

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 Plan
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 74



DESIGN DESIGNATION

A.A.D.T.	2021	=	815
A.A.D.T.	2041	=	897
D.H.V.		=	129
D.D.		=	60/40
T.		=	10%
DESIGN SPEED		=	55 MPH
ESALS		=	165,000

CONVENTIONAL SYMBOLS

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

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

END PROJECT  
STA 50+75.00

STRUCTURE B-61-0241  
STA 49+75 - STA 50+25

BEGIN PROJECT  
STA 49+25.00  
Y = 333053.633  
X = 801879.882

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

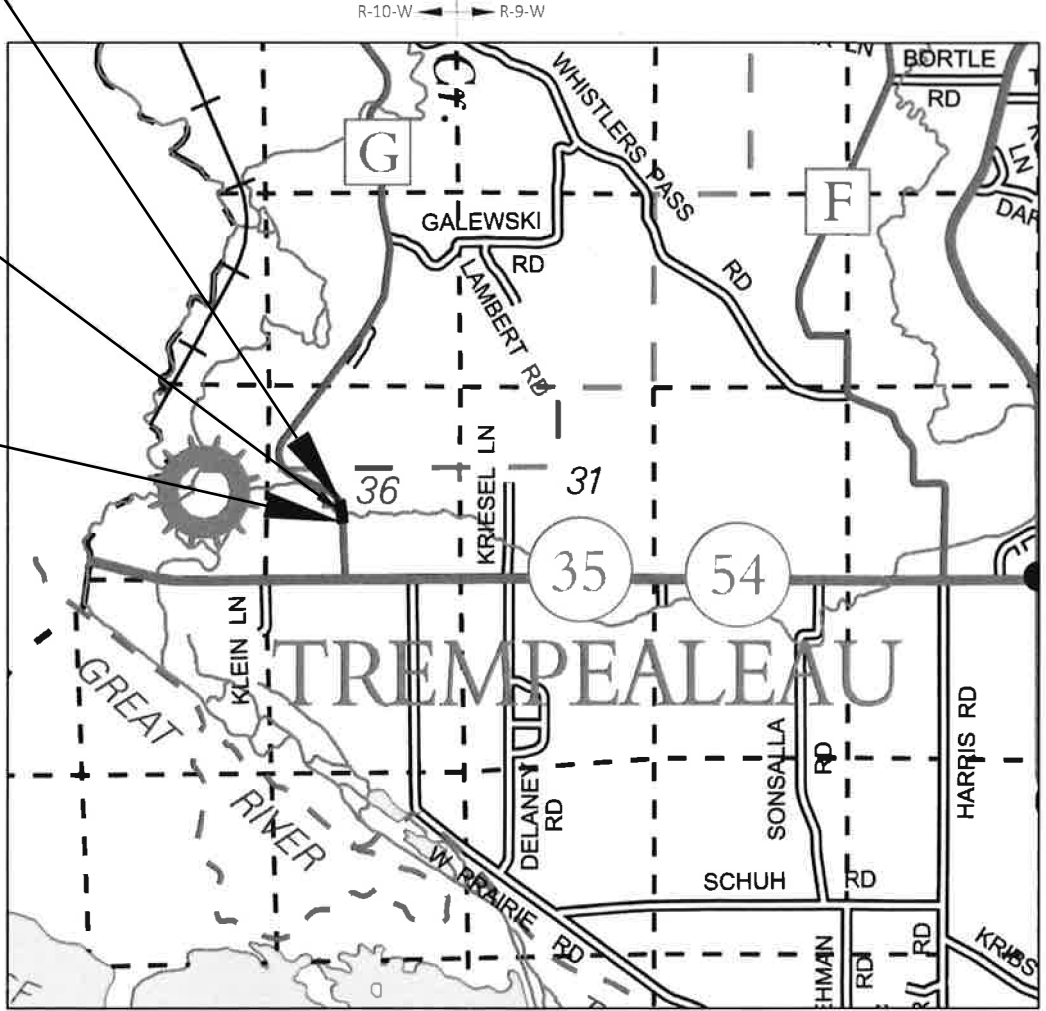
STH 35 - STH 93

TAMARACK CREEK BRIDGE B-61-0241

CTH G

TREMPEALEAU COUNTY

STATE PROJECT NUMBER  
7157-00-70



LAYOUT  
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.028 MI

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7157-00-70		

ACCEPTED FOR

TREMPEALEAU COUNTY

Date 10/26/20  
COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY



DATE: 10/26/2020  
(Professional Engineer Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	IHS GROUP, INC.
Designer	IHS GROUP, INC.
Project Manager	MATTHEW THORSEN, PE
Regional Examiner	TOU YANG, PE
Regional Supervisor	ANDREW STENSLAND, PE

APPROVED FOR THE DEPARTMENT  
DATE: 10/27/2020  
(Signature)

GENERAL NOTES

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE RESTORED AND E-MATTED AS DIRECTED BY THE ENGINEER.

SALVAGED TOPSOIL IS TO BE PLACED AND SPREAD TO A UNIFORM DEPTH OF 4 INCHES AT A MINIMUM.

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

LOCATION OF UNDERGROUND UTILITIES AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

WHEN PORTIONS OF EXISTING ASPHALTIC SURFACES ARE TO BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION, THE LINE OF SUCH REMOVAL SHALL BE NEATLY DELINEATED WITH A SAW CUT JOINT THROUGH THE ASPHALTIC SURFACE SO THAT REMOVAL OF THE ASPHALT SHALL BE ACCOMPLISHED WITHOUT DAMAGE TO REMAINING PORTIONS.

EROSION CONTROL TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER AND TO BE IN PLACE PRIOR TO CONSTRUCTION OR BRIDGE REMOVAL.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 88 (2007).

ASPHALTIC SURFACE WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

STANDARD ABBREVIATIONS

AC	ACRF	INV	INVVRT
AGG	AGGREGATE	JCT	JUNCTION
AH	AHEAD	LI	LEFT
AADT	ANNUAL AVERAGE DAILY TRAFFIC	L	LENGTH OF CURVE
ASPH	ASPHALTIC	LIN FT or LF	LINEAR FOOT
AVG	AVERAGE	LS	LUMP SUM
BK	BACK	NC	NORMAL CROWN
BAD	BASE AGGREGATE DENSE	N	NORTH
BM	BENCH MARK	NB	NORTHBOUND
BR	BRIDGE	NO	NUMBER
CL or C/L	CENTER LINE	PT	POINT
CF	COMMERCIAL ENTRANCE	PC	POINT OF CURVATURE
CONC	CONCRETE	PI	POINT OF INTERSECTION
CO	COUNTY	PT	POINT OF TANGENCY
CTH	COUNTY TRUNK HIGHWAY	PCC	PORTLAND CEMENT CONCRETE
CR	CREEK	LB	POUND
CABC	CRUSHED AGGREGATE BASE COURSE	PE	PRIVATE ENTRANCE
CY or CU YD	CUBIC YARD	R	RADIUS
CULV	CULVERT	RL or R/L	REFERENCE LINE
CP	CULVERT PIPE	RT	RIGHT
C & G	CURB AND GUTTER	R/W	RIGHT-OF-WAY
D	DEGREE OF CURVE	RD	ROAD
DIA	DIAMETER	SHLDR	SHOULDER
DISCH	DISCHARGE	SI	SLOPE INTERCEPT
E	EAST	SB	SOUTHBOUND
EB	EASTBOUND	SF or SQ FT	SQUARE FEET
EL or ELEV	ELEVATION	SY or SQ YD	SQUARE YARD
EW	ENDWALL	SDD	STANDARD DETAIL DRAWINGS
ENT	ENTRANCE	STH	STATE TRUNK HIGHWAYS
EXC	EXCAVATION	SE	SUPERELEVATION
EX	EXISTING	T	TANGENT
FERT	FERTILIZER	TEMP	TEMPORARY
FE	FIELD ENTRANCE	USH	UNITED STATES HIGHWAY
FL or F/L	FLOW LINE	V	VELOCITY OR DESIGN SPEED
FT	FOOT	VC	VERTICAL CURVE
HMA	HOT MIX ASPHALT	WB	WESTBOUND
CWT	HUNDREDWEIGHT	YD	YARD
INL	INLET		

ORDER OF PLAN SHEETS

1. TITLE SHEET
2. GENERAL NOTES
3. TYPICAL SECTIONS
4. EROSION CONTROL
5. DETOUR PLAN
6. ALIGNMENT DETAIL
7. ESTIMATE OF QUANTITIES
8. MISCELLANEOUS QUANTITIES
9. PLAN & PROFILE
10. STANDARD DETAIL DRAWINGS
11. STRUCTURES
12. EARTHWORK QUANTITIES
13. CROSS SECTIONS

RAILROAD COORDINATOR

WISDOT REGIONAL RAIL COORDINATOR  
ANNA DAVEY  
1701 N 4TH STREET  
SUPERIOR, WI 54880  
PHONE: (715) 392-7960  
EMAIL: ANNA.DAVEY@DOT.WI.GOV

DNR LIAISON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
AMY LESIK  
1300 WEST CLAIREMONT AVENUE  
EAU CLAIRE, WI 54701  
PHONE: (715) 836-6571  
EMAIL: AMY.LESIK@WISCONSIN.GOV

DESIGN CONTACTS

I&S GROUP, INC  
CONSULTANT PROJECT MANAGER  
ASHLEY NELSON, PE  
115 PINE STREET, SUITE 300  
GREEN BAY, WI 54301  
PHONE: (920) 434-2128 (OFFICE)  
EMAIL: ASHLEY.NELSON@ISGINC.COM

I&S GROUP, INC  
DESIGNER  
CORONA WOYCHIK, PE  
201 MAIN STREET, SUITE 1020  
LA CROSSE, WI 54601  
PHONE: (608) 789-2034 (OFFICE)  
EMAIL: CORONA.WOYCHIK@ISGINC.COM

TREMPEALEAU COUNTY, HIGHWAY COMMISSIONER  
AL RINKA  
PO BOX 97  
WHITEHALL, WI 54773  
PHONE: (715) 538-9402 (OFFICE)  
EMAIL: AL.RINKA@CO.TREMPEALEAU.WI.US

