

MAD
WITH: N/A

PROJECT ID:
5889-00-74

COUNTY:
DANE

FEBRUARY 2025
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 (Incl. Erosion Control)
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 = 76

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T PRIMROSE - T SPRINGDALE

W BR SUGAR RIVER BRIDGE B-13-0903

CTH G
DANE

STATE PROJECT NUMBER

5889-00-74

STATE PROJECT

5889-00-74

FEDERAL PROJECT

PROJECT

WISC 2025308

CONTRACT

1



DANE COUNTY

DESIGN DESIGNATION 5889-00-04

A.A.D.T.	2025	=	1200
A.A.D.T.	2045	=	1300
D.H.V.		=	
D.D.		=	
T.		=	7.6%
DESIGN SPEED		=	55 MPH
ESALS		=	

CONVENTIONAL SYMBOLS

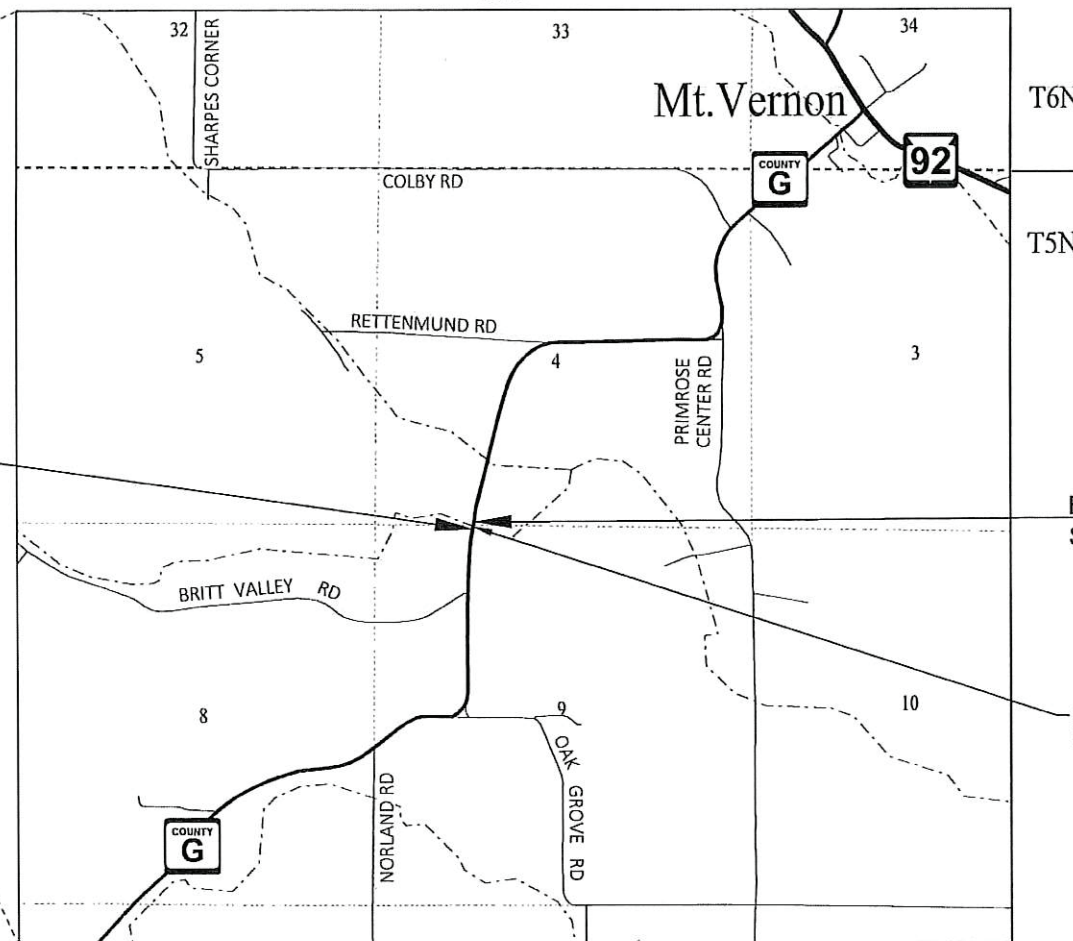
PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

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	

BEGIN PROJECT 5889-00-74
STA 9+10'G'
Y = 430340.359
X = 742797.079

END PROJECT 5889-00-74
STA 10+90'G'

REPLACE BRIDGE STRUCTURE B-13-0903
STA. 9+56.75'G' TO STA. 10+43.25'G'



LAYOUT
SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 0.034 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DANE 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 (2018). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

ACCEPTED FOR
DANE COUNTY

Date: 10/17/24
Clement Abongwa
(HIGHWAY COMMISSIONER)

ORIGINAL PLANS PREPARED BY

AYRES

WISCONSIN
AMANDA M. INMAN
44690 OREGON WI
PROFESSIONAL ENGINEER
DATE: 10/22/24
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: AYRES ASSOCIATES
Designer: AYRES ASSOCIATES
Project Manager: LORRAINE BETZEL
Regional Examiner: KYLE HEMP
Regional Supervisor: KYLE HEMP

APPROVED FOR THE DEPARTMENT
DATE: 10/22/24
Lorraine Betzel
(Signature)

E

GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LOCATION THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

EXACT TRAFFIC CONTROL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

HMA UNIT WEIGHT: 112 LB/SY/IN

ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK

CONTACTS

DANE COUNTY HIGHWAY DEPARTMENT

MARK MISUN
HIGHWAY ENGINEER
2302 FISH HATCHERY RD
MADISON, WI 53713
P: (608) 266-9081
E: MISUN.MARK@DANECOUNTY.GOV

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

ERIC HEGGELUND
DNR SOUTH CENTRAL REGION HEADQUARTERS
3911 FISH HATCHERY RD
FITCHBERG, WI 53711
P: (608) 228-7927
E: ERIC.HEGGELUND@WISCONSIN.GOV

DESIGNER

AMANDA INMAN, PE
AYRES ASSOCIATES
5201 EAST TERRACE DRIVE, SUITE 200
MADISON, WI 53718
P: (608) 443-1239
E: INMANA@AYRESASSOCIATES.COM

UTILITIES

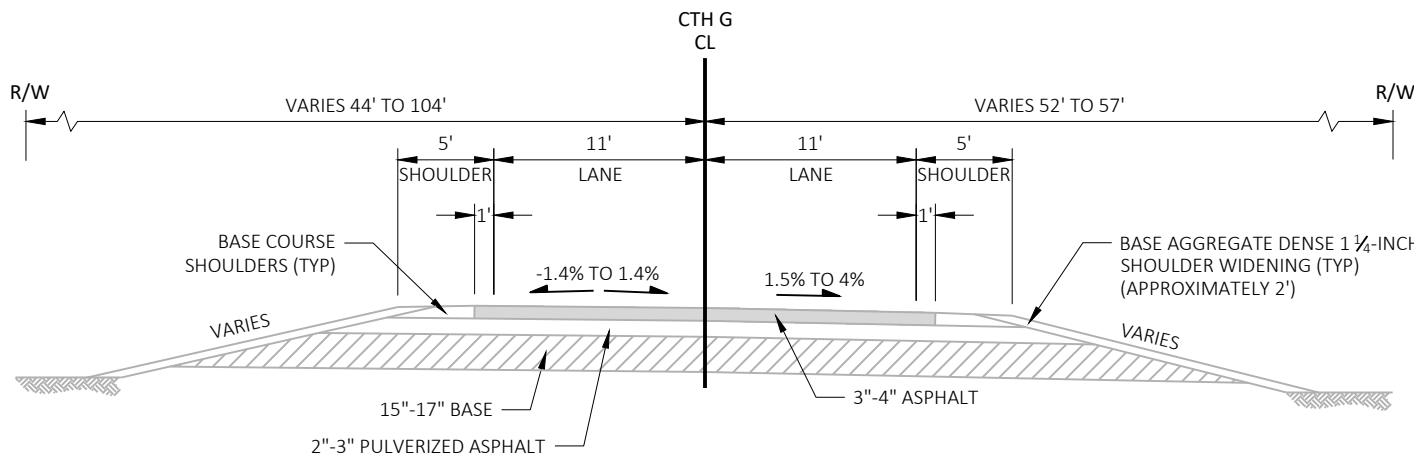
ALLIANT ENERGY - ELECTRIC
CHRIS GILL
2147 COUNTY HWY PB
VERONA, WI 53593
C: (608) 290-1772
E: CHRISGILL@ALLIANTENERGY.COM

TDS - COMMUNICATION
TONY MOSQUEDA
525 JUNCTION ROAD
MADISON, WI 53717
P: (720) 384-5723
E: TONY.MOSQUEDA@TDSTELECOM.COM



Dial 811 or (800)242-8511

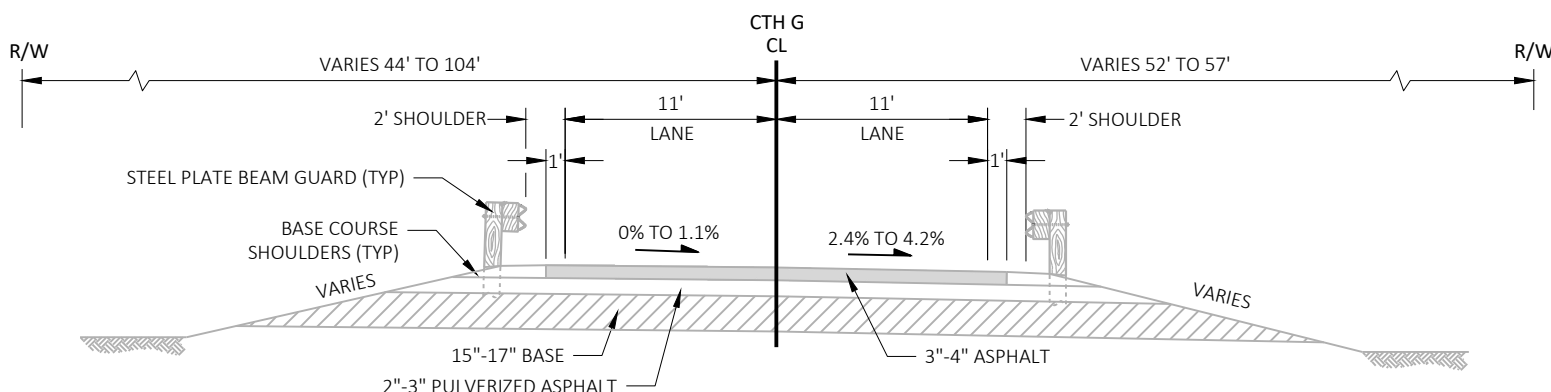
www.DiggersHotline.com



EXISTING TYPICAL SECTION

STA. 7+25'G' TO STA. 9+18'G'

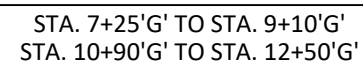
STA. 10+80'G' TO STA. 12+50'G'



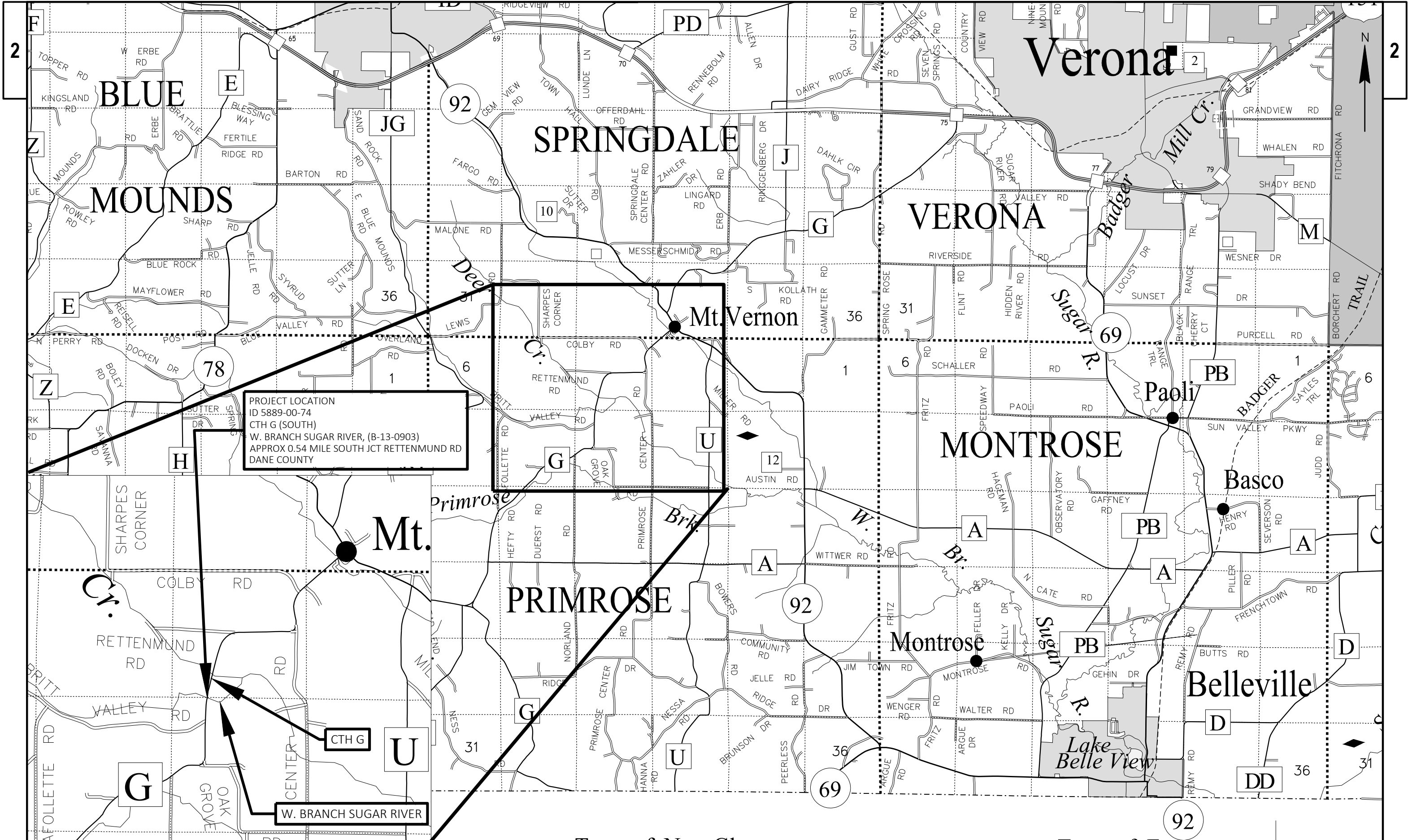
EXISTING TYPICAL SECTION

STA. 9+18'G' TO STA. 9+64'G'

STA. 10+36'G' TO STA. 10+80'G'



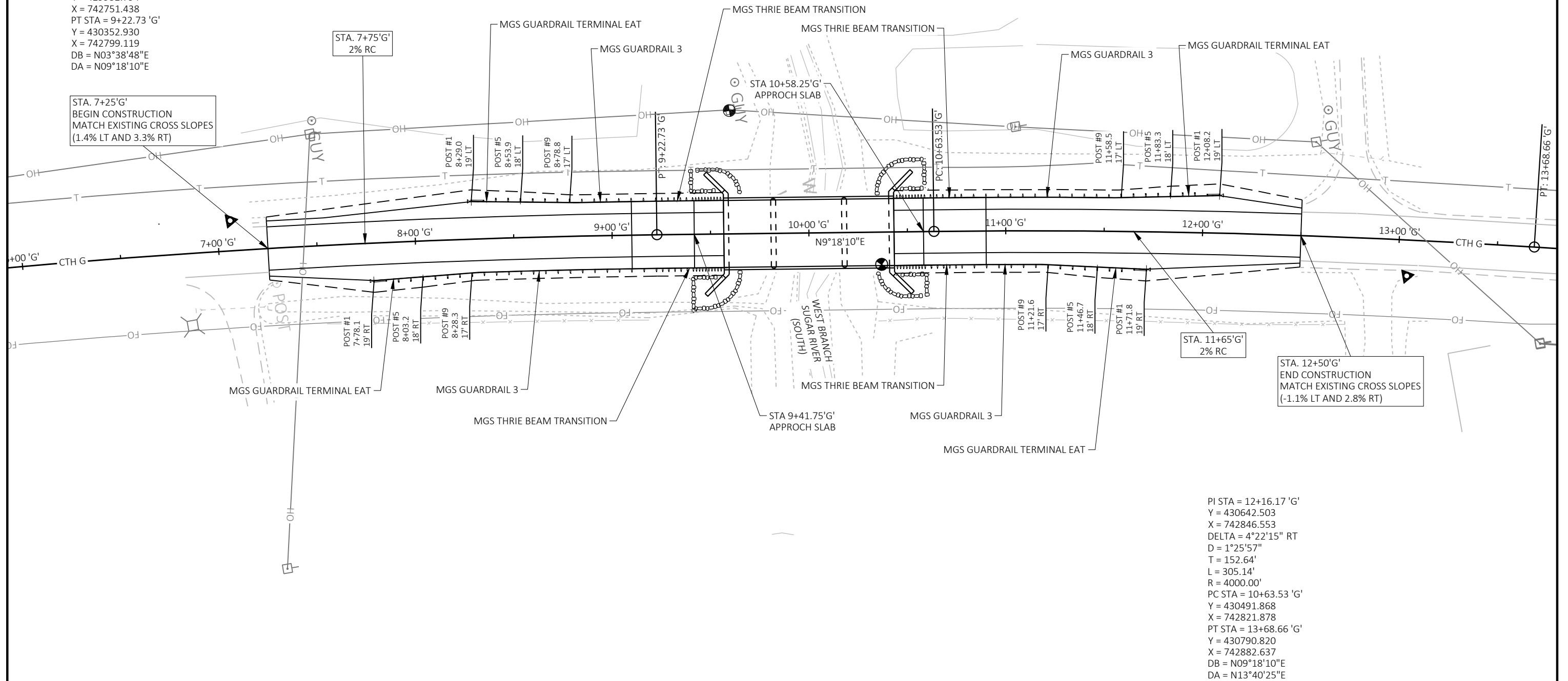
WISDOT/CADDS SHEET 42



PROJECT NO: 5889-00-74	HWY: CTH G	COUNTY: DANE	PROJECT OVERVIEW	SHEET E
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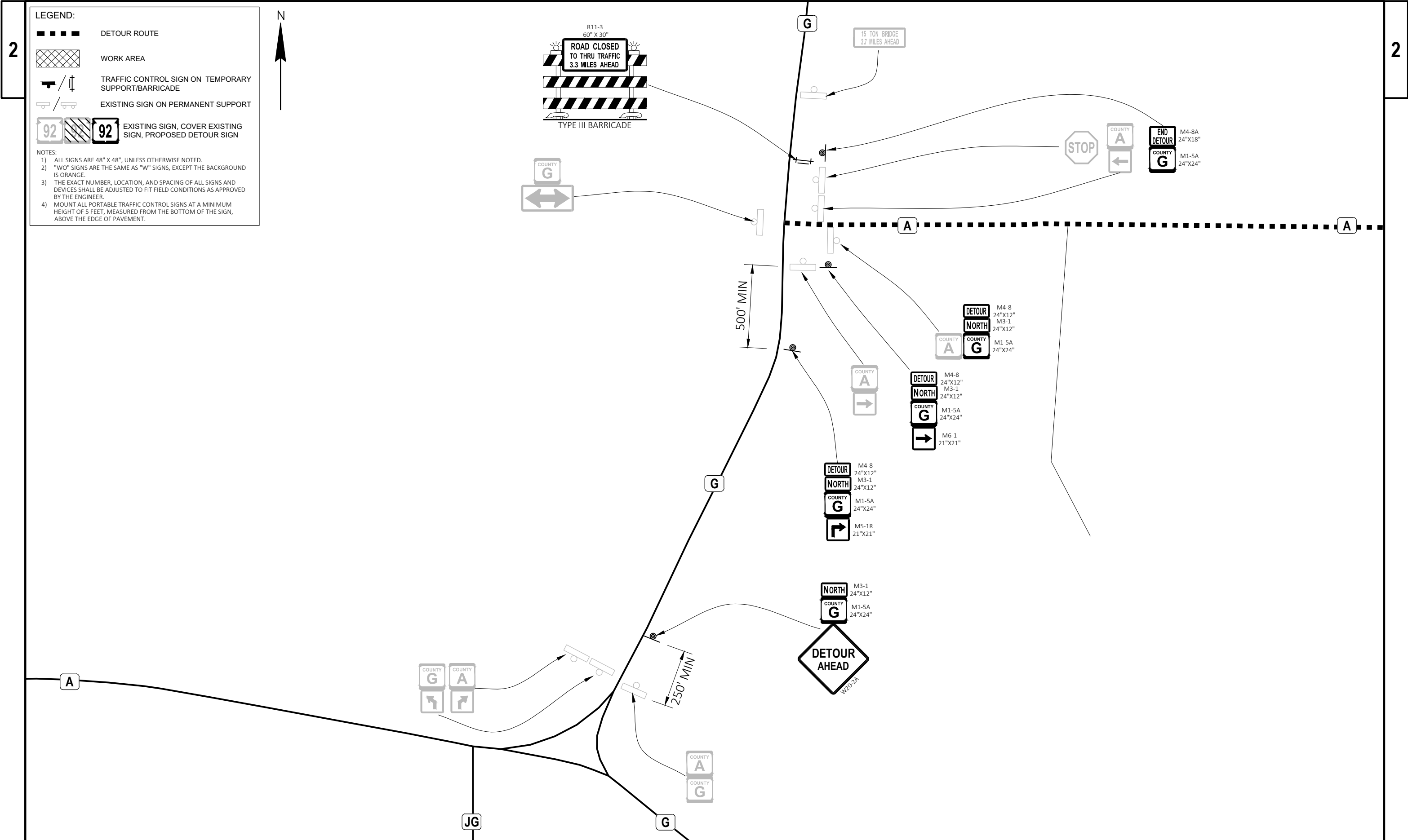
PI STA = 7+11.40 'G'
Y = 430144.040
X = 742764.901
DELTA = 5°39'22" RT
D = 1°20'14"
T = 211.67'
L = 423.00'
R = 4285.00'
PC STA = 4+99.73 'G'
Y = 429932.794
X = 742751.438
PT STA = 9+22.73 'G'
Y = 430352.930
X = 742799.119
DB = N03°38'48"E
DA = N09°18'10"E

STA. 7+25'G'
BEGIN CONSTRUCTION
MATCH EXISTING CROSS SLOPES
(1.4% LT AND 3.3% RT)



PI STA = 12+16.17 'G'
Y = 430642.503
X = 742846.553
DELTA = 4°22'15" RT
D = 1°25'57"
T = 152.64'
L = 305.14'
R = 4000.00'
PC STA = 10+63.53 'G'
Y = 430491.868
X = 742821.878
PT STA = 13+68.66 'G'
Y = 430790.820
X = 742882.637
DB = N09°18'10"E
DA = N13°40'25"E



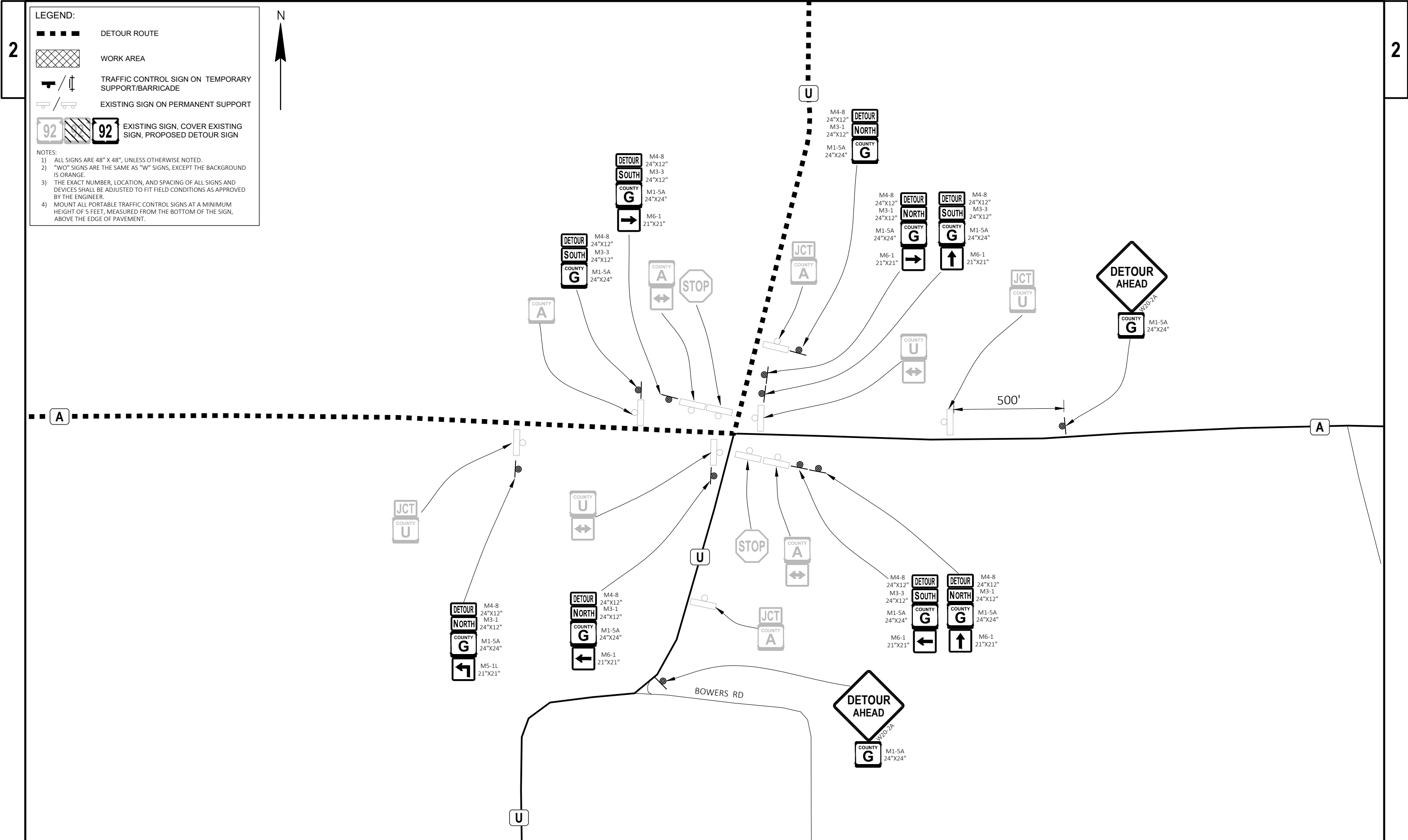


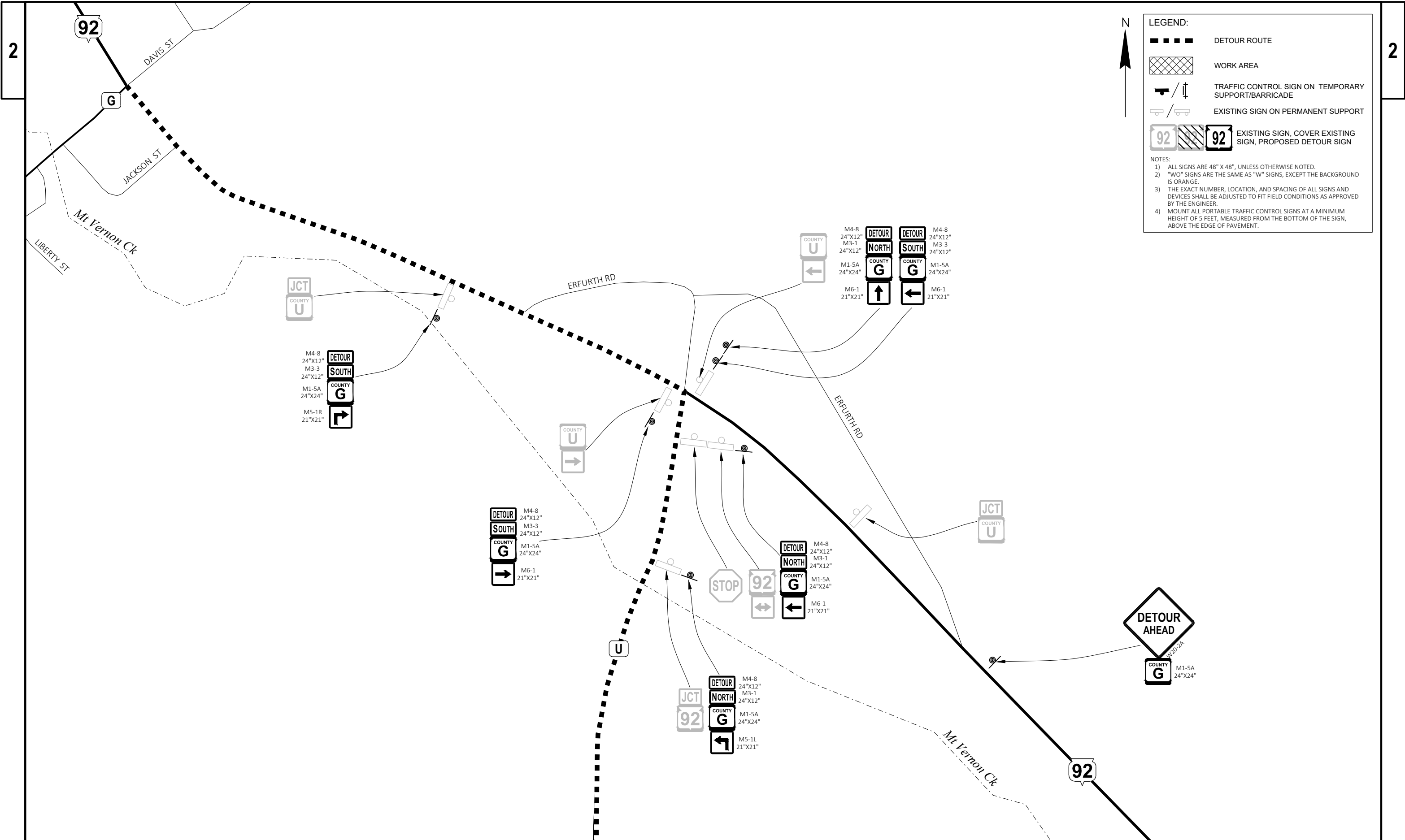
LEGEND:

- DETOUR ROUTE
- WORK AREA
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT/BARRICADE
- EXISTING SIGN ON PERMANENT SUPPORT
- EXISTING SIGN, COVER EXISTING SIGN, PROPOSED DETOUR SIGN

NOTES:

- ALL SIGNS ARE 48" X 48", UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS, 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.
- MOUNT ALL PORTABLE TRAFFIC CONTROL SIGNS AT A MINIMUM HEIGHT OF 5 FEET, MEASURED FROM THE BOTTOM OF THE SIGN, ABOVE THE EDGE OF PAVEMENT.





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LEGEND:

■■■■

DETOUR ROUTE

WORK AREA

⏏ / ⏏

TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT/BARRICADE

⏏ / ⏏

EXISTING SIGN ON PERMANENT SUPPORT

92

92

EXISTING SIGN, COVER EXISTING SIGN, PROPOSED DETOUR SIGN

NOTES:

1) ALL SIGNS ARE 48" X 48", UNLESS OTHERWISE NOTED.

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

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

4) MOUNT ALL PORTABLE TRAFFIC CONTROL SIGNS AT A MINIMUM HEIGHT OF 5 FEET, MEASURED FROM THE BOTTOM OF THE SIGN, ABOVE THE EDGE OF PAVEMENT.

PROJECT NO: 5889-00-74

HWY: CTH G

COUNTY: DANE

DETOUR ROUTE - SHEET 3

SHEET

E

FILE NAME : I:\47\470412_DANE CTH G (SOUTH)\C3D\SHEETS\58890074_027001-DT.DWG
LAYOUT NAME -- SHEET 3

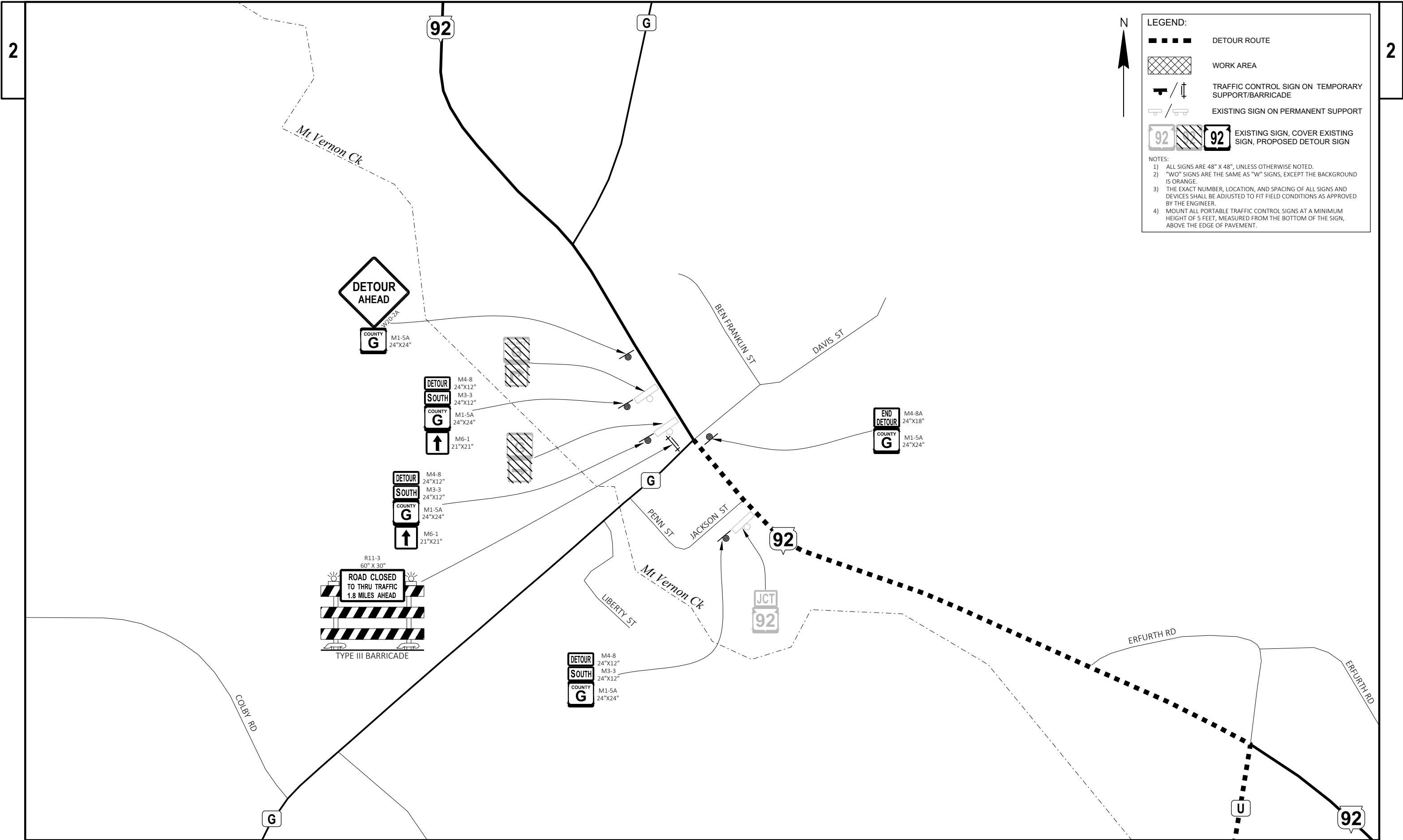
PLOT DATE : 8/2/2024 11:03 AM

PLOT BY : MUENCH, DOUGLAS

PLOT NAME :

PLOT SCALE : 1 IN=400 FT

WISDOT/CADDs SHEET 42



LEGEND:

- DETOUR ROUTE
- WORK AREA
- TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT/BARRICADE
- EXISTING SIGN ON PERMANENT SUPPORT
- EXISTING SIGN, COVER EXISTING SIGN, PROPOSED DETOUR SIGN

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Estimate Of Quantities

5889-00-74

Line	Item	Item Description	Unit	Total	Qty
0002	203.0250	Removing Structure Over Waterway Remove Debris (structure) 02. B-13-0039	EACH	1.000	1.000
0004	204.0165	Removing Guardrail	LF	169.000	169.000
0006	204.0180	Removing Delineators and Markers	EACH	4.000	4.000
0008	205.0100	Excavation Common	CY	416.000	416.000
0010	206.1001	Excavation for Structures Bridges (structure) 02. B-13-0903	EACH	1.000	1.000
0012	208.0100	Borrow	CY	930.000	930.000
0014	210.1500	Backfill Structure Type A	TON	430.000	430.000
0016	213.0100	Finishing Roadway (project) 02. 5889-00-74	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	140.000	140.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,010.000	1,010.000
0022	415.0120	Concrete Pavement 12-Inch	SY	40.000	40.000
0024	415.0410	Concrete Pavement Approach Slab	SY	74.000	74.000
0026	455.0605	Tack Coat	GAL	112.000	112.000
0028	460.2000	Incentive Density HMA Pavement	DOL	290.000	290.000
0030	460.5223	HMA Pavement 3 LT 58-28 S	TON	243.000	243.000
0032	460.5224	HMA Pavement 4 LT 58-28 S	TON	199.000	199.000
0034	502.0100	Concrete Masonry Bridges	CY	384.600	384.600
0036	502.3200	Protective Surface Treatment	SY	440.000	440.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	9,780.000	9,780.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	37,500.000	37,500.000
0042	513.4061	Railing Tubular Type M	LF	117.000	117.000
0044	516.0500	Rubberized Membrane Waterproofing	SY	32.000	32.000
0046	550.0020	Pre-Boring Rock or Consolidated Materials	LF	676.000	676.000
0048	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	970.000	970.000
0050	606.0300	Riprap Heavy	CY	160.000	160.000
0052	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	210.000	210.000
0054	614.2300	MGS Guardrail 3	LF	237.500	237.500
0056	614.2500	MGS Thrie Beam Transition	LF	150.000	150.000
0058	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0060	618.0100	Maintenance and Repair of Haul Roads (project) 02. 5889-00-74	EACH	1.000	1.000
0062	619.1000	Mobilization	EACH	1.000	1.000
0064	623.0200	Dust Control Surface Treatment	SY	2,246.000	2,246.000
0066	624.0100	Water	MGAL	17.000	17.000
0068	625.0500	Salvaged Topsoil	SY	1,840.000	1,840.000
0070	628.1504	Silt Fence	LF	1,085.000	1,085.000
0072	628.1520	Silt Fence Maintenance	LF	2,165.000	2,165.000
0074	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0076	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0078	628.2008	Erosion Mat Urban Class I Type B	SY	2,025.000	2,025.000
0080	628.2027	Erosion Mat Class II Type C	SY	300.000	300.000
0082	628.6005	Turbidity Barriers	SY	290.000	290.000
0084	629.0210	Fertilizer Type B	CWT	1.500	1.500
0086	630.0170	Seeding Mixture No. 70	LB	8.000	8.000
0088	630.0200	Seeding Temporary	LB	62.000	62.000
0090	630.0500	Seed Water	MGAL	53.000	53.000
0092	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0094	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0096	638.2602	Removing Signs Type II	EACH	8.000	8.000
0098	638.3000	Removing Small Sign Supports	EACH	6.000	6.000

Estimate Of Quantities

5889-00-74

Line	Item	Item Description	Unit	Total	Qty
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0420	Traffic Control Barricades Type III	DAY	1,800.000	1,800.000
0104	643.0705	Traffic Control Warning Lights Type A	DAY	2,160.000	2,160.000
0106	643.0900	Traffic Control Signs	DAY	9,990.000	9,990.000
0108	643.5000	Traffic Control	EACH	1.000	1.000
0110	645.0111	Geotextile Type DF Schedule A	SY	130.000	130.000
0112	645.0120	Geotextile Type HR	SY	350.000	350.000
0114	646.2005	Marking Line Paint 6-Inch	LF	2,100.000	2,100.000
0116	650.4500	Construction Staking Subgrade	LF	440.000	440.000
0118	650.5000	Construction Staking Base	LF	440.000	440.000
0120	650.6501	Construction Staking Structure Layout (structure) 02. B-13-0903	EACH	1.000	1.000
0122	650.9911	Construction Staking Supplemental Control (project) 02. 5889-00-74	EACH	1.000	1.000
0124	650.9920	Construction Staking Slope Stakes	LF	440.000	440.000
0126	690.0150	Sawing Asphalt	LF	56.000	56.000
0128	715.0502	Incentive Strength Concrete Structures	DOL	2,308.000	2,308.000
0130	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0132	999.2005.S	Maintaining Bird Deterrent System (station) 02. 10+00	EACH	1.000	1.000
0134	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0136	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000

REMOVING GUARDRAIL

204.0165 REMOVING GUARDRAIL					
CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	7+25	-	9+56.75	S	88
0010	10+43.25	-	12+50	N	81
TOTAL 0010					169

REMOVING DELINEATORS AND MARKERS

204.0180 REMOVING DELINEATORS AND MARKERS					
CATEGORY	STATION	TO	STATION	LOCATION	EACH
0010	7+25	-	9+56.75	S	2
0010	10+43.25	-	12+50	N	2
TOTAL 0010					4

CONCRETE PAVEMENT APPROACH SLABS

* 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH							
415.0120 CONCRETE PAVEMENT 12-INCH							
415.0410 CONCRETE PAVEMENT APPROACH SLAB							
CATEGORY	STATION	TO	STATION	LOCATION	TON	SY	REMARKS
0030	9+41.75	-	9+56.75	SOUTH APPROACH	13	20	6" BAD 1 1/4-INCH ASSUMED
0030	10+43.25	-	10+58.75	NORTH APPROACH	13	20	6" BAD 1 1/4-INCH ASSUMED
TOTAL 0030					26	40	74

NOTES:
* TACK COAT APPLICATION RATE = 0.07 GAL/SY
** ASSUMED ASPHALT AT 112 LBS/SY/IN

PROJECT-WIDE ITEMS

213.0100.02											
619.1000											
623.0200											
628.1905											
628.1910											
642.5001											
999.2005.S.02											
MAINTAINING											
BIRD											
DETERRENT											
SYSTEM											
(STATION) (02.											
10+00)											
CATEGORY	STATION	TO	STATION	LOCATION	EACH	EACH	SY	EACH	EACH	EACH	REMARKS
0010	7+25	-	12+50	CTH G	1	1	2,246	4	4	1	1
TOTAL 0010					1	1	2,246	4	4	1	1

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

CTH G SOUTH EARTHWORK SUMMARY									
From/To Station	Location	Common Excavation (1) (Item 205.0100)	Unusable Cut	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100)	Comment:
		Cut			Factor 1.30				
7+25 - 9+57	CTH G - SOUTH APPROACH	244	65	360	468	-289		289	
10+43 - 12+50	CTH G - NORTH APPROACH	172	58	581	755	-641		641	
TOTAL		416			1223			930	

NOTE: County Widening not included in cuts and fills. Earthwork based on pre-widened existing surface.

1) Common Excavation is the Cut. Unusable excavation is existing pavement. Item number 205.0100.

2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor

3) The Mass Ordinate + (waste) or - (borrow). (Cut - Unusable Cut) - (Expanded Fill)

4) All quantities shown in CY.

