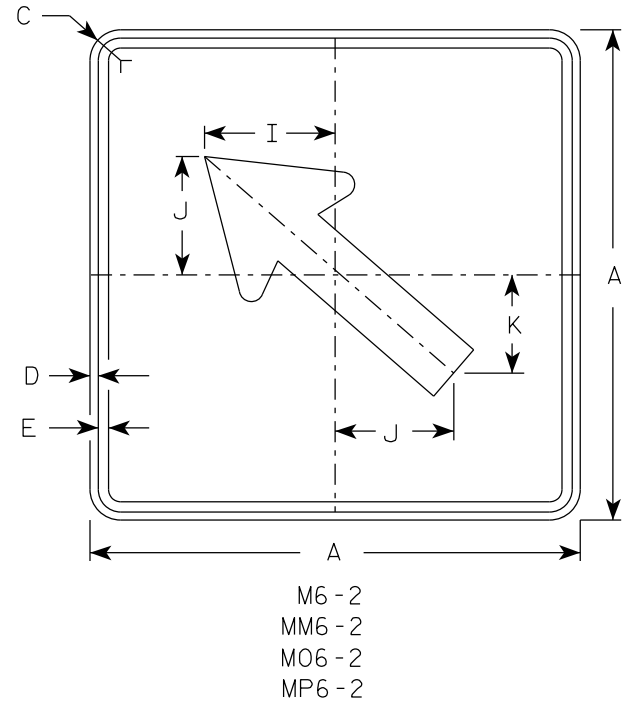
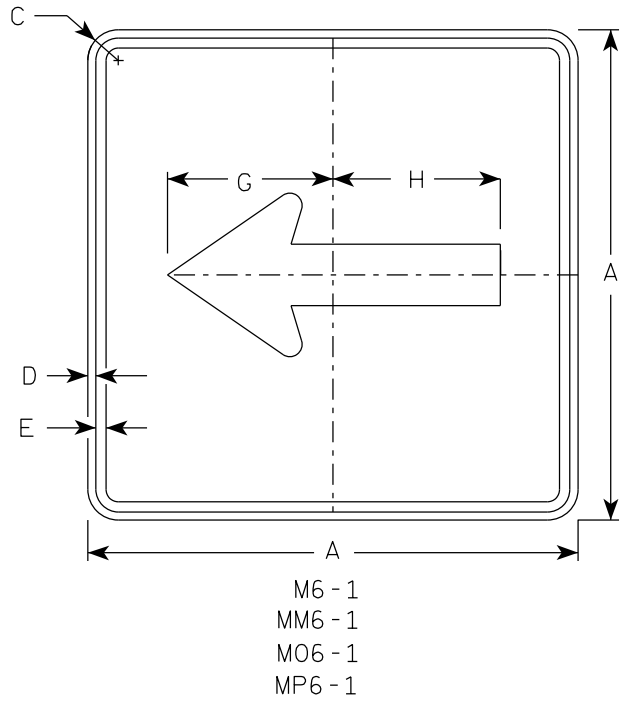
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

ARROW DETAIL

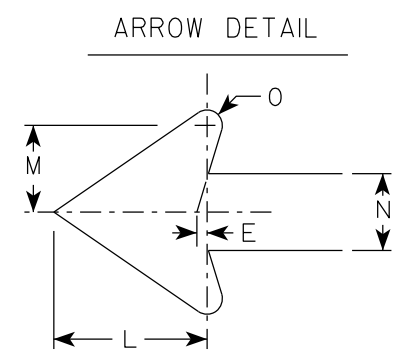


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 145	E
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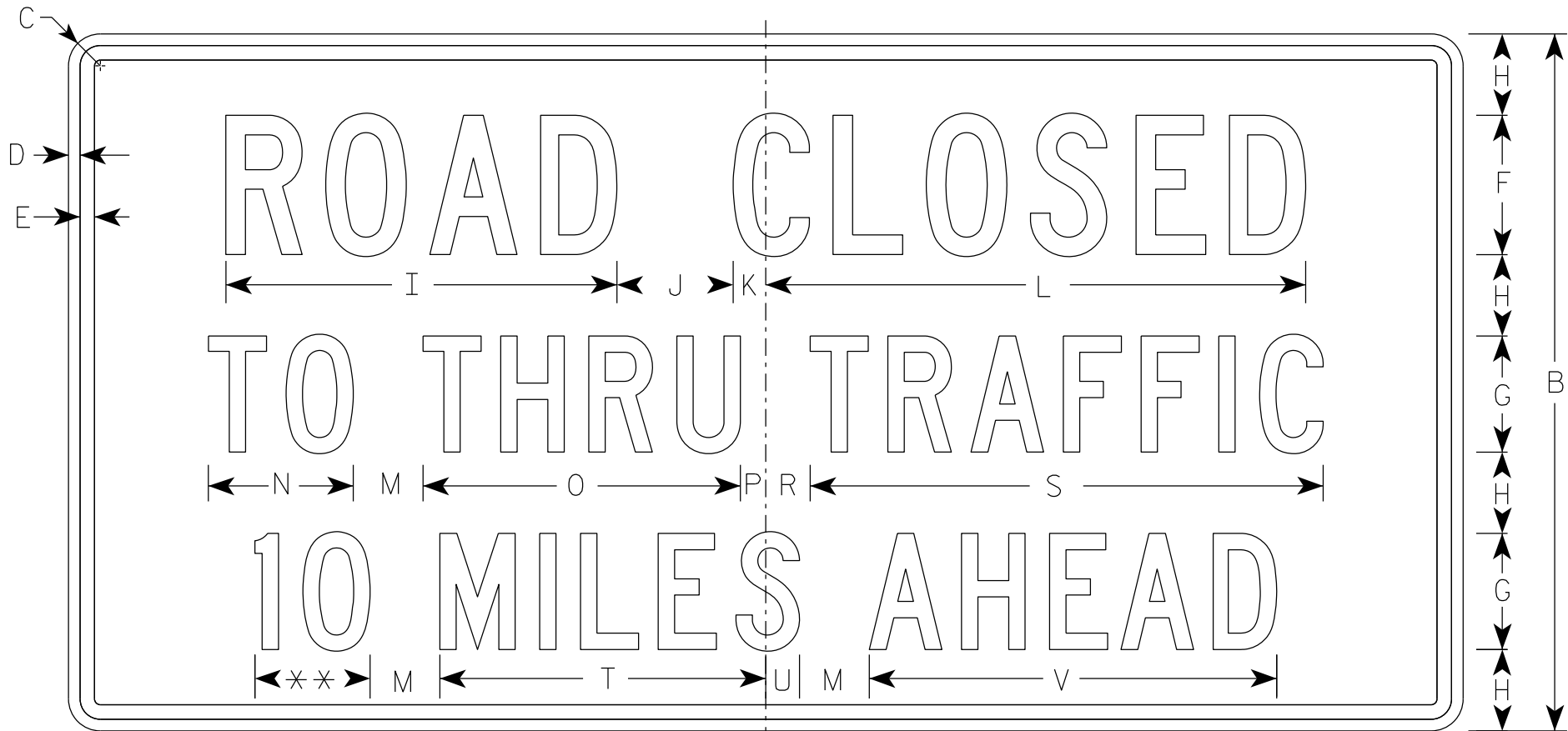
- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25

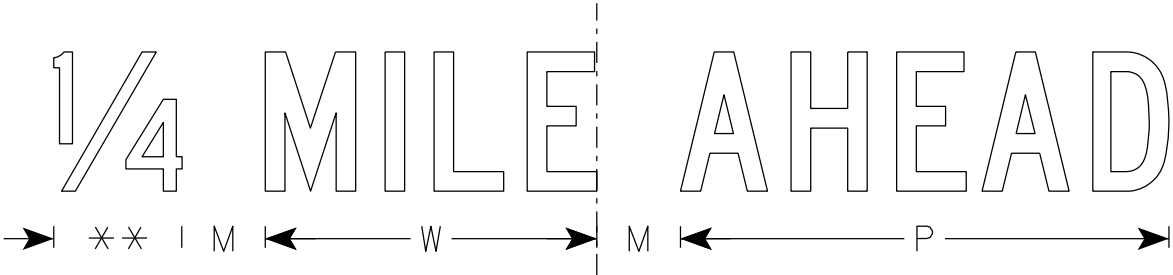
NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3

** See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/2	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8				4.5
2S	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
2M	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
3																											
4																											
5																											

STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3.10

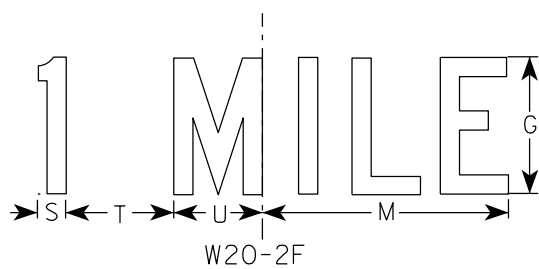
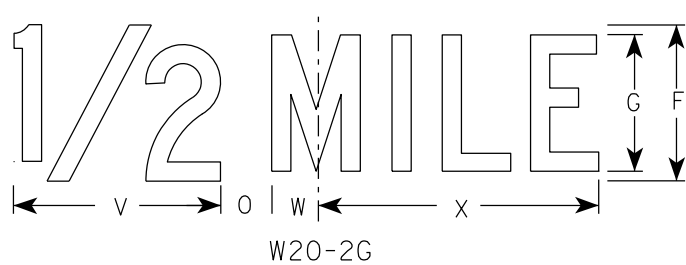
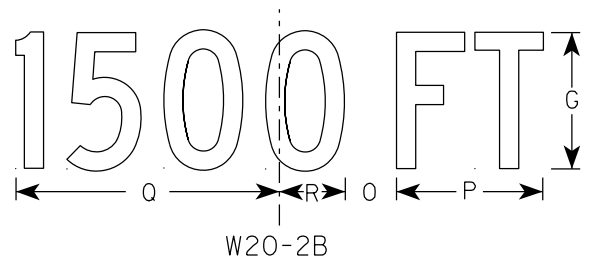
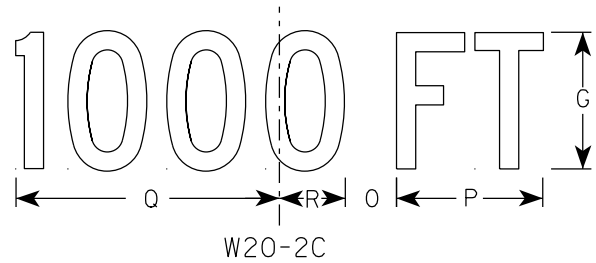
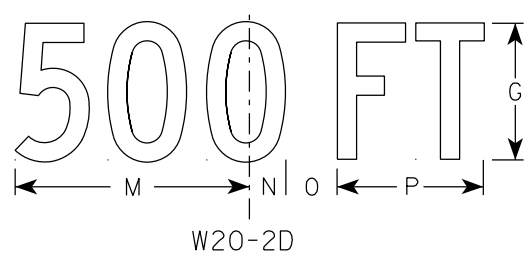
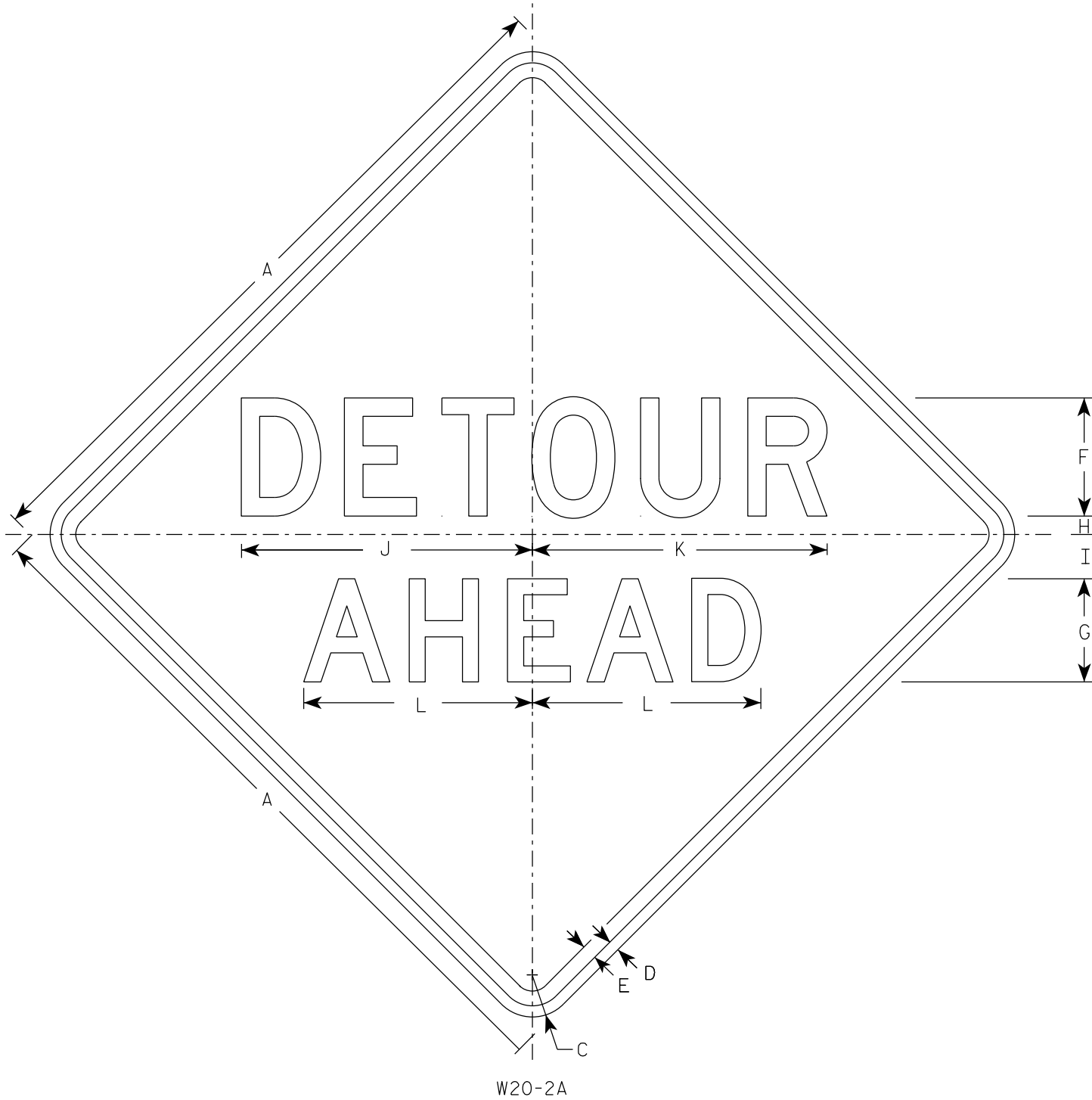
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 147

E

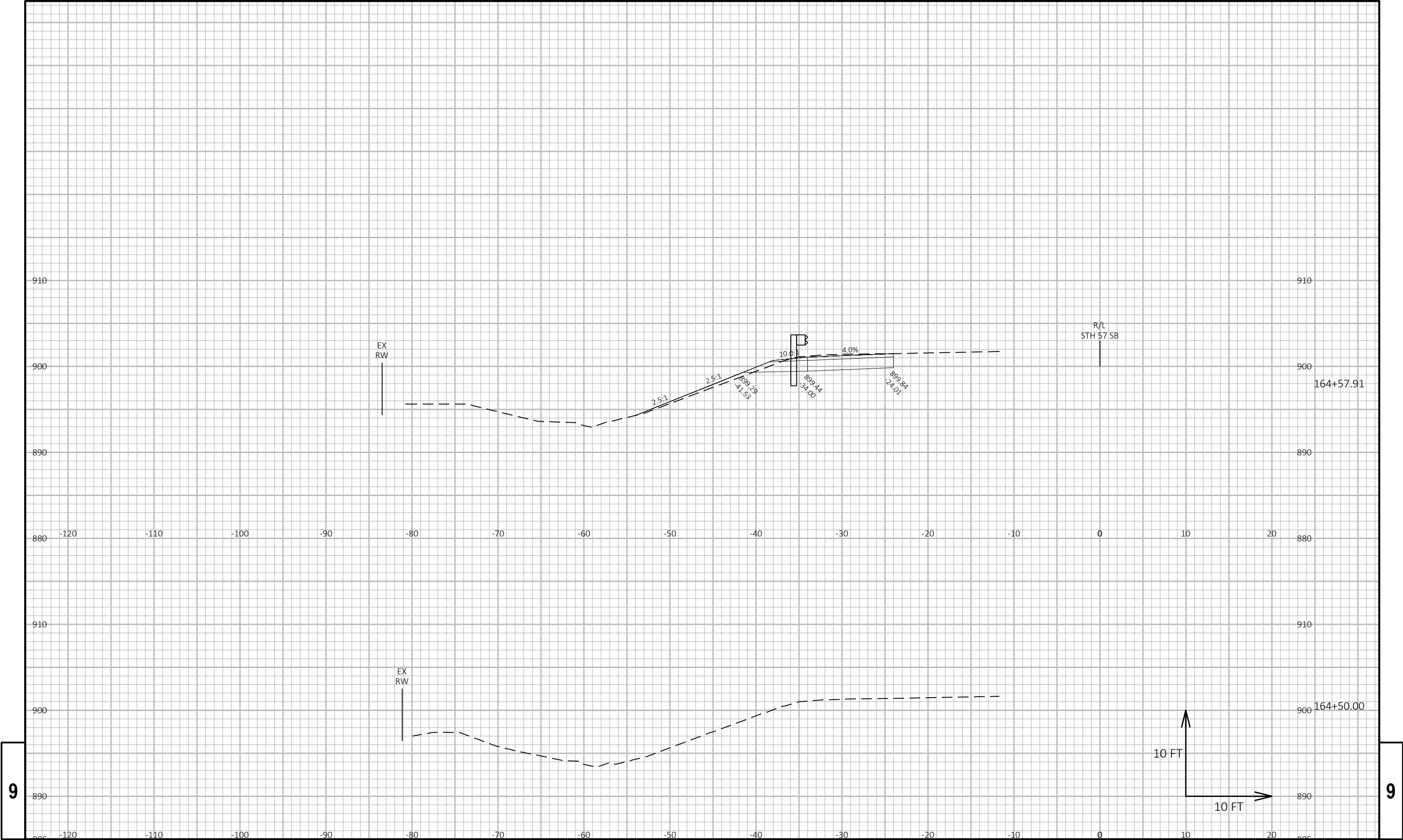


NOTES

- Sign is Type II - Type F Reflective
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

