

LAX AUGUST 2025

PROJECT ID: 1070-04-64

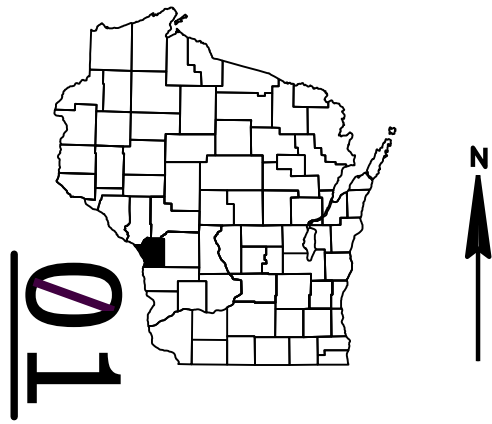
WITH: N/A

COUNTY: LA CROSSE

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 = 174



DESIGN DESIGNATION

A.A.D.T.	2024	=	29300
A.A.D.T.	2044	=	33,700
D.H.V.		=	3,540
D.D.		=	55/45
T.		=	19.3%
DESIGN SPEED		=	70 MPH
ESALS		=	N/A

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

LA CROSSE - SPARTA

BLACK RVR, ROUND LK, BAINBRIDGE BRG

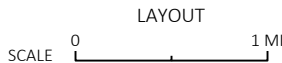
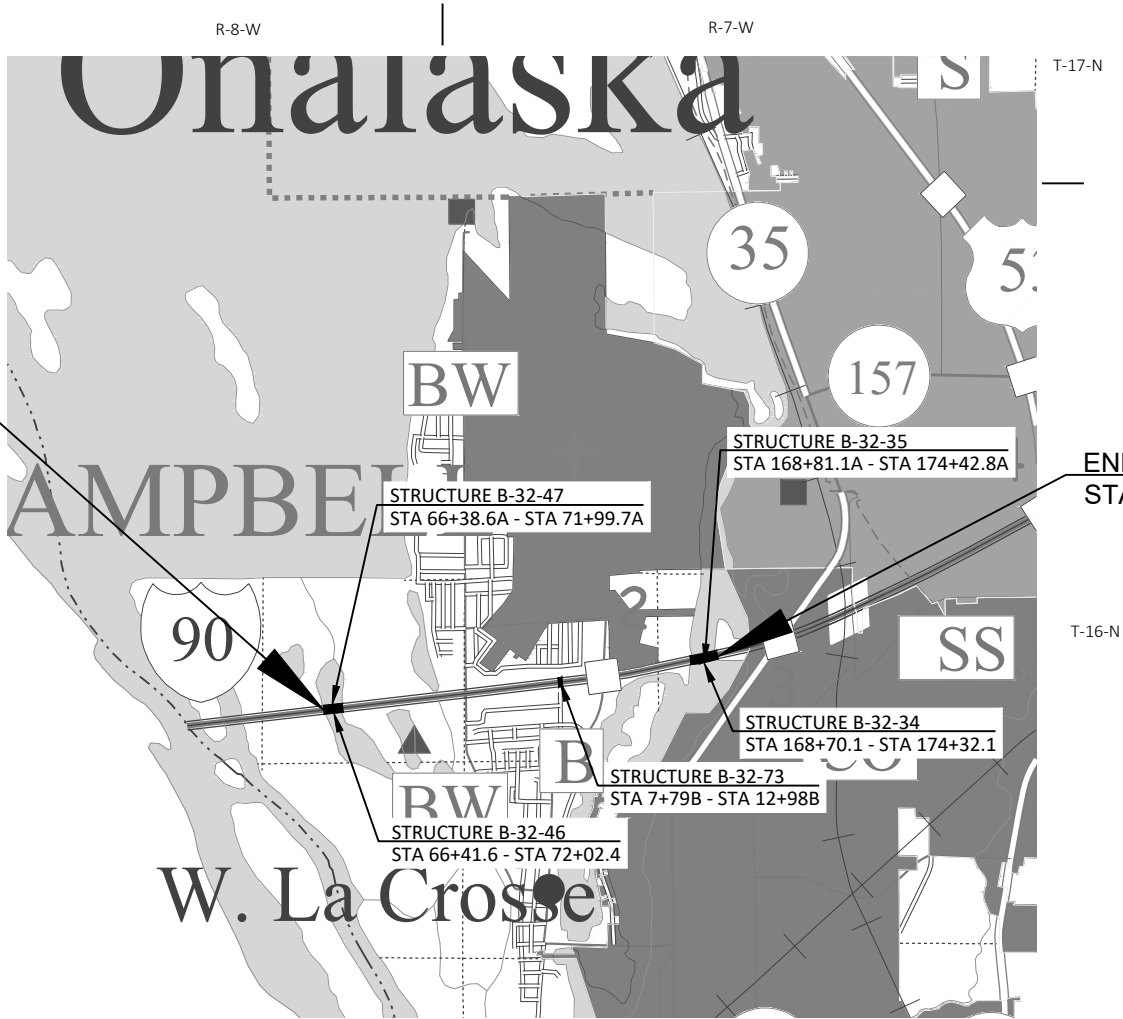
IH 90

LA CROSSE COUNTY

STATE PROJECT NUMBER
1070-04-64

BEGIN PROJECT
STA 66+41.6
X=436437.97
Y=148683.13

END PROJECT
STA 174+32.1



TOTAL NET LENGTH OF CENTERLINE = 0.212 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), LA CROSSE COUNTY, 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
1070-04-64	WISC 2025568	1

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	Surveyor _____ WISDOT
Designer	_____ BRANDYN MECUM
Project Manager	_____ BRIAN MEYER
Regional Examiner	_____ SW REGION
Regional Supervisor	_____ JOHN BAINTER
APPROVED FOR THE DEPARTM 7/29/2024	
DATE:	_____ (signature)

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ORDER OF SECTION 2 SHEETS

GENERAL NOTES/WRITTEN MATERIAL
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAIL-DRAINAGE
EROSION CONTROL
TRAFFIC CONTROL-ADVANCED WARNING
TRAFFIC CONTROL-STAGE 1A
TRAFFIC CONTROL-STAGE 1B (RAMPS CLOSED)
TRAFFIC CONTROL-STAGE 1B (RAMPS OPEN)
TRAFFIC CONTROL-STAGE 2
TRAFFIC CONTROL-ON RAMP DETOUR
TRAFFIC CONTROL-OFF RAMP DETOUR
TRAFFIC CONTROL-PEDESTRIAN DETOUR
ALIGNMENT DETAILS

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 LINES ON THE CROSS SECTIONS ARE APPROXIMATE.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATIONS OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR THE PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE FERTILIZED, SEEDED AND COVERED WITH EROSION MAT AS DIRECTED BY THE ENGINEER.

DNR LIAISON

KAREN KALVELAGE
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
WISCONSIN DEPT. OF NATURAL RESOURCES
WEST CENTRAL REGION
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
608-785-9115

UTILITIES CONTACTS

BRIGHTSPEED OF WISCONSIN, LLC COMMUNICATION LINE BRIAN STELPLUGH 1905 WARD AVENUE S LA CROSSE, WI 54601 PHONE: 980-376-1557 EMAIL: BRIAN.STELPLUGH@BRIGHTSPEED.COM	CAMPBELL WATER UTILITY SEWER JASON HILTON 2219 BAINBRIDGE ST LA CROSSE, WI 54603 PHONE: 608-790-8103 EMAIL: JHILTON@TOWNOFCAMPBELLWI.GOV
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XCEL ENERGY ELECTRICITY JASON MCROBERTS 3215 COMMERCE STREET LA CROSSE, WI 54603 PHONE: 608-789-3689 EMAIL: JASON.I.MCROBERTS@XCELENERGY.COM	XCEL ENERGY GAS/PETROLEUM JOHN KESLER 1400 WESTERN AVE EAU CLAIRE, WI 54701 PHONE: 715-737-6020 EMAIL: JOHN.KESLER@XCELENERGY.COM
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DESIGN PROJECT MANAGER

CORY MIKSHOWSKY
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3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
PHONE: 608-789-6335
EMAIL: CORY.MIKSHOWSKY@DOT.WI.GOV

DESIGN PROJECT LEADER

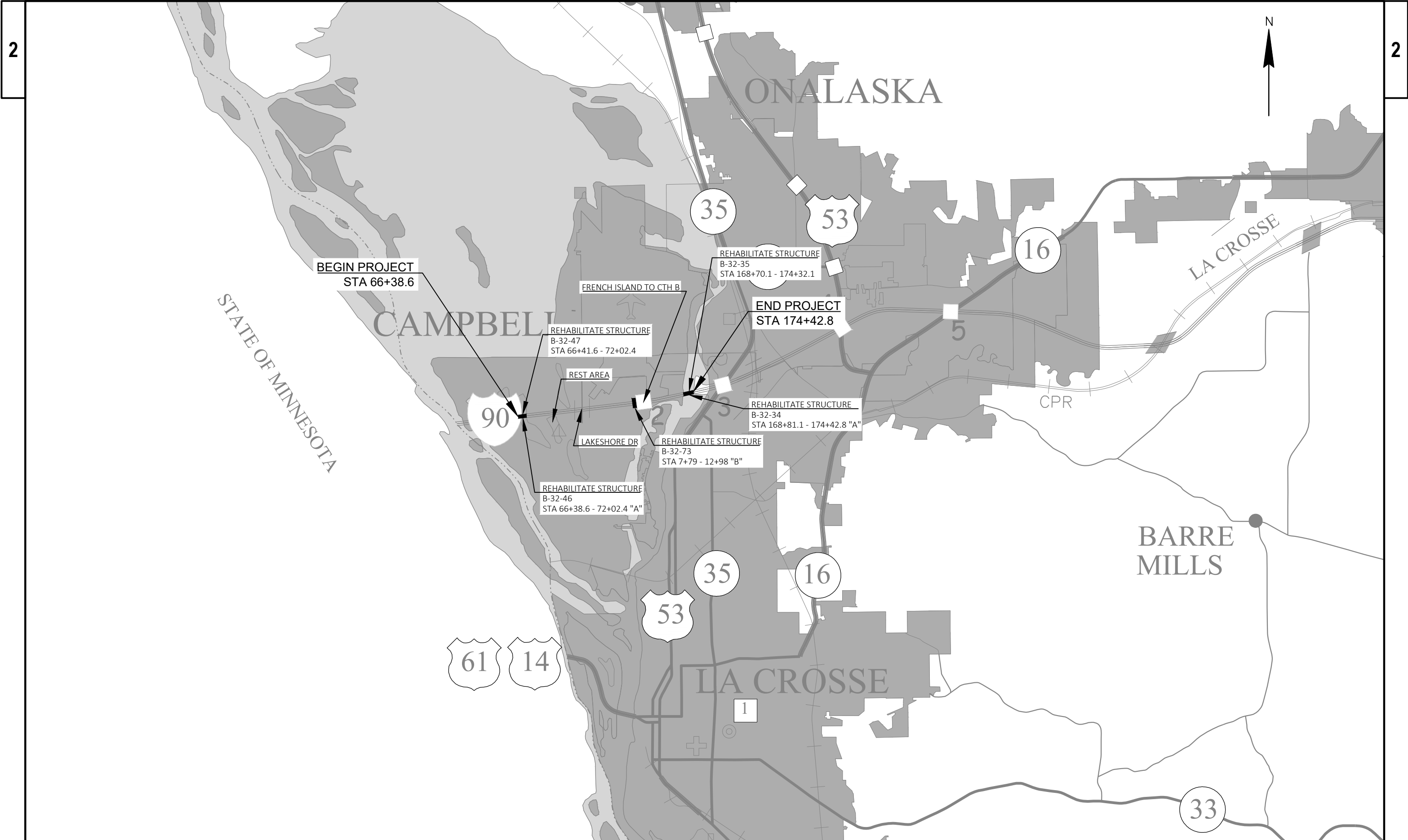
BRANDYN MECUM
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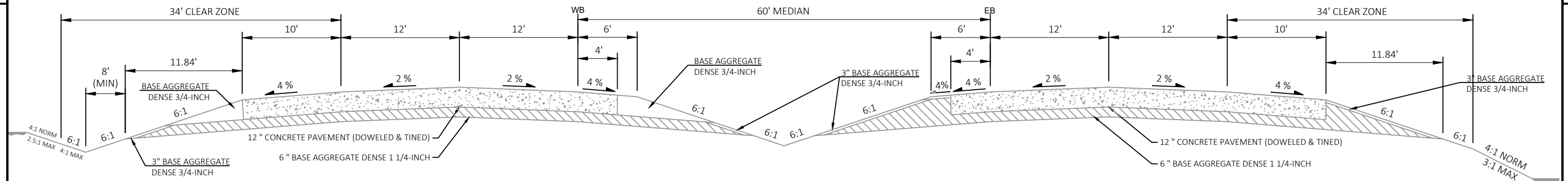
STANDARD ABBREVIATIONS

AC	ACRE	LC.	LONG CHORD
AGG	AGGREGATE	LS	LUMP SUM
<	ANGLE	M.P.	MARKER POST
AE, AEW	APRON ENDWALL	MGAL	1000 GALLONS
ASPH.	ASPHALTIC	N.C.	NORMAL CROWN
A.D.T.	AVERAGE DAILY TRAFFIC	N	NORTH
A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC	NB	NORTHBOUND
B.F.	BACK FACE	NOR	NORMAL
BM	BENCHMARK	NO.	NUMBER
BTWN	BETWEEN	PAVT	PAVEMENT
CTR.	CENTER	P.L.E.	PERMANENT LIMITED EASEMENT
C/L	CENTER LINE	P.C.	POINT OF CURVATURE
Δ	CENTRAL ANGLE OR DELTA	P.I.	POINT OF INTERSECTION
C.E.	COMMERCIAL ENTRANCE	P.T.	POINT OF TANGENCY
CONST.	CONSTRUCTION	PCC	PORTLAND CEMENT CONCRETE
CMCP	CORRUGATED METAL CULVERT PIPE	P.E.	PRIVATE ENTRANCE
CMP	CORRUGATED METAL PIPE	PGL	PROFILE GRADE LINE
CO.	COUNTY	P.L.	PROPERTY LINE
CTH	COUNTY TRUNK HIGHWAY	R	RADIUS OR RANGE
CR	CREEK	R/L	REFERENCE LINE
CABC	CRUSHED AGGREGATE BASE COURSE	R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
CY	CUBIC YARD	REQ'D	REQUIRED
CP	CONTROL POINT OR CULVERT PIPE	RT	RIGHT
C&G	CURB AND GUTTER	R.H.F.	RIGHT HAND FORWARD
D	DEGREE OF CURVE	R/W	RIGHT OF WAY
D.H.V.	DESIGN HOURLY VOLUME	RD.	ROAD
DIA.	DIAMETER	SHLD.	SHOULDER(S)
D.D.	DIRECTIONAL DISTRIBUTION	SHR.	SHRINKAGE
DISCH.	DISCHARGE	S	SOUTH
DMS	DYNAMIC MESSAGE SIGN	SB	SOUTHBOUND
EA	EACH	S.F.	SQUARE FOOT (FEET)
E	EAST	SDD	STANDARD DETAIL DRAWING(S)
EB	EASTBOUND	STH	STATE TRUNK HIGHWAY
ELEC.	ELECTRIC(AL), ELEC. CABLE	STA.	STATION
EL., ELEV.	ELEVATION	S.E.	SUPERELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS	S/L	SURVEY LINE
EXC.	EXCAVATION	SYM	SYMMETRICAL
EXIST	EXISTING	T.	PERCENT TRUCKS
F.F.	FACE TO FACE	TEL.	TELEPHONE
FERT.	FERTILIZER	TEMP.	TEMPORARY
F.E.	FIELD ENTRANCE	T.L.E.	TEMPORARY LIMITED EASEMENT
F/L, F.L.	FLOW LINE	T.O.C.	TOP OF CURB
GALV.	GALVANIZE	TYP	TYPICAL
H.S.	HIGH STRENGTH	UNCL.	UNCLASSIFIED
CWT	HUNDRED WEIGHT	U.G.	UNDERGROUND (CABLE)
INL	INLET	VAR	VARIABLE
INTER.	INTERSECTION	V.C.	VERTICAL CURVE
IH	INTERSTATE HIGHWAY	V.P.C.	VERTICAL POINT OF CURVATURE
JT.	JOINT	V.P.I.	VERTICAL POINT OF INTERSECTION
LT	LEFT	V.P.T.	VERTICAL POINT OF TANGENCY
L.H.F.	LEFT HAND FORWARD	Wt.	WEIGHT
L.	LENGTH OF CURVE	W	WEST
L.F.	LINEAR FOOT(FEET)	WB	WESTBOUND

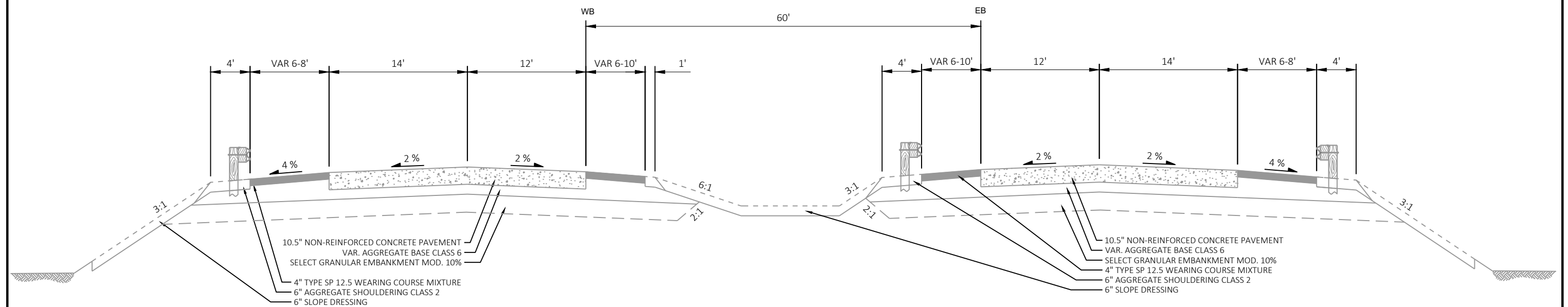


Dial 811 or (800)242-8511
www.DiggersHotline.com

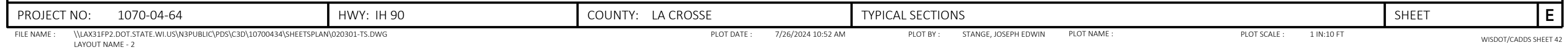


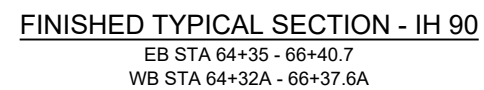
**EXISTING TYPICAL SECTION - IH 90**

EB STA 35+00 - 64+35, 66+40.7 - 210+00
WB STA 35+00A - 64+32A, 66+37.6A - 210+00A

**EXISTING TYPICAL SECTION - IH 90**

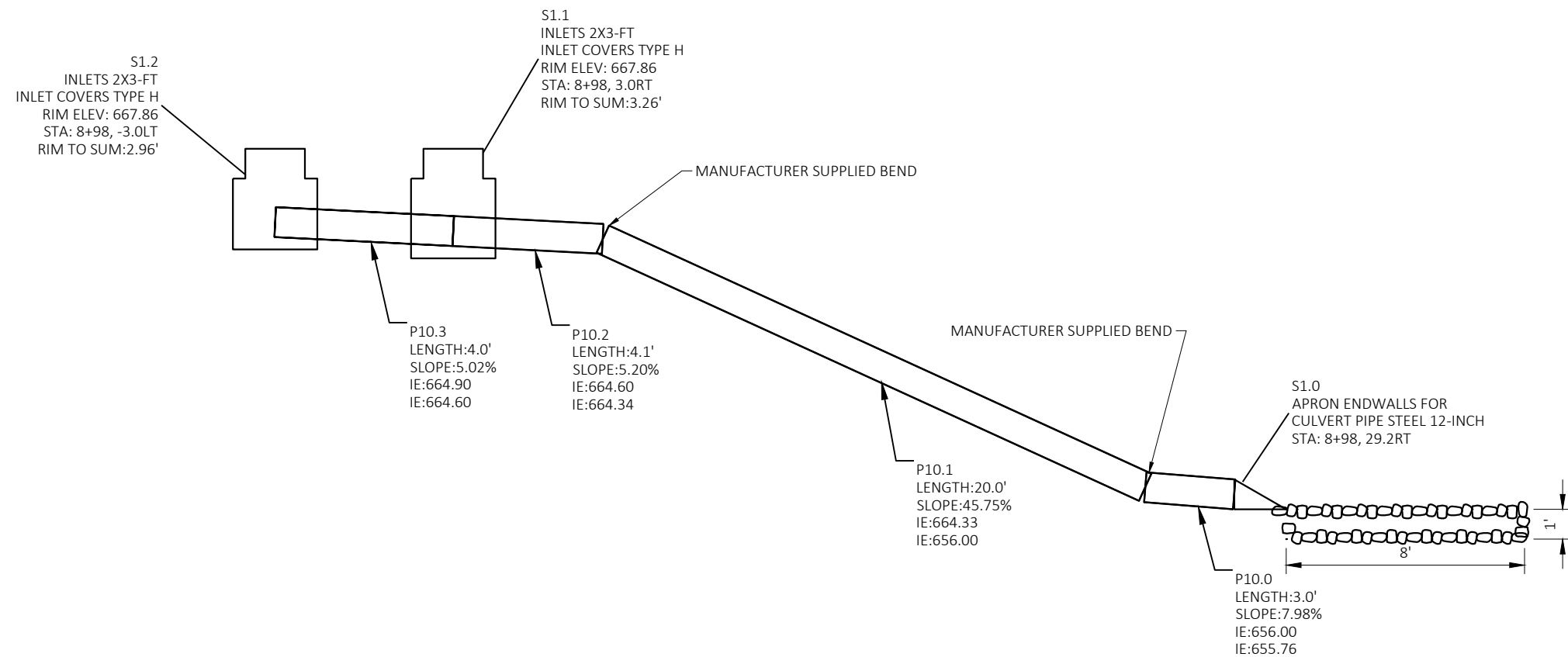
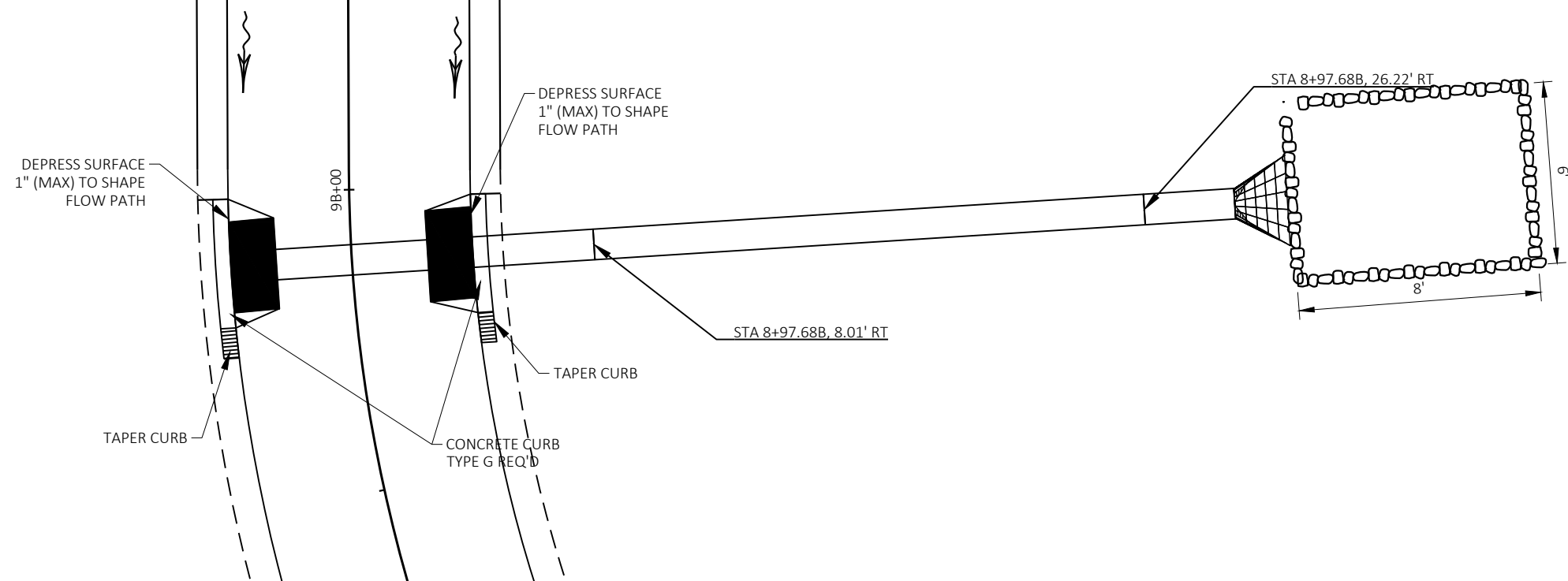
EB STA 64+35 - 66+40.7
WB STA 64+32A - 66+37.6A





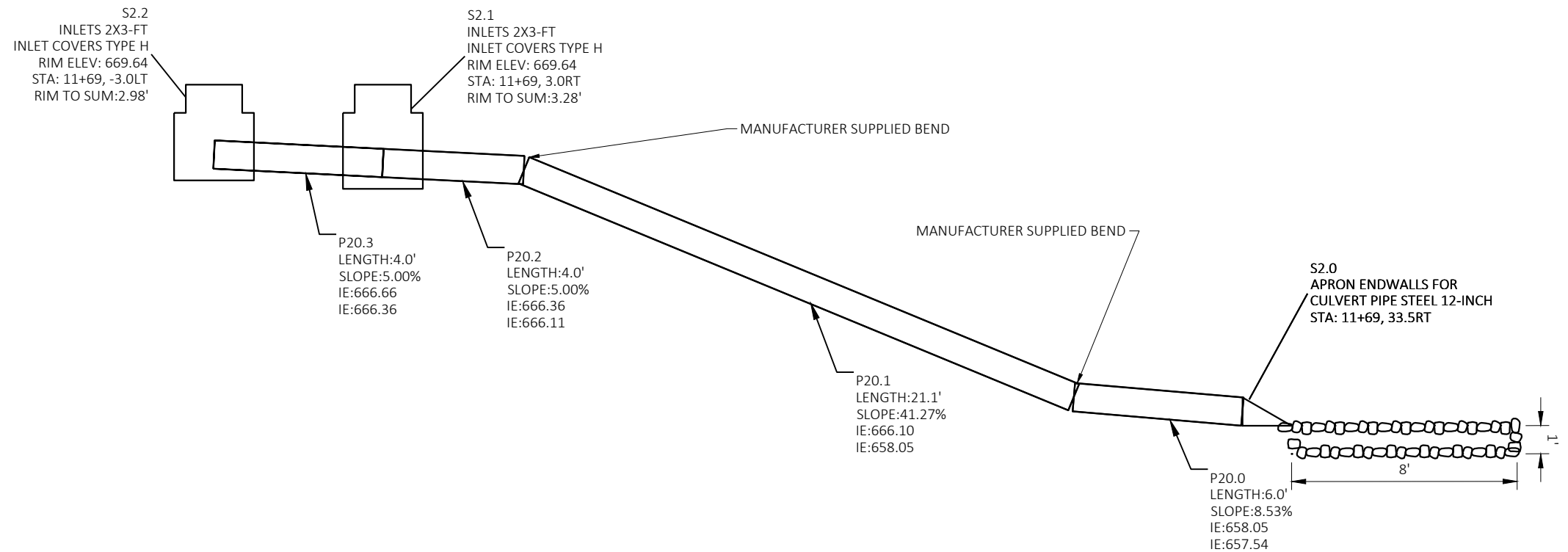
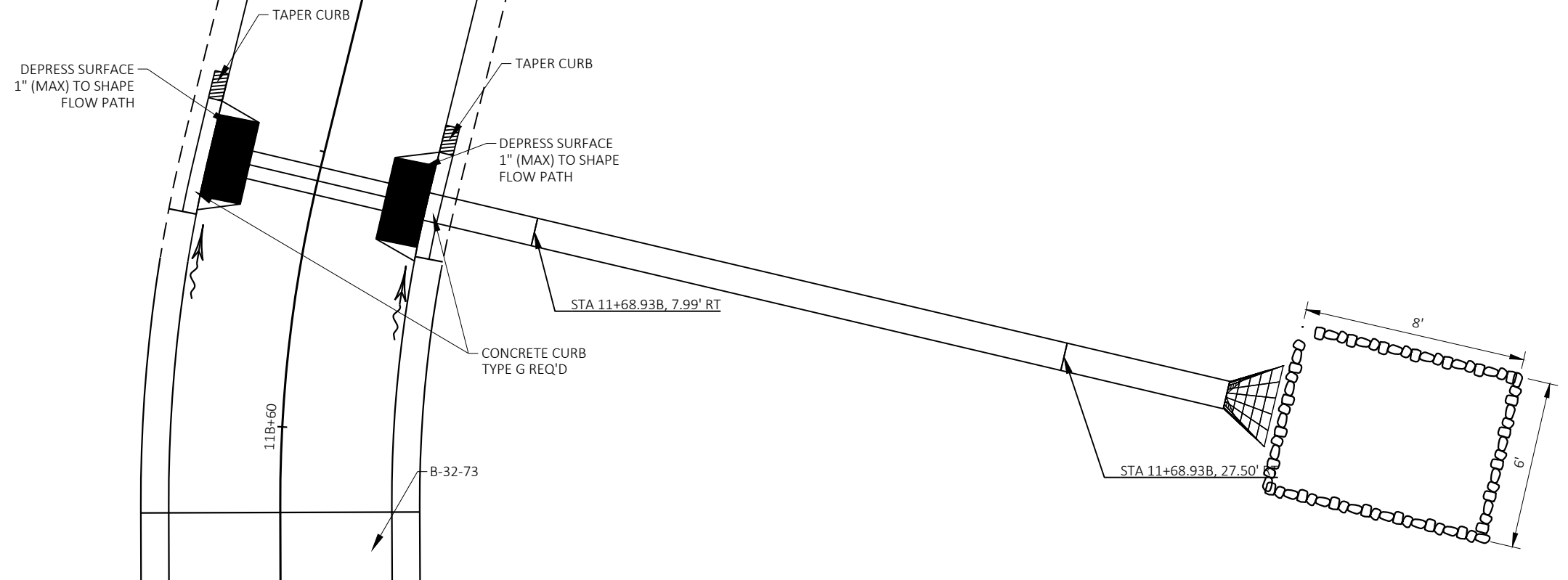
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INLET TYPE AT STRUCTURES FOR ADDITIONAL
INFORMATION.

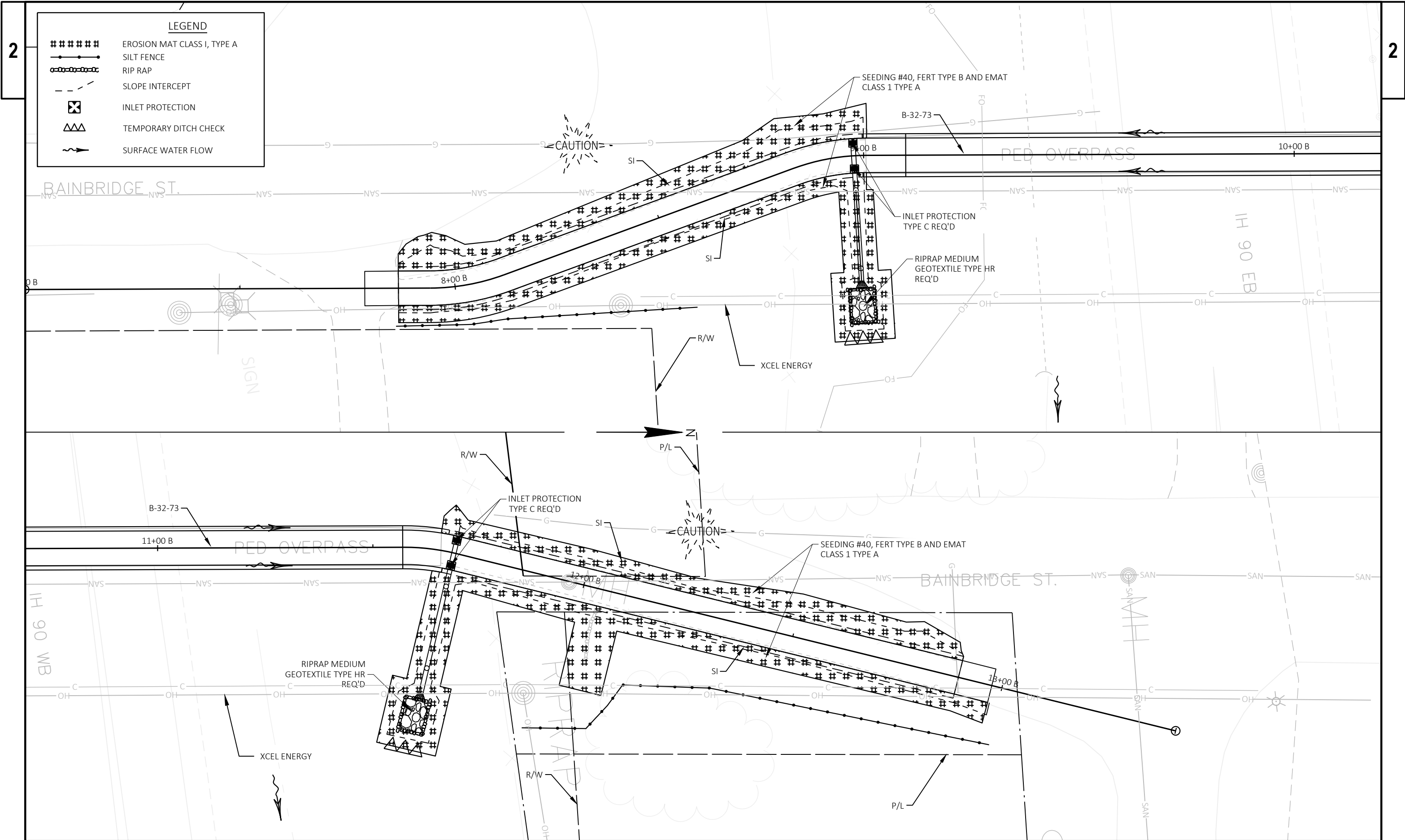
~> SURFACE WATER FLOW PATH

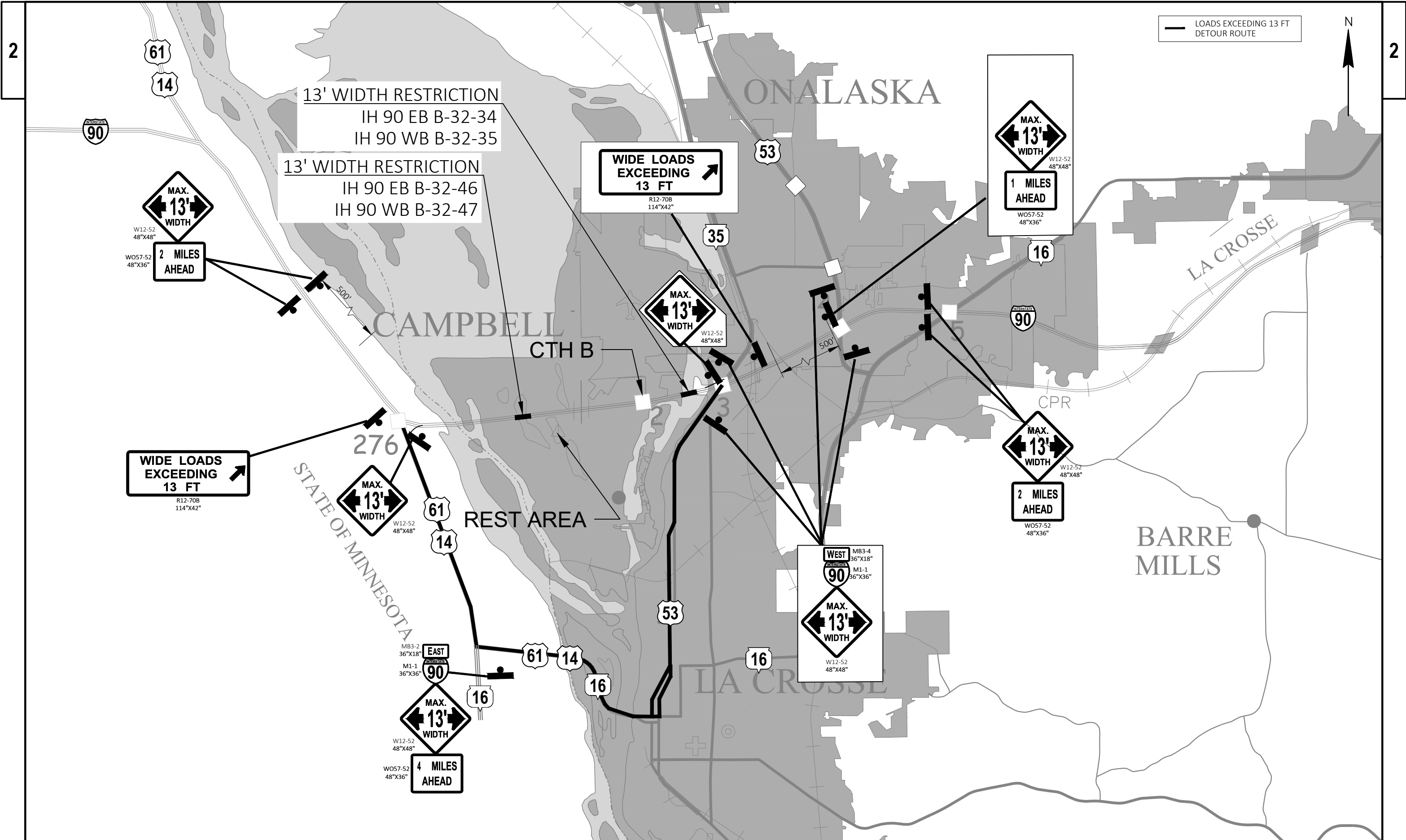


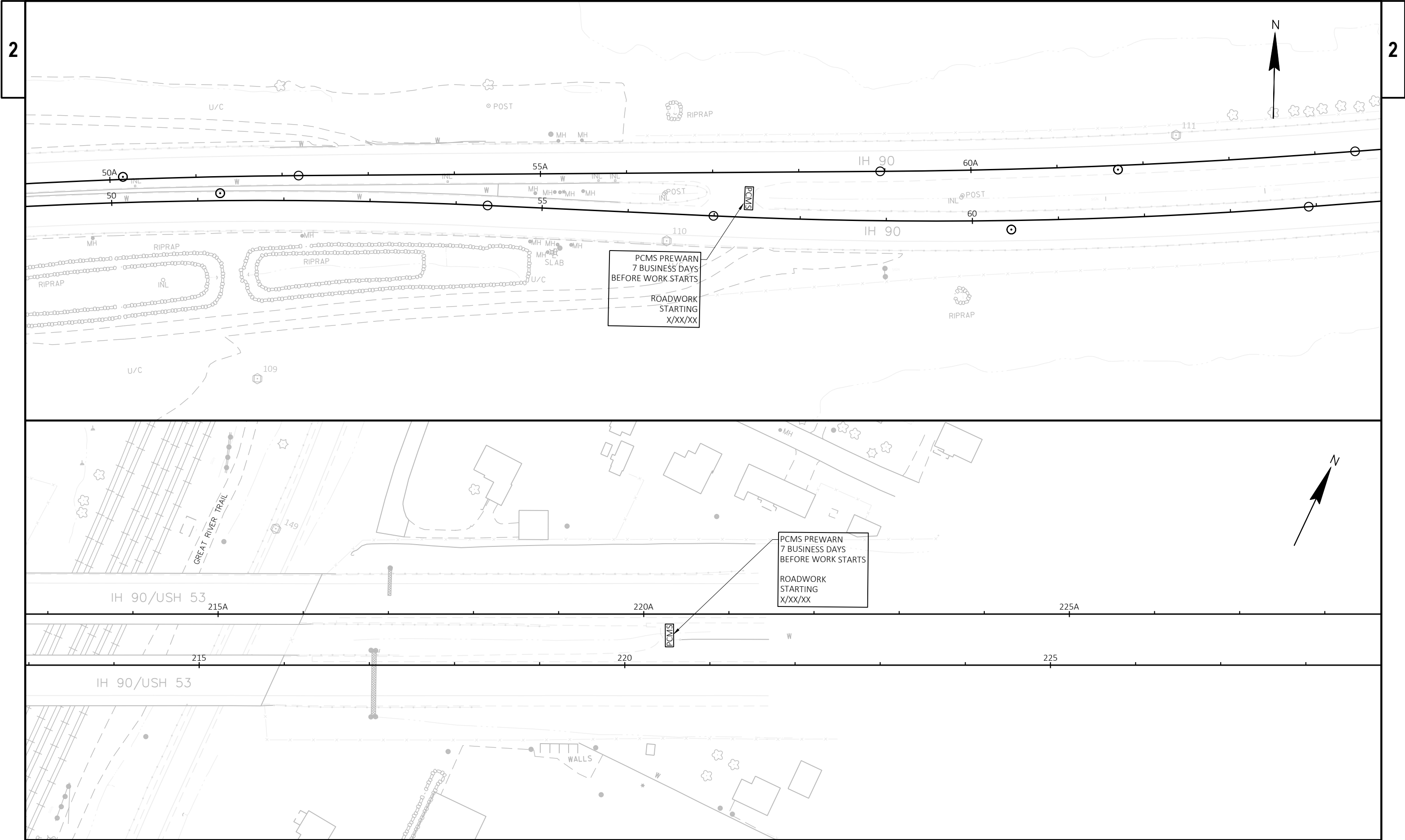
SEE SDD CONCRETE SURFACE DRAINS, DROP
INLET TYPE AT STRUCTURES FOR ADDITIONAL
INFORMATION.

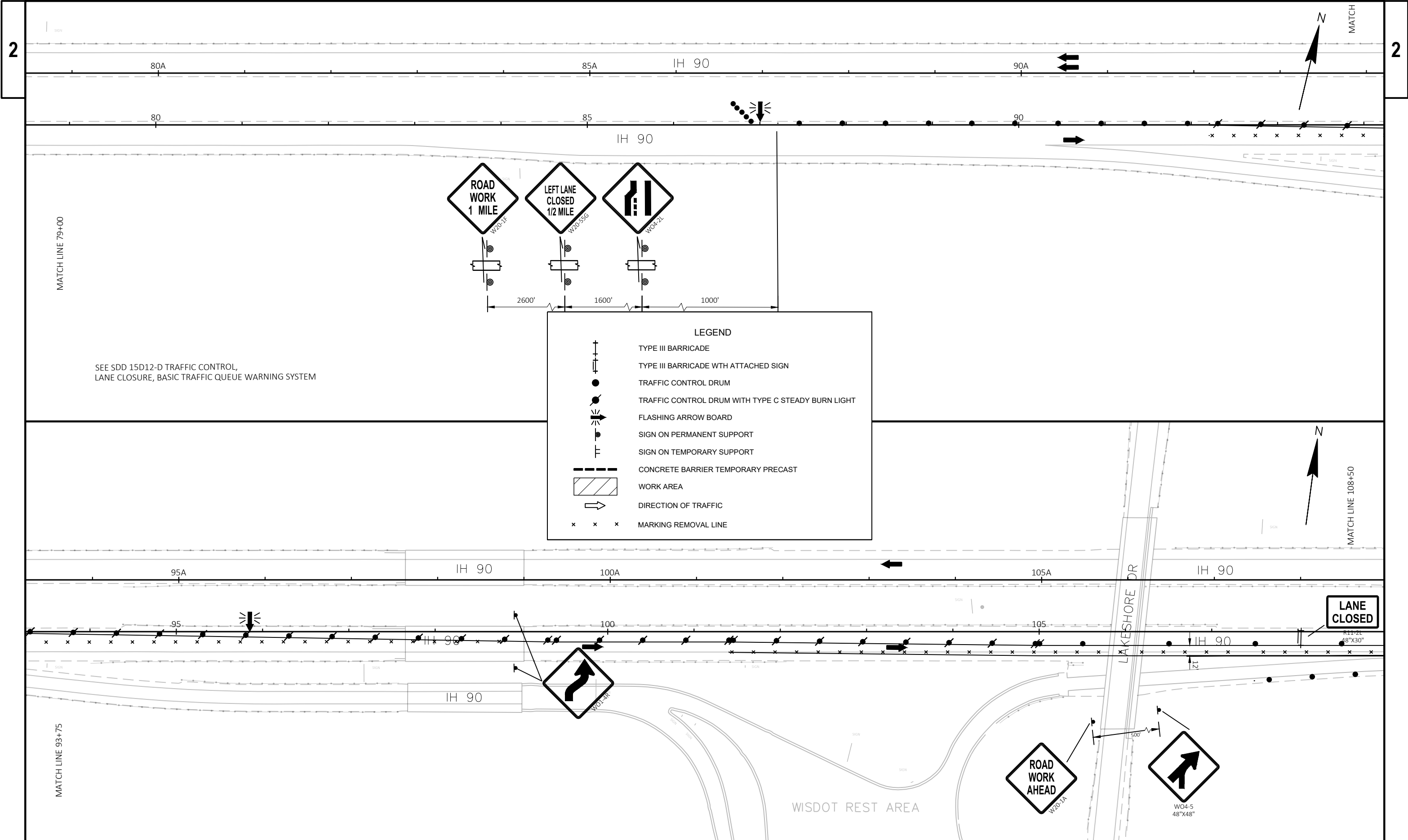
~> SURFACE WATER FLOW PATH

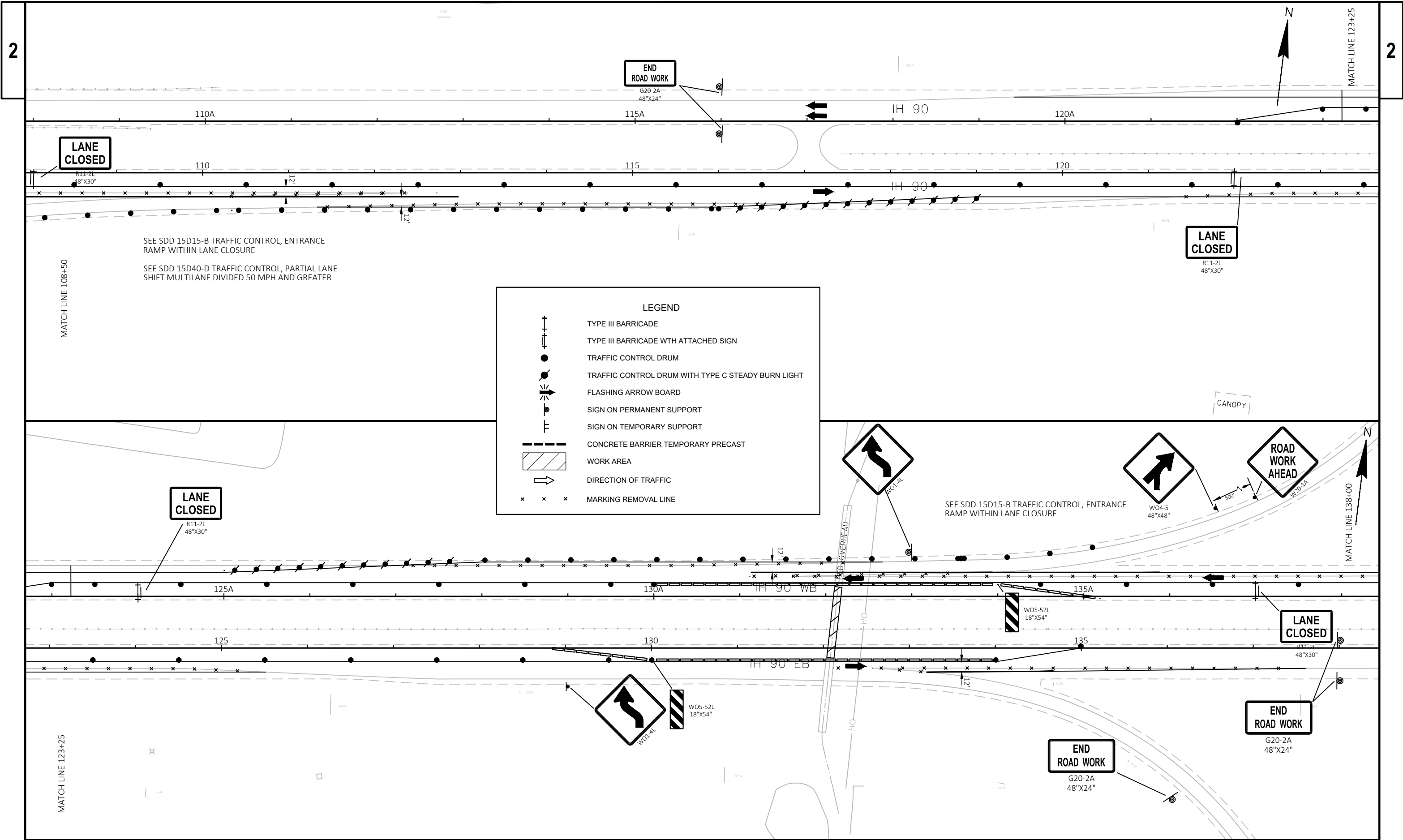


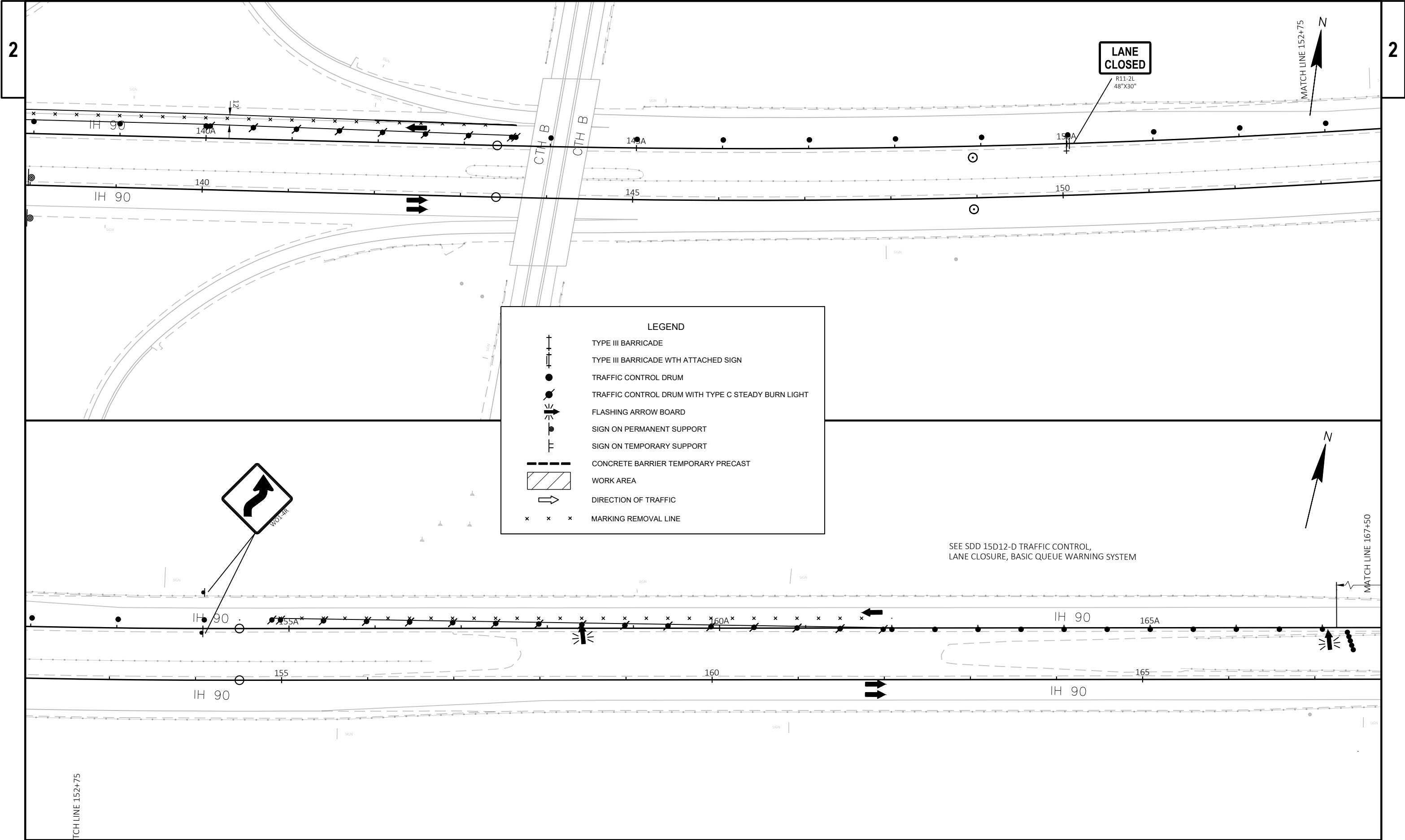




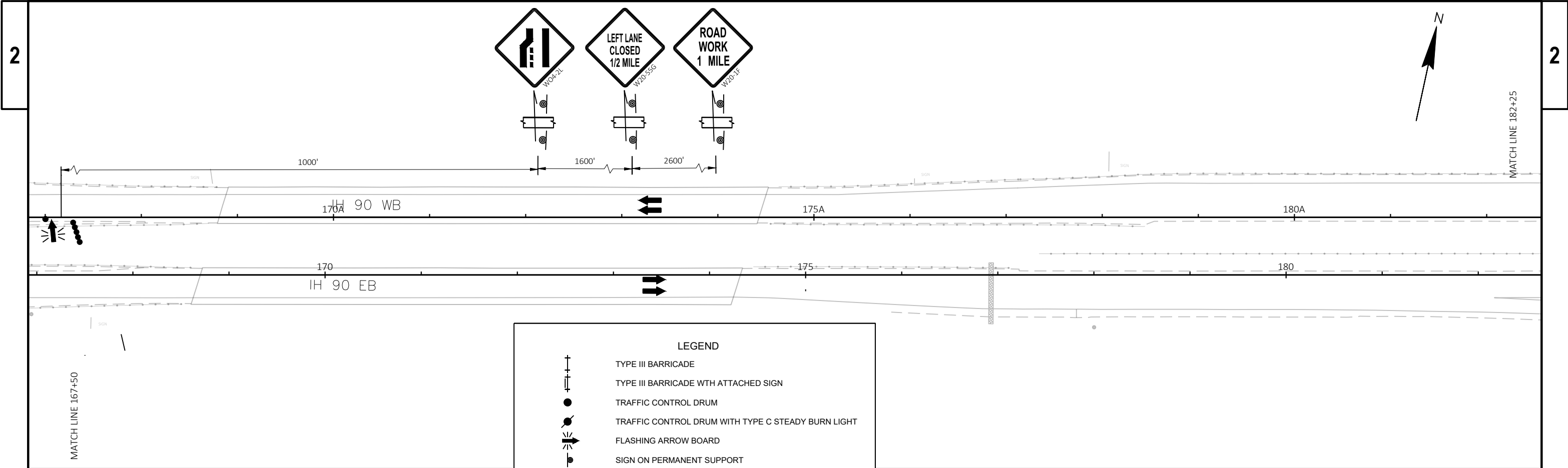




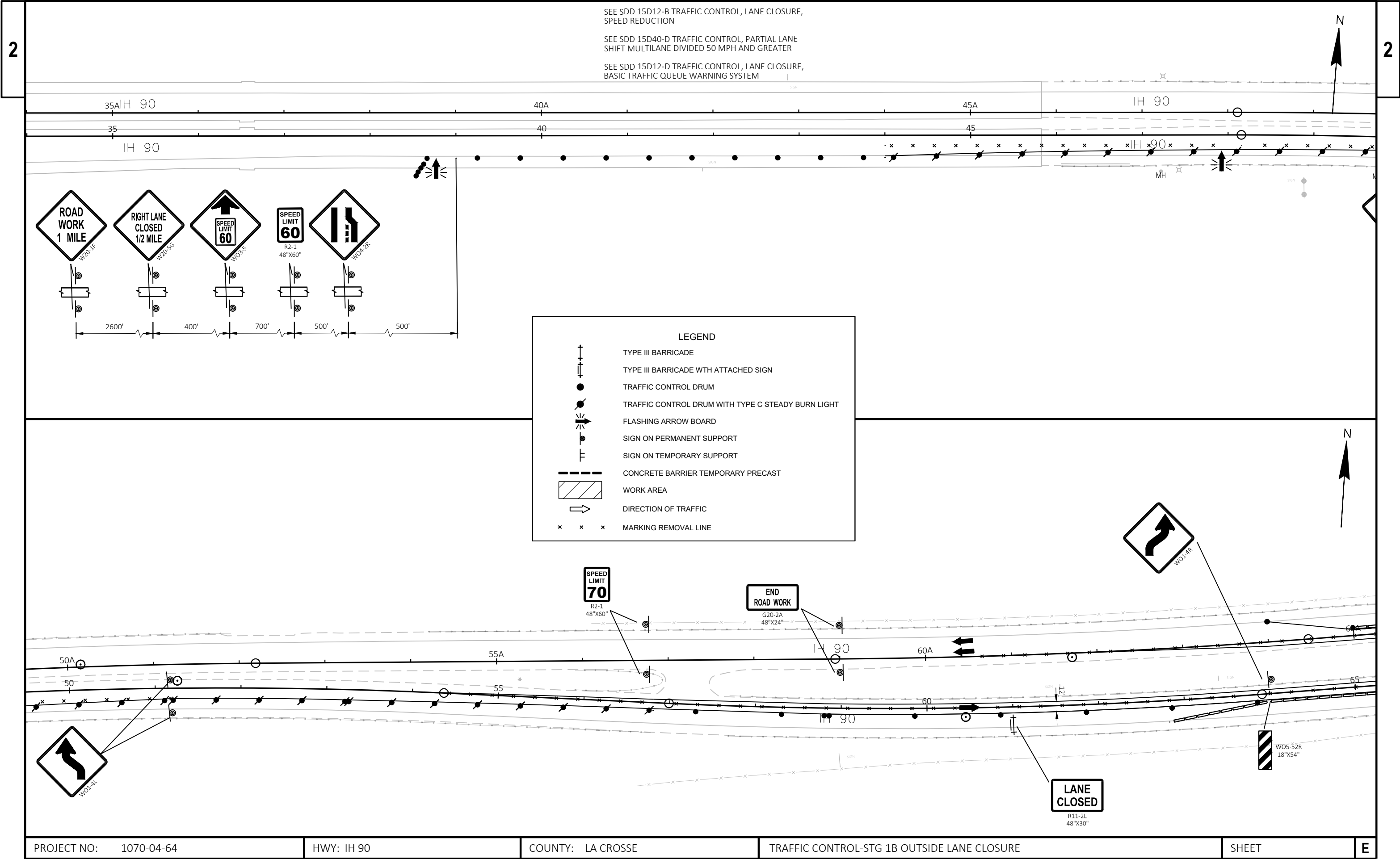


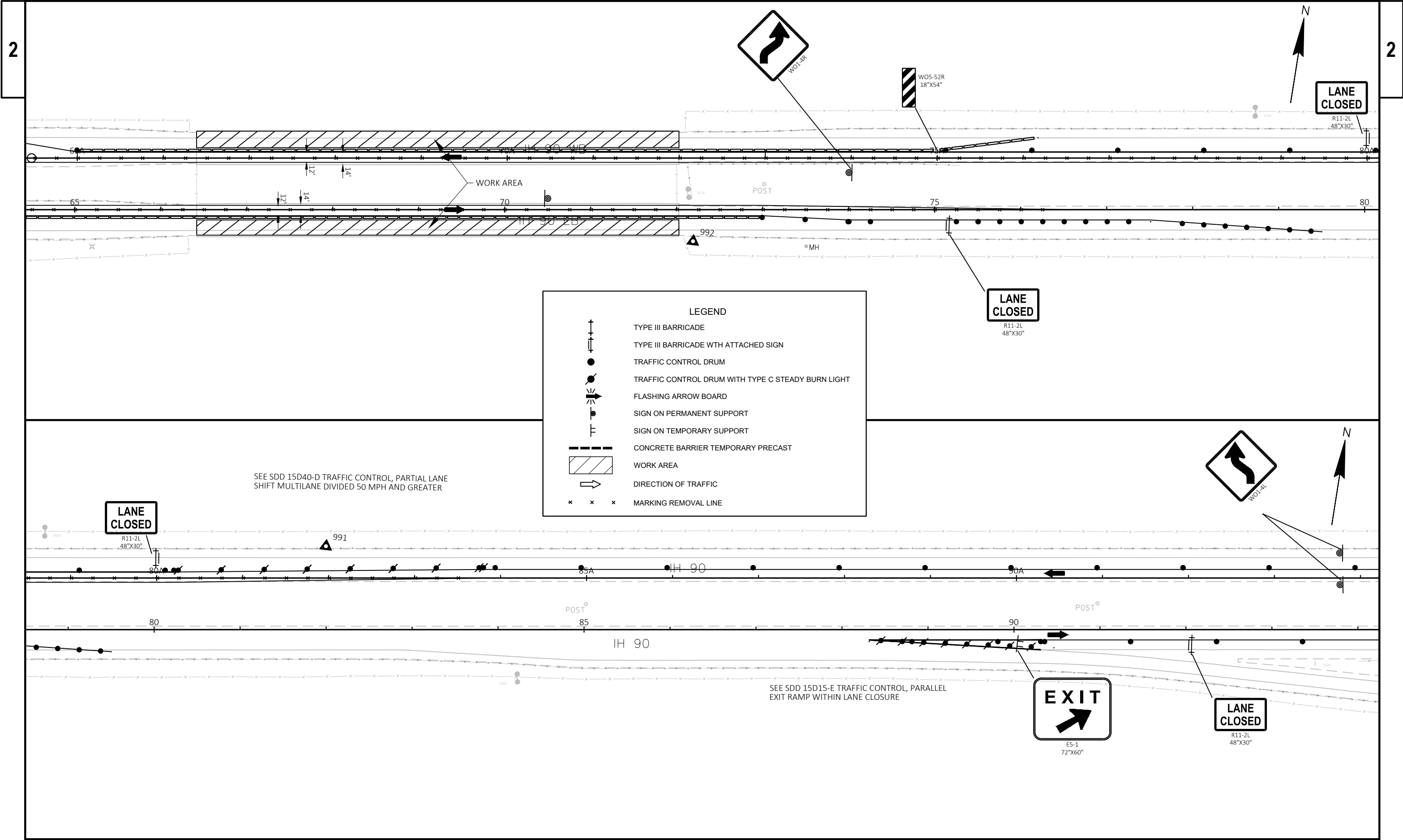


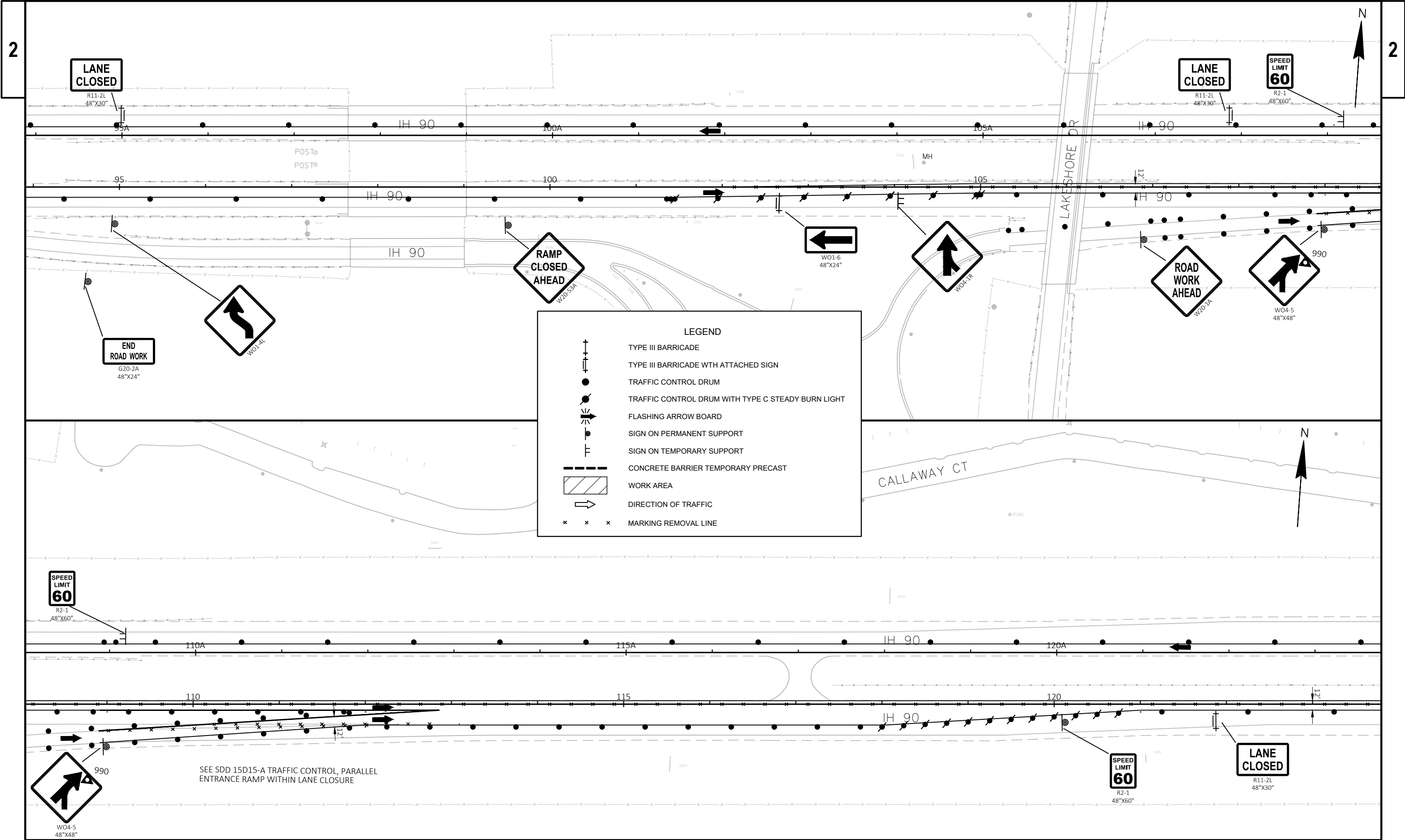
PROJECT NO: 1070-04-64	HWY: IH 90	COUNTY: LA CROSSE	TRAFFIC CONTROL-STG 1A MEDIAN LANE CLOSURE B-32-73	SHEET	E
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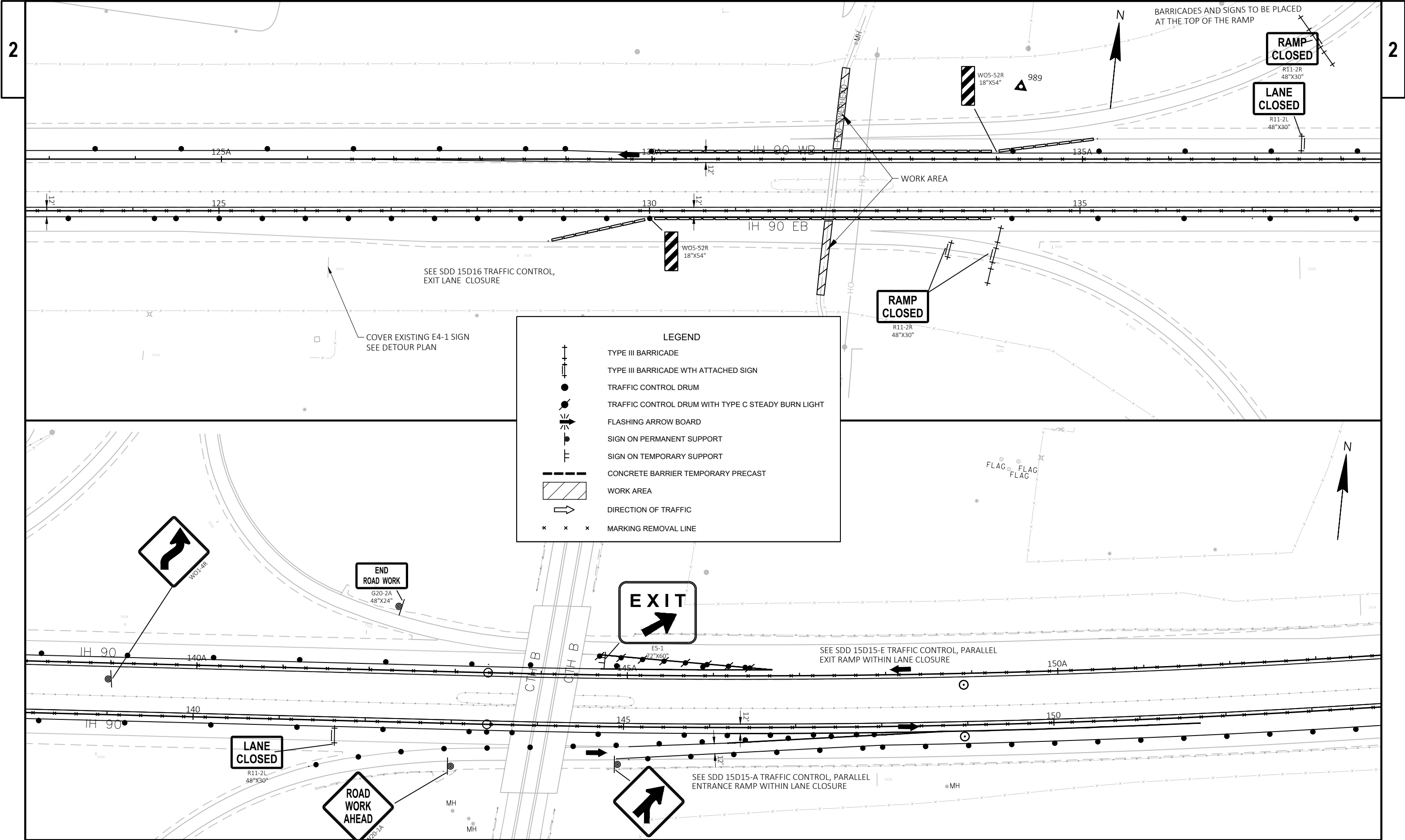


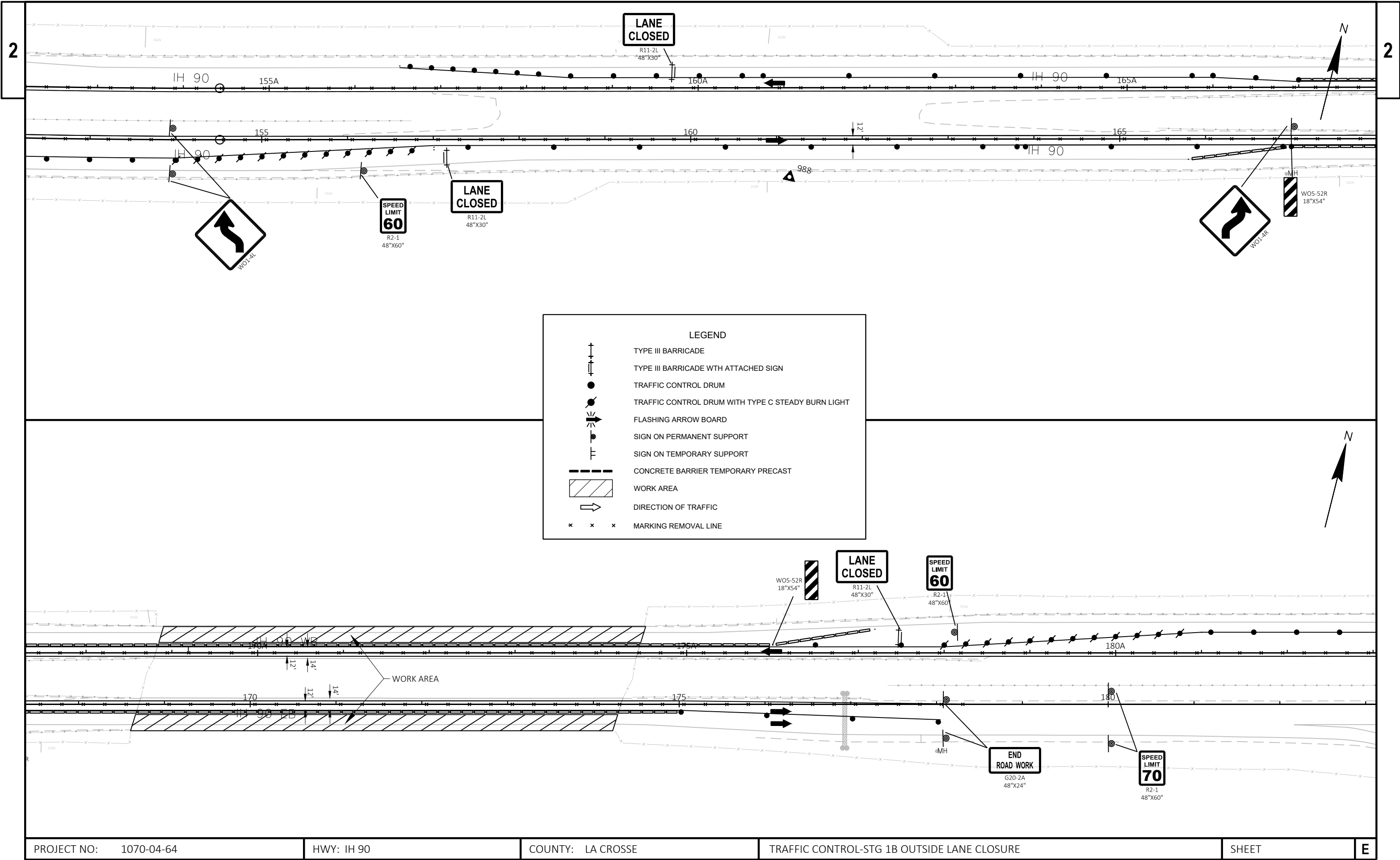
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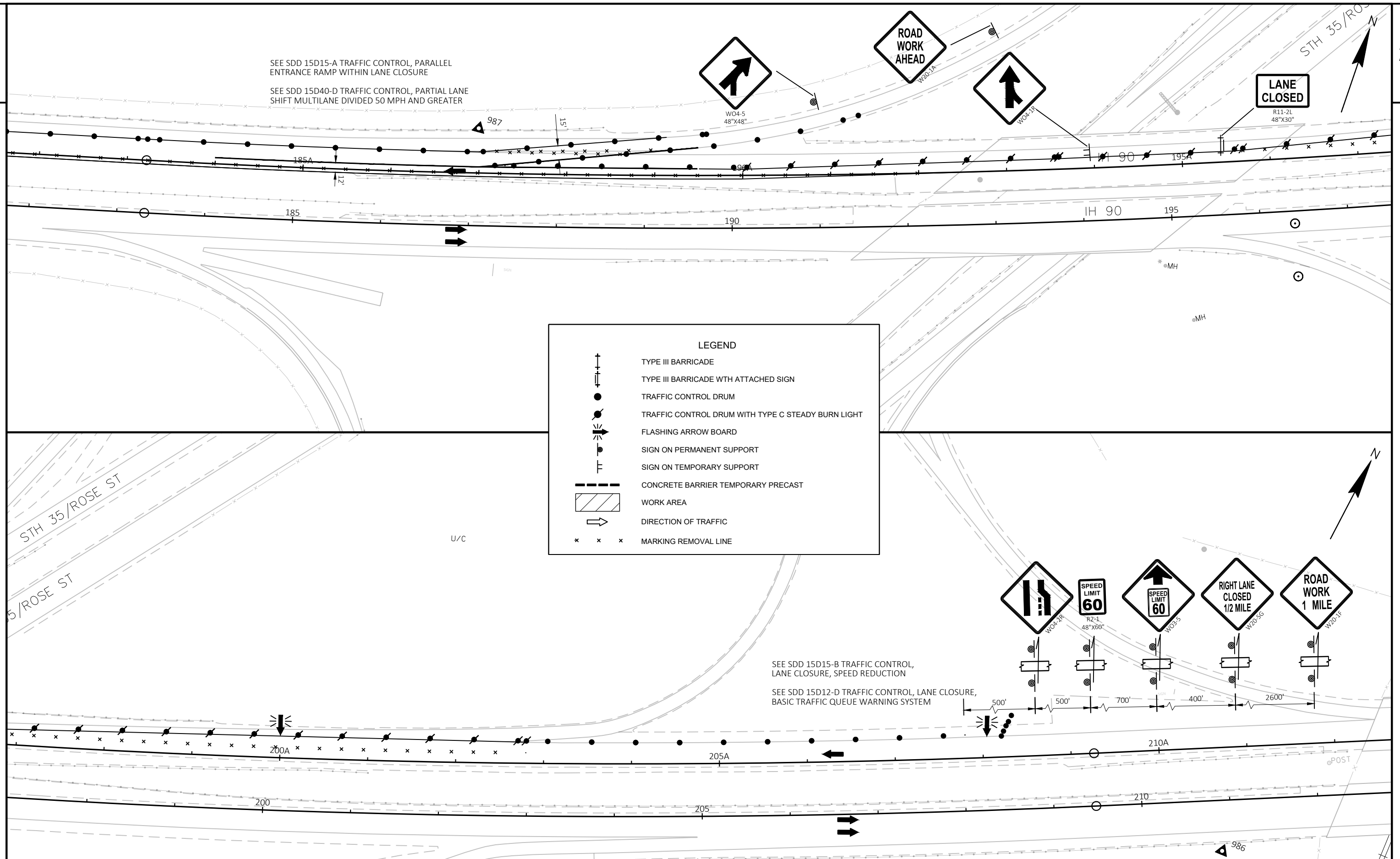


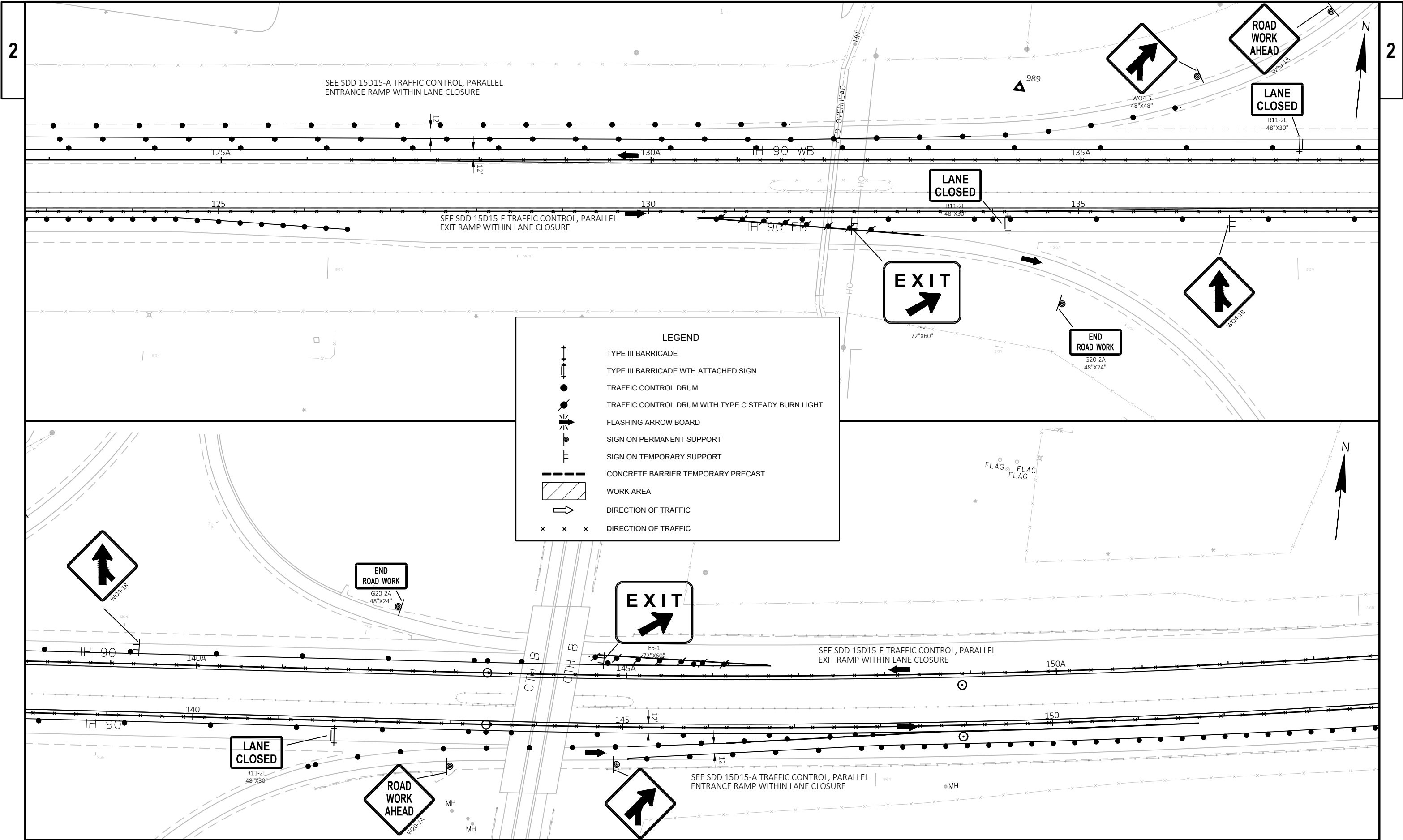


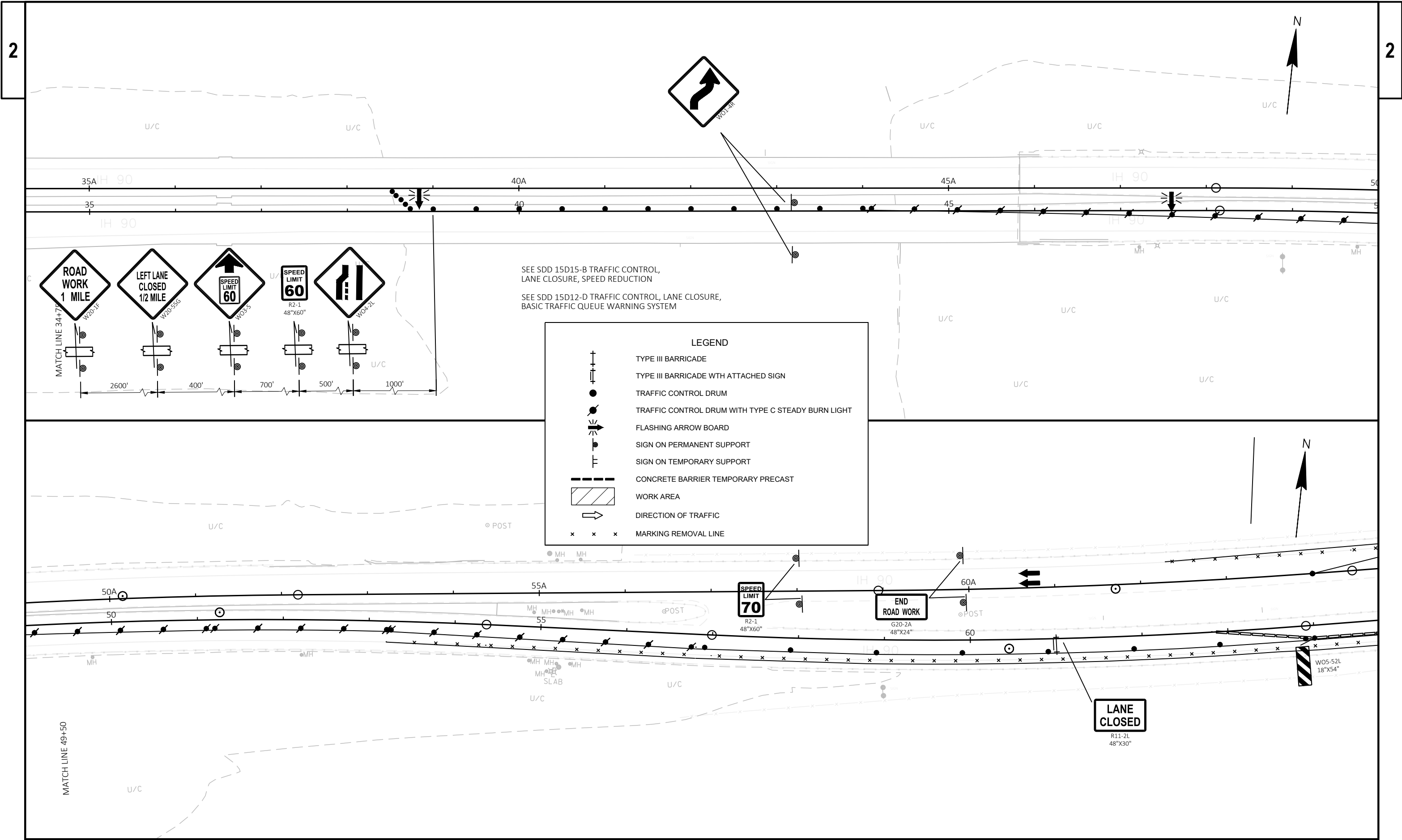


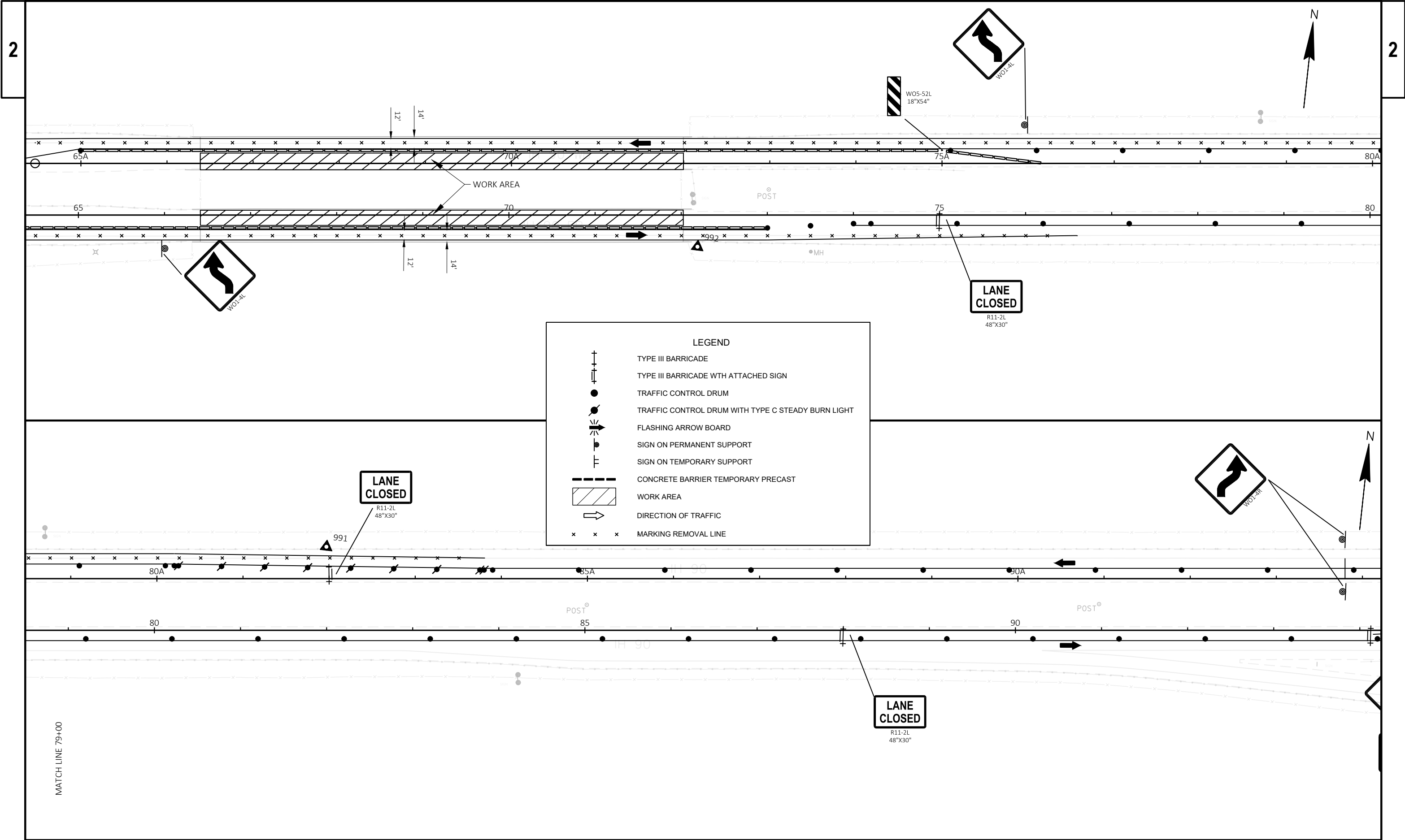


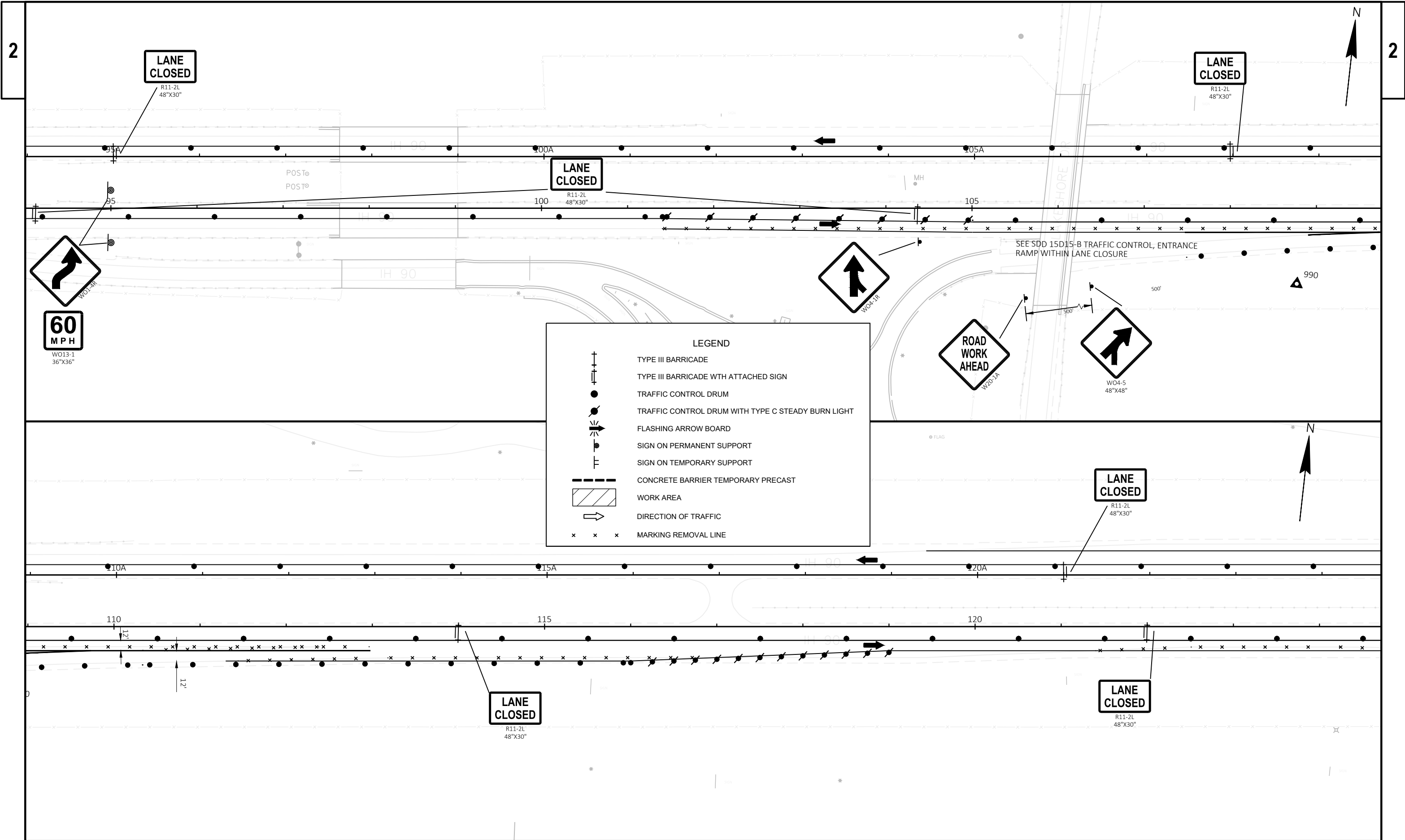


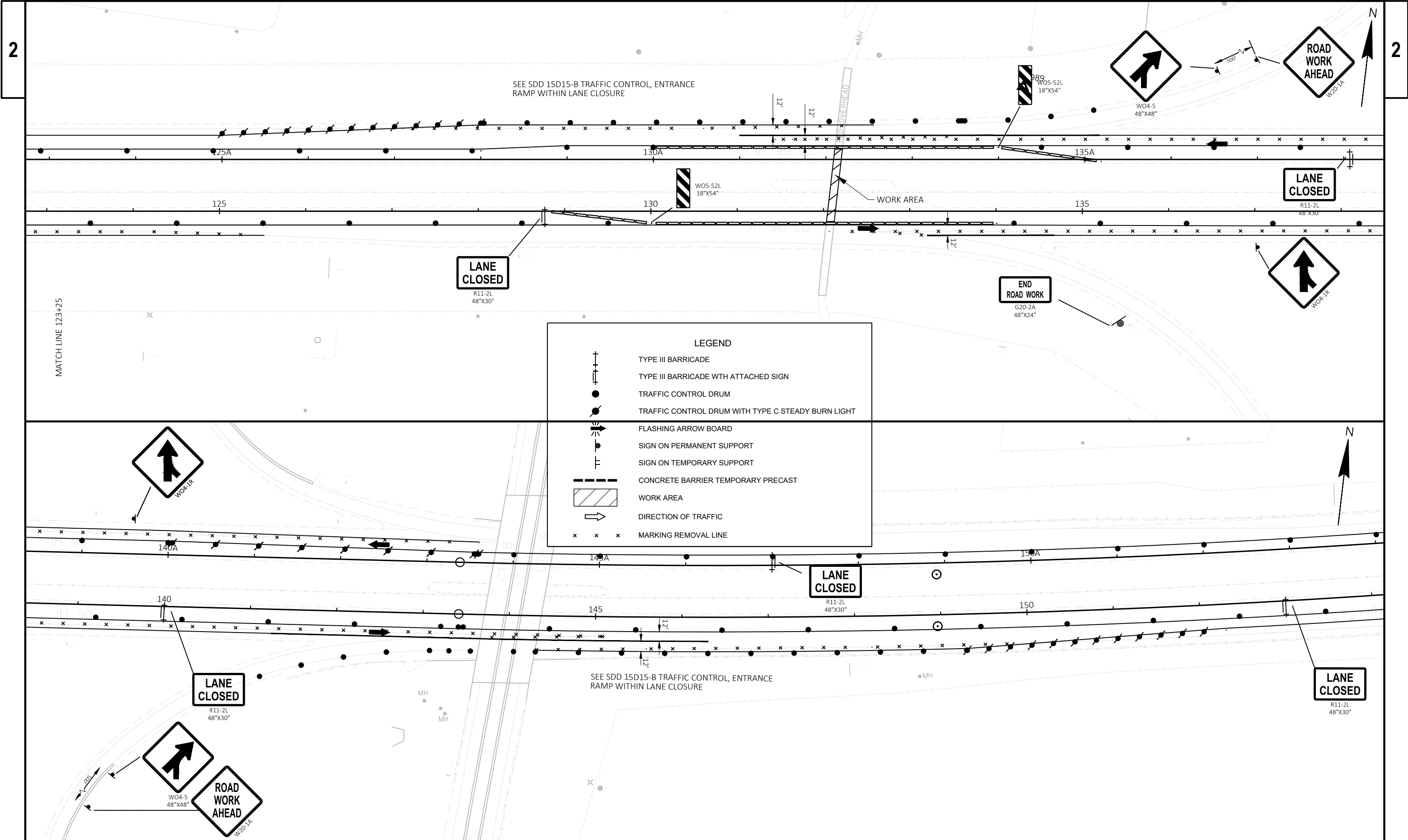


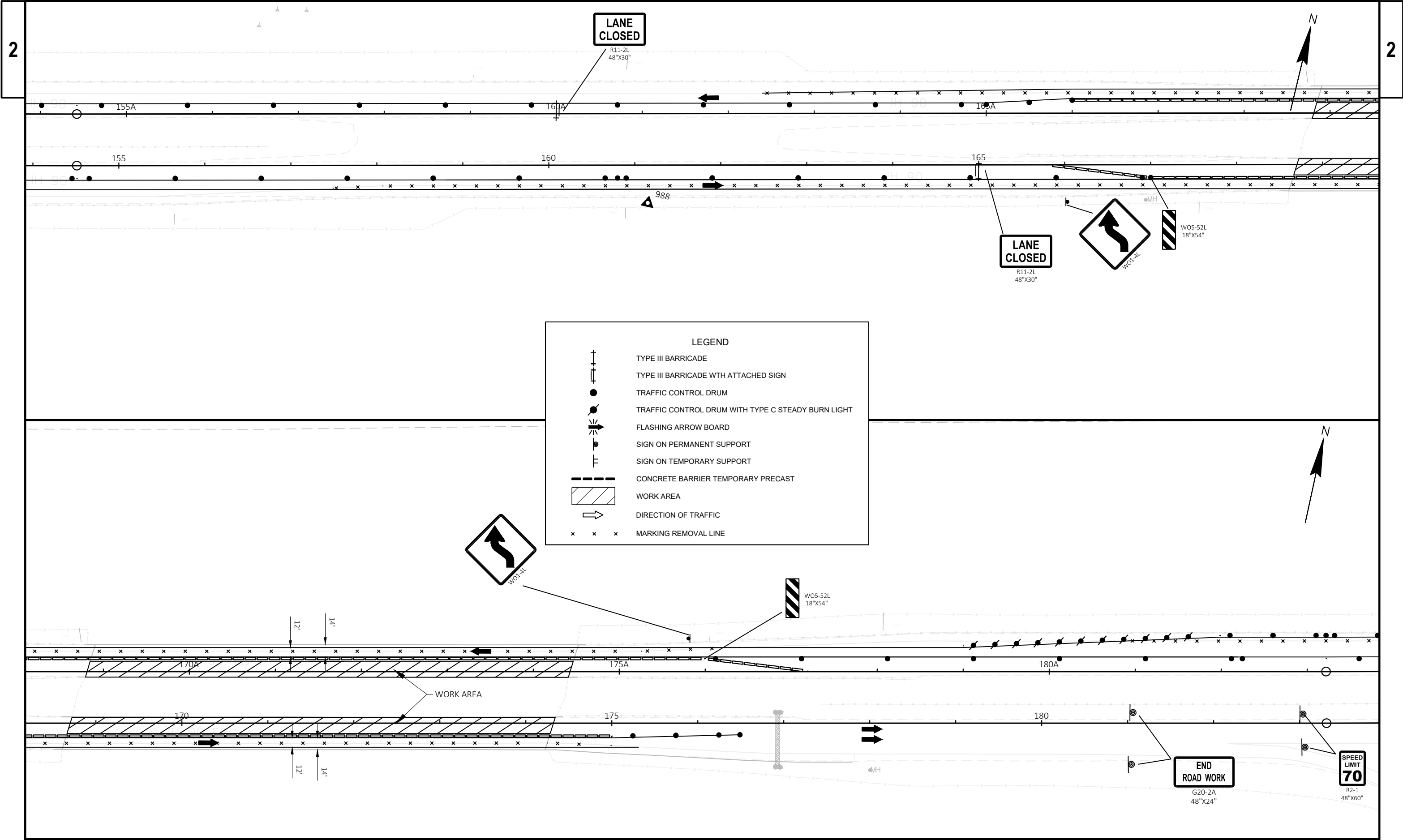


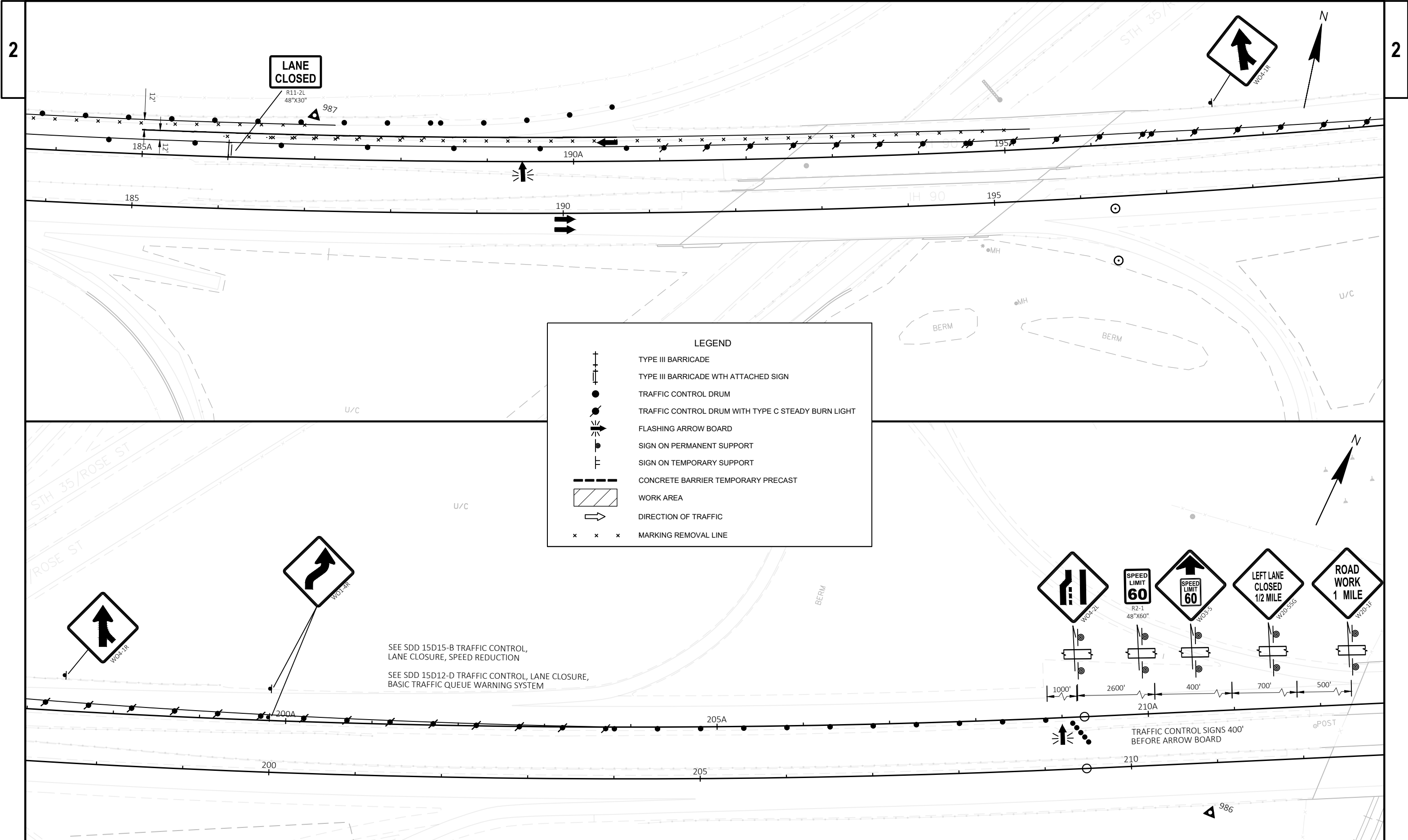


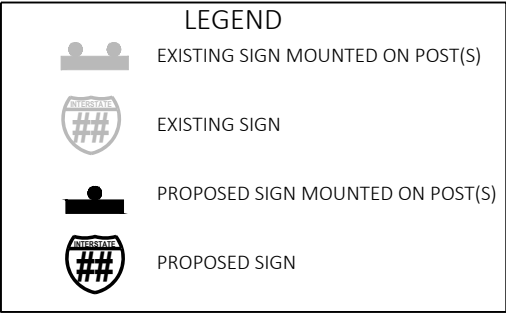




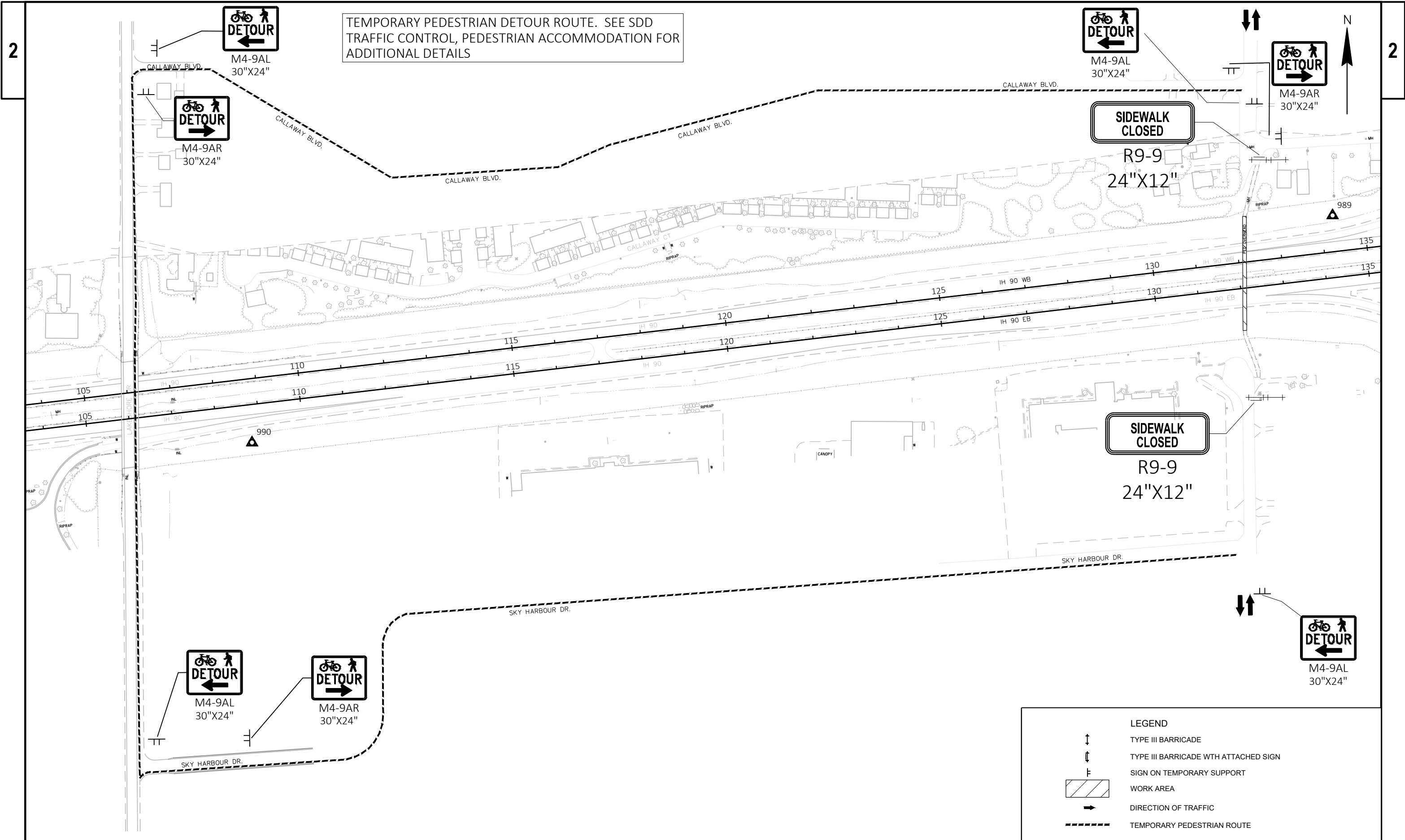




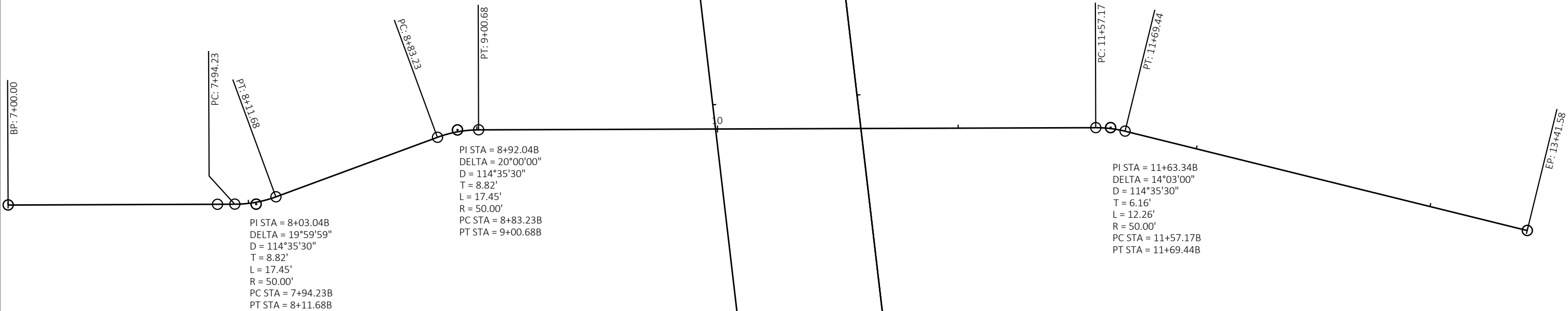




1.0	1.1	1.2	1.3	1.4	1.5	1.6
TO MO4-5 24"x12"	TO MO4-5 24"x12"	TO MO4-5 24"x12"	TO MO4-5 24"x12"	TO MO4-5 24"x12"	TO MO4-5 24"x12"	TO MO4-5 24"x12"
WEST	WEST	WEST	WEST	WEST	WEST	WEST
MB3-4 24"x12"	MB3-4 24"x12"	MB3-4 24"x12"	MB3-4 24"x12"	MB3-4 24"x12"	MB3-4 24"x12"	MB3-4 24"x12"
MB1-1 24"x24"	MB1-1 24"x24"	MB1-1 24"x24"	MB1-1 24"x24"	MB1-1 24"x24"	MB1-1 24"x24"	MB1-1 24"x24"
MO6-1 21"x21"	MO5-1R 21"x21"	MO6-1 21"x21"	MO6-2 21"x21"	MO5-1L 21"x21"	MO6-1 21"x21"	MO5-2F 30"x30"