PAVEMENT AND BASE

305.0110											
305.0120											
455.0605											
460.5223											
460.5224											
624.0100											
BASE AGGREGATE											
DENSE 3/4-INCH											
CATEGORY	STATION	TO	STATION	LOCATION	TON	TON	GAL	TON	TON	MGAL	REMARKS
0010	7+25	-	9+10	S	-	-	49	107	87	-	PAVEMENT REPLACEMENT
0010	7+25	-	9+56.75	S	74	518	10	22	18	9	FULL DEPTH & SHOULDERS
0010	10+43.25	-	12+50	N	66	466	10	20	17	8	FULL DEPTH & SHOULDERS
0010	10+90	-	12+50	N	-	-	43	94	77	-	PAVEMENT REPLACEMENT
TOTAL 0010					140	984	112	243	199	17	

MAINTENANCE AND REPAIR OF HAUL RDS

EROSION CONTROL

618.0100.02 MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) (02. 5889-00-74)																			
								625.0500	628.1504	628.1520	628.2008	628.2027	628.6005	629.0210	630.0170	630.0200	630.0500		
								SALVAGED TOPSOIL	SILT FENCE	SILT FENCE	EROSION MAT	EROSION	TURBIDITY	FERTILIZER TYPE	SEEDING	SEEDING	SEED WATER		
								SY	LF	LF	URBAN CLASS I	MAT CLASS	BARRIERS	B	MIXTURE	TEMPORARY	MGAL		
CATEGORY	LOCATION	EACH	REMARKS	CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	LF	SY	SY	SY	CWT	LB	LB	MGAL	REMARKS
0030	CTH G	1		0010	7+25	-	9+56.75	LT	420	280	560	420	-	130	0.3	2	11	9.5	
				0010	7+25	-	9+56.75	RT	335	215	430	335	300	--	0.4	2	17	14.1	
				0010	10+43.25	-	12+50	LT	570	245	490	570	-	135	0.4	2	15	12.8	
				0010	10+43.25	-	12+50	RT	515	245	490	515	-	--	0.3	2	14	11.6	
				0010			UNDISTRIBUTED	--	100	195	185	-	25	0.1	0	5	5.0		
				TOTAL 0010				1,840	1,085	2,165	2,025	300	290	1.5	8	62	53.0		
GUARDRAIL																			

GUARDRAIL

TRAFFIC CONTROL

				614.2300 MGS GUARDRAIL 3 LF			614.2500 MGS THRIE BEAM TRANSITION LF		614.2610 MGS GUARDRAIL TERMINAL EAT EACH		REMARKS
0010	7+25	-	9+56.75	RT	87.5	37.5	1				
0010	7+25	-	9+56.75	LT	37.5	37.5	1				
0010	10+43.25	-	12+50	LT	75.0	37.5	1				
0010	10+43.25	-	12+50	RT	37.5	37.5	1				
				TOTAL 0010	237.5	150.0	4				

CATEGORY	LOCATION	DURATION DAYS	NO.	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	NO.	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	NO.	643.0900 TRAFFIC CONTROL SIGNS DAY	643.5000 TRAFFIC CONTROL EACH	REMARKS
0010	PER SDD 15C2	90	20	1,800	24	2,160	111	9,990	-	DETAILS A, D, AND E
0010	CTH G	-	-	-	-	-	-	-	1	
	TOTAL 0010			1,800		2,160		9,990	1	

SIGNING

SAWING ASPHALT

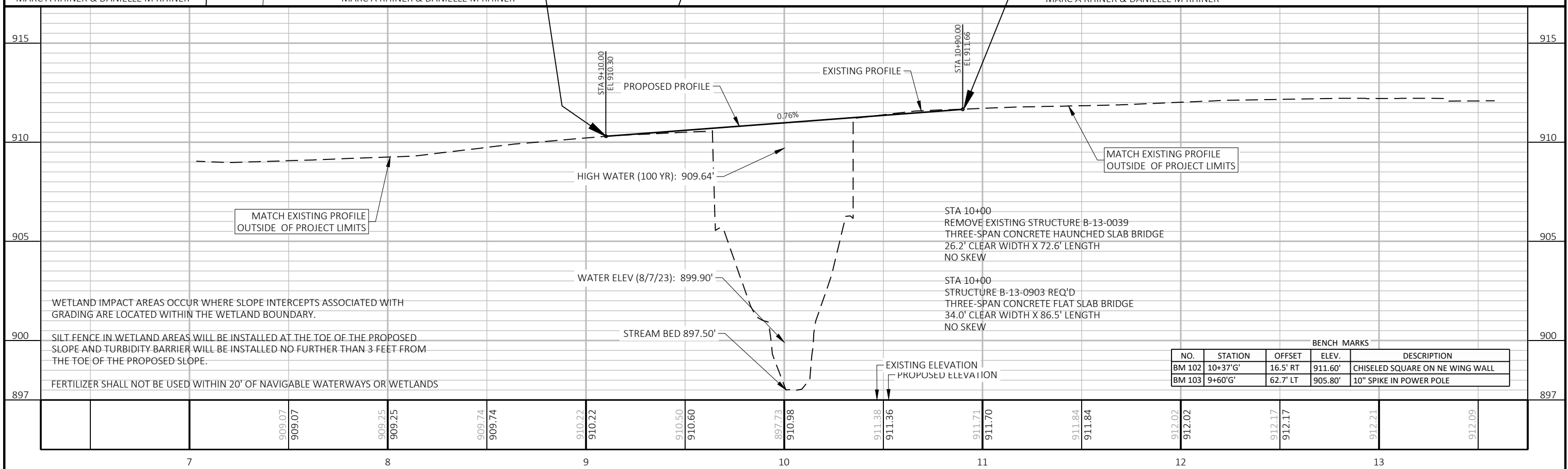
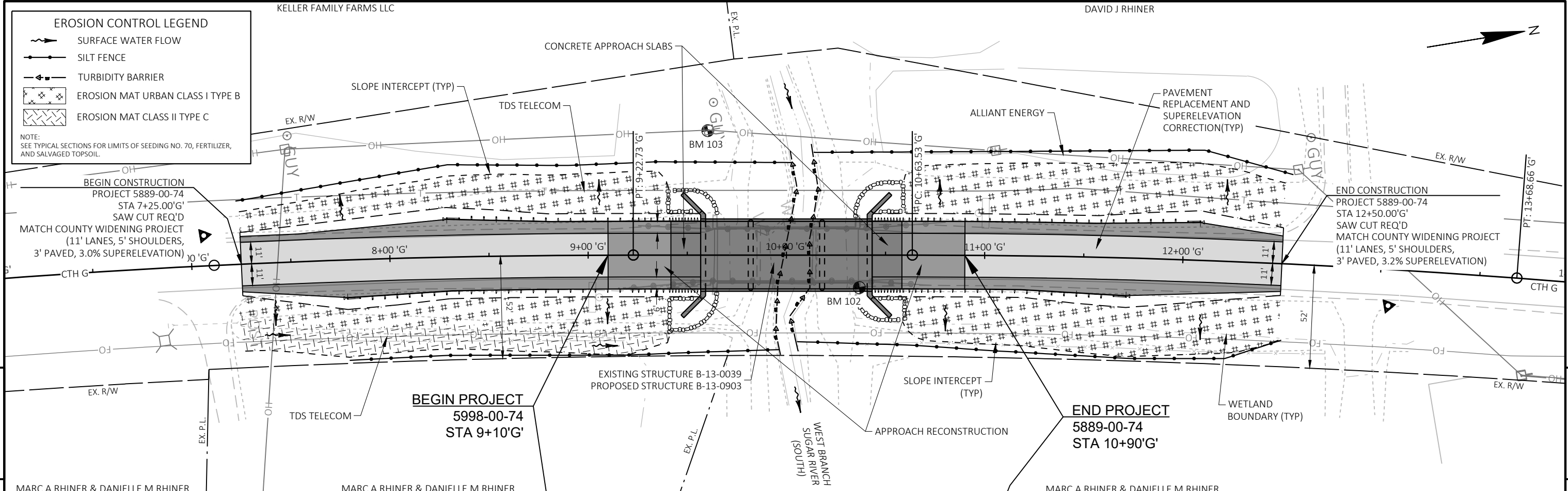
634.0614 POSTS WOOD 4X6-INCH X 14- FT EACH		637.2230 SIGNS TYPE II REFLECTIVE F SF		638.2602 REMOVING SIGNS TYPE II EACH		638.3000 REMOVING SMALL SIGN SUPPORTS EACH		REMARKS
0010	S OF BRIDGE	2	6	4	3			W5-52: CLEARANCE STRIPER DOWN
0010	N OF BRIDGE	2	6	4	3			W5-52: CLEARANCE STRIPER DOWN
	TOTAL 0010	4	12	8	6			

		690.0150 SAWING ASPHALT LF								
0010	S	28				650.4500	650.5000			
0010	N	28						650.6501.02 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (02. B-13-0903) EACH	650.9911.02 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (02. 5889-00-74) EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
	TOTAL 0010	56								
CATEGORY	STATION	TO	STATION	LOCATION	CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (02. B-13-0903) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (02. 5889-00-74) EACH	CONSTRUCTION STAKING SLOPE STAKES LF	REMARKS
0010	7+25	-	12+50		440	440	-	1	440	
				TOTAL 0010	440	440	0	1	440	
0020	9+56.75	-	10+43.25		-	-	1	-	-	
				TOTAL 0020	0	0	1	0	0	
				PROJECT TOTAL	440	440	1	1	440	

PAVEMENT MARKING

				646.2005 MARKING LINE PAINT 6-INCH WHITE YELLOW LF			REMARKS
0010	7+25	-	12+50	LT	525	-	EDGE LINE
0010	7+25	-	12+50	CL	-	1050	DOUBLE SOLID CENTERLINE
0010	7+25	-	12+50	RT	525	-	EDGE LINE
					1,050	1050	
				TOTAL 0010	2,100		

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

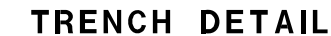


Standard Detail Drawing List

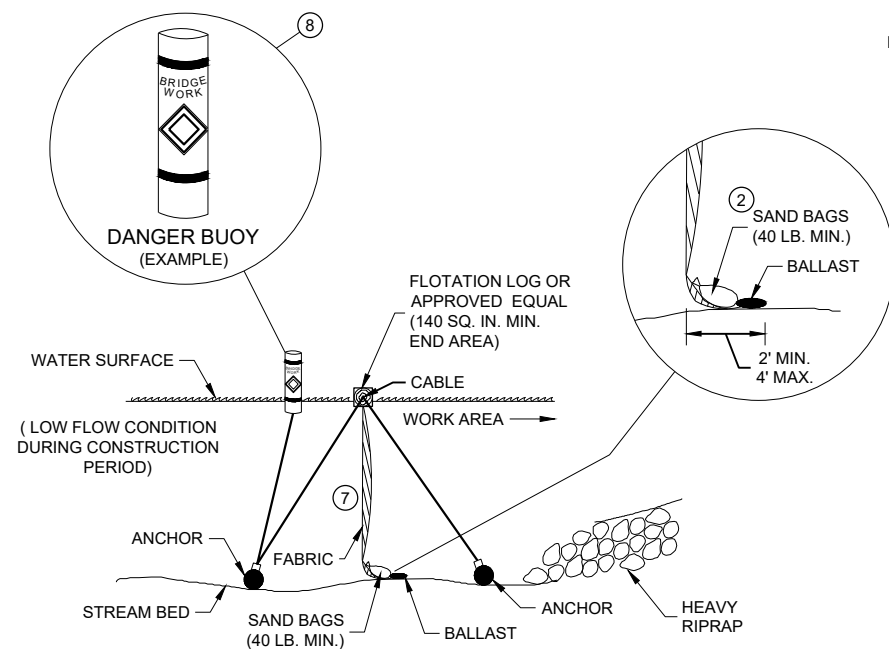
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS



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

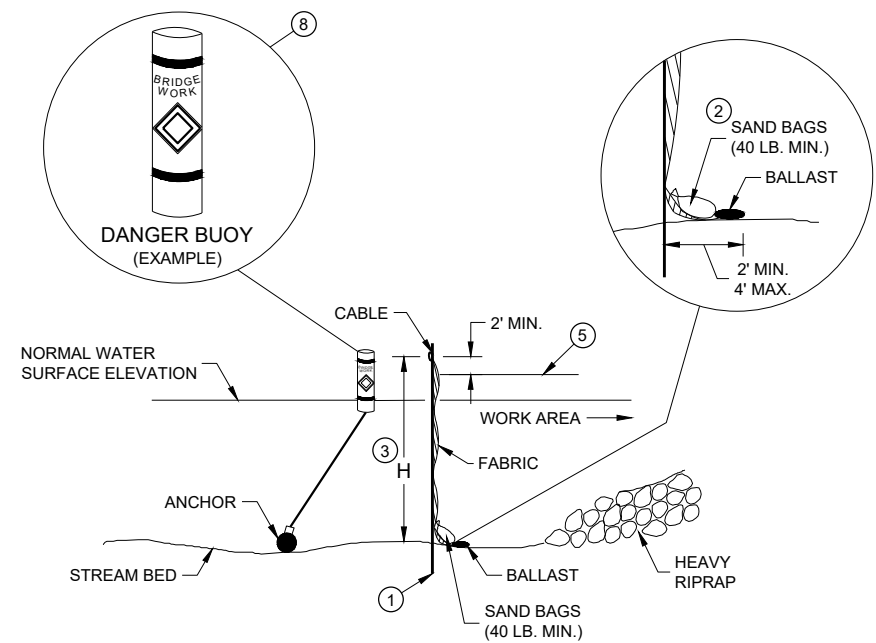


SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05	/S/ Beth Canestra
DATE	CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



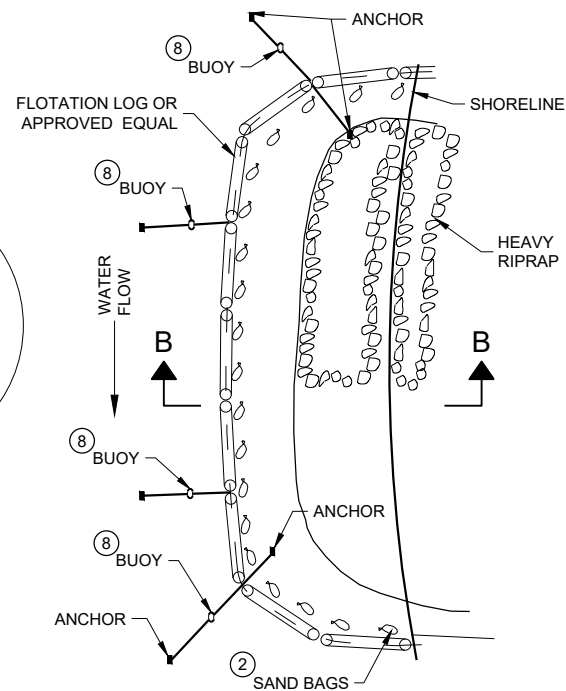
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6

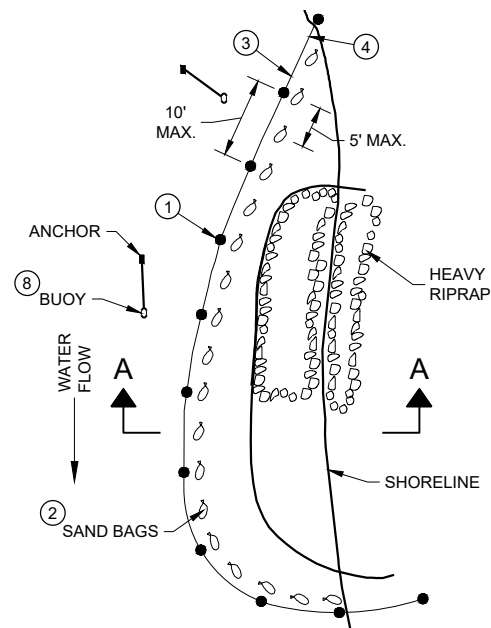


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



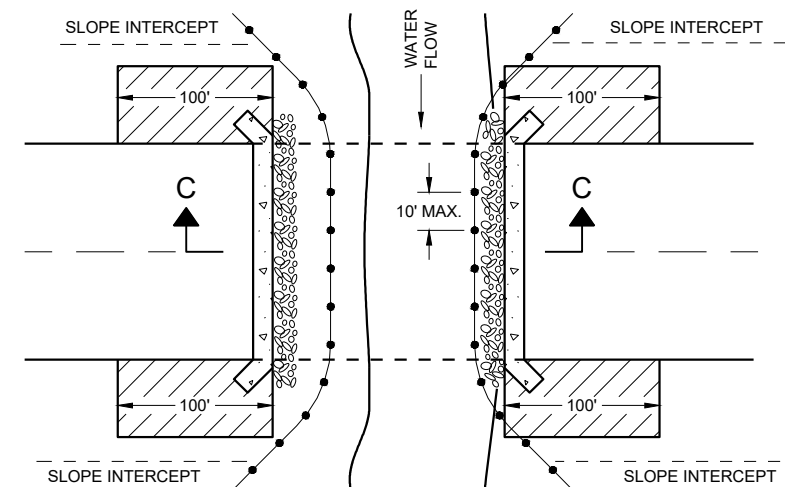
PLAN VIEW

GENERAL NOTES

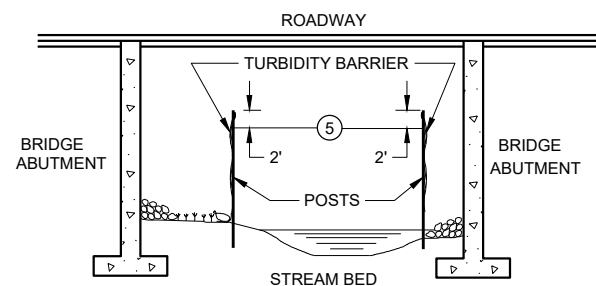
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

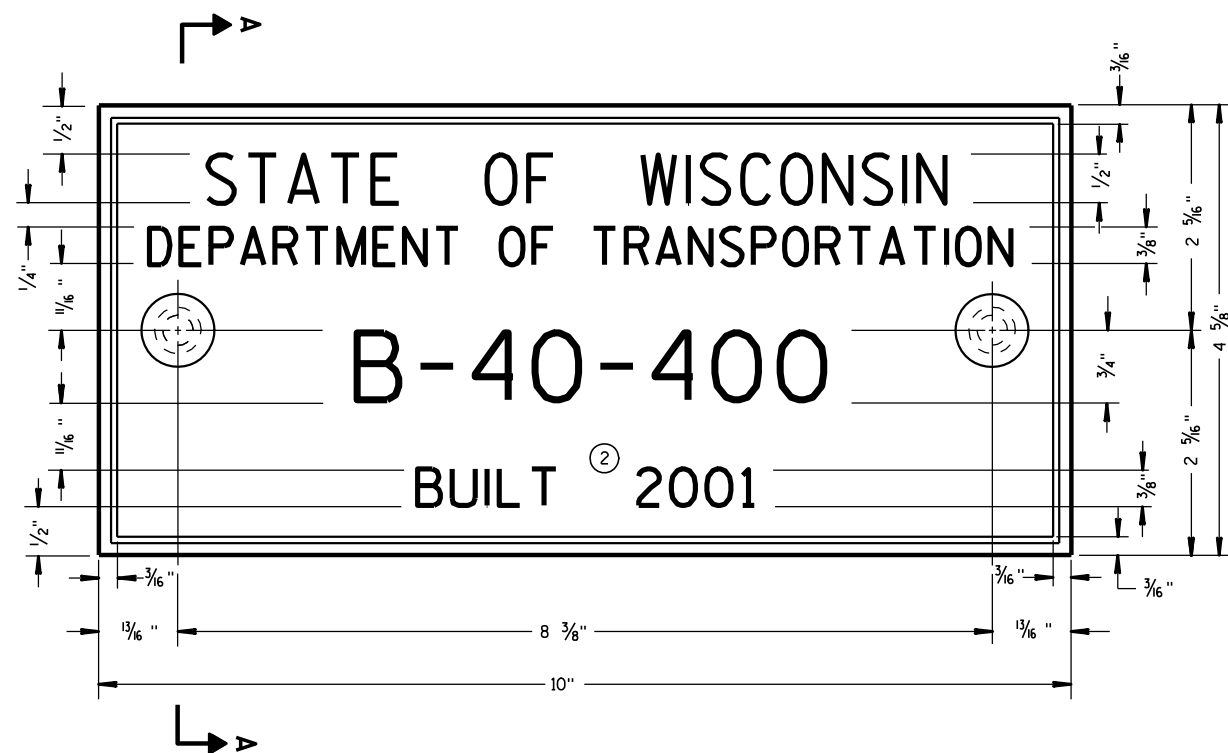
APPROVED

6/4/02

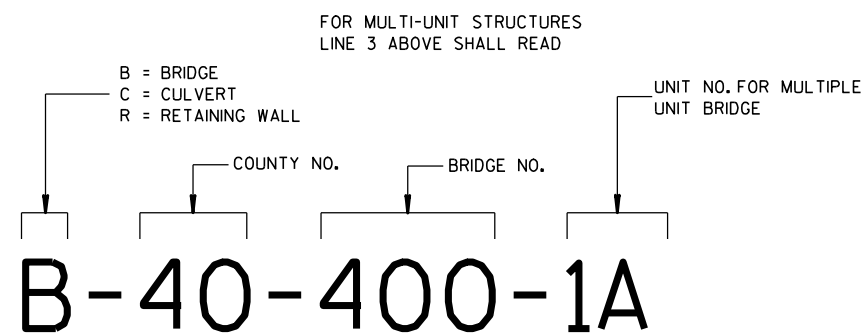
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT
ENGINEER



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



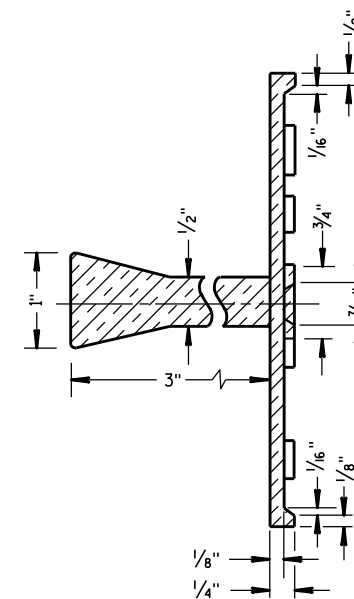
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

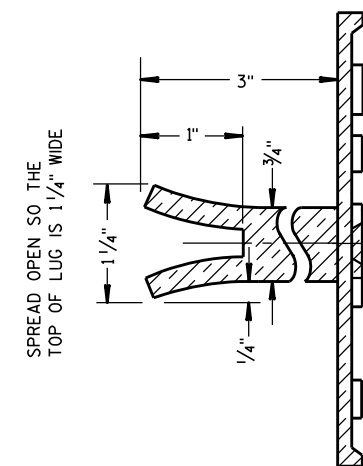
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

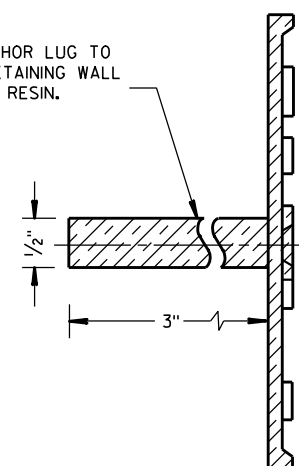


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

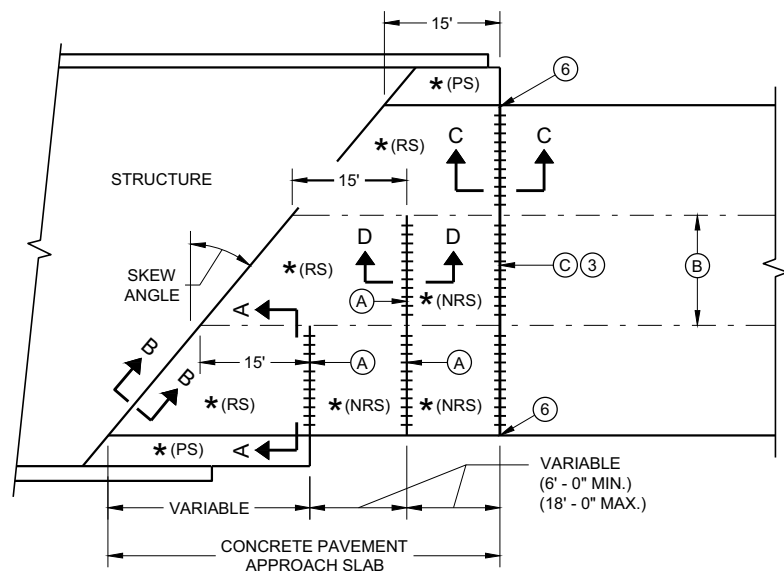
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

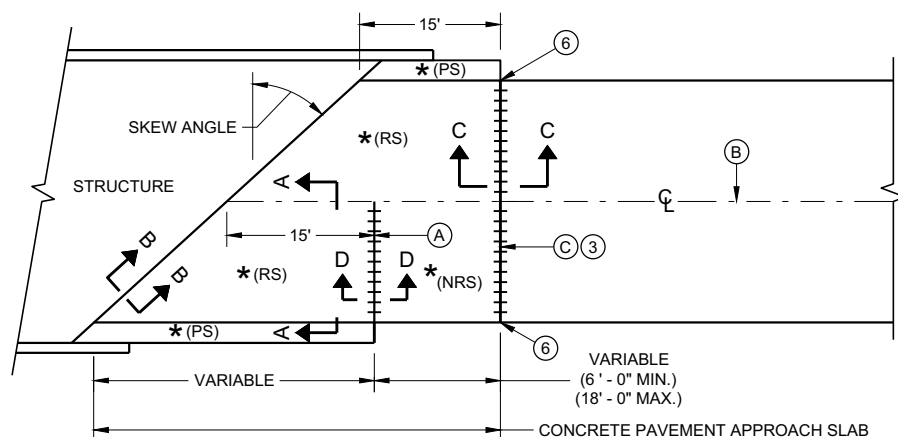
3/26/10
DATE

FHWA

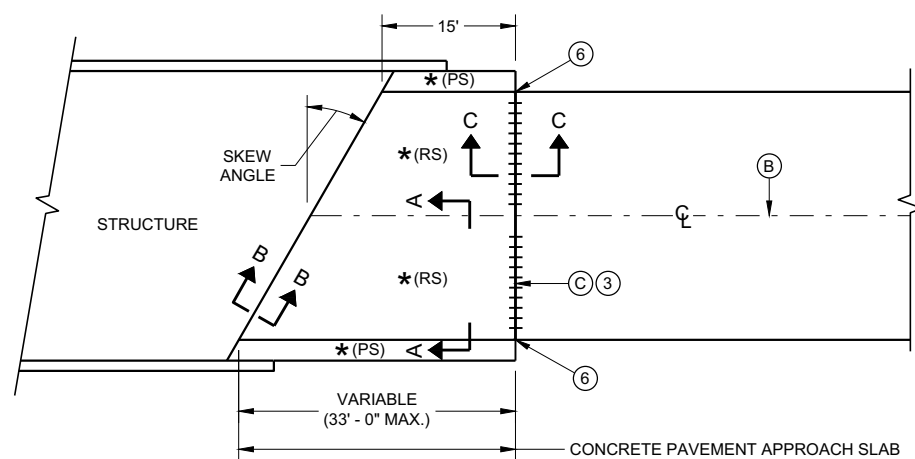
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



**SKewed APPROACH
(PAVEMENT MORE THAN TWO LANES)**



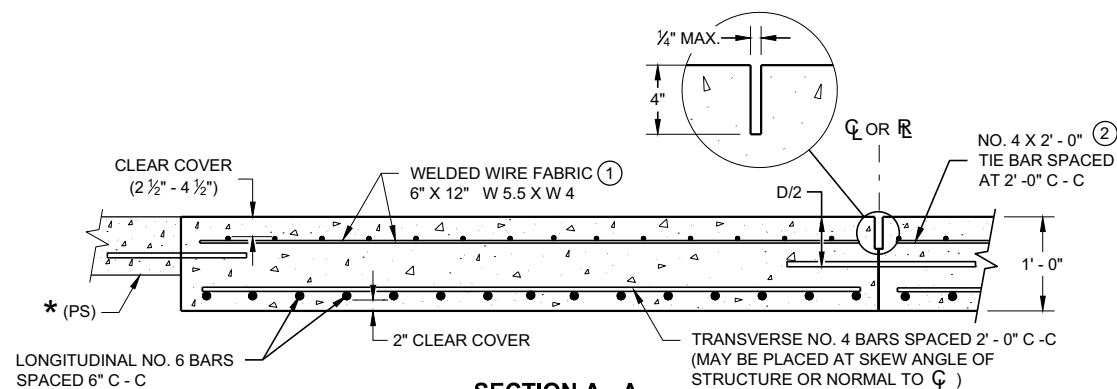
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



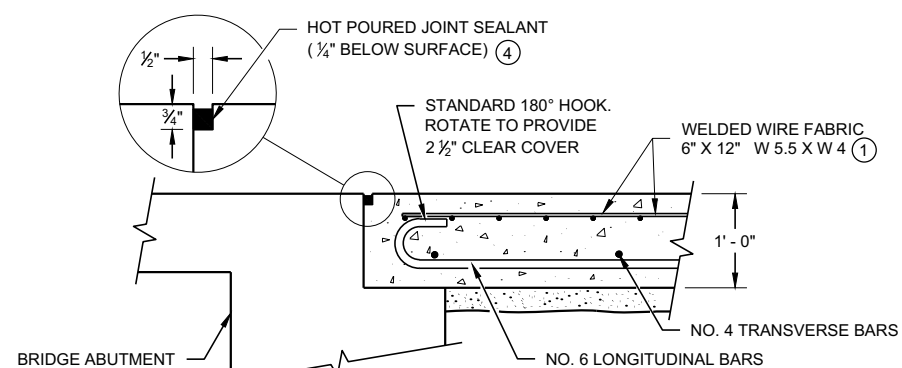
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

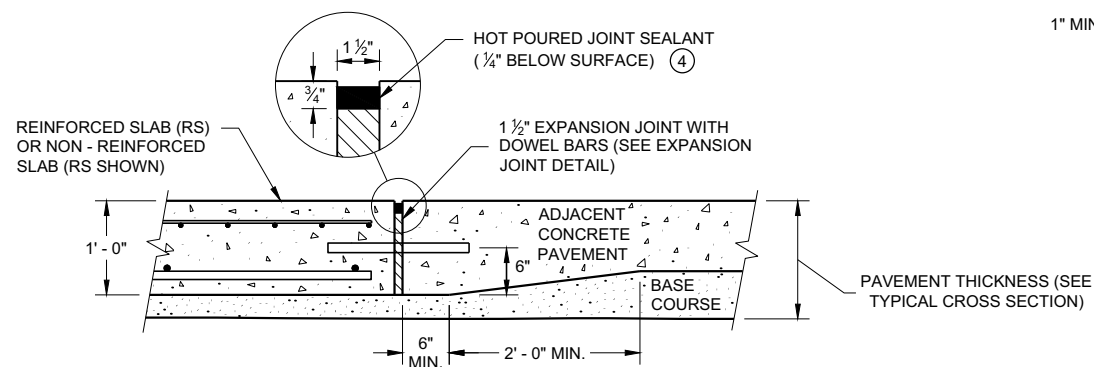
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



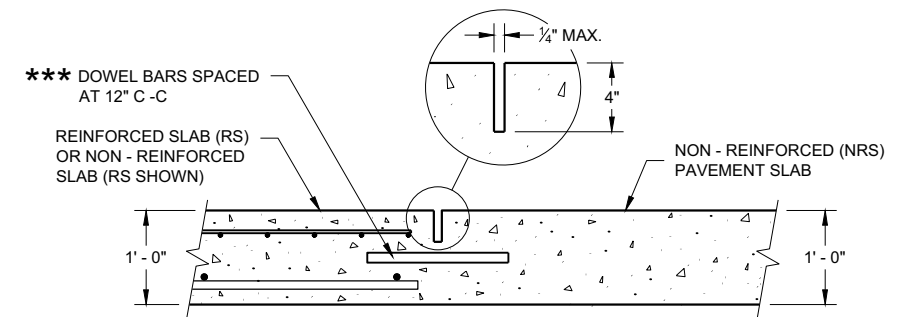
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

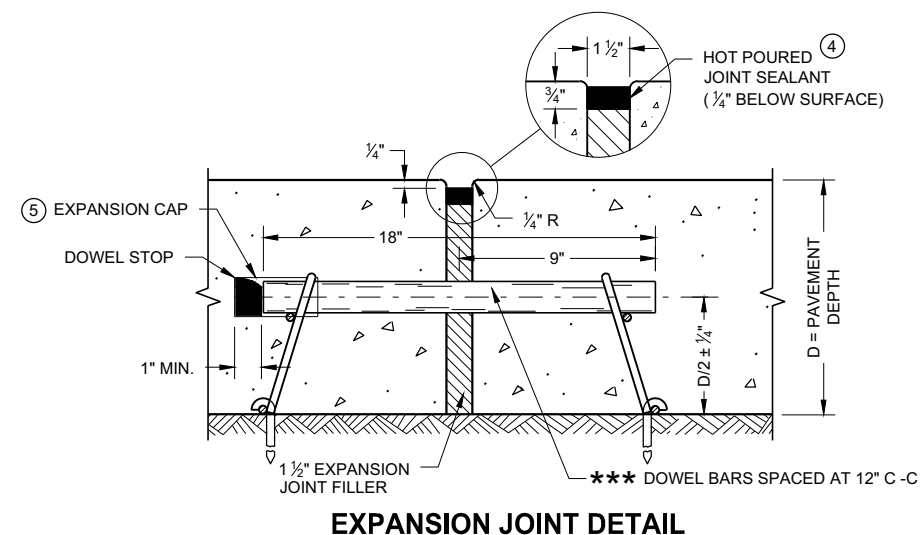
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- A STANDARD CONTRACTION JOINT NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.
- B STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- C 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**

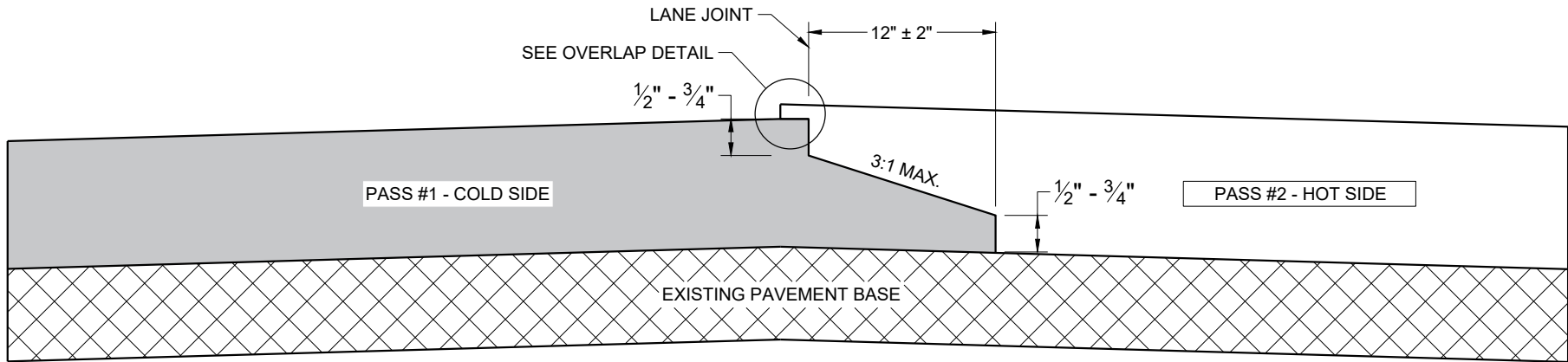


EXPANSION JOINT DETAIL

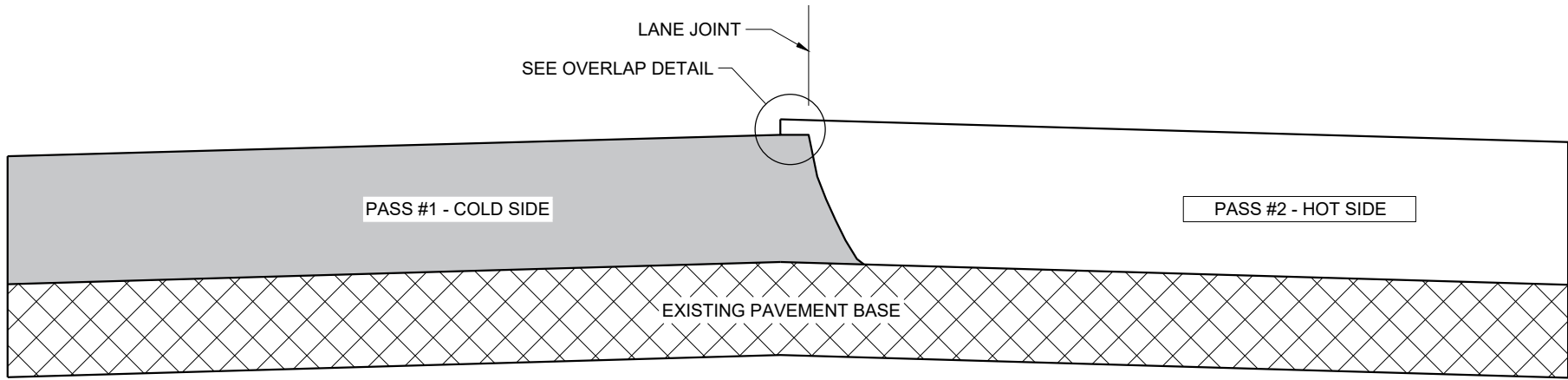
CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

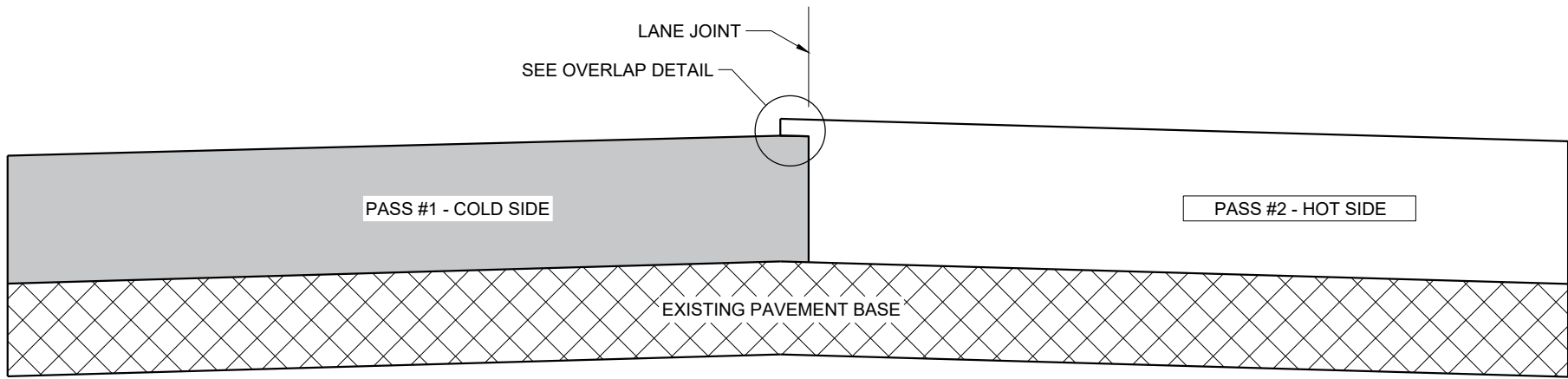
APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

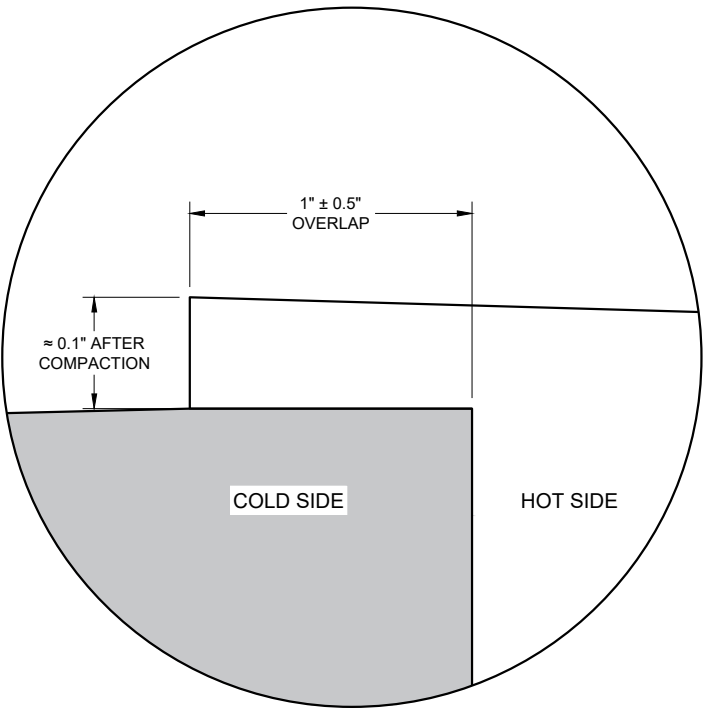
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



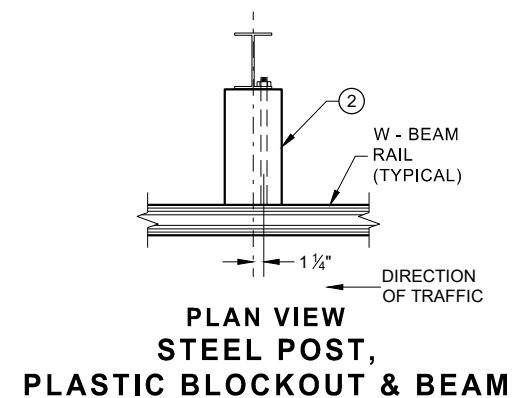
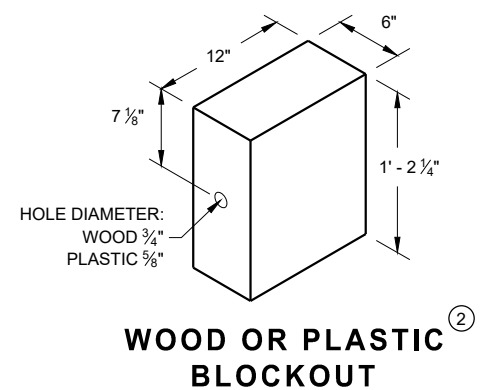
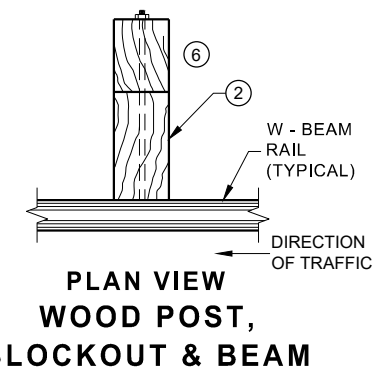
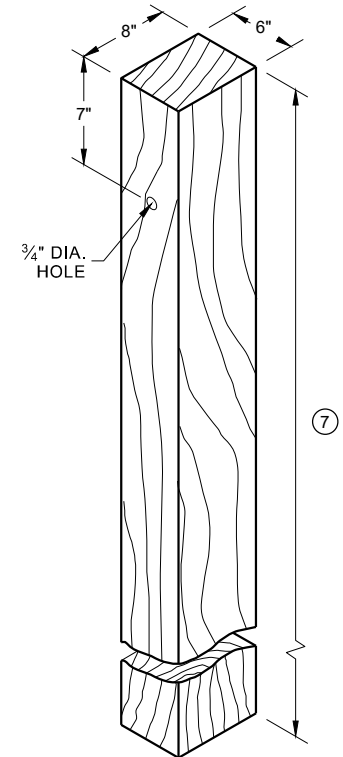
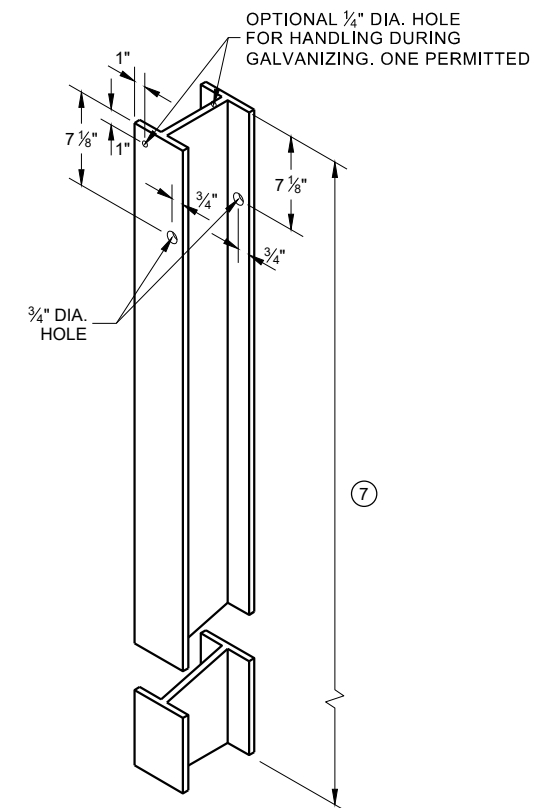
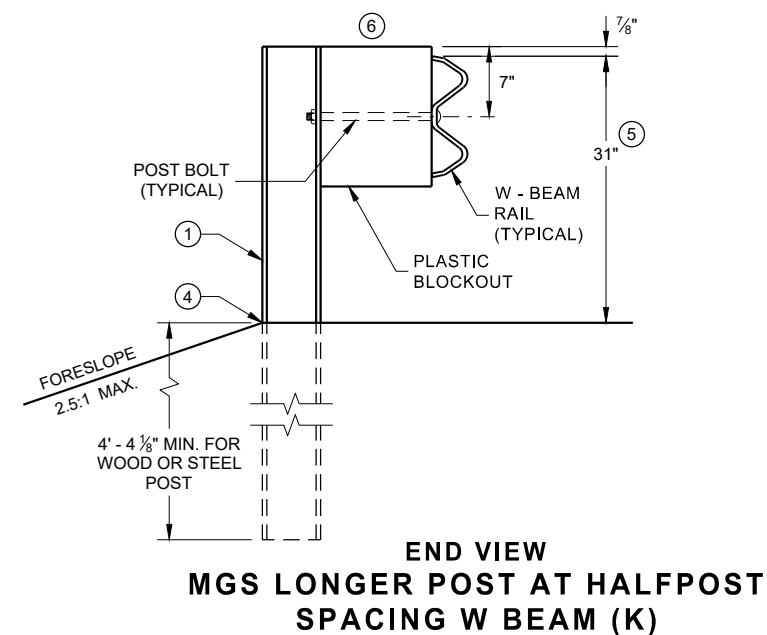
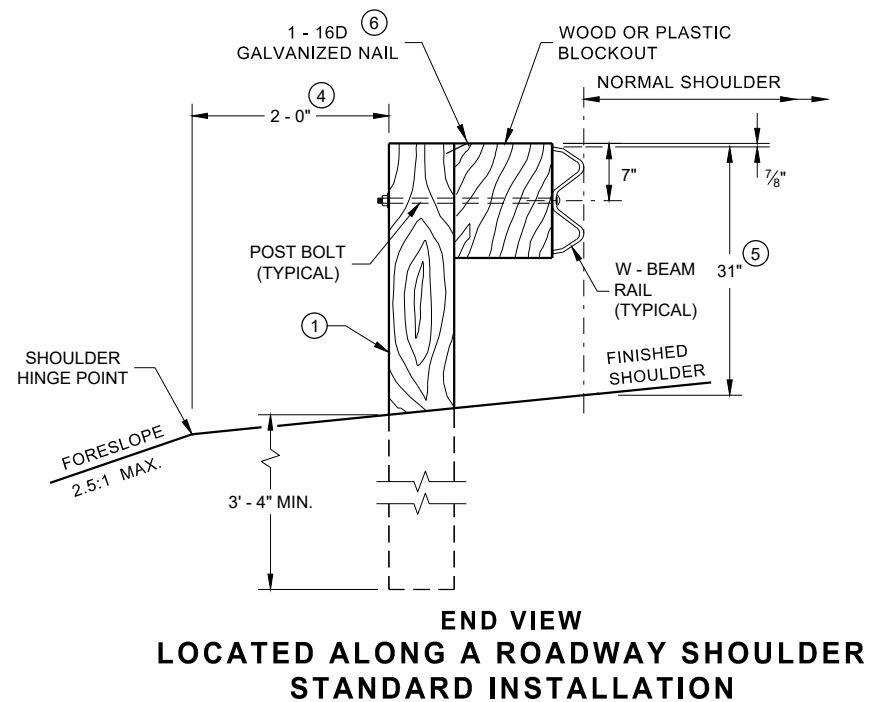
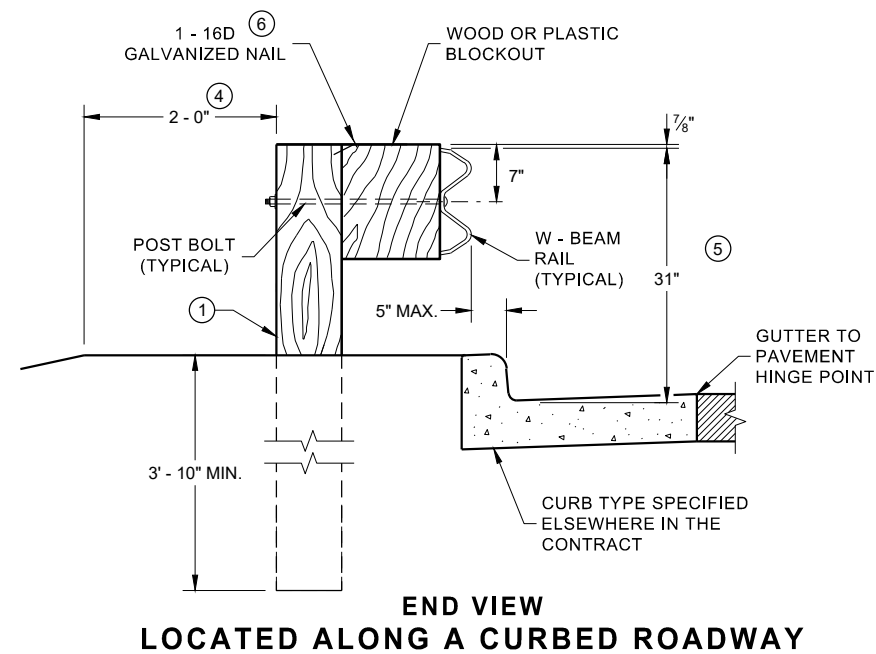
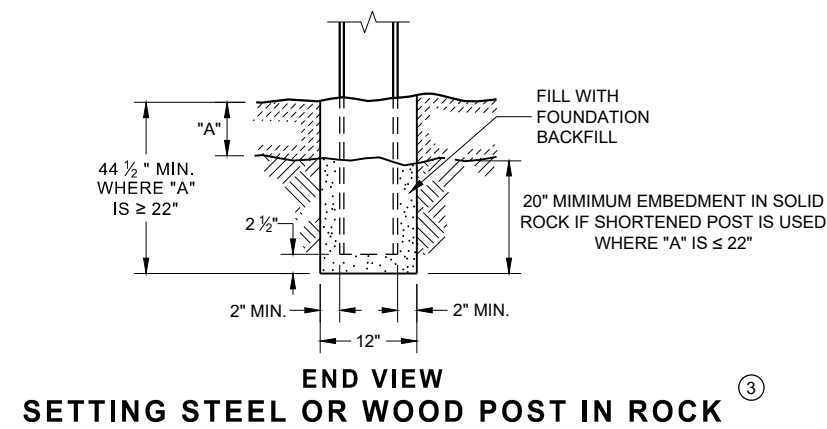
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

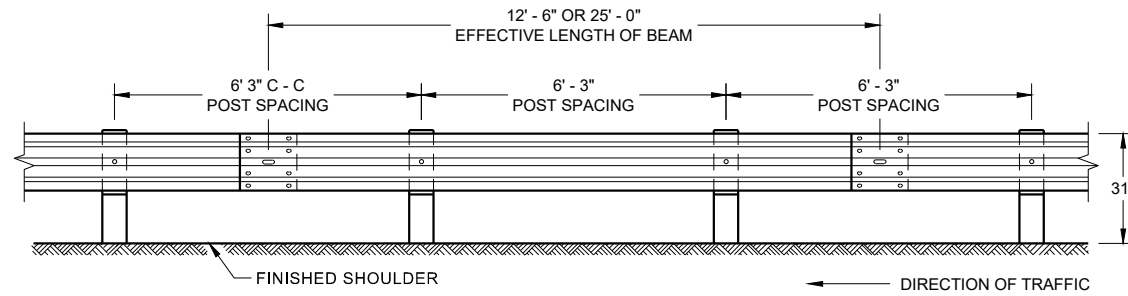
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA