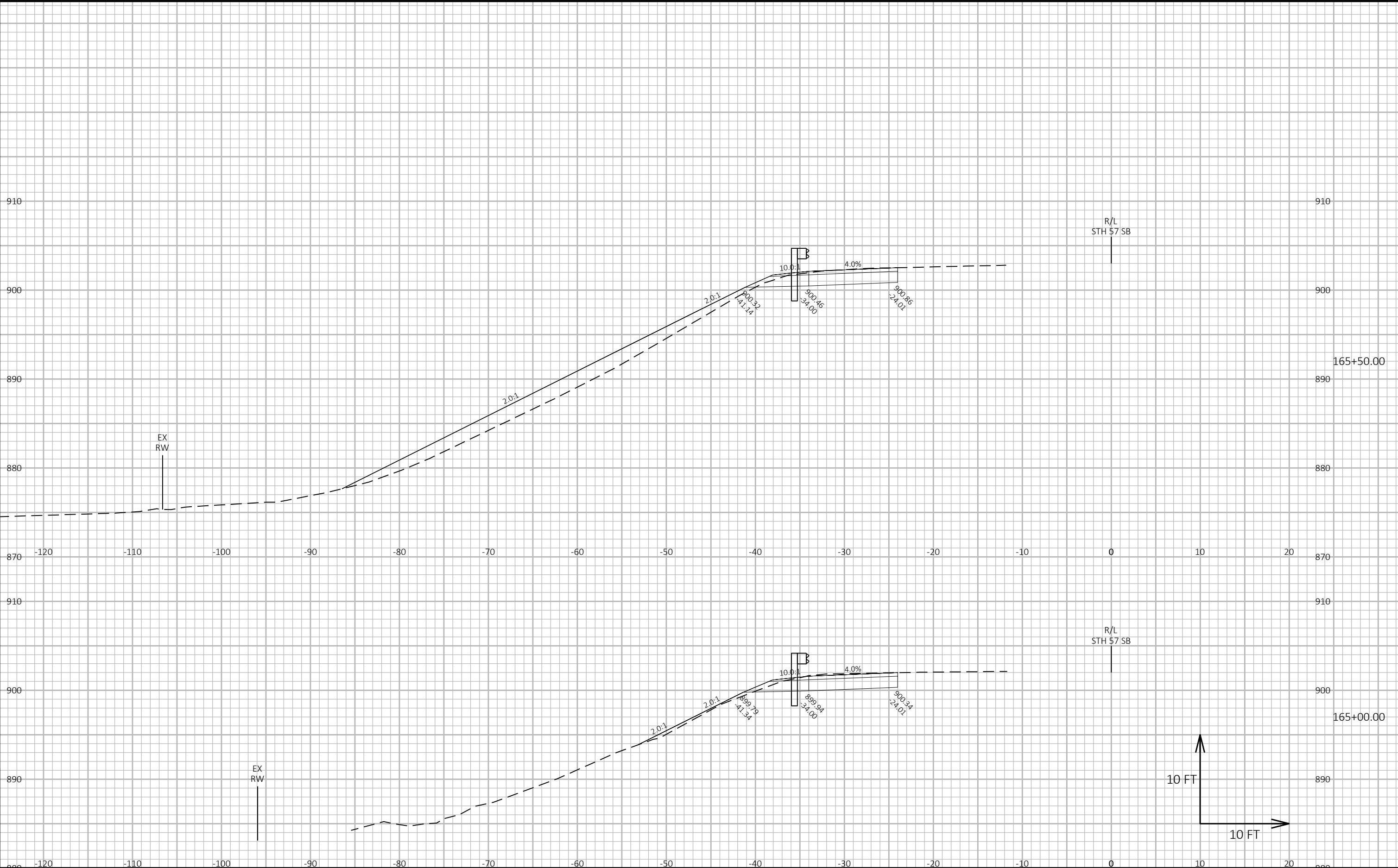
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

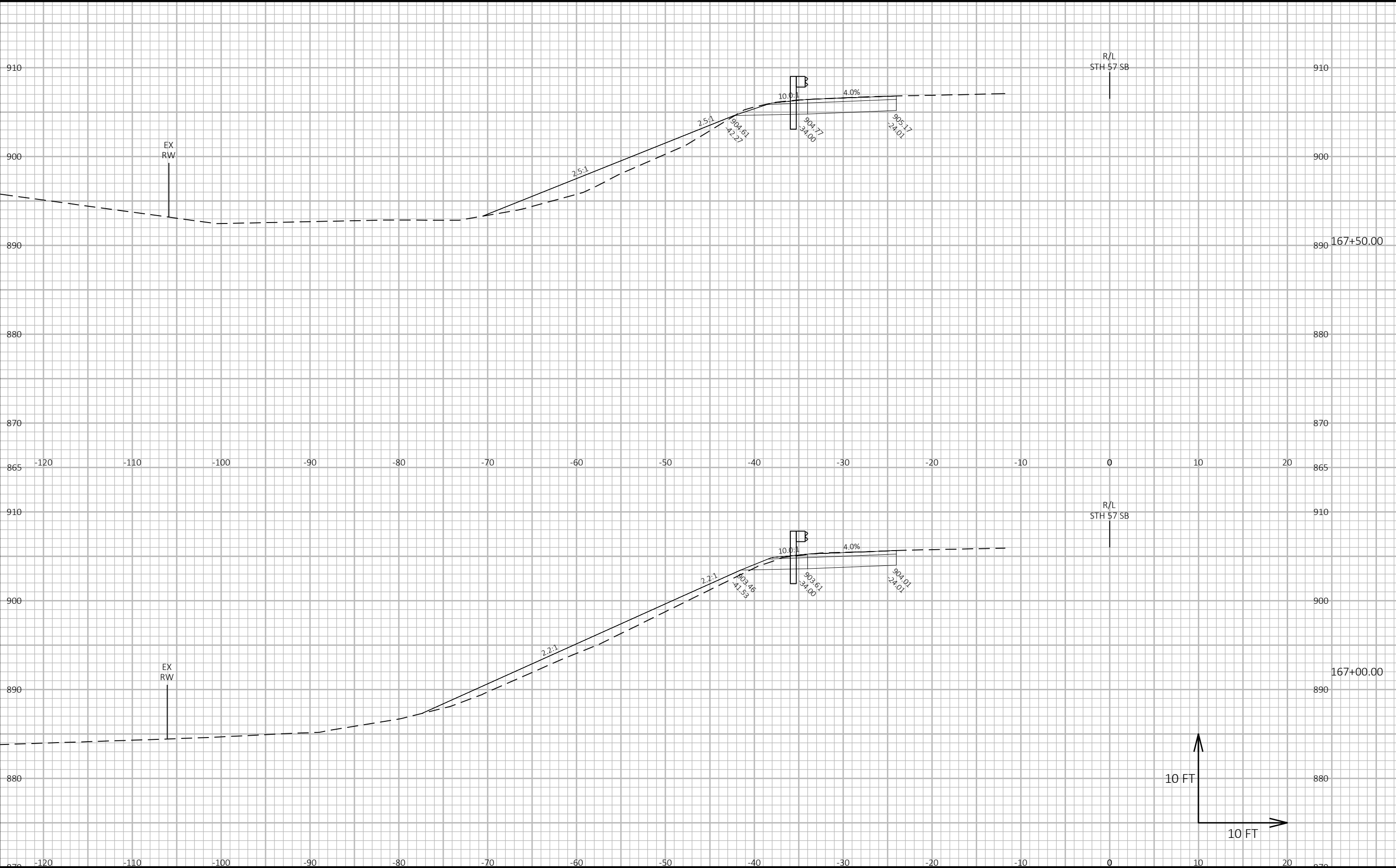
STANDARD SIGN W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

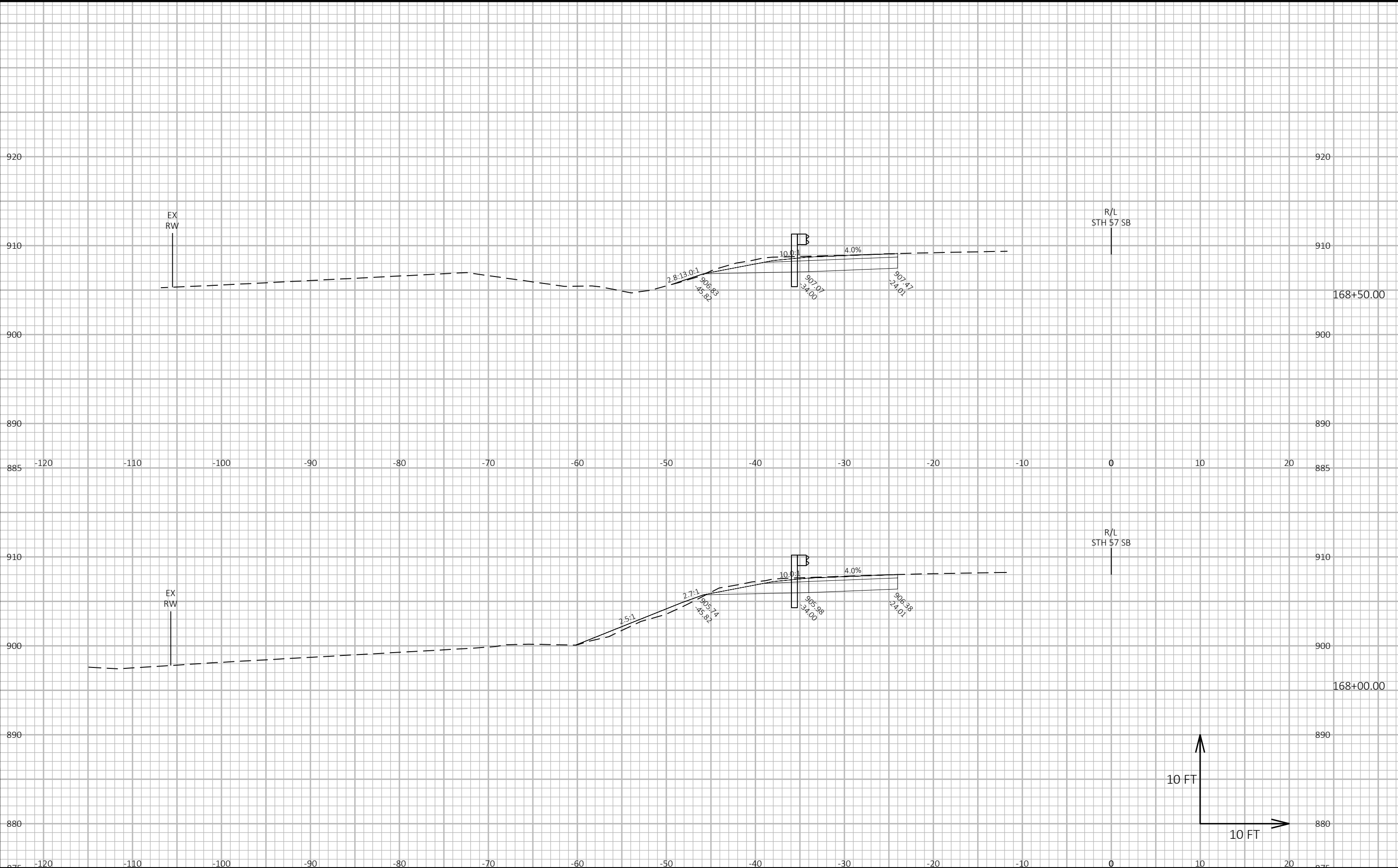


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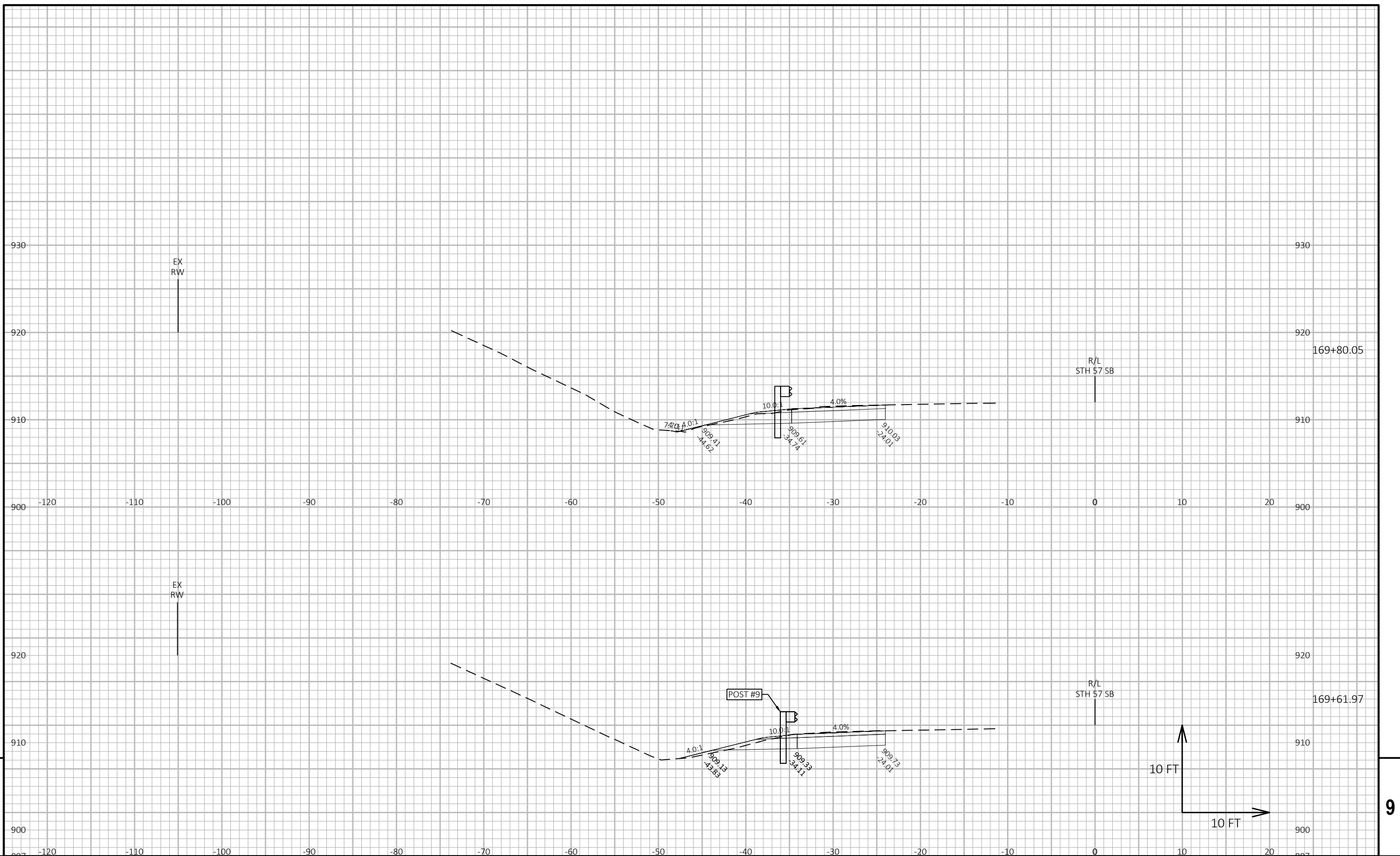
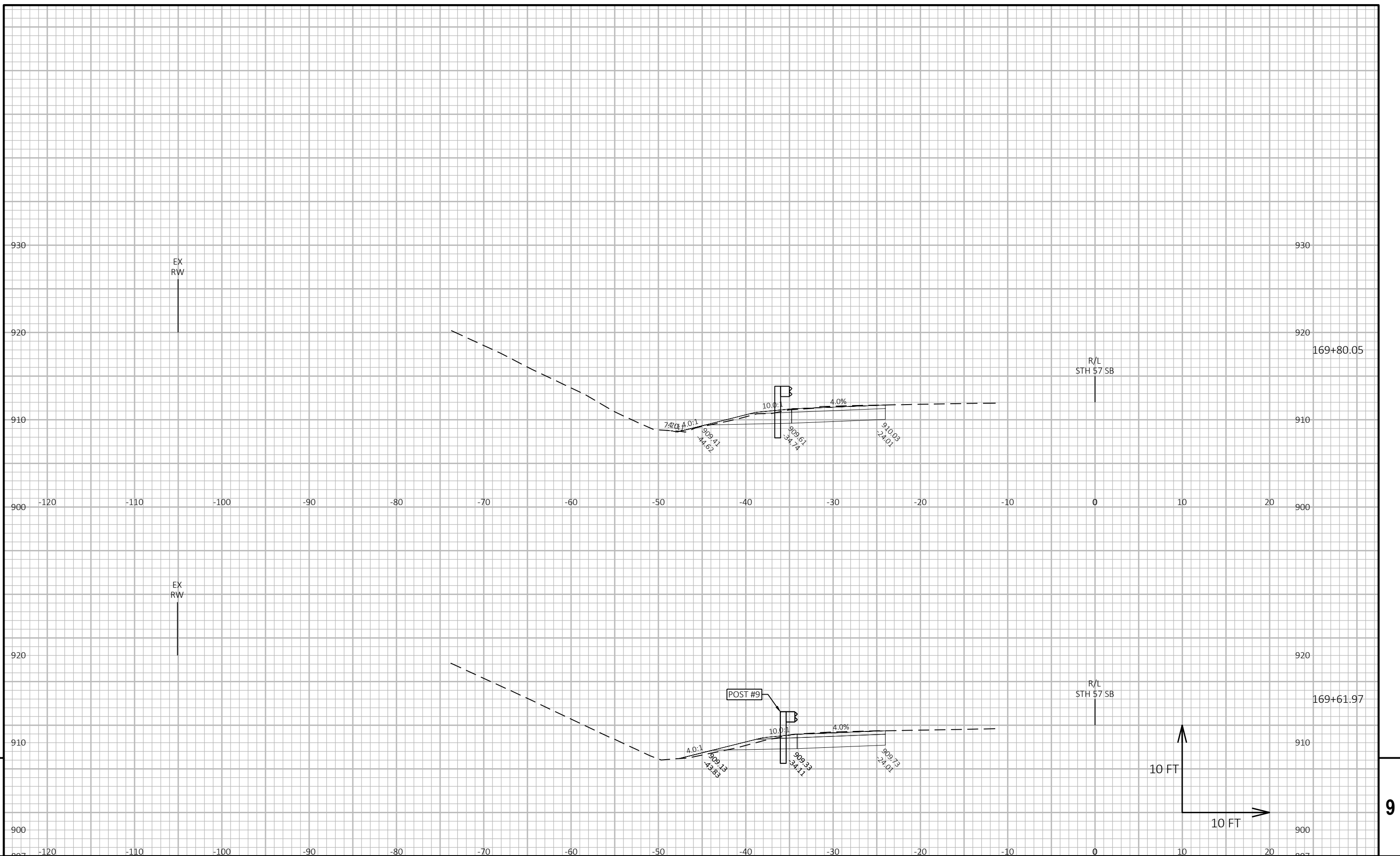