PEDESTRIAN BRIDGE				
PI Station	Northing	Easting	Distance	Direction
7+00.00B	149,153.6838'	442,992.8760'		
			103.045'	N0° 12' 05.49"W
8+03.04B	149,256.7285'	442,992.5135'		
			89.180'	N20° 12' 04.32"W
8+92.04B	149,340.4223'	442,961.7182'		
			271.470'	N0° 12' 03.98"W
11+63.34B	149,611.8908'	442,960.7654'		
			178.309'	N13° 50' 55.53"E
13+41.58B	149,785.0166'	443,003.4454'		



Estimate Of Quantities

1070-04-64

Line	Item	Item Description	Unit	Total	Qty
0002	203.0220	Removing Structure (structure) 01. B-32-73	EACH	1.000	1.000
0004	204.0120	Removing Asphaltic Surface Milling	SY	558.000	558.000
0006	204.0155	Removing Concrete Sidewalk	SY	243.000	243.000
0008	204.0170	Removing Fence	LF	140.000	140.000
0010	205.0100	Excavation Common	CY	89.000	89.000
0012	206.1001	Excavation for Structures Bridges (structure) 01. B-32-73	EACH	1.000	1.000
0014	210.1500	Backfill Structure Type A	TON	40.000	40.000
0016	213.0100	Finishing Roadway (project) 01. 1070-04-64	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	26.000	26.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	106.000	106.000
0022	455.0605	Tack Coat	GAL	92.000	92.000
0024	465.0125	Asphaltic Surface Temporary	TON	64.000	64.000
0026	465.0510	Asphaltic Rumble Strips, Shoulder Divided Roadway	LF	2,505.000	2,505.000
0028	502.0100	Concrete Masonry Bridges	CY	72.000	72.000
0030	502.3101	Expansion Device	LF	312.000	312.000
0032	502.3200	Protective Surface Treatment	SY	9,503.000	9,503.000
0034	502.3210	Pigmented Surface Sealer	SY	40.000	40.000
0036	502.4110	Adhesive Anchors 1 1/4-inch	EACH	8.000	8.000
0038	502.4205	Adhesive Anchors No. 5 Bar	EACH	412.000	412.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	21,800.000	21,800.000
0042	505.0905	Bar Couplers No. 5	EACH	48.000	48.000
0044	506.0605	Structural Steel HS	LB	27,572.000	27,572.000
0046	506.6000	Bearing Assemblies Expansion (structure) 01. B-32-73	EACH	4.000	4.000
0048	506.7050.S	Removing Bearings (structure) 01. B-32-73	EACH	4.000	4.000
0050	509.0301	Preparation Decks Type 1	SY	60.000	60.000
0052	509.0302	Preparation Decks Type 2	SY	24.000	24.000
0054	509.0500	Cleaning Decks	SY	8,904.000	8,904.000
0056	509.1000	Joint Repair	SY	136.000	136.000
0058	509.1500	Concrete Surface Repair	SF	500.000	500.000
0060	509.2000	Full-Depth Deck Repair	SY	4.000	4.000
0062	509.2500	Concrete Masonry Overlay Decks	CY	560.000	560.000
0064	513.8011	Railing Steel Pedestrian Type C2	LF	460.000	460.000
0066	516.0500	Rubberized Membrane Waterproofing	SY	8.000	8.000
0068	517.0901.S	Preparation and Coating of Top Flanges (structure) 01. B-32-73	EACH	1.000	1.000
0070	517.1801.S	Structure Repainting Recycled Abrasive (structure) 01. B-32-34	EACH	1.000	1.000
0072	517.1801.S	Structure Repainting Recycled Abrasive (structure) 02. B-32-35	EACH	1.000	1.000
0074	517.1801.S	Structure Repainting Recycled Abrasive (structure) 03. B-32-46	EACH	1.000	1.000
0076	517.1801.S	Structure Repainting Recycled Abrasive (structure) 04. B-32-47	EACH	1.000	1.000
0078	517.1801.S	Structure Repainting Recycled Abrasive (structure) 05. B-32-73	EACH	1.000	1.000
0080	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 01. B-32-34	EACH	1.000	1.000
0082	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 02. B-32-35	EACH	1.000	1.000
0084	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 03. B-32-46	EACH	1.000	1.000
0086	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 04. B-32-47	EACH	1.000	1.000
0088	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 05. B-32-73	EACH	1.000	1.000
0090	517.6001.S	Portable Decontamination Facility	EACH	5.000	5.000

Estimate Of Quantities

1070-04-64

Line	Item	Item Description	Unit	Total	Qty
0092	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	2.000	2.000
0094	530.1112	Culvert Pipe Corrugated Polypropylene 12-Inch	LF	66.000	66.000
0096	601.0115	Concrete Curb Type G	LF	20.000	20.000
0098	602.0415	Concrete Sidewalk 6-Inch	SF	2,176.000	2,176.000
0100	603.8000	Concrete Barrier Temporary Precast Delivered	LF	6,160.000	6,160.000
0102	603.8125	Concrete Barrier Temporary Precast Installed	LF	11,280.000	11,280.000
0104	606.0200	Riprap Medium	CY	3.600	3.600
0106	611.0624	Inlet Covers Type H	EACH	4.000	4.000
0108	611.3230	Inlets 2x3-FT	EACH	4.000	4.000
0110	616.0206	Fence Chain Link 6-FT	LF	140.000	140.000
0112	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1070-04-64	EACH	1.000	1.000
0114	619.1000	Mobilization	EACH	1.000	1.000
0116	624.0100	Water	MGAL	2.000	2.000
0118	625.0100	Topsoil	SY	10.000	10.000
0120	628.1504	Silt Fence	LF	185.000	185.000
0122	628.1520	Silt Fence Maintenance	LF	185.000	185.000
0124	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0126	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0128	628.2002	Erosion Mat Class I Type A	SY	417.000	417.000
0130	628.7015	Inlet Protection Type C	EACH	4.000	4.000
0132	628.7504	Temporary Ditch Checks	LF	32.000	32.000
0134	629.0210	Fertilizer Type B	CWT	0.300	0.300
0136	630.0140	Seeding Mixture No. 40	LB	7.800	7.800
0138	630.0200	Seeding Temporary	LB	11.200	11.200
0140	630.0500	Seed Water	MGAL	9.800	9.800
0142	633.5200	Markers Culvert End	EACH	2.000	2.000
0144	642.5001	Field Office Type B	EACH	1.000	1.000
0146	643.0300	Traffic Control Drums	DAY	48,046.000	48,046.000
0148	643.0420	Traffic Control Barricades Type III	DAY	2,215.000	2,215.000
0150	643.0705	Traffic Control Warning Lights Type A	DAY	3,978.000	3,978.000
0152	643.0715	Traffic Control Warning Lights Type C	DAY	12,936.000	12,936.000
0154	643.0800	Traffic Control Arrow Boards	DAY	452.000	452.000
0156	643.0900	Traffic Control Signs	DAY	15,142.000	15,142.000
0158	643.0910	Traffic Control Covering Signs Type I	EACH	1.000	1.000
0160	643.0920	Traffic Control Covering Signs Type II	EACH	4.000	4.000
0162	643.1050	Traffic Control Signs PCMS	DAY	20.000	20.000
0164	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	115,944.000	115,944.000
0166	643.3280	Temporary Marking Line Removable Tape 10-Inch	LF	8,200.000	8,200.000
0168	643.4100	Traffic Control Interim Lane Closure	EACH	8.000	8.000
0170	643.5000	Traffic Control	EACH	1.000	1.000
0172	645.0120	Geotextile Type HR	SY	17.000	17.000
0174	646.2025	Marking Line Grooved Black Epoxy 6-Inch	LF	1,274.000	1,274.000
0176	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	32,654.000	32,654.000
0178	646.4040	Marking Line Grooved Wet Ref Epoxy 10-Inch	LF	3,409.000	3,409.000
0180	646.9002	Marking Removal Line 6-Inch	LF	30,036.000	30,036.000
0182	646.9102	Marking Removal Line 10-Inch	LF	3,346.000	3,346.000
0184	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	20.000	20.000
0186	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0188	650.9500	Construction Staking Sidewalk (project) 01. 1070-04-64	EACH	1.000	1.000

Estimate Of Quantities

1070-04-64					
Line	Item	Item Description	Unit	Total	Qty
0190	650.9911	Construction Staking Supplemental Control (project) 01. 1070-04-64	EACH	1.000	1.000
0192	650.9920	Construction Staking Slope Stakes	LF	263.000	263.000
0194	715.0502	Incentive Strength Concrete Structures	DOL	1,000.000	1,000.000
0196	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 69+25	EACH	1.000	1.000
0198	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 02. 69+25A	EACH	1.000	1.000
0200	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 03. 171+50	EACH	1.000	1.000
0202	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 04. 171+50A	EACH	1.000	1.000
0204	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 05. 10+50B	EACH	1.000	1.000
0206	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,400.000	2,400.000
0208	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	3,200.000	3,200.000
0210	SPV.0090	Special 01. Fence Chain Link 10-FT. B-32-73	LF	530.000	530.000
0212	SPV.0090	Special 02. Fill and Restore Existing Concrete Rumble Strips	LF	16,375.000	16,375.000

RUMBLE STRIP FILLING SUMMARY

					204.0120	455.0605	465.0125	465.0510	SPV.0090.02	
					REMOVING		ASPHALTIC	RUMBLE STRIPS,	SPECIAL (02. FILL AND	
					ASPHALTIC	TACK COAT	SURFACE	SHOULDER	RESTORE EXISTING	
					MILLING	GAL	TEMPORARY	DIVIDED	CONCRETE RUMBLE	
CATEGORY	STATION	TO	STATION	LOCATION	SY		TON	ROADWAY	STRIPS)	REMARKS
STG 1A										
0010	101+00	-	105+00	IH 90 EB RT	-	2	-	-	400	OUTSIDE SHOULDER
0010	140+00A	-	142+75A	IH 90 WB LT	-	1	-	-	275	OUTSIDE SHOULDER
STG 1B										
0010	54+00	-	66+30	IH 90 EB LT	274	20	31	1230	-	INSIDE SHOULDER
0010	72+20	-	76+50	IH 90 EB LT	-	2	-	-	430	INSIDE SHOULDER
0010	102+00	-	168+60	IH 90 EB LT	-	19	-	-	6,660	INSIDE SHOULDER
0010	174+50	-	178+50	IH 90 EB LT	-	2	-	-	400	INSIDE SHOULDER
0010	60+50A	-	66+25A	IH 90 WB RT	128	9	15	575	-	INSIDE SHOULDER
0010	72+15A	-	84+00A	IH 90 WB RT	-	4	-	-	1,185	INSIDE SHOULDER
0010	126+50A	-	168+60A	IH 90 WB RT	-	12	-	-	4,210	INSIDE SHOULDER
0010	174+60A	-	191+75A	IH 90 WB RT	-	5	-	-	1,715	INSIDE SHOULDER
STG 2										
0010	53+00	-	57+00	IH 90 EB RT	89	7	10	400	-	OUTSIDE SHOULDER
0010	73+00	-	76+50	IH 90 EB RT	-	1	-	-	350	OUTSIDE SHOULDER
0010	62+00A	-	65+00A	IH 90 WB LT	67	5	8	300	-	OUTSIDE SHOULDER
0010	80+00A	-	84+00A	IH 90 WB LT	-	2	-	-	400	OUTSIDE SHOULDER
0010	162+50	-	166+00	IH 90 WB LT	-	1	-	-	350	OUTSIDE SHOULDER
TOTAL 0010					558	92	64	2,505	16,375	

PAVING SUMMARY

					204.0155	305.0110	305.0120	601.0115	602.0415	624.0100	
					REMOVING	BASE	BASE AGGREGATE	CONCRETE CURB	CONCRETE	WATER	
					CONCRETE	AGGREGATE	DENSE 1 1/4-INCH	TYPE G	SIDEWALK 6-INCH		
					SIDEWALK	DENSE 3/4-INCH					
CATEGORY	STATION	TO	STATION	LOCATION	SY	TON	TON	LF	SF	MGAL	REMARKS
0010	7+79B	-	9+10B	B-32-73	117	14	51	10	1,048	1	
0010	11+57B	-	12+98B	B-32-73	126	12	55	10	1,128	1	
TOTAL 0010					243	26	106	20	2,176	2	

FENCE SUMMARY

CATEGORY	STATION	TO	STATION	LOCATION	204.0170	616.0206	REMARKS
					REMOVING FENCE LF	FENCE CHAIN LINK 6-FT LF	
0010	131+61	-	131+96	IH 90 RT	35	35	
0010	132+05	-	132+40	IH 90 RT	35	35	
0010	131+89A	-	132+24A	IH 90 LT	35	35	
0010	132+34A	-	132+69A	IH 90 LT	35	35	
TOTAL 0010					140	140	

DIVISION	FROM STATION	TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	COMMENT
				CUT (2)	EBS EXCAVATION (3)				FACTOR 1.25			
DIVISION 1												
	7+78B	9+01B	SOUTH APPROACH	45	0	15	30	1	1	29	29	
	11+69B	12+99B	NORTH APPROACH	44	0	16	28	0	0	28	28	
DIVISION 1 SUBTOTAL				89	0	31	58	1	1	57		
DIVISION 2												
DIVISION 2 SUBTOTAL				0	0	0	0	0	0	0		
GRAND TOTAL				89	0	31	58	1	1	57	57	
TOTAL COMMON EXC				89								

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUALE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUALE PAVEMENT MATERIAL
(13) EXPANDED FILL FACTOR = 1.25
(14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

RAILING STEEL PEDESTRIAN TYPE C2

513.8011 RAILING STEEL PEDESTRIAN TYPE C2						REMARKS
CATEGORY	STATION	TO	STATION	LOCATION	LF	
0010	7+90	-	9+00	SOUTH APPROACH	220	
0010	11+67	-	12+87	NORTH APPROACH	240	
TOTAL 0010					460	

DRAINAGE SUMMARY

		521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH		530.1112 CULVERT PIPE CORRUGATED POLYPROPYLENE 12-INCH		606.0200 RIPRAP MEDIUM	611.0624 INLET COVERS TYPE H	611.3230 INLETS 2X3-FT	633.5200 MARKERS CULVERT END	645.0120 GEOTEXTILE TYPE HR	
CATEGORY	STATION	LOCATION	EACH	LF	CY	EACH	EACH	EACH	EACH	SY	REMARKS
0010	8+98B	SOUTH ABUTMENT	1	31	1.8	2	2	1	8.5		
0010	11+69B	NORTH ABUTMENT	1	35	1.8	2	2	1	8.5		
TOTAL 0010			2	66	3.6	4	4	2	17.0		

LANDSCAPING SUMMARY

					625.0100 TOPSOIL	628.2002 EROSION MAT CLASS I TYPE A	629.0210 FERTILIZER TYPE B	630.0140 SEEDING MIXTURE NO. 40	630.0200 SEEDING TEMPORARY	630.0500 SEED WATER	
CATEGORY	STATION	TO	STATION	LOCATION	SY	SY	CWT	LB	LB	MGAL	REMARKS
0010	7+79	-	9+10	RT	-	93	0.06	1.7	2.5	2.1	
0010	7+79	-	9+10	LT	-	75	0.06	1.4	2.0	1.5	
0010	11+57B	-	12+98B	RT	-	126	0.08	2.3	3.4	2.7	
0010	11+57B	-	12+98B	LT	-	68	0.05	1.3	1.8	1.5	
0010	UNDISTRIBUTED				10	55	0.05	1.1	1.5	2	
TOTAL 0010					10	417	0.30	7.8	11.2	9.8	

BARRIER SUMMARY

CATEGORY	STATION	TO	STATION	LOCATION	603.8000	603.8125	REMARKS
					CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	
STG 1A							
0010	128+80	-	130+00	B-32-73	120	120	
0010	130+00	-	134+00	B-32-73	400	400	
0010	130+00A	-	134+00A	B-32-73	400	400	
0010	134+00A	-	135+20A	B-32-73	120	120	
STAGE 1A TOTAL					1040	1040	
STG 1B							
0010	62+80	-	64+00	B-32-46	120	120	
0010	64+00	-	73+00	B-32-46	900	900	
0010	128+80	-	130+00	B-32-73	-	120	
0010	130+00	-	134+00	B-32-73	-	400	
0010	165+80	-	167+00	B-32-34	120	120	
0010	167+00	-	175+00	B-32-34	800	800	
0010	65+00A	-	75+00A	B-32-47	1,000	1,000	
0010	75+00A	-	76+20A	B-32-47	120	120	
0010	130+00A	-	134+00A	B-32-73	-	400	
0010	134+00A	-	135+20A	B-32-73	-	120	
0010	166+00A	-	176+00A	B-32-35	900	900	
0010	176+00A	-	177+20A	B-32-35	120	120	
STAGE 1B TOTAL					4080	5120	
STG 2							
0010	62+80	-	64+00	B-32-46	-	120	
0010	64+00	-	73+00	B-32-46	-	900	
0010	128+80	-	130+00	B-32-73	120	120	
0010	130+00	-	134+00	B-32-73	400	400	
0010	165+80	-	167+00	B-32-34	-	120	
0010	167+00	-	175+00	B-32-34	-	800	
0010	65+00A	-	75+00A	B-32-47	-	1,000	
0010	75+00A	-	76+20A	B-32-47	-	120	
0010	130+00A	-	134+00A	B-32-73	400	400	
0010	134+00A	-	135+20A	B-32-73	120	120	
0010	166+00A	-	176+00A	B-32-35	-	900	
0010	176+00A	-	177+20A	B-32-35	-	120	
STAGE 2 TOTAL					1040	5120	
TOTAL					6160	11280	

EROSION CONTROL SUMMARY

CATEGORY	STATION	TO	STATION	LOCATION	628.1504	628.1520	628.1905	628.1910	628.7015	628.7504	REMARKS
					SILT FENCE LF	SILT FENCE MAINTENANCE LF	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	INLET PROTECTION TYPE C EACH	TEMPORARY DITCH CHECKS LF	
0010		PROJECT		-	-	-	3	2	-	-	
0010	7+86B	-	8+51B	SOUTH APPROACH RT	70	70	-	-	-	-	
0010	8+98B			SOUTH APPROACH RT	-	-	-	-	1	16	
0010	8+98B			SOUTH APPROACH LT	-	-	-	-	1	-	
0010	11+68B			NORTH APPROACH RT	-	-	-	-	1	16	
0010	11+68B			NORTH APPROACH LT	-	-	-	-	1	-	
0010	11+94B	-	13+00B	NORTH APPROACH RT	115	115	-	-	-	-	
TOTAL 0010					185	185	3	2	4	32	

TRAFFIC CONTROL SUMMARY

643.0300 TRAFFIC CONTROL DRUMS																						643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C		643.0800 TRAFFIC CONTROL ARROW BOARDS		643.0900 TRAFFIC CONTROL SIGNS		643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I		643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II		643.1050 TRAFFIC CONTROL SIGNS PCMS		643.4100 TRAFFIC CONTROL INTERIM LANE CLOSURE	
CATEGORY	STATION	TO	STATION	STG	LOCATION	DURATION	DRUMS	DAY	BARRICADES	DAY	TY AÆ	DAY	TYPE C	DAY	ARROW BOARDS	DAY	SIGNS	DAY	EACH	EACH	DAY	EACH	REMARKS																
0010	86+65	.	13500	1A	I 90 B	10	96	960	2	20	4	40	37	370	2	20	26	260	-	-	7	-	MIAN LAN CLOSUR																
0010	12200A	-	16730A	1A	I 90 B	10	91	910	3	30	6	60	33	330	2	20	28	280	-	-	7	-	MIAN LAN CLOSUR																
0010	TOUR			1A	BAINBRI ST	10	-	-	4	40	4	40	-	-	-	-	10	100	-	-	-	-	TOUR																
0010	IT RSTRICTION			1A	I 90	10	-	-	-	-	-	-	-	-	-	-	30	300	-	-	-	-	IT																
ST 1B RAMS CLOSUR				SUBTO TAL				1870				90				140				700				40				940	0	0	14	0							
	0010	3875	-	18200	1B	I 90 B	10	240	2400	11	110	22	220	64	640	2	20	47	470	-	-	-	1	OUTSI LAN CLOSUR															
	0010	5700A	-	20825A	1B	I 90 B	10	180	1800	10	100	20	200	46	460	2	20	44	440	-	-	-	1	OUTSI LAN CLOSUR															
	0010	OFF RAM TOUR			1B	I 90 B	10	-	-	-	-	-	-	-	-	-	30	300	1	-	3	-	OFF RAM TOUR																
	0010	ON RAM TOUR			1B	I 90 B	10	-	-	-	-	-	-	-	-	-	50	500	-	4	3	-	ON RAM TOUR																
ST 1B RAMS ON	0010	3875	-	18200	1B	I 90 B	39	250	9750	8	312	16	624	72	2808	2	78	47	1833	-	-	-	1	OUTSI LAN CLOSUR															
	0010	5700A	-	20825A	1B	I 90 B	39	260	10140	7	273	14	546	46	1794	2	78	44	1716	-	-	-	1	OUTSI LAN CLOSUR															
	0010	TOUR			1B	BAINBRI ST	49	-	-	4	196	4	196	-	-	-	10	490	-	-	-	-	TOUR																
	0010	IT RSTRICTION			1B	I 90	49	-	-	-	-	-	-	-	-	-	30	1470	-	-	-	-	IT																
				SUBTO TAL				24090				991				1786				5702				196				7219	1	4	6	4							
0010	3875	-	18200	2	I 90 B	54	203	10962	9	486	18	972	57	3078	2	108	45	2430	-	-	-	1	MIAN LAN CLOSUR																
0010	5700A	-	20925A	2	I 90 B	54	206	11124	8	432	16	864	64	3456	2	108	44	2376	-	-	-	1	MIAN LAN CLOSUR																
0010	TOUR			2	BAINBRI ST	54	-	-	4	216	4	216	-	-	-	-	10	540	-	-	-	-	TOUR																
0010	IT RSTRICTION			2	I 90	54	-	-	-	-	-	-	-	-	-	-	30	1620	-	-	-	-	IT																
				SUBTO TAL				22086				1134				2052				6534				216				6966	0	0	0	2							
0010	3875	-	18200	3	I 90 B	1	-	-	-	-	-	-	-	-	-	-	8	8	-	-	-	1	LIN AINTIN																
0010	5700A	-	20825A	3	I 90 B	1	-	-	-	-	-	-	-	-	-	-	9	9	-	-	-	1	LIN AINTIN																
				SUBTO TAL				0				0				0				0				0				17	0	0	0	2							
TOTAL 0010							48046				2215				3978				12936				452				15142	1	4	20	8								

NOT AC SIN ILL B COR FOR 1 CYCL

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MARKING SUMMARY

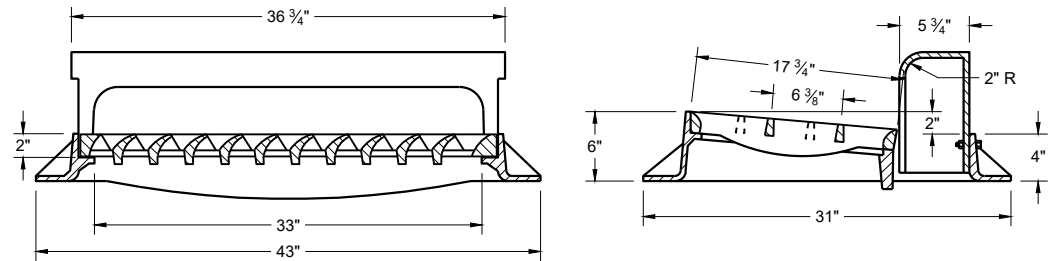
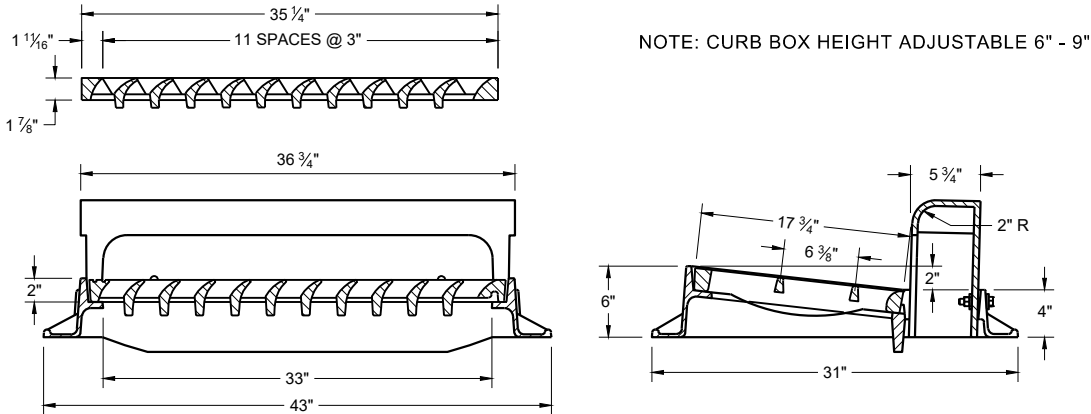
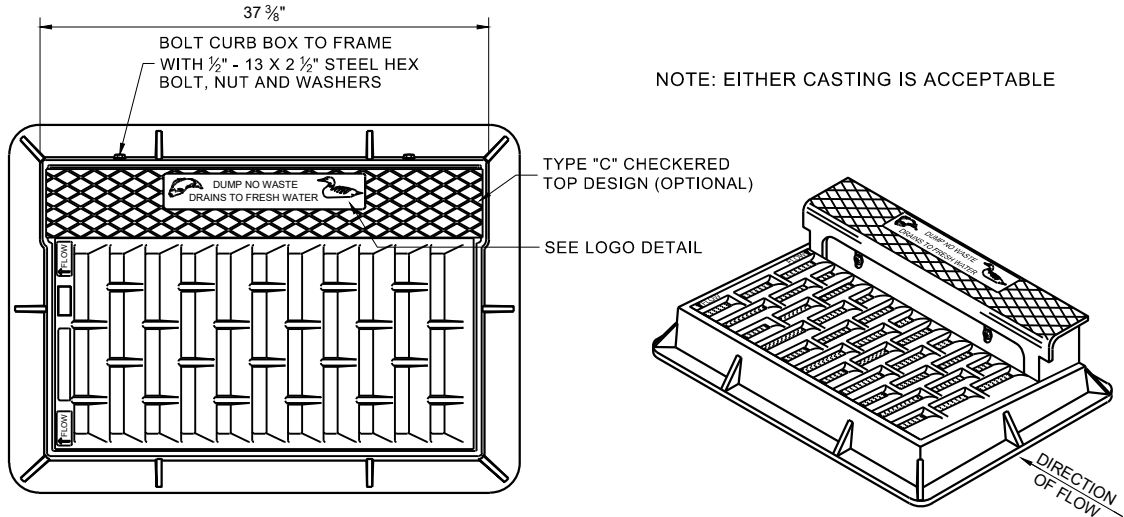
CATEGORY	STATION	TO	STATION	LOCATION	646.2040 MARKING LINE GROOVED WET REF EPOXY 6-INCH		646.2025 MARKING LINE GROOVED BLACK EPOXY 6-INCH	646.4040 MARKING LINE GROOVED WET REF EPOXY 10-INCH	REMARKS
					LF	LF	LF	LF	
					WHITE	YELLOW			
0010	44+00	-	51+20	IH 90 EB	180	-	180	-	LANE LINE
0010	53+20	-	76+60	IH 90 EB	2340	-	-	-	EDGE LINE
0010	54+13	-	76+60	IH 90 EB	-	2247	-	-	EDGE LINE
0010	66+42	-	72+02	IH 90 EB	140	-	140	-	LANE LINE
0010	92+20	-	99+03	IH 90 EB	171	-	171	-	LANE LINE
0010	101+40	-	106+70	IH 90 EB	530	-	-	-	EDGE LINE
0010	102+12	-	178+60	IH 90 EB	-	7648	-	-	EDGE LINE
0010	106+70	-	112+37	IH 90 EB	-	-	-	914	GORE
0010	111+30	-	117+00	IH 90 EB	570	-	-	-	EDGE LINE
0010	121+36	-	125+52	IH 90 EB	416	-	-	-	EDGE LINE
0010	132+02	-	134+68	IH 90 EB	-	-	-	330	GORE
0010	134+68	-	141+25	IH 90 EB	657	-	-	-	EDGE LINE
0010	141+25	-	145+10	IH 90 EB	-	-	-	537	Gore
0010	144+30	-	150+07	IH 90 EB	577	-	-	-	EDGE LINE
0010	157+50	-	175+00	IH 90 EB	1,750	-	-	-	EDGE LINE
0010	168+66	-	174+28	IH 90 EB	141	-	141	-	LANE LINE
0010	60+60A	-	83+80A	IH 90 WB	-	2320	-	-	EDGE LINE
0010	62+30A	-	83+80A	IH 90 WB	2,150	-	-	-	EDGE LINE
0010	66+39A	-	72+00A	IH 90 WB	141	-	141	-	LANE LINE
0010	126+40A	-	192+25A	IH 90 WB	-	6585	-	-	EDGE LINE
0010	127+09A	-	132+55A	IH 90 WB	546	-	-	-	EDGE LINE
0010	131+11A	-	135+88A	IH 90 WB	-	-	-	685	GORE
0010	135+88A	-	141+95A	IH 90 WB	607	-	-	-	EDGE LINE
0010	141+95A	-	143+60A	IH 90 WB	-	-	-	165	GORE
0010	154+80A	-	162+00A	IH 90 WB	180	-	180	-	LANE LINE
0010	162+40A	-	176+40A	IH 90 WB	1,400	-	-	-	EDGE LINE
0010	168+85A	-	174+47A	IH 90 WB	141	-	141	-	LANE LINE
0010	180+92A	-	187+22A	IH 90 WB	630	-	-	-	EDGE LINE
0010	186+30A	-	191+23A	IH 90 WB	-	-	-	778	GORE
0010	191+23A	-	195+30A	IH 90 WB	407	-	-	-	EDGE LINE
0010	195+60A	-	202+79A	IH 90 WB	180	-	180	-	LANE LINE
SUBTOTAL					13854	18800	1274	3409	
TOTAL 0010					32,654		1,274	3,409	

CONSTRUCTION STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	650.6000 CONSTRUCTION STAKING PIPE CULVERTS	650.9920 CONSTRUCTION STAKING SLOPE STAKES	REMARKS
					LF	EACH	LF	
0010	7+79B	-	9+10B	PEDESTRIAN BRIDGE	-	-	131	
0010	9+00	-	8+95	PEDESTRIAN BRIDGE	10	-	-	
0010	8+98	-		PEDESTRIAN BRIDGE	-	1	-	
0010	11+66	-	12+98	PEDESTRIAN BRIDGE	-	-	132	
0010	11+66	-	11+71	PEDESTRIAN BRIDGE	10	-	-	
0010	11+69	-		PEDESTRIAN BRIDGE	-	1	-	
TOTAL 0010					20	2	263	

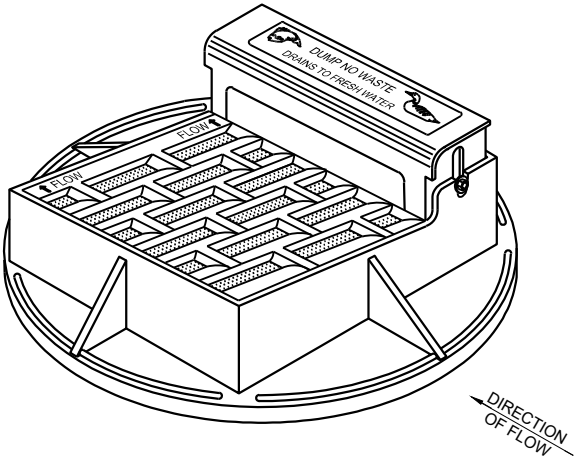
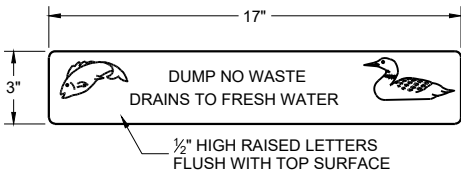
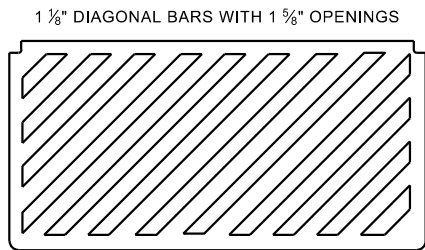
Standard Detail Drawing List

08A05-21A	INLET COVERS TYPE A, H, A-S, H-S & Z
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D03-09A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-09B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
14B07-16A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16J	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16K	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16L	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16M	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16N	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09D	ON RAMP LANE CLOSURE
15C02-09E	OFF RAMP LANE CLOSURE
15C02-09F	ADVANCED WIDTH RESTRICTION SIGNING
15C02-09G	TRAFFIC CONTROL FOR ENTRANCE RAMP CLOSURE
15C02-09H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15D12-14A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D12-14B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D12-14D	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D15-07A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-07B	TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-07C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-07D	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-07E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D16-06	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D29-06	TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD
15D30-10F	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D40-05D	TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER



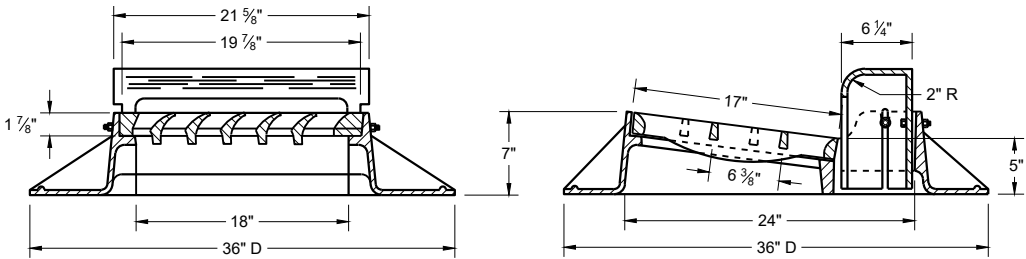
TYPE "H"

NOTE: EITHER CASTING IS ACCEPTABLE

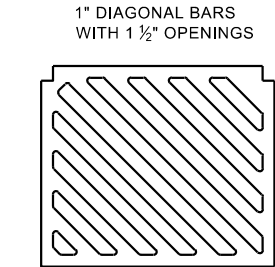
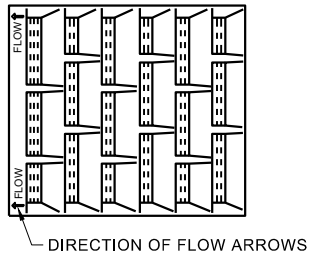


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

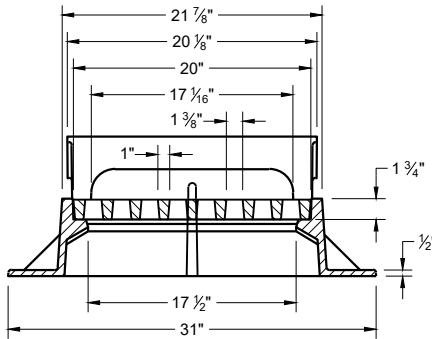
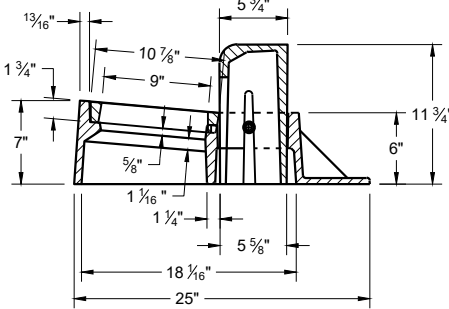
NOTE: EITHER CASTING IS ACCEPTABLE



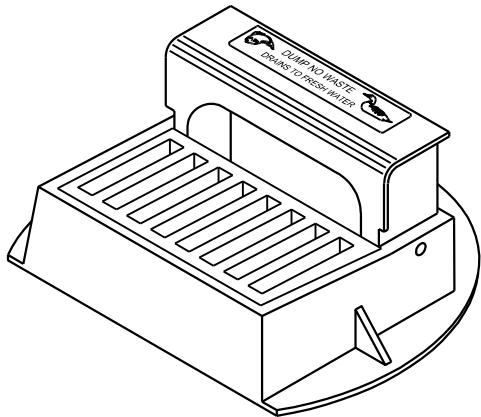
TYPE "A"



SPECIAL GRATE FOR TYPE "A" COVER
(MEASURES 19 3/4" X 17" X 1 7/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



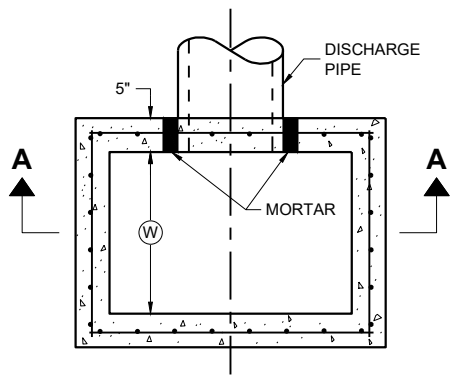
TYPE "Z"



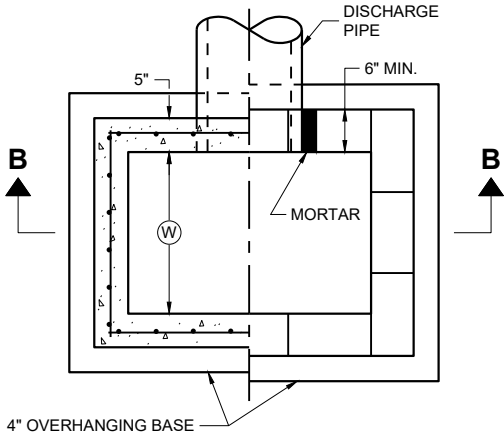
INLET COVERS
TYPES A, H, A-S, H-S AND Z

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

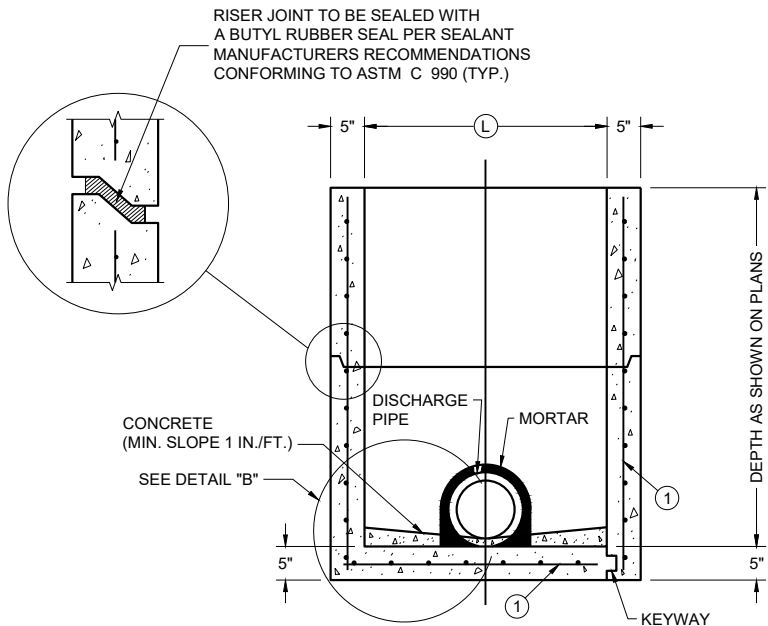
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW



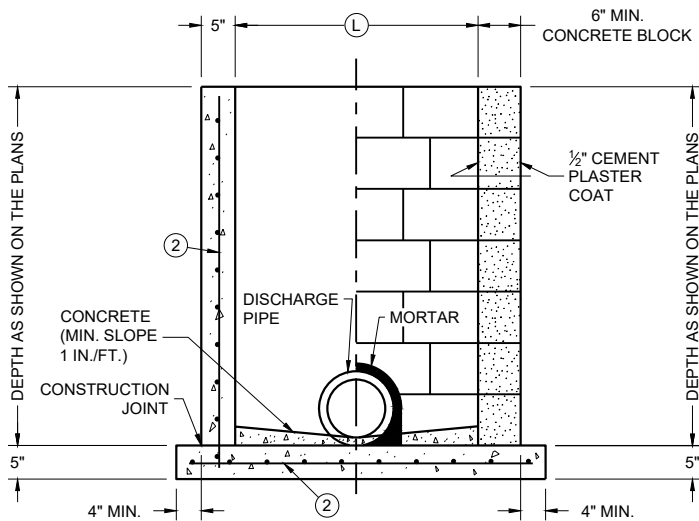
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

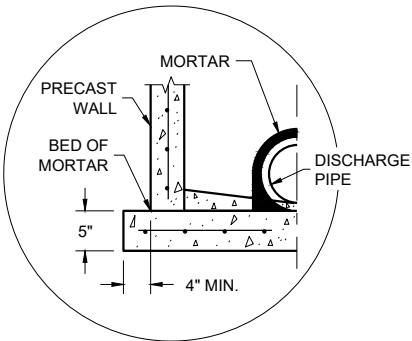
SECTION A - A



CAST IN PLACE
REINFORCED
CONCRETE

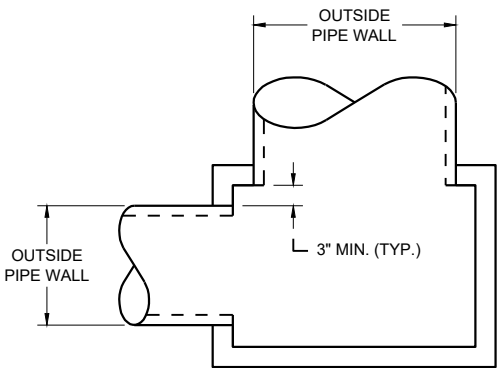
CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①

SECTION B - B



SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"



DETAIL "A"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

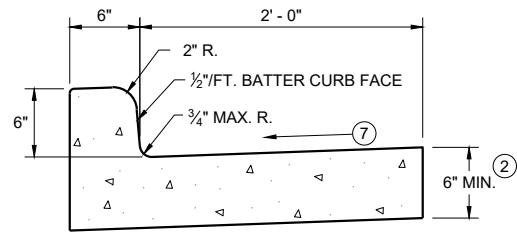
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

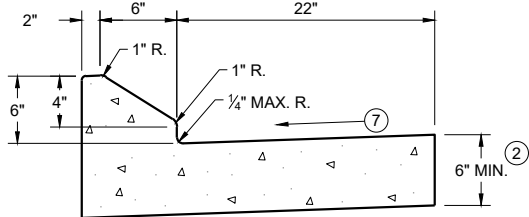
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

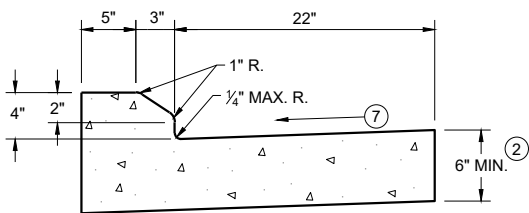
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



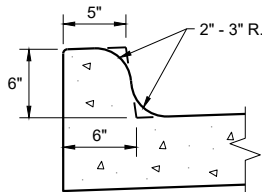
TYPES A^① & D



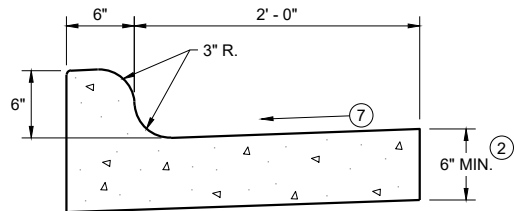
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

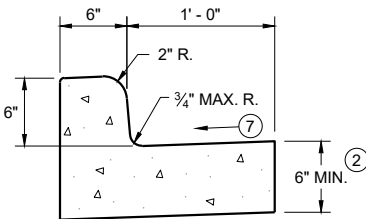


TYPES K^① & L
(OPTIONAL CURB SHAPE)



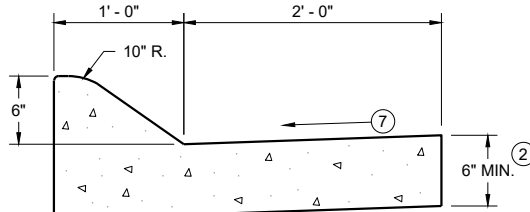
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

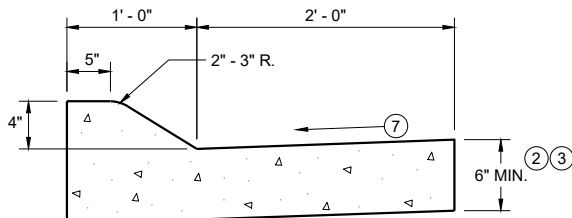


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

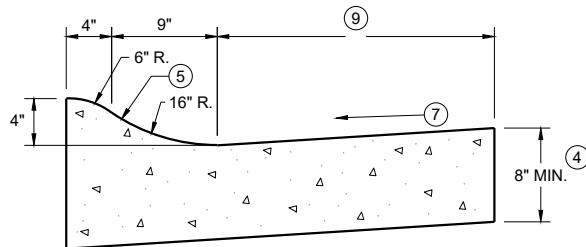


6" SLOPED CURB TYPES A^① & D



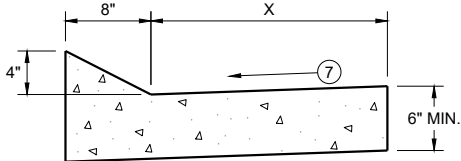
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

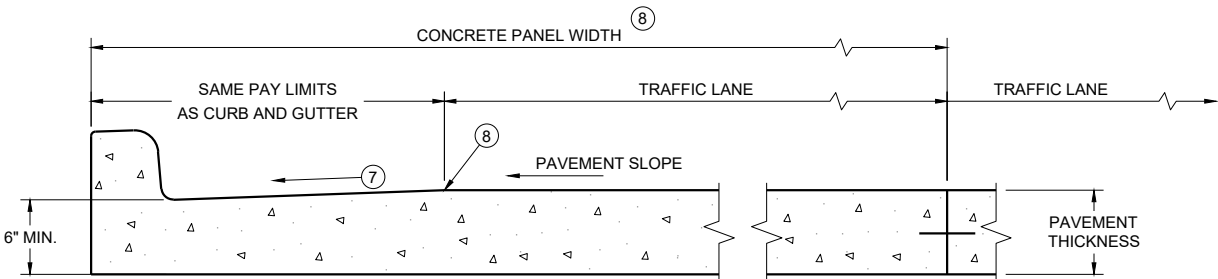


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

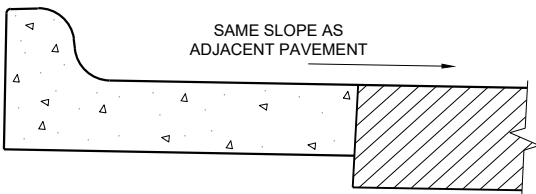
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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)

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.

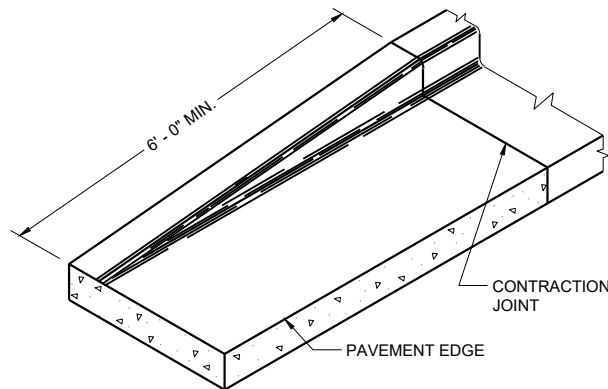
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

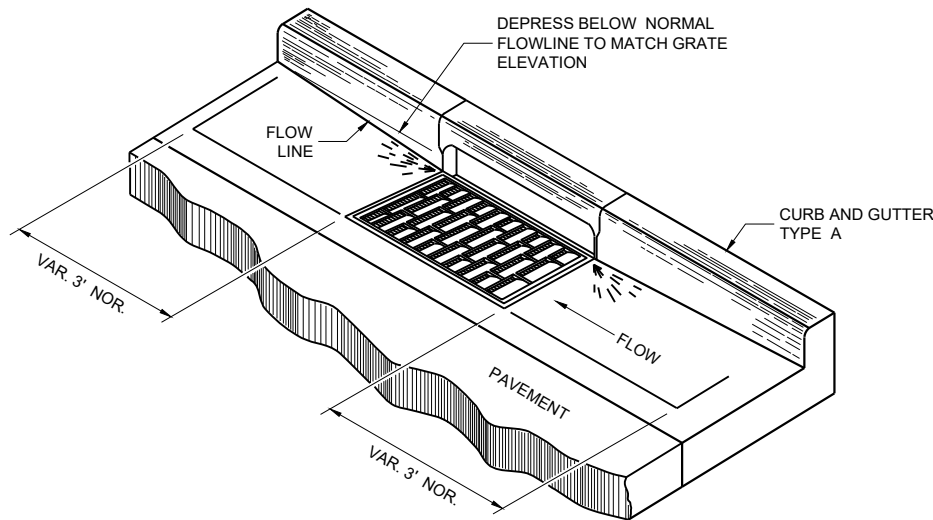
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH 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 CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

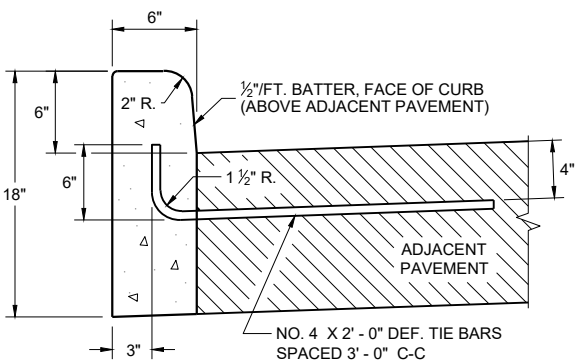


END SECTION CURB AND GUTTER

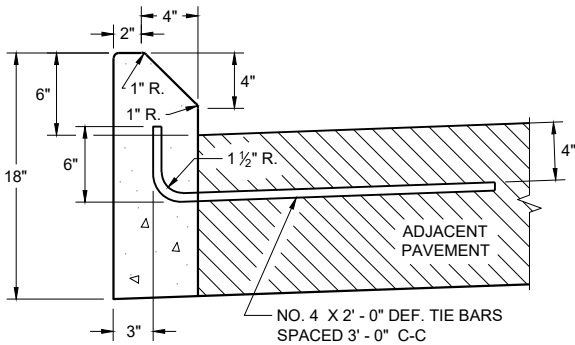


DETAIL OF CURB AND GUTTER AT INLETS

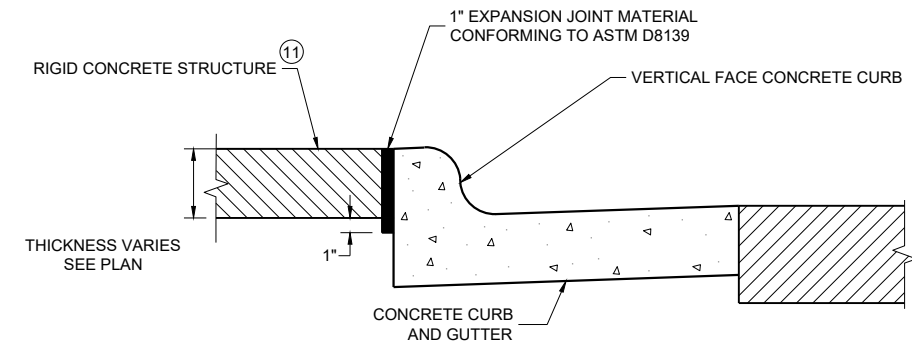
(TYPICAL H INLET COVER SHOWN)



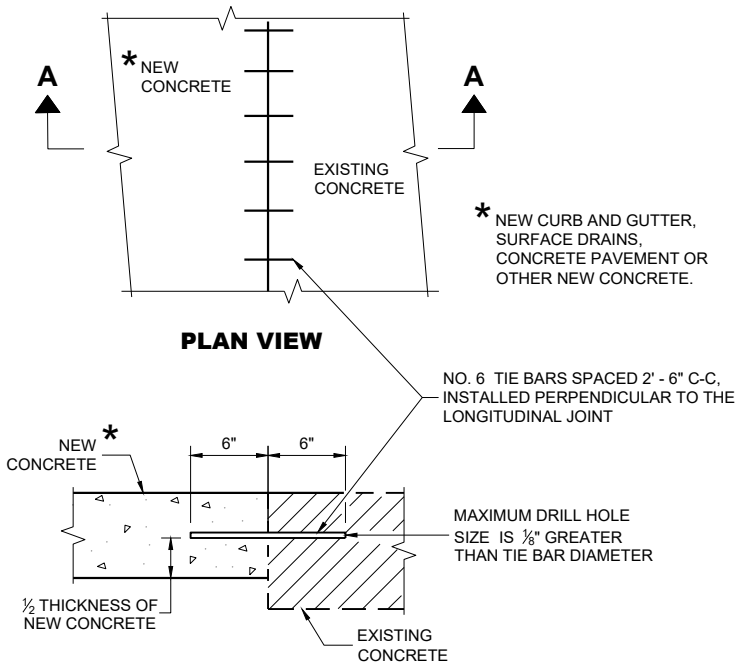
TYPES A^① & D



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

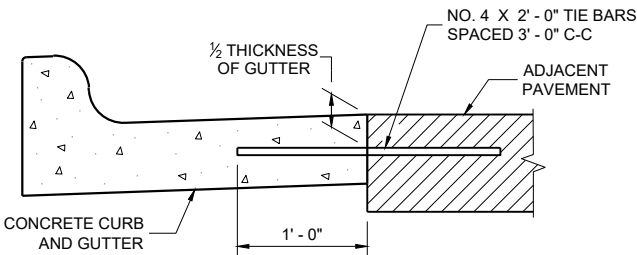
GENERAL NOTES

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

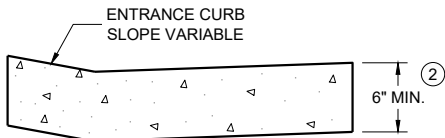
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

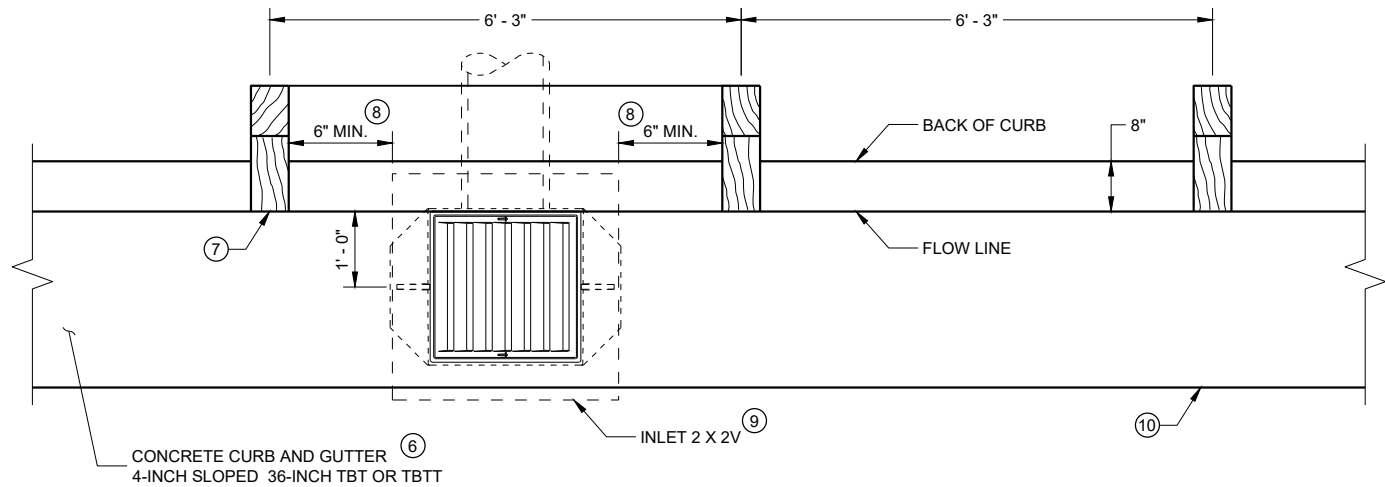
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

GENERAL NOTES

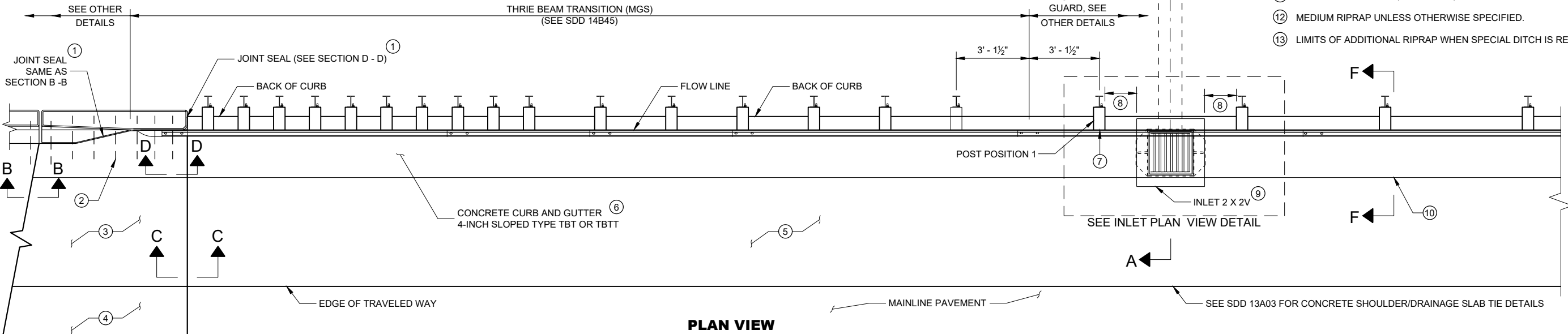
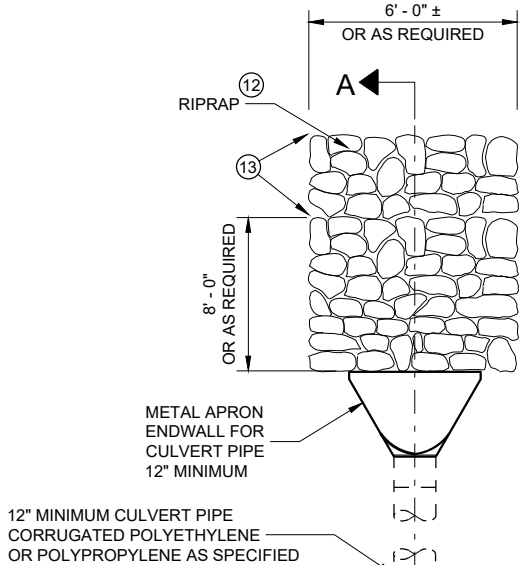
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

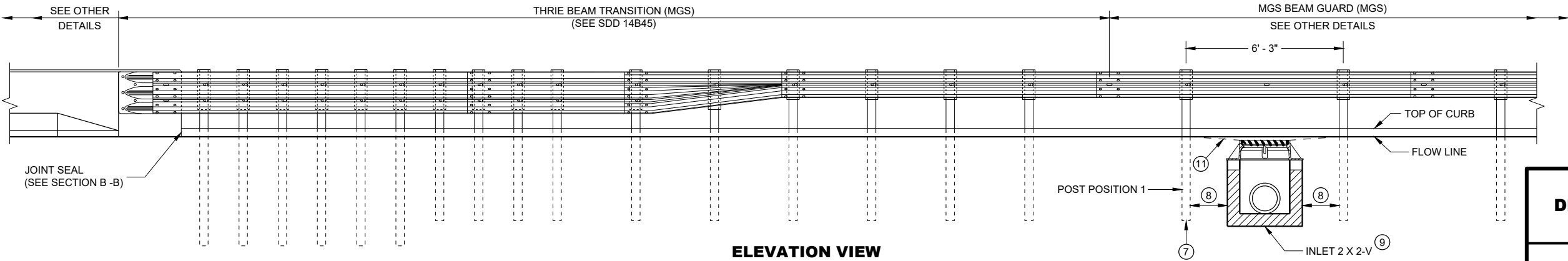
- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- 9 SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- 10 START CURB AND GUTTER TRANSITION OR END SECTION.
- 11 DEPRESS FLOW LINE (SEE DETAIL)
- 12 MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- 13 LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.



INLET PLAN VIEW
(NOTE: RAIL NOT SHOWN FOR CLARITY)



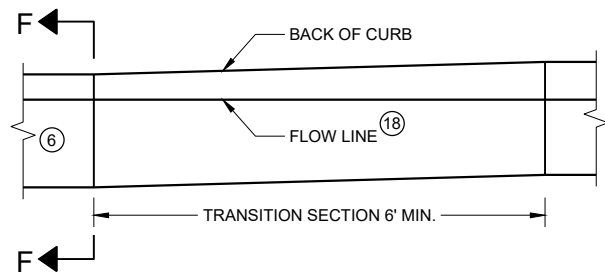
PLAN VIEW



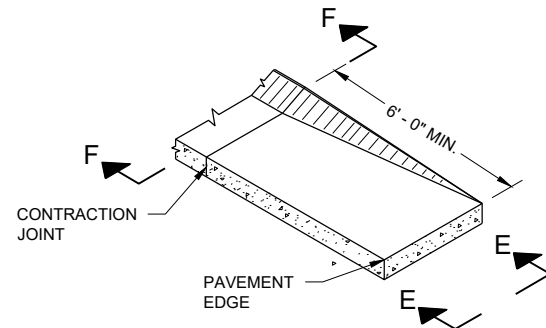
ELEVATION VIEW

CONCRETE SURFACE
DRAINS DROP INLET TYPE
AT STRUCTURES

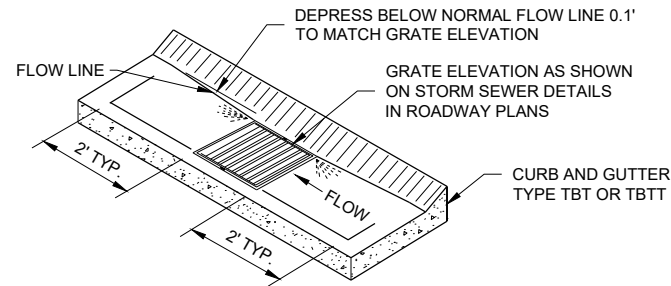
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



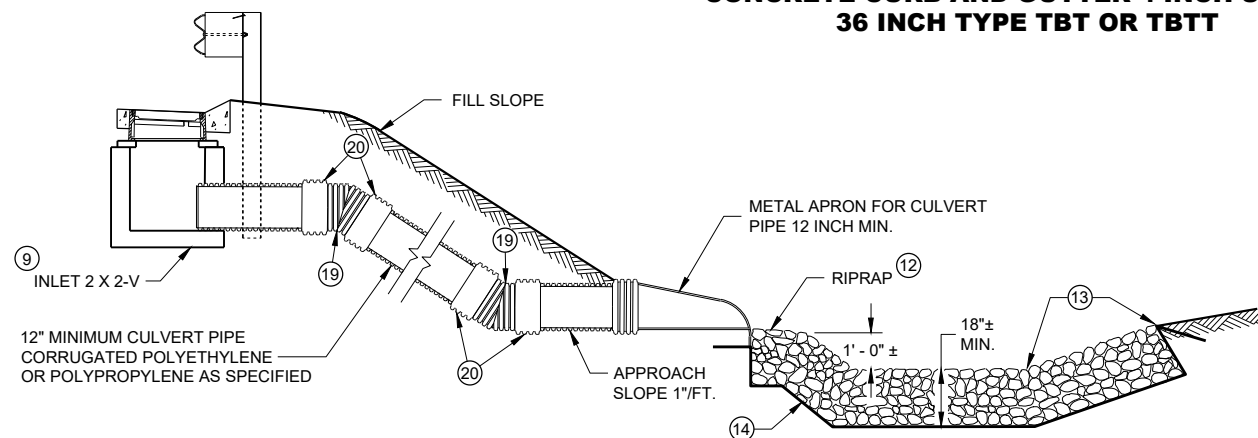
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBT**



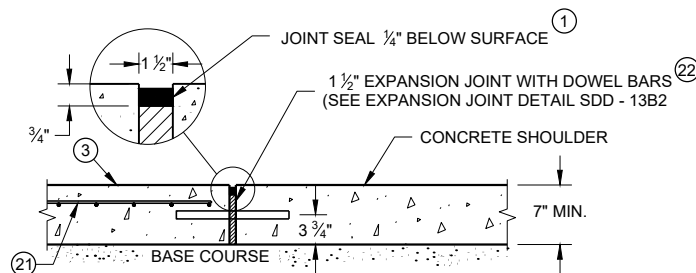
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBT**



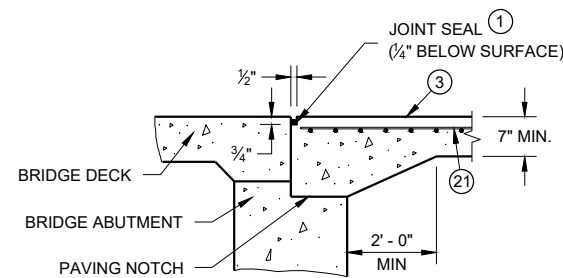
**CURB AND GUTTER FLOW LINE DEPRESSION
AT INLETS CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBT**



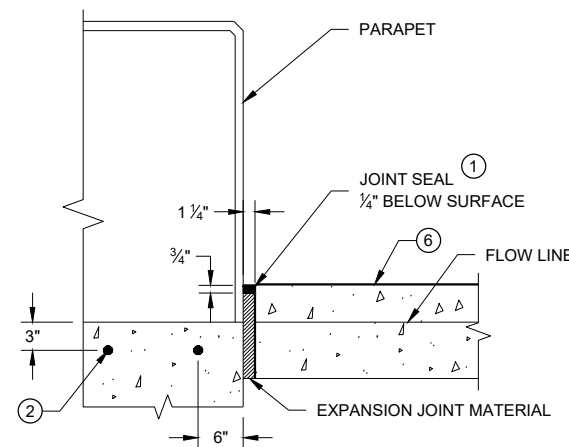
SECTION A - A



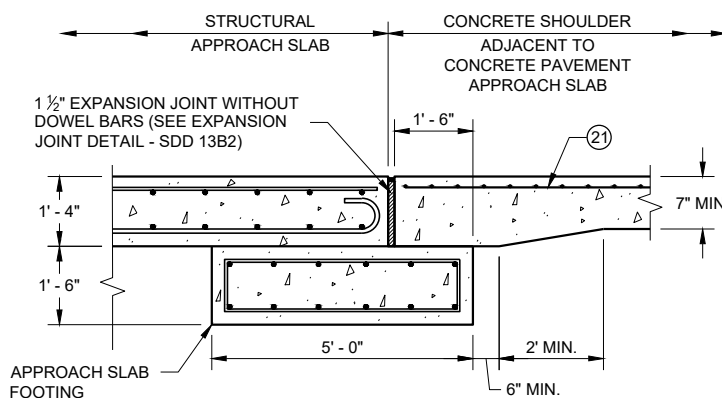
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



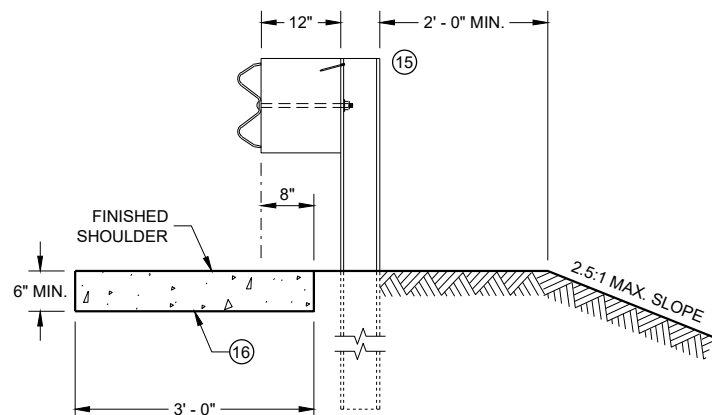
SECTION B-B



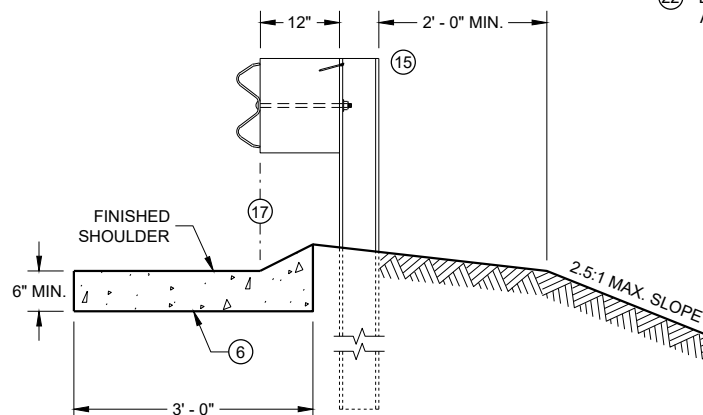
SECTION D - D



**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



SECTION E - E



SECTION F - F

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.

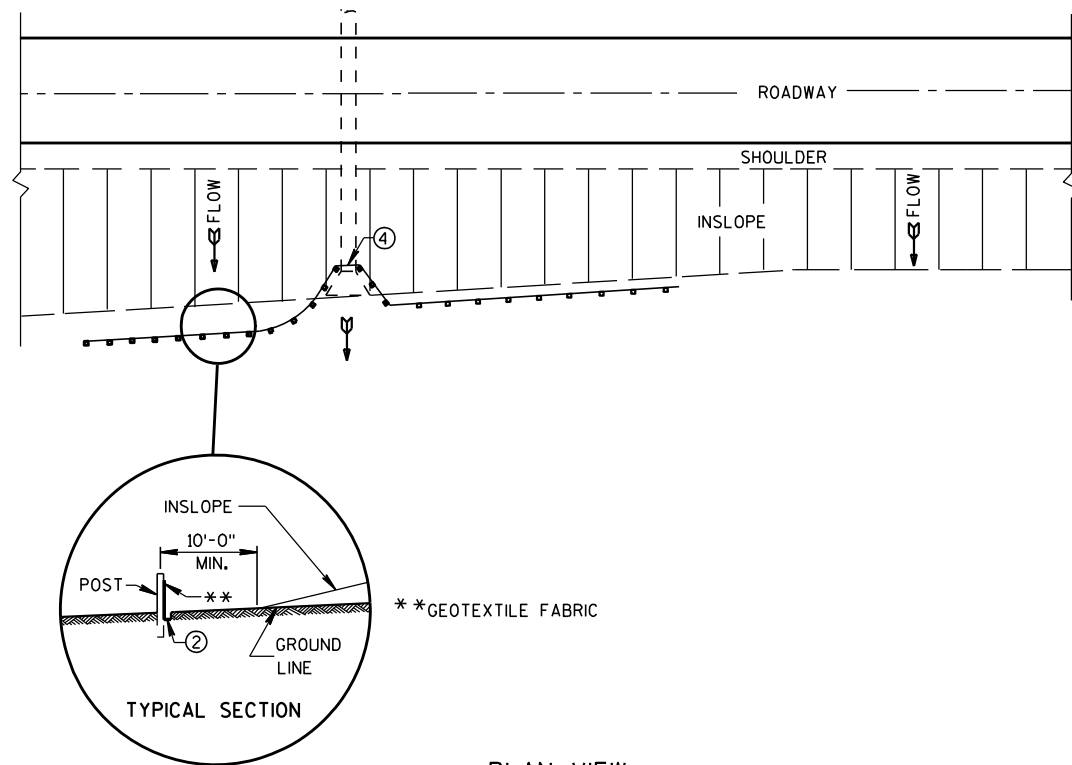
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
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- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑭ GEOTEXTILE TYPE HR.
- ⑮ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑯ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑰ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑱ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑲ MANUFACTURER SUPPLIED BEND.
- ⑳ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ㉑ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ㉒ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

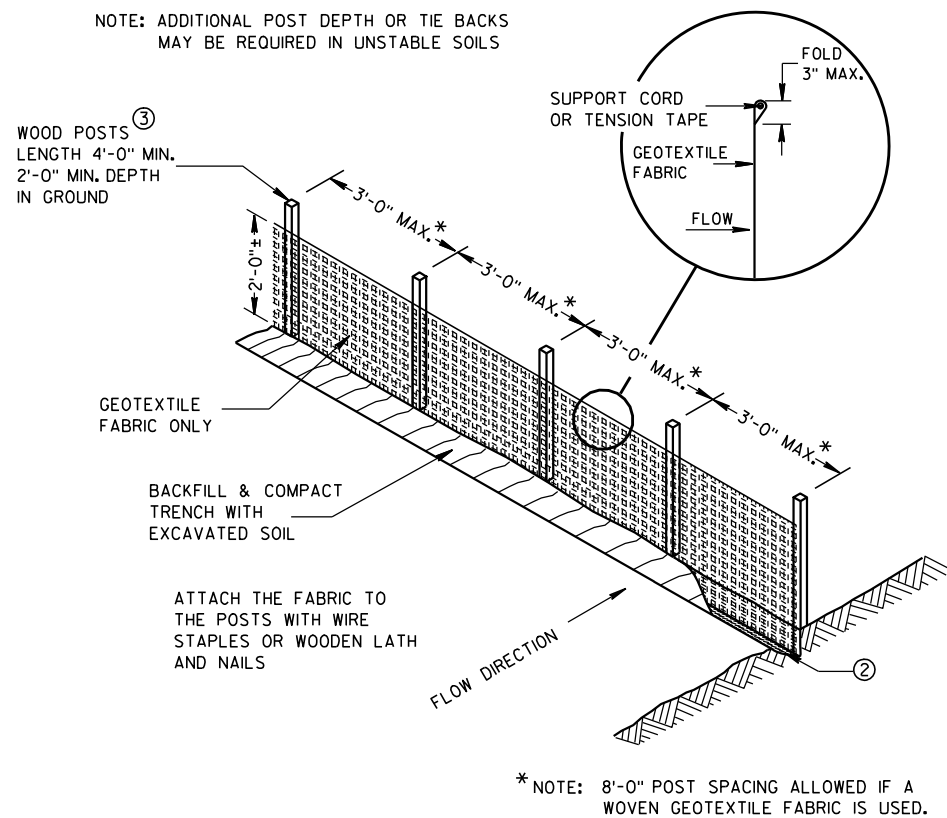
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



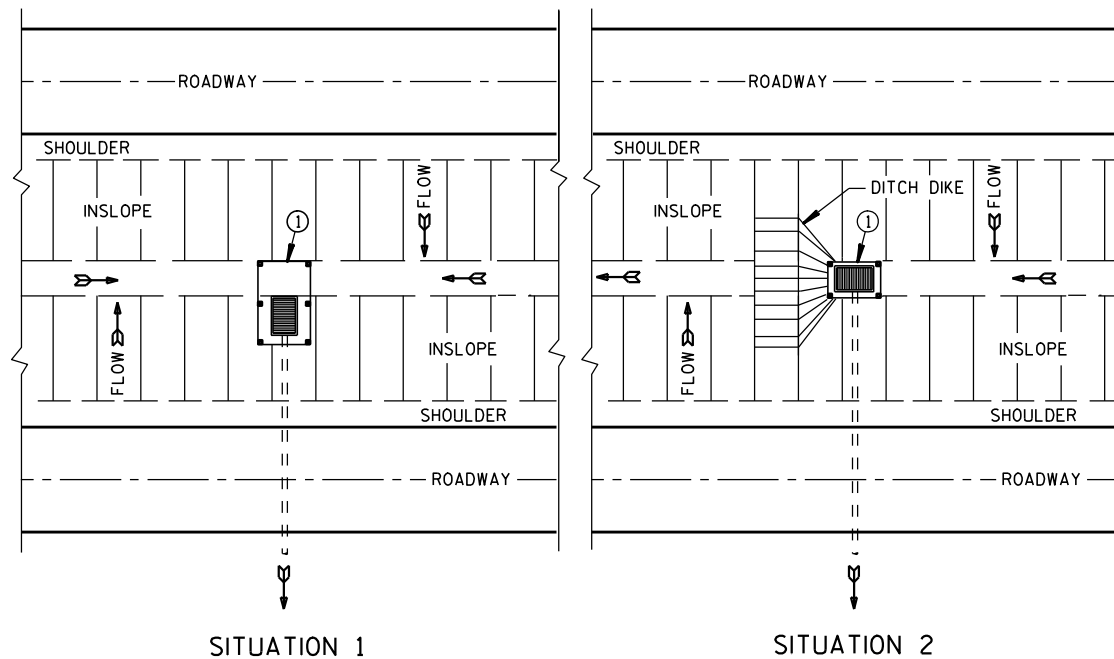
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS
MAY BE REQUIRED IN UNSTABLE SOILS

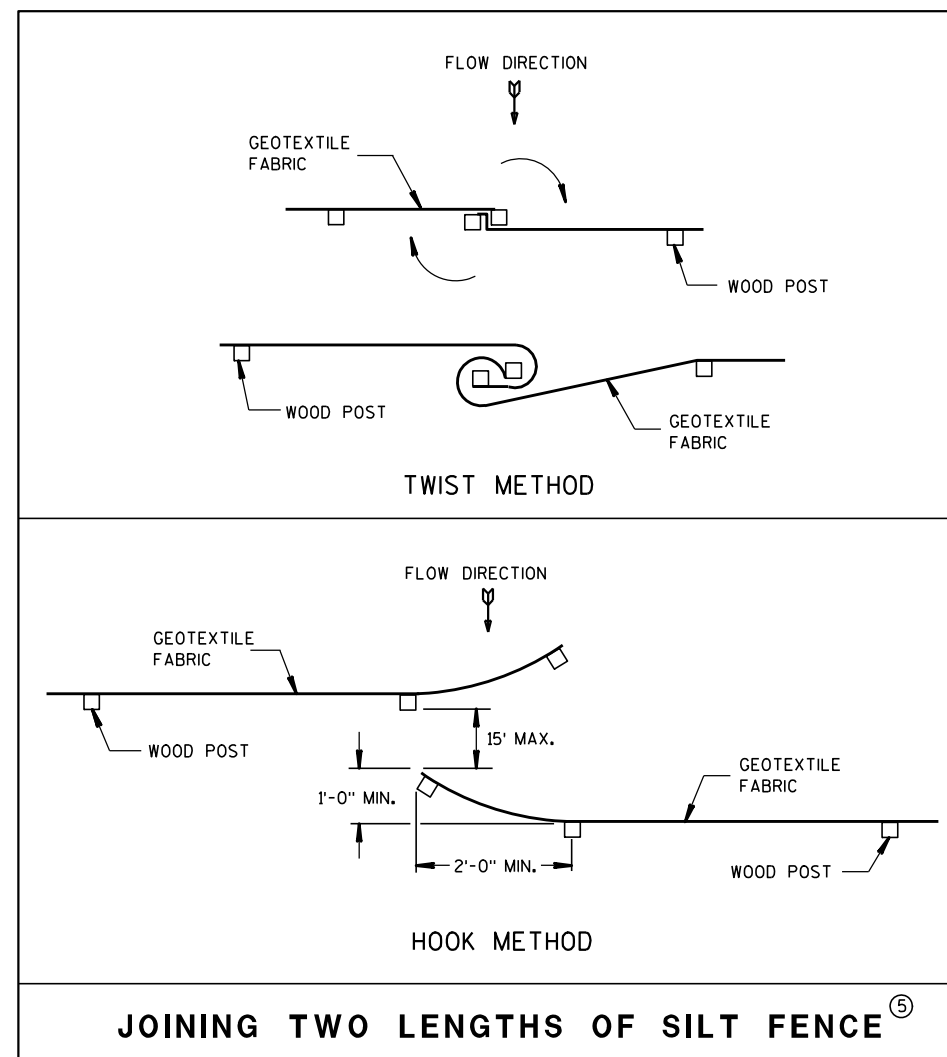


SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A
WOVEN GEOTEXTILE FABRIC IS USED.



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

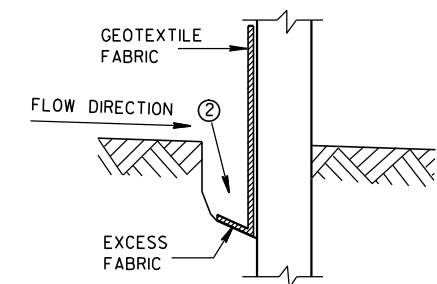


JOINING TWO LENGTHS OF SILT FENCE^⑤

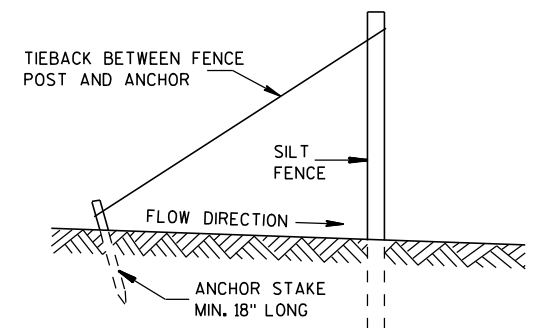
GENERAL NOTES

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

- 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 1 1/8" X 1 1/8" 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.



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

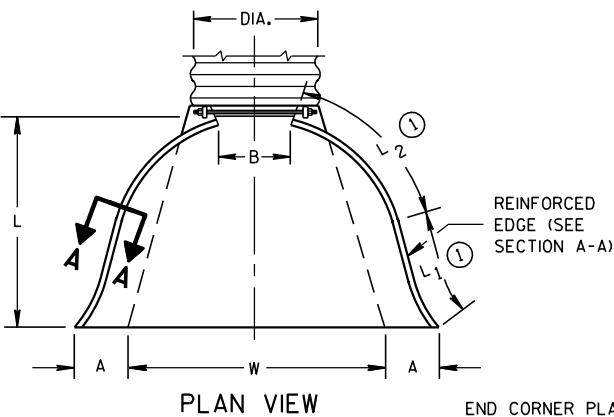
4-29-05
DATE

FHWA

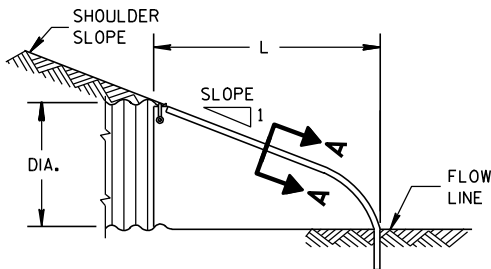
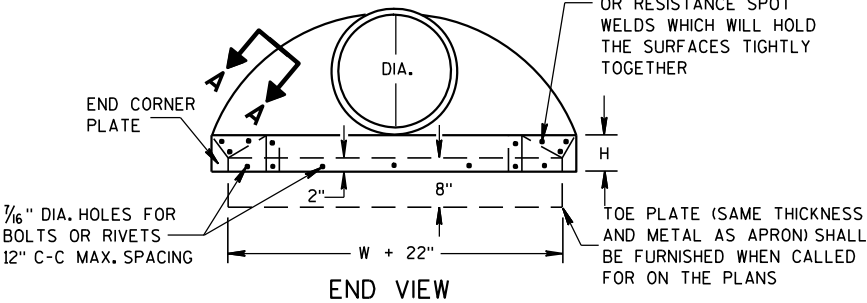
/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

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



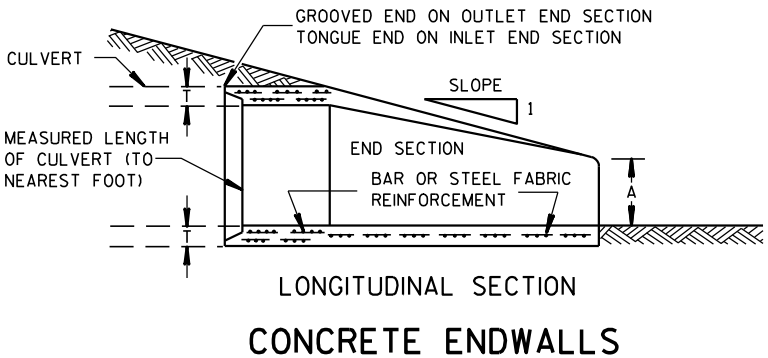
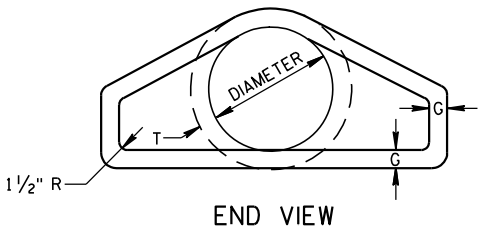
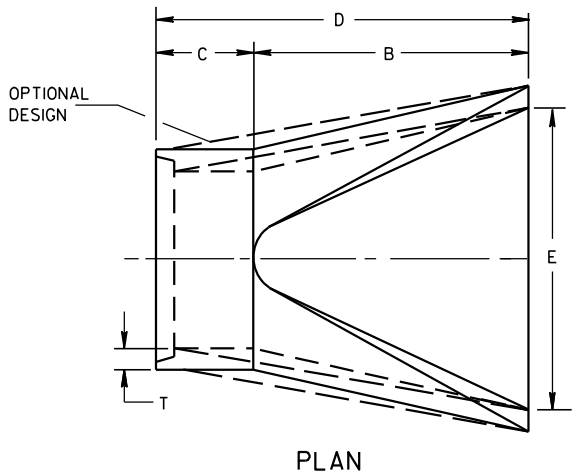
END CORNER PLATES MAY
BE FASTENED TO APRON
PROPER BY BOLTS, RIVETS,
OR RESISTANCE SPOT
WELDS WHICH WILL HOLD
THE SURFACES TIGHTLY
TOGETHER



SIDE ELEVATION
METAL ENDWALLS

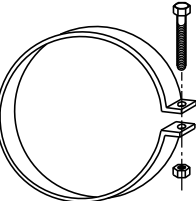
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9 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 1/2 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

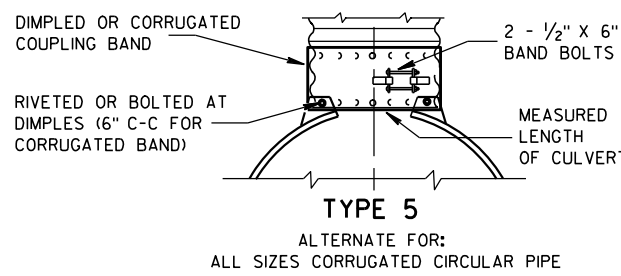
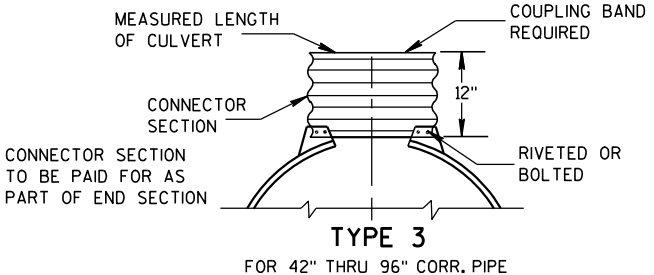
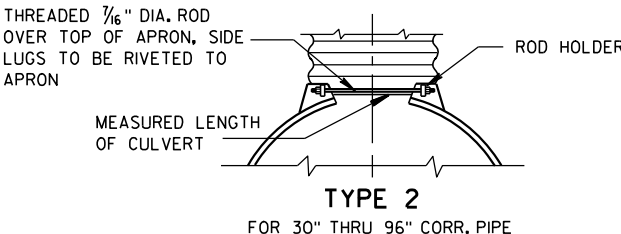
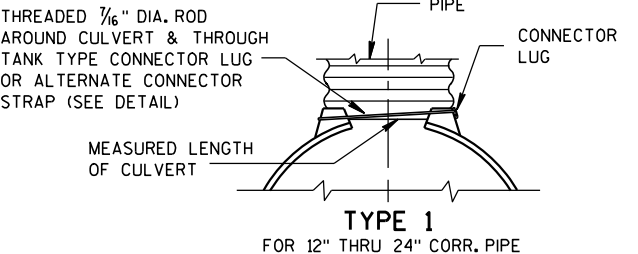


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



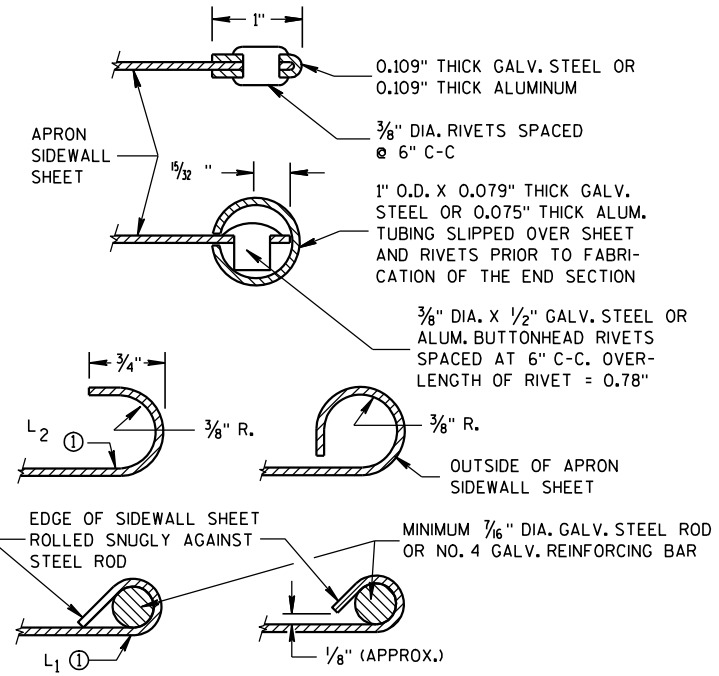
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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.

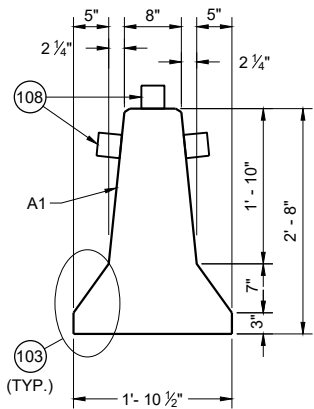
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

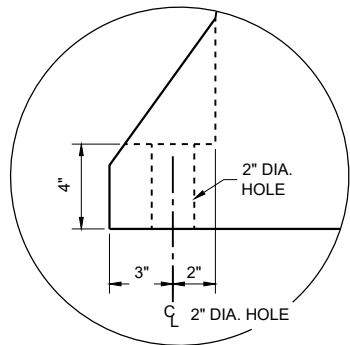
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

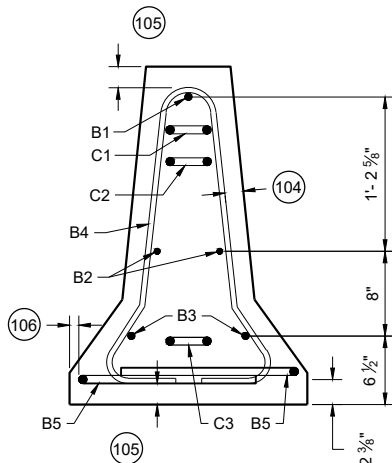
APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



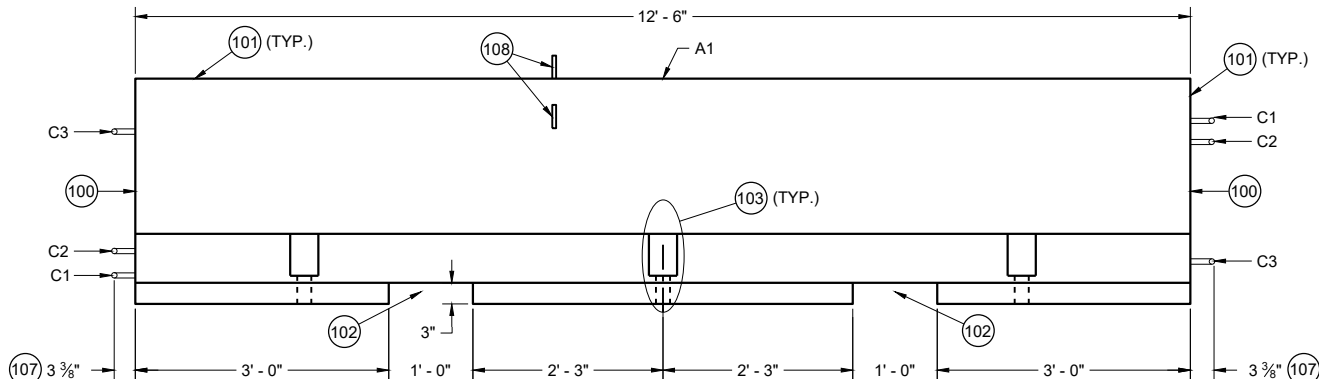
CROSS SECTION



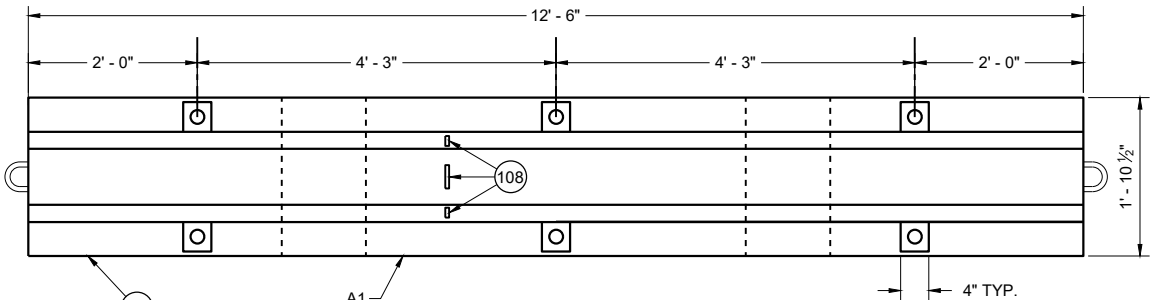
ANCHOR BLOCK
DETAIL



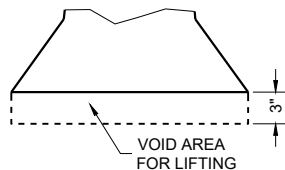
PROFILE VIEW
TEMPORARY BARRIER REINFORCEMENT



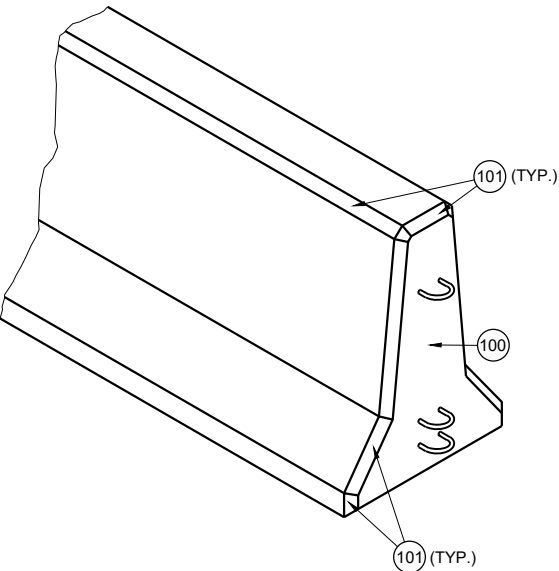
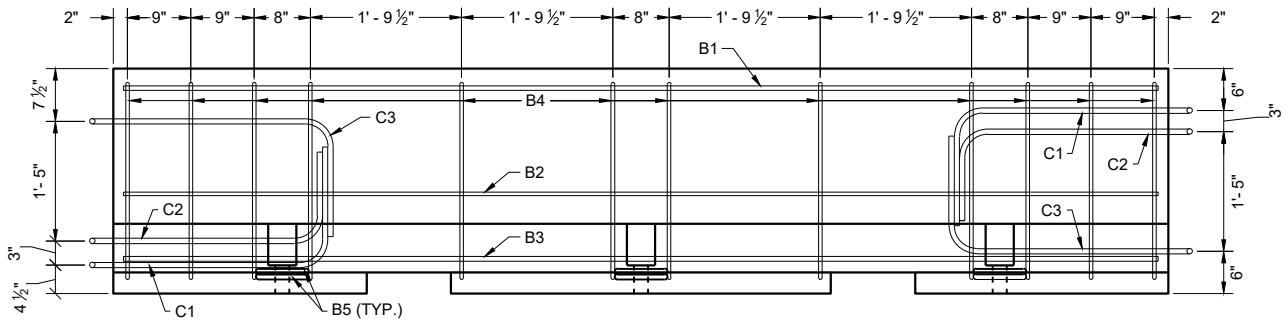
PROFILE VIEW



PLAN VIEW
TEMPORARY BARRIER



LIFTING SLOT DETAIL
(TYP.)



GENERAL NOTES

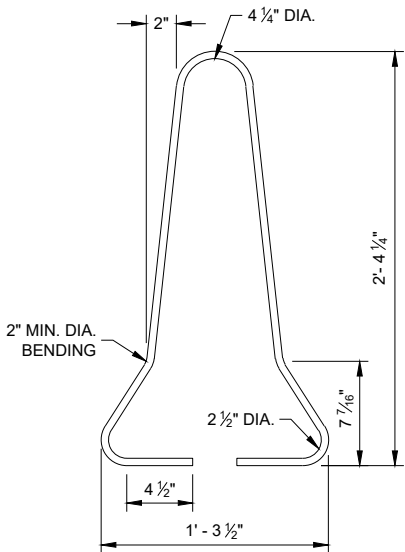
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

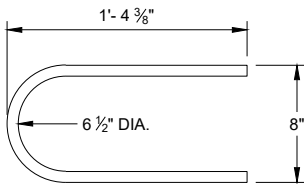
- 100 PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:
 - A. TYPE OF BARRIER: WI-CBTP
 - B. MANUFACTURER
 - C. DATE OF MANUFACTURE (MONTH AND YEAR)
- 101 1" OPTIONAL CHAMFER
- 102 SEE LIFTING SLOT DETAIL
- 103 SEE ANCHOR BLOCK DETAIL
- 104 1 3/4" MIN. CLEAR COVER
- 105 2" MIN. CLEAR COVER
- 106 1" MIN. CLEAR COVER
- 107 ± 1/8" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)
- 108 USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

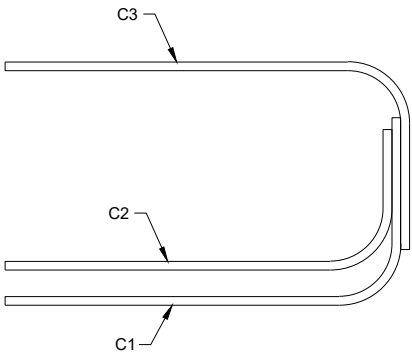
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



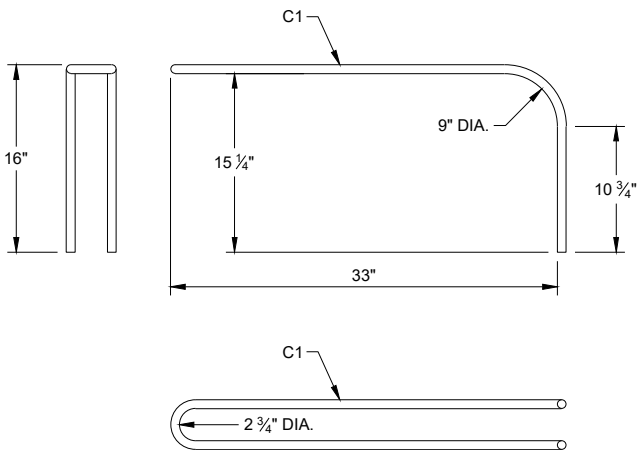
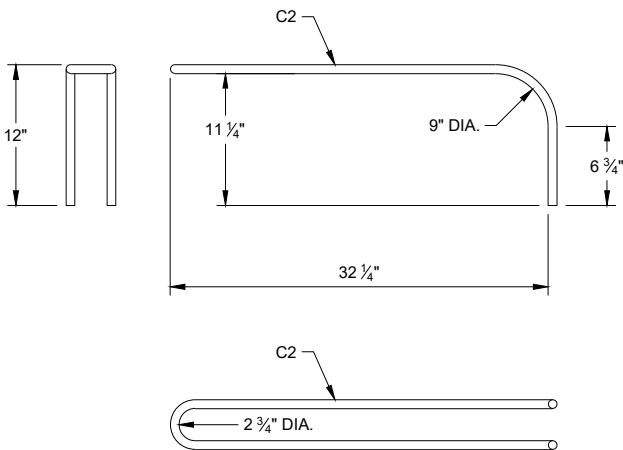
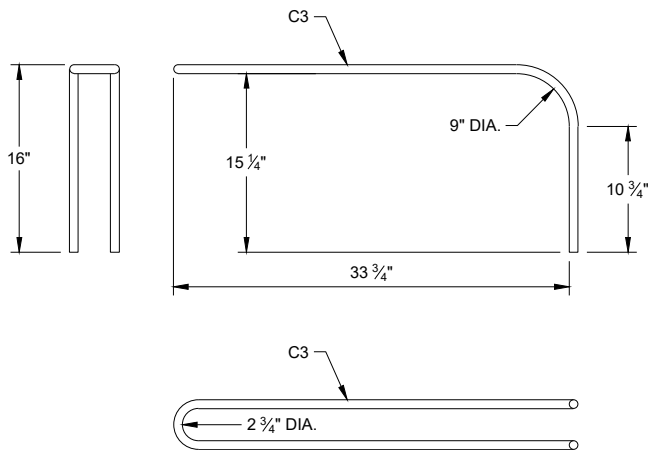
B4 BAR DETAIL



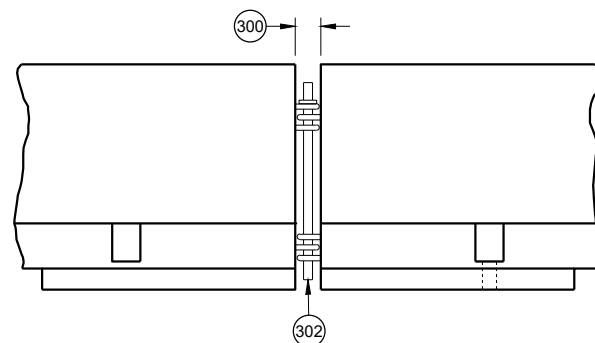
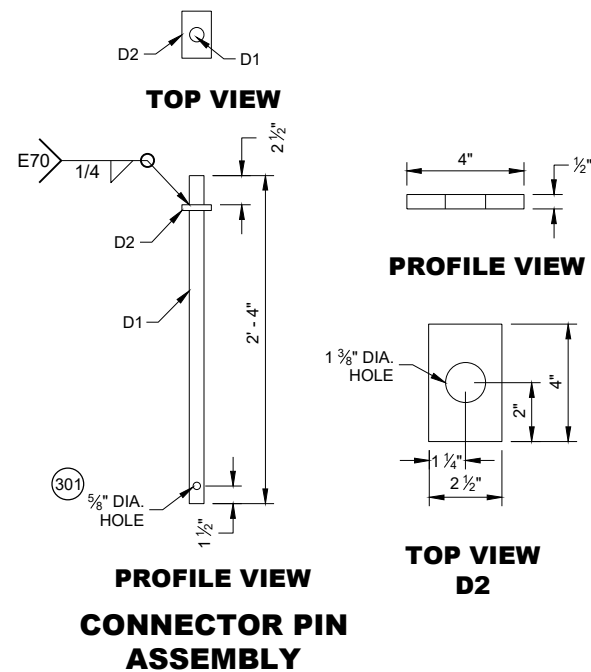
B5 BAR DETAIL



PROFILE VIEW
LOOP BAR ASSEMBLY



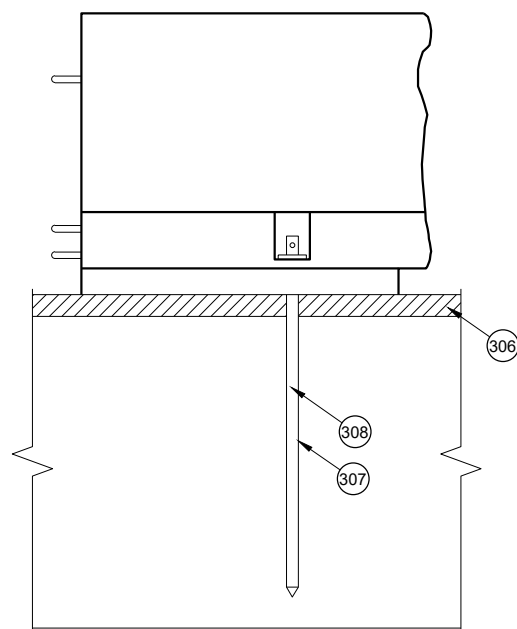
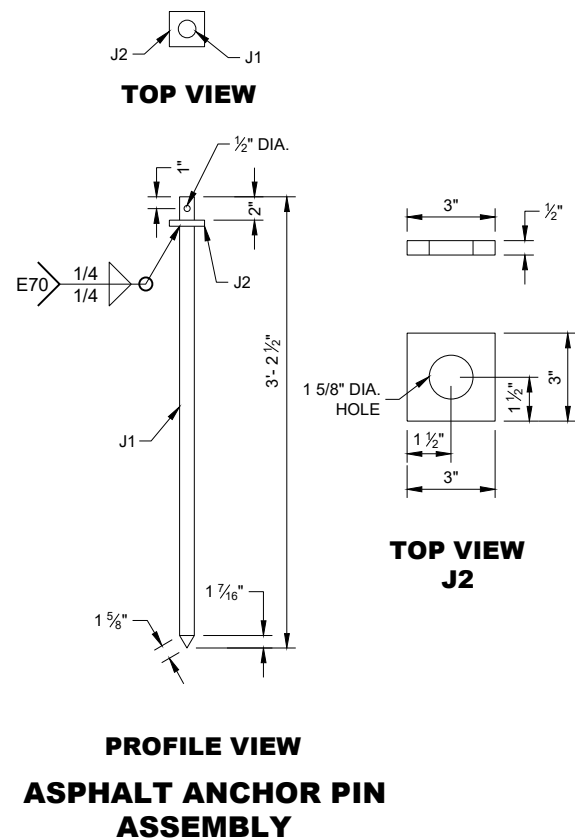
C BAR DETAILS



**CONNECTING TEMPORARY
BARRIER SECTIONS**

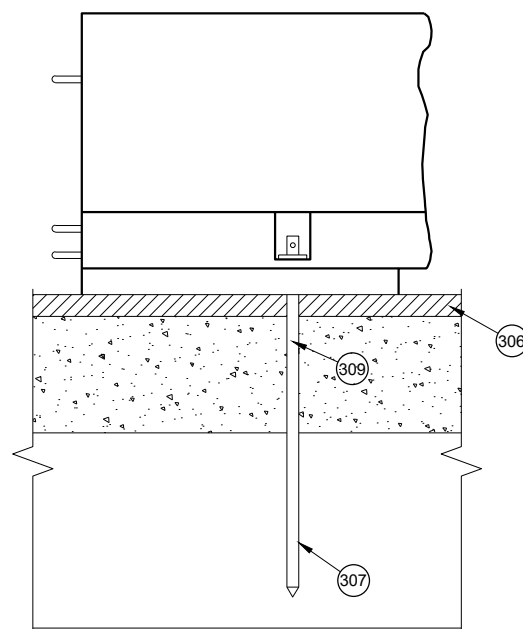
GENERAL NOTES

- (300) SET WITH 3 5/8" WOOD BLOCK.
- (301) HOLE IS OPTIONAL.
- (302) CONNECTOR PIN ASSEMBLY.
- (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
- (304) CONCRETE DECK.
- (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- (306) MINIMUM OF 2" OF ASPHALT.
- (307) ASPHALT ANCHOR PIN ASSEMBLY
- (308) IF DRILLING A PILOT HOLE, THE MAX. DIA. OF THE HOLE IS 3/4"
- (309) WHEN THERE IS ASPHALT OVERLAYING CONCRETE PAVEMENT, A 1 5/8" DIA. PILOT HOLE CAN BE DRILLED INTO THE OVERLAY AND CONCRETE. IF NEEDED DRILL A 3/4" PILOT HOLE IN BASE COURSE.