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

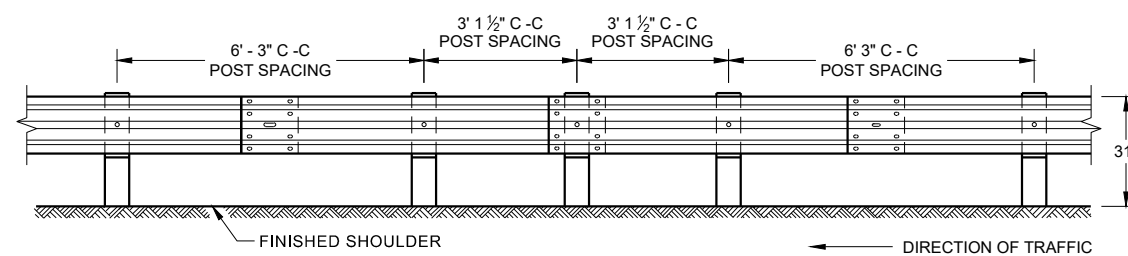


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

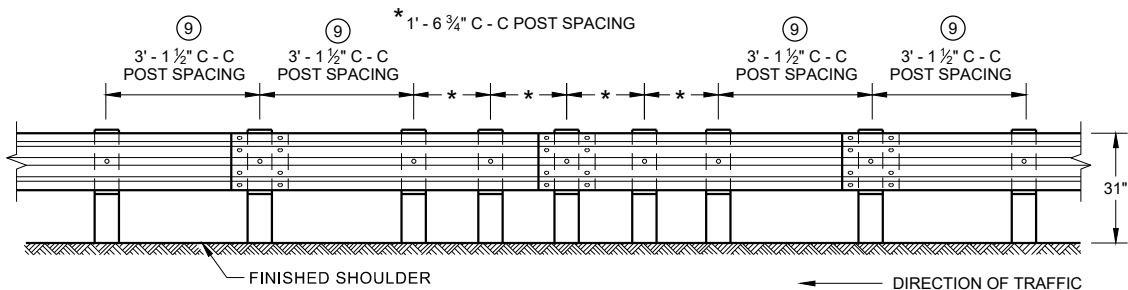
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



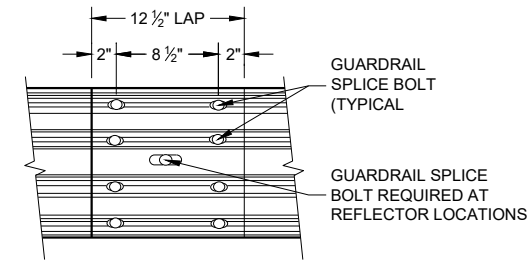
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



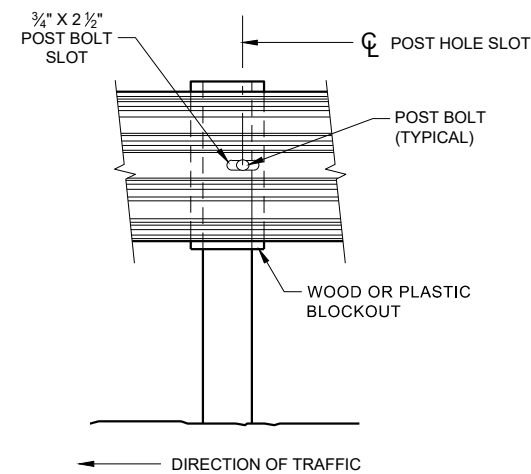
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



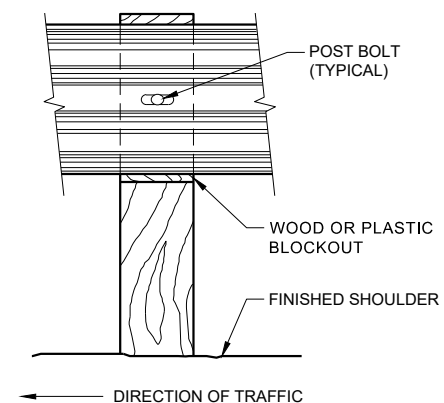
**FRONT VIEW
QUARTER POST SPACING (QS)**



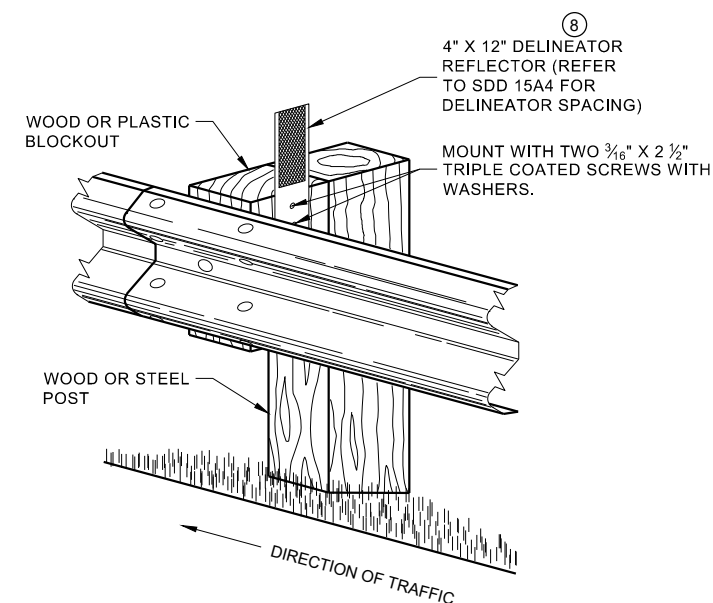
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



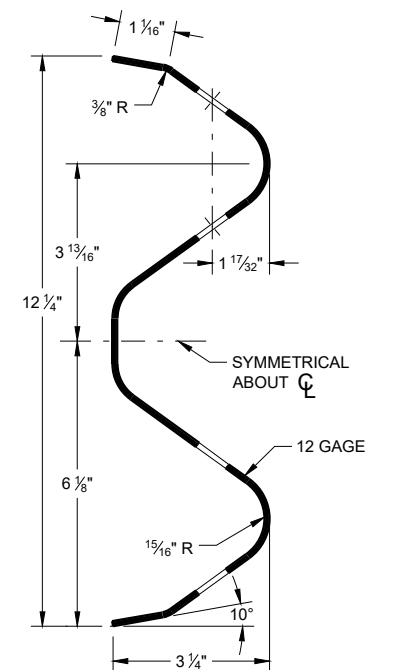
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

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

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

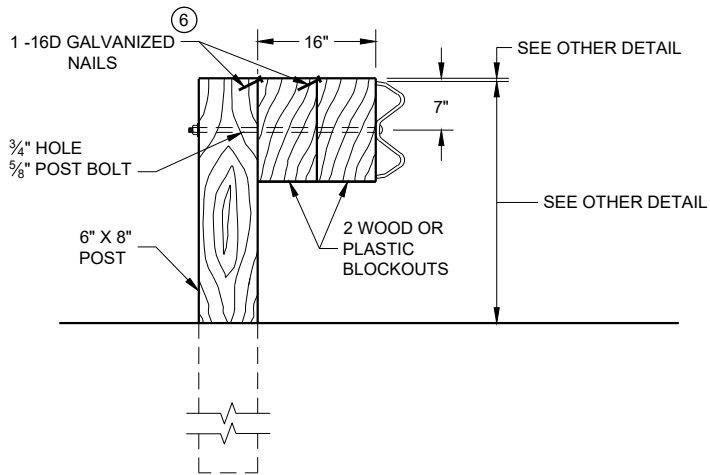
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

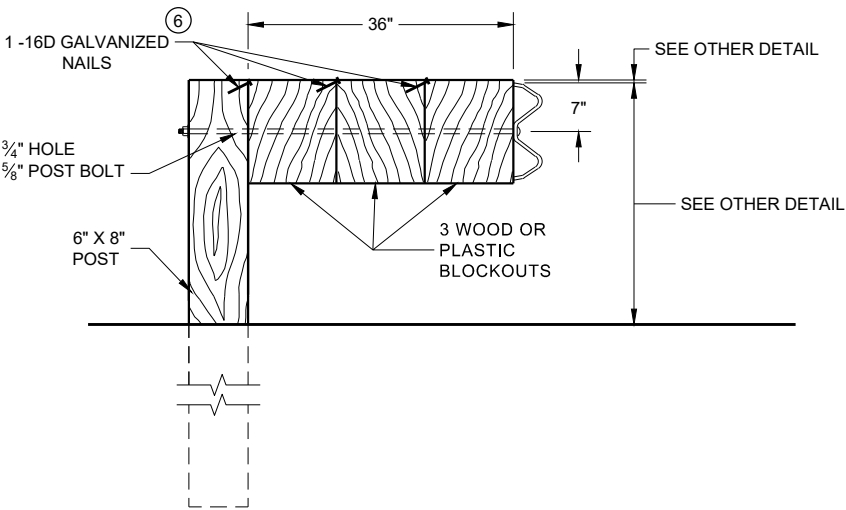
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

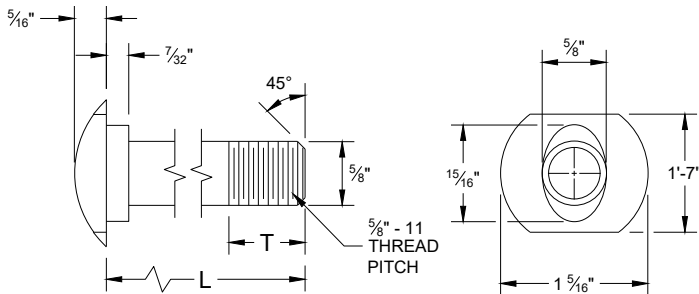
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

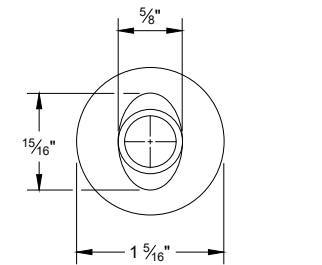
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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

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

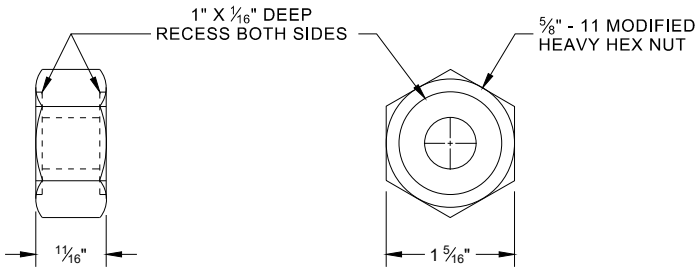


POST BOLT TABLE

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

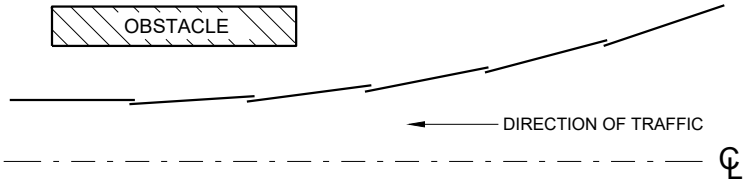


ALTERNATE BOLT HEAD

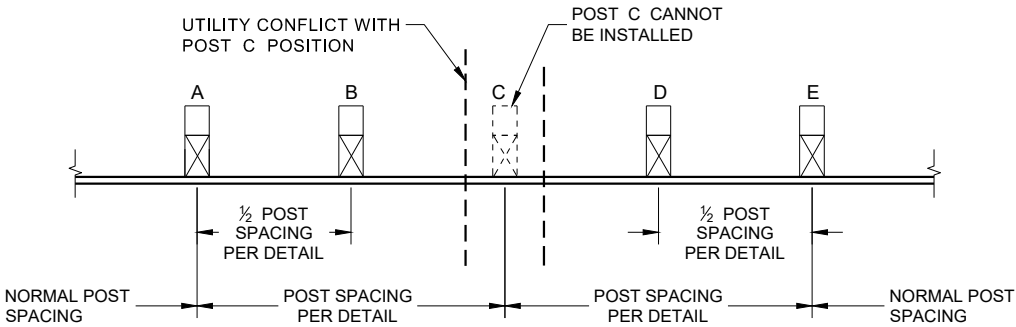


POST BOLT, SPLICE BOLT AND RECESS NUT

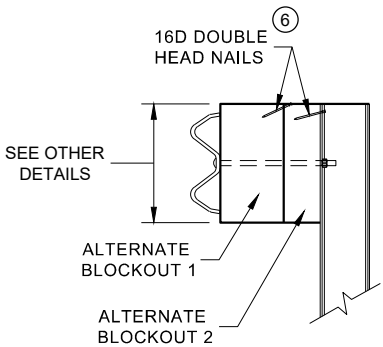
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



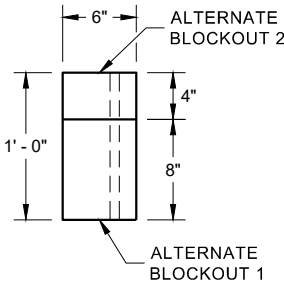
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

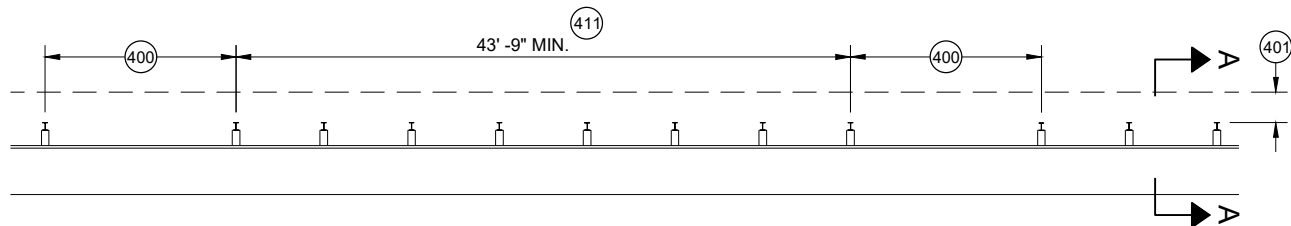


PLAN VIEW

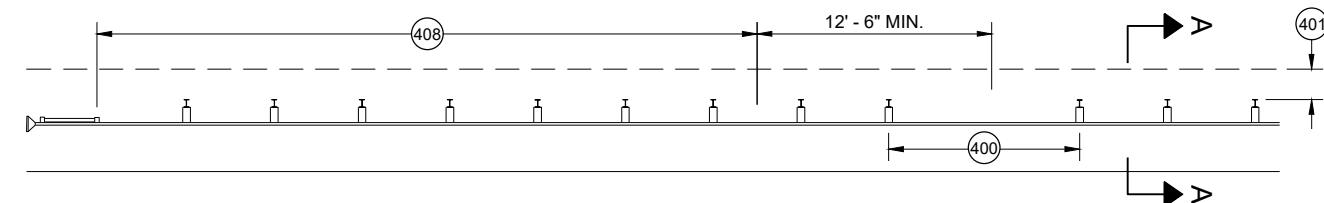
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

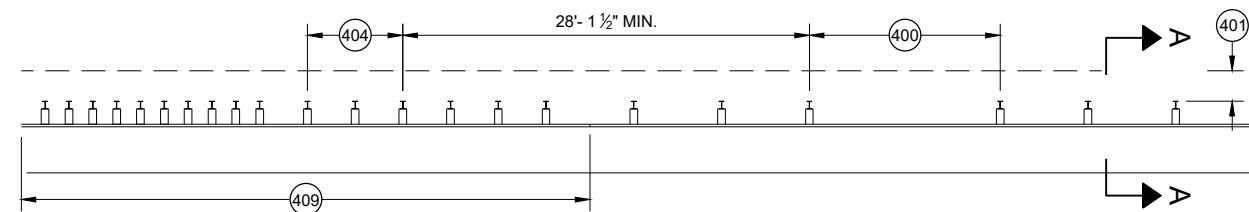
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



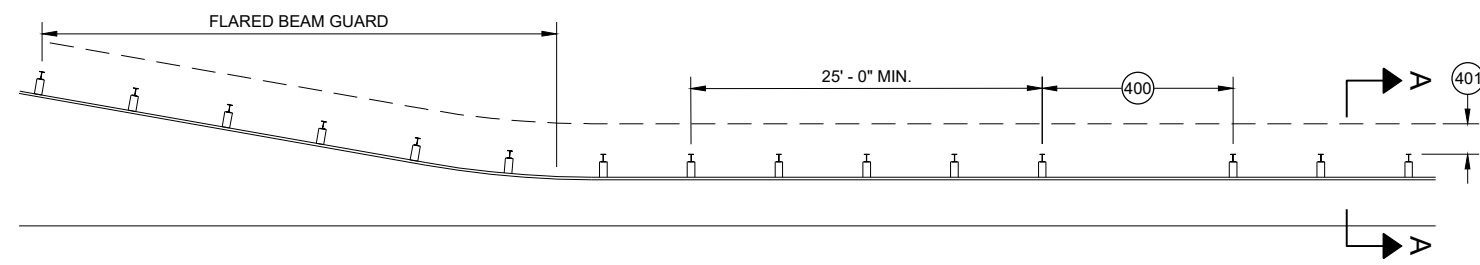
MISSING POST IN MGS GUARDRAIL



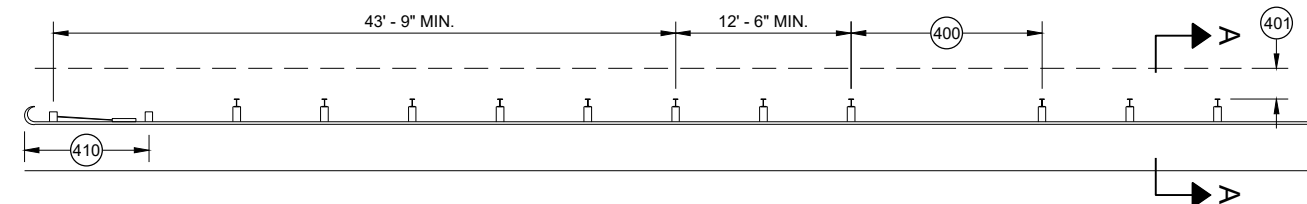
MISSING POST IN MGS GUARDRAIL NEAR EAT



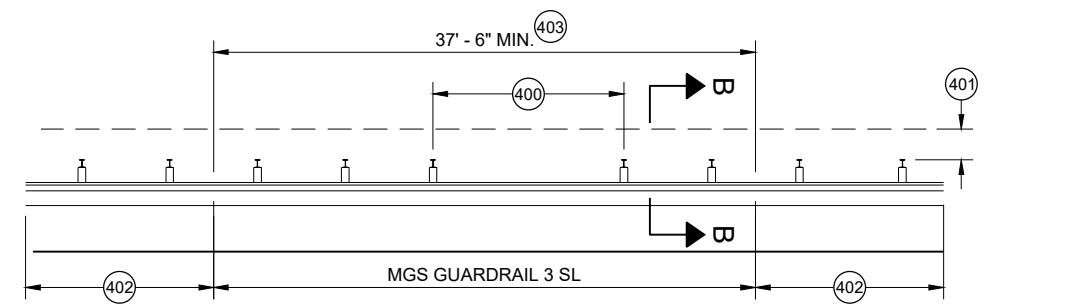
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

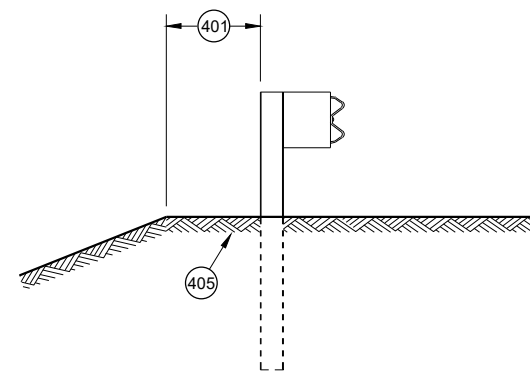


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

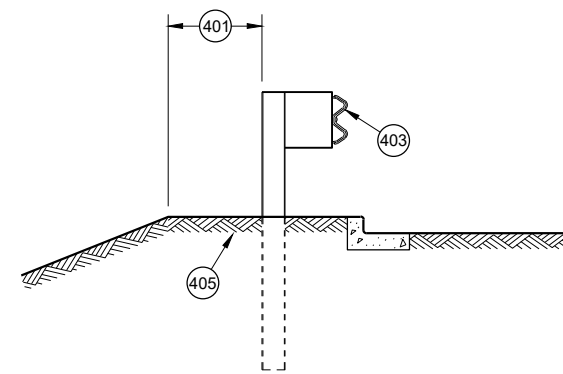


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

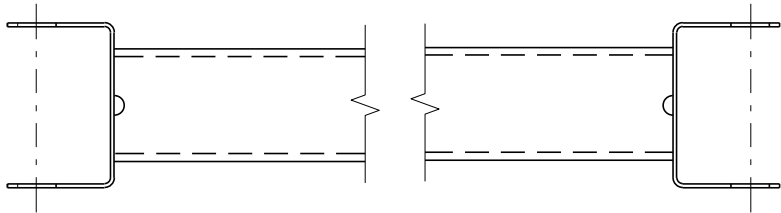
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

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

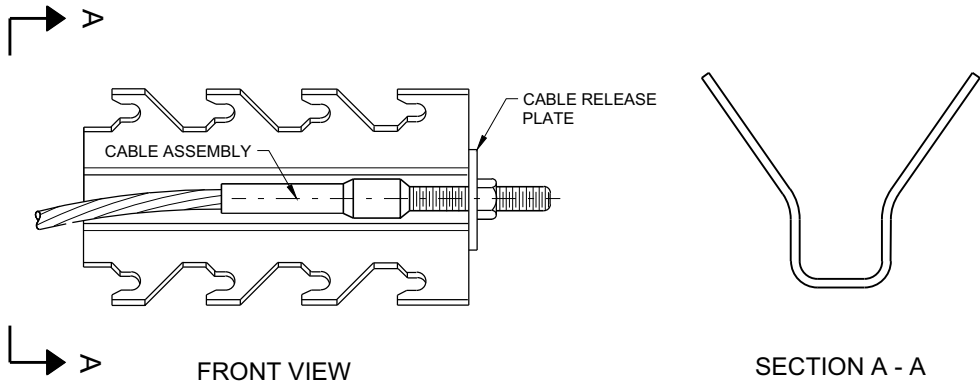


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

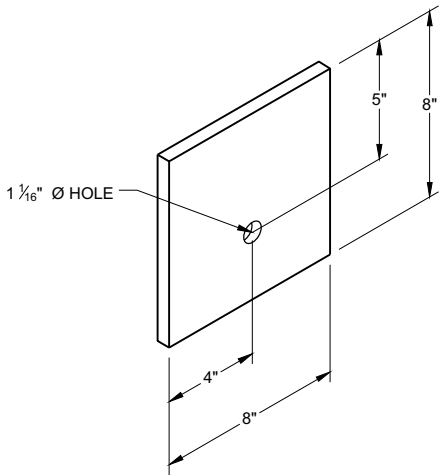


GENERIC GROUND STRUT⁹ ^E

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



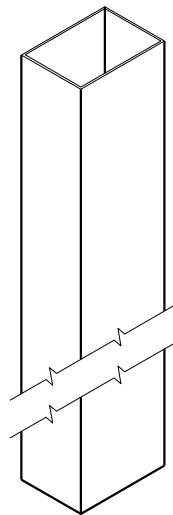
GENERIC ANCHOR CABLE BOX⁹ ^E



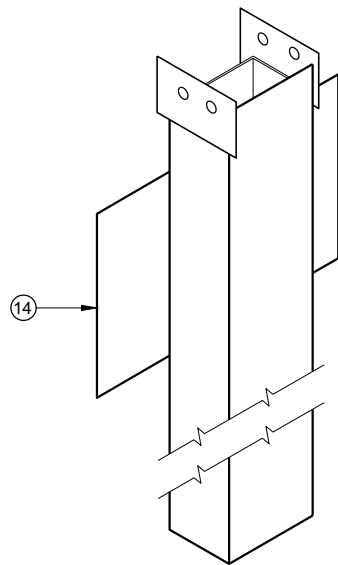
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

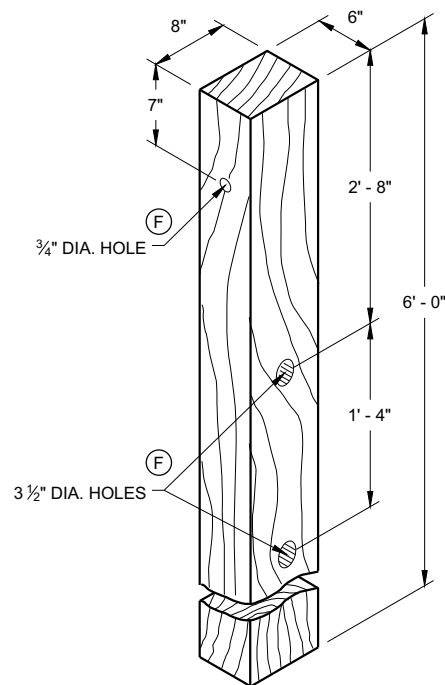
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



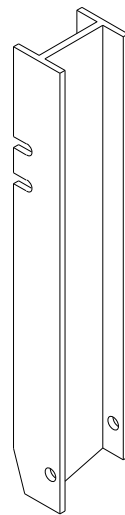
UPPER POST NO. 1 ⁽¹⁾ (E)



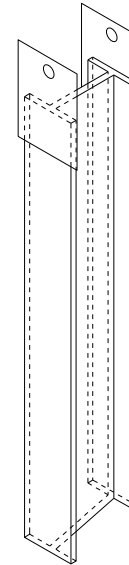
LOWER POST NO. 1 ⁽²⁾ (E)



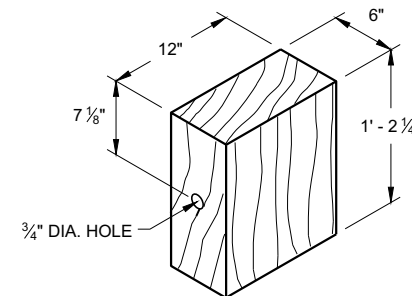
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



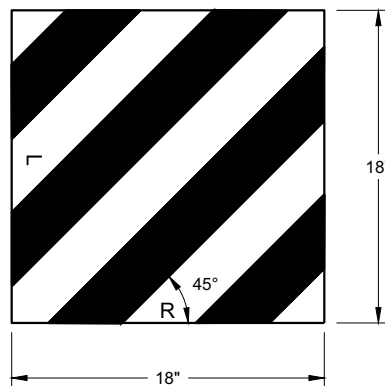
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



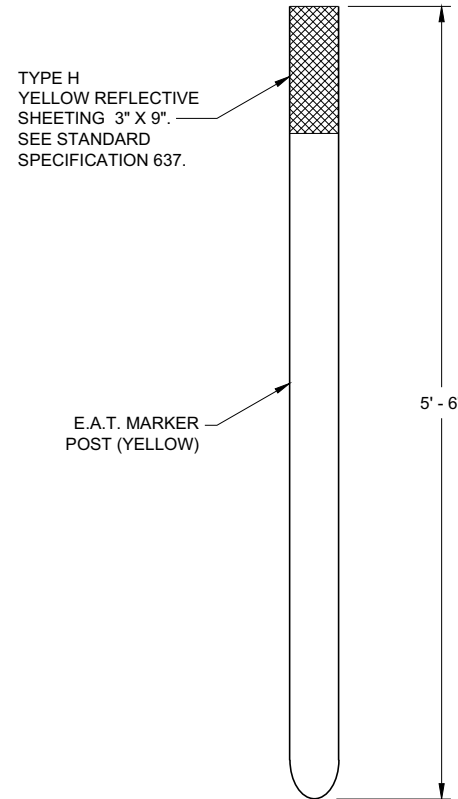
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



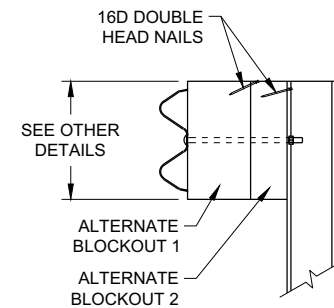
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



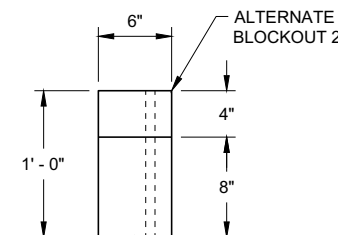
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



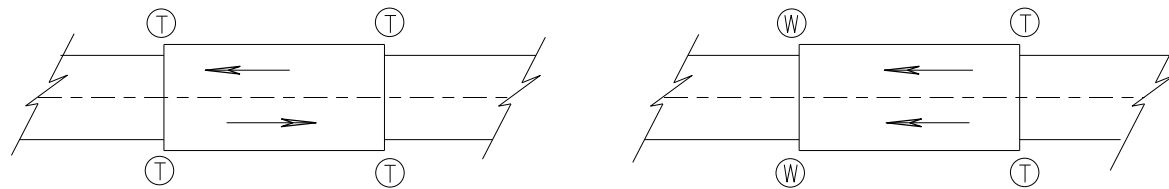
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

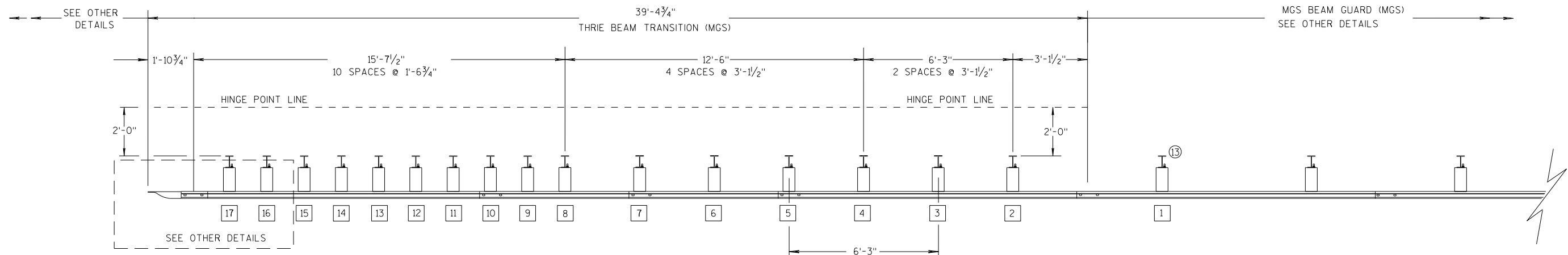
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

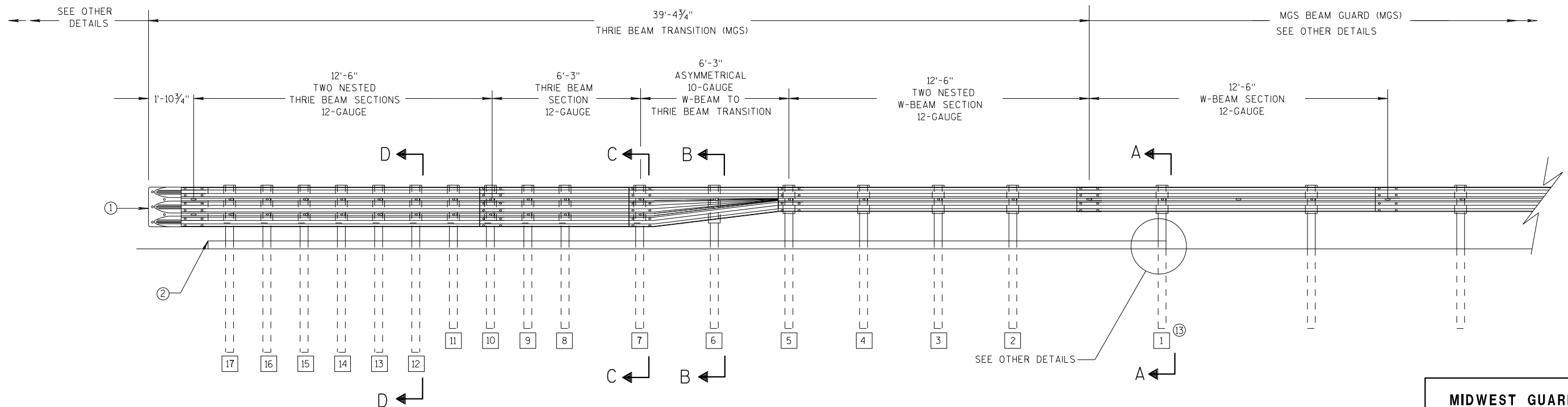
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

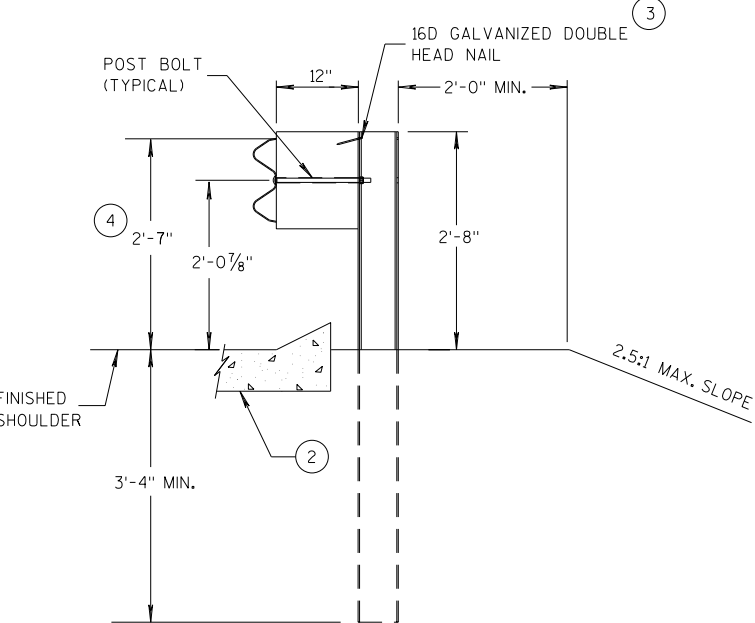
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

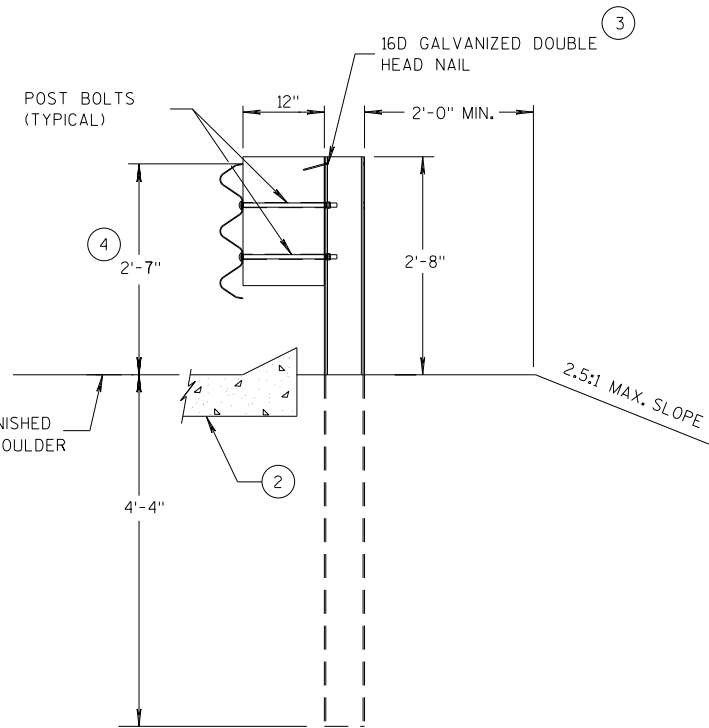
STATE OF WISCONSIN
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GENERAL NOTES

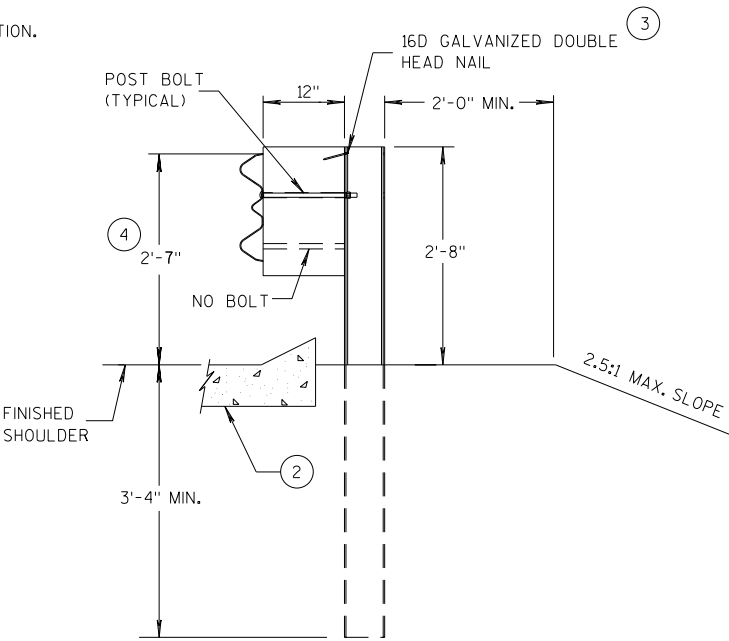
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



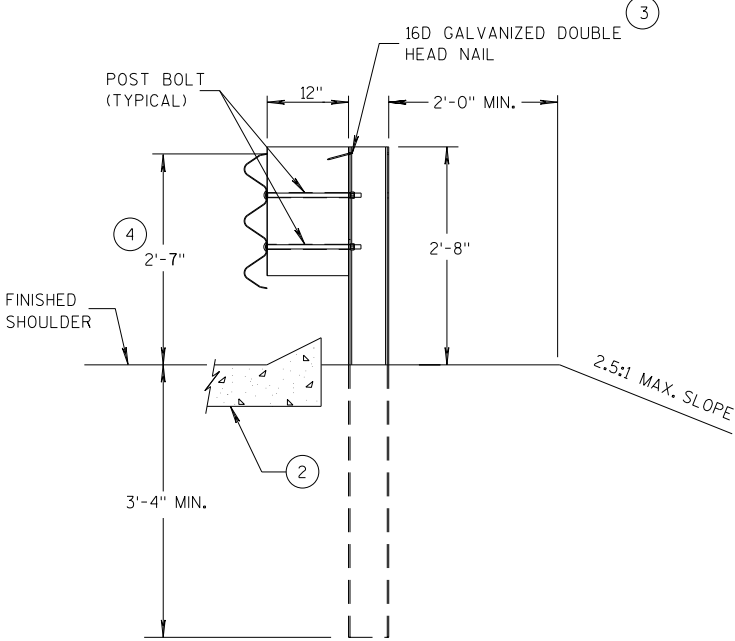
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

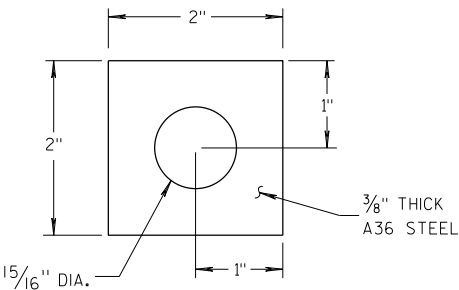
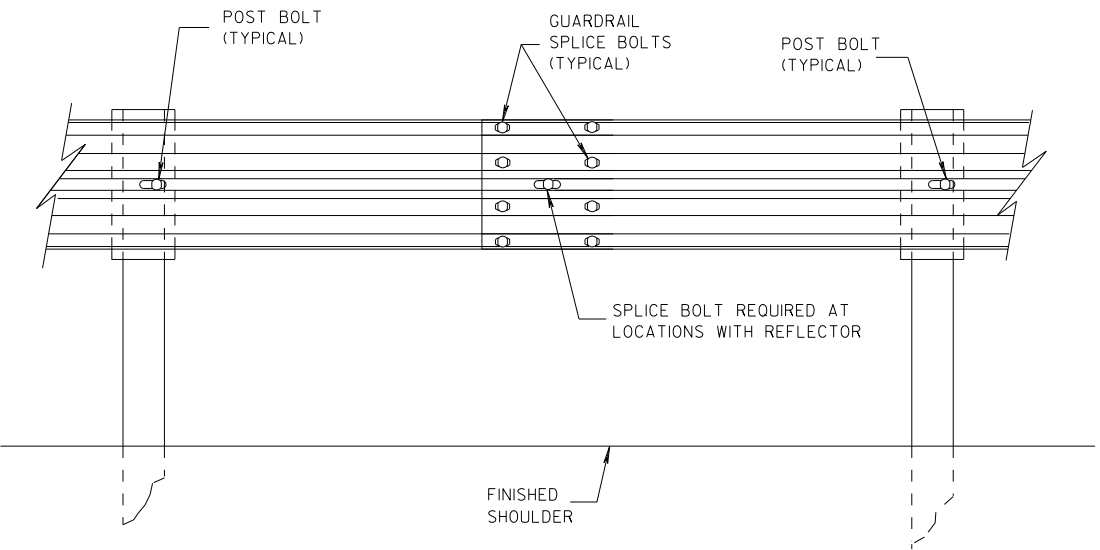
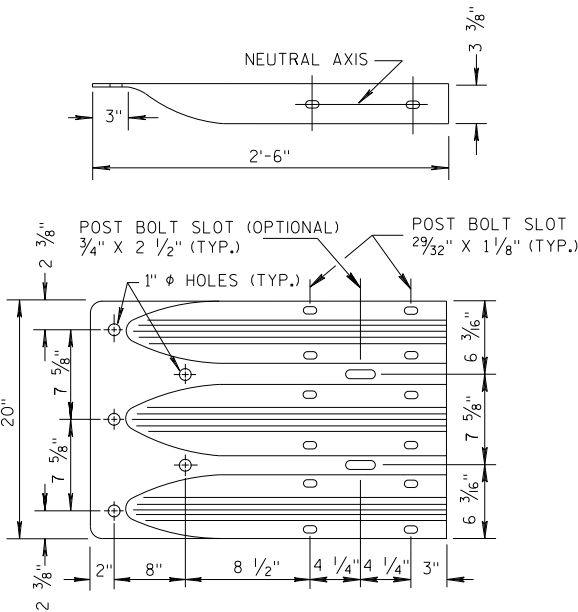


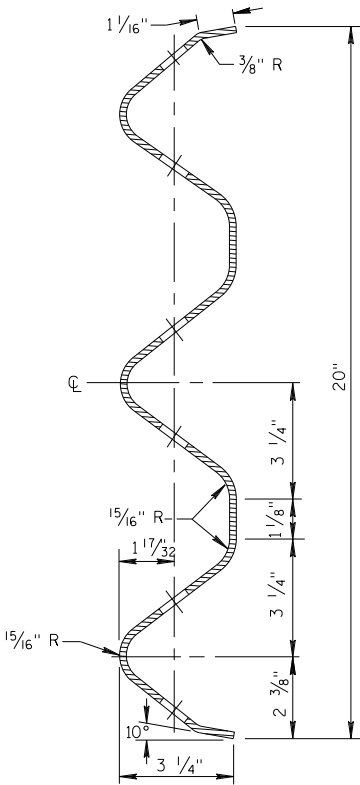
PLATE WASHER DETAIL



SPLICE DETAIL



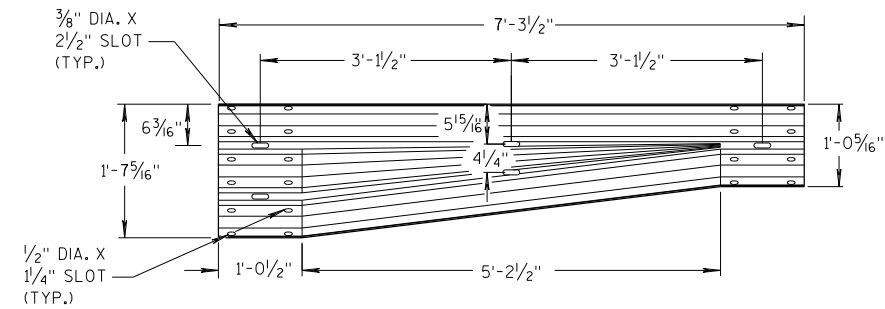
THRIE BEAM
TERMINAL CONNECTOR



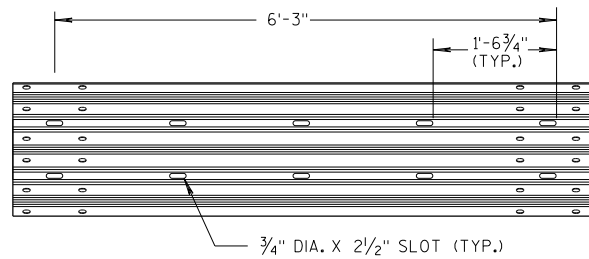
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

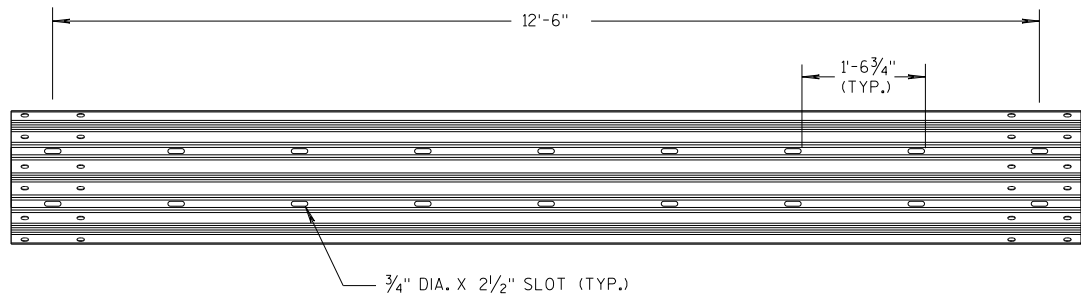
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



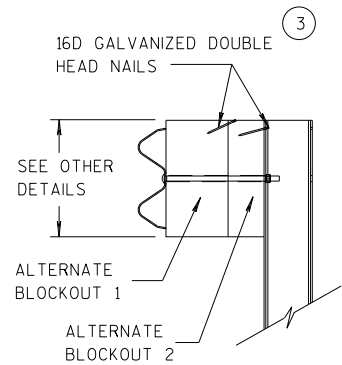
W-BEAM TO THRIE BEAM TRANSITION SECTION



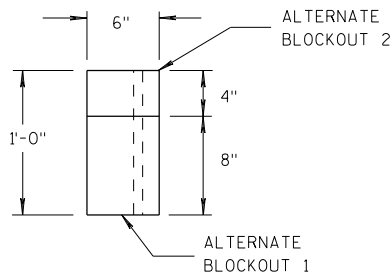
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

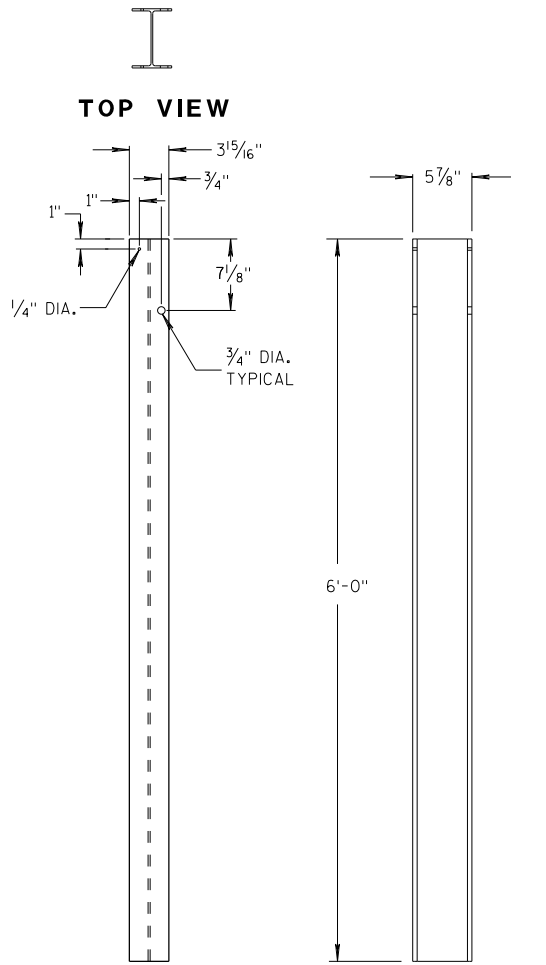


SIDE VIEW



TOP VIEW

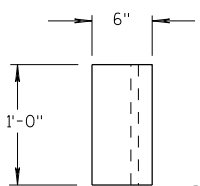
ALTERNATE WOOD BLOCKOUT DETAIL



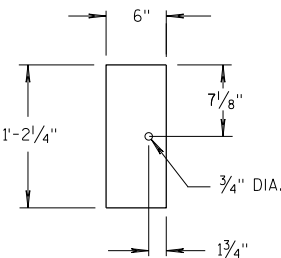
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