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PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 155	E
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PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 155	E
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PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 155	E
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PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 155	E
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PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 155	E
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PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 155	E
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FILE NAME :	N:\PDS\C3D\40152200\SHEETS\PLAN\090201-XS.DWG	PLOT DATE :	7/30/2026 9:44 AM	PLOT BY :	SAMPO, SHANE	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDs SHEET 49
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FILE NAME :	N:\PDS\C3D\40152200\SHEETS\PLAN\090201-XS.DWG	PLOT DATE :	7/30/2026 9:44 AM	PLOT BY :	SAMPO, SHANE	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDs SHEET 49
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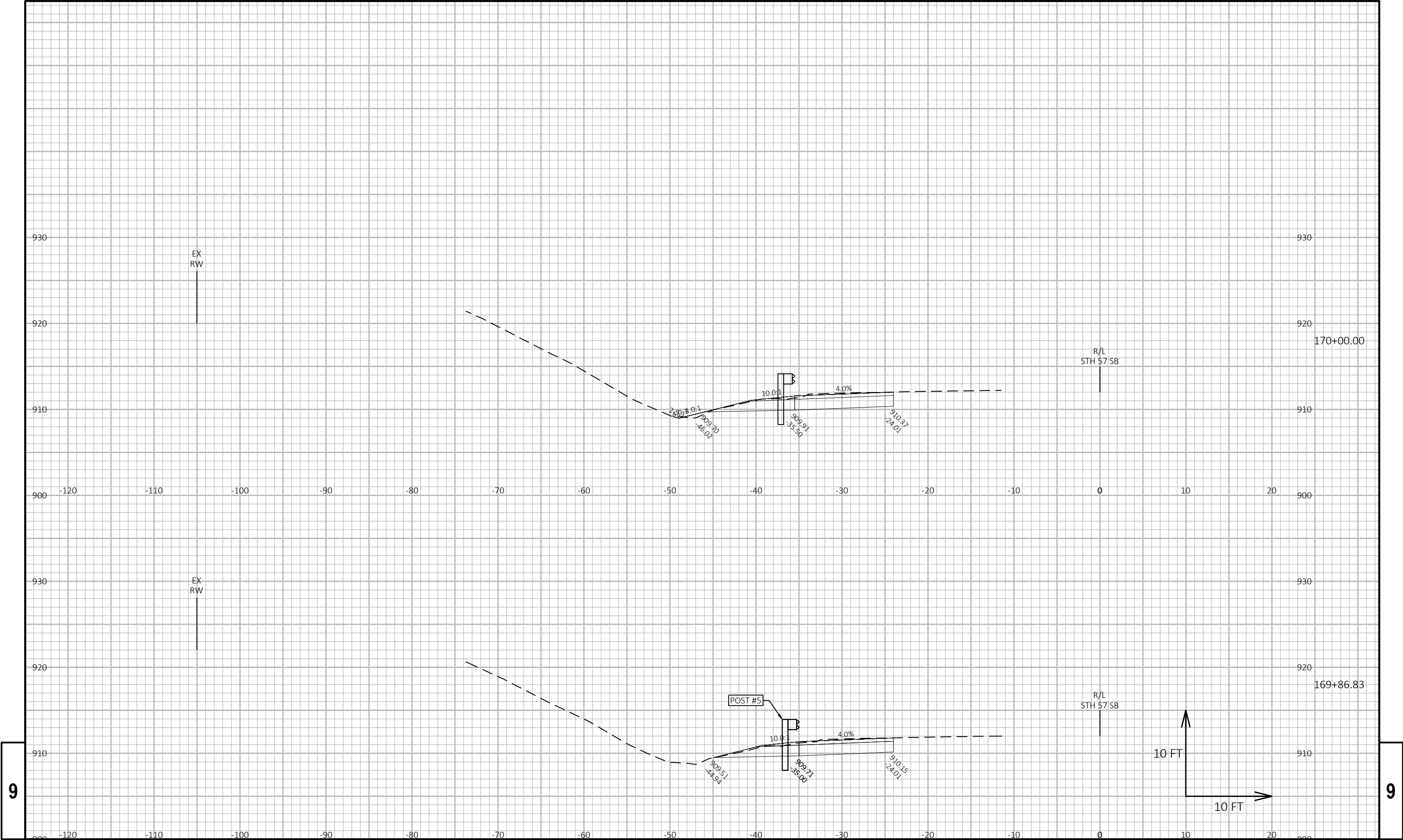
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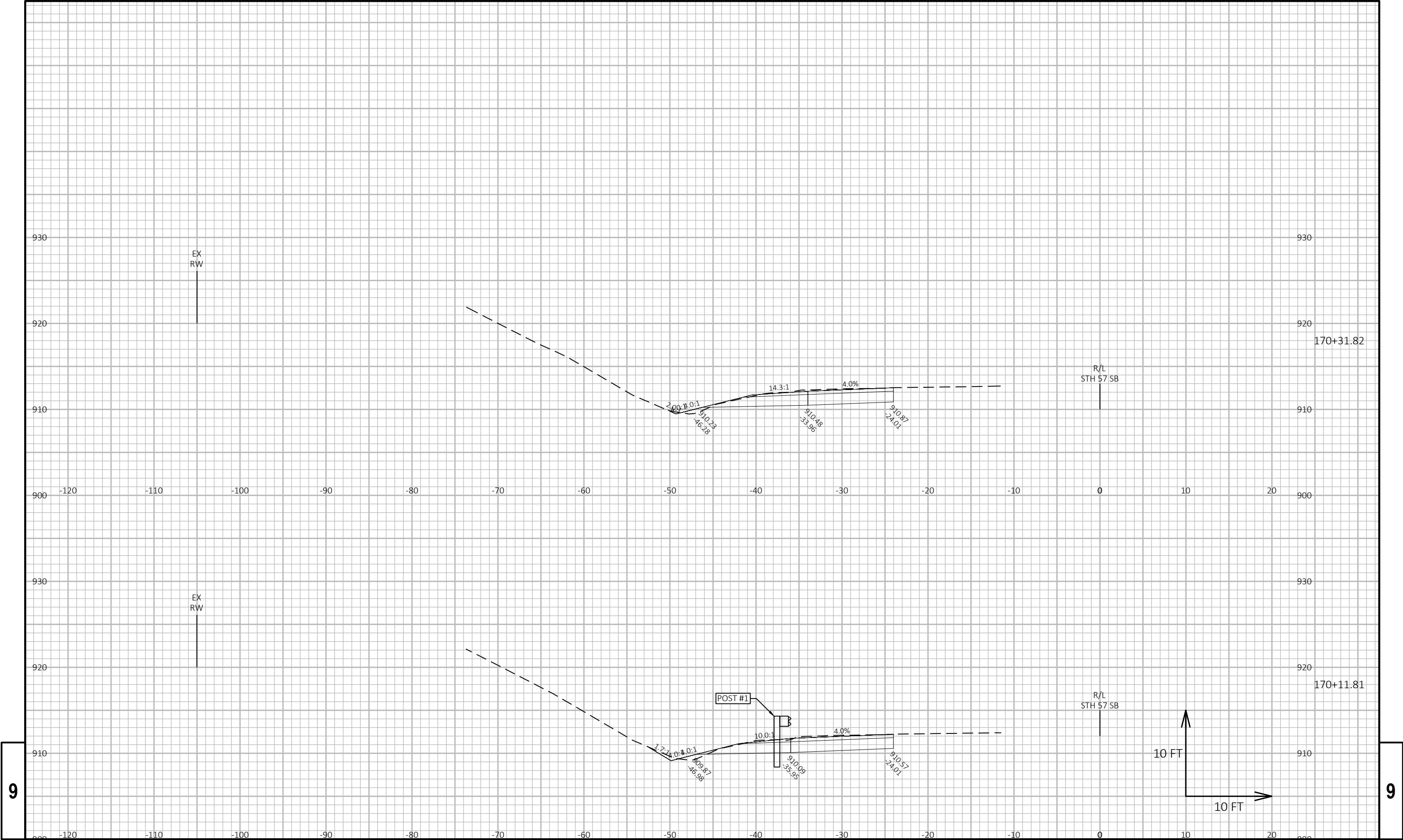
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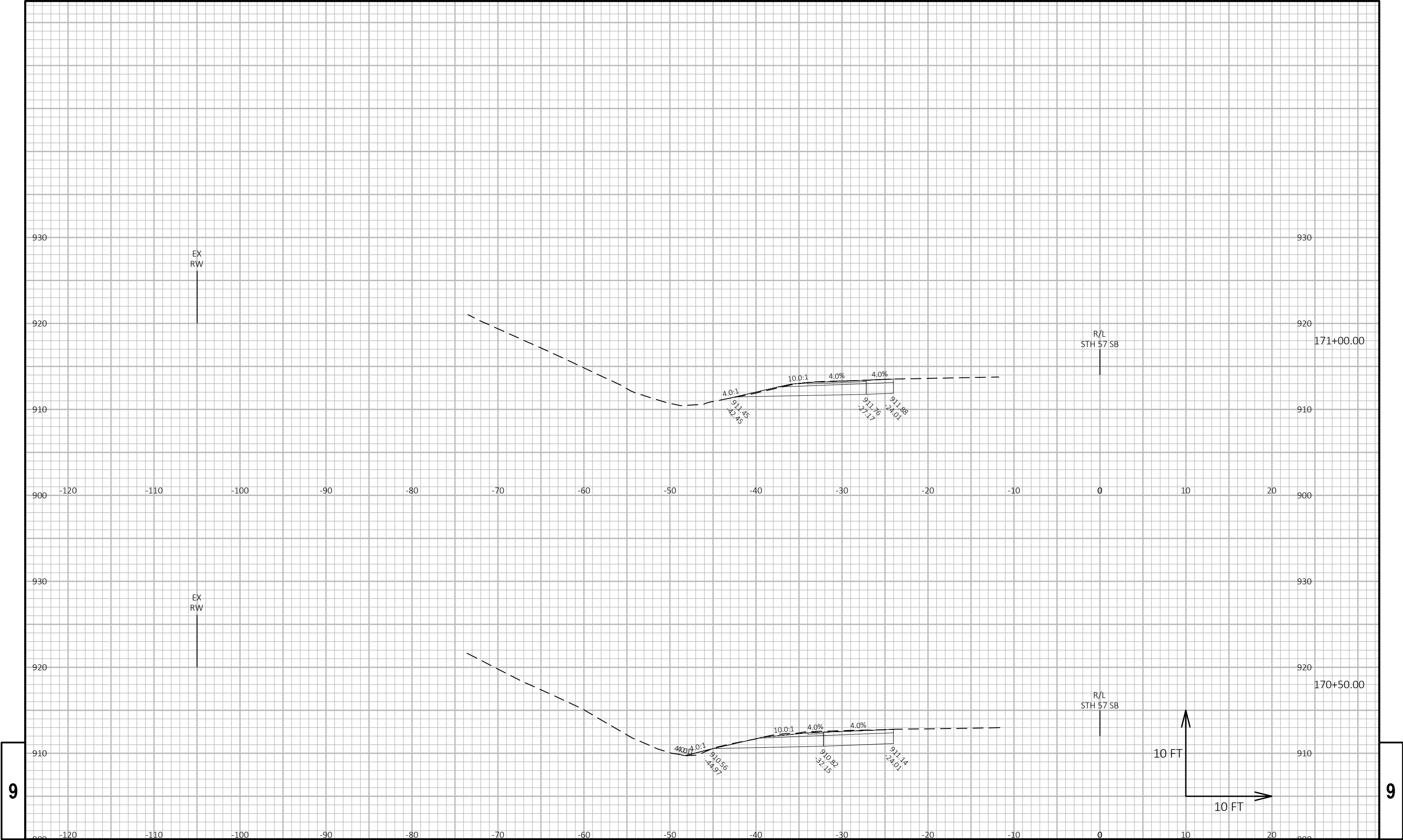
FILE NAME :	N:\PDS\C3D\40152200\SHEETS\PLAN\090201-XS.DWG	PLOT DATE :	7/30/2026 9:44 AM	PLOT BY :	SAMPO, SHANE	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDs SHEET 49
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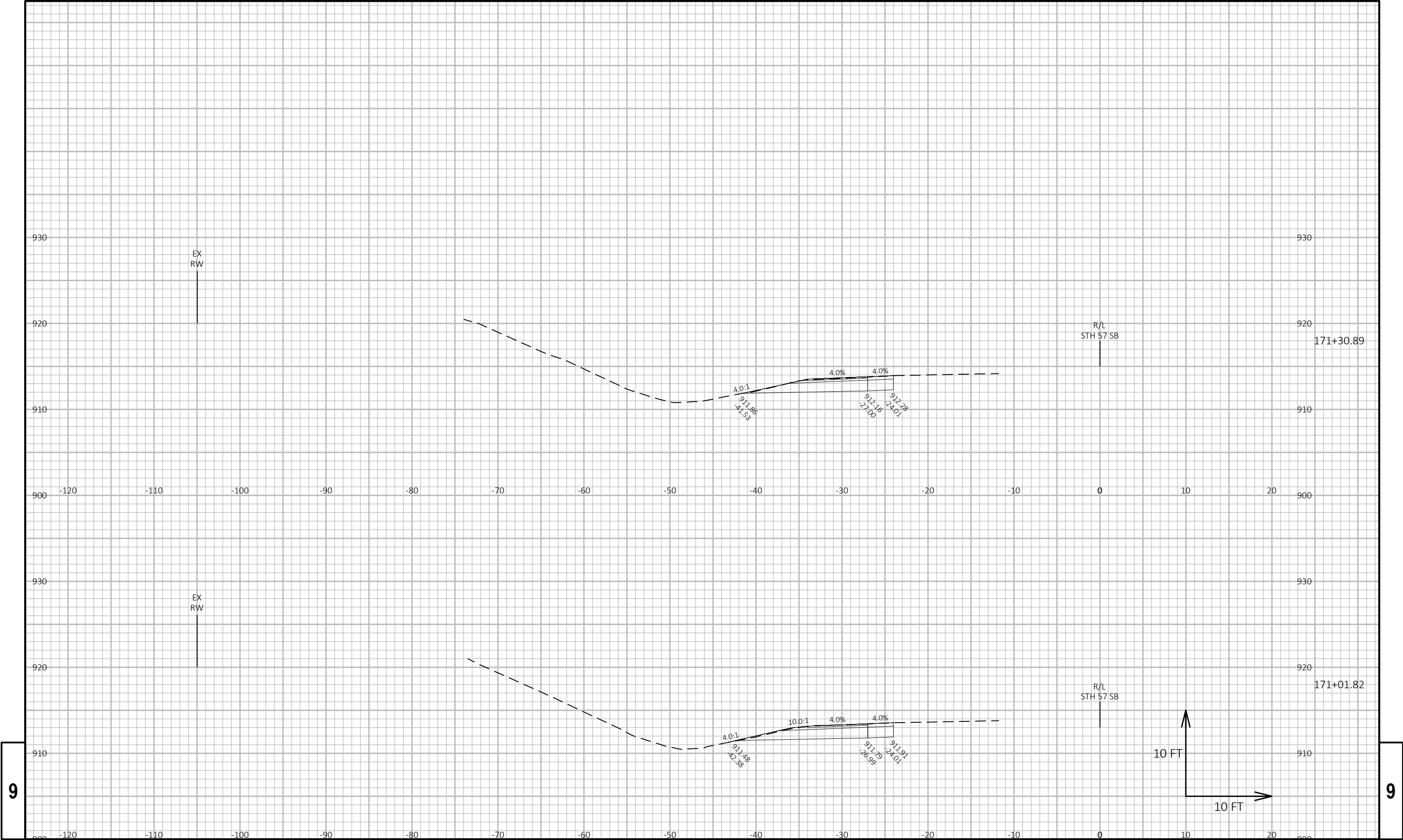
FILE NAME :	N:\PDS\C3D\40152200\SHEETS\PLAN\090201-XS.DWG	PLOT DATE :	7/30/2026 9:44 AM	PLOT BY :	SAMPO, SHANE	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDs SHEET 49
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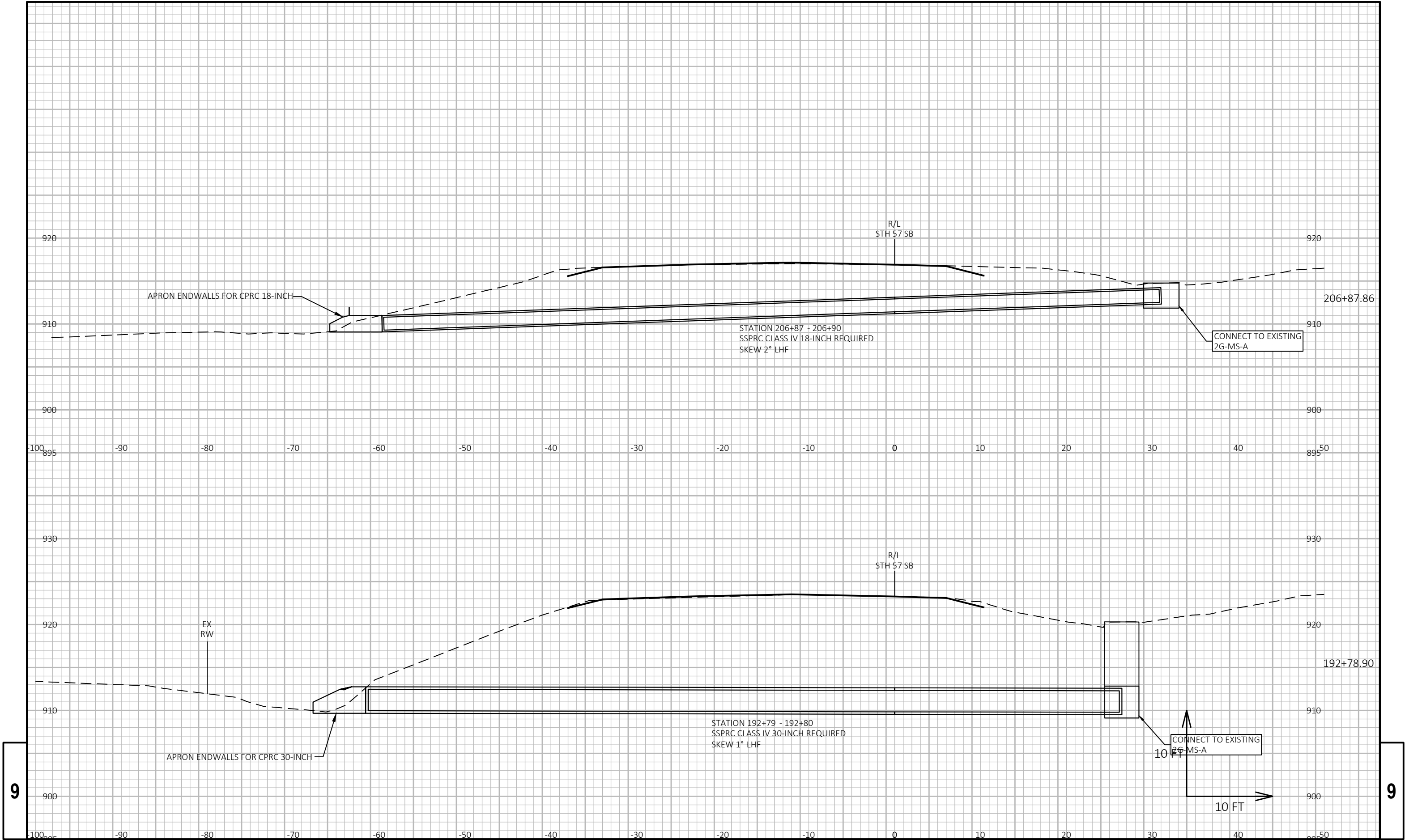
FILE NAME :	N:\PDS\C3D\40152200\SHEETS\PLAN\090201-XS.DWG	PLOT DATE :	7/30/2026 9:44 AM	PLOT BY :	SAMPO, SHANE	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDs SHEET 49
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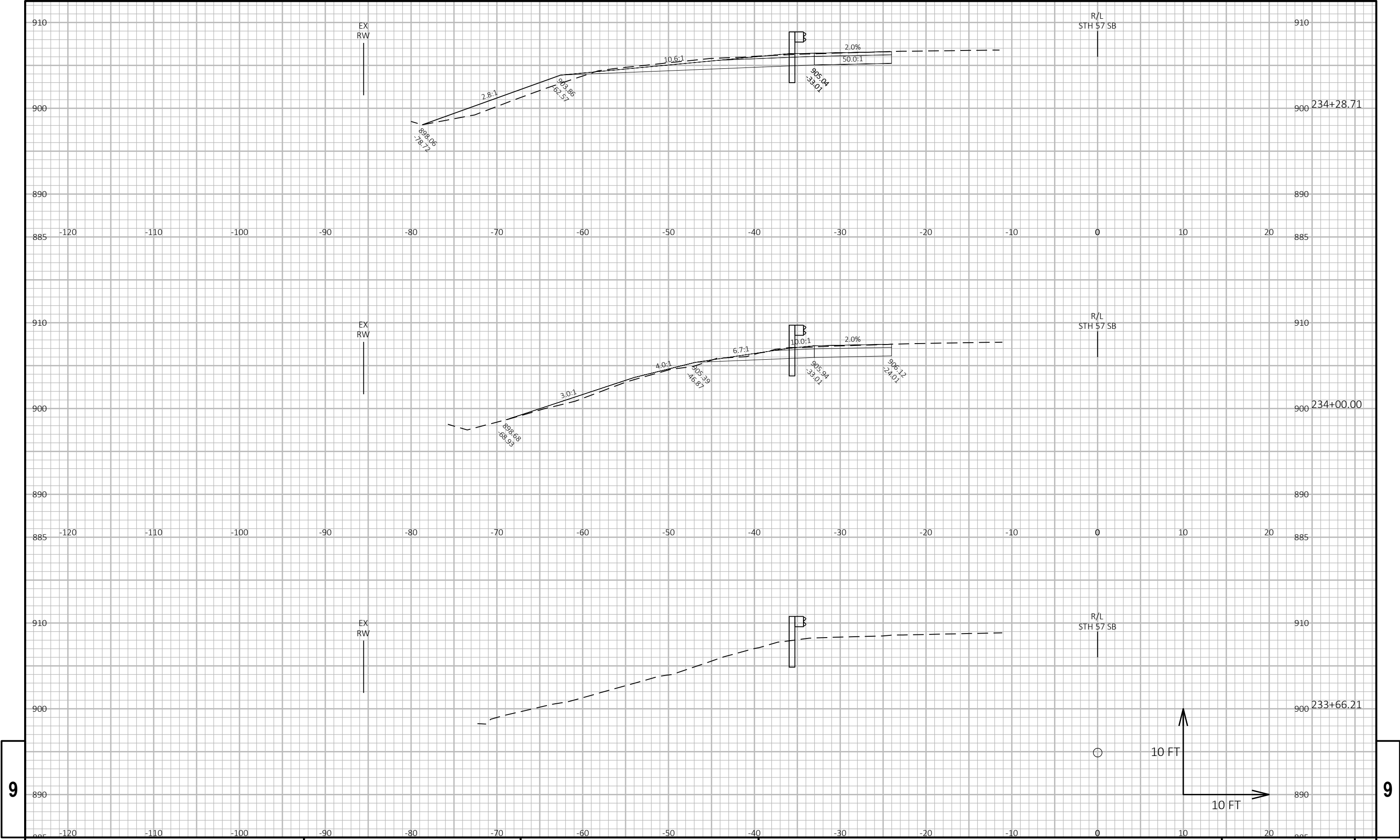