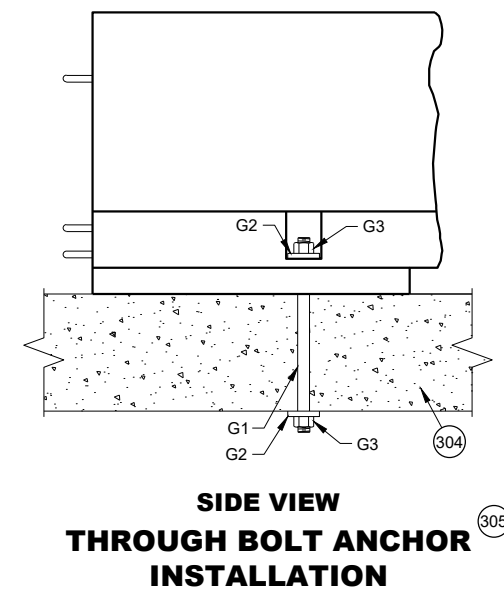
SIDE VIEW

**ASPHALT ANCHOR
INSTALLATION
THROUGH
ASPHALT PAVEMENT**



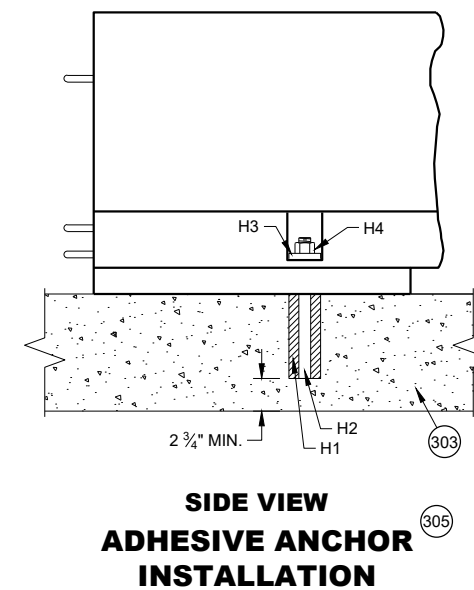
SIDE VIEW

**ASPHALT ANCHOR
INSTALLATION
THROUGH
ASPHALT OVERLAY
ON TOP OF
CONCRETE PAVEMENT**



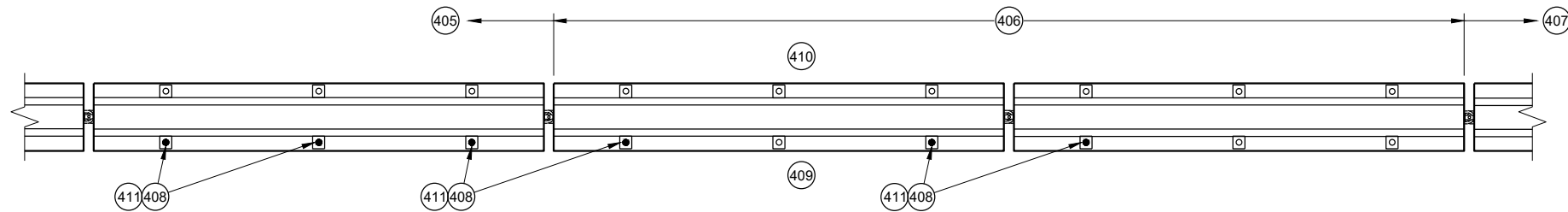
SIDE VIEW

**THROUGH BOLT ANCHOR
INSTALLATION**

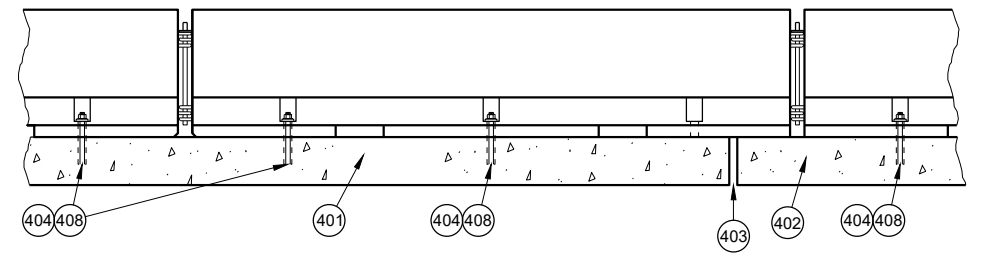


**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

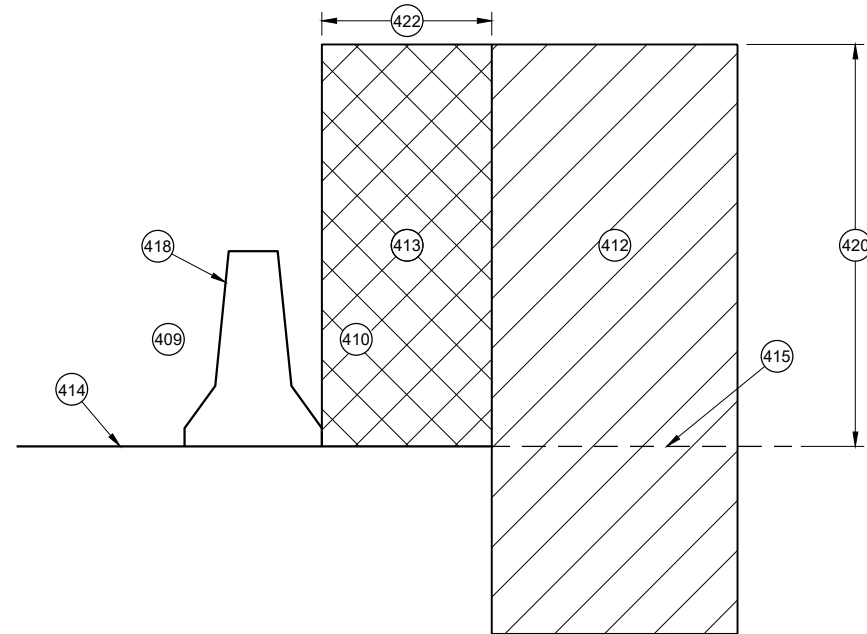
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



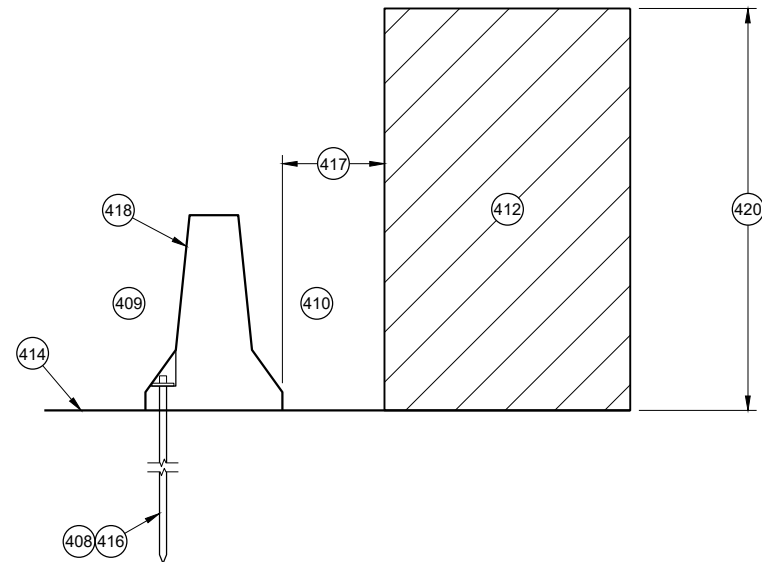
PLAN VIEW
TRANSITION FROM FREE STANDING TO ANCHORED BARRIER



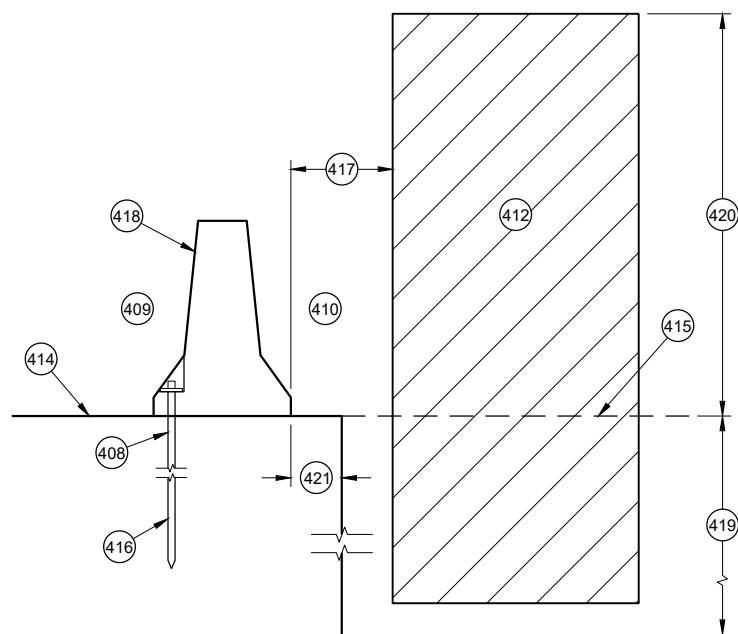
PROFILE VIEW
ANCHORED BARRIER NEAR EXPANSION JOINT



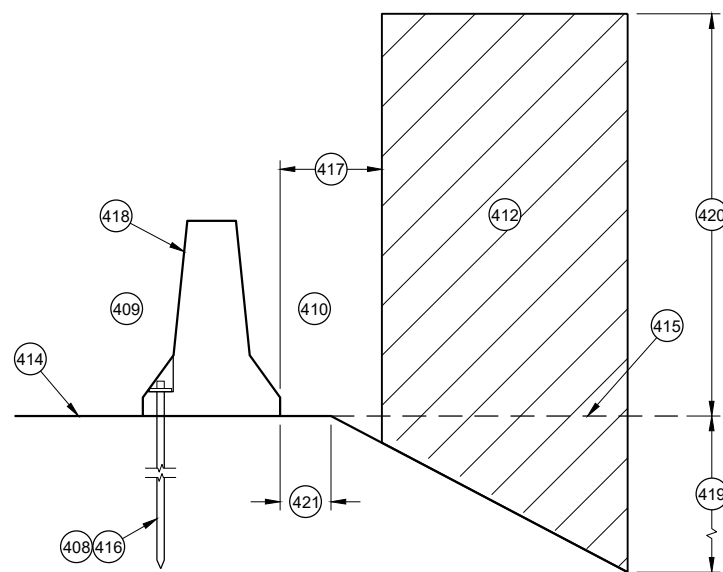
CROSS SECTION
FREE STANDING BARRIER



CROSS SECTION
ANCHORED BARRIER FOR OBJECTS ABOVE THE GRADE LINE AND NEAR THE BARRIER



CROSS SECTION
ANCHORED BARRIER NEAR VERTICAL DROP OFF



CROSS SECTION
ANCHORED BARRIER NEAR A SLOPE

GENERAL NOTES

- (400) NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- (401) CONCRETE DECK
- (402) CONCRETE DECK OR APPROACH SLAB.
- (403) EXPANSION JOINT
- (404) ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.
- (405) ANCHORED TEMPORARY BARRIER
- (406) TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING
- (407) FREE STANDING BARRIER
- (408) REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.
- (409) TRAFFIC SIDE
- (410) NON-TRAFFIC SIDE
- (411) ANCHOR LOCATION. SEE ANCHORING DETAILS.
- (412) WORK AREA
- (413) AREA FREE OF OBJECTS AND WORKERS
- (414) GRADE LINE
- (415) EXTENDED GRADE LINE
- (416) ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.
- (417) WHEN OBJECTS EXTEND ABOVE THE GRADE. A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.
- (418) OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.
- (419) DEPTHS OF 3 FEET OR MORE.
- (420) $Y = 6.5'$
- (421) OFFSET FROM BACK OF BARRIER EDGE:

CONCRETE PAVEMENT	0.5'
ASPHALT	0.5'
- (422) POSTED SPEED (MPH):

45 OR GREATER	4.0'
40 OR LOWER	2.0'

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

- 500 EXISTING RIGID BARRIERS (VARIES)

501 TEMPORARY BARRIER

502 SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).

503 ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.

504 NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

505 TRAFFIC TRAVELS FROM PERMANENT BARRIER TO TEMPORARY BARRIER.
- 506 TRAFFIC TRAVELS FROM TEMPORARY BARRIER TO PERMANENT BARRIER.

507 VERTICAL BARRIER

508 SAFETY SHAPE BARRIER

509 SINGLE SLOPE BARRIER

510 CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF RIGID BARRIER.

511 BENT THRIE BEAM TO FIT.

512 THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
- 513 TWO (2) P1, P2 AND P3 ARE REQUIRED

514 FIVE (5) N1, N2 AND N3 ARE REQUIRED

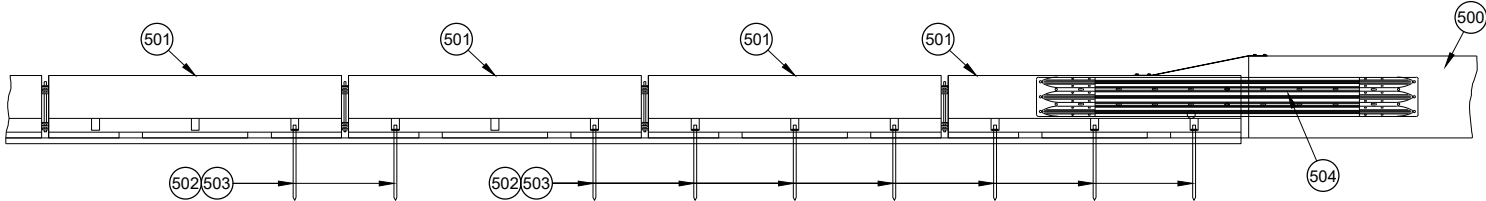
515 TWO (2) R1, R2 AND R3 ARE REQUIRED

516 CUT WOOD BLOCK TO FIT.

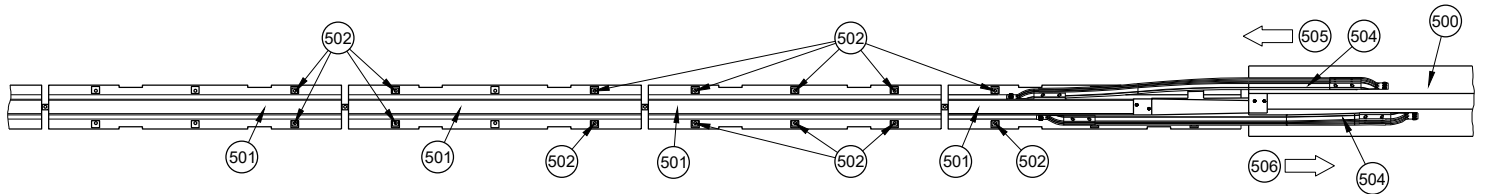
517 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL ASSEMBLY.

518 CAP ASSEMBLY

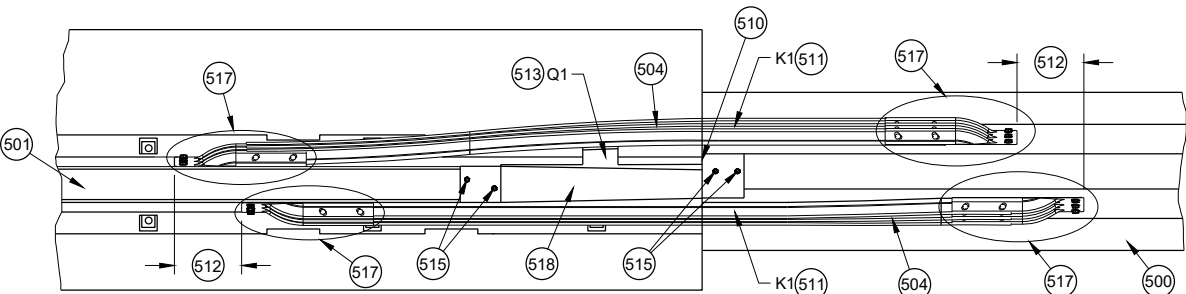
519 4" MAX. GAP BETWEEN TEMPORARY BARRIER AND RIGID BARRIER.
- 520 ALL TWELVE SPLICE HOLES REQUIRE M1 AND M2



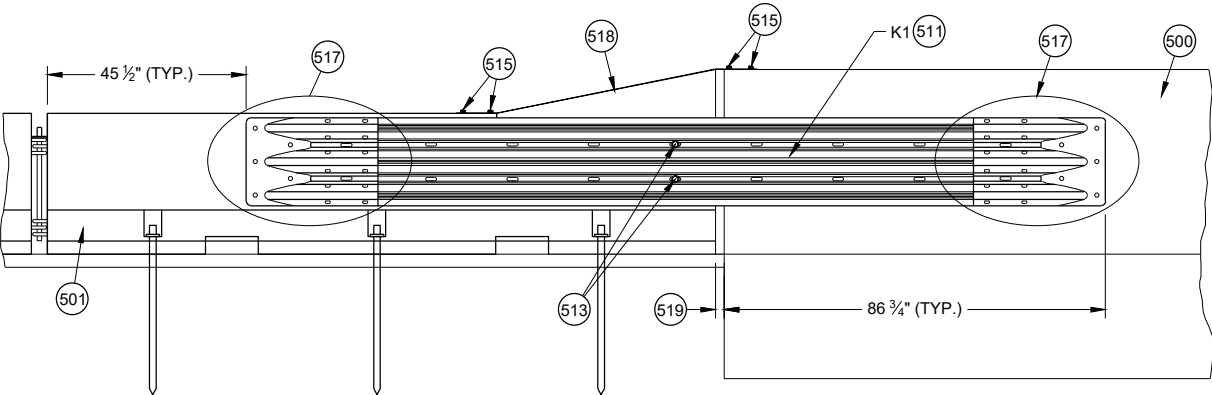
PROFILE VIEW



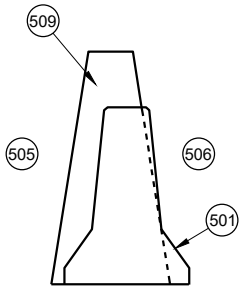
PLAN VIEW
TRANSITION TO RIGID BARRIER



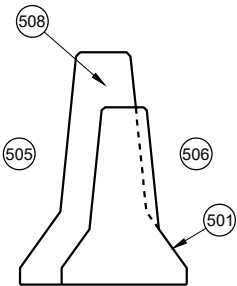
PLAN DETAIL VIEW
TRANSITION TO RIGID BARRIER



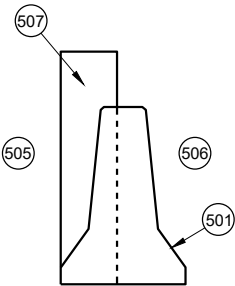
FRONT DETAIL VIEW
TRANSITION TO RIGID BARRIER



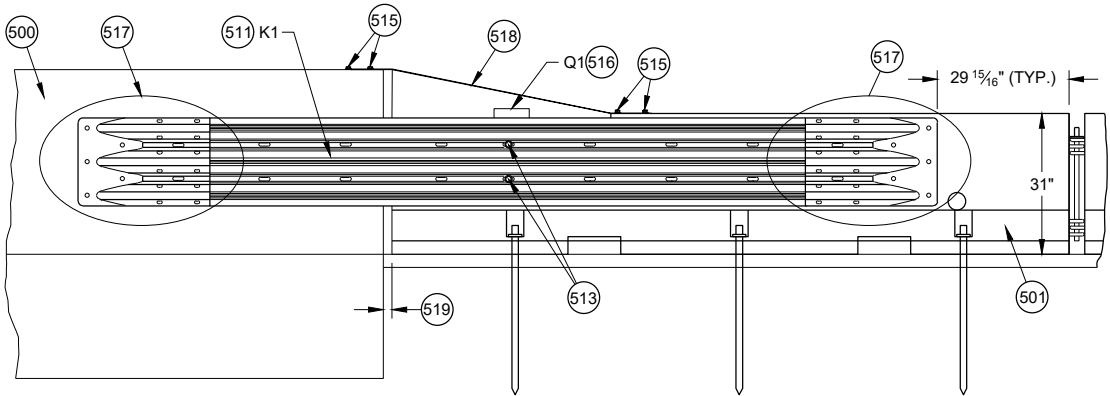
CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SINGLE SLOPE



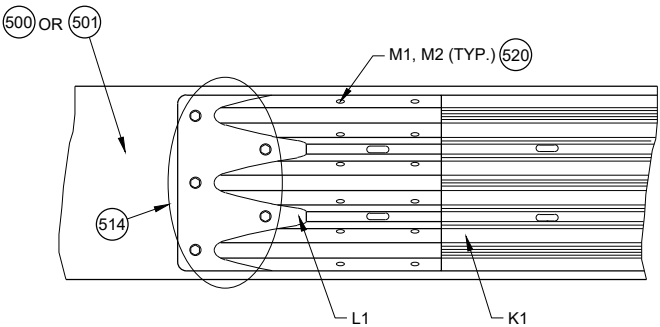
CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SAFETY SHAPE



CROSS SECTION
TEMPORARY BARRIER
PLACEMENT VERTICAL



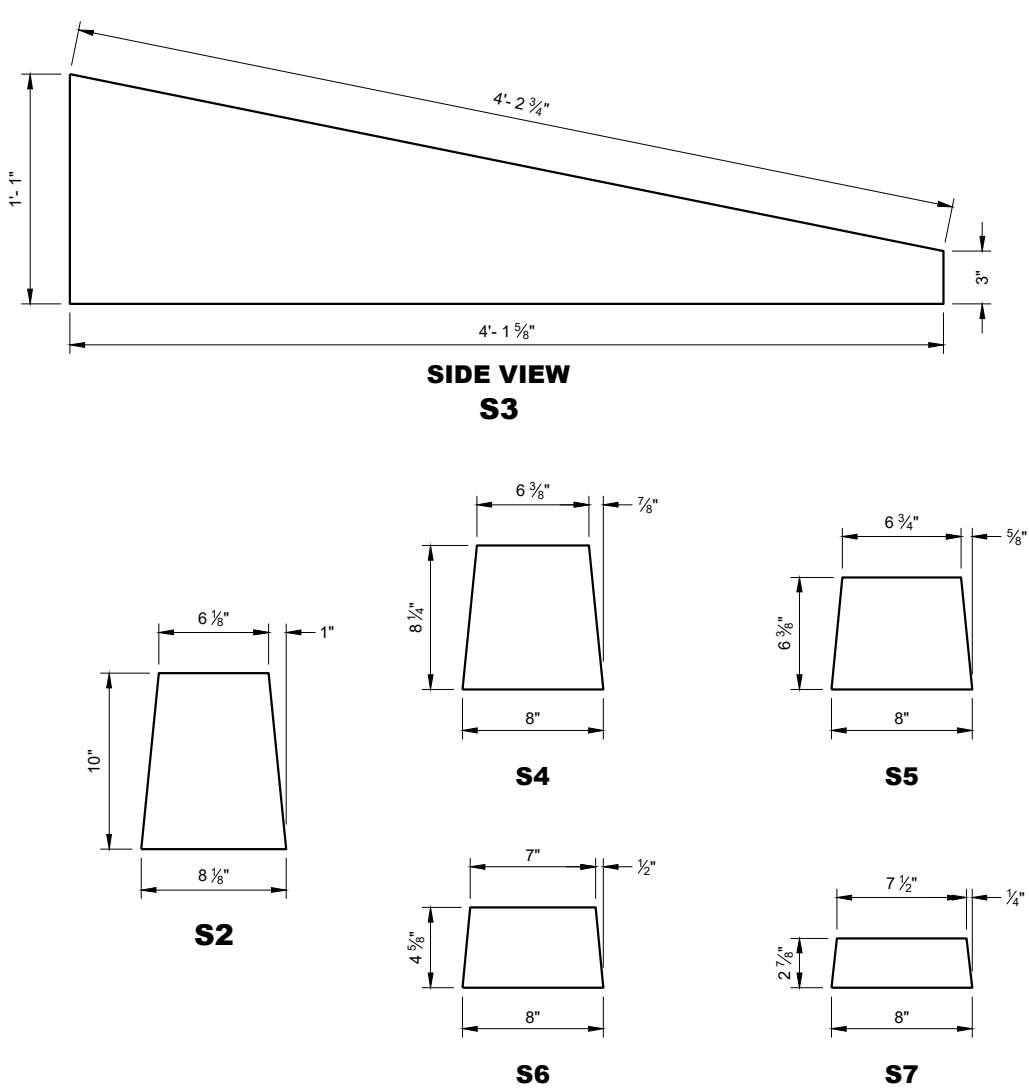
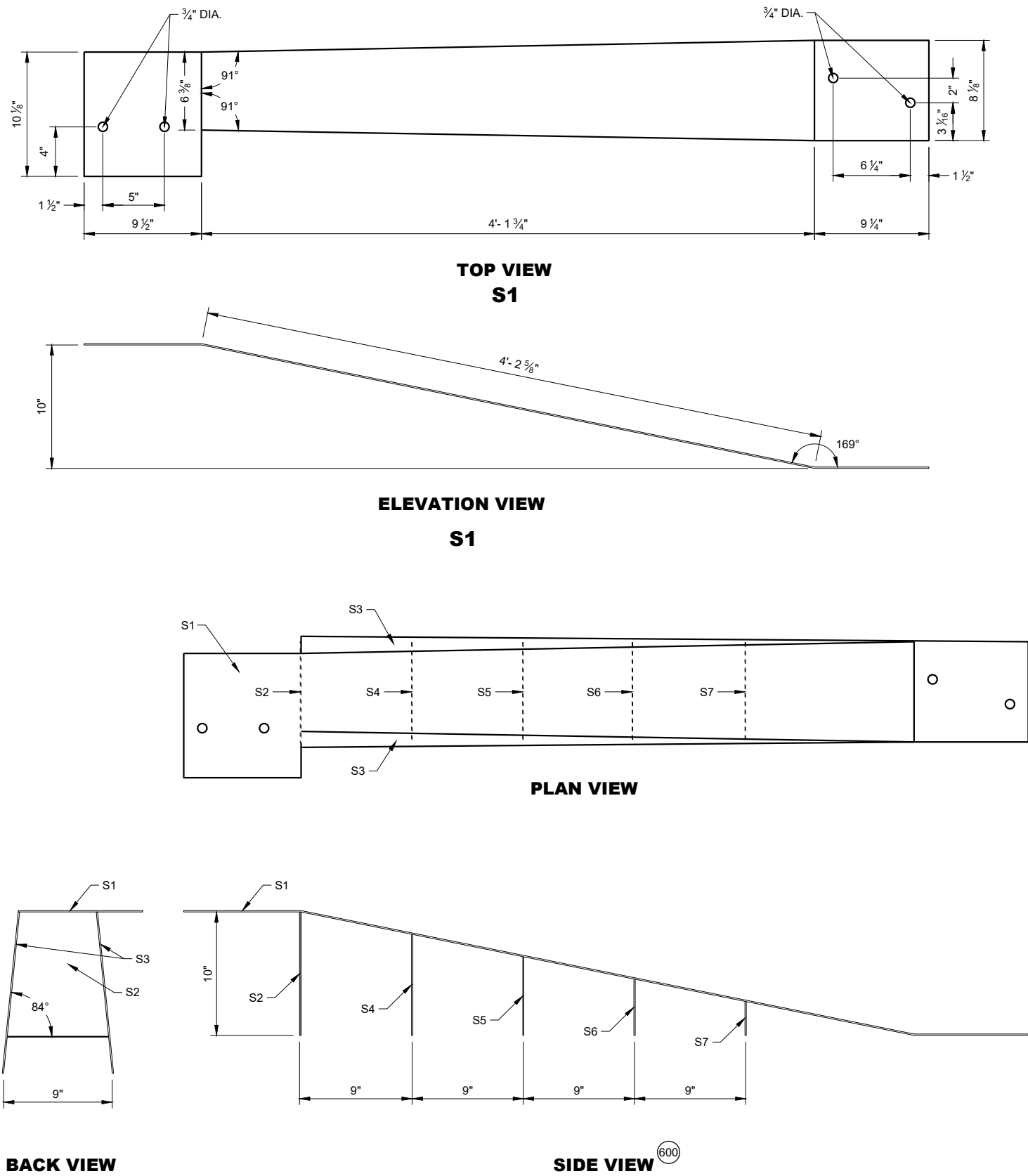
BACK DETAIL VIEW
TRANSITION TO RIGID BARRIER



517 DETAIL PLAN VIEW
THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

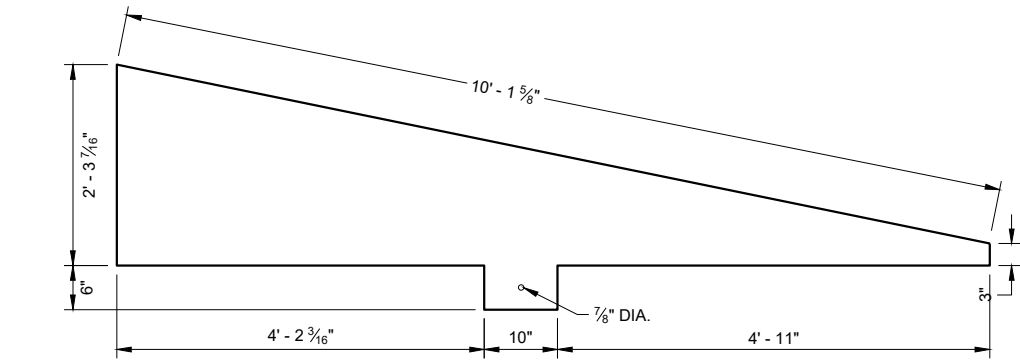
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

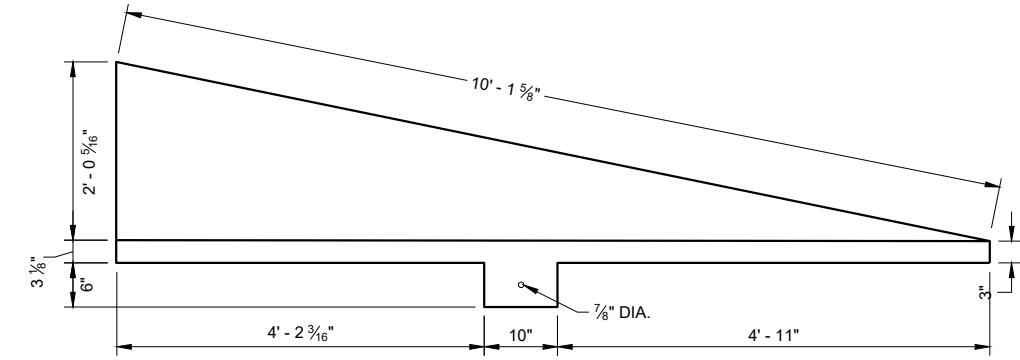
600 SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

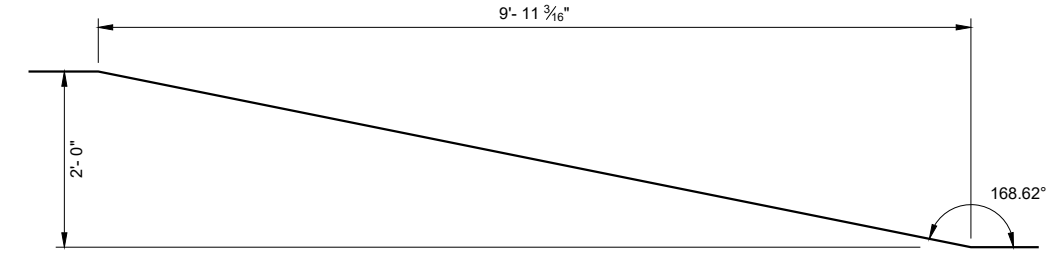
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



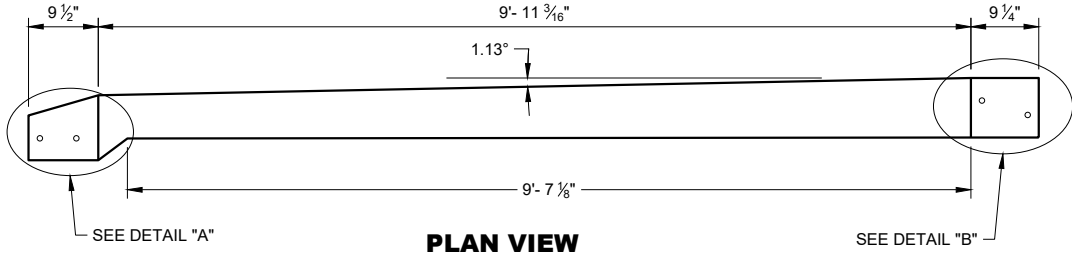
SIDE VIEW
T4



SIDE VIEW
T3



SIDE VIEW
TOP PLATE T1



PLAN VIEW
TOP PLATE T1

END
VIEW

END
VIEW

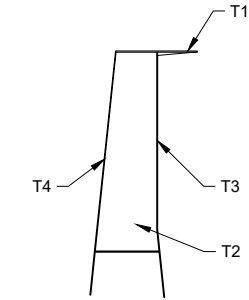
GENERAL NOTES

STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES

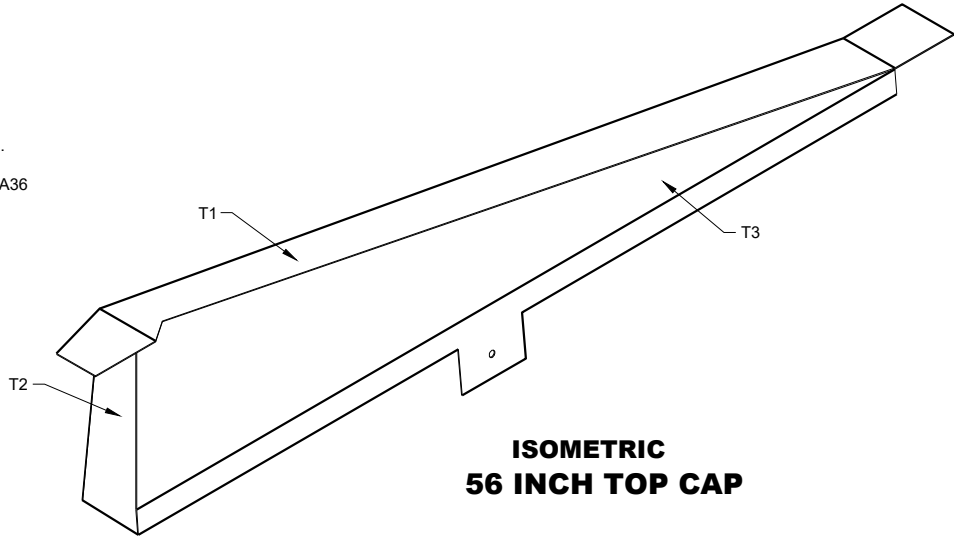
STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.

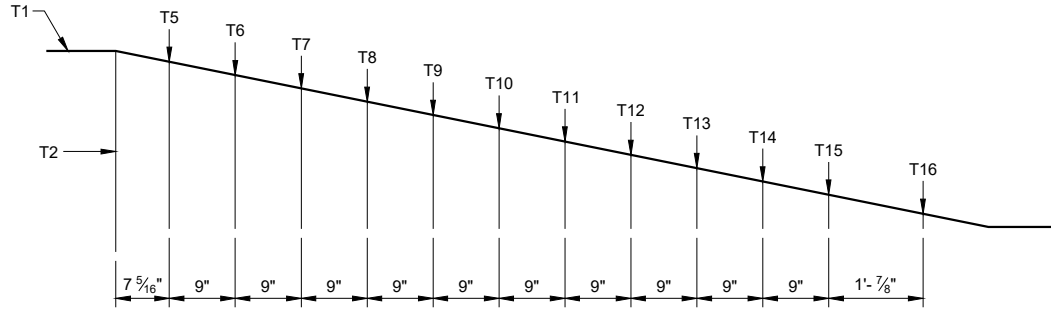
(700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



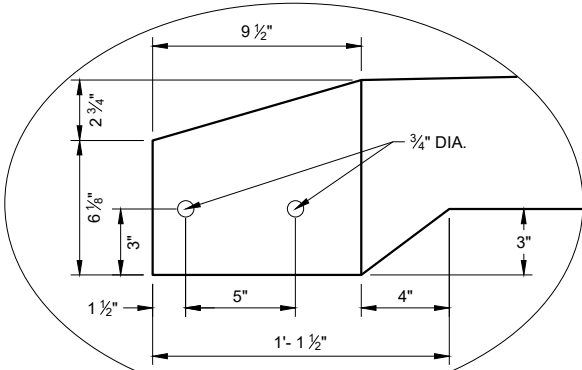
END VIEW
56 INCH TOP CAP



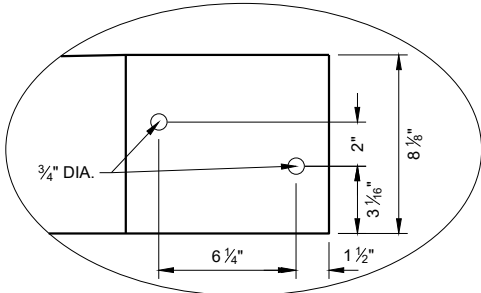
ISOMETRIC
56 INCH TOP CAP



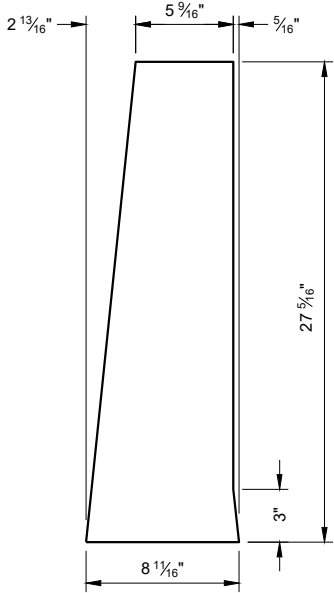
SIDE VIEW
56 INCH TOP CAP (700)



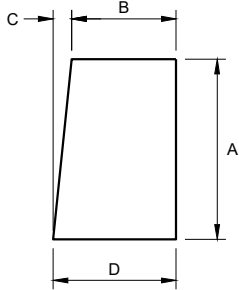
DETAIL "A"



DETAIL "B"



END PLATE T2

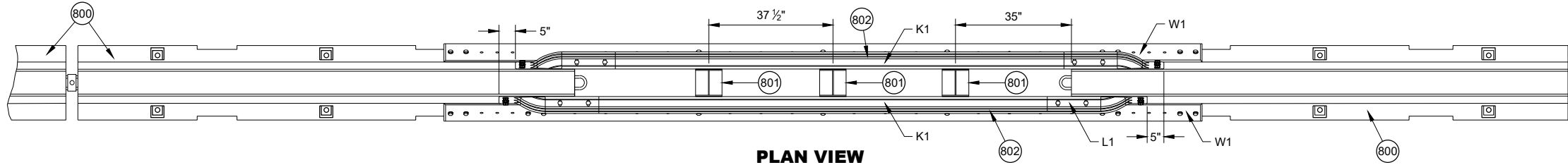
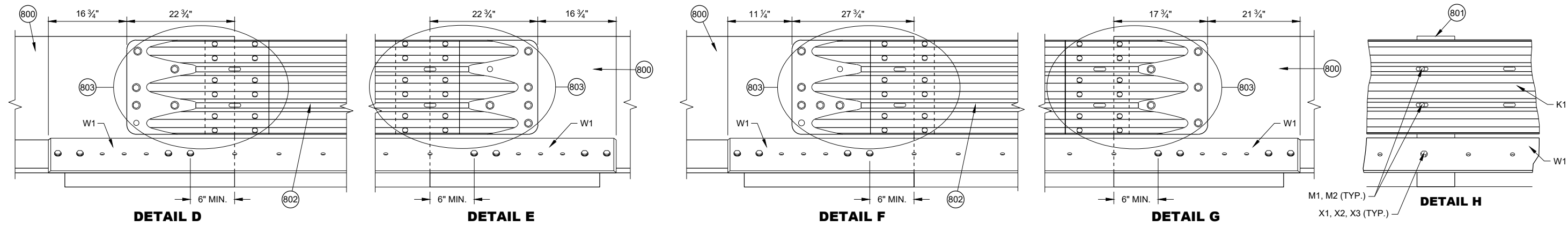


GUSSET PLATES
T5 - T16

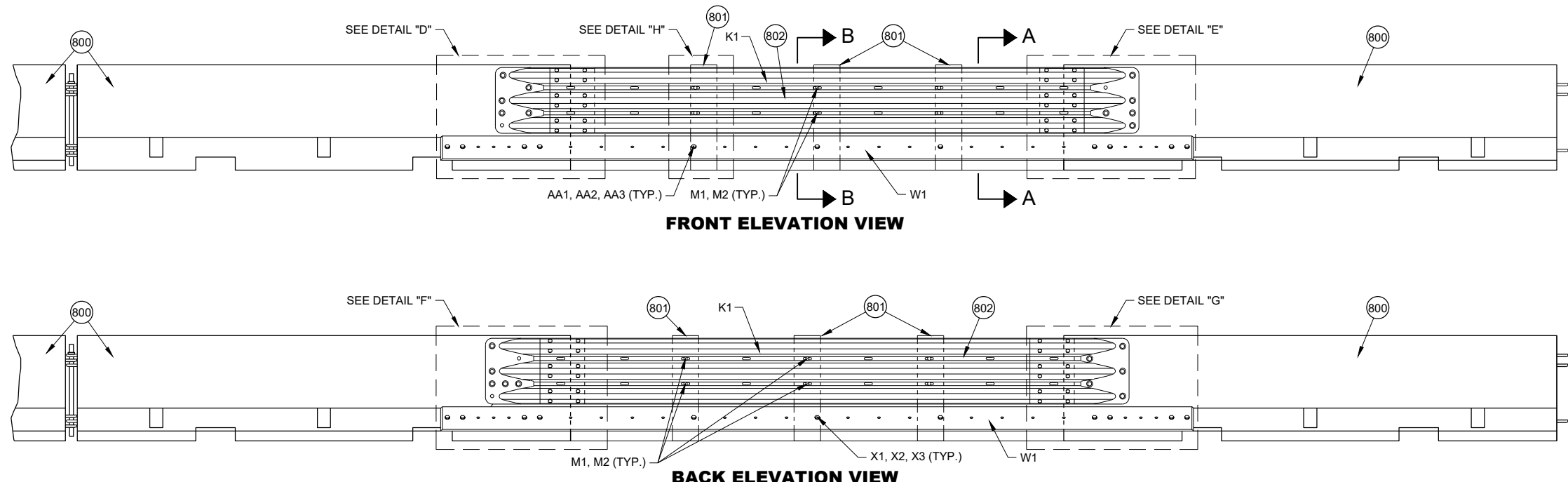
GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/16"	1 15/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 5/16"	1 9/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"	7"	1 1/16"	8 1/16"
T13	8 5/16"	7 3/16"	7/8"	8 1/16"
T14	6 1/2"	7 3/8"	1 1/16"	8 1/16"
T15	4 1/16"	7 9/16"	1/2"	8"
T16	2 7/8"	7 3/4"	1/4"	8"

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

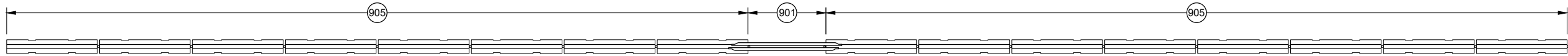


- GENERAL NOTES**
- 800 FREE STANDING TEMPORARY BARRIER
 - 801 GAP STIFFENER ASSEMBLY
 - 802 THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.
 - 803 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL

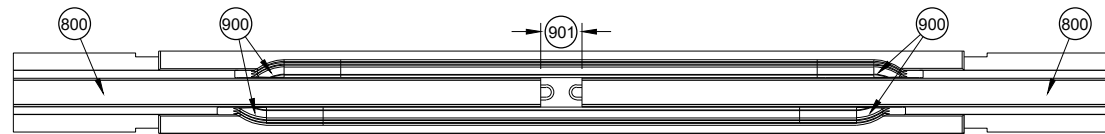


PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER

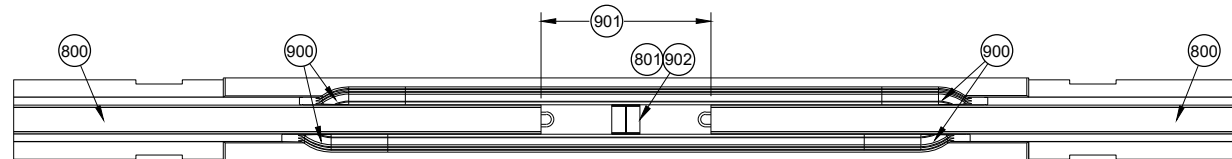
CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



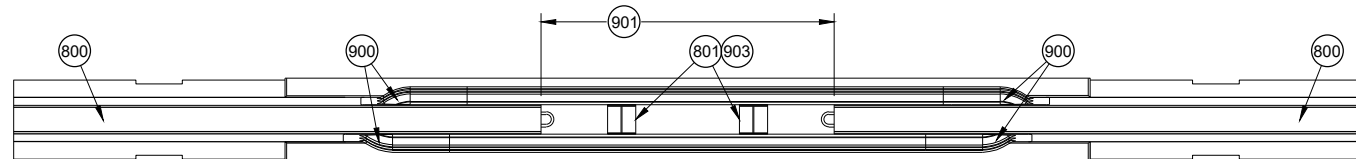
**PLAN VIEW
GAP WITHIN SPACING**



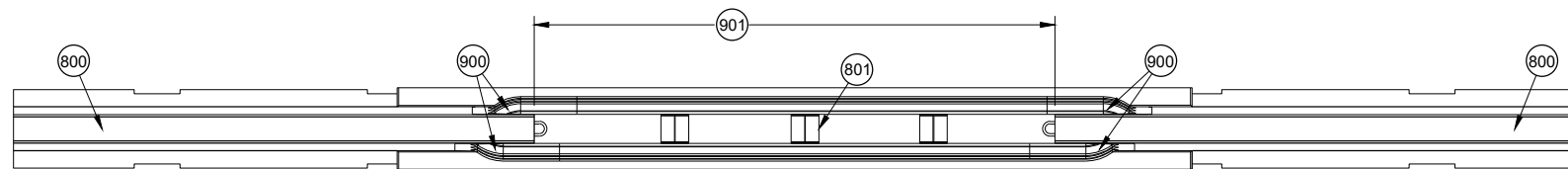
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4" TO 1' MAX.**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 1' TO 4' MAX.**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4' TO 7' MAX.**



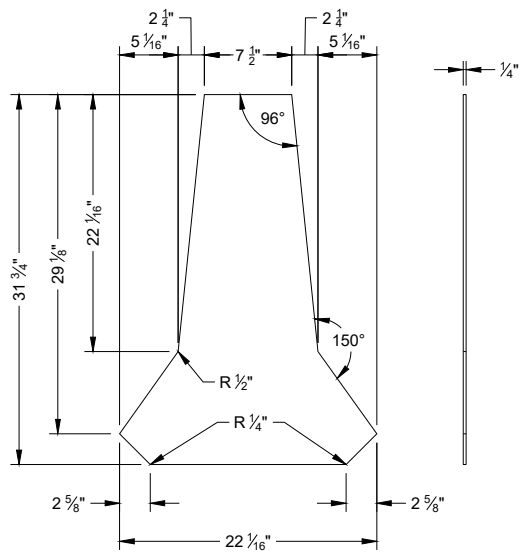
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 7' TO 12.5' MAX.**

GENERAL NOTES

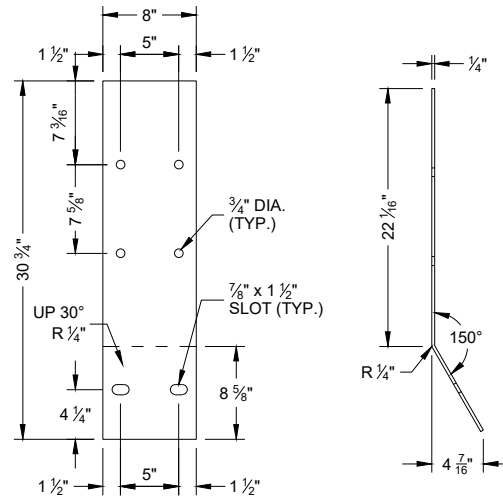
- (900) SEE OTHER DETAILS FOR TEMPORARY GAP HARDWARE (TYP.)
- (901) TEMPORARY BARRIER GAP
- (902) GAP STIFFENER ASSEMBLY CENTERED IN THE GAP.
- (903) GAP STIFFENER ASSEMBLY IS OFFSET 18 3/4" FROM CENTER
- (904) MINIMUM NUMBER OF GAP STIFFENERS SHOWN FOR THE GAP RANGE SHOWN.
- (905) MINIMUM OF 8 CONTINUOUS FREE STANDING TEMPORARY BARRIERS

**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

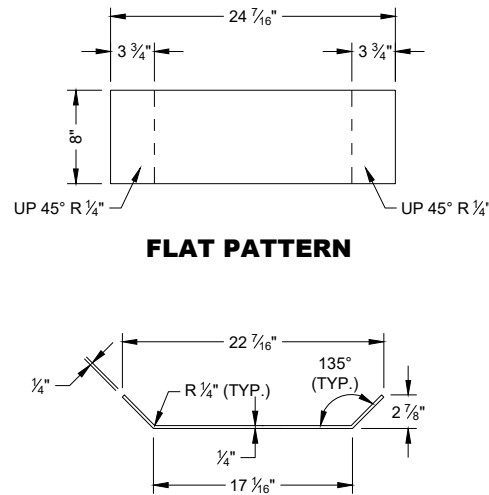
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



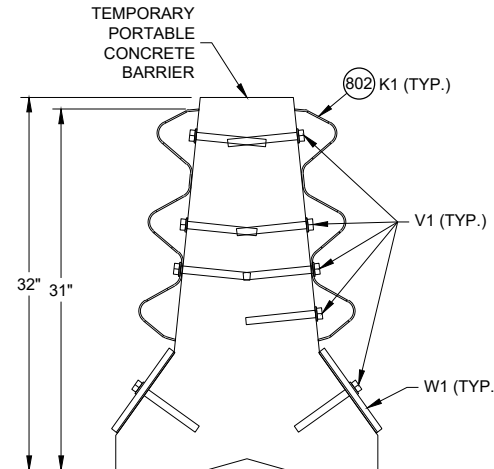
PROFILE VIEW
STIFFENER ASSEMBLY
CENTER PANEL U1



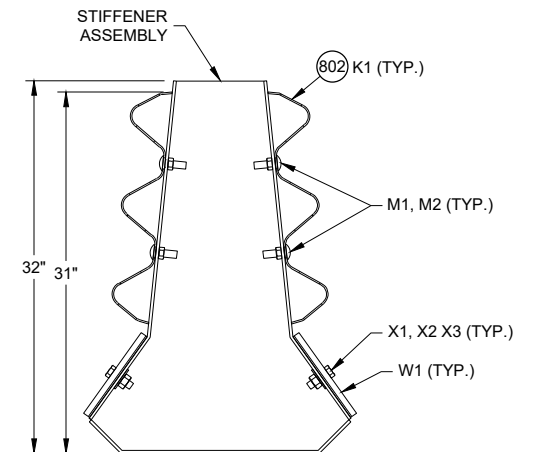
FLAT PATTERN
STIFFENER ASSEMBLY
SIDE PANEL U2



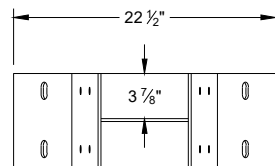
PROFILE VIEW
STIFFENER ASSEMBLY
BOTTOM PANEL U3



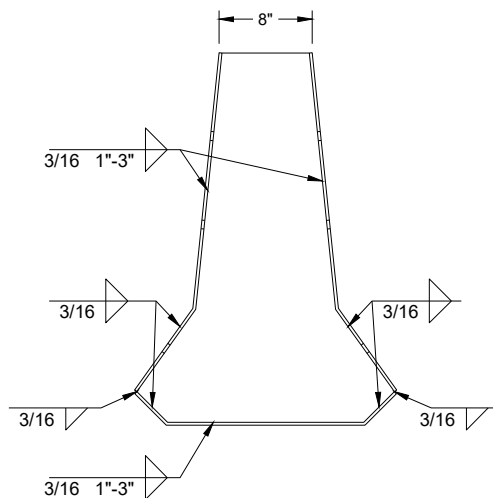
SECTION A - A



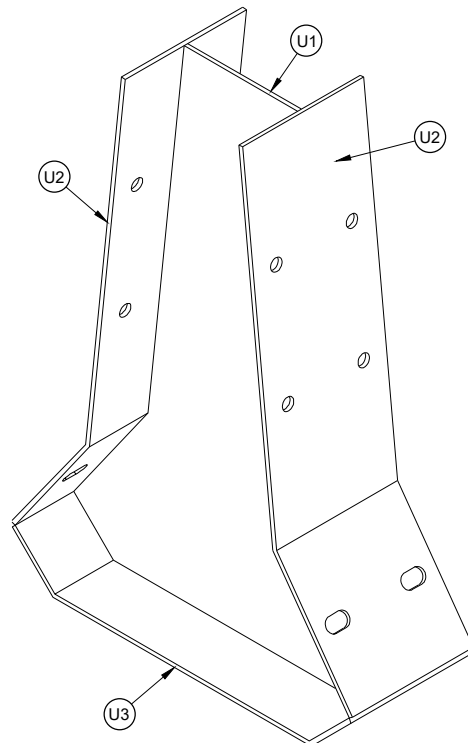
SECTION B - B



PLAN VIEW



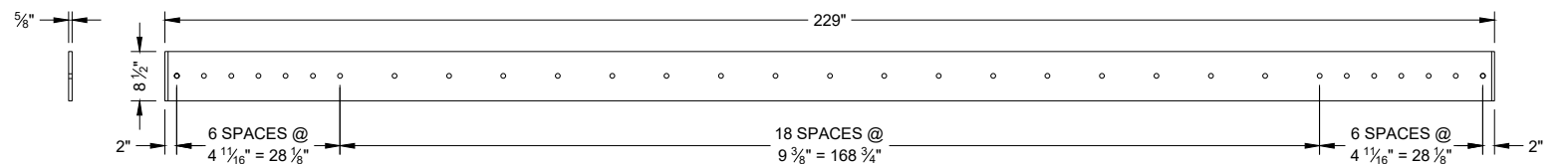
PROFILE VIEW
GAP STIFFENER ASSEMBLY



ISOMETRIC

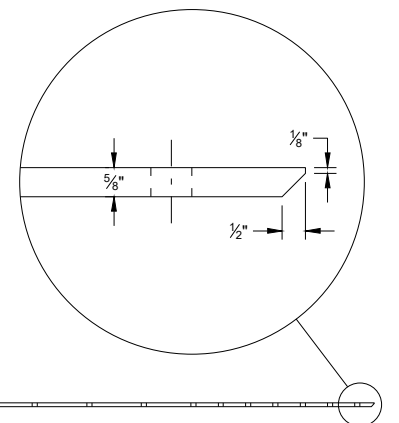


PLAN VIEW



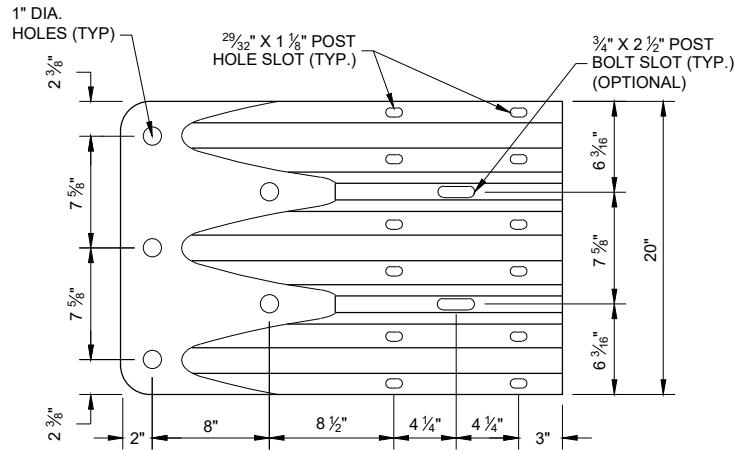
SIDE VIEW

ELEVATION VIEW
W1 TOE PLATE



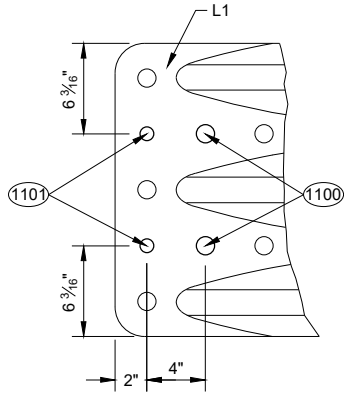
CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



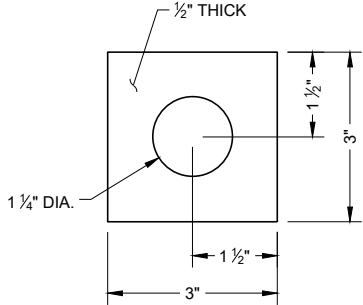
ELEVATION VIEW

**THRIE BEAM
TERMINAL CONNECTOR**



ELEVATION VIEW

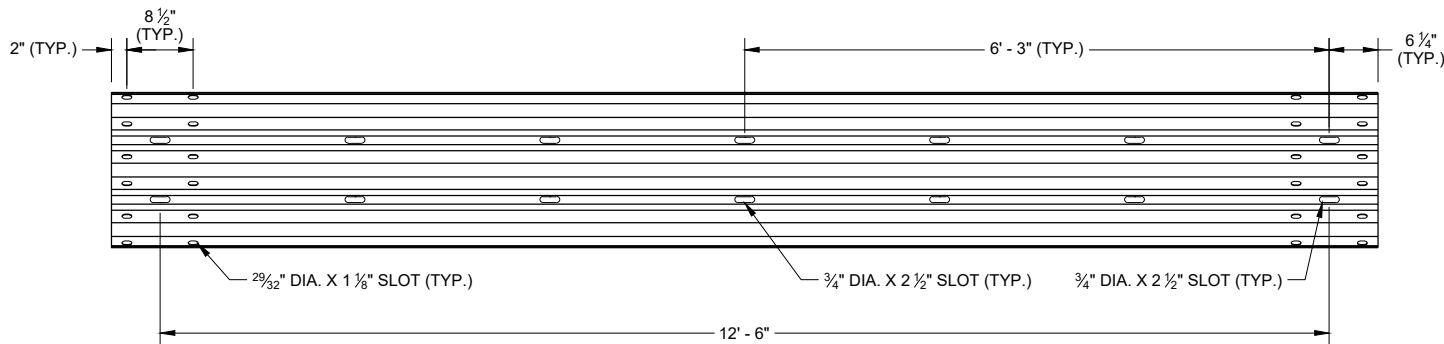
**ADDITIONAL THRIE BEAM
TERMINAL CONNECTOR HOLE DETAIL**



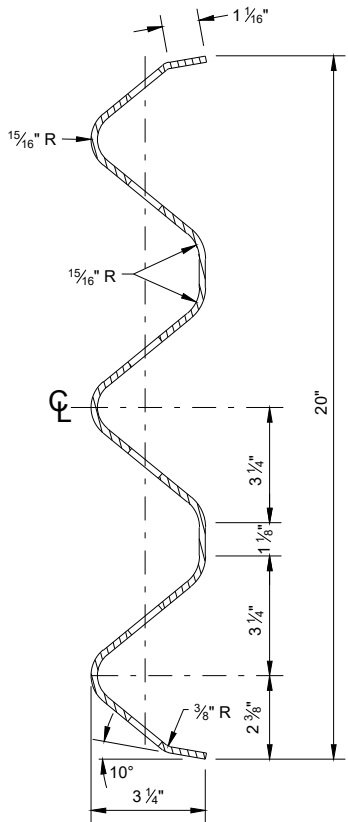
**PLATE WASHER DETAIL
G2, H3**

GENERAL NOTES

- (1100) 1" DIA. HOLE
- (1101) $\frac{3}{4}"$ DIA. HOLE
- (1102) PROVIDE HOLES IN THRIE BEAM TERMINAL CONNECTOR TO LIMIT STEEL REINFORCEMENT OR LOOP BAR CONFLICT. CONTRACTOR MAY FIELD DRILL ADDITIONAL HOLE OR PROVIDE THRIE BEAM TERMINAL CONNECTOR WITH ADDITIONAL HOLES FROM SUPPLIER.



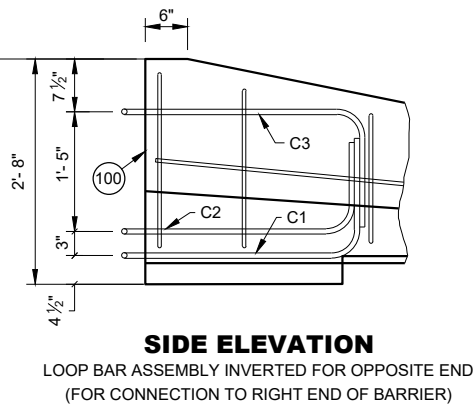
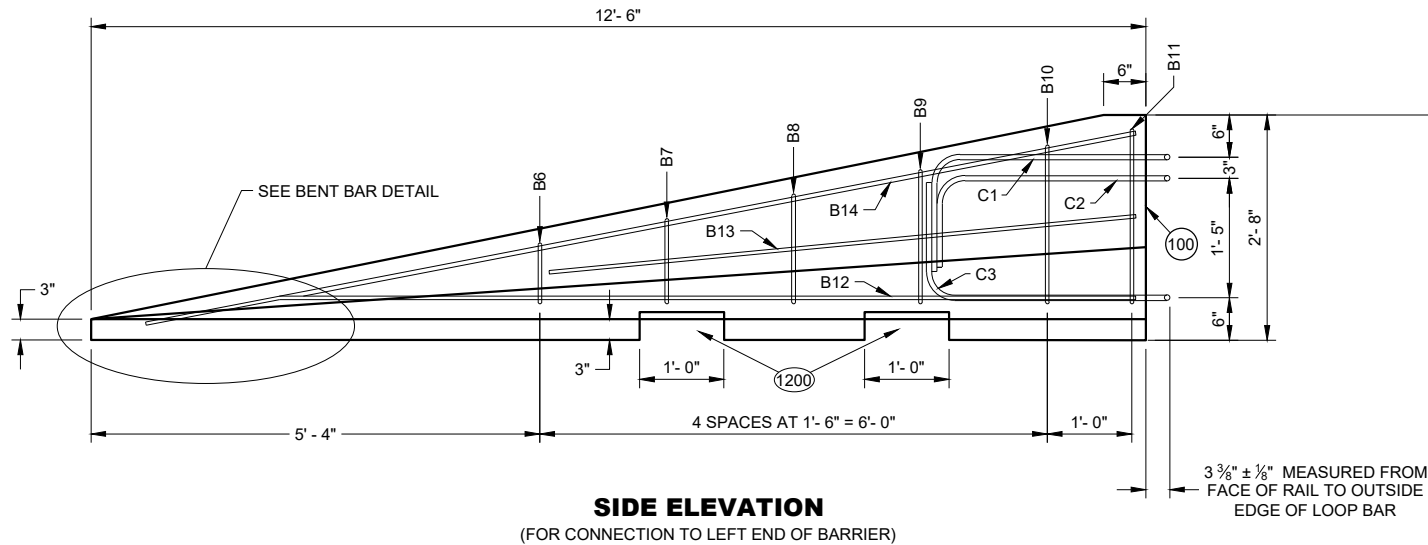
SLOTTED THRIE BEAM RAIL K1



**SECTION THROUGH
BEAM K1**

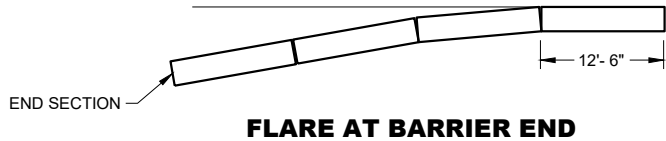
**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

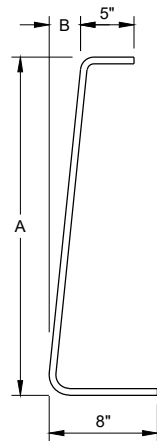
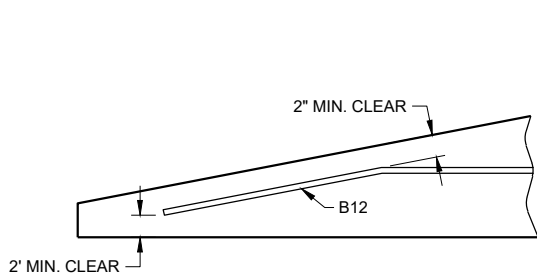
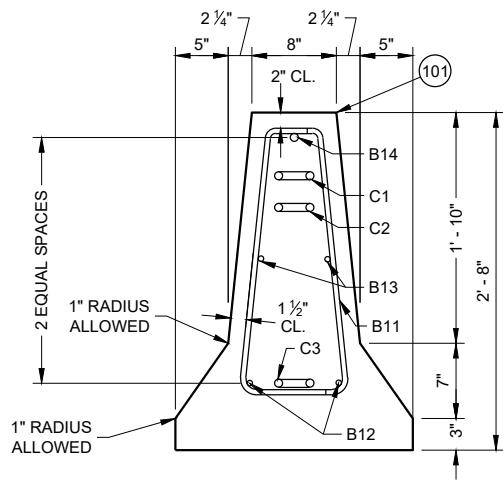
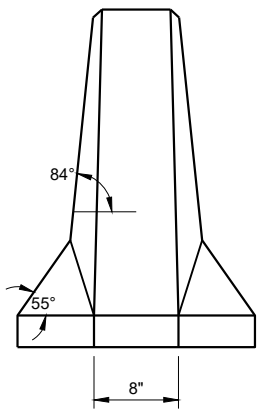
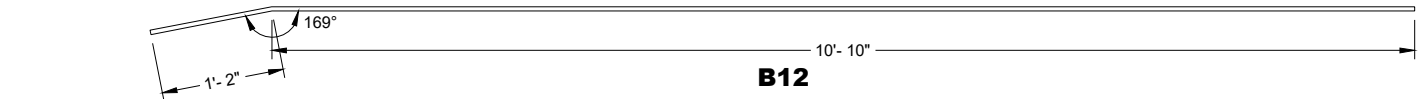
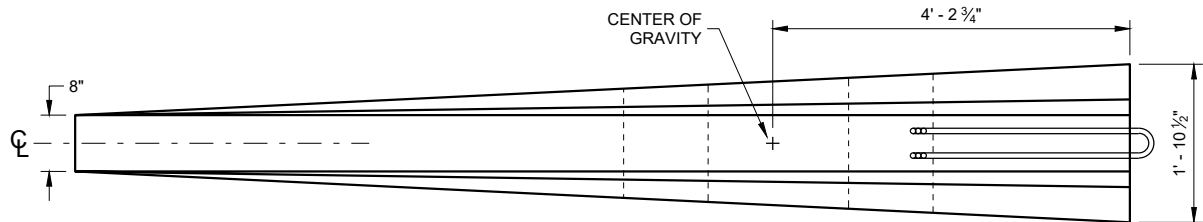


GENERAL NOTES

(1200) SEE LIFTING SLOT DETAIL. LOCATION OF LIFTING SLOTS DETERMINED BY CONTRACTOR.



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1



BAR	A	B
B6	10"	1"
B7	1'- 1"	1 1/4"
B8	1'- 5"	1 5/8"
B9	1'- 8"	1 7/8"
B10	2'- 0 1/2"	2 3/8"
B11	2'- 3"	2 3/4"

**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B07-16m

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f'c 5000 PSI	
B1	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B2	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-2"
B3	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B4	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 6'-0"
B5	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#6 REBAR, LENGTH 2'-11"
B6	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 1'-11"
B7	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-2"
B8	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-6"
B9	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-9"
B10	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-2"
B11	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-4"
B12	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-0"
B13	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 7'-9"
B14	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 11'-9"
C1	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C2	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C3	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
D1	CONNECTION PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ¼" DIA.
D2	CONNECTION PIN - TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G1	BOLT THROUGH ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC	1 ⅝" DIA.
G2	BOLT THROUGH ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G3	BOLT THROUGH ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
H1	ADHESIVE ANCHOR - ADHESIVE	ICC-ES-AC308 5 ¼" EMBEDMENT WITH A MIN. BOND STRENGTH OF 1,650 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
H2	ADHESIVE ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC	1 ⅝" DIA.
H3	ADHESIVE ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
H4	ADHESIVE ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
J1	ASPHALT ANCHOR PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
J2	ASPHALT ANCHOR PIN - STOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
K1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE
L1	THRIE BEAM RAIL - TERMINAL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
M1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	⅝" DIA.
M2	SPLICE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 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	
N1	THRIE BEAM RAIL TERMINAL - MECHANICAL ANCHOR	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 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	¾" DIA. LENGTH 6"
N2	THRIE BEAM RAIL TERMINAL - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
N3	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
P1	THRIE BEAM RAIL CONNECTION 1-BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 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	¾" DIA.
P2	THRIE BEAM RAIL CONNECTION 1-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
P3	THRIE BEAM RAIL CONNETION 1- MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
Q1	BLOCK WOOD	SEE STANDARD SPEC. 614	
R1	CAP - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 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	⅝" DIA.
R2	CAP- BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
R3	CAP - BOLT - MECHANICAL ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	12 GAUGE
S1	CAP 42-INCH TOP 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	12 GAUGE
S2	CAP 42-INCH 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	12 GAUGE
S3	CAP 42-INCH SIDE 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	12 GAUGE
S4	CAP 42-INCH GUSSET 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	12 GAUGE
S5	CAP 42-INCH GUSSET 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	12 GAUGE
S6	CAP 42-INCH GUSSET 3	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	12 GAUGE
S7	CAP 42-INCH GUSSET 4	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	12 GAUGE

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SDD 14B07-16m

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

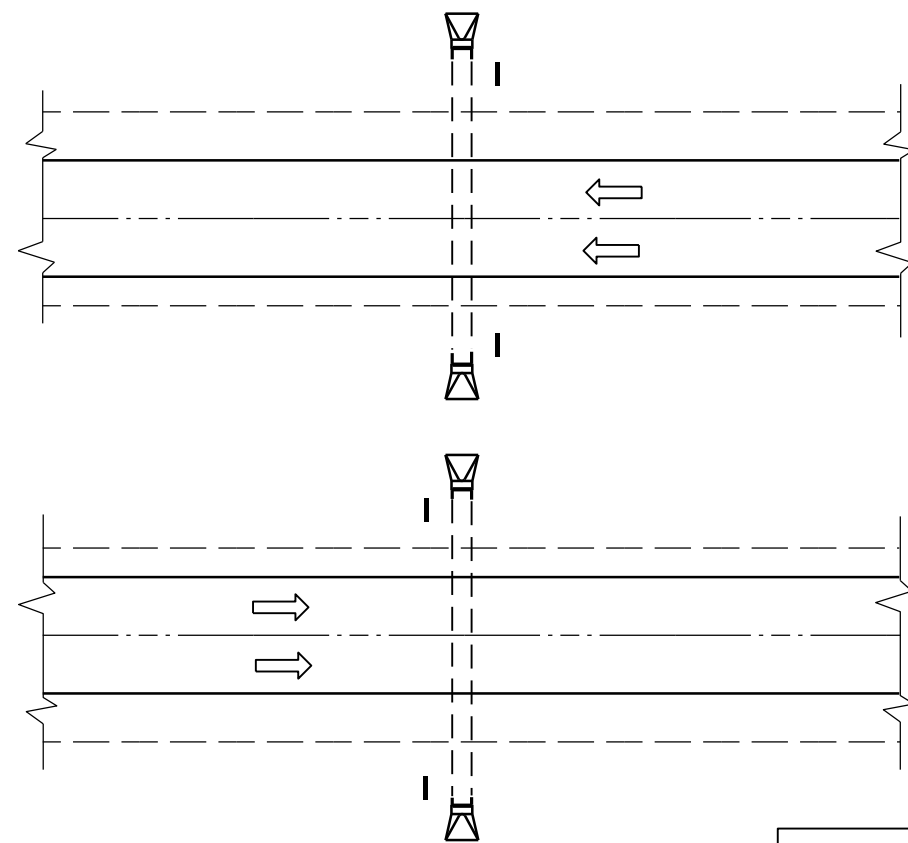
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
T1	CAP 56-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T2	CAP 56-INCH END PLATE	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	12 GAUGE
T3	CAP 56-INCH SIDE 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	12 GAUGE
T4	CAP 56-INCH SIDE 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	12 GAUGE
T5	CAP 56-INCH GUSSET 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	12 GAUGE
T6	CAP 56-INCH GUSSET 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	12 GAUGE
T7	CAP 56-INCH GUSSET 3	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	12 GAUGE
T8	CAP 42-INCH GUSSET 4	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	12 GAUGE
T9	CAP 42-INCH GUSSET 5	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	12 GAUGE
T10	CAP 42-INCH GUSSET 6	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	12 GAUGE
T11	CAP 42-INCH GUSSET 7	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	12 GAUGE
T12	CAP 42-INCH GUSSET 8	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	12 GAUGE
T13	CAP 42-INCH GUSSET 9	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	12 GAUGE
T14	CAP 42-INCH GUSSET 10	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	12 GAUGE
T15	CAP 42-INCH GUSSET 11	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	12 GAUGE
T16	CAP 42-INCH GUSSET 12	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	12 GAUGE
U1	GAP STIFFENER	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	
U2	GAP STIFFENER - CONNECTOR 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	
U3	GAP STIFFENER - CONNECTOR 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	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
V1	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 24.0 KIPS AND ULTIMATE SHEAR LOAD 21.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	¾" DIA.
V2	GAP STIFFENER - BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C O R MECHANICAL GALVANIZE 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	
W1	TOE 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	
X1	TOE PLATE - CONNECTION BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC HEAVY HEX HEAD OR AASTHO M180 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.	¾" DIA.
X2	TOE PLATE - CONNECTION BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1 (HARDEN WASHER ONLY)	
X3	TOE PLATE - CONNECTION BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	

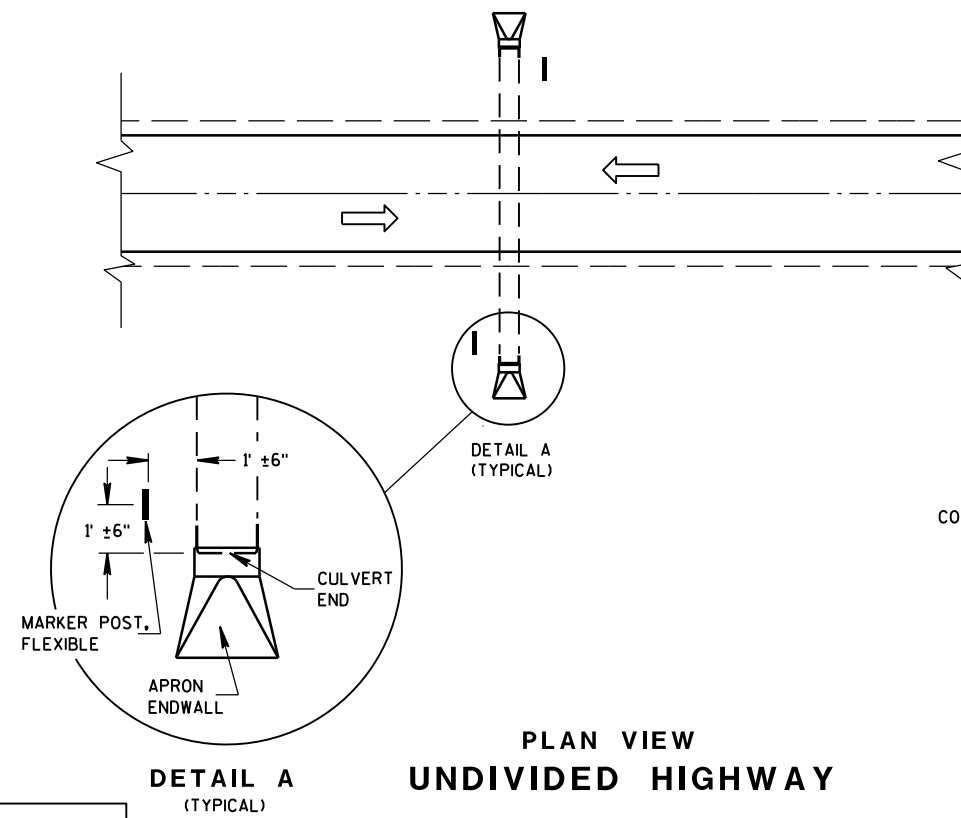
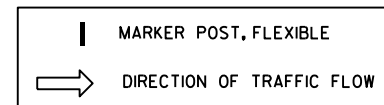
CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2023
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



PLAN VIEW
DIVIDED HIGHWAY

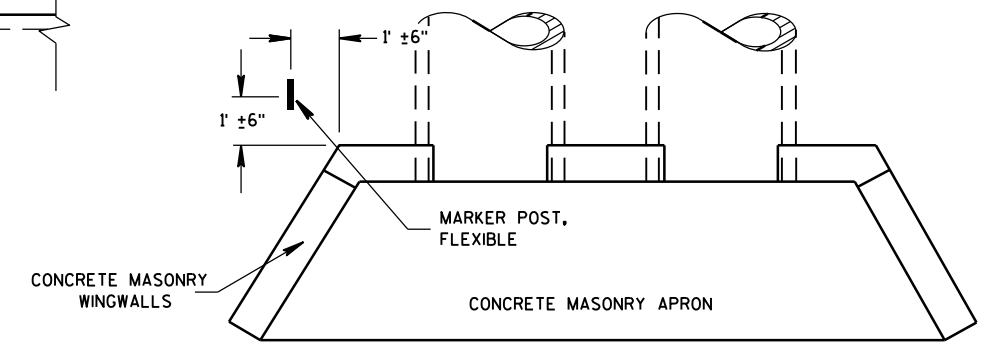


PLAN VIEW
UNDIVIDED HIGHWAY

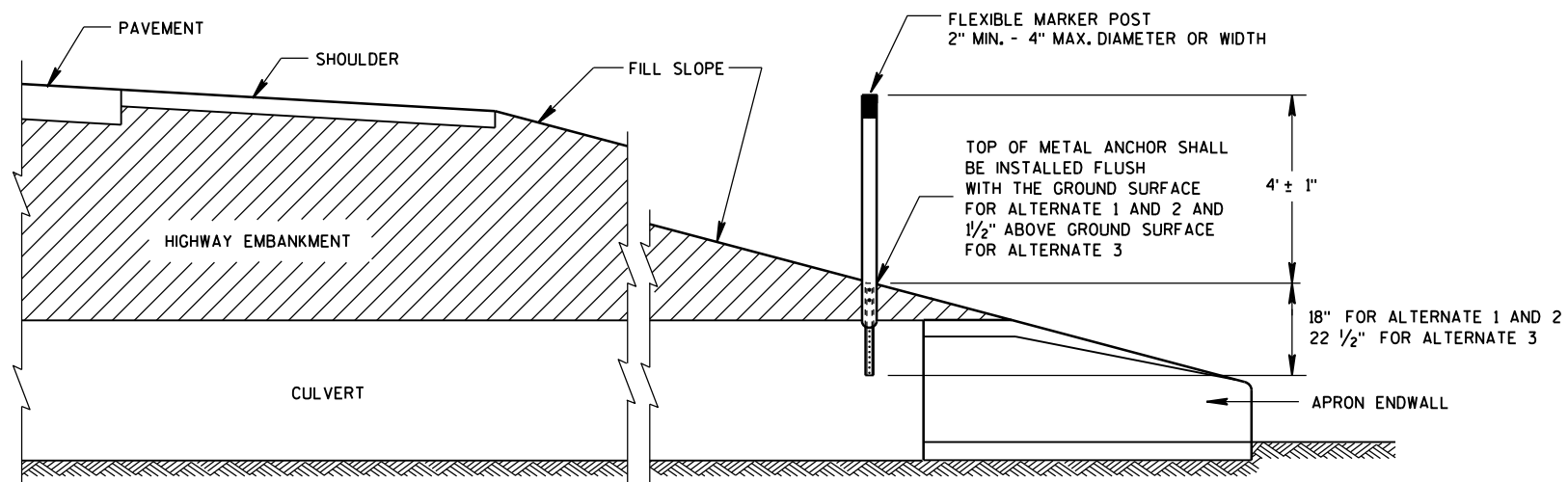
FLEXIBLE MARKER POST LOCATION

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.



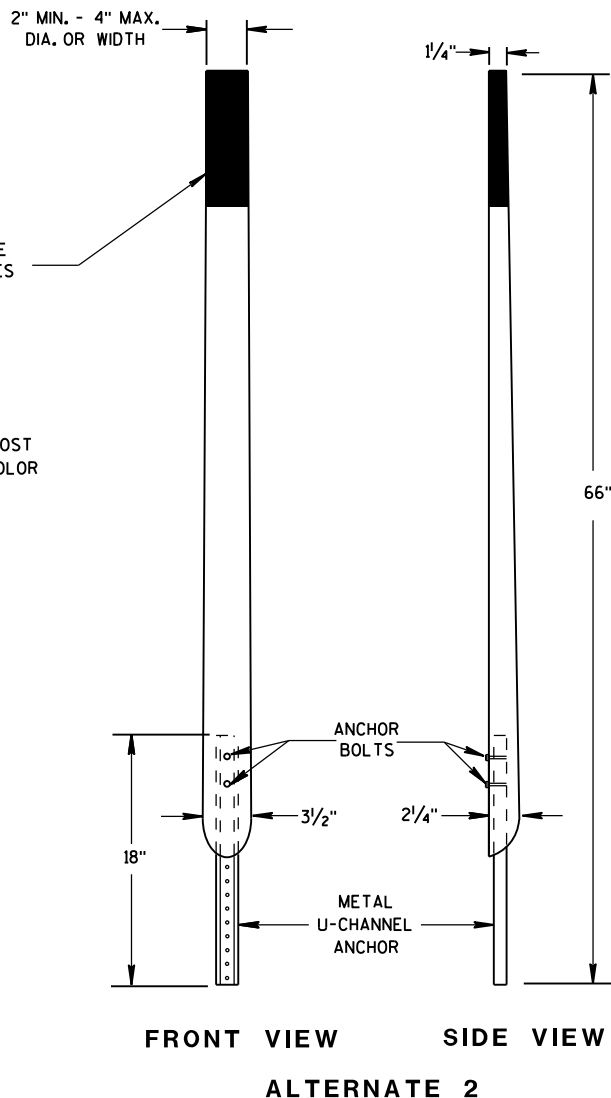
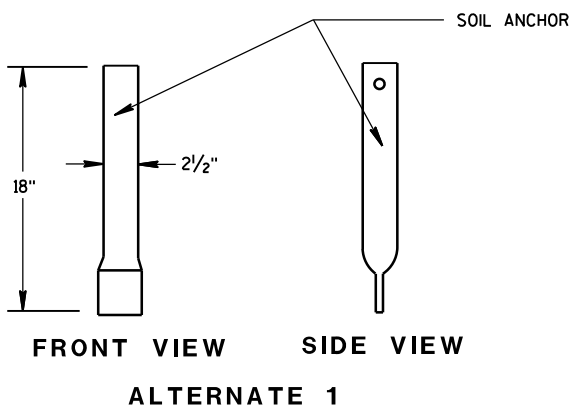
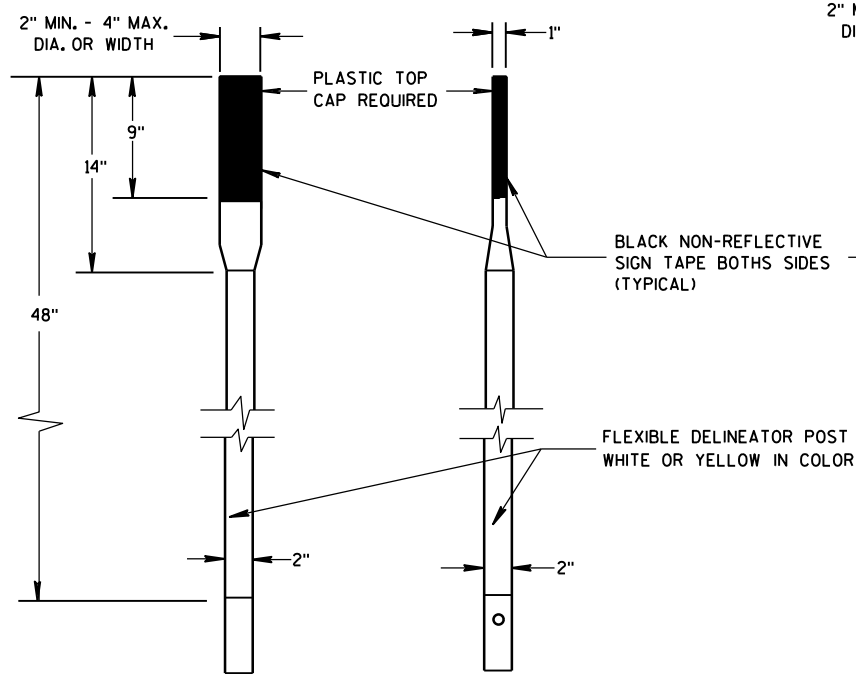
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



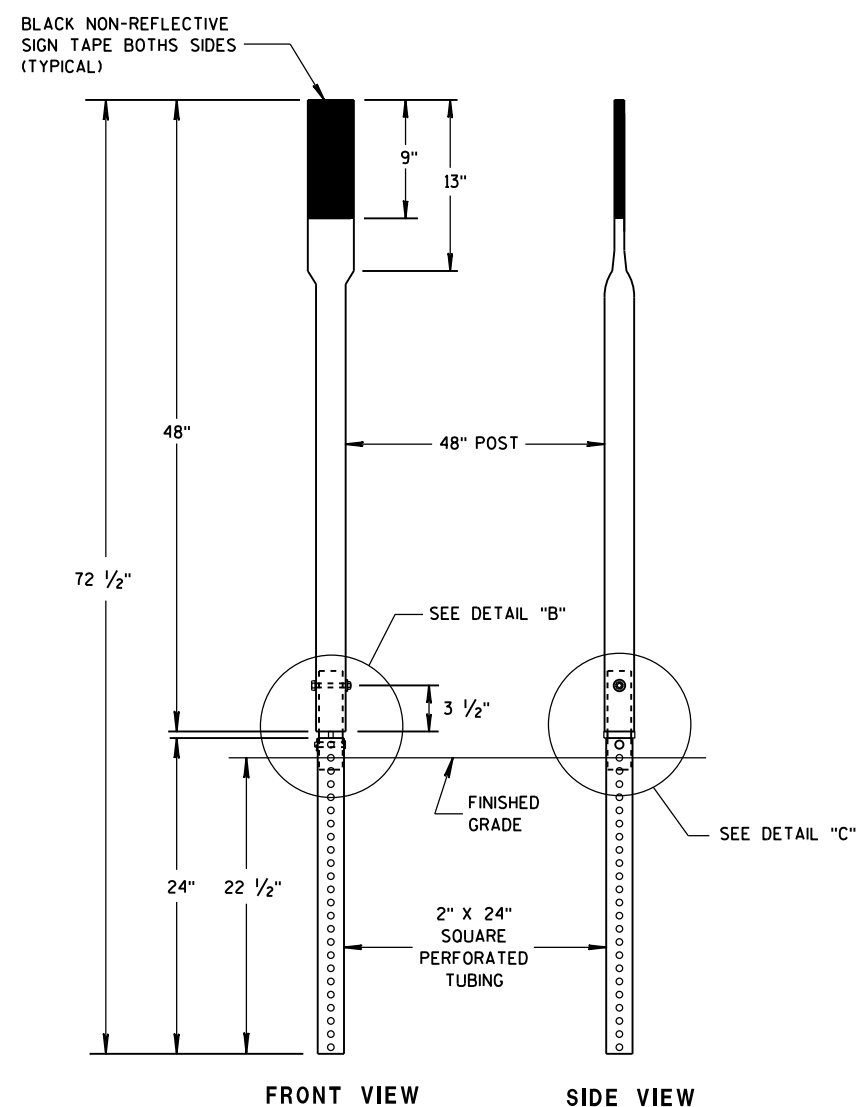
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

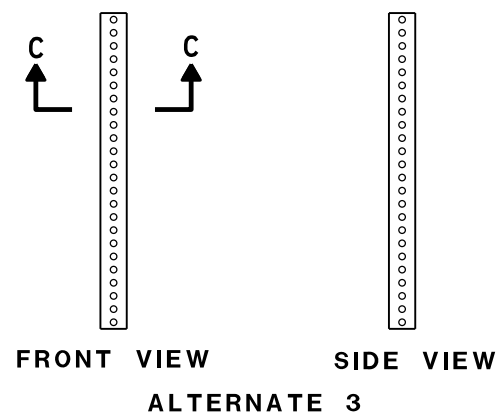
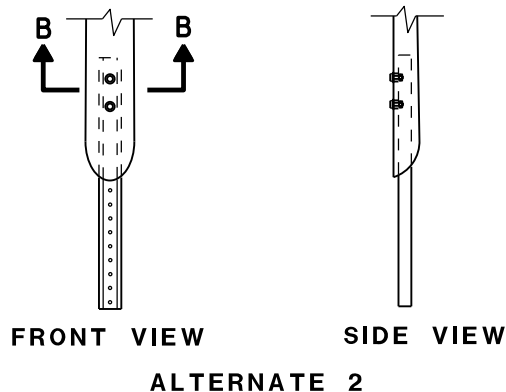
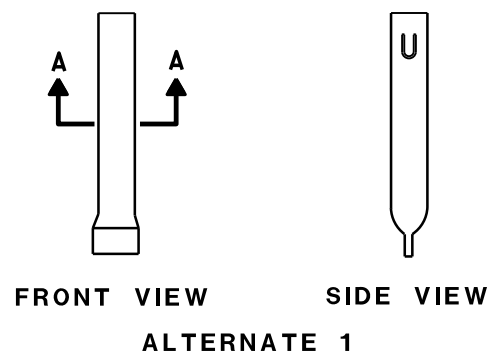
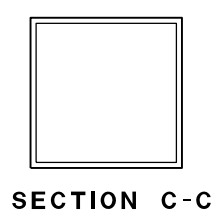
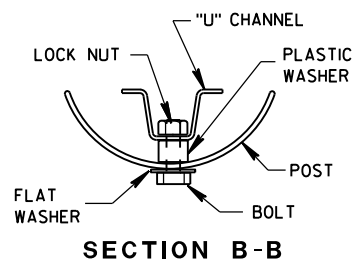
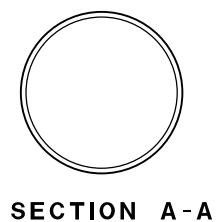
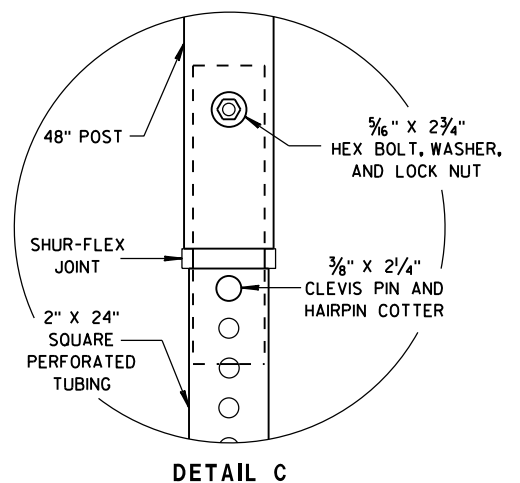
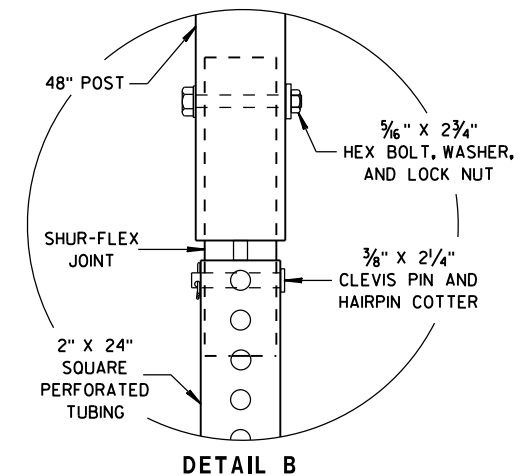
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POSTS



ALTERNATE 3

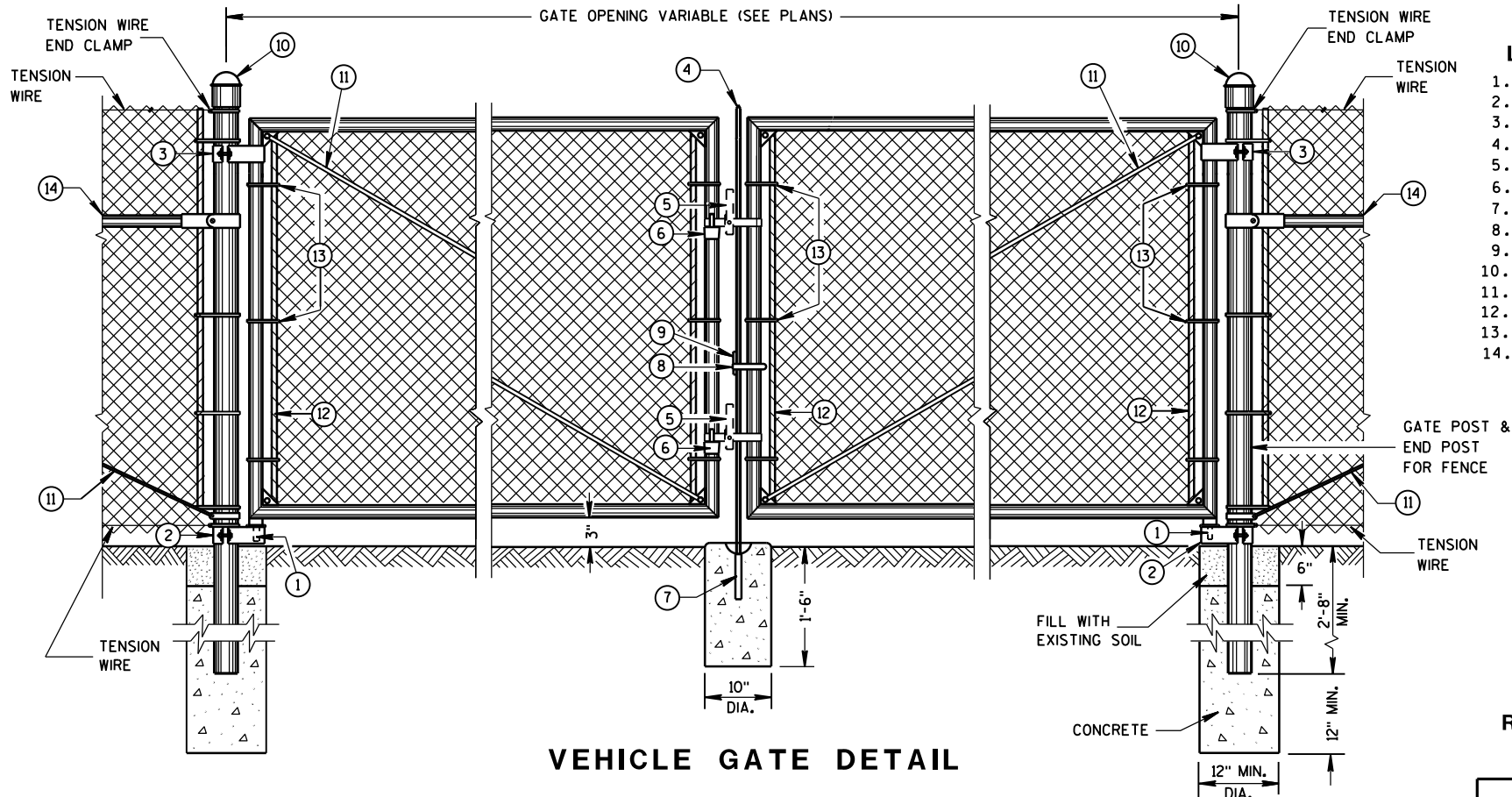


FLEXIBLE MARKER POST ANCHORS

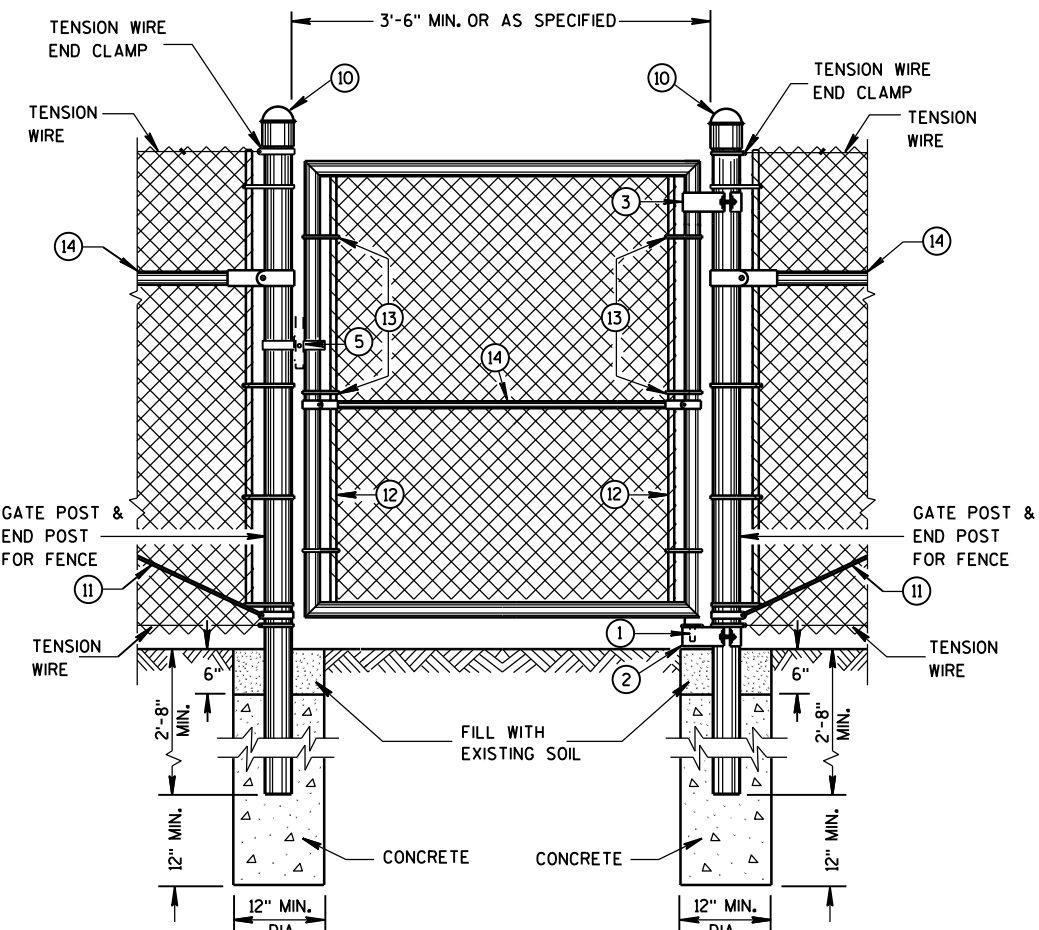
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

REQUIRED FENCE POST SIZES

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2+
	GREATER THAN OR EQUAL TO 8 FT.	FS3

BRACE RAIL TYPES

USE	TYPE
BRACE RAIL	SP1 OR FS1

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

LEGEND

- 1. STRAIGHT PLUG
 - 2. BOTTOM HINGE
 - 3. TOP HINGE
 - 4. PLUNGER ROD
 - 5. FULCRUM LATCH
 - 6. FORK CATCH *
 - 7. PLUNGER ROD CATCH
 - 8. LOCK KEEPER GUIDE
 - 9. LOCK KEEPER
 - 10. DOME TOPS
 - 11. TRUSS RODS
 - 12. TENSION BAR
 - 13. TENSION BANDS
 - 14. BRACE RAIL
- *NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

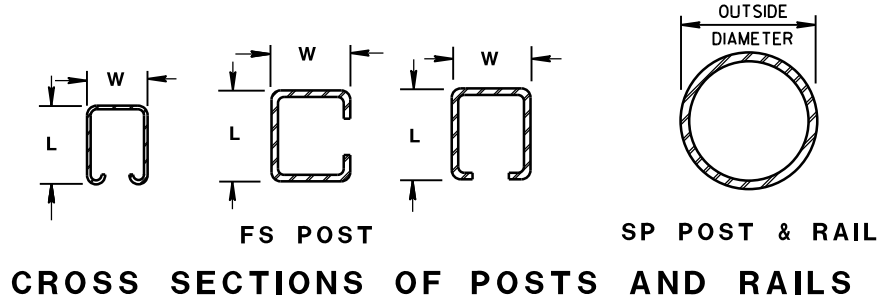
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



ROLLED-FORMED STEEL FENCE POST (2.0 OZ./SQ. FT. COATING)

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2+	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

ROUND STEEL FENCE POST (1.8 OZ./SQ. FT. COATING)

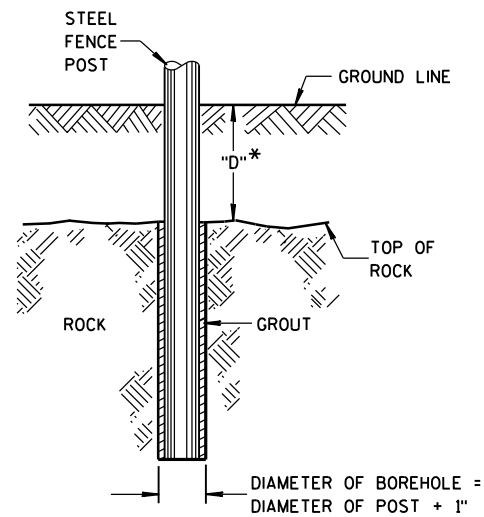
POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

REQUIRED POST SIZE FOR GATES

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

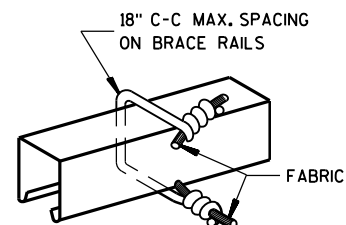
FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



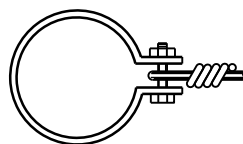
* IF "D" IS LESS THAN 2'-6",
DRILL ROCK AND INSTALL GROUT

ROCK INSTALLATION OF LINE POST

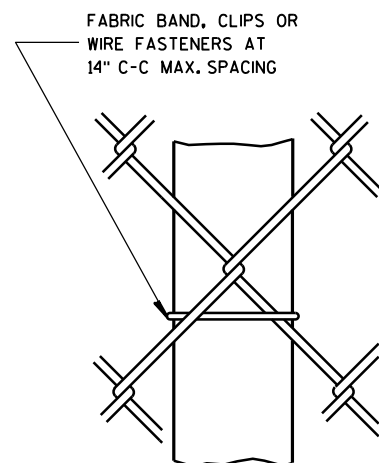


BRACE RAIL FABRIC FASTENER

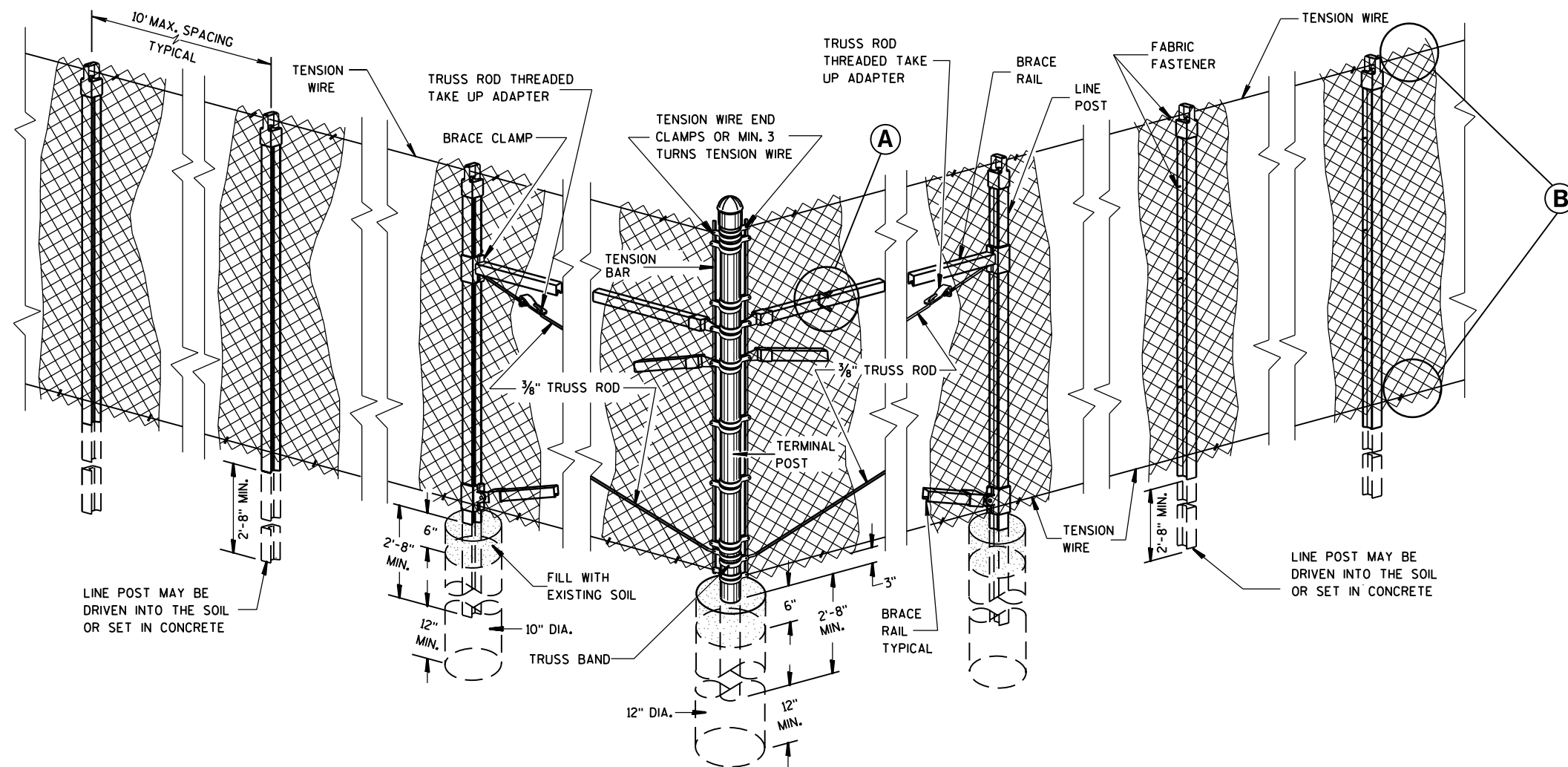
(A)



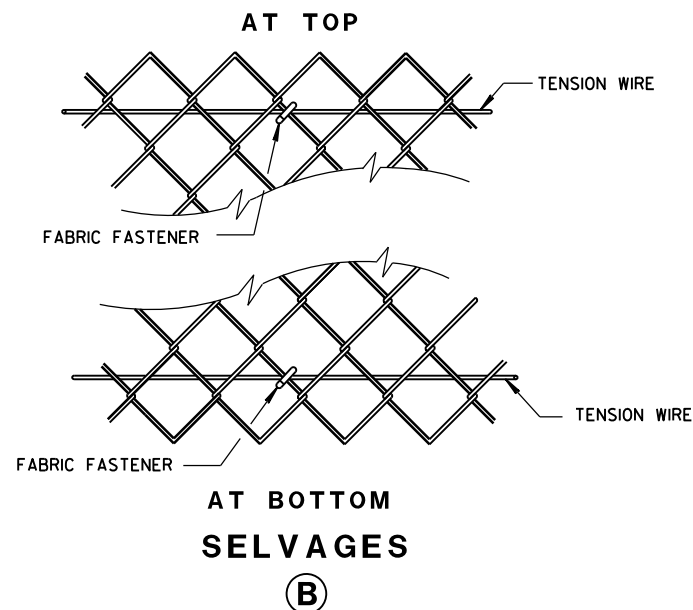
TENSION WIRE END CLAMP



LINE POST FABRIC FASTENER



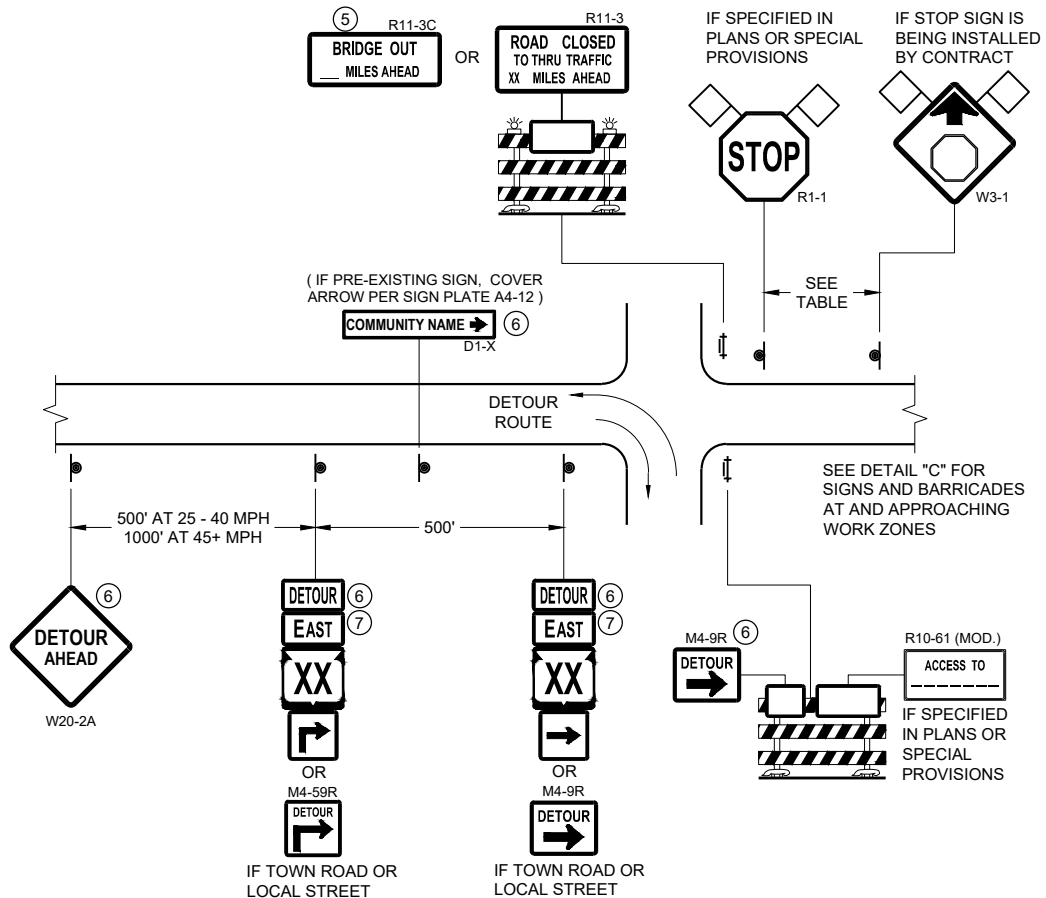
END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS



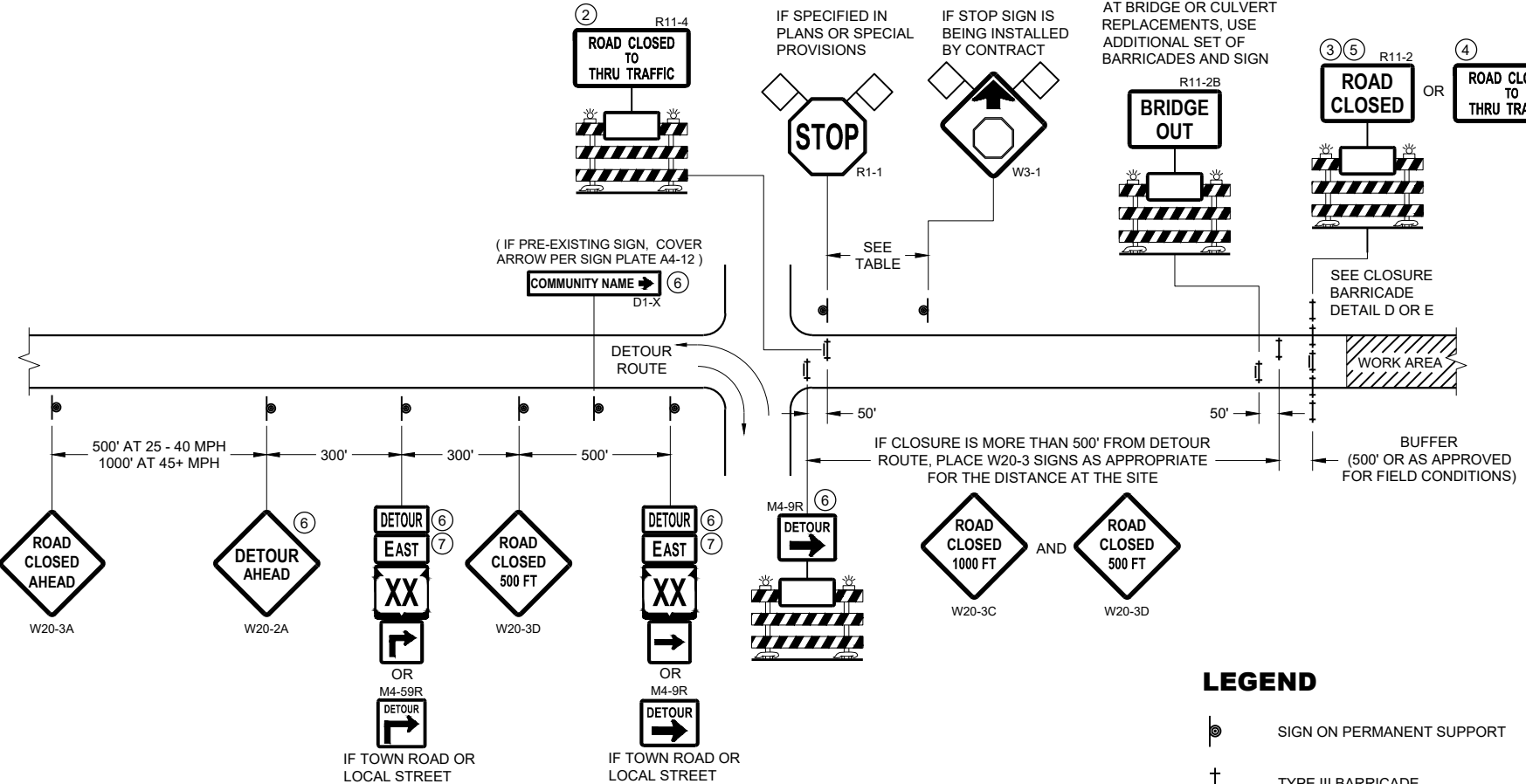
FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
FEB. 2015
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



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



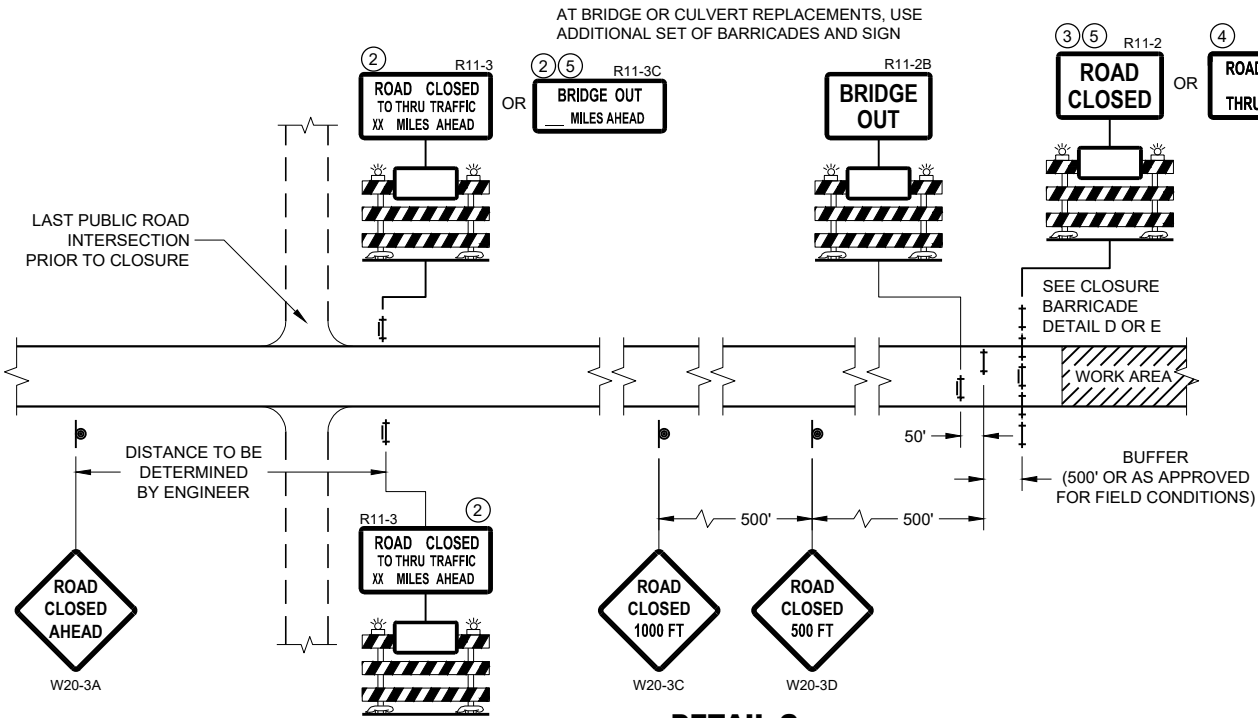
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

- 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 OR XX M1 - 6 OR COUNTY M1 - 5A
- OR M05 - 1 OR M06 - 1

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



GENERAL NOTES

LESS 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"

- 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.