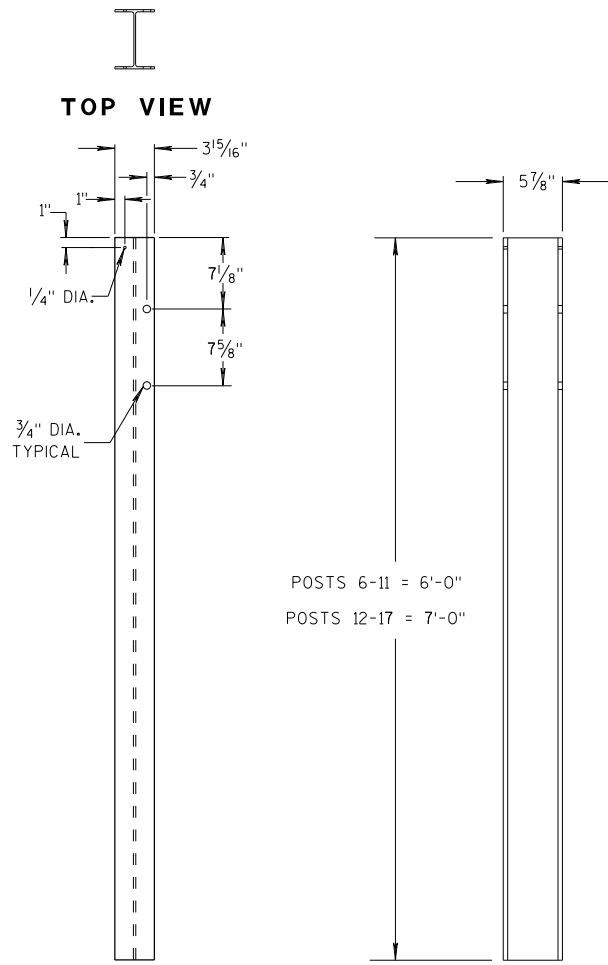


TOP VIEW



FRONT VIEW

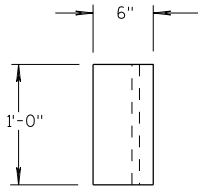
**BLOCKOUT
POSTS 1-5**



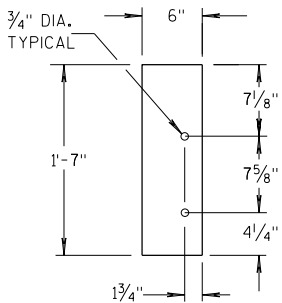
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

**BLOCKOUT
POSTS 6-17**

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

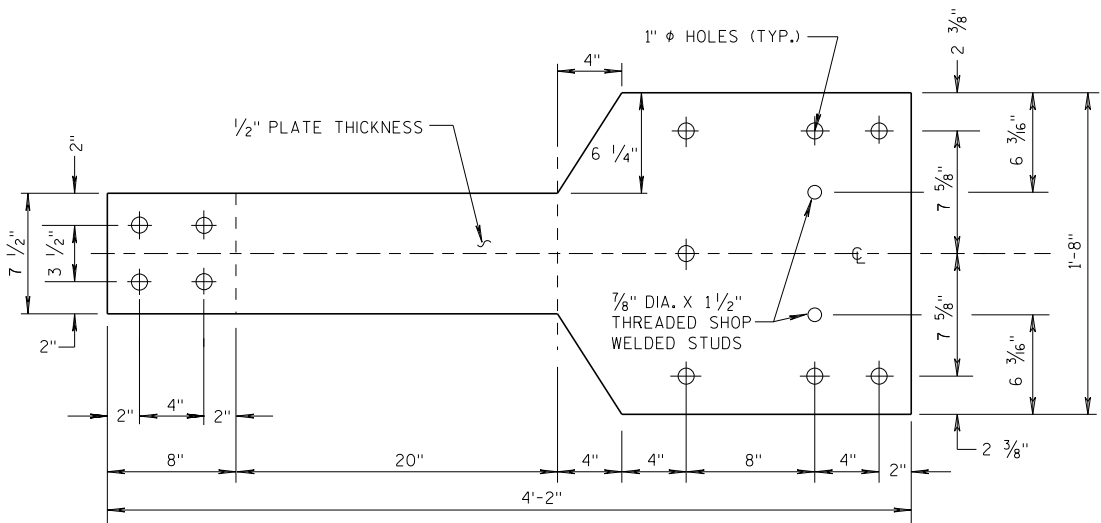
⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

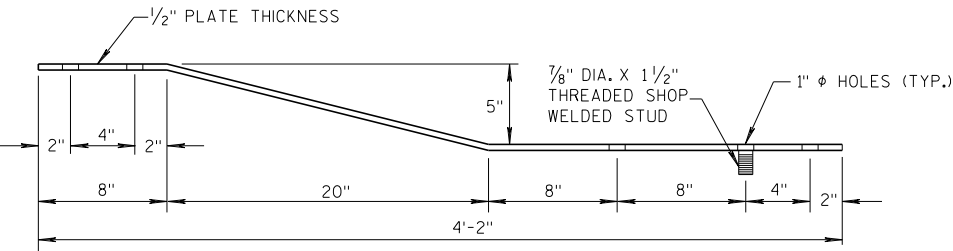
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

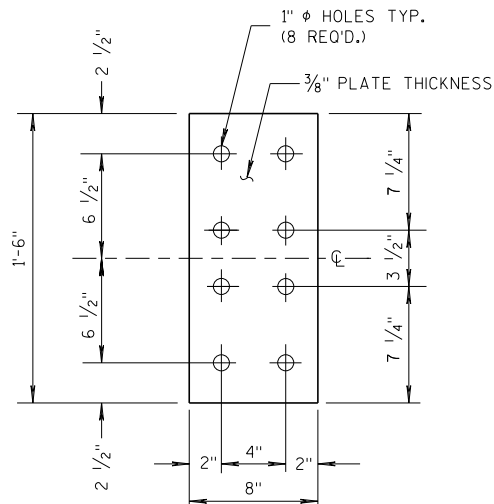
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

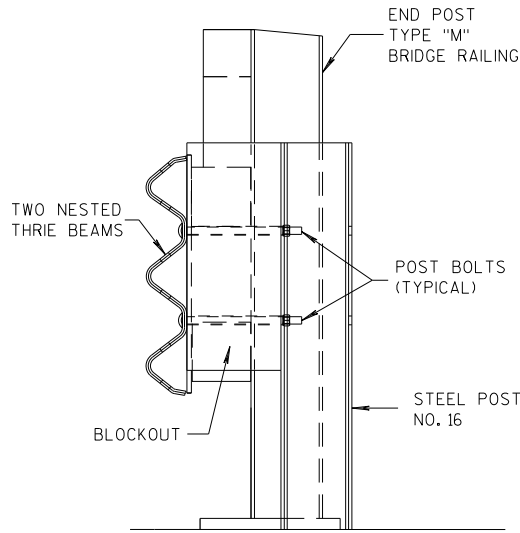


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

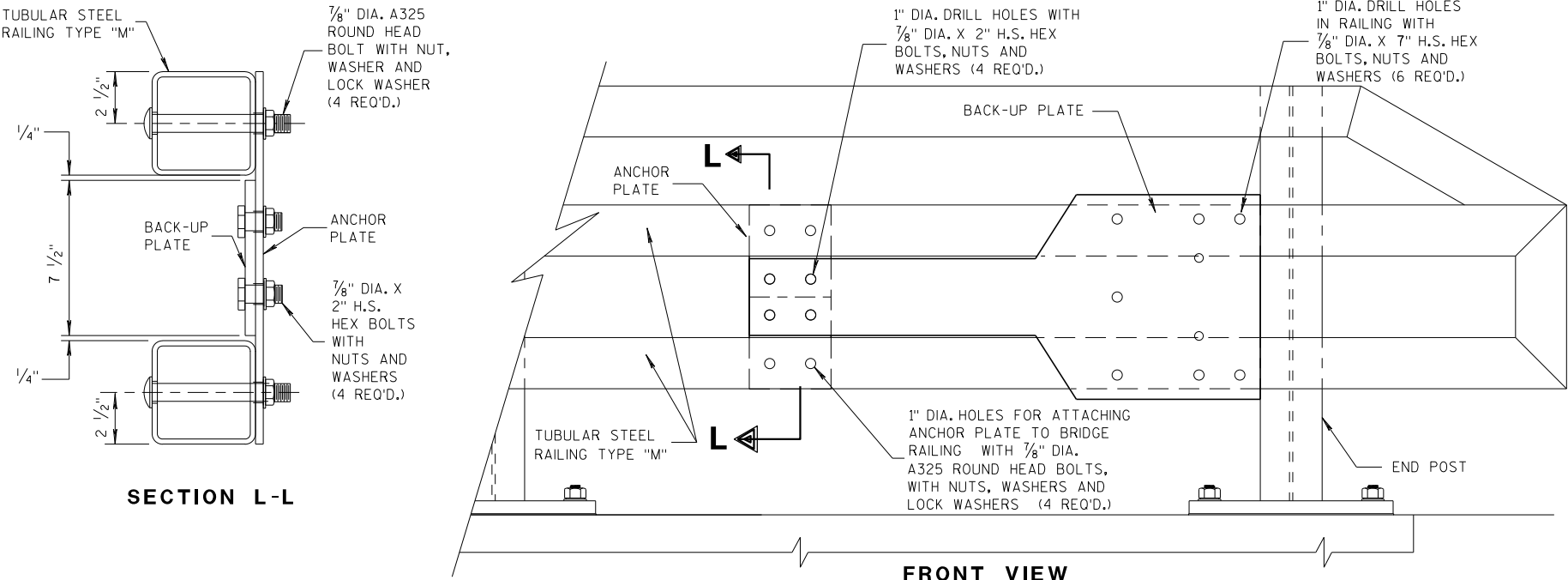


FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



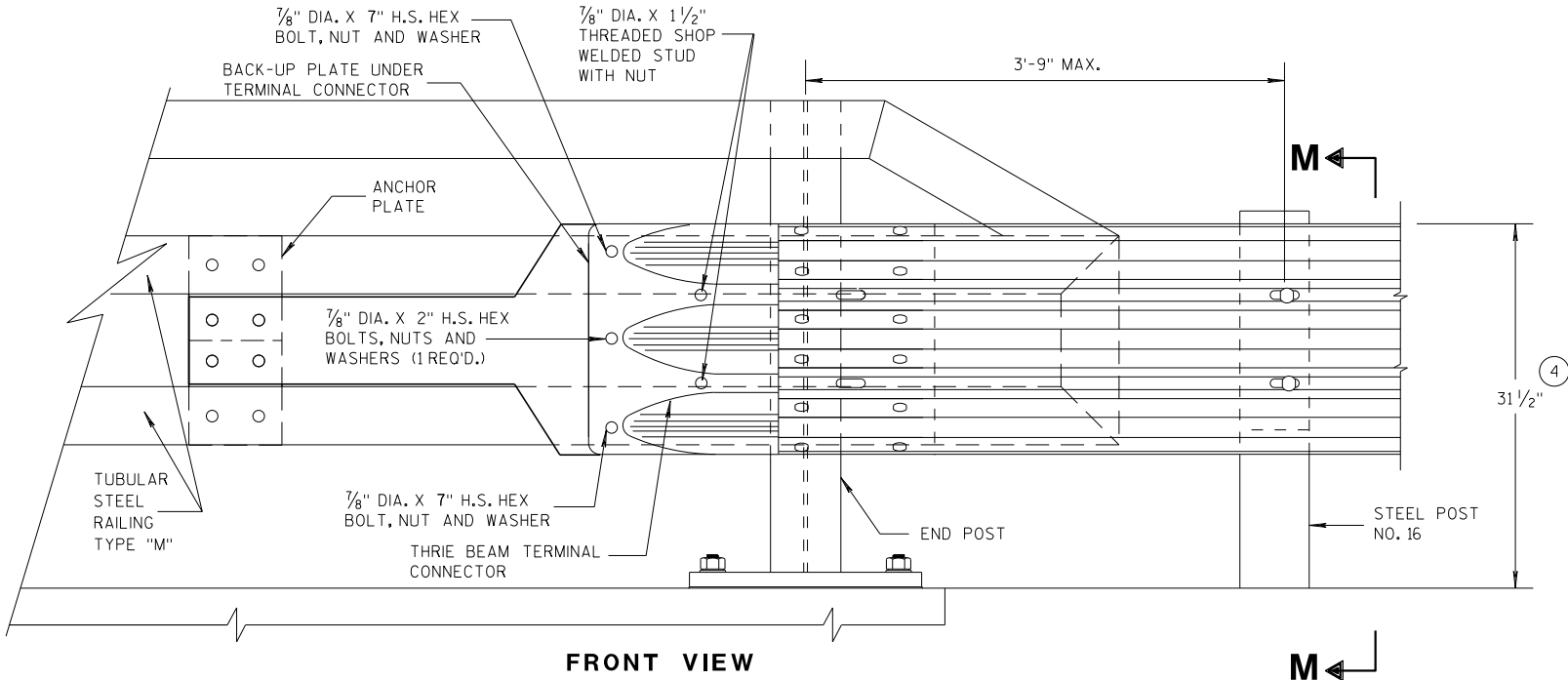
SECTION M-M



SECTION L-L

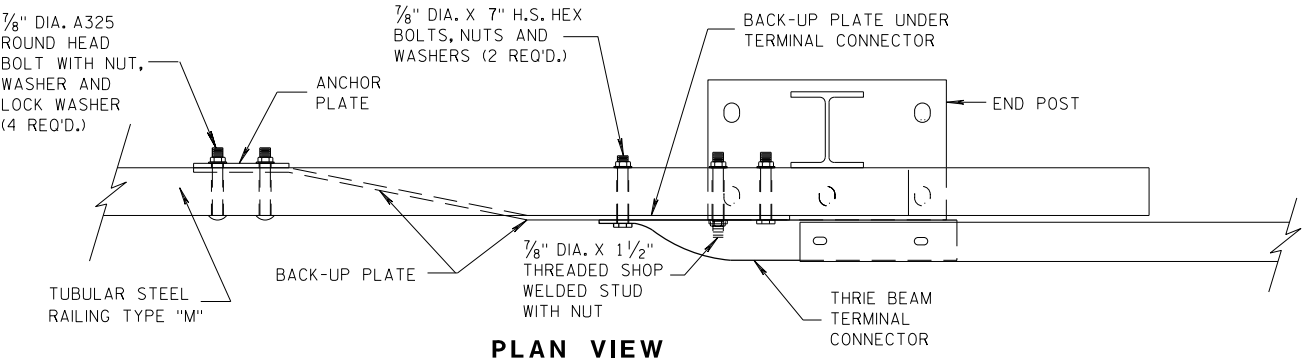
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW

M



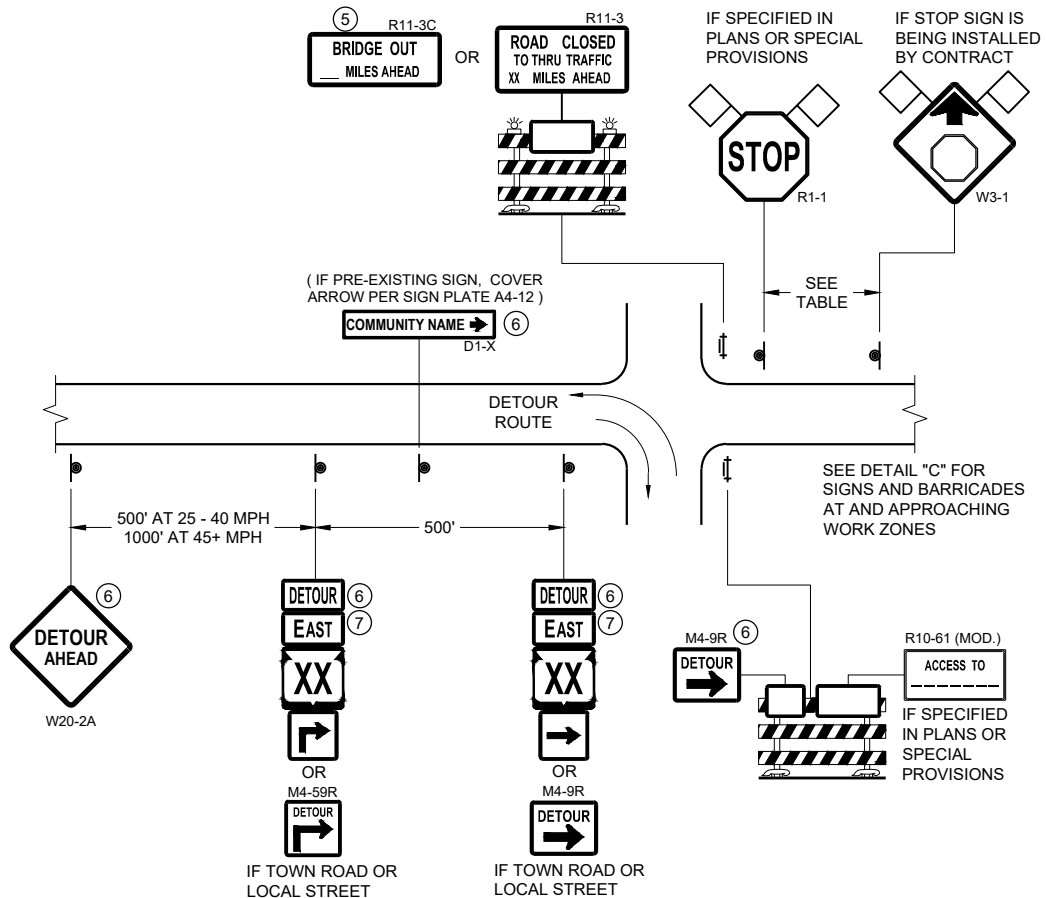
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

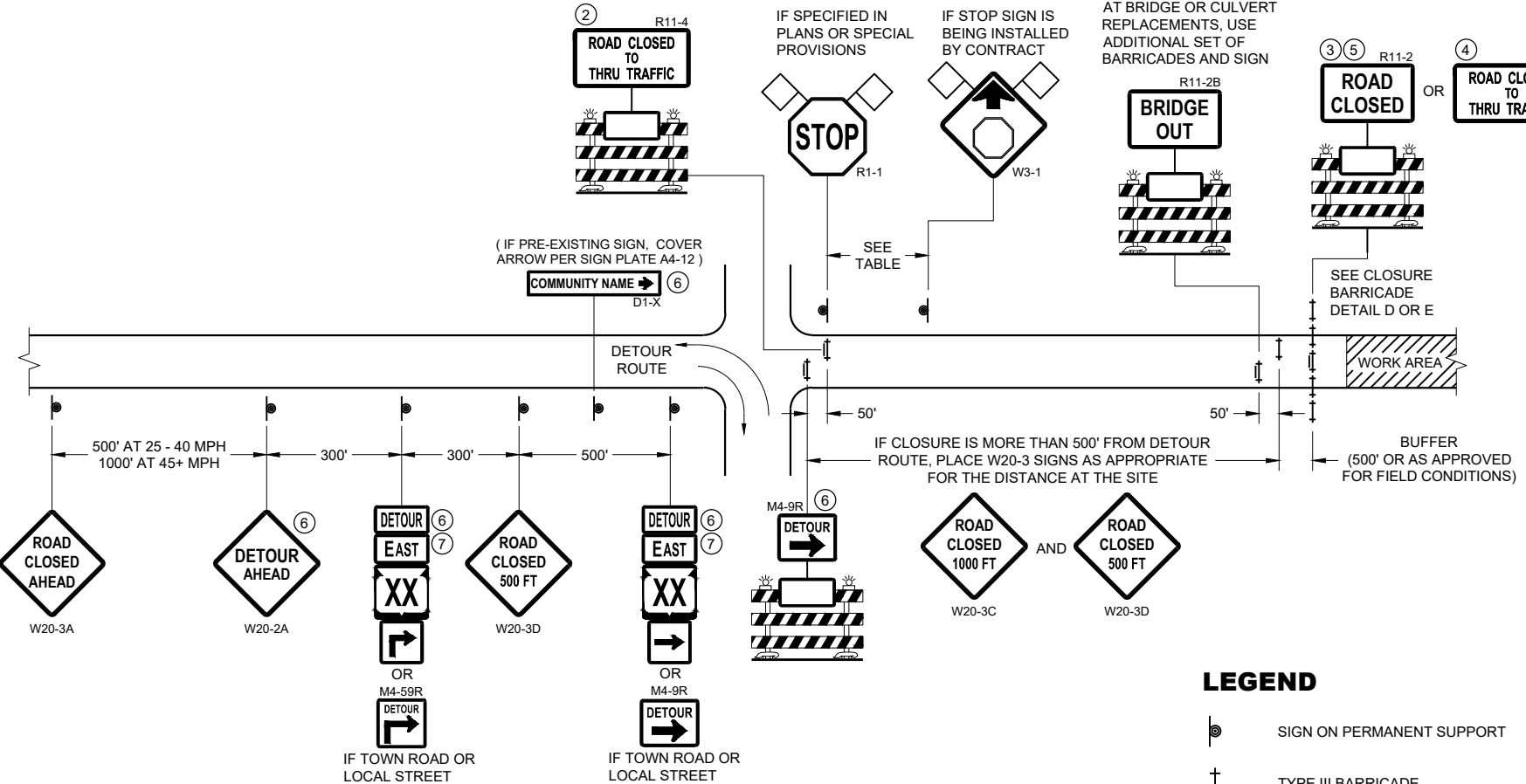
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



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



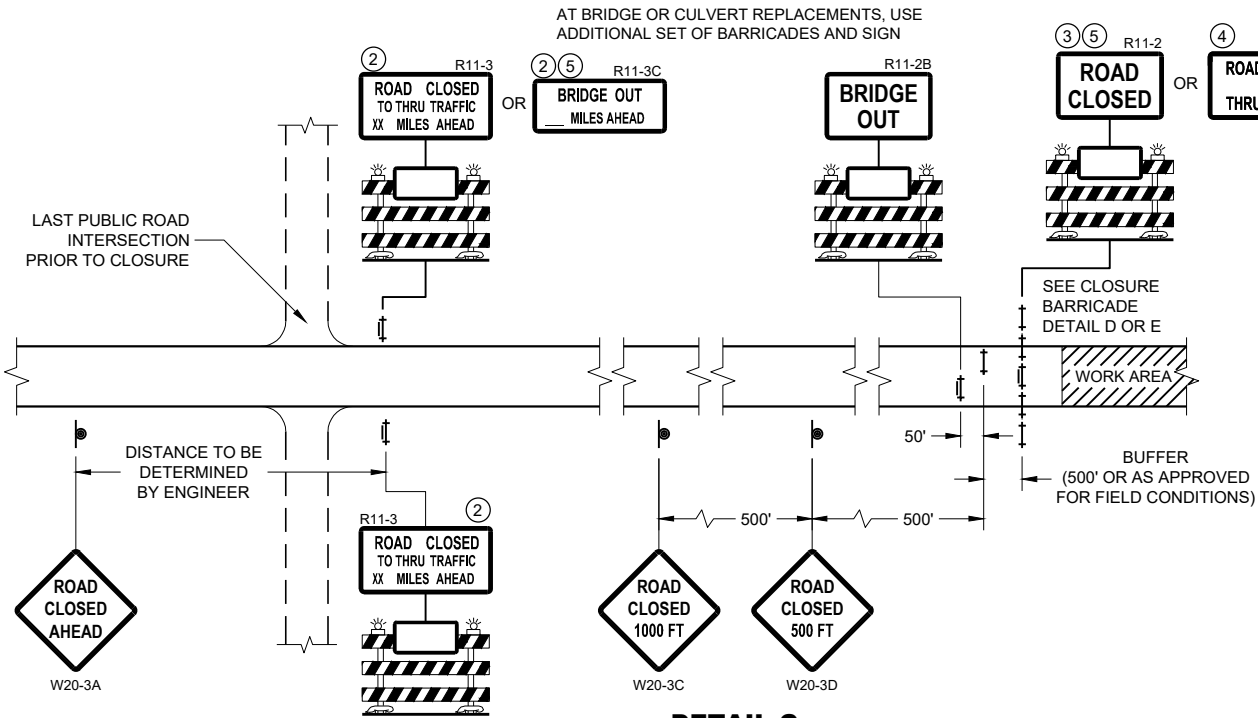
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

- 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



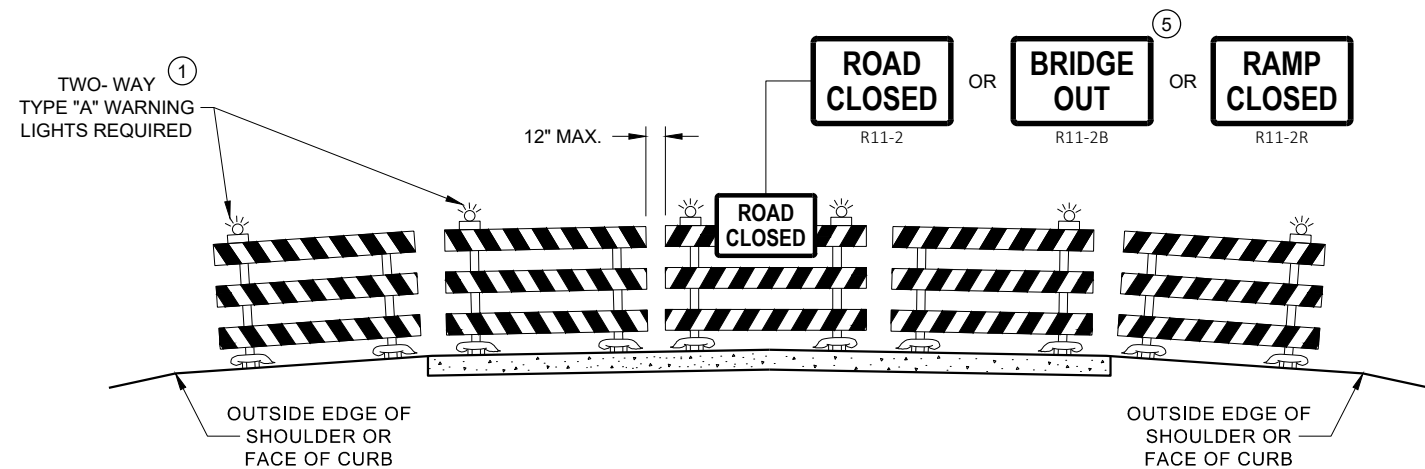
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

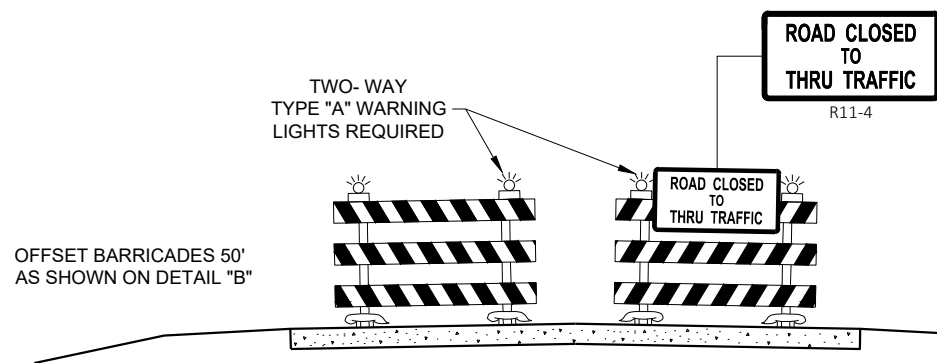
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

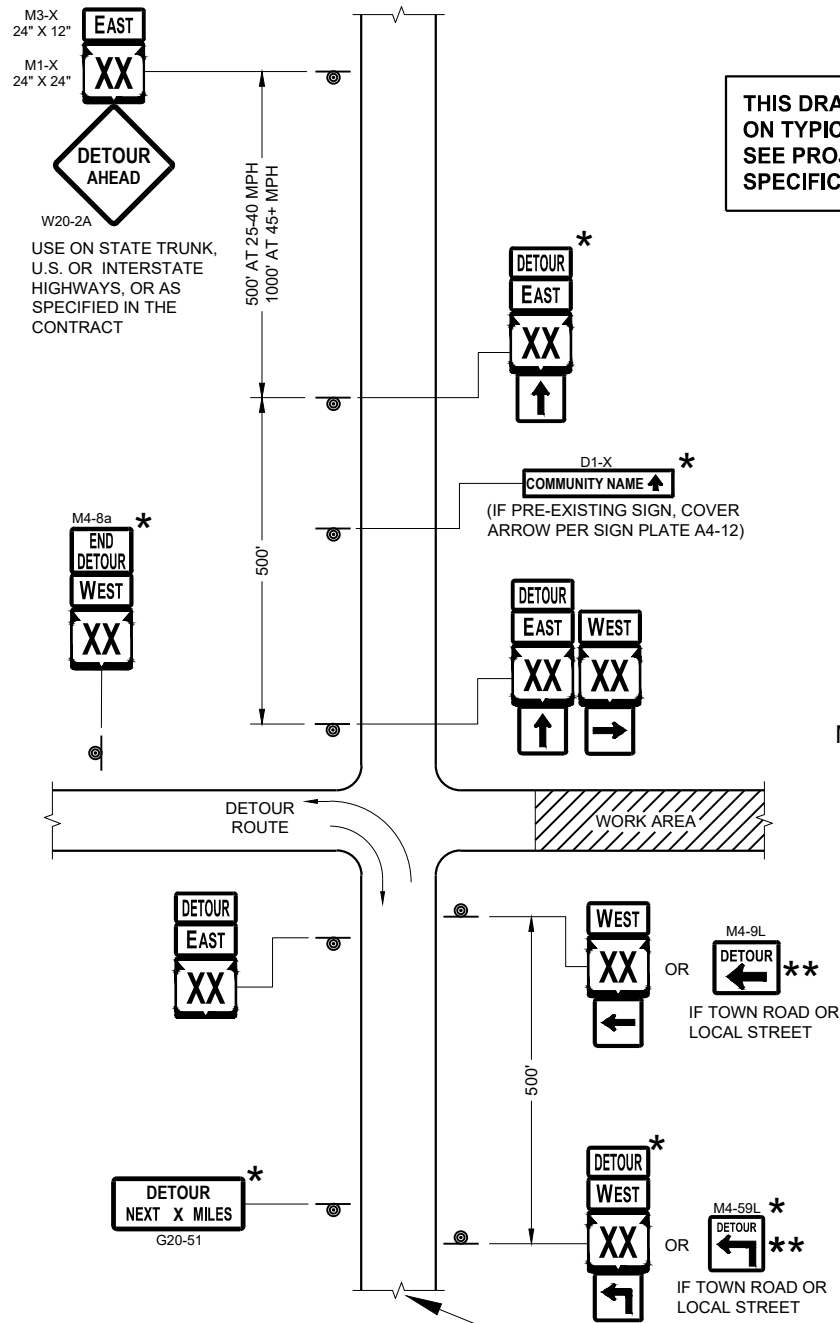
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE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

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

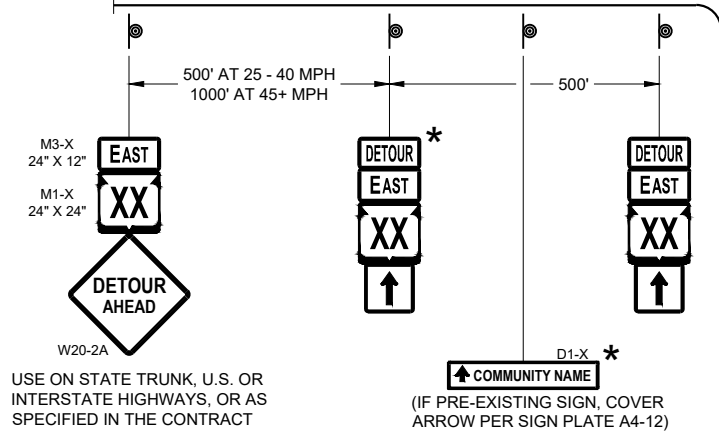
APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST M4 - 8
- DETOUR WEST M3 - X
- DETOUR AHEAD M1 - 4 OR M1 - 6 OR M1 - 5A
- DETOUR NEXT X MILES M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR 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.

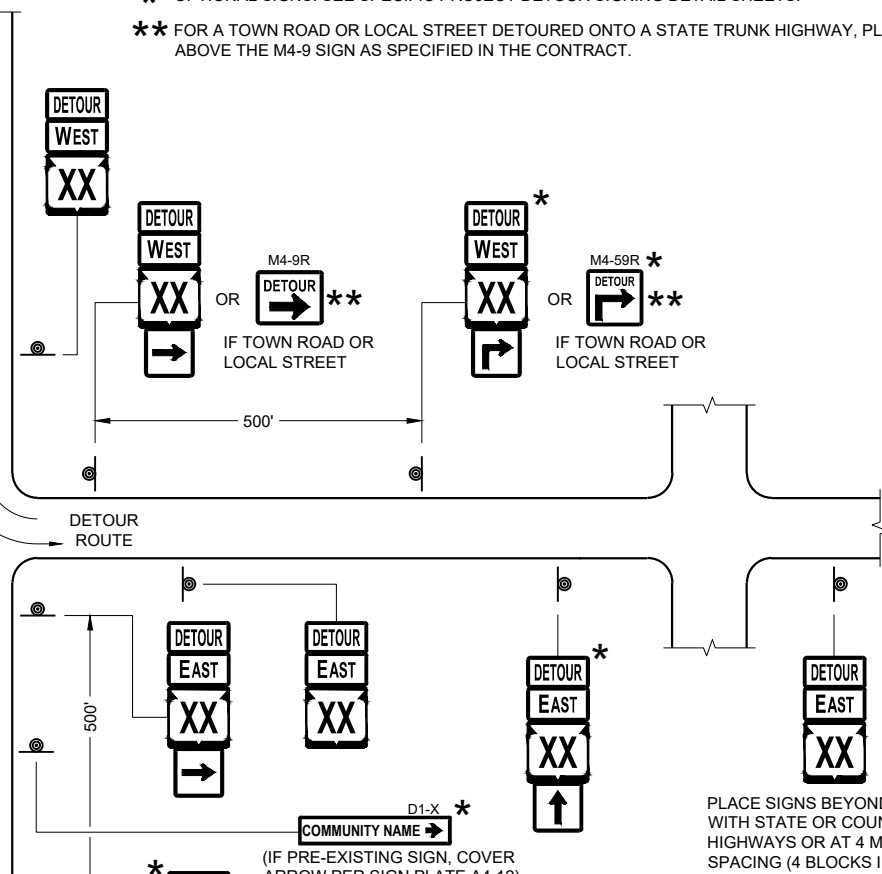
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

- 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)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-9R SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

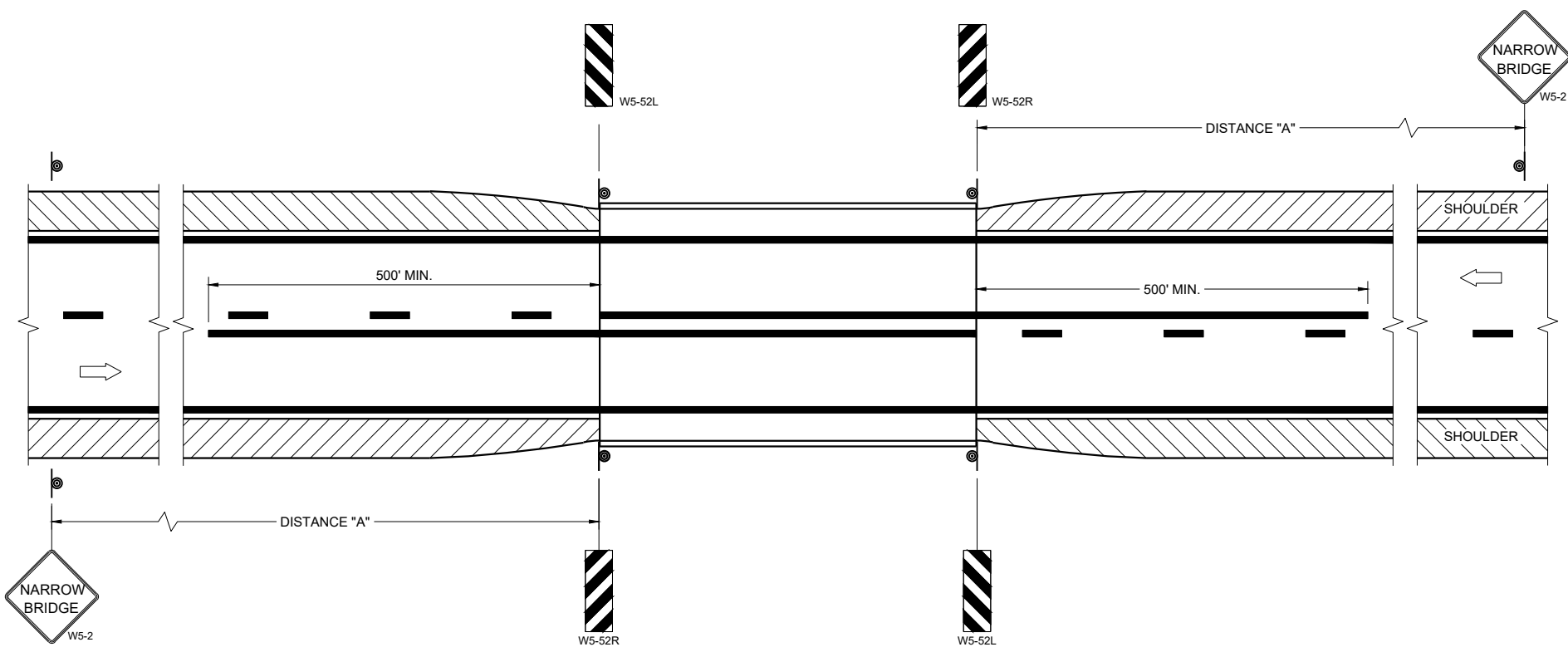


PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

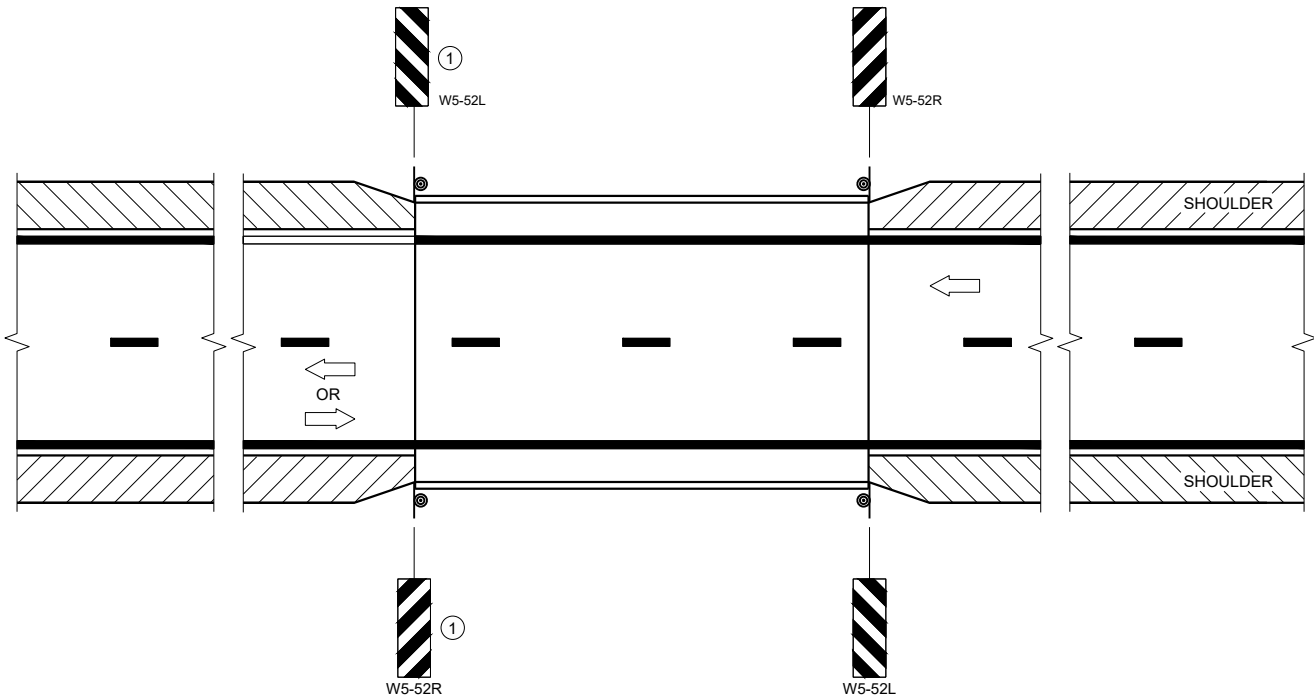
DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THE DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

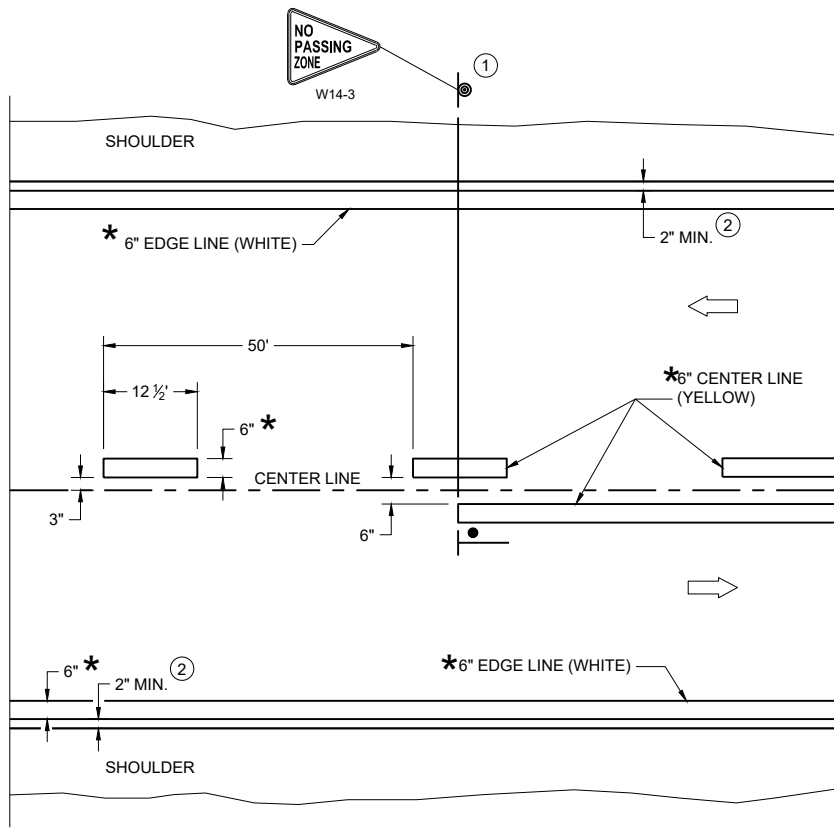
DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

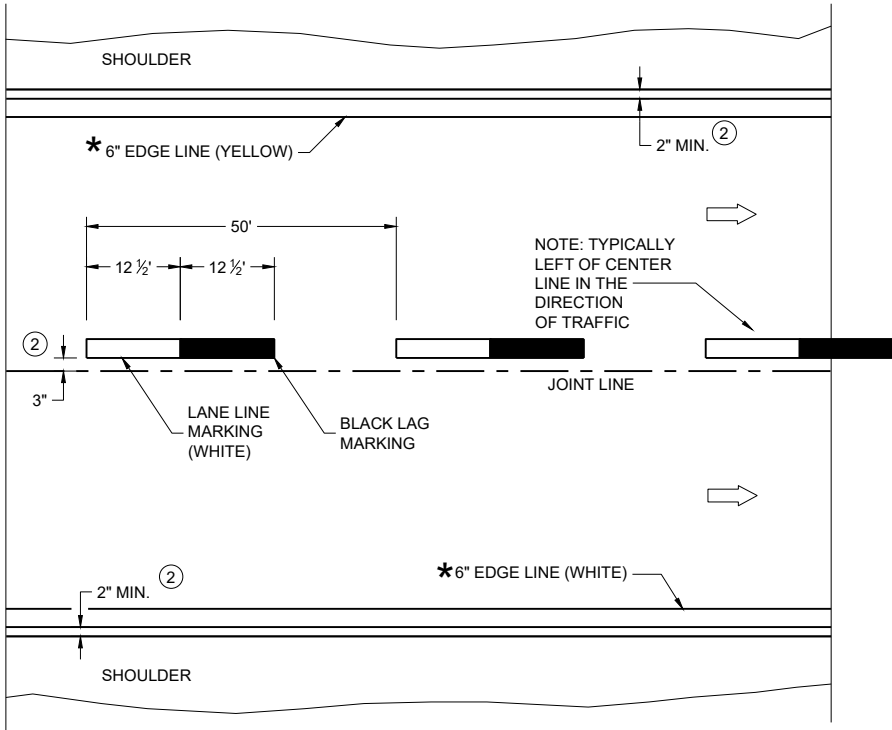
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer
FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

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

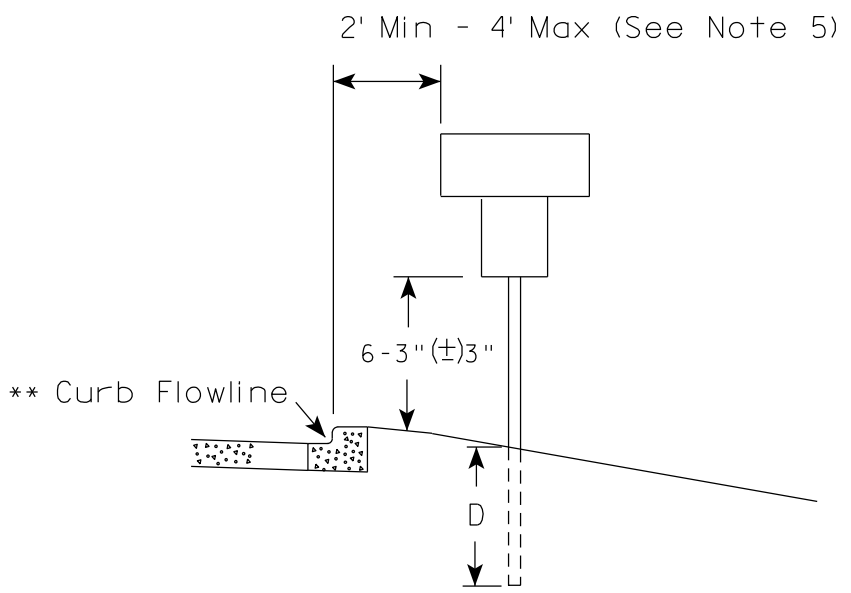
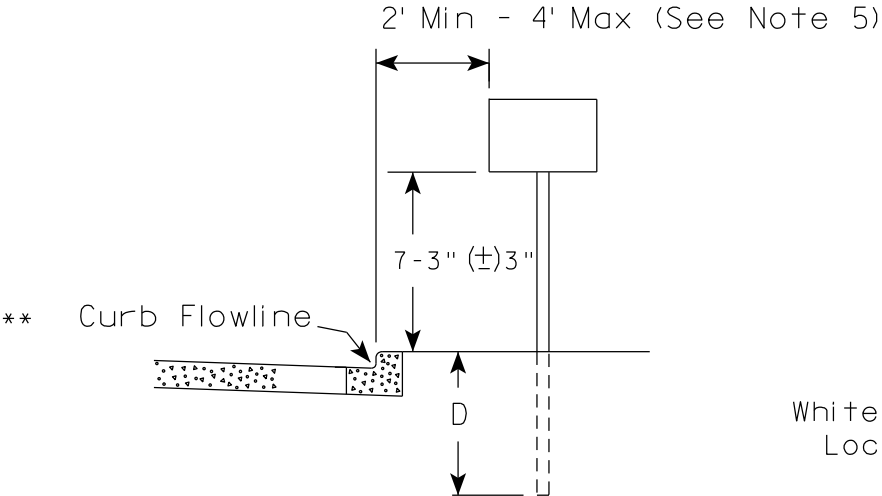
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

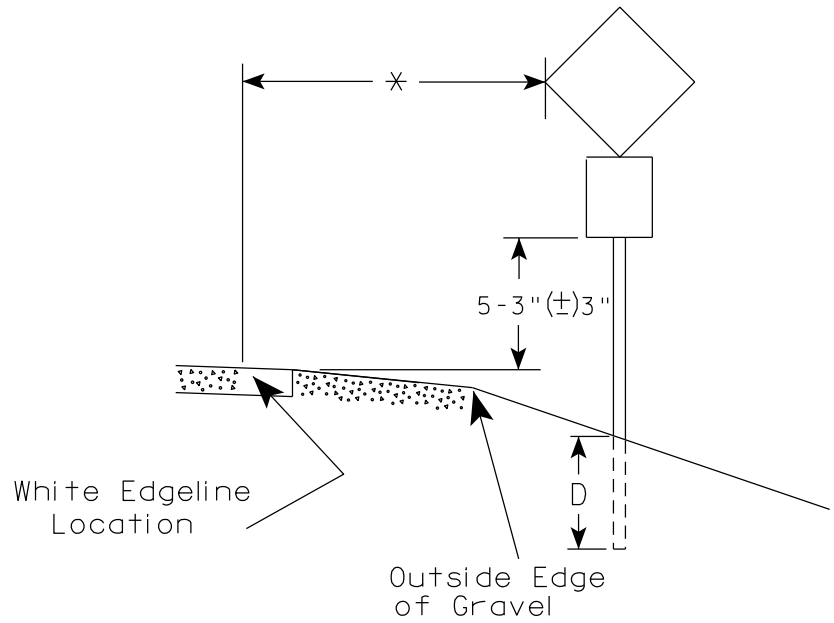
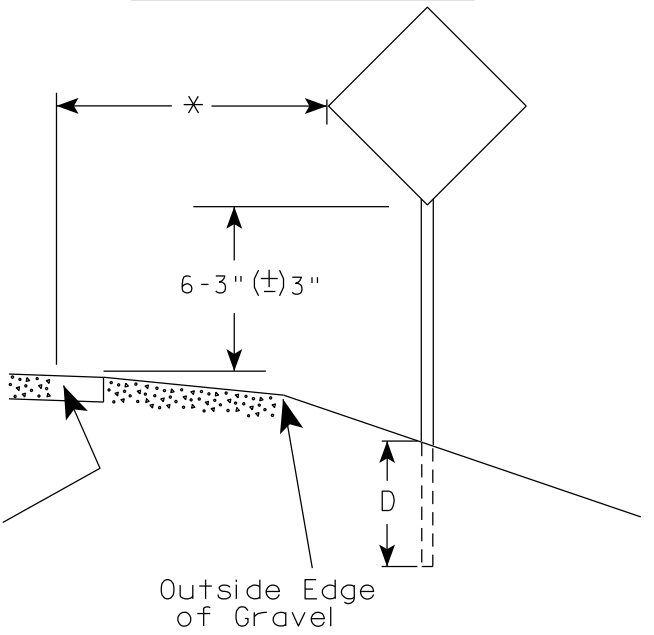
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

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

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

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.