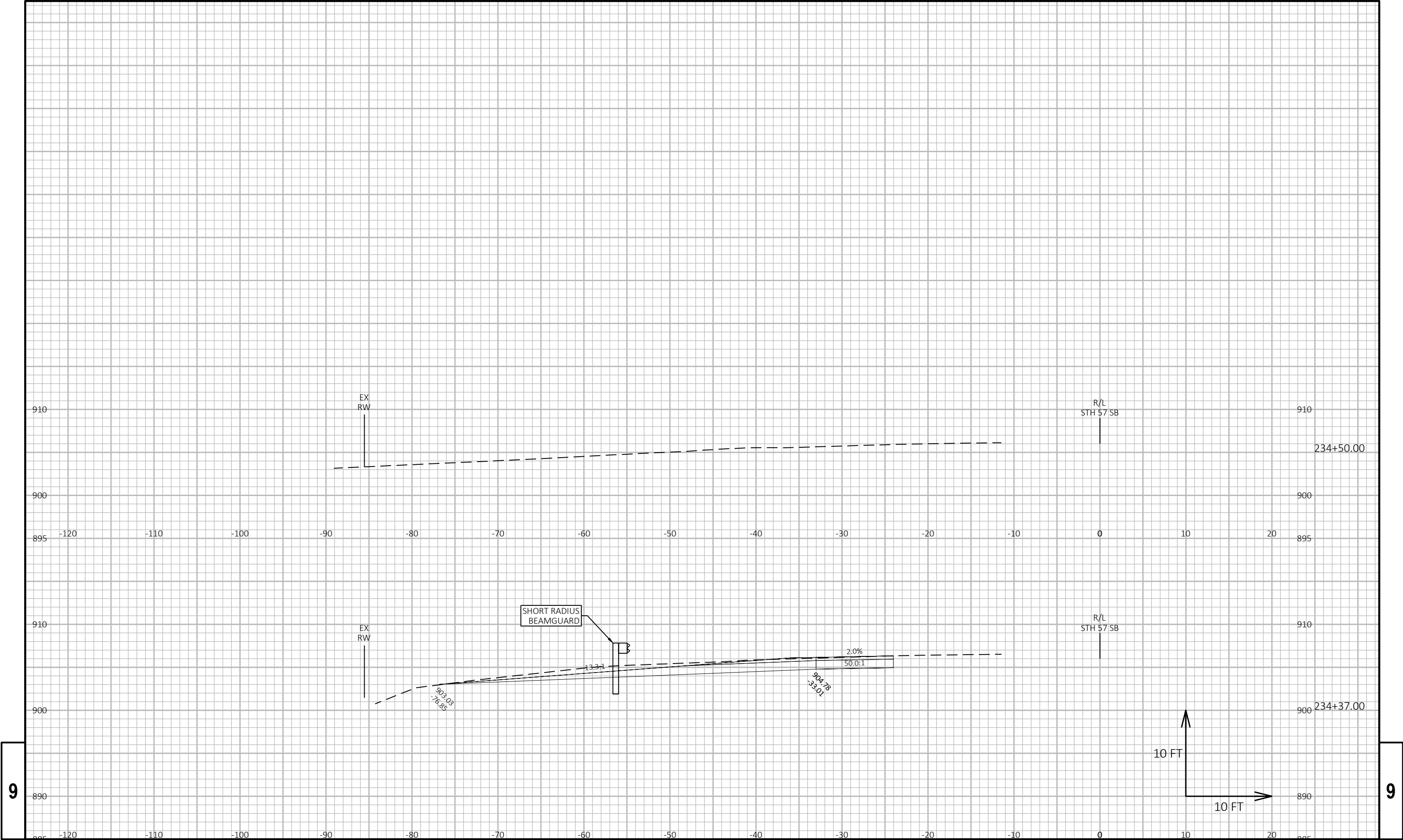






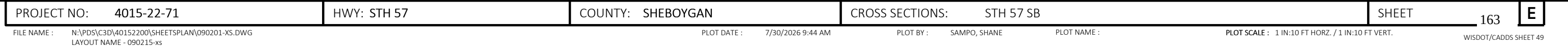
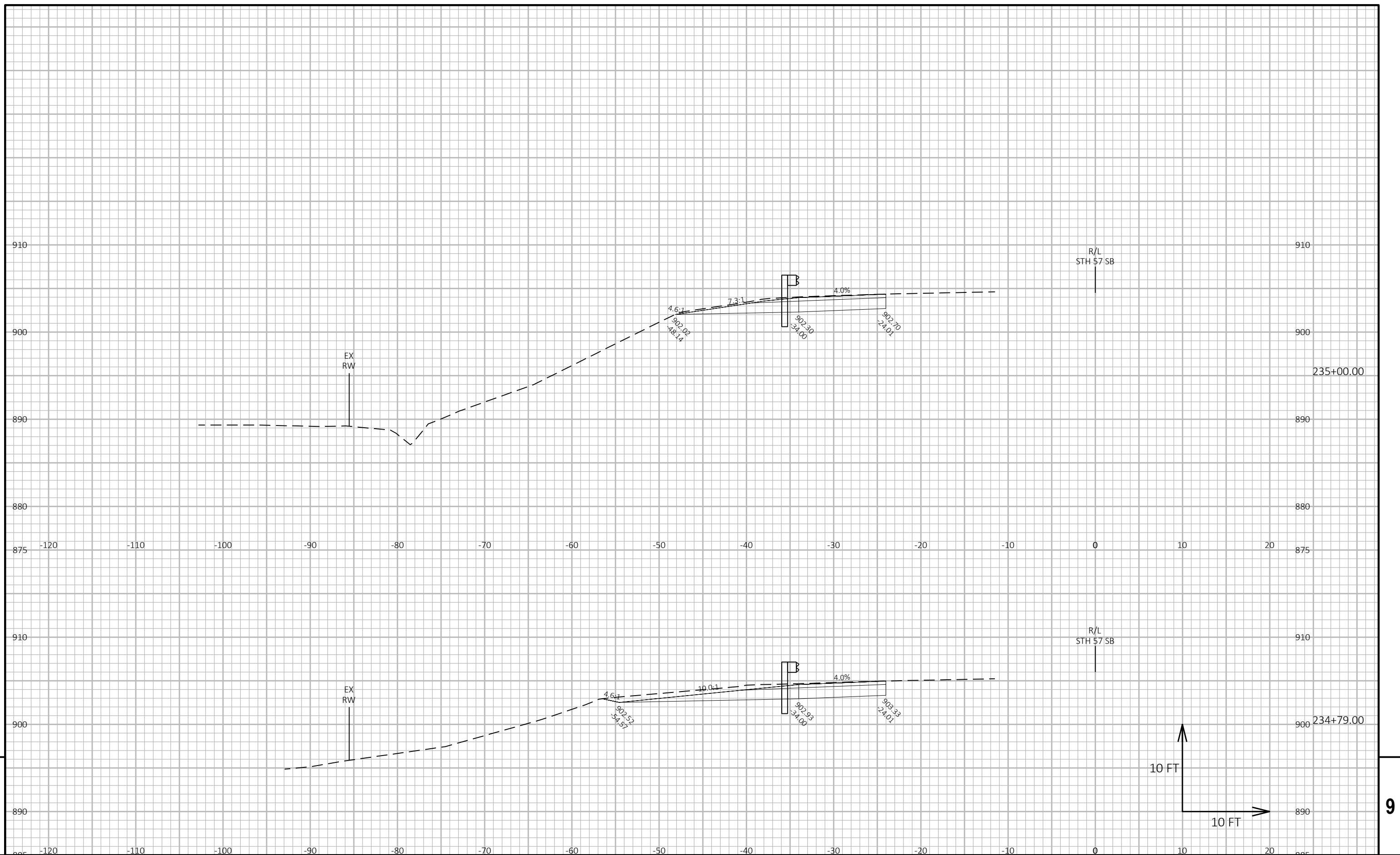
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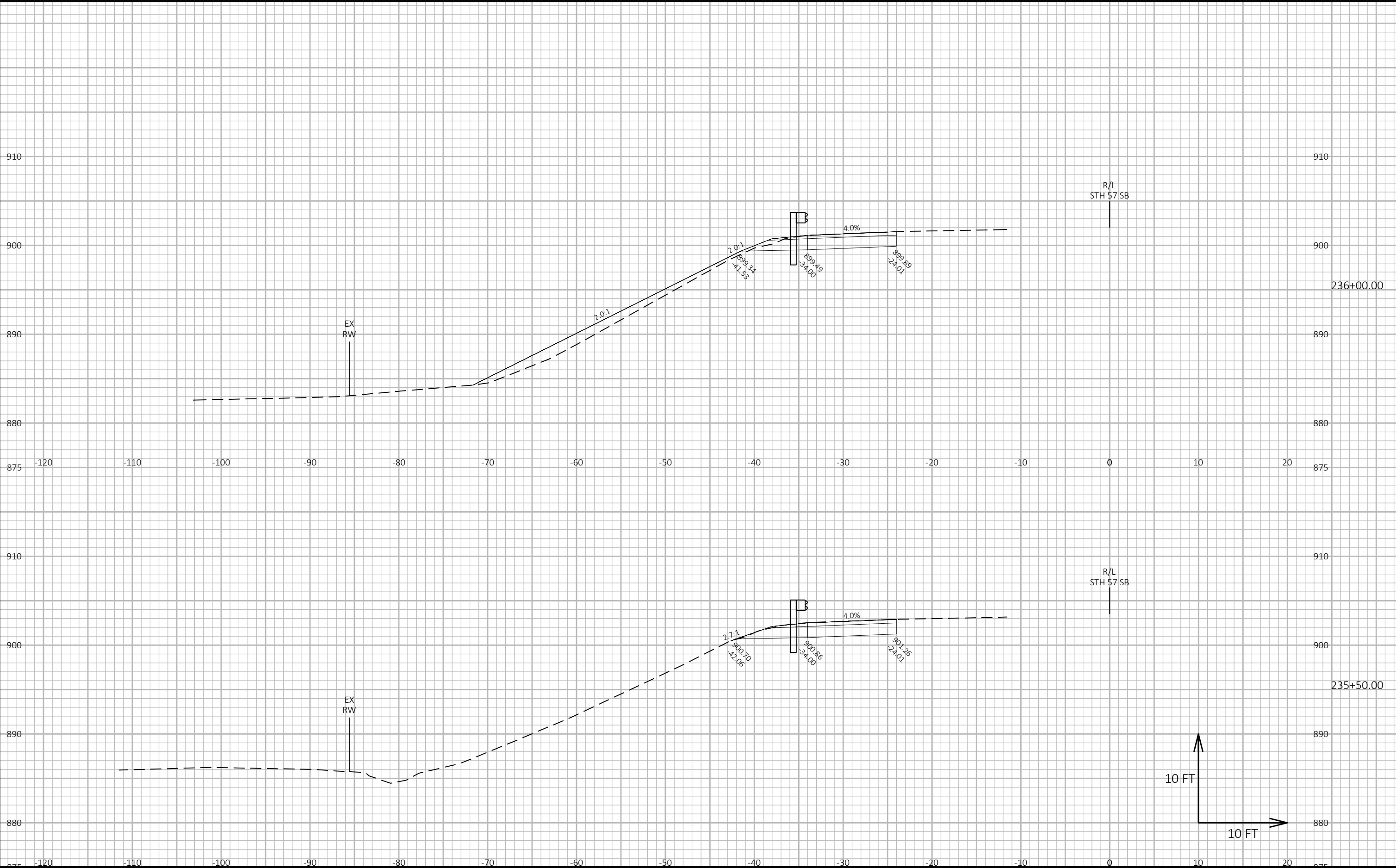
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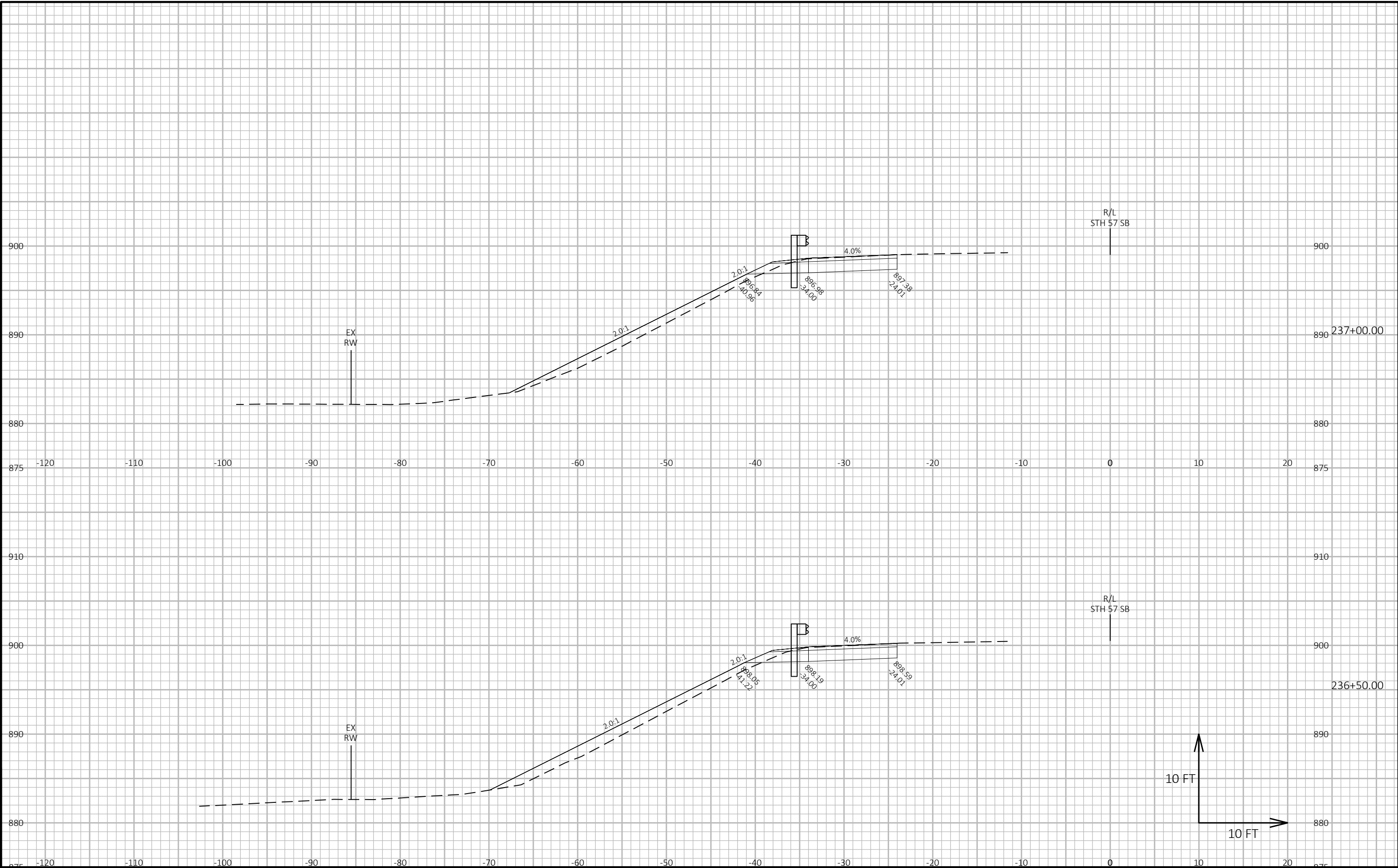