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL "TO" MO-4 SIGN LAYOUT AND SPACING. SEE PROJECT TO SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

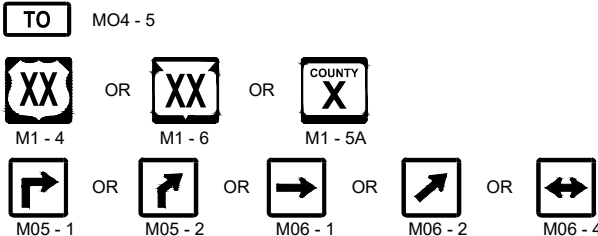
LEGEND



SIGN ON PERMANENT SUPPORT



PORTABLE CHANGEABLE MESSAGE SIGN



GENERAL NOTES

SEE SDD 15D16 "TRAFFIC CONTROL, EXIT RAMP CLOSURE" DETAIL FOR TRAFFIC CONTROL AT EXIT RAMP CLOSURE.

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

IF THERE ARE ANY ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE "TO" MO-4 ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT TO SIGNING DETAIL SHEETS MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND "TO" MO-4 SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET. CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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.

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

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

SIGN SIZES SHALL BE AS FOLLOW:
 MO4 - 5 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, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).

- ① ONLY ADD IF THERE ARE NO EXISTING ROUTE MARKERS FOR THE INTERSECTING ROADWAY.

OFF RAMP LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

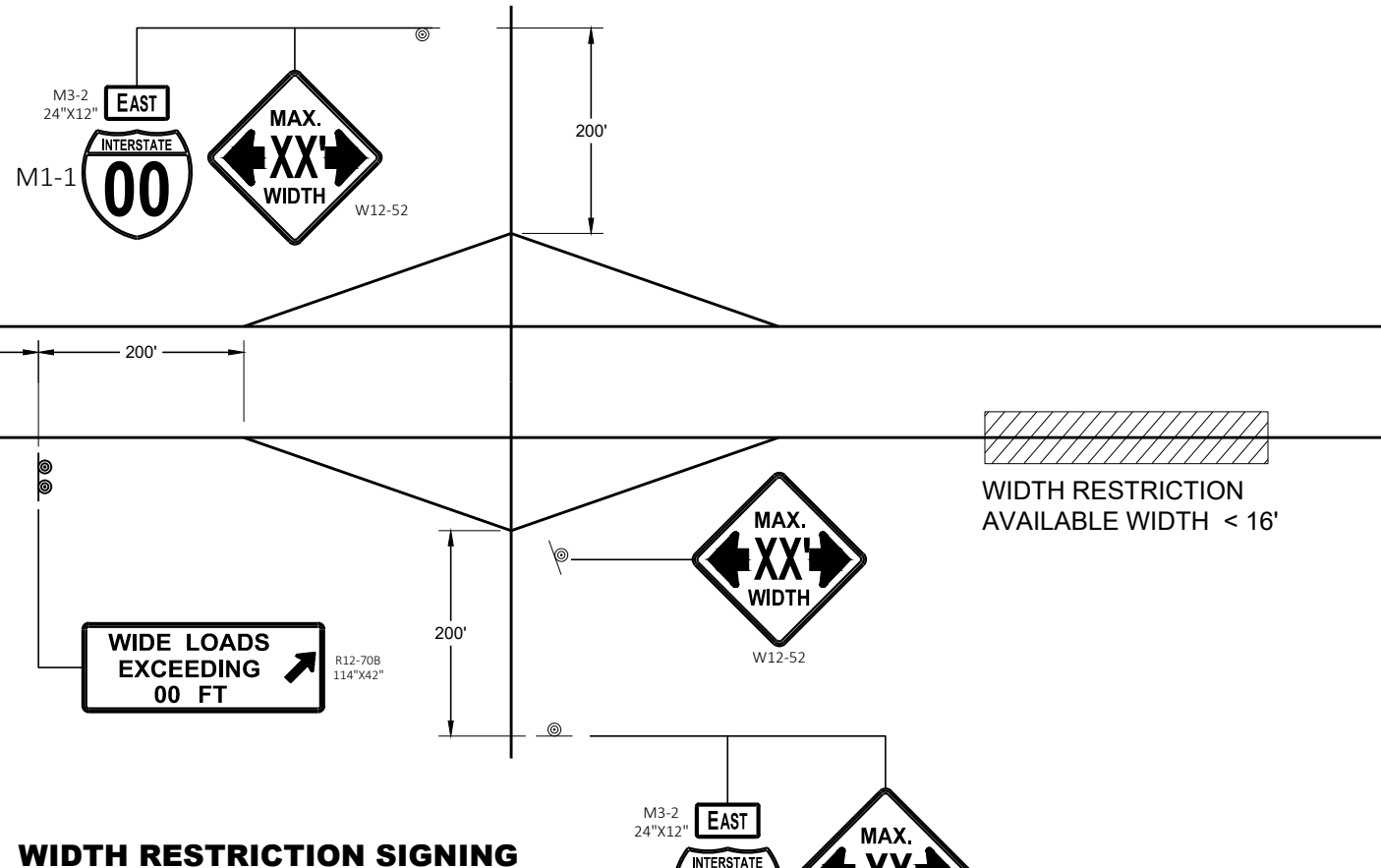
FHWA

6

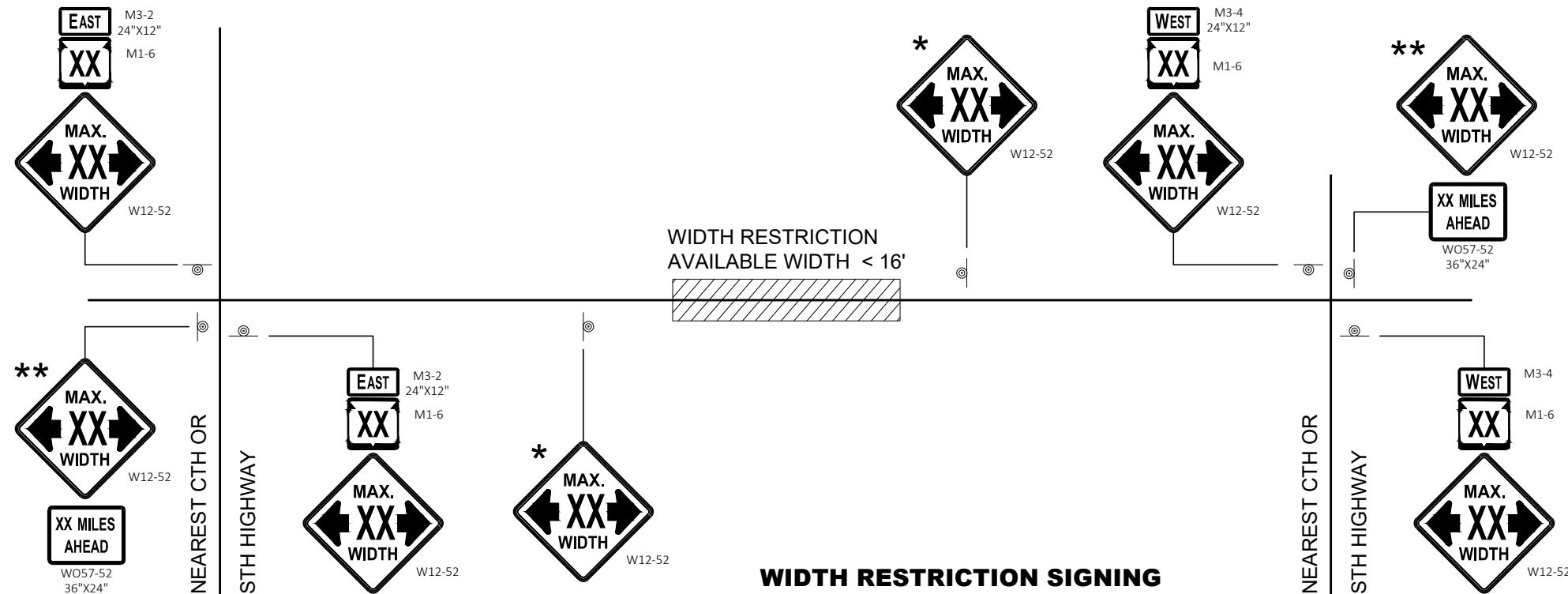
SDD 15C02 - 09e

6

SDD15C02 - 09e



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS 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 DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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.

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

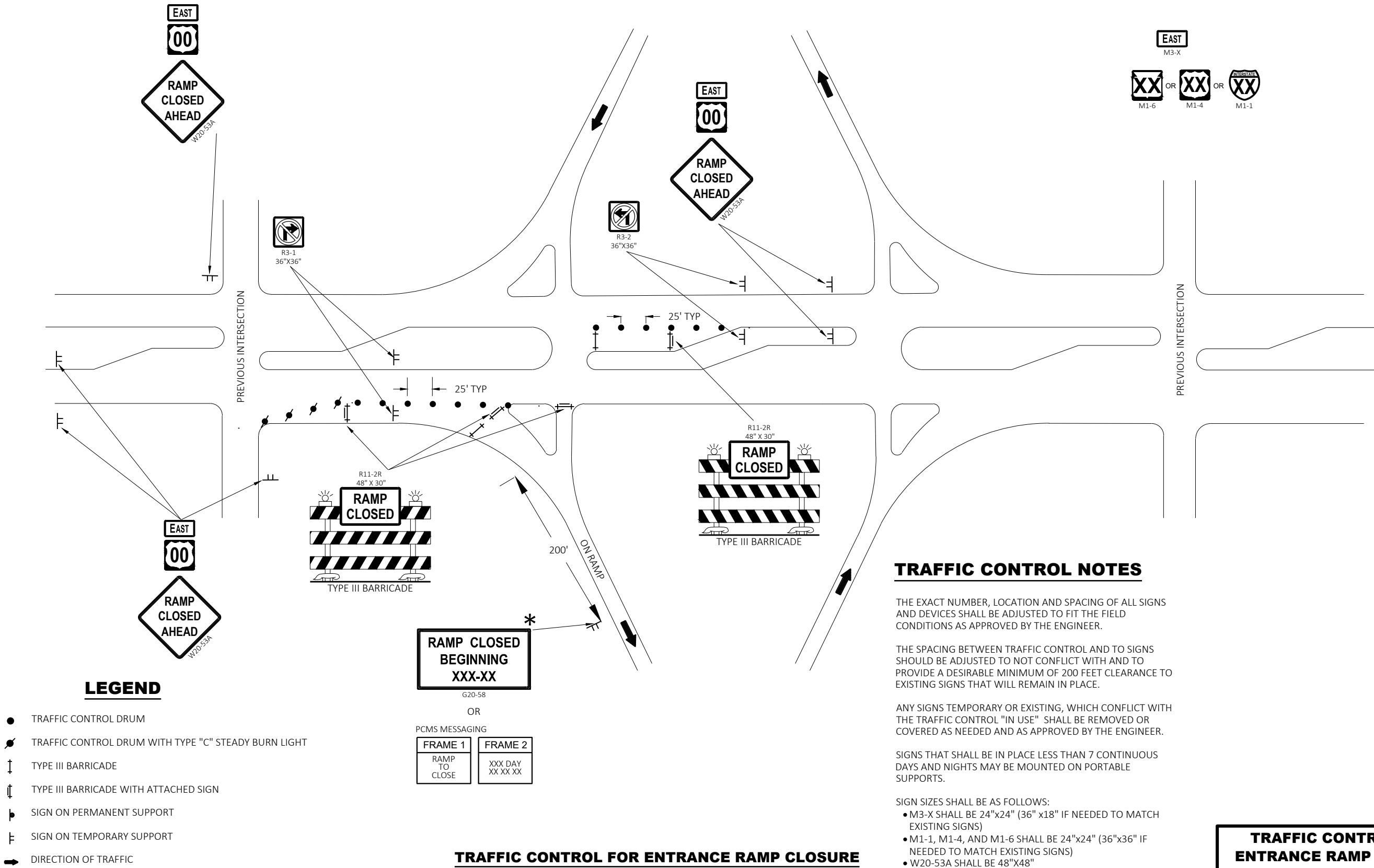
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

- * PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- ** SIGN SHALL BE VISIBLE FROM ROADWAY.
- *** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



ADVANCED WIDTH RESTRICTION SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



TRAFFIC CONTROL NOTES

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

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

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.

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

- SIGN SIZES SHALL BE AS FOLLOWS:
- M3-X SHALL BE 24"x24" (36" x18" IF NEEDED TO MATCH EXISTING SIGNS)
 - M1-1, M1-4, AND M1-6 SHALL BE 24"x24" (36"x36" IF NEEDED TO MATCH EXISTING SIGNS)
 - W20-53A SHALL BE 48"x48"

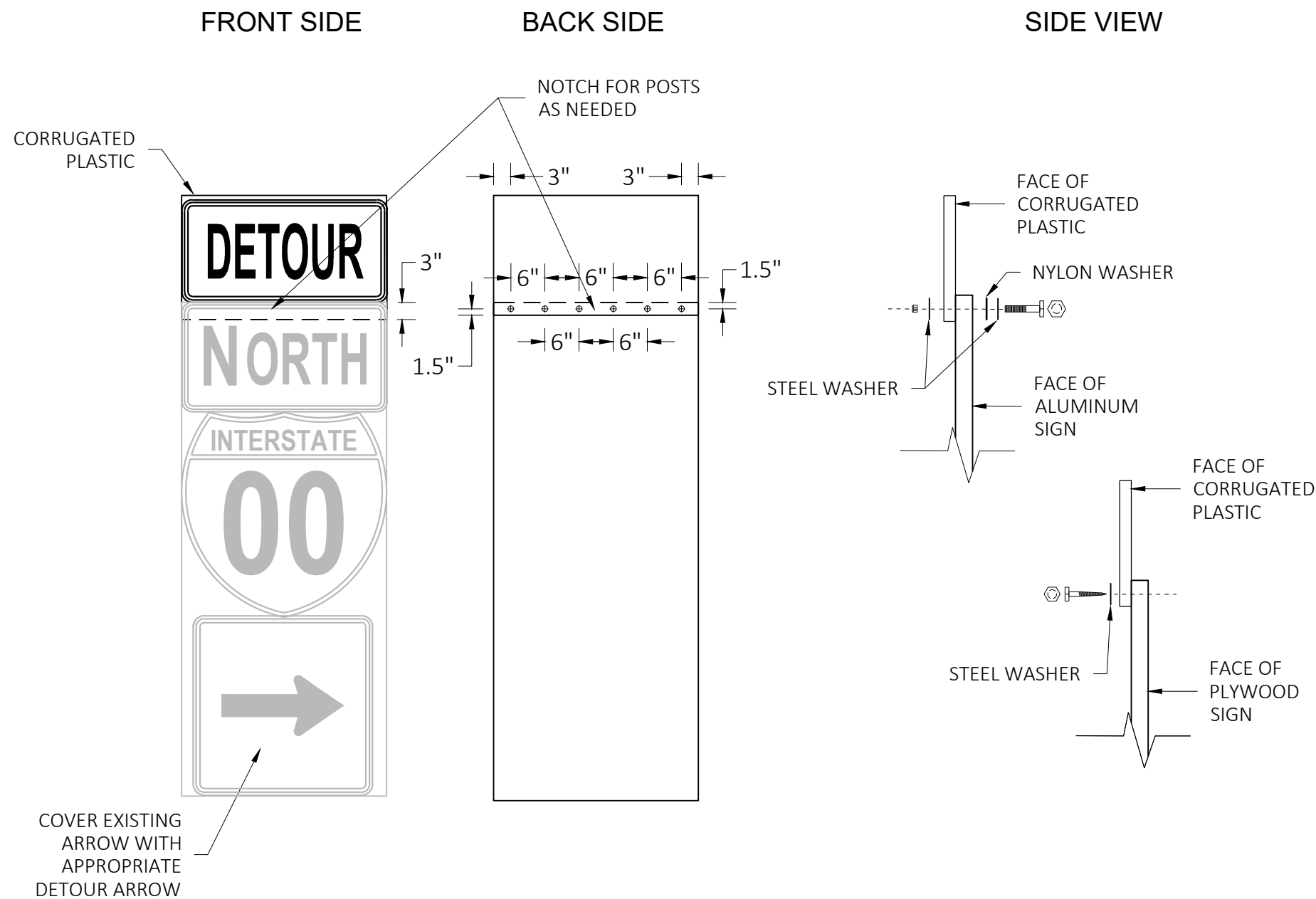
* PLACE "RAMP CLOSED BEGINNING" SIGN 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR LAYOUT.

TRAFFIC CONTROL FOR ENTRANCE RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



GENERAL NOTES

CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.

PROVIDE A 0.4-INCH THICK BASE CORRUGATED PLASTIC WITH A 0.035-INCH WALL THICKNESS AND 0.4-INCH CELL SIZE.

FOR 36" WIDE SIGNS: USE 6 FASTENERS AS SHOWN.

FOR 24" WIDE SIGNS: USE 4 FASTENERS WITH EDGE SPACING AS SHOWN AND 6" SPACING BETWEEN FASTENERS.

METAL WASHERS, NUTS, BOLTS AND LAGS 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, SC3

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.

PLYWOOD SIGNS:

LAG SCREWS - 5/16" x 1"

ALUMINUM SIGNS:

MACHINE BOLTS - 5/16" x 1-1/4" LENGTH W/NUTS

WASHERS:

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

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

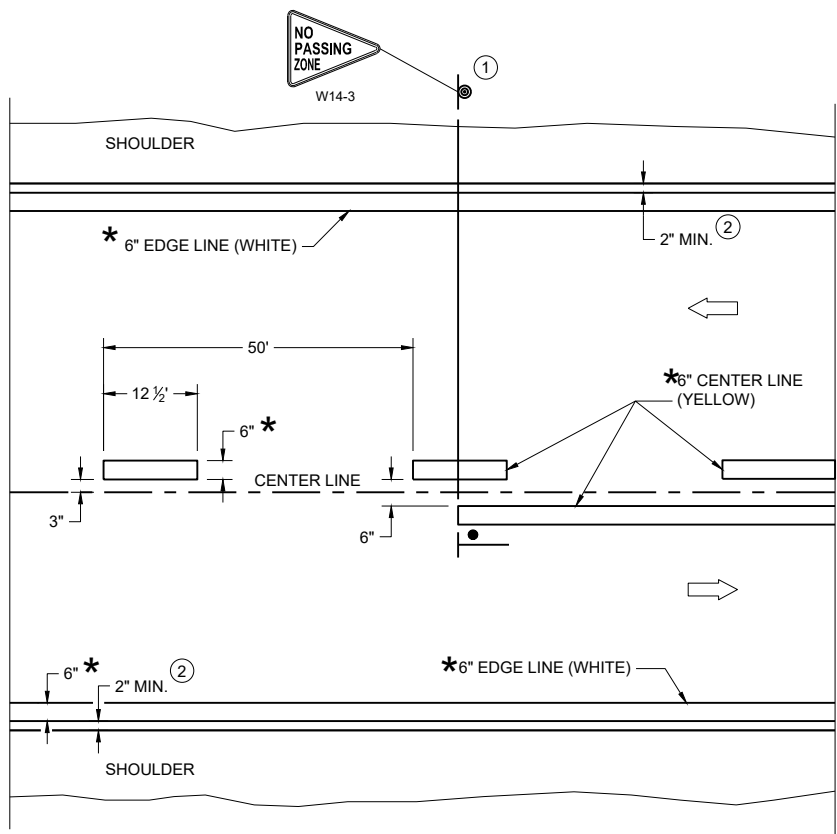
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

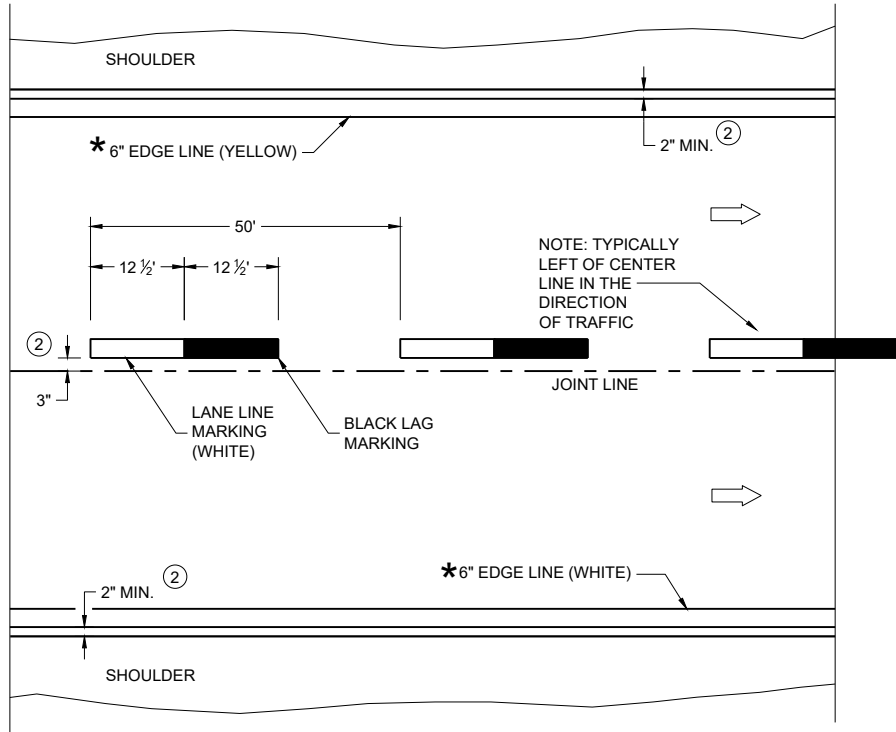
May 2023
DATE

FHWA

/S/ Andrew Heidtke
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

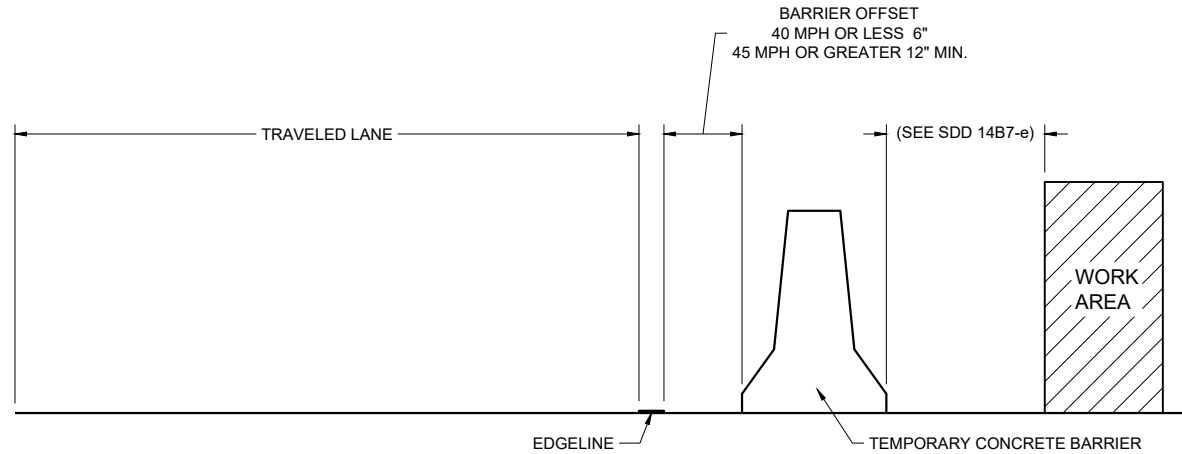
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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 May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer



TEMPORARY BARRIER OFFSET FROM EDGE LINE

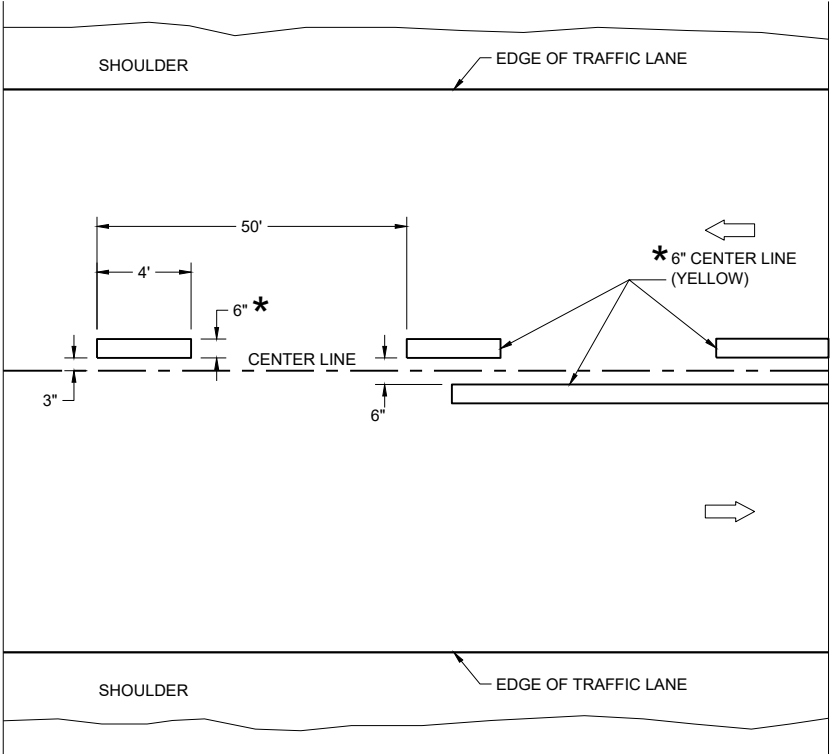
GENERAL NOTES

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

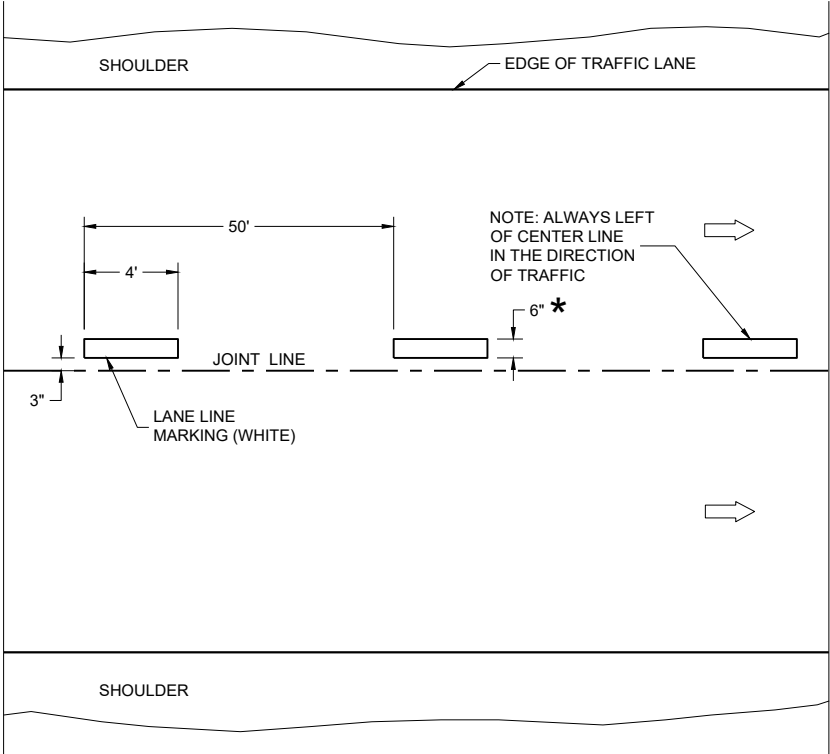
LEGEND

➡ DIRECTION OF TRAFFIC

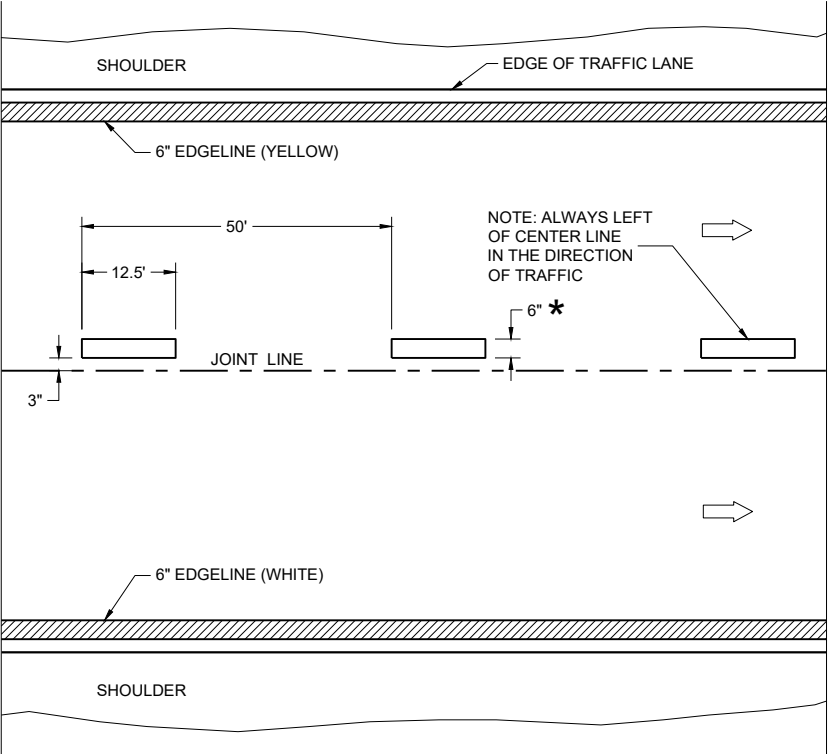
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	

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.

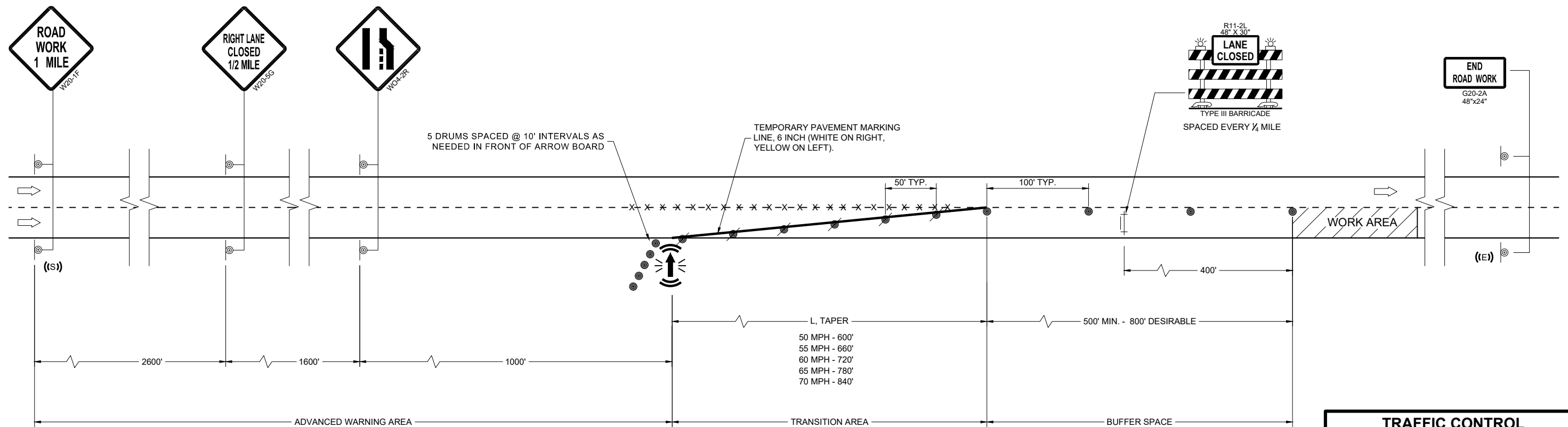
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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.

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 2024 /s/ Andrew Heidtke
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

SDD 15D12-14a

SDD 15D12-14a

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" SIGNS ARE THE SAME AS "W" SIGNS 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.

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

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.

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

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

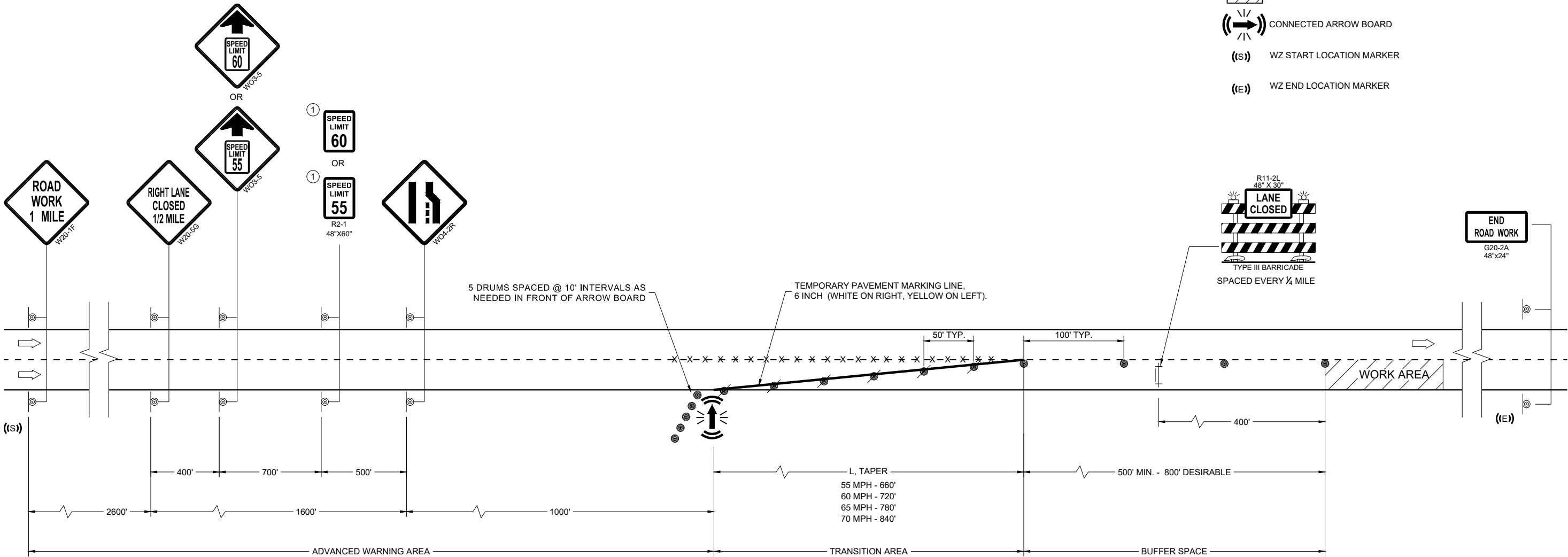
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE 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.

1 A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

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

6



6

SDD 15D12-14b

SDD 15D12-14b

TRAFFIC CONTROL,
LANE CLOSURE,
SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Andrew Heidtke
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

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
-  WZ START LOCATION MARKER
-  WZ END LOCATION MARKER
-  CONNECTED ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  PORTABLE TRAFFIC SENSOR (PTS)
-  FLASHING BEACON SIGNS

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS, INCLUDING FBS 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" SIGNS ARE THE SAME AS "W" SIGNS 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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

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

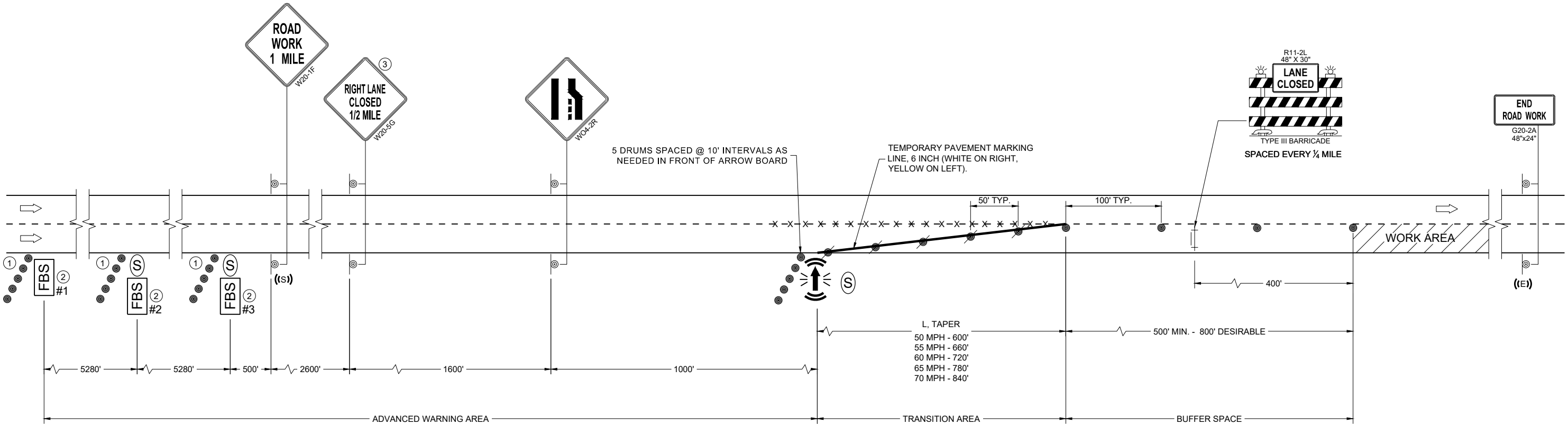
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CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON THE FBS, ARROW BOARD OR OTHER TRAILER DEVICES.

- ① 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- ② IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.
- ③ IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.

STOPPED OR
SLOW TRAFFIC
WHEN FLASHING
WO8-76
96" x 48"



TRAFFIC CONTROL, LANE
CLOSURE, BASIC TRAFFIC
QUEUE WARNING SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Erin Schwark
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

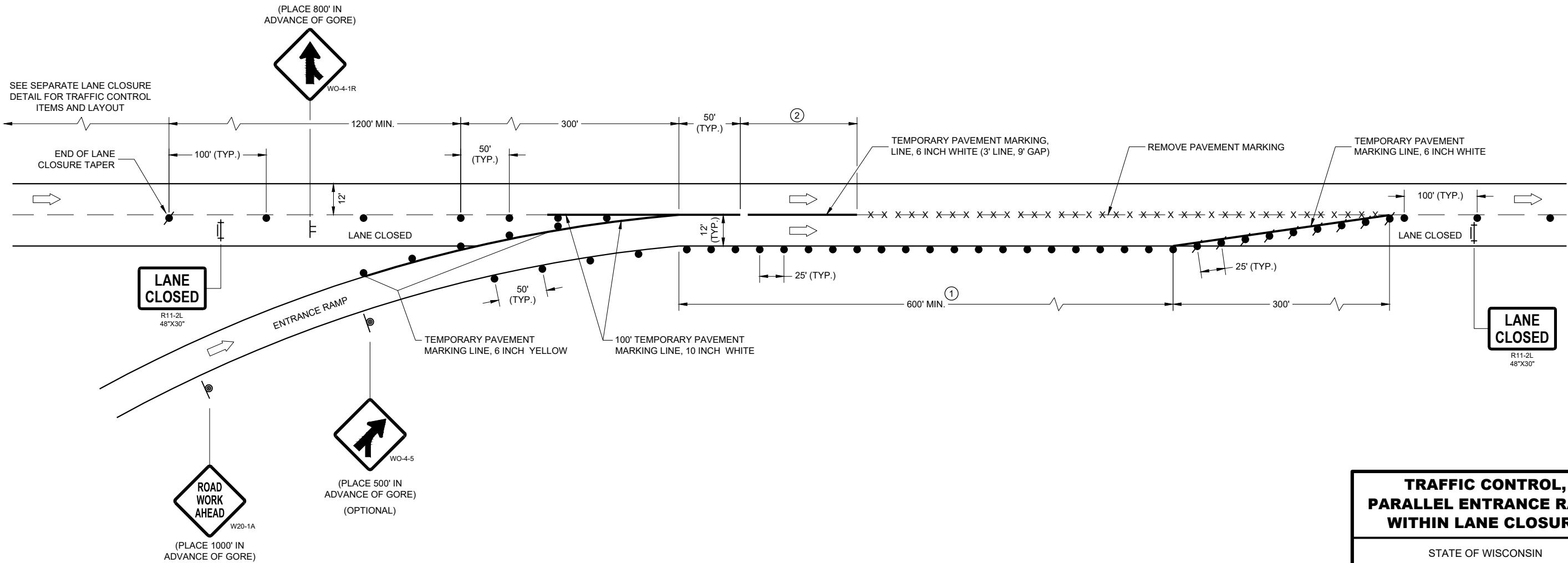
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

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

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

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



**TRAFFIC CONTROL,
PARALLEL ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

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

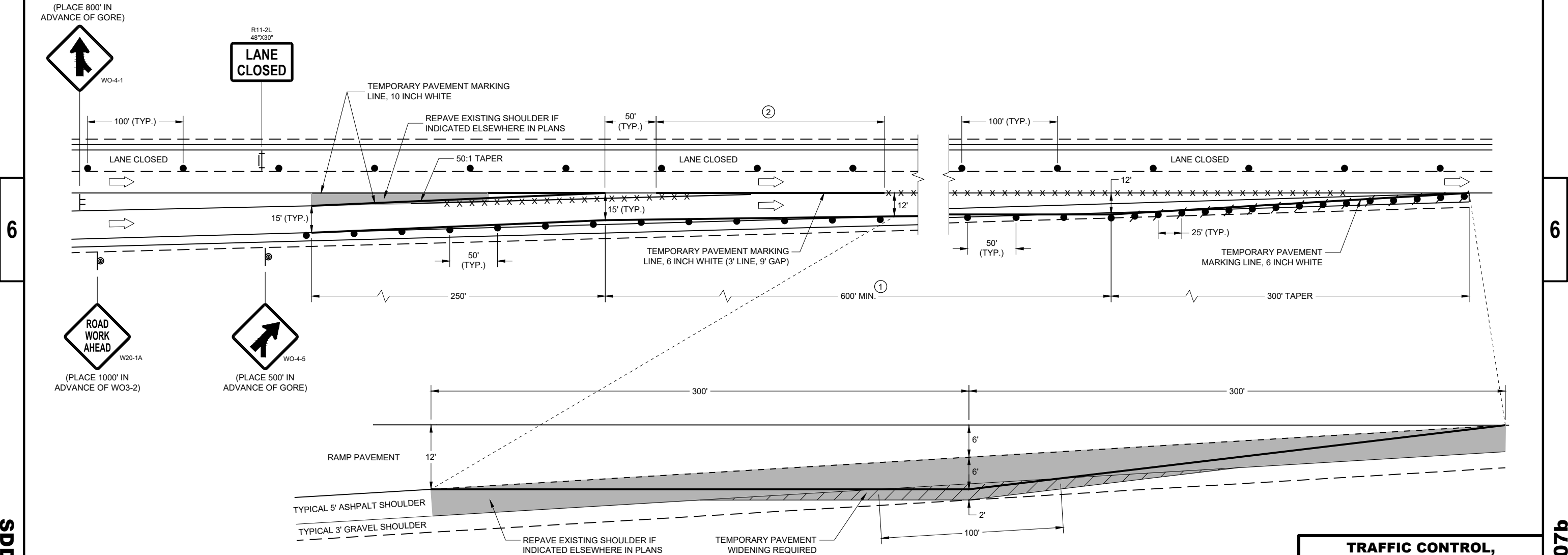
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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.

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

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

- ① EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



TEMPORARY PAVEMENT DETAIL

(EXISTING RAMP DIMENSIONS MAY VARY,
ADJUST TEMPORARY PAVEMENT ACCORDINGLY)

TRAFFIC CONTROL,
ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

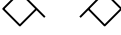
APPROVED
May 2023
DATE /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

SDD 15D15-07b

SDD 15D15-07b

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  FLAGS, 16" X 16" MIN., ORANGE
-  DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

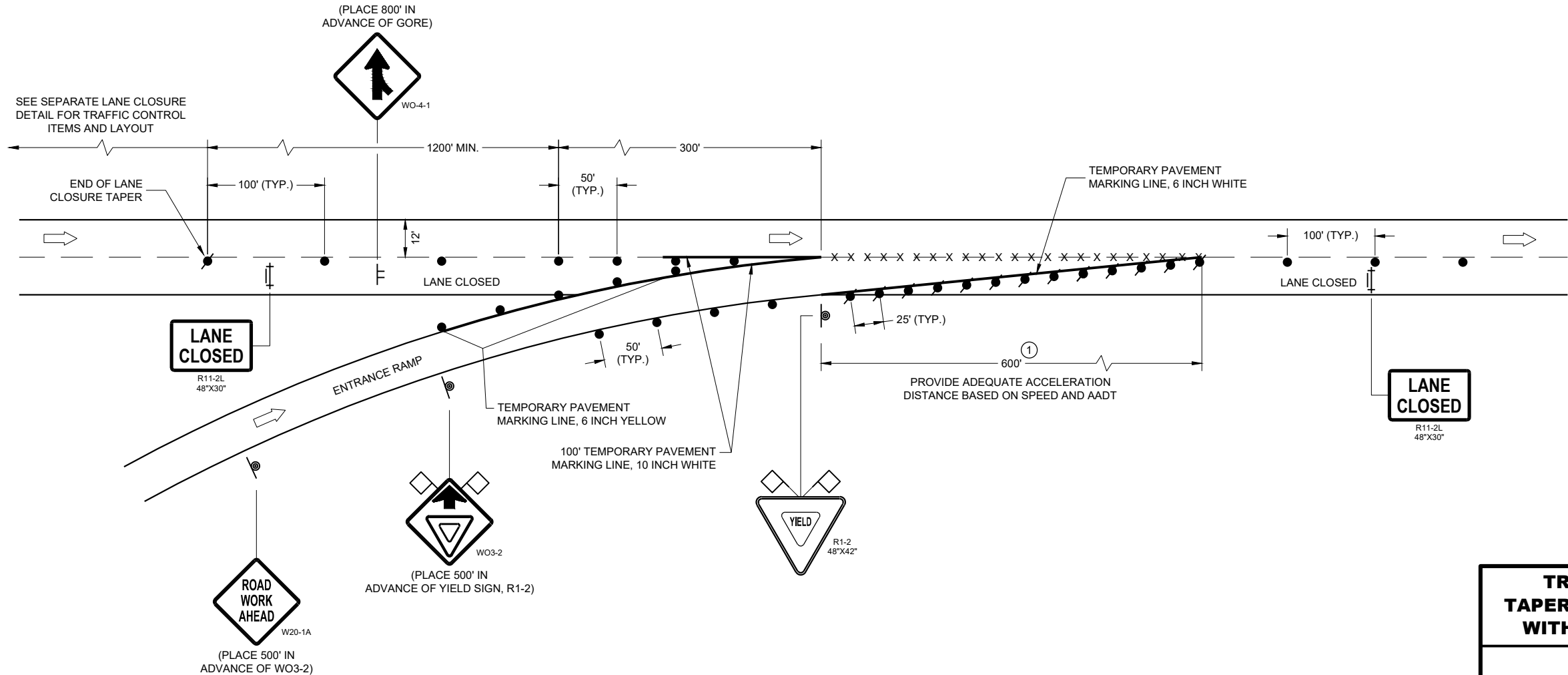
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

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

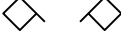
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.



TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

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

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

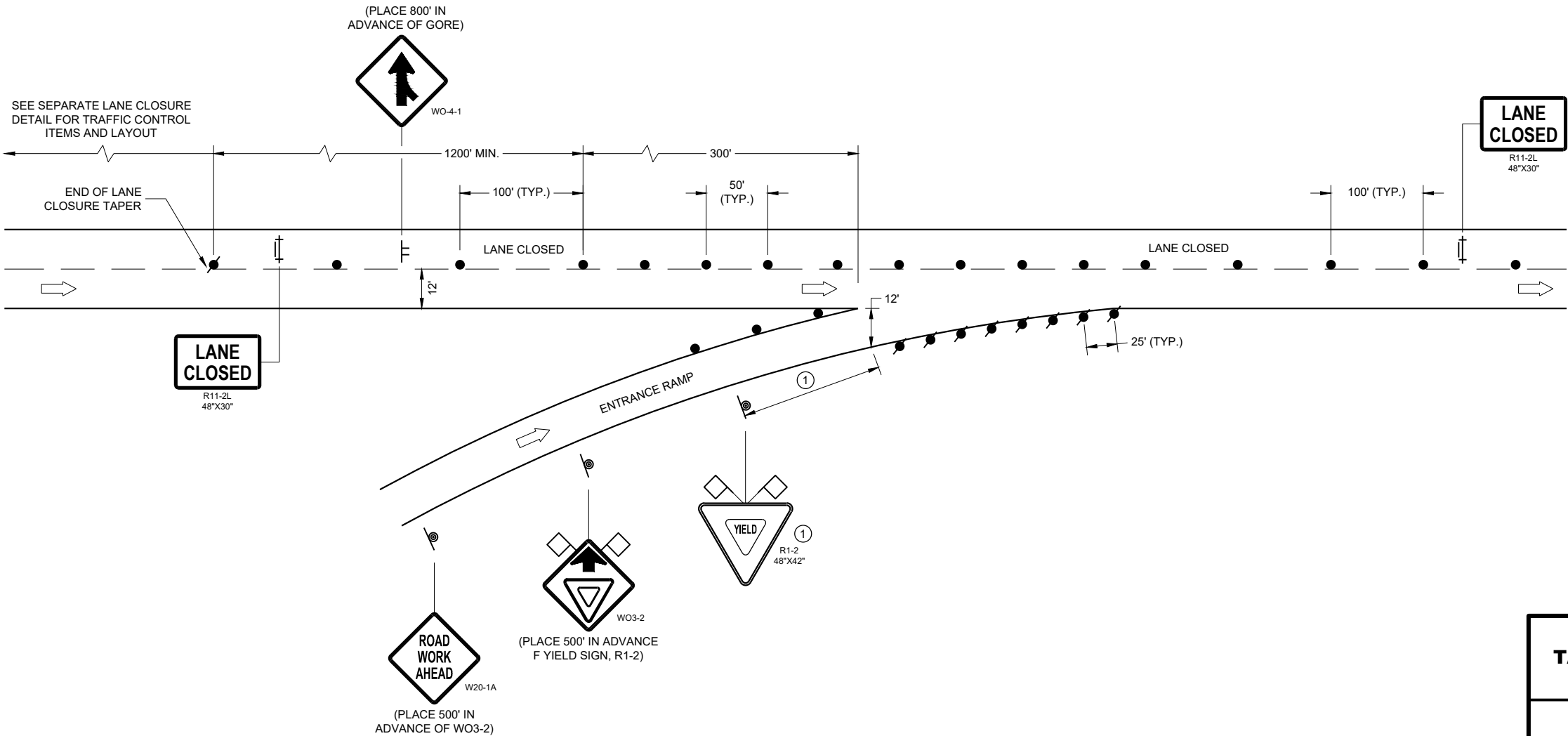
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

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

- ① PLACE YIELD SIGN TO PROVIDE ADEQUATE SIGHT DISTANCE AND ACCELERATION DISTANCE.



TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

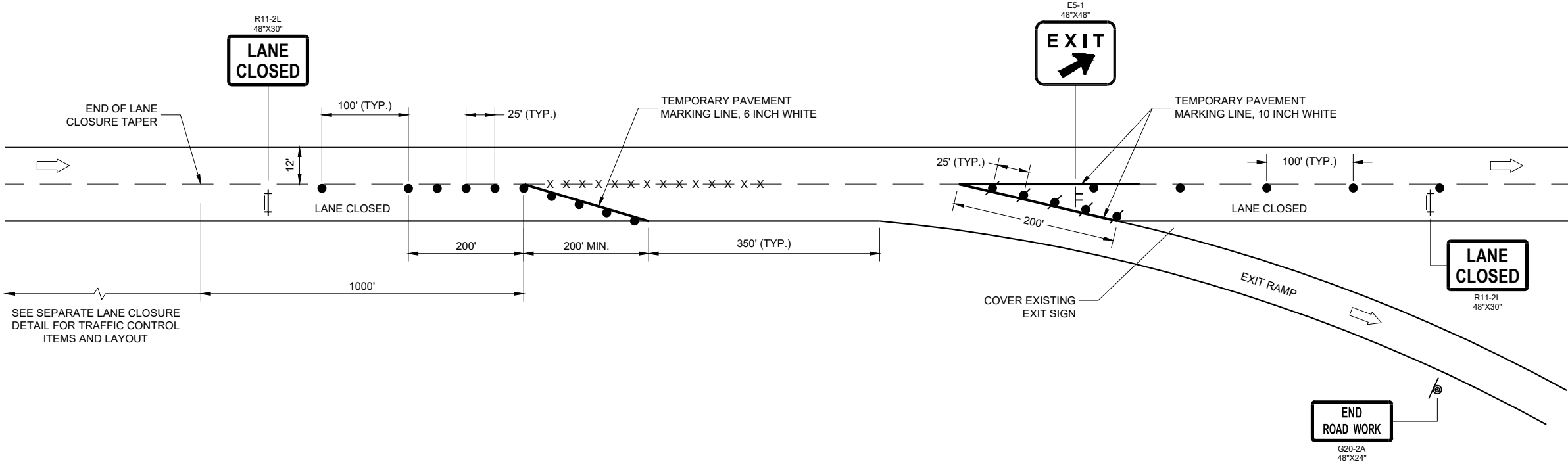
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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.

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

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



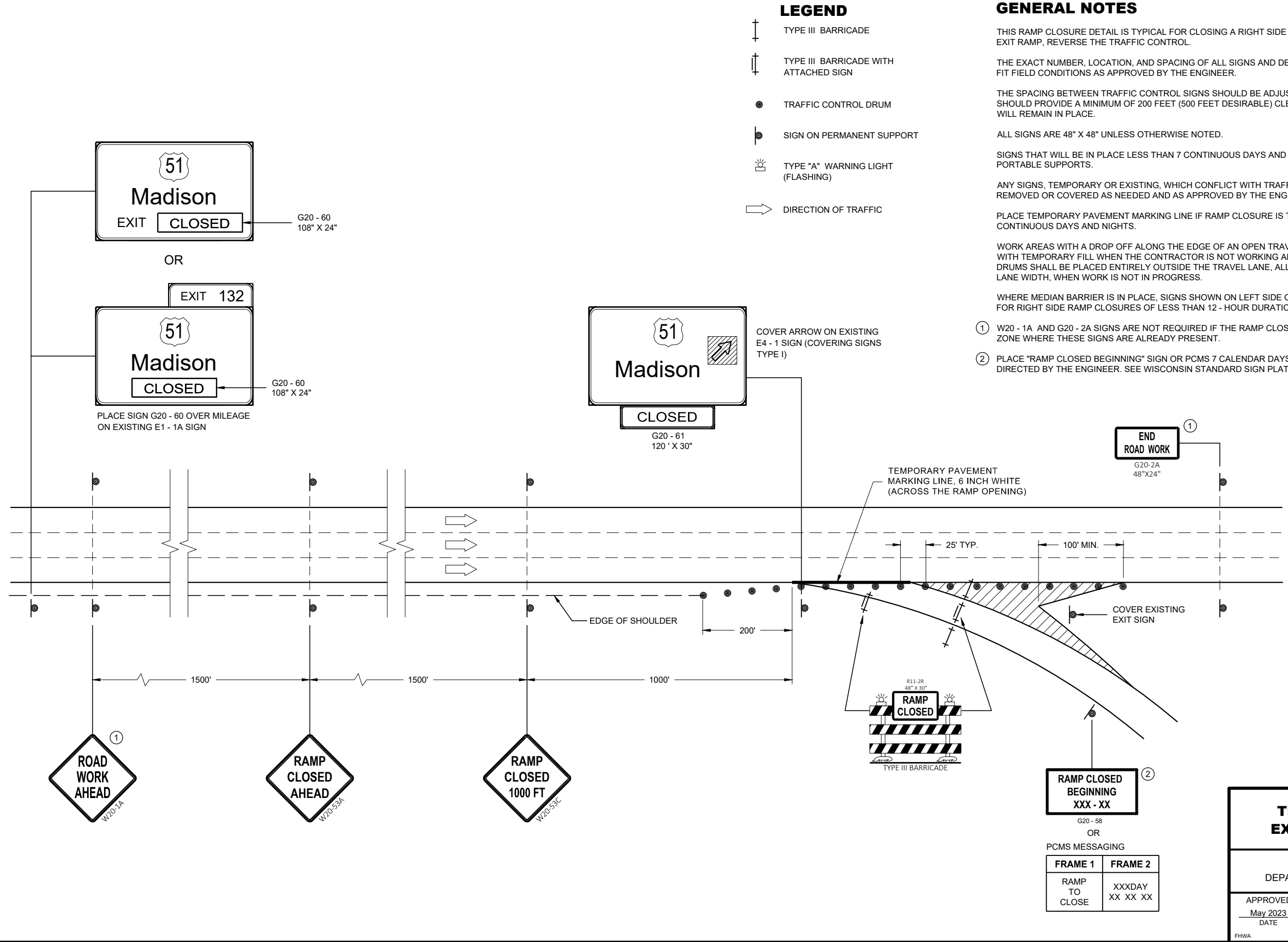
**TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

GENERAL NOTES

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

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 SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

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.

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

WORK AREAS WITH A DROP OFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12 - HOUR DURATION.

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

② PLACE "RAMP CLOSED BEGINNING" SIGN OR PCMS 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.

TRAFFIC CONTROL, EXIT RAMP CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

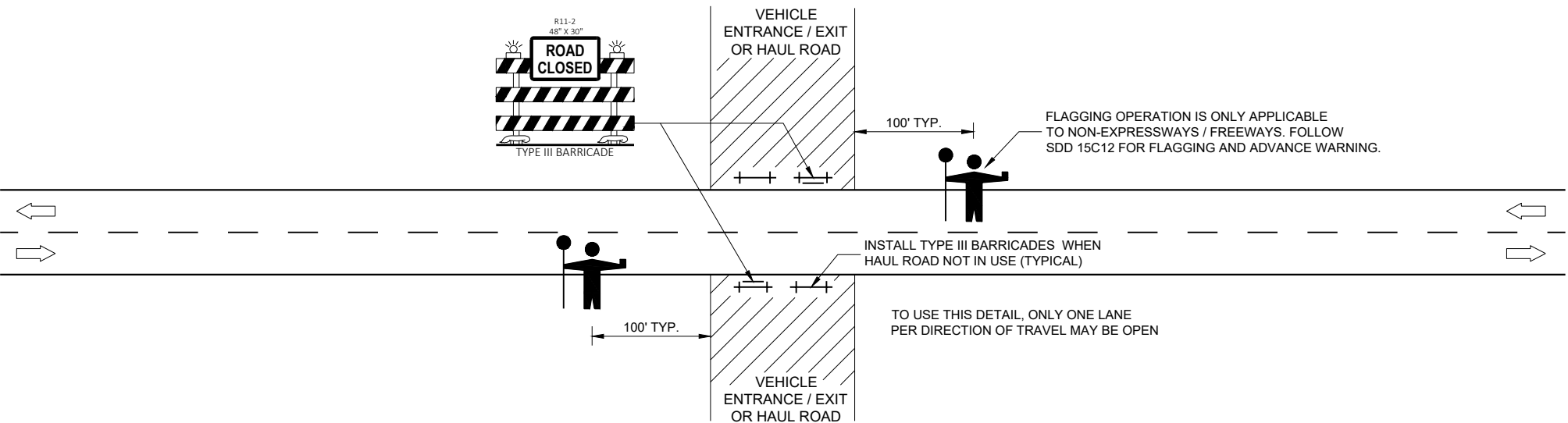
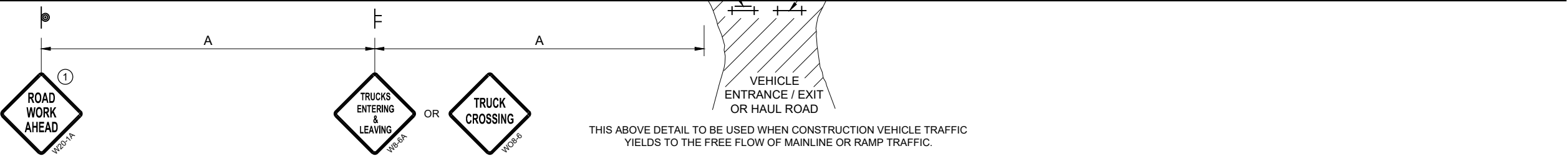
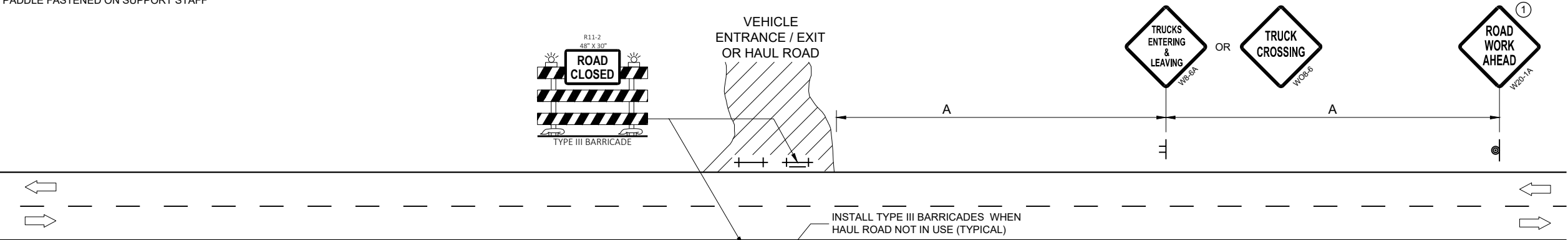
LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET
0-30	200'
35-40	350'
45-55	500'

GENERAL NOTES

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- WARNING SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- WHEN ACTIVITY REFLECTED BY THE SIGN IS NOT CURRENTLY TAKING PLACE, THE HIGHWAY SHALL BE RESTORED TO NORMAL CONDITION AND THE SIGNS SHALL BE REMOVED, COVERED OR TURNED AWAY FROM TRAFFIC.
- WHEN A SIDE ROAD OR RAMP INTERSECTS WITHIN THE ADVANCE SIGNING AREA, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND / OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.
- PLACE SIGNS ON BOTH SIDES IF USED ON DIVIDED HIGHWAY.
- ① THESE SIGNS ARE TO BE USED ONLY WHEN VEHICLE ENTRANCE / EXIT CONDITIONS ARE SEPARATED BY MORE THAN TWO MILES FROM PREVIOUS WORK AREA OR SIGNING OR AS DIRECTED BY THE ENGINEER.



THIS DETAIL TO BE USED WHEN CONSTRUCTION WORK INCLUDING TRUCKING ACTIVITY REQUIRES MAINLINE TRAFFIC TO BE TEMPORARILY STOPPED IN ONE OR BOTH DIRECTIONS. DELAY TO HIGHWAY TRAFFIC SHALL BE MINIMIZED.

TRAFFIC CONTROL,
VEHICLE ENTRANCE/EXIT
OR HAUL ROAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

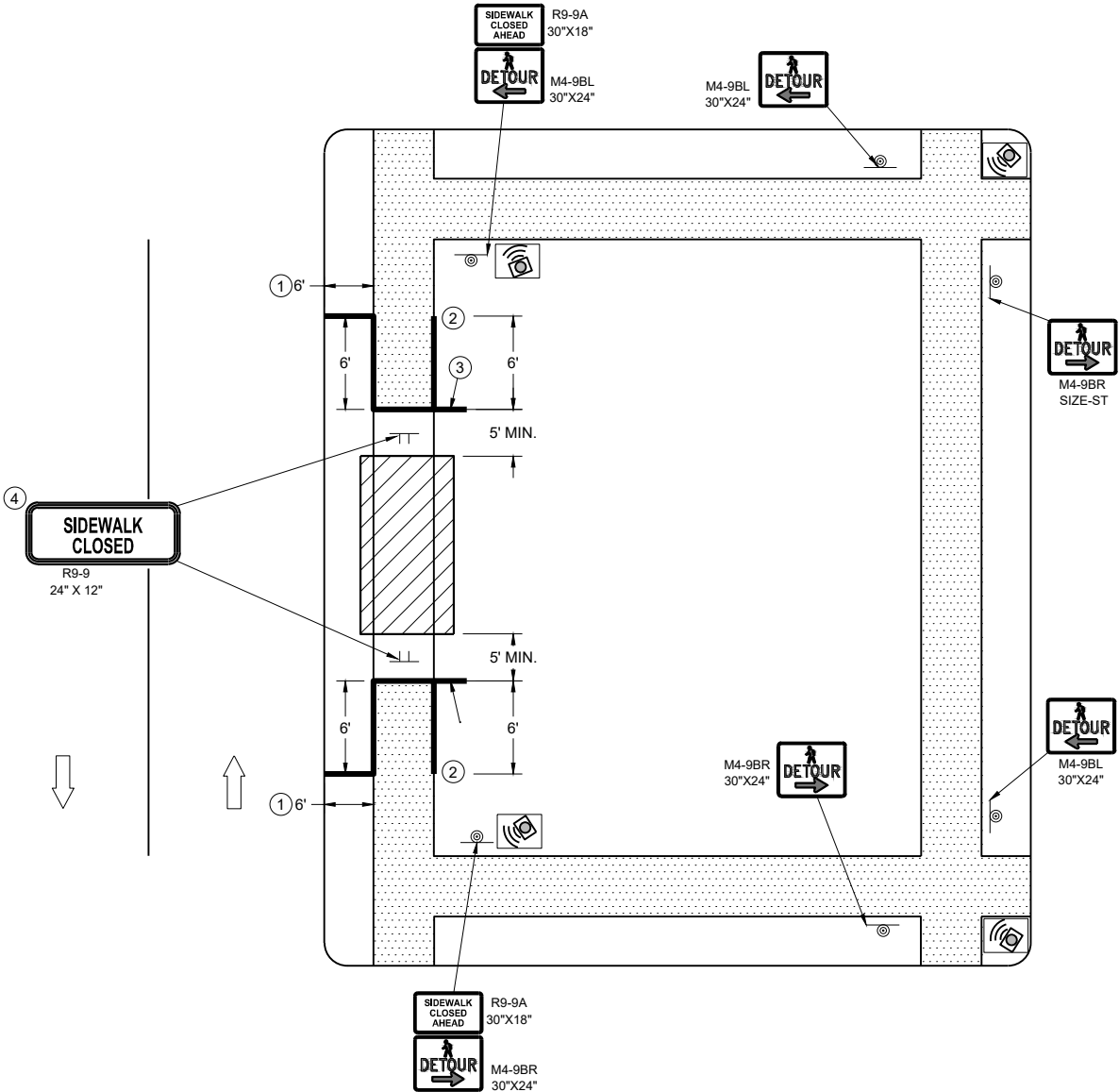
GENERAL NOTES

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

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

PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICTS WITH DRIVEWAYS AND OTHER EXISTING FEATURES.

- IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
- PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
- IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



SIDEWALK DETOUR, SIDEWALK ONLY ON ONE SIDE

	TYPE III BARRICADE WITH ATTACHED SIGN
	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TYPE "A" WARNING LIGHT (FLASHING)
	DIRECTION OF TRAFFIC
	WORK AREA
	REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
	CONCRETE BARRIER TEMPORARY PRECAST

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) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT LEFT - REVERSE FOR SHIFTING RIGHT.

ALL SIGNS ARE 48"x48" 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 AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON ANY "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

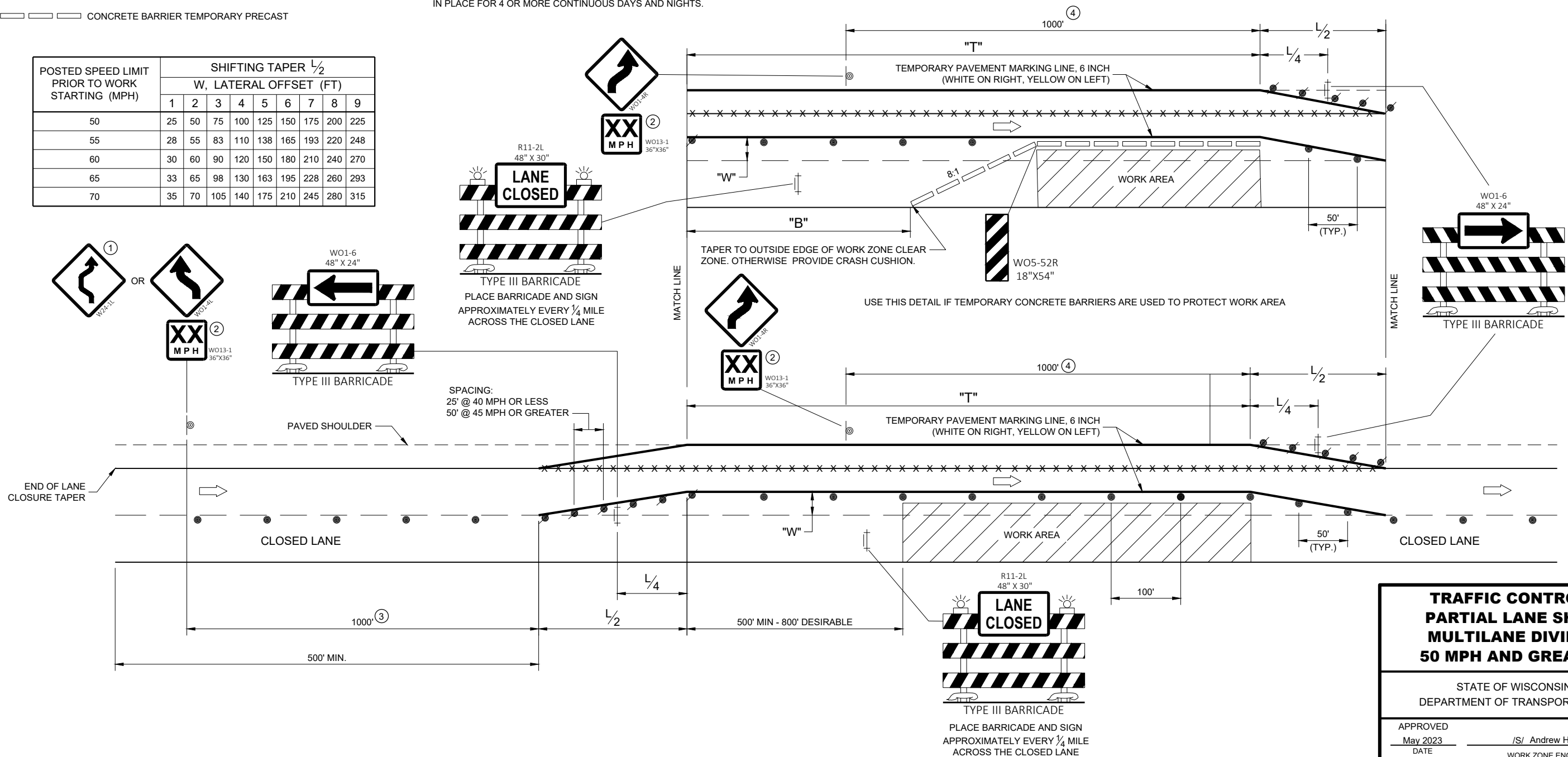
FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT 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 1/2 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.

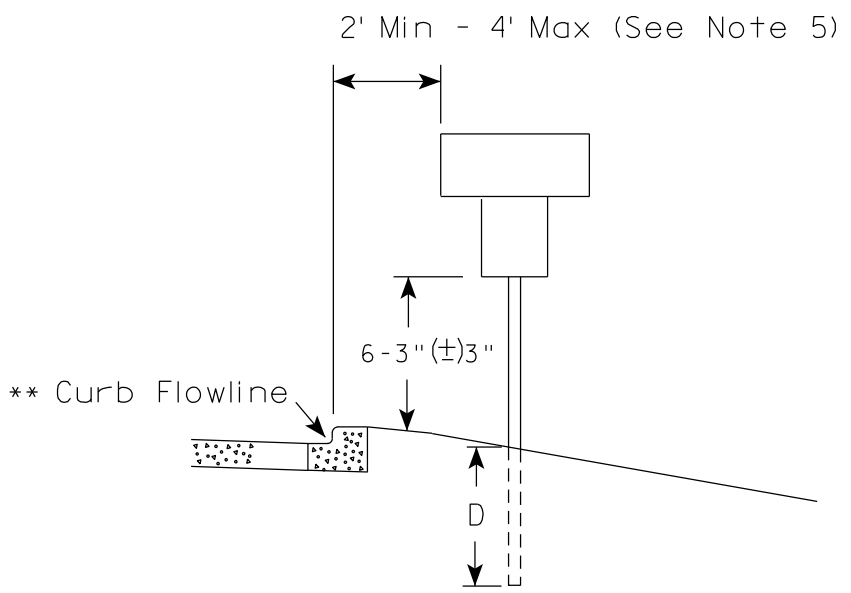
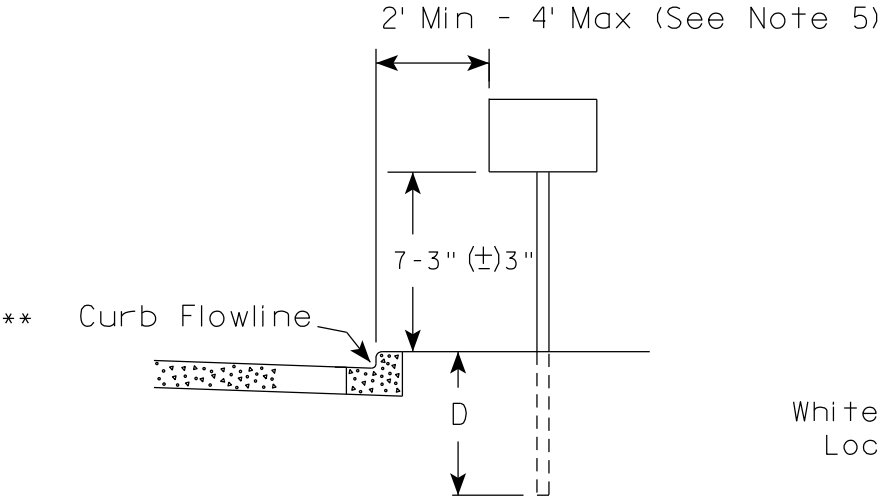
- ① USE ONLY WHEN $T < 600'$, OMIT WO1-4R.
- ② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- ③ IF THE BEGINNING OF LANE SHIFT TAPER IS 1200 FEET OR LESS FROM END OF LANE CLOSURE TAPER, PLACE THE WO1-4L SIGN 200 FEET AFTER THE END OF THE LANE CLOSURE TAPER.
- ④ IF THE BEGINNING OF THE SECOND LANE SHIFT TAPER IS 1200 FEET OR LESS FROM END OF THE FIRST LANE CLOSURE TAPER, PLACE THE WO1-4L SIGN 200 FEET AFTER THE END OF THE FIRST LANE CLOSURE TAPER.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	SHIFTING TAPER $\frac{L}{2}$								
	W, LATERAL OFFSET (FT)								
	1	2	3	4	5	6	7	8	9
50	25	50	75	100	125	150	175	200	225
55	28	55	83	110	138	165	193	220	248
60	30	60	90	120	150	180	210	240	270
65	33	65	98	130	163	195	228	260	293
70	35	70	105	140	175	210	245	280	315

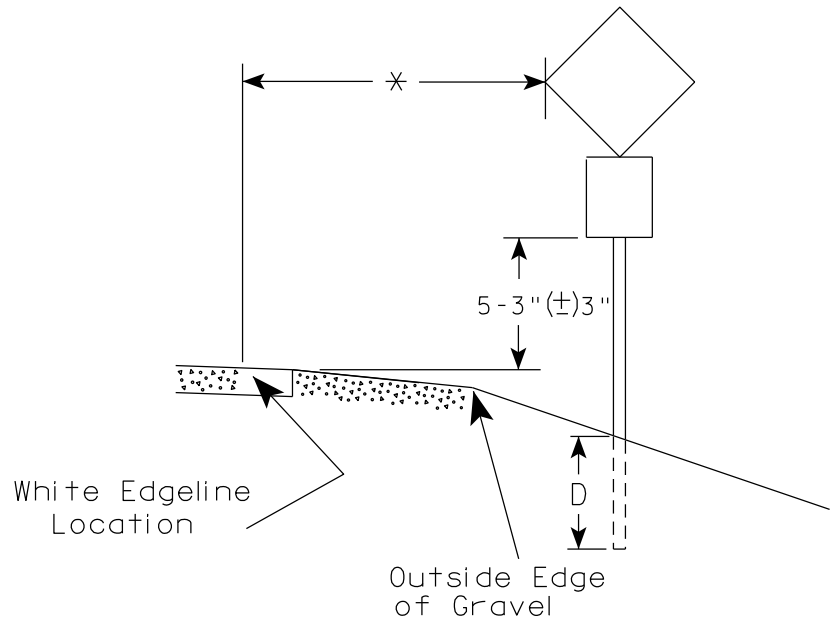
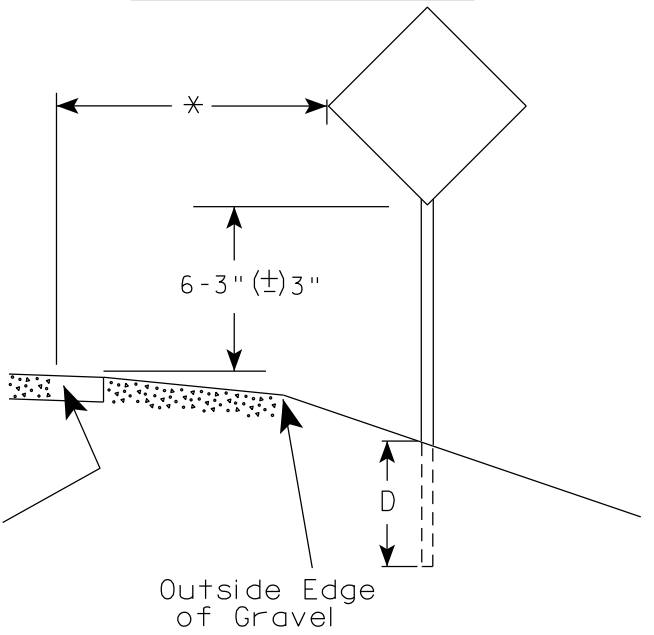


APPROVED	
May 2023	/S/ Andrew Heidtke
DATE	WORK ZONE ENGINEER

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.

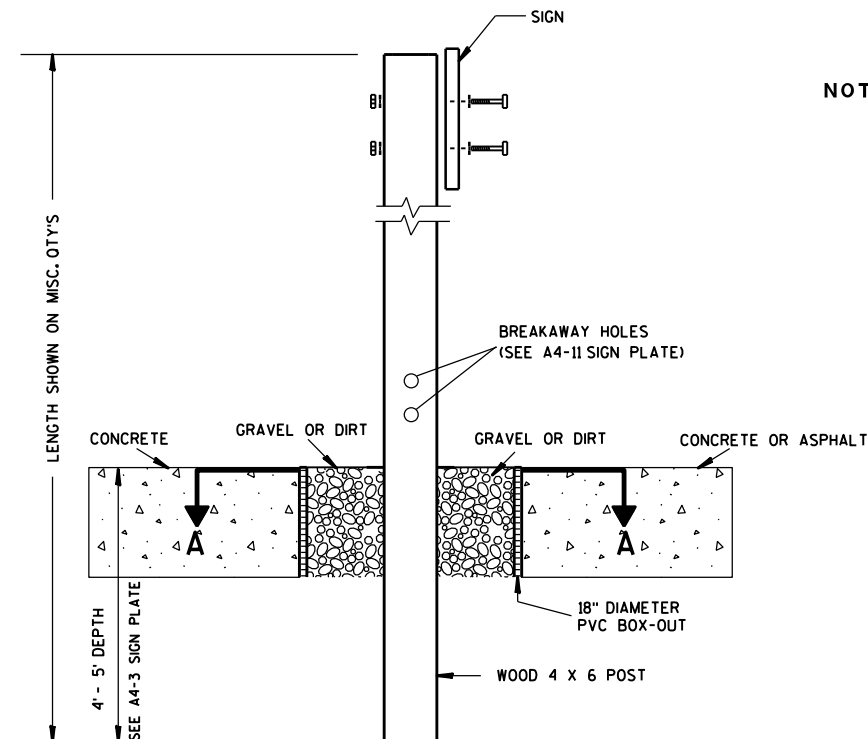
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

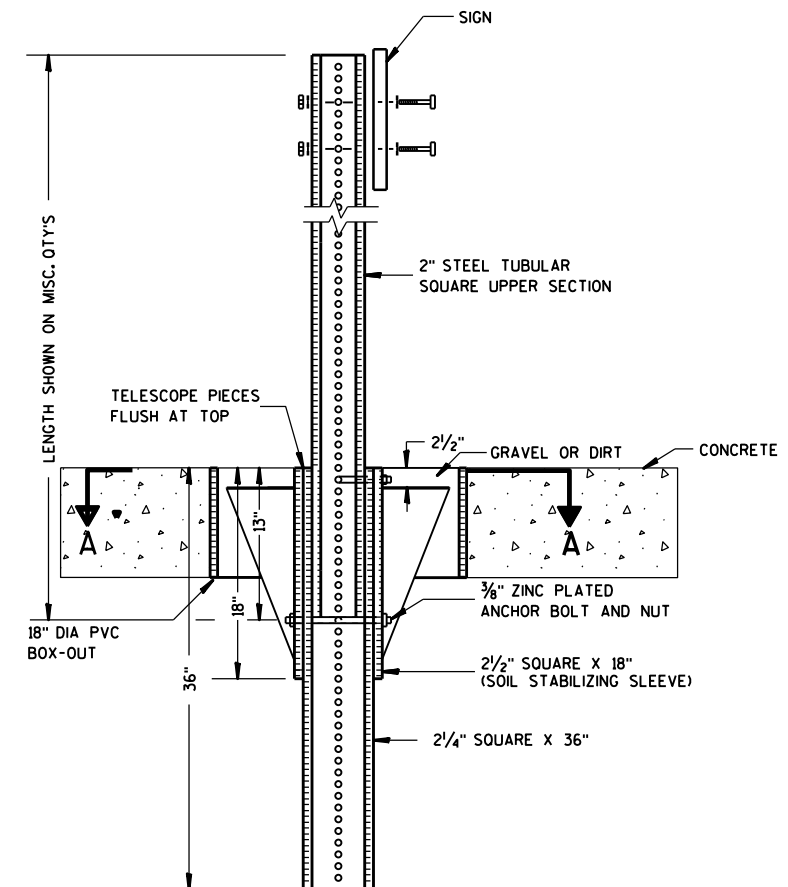
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

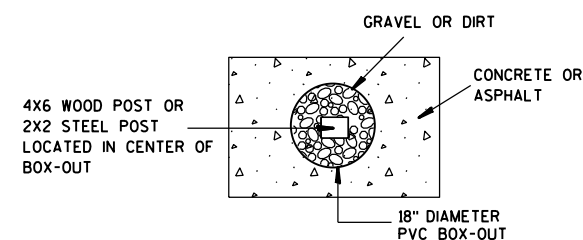
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

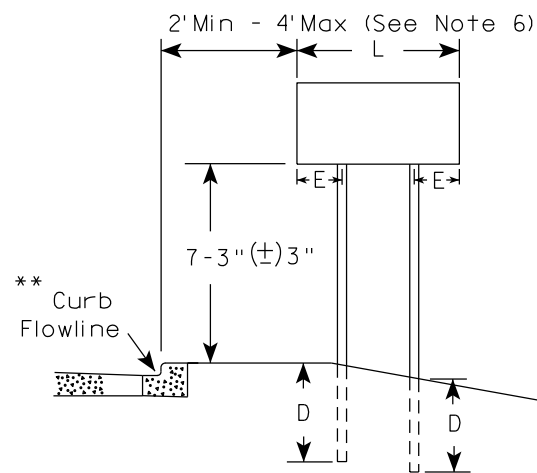
SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

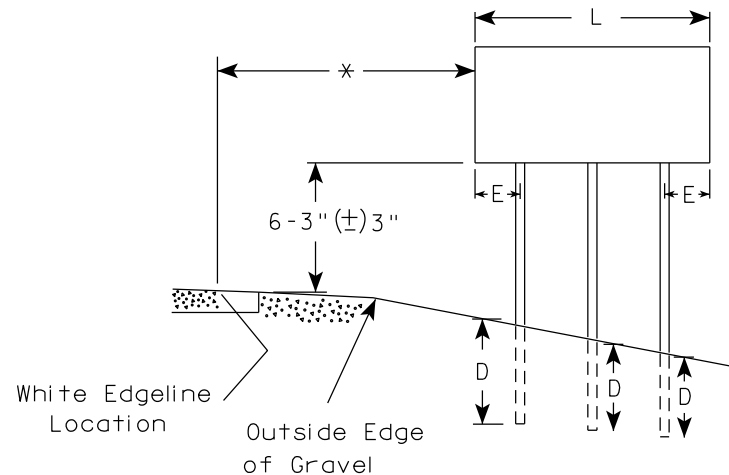
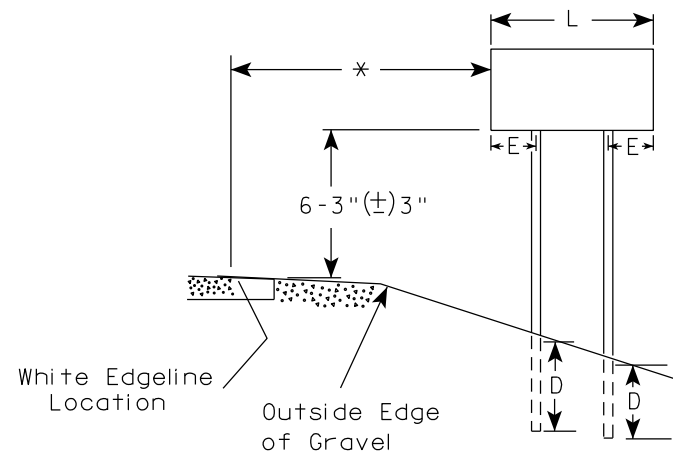
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

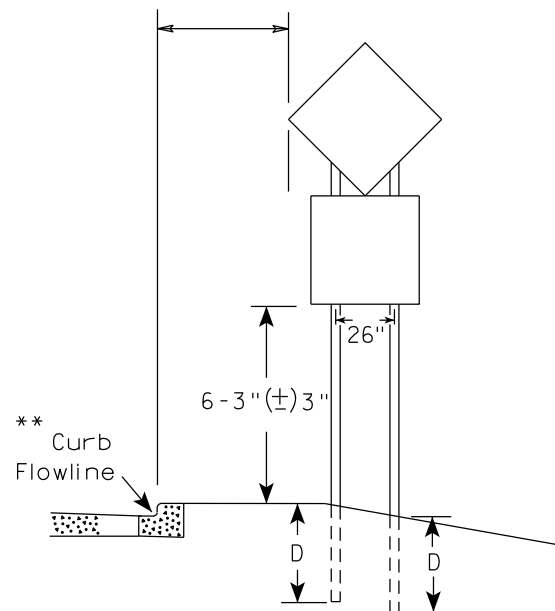
URBAN AREA



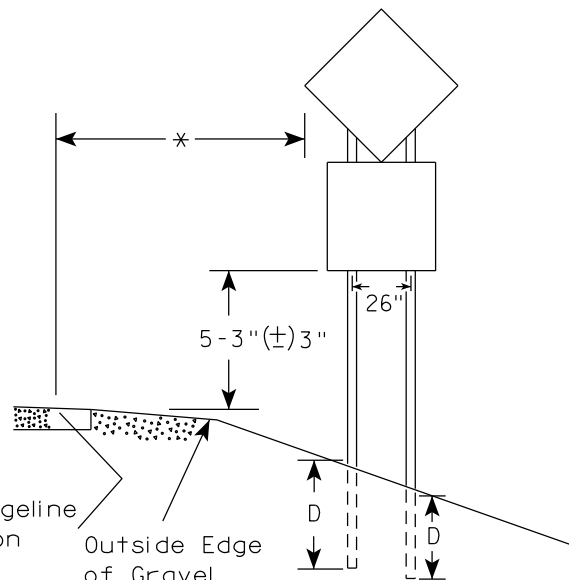
RURAL AREA (See Note 3)



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 *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

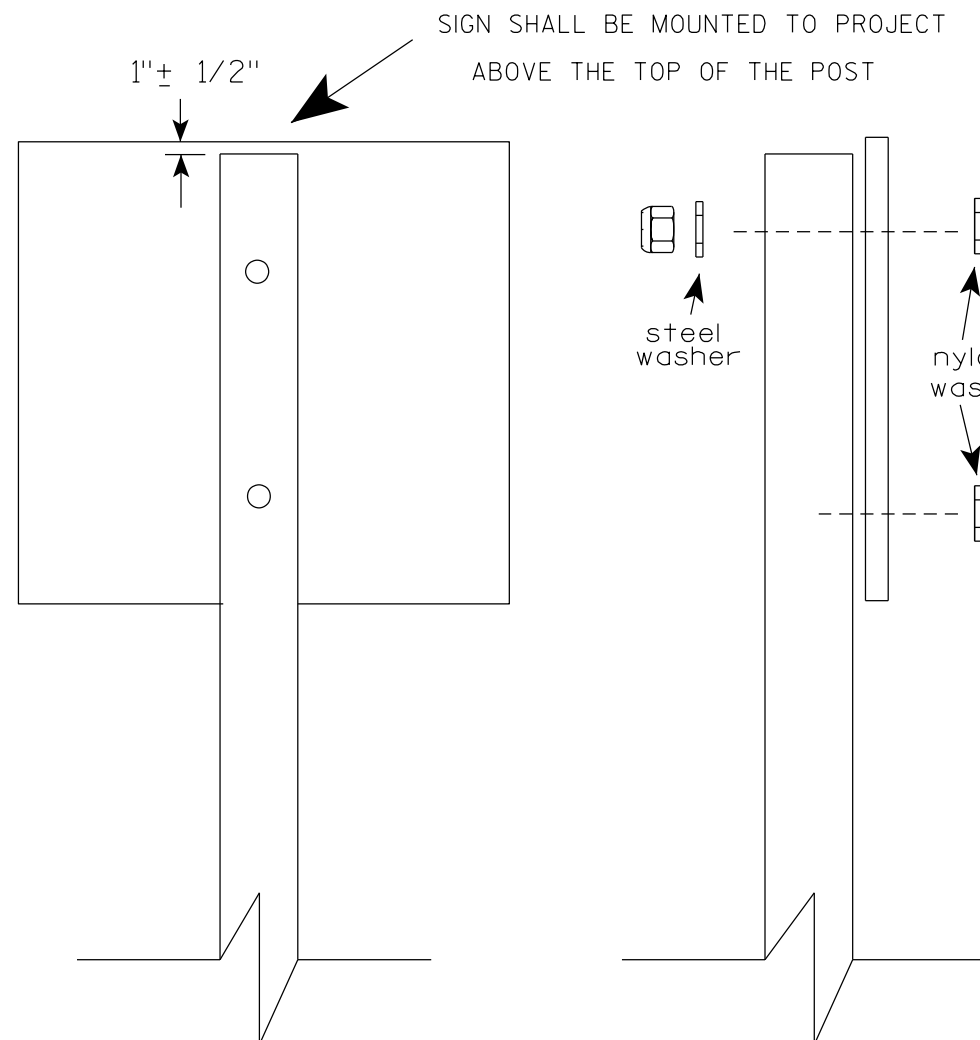
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. 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.

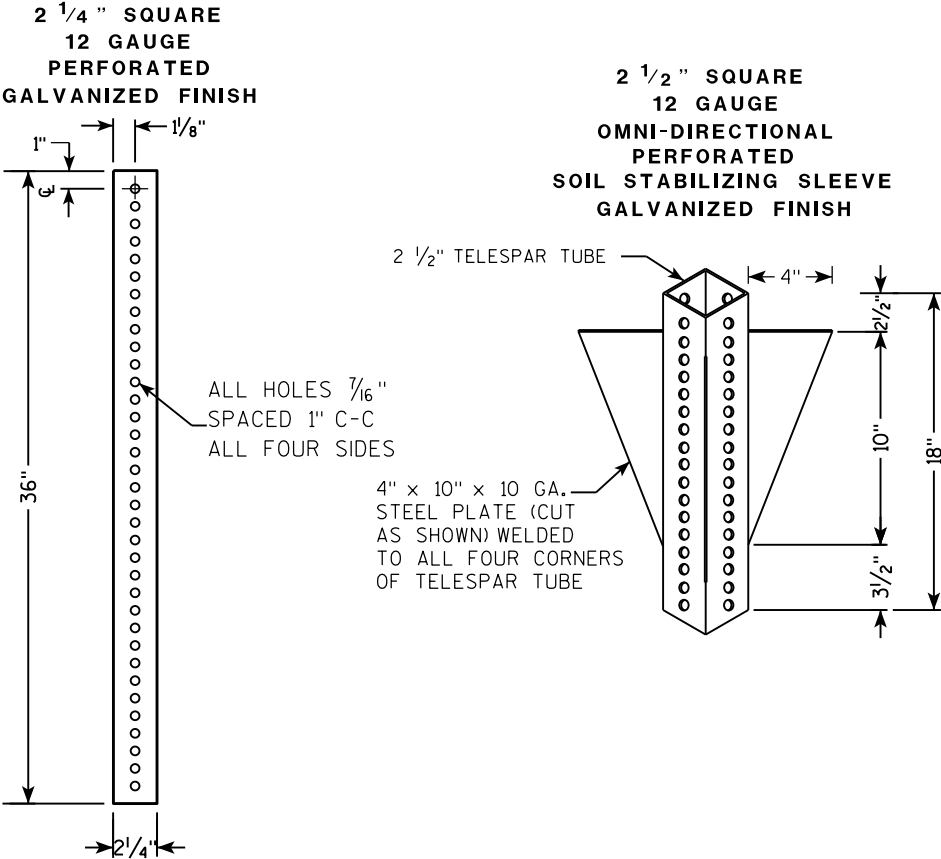
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

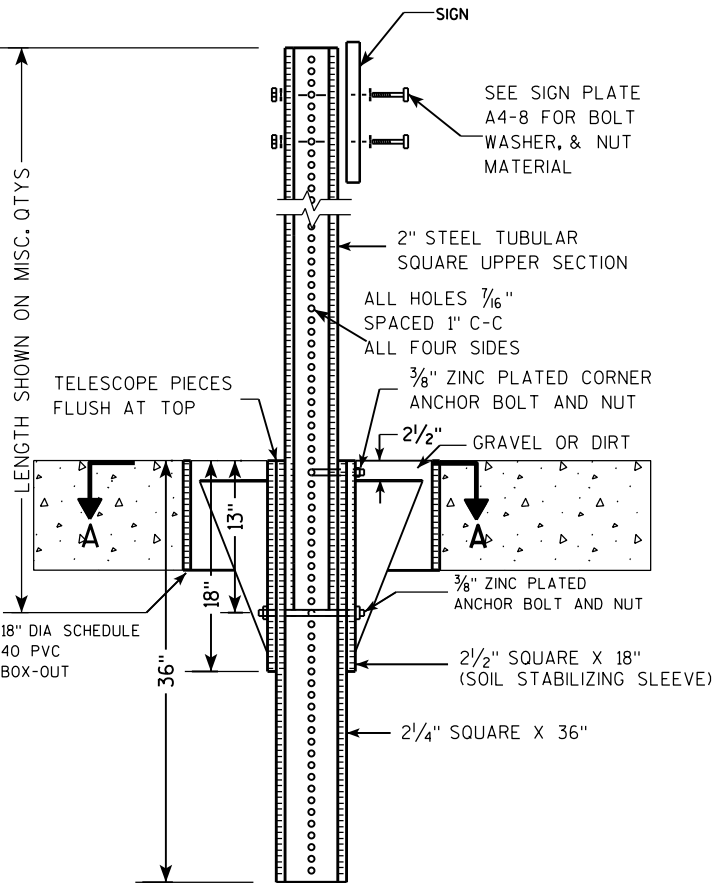
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

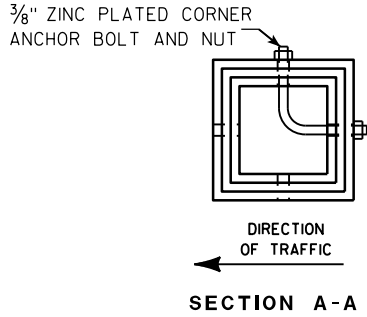
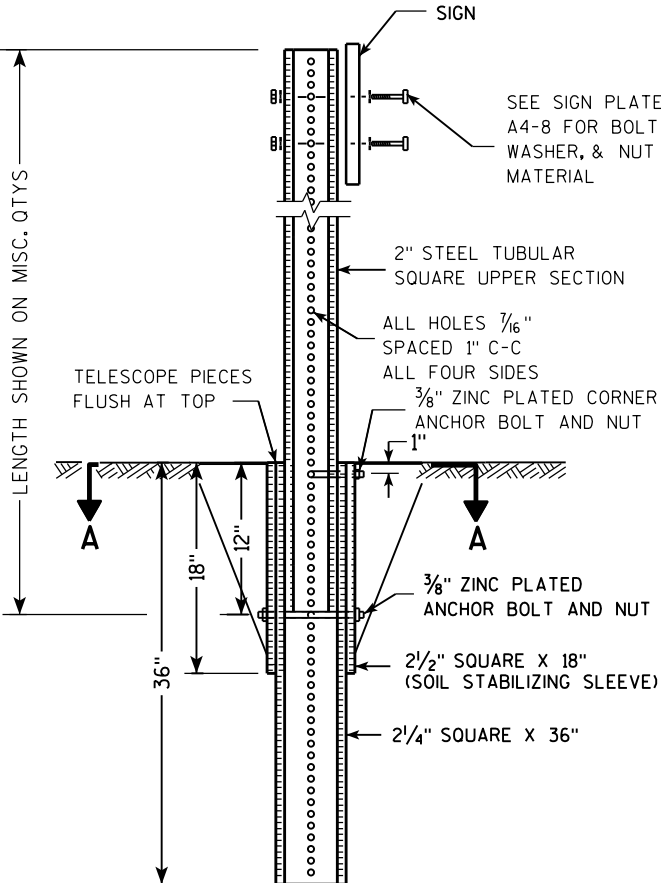
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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).