* * 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.

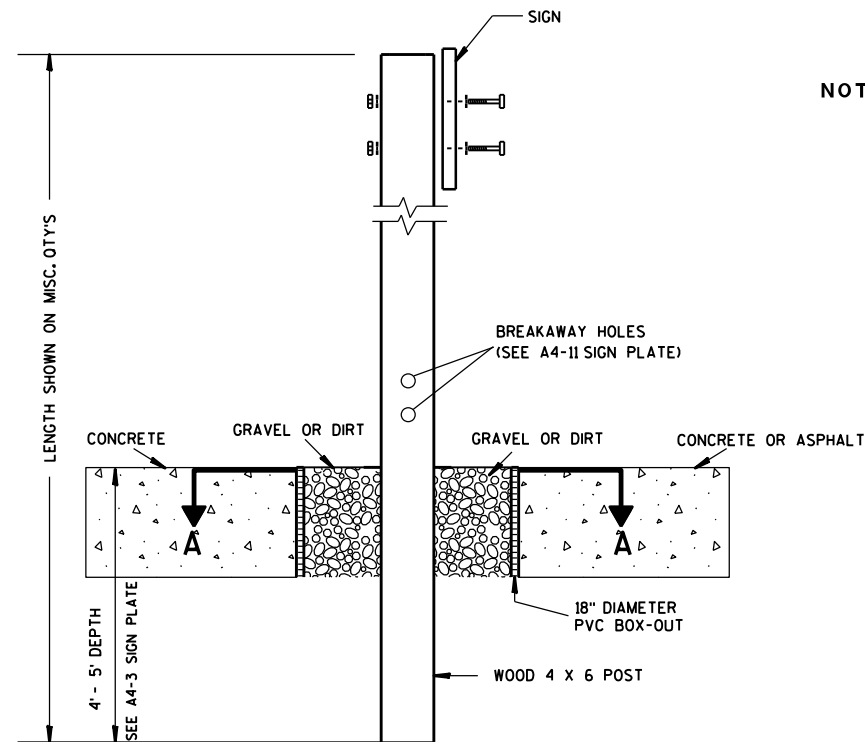
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED 
for State Traffic Engineer

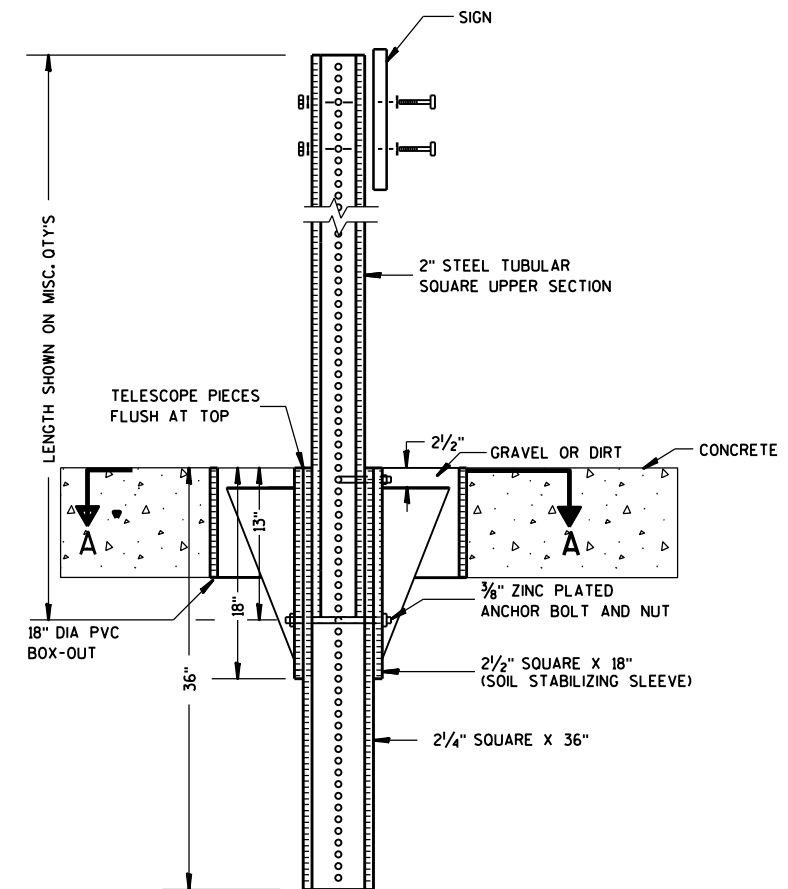
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

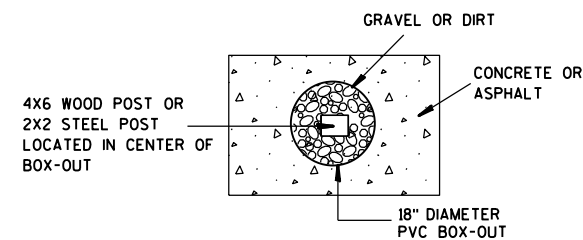
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

PROJECT NO:

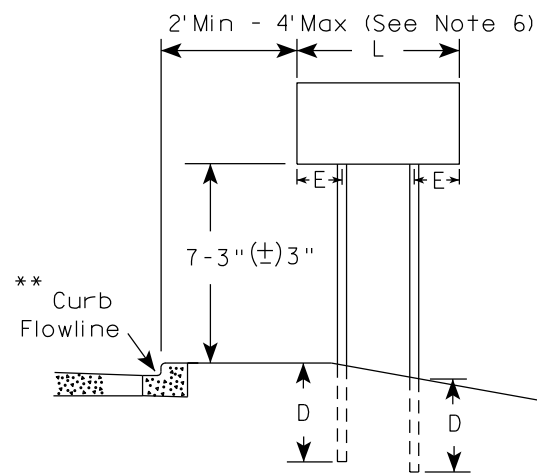
HWY:

COUNTY:

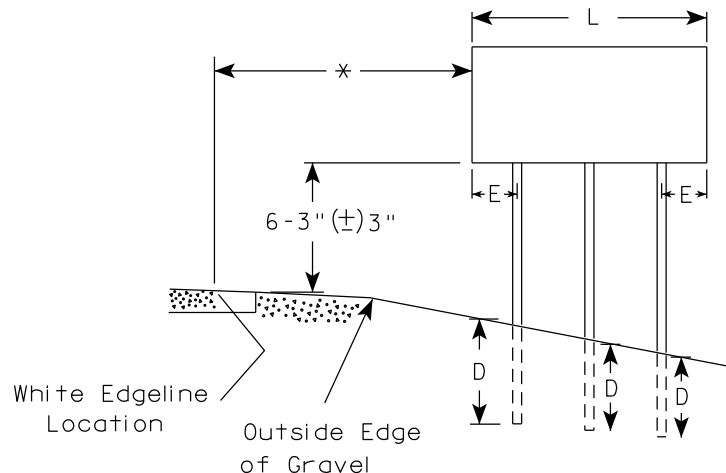
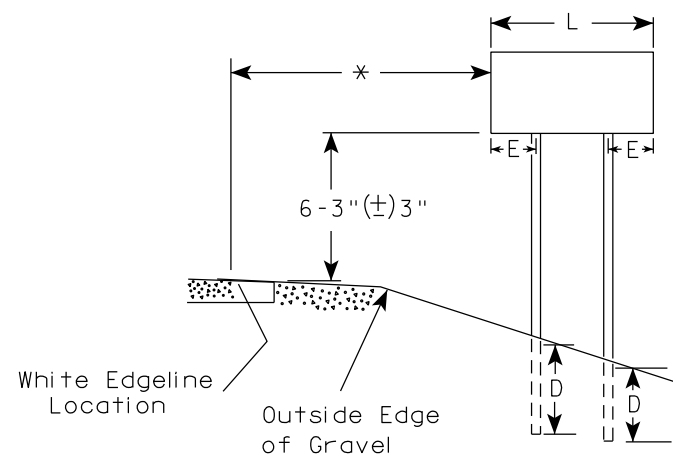
SHEET NO:

E

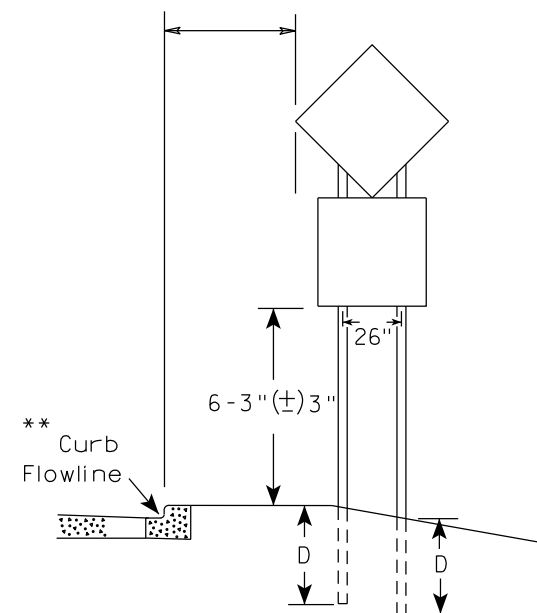
URBAN AREA



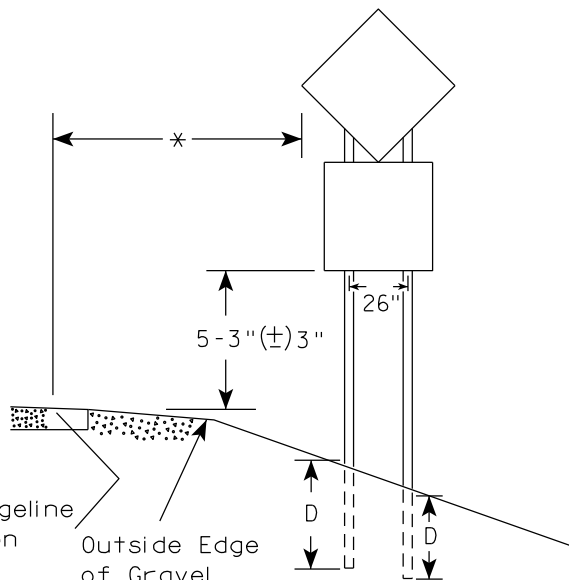
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

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

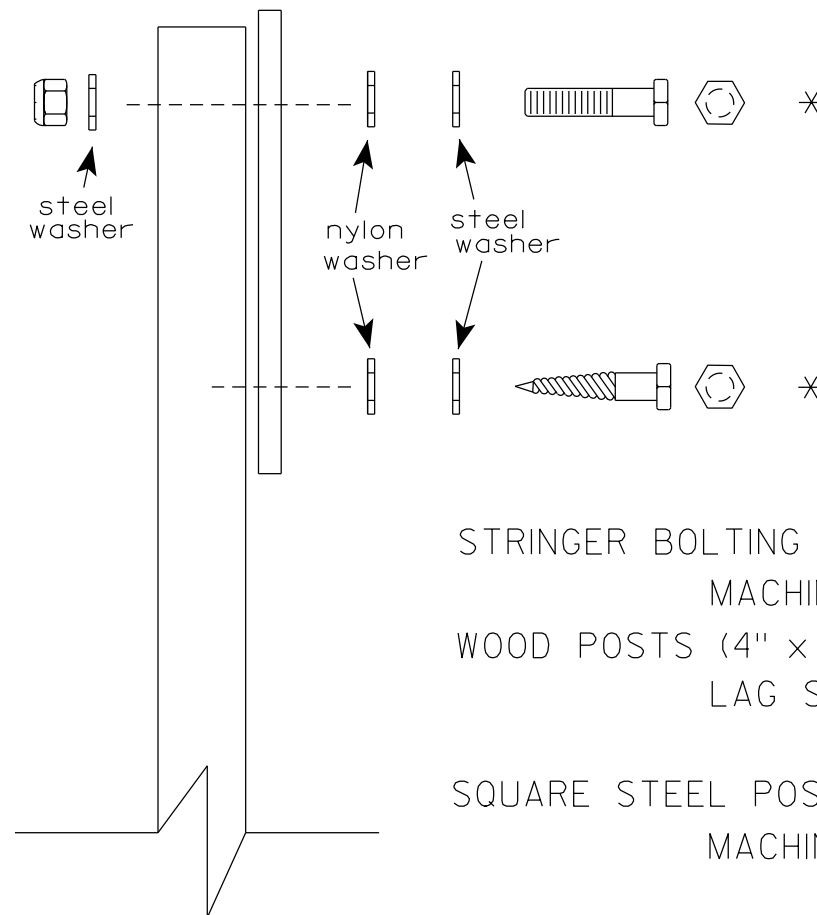
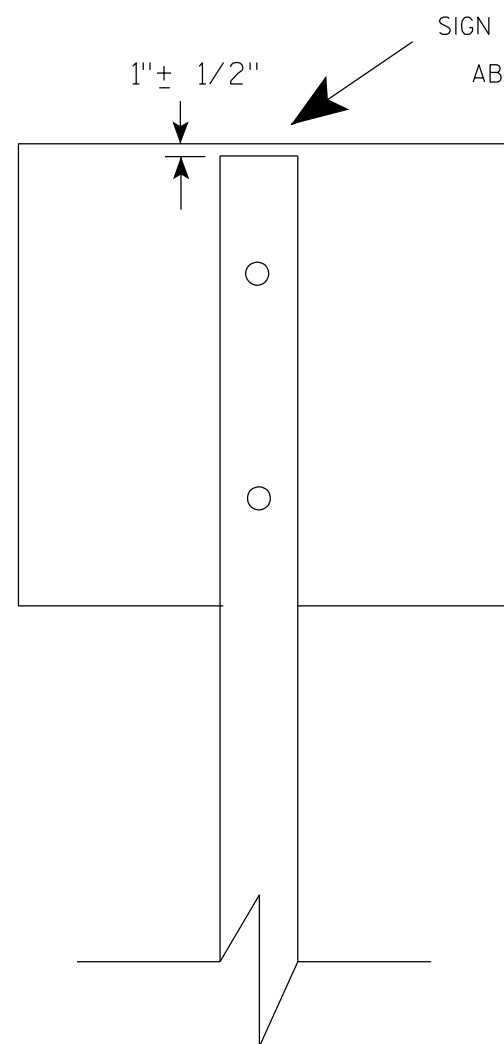
GENERAL NOTES

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

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

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

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



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

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

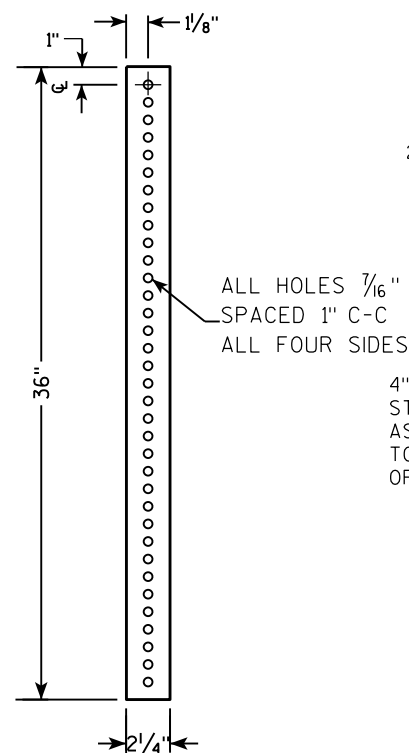
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

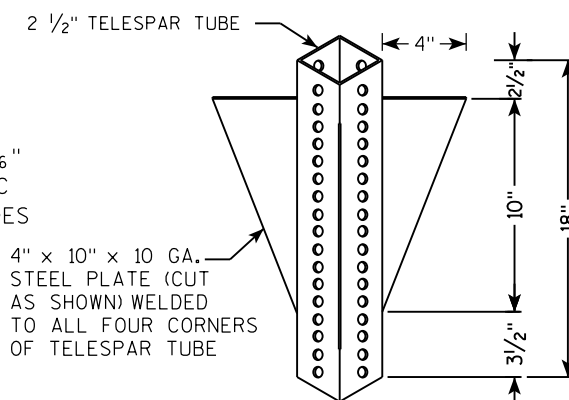
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

**2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**



TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

Side View Dimensions:

- Overall height: LENGTH SHOWN ON MISC. Q'TYS
- Top section height: 36"
- Section below top: 18"
- Section below that: 12"

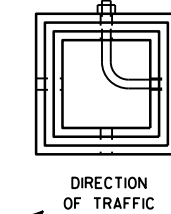
End View Dimensions:

- Top section width: 2"
- Section below top: 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- Bottom section width: 2 1/4" SQUARE X 36"

Labels and Notes:

- SIGN
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- 2" STEEL TUBULAR SQUARE UPPER SECTION
- ALL HOLES 7/16" SPACED 1" C-C
- ALL FOUR SIDES
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
- TELESCOPE PIECES FLUSH AT TOP
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



SECTION A-A

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

PROJECT NO:

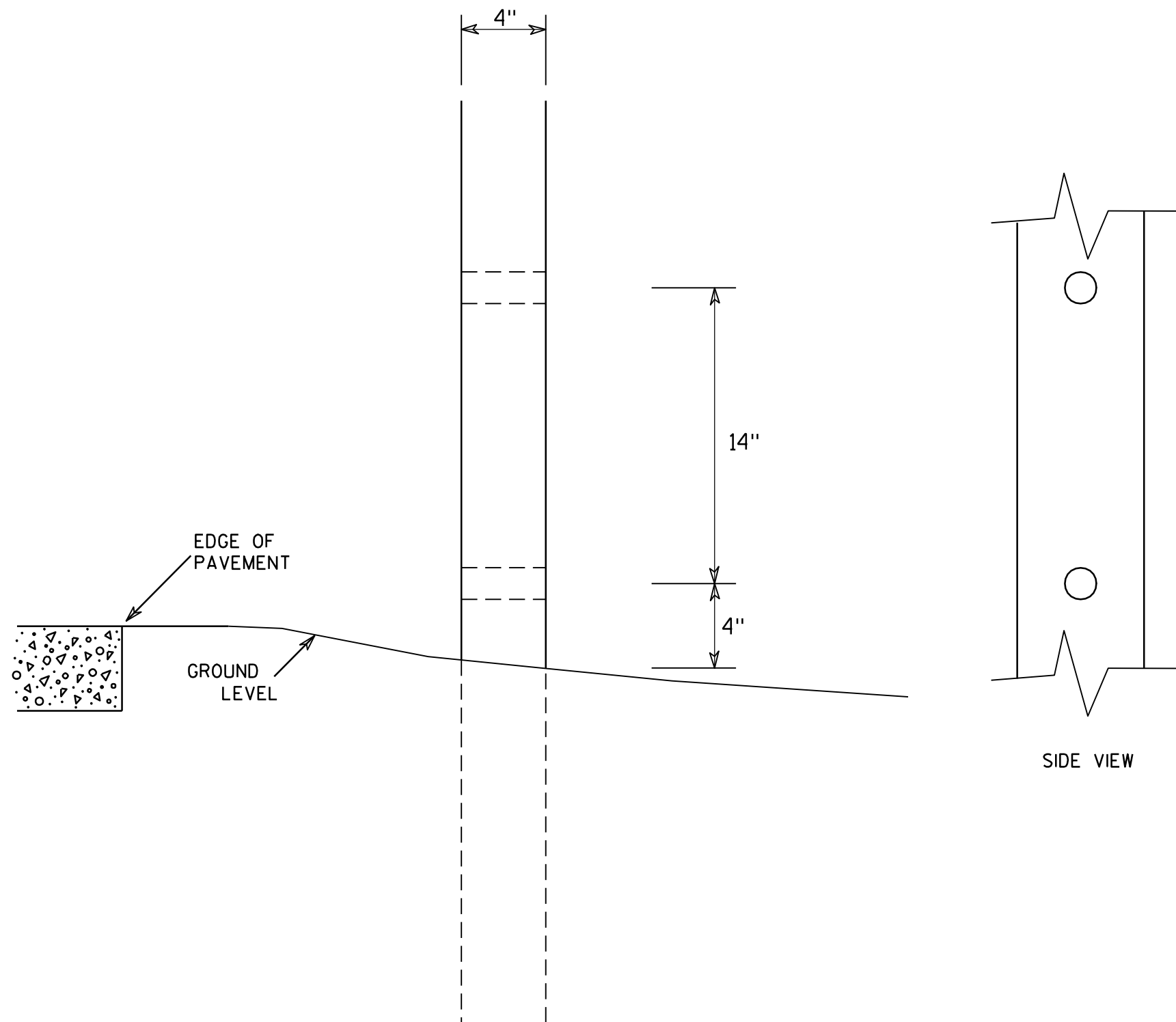
HWY:

COUNTY:

SHEET NO:

T

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:

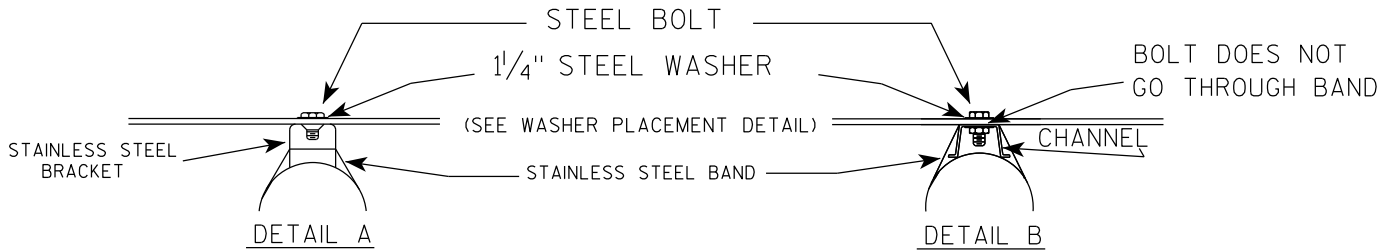
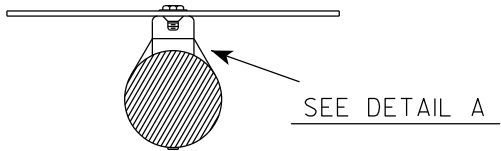
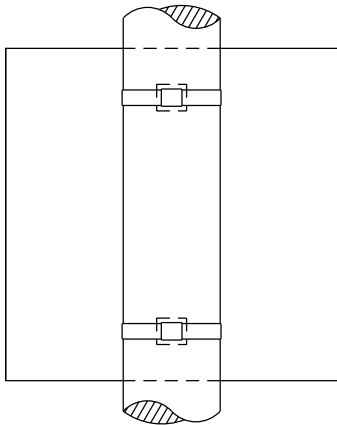
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SHEET NO:

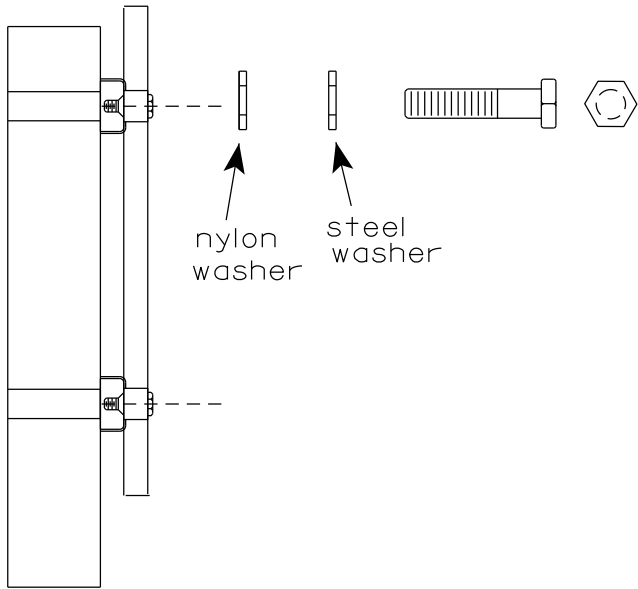
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

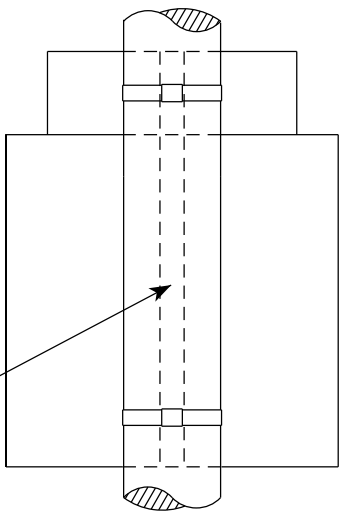


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

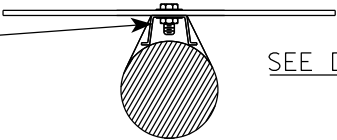
GENERAL NOTES

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

"J" ASSEMBLY



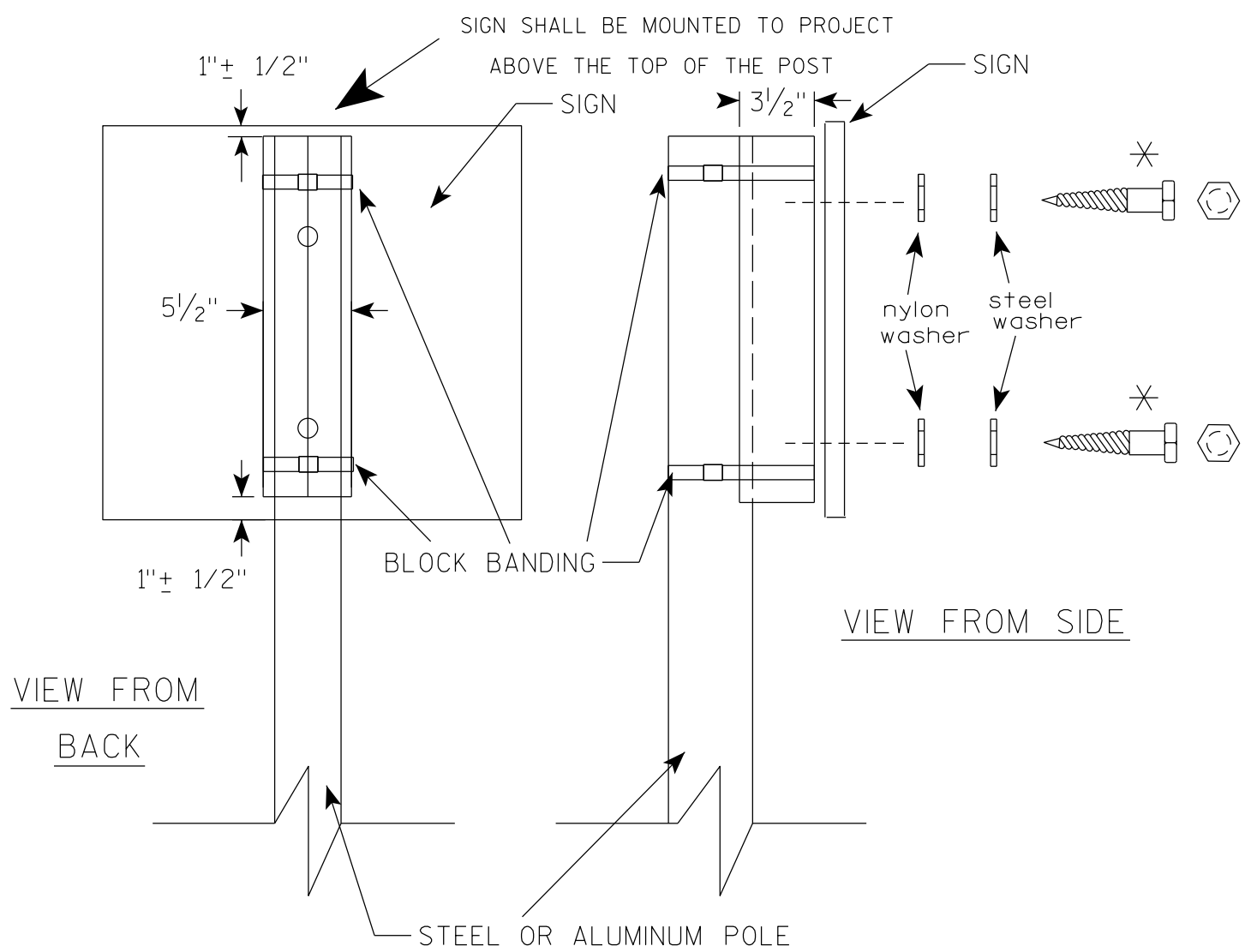
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

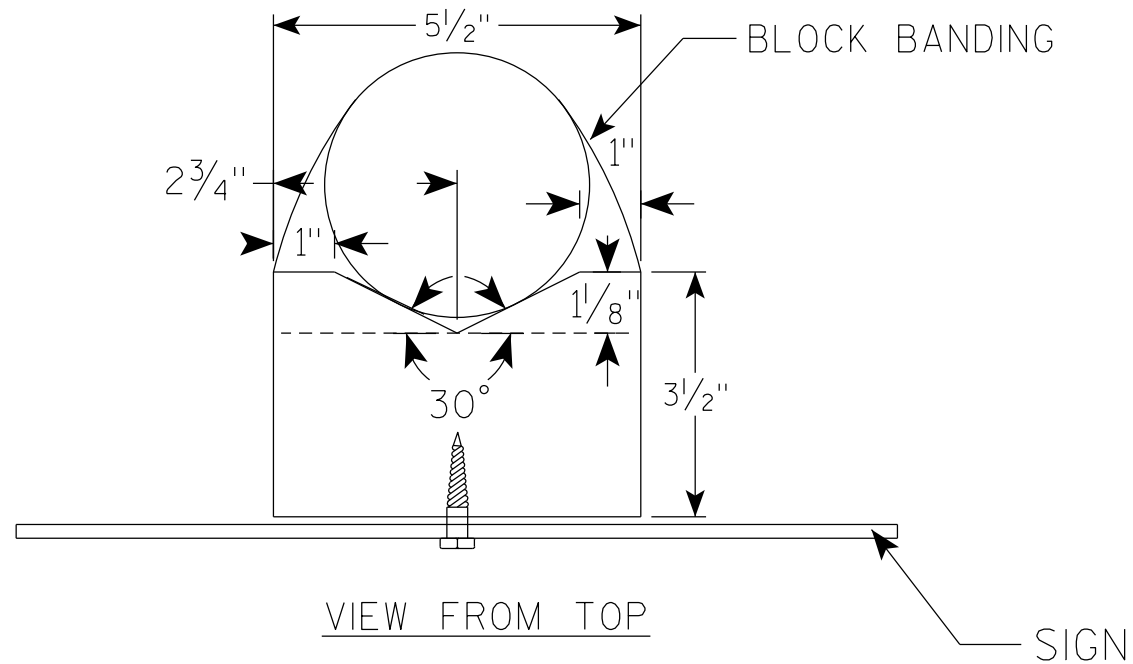
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

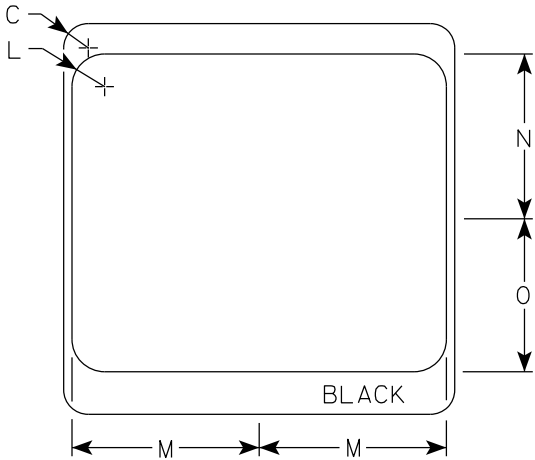
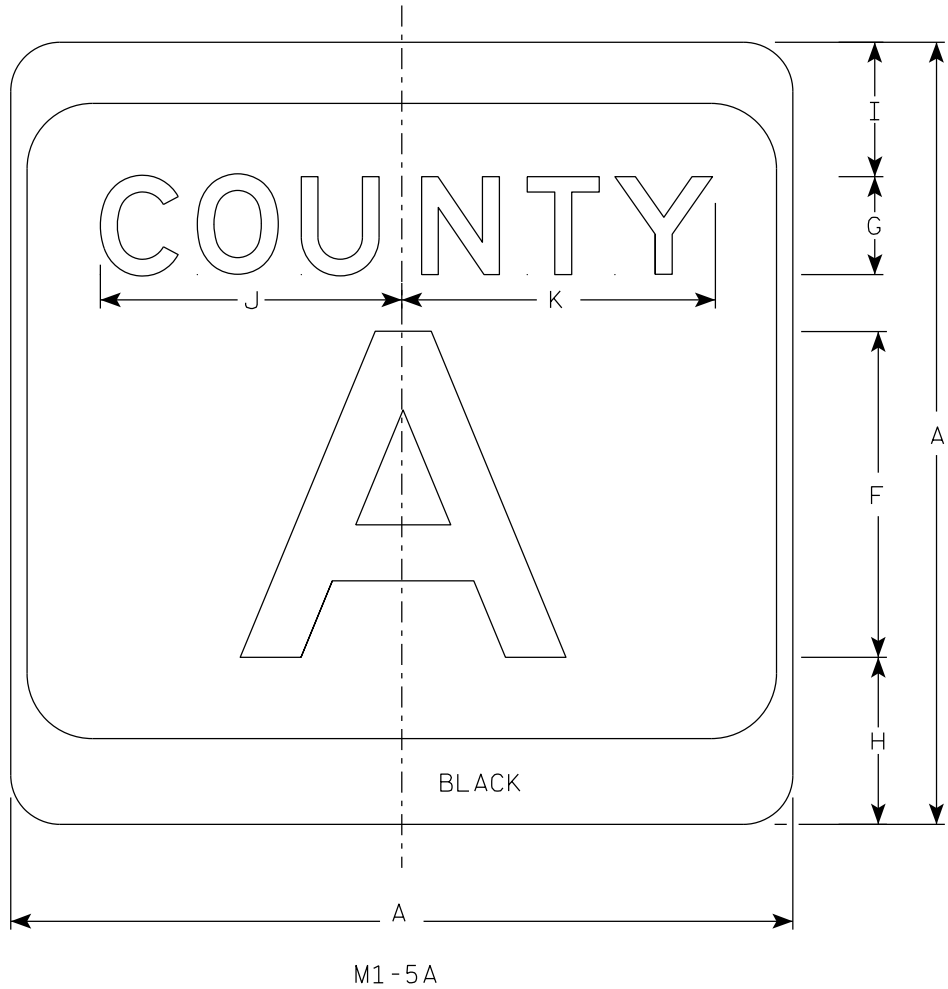
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

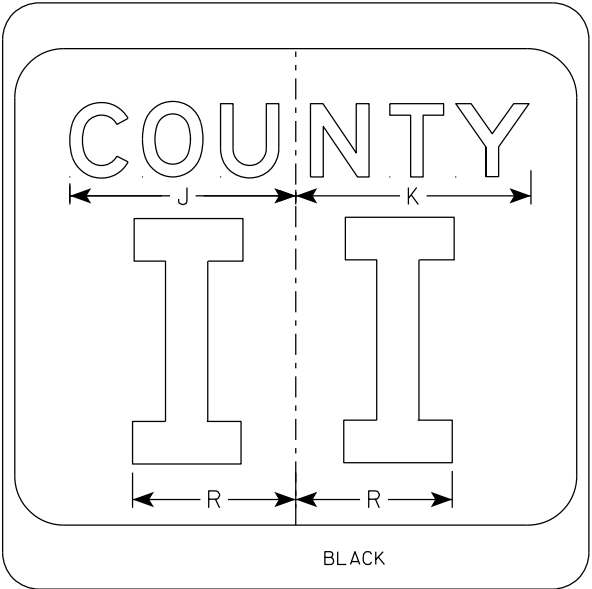
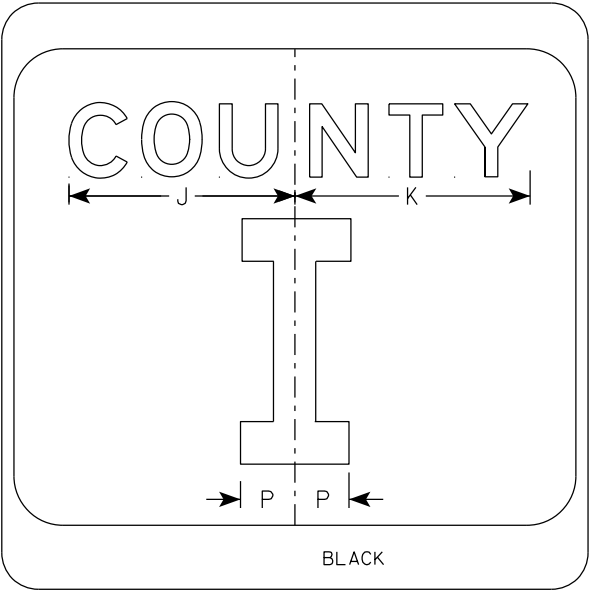
SHEET NO:

E

7



- NOTES
- Sign is Type II - Type H Reflective
 - Color:
Background - White & Black
Message - Black
 - Message Series - see Note 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.
 - 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

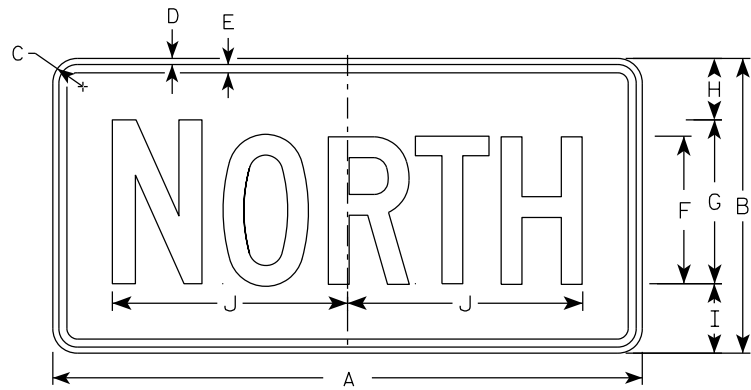
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

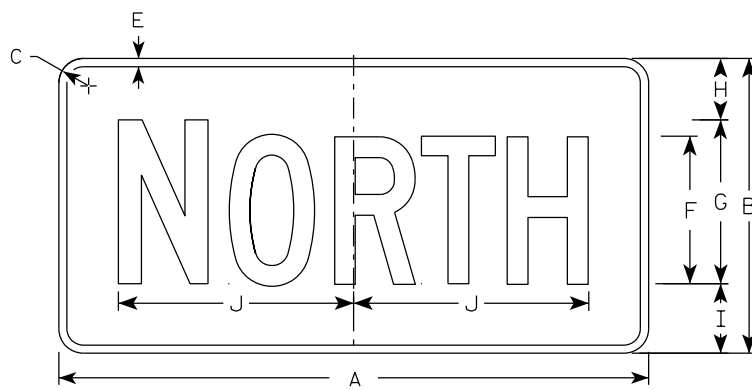
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

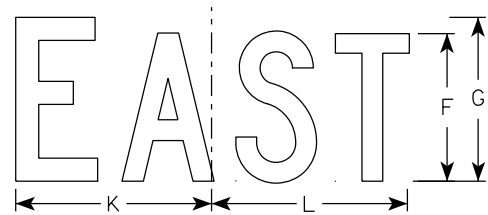
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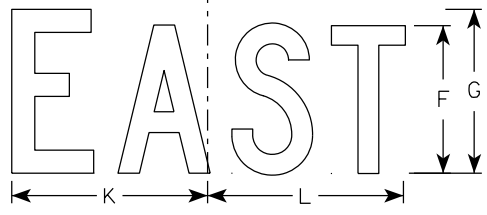
M3-1
MM3-1
MP3-1



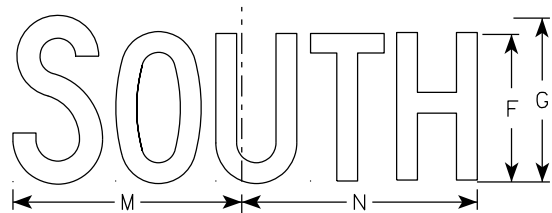
MB3-1
MK3-1
MN3-1



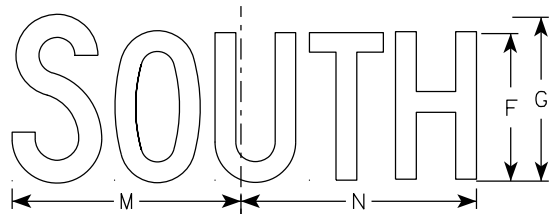
M3-2
MM3-2
MP3-2



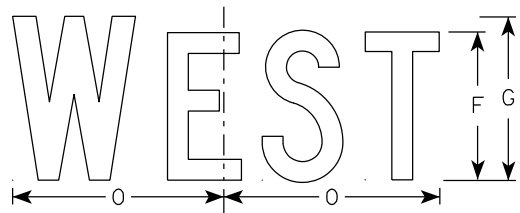
MB3-2
MK3-2
MN3-2



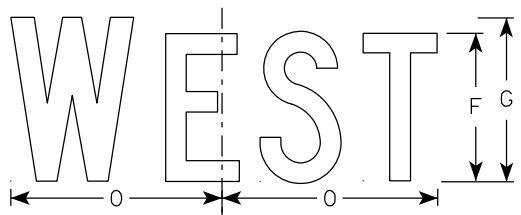
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

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

7

7

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

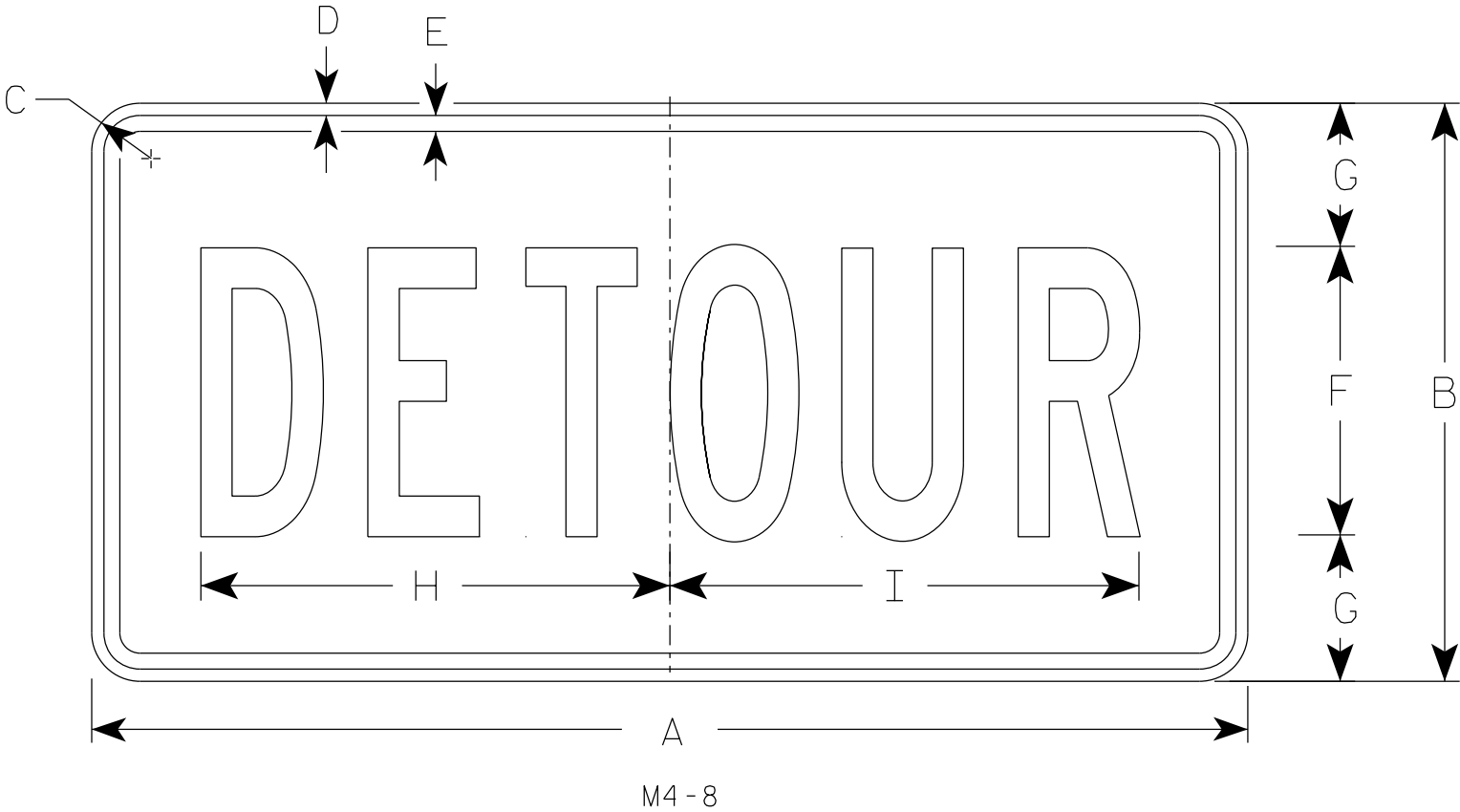
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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7