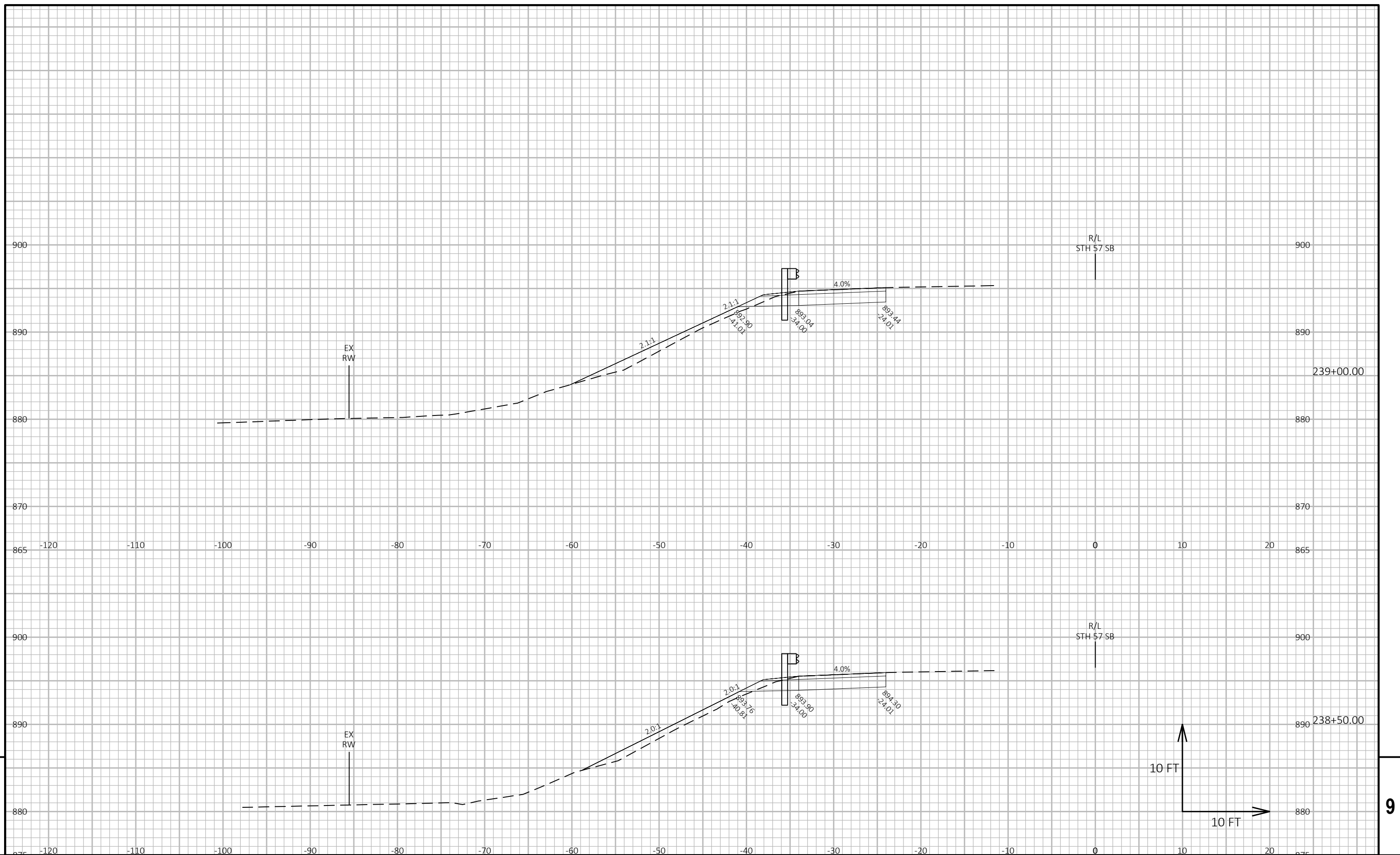
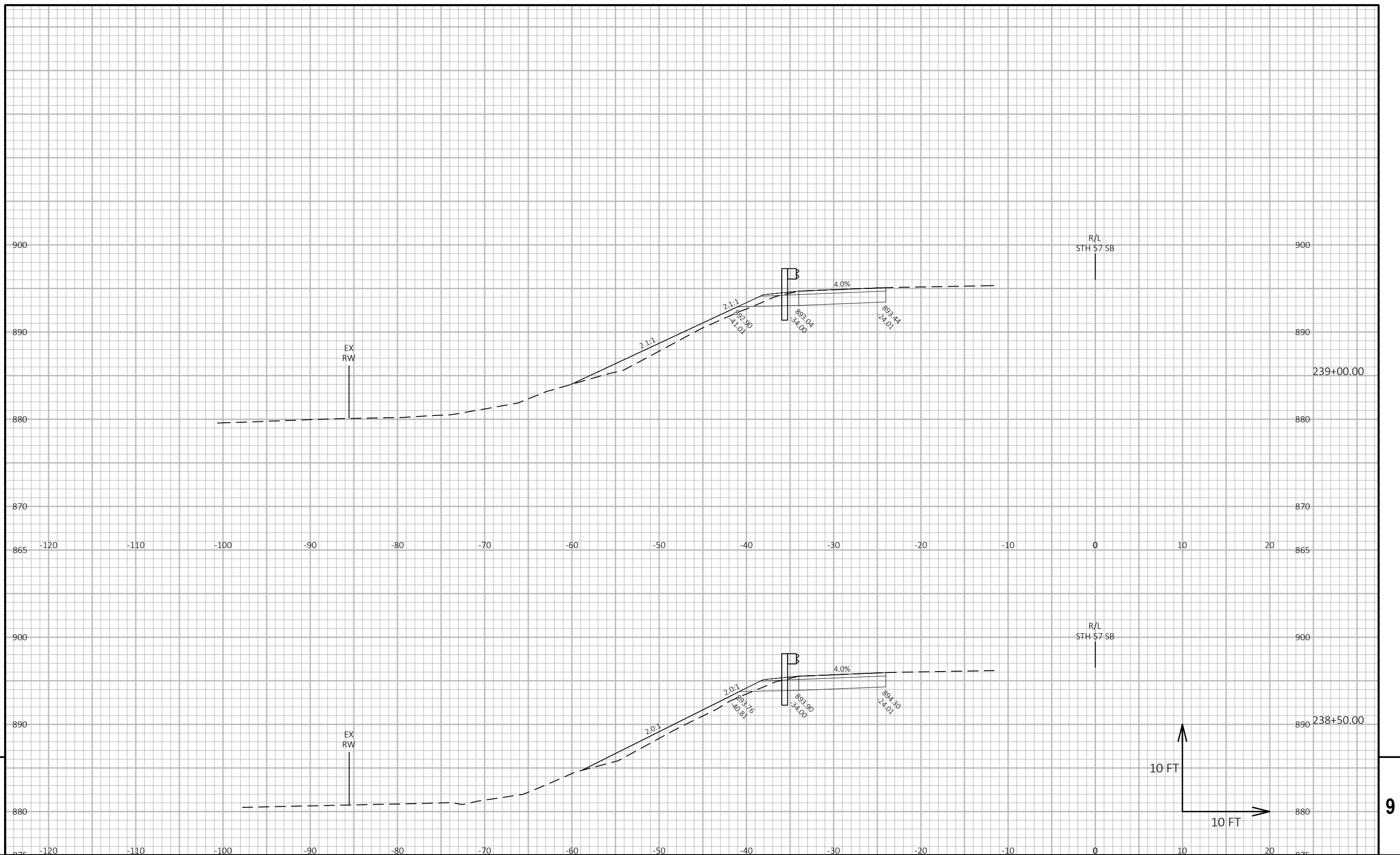
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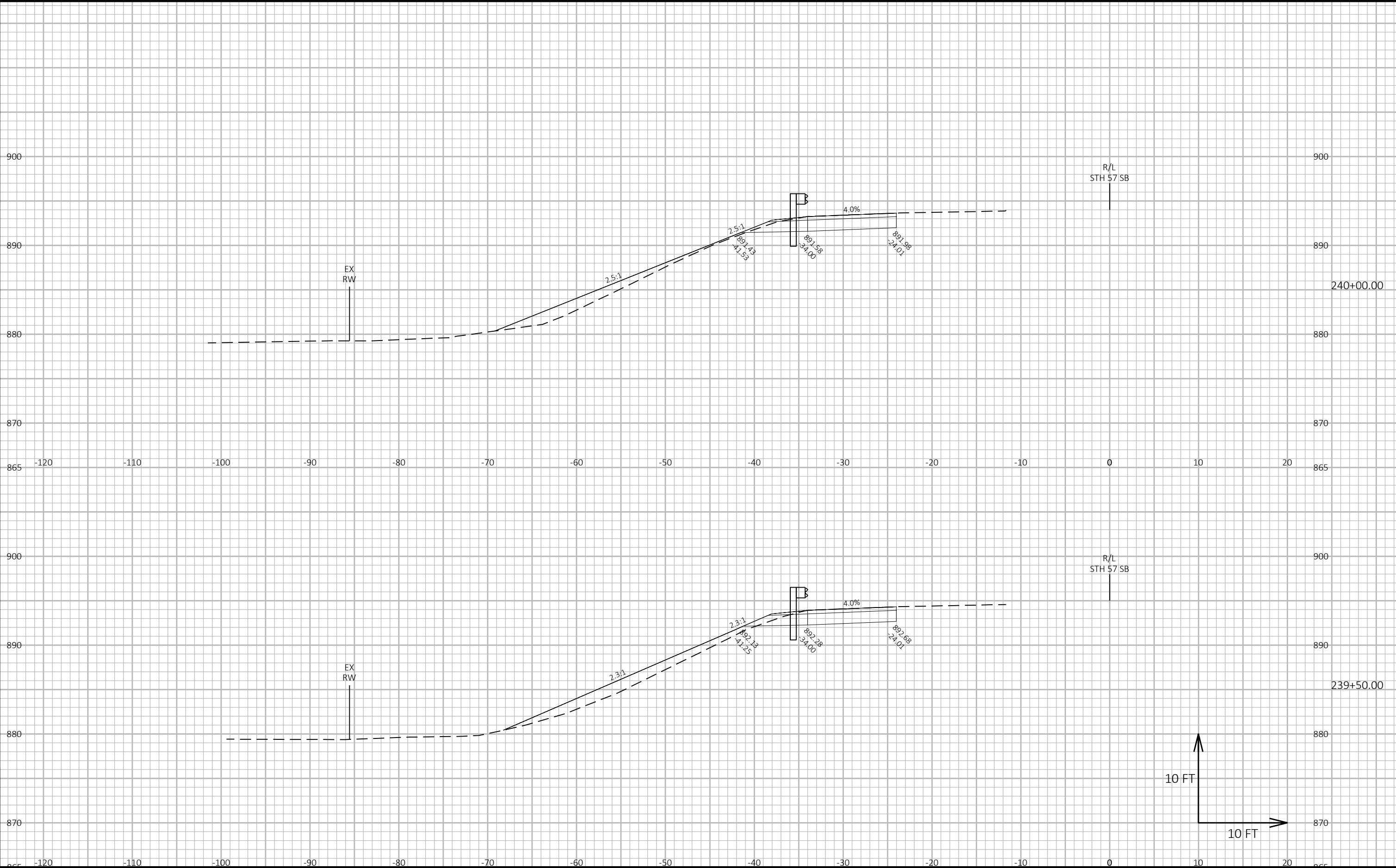