WISDOT PROJECT MANAGER  
MATTHEW THORNSSEN, PE  
718 W CLAIREMONT AVE.  
EAU CLAIRE, WI 54701  
PHONE: (715) 225-4159  
EMAIL: MATTHEW.THORNSSEN@DOT.WI.GOV

UTILITY CONTACTS

COMMUNICATIONS

CENTURYLINK  
TOM MURRAY  
333 N FRONT STREET  
LA CROSSE, WI 54601  
PHONE: (608) 615-4169 (OFFICE)  
EMAIL: TOM.L.MURRAY@CENTURYLINK.COM

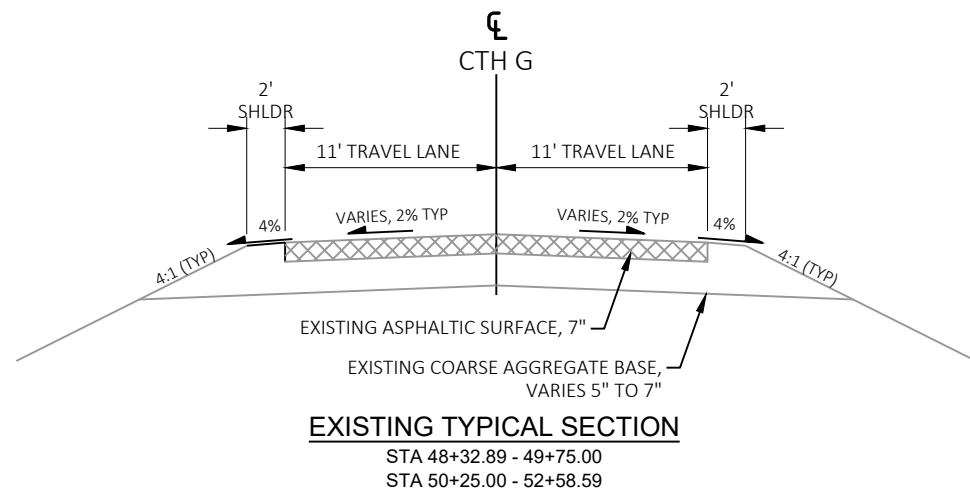
ELECTRIC

RIVERLAND ENERGY COOPERATIVE  
ROB SOSALLA  
PO BOX 277  
ARCADIA, WI 54612  
PHONE: (608) 323-3381 (OFFICE BEFORE 4PM)  
EMAIL: RSOSALLA@RIVERLANDENERGY.COM



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

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						
TOTAL PROJECT AREA = 0.81 ACRES												
TOTAL EXPECTED DISTURBED AREA = 0.65 ACRES												



PROJECT NO: 7157-00-70

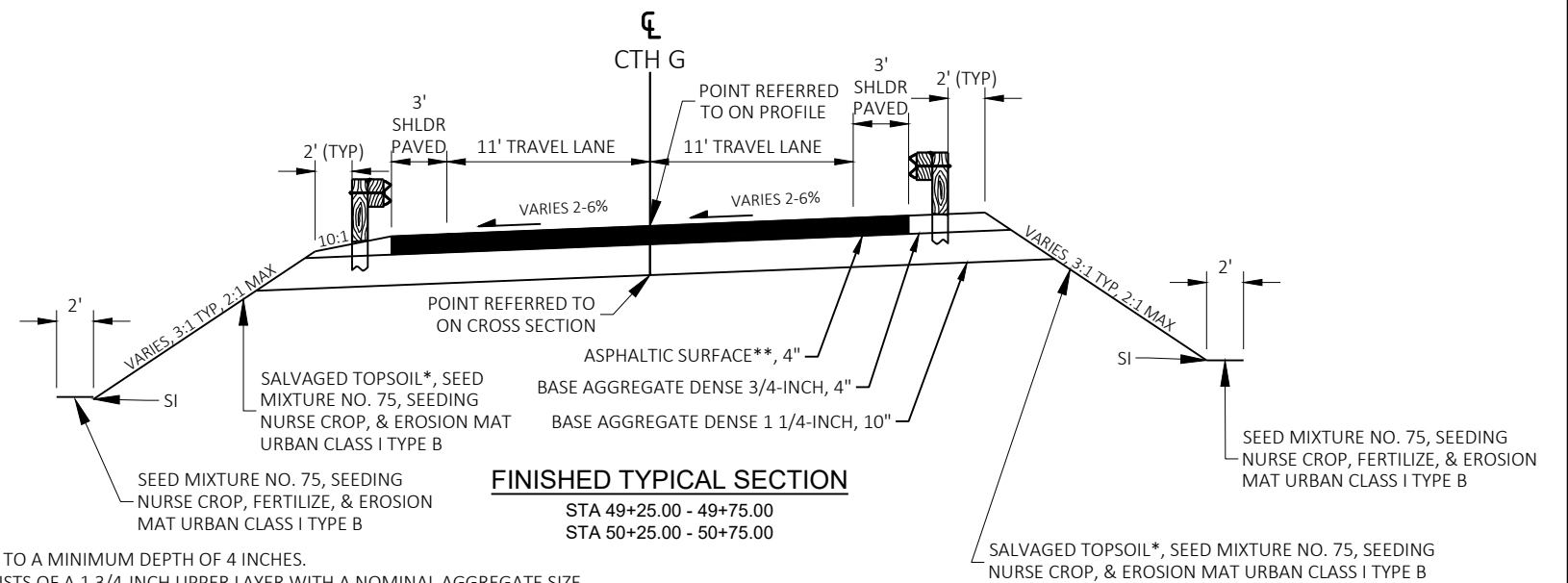
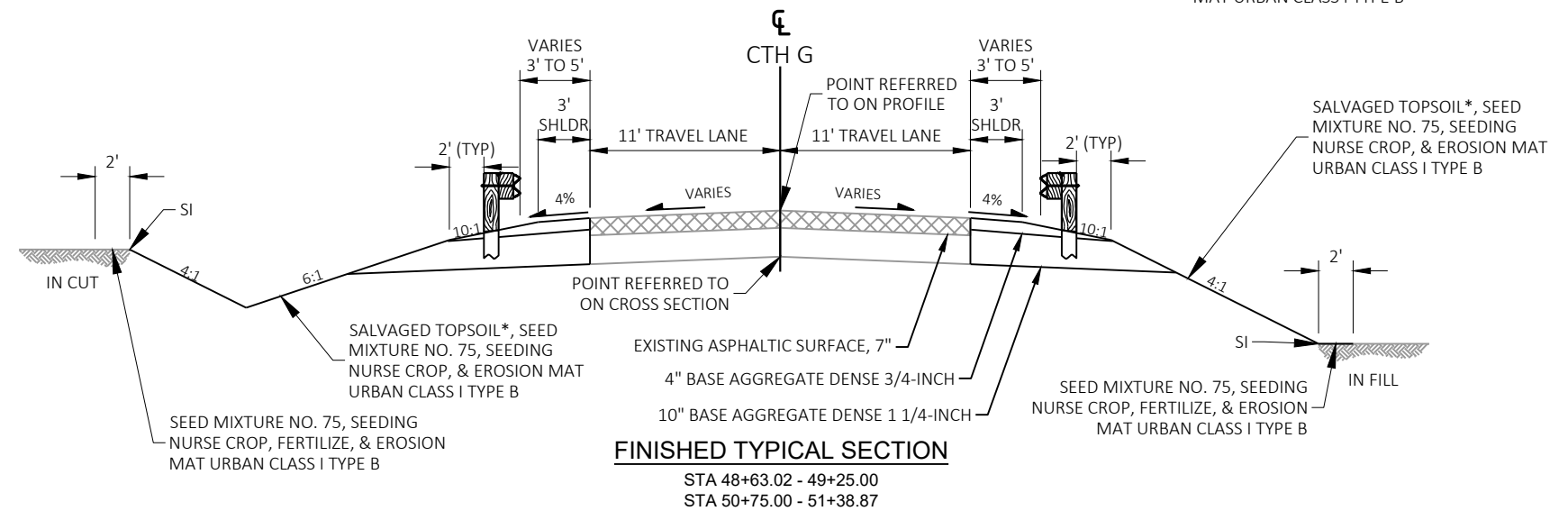
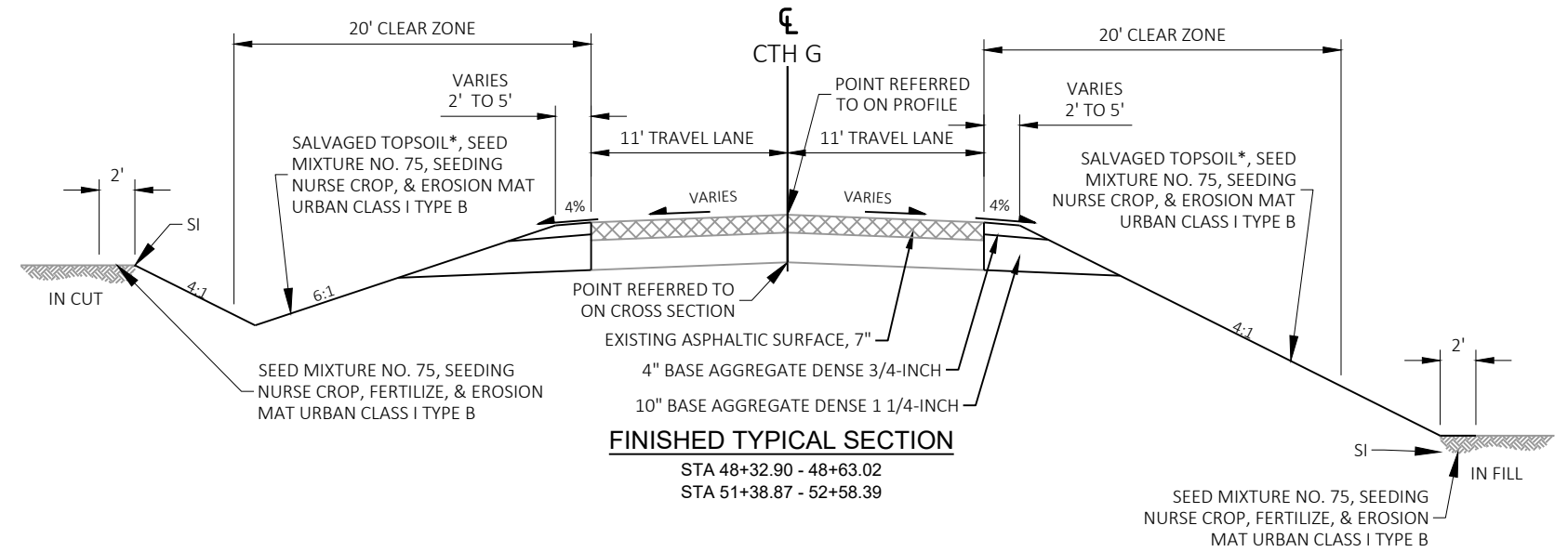
HWY: CTH G