7

NOTES

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



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

STANDARD SIGN

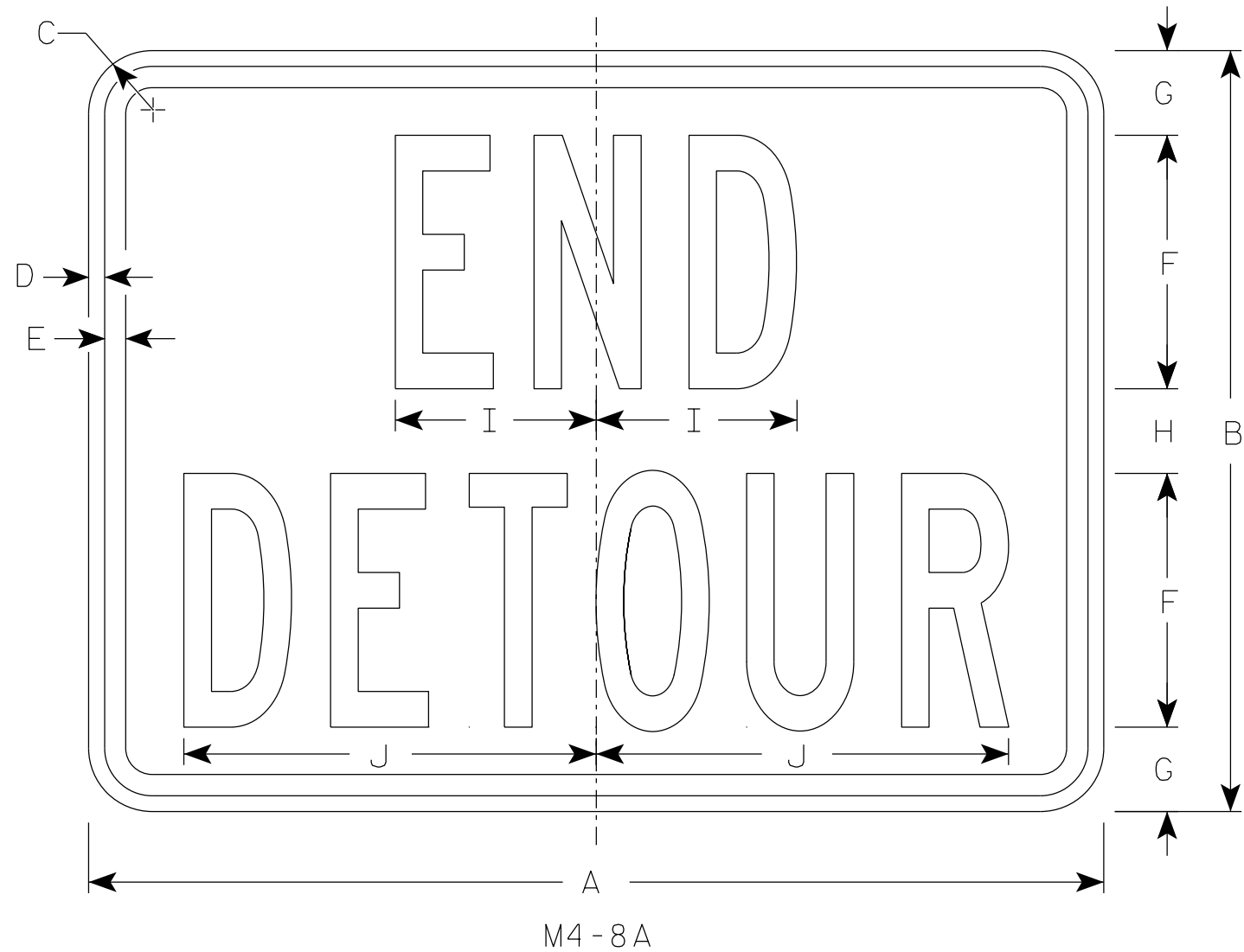
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

7

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

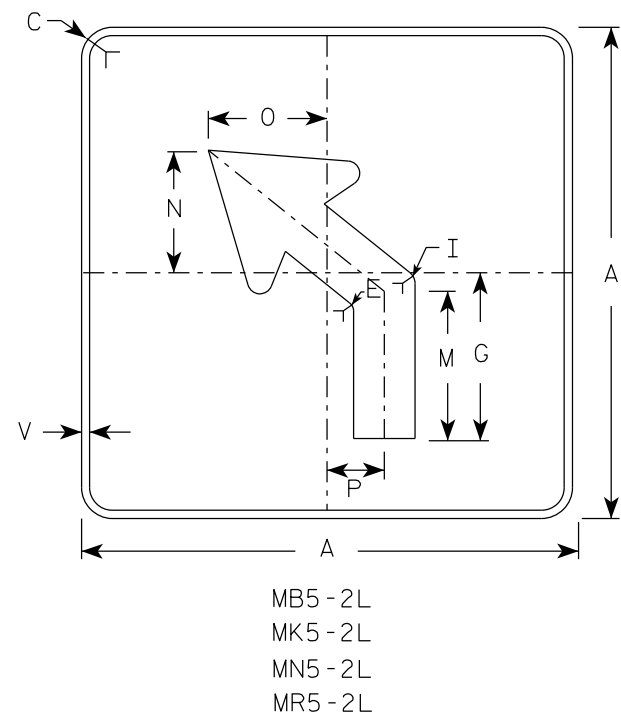
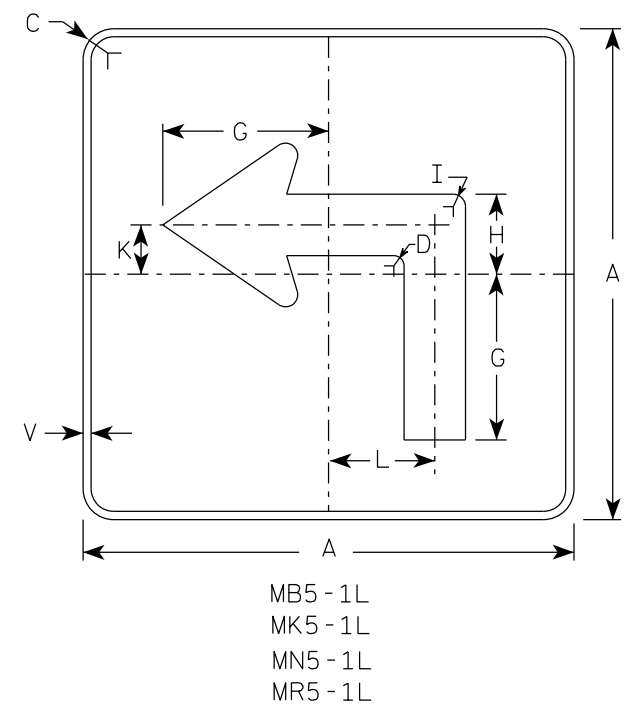
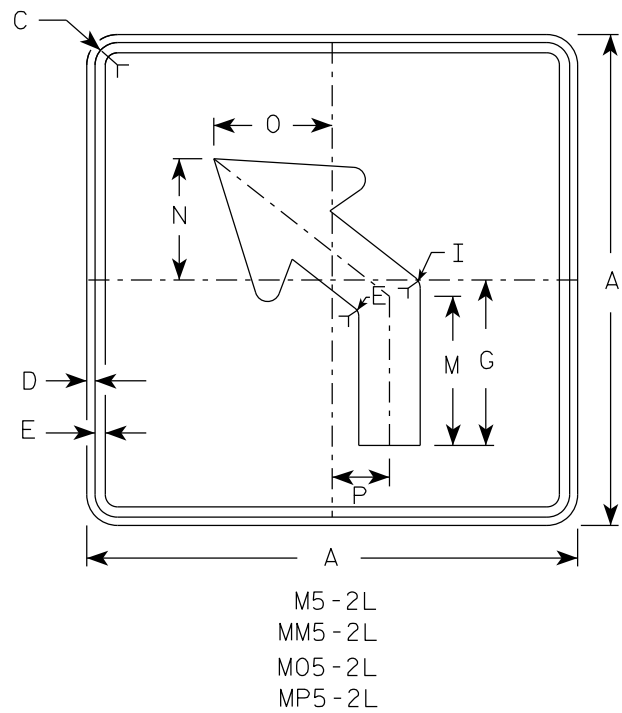
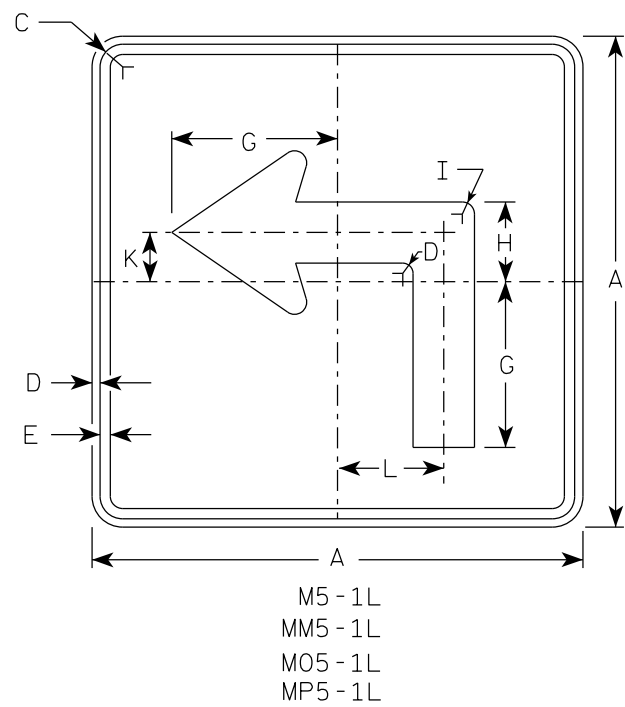
STANDARD SIGN

M4-8A

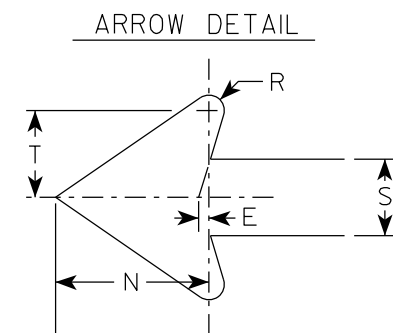
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

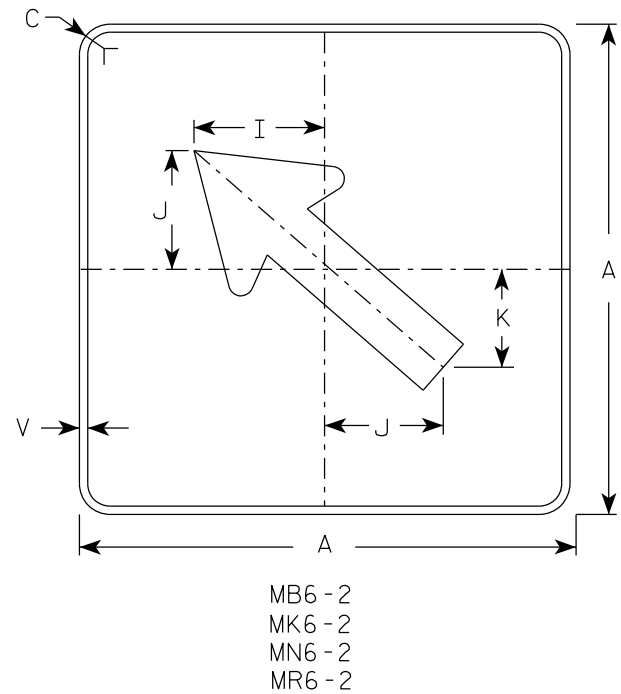
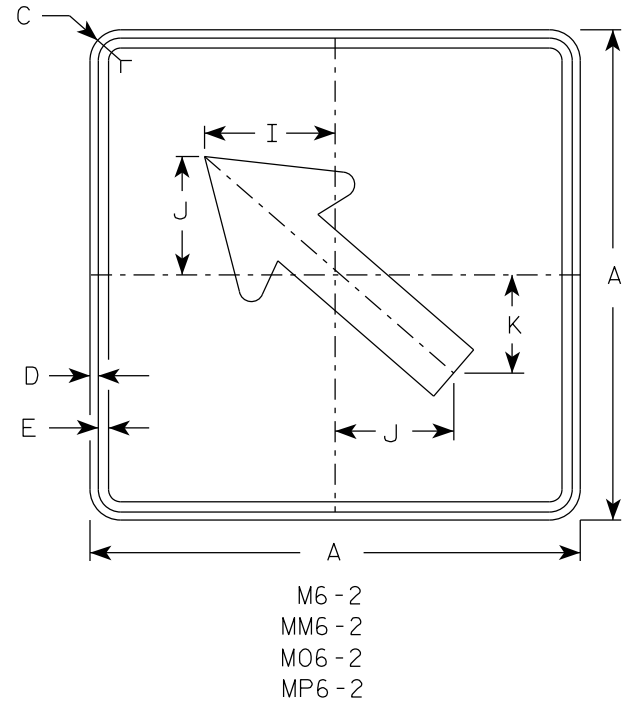
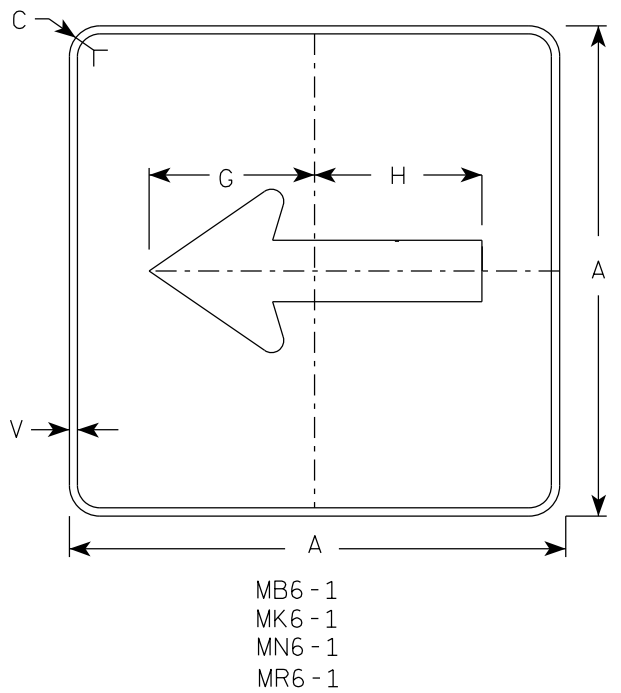
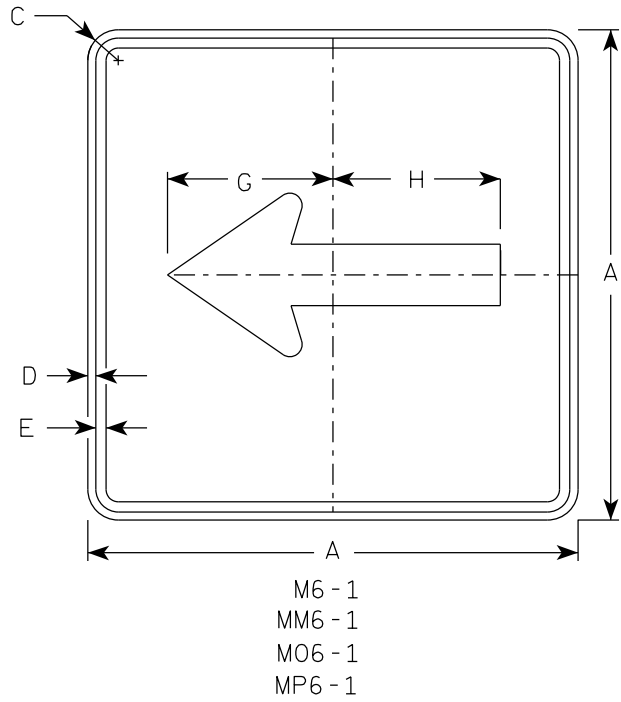


- NOTES
- Signs are Type II - Type H reflective except as shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - | |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

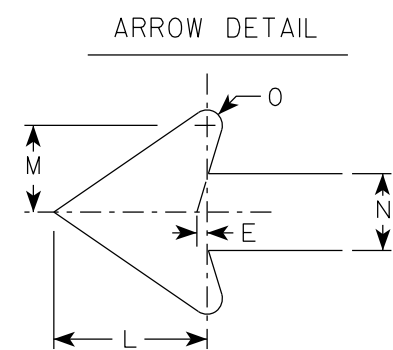


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2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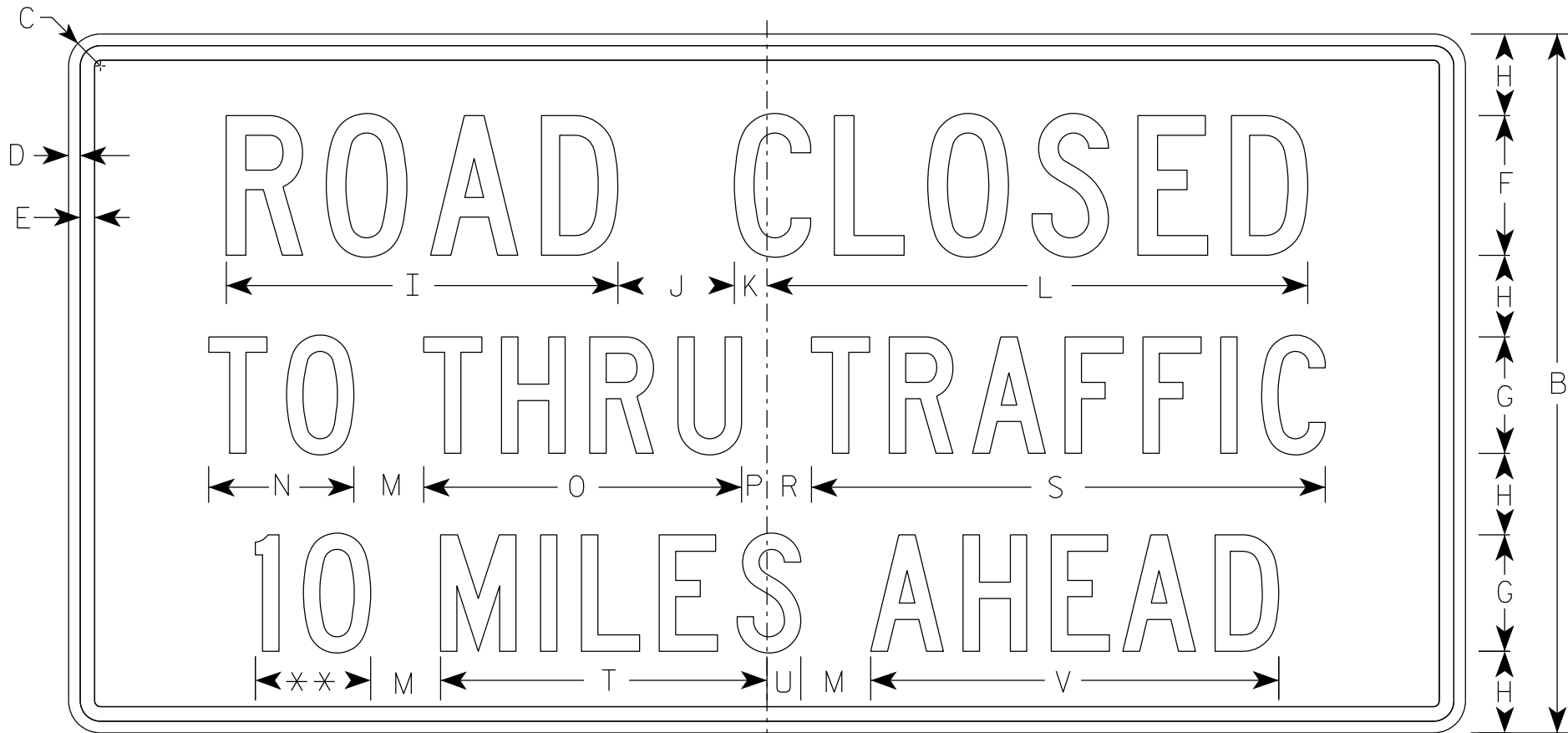


- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 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



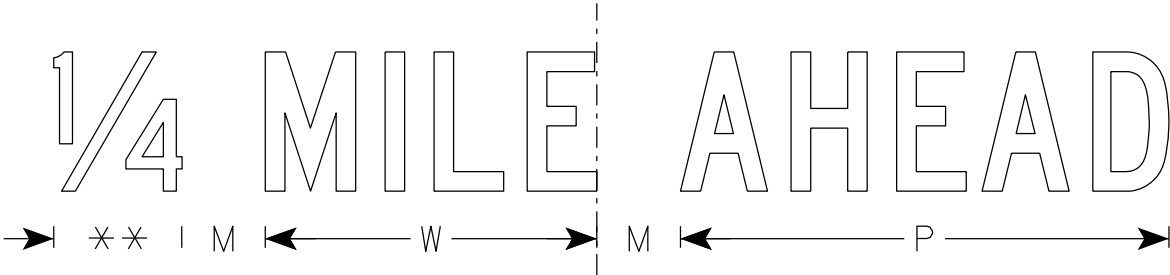
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4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

7



R11-3

** See Note 5



NOTES

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

7

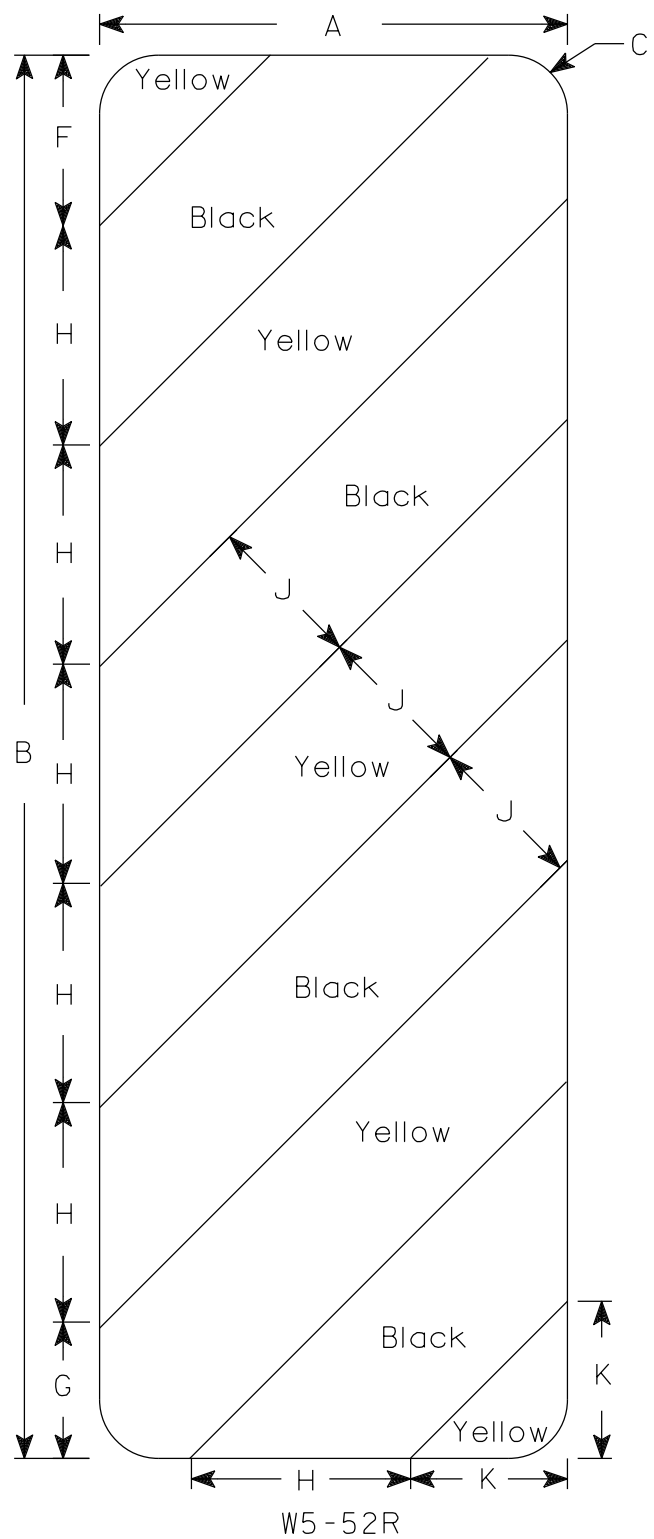
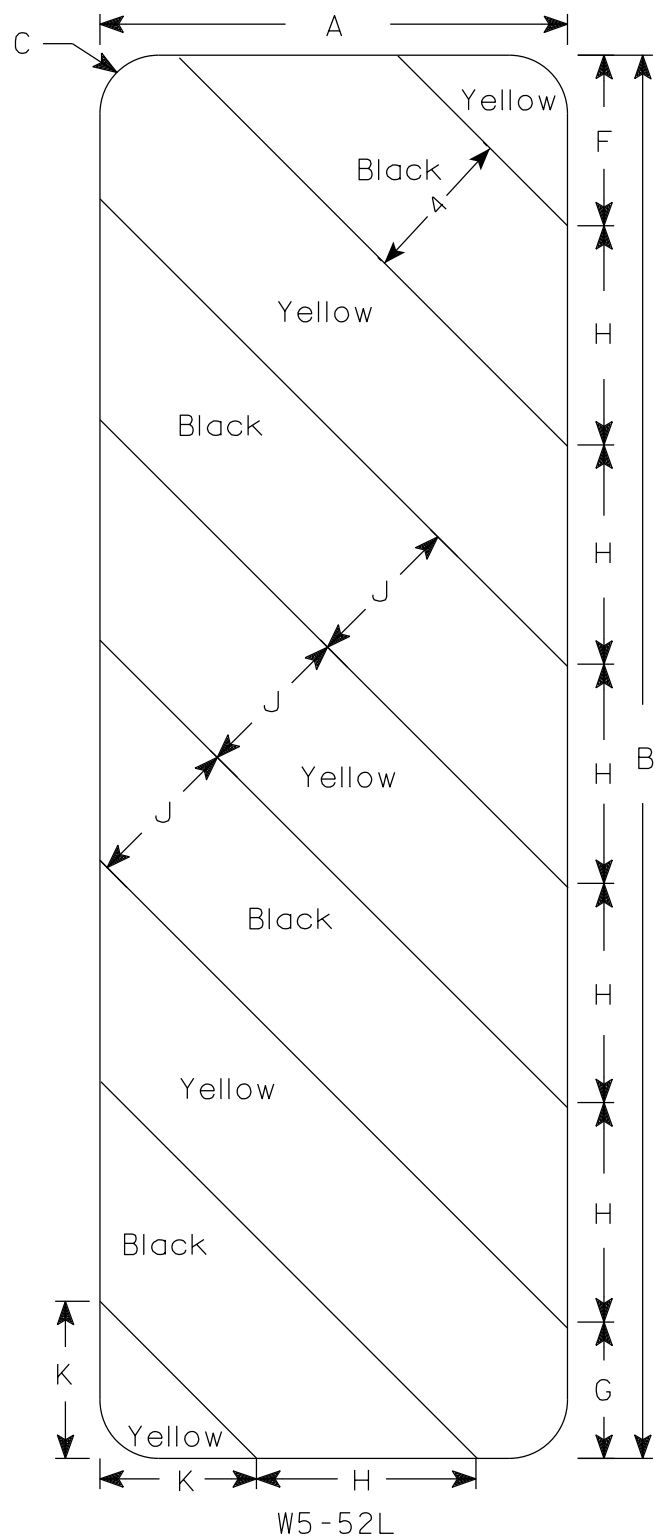
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/2	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8				4.5
2S	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5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

STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



NOTES

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

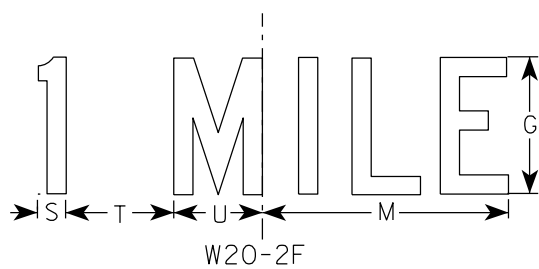
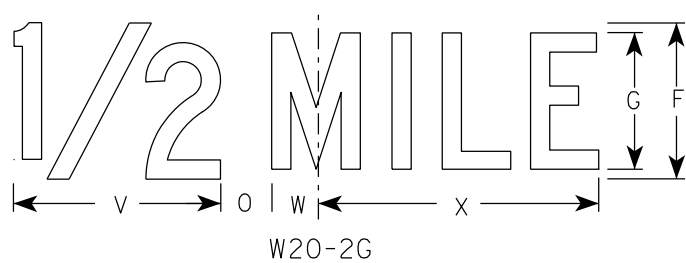
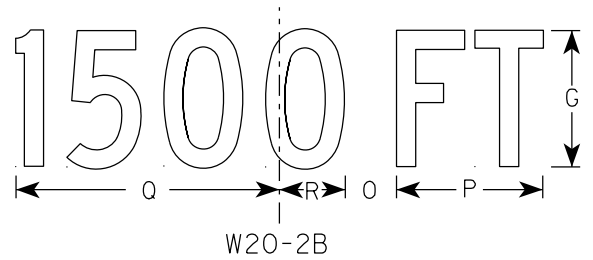
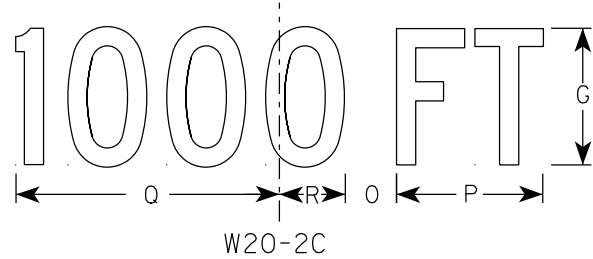
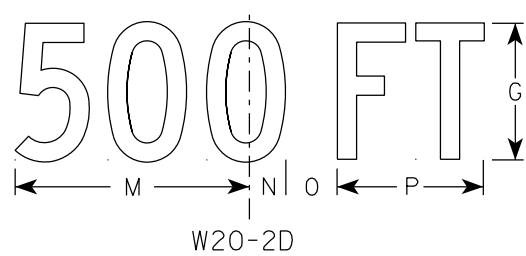
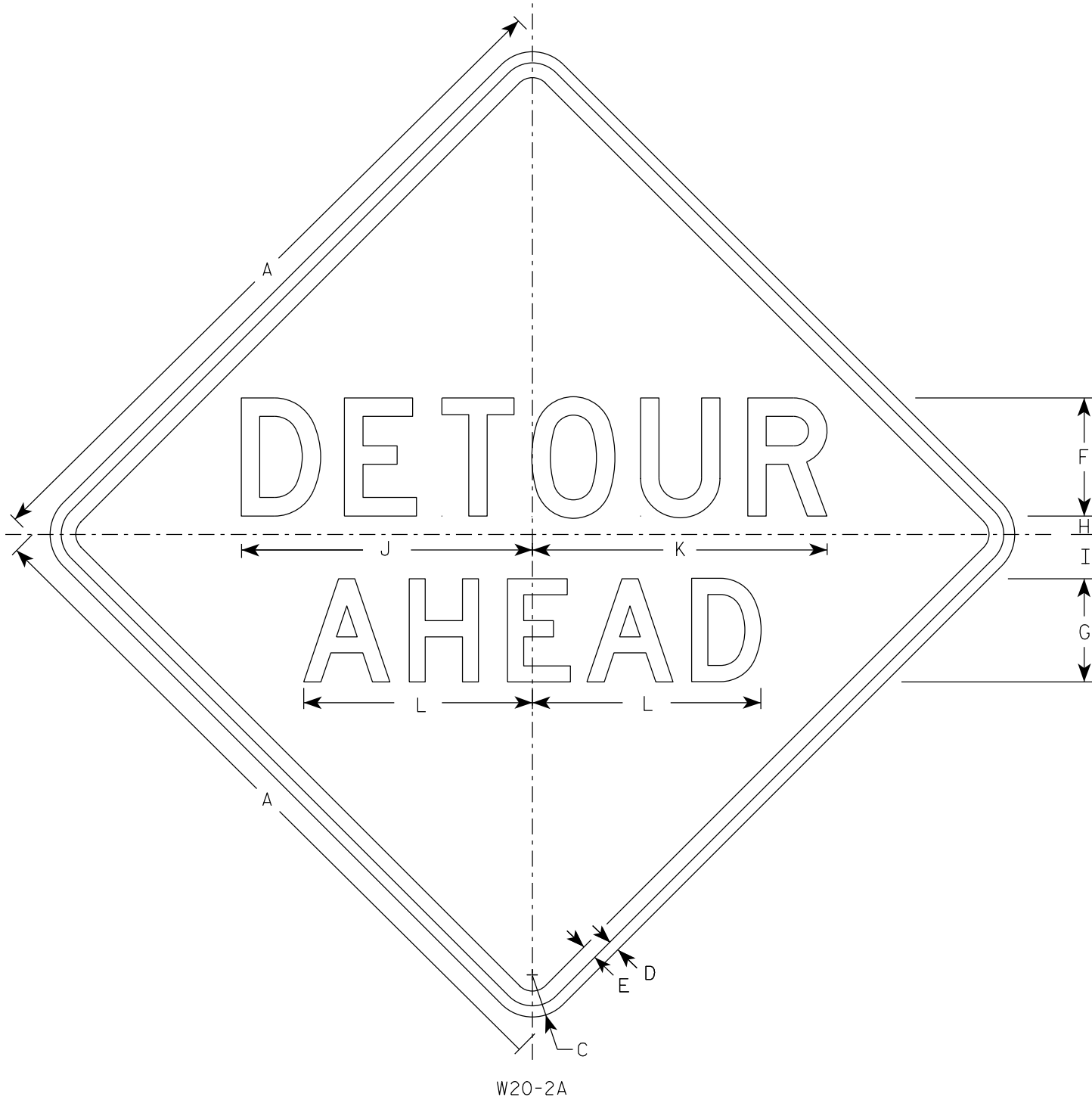
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10



NOTES

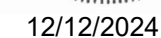
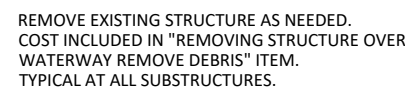
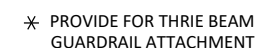
- Sign is Type II - Type F Reflective
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- Line 1 is Series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

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

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

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES AND NOTES
3. STRUCTURE DETAILS
4. SUBSURFACE EXPLORATION
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT DETAILS
7. NORTH ABUTMENT
8. NORTH ABUTMENT DETAILS
9. PIER 1
10. PIER 2
11. SUPERSTRUCTURE PLAN
12. SUPERSTRUCTURE
13. TUBULAR STEEL RAILING TYPE "M"



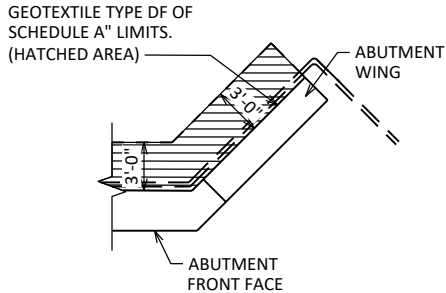
STRUCTURE DESIGN CONTACTS:

AARON BONK	608-261-0261
ARLEN BEAUDETTE	715-834-3161

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
		3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	 CHIEF STRUCTURES DESIGN ENGINEER		SDR 12/12/24 DATE
STRUCTURE B-13-903			
CTH G (SOUTH) OVER WEST BRANCH SUGAR RIVER (SOUTH)			
COUNTY	DANE	TOWN/CITY/VILLAGE	
PRIMROS			
DESIGN SPEC.			
AASHTO LRFD BRIDGE DESIGN SPECIFICATION			
DESIGNED BY	DESIGNED NBE CK'D	DRS	DRAWN BY CLP PLANS CK'D AEB
GENERAL PLAN			SHEET 1 OF 13

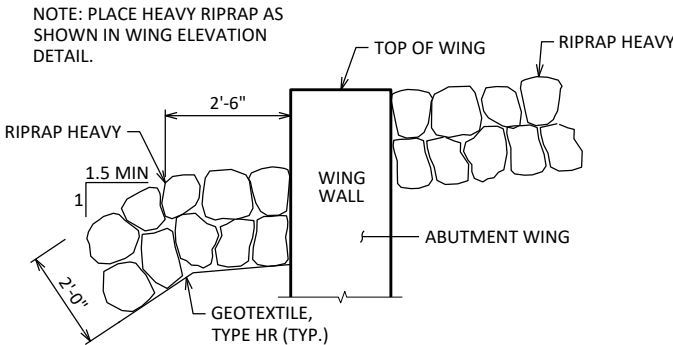
THE REMOVAL OF THE EXISTING STRUCTURE IS INCLUDED IN A LUMP SUM PAY ITEM FOR BRIDGE B-13-0039.

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-13-903					
			DRAWN BY	CLP	PLANS CK'D AEB
TYPICAL SECTION, QUANTITIES AND NOTES				SHEET 2 OF 13	

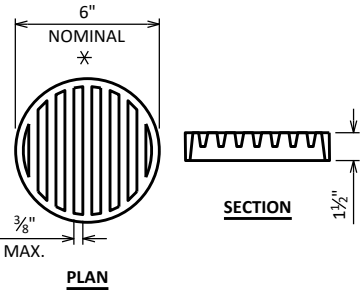


BACKFILL STRUCTURE LIMITS

ABUTMENT PLAN WITH WING



TYPICAL FILL SECTION AT WING

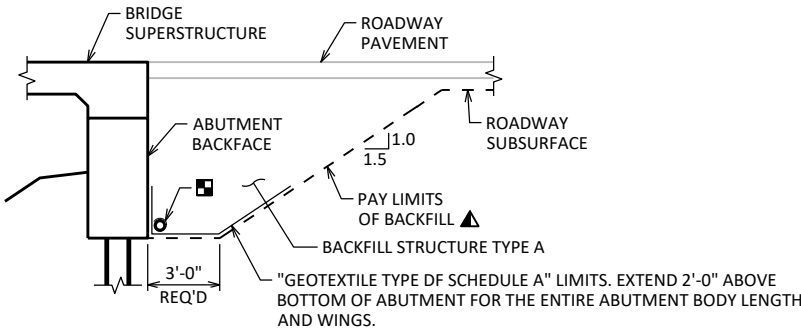


RODENT SHIELD DETAIL

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

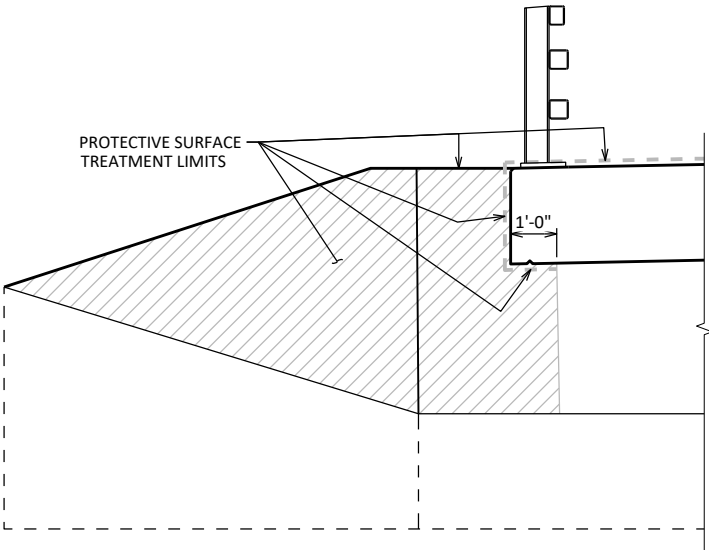
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



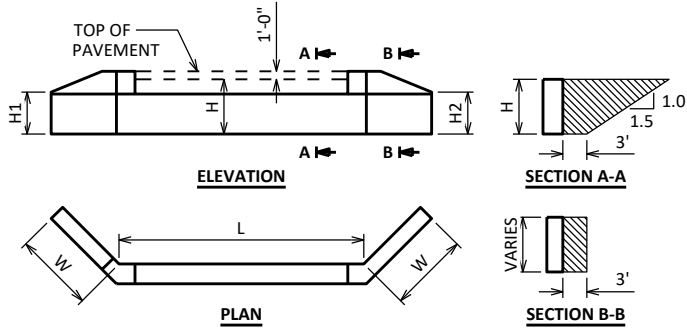
TYPICAL SECTION THRU ABUTMENT

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

■ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

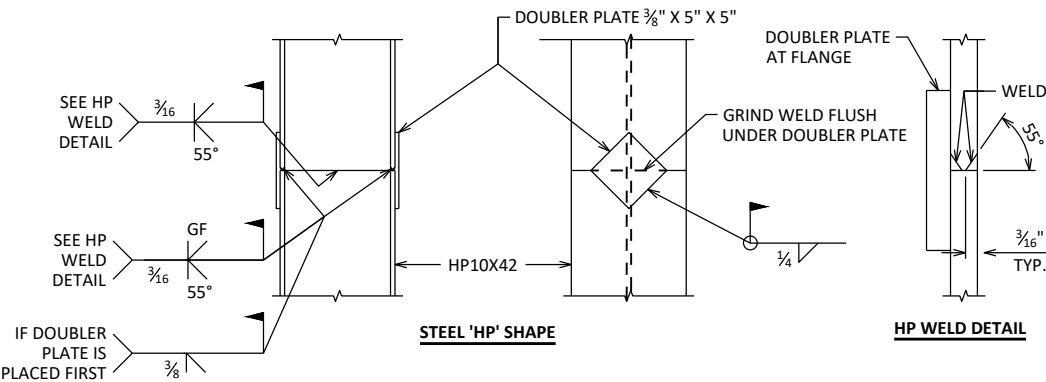


PROTECTIVE SURFACE TREATMENT DETAILS



ABUTMENT BACKFILL DIAGRAM

L = ABUTMENT BODY LENGTH AT BACKFACE (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
H1 = WING 1 HEIGHT AT TIP (FT)
H2 = WING 2 HEIGHT AT TIP (FT)
W = WING LENGTH (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3')(0.5)(H1+H2+H+H)(W)$
 $V_{CY} = V_{CF}(EF)/27$
 $V_{TON} = V_{CY}(2.0)$



'HP' PILE DETAILS

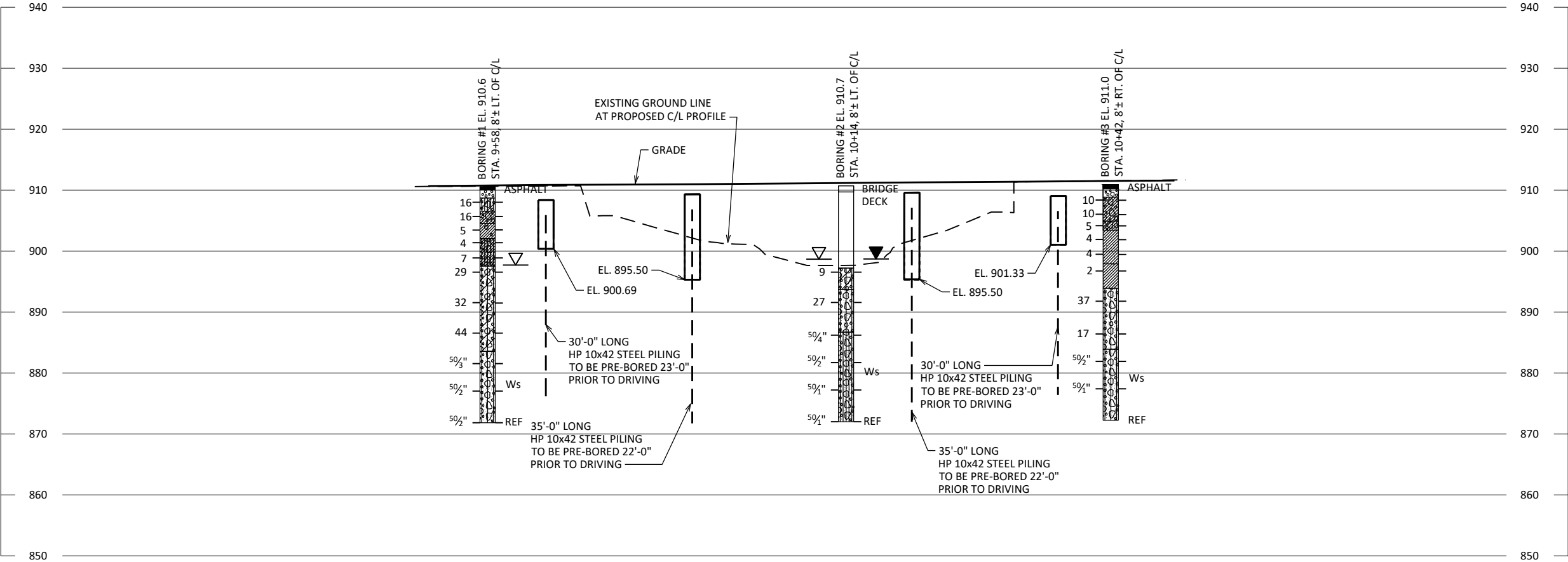
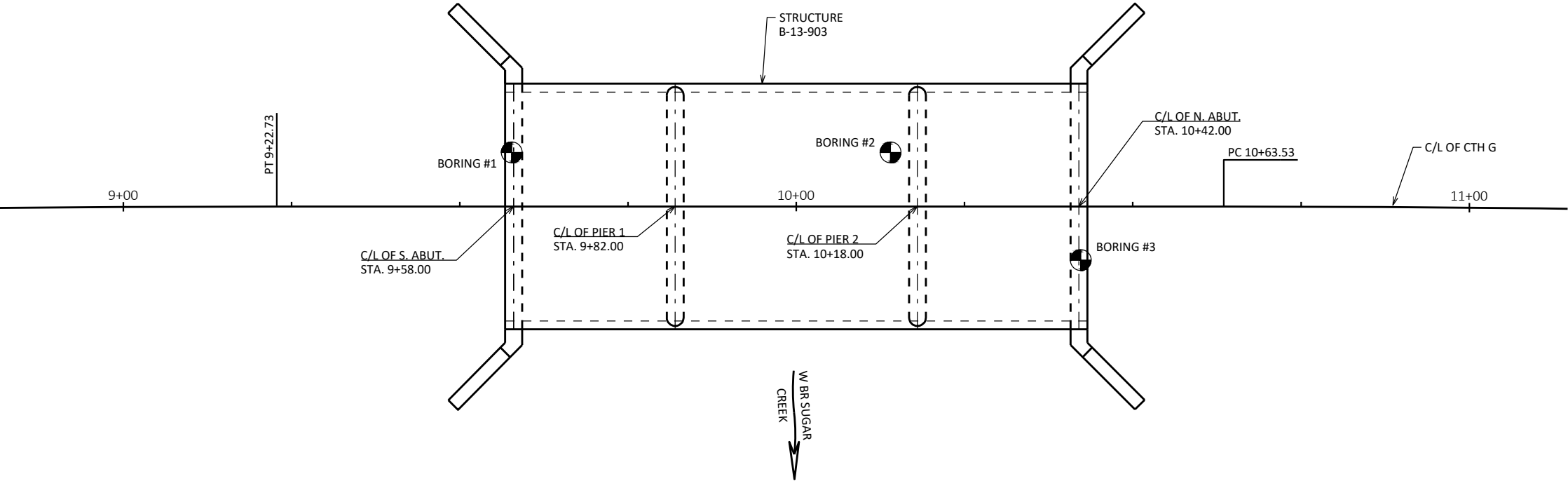
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		CLP	PLANS CK'D AEB
STRUCTURE DETAILS		SHEET 3 OF 13	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	FEBRUARY 1, 2024	430388.73	742796.88
2	FEBRUARY 6, 2024	430444.29	742805.98
3	FEBRUARY 1, 2024	430469.58	742826.33