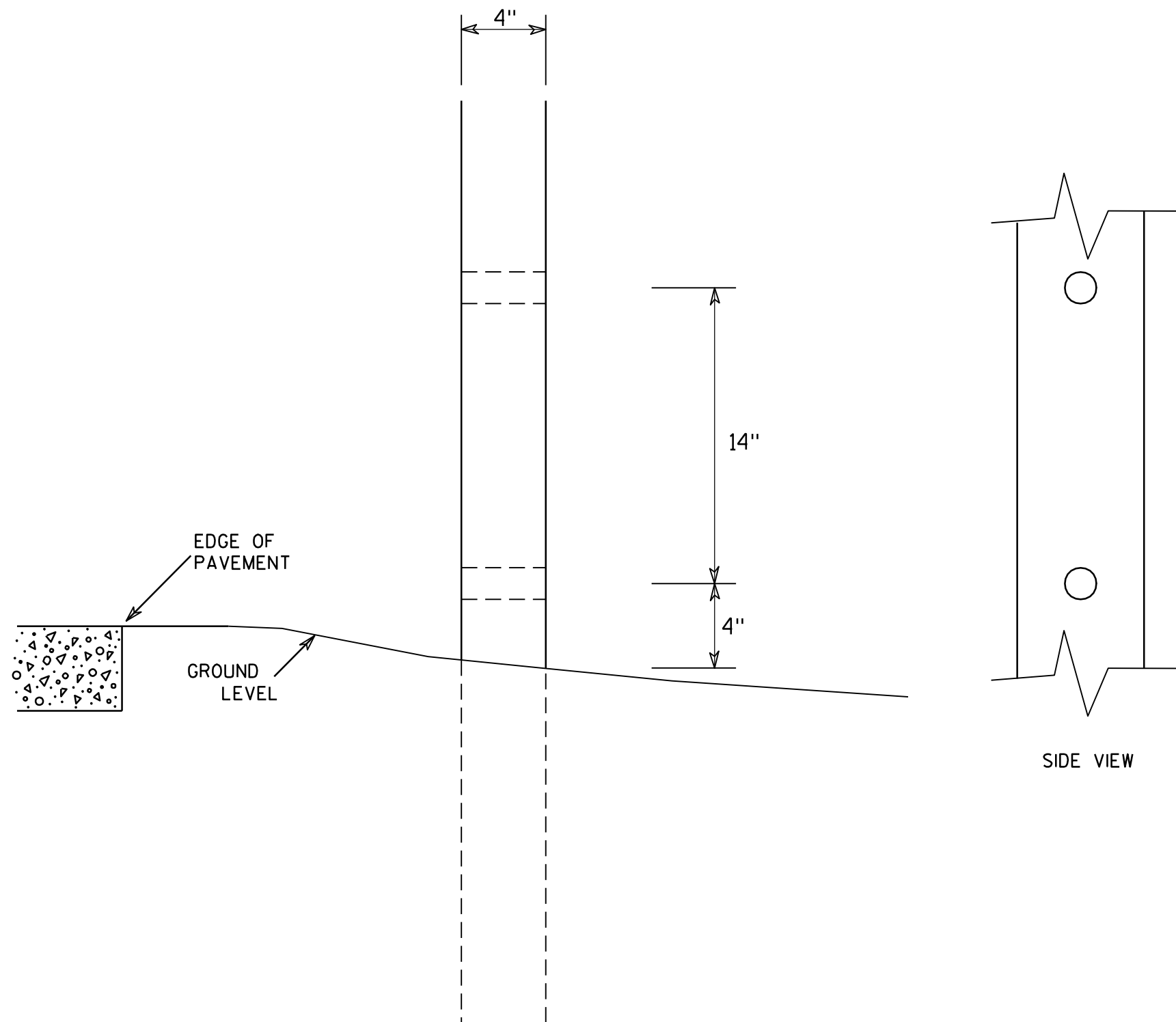
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

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

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

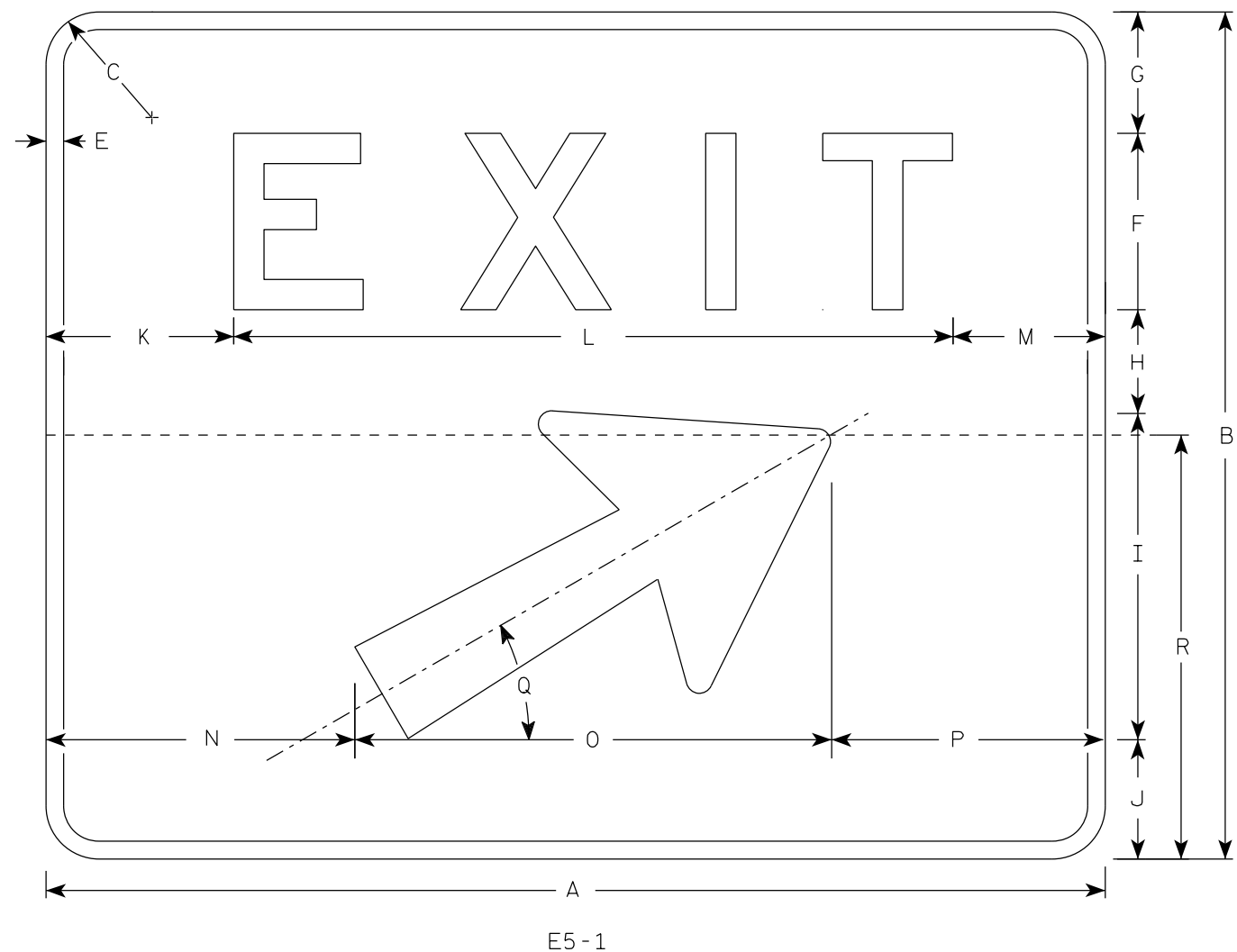
HWY:

COUNTY:

SHEET NO:

E

7



E5-1

NOTES

- 1. Sign is Type II - Type H reflective
- 2. Color:
Background - Green
Message - White
- 3. Message Series - E
- 4. Sign shall be split into two seperate pieces as shown on the detail by the dashed line (-----) for sizes 4 & 5.
- 5. Arrow is Type "A" from sign plate A1-1.
- 6. As per the Standard Spec's, this sign shall not have a vertical joint.
- 7. Size 3 E5-1 shall only be used in a Work Zone application with a Temporary Sign Support

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																											
2M																											
3	48	48	3		1	10	6 ⁷ / ₈	5 ⁷ / ₈	18 ¹ / ₂	6 ³ / ₄	8 ¹ / ₂	31 ¹ / ₈	8 ³ / ₈	11 ¹ / ₂	27	9 ¹ / ₂	30°	30									16.0
4	60	48	3		1	10	6 ⁷ / ₈	5 ⁷ / ₈	18 ¹ / ₂	6 ³ / ₄	10 ⁵ / ₈	40 ³ / ₄	8 ⁵ / ₈	17 ¹ / ₂	27	15 ¹ / ₂	30°	30									20.0
5	72	60	3		1	12	9 ³ / ₄	10	18 ¹ / ₂	9 ³ / ₄	13 ¹ / ₄	48 ¹ / ₂	10 ¹ / ₄	23 ¹ / ₂	27	21 ¹ / ₂	30°	30									30.0

STANDARD SIGN
E5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 1/26/2023 PLATE NO. E5-1.12

PROJECT NO:

HWY:

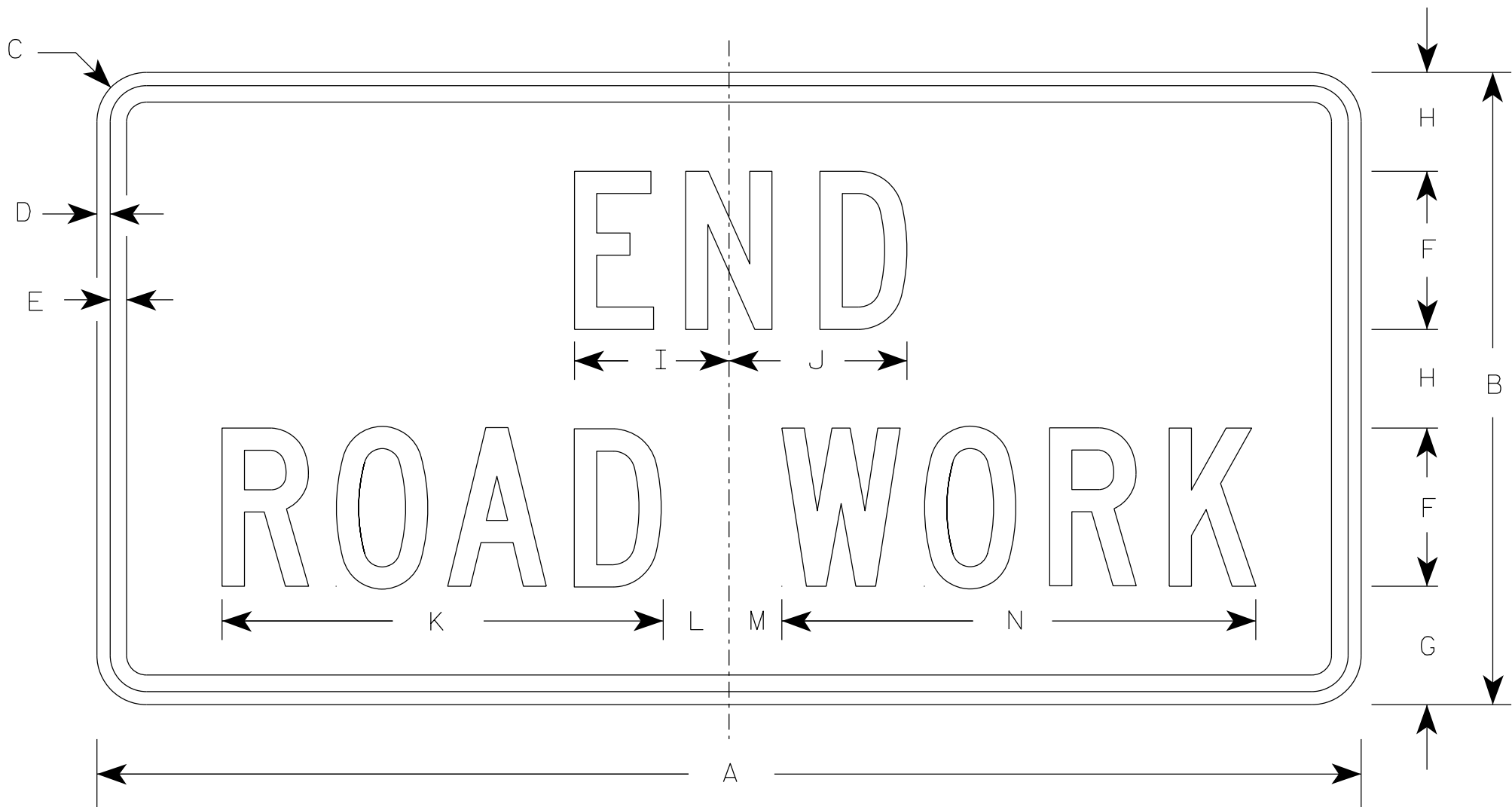
COUNTY:

SHEET NO:

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - 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.



G20-2A

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	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5
2	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
2M	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
3	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
4	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
5	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0

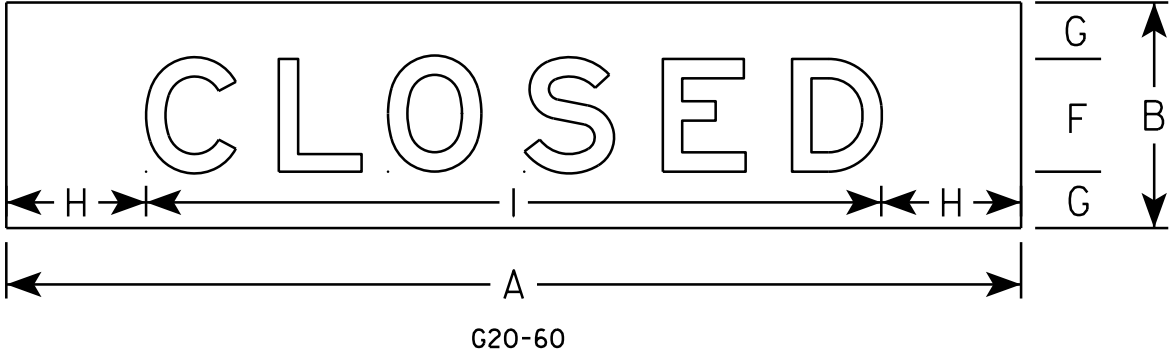
STANDARD SIGN

G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-2A.10



NOTES

- 1. Sign is Type II- Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - E
- 4. Material shall be .040 aluminum

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																											
2																											
3																											
4	108	24				12	6	14 7/8	78 1/4																		18.0
5																											

STANDARD SIGN
G20-60

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/13/15 PLATE NO. G20-60.1

7

7

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - E



G20-61

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																											
3																											
4	120	30	6		2	12	9	21	78 1/4	20 3/4																	25.0
5																											

STANDARD SIGN

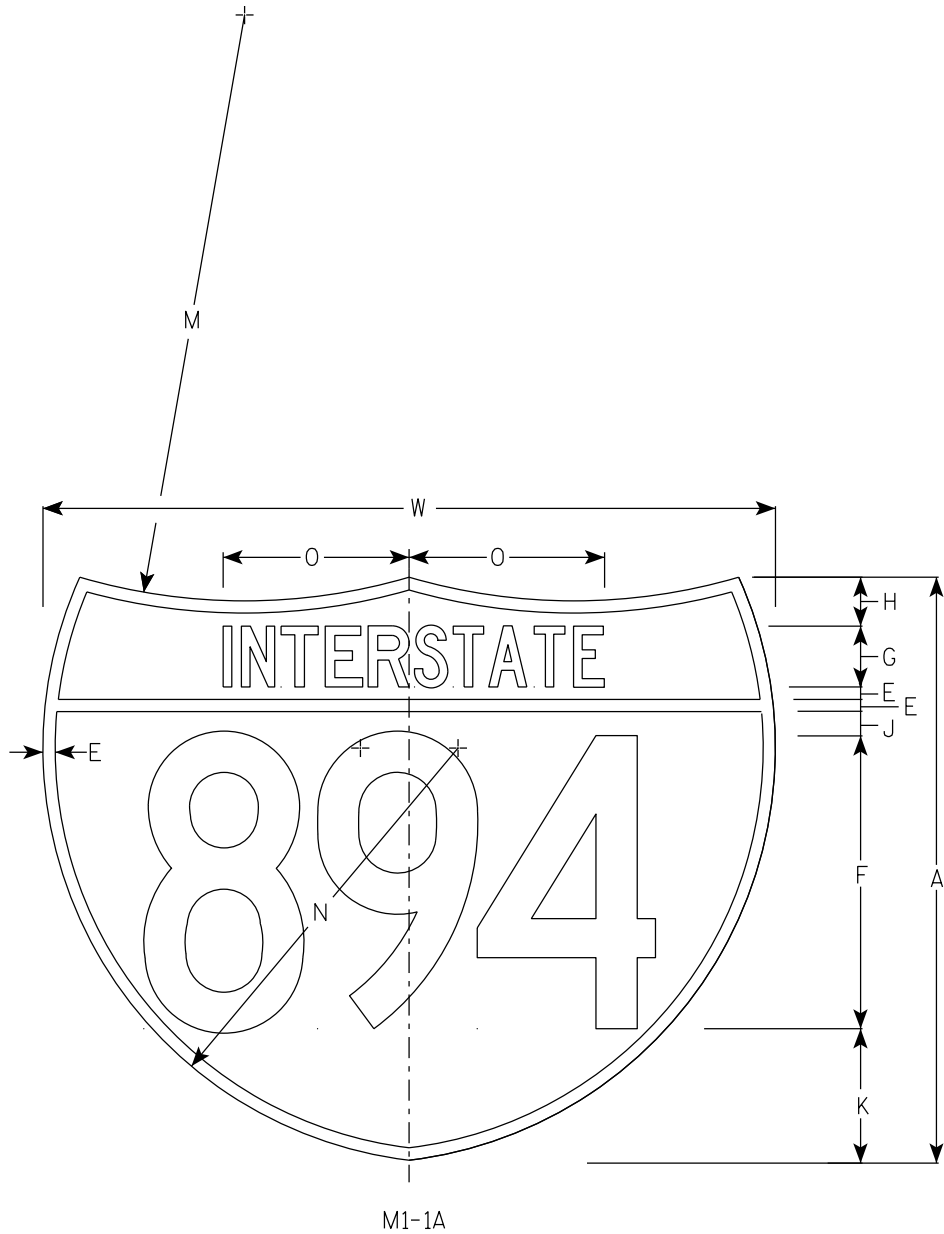
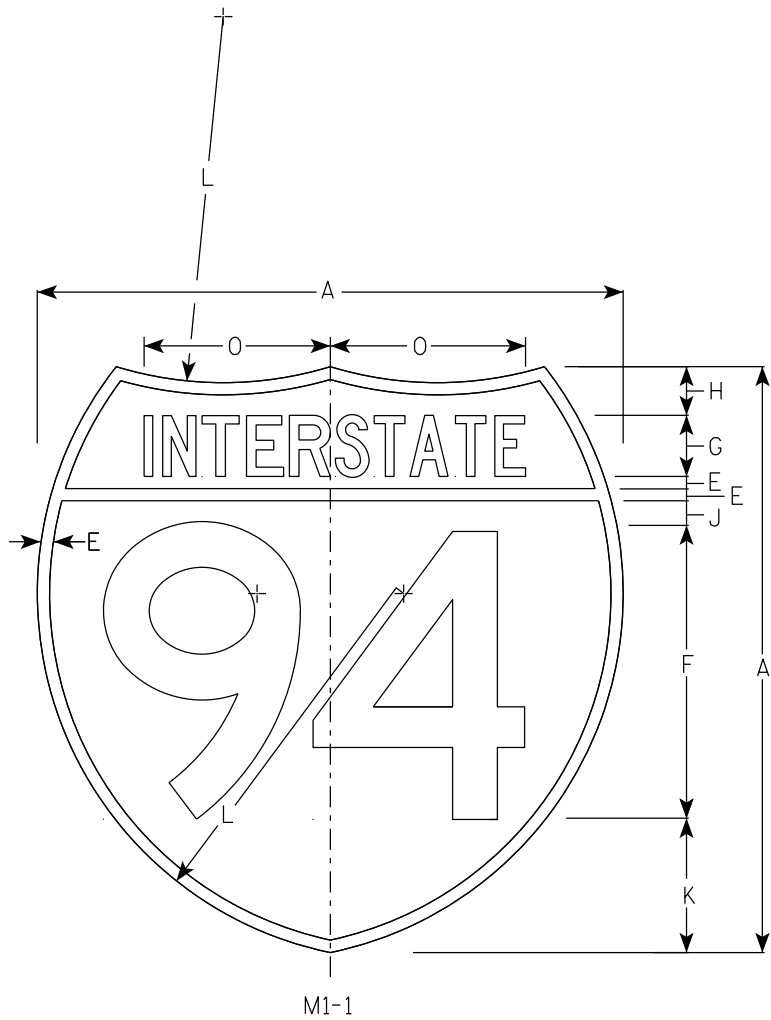
G20-61

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/07/15 PLATE NO. G20-61.1

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - Top Red - Bottom Blue
Message - White
- 3. Message Series - See note 5
- 4. Substitute appropriate numerals & adjust spacing as per plate A10-1.
- 5. M1-1 - Numerals - D
Interstate - C
M1-1A - All copy - C

7

																										M1-1	M1-1A
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	Area sq. ft.	Area sq. ft.
1																											
2	24				1/2	12	2 1/2	2		1	5 1/2	15	24	17	7 7/8								30			3.13	3.91
2M	24				1/2	12	2 1/2	2		1	5 1/2	15	24	17	7 7/8								30			3.13	3.91
3	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79
4	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79
5	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79

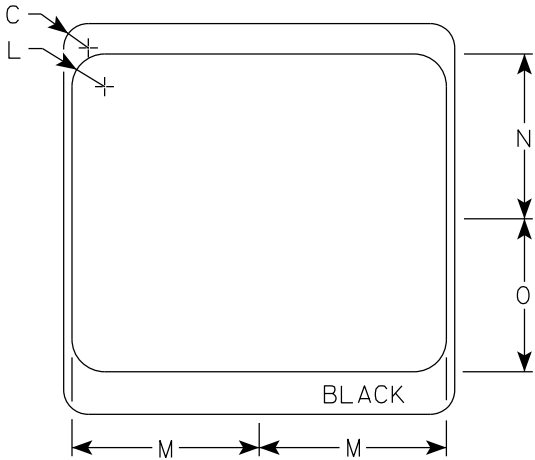
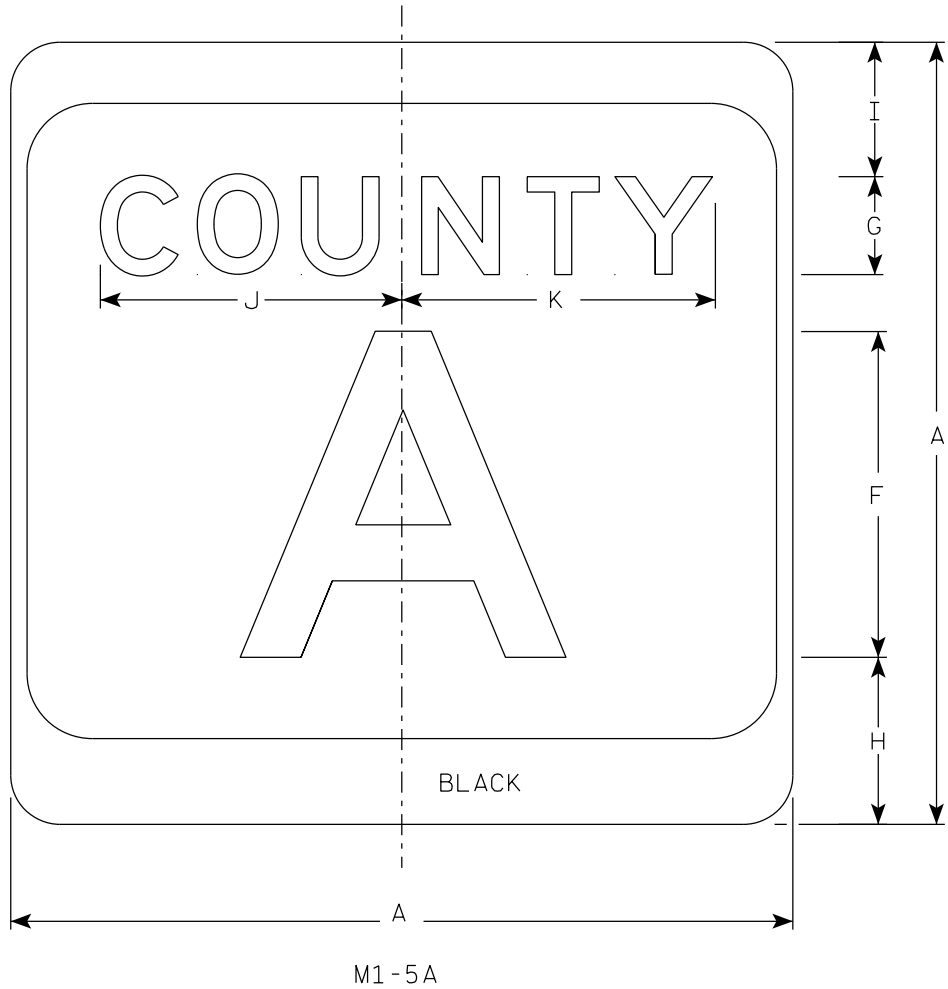
INTERSTATE ROUTE MARKER
M1-1 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

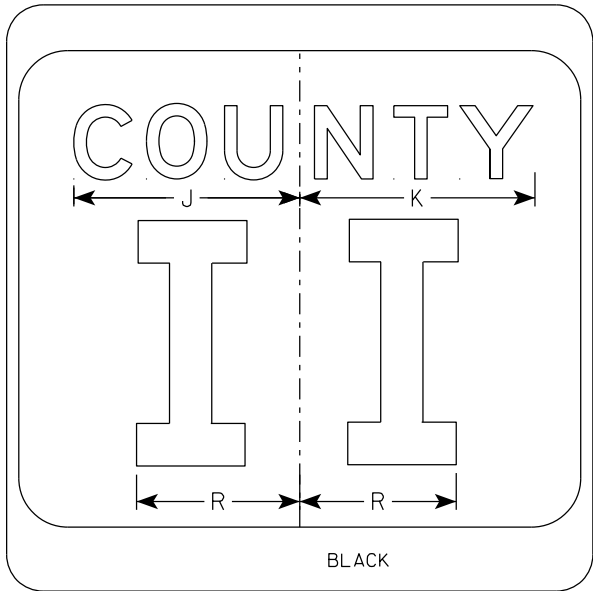
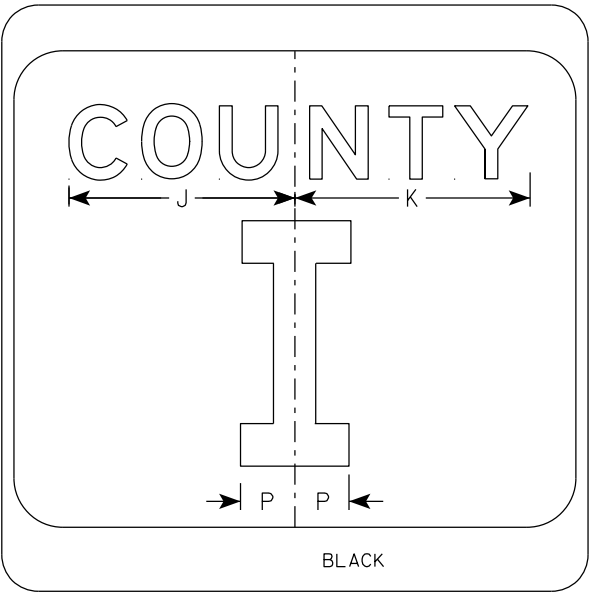
DATE 11/7/2022 PLATE NO. M1-1.9

7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White & Black
Message - Black
3. Message Series - see Note 4
4. Message Series E for 1 letter.
Message Series D for 2 letters unless
message is too big then Series C.
Message Series C for 3 letters unless
message is too big then Series B.
5. Substitute appropriate letters & optically
center to achieve proper balance.



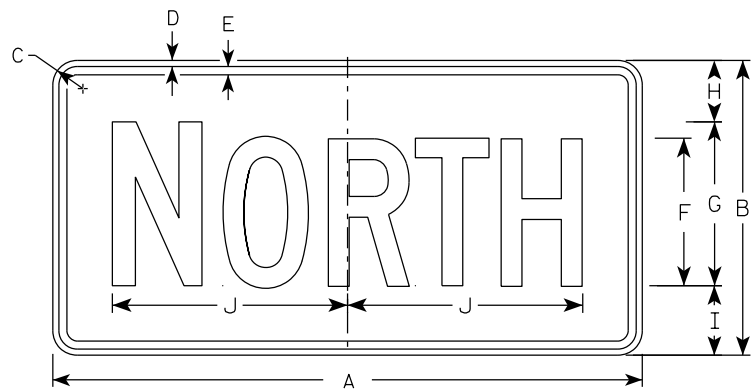
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
2M	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER
M1-5A FOR ASSEMBLIES

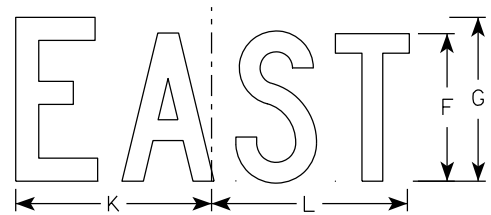
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

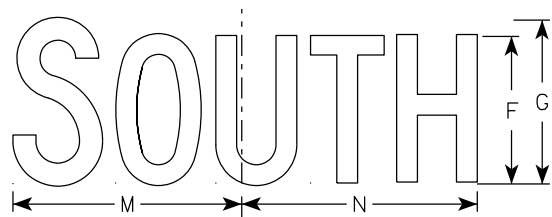
DATE 11/8/2022 PLATE NO. M1-5A.9



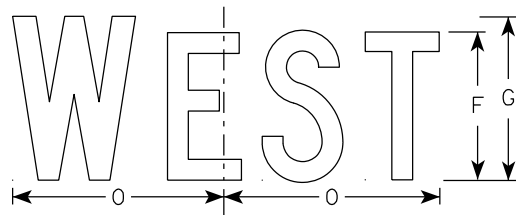
M3-1
MM3-1
MP3-1



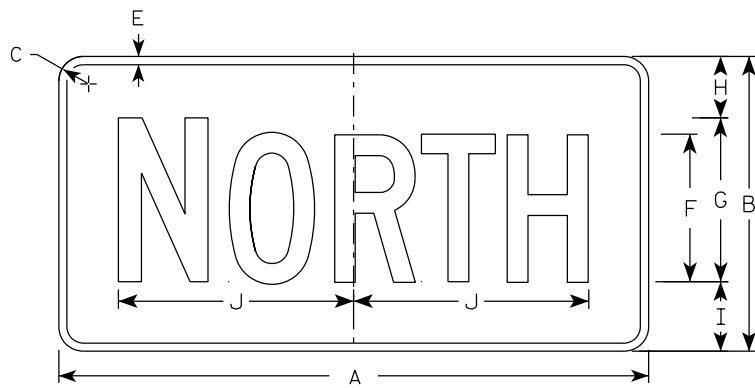
M3-2
MM3-2
MP3-2



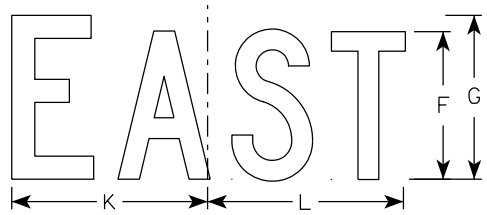
M3-3
MM3-3
MP3-3



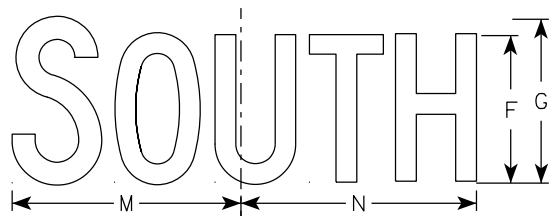
M3-4
MM3-4
MP3-4



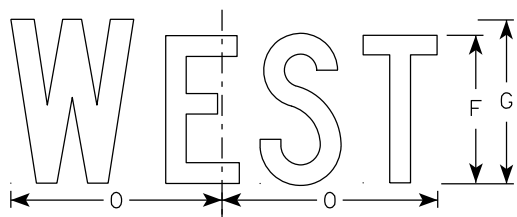
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H Reflective
2. Color:
Background - See note 5
Message - See note 5
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. 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
6. Note the first letter of each direction is larger than the remainder of the message.

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

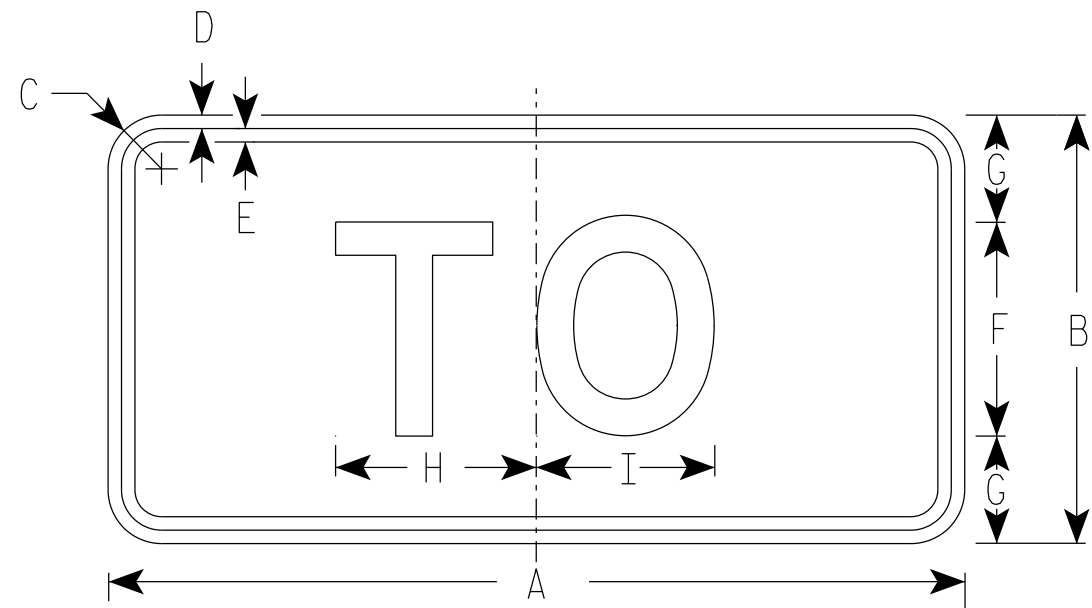
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGNS
M3-1 THRU M3-4
SERIES

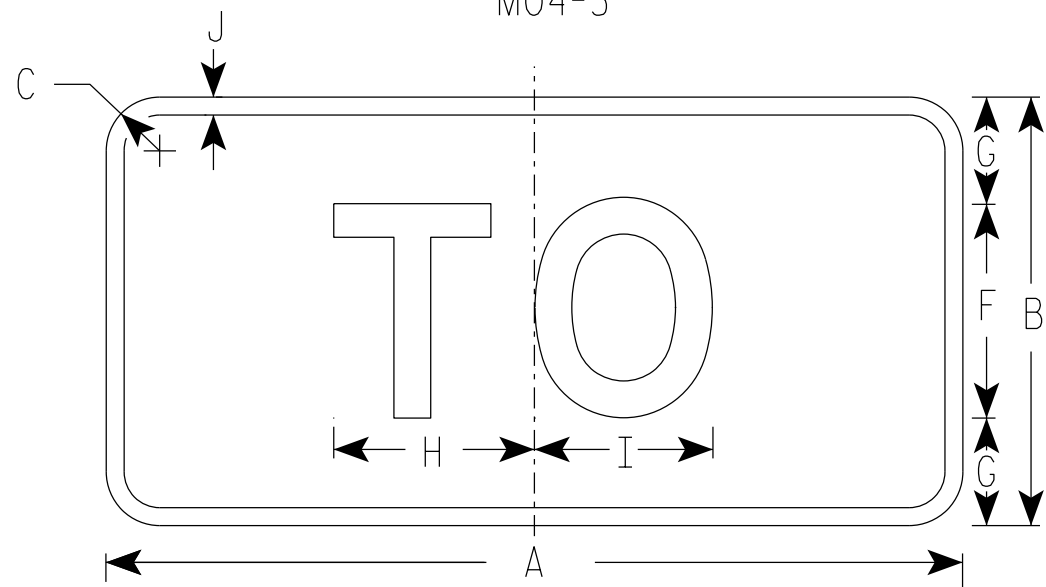
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/8/2023 PLATE NO. M3-1.15



M4-5
MM4-5
MP4-5
M04-5



MB4-5
MK4-5
MN4-5

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - E
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. M4-5 Background - White
Message - Black
MB4-5 Background - Blue
Message - White
MK4-5 Background - Green
Message - White
MM4-5 Background - White
Message - Green
MN4-5 Background - Brown
Message - White
MP4-5 Background - White
Message - Blue
M04-5 Background - Orange Type F Reflective
Message - Black

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	3	5 3/8	5 1/4	1/2																	2.00
2M	24	12	1 1/2	3/8	3/8	6	3	5 3/8	5 1/4	1/2																	2.00
3	36	18	1 1/2	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2																	4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2																	4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2																	4.5

PROJECT NO:		HWY:		COUNTY:		SHEET NO:		E
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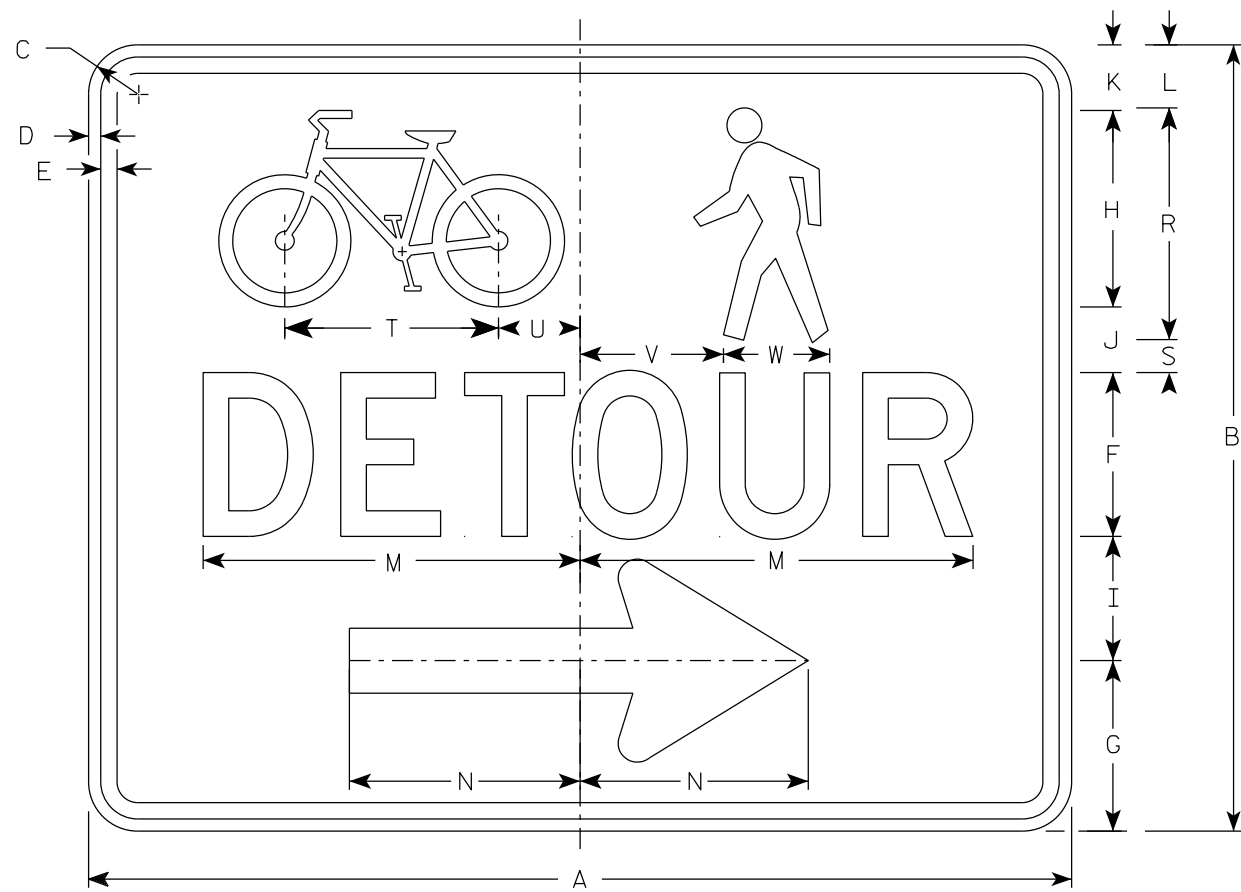
STANDARD SIGN
M4-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/8/2023 PLATE NO. M4-5.11

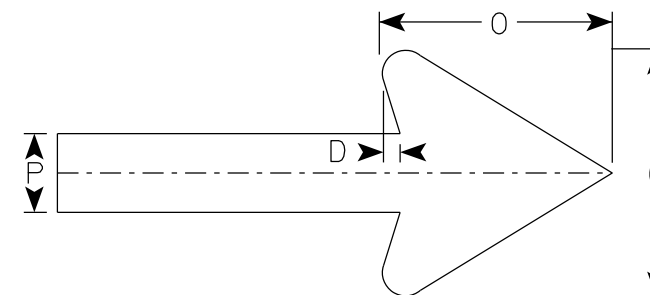
7



M4 - 9AR

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.
- 5. M4-9AL is the same as M4-9AR except the arrow is reversed.



Arrow Detail

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	30	24	1 1/2	3/8	1/2	5	5 1/4	6	3 3/4	2	2	1 7/8	11 3/4	7	6	2		7 1/8	1	6 1/2	2 1/2	4 3/8	3 1/4				5.00
2M	30	24	1 1/2	3/8	1/2	5	5 1/4	6	3 3/4	2	2	1 7/8	11 3/4	7	6	2		7 1/8	1	6 1/2	2 1/2	4 3/8	3 1/4				5.00
3																											
4																											
5																											

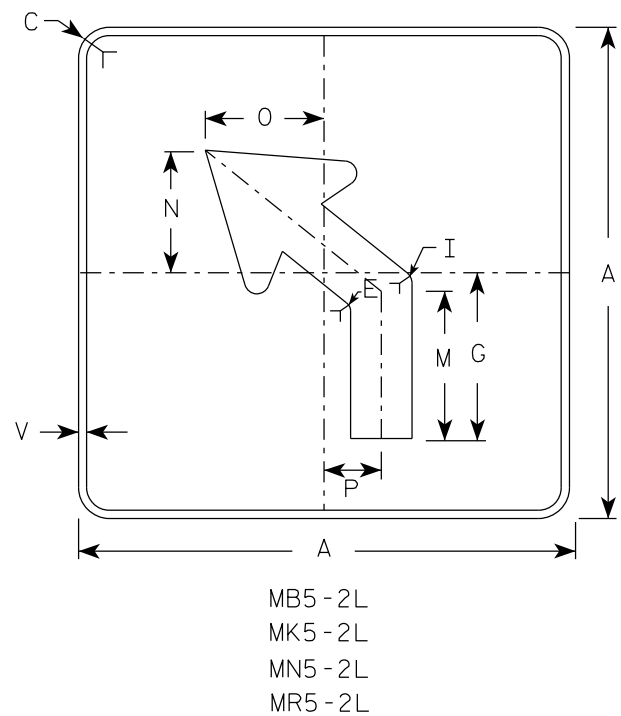
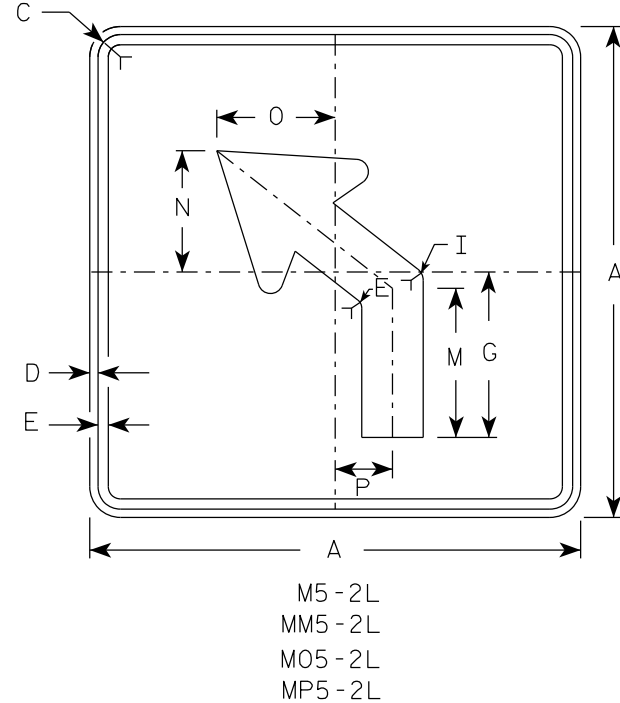
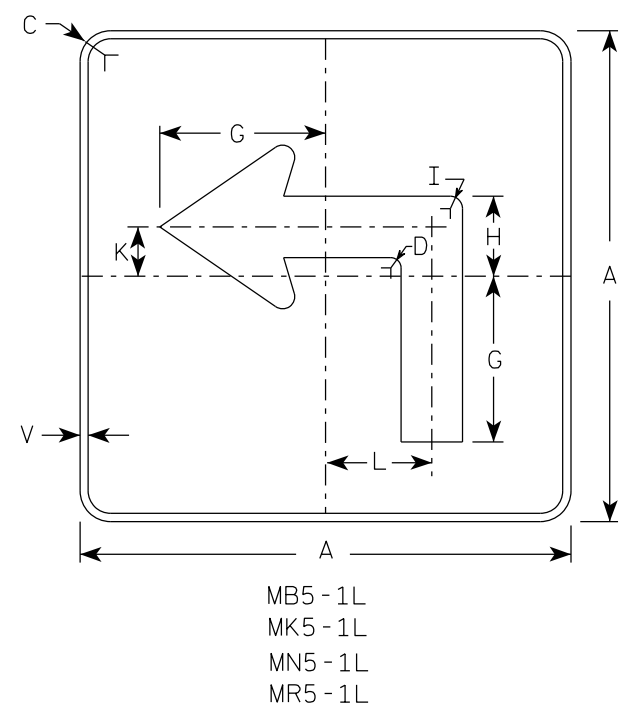
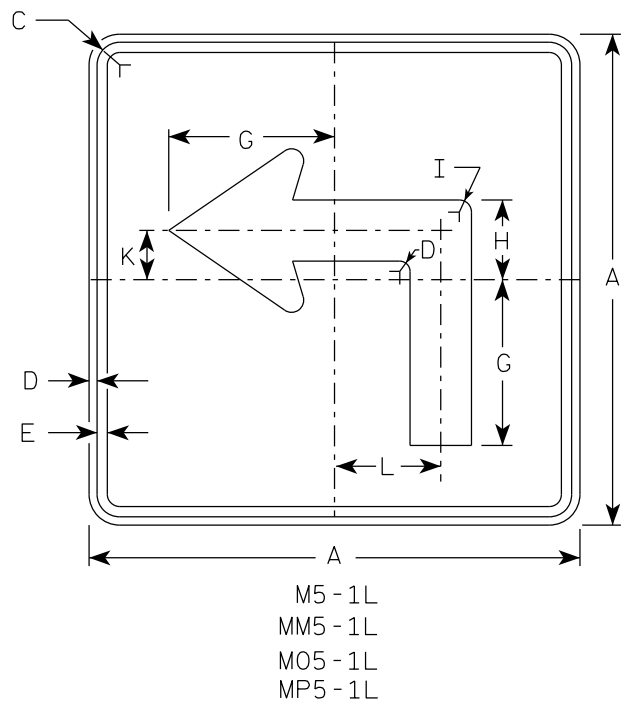
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

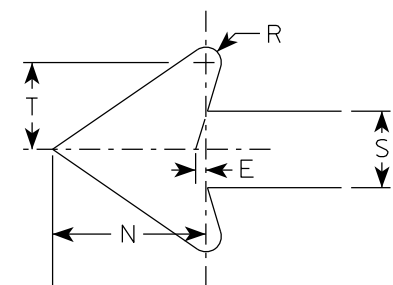
E



NOTES

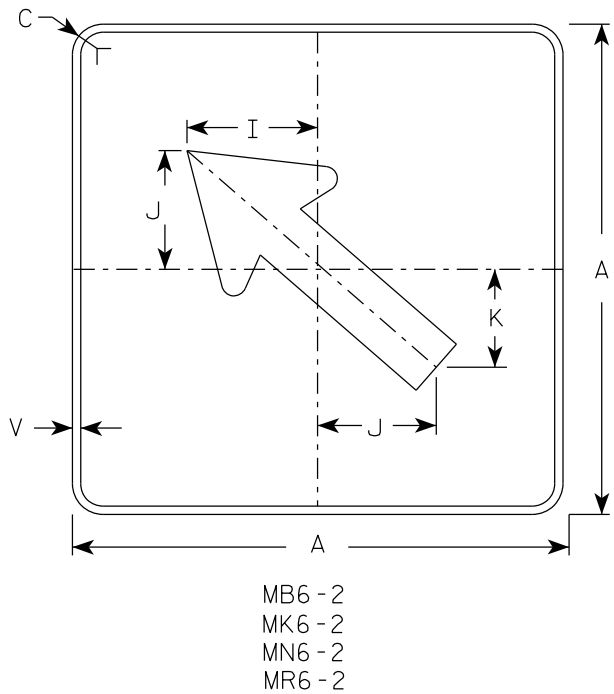
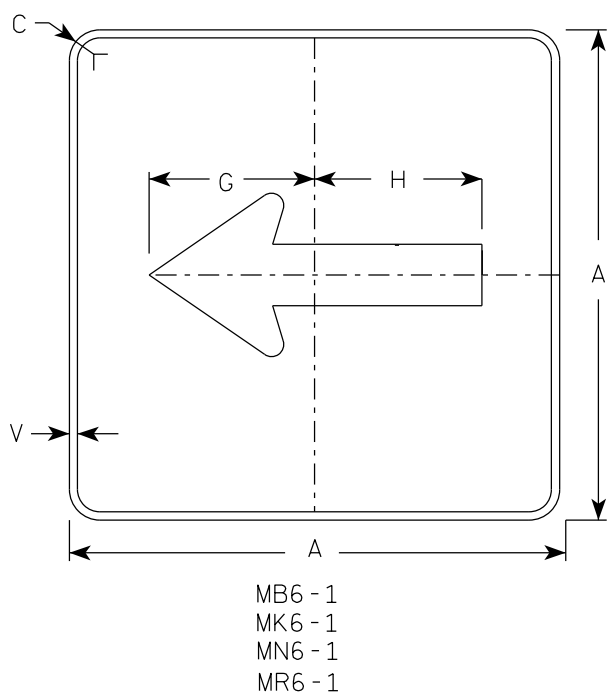
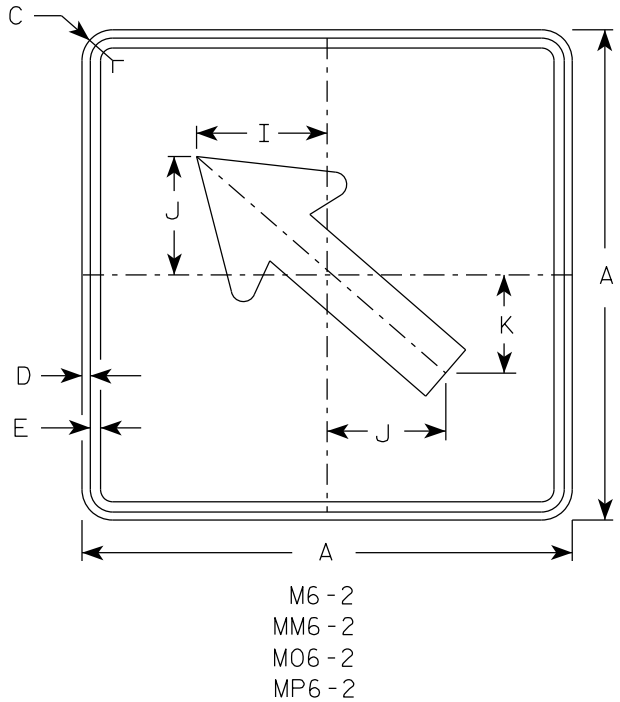
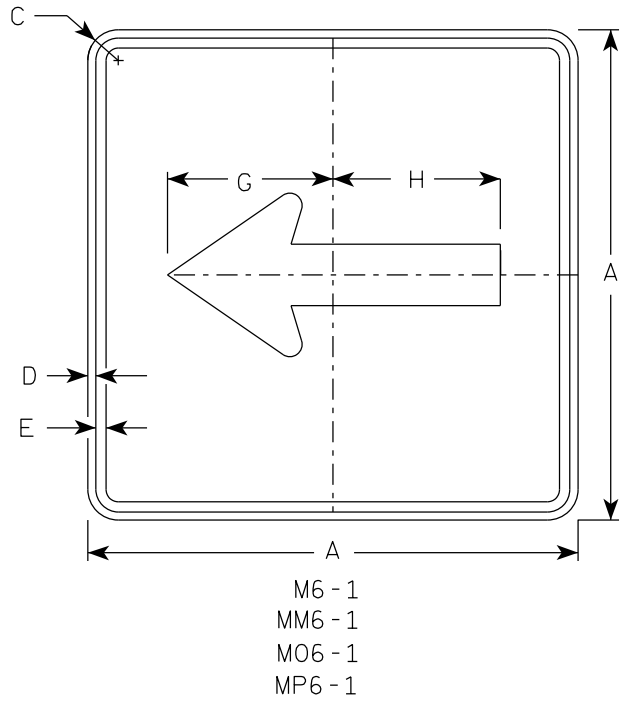
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| 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

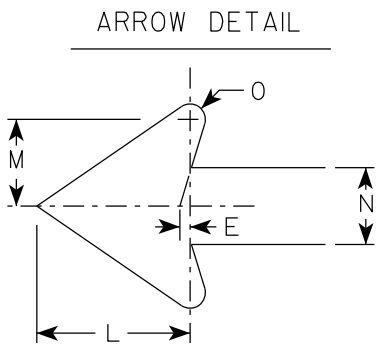


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

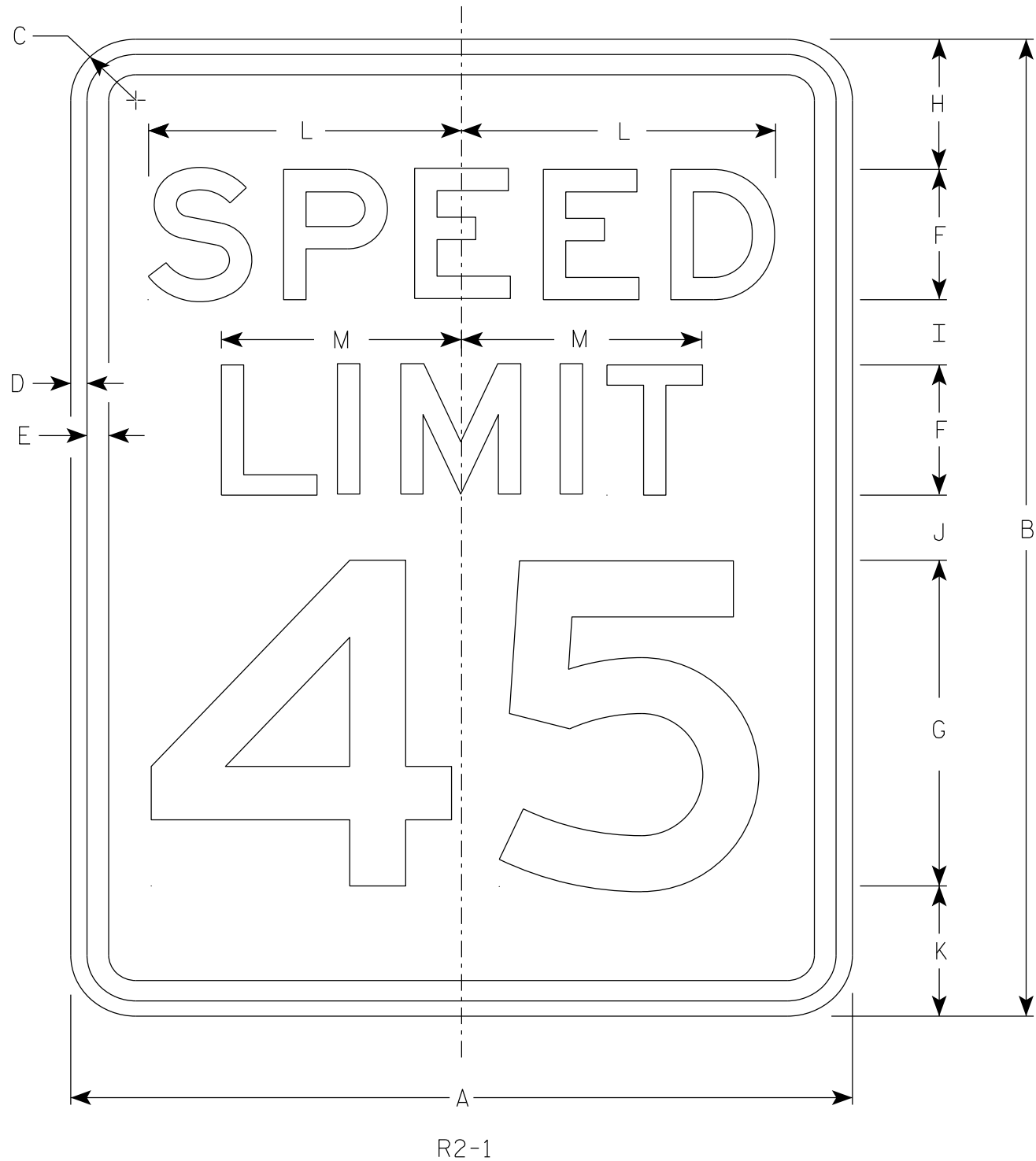
STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

7



NOTES

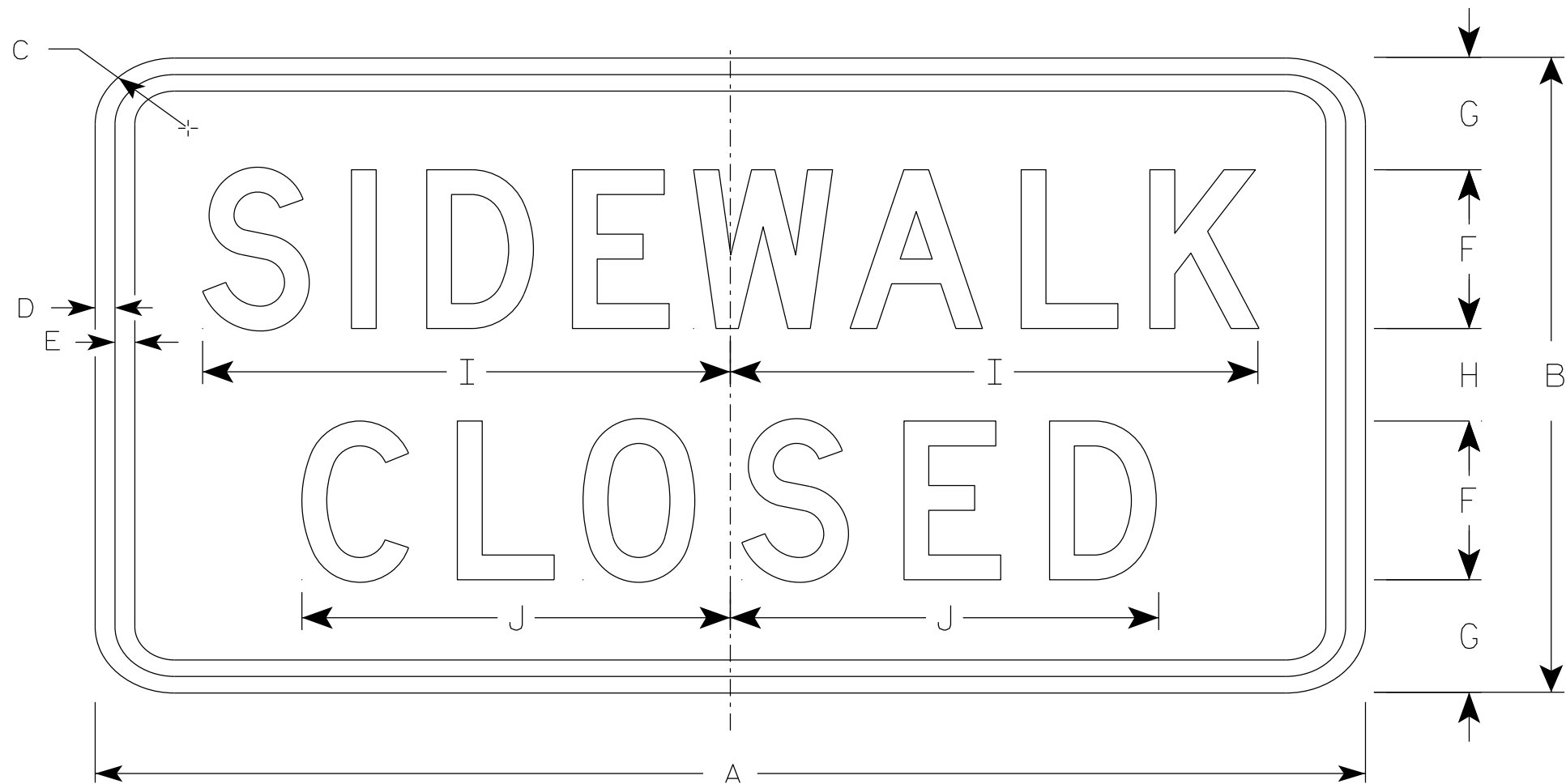
- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - E
- 4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

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	18	24	1 1/2	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/2	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 7/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 7/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 7/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	3	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2 - 1	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE <u>2/1/23</u>	PLATE NO. <u>R2-1.14</u>

7



R9-9

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - C
- 4. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.

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	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
2M	24	12	1 1/2	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
3	30	18	1 1/2	1/2	1/2	4	3 1/2	3	12 1/2	10 1/4																	3.75
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

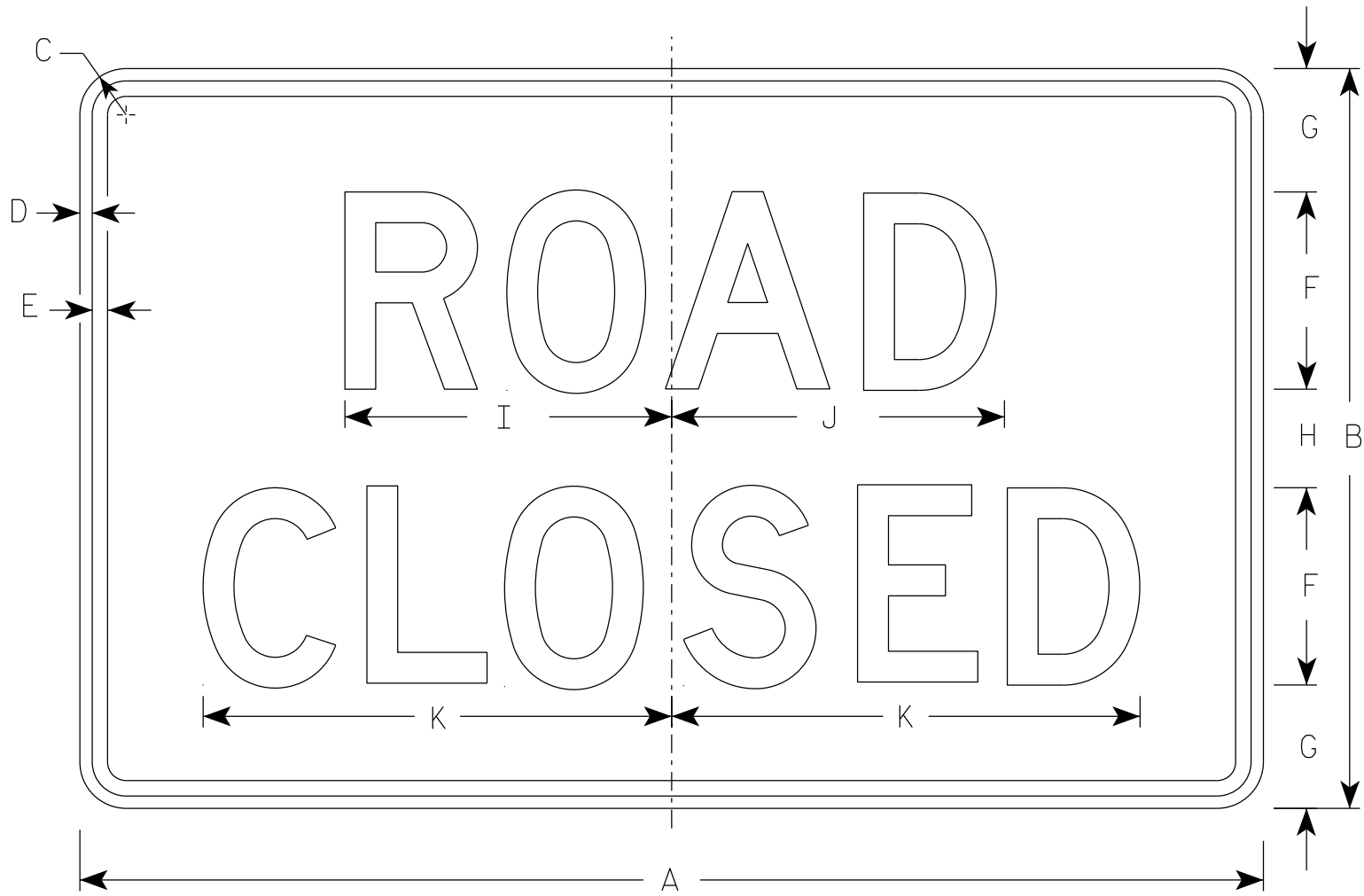
E

STANDARD SIGN
R9-9

WISCONSIN DEPT OF TRANSPORTATION

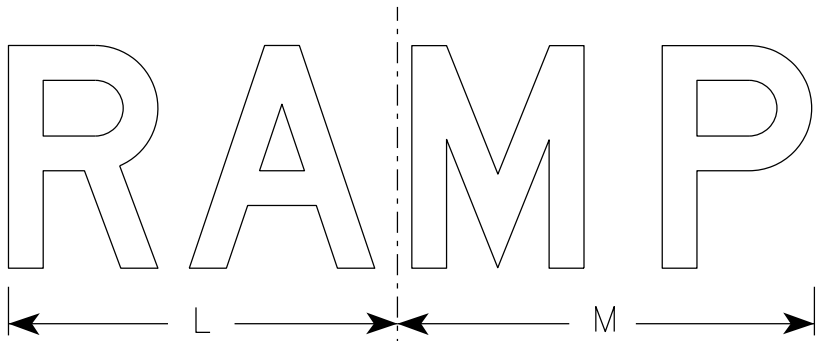
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 1/24/24 PLATE NO. R9-9.7

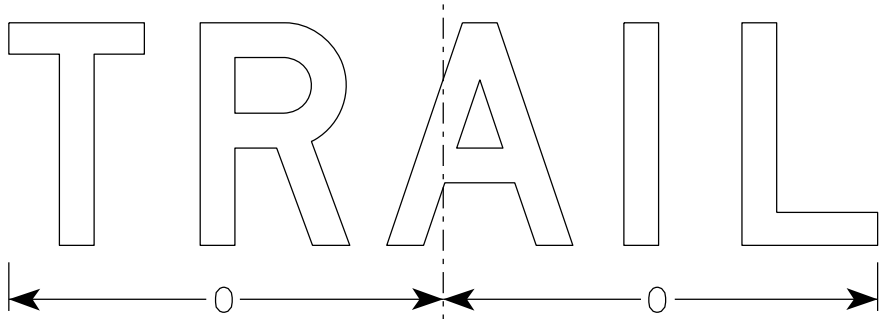


R11-2

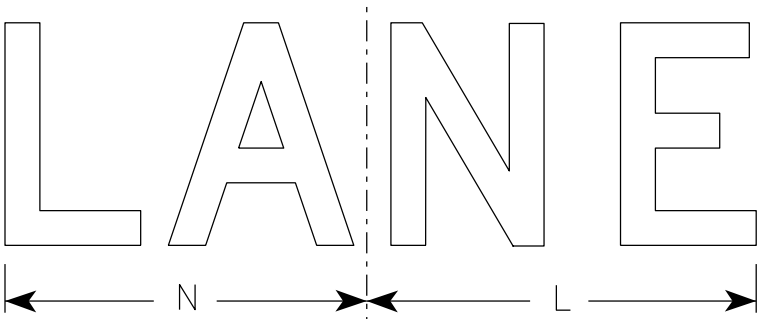
- NOTES
1. Sign is Type II - Type H Reflective
 2. Color:
Background - White
Message - Black
 3. Message Series - D
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 5. Modify the message as required.



R11-2R



R11-2T



R11-2L

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	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 7/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

STANDARD SIGN R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 2/5/24	PLATE NO. R11-2.12

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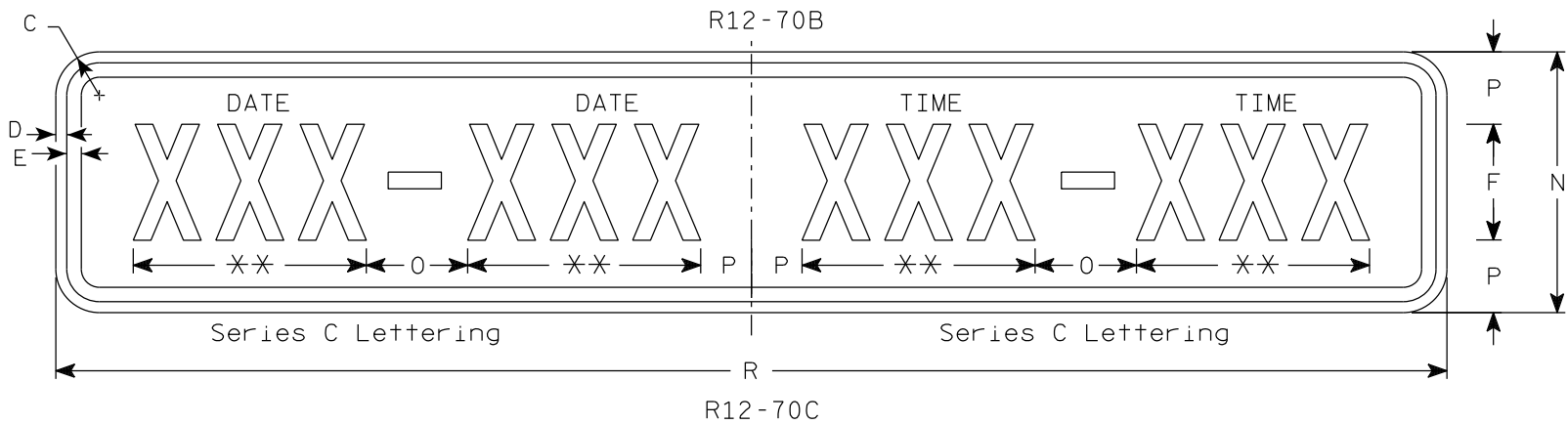
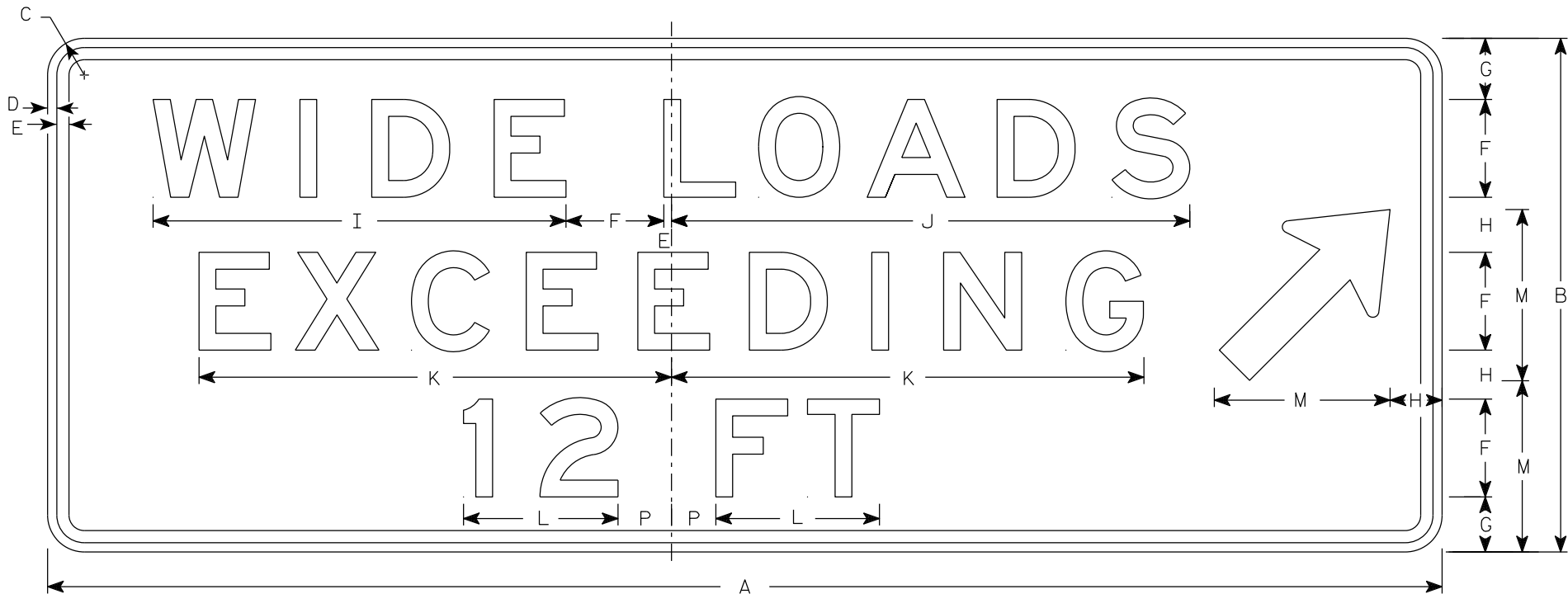
7

7

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - E except as noted
- 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.

** Substitute appropriate message, optically center message



R12-70C																												R12-70	R12-70C
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.	Area sq. ft.	
1																													
2S	90	36	3	1/2	5/8	6	4	5	20 7/8	28 3/8	24 5/8	8 1/8	12	12	6	3		66									22.5	5.5	
2M	90	36	3	1/2	5/8	6	4	5	20 7/8	28 3/8	24 5/8	8 1/8	12	12	6	3		66									22.5	5.5	
3	90	36	3	1/2	5/8	6	4	5	20 7/8	28 3/8	24 5/8	8 1/8	12	12	6	3		66									22.5	5.5	
4	114	42	3	3/4	1	8	5	4	34	42	39	13	14	18	7	3 1/2		96									36.75	12.0	
5	114	42	3	3/4	1	8	5	4	34	42	39	13	14	18	7	3 1/2		96									36.75	12.0	

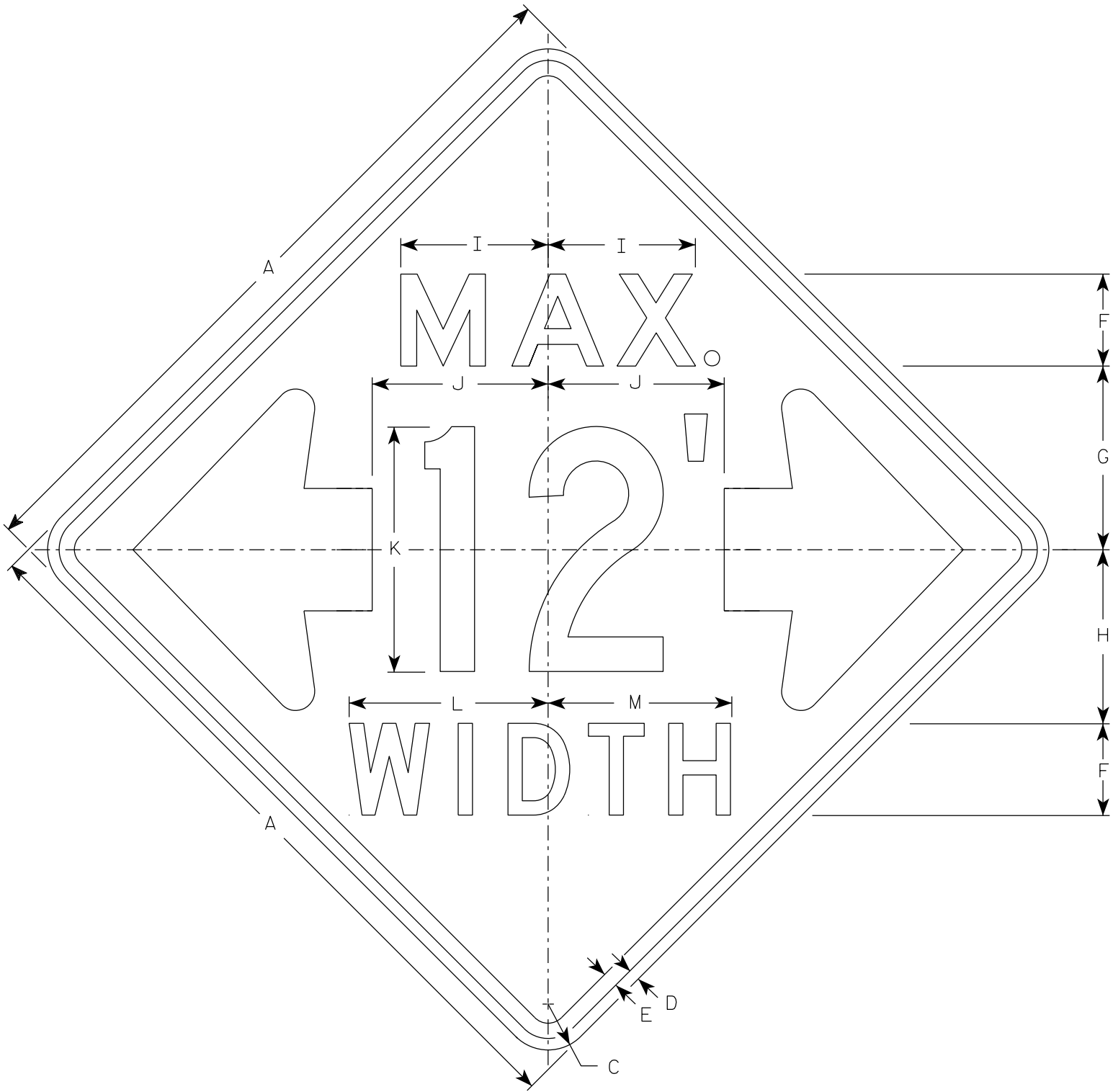
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

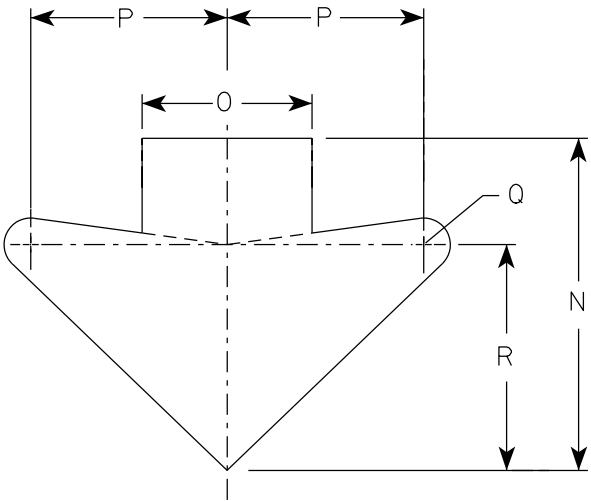
E



W12-52

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - See note 5
- 4. The top line is series E, the numerals are series C, and the bottom line is series D.
- 5. Substitute appropriate numerals and adjust spacing as required.



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	48		3	¾	1	6	12	11 ⅜	9 ⅝	11 ½	16	13	12	15 ⅝	8	9 ¼	1 ¼	10 ⅝									16.0
2M	48		3	¾	1	6	12	11 ⅜	9 ⅝	11 ½	16	13	12	15 ⅝	8	9 ¼	1 ¼	10 ⅝									16.0
3																											
4																											
5																											

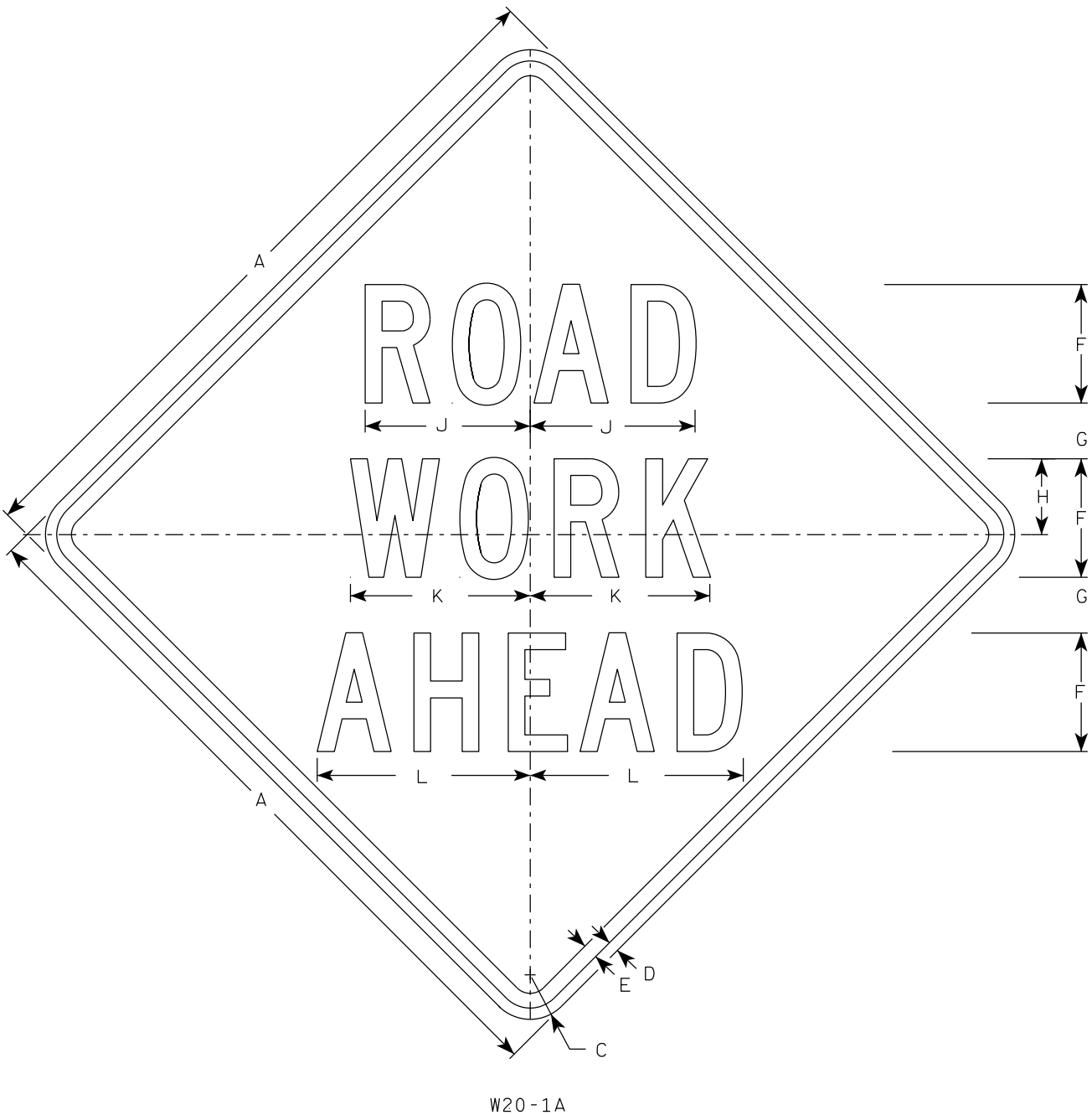
STANDARD SIGN

W12-52

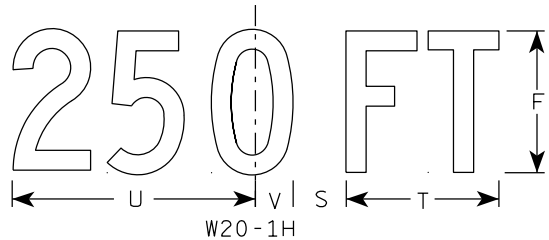
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

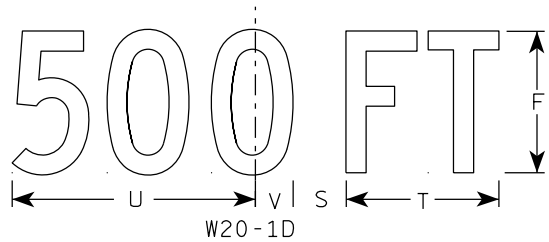
DATE 3/10/2024 PLATE NO. W12-52.8



W20-1A



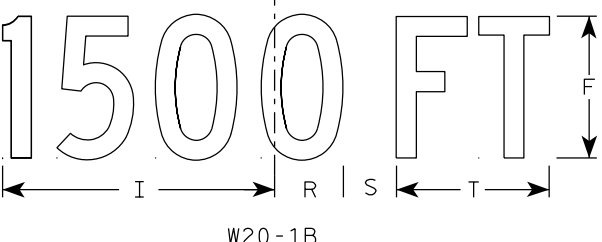
W20-1H



W20-1D

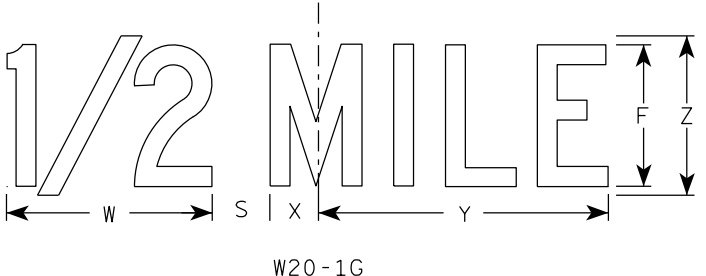


W20-1C

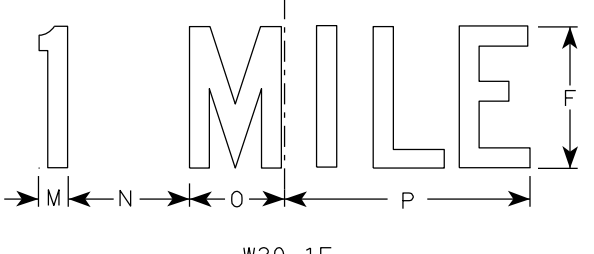


W20-1B

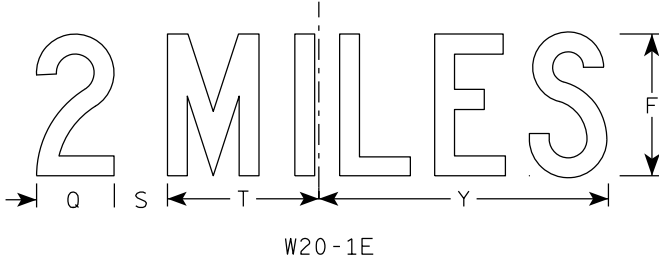
- NOTES**
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G

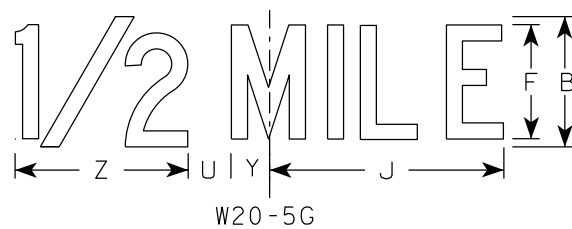
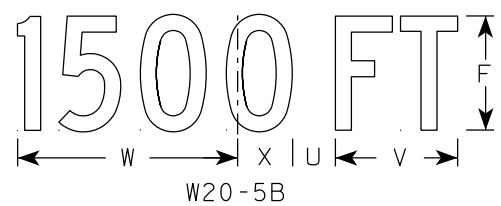
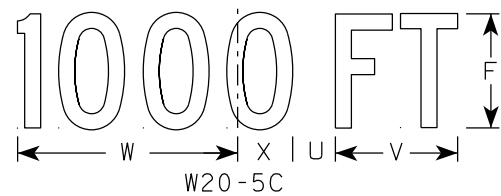
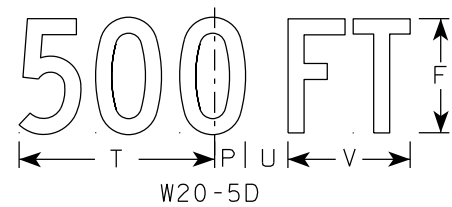
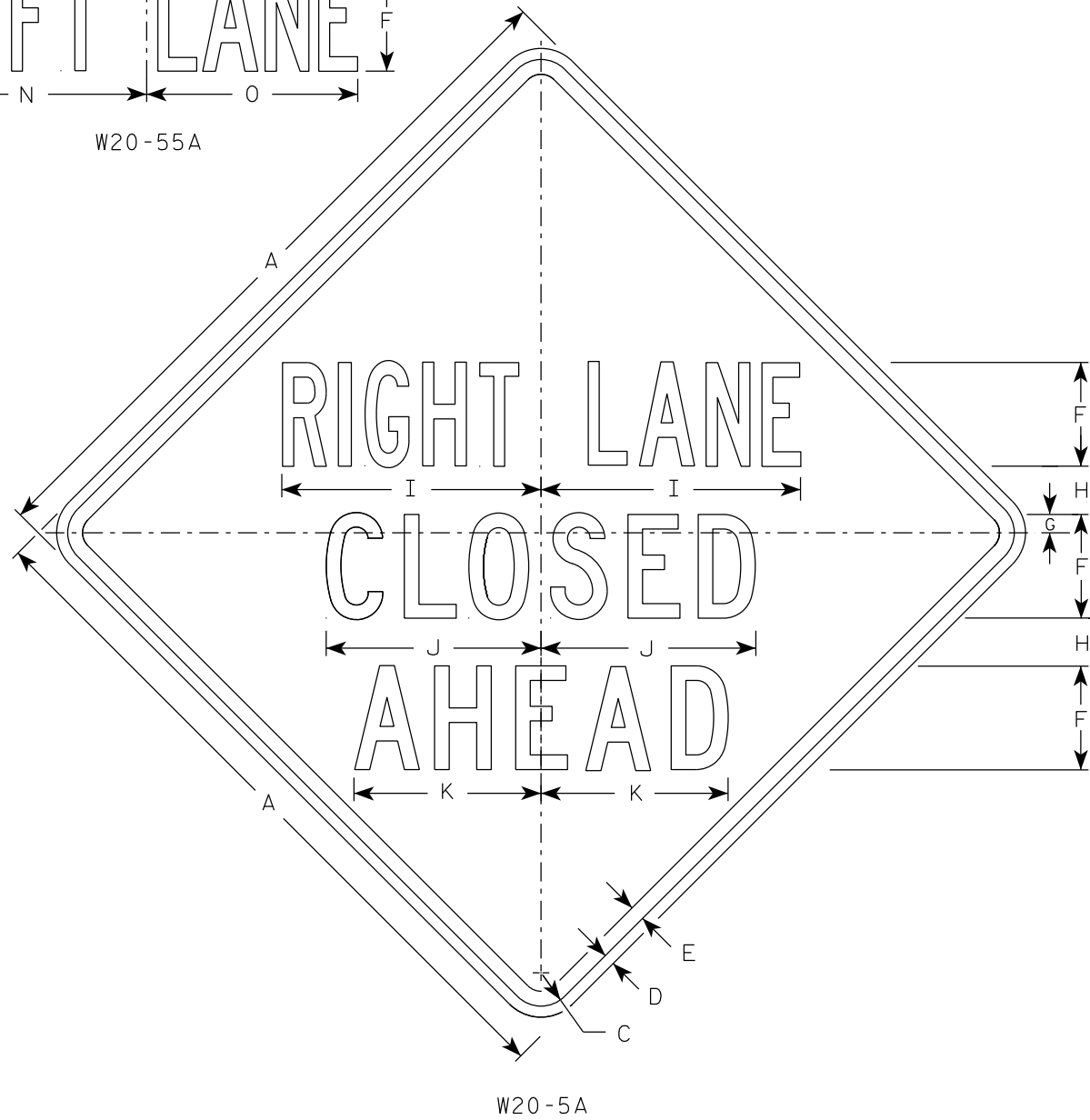
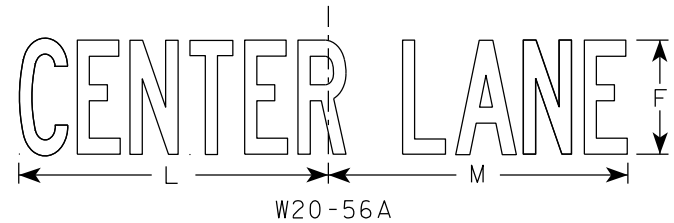


W20-1F



W20-1E

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	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 5
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. " _____ LANE" is Series B.
All other copy is Series C.

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	36	6	2 1/4	5/8	3/4	5	7/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

STANDARD SIGN

W20-5A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/27/24 PLATE NO. W20-5.12

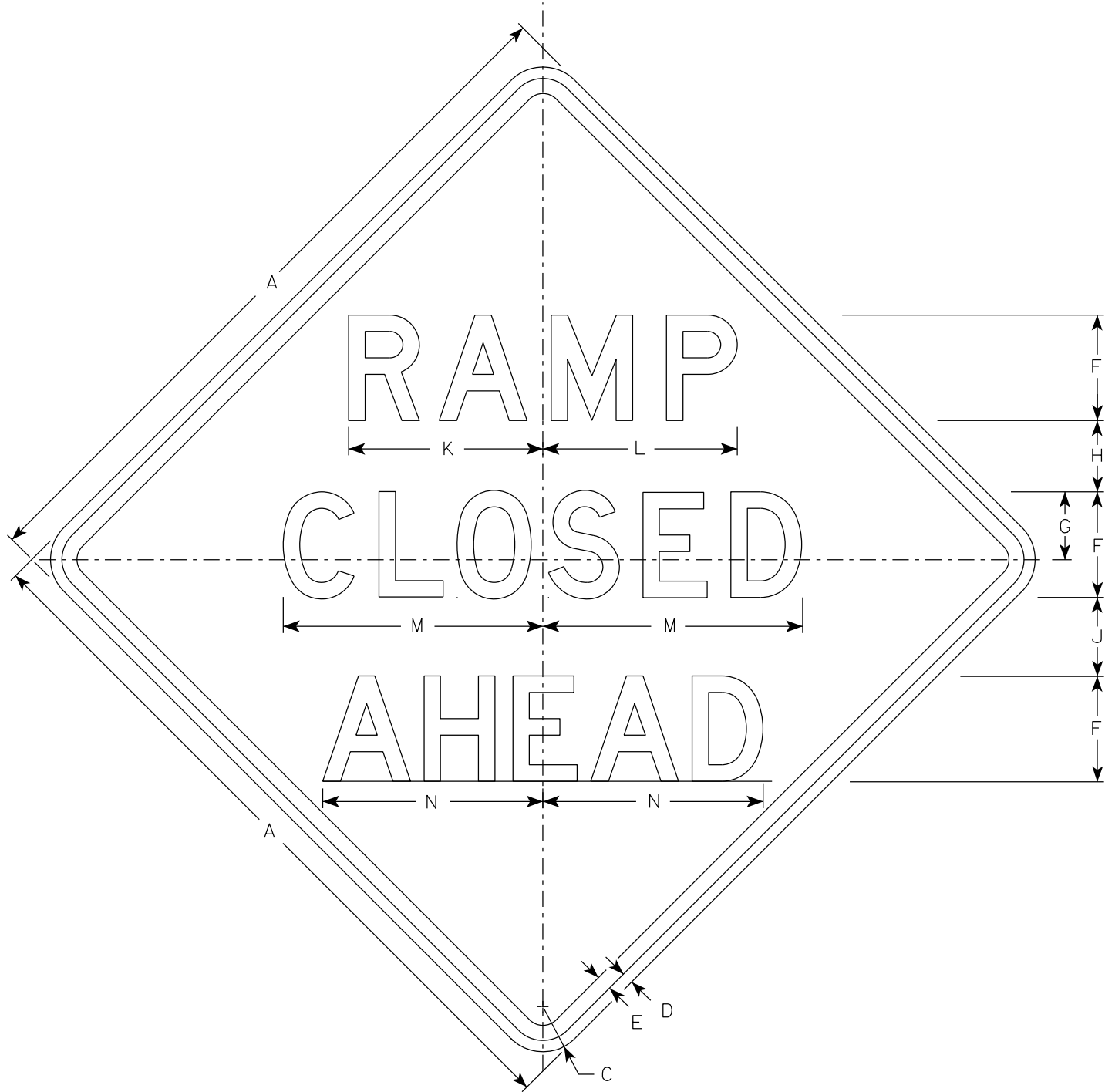
PROJECT NO:

HWY:

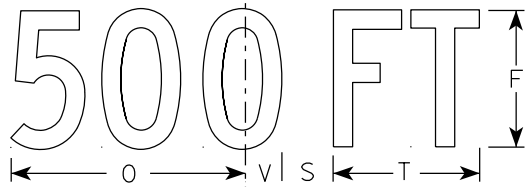
COUNTY:

SHEET NO:

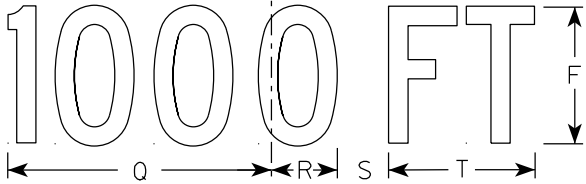
E



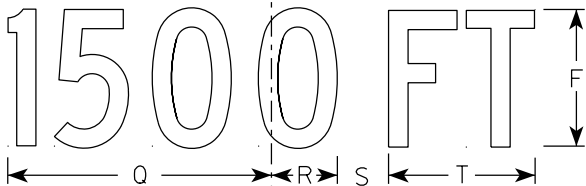
W20-53A



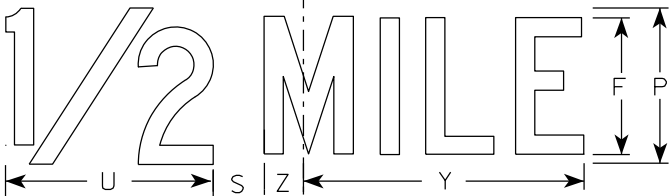
W20-53D



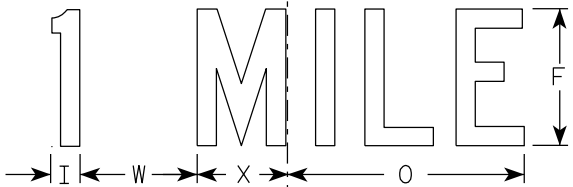
W20-53C



W20-53B



W20-53G



W20-53F

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - see note 5
- 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. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

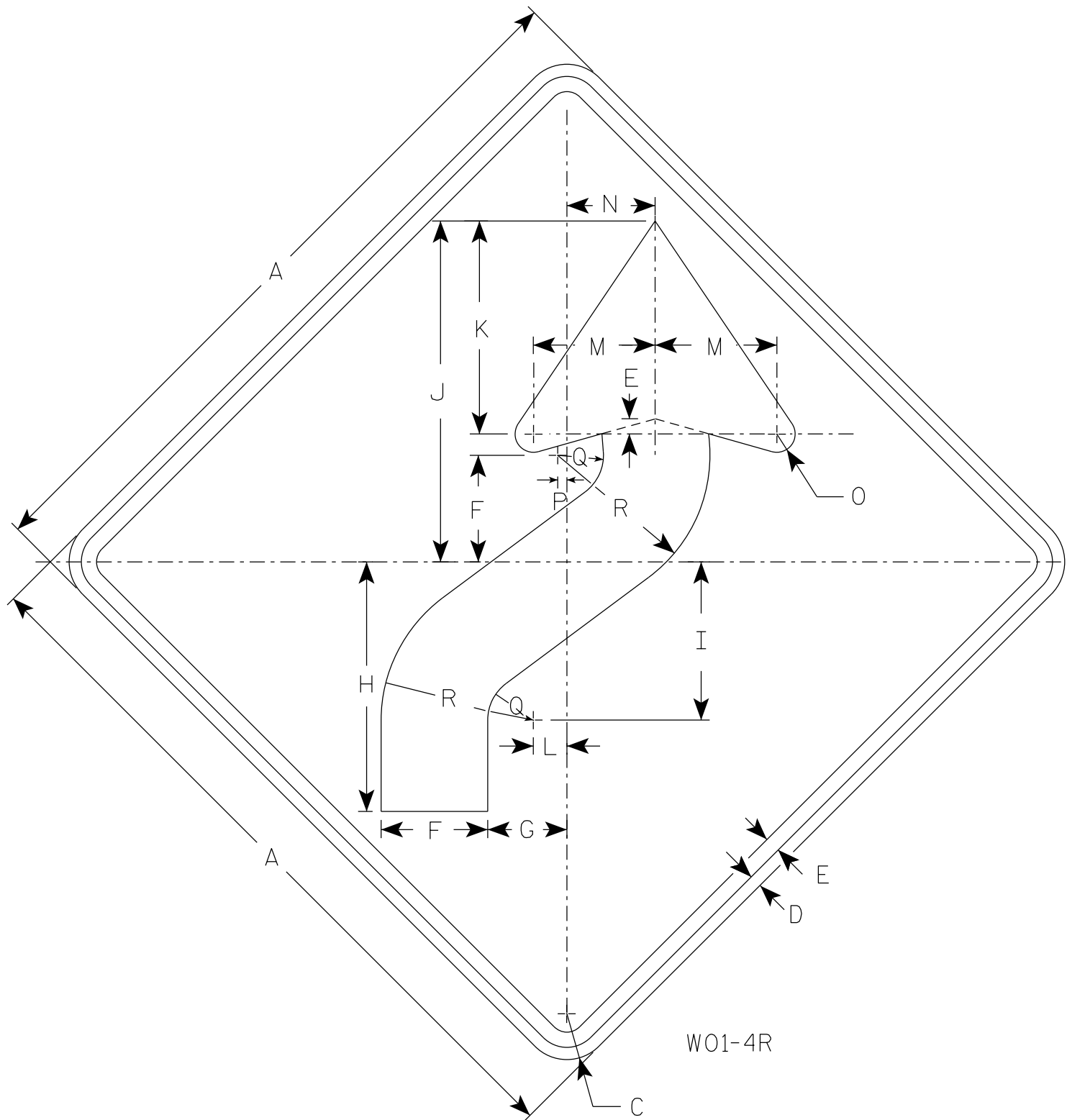
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	9 1/4	9 1/4	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-53A,B,C,D,F,G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-53.2



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. 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. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

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	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

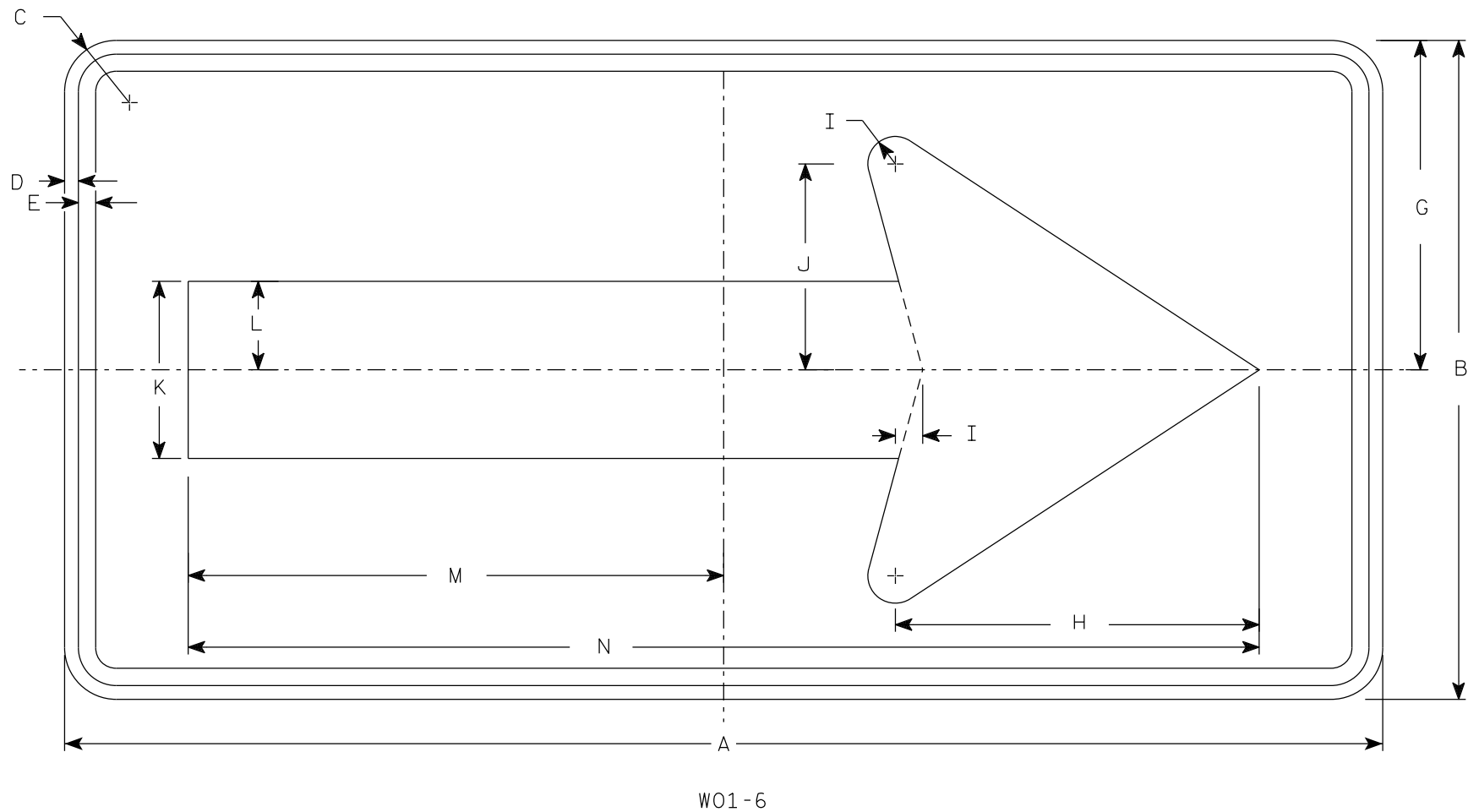
STANDARD SIGN
W01-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W01-4.2

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. 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																											
2S	48	24	1 7⁄8	1⁄2	5⁄8		12	13 1⁄4	1	7 1⁄2	6 1⁄2	3 1⁄4	19 1⁄2	39													8.0
2M	48	24	1 7⁄8	1⁄2	5⁄8		12	13 1⁄4	1	7 1⁄2	6 1⁄2	3 1⁄4	19 1⁄2	39													8.0
3	60	30	1 7⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5
4	60	30	1 7⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5
5	60	30	1 7⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5

STANDARD SIGN

W01-6

WISCONSIN DEPT OF TRANSPORTATION

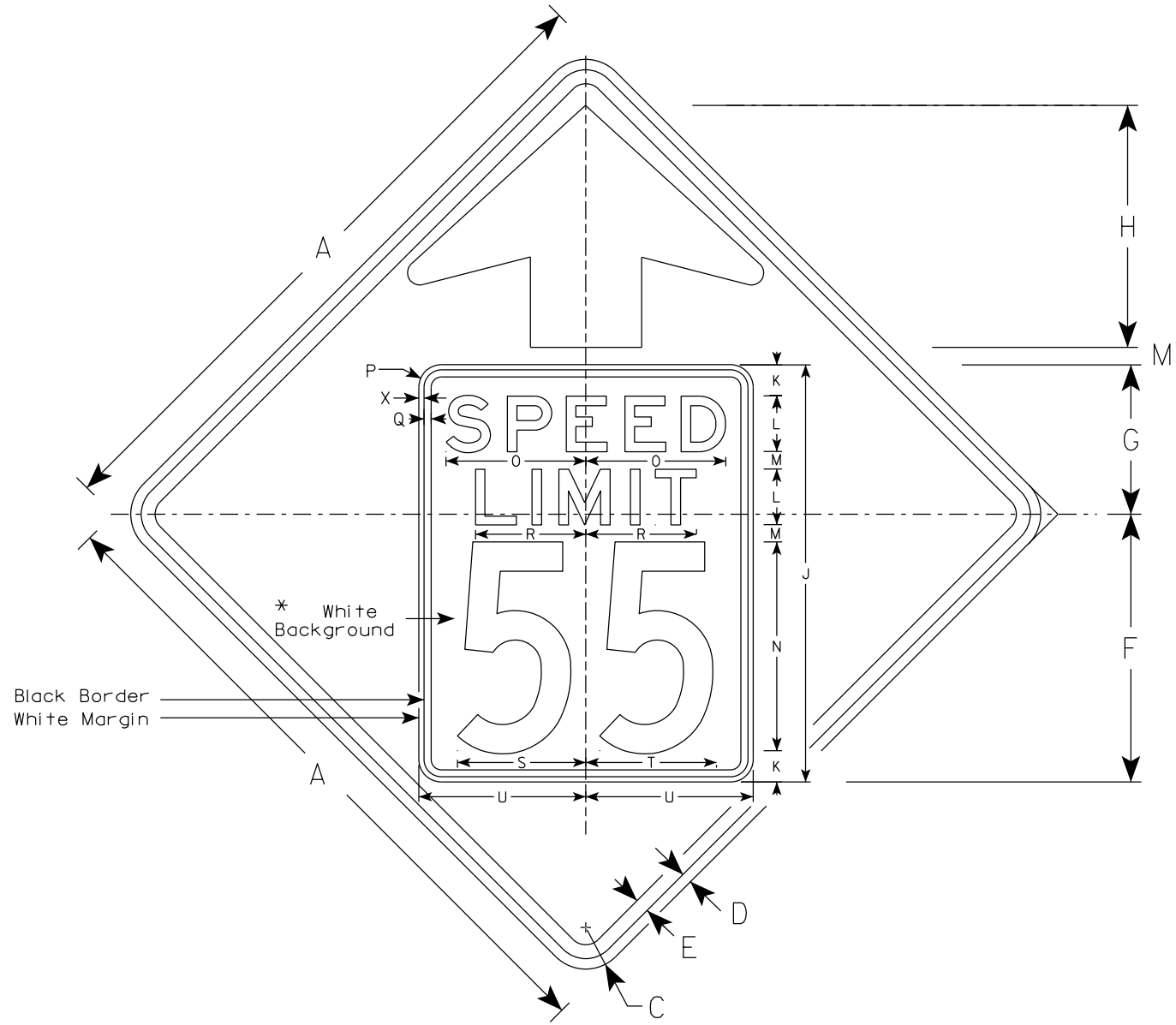
APPROVED

Matthew R. Rauch

for State Traffic Engineer

DATE 1/24/2024

PLATE NO. W01-6.2

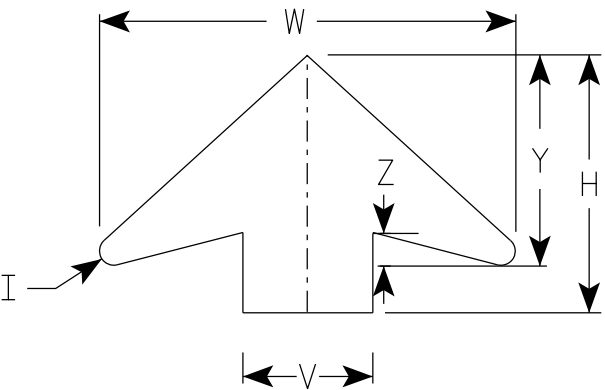


W03-5

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color: *
Background - ORANGE*
Message - BLACK
- 3. Message Series - C for numbers Series E for wording
- 4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



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	36		2 1/4	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2S	48		3	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
2M	48		3	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
3	48		3	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
4	48		3	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		3	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

STANDARD SIGN
W03-5

WISCONSIN DEPT OF TRANSPORTATION

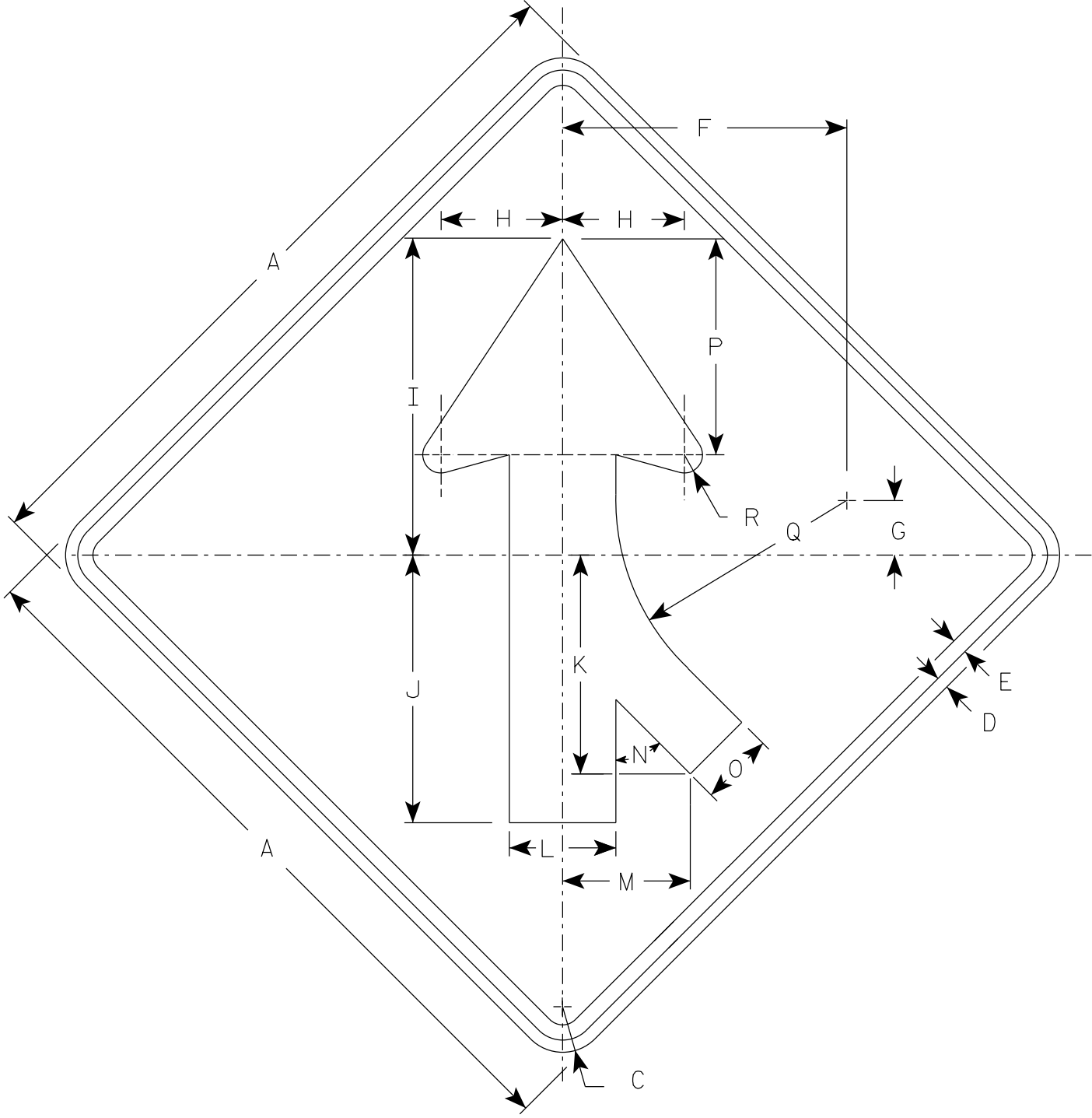
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W03-5.2

PROJECT NO:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. 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. W04-1L is the same as W04-1R except the arrow is reversed along the vertical centerline.