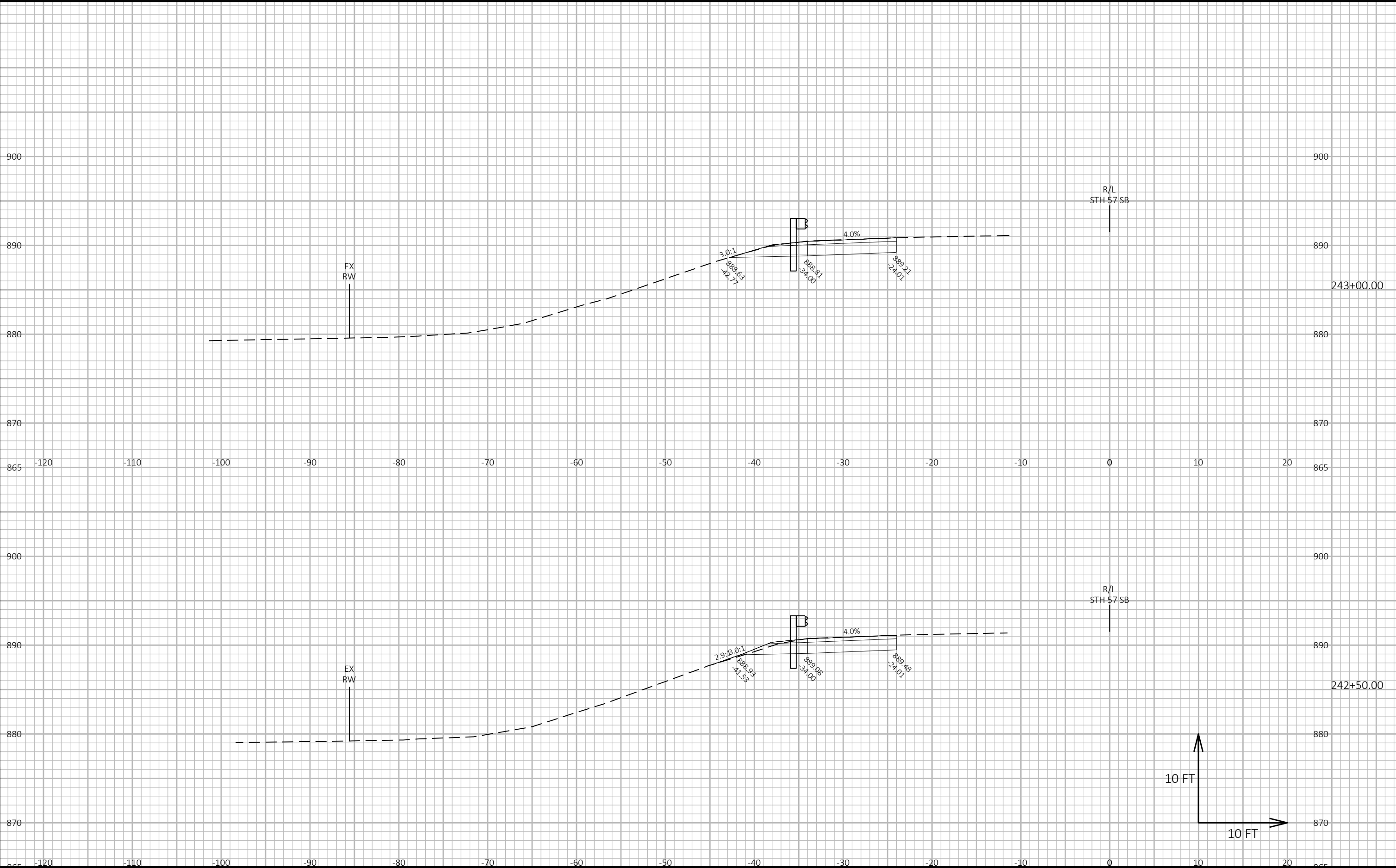


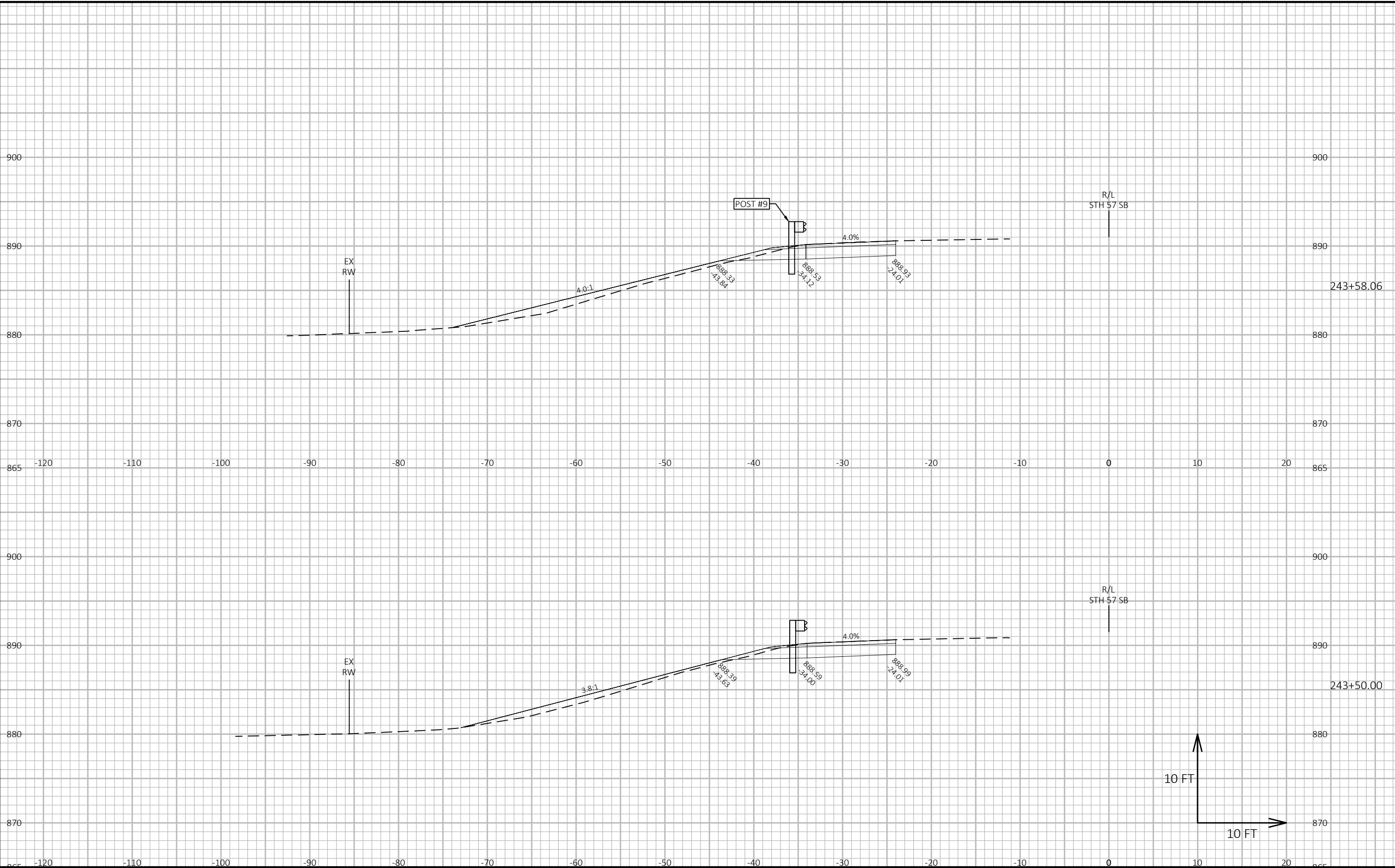




PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 167	E
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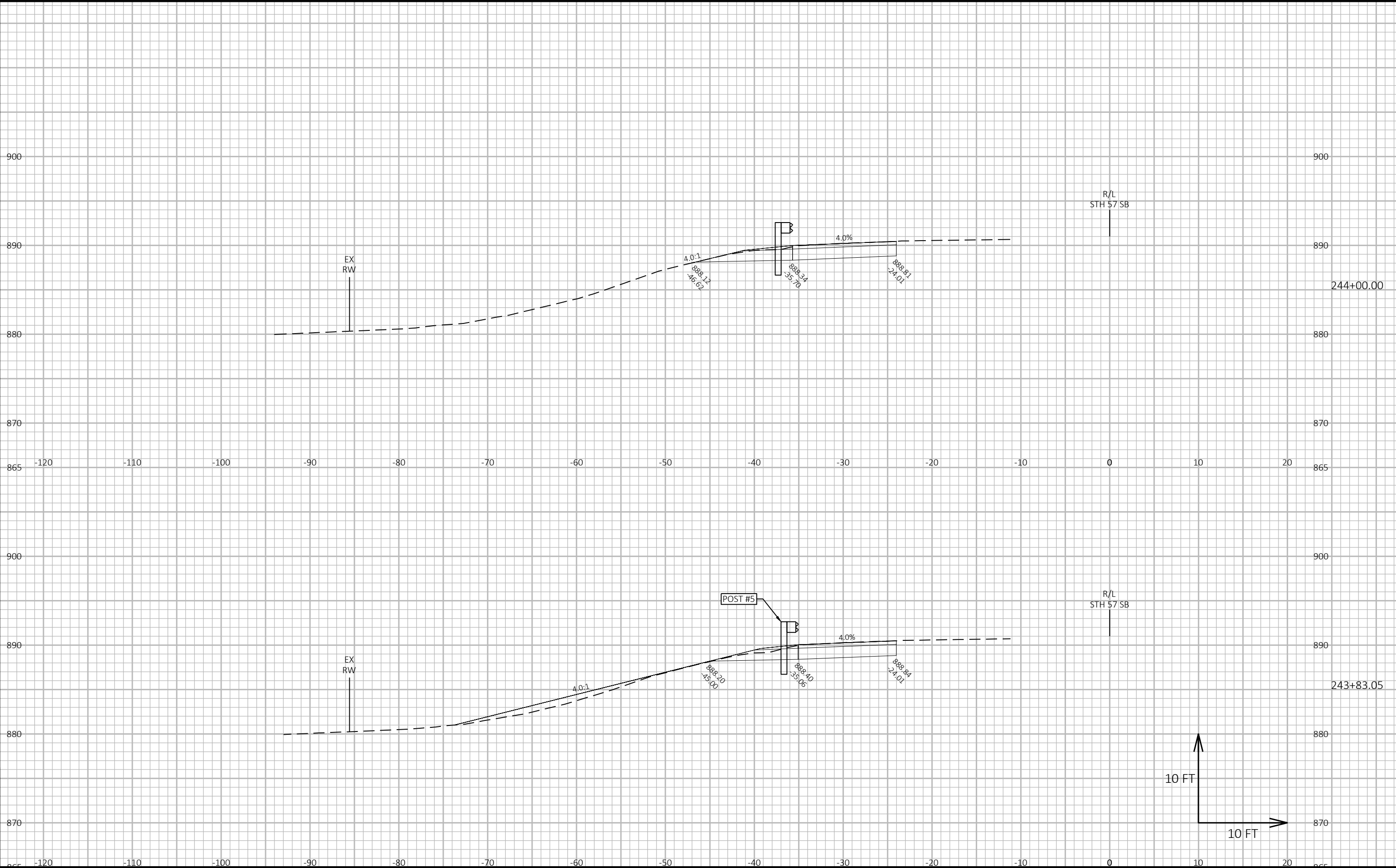


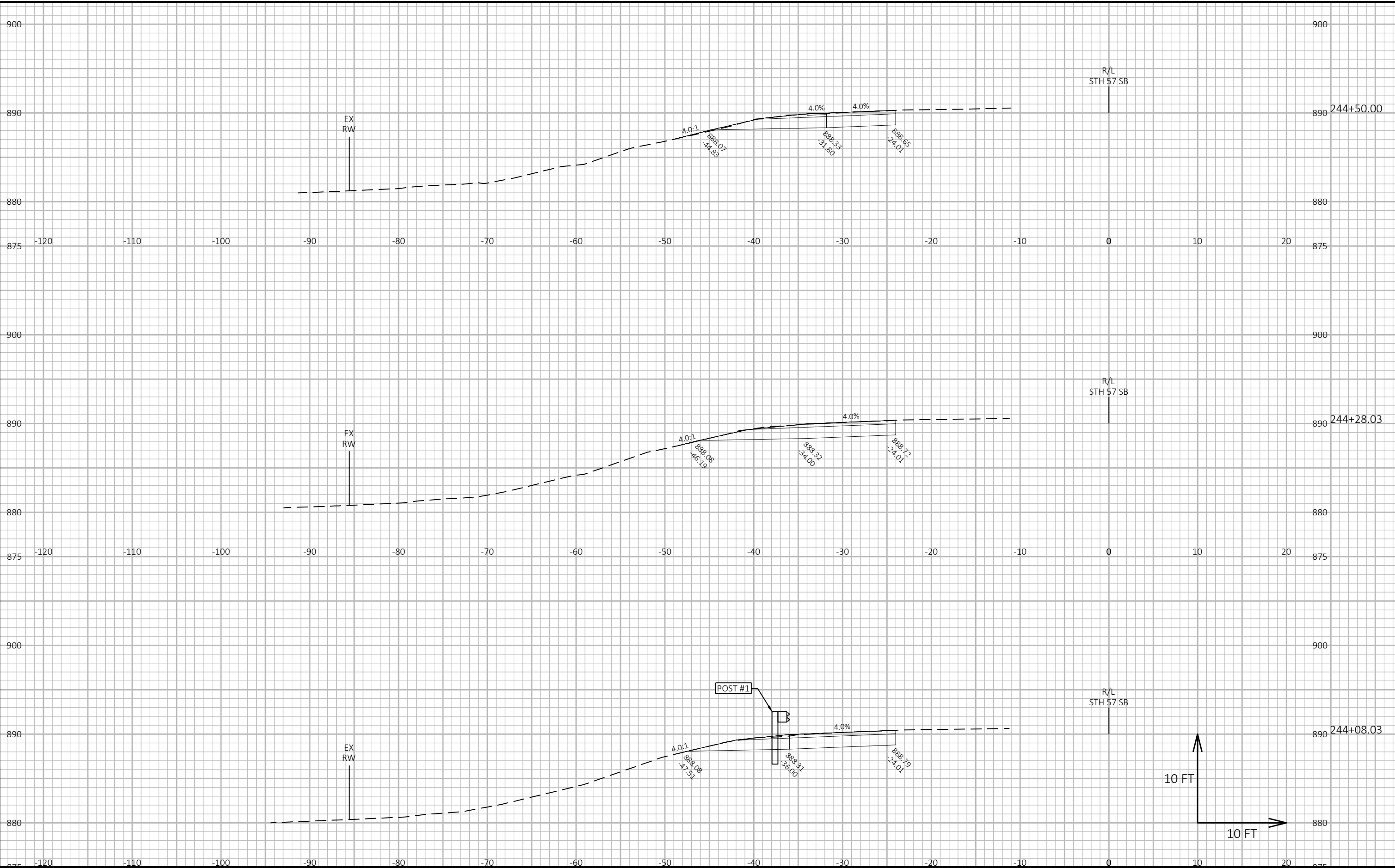


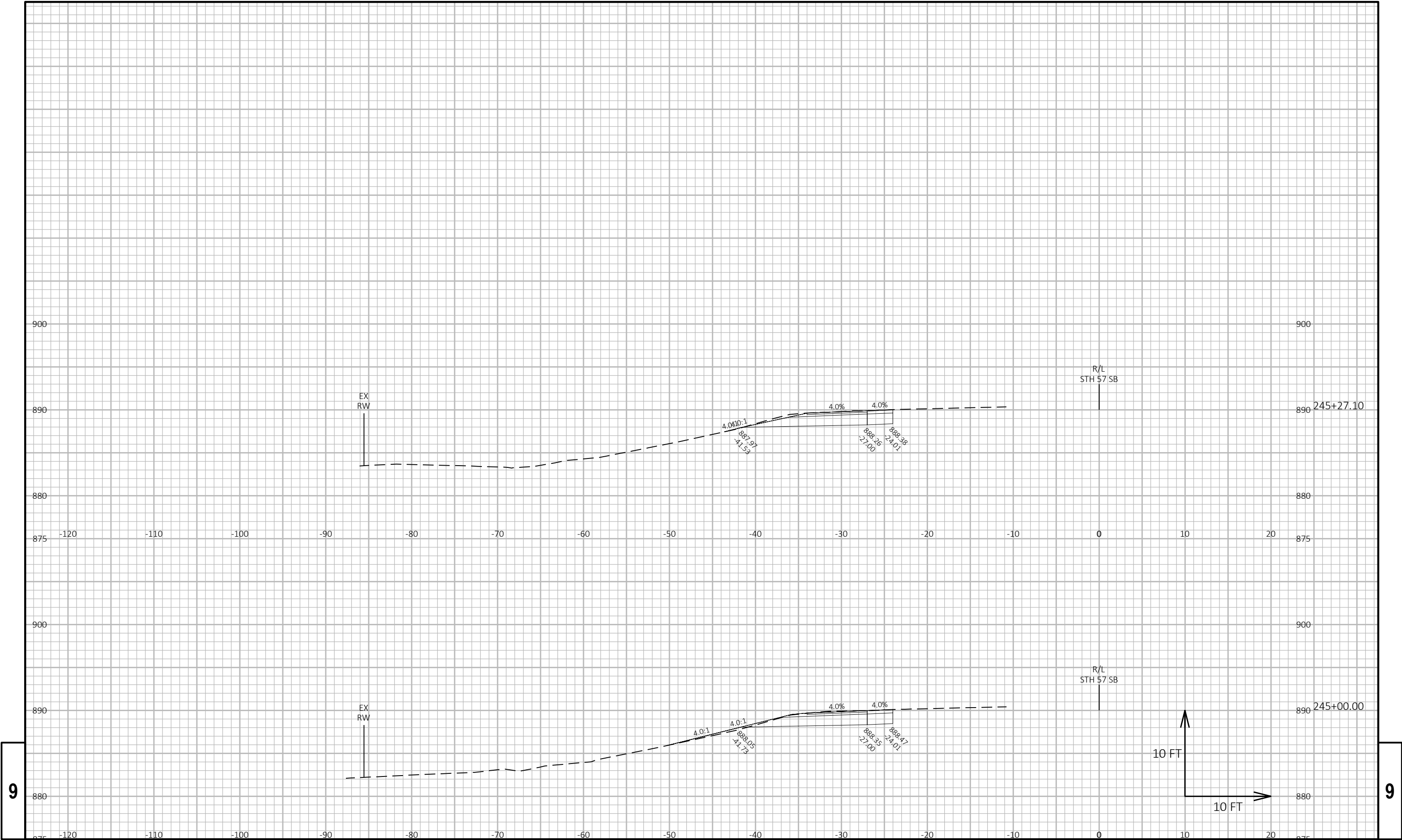


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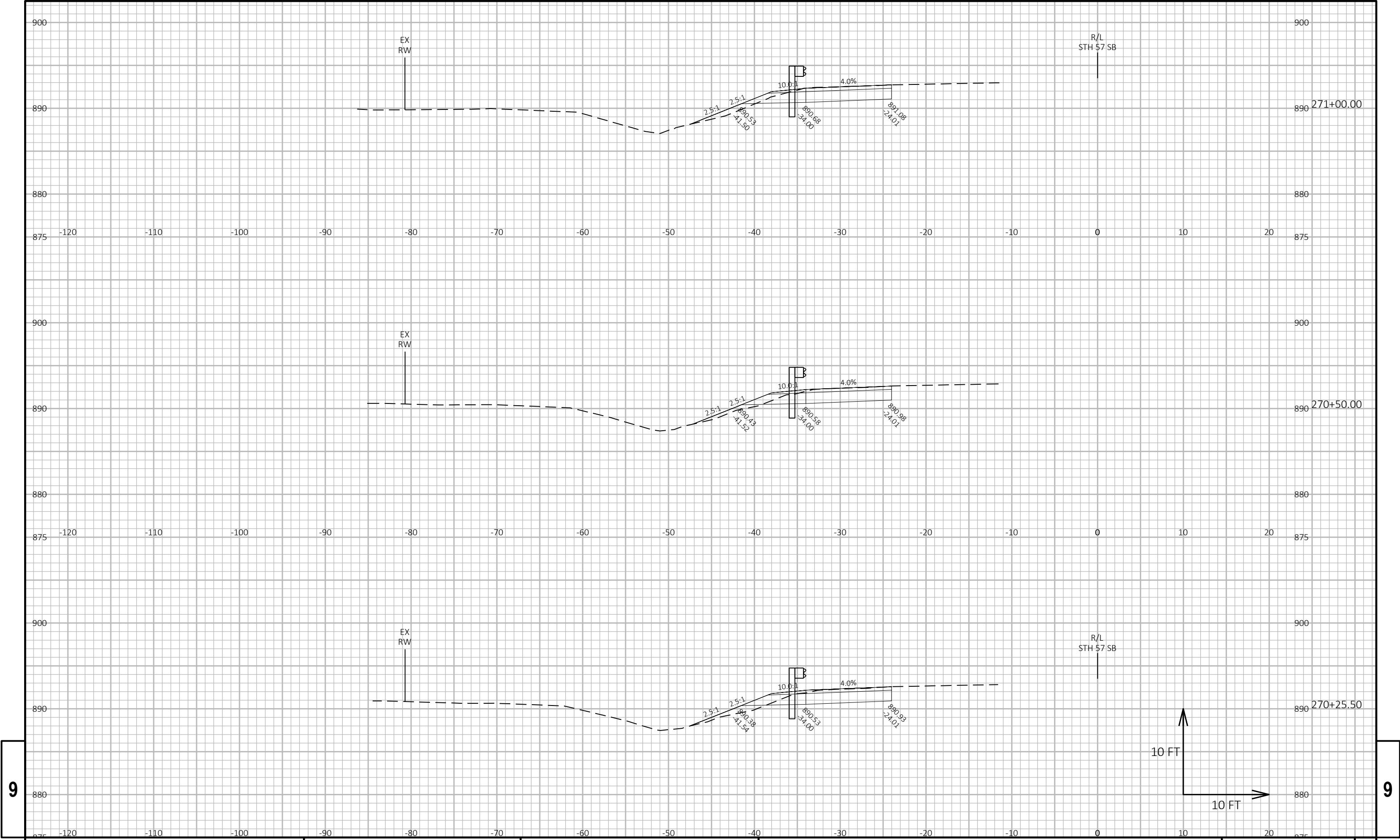