BORINGS COMPLETED BY: GEOTECHNICAL DRILLING CONTRACTORS, LLC

REPORT COMPLETED BY: ECS MIDWEST, LLC

ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DANE COUNTY



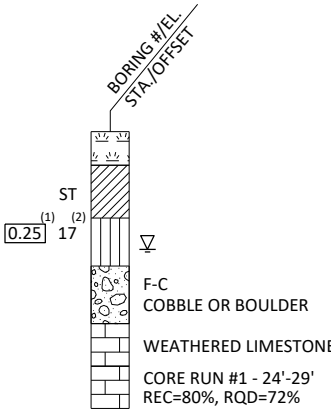
STATE PROJECT NUMBER

5889-00-74

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

▽	AT TIME OF DRILLING
▼	END OF DRILLING
▽	AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-903

DRAWN BY	CLP	PLANS CK'D	AEB
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SUBSURFACE
EXPLORATION

SHEET 4 OF 13



- A01** CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.
- A06** SUPPORT ABUTMENT ON HP 10 x 42 PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE TO BE PRE-BORED 23'-0" PRIOR TO DRIVING.
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17** ½" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ¾" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22** A506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
-  ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

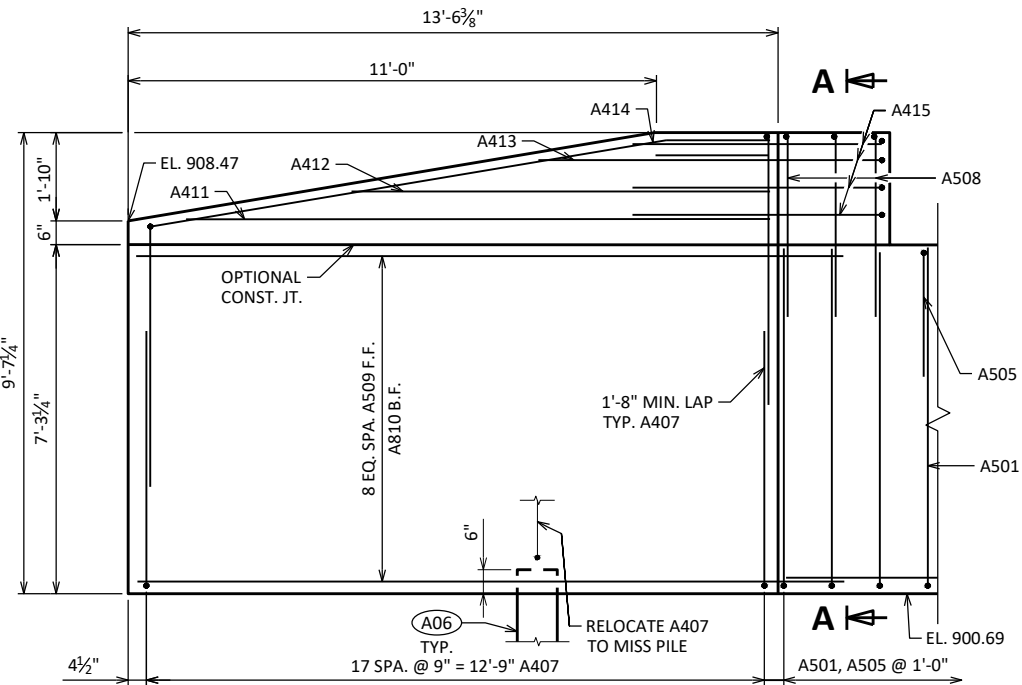
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		DRS	PLANS CK'D JLB
SOUTH ABUTMENT		SHEET 5 OF 13	

BILL OF BARS

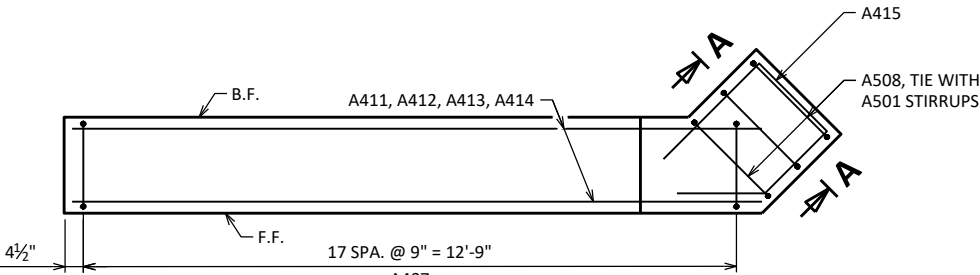
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		84	8'-3"	X		ABUT BODY STIRRUPS
A502		9	39'-10"			ABUT BODY HORIZ. F.F.
A803		18	26'-8"	X		ABUT BODY HORIZ. - B.F.
A404		33	3'-0"	X		ABUT BODY TIE BARS
A505		42	9'-9"	X		ABUT BODY TOP
A506	X	35	2'-0"			ABUT BODY DOWEL BARS
A407	X	72	13'-2"	X		WING STIRRUPS
A508	X	6	9'-3"	X		WING CORNER STIRRUPS
A509	X	18	14'-7"	X		WING LOWER HORIZ - F.F.
A810	X	18	16'-4"	X		WING LOWER HORIZ. - B.F.
A411	X	4	13'-2"			WING UPPER HORIZ.
A412	X	4	9'-9"			WING UPPER HORIZ.
A413	X	4	5'-9"			WING UPPER HORIZ.
A414	X	4	13'-3"	X		WING TOP
A415	X	8	7'-11"	X		WINGS 1 & 2 UPPER HORIZ. CORNER

BENDING DIMENSIONS ARE OUT-TO-OUT OF BARS

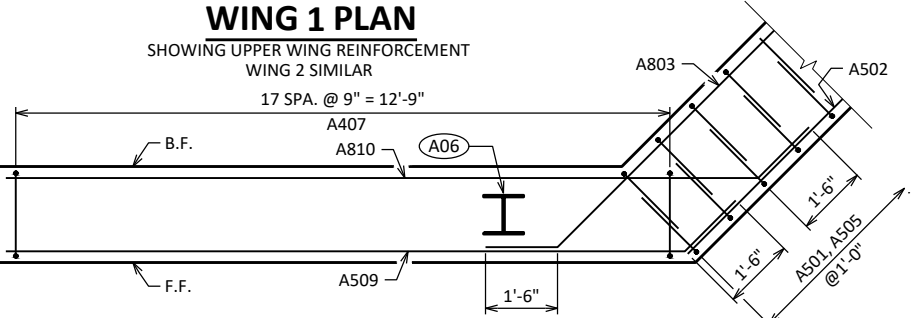


WING 1 ELEVATION



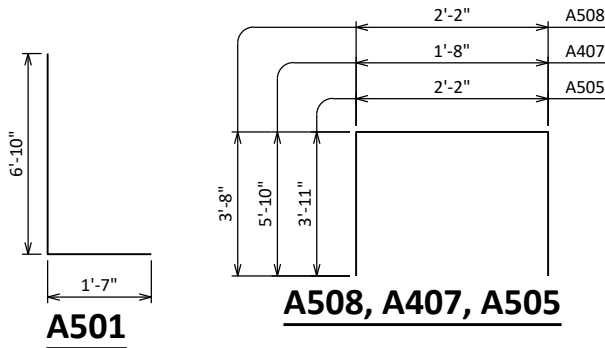
WING 1 PLAN

SHOWING UPPER WING REINFORCEMENT
WING 2 SIMILAR



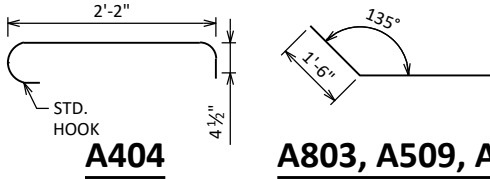
WING 1 PLAN

SHOWING LOWER WING REINFORCEMENT
WING 2 SIMILAR



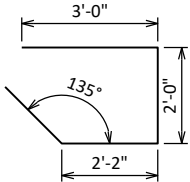
A501

A508, A407, A505

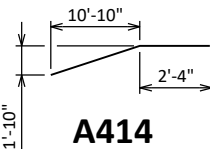


A404

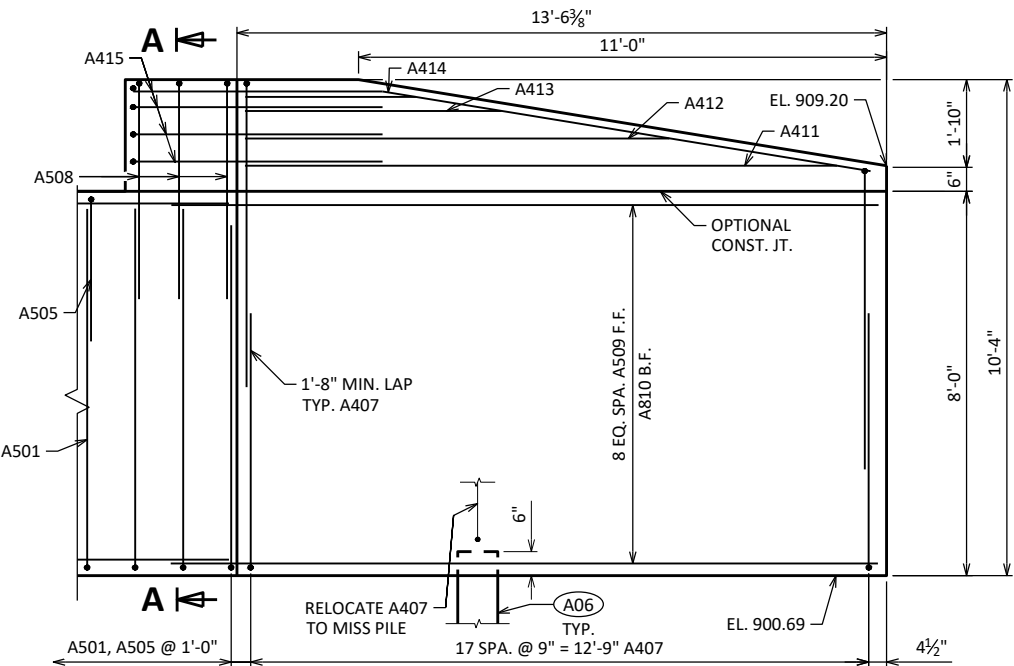
A803, A509, A810



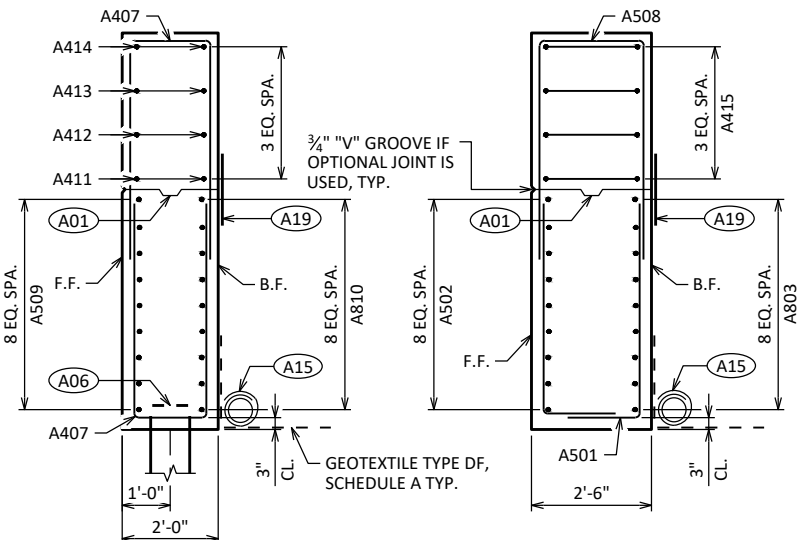
A415



A414



WING 2 ELEVATION



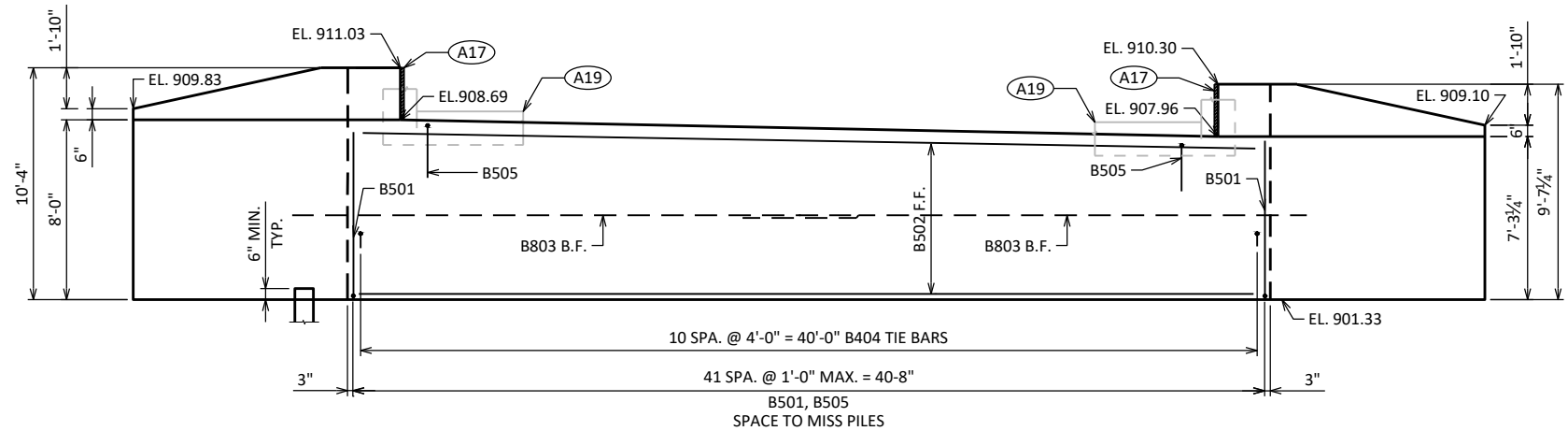
SECTION THRU WING 1

TYPICAL BOTH WINGS

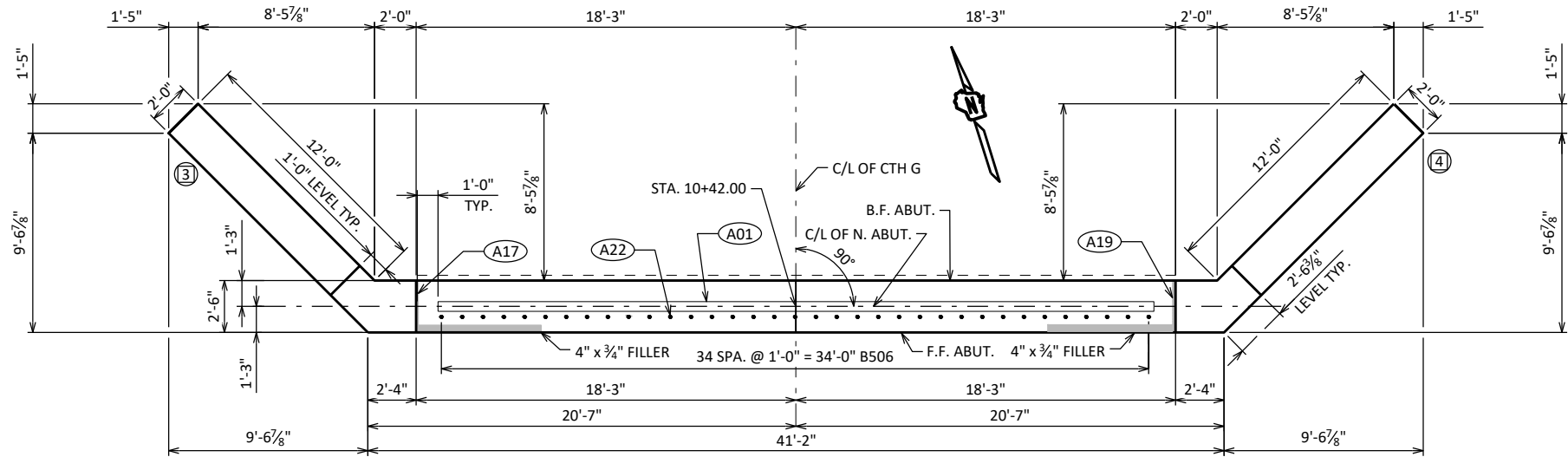
SECTION A-A

- A01 OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6. PROVIDE 3/4" "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED.
- A06 SUPPORT ABUTMENT ON HP 10 x 42 PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 100TONS PER PILE TO BE PRE-BORED 23'-0" PRIOR TO DRIVING.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING, ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES".

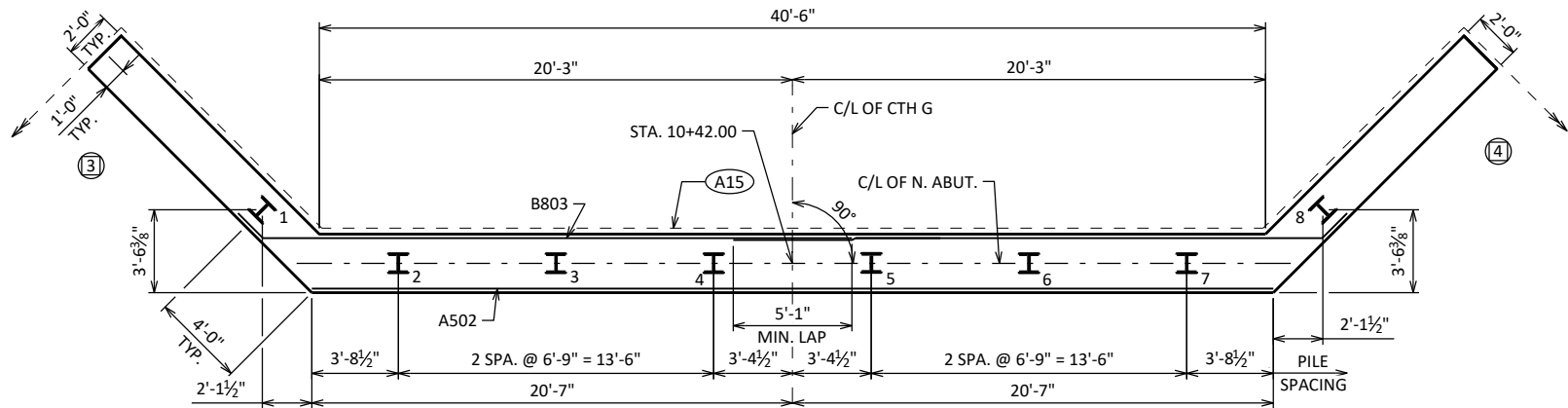
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		DRS	PLANS CK'D JLB
SOUTH ABUTMENT DETAILS		SHEET 6 OF 13	



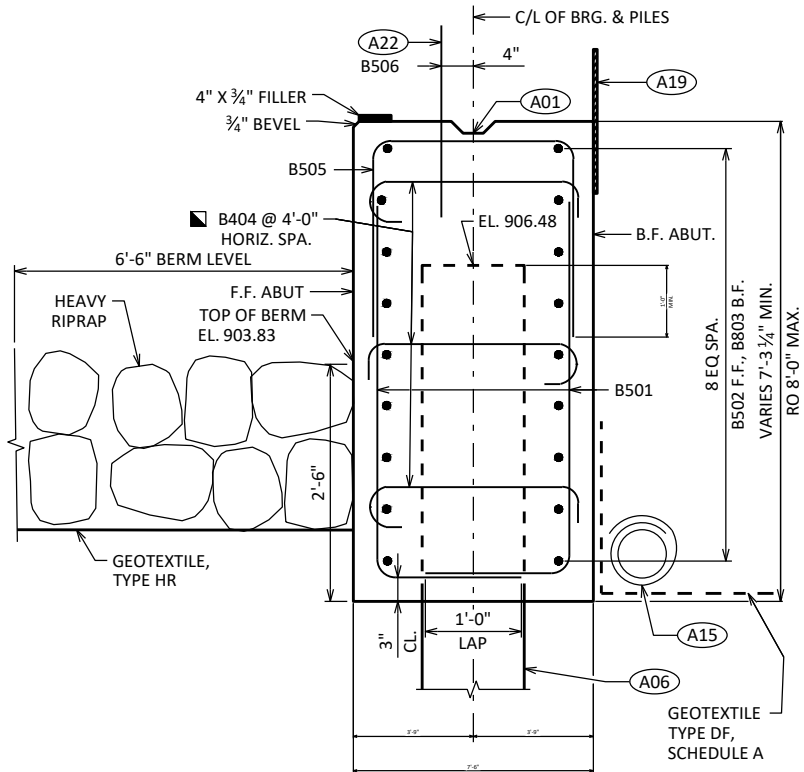
ELEVATION
(LOOKING NORTH)



PLAN



PILE LAYOUT



TYPICAL SECTION THRU BODY

- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE TO BE PRE-BORED 23'-0" PRIOR TO DRIVING.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) B506 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

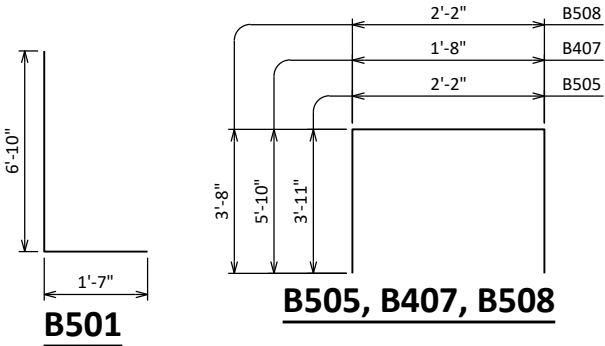
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		DRS	PLANS CK'D JLB
NORTH ABUTMENT		SHEET 7 OF 13	

BILL OF BARS

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

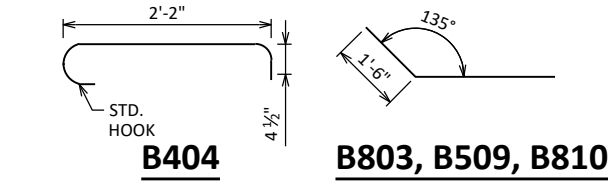
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		84	8'-3"	X		ABUT BODY STIRRUPS
B502		9	39'-10"			ABUT BODY HORIZ. F.F.
B803		18	26'-8"	X		ABUT BODY HORIZ. - B.F.
B404		33	3'-0"	X		ABUT BODY TIE BARS
B505		42	9'-9"	X		ABUT BODY TOP
B506	X	35	2'-0"			ABUT BODY DOWEL BARS
B407	X	72	13'-2"	X		WING STIRRUPS
B508	X	6	9'-3"	X		WING CORNER STIRRUPS
B509	X	18	14'-7"	X		WING LOWER HORIZ. - F.F.
B810	X	18	16'-4"	X		WING LOWER HORIZ. - B.F.
B411	X	4	13'-10"			WING UPPER HORIZ.
B412	X	4	9'-10"			WING UPPER HORIZ.
B413	X	4	5'-10"			WING UPPER HORIZ.
B414	X	4	13'-3"	X		WING TOP HORIZ.
B415	X	8	7'-11"	X		WINGS 3 & 4 UPPER HORIZ. CORNER

BENDING DIMENSIONS ARE OUT-TO-OUT OF BARS



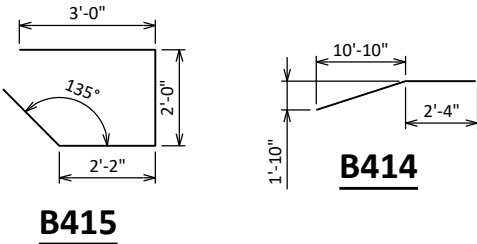
B501

B505, B407, B508



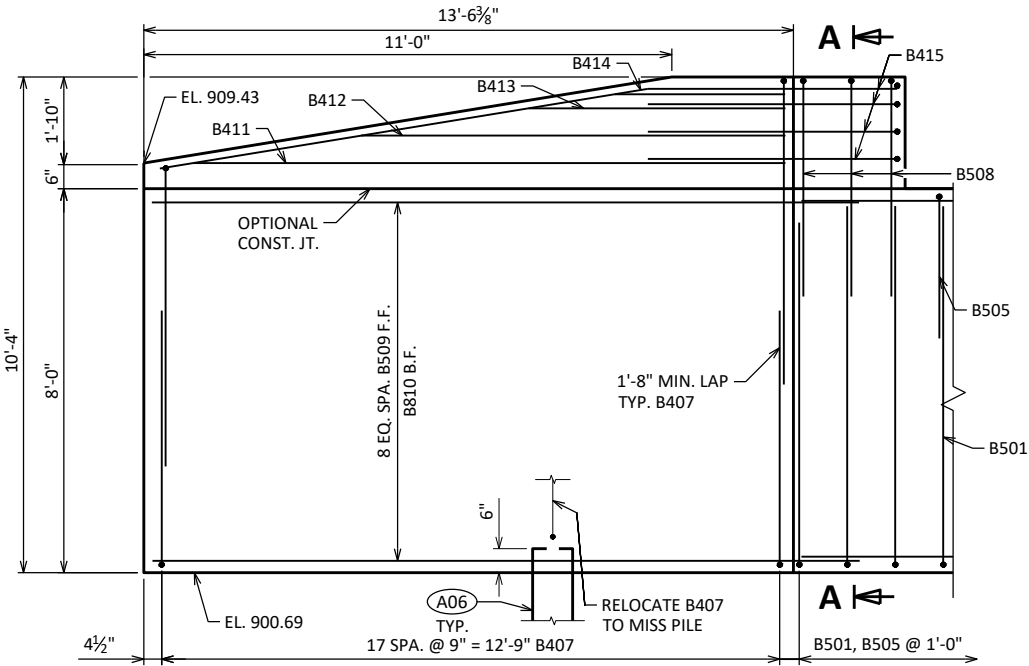
B404

B803, B509, B810

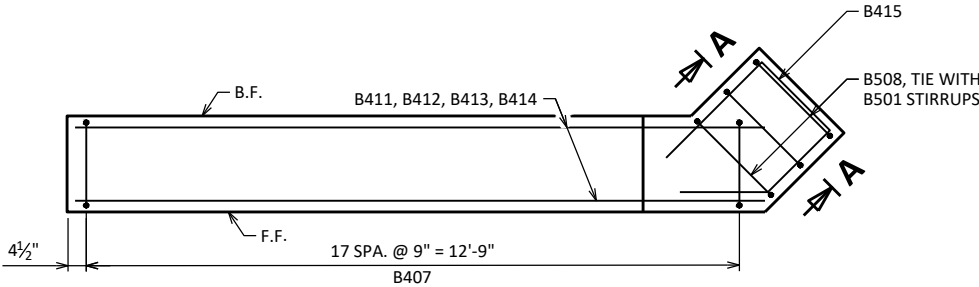


B415

B414

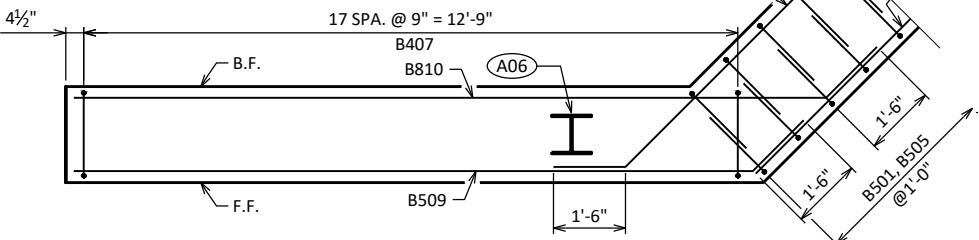


WING 3 ELEVATION



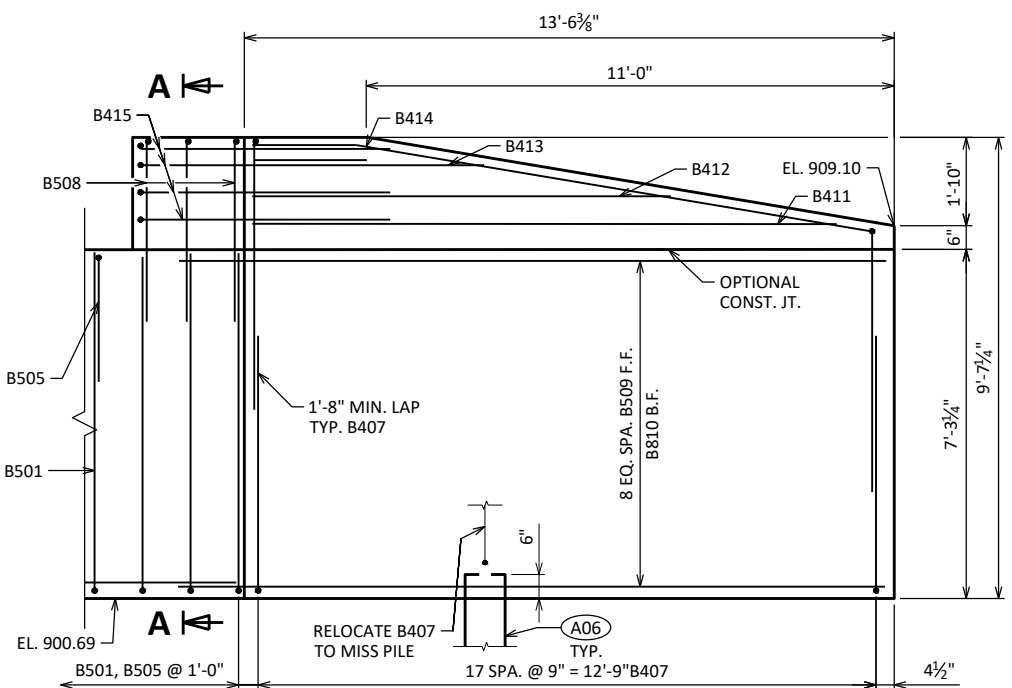
WING 3 PLAN

SHOWING UPPER WING REINFORCEMENT
WING 4 SIMILAR

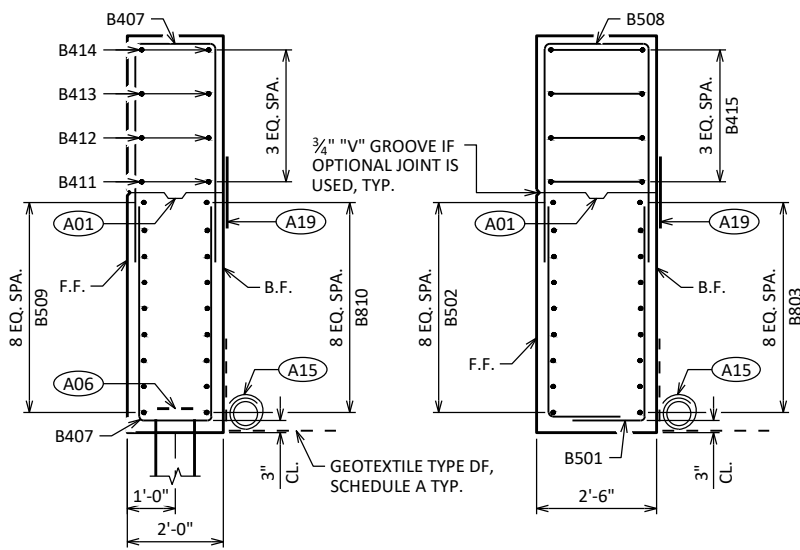


WING 3 PLAN

SHOWING LOWER WING REINFORCEMENT
WING 4 SIMILAR



WING 4 ELEVATION



SECTION THRU WING 3

SECTION A-A

- A01 OPTIONAL CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6. PROVIDE 3/4" "V" GROOVE ON F.F. OF WINGWALL IF JOINT IS USED.
- A06 SUPPORT ABUTMENT ON HP 10 x 42 PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE TO BE PRE-BORED 23'-0" PRIOR TO DRIVING.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING, ONLY IF OPTIONAL CONSTRUCTION JOINT IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY STRUCTURES".

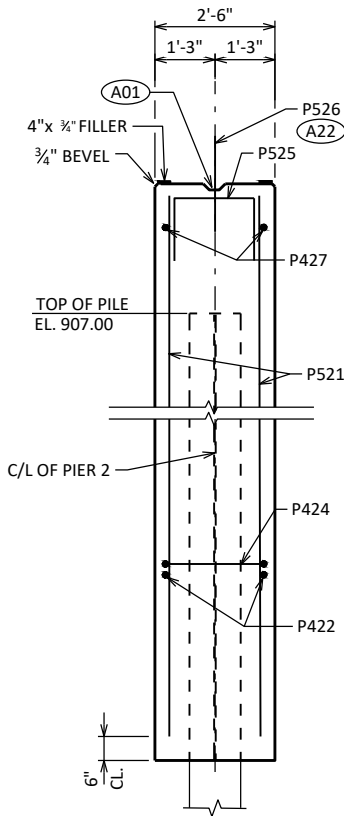
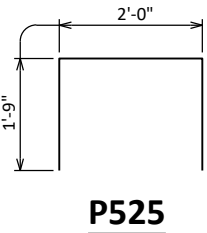
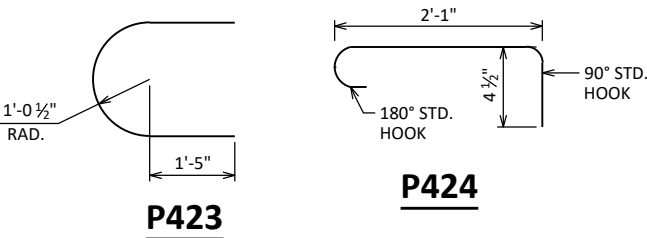
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		DRS	PLANS CK'D JLB
NORTH ABUTMENT DETAILS		SHEET 8 OF 13	

BILL OF BARS

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

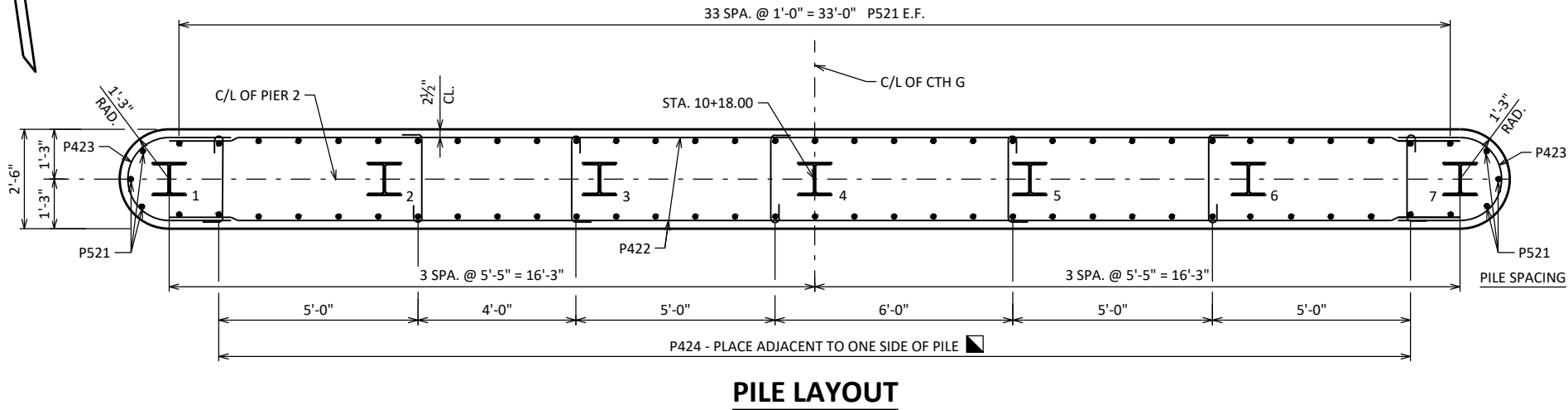
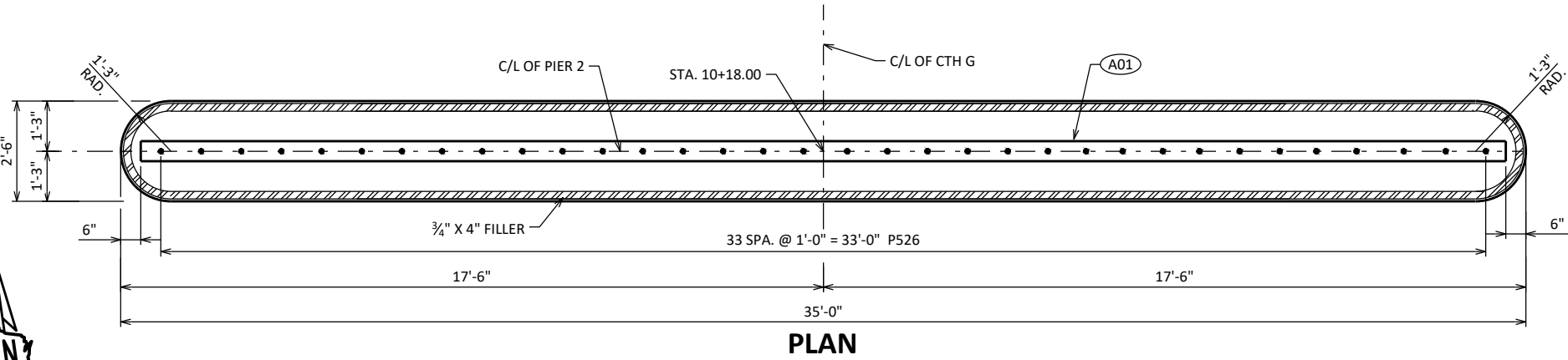
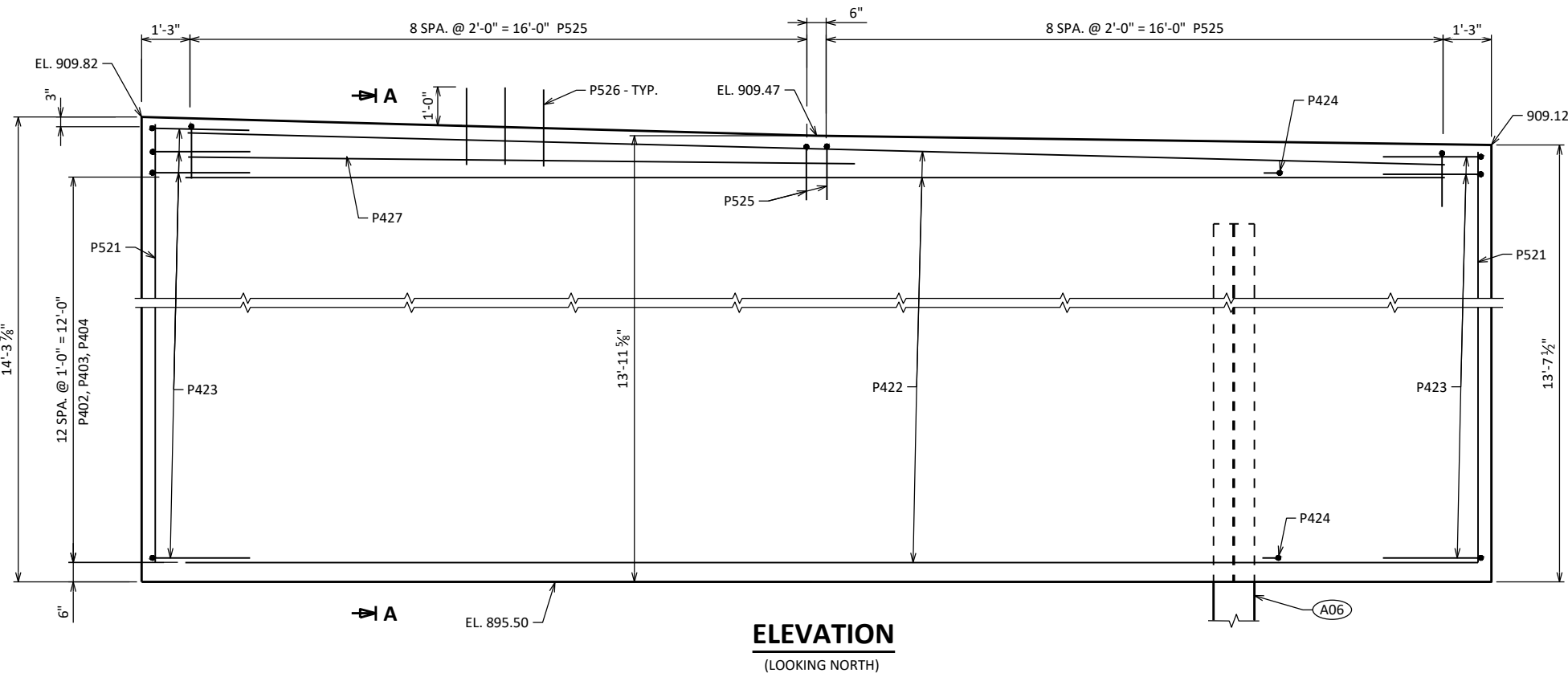
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
P521		74	12'-11"			COLUMN VERT.
P422		28	33'-0"			COLUMN HORIZ.
P423		29	6'-1"	X		COLUMN HORIZ.
P424		91	2'-10"	X		COLUMN TIES
P525		18	5'-3"	X		COLUMN TOP
P526	x	34	2'-0"			COLUMN DOWELS
P427		2	17'-0"			COLUMN HORIZ.

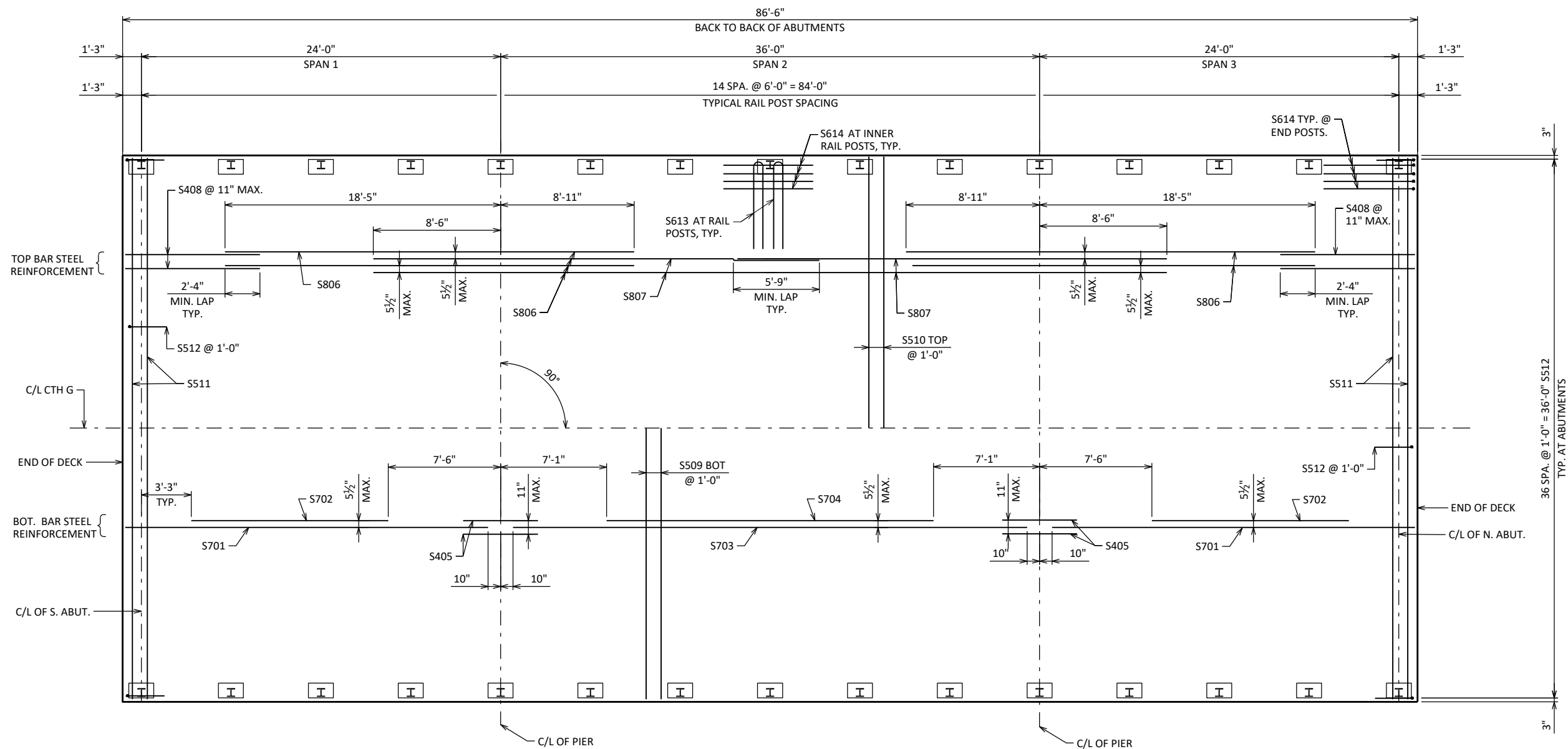
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



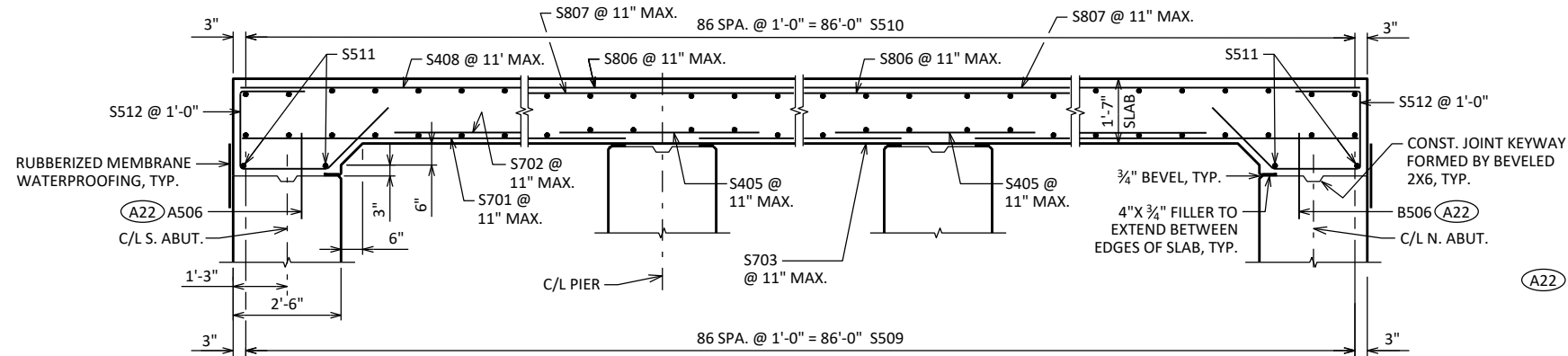
- A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- A06 SUPPORT PIER ON HP 10 X 42 STEEL PILING, DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE, ESTIMATED LENGTH 35'-0". PILES TO BE PRE-BORED 22'-0" PRIOR TO DRIVING.
- A22 BARS @ 1'-0" CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
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PIER 2		SHEET 10 OF 13	





PLAN

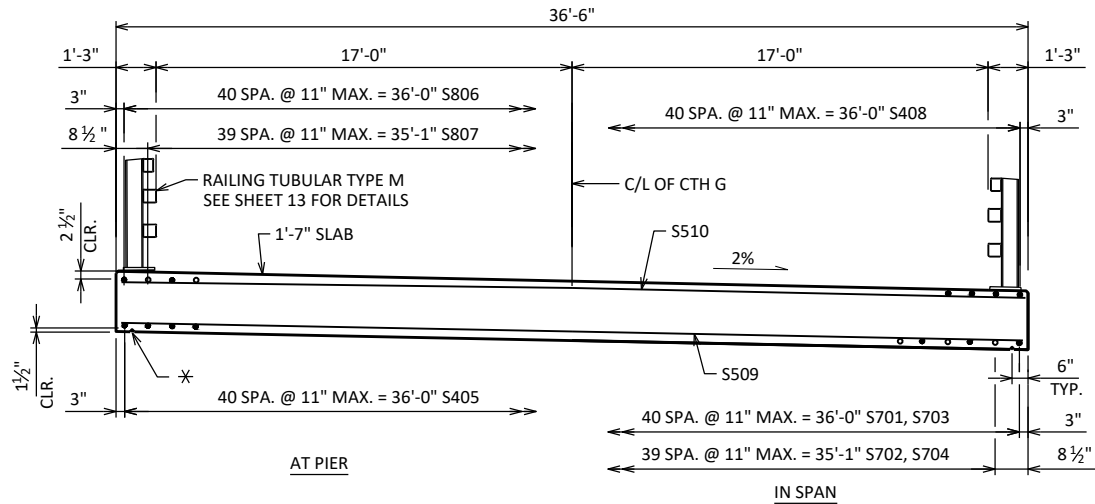


LONGITUDINAL SECTION

DIMENSIONS ARE GIVEN PARALLEL TO C/L ROADWAY UNLESS OTHERWISE NOTED.