7

7

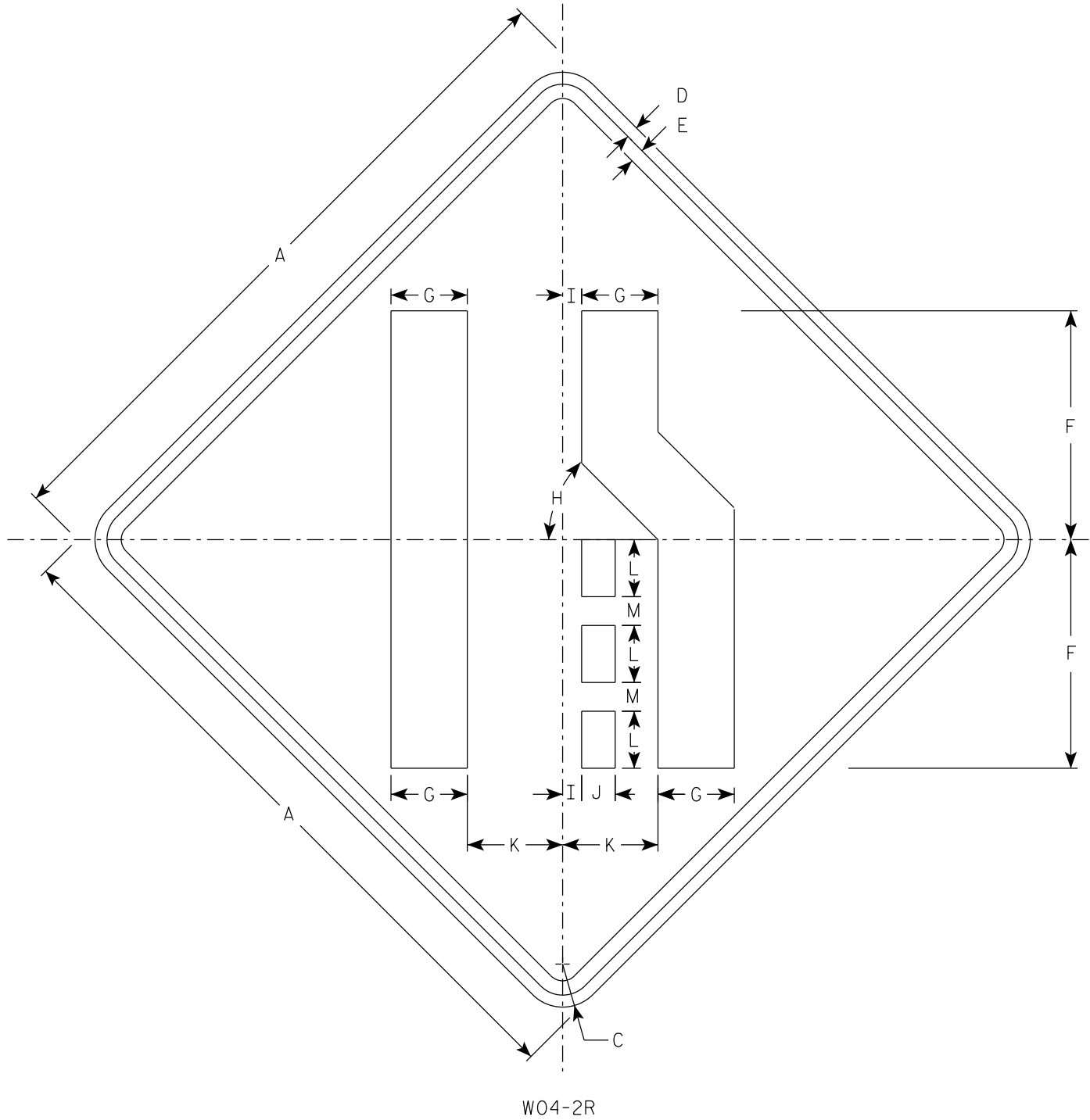
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
2S	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
2M	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
3	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
4	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
5	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0

STANDARD SIGN
W04-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

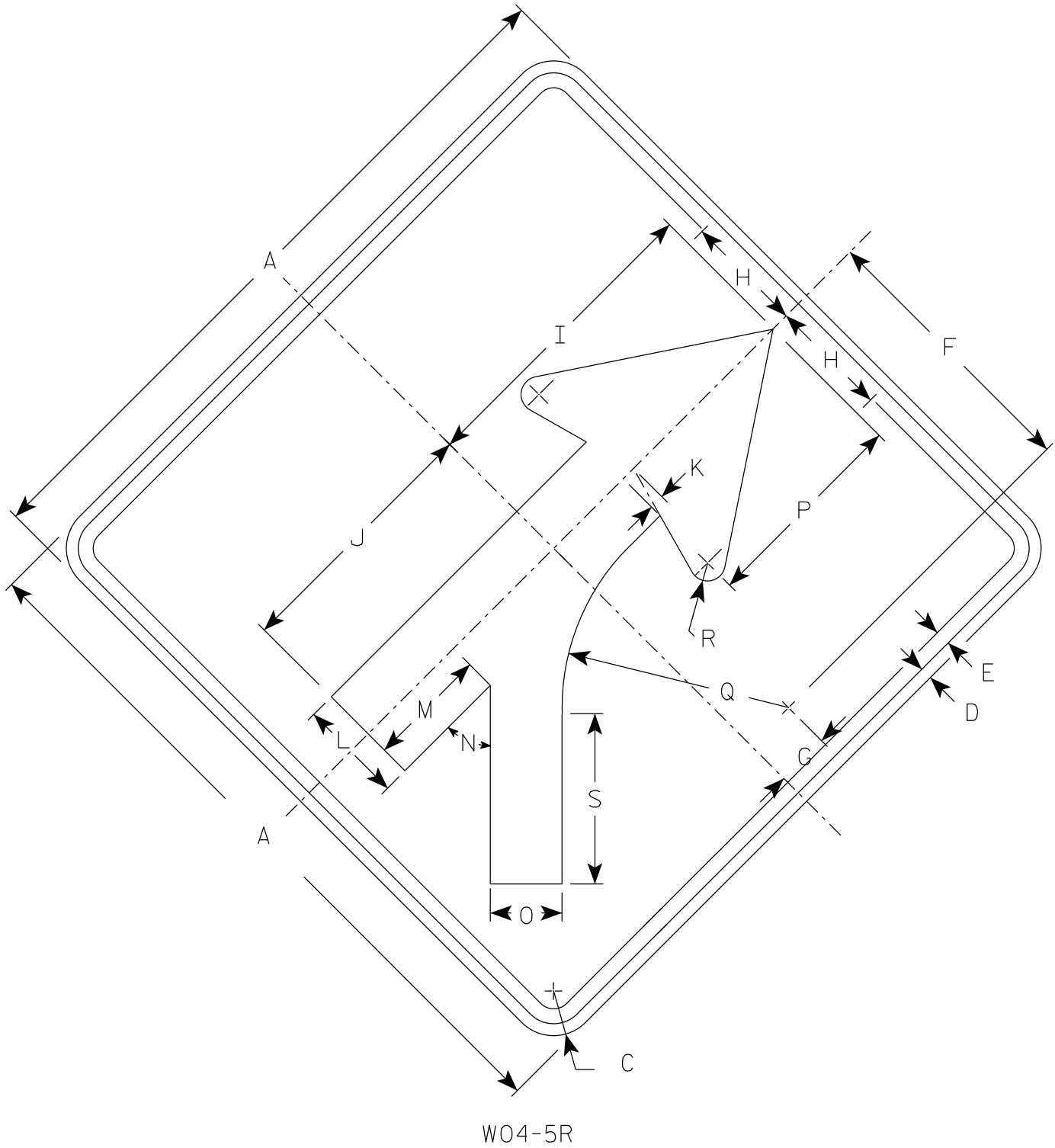
DATE 1/25/2024 PLATE NO. W04-1.3



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. 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. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

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	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. 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. W04-5L is the same as W04-5R except the arrow is reversed along the vertical centerline.

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	14	2 3/4	6	15 3/4	13 1/4	3/4	5 1/4	6 1/8	45°	3 5/8	10 5/8	11 3/8	7/8	8 1/2								9.0
2S	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
2M	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
3	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
4	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
5	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

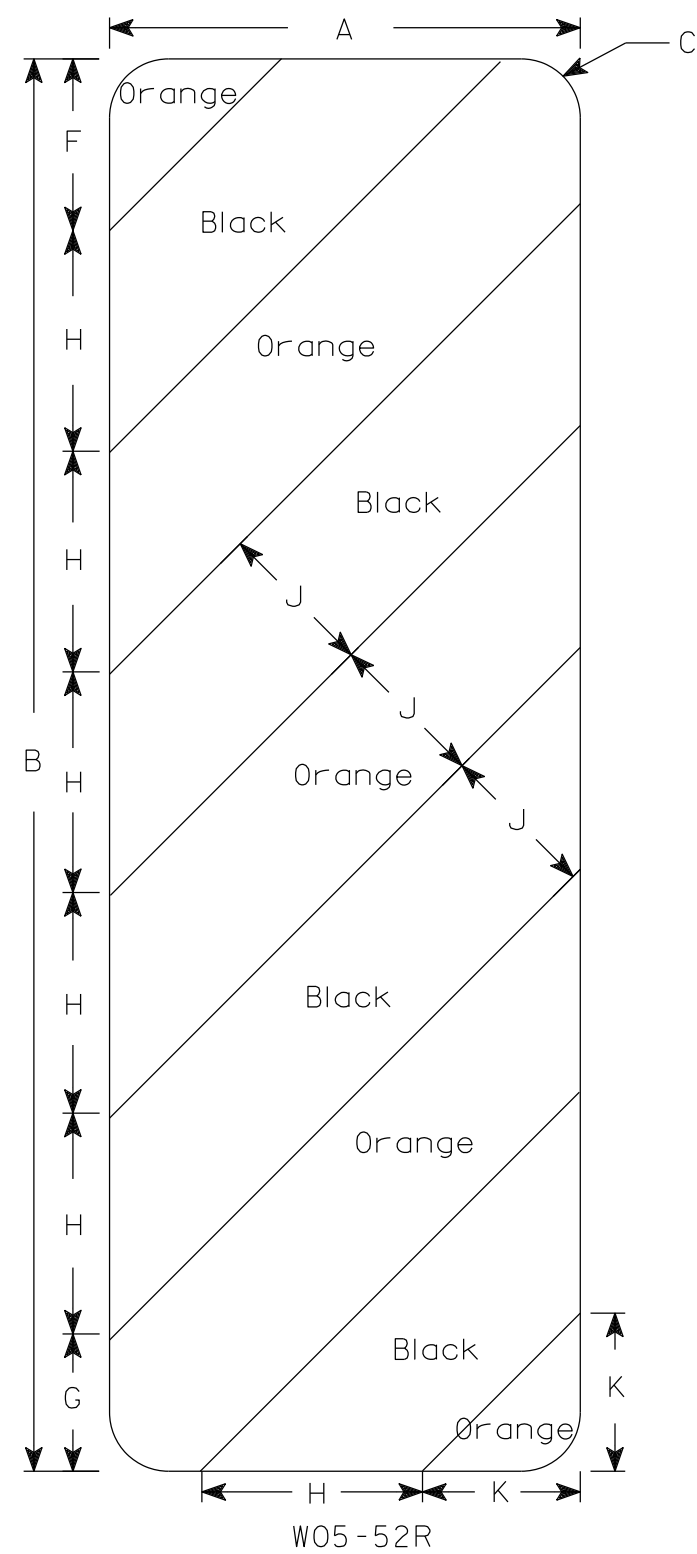
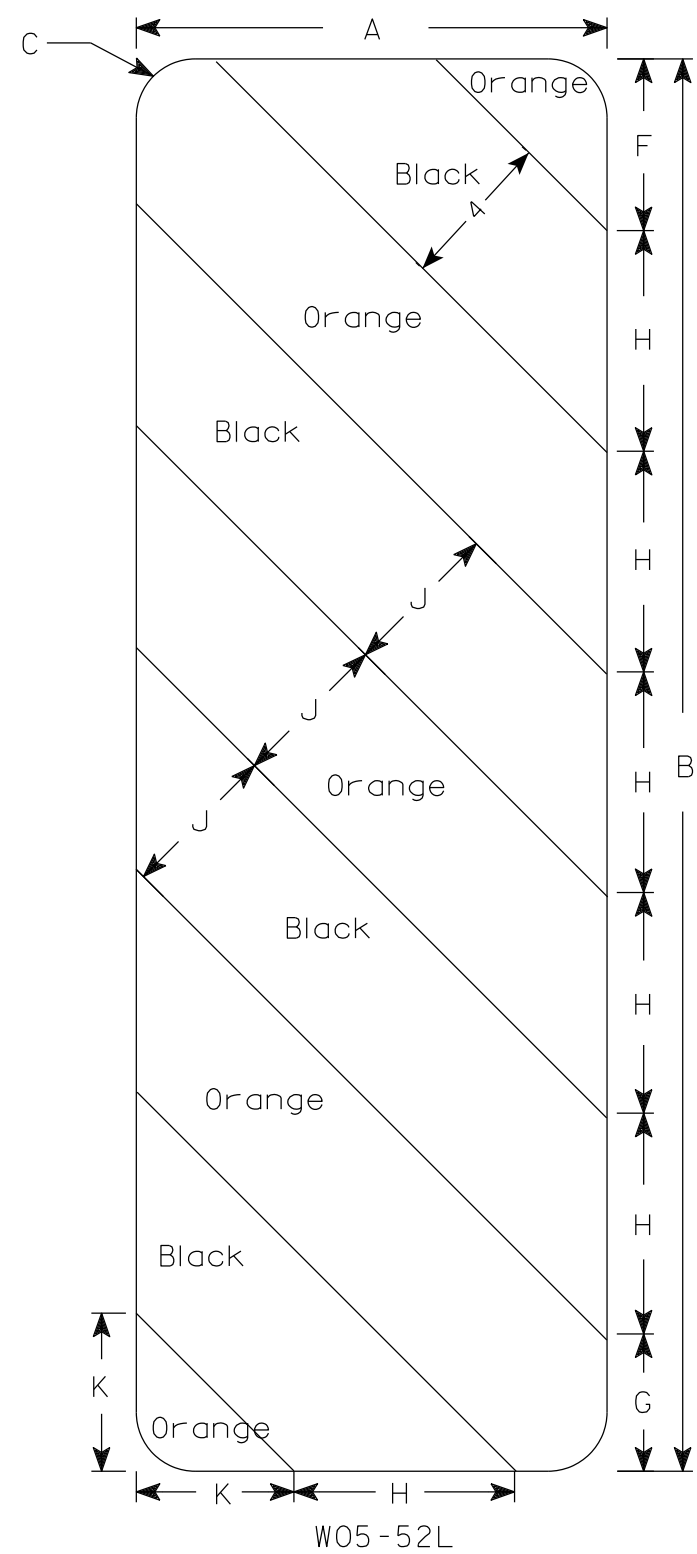
STANDARD SIGN

W04-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/25/2024 PLATE NO. W04-5.3



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
4. Alternate colors of stripes as shown.

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	Areg sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

PROJECT NO:				HWY:				COUNTY:				SHEET NO:												E
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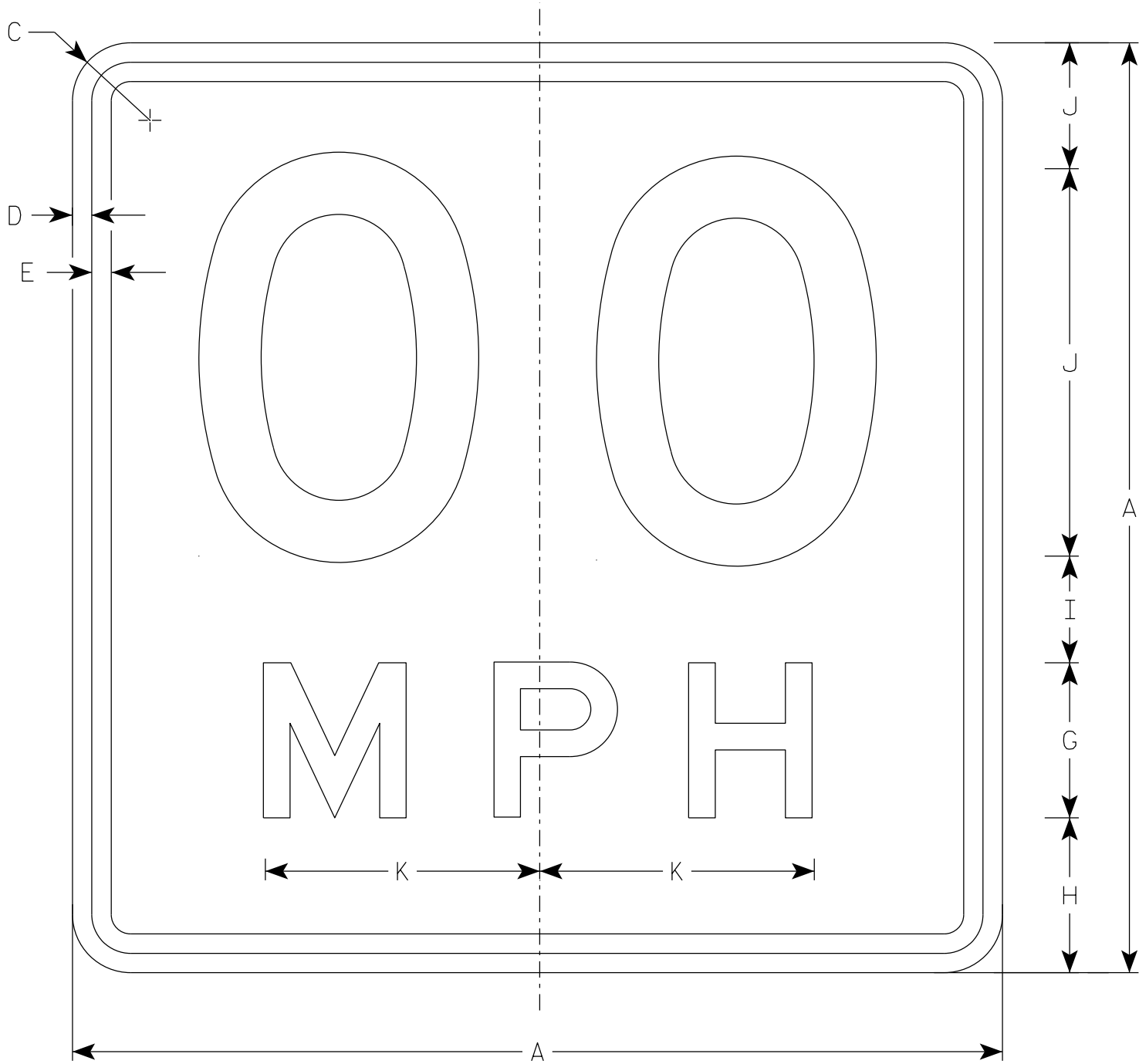
STANDARD SIGN

W05-52L & W05-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/13/2024 PLATE NO. W05-52.2



W013-1

NOTES

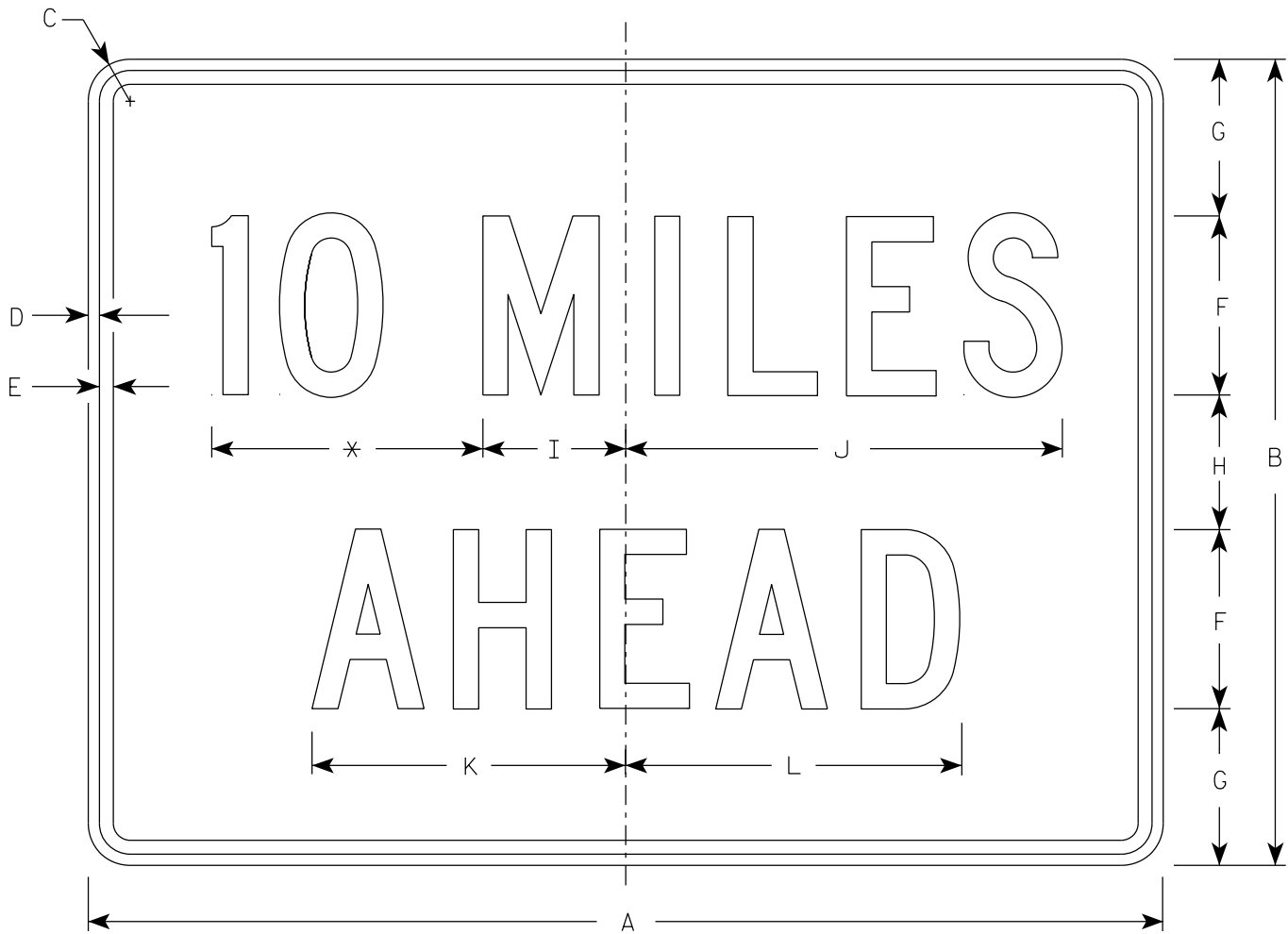
- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - See Note 6
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
- 6. Line 1 is Series D
Line 2 is Series E

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	24		1 1/2	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.0
2S	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
2M	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
3	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
4	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
5	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0

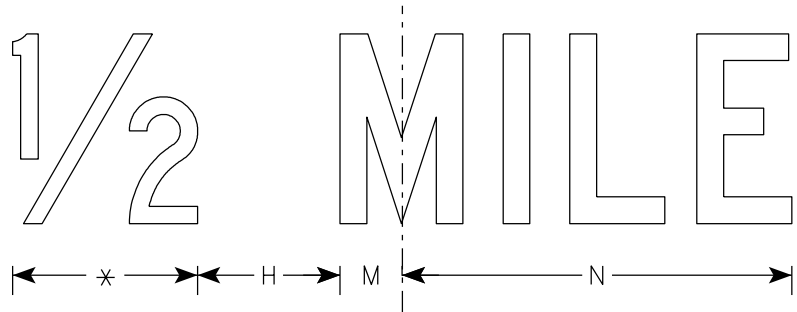
STANDARD SIGN
W013-1

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 2/1/2024 PLATE NO. W013-1.2

7



W057-52



* See note 5

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
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 the nearest quarter mile and optically adjust spacing to achieve proper balance.

7

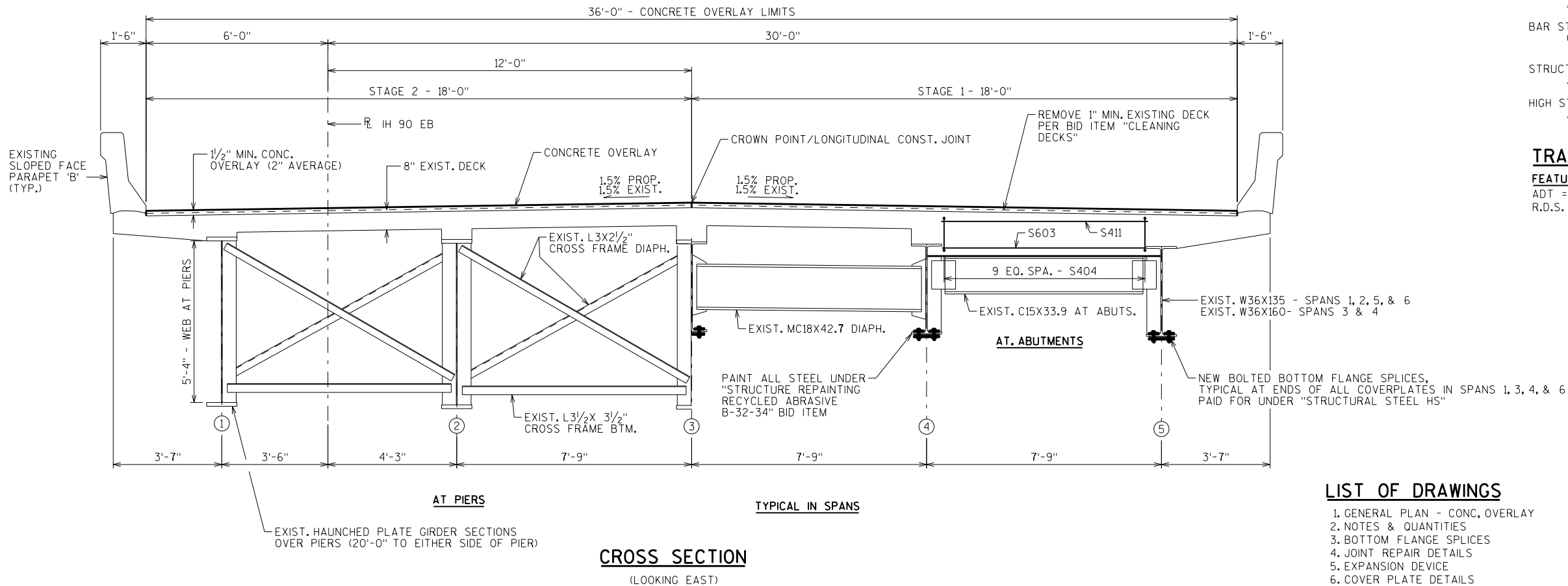
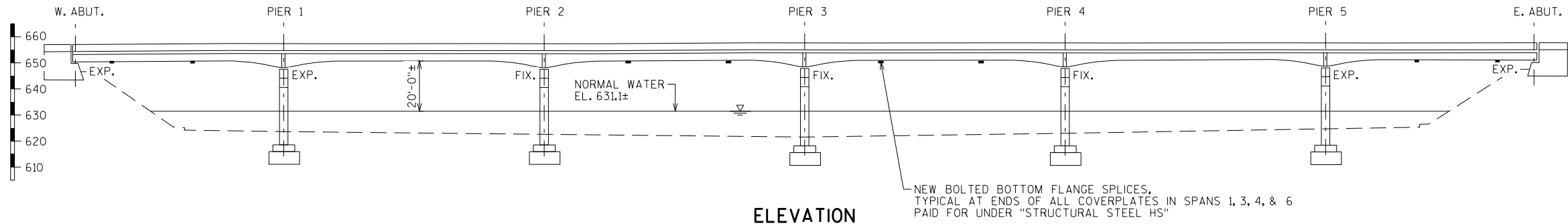
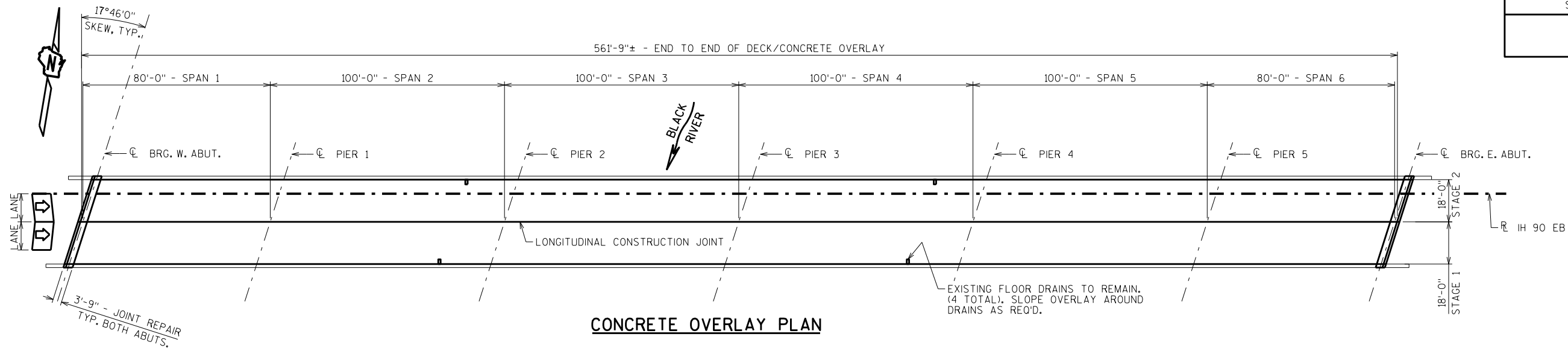
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/2	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

STANDARD SIGN
W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/1/2024 PLATE NO. W057-52.3



DESIGN DATA

LIVE LOAD:
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 170 (KIPS)

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE & OVERLAY — $f'_c = 4,000$ P.S.I.
ALL OTHER — $f'_c = 3,500$ P.S.I.

BAR STEEL REINFORCEMENT:
GRADE 60 — $f_y = 60,000$ P.S.I.

STRUCTURAL CARBON STEEL:
ASTM A709, GRADE 36 — $F_y = 36,000$ P.S.I.

HIGH STRENGTH STRUCTURAL STEEL:
ASTM A709, GRADE 50 — $F_y = 50,000$ P.S.I.

TRAFFIC VOLUME

FEATURE ON
ADT = 27,700 (2017)
R.D.S. = 70 M.P.H.

STRUCTURE DESIGN CONTACTS:

CHRISTOPHER DOLL (608) 266-3229
KYLE BUSCH (608) 267-0465

NO.	DATE	REVISION	BY
 ACCEPTED CHIEF STRUCTURES DESIGN ENGINEER DATE 7/24/23			
STRUCTURE B-32-34			
IH-90 EB OVER BLACK RIVER			
COUNTY	LACROSSE	TOWN	CAMPBELL
DESIGN SPEC.	N/A - REHABILITATION		
DESIGNED BY	CAD	DESIGNED CK'D.	ARC
DRAWN BY	WWR	PLANS CK'D.	CAD
GENERAL PLAN - CONC. OVERLAY			SHEET 1 OF 7

LIST OF DRAWINGS

1. GENERAL PLAN - CONC. OVERLAY
2. NOTES & QUANTITIES
3. BOTTOM FLANGE SPLICES
4. JOINT REPAIR DETAILS
5. EXPANSION DEVICE
6. COVER PLATE DETAILS
7. DECK CONDITION SURVEY

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
502.3101	EXPANSION DEVICE	LF	—	38	38	76
502.3200	PROTECTIVE SURFACE TREATMENT	SY	2266	—	—	2266
502.3210	PIGMENTED SURFACE SEALER	SY	10	—	—	10
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	—	38	38	76
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	—	1200	1200	2400
505.0905	BAR COUPLERS NO. 5	EACH	—	6	6	12
506.0605	STRUCTURAL STEEL HS	LB	6893	—	—	6893
509.0301	PREPARATION DECKS TYPE 1	SY	38	—	—	38
509.0302	PREPARATION DECKS TYPE 2	SY	15	—	—	15
509.0500	CLEANING DECKS	SY	2226	—	—	2226
509.1000	JOINT REPAIR	SY	—	17	17	34
509.1500	CONCRETE SURFACE REPAIR	SF	80	5	5	90
509.2000	FULL-DEPTH DECK REPAIR	SY	1	—	—	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	140	—	—	140
517.1801.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-34	EACH	1	—	—	1
517.4501.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-34	EACH	1	—	—	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1	—	—	1

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF OVERLAY AND TO THE TOPS AND BACK VERTICAL FACE OF PAVING BLOCKS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND TOP OF NEW PARAPET SECTIONS IN THE JOINT REPAIR AREAS.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS". SEE "MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS" DETAIL BELOW FOR INCREASED MILLING REQUIRED IN END SPANS.

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½' PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2'. IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

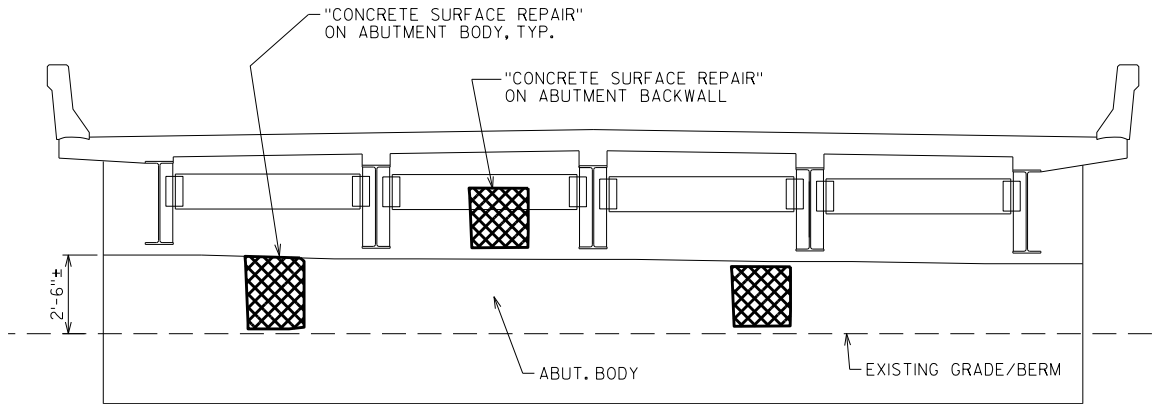
PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION, FULL-DEPTH DECK REPAIRS, AND JOINT REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE LIGHT GRAY, (AMS STANDARD COLOR NO. 26293) OR SIMILAR COLOR APPROVED BY THE ENGINEER.

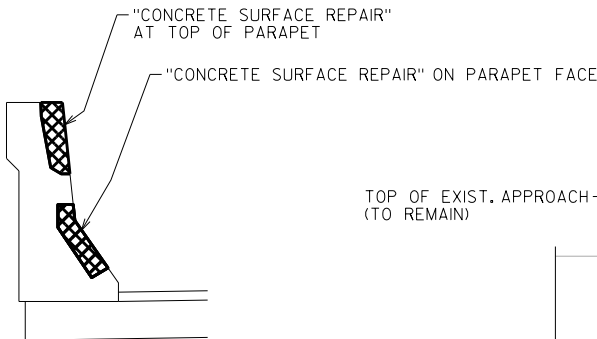
SEE ROADWAY PLANS FOR INTERSTATE TRAFFIC CONTROL REQUIREMENTS.

UNDER "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-34" ITEM, CLEAN AND PAINT ALL STRUCTURAL METAL SURFACES, INCLUDING ALL BEARINGS AT ABUTMENTS AND PIERS.

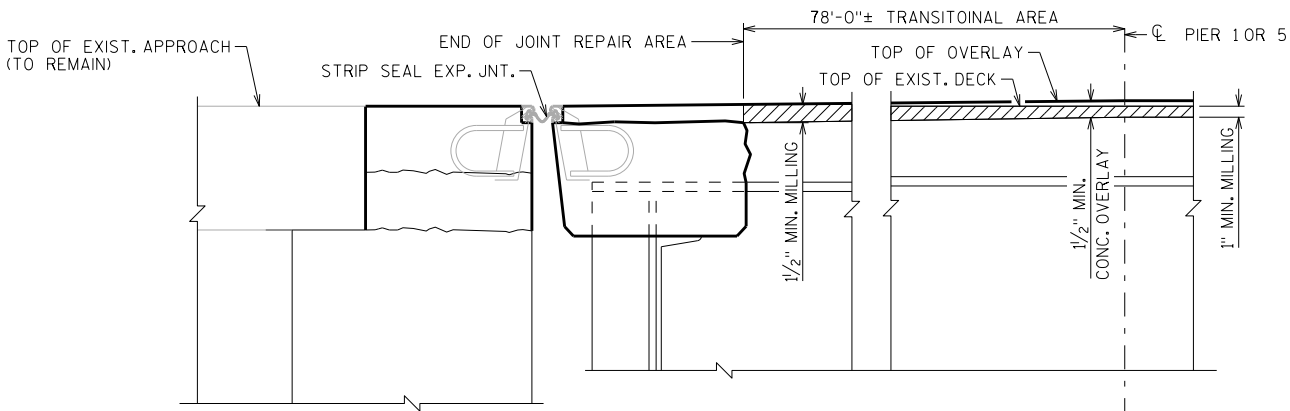
EXISTING BAR STEEL REINFORCEMENT IN DECK IS EPOXY COATED. WHERE DECK STEEL IS EXPOSED IN DECK PREPARATION AREAS, DAMAGED/DE-BONDED EPOXY COATING SHALL BE REPAIRED/RE-COATED IN ACCORDANCE WITH SECTION 509.3.1 OF THE STANDARD SPECIFICATIONS. PREPARE/CLEAN STEEL AS REQUIRED TO APPLY NEW COATING.



ABUTMENT SURFACE REPAIRS



PARAPET SURFACE REPAIRS



MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS

SURFACE REPAIR NOTES

SURFACE REPAIR DETAILS DEPICT THE GENERAL TYPES AND LOCATIONS OF REPAIRS, AND MAY NOT BE ALL INCLUSIVE. QUANTITIES SHOWN ARE APPROXIMATE. ADDITIONAL REPAIRS MAY BE REQUIRED DURING CONSTRUCTION AND SHOULD BE PERFORMED AS DIRECTED BY THE FIELD ENGINEER.

ALL SURFACE REPAIR AREAS SHALL BE DEFINED BY ½" MIN. SAWCUT.

CONTRACTOR SHALL EMPLOY METHODS TO PREVENT REMOVED CONCRETE MATERIAL FROM ENTERING THE WATERWAY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-34			
		DRAWN BY WWR	PLANS CK'D. CAD
NOTES & QUANTITIES		SHEET 2	

NOTES

INSTALLATION OF SPLICE PLATES SHALL OCCUR DURING THE STAGE IN WHICH NO TRAFFIC EXISTS DIRECTLY ABOVE THE GIRDERS BEING MODIFIED/SPLICED.

PLATES & 3/4" DIA. BOLTS SHALL BE INCLUDED IN BID ITEM "STRUCTURAL STEEL HS", LB.

PROVIDE STD. SIZE 1/8" DIA. HOLES IN PLATES FOR 3/4" DIA. BOLTS.

NEW STEEL PLATES SHALL RECEIVE A SHOP BLAST CLEANING CONFORMING TO SSPC-SP 10 AND BE PAINTED WITH ONE COAT OF ZINC-RICH PRIMER IN CONFORMANCE WITH SECTION 517 OF THE STANDARD SPECIFICATIONS. PRIMER SHALL BE COMPATIBLE WITH THE FIELD APPLIED TOP COATS. CLEAN AND PRIME AFTER SHOP DRILLING HOLES. SHOP PAINTING/PRIMING SHALL BE CONSIDERED INCIDENTAL TO BID-ITEM "STRUCTURAL STEEL HS".

PLATE STEEL SHALL CONFORM TO ASTM A709 GRADE 50.

ALL BOLTS SHALL BE 3/4" DIAMETER A325 HIGH-TENSILE STRENGTH BOLTS.

FIELD CLEANING AND TOP COAT PAINTING TO BE INCLUDED IN BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-34", EACH.

PRIOR TO INSTALLING NEW PLATES, CLEAN AND PRIME AREAS BELOW NEW PLATES AS DIRECTED BY THE ENGINEER, INCLUDED IN "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-34" ITEM.

GIRDER ELEVATION - SPANS 1 & 6

DETAILS/SPLICES SHOWN ARE TYPICAL AT ALL 5 GIRDERS

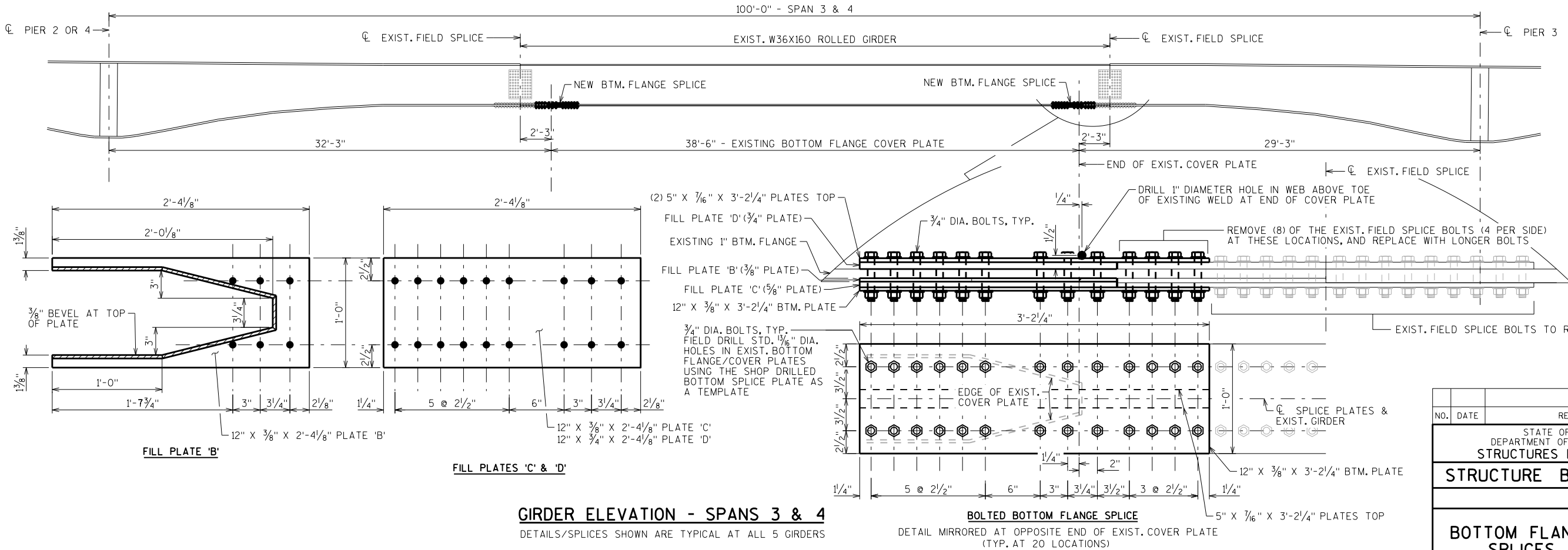
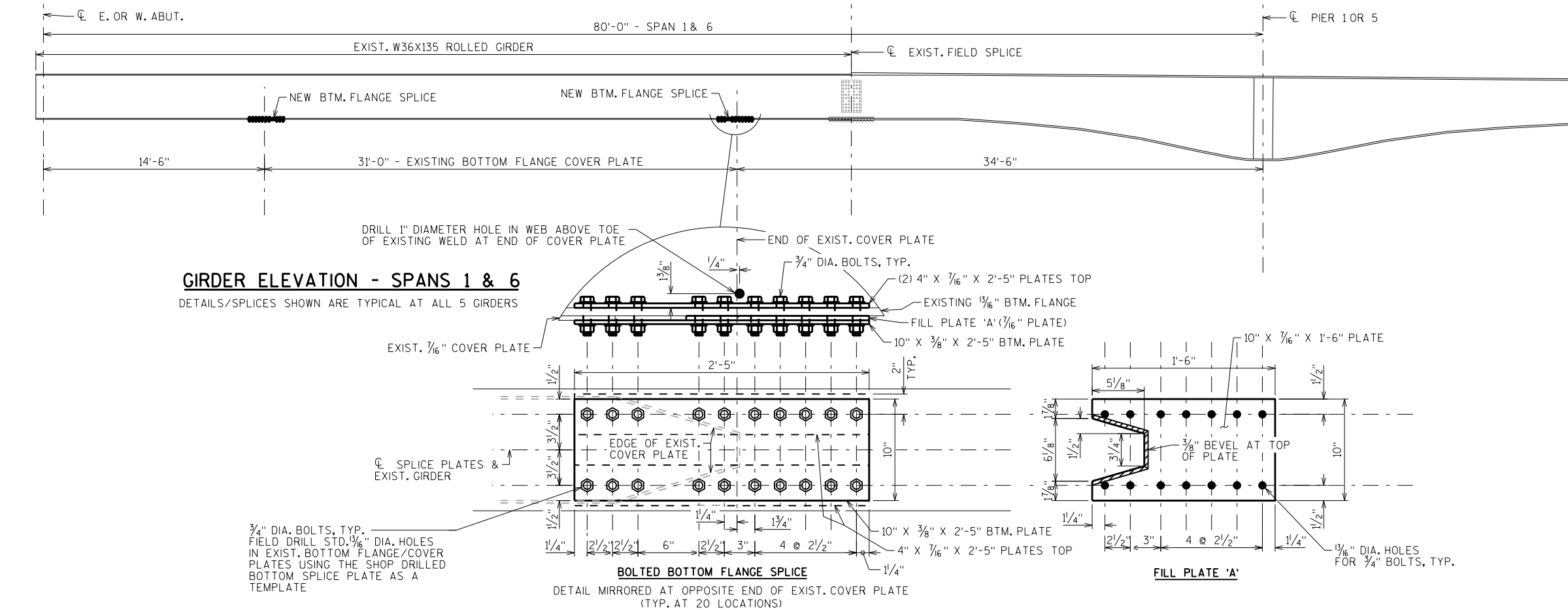
3/4" DIA. BOLTS, TYP.
FIELD DRILL STD. 1/8" DIA. HOLES IN EXIST. BOTTOM FLANGE/COVER PLATES USING THE SHOP DRILLED BOTTOM SPLICE PLATE AS A TEMPLATE

BOLTED BOTTOM FLANGE SPLICE

DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

FILL PLATE 'A'

1/8" DIA. HOLES FOR 3/4" BOLTS, TYP.



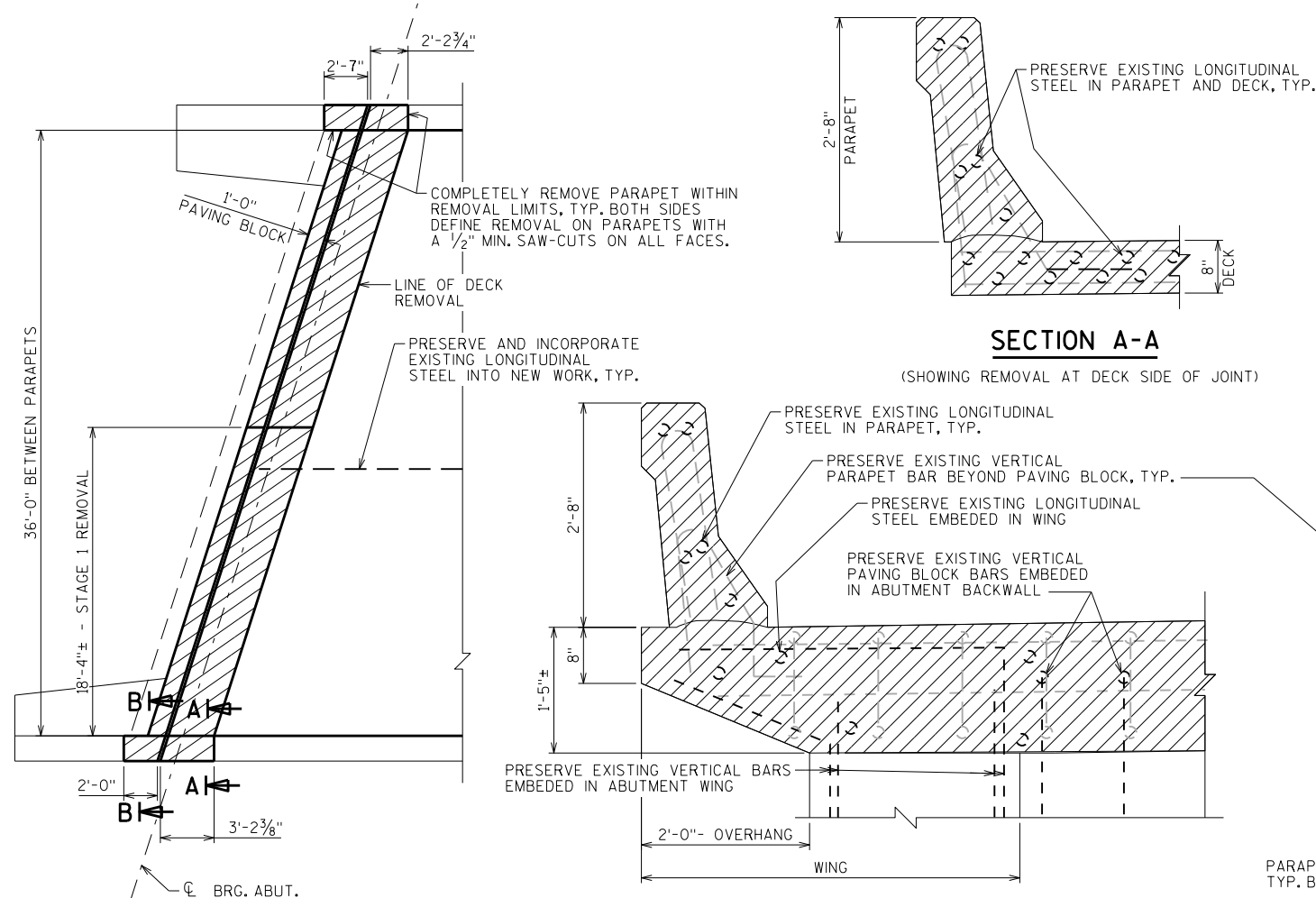
GIRDER ELEVATION - SPANS 3 & 4

DETAILS/SPLICES SHOWN ARE TYPICAL AT ALL 5 GIRDERS

BOLTED BOTTOM FLANGE SPLICE

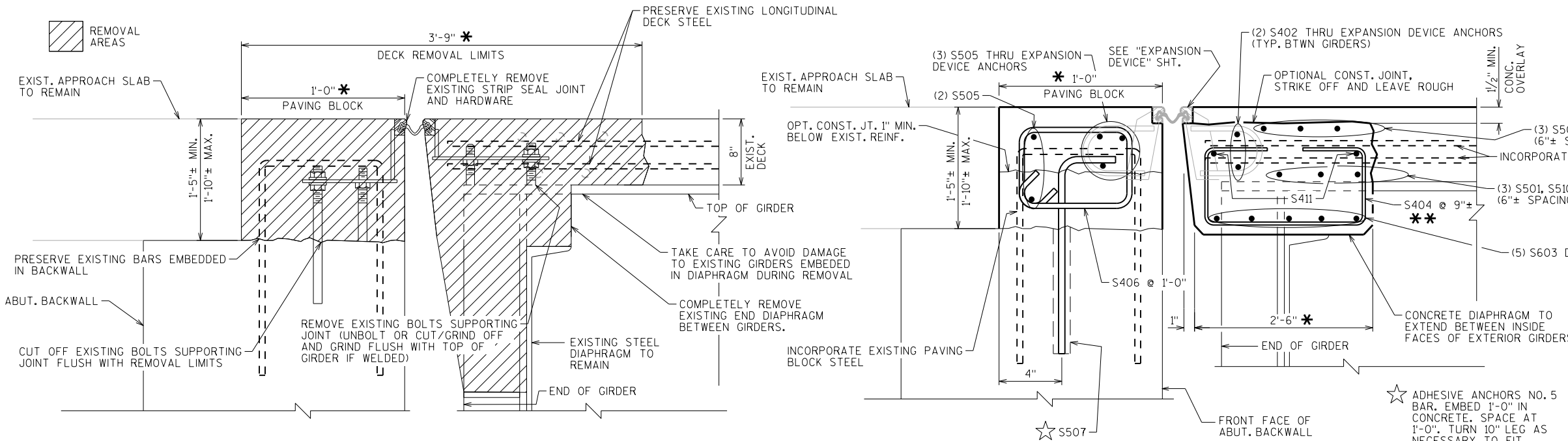
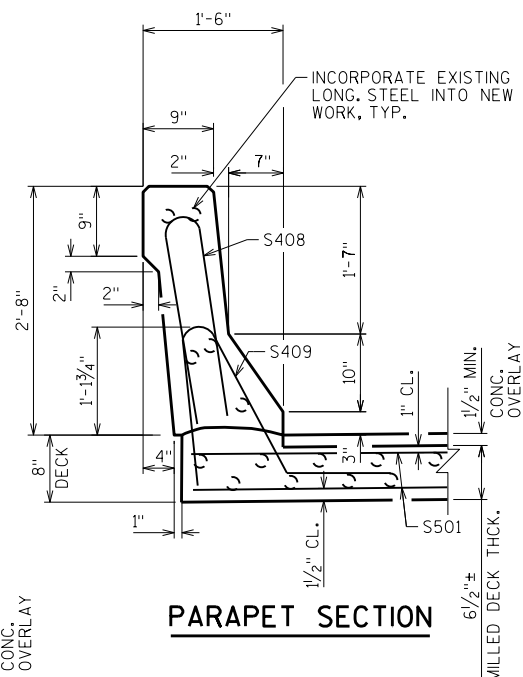
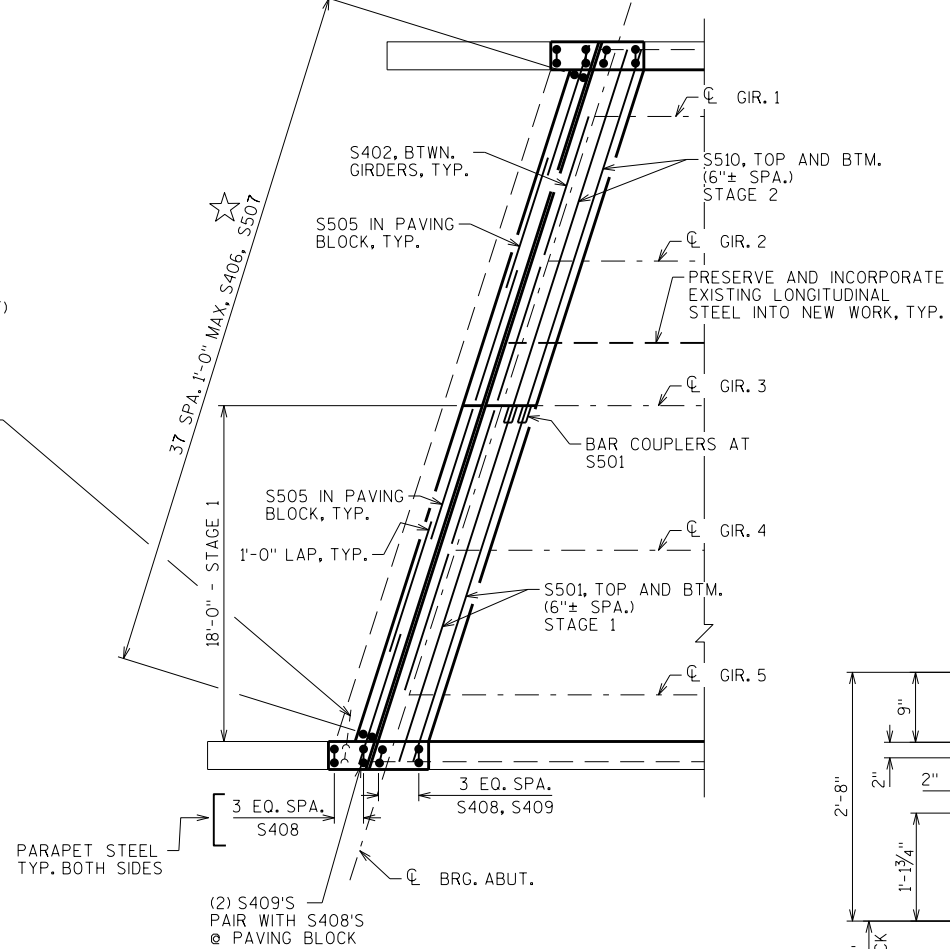
DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-34			
		DRAWN BY	WWR PLANS CK'D. CAD
BOTTOM FLANGE SPLICES		SHEET 3	



REMOVAL PLAN

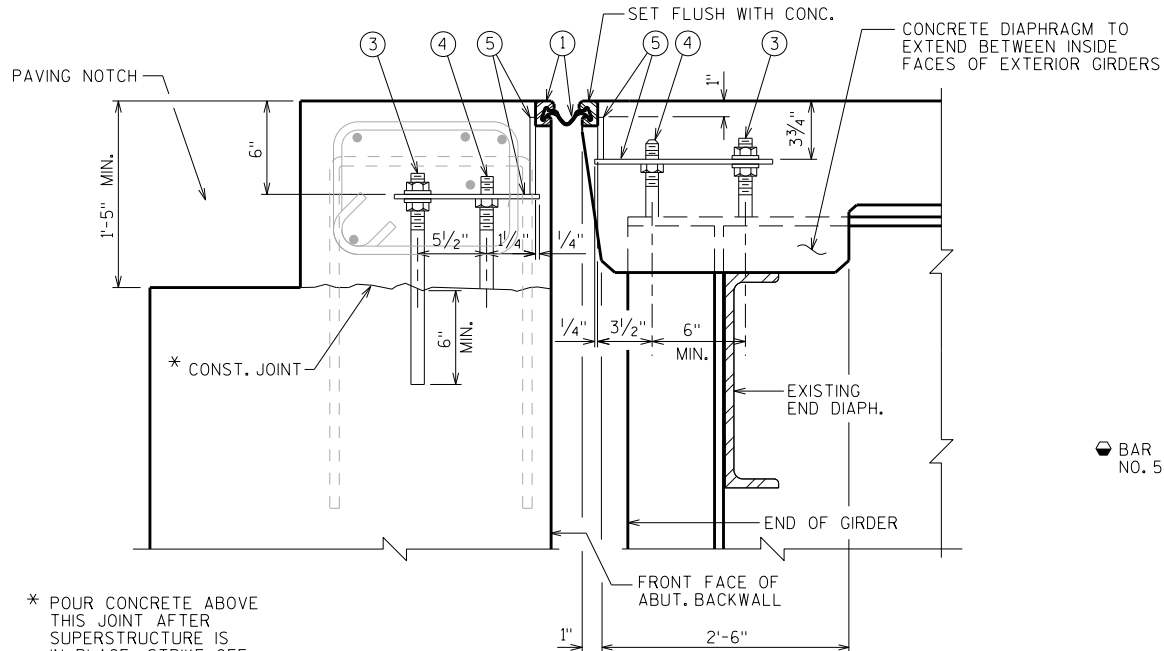
(W. ABUT SHOWN, E. ABUT SIMILAR)



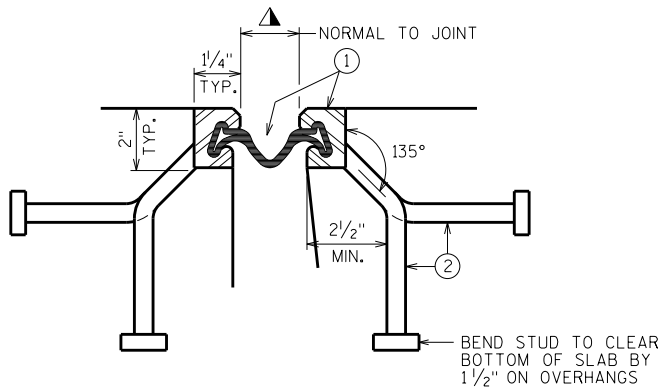
* DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNIT.

** BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.

NO. DATE REVISION BY			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-34			
DRAWN BY WWR		PLANS CK'D. CAD	
JOINT REPAIR DETAILS		SHEET 4	

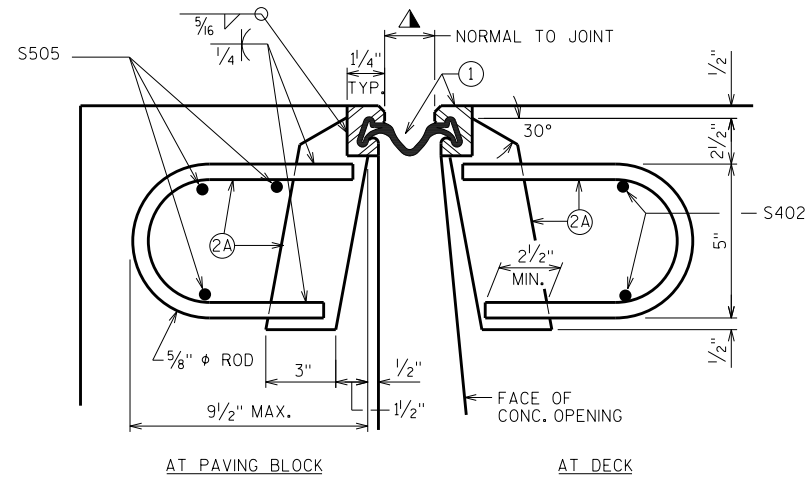


SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

BILL OF BARS

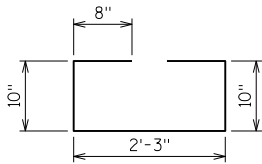
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	6	6	19'-10"			DECK TRANS. @ JOINT REPAIR-STAGE 1
S402	X	8	8	7'-0"			DECK TRANS. THRU EXP. DEVICE ANCHORS
S603	X	20	20	7'-0"			ABUT. DIAPH. BTM.
S404	X	40	40	4'-11"	X		ABUT. DIAPH.-VERT. OPEN STIRRUPS
S505	X	30	30	7'-4"			ABUT. PAVING BLOCK
S406	X	38	38	4'-0"	X		ABUT. PAVING BLOCK STIRRUPS
S507	X	38	38	2'-11"	X		ABUT. PAVING BLOCK MASONRY ANCHOR
S408	X	16	16	4'-10"	X		PARAPET VERT.
S409	X	12	12	4'-4"	X		DECK TO PARAPET VERT. DOWEL
S510	X	6	6	19'-10"			DECK TRANS. @ JOINT REPAIR-STAGE 2
S411	X	8	8	7'-0"			ABUT. DIAPH. TOP

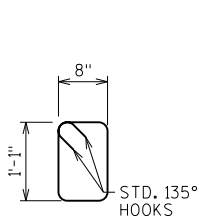
BAR COUPLERS
NO. 5 BARS REQ'D

BAR COUPLERS USED. BAR LENGTH COMPUTED TO CL OF LONGIT. JOINT & SHALL BE MODIFIED IF REQ'D. TO THE BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

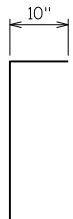
"ADHESIVE ANCHORS NO. 5 BAR". EMBED 1'-0" IN CONCRETE.



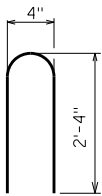
S404



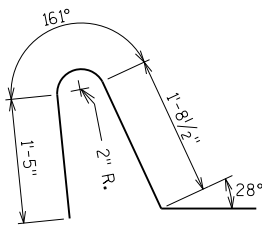
S406



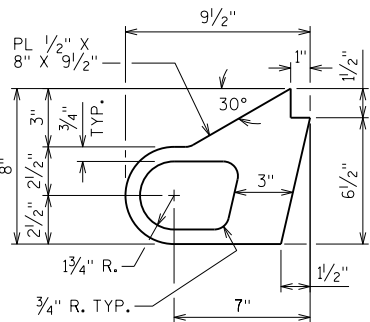
S507



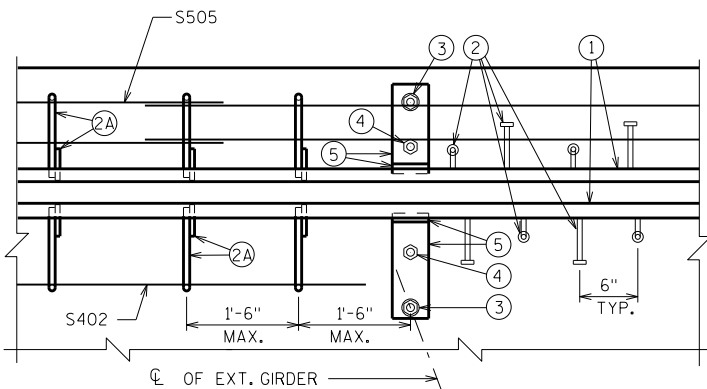
S408



S409



ALTERNATE STRIP SEAL ANCHOR



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

LEGEND

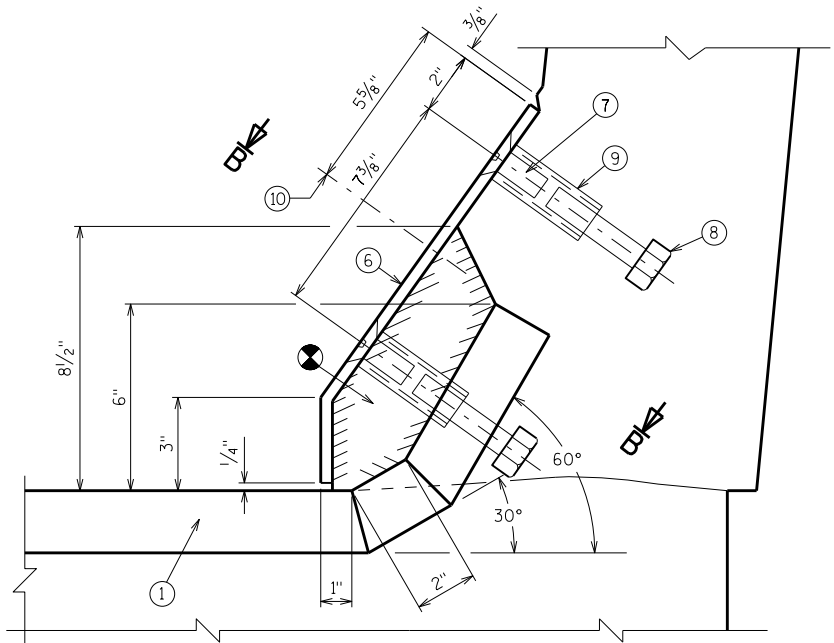
- NEOPRENE STRIP SEAL (4- INCH) AND STEEL EXTRUSIONS.
- STUDS 5/8" ϕ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- 1/2" THICK ANCHOR PLATE WITH 5/8" ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- 3/4" ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 3/4" ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
- GALVANIZED PLATE 3/8" X 1'-2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- 3/4" ϕ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- 3/4" ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- 3/4" ϕ X 2 1/4" GALVANIZED THREADED COUPLING.
- 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

TEMPERATURE TABLE

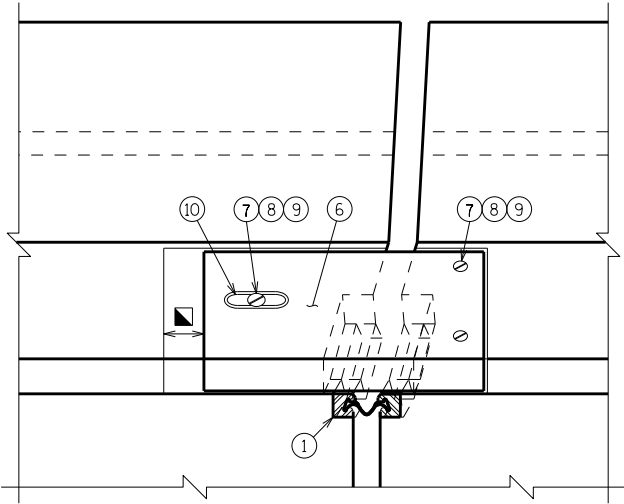
SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1"
75°	1 1/4"
65°	1 1/2"
55°	1 3/4"
45°	2"
35°	2 1/4"
25°	2 1/2"
15°	2 3/4"
5°	3"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

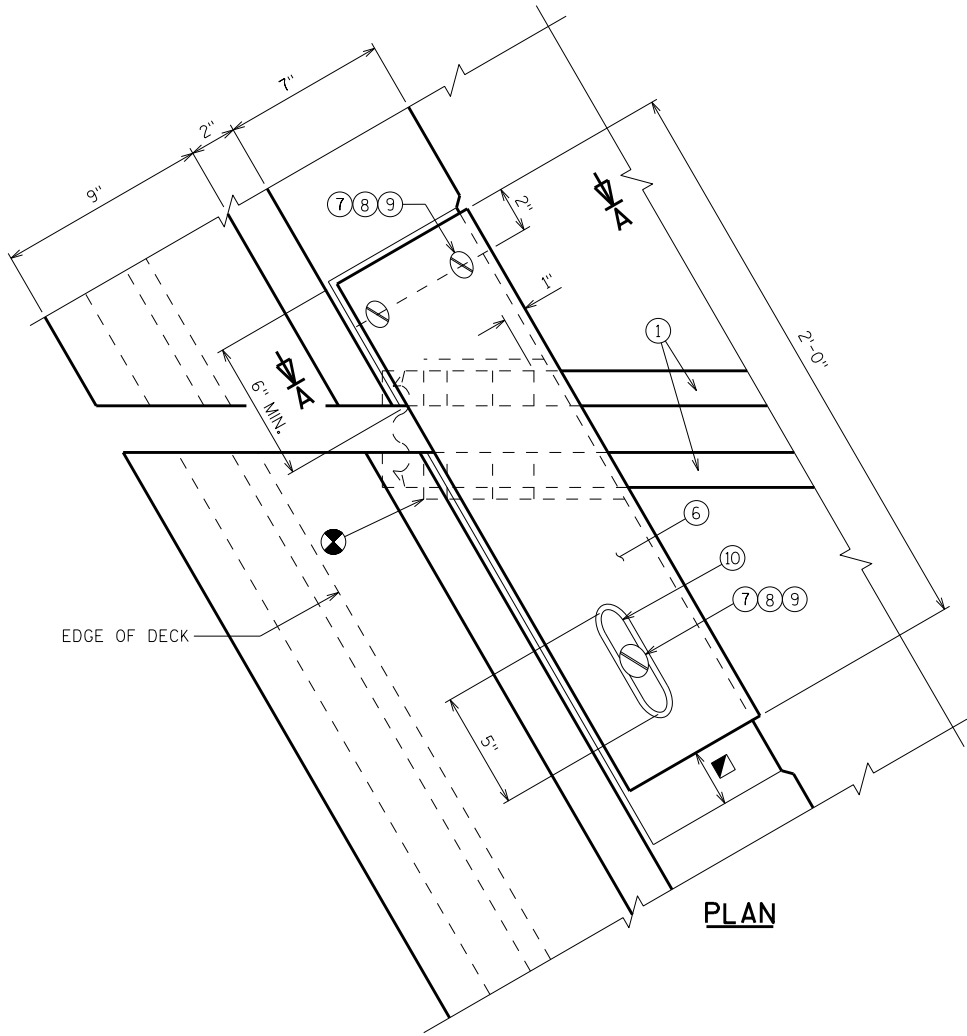
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION STRUCTURE B-32-34			
DRAWN BY		WWR	PLANS CKD. CAD
EXPANSION DEVICE		SHEET 5	



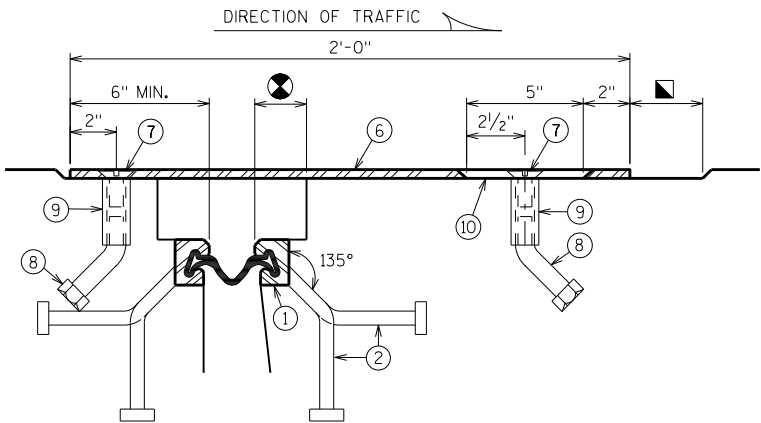
SECTION A-A



VIEW OF PARAPET PLATE
FROM ROADWAY



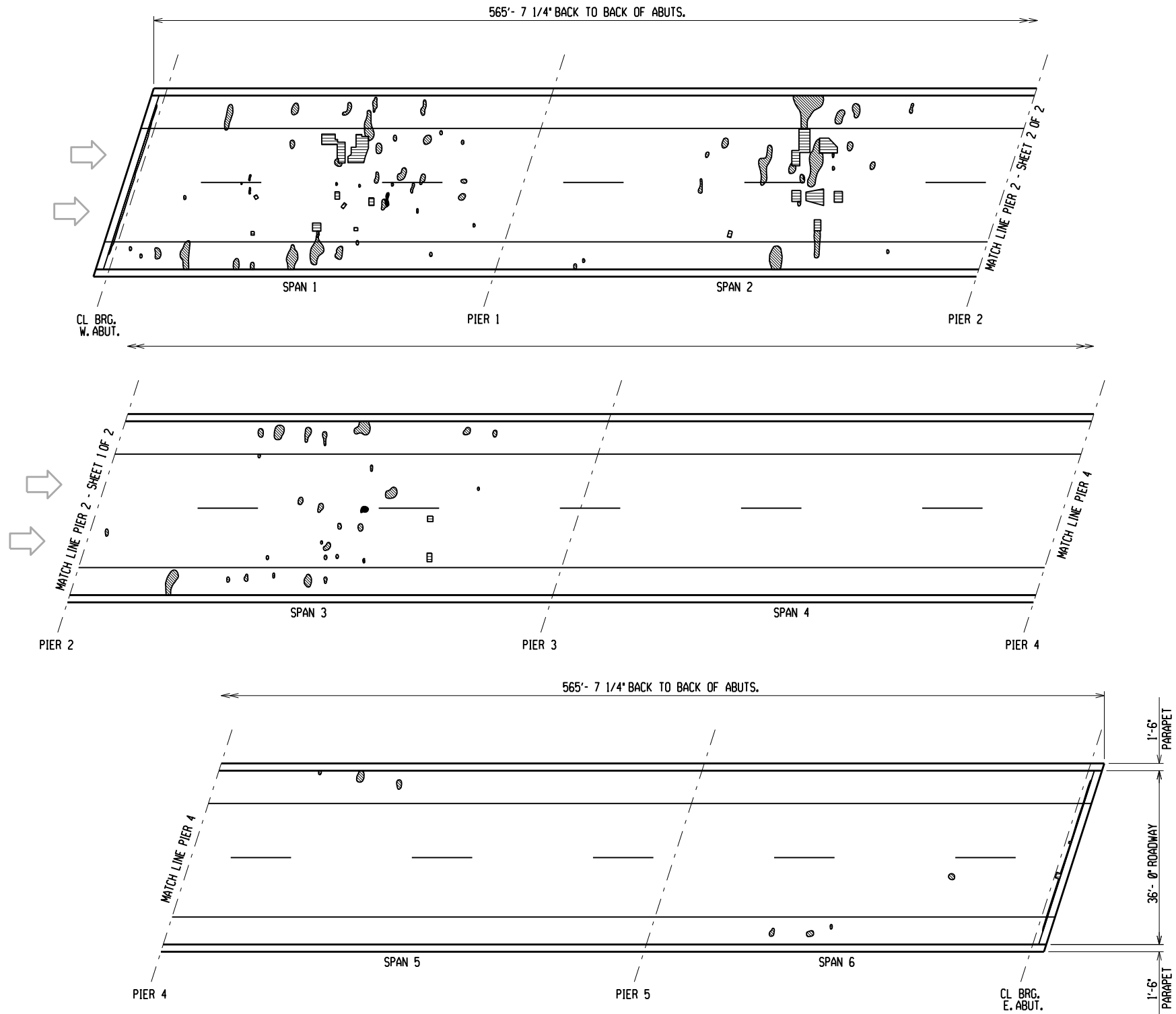
PLAN



SECTION B-B

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

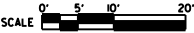
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-34			
DRAWN BY WWR		PLANS CK'D. CAD	
COVER PLATE DETAILS		SHEET 6	



PLAN

INFRARED THERMOGRAPHIC SURVEY RESULTS

FIELD OBSERVATIONS SUMMARY		STRUCTURE NO. B-32-34		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	ft ²	20311		DELAMINATION	
SHADE/DEBRIS	ft ²	0		SPALL	
DELAMINATION	ft ²	240	1.2	DEBOND	
SPALL	ft ²	5	<0.1	ASPHALT PATCH	
DEBOND	ft ²	N/A	N/A	PCC PATCH	
ASPHALT PATCH	ft ²	0		SHADE/DEBRIS	
PCC PATCH	ft ²	91	0.4		

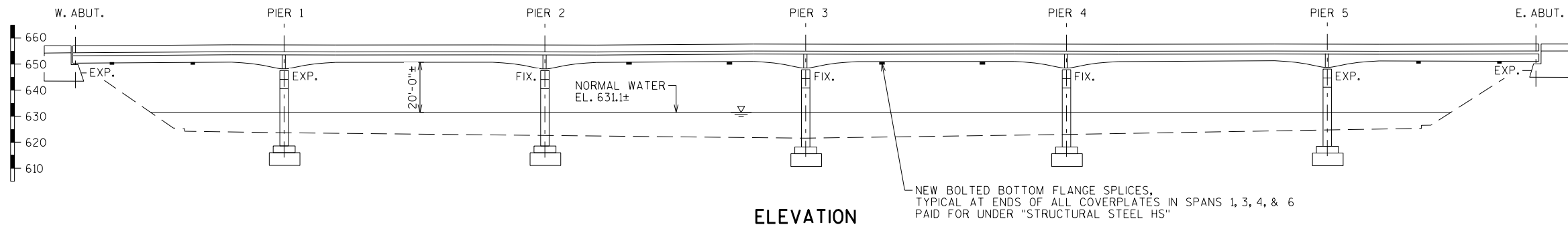
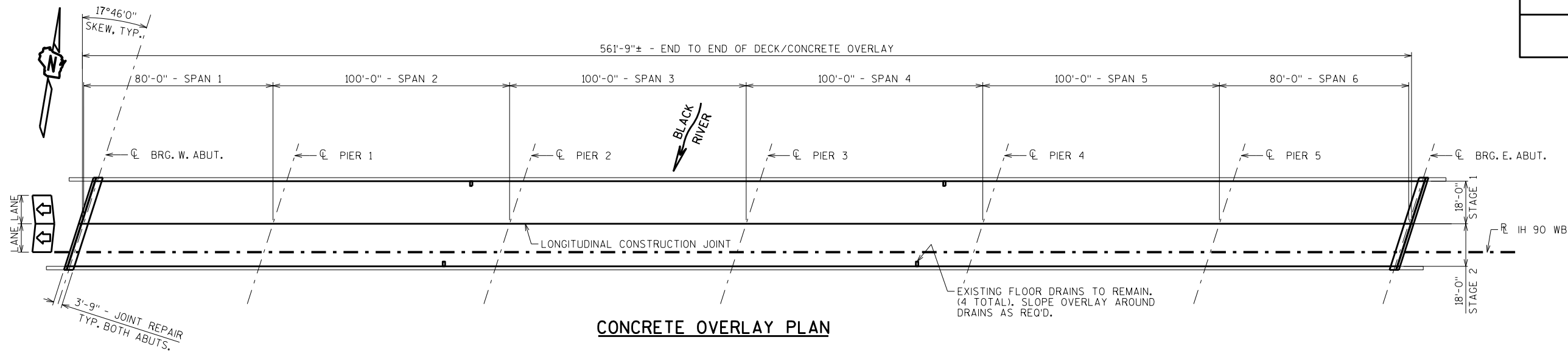


SURFACE TYPE: CONCRETE - NO OVERLAY
INFRARED INSPECTION DATE: 6/27/22 BY AECOM

NOTES

DECK SURVEY IS SHOWN FOR INFORMATION PURPOSES ONLY AND MAY NOT BE ALL INCLUSIVE. ADDITIONAL PATCHING/PREPARATION MAY BE REQUIRED AND SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-34			
DRAWN BY		WWR	PLANS CK'D. CAD
DECK CONDITION SURVEY		SHEET 7	



DESIGN DATA

LIVE LOAD:
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 170 (KIPS)

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE & OVERLAY — $f'_c = 4,000$ P.S.I.
ALL OTHER — $f'_c = 3,500$ P.S.I.

BAR STEEL REINFORCEMENT:
GRADE 60 — $f_y = 60,000$ P.S.I.

STRUCTURAL CARBON STEEL:
ASTM A709, GRADE 36 — $F_y = 36,000$ P.S.I.

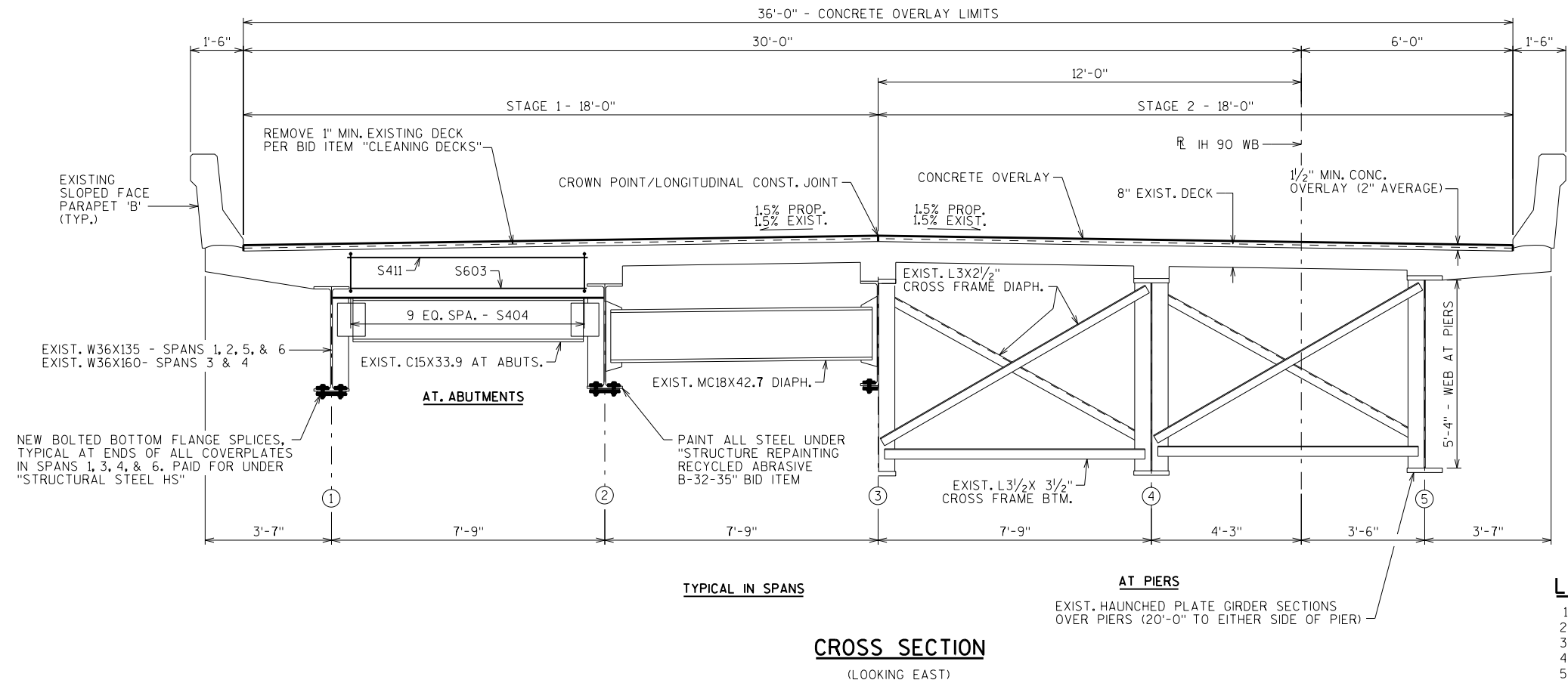
HIGH STRENGTH STRUCTURAL STEEL:
ASTM A709, GRADE 50 — $F_y = 50,000$ P.S.I.

TRAFFIC VOLUME

FEATURE ON
ADT = 27,700 (2017)
R.D.S. = 70 M.P.H.

STRUCTURE DESIGN CONTACTS:

CHRISTOPHER DOLL (608) 266-3229
KYLE BUSCH (608) 267-0465



LIST OF DRAWINGS

1. GENERAL PLAN - CONC. OVERLAY
2. NOTES & QUANTITIES
3. BOTTOM FLANGE SPLICES
4. JOINT REPAIR DETAILS
5. EXPANSION DEVICE
6. COVER PLATE DETAILS
7. DECK CONDITION SURVEY

NO.	DATE	REVISION	BY
			
ACCEPTED  7/24/23 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-32-35			
IH-90 WB OVER BLACK RIVER			
COUNTY	LACROSSE	TOWN	CAMPBELL
DESIGN SPEC. N/A - REHABILITATION			
DESIGNED BY	CAD	DESIGNED CK'D.	ARC
DRAWN BY	WWR	PLANS CK'D.	CAD
GENERAL PLAN - CONC. OVERLAY			SHEET 1 OF 7

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
502.3101	EXPANSION DEVICE	LF	—	38	38	76
502.3200	PROTECTIVE SURFACE TREATMENT	SY	2266	—	—	2266
502.3210	PIGMENTED SURFACE SEALER	SY	10	—	—	10
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	—	38	38	76
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	—	1200	1200	2400
505.0905	BAR COUPLERS NO. 5	EACH	—	6	6	12
506.0605	STRUCTURAL STEEL HS	LB	6893	—	—	6893
509.0301	PREPARATION DECKS TYPE 1	SY	16	—	—	16
509.0302	PREPARATION DECKS TYPE 2	SY	7	—	—	7
509.0500	CLEANING DECKS	SY	2226	—	—	2226
509.1000	JOINT REPAIR	SY	—	17	17	34
509.1500	CONCRETE SURFACE REPAIR	SF	350	5	5	360
509.2000	FULL-DEPTH DECK REPAIR	SY	1	—	—	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	140	—	—	140
517.1801.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-35	EACH	1	—	—	1
517.4501.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-35	EACH	1	—	—	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1	—	—	1

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF OVERLAY AND TO THE TOPS AND BACK VERTICAL FACE OF PAVING BLOCKS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND TOP OF NEW PARAPET SECTIONS IN THE JOINT REPAIR AREAS.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS". SEE "MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS" DETAIL BELOW FOR INCREASED MILLING REQUIRED IN END SPANS.

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF ½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

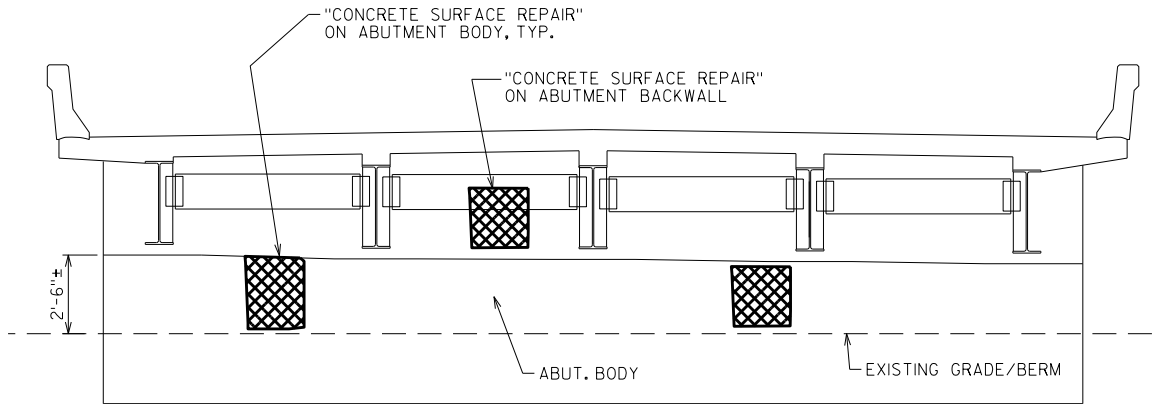
PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION, FULL-DEPTH DECK REPAIRS, AND JOINT REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE LIGHT GRAY, (AMS STANDARD COLOR NO. 26293) OR SIMILAR COLOR APPROVED BY THE ENGINEER.

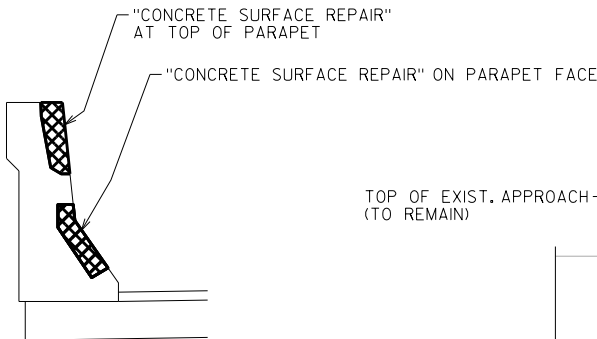
SEE ROADWAY PLANS FOR INTERSTATE TRAFFIC CONTROL REQUIREMENTS.

UNDER "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-35" ITEM, CLEAN AND PAINT ALL STRUCTURAL METAL SURFACES, INCLUDING ALL BEARINGS AT ABUTMENTS AND PIERS.

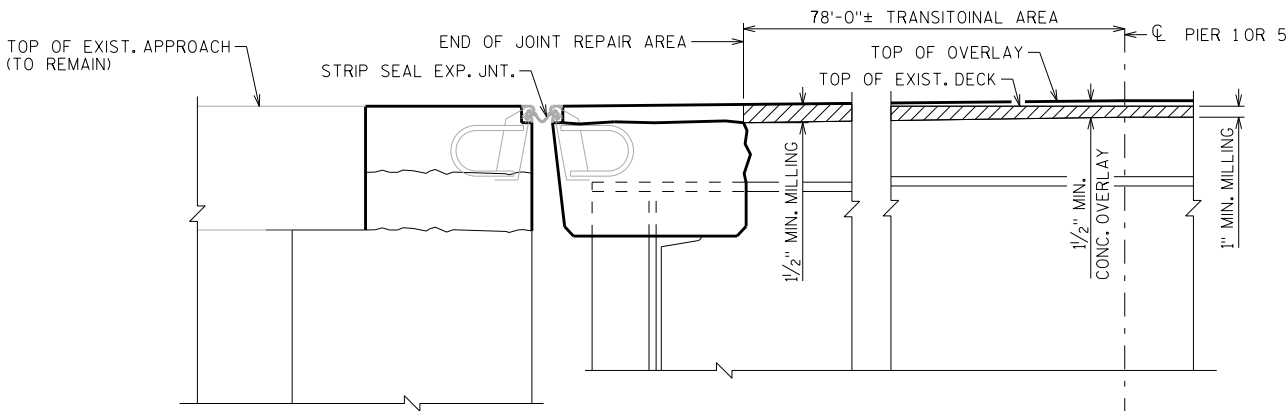
EXISTING BAR STEEL REINFORCEMENT IN DECK IS EPOXY COATED. WHERE DECK STEEL IS EXPOSED IN DECK PREPARATION AREAS, DAMAGED/DE-BONDED EPOXY COATING SHALL BE REPAIRED/RE-COATED IN ACCORDANCE WITH SECTION 509.3.1 OF THE STANDARD SPECIFICATIONS. PREPARE/CLEAN STEEL AS REQUIRED TO APPLY NEW COATING.



ABUTMENT SURFACE REPAIRS



PARAPET SURFACE REPAIRS



MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS

SURFACE REPAIR NOTES

SURFACE REPAIR DETAILS DEPICT THE GENERAL TYPES AND LOCATIONS OF REPAIRS, AND MAY NOT BE ALL INCLUSIVE. QUANTITIES SHOWN ARE APPROXIMATE. ADDITIONAL REPAIRS MAY BE REQUIRED DURING CONSTRUCTION AND SHOULD BE PERFORMED AS DIRECTED BY THE FIELD ENGINEER.

ALL SURFACE REPAIR AREAS SHALL BE DEFINED BY ½" MIN. SAWCUT.

CONTRACTOR SHALL EMPLOY METHODS TO PREVENT REMOVED CONCRETE MATERIAL FROM ENTERING THE WATERWAY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-35			
		DRAWN BY WWR	PLANS CK'D. CAD
NOTES & QUANTITIES		SHEET 2	

NOTES

INSTALLATION OF SPLICE PLATES SHALL OCCUR DURING THE STAGE IN WHICH NO TRAFFIC EXISTS DIRECTLY ABOVE THE GIRDERS BEING MODIFIED/SPLICED.

PLATES & 3/4" DIA. BOLTS SHALL BE INCLUDED IN BID ITEM "STRUCTURAL STEEL HS", LB.

PROVIDE STD. SIZE 1/8" DIA. HOLES IN PLATES FOR 3/4" DIA. BOLTS.

NEW STEEL PLATES SHALL RECEIVE A SHOP BLAST CLEANING CONFORMING TO SSPC-SP 10 AND BE PAINTED WITH ONE COAT OF ZINC-RICH PRIMER IN CONFORMANCE WITH SECTION 517 OF THE STANDARD SPECIFICATIONS. PRIMER SHALL BE COMPATIBLE WITH THE FIELD APPLIED TOP COATS. CLEAN AND PRIME AFTER SHOP DRILLING HOLES. SHOP PAINTING/PRIMING SHALL BE CONSIDERED INCIDENTAL TO BID-ITEM "STRUCTURAL STEEL HS".

PLATE STEEL SHALL CONFORM TO ASTM A709 GRADE 50.

ALL BOLTS SHALL BE 3/4" DIAMETER A325 HIGH-TENSILE STRENGTH BOLTS.

FIELD CLEANING AND TOP COAT PAINTING TO BE INCLUDED IN BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-35", EACH.

PRIOR TO INSTALLING NEW PLATES, CLEAN AND PRIME AREAS BELOW NEW PLATES AS DIRECTED BY THE ENGINEER, INCLUDED IN "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-35" ITEM.

GIRDER ELEVATION - SPANS 1 & 6

DETAILS/SPLICES SHOWN ARE TYPICAL AT ALL 5 GIRDERS

3/4" DIA. BOLTS, TYP.
FIELD DRILL STD. 1/8" DIA. HOLES IN EXIST. BOTTOM FLANGE/COVER PLATES USING THE SHOP DRILLED BOTTOM SPLICE PLATE AS A TEMPLATE

BOLTED BOTTOM FLANGE SPLICE

DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

FILL PLATE 'A'

DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

GIRDER ELEVATION - SPANS 3 & 4

DETAILS/SPLICES SHOWN ARE TYPICAL AT ALL 5 GIRDERS

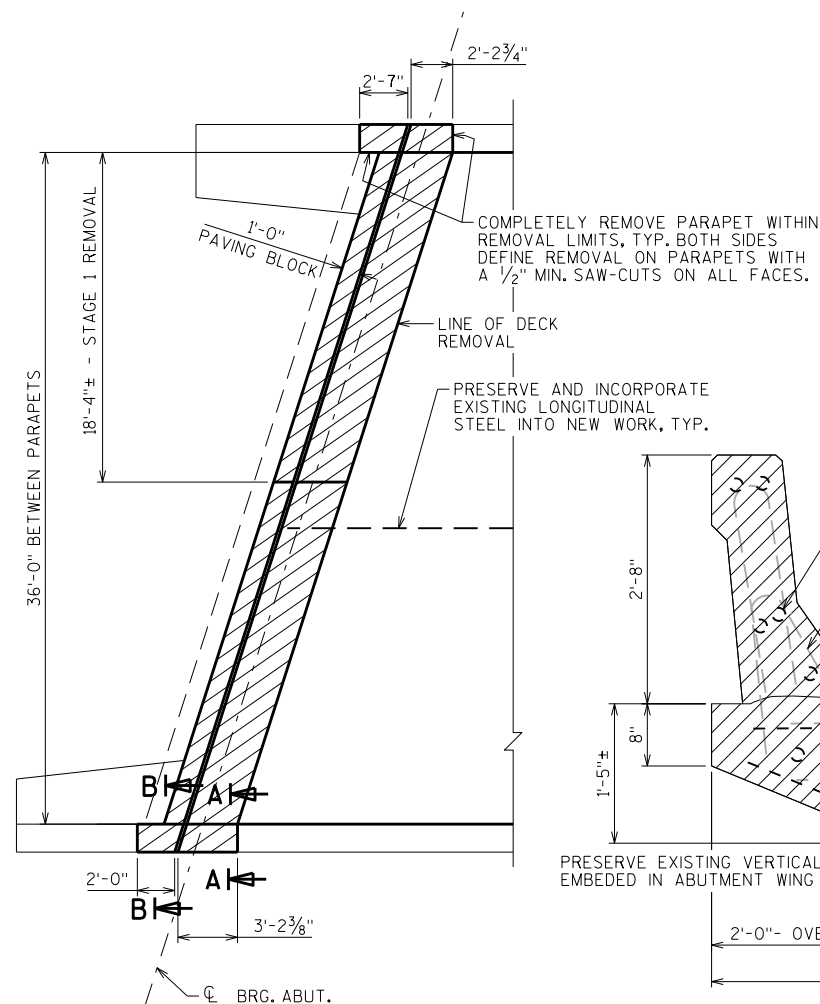
3/4" DIA. BOLTS, TYP.
FIELD DRILL STD. 1/8" DIA. HOLES IN EXIST. BOTTOM FLANGE/COVER PLATES USING THE SHOP DRILLED BOTTOM SPLICE PLATE AS A TEMPLATE

FILL PLATES 'C' & 'D'

BOLTED BOTTOM FLANGE SPLICE

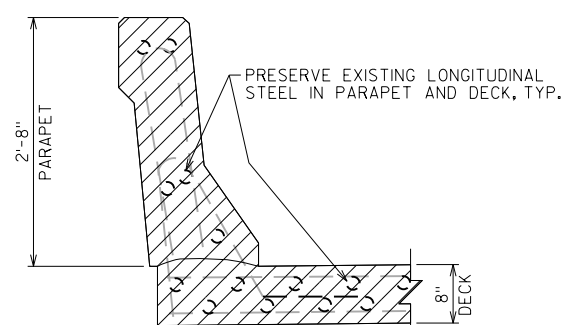
DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-35			
		DRAWN BY	WWR PLANS CK'D. CAD
BOTTOM FLANGE SPLICES		SHEET 3	



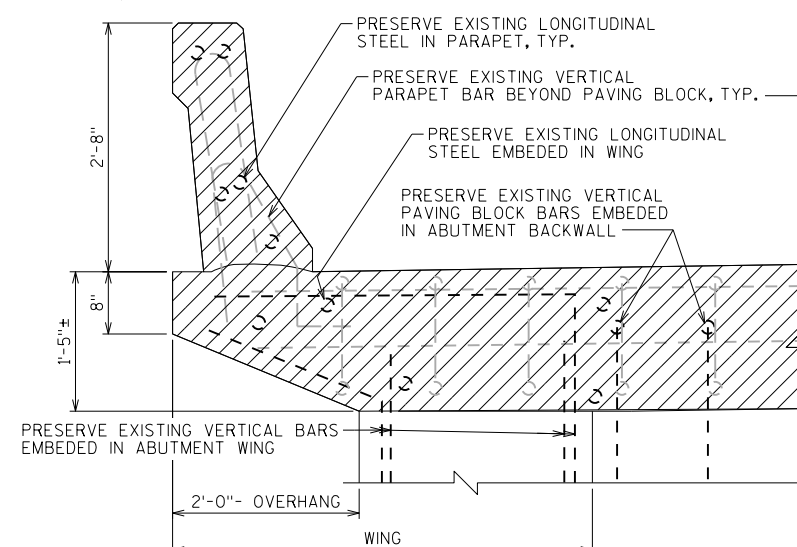
REMOVAL PLAN

(W. ABUT SHOWN, E. ABUT SIMILAR)



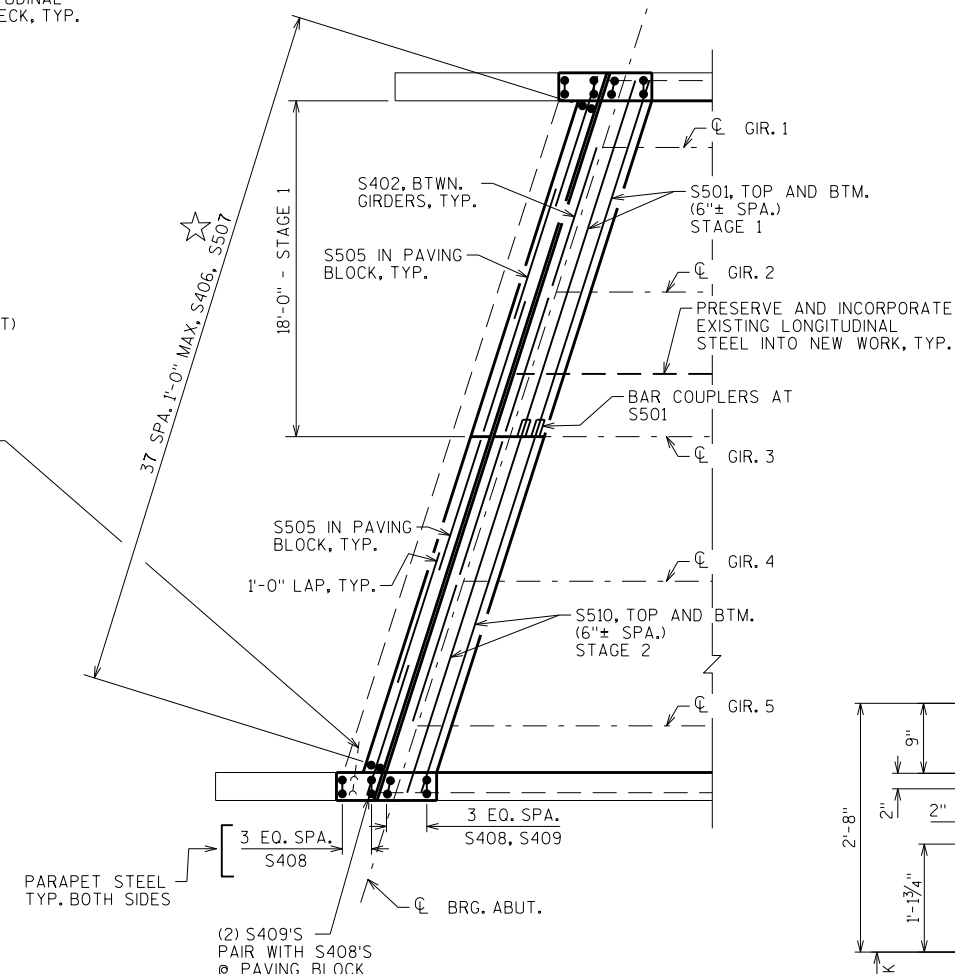
SECTION A-A

(SHOWING REMOVAL AT DECK SIDE OF JOINT)



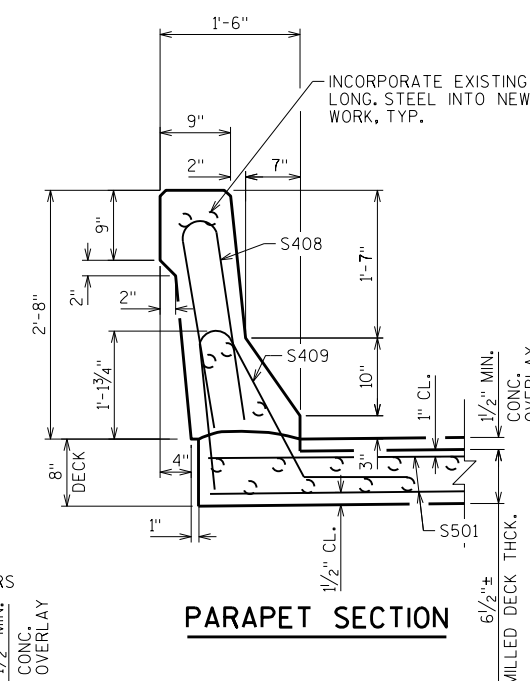
SECTION B-B

(SHOWING REMOVAL AT PAVING BLOCK SIDE OF JOINT.
MATCH OVERHANG CROSS-SECTION WHEN JOINT IS RE-POURED)

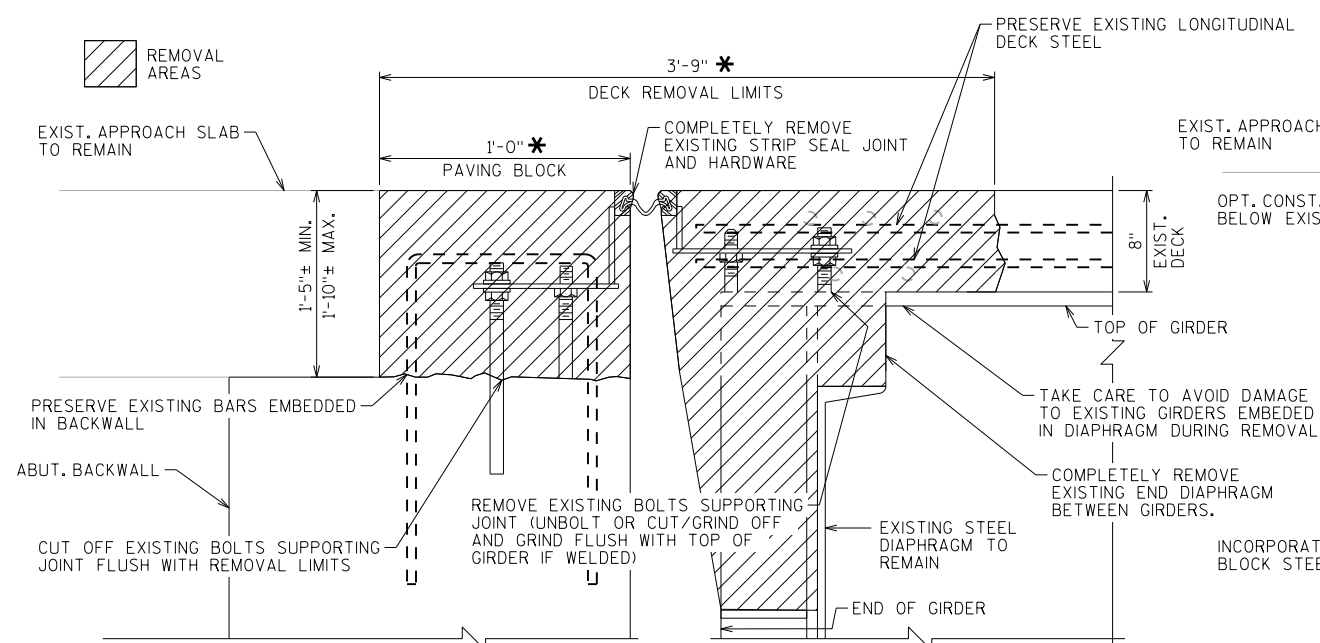


JOINT REPAIR PLAN

(W. ABUT SHOWN, E. ABUT SIMILAR)

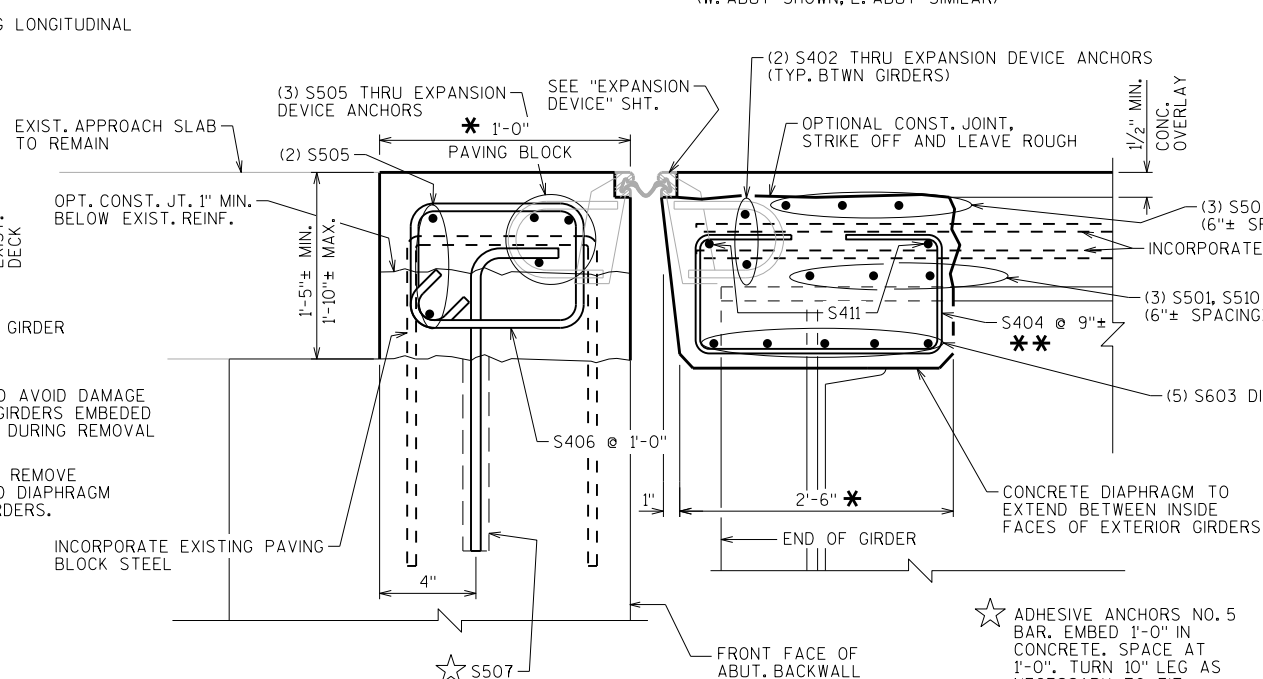


PARAPET SECTION



JOINT REMOVAL SECTION

NORMAL TO $\mathbb{C}$ SUBSTRUCTURE



SECTION THRU JOINT REPAIR AT ABUTMENT

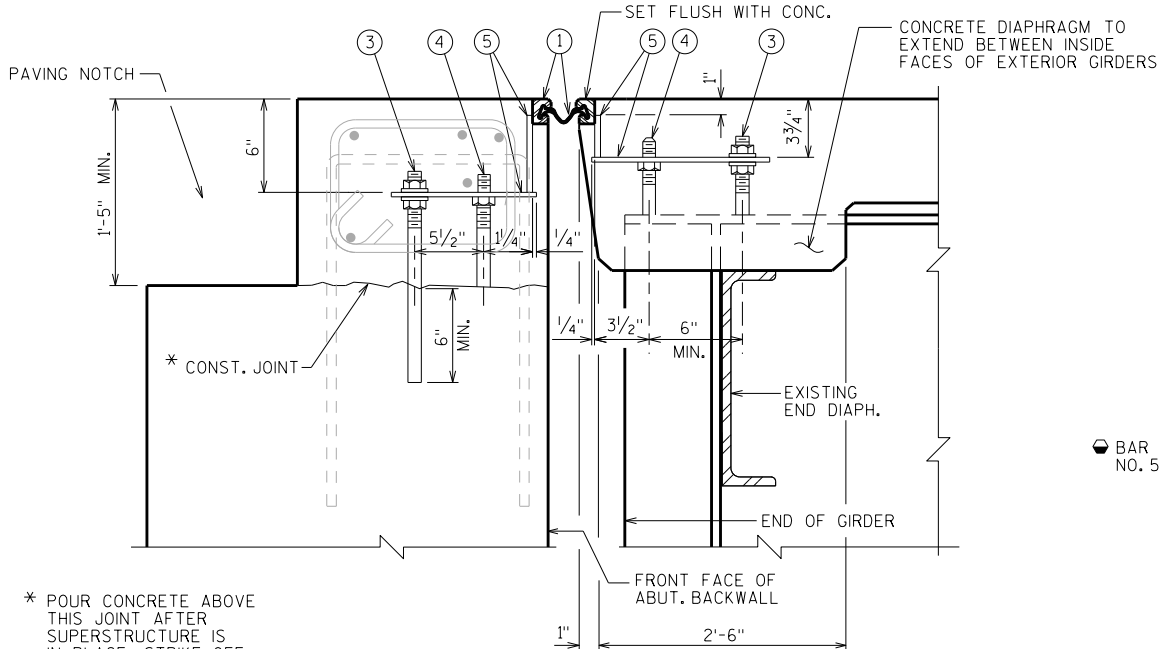
NORMAL TO $\mathbb{C}$ SUBSTRUCTURE

* DIMENSION IS TAKEN NORMAL TO $\mathbb{C}$ SUBSTRUCTURE UNIT.