COUNTY: TREMPLEAU COUNTY

TYPICAL SECTIONS

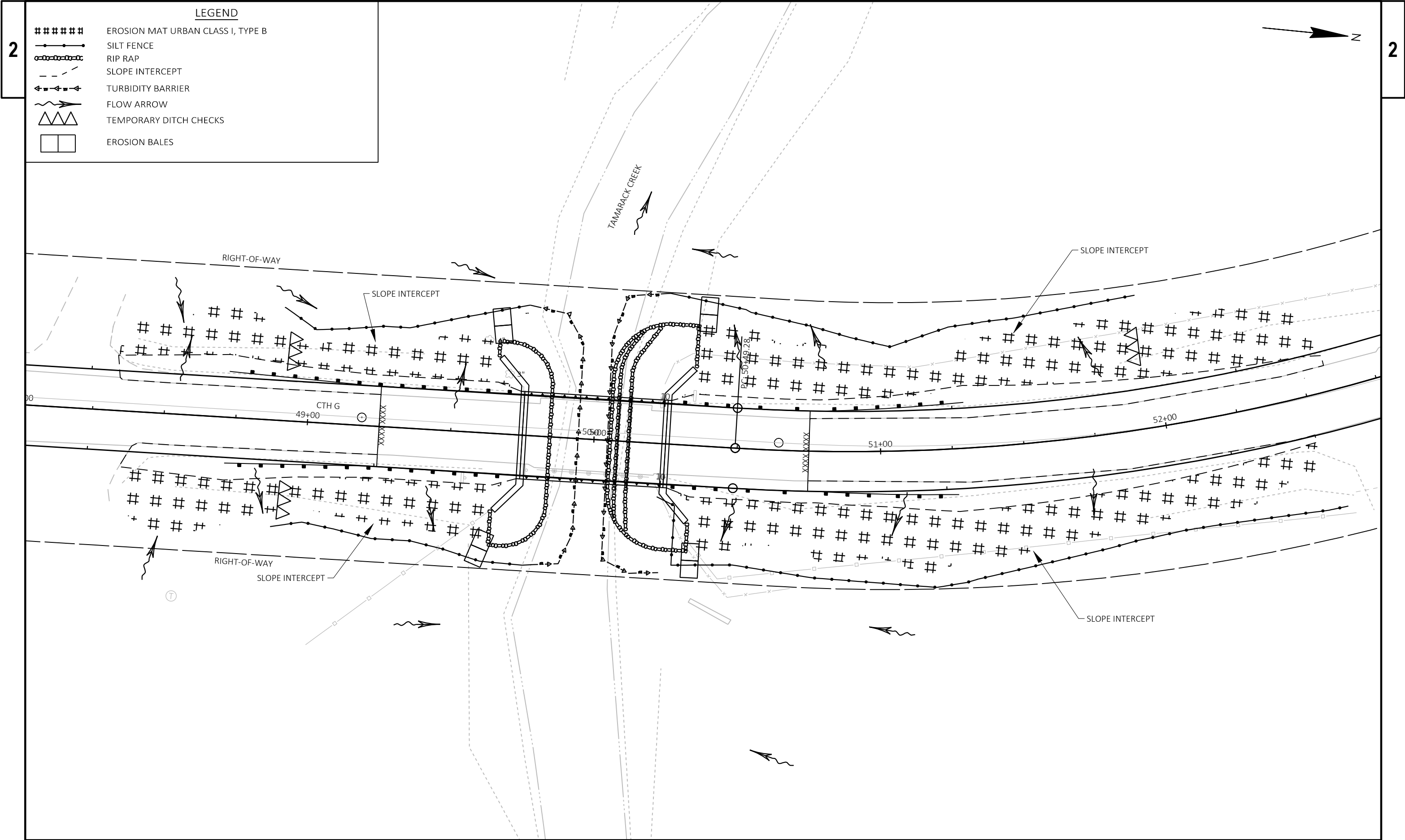
SHEET

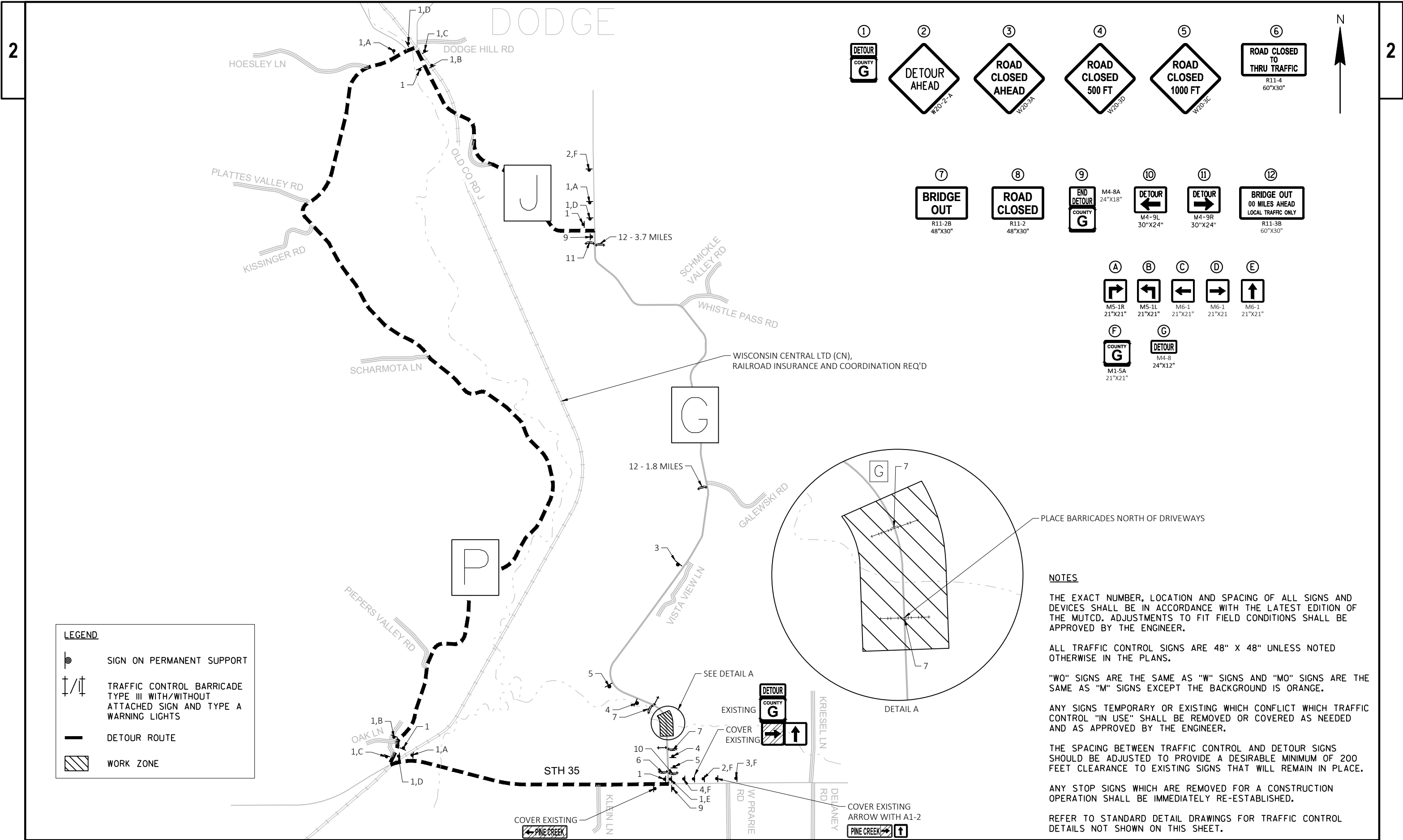
E



\*SALVAGED TOPSOIL SPREAD TO A MINIMUM DEPTH OF 4 INCHES.

\*\*ASPHALTIC SURFACE CONSISTS OF A 1 3/4-INCH UPPER LAYER WITH A NOMINAL AGGREGATE SIZE OF 12.5 MM OVER A 2 1/4-INCH LOWER LAYER WITH A NOMINAL AGGREGATE SIZE OF 19.0 MM.





**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL BARRICADE TYPE III WITH/WITHOUT ATTACHED SIGN AND TYPE A WARNING LIGHTS
- DETOUR ROUTE
- WORK ZONE

① ② ③ ④ ⑤ ⑥

⑦ ⑧ ⑨ ⑩ ⑪ ⑫

A B C D E   
F G

**NOTES**

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. ADJUSTMENTS TO FIT FIELD CONDITIONS SHALL BE APPROVED BY THE ENGINEER.

ALL TRAFFIC CONTROL SIGNS ARE 48" X 48" UNLESS NOTED OTHERWISE IN THE PLANS.

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

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

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY STOP SIGNS WHICH ARE REMOVED FOR A CONSTRUCTION OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED.