A22 A507, B507 BARS SPACED @ 1'-0" CNTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		DRS	PLANS CK'D AEB
SUPERSTRUCTURE PLAN		SHEET 11 OF 13	



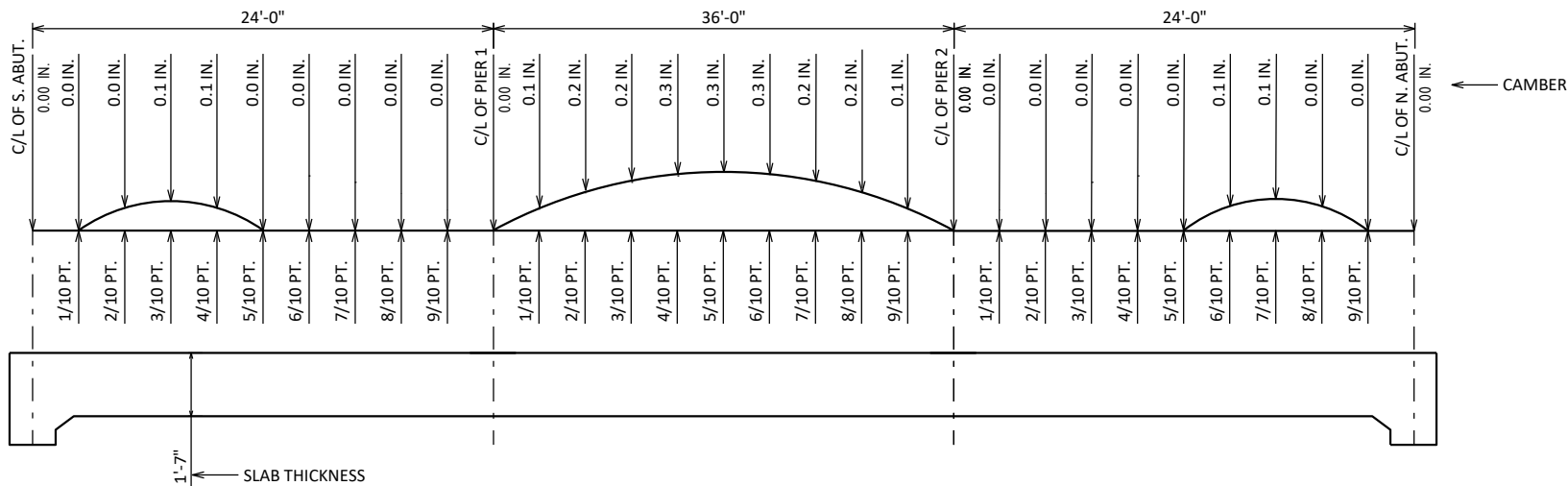
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCE NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

* 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUT.

V-GROOVES ARE REQUIRED.

TYPICAL SECTION THRU BRIDGE



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS. CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

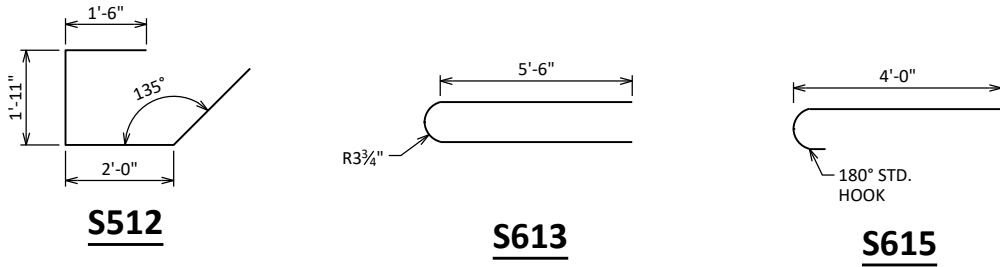
LESS TOP OF SLAB ELEVATION AT FINAL GRADE
PLUS SLAB THICKNESS
PLUS CAMBER
PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS TOP OF SLAB FALSEWORK ELEVATION

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
S701	X	82	24'-3"			SLAB LONG. BOT. SPAN 1 & 3
S702	X	80	13'-3"			SLAB LONG. BOT. SPAN 1 & 3
S703	X	41	34'-4"			SLAB LONG. BOT SPAN 2
S704	X	40	21'-10"			SLAB LONG. BOT. SPAN 2
S405	X	82	6'-3"			SLAB LONG. BOT. @ PIER
S806	X	82	27'-5"			SLAB LONG. TOP
S807	X	80	29'-5"			SLAB TOP
S408	X	82	9'-0"			SLAB LONG. TOP @ ABUTS.
S509	X	87	36'-2"			SLAB TRANS. BOT.
S510	X	87	36'-2"			SLAB TRANS. TOP
S511	X	4	36'-2"			SLAB @ ABUT. DIAPHRAGM TRANS.
S512	X	74	7'-0"	X		SLAB @ ABUT. DIAPHRAGM STIRRUPS
S613	X	60	12'-0"	X		SLAB @ RAIL POSTS
S614	X	104	6'-0"			SLAB @ INT. RAIL POSTS
S615	X	16	4'-8"	X		SLAB @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



TOP OF SLAB ELEVATIONS

LOCATION	C/L S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L PIER 1	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L PIER 2	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L N. ABUT.
W. EDGE OF SLAB	911.03	911.05	911.06	911.08	911.10	911.12	911.14	911.15	911.17	911.19	911.21	911.24	911.26	911.29	911.32	911.35	911.37	911.40	911.43	911.45	911.48	911.50	911.52	911.54	911.55	911.57	911.59	911.61	911.63	911.64	911.66
C/L OF CTH G AVENUE	910.66	910.68	910.70	910.72	910.74	910.75	910.77	910.79	910.81	910.83	910.84	910.87	910.90	910.93	910.95	910.98	911.01	911.03	911.06	911.09	911.12	911.13	911.15	911.17	911.19	911.21	911.22	911.24	911.26	911.28	911.30
E. EDGE OF SLAB	910.30	910.32	910.33	910.35	910.37	910.39	910.41	910.42	910.44	910.46	910.48	910.51	910.53	910.56	910.59	910.62	910.64	910.67	910.70	910.72	910.75	910.77	910.79	910.81	910.82	910.84	910.86	910.88	910.90	910.91	910.93

SURVEY TOP OF SLAB ELEVATIONS

	S. ABUTMENT	5/10 PT.	PIER 1	5/10 PT.	PIER 2	N. ABUTMENT
W. EDGE OF SLAB						
C/L OF CTH G						
E. EDGE OF SLAB						

PRIOR TO RELEASING SLAB FORMWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF SUBSTRUCTURES, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND C/L. . RECORD ELEVATIONS IN THE TABLE ABOVE FOR THE "AS BUILT" PLANS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		DRS	PLANS CK'D AEB
SUPERSTRUCTURE			SHEET 12 OF 13

LEGEND

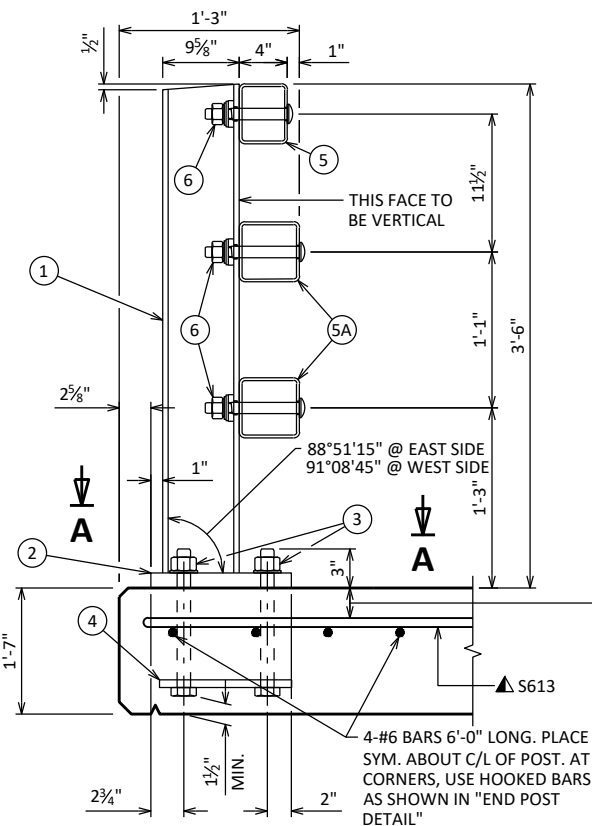
- W6 X 25 WITH $1\frac{1}{8}$ " X $1\frac{1}{2}$ " HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- PLATE $1\frac{1}{4}$ " X $11\frac{3}{4}$ " X 1'-8" WITH $1\frac{1}{16}$ " DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ASTM A449 - $1\frac{1}{8}$ " DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS $> 16"$ USE 1'-3" LONG. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- $\frac{5}{8}$ " X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH $1\frac{3}{16}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 3
- TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- $\frac{7}{8}$ " DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, $\frac{3}{16}$ " X $1\frac{5}{8}$ " X $1\frac{5}{8}$ " MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- $\frac{1}{2}$ " THK. BACK-UP PLATE WITH 2 - $\frac{7}{8}$ " X $1\frac{1}{2}$ " THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR $\frac{7}{8}$ " DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- SPLICE SLEEVE FABRICATED FROM $\frac{1}{4}$ " PLATE. PROVIDE "SLIDING FIT".
- $\frac{3}{8}$ " X $3\frac{5}{8}$ " X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- $\frac{3}{8}$ " X $2\frac{5}{8}$ " X 2'-4" PLATE USED IN NO. 5, $\frac{3}{8}$ " X $3\frac{5}{8}$ " X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE $1\frac{5}{16}$ " X $1\frac{1}{4}$ " LONGIT. SLOTTED HOLES AT FIELD JOINTS AND $1\frac{3}{16}$ " X $2\frac{3}{4}$ " MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- $\frac{7}{8}$ " DIA. X $1\frac{1}{2}$ " LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- $\frac{3}{8}$ " X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- $\frac{7}{8}$ " DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 1" DIA. HOLES IN TUBES NO. 5A FOR $\frac{7}{8}$ " DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

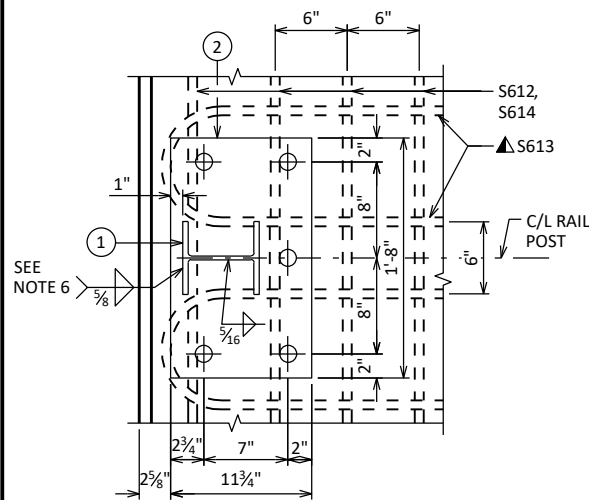
- BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL $\frac{1}{8}$ TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- 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.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.

▲ TIE TO TOP MAT OF STEEL.

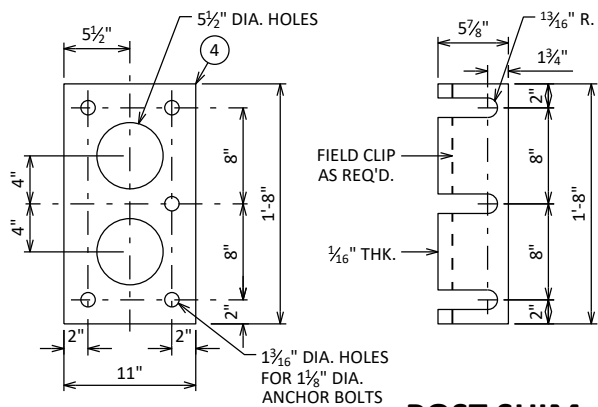
* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.



SECTION THRU RAILING ON DECK



SECTION A-A

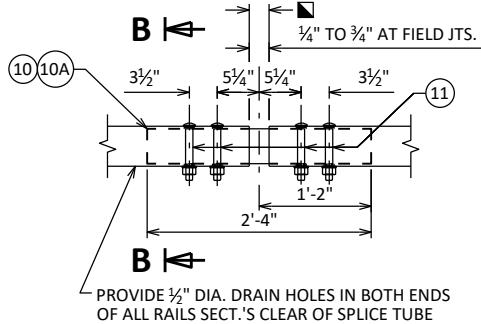


ANCHOR PLATE

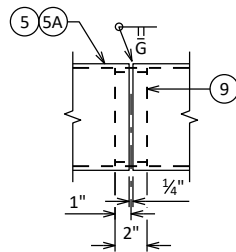
AT RAIL TO DECK CONNECTION

POST SHIM

DETAIL



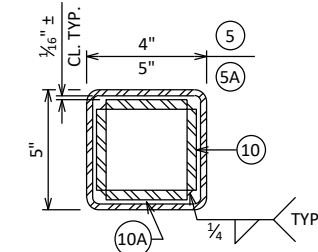
FIELD ERECTION JOINT DETAIL



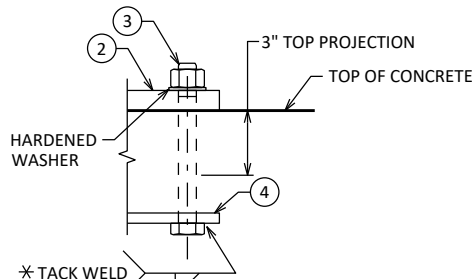
SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS

PLACE BELOW TOP MAT SLAB REINFORCEMENT

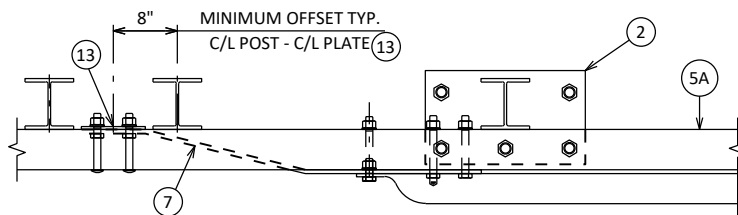


SECTION B-B



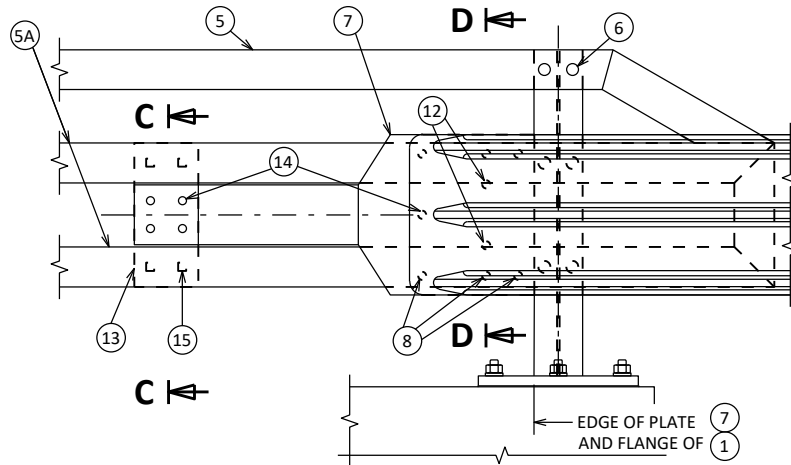
ANCHOR BOLTS

TYPICAL RAIL TO POST CONNECTIONS

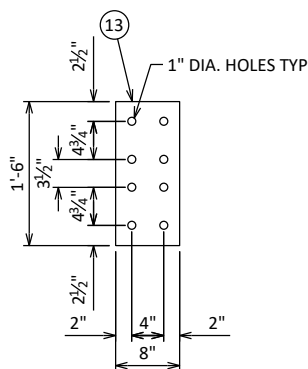


TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION C-C SECTION D-D

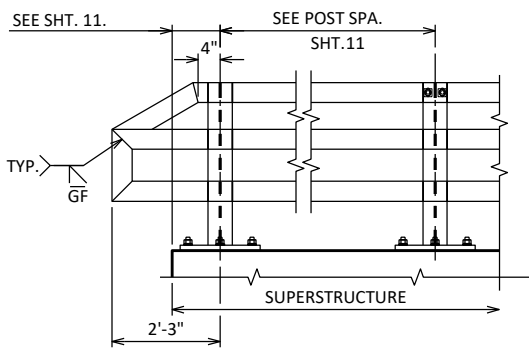


ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT

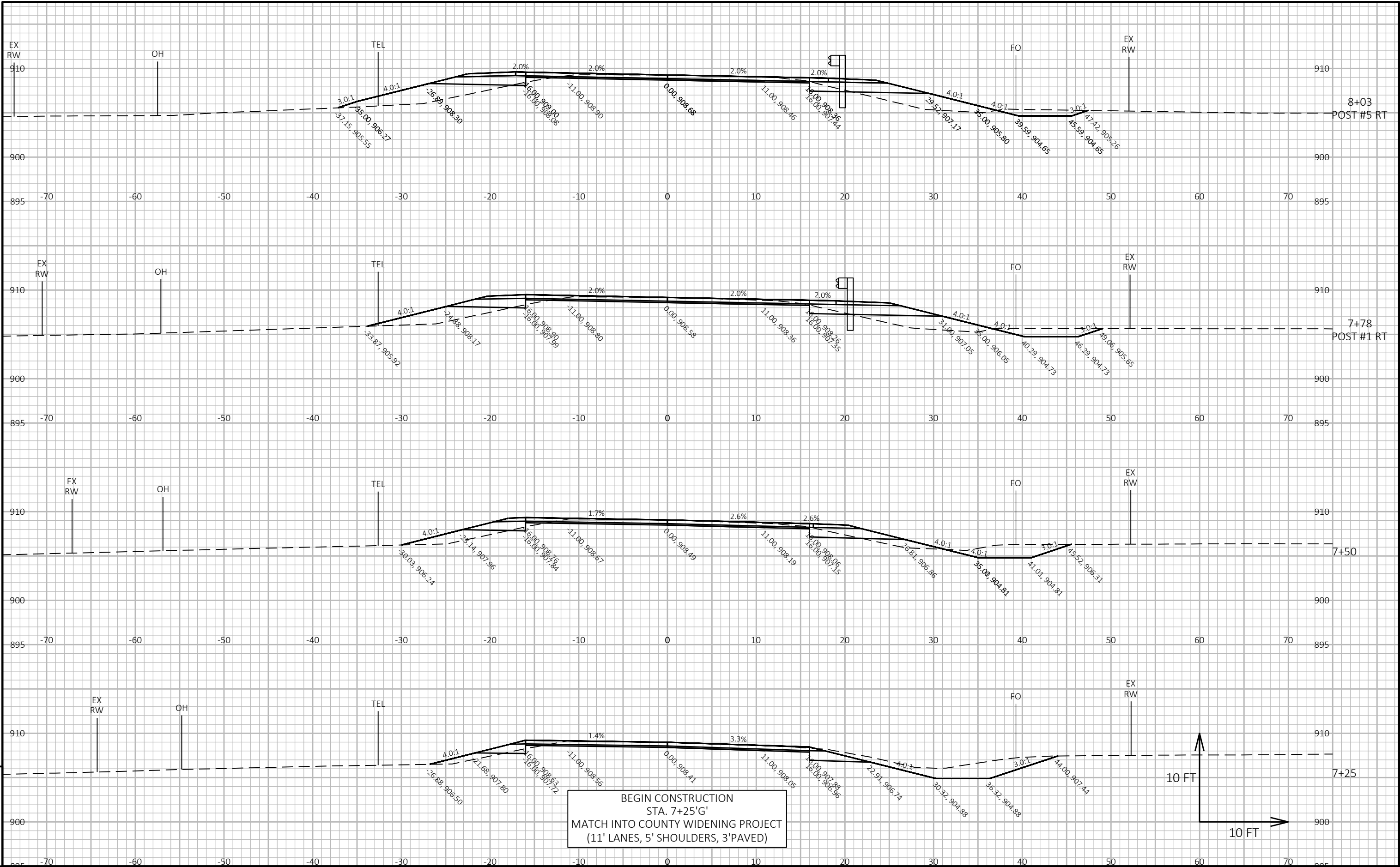


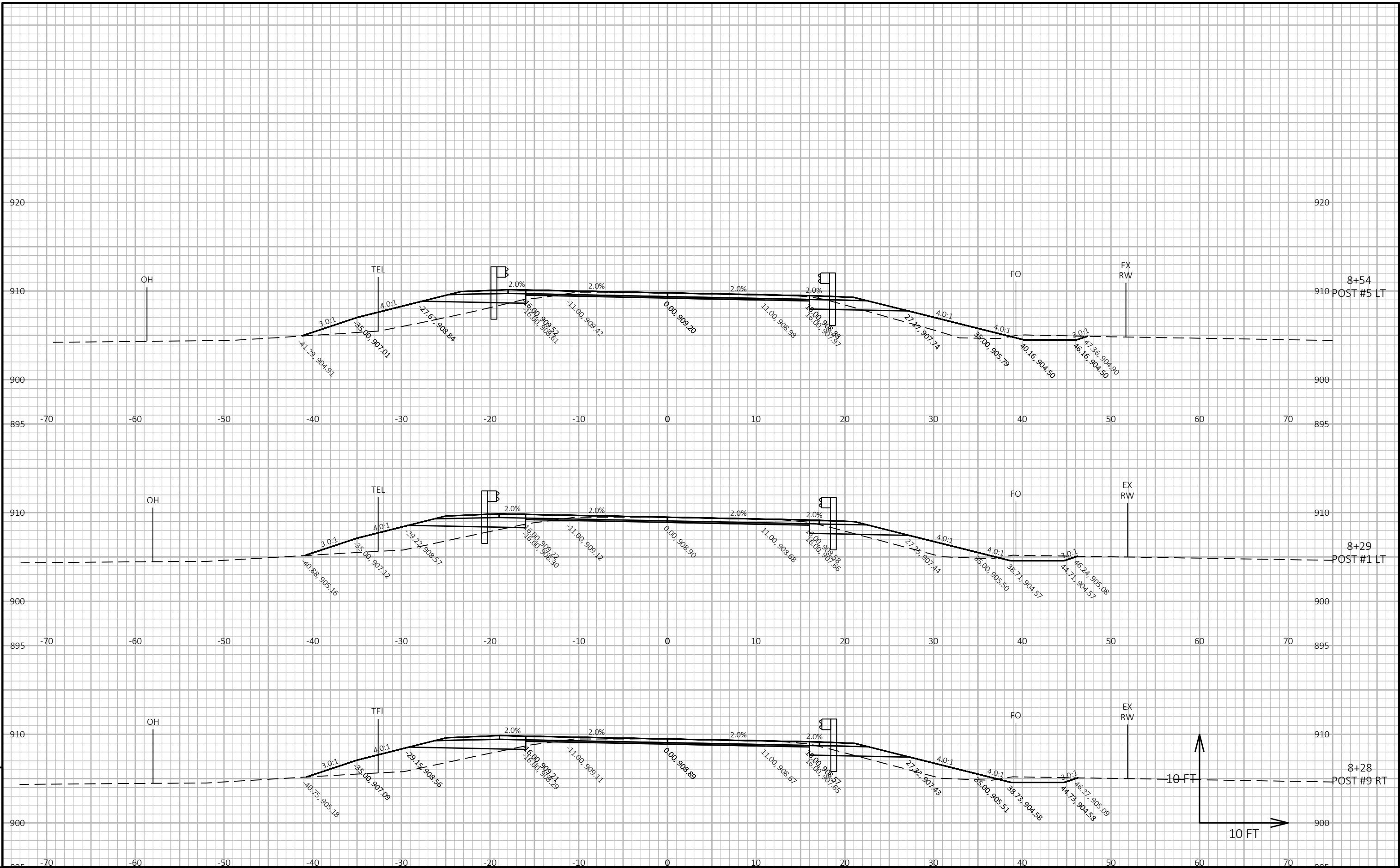
PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-903			
DRAWN BY		CLP	PLANS CK'D AEB
TUBULAR STEEL RAILING TYPE "M"		SHEET 13 OF 13	

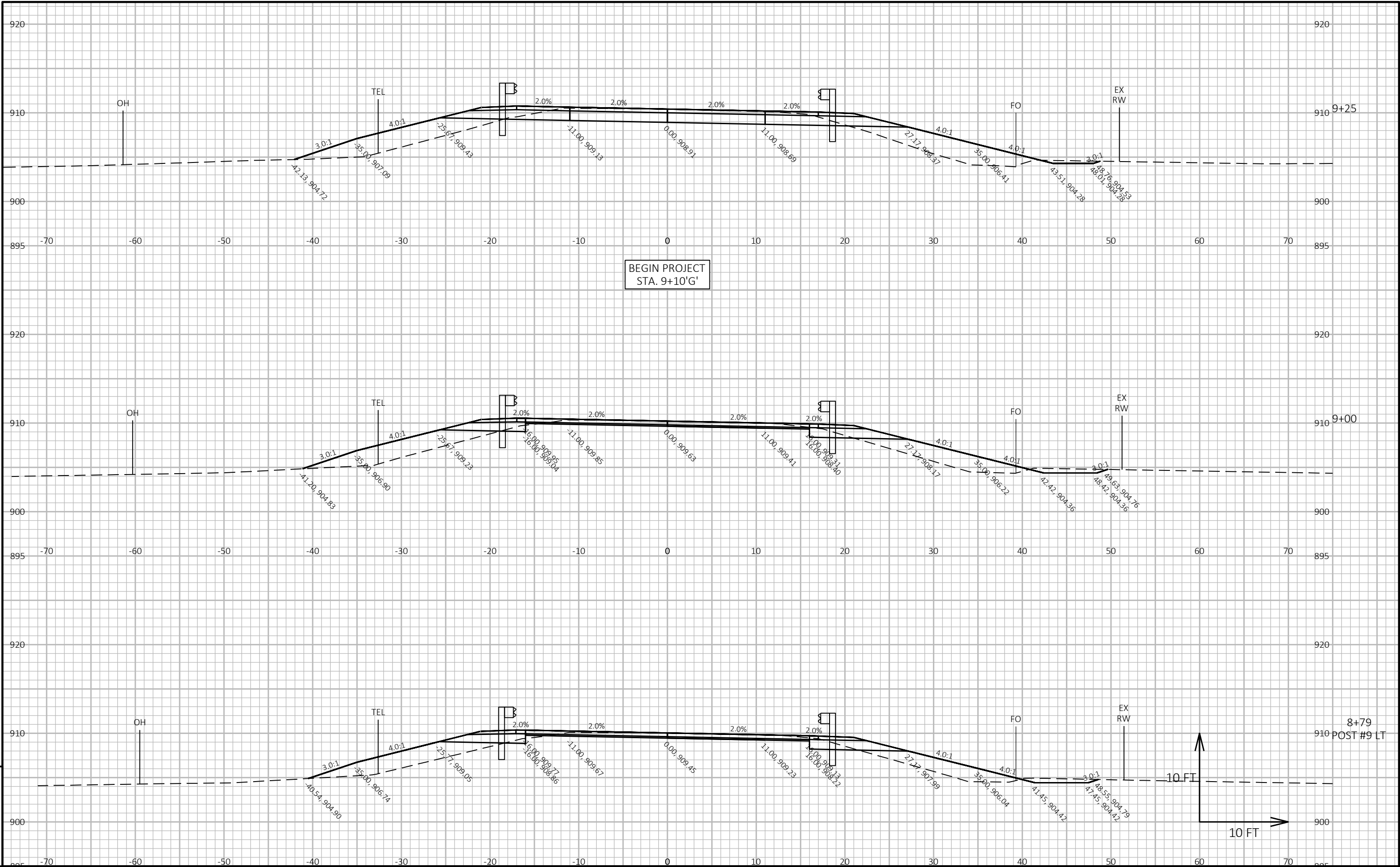
CTH G SOUTH COMPUTER EARTHWORK											
Station	Distance	Area (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
		Unusable			Unusable			Unusable		Expanded	
		Cut	Cut	Fill	Cut	Cut	Fill	Cut	Cut	Fill	
								1.00		1.30	
		Note 5			Note 1	Note 2		Note 1	Note 2	Note 3	Note 4
7+25	--	46.9	8.0	4.0	--	--	--	--	--	--	--
7+50	25	31.6	8.0	13.3	36	7	8	36	7	10	19
7+78	28	24.7	8.0	31.0	29	8	23	65	15	40	10
8+03	25	22.6	8.0	39.4	22	7	33	87	22	83	-18
8+28	25	22.8	8.0	47.8	21	7	41	108	29	137	-58
8+29	1	22.8	8.0	48.2	1	0	1	109	29	138	-58
8+54	25	23.9	8.0	50.9	21	7	46	130	36	198	-104
8+79	25	23.5	8.0	50.2	22	7	47	152	43	259	-150
9+00	21	23.5	8.0	56.5	18	6	42	170	49	313	-192
9+10	10	25.3	8.0	60.1	9	3	23	179	52	343	-216
9+25	15	48.5	8.0	69.7	20	4	35	199	56	389	-246
9+40	15	43.2	8.0	83.4	25	4	43	224	60	445	-281
9+50	10	34.8	8.0	5.7	14	3	16	238	63	465	-290
9+57	7	13.1	8.0	7.0	6	2	2	244	65	468	-289
Bridge											
10+43	--	28.4	8.0	3.8	--	--	--	--	--	--	--
10+50	7	44.8	8.0	3.4	9	2	1	253	67	469	-283
10+60	10	45.7	8.0	60.3	17	3	12	270	70	485	-285
10+75	15	45.0	8.0	64.1	25	4	35	295	74	530	-309
10+90	15	29.0	8.0	72.1	21	4	38	316	78	580	-342
11+00	10	14.6	8.0	77.8	8	3	28	324	81	616	-373
11+22	22	14.6	8.0	84.6	12	6	65	336	87	701	-452
11+47	25	14.5	8.0	91.4	14	7	82	350	94	807	-551
11+58	12	14.3	8.0	106.4	6	3	43	356	97	863	-604
11+72	13	14.7	8.0	117.8	7	4	55	363	101	935	-673
11+83	12	15.3	8.0	105.0	6	3	48	369	104	997	-732
12+00	17	16.5	8.0	94.1	10	5	61	379	109	1076	-806
12+08	8	16.9	8.0	93.1	5	2	28	384	111	1113	-840
12+25	17	18.7	8.0	68.2	11	5	50	395	116	1178	-899
12+50	25	26.8	8.0	6.9	21	7	35	416	123	1223	-930
					416	123	941				

Note 1 - Cut	Includes both useable and unusable cut material
Note 2 - Unusable Cut	Existing asphalt pavement assumed to be 24' wide x 4" thick. Not to be used outside the 1:1 road core.
Note 3 - Expanded Fill	Volume needed to be filled = Fill * 1.30
Note 4 - Mass Ordinate	(Cut - Unusable Cut) - (Expanded Fill)
Note 5 - Widening	County widening not accounted for in cuts and fills (based off pre-widened surface)

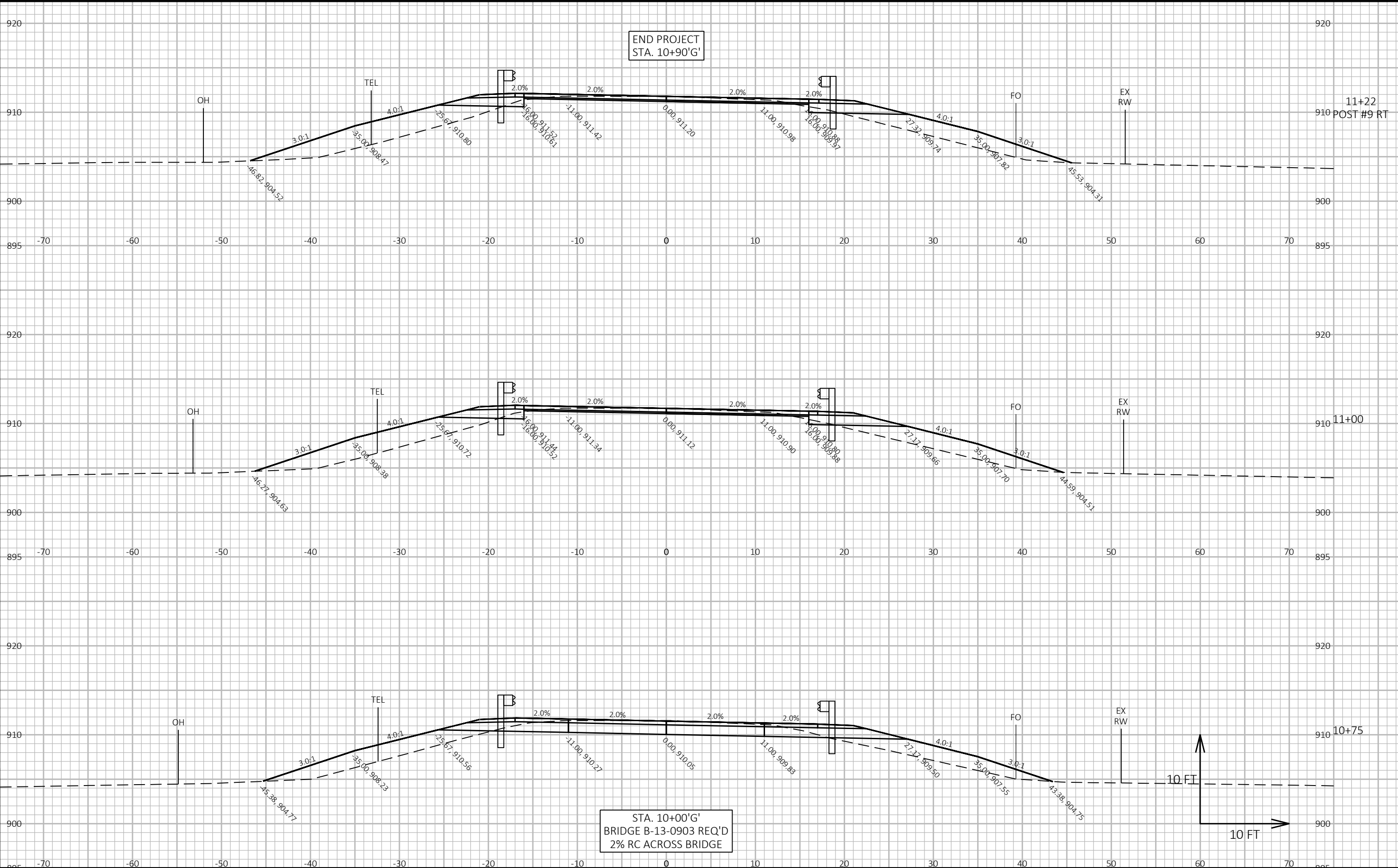




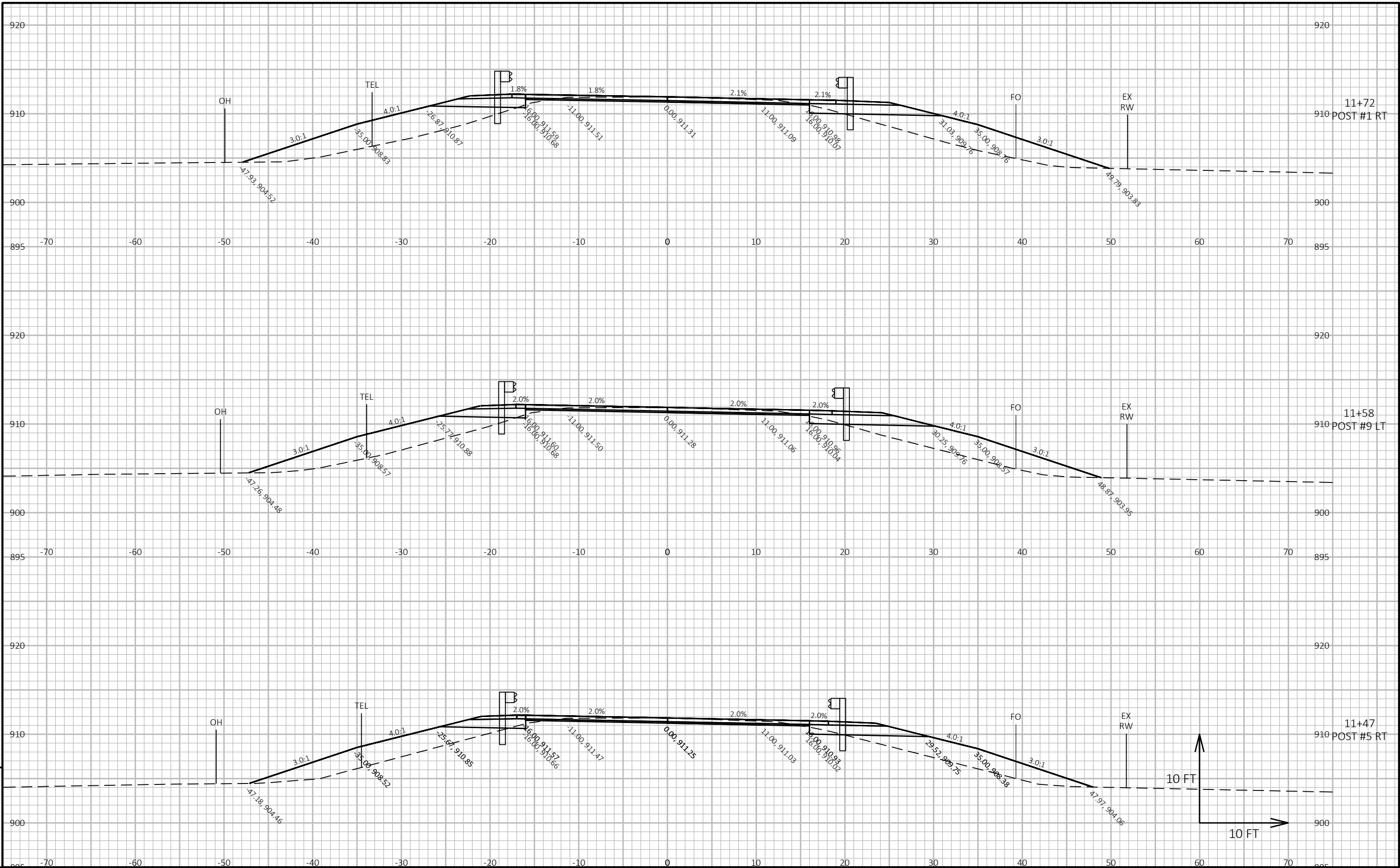
PROJECT NO: 5889-00-74	HWY: CTH G	COUNTY: DANE	CROSS SECTIONS: CTH G (SOUTH)	SHEET	E
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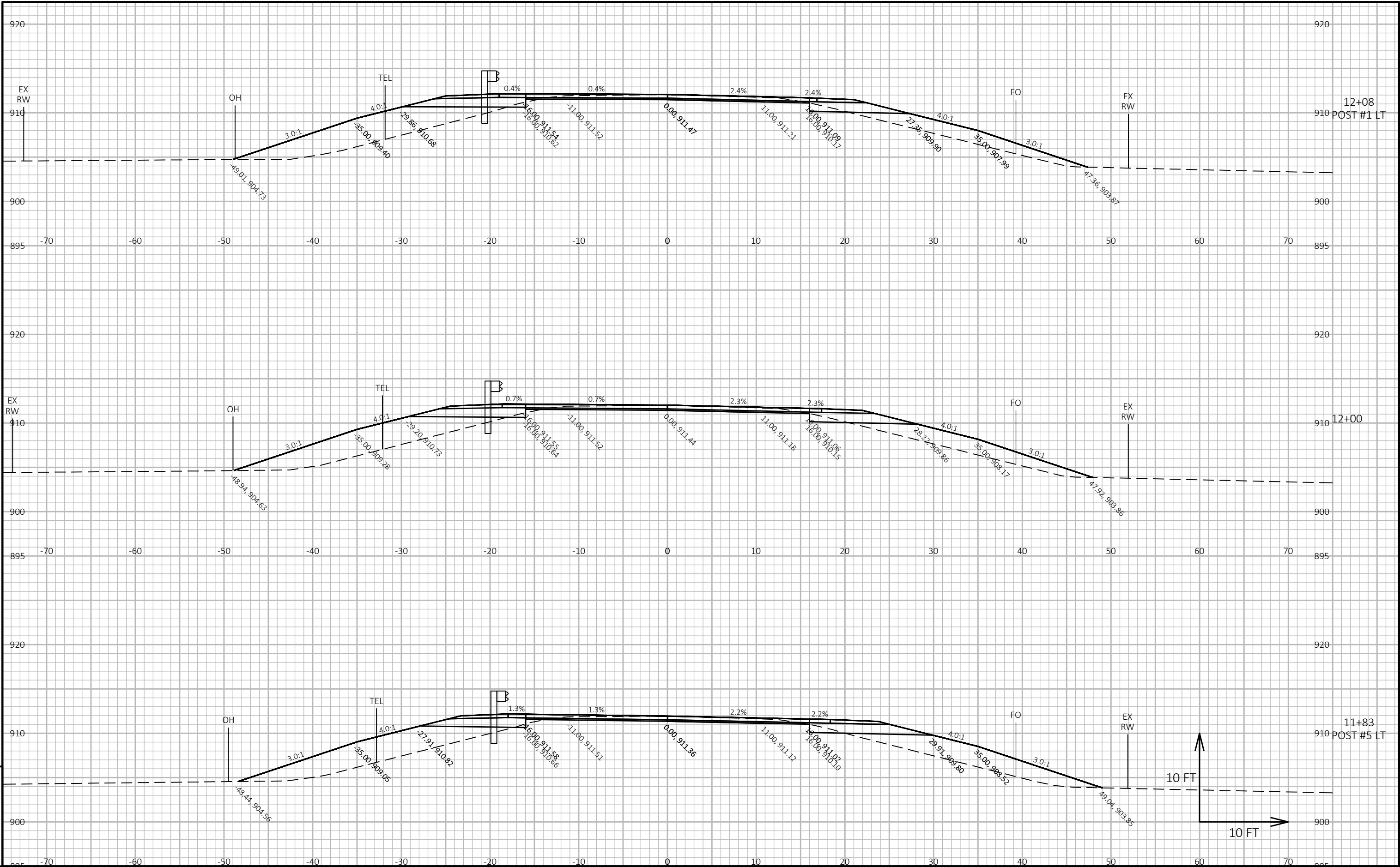


PROJECT NO: 5889-00-74	HWY: CTH G	COUNTY: DANE	CROSS SECTIONS: CTH G (SOUTH)	SHEET	E
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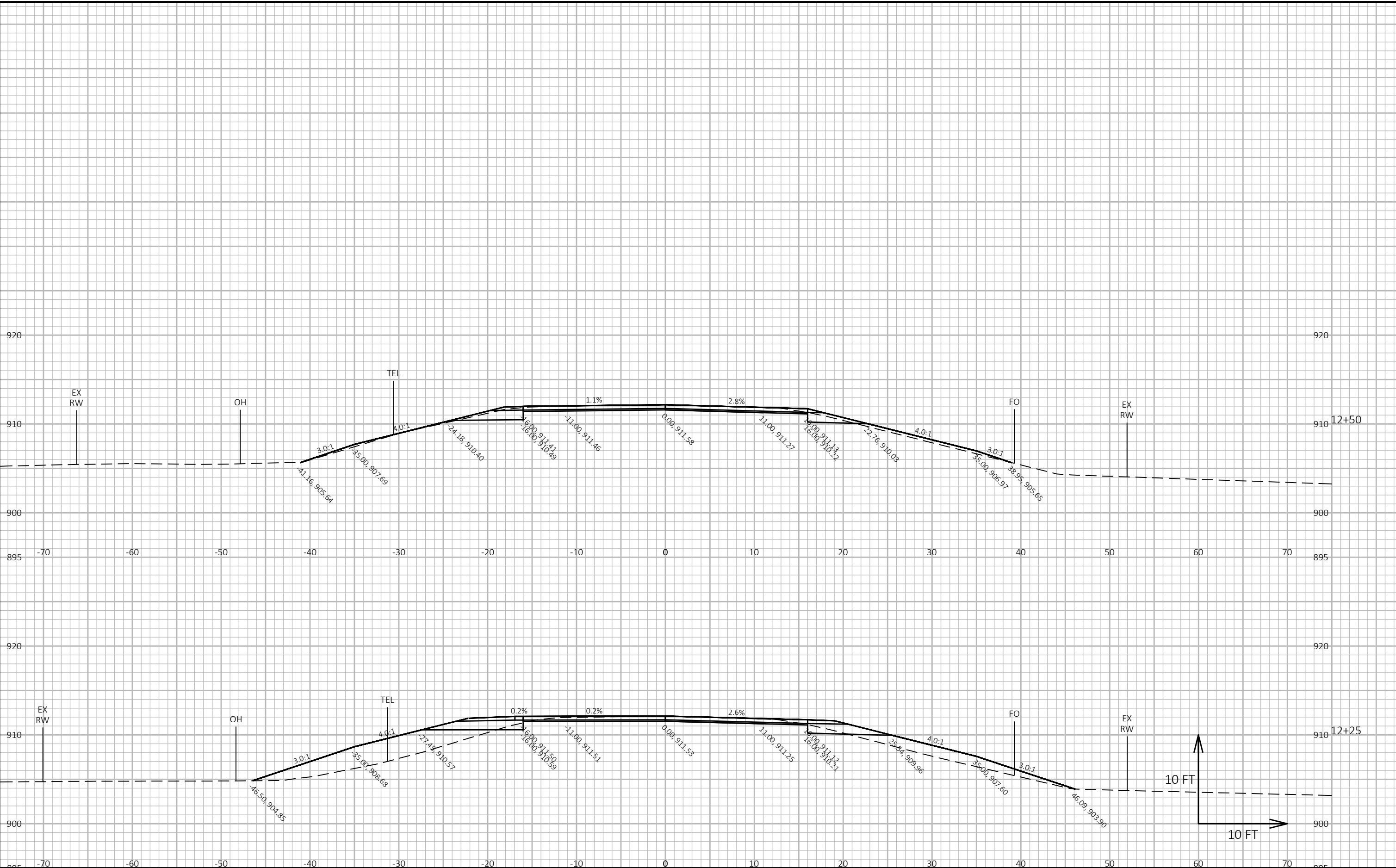


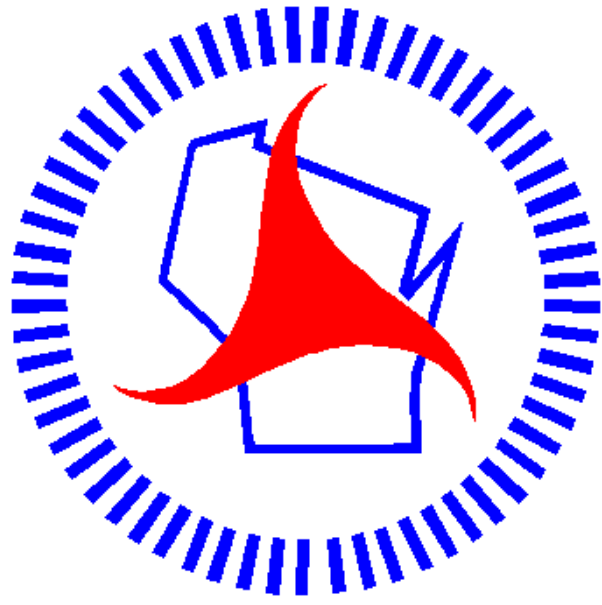
PROJECT NO: 5889-00-74	HWY: CTH G	COUNTY: DANE	CROSS SECTIONS: CTH G (SOUTH)	SHEET E
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PROJECT NO: 5889-00-74	HWY: CTH G	COUNTY: DANE	CROSS SECTIONS: CTH G (SOUTH)	SHEET 9
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Wisconsin Department of Transportation

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