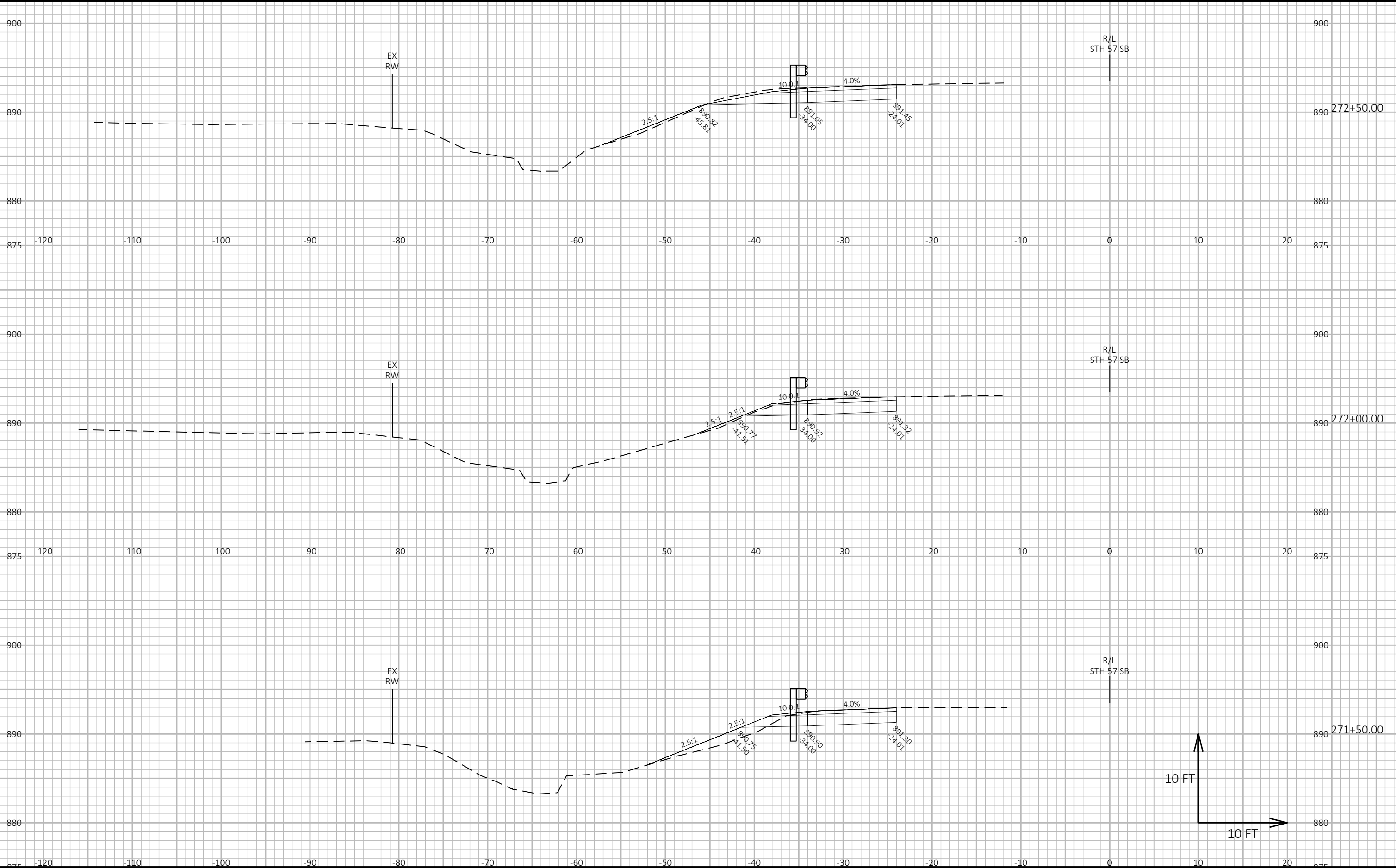
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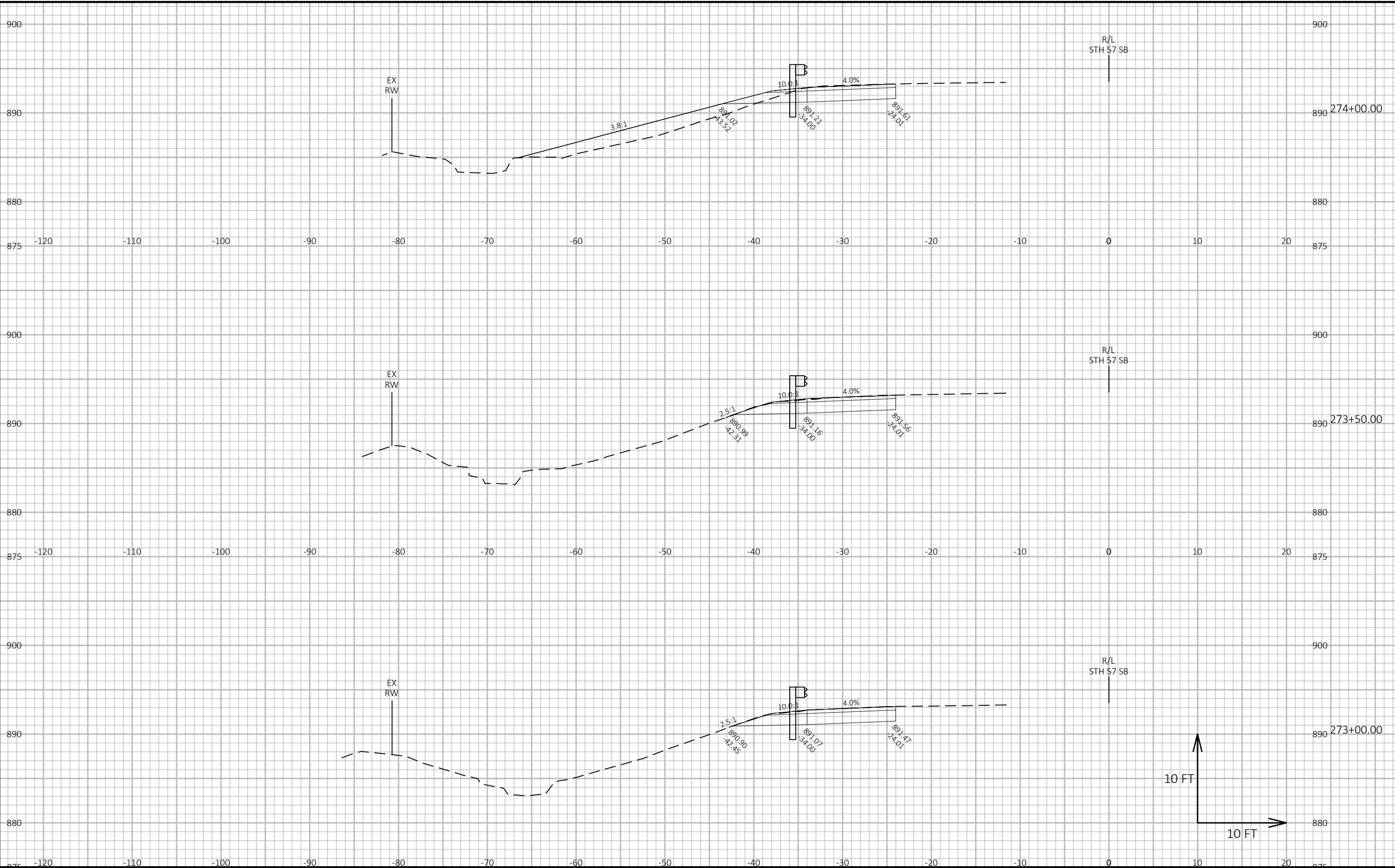
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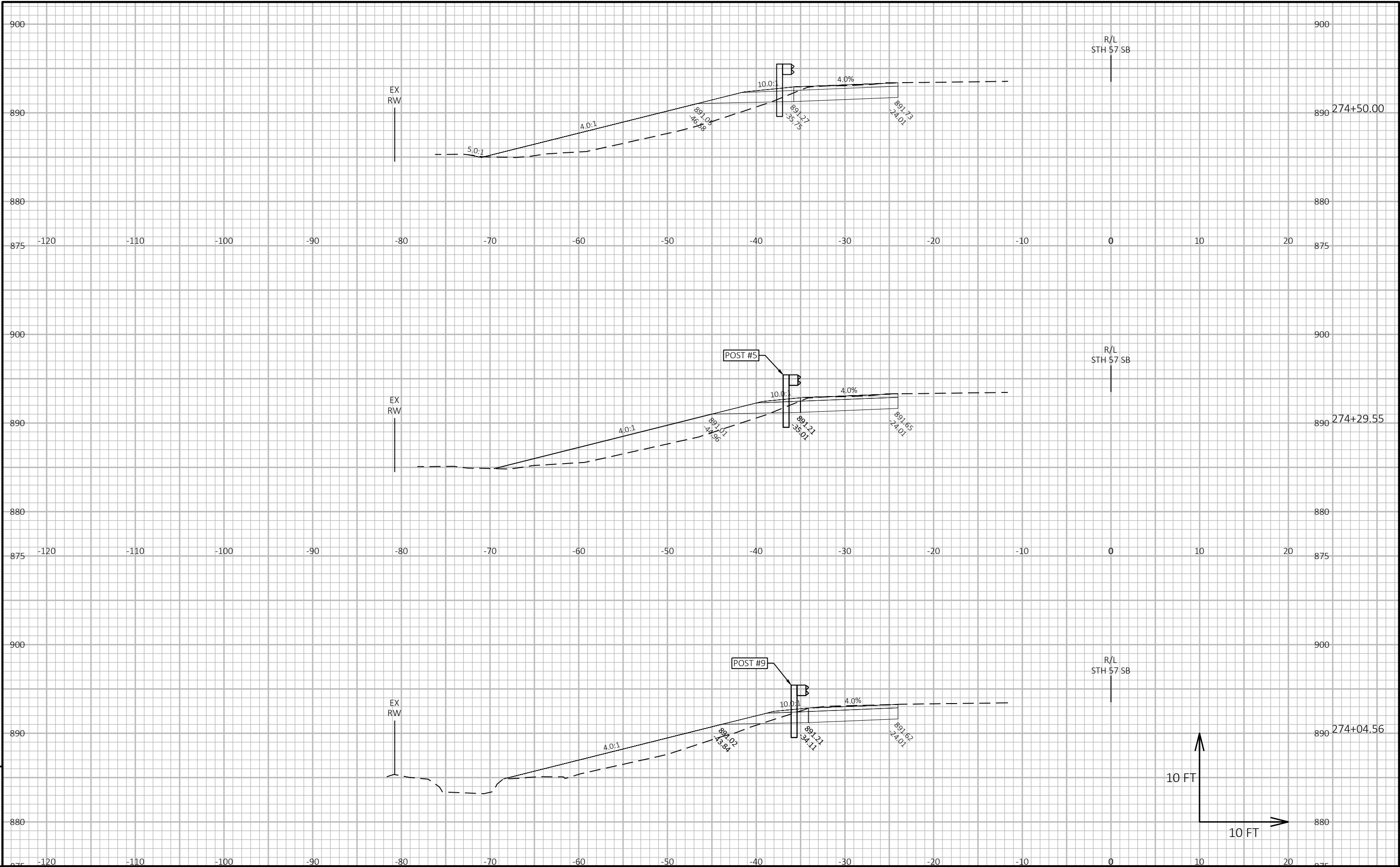
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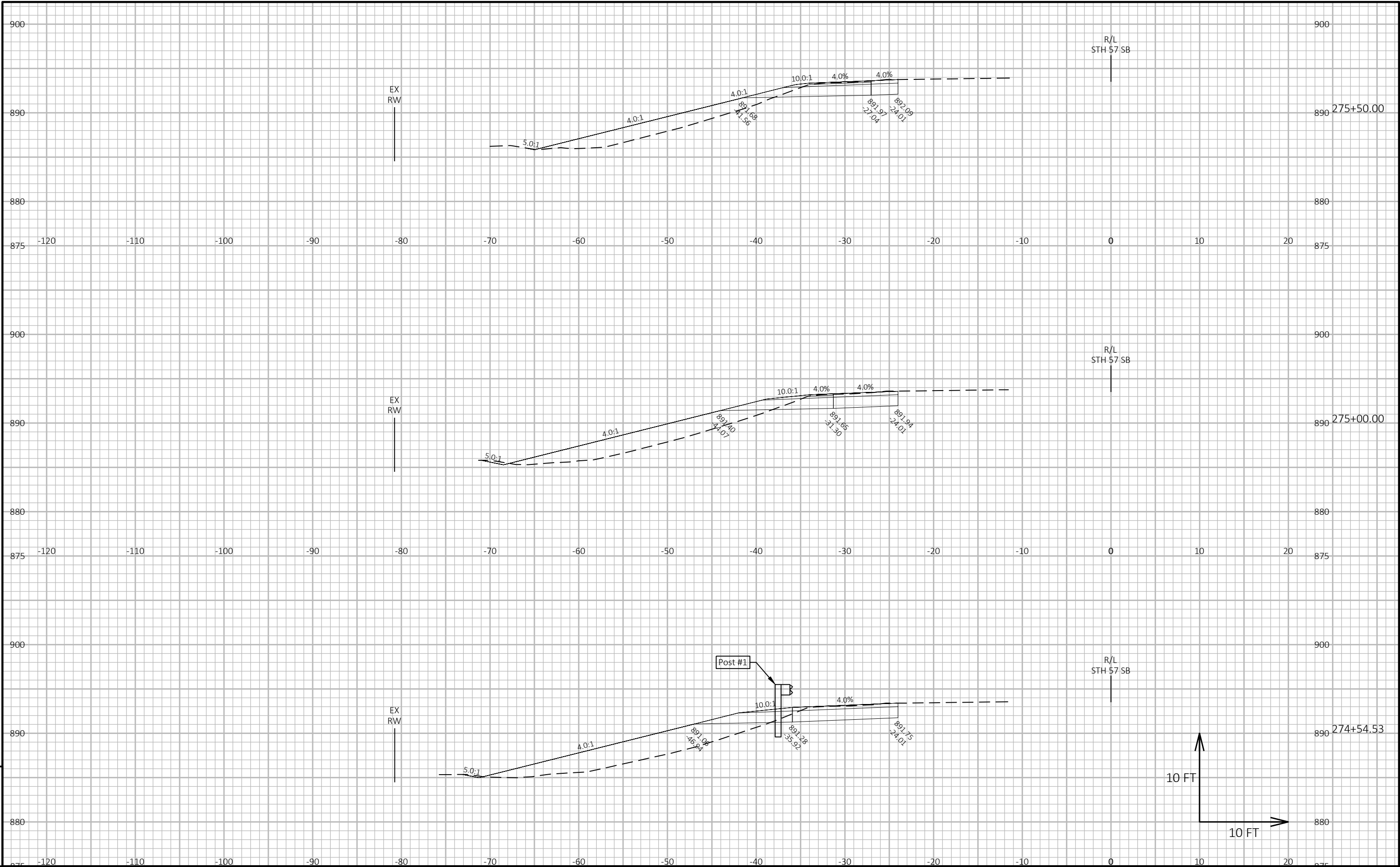