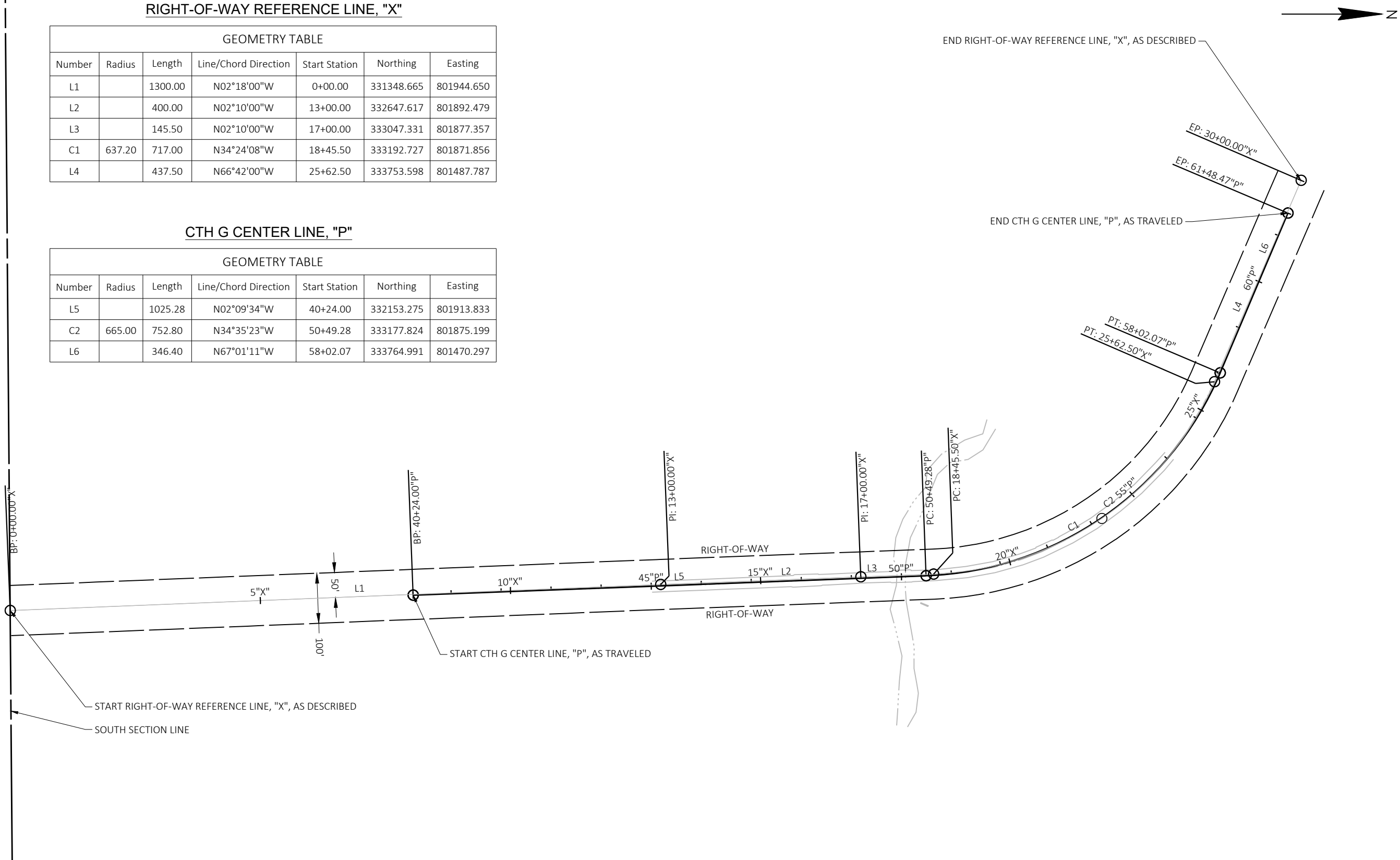
REFER TO STANDARD DETAIL DRAWINGS FOR TRAFFIC CONTROL DETAILS NOT SHOWN ON THIS SHEET.

RIGHT-OF-WAY REFERENCE LINE, "X"

GEOMETRY TABLE						
Number	Radius	Length	Line/Chord Direction	Start Station	Northing	Easting
L1		1300.00	N02°18'00"W	0+00.00	331348.665	801944.650
L2		400.00	N02°10'00"W	13+00.00	332647.617	801892.479
L3		145.50	N02°10'00"W	17+00.00	333047.331	801877.357
C1	637.20	717.00	N34°24'08"W	18+45.50	333192.727	801871.856
L4		437.50	N66°42'00"W	25+62.50	333753.598	801487.787

CTH G CENTER LINE, "P"

GEOMETRY TABLE						
Number	Radius	Length	Line/Chord Direction	Start Station	Northing	Easting
L5		1025.28	N02°09'34"W	40+24.00	332153.275	801913.833
C2	665.00	752.80	N34°35'23"W	50+49.28	333177.824	801875.199
L6		346.40	N67°01'11"W	58+02.07	333764.991	801470.297



Estimate Of Quantities

7157-00-70					
Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	1.000	1.000
0004	201.0205	Grubbing	STA	1.000	1.000
0006	203.0500.S	Removing Old Structure Over Waterway (station) 01. 50+00	LS	1.000	1.000
0008	205.0100	Excavation Common	CY	384.000	384.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-61-241	LS	1.000	1.000
0012	210.1500	Backfill Structure Type A	TON	550.000	550.000
0014	213.0100	Finishing Roadway (project) 01. 7157-00-70	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	108.000	108.000
0018	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	589.000	589.000
0020	455.0605	Tack Coat	GAL	22.000	22.000
0022	465.0105	Asphaltic Surface	TON	70.000	70.000
0024	502.0100	Concrete Masonry Bridges	CY	256.000	256.000
0026	502.3200	Protective Surface Treatment	SY	261.000	261.000
0028	505.0400	Bar Steel Reinforcement HS Structures	LB	5,120.000	5,120.000
0030	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	26,049.000	26,049.000
0032	513.7051	Railing Steel Type W	LF	100.000	100.000
0034	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0036	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	974.000	974.000
0038	606.0300	Riprap Heavy	CY	204.000	204.000
0040	606.0600	Grouted Riprap Medium	CY	28.000	28.000
0042	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	194.000	194.000
0044	614.2300	MGS Guardrail 3	LF	50.000	50.000
0046	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0048	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0050	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7157-00-70	EACH	1.000	1.000
0052	619.1000	Mobilization	EACH	1.000	1.000
0054	624.0100	Water	MGAL	7.000	7.000
0056	625.0500	Salvaged Topsoil	SY	1,660.000	1,660.000
0058	628.1104	Erosion Bales	EACH	52.000	52.000
0060	628.1504	Silt Fence	LF	738.000	738.000
0062	628.1520	Silt Fence Maintenance	LF	738.000	738.000
0064	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0066	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0068	628.2008	Erosion Mat Urban Class I Type B	SY	1,660.000	1,660.000
0070	628.6005	Turbidity Barriers	SY	192.000	192.000
0072	628.7504	Temporary Ditch Checks	LF	16.000	16.000
0074	629.0210	Fertilizer Type B	CWT	0.830	0.830



Estimate Of Quantities

7157-00-70

Line	Item	Item Description	Unit	Total	Qty
0076	630.0175	Seeding Mixture No. 75	LB	10.000	10.000
0078	630.0200	Seeding Temporary	LB	39.000	39.000
0080	630.0400	Seeding Nurse Crop	LB	12.000	12.000
0082	630.0500	Seed Water	MGAL	33.000	33.000
0084	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0086	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0088	638.2602	Removing Signs Type II	EACH	6.000	6.000
0090	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0092	642.5001	Field Office Type B	EACH	1.000	1.000
0094	645.0111	Geotextile Type DF Schedule A	SY	88.000	88.000
0096	645.0120	Geotextile Type HR	SY	138.000	138.000
0098	646.1020	Marking Line Epoxy 4-Inch	LF	600.000	600.000
0100	650.4500	Construction Staking Subgrade	LF	375.000	375.000
0102	650.5000	Construction Staking Base	LF	375.000	375.000
0104	650.6500	Construction Staking Structure Layout (structure) 01. B-61-241	LS	1.000	1.000
0106	650.9910	Construction Staking Supplemental Control (project) 01. 7157-00-70	LS	1.000	1.000
0108	650.9920	Construction Staking Slope Stakes	LF	375.000	375.000
0110	690.0150	Sawing Asphalt	LF	44.000	44.000
0112	715.0502	Incentive Strength Concrete Structures	DOL	1,536.000	1,536.000
0114	SPV.0090	Special 01. Flashing Stainless Steel	LF	105.000	105.000
0116	SPV.0105	Special 01. Traffic Control (7157-00-70)	LS	1.000	1.000



CLEARING & GRUBBING

				201.0105	201.0205
				CLEARING	GRUBBING
CATEGORY	STATION	TO	STATION	STA	STA
0010	49+50	-	50+50	<u>1</u>	<u>1</u>
PROJECT TOTALS				1	1

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	SALVAGED/UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL (5)	MASS ORDINATE +/- (6)	WASTE (7)	208.0100 BORROW	COMMENT
			CUT (2)				FACTOR 1.30				
DIVISION 1	50+24.961/52+58.39 48+32.884/49+75	NORTH OF B-61-0241 SOUTH OF B-61-0241	234	0	234	166	216	18	18	0	
NORTH			150	0	150	80	104	46	46	0	
SOUTH											
DIVISION 1 SUBTOTAL			384	0	384	246	320	64	64	0	
GRAND TOTAL			384	0	384	246	320	64	64	0	
TOTAL COMMON EXC			384								

NOTES:

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (3) SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
- (5) EXPANDED FILL FACTOR = 1.30
- (6) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- (7) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.
- NO ROCK, MARSH, OR EBS IS ANTICIPATED.