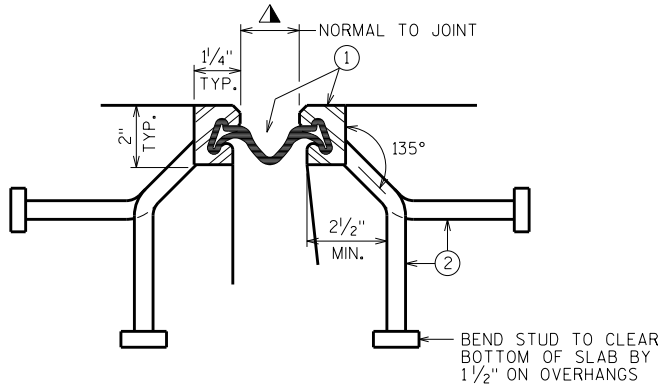
****** BARS PLACED PARALLEL TO GIRDERS. SPACING
 PERPENDICULAR TO ϕ GIRDERS.

☆ ADHESIVE ANCHORS NO. 5
BAR. EMBED 1'-0" IN
CONCRETE. SPACE AT
1'-0". TURN 10" LEG AS
NECESSARY TO FIT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-35			
DRAWN BY		WWR	PLANS CK'D. CAL
JOINT REPAIR DETAILS		SHEET 4	

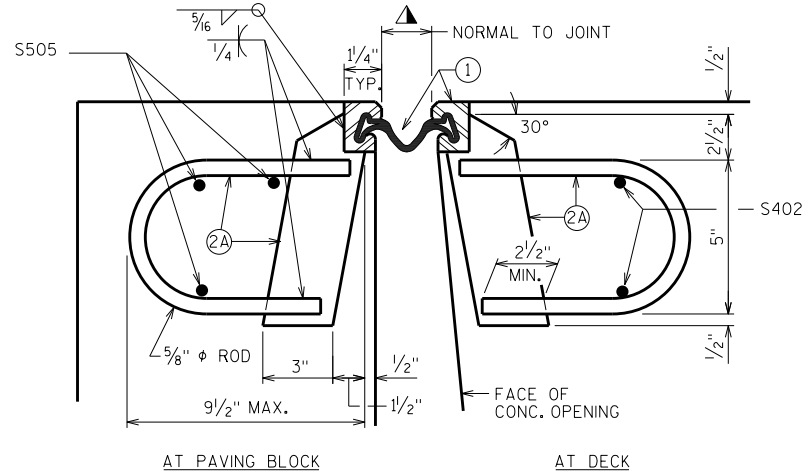


SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

BILL OF BARS

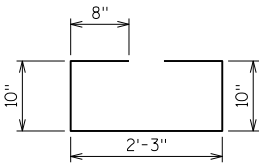
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	6	6	19'-10"			DECK TRANS. @ JOINT REPAIR-STAGE 1
S402	X	8	8	7'-0"			DECK TRANS. THRU EXP. DEVICE ANCHORS
S603	X	20	20	7'-0"			ABUT. DIAPH. BTM.
S404	X	40	40	4'-11"	X		ABUT. DIAPH.-VERT. OPEN STIRRUPS
S505	X	30	30	7'-4"			ABUT. PAVING BLOCK
S406	X	38	38	4'-0"	X		ABUT. PAVING BLOCK STIRRUPS
S507	X	38	38	2'-11"	X		ABUT. PAVING BLOCK MASONRY ANCHOR
S408	X	16	16	4'-10"	X		PARAPET VERT.
S409	X	12	12	4'-4"	X		DECK TO PARAPET VERT. DOWEL
S510	X	6	6	19'-10"			DECK TRANS. @ JOINT REPAIR-STAGE 2
S411	X	8	8	7'-0"			ABUT. DIAPH. TOP

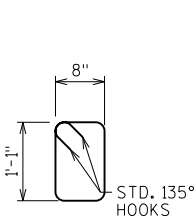
BAR COUPLERS
NO. 5 BARS REQ'D

BAR COUPLERS USED. BAR LENGTH COMPUTED TO CL OF LONGIT. JOINT & SHALL BE MODIFIED IF REQ'D. TO THE BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

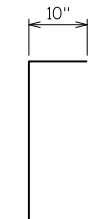
"ADHESIVE ANCHORS NO. 5 BAR". EMBED 1'-0" IN CONCRETE.



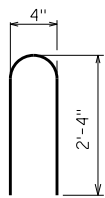
S404



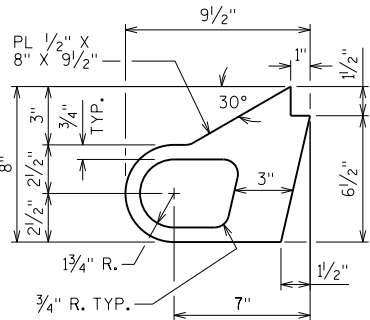
S406



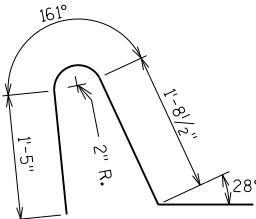
S507



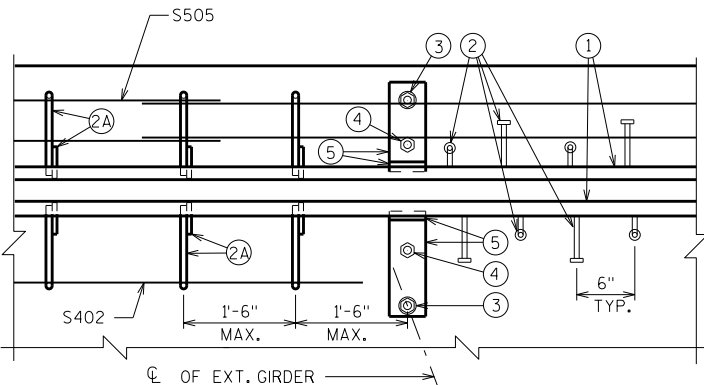
S408



ALTERNATE STRIP SEAL ANCHOR



S409



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

LEGEND

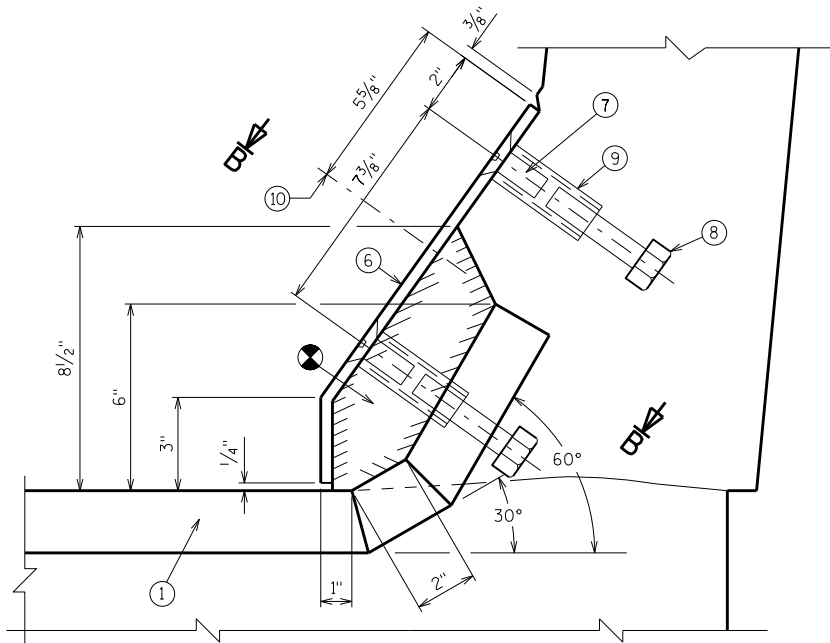
- NEOPRENE STRIP SEAL (4- INCH) AND STEEL EXTRUSIONS.
- STUDS $\frac{5}{8}$ " ϕ X $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- $\frac{1}{2}$ " THICK ANCHOR PLATE WITH $\frac{5}{8}$ " ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- $\frac{3}{4}$ " ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- $\frac{3}{4}$ " ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3" X $\frac{1}{2}$ " BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE $1\frac{1}{2}$ " ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
- GALVANIZED PLATE $\frac{3}{8}$ " X 1'-2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- $\frac{3}{4}$ " ϕ X $\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS $\frac{1}{16}$ " BELOW PLATE SURFACE.
- $\frac{3}{4}$ " ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- $\frac{3}{4}$ " ϕ X $2\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

TEMPERATURE TABLE

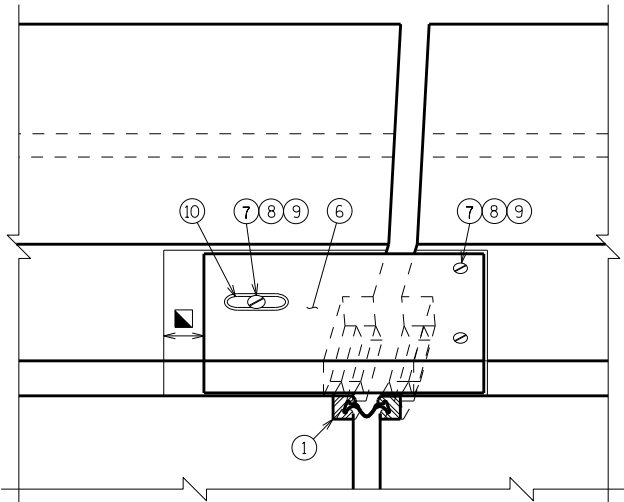
SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1"
75°	$\frac{1}{4}$ "
65°	$\frac{1}{2}$ "
55°	$\frac{3}{4}$ "
45°	2"
35°	$2\frac{1}{4}$ "
25°	$2\frac{1}{2}$ "
15°	$2\frac{3}{4}$ "
5°	3"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

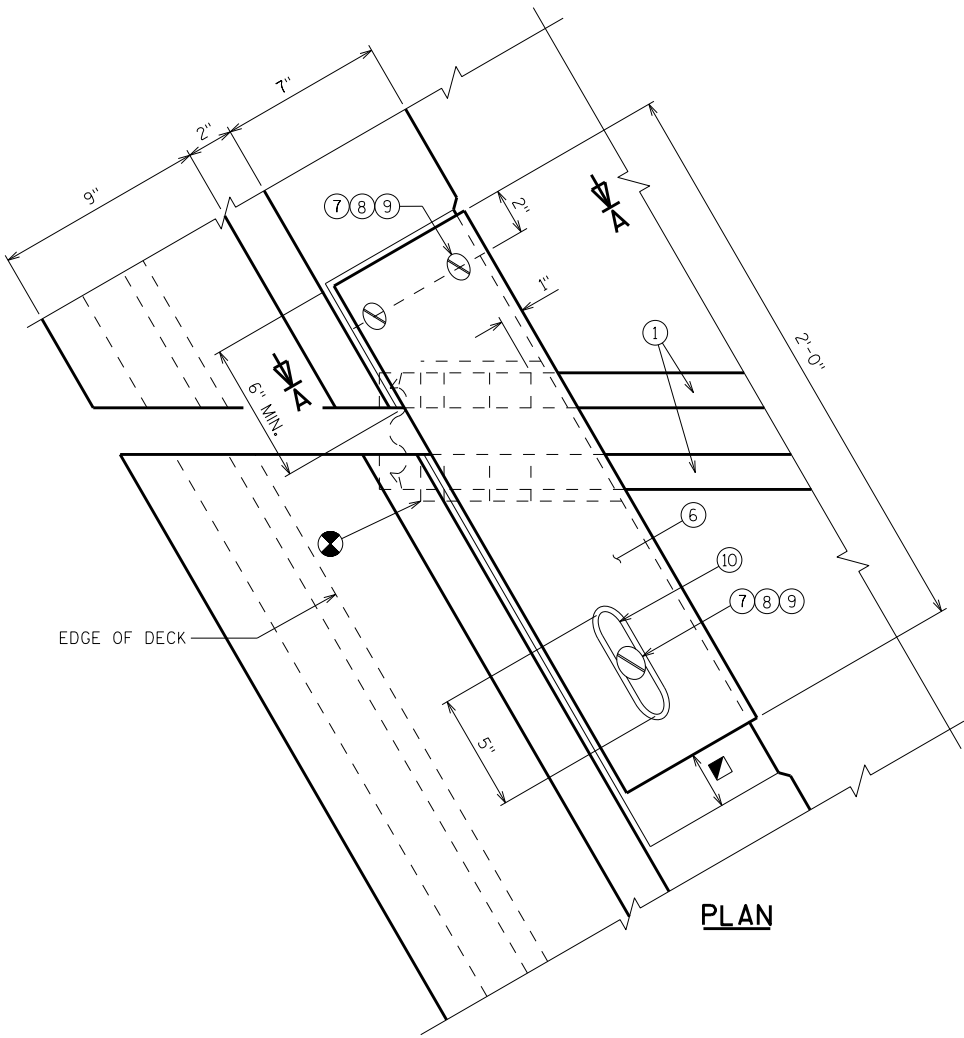
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION STRUCTURE B-32-35			
DRAWN BY		WWR	PLANS CKD. CAD
EXPANSION DEVICE		SHEET 5	



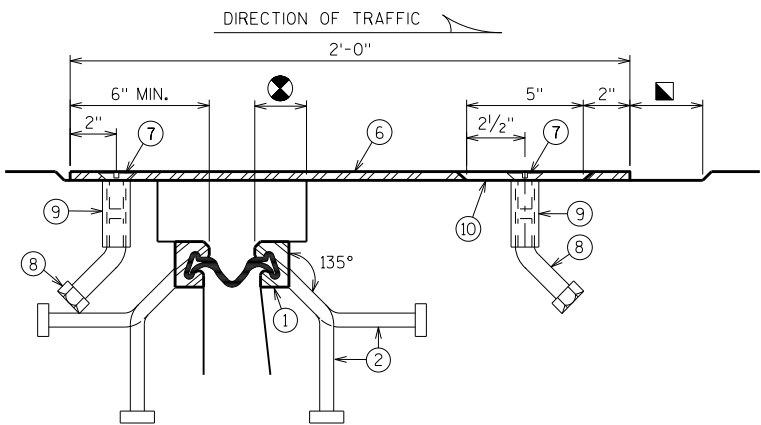
SECTION A-A



VIEW OF PARAPET PLATE
FROM ROADWAY



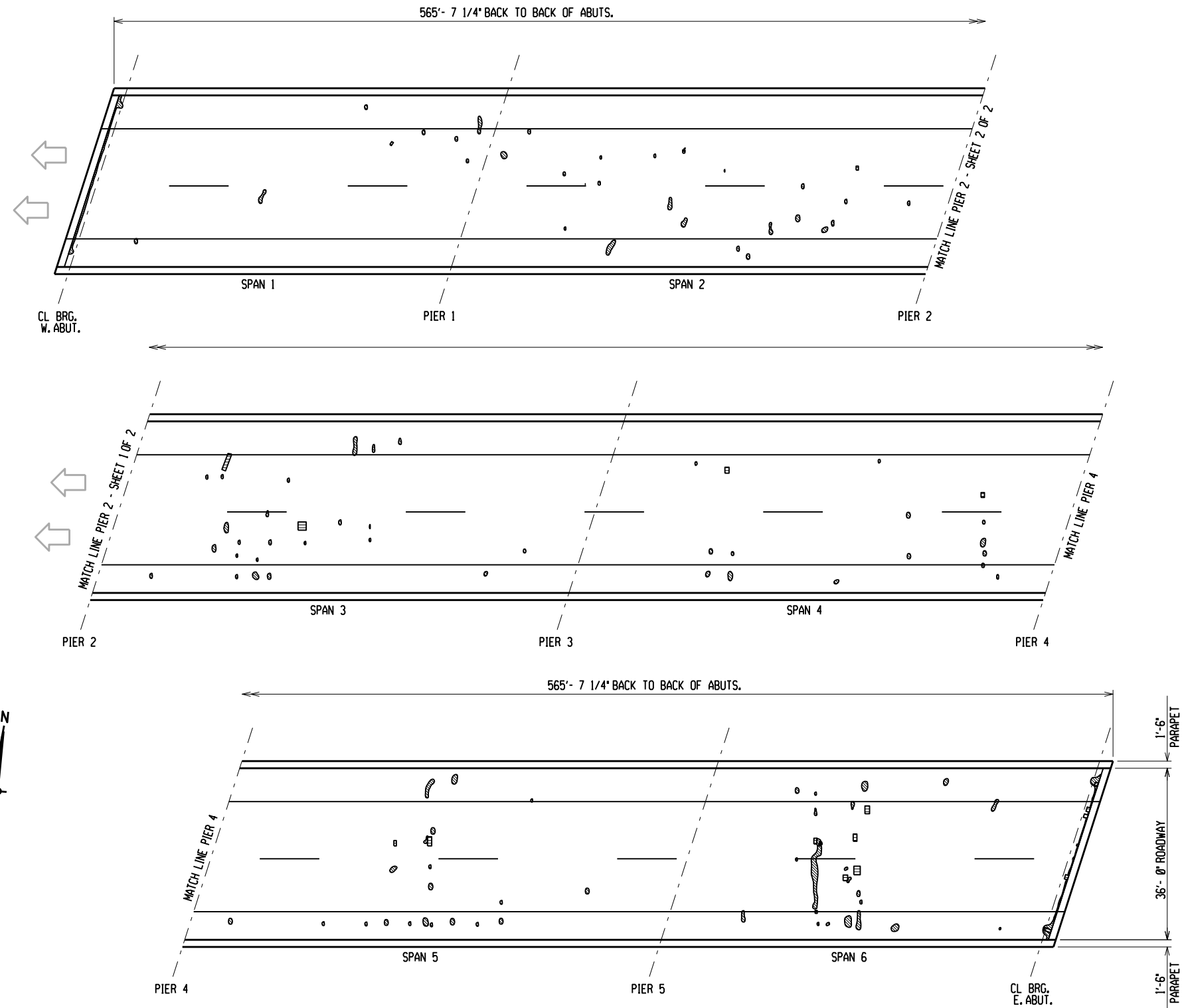
PLAN



SECTION B-B

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-35			
DRAWN BY WWR		PLANS CK'D. CAD	
COVER PLATE DETAILS		SHEET 6	



PLAN

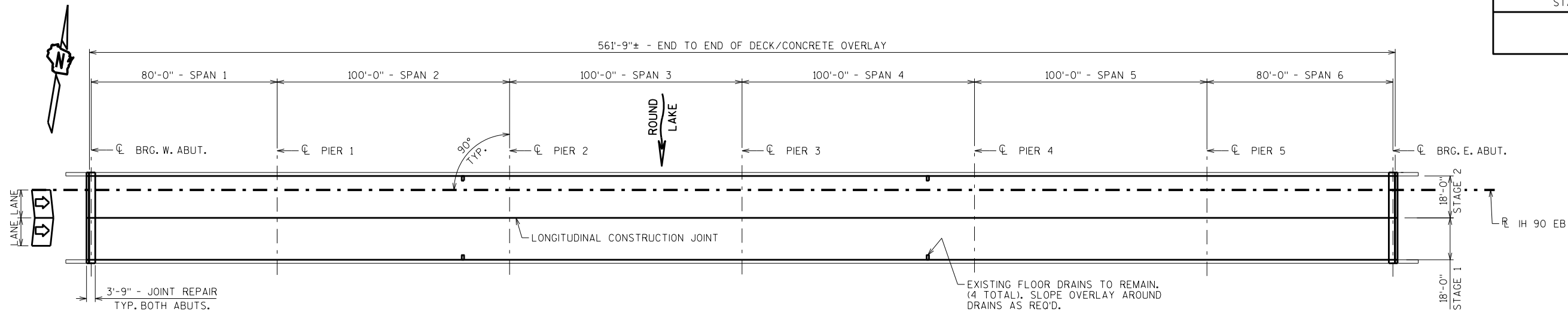
INFRARED THERMOGRAPHIC SURVEY RESULTS

FIELD OBSERVATIONS SUMMARY		STRUCTURE NO. B-32-35		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	f ²	20311		DELAMINATION	
SHADE/DEBRIS	f ²	0		SPALL	
DELAMINATION	f ²	120	0.6	DEBOND	
SPALL	f ²	2	<0.1	ASPHALT PATCH	
DEBOND	f ²	N/A	N/A	PCC PATCH	
ASPHALT PATCH	f ²	0	0	SHADE/DEBRIS	
PCC PATCH	f ²	22	0.1		

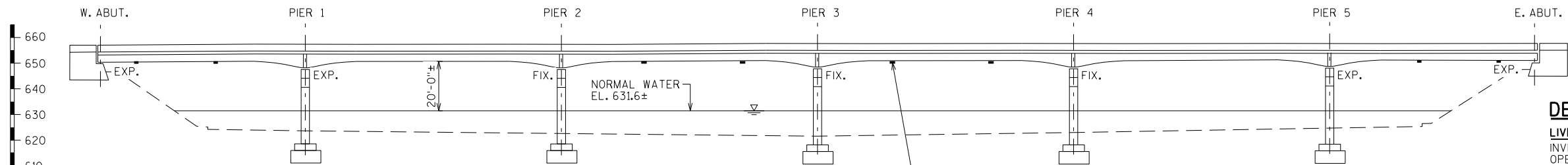
SURFACE TYPE: CONCRETE - NO OVERLAY
INFRARED INSPECTION DATE: 6/27/22 BY AECOM

NOTES
DECK SURVEY IS SHOWN FOR INFORMATION PURPOSES ONLY AND MAY NOT BE ALL INCLUSIVE. ADDITIONAL PATCHING/PREPARATION MAY BE REQUIRED AND SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.

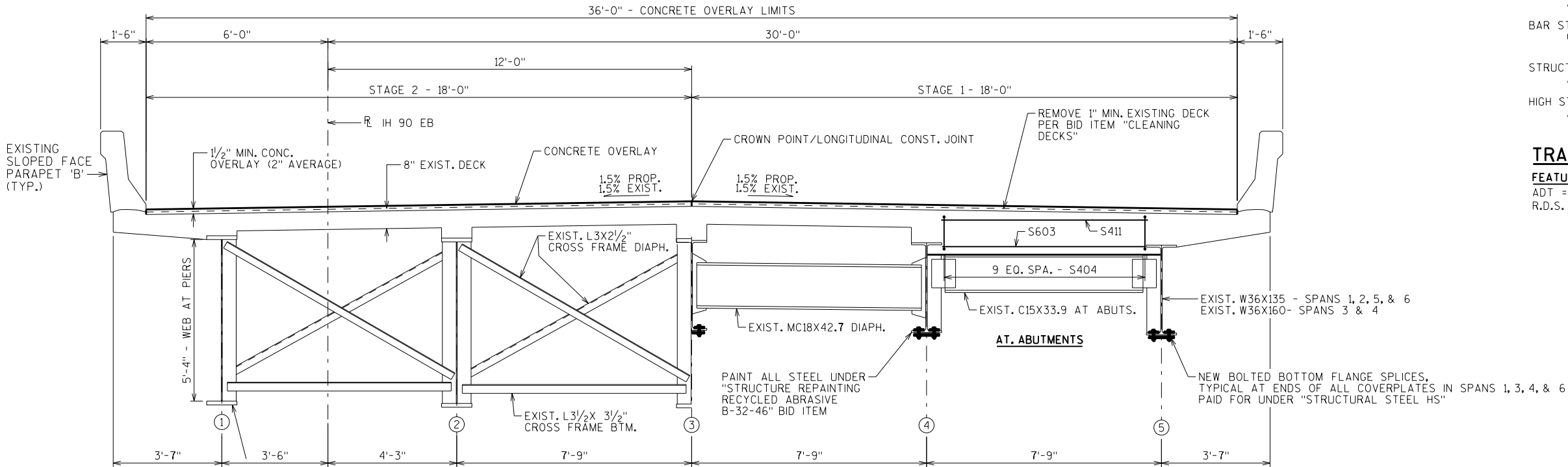
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-35			
		DRAWN BY WWR	PLANS CK'D. CAD
DECK CONDITION SURVEY		SHEET 7	



CONCRETE OVERLAY PLAN



ELEVATION



CROSS SECTION

(LOOKING EAST)

DESIGN DATA

LIVE LOAD:
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 170 (KIPS)

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE & OVERLAY — $f'_c = 4,000$ P.S.I.
ALL OTHER — $f'_c = 3,500$ P.S.I.

BAR STEEL REINFORCEMENT:
GRADE 60 — $f_y = 60,000$ P.S.I.

STRUCTURAL CARBON STEEL:
ASTM A709, GRADE 36 — $F_y = 36,000$ P.S.I.

HIGH STRENGTH STRUCTURAL STEEL:
ASTM A709, GRADE 50 — $F_y = 50,000$ P.S.I.

TRAFFIC VOLUME

FEATURE ON
ADT = 27,700 (2017)
R.D.S. = 70 M.P.H.

STRUCTURE DESIGN CONTACTS:

CHRISTOPHER DOLL (608) 266-3229
KYLE BUSCH (608) 267-0465

NO.	DATE	REVISION	BY
			
ACCEPTED  7/24/23 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-32-46			
IH-90 EB OVER ROUND LAKE			
COUNTY	LACROSSE	TOWN	CAMPBELL
DESIGN SPEC. N/A - REHABILITATION			
DESIGNED BY	CAD	DESIGNED CK'D.	ARC
DRAWN BY	WWR	PLANS CK'D.	CAD
GENERAL PLAN - CONC. OVERLAY			SHEET 1 OF 7

LIST OF DRAWINGS

1. GENERAL PLAN - CONC. OVERLAY
2. NOTES & QUANTITIES
3. BOTTOM FLANGE SPLICES
4. JOINT REPAIR DETAILS
5. EXPANSION DEVICE
6. COVER PLATE DETAILS
7. DECK CONDITION SURVEY

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
502.3101	EXPANSION DEVICE	LF	—	36	36	72
502.3200	PROTECTIVE SURFACE TREATMENT	SY	2266	—	—	2266
502.3210	PIGMENTED SURFACE SEALER	SY	10	—	—	10
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	—	37	37	74
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	—	1155	1155	2310
505.0905	BAR COUPLERS NO. 5	EACH	—	6	6	12
506.0605	STRUCTURAL STEEL HS	LB	6893	—	—	6893
509.0301	PREPARATION DECKS TYPE 1	SY	3	—	—	3
509.0302	PREPARATION DECKS TYPE 2	SY	1	—	—	1
509.0500	CLEANING DECKS	SY	2226	—	—	2226
509.1000	JOINT REPAIR	SY	—	17	17	34
509.1500	CONCRETE SURFACE REPAIR	SF	20	5	5	30
509.2000	FULL-DEPTH DECK REPAIR	SY	1	—	—	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	140	—	—	140
517.1801.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-46	EACH	1	—	—	1
517.4501.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-46	EACH	1	—	—	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1	—	—	1

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF OVERLAY AND TO THE TOPS AND BACK VERTICAL FACE OF PAVING BLOCKS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND TOP OF NEW PARAPET SECTIONS IN THE JOINT REPAIR AREAS.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS". SEE "MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS" DETAIL BELOW FOR INCREASED MILLING REQUIRED IN END SPANS.

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

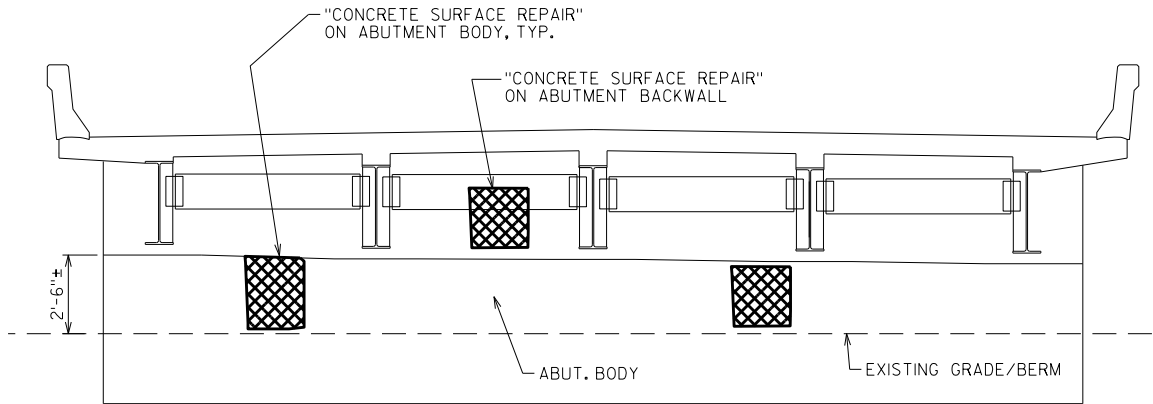
PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION, FULL-DEPTH DECK REPAIRS, AND JOINT REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE LIGHT GRAY, (AMS STANDARD COLOR NO. 26293) OR SIMILAR COLOR APPROVED BY THE ENGINEER.

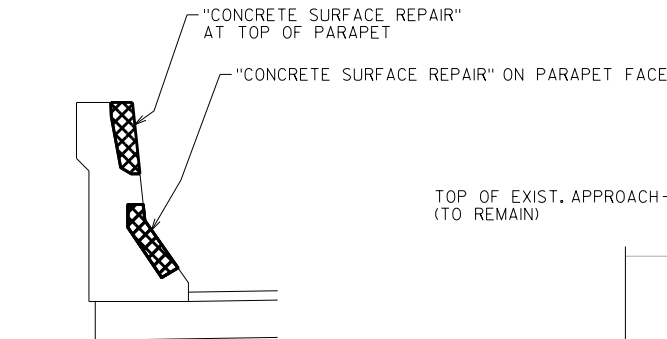
SEE ROADWAY PLANS FOR INTERSTATE TRAFFIC CONTROL REQUIREMENTS.

UNDER "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-46" ITEM, CLEAN AND PAINT ALL STRUCTURAL METAL SURFACES, INCLUDING ALL BEARINGS AT ABUTMENTS AND PIERS.

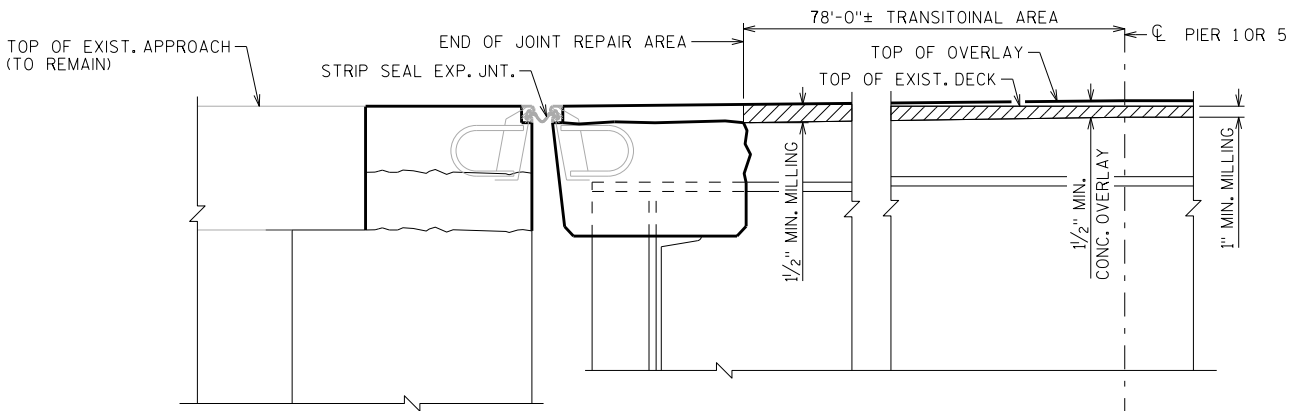
EXISTING BAR STEEL REINFORCEMENT IN DECK IS EPOXY COATED. WHERE DECK STEEL IS EXPOSED IN DECK PREPARATION AREAS, DAMAGED/DE-BONDED EPOXY COATING SHALL BE REPAIRED/RE-COATED IN ACCORDANCE WITH SECTION 509.3.1 OF THE STANDARD SPECIFICATIONS. PREPARE/CLEAN STEEL AS REQUIRED TO APPLY NEW COATING.



ABUTMENT SURFACE REPAIRS



PARAPET SURFACE REPAIRS



MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS

SURFACE REPAIR NOTES

SURFACE REPAIR DETAILS DEPICT THE GENERAL TYPES AND LOCATIONS OF REPAIRS, AND MAY NOT BE ALL INCLUSIVE. QUANTITIES SHOWN ARE APPROXIMATE. ADDITIONAL REPAIRS MAY BE REQUIRED DURING CONSTRUCTION AND SHOULD BE PERFORMED AS DIRECTED BY THE FIELD ENGINEER.

ALL SURFACE REPAIR AREAS SHALL BE DEFINED BY ½" MIN. SAWCUT.

CONTRACTOR SHALL EMPLOY METHODS TO PREVENT REMOVED CONCRETE MATERIAL FROM ENTERING THE WATERWAY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-46			
		DRAWN BY WWR	PLANS CK'D. CAD
NOTES & QUANTITIES		SHEET 2	

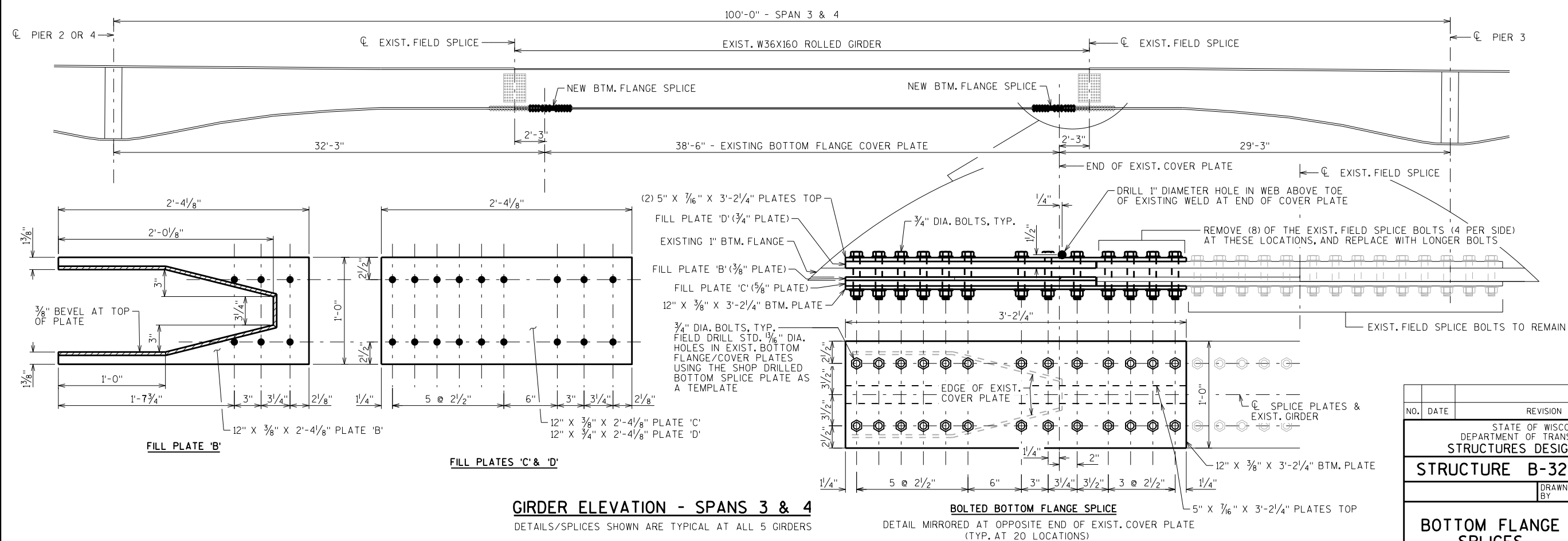
INSTALLATION OF SPLICE PLATES SHALL OCCUR DURING THE STAGE IN WHICH NO TRAFFIC EXISTS DIRECTLY ABOVE THE GIRDERS BEING MODIFIED/SPLICED.

PROVIDE STD. SIZE $\frac{13}{16}$ " DIA. HOLES IN PLATES
FOR $\frac{3}{4}$ " DIA. BOLTS.

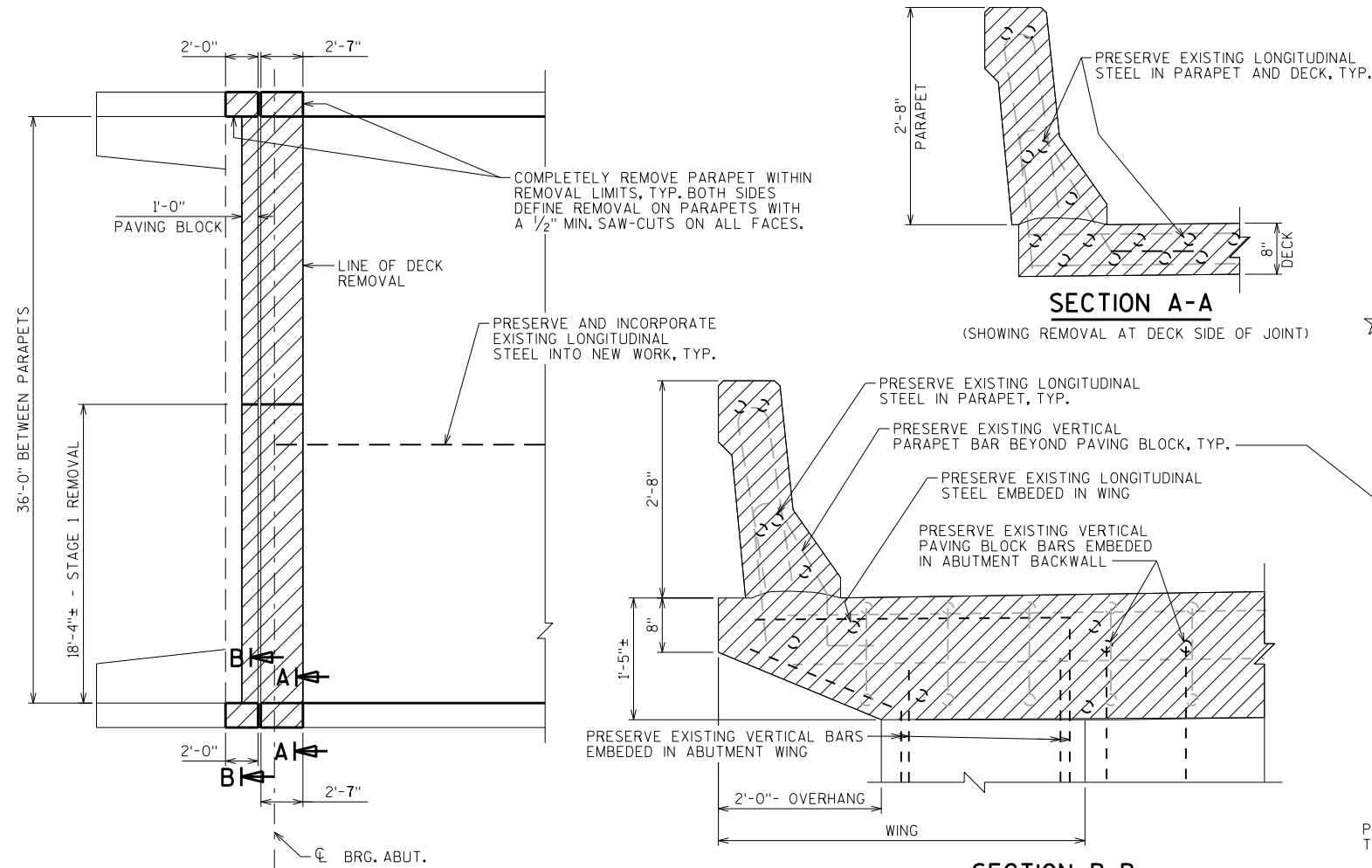
PLATE STEEL SHALL CONFORM TO ASTM A709
GRADE 50.

FIELD CLEANING AND TOP COAT PAINTING TO BE INCLUDED IN BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-46", EACH.

PRIOR TO INSTALLING NEW PLATES, CLEAN AND PRIME AREAS BELOW NEW PLATES AS DIRECTED BY THE ENGINEER, INCLUDED IN "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-46" ITEM.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-46			
		DRAWN BY	PLANS CK'D. CAD
BOTTOM FLANGE SPLICES		SHEET 3	

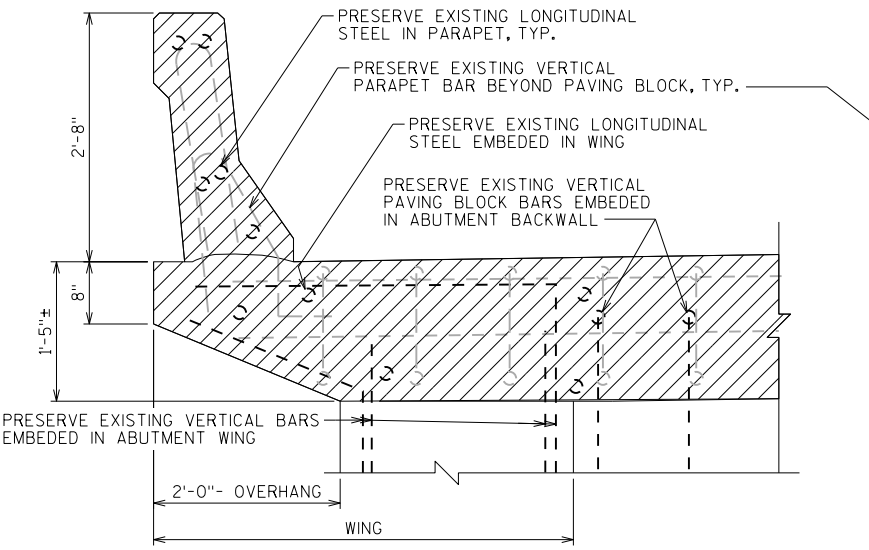


REMOVAL PLAN

(W. ABUT SHOWN, E. ABUT SIMILAR)

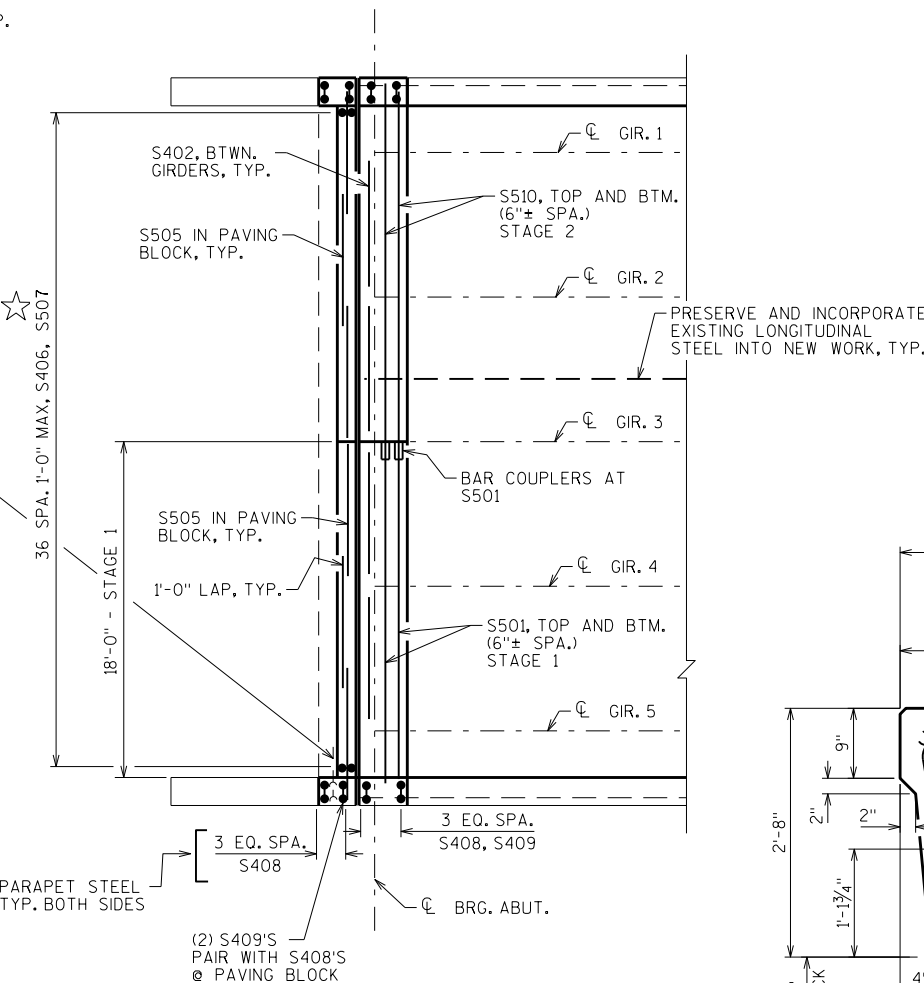
SECTION A-A

(SHOWING REMOVAL AT DECK SIDE OF JOINT)



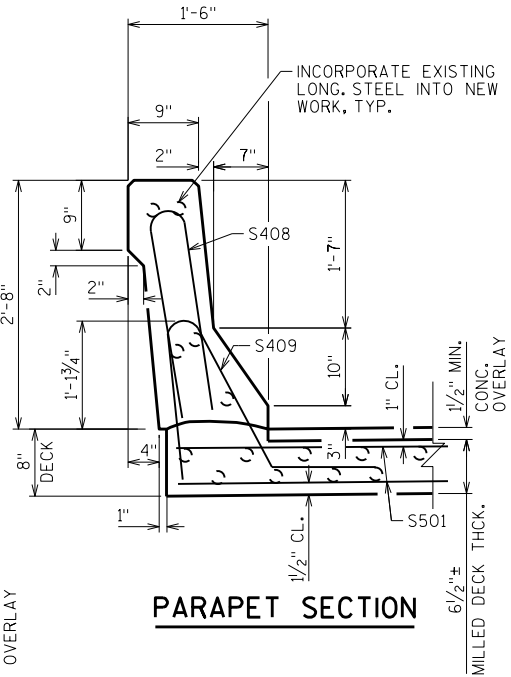
SECTION B-B

(SHOWING REMOVAL AT PAVING BLOCK SIDE OF JOINT, MATCH OVERHANG CROSS-SECTION WHEN JOINT IS RE-POURED)

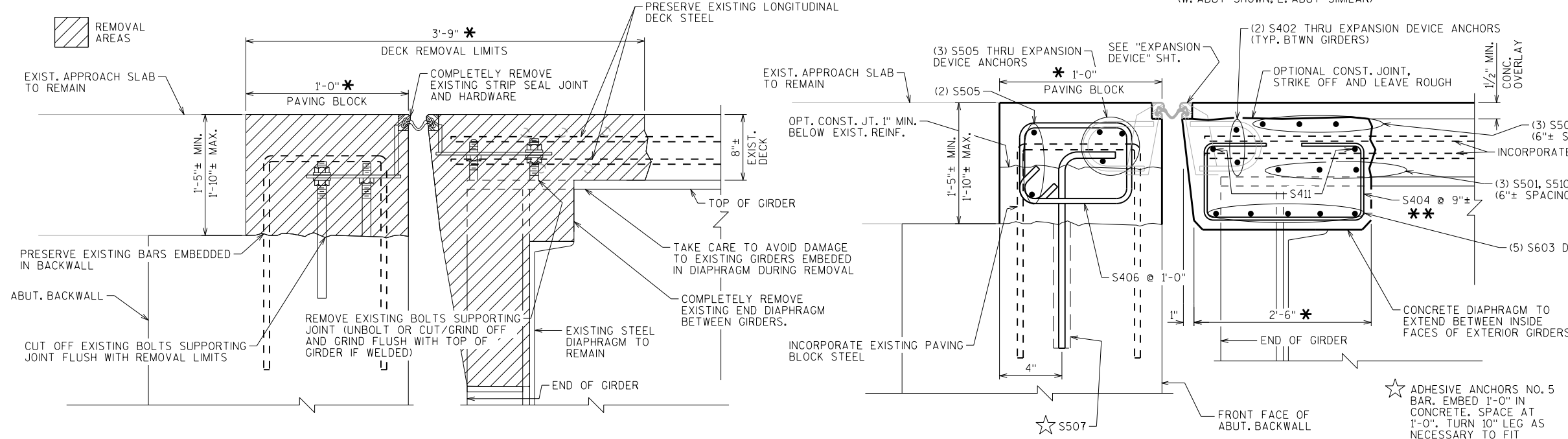


JOINT REPAIR PLAN

(W. ABUT SHOWN, E. ABUT SIMILAR)



PARAPET SECTION



JOINT REMOVAL SECTION

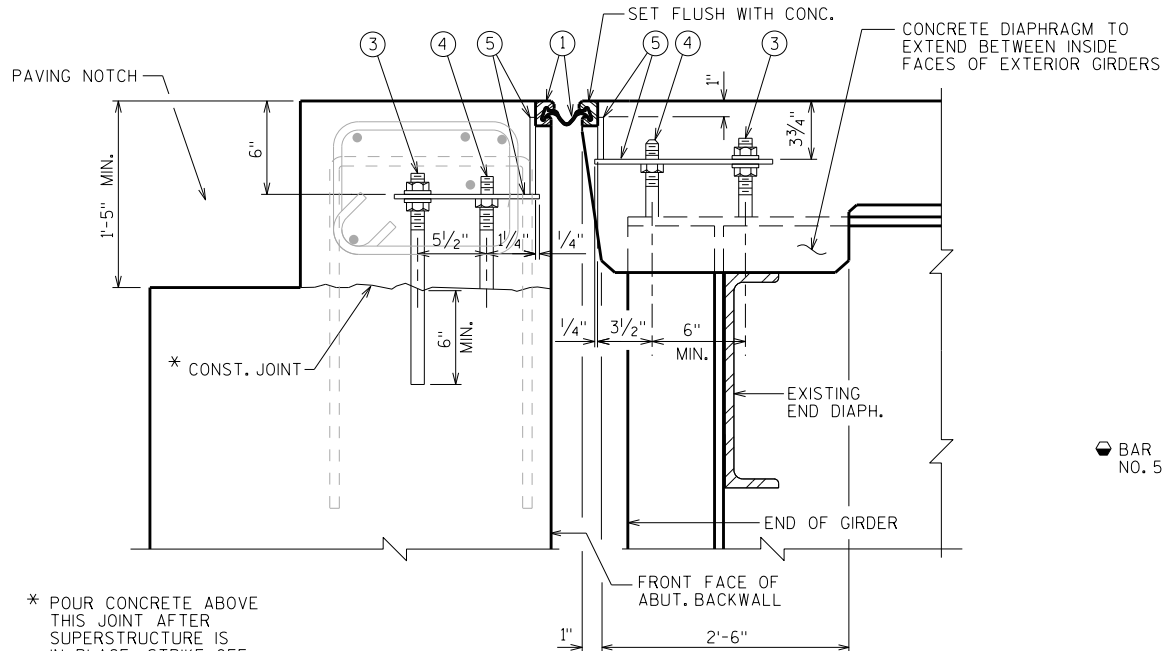
NORMAL TO CL SUBSTRUCTURE

SECTION THRU JOINT REPAIR AT ABUTMENT

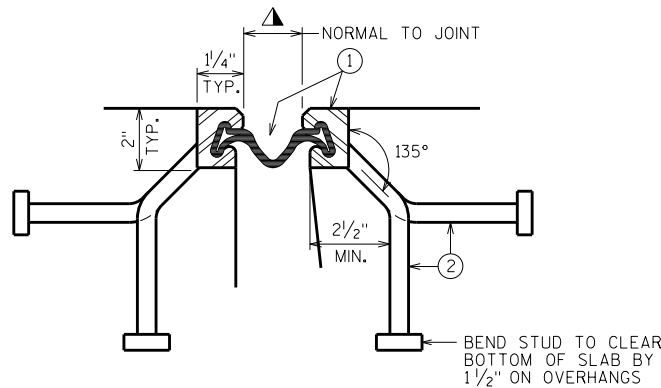
NORMAL TO CL SUBSTRUCTURE

- * DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNIT.
- ** BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-46			
DRAWN BY		WWR	PLANS CKD. CAD
JOINT REPAIR DETAILS		SHEET 4	

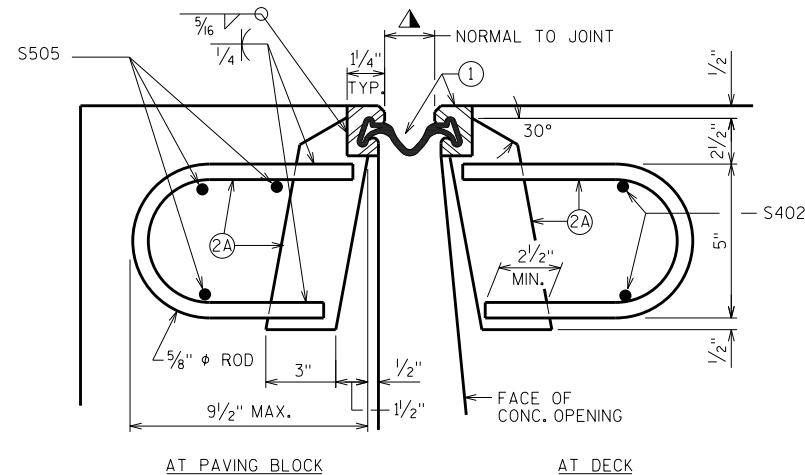


SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

BILL OF BARS

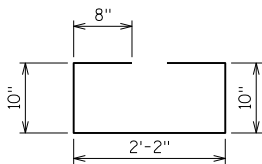
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	6	6	18'-11"			DECK TRANS. @ JOINT REPAIR-STAGE 1
S402	X	8	8	6'-8"			DECK TRANS. THRU EXP. DEVICE ANCHORS
S603	X	20	20	6'-8"			ABUT. DIAPH. BTM.
S404	X	40	40	4'-10"	X		ABUT. DIAPH.-VERT. OPEN STIRRUPS
S505	X	30	30	7'-1"			ABUT. PAVING BLOCK
S406	X	37	37	4'-0"	X		ABUT. PAVING BLOCK STIRRUPS
S507	X	37	37	2'-11"	X		ABUT. PAVING BLOCK MASONRY ANCHOR
S408	X	16	16	4'-10"	X		PARAPET VERT.
S409	X	12	12	4'-4"	X		DECK TO PARAPET VERT. DOWEL
S510	X	6	6	18'-11"			DECK TRANS. @ JOINT REPAIR-STAGE 2
S411	X	8	8	6'-8"			ABUT. DIAPH. TOP

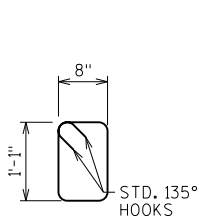
BAR COUPLERS NO. 5 BARS REQ'D

BAR COUPLERS USED. BAR LENGTH COMPUTED TO CL OF LONGIT. JOINT & SHALL BE MODIFIED IF REQ'D. TO THE BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

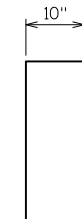
"ADHESIVE ANCHORS NO. 5 BAR". EMBED 1'-0" IN CONCRETE.



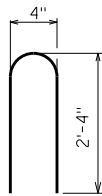
S404



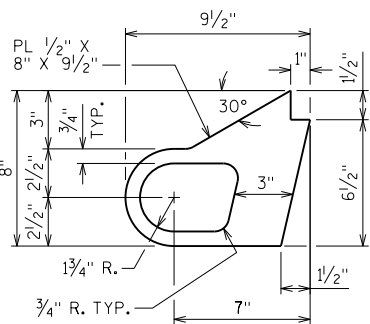
S406



S507

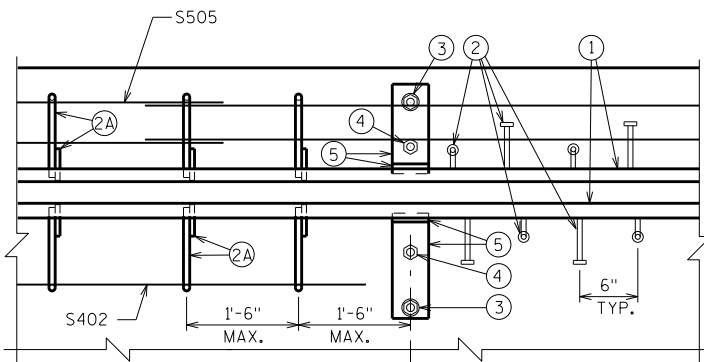


S408



S409

ALTERNATE STRIP SEAL ANCHOR



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

LEGEND

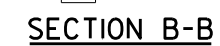
- NEOPRENE STRIP SEAL (4- INCH) AND STEEL EXTRUSIONS.
- STUDS 5/8" ϕ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- 1/2" THICK ANCHOR PLATE WITH 5/8" ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- 3/4" ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 3/4" ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
- GALVANIZED PLATE 3/8" X 1'-2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- 3/4" ϕ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- 3/4" ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- 3/4" ϕ X 2 1/4" GALVANIZED THREADED COUPLING.
- 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1"
75°	1 1/4"
65°	1 1/2"
55°	1 3/4"
45°	2"
35°	2 1/4"
25°	2 1/2"
15°	2 3/4"
5°	3"

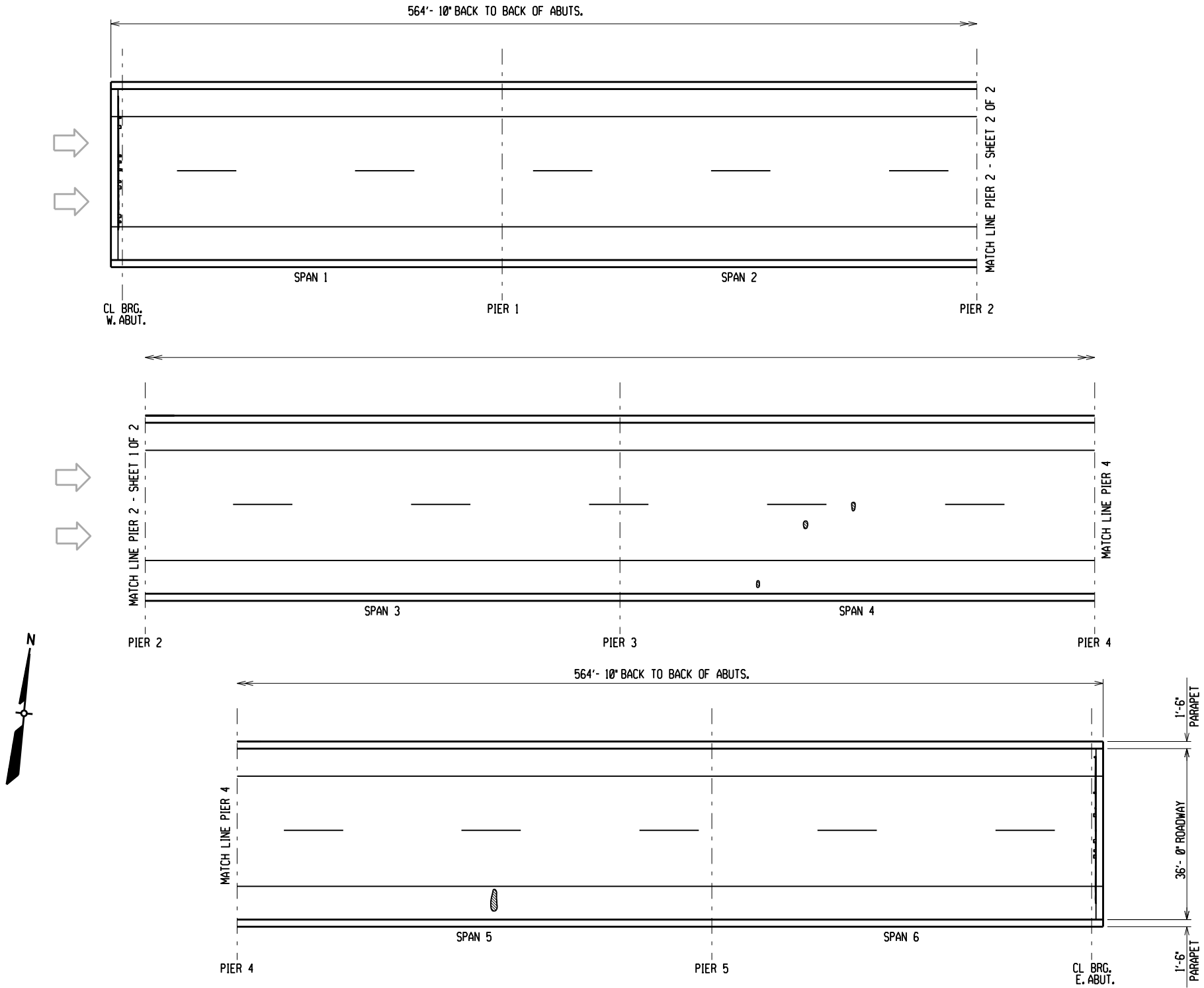
A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION STRUCTURE B-32-46			
DRAWN BY		WWR	PLANS CKD. CAD
EXPANSION DEVICE		SHEET 5	



■ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-46			
	DRAWN BY	WWR	PLANS CK'D. CA
COVER PLATE		SHEET 6	
DETAILS			



PLAN

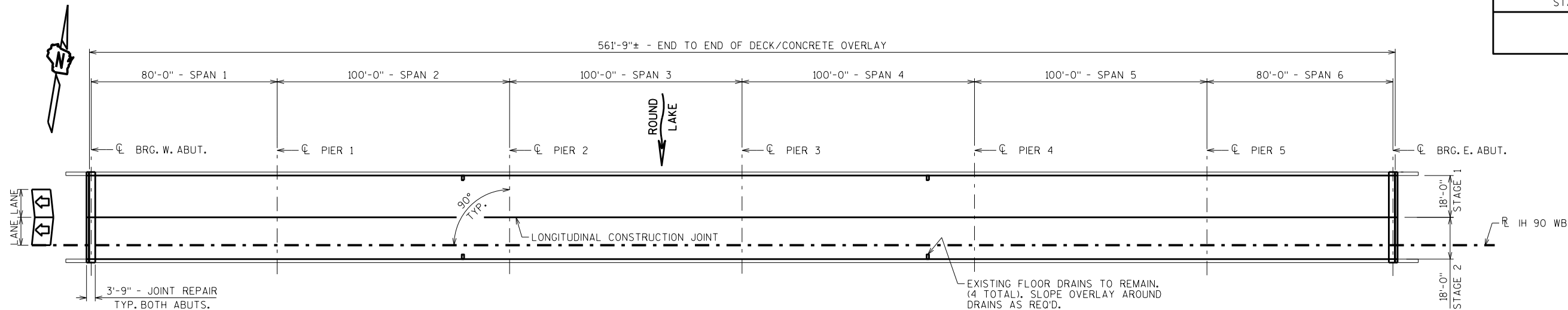
INFRARED THERMOGRAPHIC SURVEY RESULTS

FIELD OBSERVATIONS SUMMARY		STRUCTURE NO. 8-32-46		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	ft ²	20286		DELAMINATION	
SHADE/DEBRIS	ft ²	0		SPALL	
DELAMINATION	ft ²	15	0.1	DEBOND	
SPALL	ft ²	0	0	ASPHALT PATCH	
DEBOND	ft ²	N/A	N/A	PCC PATCH	
ASPHALT PATCH	ft ²	0	0	SHADE/DEBRIS	
PCC PATCH	ft ²	4	<0.1		

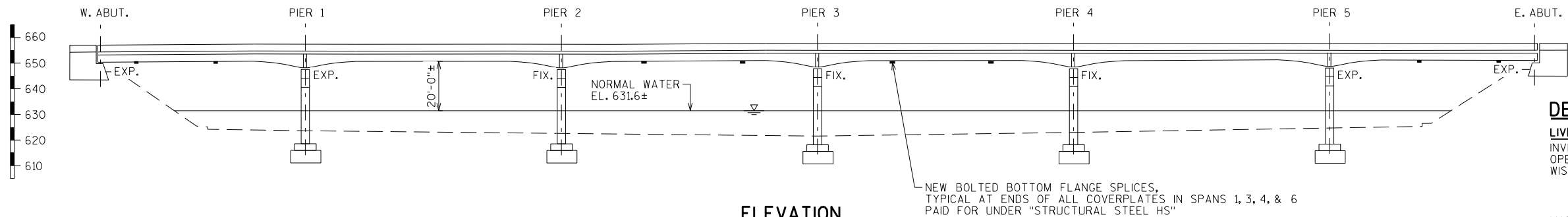
SURFACE TYPE: CONCRETE - NO OVERLAY
INFRARED INSPECTION DATE: 6/27/22 BY AECOM

NOTES
DECK SURVEY IS SHOWN FOR INFORMATION PURPOSES ONLY AND MAY NOT BE ALL INCLUSIVE. ADDITIONAL PATCHING/PREPARATION MAY BE REQUIRED AND SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE 8-32-46			
DRAWN BY		WWR	PLANS CK'D. CAD
DECK CONDITION SURVEY		SHEET 7	



CONCRETE OVERLAY PLAN



ELEVATION

DESIGN DATA

LIVE LOAD:
INVENTORY RATING: HS-14
OPERATING RATING: HS-24
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 170 (KIPS)

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE & OVERLAY — $f'_c = 4,000$ P.S.I.
ALL OTHER — $f'_c = 3,500$ P.S.I.

BAR STEEL REINFORCEMENT:
GRADE 60 — $f_y = 60,000$ P.S.I.

STRUCTURAL CARBON STEEL:
ASTM A709, GRADE 36 — $F_y = 36,000$ P.S.I.

HIGH STRENGTH STRUCTURAL STEEL:
ASTM A709, GRADE 50 — $F_y = 50,000$ P.S.I.

TRAFFIC VOLUME

FEATURE ON
ADT = 27,700 (2017)
R.D.S. = 70 M.P.H.

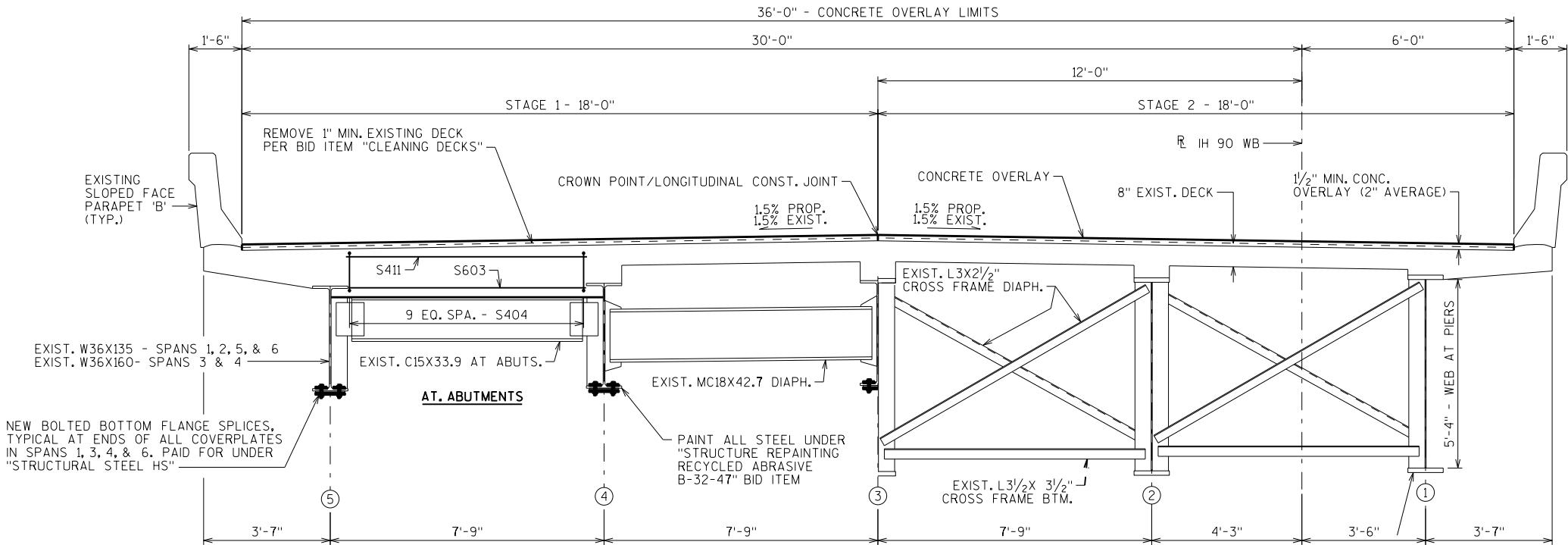
STRUCTURE DESIGN CONTACTS:

CHRISTOPHER DOLL (608) 266-3229
KYLE BUSCH (608) 267-0465

NO.	DATE	REVISION	BY
 BUREAU OF STRUCTURES ACCEPTED  7/24/23 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-32-47			
IH-90 WB OVER ROUND LAKE			
COUNTY	LACROSSE	TOWN	CAMPBELL
DESIGN SPEC.	N/A - REHABILITATION		
DESIGNED BY	CAD	DESIGNED CK'D.	ARC
DRAWN BY	WWR	PLANS CK'D.	CAD
GENERAL PLAN - CONC. OVERLAY			SHEET 1 OF 7

LIST OF DRAWINGS

1. GENERAL PLAN - CONC. OVERLAY
2. NOTES & QUANTITIES
3. BOTTOM FLANGE SPLICES
4. JOINT REPAIR DETAILS
5. EXPANSION DEVICE
6. COVER PLATE DETAILS
7. DECK CONDITION SURVEY



TYPICAL IN SPANS

AT PIERS

EXIST. HAUNCHED PLATE GIRDER SECTIONS OVER PIERS (20'-0" TO EITHER SIDE OF PIER)

CROSS SECTION

(LOOKING EAST)

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
502.3101	EXPANSION DEVICE	LF	—	36	36	72
502.3200	PROTECTIVE SURFACE TREATMENT	SY	2266	—	—	2266
502.3210	PIGMENTED SURFACE SEALER	SY	10	—	—	10
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	—	37	37	74
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	—	1155	1155	2310
505.0905	BAR COUPLERS NO. 5	EACH	—	6	6	12
506.0605	STRUCTURAL STEEL HS	LB	6893	—	—	6893
509.0301	PREPARATION DECKS TYPE 1	SY	3	—	—	3
509.0302	PREPARATION DECKS TYPE 2	SY	1	—	—	1
509.0500	CLEANING DECKS	SY	2226	—	—	2226
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509.1500	CONCRETE SURFACE REPAIR	SF	10	5	5	20
509.2000	FULL-DEPTH DECK REPAIR	SY	1	—	—	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	140	—	—	140
517.1801.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-47	EACH	1	—	—	1
517.4501.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-47	EACH	1	—	—	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1	—	—	1

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BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

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THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS ½-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

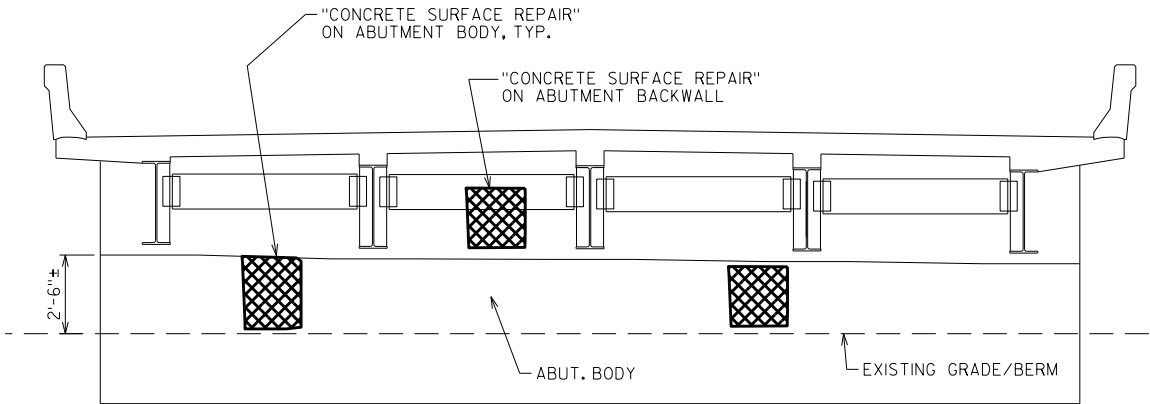
PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION, FULL-DEPTH DECK REPAIRS, AND JOINT REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE LIGHT GRAY, (AMS STANDARD COLOR NO. 26293) OR SIMILAR COLOR APPROVED BY THE ENGINEER.

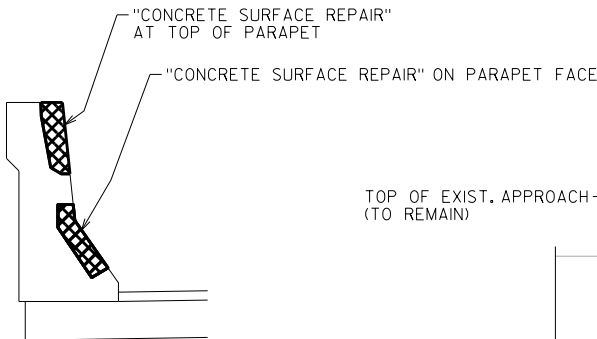
SEE ROADWAY PLANS FOR INTERSTATE TRAFFIC CONTROL REQUIREMENTS.

UNDER "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-47" ITEM, CLEAN AND PAINT ALL STRUCTURAL METAL SURFACES, INCLUDING ALL BEARINGS AT ABUTMENTS AND PIERS.

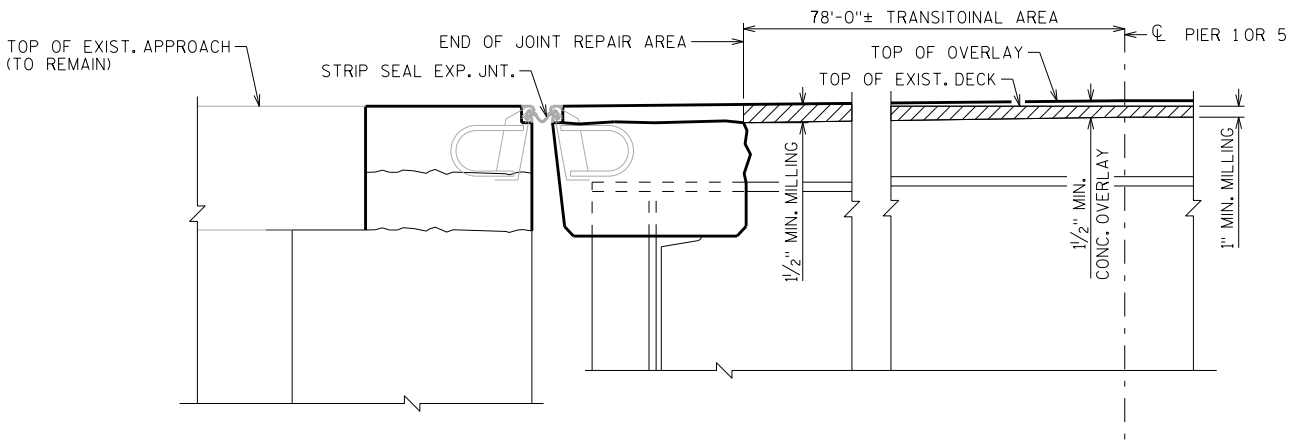
EXISTING BAR STEEL REINFORCEMENT IN DECK IS EPOXY COATED. WHERE DECK STEEL IS EXPOSED IN DECK PREPARATION AREAS, DAMAGED/DE-BONDED EPOXY COATING SHALL BE REPAIRED/RE-COATED IN ACCORDANCE WITH SECTION 509.3.1 OF THE STANDARD SPECIFICATIONS. PREPARE/CLEAN STEEL AS REQUIRED TO APPLY NEW COATING.



ABUTMENT SURFACE REPAIRS



PARAPET SURFACE REPAIRS



MILLING TRANSITIONAL AREA ON DECK AT EXPANSION JOINTS

SURFACE REPAIR NOTES

SURFACE REPAIR DETAILS DEPICT THE GENERAL TYPES AND LOCATIONS OF REPAIRS, AND MAY NOT BE ALL INCLUSIVE. QUANTITIES SHOWN ARE APPROXIMATE. ADDITIONAL REPAIRS MAY BE REQUIRED DURING CONSTRUCTION AND SHOULD BE PERFORMED AS DIRECTED BY THE FIELD ENGINEER.

ALL SURFACE REPAIR AREAS SHALL BE DEFINED BY ½" MIN. SAWCUT.

CONTRACTOR SHALL EMPLOY METHODS TO PREVENT REMOVED CONCRETE MATERIAL FROM ENTERING THE WATERWAY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-47			
		DRAWN BY WWR	PLANS CK'D. CAD
NOTES & QUANTITIES		SHEET 2	

NOTES

INSTALLATION OF SPLICE PLATES SHALL OCCUR DURING THE STAGE IN WHICH NO TRAFFIC EXISTS DIRECTLY ABOVE THE GIRDERS BEING MODIFIED/SPLICED.

PLATES & 3/4" DIA. BOLTS SHALL BE INCLUDED IN BID ITEM "STRUCTURAL STEEL HS", LB.

PROVIDE STD. SIZE 1/8" DIA. HOLES IN PLATES FOR 3/4" DIA. BOLTS.

NEW STEEL PLATES SHALL RECEIVE A SHOP BLAST CLEANING CONFORMING TO SSPC-SP 10 AND BE PAINTED WITH ONE COAT OF ZINC-RICH PRIMER IN CONFORMANCE WITH SECTION 517 OF THE STANDARD SPECIFICATIONS. PRIMER SHALL BE COMPATIBLE WITH THE FIELD APPLIED TOP COATS. CLEAN AND PRIME AFTER SHOP DRILLING HOLES. SHOP PAINTING/PRIMING SHALL BE CONSIDERED INCIDENTAL TO BID-ITEM "STRUCTURAL STEEL HS".

PLATE STEEL SHALL CONFORM TO ASTM A709 GRADE 50.

ALL BOLTS SHALL BE 3/4" DIAMETER A325 HIGH-TENSILE STRENGTH BOLTS.

FIELD CLEANING AND TOP COAT PAINTING TO BE INCLUDED IN BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-47", EACH.

PRIOR TO INSTALLING NEW PLATES, CLEAN AND PRIME AREAS BELOW NEW PLATES AS DIRECTED BY THE ENGINEER, INCLUDED IN "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-47" ITEM.

GIRDER ELEVATION - SPANS 1 & 6

DETAILS/SPLICES SHOWN ARE TYPICAL AT ALL 5 GIRDERS

3/4" DIA. BOLTS, TYP.
FIELD DRILL STD. 1/8" DIA. HOLES IN EXIST. BOTTOM FLANGE/COVER PLATES USING THE SHOP DRILLED BOTTOM SPLICE PLATE AS A TEMPLATE

BOLTED BOTTOM FLANGE SPLICE

DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

FILL PLATE 'A'

DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

GIRDER ELEVATION - SPANS 3 & 4

DETAILS/SPLICES SHOWN ARE TYPICAL AT ALL 5 GIRDERS

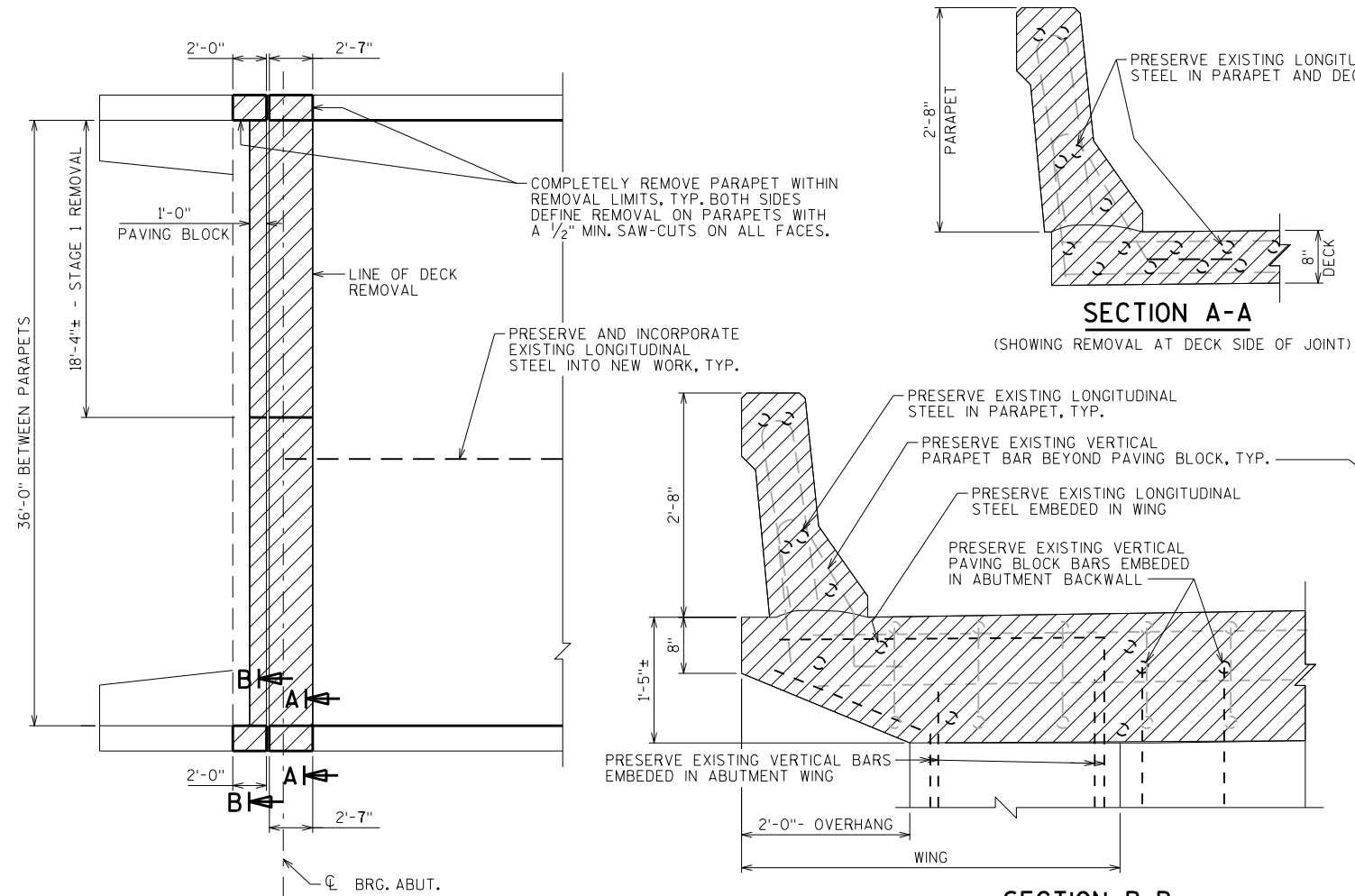
3/4" DIA. BOLTS, TYP.
FIELD DRILL STD. 1/8" DIA. HOLES IN EXIST. BOTTOM FLANGE/COVER PLATES USING THE SHOP DRILLED BOTTOM SPLICE PLATE AS A TEMPLATE

FILL PLATES 'C' & 'D'

BOLTED BOTTOM FLANGE SPLICE

DETAIL MIRRORED AT OPPOSITE END OF EXIST. COVER PLATE (TYP. AT 20 LOCATIONS)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-47			
		DRAWN BY	WWR PLANS CK'D. CAD
BOTTOM FLANGE SPLICES		SHEET 3	

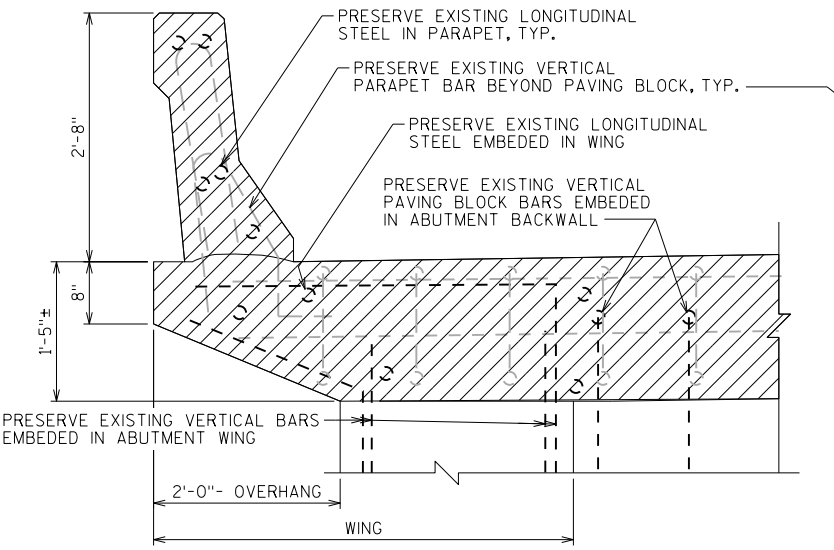


REMOVAL PLAN

(W. ABUT SHOWN, E. ABUT SIMILAR)

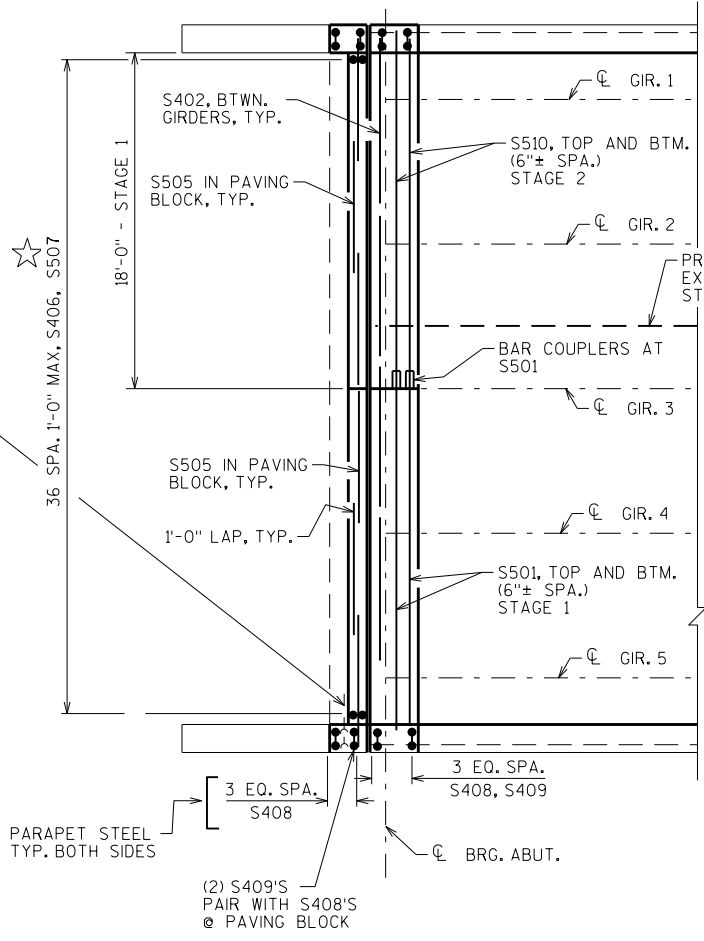
SECTION A-A

(SHOWING REMOVAL AT DECK SIDE OF JOINT)



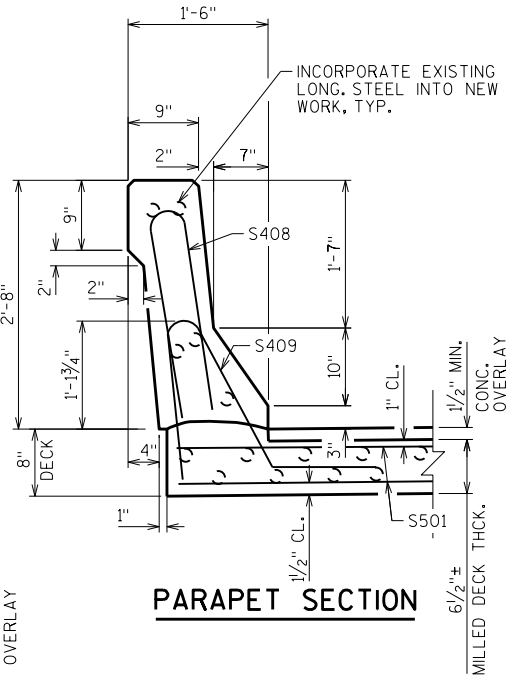
SECTION B-B

(SHOWING REMOVAL AT PAVING BLOCK SIDE OF JOINT, MATCH OVERHANG CROSS-SECTION WHEN JOINT IS RE-POURED)

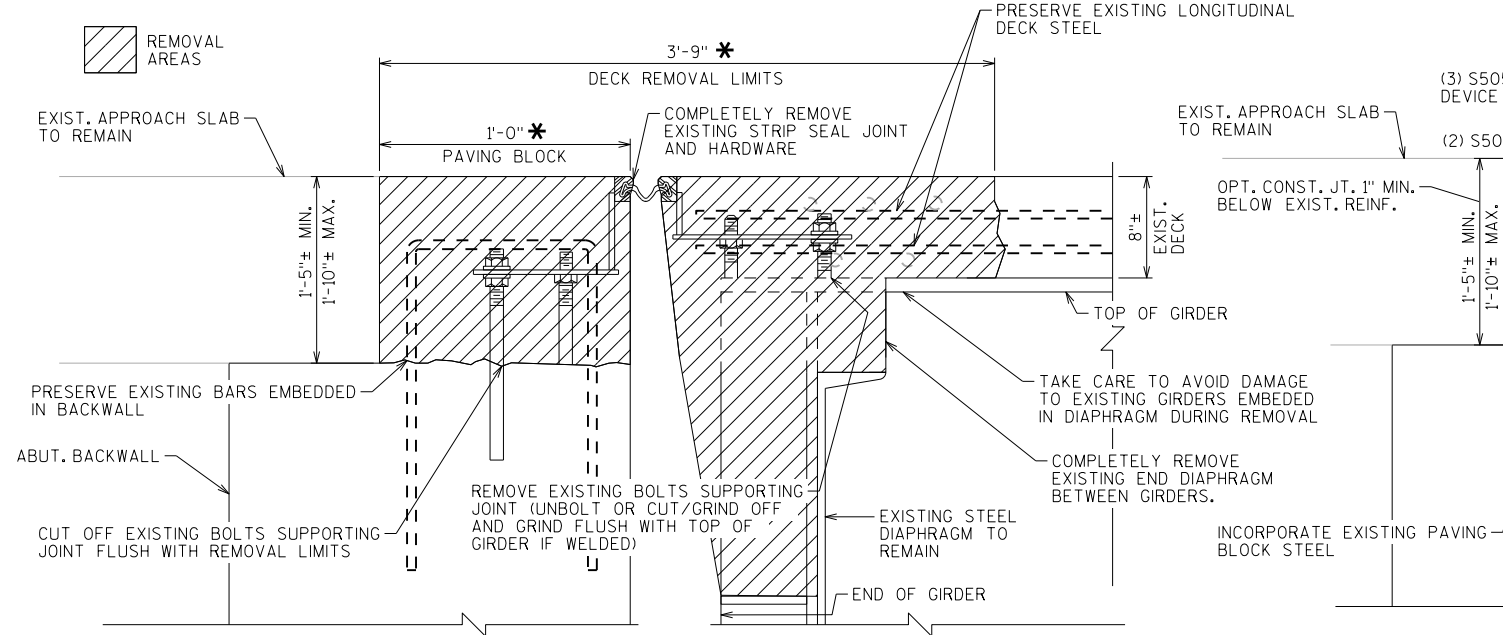


JOINT REPAIR PLAN

(W. ABUT SHOWN, E. ABUT SIMILAR)



PARAPET SECTION

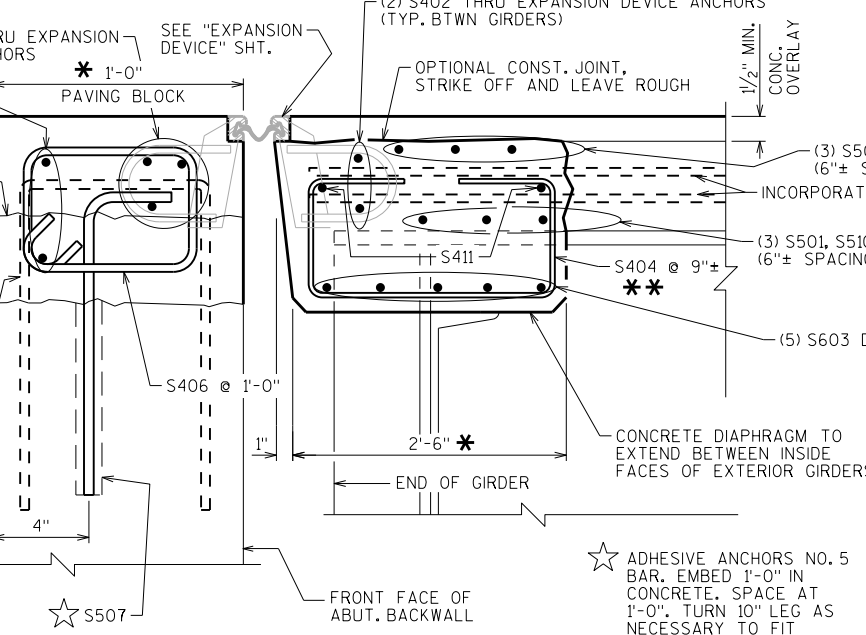


JOINT REMOVAL SECTION

NORMAL TO CL SUBSTRUCTURE

* DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNIT.

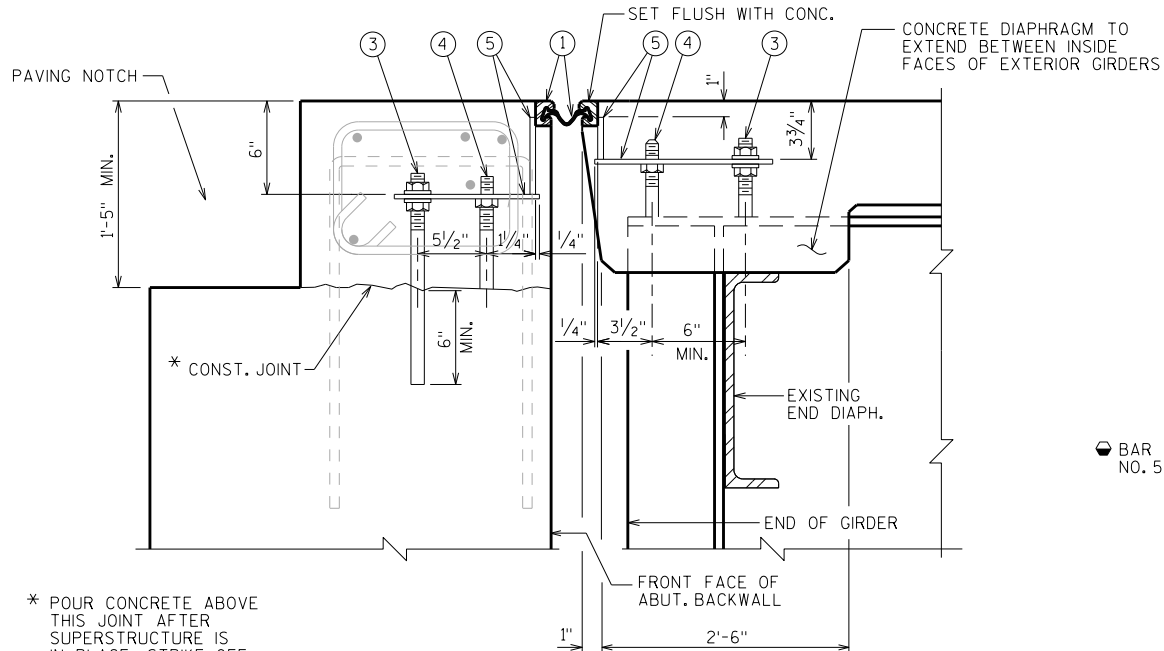
** BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.



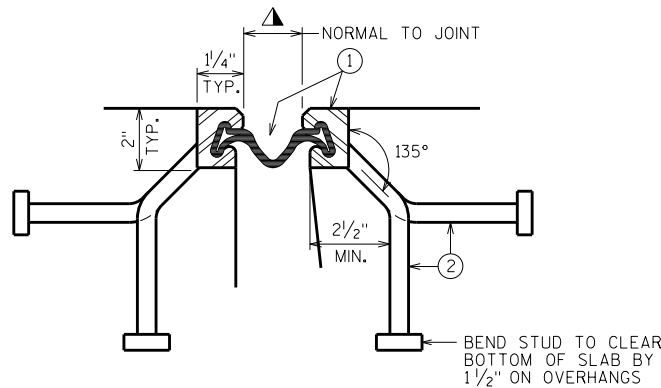
SECTION THRU JOINT REPAIR AT ABUTMENT

NORMAL TO CL SUBSTRUCTURE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-47			
DRAWN BY		WWR	PLANS CK'D. CAD
JOINT REPAIR DETAILS		SHEET 4	

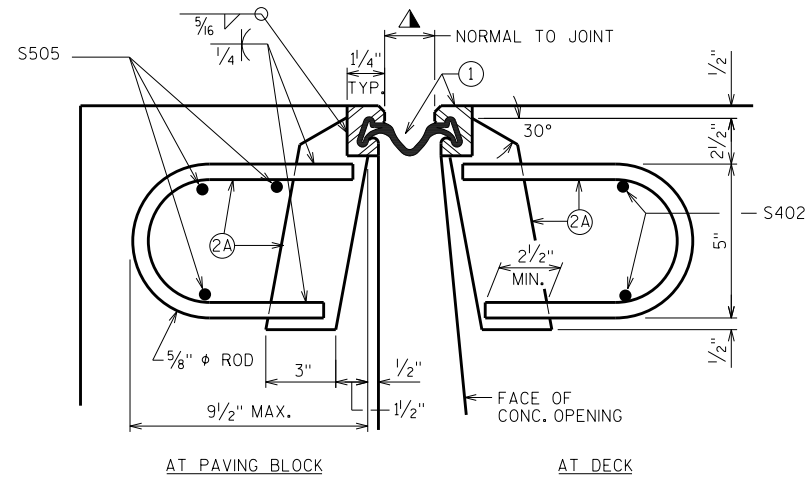


SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

BILL OF BARS

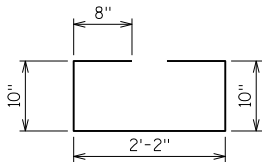
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	6	6	18'-11"			DECK TRANS. @ JOINT REPAIR-STAGE 1
S402	X	8	8	6'-8"			DECK TRANS. THRU EXP. DEVICE ANCHORS
S603	X	20	20	6'-8"			ABUT. DIAPH. BTM.
S404	X	40	40	4'-10"	X		ABUT. DIAPH.-VERT. OPEN STIRRUPS
S505	X	30	30	7'-1"			ABUT. PAVING BLOCK
S406	X	37	37	4'-0"	X		ABUT. PAVING BLOCK STIRRUPS
S507	X	37	37	2'-11"	X		ABUT. PAVING BLOCK MASONRY ANCHOR
S408	X	16	16	4'-10"	X		PARAPET VERT.
S409	X	12	12	4'-4"	X		DECK TO PARAPET VERT. DOWEL
S510	X	6	6	18'-11"			DECK TRANS. @ JOINT REPAIR-STAGE 2
S411	X	8	8	6'-8"			ABUT. DIAPH. TOP

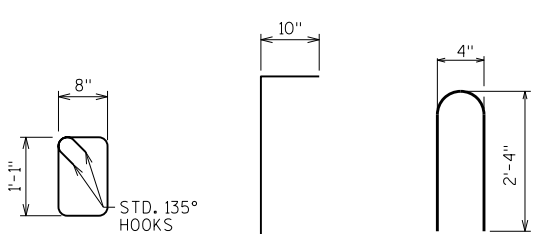
BAR COUPLERS
NO. 5 BARS REQ'D

BAR COUPLERS USED. BAR LENGTH COMPUTED TO CL OF LONGIT. JOINT & SHALL BE MODIFIED IF REQ'D, TO THE BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.

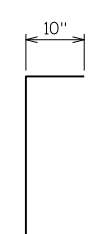
"ADHESIVE ANCHORS NO. 5 BAR". EMBED 1'-0" IN CONCRETE.



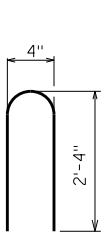
S404



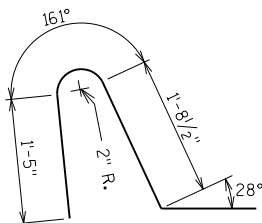
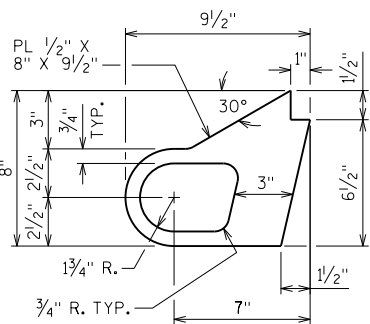
S406



S507

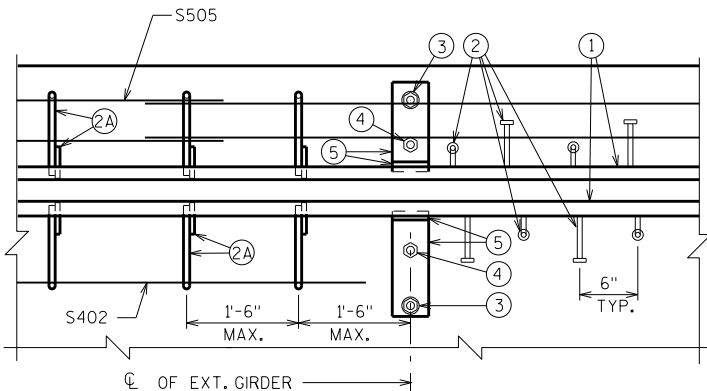


S408



S409

ALTERNATE STRIP SEAL ANCHOR



PART PLAN

NOTES

ONE FIELD SPlice PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPlicing PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 & SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

LEGEND

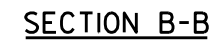
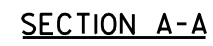
- NEOPRENE STRIP SEAL (4- INCH) AND STEEL EXTRUSIONS.
- STUDS 5/8" ϕ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- 1/2" THICK ANCHOR PLATE WITH 5/8" ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- 3/4" ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 3/4" ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
- GALVANIZED PLATE 3/8" X 1'-2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- 3/4" ϕ X 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- 3/4" ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- 3/4" ϕ X 2 1/4" GALVANIZED THREADED COUPLING.
- 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1"
75°	1 1/4"
65°	1 1/2"
55°	1 3/4"
45°	2"
35°	2 1/4"
25°	2 1/2"
15°	2 3/4"
5°	3"

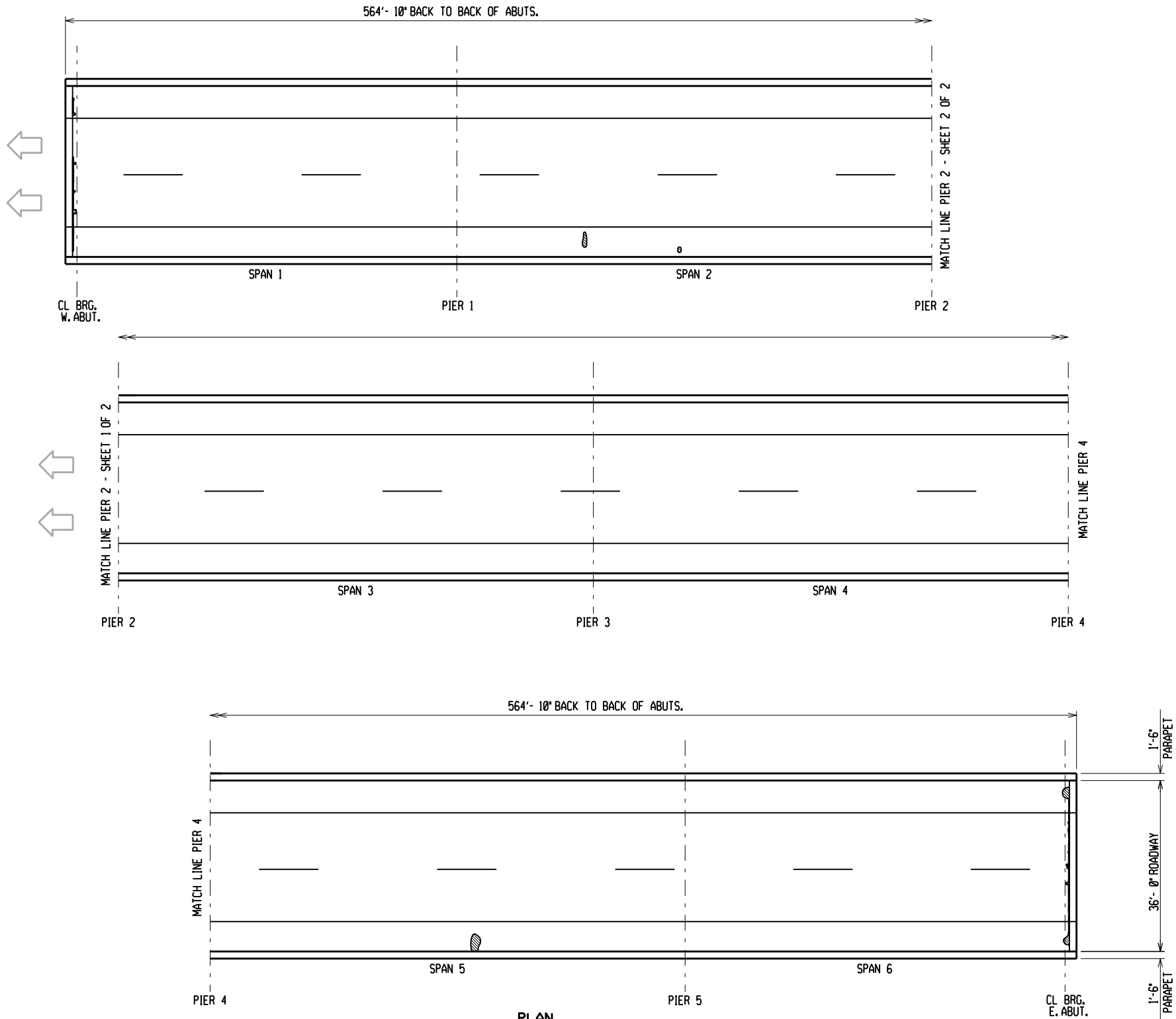
A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION STRUCTURE B-32-47			
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EXPANSION DEVICE		SHEET 5	



■ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-47			
DRAWN BY		WWR	PLANS CK'D. CAD
COVER PLATE DETAILS		SHEET 6	



INFRARED THERMOGRAPHIC SURVEY RESULTS

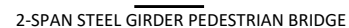
FIELD OBSERVATIONS SUMMARY		STRUCTURE NO. B-32-47		LEGEND	
ITEM	UNIT	QUANT.	%		
TOTAL AREA	f ²	20286		DELAMINATION	
SHADE/DEBRIS	f ²	0		SPALL	
DELAMINATION	f ²	22	0.1	DEBOND	
SPALL	f ²	1	<0.1	ASPHALT PATCH	
DEBOND	f ²	N/A	N/A	PCC PATCH	
ASPHALT PATCH	f ²	0	0	SHADE/DEBRIS	
PCC PATCH	f ²	2	<0.1		

SURFACE TYPE: CONCRETE - NO OVERLAY
INFRARED INSPECTION DATE: 6/27/22 BY AECOM

NOTES
DECK SURVEY IS SHOWN FOR INFORMATION PURPOSES ONLY AND MAY NOT BE ALL INCLUSIVE. ADDITIONAL PATCHING/PREPARATION MAY BE REQUIRED AND SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-47			
DRAWN BY		WWR	PLANS CK'D. CAD
DECK CONDITION SURVEY		SHEET 7	

 INDICATES WING NUMBER



NO.		DATE		REVISION		B	
		BUREAU OF STRUCTURES					
ACCEPTED						KHP 4/1/25	
		CHIEF STRUCTURES DESIGN ENGINEER				DATE	
STRUCTURE		B-32-73					
BAINBRIDGE ST. PEDESTRIAN BRIDGE OVER IH 90							
COUNTY		LA CROSSE			TOWN		CAMPBELL
DESIGN SPEC. N/A - REHABILITATION							
DESIGNED BY		CAD		DESIGNED CK'D		DRAWN BY WWR PLANS CK'D CAD	
GENERAL PLAN- DECK REPLACEMENT						SHEET 1 OF 14	

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0220	REMOVING STRUCTURE B-32-73	EACH	—	—	—	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-32-73	EACH	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	—	20	20	40
502.0100	CONCRETE MASONRY BRIDGES	CY	58.1	6.4	6.7	72
502.3101	EXPANSION DEVICE	LF	—	8	8	16
502.3200	PROTECTIVE SURFACE TREATMENT	SY	427	6	6	439
502.4110	ADHESIVE ANCHORS 1 1/4-INCH	EACH	—	4	4	8
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	—	56	56	112
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	10,850	760	770	12,380
506.6000	BEARING ASSEMBLIES EXPANSION B-32-73	EACH	—	2	2	4
506.7050.S	REMOVING BEARINGS B-32-73	EACH	—	2	2	4
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	—	4	4	8
517.0901.S	PREPARATION AND COATING OF TOP FLANGES B-32-73	EACH	1	—	—	1
517.1801.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-73	EACH	1	—	—	1
517.4501.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-32-73	EACH	1	—	—	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1	—	—	1
SPV.0090	FENCE CHAIN LINK 10-FT. B-32-73	LF	490	20	20	530

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-32-73" SHALL BE THE EXISTING GROUNDLINE.

AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK, THE TOP AND BACK FACE OF THE PAVING BLOCK, THE HORIZONTAL FACE OF THE PAVING NOTCH CORBEL, THE FACES AND TOP OF CURBS, EDGE OF DECK, THE BOTTOM OF DECK TO GIRDER FLANGE, AND THE INSIDE FACE AND TOP OF CURBS ON ABUTMENT WINGS.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE LIGHT GRAY, (AMS STANDARD COLOR NO. 26293) OR SIMILAR COLOR APPROVED BY THE ENGINEER.

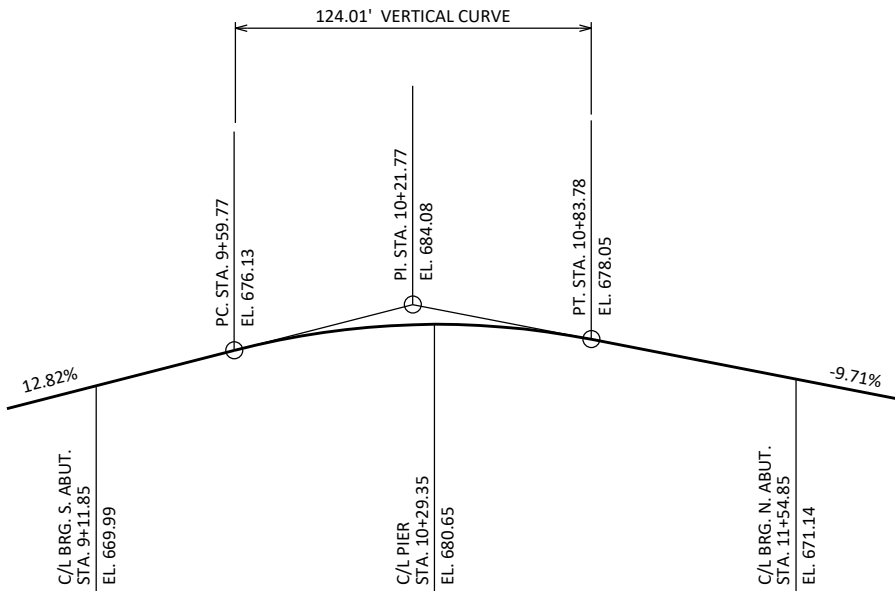
THE HAUNCH CONCRETE QUANTITY IS BASED ON A CONSTANT HAUNCH HEIGHT OF 3 1/4" MEASRUED FROM THE TOP OF WEB TO THE BOTTOM OF DECK AT THE CENTERLINE OF THE GIRDERS, AND EXCLUDES THE VOLUME TAKEN UP BY THE TOP FLANGE.

SEE ROADWAY PLANS FOR REMOVAL & PAINTING STAGING REQUIREMENTS, AND INTERSTATE TRAFFIC CONTROL REQUIREMENTS.

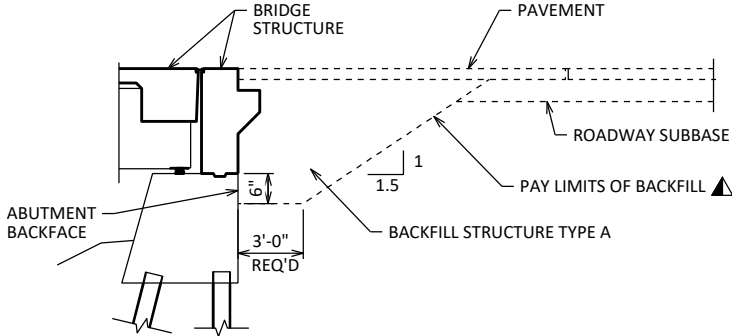
UNDER "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-73" ITEM, CLEAN AND PAINT ALL STRUCTURAL METAL SURFACES, INCLUDING THE BEARINGS AT THE PIER.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR 1972.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

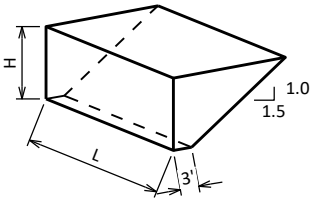


PROPOSED PROFILE GRADE LINE- PEDESTRIAN PATH



TYPICAL SECTION THRU ABUTMENT

▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

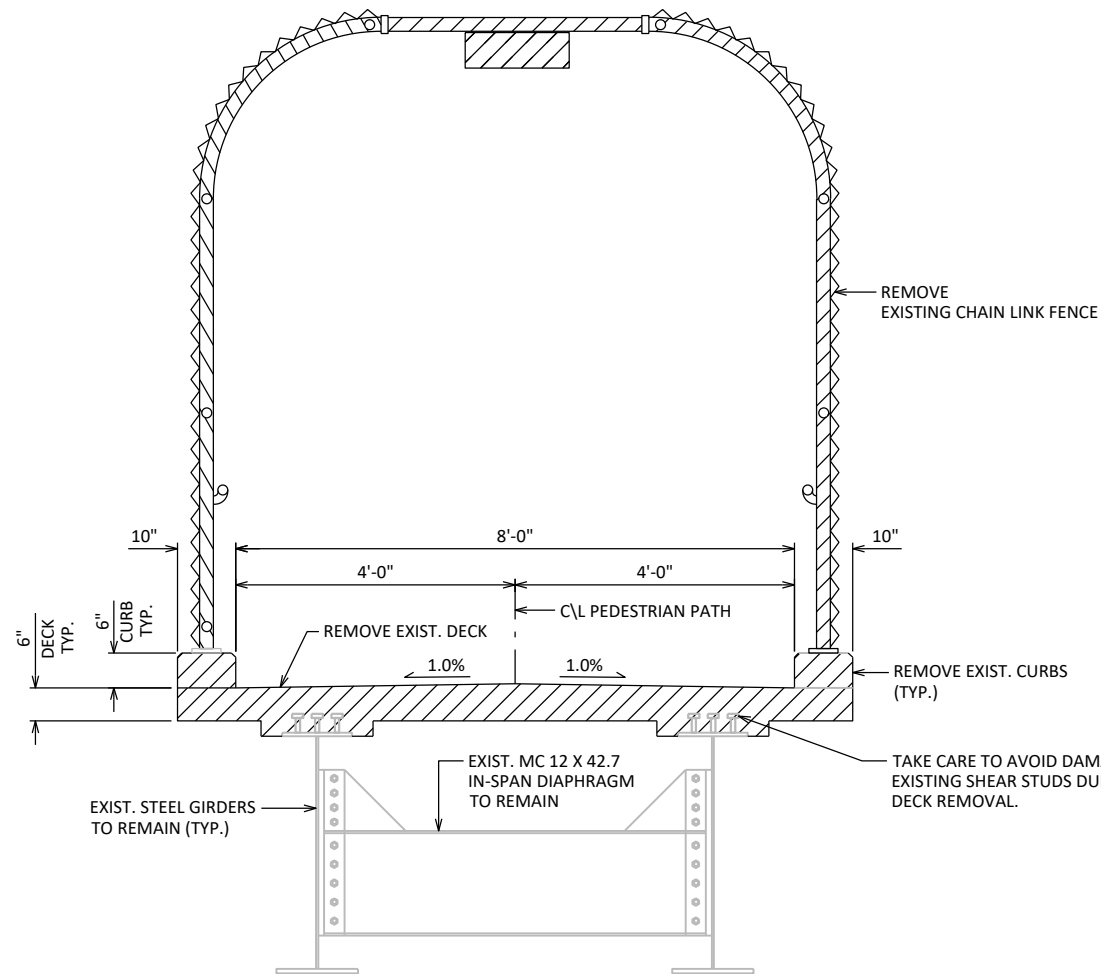


ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY

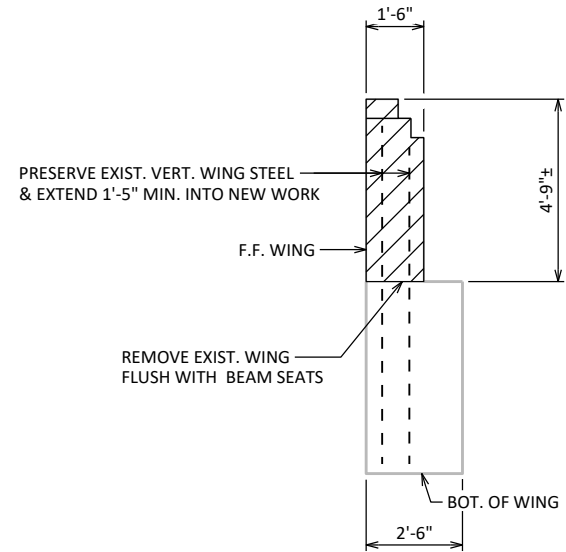
L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
 $V_{CY} = V_{CF}(EF)/27$
 $V_{TON} = V_{CY}(2.0)$

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-32-73	
	DRAWN BY	WWR	PLANS CK'D CAD
QUANTITIES & NOTES		SHEET 2	

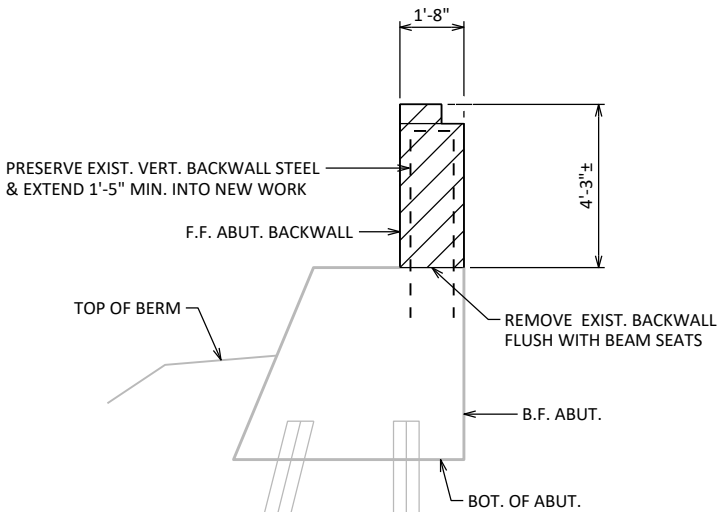
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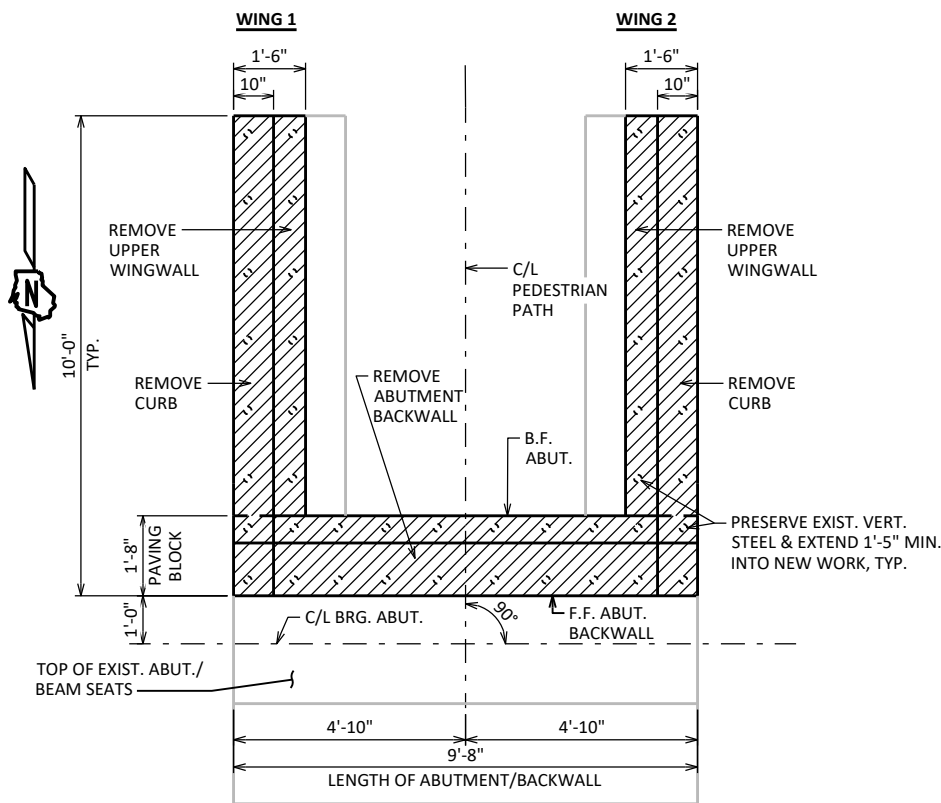
CROSS SECTION THRU BRIDGE



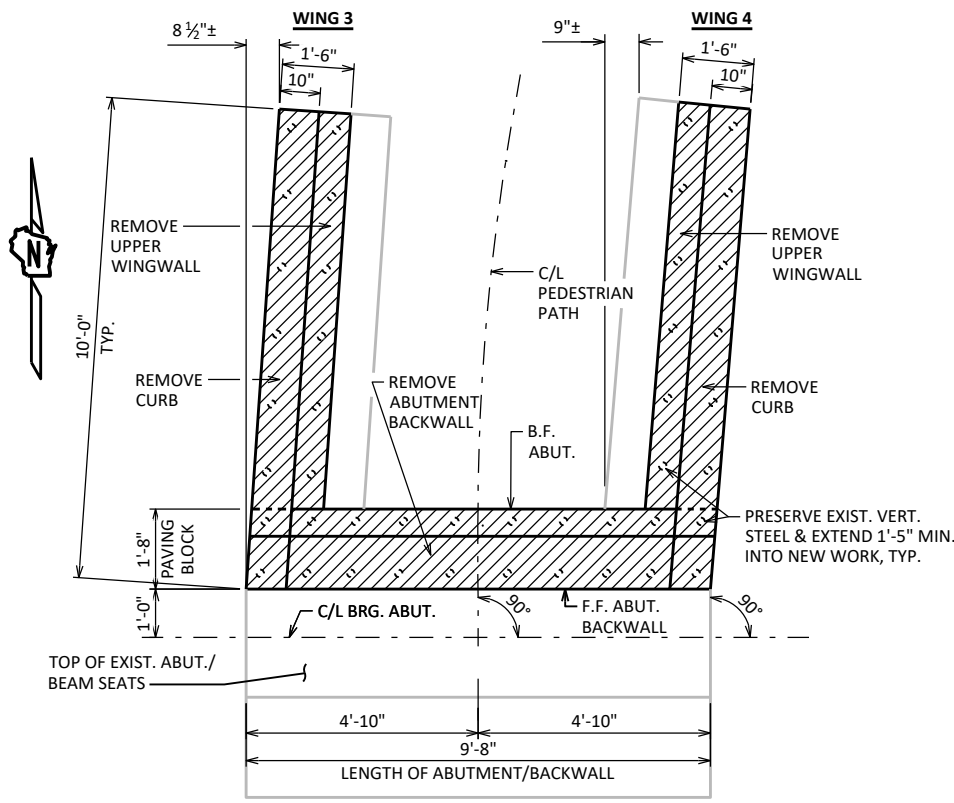
TYP. WING REMOVAL SECTION



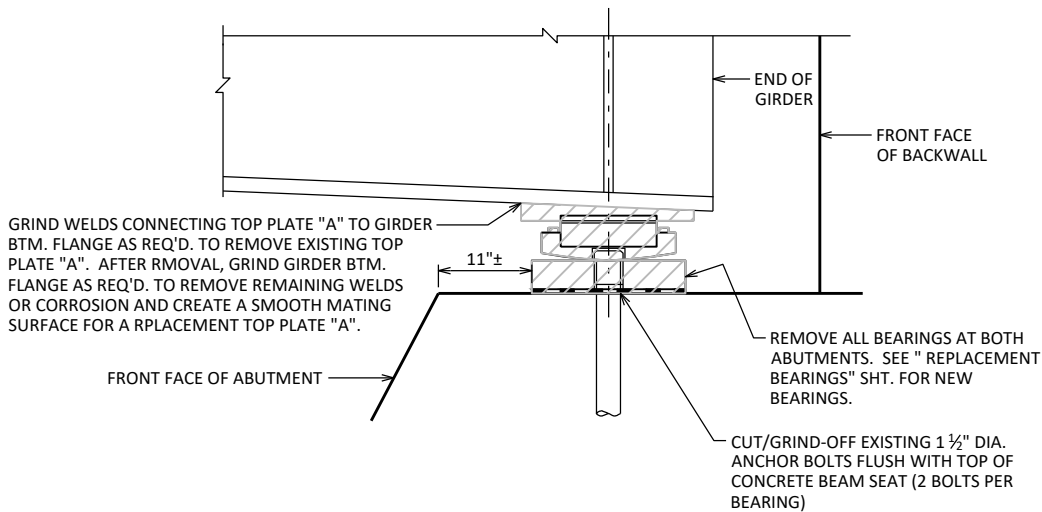
TYP. BACKWALL REMOVAL SECTION



SOUTH ABUT. PLAN



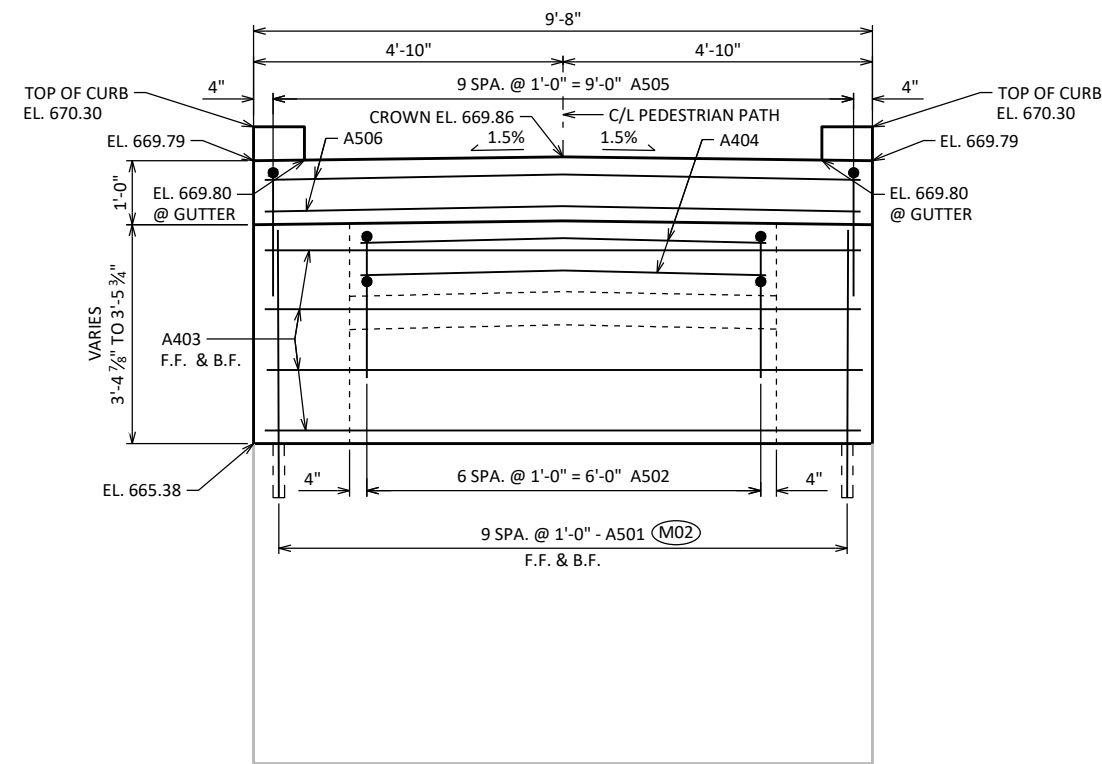
NORTH ABUT. PLAN



BEARING REMOVAL DETAIL AT ABUTMENTS

REMOVAL AND DISPOSAL OF EXISTING BEARINGS AS SHOWN, INCLUDING JACKING OF THE BRIDGE AS REQUIRED TO REMOVE AND REPLACE THE BEARINGS, SHALL BE INCLUDED IN BID ITEM "REMOVING BEARINGS B-32-73".

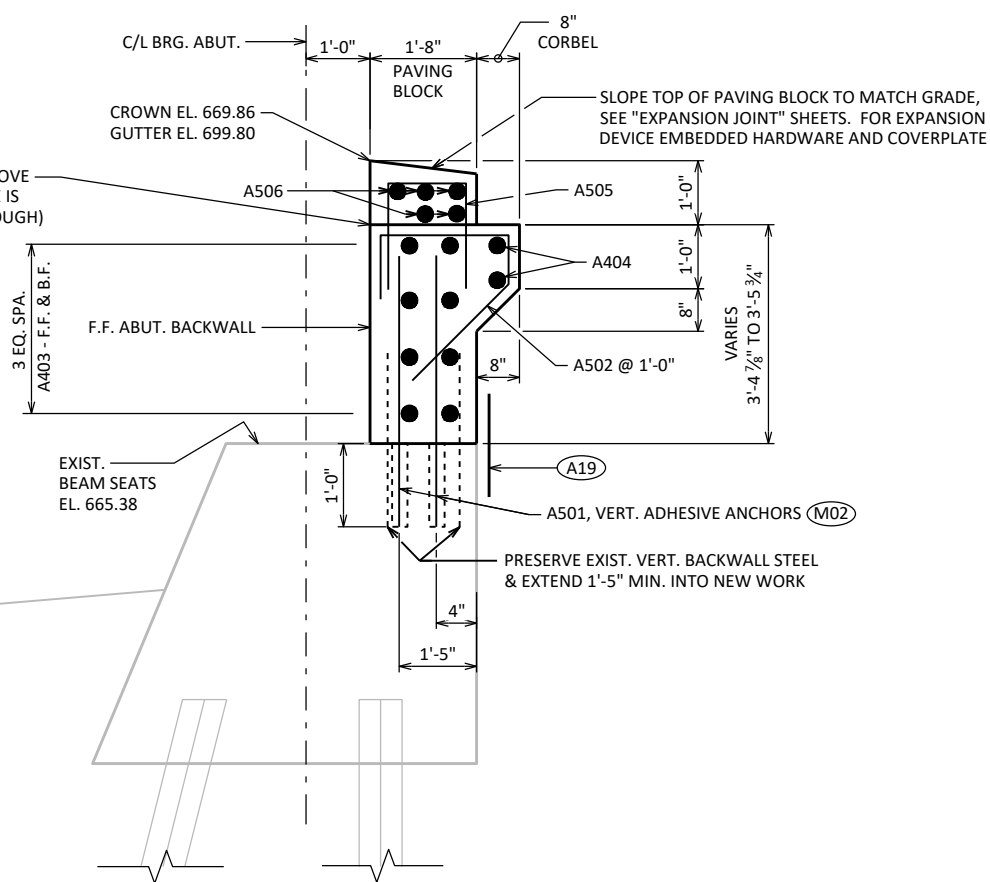
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
REMOVAL DETAILS			SHEET 3



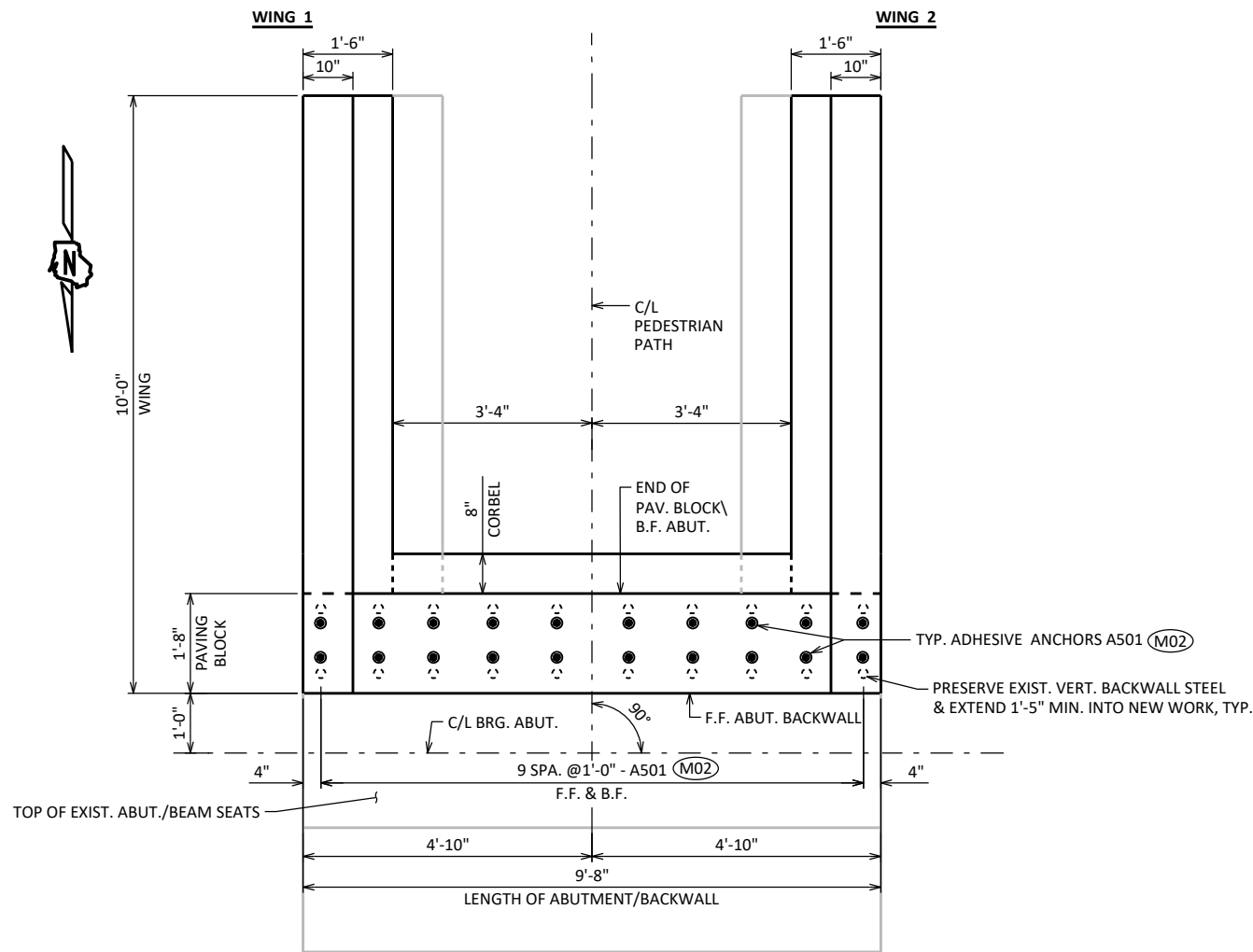
ELEVATION

LOOKING AT F.F. ABUT. BACKWALL

CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE (STRIKE OFF AND LEAVE ROUGH)



SECTION THRU ABUT. BACKWALL



PLAN

(SHOWING EXIST. VERT. BACKWALL REINF. ONLY. SEE NEXT SHT. FOR WING. REINF.)

(M02) "ADHESIVE ANCHORS NO.5 BAR", EMBED 12" IN CONCRETE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
SOUTH ABUTMENT			SHEET 4

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

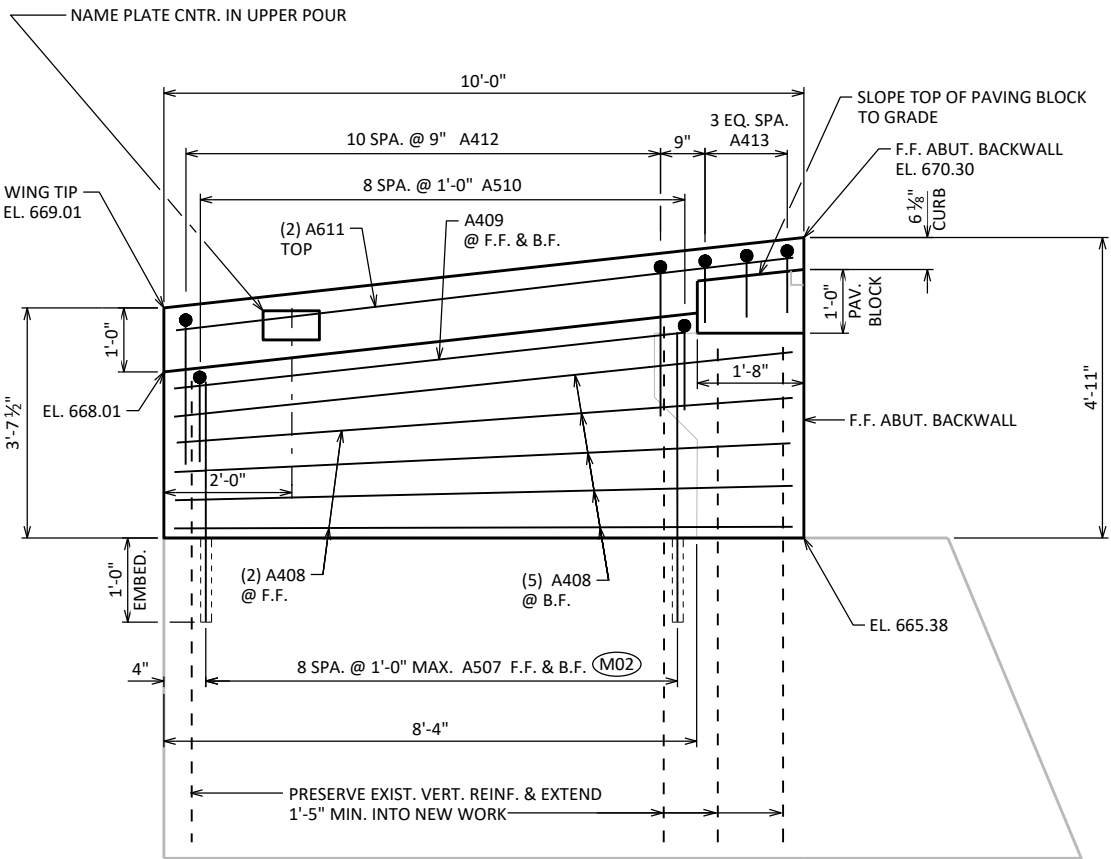
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
(M02) A501	X	20	4'-3"			ABUT. BKWL.-VERT.-DOWEL
A502	X	7	6'-0"	X		ABUT. BKWL.-VERT.-CORBEL
A403	X	8	9'-4"			ABUT. BKWL.-HORIZ.
A404	X	2	6'-8"			ABUT. BKWL.-HORIZ.-CORBEL
A505	X	10	4'-9"	X		ABUT. BKWL./PAV. BLOCK-VERT.
A506	X	5	9'-4"			PAV. BLOCK-HORIZ.
(M02) A507	X	36	3'-11"		▲	WINGS 1 & 2-VERT.-DOWELS
A408	X	14	9'-8"			WINGS 1 & 2-HORIZ.
A409	X	4	8'-0"			WINGS 1 & 2-HORIZ.
A510	X	18	3'-7"	X		WINGS 1 & 2-VERT. U-BAR
A611	X	4	9'-8"			WINGS 1 & 2-HORIZ. CURB
A412	X	22	5'-0"	X		WINGS 1 & 2-VERT. U-BAR-CURB
A413	X	6	2'-4"	X		WINGS 1 & 2-VERT. U-BAR-CURB

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

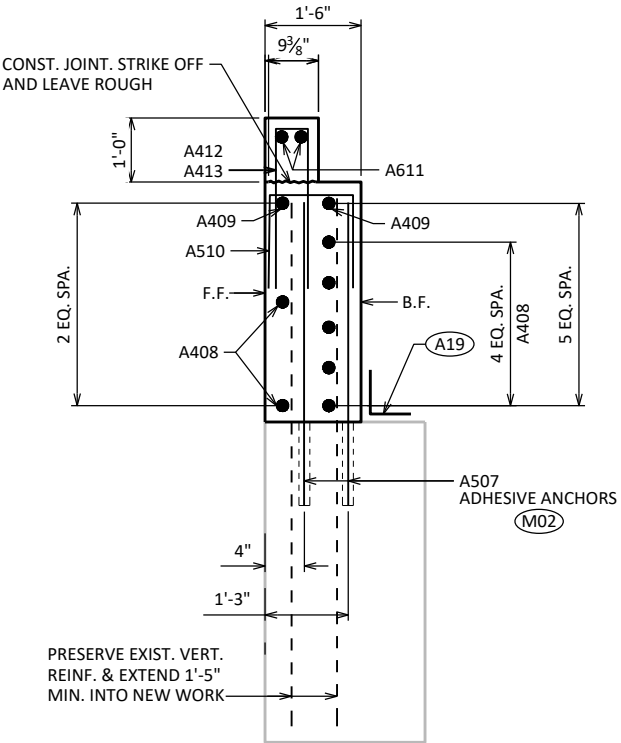
BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D	LENGTH
A507	4 SERIES OF 9	3'-5" TO 4'-5"

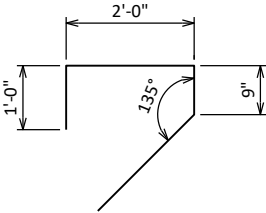


WING 1 ELEVATION

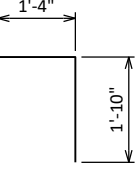
LOOKING AT F.F. OF WING



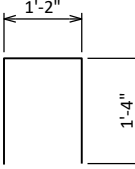
WING 1 SECTION



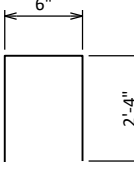
A502



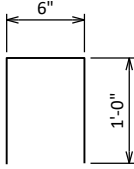
A505



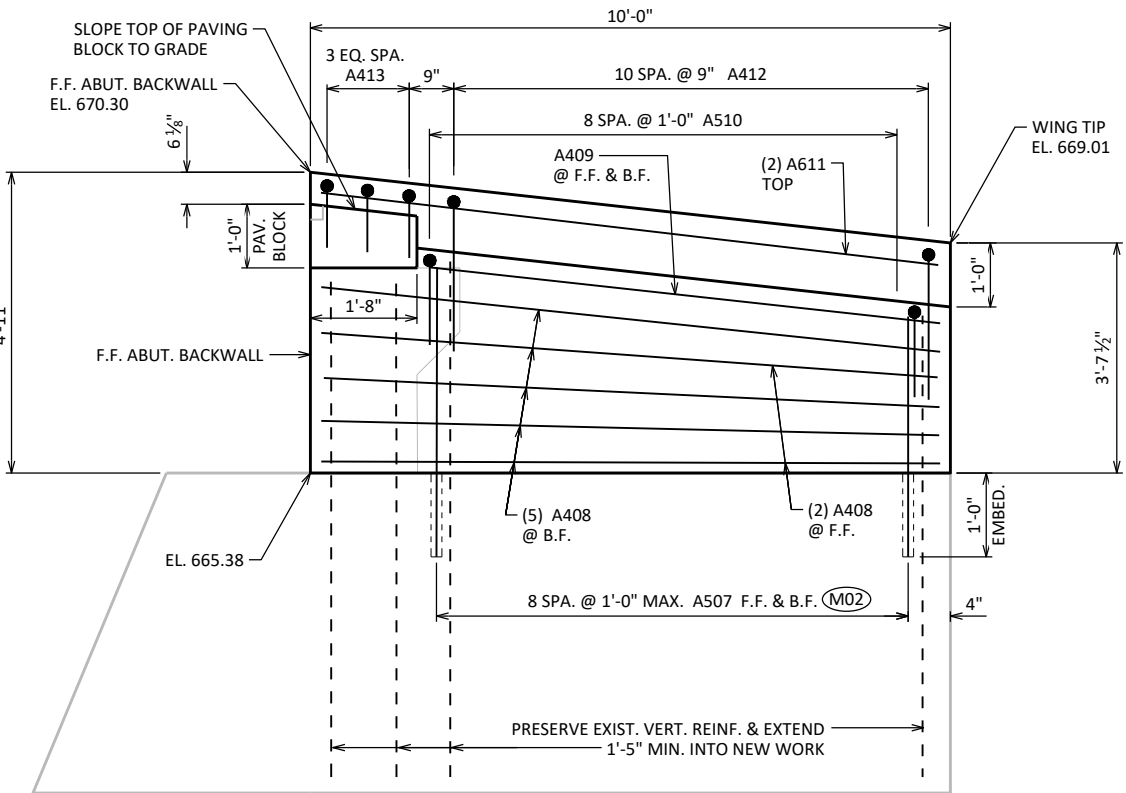
A510



A412

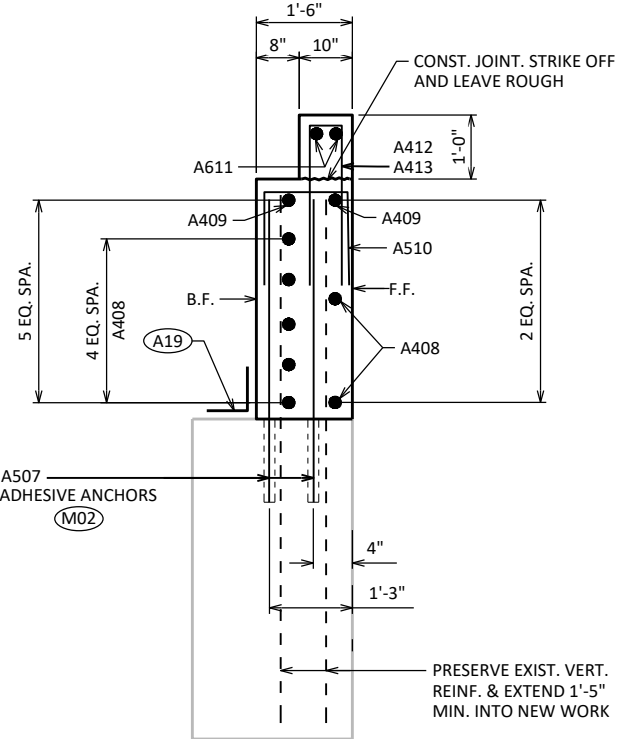


A413



WING 2 ELEVATION

LOOKING AT F.F.



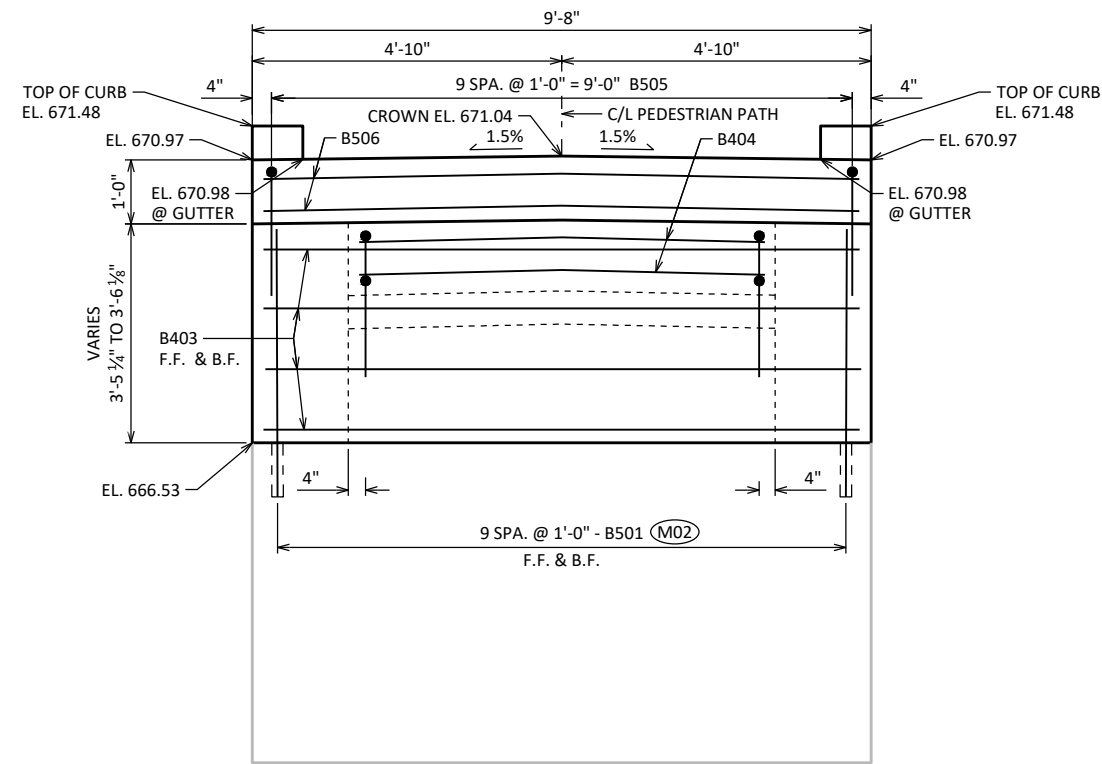
WING 2 SECTION

(M02) "ADHESIVE ANCHORS NO. 5 BAR", EMBED 12" IN CONCRETE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-32-73	
DRAWN BY		WWR	PLANS CK'D CAD
SOUTH ABUTMENT DETAILS		SHEET 5	

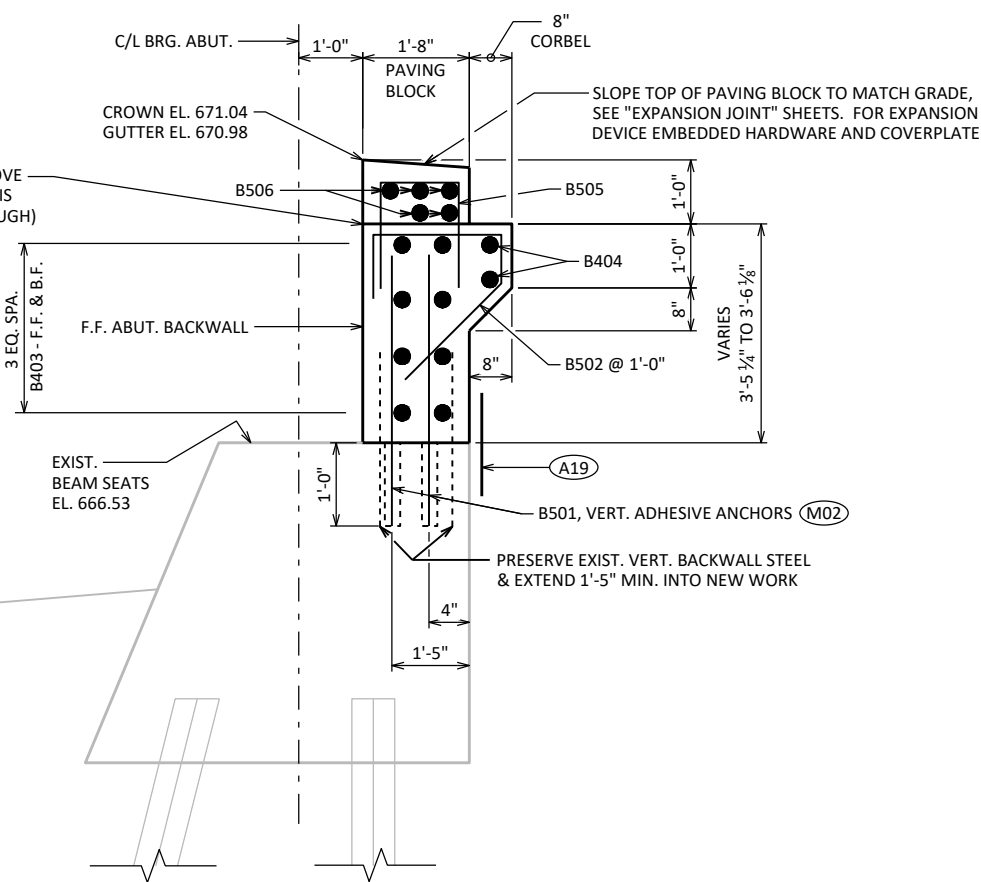
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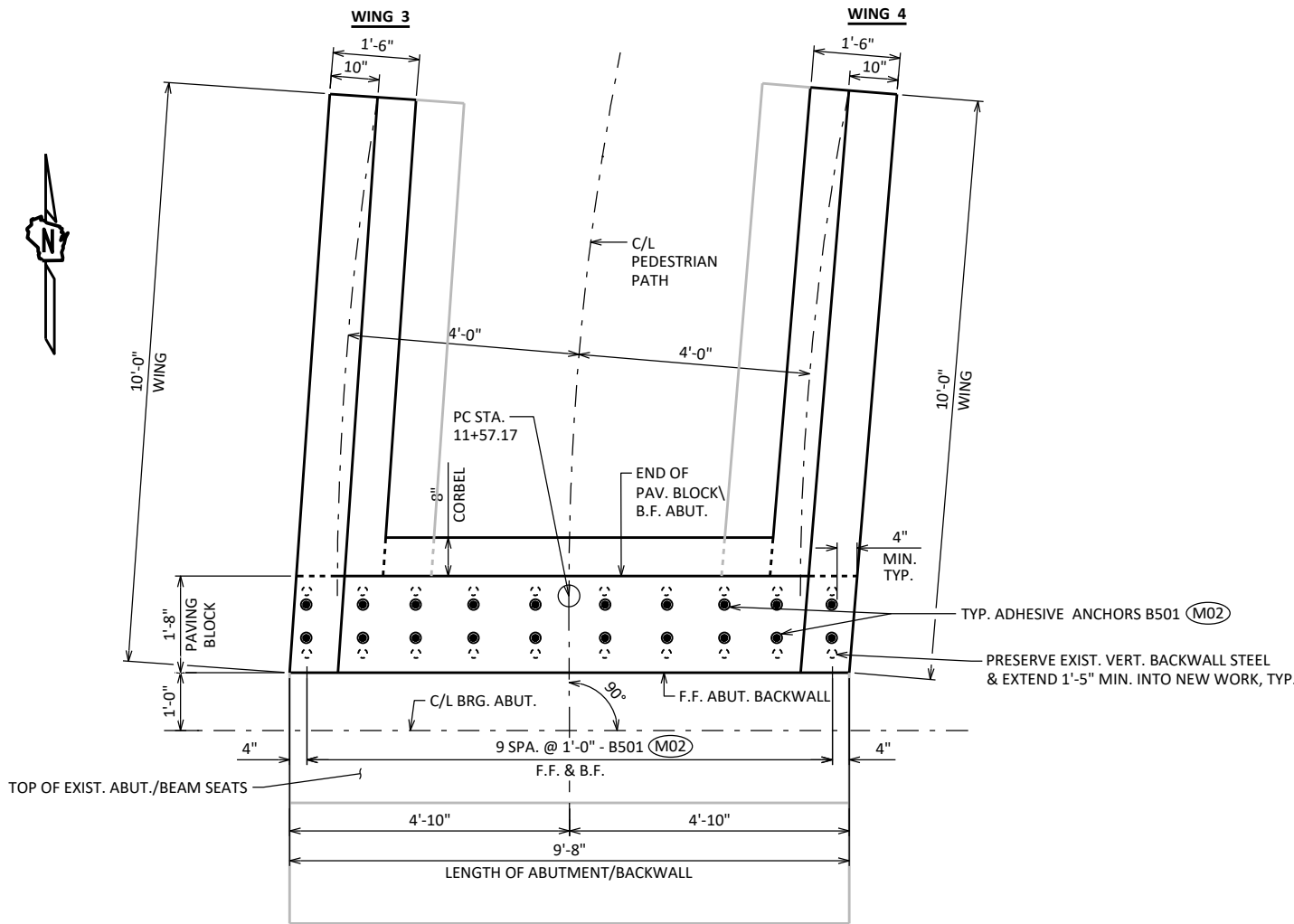
ELEVATION

LOOKING AT F.F. ABUT. BACKWALL

CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE (STRIKE OFF AND LEAVE ROUGH)



SECTION THRU ABUT. BACKWALL



PLAN

(SHOWING VERT. BACKWALL REINF. ONLY. SEE NEXT SHT. FOR WING REINF.)

- (M02) "ADHESIVE ANCHORS NO.5 BAR", EMBED 12" IN CONCRETE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
NORTH ABUTMENT			SHEET 6

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

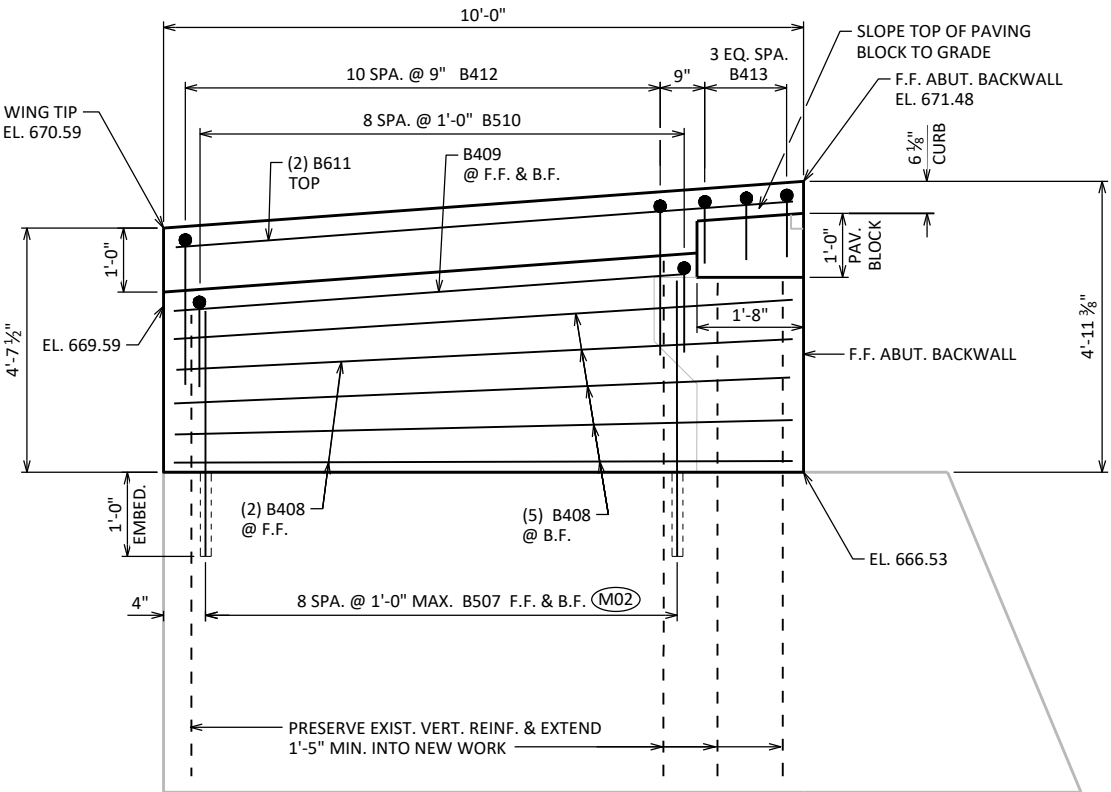
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
(M02) B501	X	20	4'-4"			ABUT. BKWL.-VERT.-DOWEL
B502	X	7	6'-0"	X		ABUT. BKWL.-VERT.-CORBEL
B403	X	8	9'-4"			ABUT. BKWL.-HORIZ.
B404	X	2	6'-8"			ABUT. BKWL. HORIZ. CORBEL
B505	X	10	4'-9"	X		ABUT. BKWL./PAV. BLOCK-VERT.
B506	X	5	9'-4"			PAVI. BLOCK-HORIZ.
(M02) B507	X	18	4'-5"		▲	WING 3-VERT.-DOWELS
B408	X	14	9'-8"			WINGS 3 & 4-HORIZ.
B409	X	4	8'-0"			WINGS 3 & 4-HORIZ.
B510	X	18	3'-7"	X		WINGS 3 & 4-VERT. U-BAR
B611	X	4	9'-8"			WINGS 3 & 4-HORIZ. CURB
B412	X	22	5'-0"	X		WINGS 3 & 4-VERT. U-BAR-CURB
B413	X	6	2'-4"	X		WINGS 3 & 4-VERT. U-BAR-CURB
(M02) B514	X	18	4'-1"		▲	WING 4-VERT.-DOWELS

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

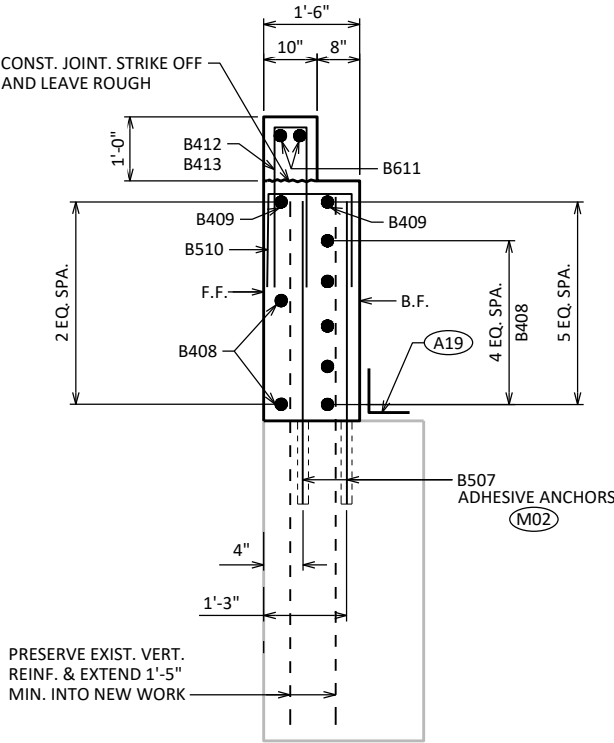
BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D	LENGTH
B507	2 SERIES OF 9	4'-6" TO 4'-3"
B514	2 SERIES OF 9	3'-8" TO 4'-6"

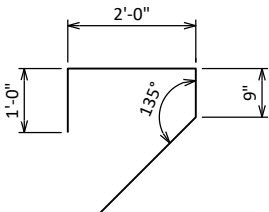


WING 3 ELEVATION

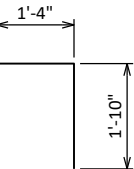
LOOKING AT F.F. OF WING



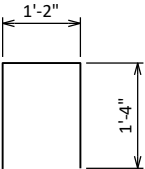
WING 3 SECTION



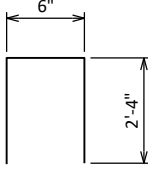
B502



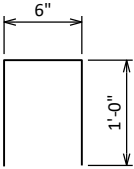
B505



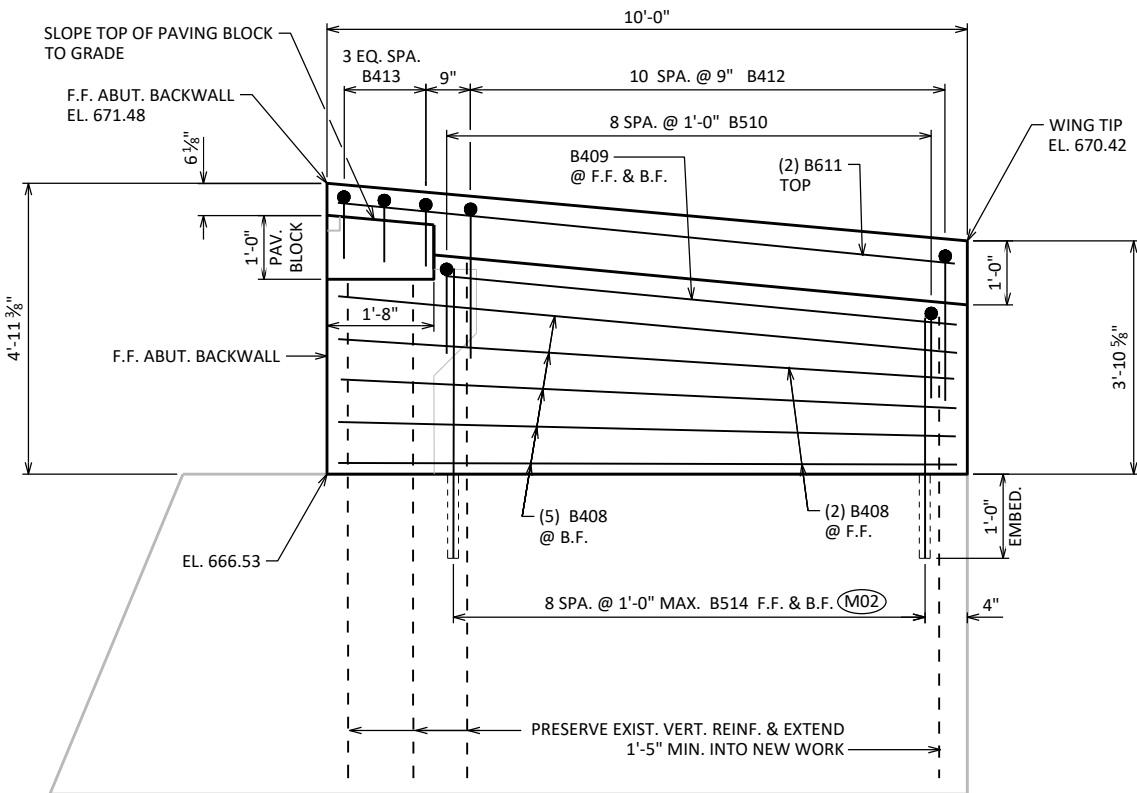
B510



B412

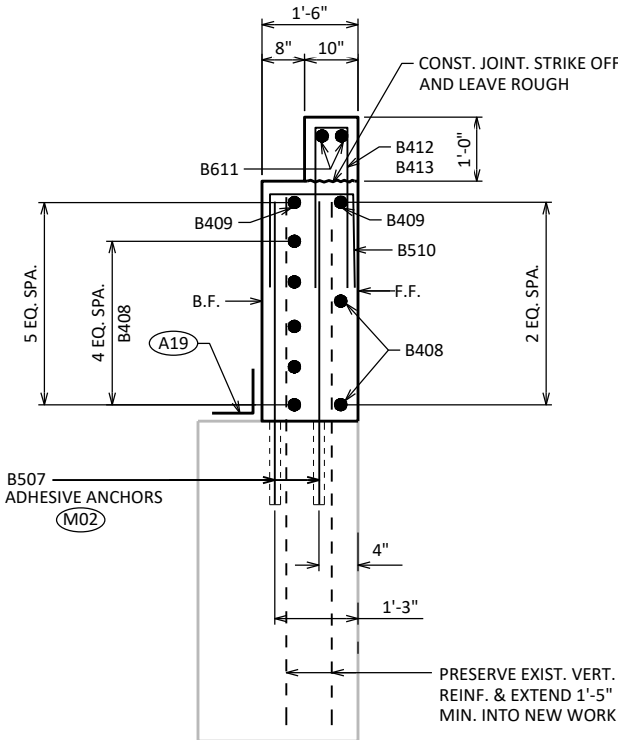


B413



WING 4 ELEVATION

LOOKING AT F.F. OF WING



WING 4 SECTION

(M02) "ADHESIVE ANCHORS NO. 5 BAR", EMBED 12" IN CONCRETE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
NORTH ABUTMENT DETAILS			SHEET 7

BEARING NOTES

ALL MATERIAL IN BEARINGS, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, ANCHOR BOLTS, NUTS AND WASHERS, SHALL CONFORM TO ASTM A709 GRADE 50W.

STAINLESS STEEL SHEET SHALL CONFORM TO ASTM A240, TYPE 304.

STEEL PINTLES SHALL CONFORM TO ASTM A572 GRADE 50 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 55, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

- ANCHOR BOLTS SHALL BE FULLY THREADED. PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2 1/4", ABOVE TOP OF CONCRETE. ANCHOR BOLTS SHALL BE PAID FOR AS "ADHESIVE ANCHORS 1 1/4-INCH" AND BE EPOXY ANCHORED. CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

MASONRY PLATE "D", ROCKER PLATE "C", ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS "C". TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". DO NOT PAINT TEFLON OR STAINLESS STEEL SURFACES.

ALL MATERIAL IN BEARING ASSEMBLIES, INCLUDING BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-32-73", EACH.

- DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE "D" SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT.

- TEFLON SURFACE, USE UNFILLED WITH MINIMUM 1/16" THICKNESS. PLACE WITH SCRIVE MARKS IN DIRECTION OF MOVEMENT. BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING THE REQUIREMENTS FOUND IN THE STANDARD SPECIFICATION.

- PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.

- TOUCH UP CLEAN AND PAINT AFTER WELDING NEW TOP PLATE 'A', INCLUDED IN "STRUCTURE REPAINTING RECYCLED ABRASIVE B-32-73" ITEM.

EXPANSION BEARING ASSEMBLY

SECTION A-A

TEMPERATURE	S/N. ABUT. IN.
10°	-3/8"
20°	-1/4"
30°	-1/8"
40°	-1/16"
50°	1/16"
60°	1/8"
70°	1/4"
80°	3/8"
90°	1/2"

TEMPERATURE TABLE

AT THE SOUTH ABUTMENT, NEGATIVE VALUE INDICATES PINTLES ARE LOCATED SOUTH OF THE C/L OF TOP PLATE "A" AND POSITIVE VALUE INDICATES PINTLES ARE LOCATED NORTH OF THE C/L OF TOP PLATE "A".
AT THE NORTH ABUTMENT, NEGATIVE VALUE INDICATES PINTLES ARE LOCATED NORTH OF THE C/L OF TOP PLATE "A" AND POSITIVE VALUE INDICATES PINTLES ARE LOCATED SOUTH OF THE C/L OF TOP PLATE "A".

DEAD LOAD REACTIONS

(PER GIRDER)

	S. ABUT.	N. ABUT.
STEEL ONLY DL (KIPS)	6.4	8.2
CONC. ONLY DL (KIPS)	22.9	25.7
TOTAL DL (KIPS)	29.3	33.9

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
BEARING REPLACEMENT		SHEET 8	

SCALE = 2

CLEAN EDGES OF EXISTING BOTTOM FLANGE AND GRIND BOTTOM OF FLANGE SMOOTH PRIOR TO INSTALLING NEW TOP PLATE "A"

BEVELED STEEL TOP PLATE "A" WITH 16 GA. STAINLESS STEEL SHEET WELDED TO BOTTOM 9" X 1'-3"

TEFLON SURFACE/ STEEL PLATE "B" 5" X 1/2" X 1'-3"

1 1/8" DIA. DRILLED HOLE- 3/8" DEEP

1" X 1" X 6" BAR

ROCKER PLATE "C" 7" X 1 1/16" X 1'-5 1/2"

TOP OF CONCRETE

MASONRY PLATE "D" 10" X 1 1/2" X 2'-3"

(2)- 1 1/4" DIA. X 1'-5" LONG EPOXY ANCHORED BOLTS

1/8" THICK BEARING PAD, SAME SIZE AS MASONRY PLATE "D".

C/L TOP PLATE "A" & BEARING STIFFENER

C/L MASONRY PLATE "D"/PINTLES LOCATE AS SHOWN FROM C/L OF TOP PLATE "A" (SEE TEMPERATURE TABLE)

KEEPER BAR (ONE EACH SIDE) 3/4" X 1/2"

PINTLE 1 1/2" DIA. X 1 3/4". DRILL HOLES IN MASONRY PLATE "D" FOR A DRIVING FIT CHAMFER TOP OF PINTLE 1/8"

EXIST. ANCHOR BOLTS, CUT/GRIND-OFF FLUSH WITH TOP OF CONCRETE

STAINLESS STEEL ASTM A240, TYPE 304, 2B FINISH, 16 GA. SHEET

9"

1'-3"

1/8" TYP.

ANSI 250 FINISH

SEAL WELD

MOVEMENT

TEFLON SURFACE ON PLATE "B"

ANSI 250 FINISH

KEEPER BAR 3/4" X 1/2"

C/L OF GIRDER

STEEL PLATE "B"

TEFLON SURFACE

1" X 1" X 6" BAR

ANSI 250 FINISH

ROCKER PLATE "C"

EXPANSION BEARING

C/L OF BEARING

10"

2 1/4"

1 1/2"

2 1/4"

3"

1'-5 1/2"

1"

2 1/4"

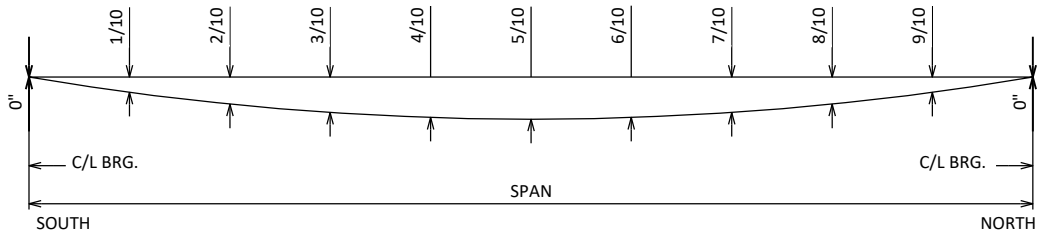
1 1/2" DIA. PINTLES

5"

DRILLED HOLES FOR ANCHOR BOLTS

EXIST. ANCHOR BOLT LOCATIONS, TYP.

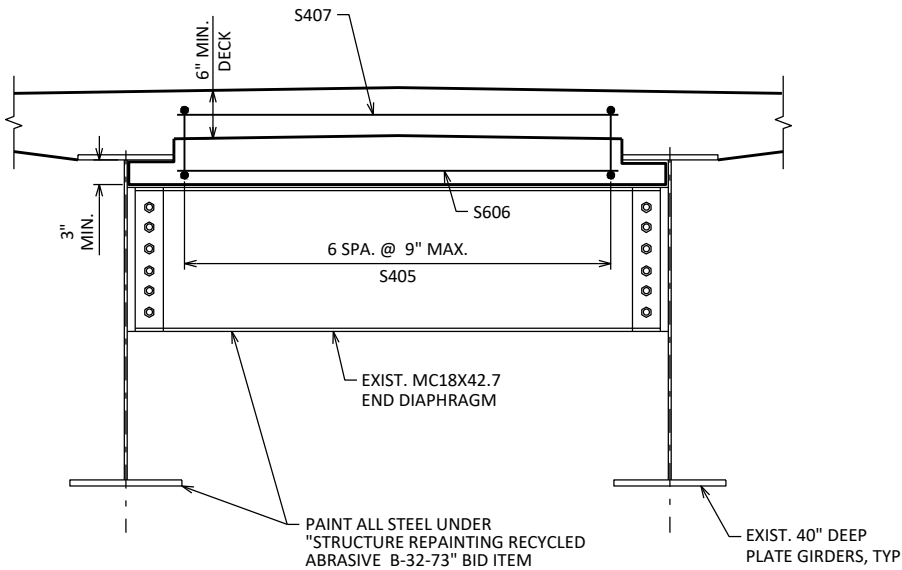
MASONRY PLATE "D"



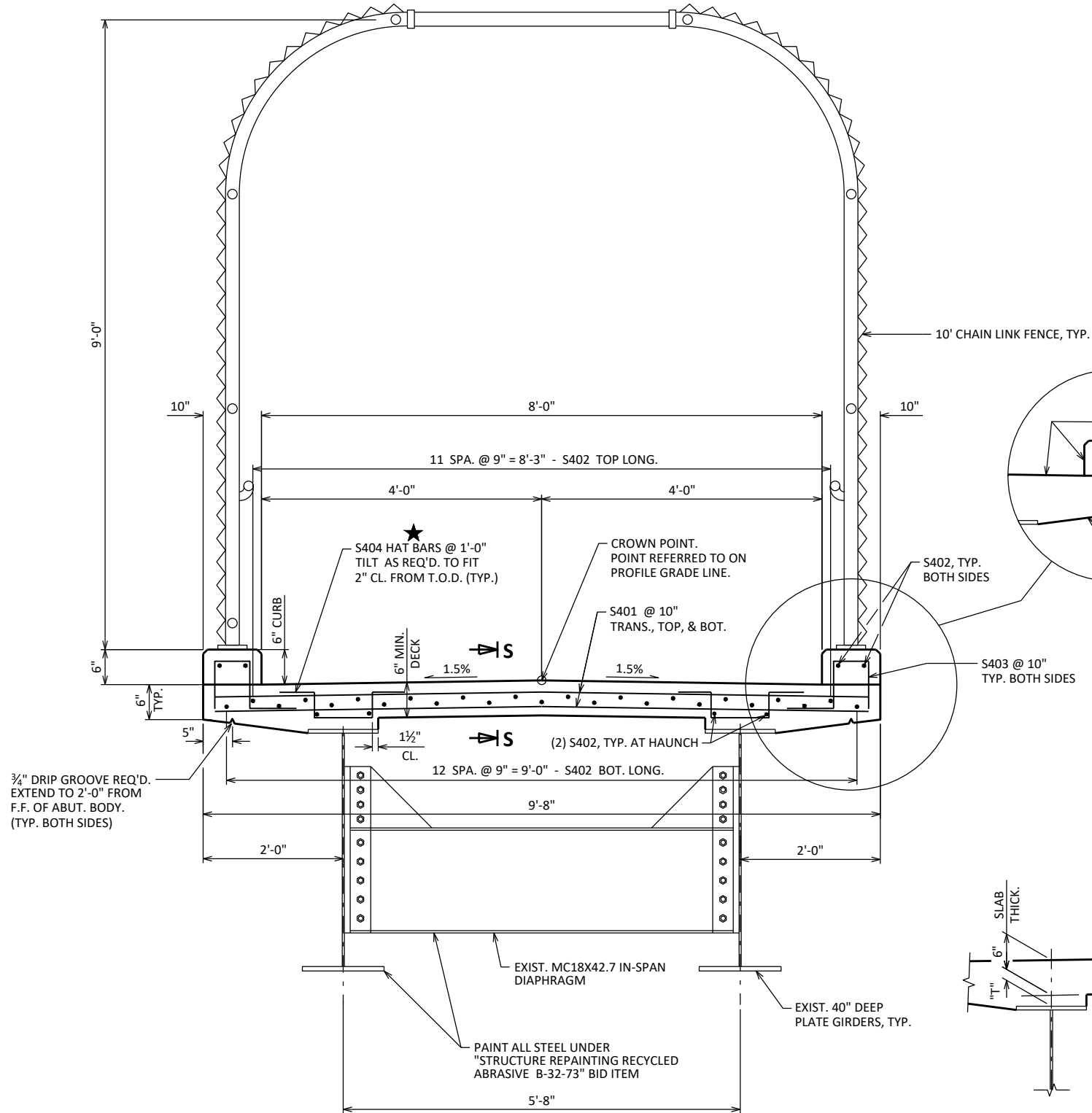
DEFLECTION DIAGRAM

SPAN		1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10
1	CONC. ONLY	0.9	1.6	2.1	2.2	2.1	1.6	1.0	0.5	0.1
2	CONC. ONLY	0.3	1.0	1.8	2.6	3.1	3.2	3.0	2.3	1.2

SHOWING DEADLOAD DEFLECTION ONLY.
DEFLECTIONS ARE GIVEN TO NEAREST 0.1 INCH.
NEGATIVE VALUE INDICATES UPWARD DEFLECTION.
1/10 POINTS ARE ALONG C/L OF THE GIRDER.



ABUTMENT END DIAPHRAGM

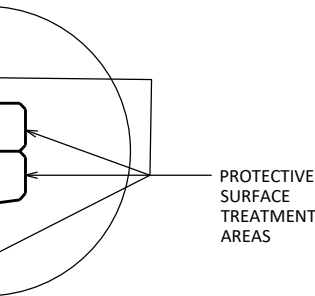


CROSS SECTION THRU BRIDGE - LOOKING NORTH

★ 88 SPACES AT 1'-0" FROM SOUTH ABUT.
98 SPACES AT 1'-0" FROM NORTH ABUT.

TOP OF DECK ELEVATIONS

	S. ABUT	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	PIER 1	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	N. ABUT
W. GUTTER	669.93	671.43	672.94	674.45	675.95	677.35	678.50	679.40	680.05	680.45	680.59	680.47	680.06	679.37	678.39	677.18	675.96	674.74	673.52	672.30	671.08
GIRD. 1	669.94	671.45	672.96	674.46	675.97	677.37	678.52	679.42	680.07	680.46	680.61	680.49	680.08	679.38	678.40	677.20	675.98	674.76	673.54	672.32	671.10
CROWN/PGL	669.99	671.49	673.00	674.51	676.01	677.41	678.56	679.46	680.11	680.51	680.65	680.53	680.12	679.43	678.45	677.24	676.02	674.80	673.58	672.36	671.14
GIRD. 2	669.94	671.45	672.96	674.46	675.97	677.37	678.52	679.42	680.07	680.46	680.61	680.49	680.08	679.38	678.40	677.20	675.98	674.76	673.54	672.32	671.10
E. GUTTER	669.93	671.43	672.94	674.45	675.95	677.35	678.50	679.40	680.05	680.45	680.59	680.47	680.06	679.37	678.39	677.18	675.96	674.74	673.52	672.30	671.08



SECTION S-S

HAUNCH FORMING DIAGRAM

"T" = HAUNCH HEIGHT AT CENTERLINE OF GIRDER.

TO DETERMINE "T" :
ELEVATIONS OF THE TOP FLANGES SHALL BE TAKEN AT CENTERLINE OF BEARINGS AND AT 0.1 POINTS.

TOP OF DECK ELEVATION AT FINAL GRADE

- TOP OF STEEL ELEVATION

+ CONC. ONLY DEFLECTION: DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED

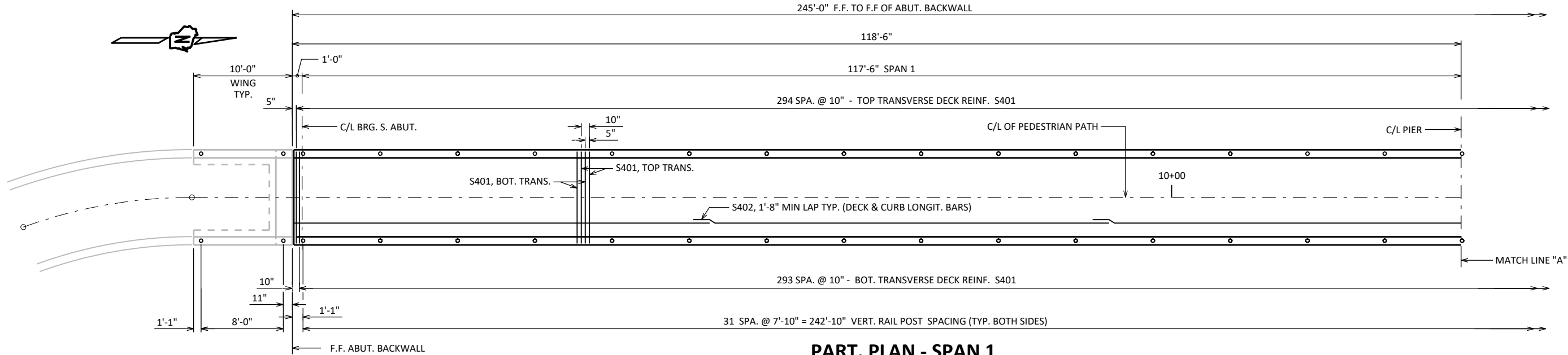
- SLAB THICKNESS

= "T" VALUE FOR SETTING HAUNCH

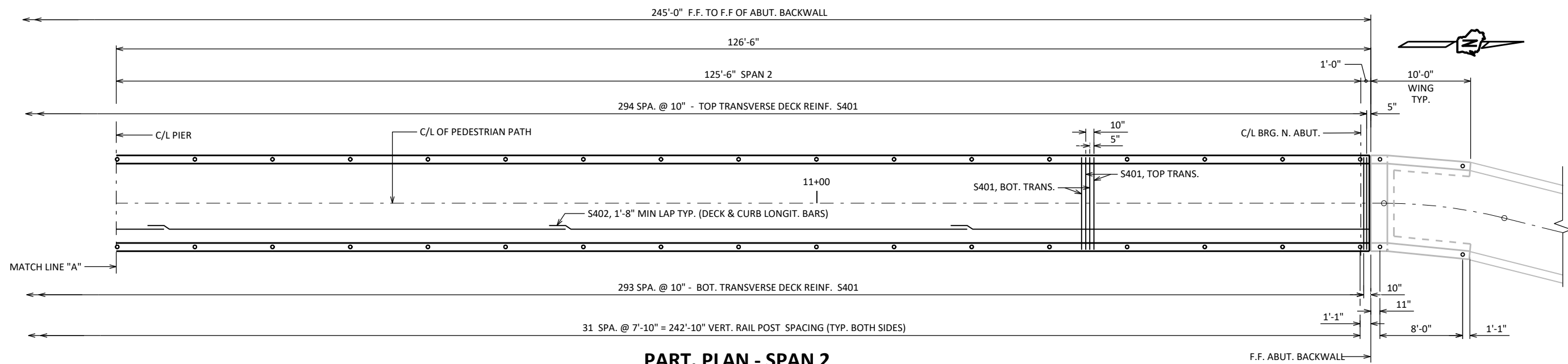
TOP OF STEEL ELEVATIONS

	S. ABUT.	C.L. PIER	S. ABUT.
GIRDER 1	669.23	679.95	670.38
GIRDER 2	669.23	679.95	670.38

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
SUPERSTRUCTURE			SHEET 9

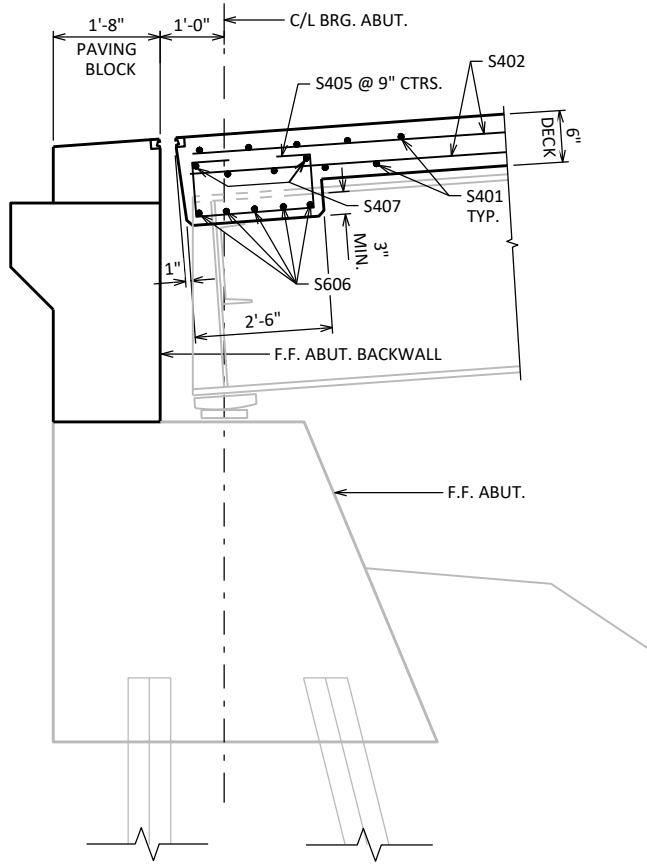


PART. PLAN - SPAN 1

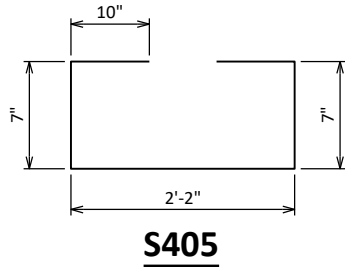
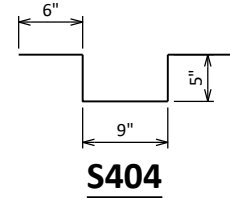
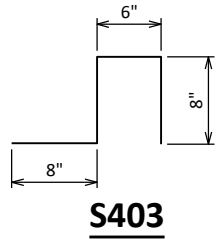


PART. PLAN - SPAN 2

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
SUPERSTRUCTURE DETAILS 1		SHEET 10	



SECTION THRU ABUT. DIAPH.



BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	589	9'-4"			DECK- TRANS.
S402	X	198	42'-3"			DECK & CURB-LONGIT.
S403	X	589	2'-3"	X		DECK & CURB-VERT.
S404	X	376	2'-3"	X		DECK-VERT. HAT BARS
S405	X	14	4'-8"	X		ABUT. DIAPH.-VERT. OPEN STIRRUP
S606	X	10	4'-5"			ABUT. DIAPH.-HORIZ. BOT.
S407	X	4	4'-5"			ABUT. DIAPH.-HORIZ. TOP
S408	X	4	5'-8"			ABUT. DIAPH.-HORIZ. @ STRIP SEAL

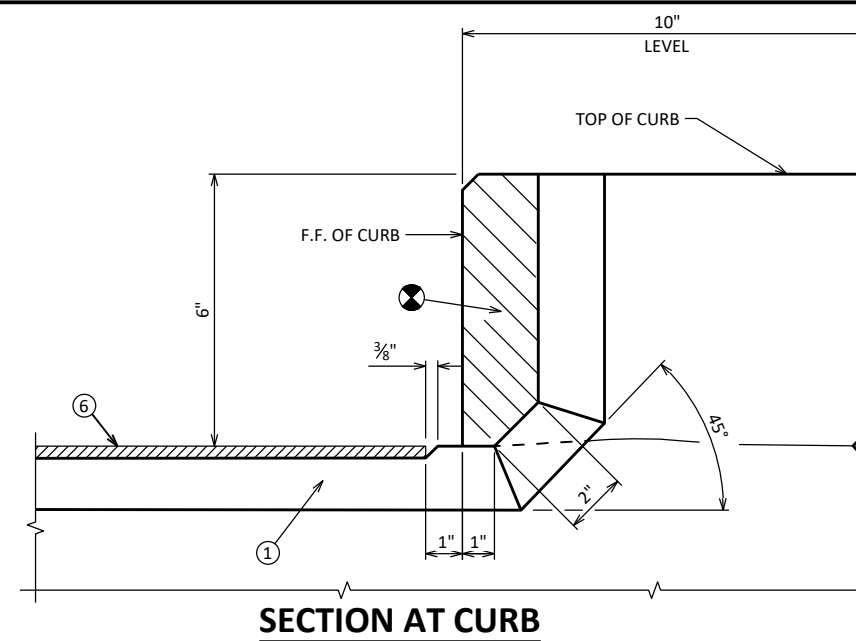
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
SUPERSTRUCTURE DETAILS 2		SHEET 11	

SCALE =

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- ② STUDS $\frac{3}{8}$ " DIA. X $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A $\frac{1}{2}$ " THICK ANCHOR PLATE WITH $\frac{3}{8}$ " DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ $\frac{3}{4}$ " DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ $\frac{3}{4}$ " DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X $\frac{1}{2}$ " BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE $1\frac{1}{2}$ " DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ⑥ GALVANIZED WALKWAY COVER PLATE $\frac{3}{8}$ " THICK X 1'-5" WIDE X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP RESISTANT SURFACE IS APPLIED.
- ⑦ $\frac{3}{4}$ " DIA. X $1\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑧ $\frac{3}{4}$ " DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ $\frac{3}{4}$ " DIA. X $2\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

ALTERNATE STRIP SEAL ANCHOR

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-32-73	
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EXPANSION DEVICE		SHEET 12	



NORMAL TO C/L SUBSTRUCTURE



F.F. OF CURB/
GUTTERLINE
(TYP.)

135°

1

2

SECTION A-A

SECTION A-A



COVER PLATE PART. PLAN

Diagram illustrating the Cover Plate Part Plan. The plan shows a rectangular cover plate with dimensions and components labeled:

- Dimensions:**
 - Overall width: 10" (CURB)
 - Overall height: 1'-8" (PAVING BLOCK)
 - Overall height: 1'-5" (DECK)
 - Internal width: 1'-0" MAX.
 - Internal height: 5"
- Components and Callouts:**
 - PAVING BLOCK:** Indicated by a vertical dimension line on the left.
 - DECK:** Indicated by a vertical dimension line on the left.
 - CURB:** Indicated by a horizontal dimension line at the top right.
 - Callouts 1-10:**
 - 1: Top left corner fastener.
 - 2: Top right corner fastener.
 - 3: Bottom left corner fastener.
 - 4: Bottom right corner fastener.
 - 5: Top center fastener.
 - 6: Bottom center fastener.
 - 7: Top left fastener.
 - 8: Top center fastener.
 - 9: Top right fastener.
 - 10: Bottom center fastener.
 - Fasteners:** Represented by circles with dots in the center.
 - Structural Details:**
 - Top and bottom edges are reinforced with concrete (indicated by hatching).
 - Internal reinforcement is shown with dashed lines.
 - Top and bottom edges are labeled with 'A' and 'B' and arrows pointing to the reinforcement.

COVER PLATE PART. PLAN



AT DECK

TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



NO FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

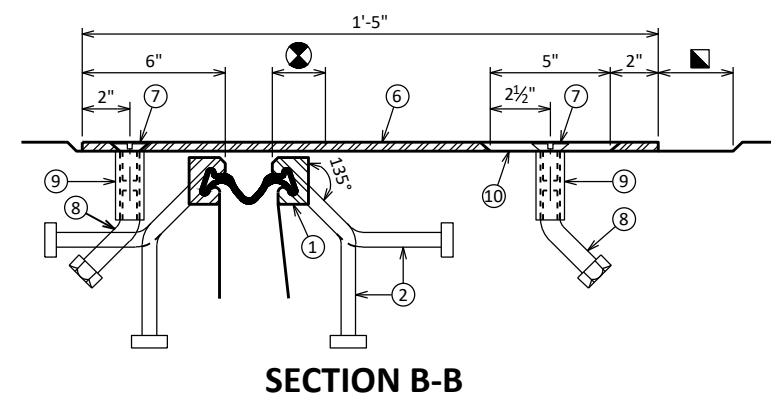
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

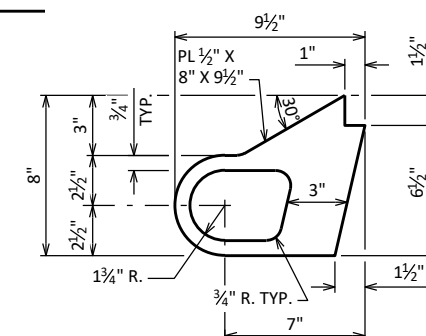
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

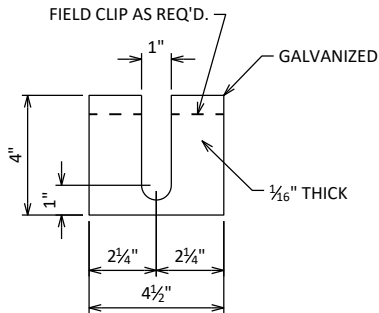


SECTION B-B



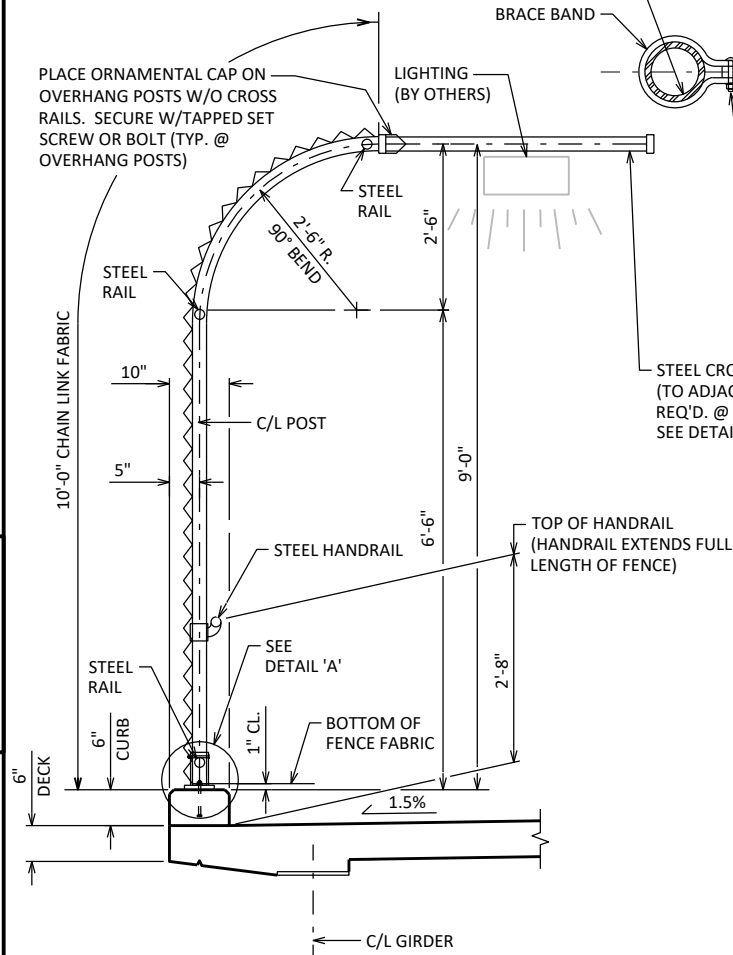
FENCE MEMBER
SIZE & WEIGHT

STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.37	3.65
OVERHANG POST	2.37	3.65
LINE POST	2.37	3.65
HANDRAIL	1.660	2.27
CROSS RAIL SLEEVE	1.900	2.72
HANDRAIL SLEEVE	1.315	1.68
POST SLEEVE	4.000	9.12

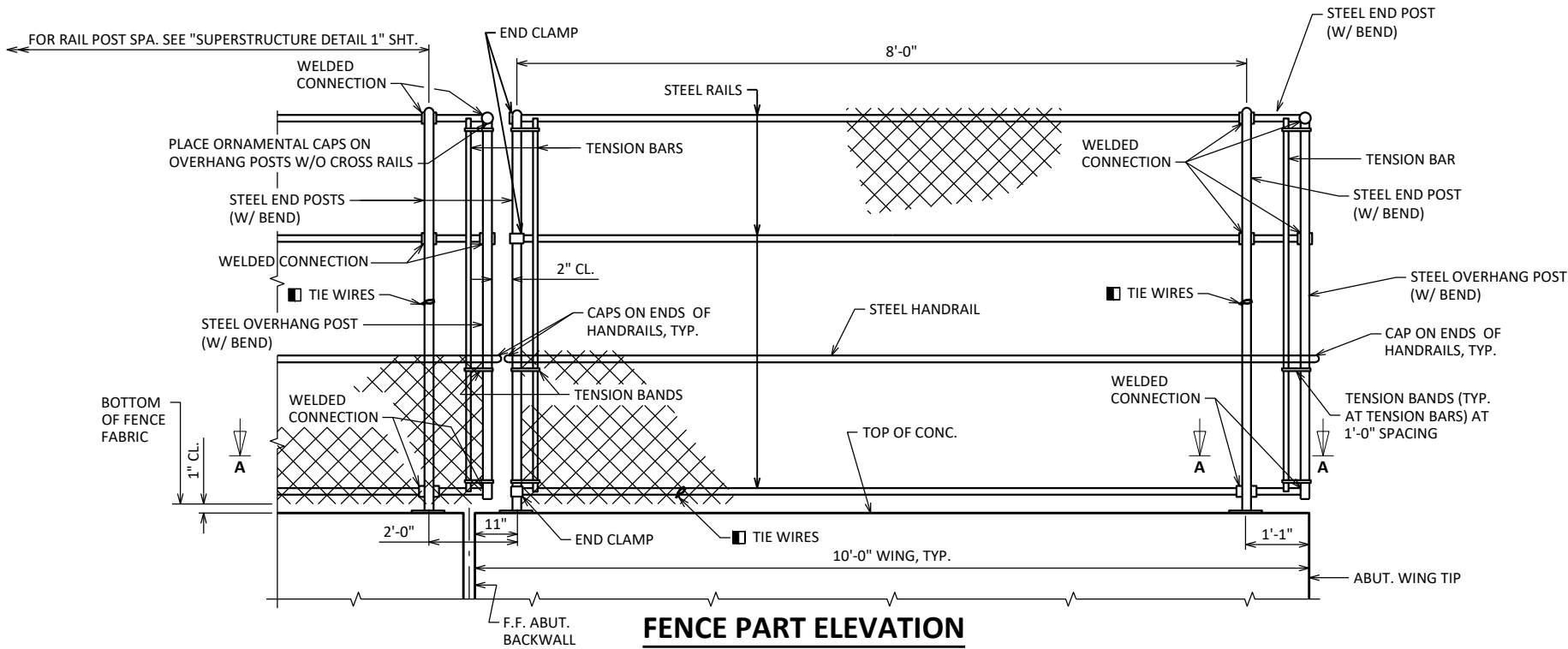


POST SHIM DETAILS

SHIMS REQUIRED ONLY WHEN END POSTS AND LINE POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.

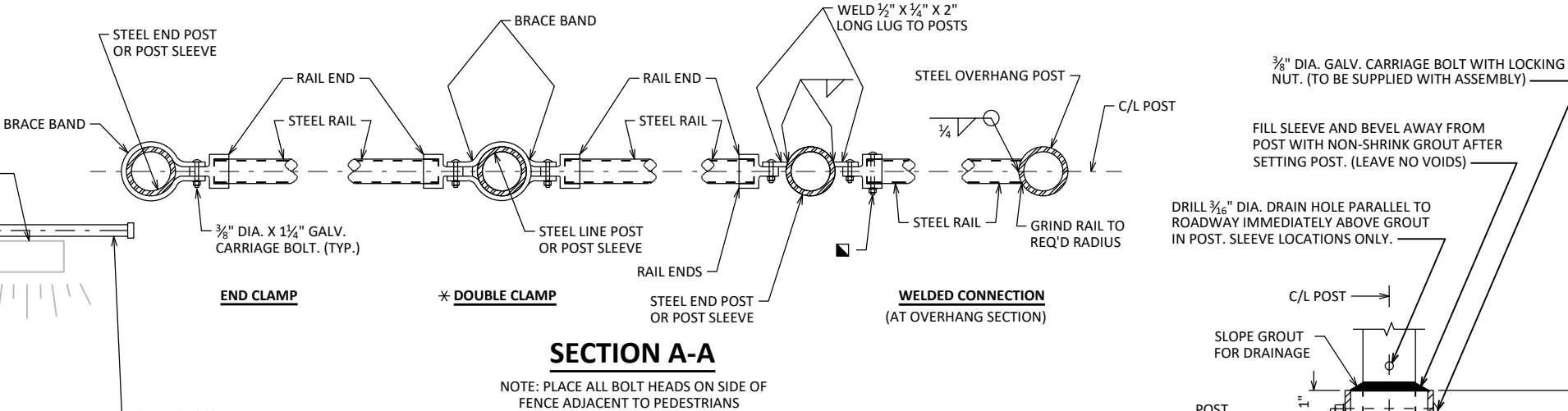


SECTION THRU FENCE



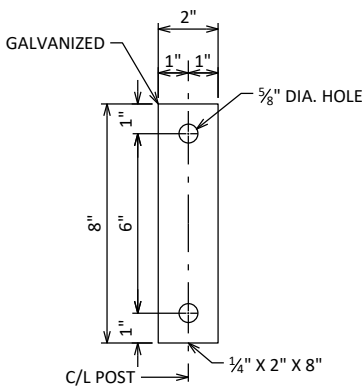
FENCE PART ELEVATION

VIEWING FABRIC SIDE



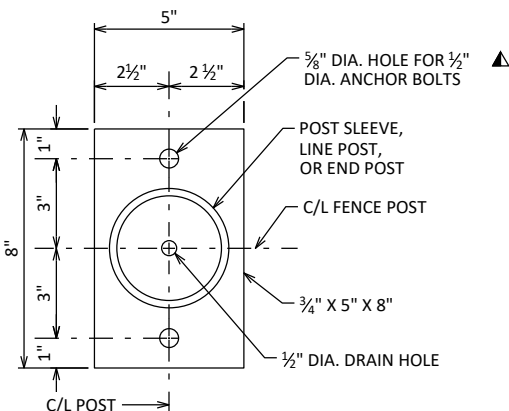
SECTION A-A

NOTE: PLACE ALL BOLT HEADS ON SIDE OF FENCE ADJACENT TO PEDESTRIANS

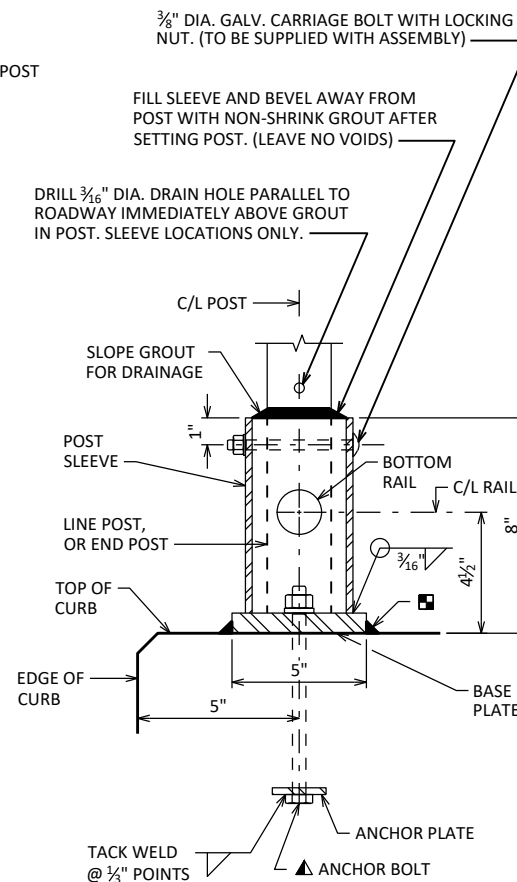


ANCHOR PLATE

★ NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



BASE PLATE



DETAIL 'A'

UNIT SHALL BE GALVANIZED AFTER FABRICATION

NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.

STATE PROJECT NUMBER

1070-04-64

NOTES

POSTS ARE TO BE SET VERTICAL. SPACE/ALIGN ALL POSTS ON OPPOSITE CURBS DIRECTLY ACROSS FROM ONE ANOTHER TO PERMIT PLACEMENT OF CROSS RAILS.

ALL END POSTS AND LINE POSTS SHALL HAVE CROSS RAILS.

ALL FENCE COMPONENTS SHALL BE GALVANIZED STEEL, EXCEPT THE FENCE FABRIC WHICH MAY BE ALUMINUM-COATED STEEL OR GALVANIZED STEEL.

FABRIC SHALL CONFORM TO ASTM A491 OR A392, CLASS 2. STEEL RAILS, POSTS AND POST SLEEVES SHALL CONFORM TO ASTM F1083, STANDARD WEIGHT PIPE (SCHEDULE 40). FITTINGS SHALL CONFORM TO ASTM F626.

THE BID ITEM SHALL BE "FENCE CHAIN LINK 10-FT B-32-73".

COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.

CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

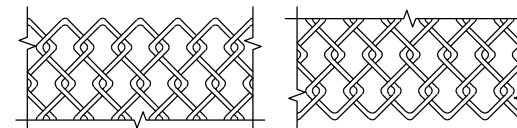
ALTERNATE TO DOUBLE CLAMP: USE LINE RAIL CLAMP (BOULEVARD) OR 180° BRACE BAND, WHICH MAY BE USED WHEN THE POSTS ARE EITHER BOLTED TO THE POST SLEEVES OR DIRECTLY WELDED TO THE BASE PLATE.

1/2" DIA. X 6 7/8" LONG GALVANIZED HEX BOLT WITH NUT & WASHER. ★

ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS 1/2-INCH. EMBED 6" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS, AND BE FULLY THREADED ROD, ASTM F1554, GRADE 36 MIN.

ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".

BOLT RAIL TO RAIL END TO SECURE OVERHANG SECTION. ALTERNATE IS TO WELD RAIL DIRECTLY TO END POST.



TOP DETAIL

BOTTOM DETAIL

FENCE FABRIC

FENCE FABRIC WOVEN OF 9-GAGE WIRE IN 2" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

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STRUCTURE B-32-73			
DRAWN BY WWR		PLANS CK'D CAD	
FENCING DETAILS 1			SHEET 13

SCALE =



STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.375	3.65
OVERHANG POSTS	2.375	3.65
LINE POST	2.375	3.65
HANDRAIL	1.660	2.27
CROSS RAIL SLEEVE	1.900	2.72
HANDRAIL SLEEVE	1.315	1.68
POST SLEEVE	4.000	9.12



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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE B-32-73					
		DRAWN BY	WWR	PLANS CK'D	CAD
FENCING DETAILS 2			SHEET 14		

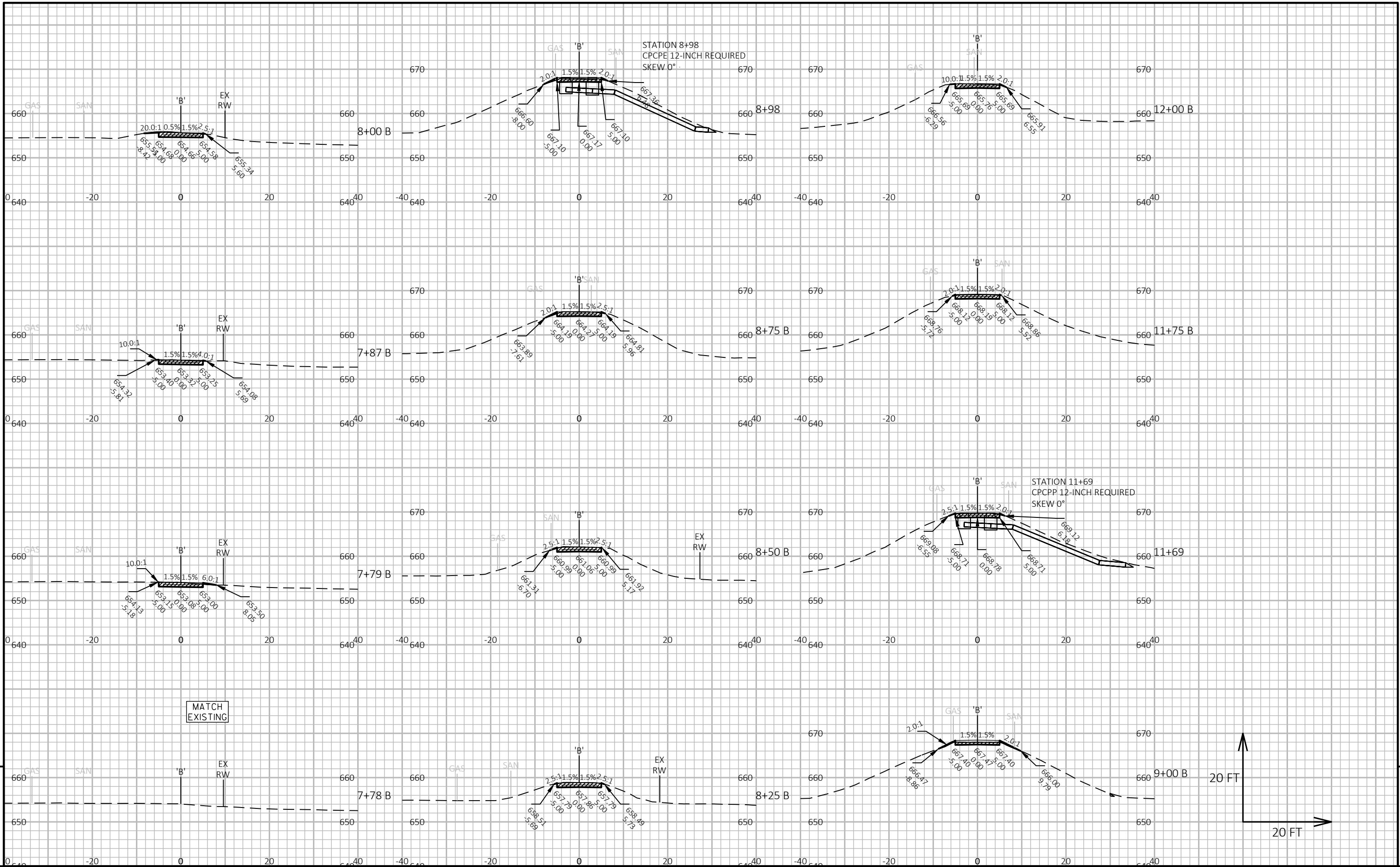
Division 1 - PED BRIDGE

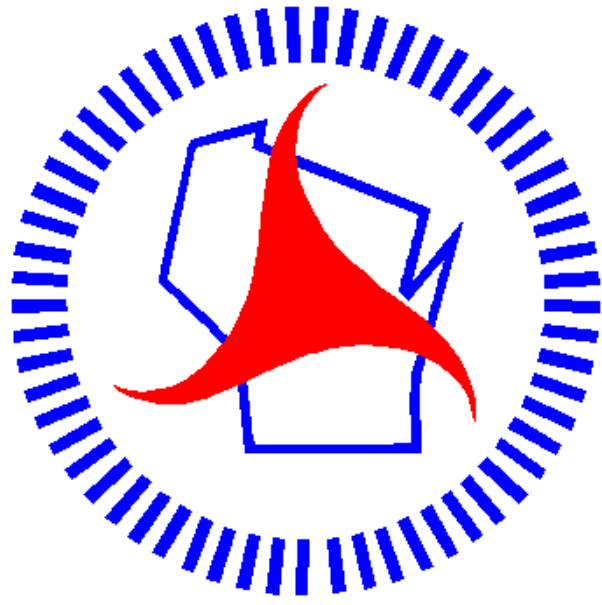
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
11+68.93	1168.93	0.00	9.04	3.33	0.30	0	0	0	0	0	0
11+75.00	1175.00	6.07	8.82	3.33	0.14	2	1	0	2	0	1
12+00.00	1200.00	25.00	8.80	3.33	0.20	8	3	0	10	0	6
12+25.00	1225.00	25.00	8.71	3.33	0.11	8	3	0	18	0	11
12+50.00	1250.00	25.00	9.65	3.33	0.02	9	3	0	27	0	17
12+75.00	1275.00	25.00	10.45	3.33	0.00	9	3	0	36	0	23
12+90.00	1290.00	15.00	9.28	3.33	0.02	5	2	0	41	0	26
12+98.00	1298.00	8.00	8.95	3.33	0.22	3	1	0	44	0	28
12+99.00	1299.00	1.00	0.00	0.00	0.00	0	0	0	44	0	28

Division 1 - PED BRIDGE

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
7+78.00	778.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
7+79.00	779.00	1.00	9.24	3.33	0.51	0	0	0	0	0	0
7+87.00	787.00	8.00	9.12	3.33	0.11	3	1	0	3	0	2
8+00.00	800.00	13.00	10.51	3.33	0.06	5	2	0	8	0	5
8+25.00	825.00	25.00	10.27	3.33	0.10	10	3	0	18	0	12
8+50.00	850.00	25.00	10.32	3.33	0.17	10	3	0	28	0	19
8+75.00	875.00	25.00	8.97	3.33	0.65	9	3	0	37	0	25
8+97.68	897.68	22.68	7.34	3.33	1.04	7	3	1	44	1	28
9+00.00	900.00	2.32	5.53	3.33	1.40	1	0	0	45	1	29

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]





Wisconsin Department of Transportation

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