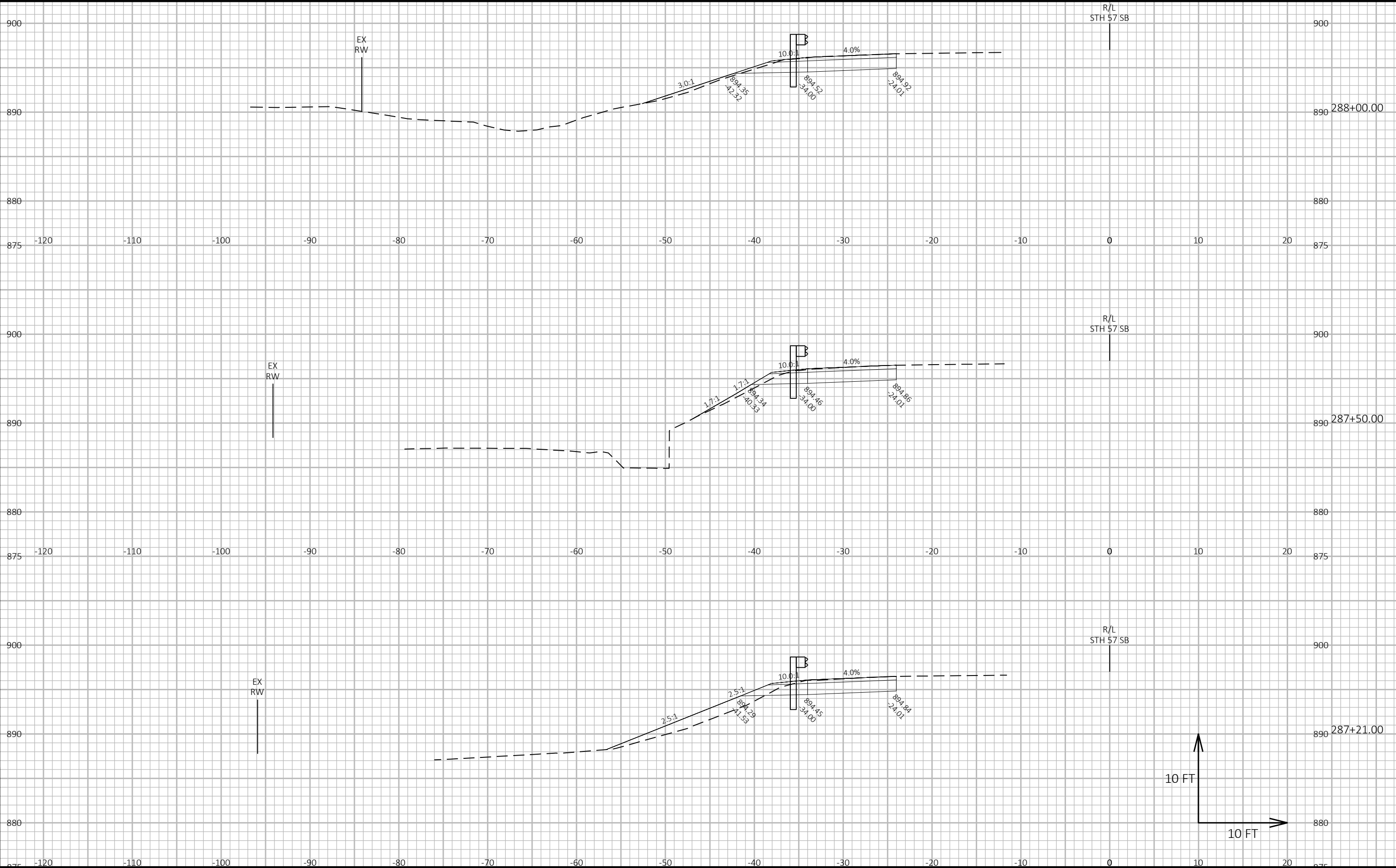
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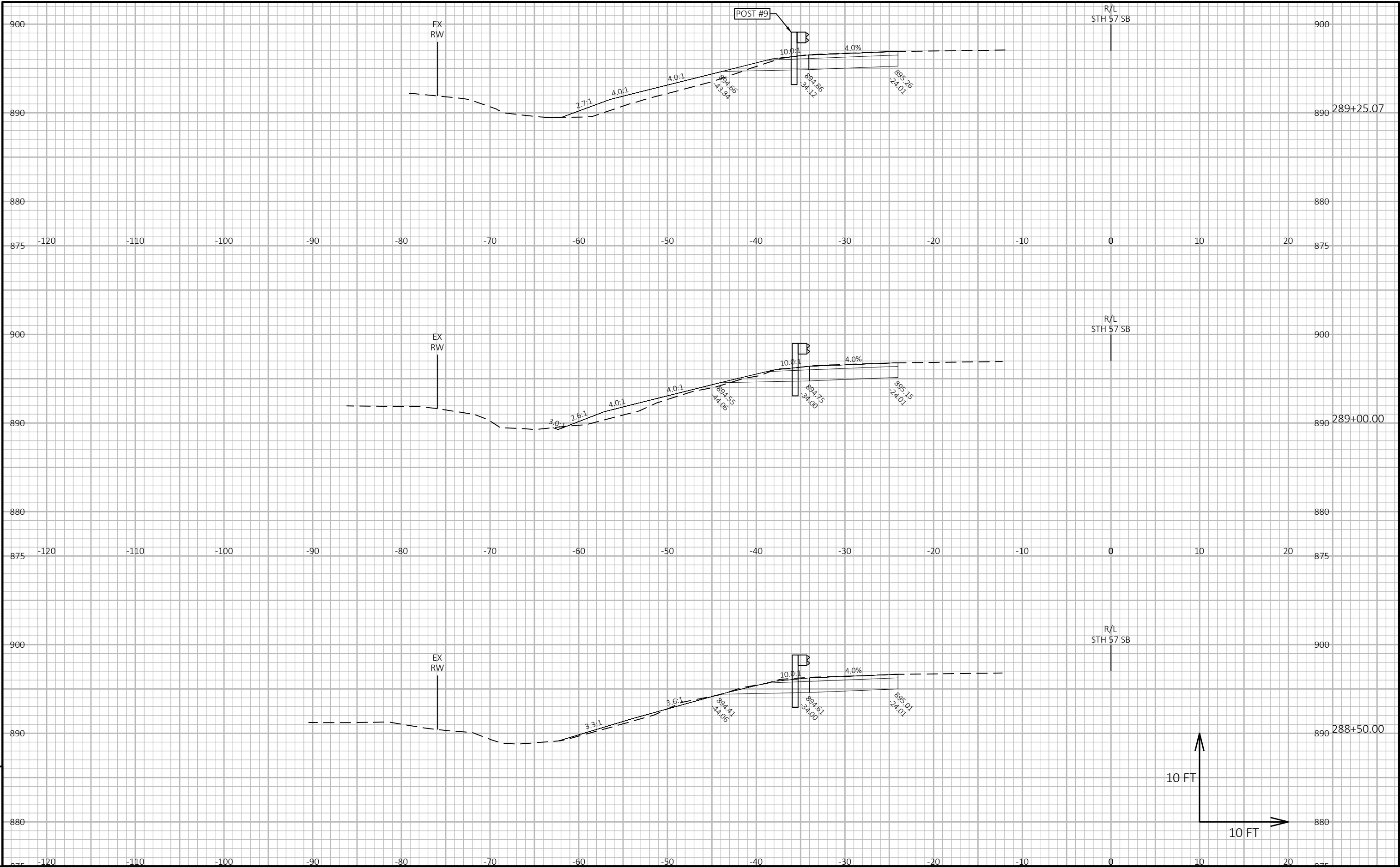
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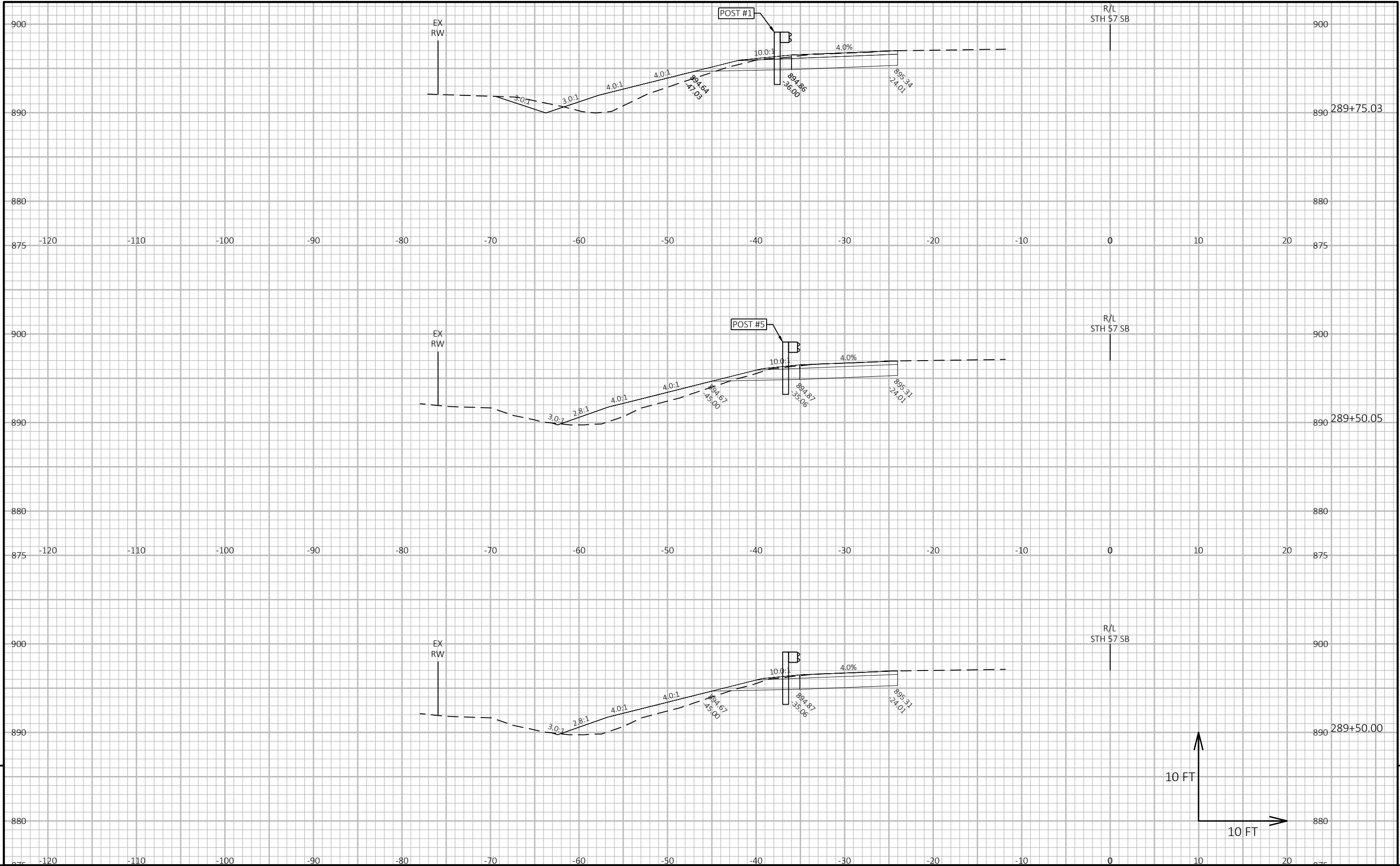


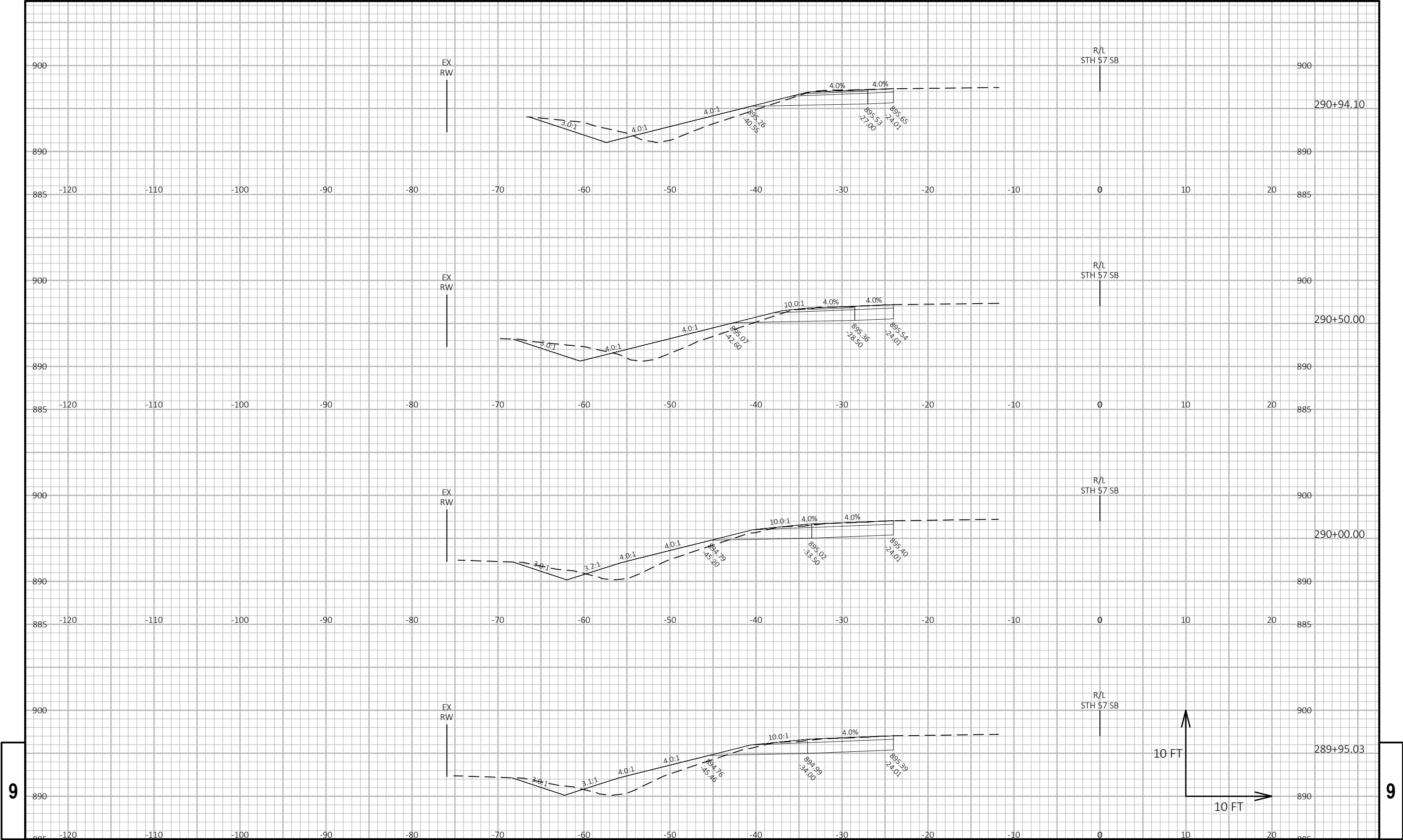






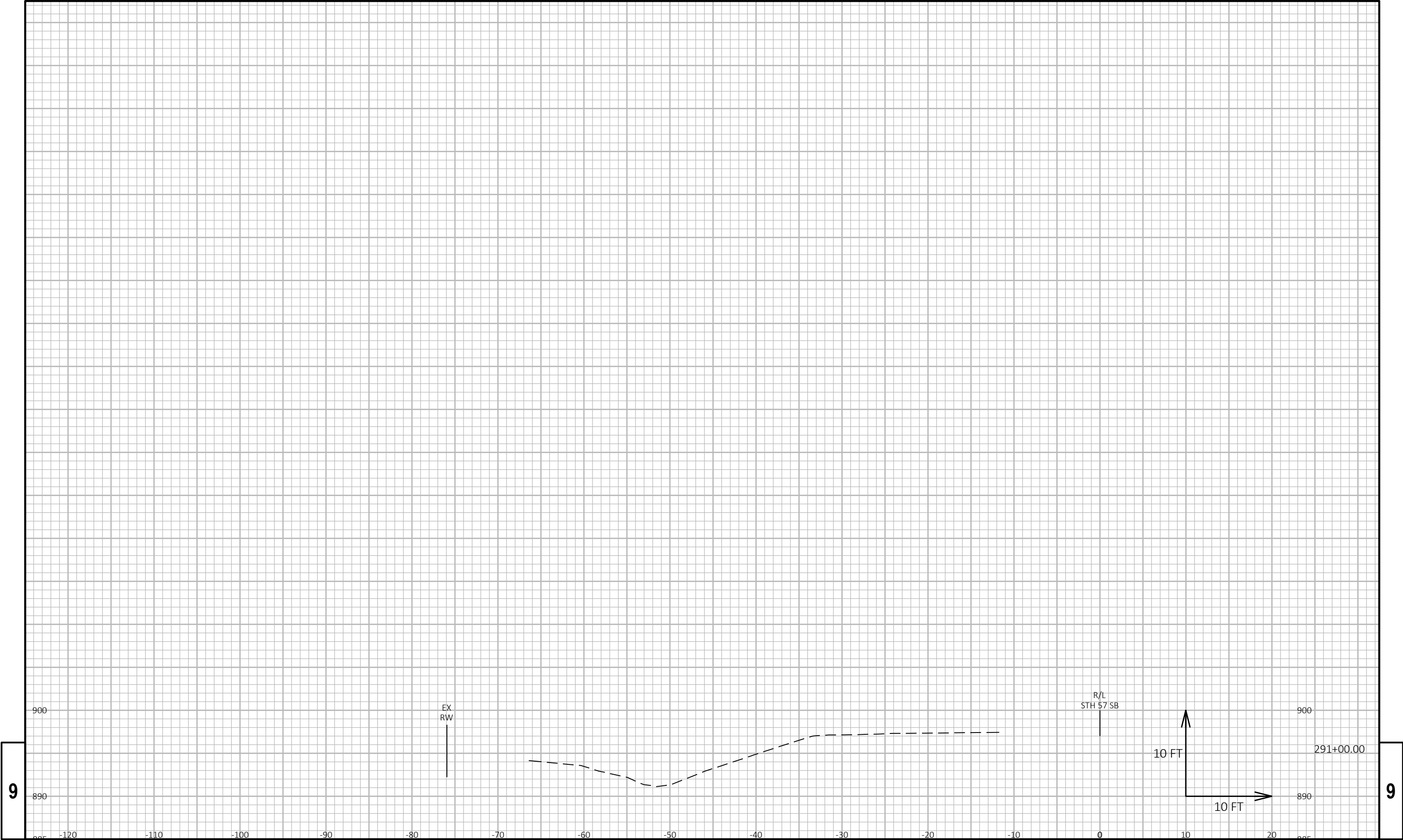






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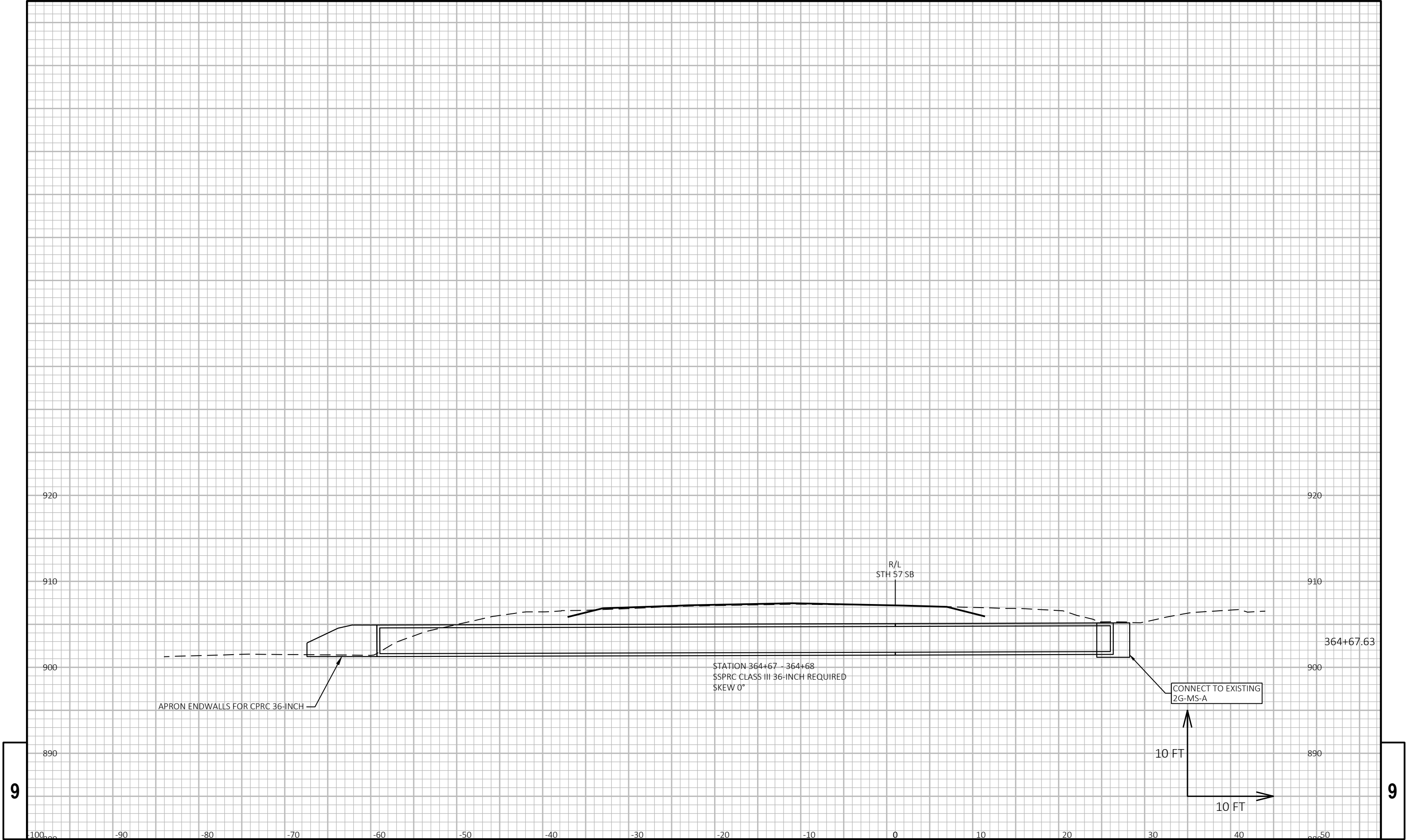
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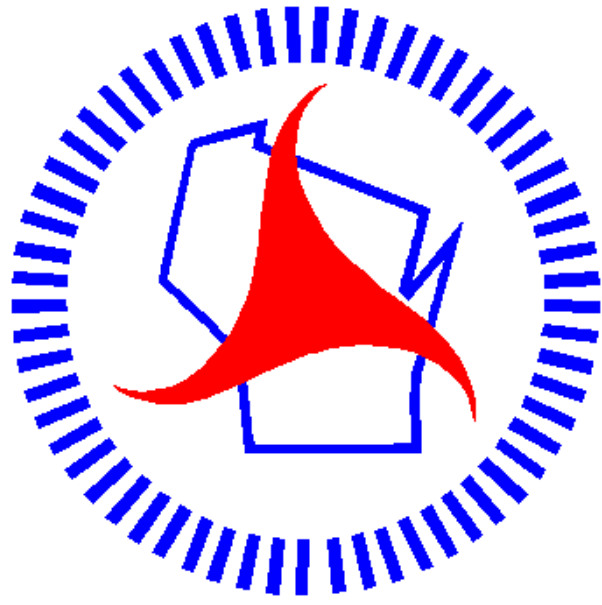
PROJECT NO: 4015-22-71	HWY: STH 57	COUNTY: SHEBOYGAN	CROSS SECTIONS: STH 57 SB	SHEET 185	E
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Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>