BASE AGGREGATE DENSE

				305.0110	305.0120	624.0100
				BASE		
				AGGREGATE	BASE AGGREGATE	
				DENSE 3/4-INCH	DENSE 1 1/4-INCH	WATER
CATEGORY	STATION	TO	STATION	TON	TON	MGAL
0010	48+24	-	49+75	29	227	2.6
0010	50+25	-	52+58	79	362	4.4
PROJECT TOTALS				108	589	7.0

ASPHALT PAVING ITEMS

				455.0605	465.0105
				TACK COAT	ASPHALTIC
CATEGORY	STATION	TO	STATION	GAL	SURFACE TON
0010	49+25	-	49+75	11	35
0010	50+25	-	50+75	11	35
PROJECT TOTALS				22	70

GUARDRAIL ITEMS								
					614.2300	614.2500	614.2610	
					MGS GUARDRAIL	MGS THRIE	MGS GUARDRAIL	
					3	BEAM	TERMINAL EAT	
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	EACH	REMARKS
0010	48+63.02	-	49+68.04	RT	12.5	39.4	1	
0010	48+63.02	-	49+68.04	LT	12.5	39.4	1	
0010	50+31.96	-	51+35.12	RT	12.5	39.4	1	
0010	50+31.96	-	51+38.87	LT	12.5	39.4	1	
PROJECT TOTALS					50.0	157.6	4	

SILT FENCE SUMMARY							
					628.1504	628.1520	
					SILT FENCE	SILT FENCE	
CATEGORY	STATION	TO	STATION	LOCATION	LF	MAINTENANCE	
						LF	
0010	48+90	-	49+75	LT	89	89	
0010	48+89	-	49+78	RT	90	90	
0010	50+24	-	51+96	LT	166	166	
0010	50+25	-	52+55	RT	245	245	
0010				UNDISTRIBUTED	148	148	
PROJECT TOTALS					738	738	

EROSION MAT URBAN CLASS I TYPE B						
					628.2008	
					SY	
CATEGORY	STATION	TO	STATION	LOCATION		
0010	48+33	-	49+66	LT	226	
0010	48+35	-	49+66	RT	236	
0010	50+34	-	52+58	LT	448	
0010	50+34	-	52+50	RT	418	
0010				UNDISTRIBUTED	332	
PROJECT TOTALS					1,660	

TURBIDITY BARRIERS

		628.6005	
CATEGORY	LOCATION	SY	REMARKS
0010	NORTH ABUTMENT	101	LENGTH X WIDTH = 128.58' X 7'
0010	SOUTH ABUTMENT	91	LENGTH X WIDTH = 115.78' X 7'
PROJECT TOTALS		192	

RESTORATION

		625.0500	629.0210	630.0175	630.0200	630.0400	630.0500
		SALVAGED	FERTILIZER TYPE	SEEDING	SEEDING	SEEDING NURSE	SEED WATER
		TOPSOIL	B	MIXTURE NO. 75	TEMPORARY	CROP	MGAL
CATEGORY	STATION TO STATION	LOCATION	SY	CWT	LB	LB	LB
0010	48+33 - 49+66	LT	226	0.14	2	7	2
0010	48+35 - 49+66	RT	236	0.15	2	7	2
0010	50+34 - 52+58	LT	448	0.28	3	13	4
0010	50+34 - 52+50	RT	418	0.26	3	12	4
UNDISTRIBUTED			332	0.21	3	9	3
PROJECT TOTALS			1,660	0.83	10	39	12

SIGNING SUMMARY

		634.0612	637.2230	638.2602	638.3000		
		POSTS WOOD	FERTILIZER TYPE	SEEDING	SEEDING		
		4X6-INCH X 12-	B	MIXTURE NO. 75	TEMPORARY		
		FT	CWT	LB	LB		
CATEGORY	LOCATION	SIGN CODE	SIGN SIZE	EACH	SF	EACH	EACH
0010	10' SOUTH OF BRIDGE	-	-	-	-	1	1
0010	SW BRIDGE CORNER	W5-52L	12"X36"	1	3.00	1	1
0010	SE BRIDGE CORNER	W5-52R	12"X36"	1	3.00	1	1
0010	NW BRIDGE CORNER	W5-52R	12"X36"	1	3.00	1	1
0010	NE BRIDGE CORNER	W5-52L	12"X36"	1	3.00	1	1
0010	10' NORTH OF BRIDGE	-	-	-	-	1	1
PROJECT TOTALS				4	12.00	6	6

MARKING LINE EPOXY 4-INCH

		646.1020	
CATEGORY	STATION TO STATION	LOCATION	LF
0010	49+25 - 50+75	CENTERLINE	300
0010	49+25 - 50+75	EDGE LINE	300
PROJECT TOTALS			600

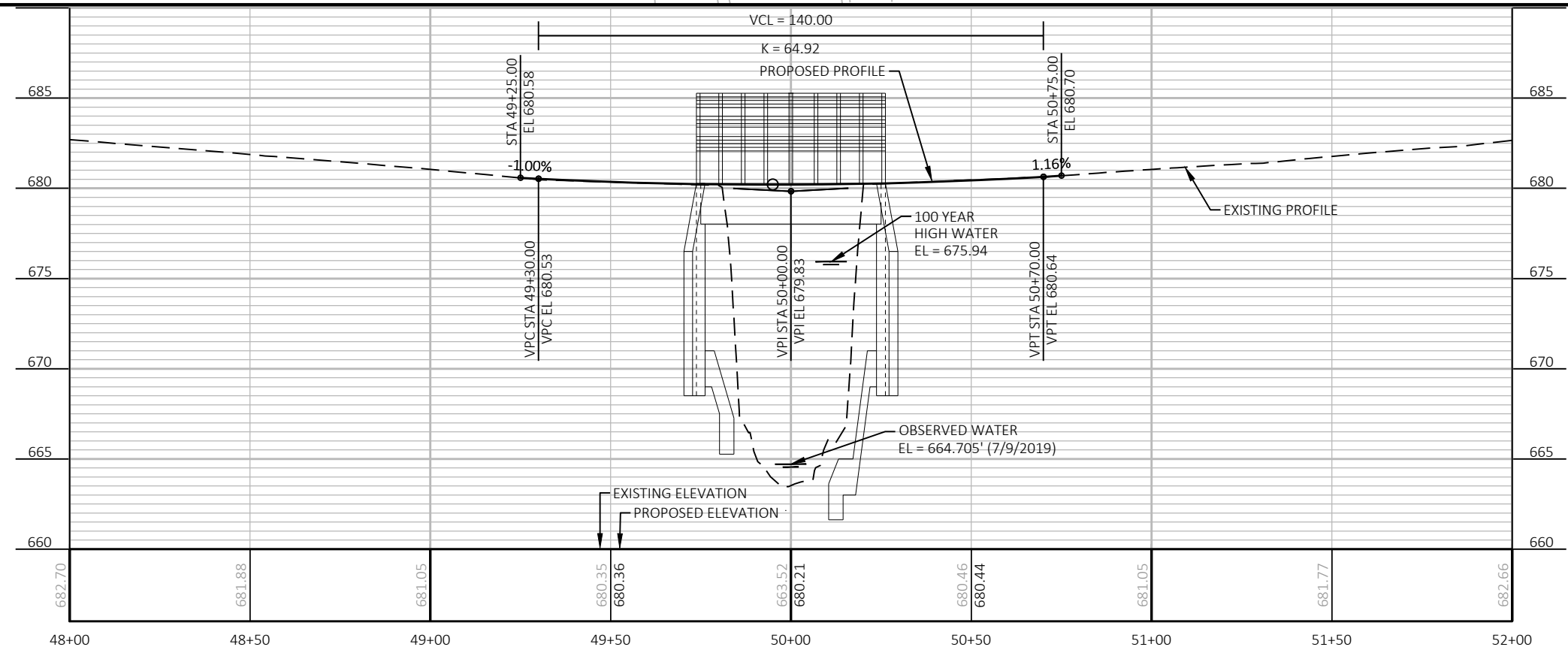
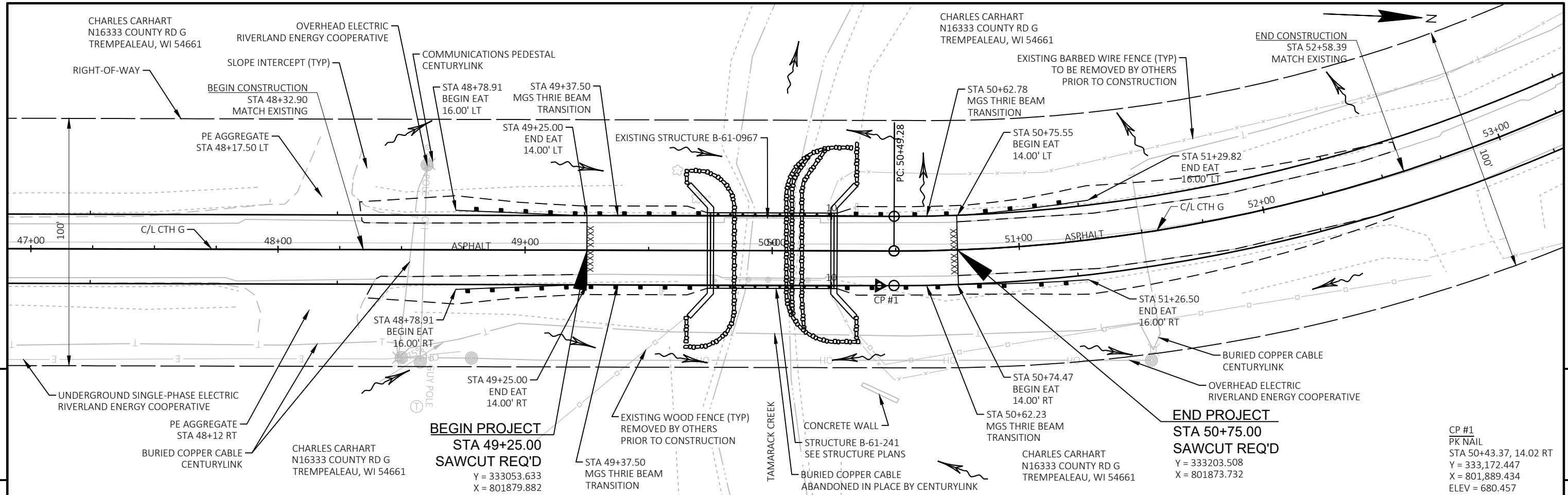
MOBILIZATION EROSION CONTROL				
CATEGORY	DESCRIPTION	628.1905	628.1910	REMARKS
		MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	
0010	PROJECT	3	3	
	PROJECT TOTALS	3	3	

EROSION BALES AND DITCH CHECKS				
CATEGORY	STATION	LOCATION	628.1104	628.7504
			EROSION BALES EACH	TEMPORARY DITCH CHECKS LF
0010	48+91	LT	-	8
0010	48+92	RT	-	8
0010	49+59	RT	13	-
0010	49+62	LT	13	-
0010	50+33	LT	13	-
0010	50+40	RT	13	-
0010	51+95	LT	-	8
0010	UNDISTRIBUTED		13	-
	PROJECT TOTALS		52	16

CONSTRUCTION STAKING							
CATEGORY	STATION	TO	STATION	650.4500	650.5000	650.9910.01	650.9920
				CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 7157-00-70) LS	CONSTRUCTION STAKING SLOPE STAKES LF
0010	48+33	-	49+25	92	92		92
0010	49+25	-	49+75	50	50		50
0010	50+25	-	50+75	50	50		50
0010	50+75	-	52+58	183	183		183
	PROJECT TOTALS			375	375	1	375

SAWING ASPHALT			
CATEGORY	STATION	690.0150	REMARKS
		LF	
0010	49+25	22	BEGIN PROJECT
0010	50+75	22	END PROJECT
	PROJECT TOTALS	44	

TRAFFIC CONTROL (FOR CONTRACTOR REFERENCE)										
CATEGORY	LOCATION	DAYS	TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL COVERING SIGNS TYPE II	SPV.0105.01 TRAFFIC CONTROL (7157- 00-70) LS
			EACH	DAY	EACH	DAY	EACH	DAY	EACH	
0010	SOUTH SIDE OF BRIDGE	70	9	630	14	980	6	420		
0010	INT CTH G & STH 36	70		0		0	15	1050	3	
0010	INT STH 35 & CTH P	70		0		0	14	980		
0010	INT CTH P & CTH J	70		0		0	14	980		
0010	INT CTH J & CTH G	70	2	140	4	280	13	910		
0010	INT CTH G & GALEWSKI RD	70	1	70	2	140	1	70		
0010	INT CTH G & VISTA VIEW LN	70		0			1	70		
0010	NORTH SIDE OF BRIDGE	70	7	490	10	700	4	280		
0010	PROJECT									1
	PROJECT TOTALS		19	1,330	30	2,100	68	4,760	3	1



STA 50+00.00

REMOVING EXISTING STRUCTURE OVER WATERWAY  
(B-61-697)  
EXISTING STRUCTURE TYPE IS A SINGLE-SPAN STEEL  
DECK GIRDER BRIDGE.

PROPOSED STRUCTURE B-61-241  
50.0' OVERALL LENGTH AND 28.5' CLEAR ROADWAY  
WIDTH SINGLE-SPAN REINFORCED CONCRETE FLAT  
SLAB BRIDGE

PROJECT NO: 7157-00-70

HWY: CTH G

COUNTY: TREMPEALEAU COUNTY

PLAN AND PROFILE: CTH G

SHEET

E

FILE NAME : W:\71570000\C3D\SHEETS\PLAN\050101-PP.DWG  
LAYOUT NAME - 10 01-pp

PLOT DATE : 10/23/2020 2:21 PM

PLOT BY : CORONA WOYCHIK

PLOT NAME :

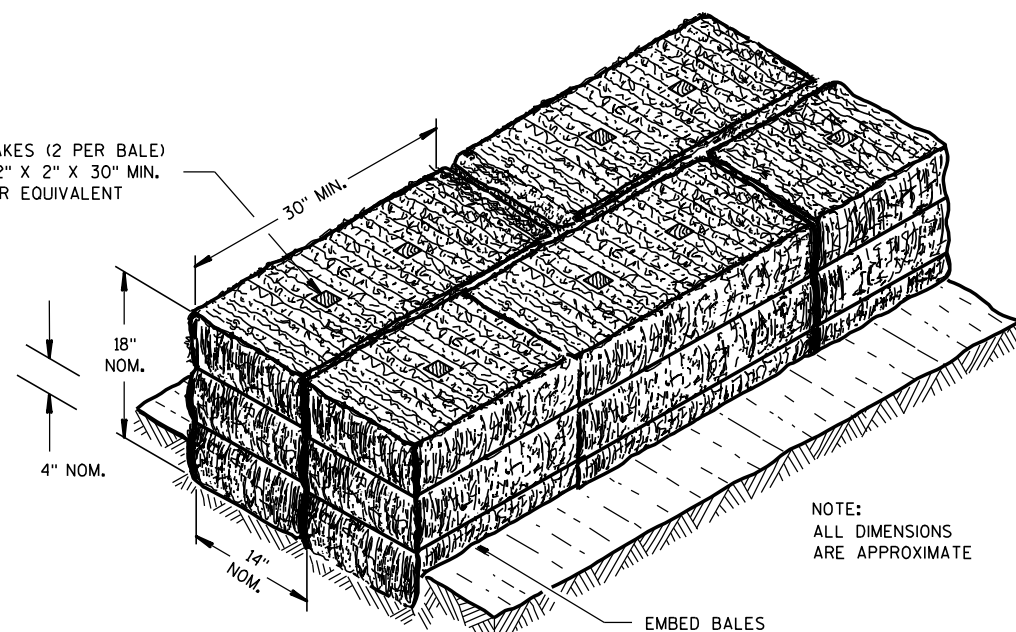
PLOT SCALE : 1 IN=40 FT

WISDOT/CADDs SHEET 44

Standard Detail Drawing List

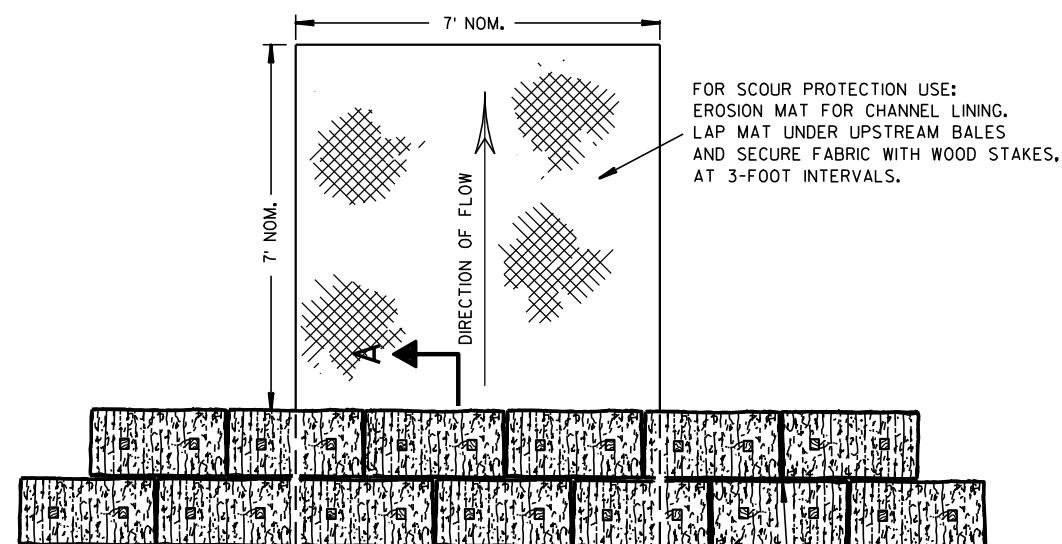
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	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)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



SECTION A-A

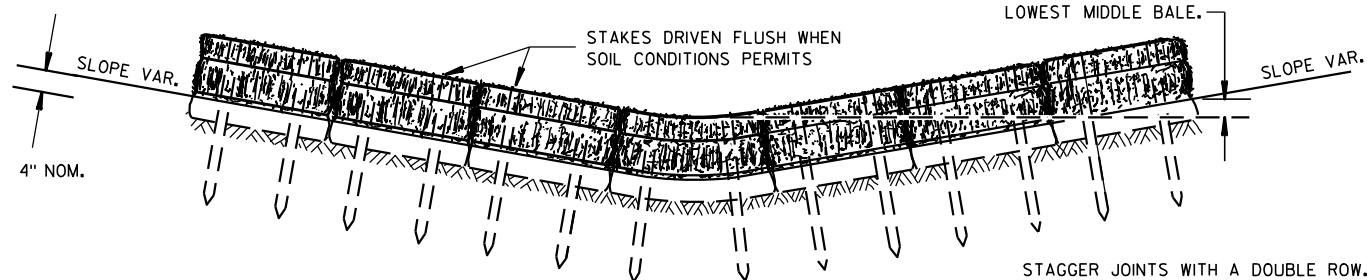
NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL  
BE EQUAL TO OR GREATER THAN TOP OF  
LOWEST MIDDLE BALE.



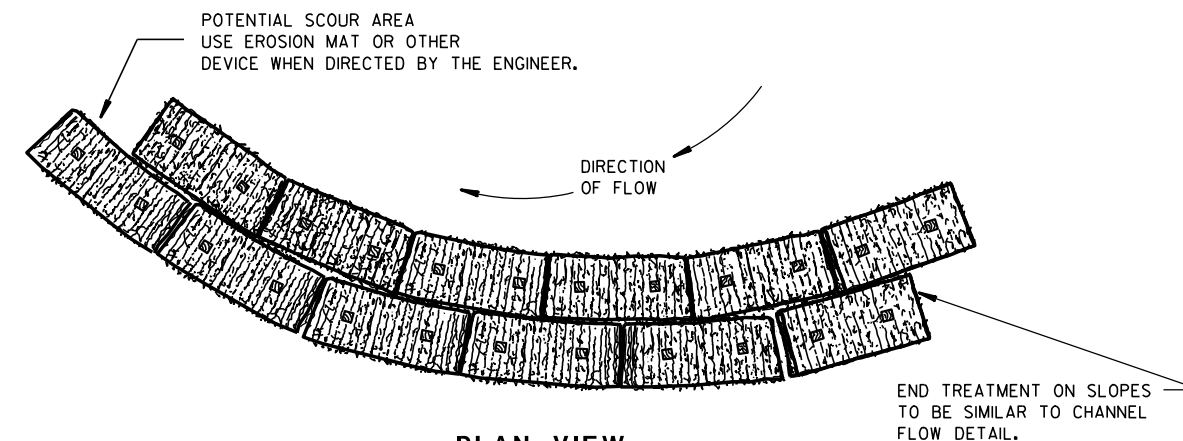
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

## GENERAL NOTES

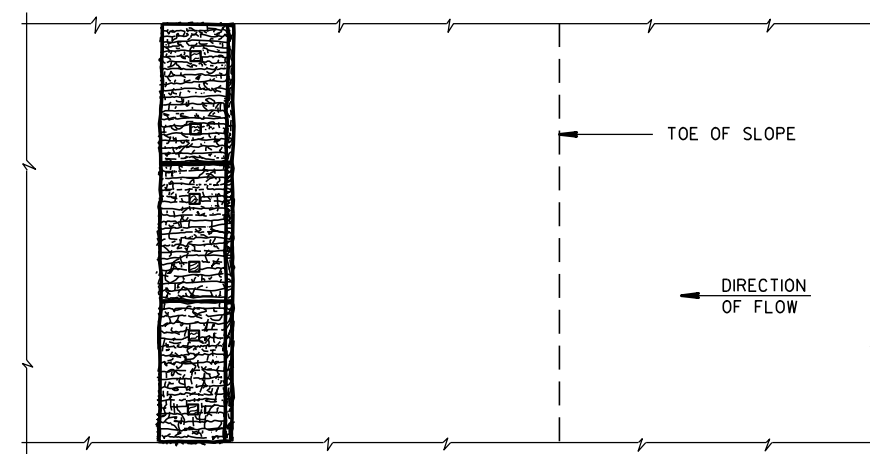
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

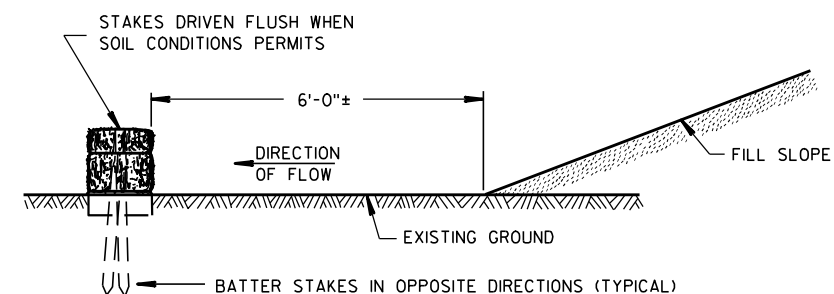


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02  
DATE

FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

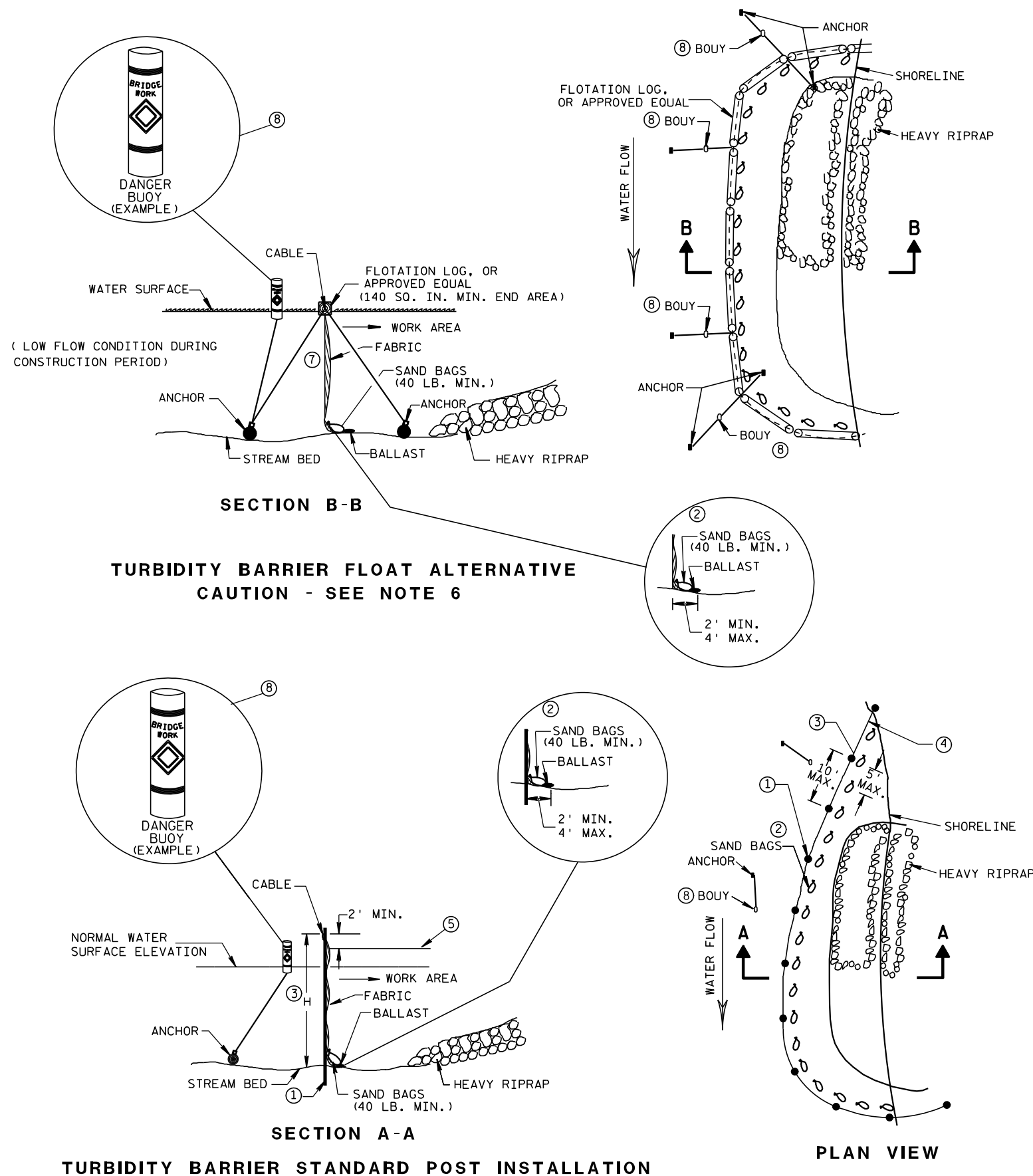




- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS 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.



<b>SILT FENCE</b>	
<b>STATE OF WISCONSIN</b>	
<b>DEPARTMENT OF TRANSPORTATION</b>	
<b>APPROVED</b>	
<u>4-29-05</u>	<u>/S/ Beth Cannestra</u>
<b>DATE</b>	<b>CHIEF ROADWAY DEVELOPMENT ENGINEER</b>
<b>FHWA</b>	

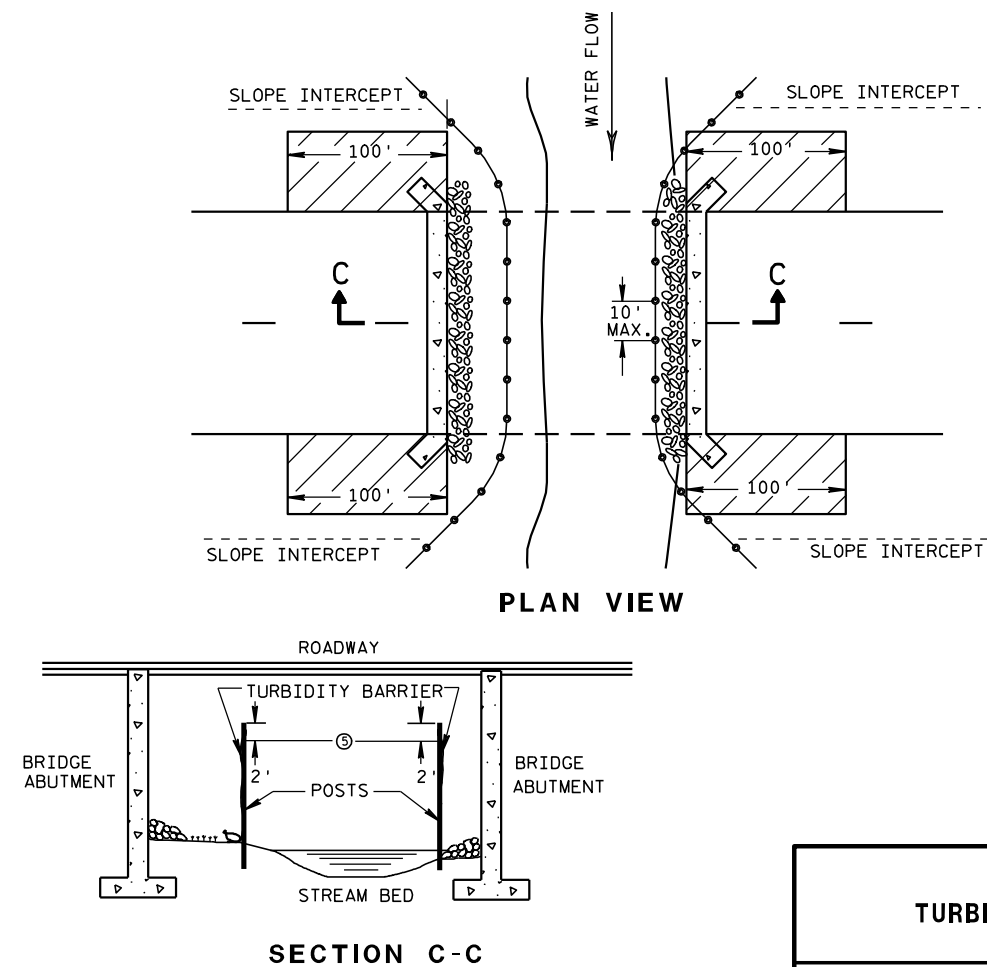


## GENERAL NOTES

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 SANDBAGS 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 FT., 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 02 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 BED ROCK 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.



## TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

### TURBIDITY BARRIER

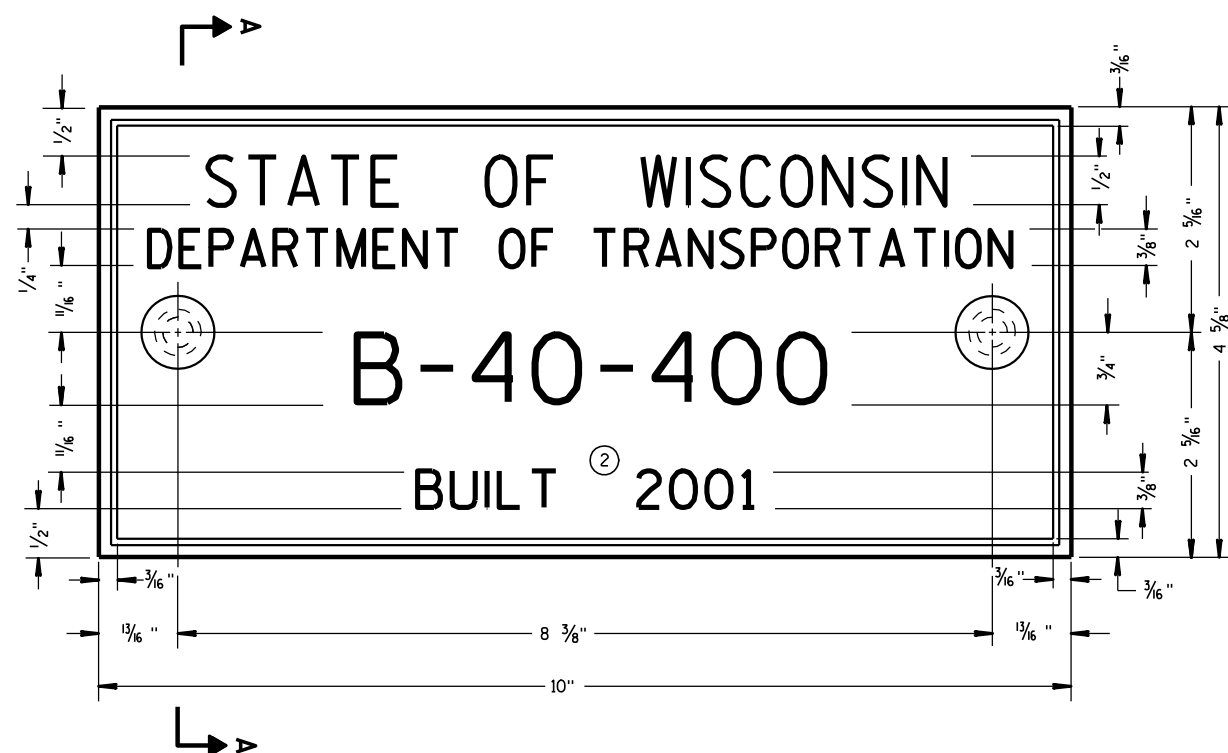
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02  
DATE

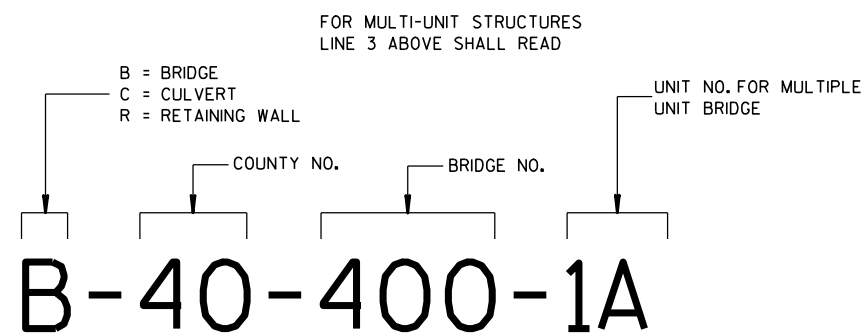
FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER



## TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



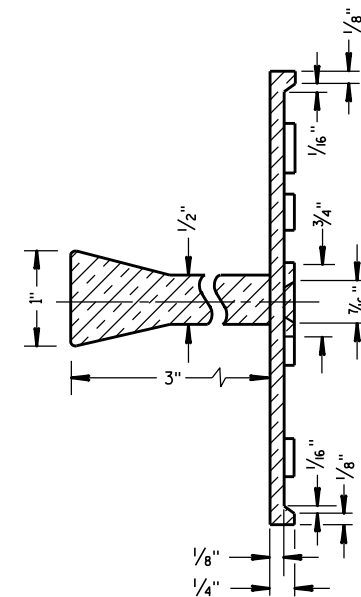
**NUMBERING DESIGNATION**  
**MULTI-UNIT STRUCTURES**

## GENERAL NOTES

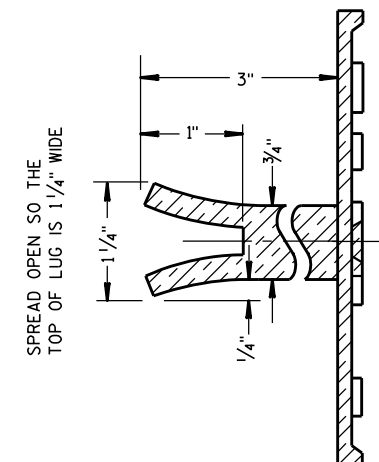
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

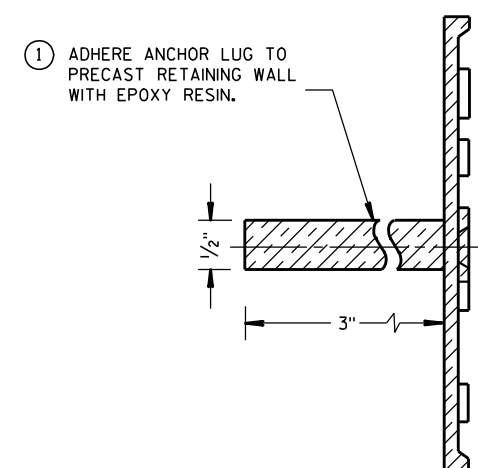
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



**SECTION A-A**



### ALTERNATE LUG



### ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE  
(STRUCTURES)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

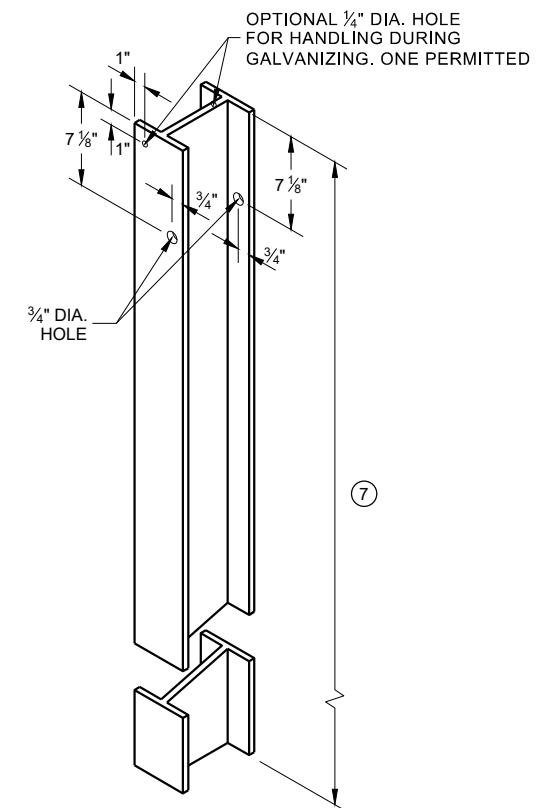
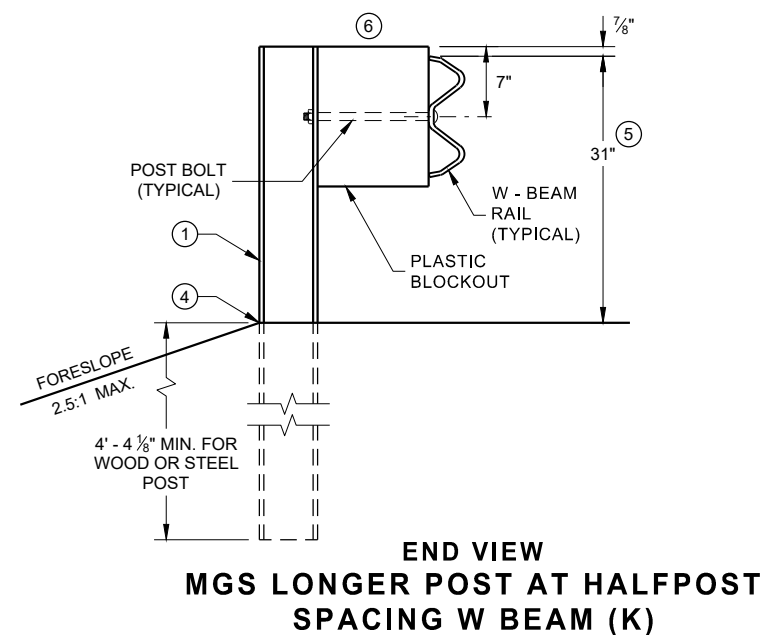
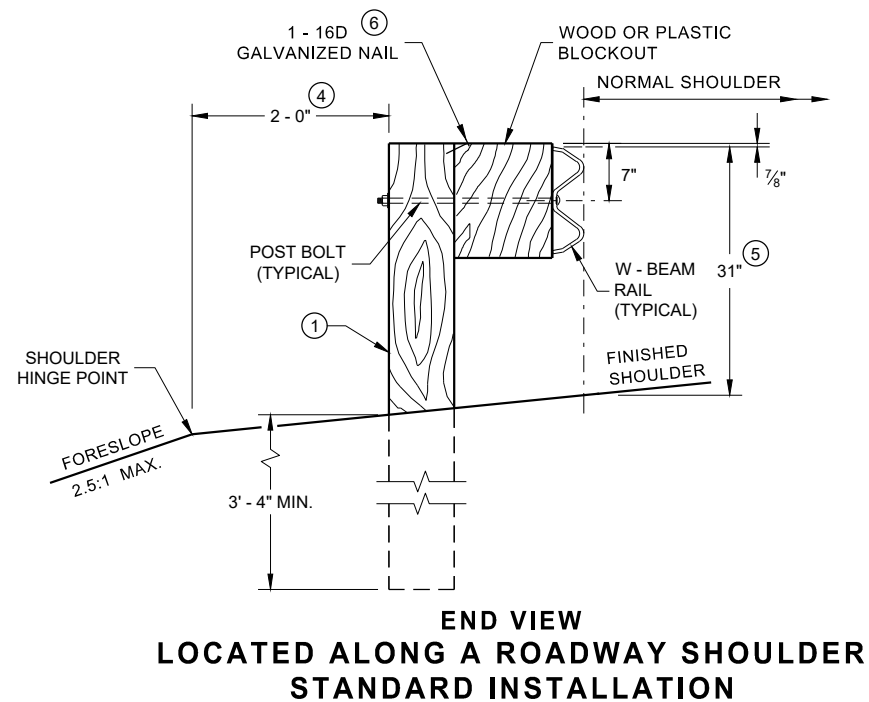
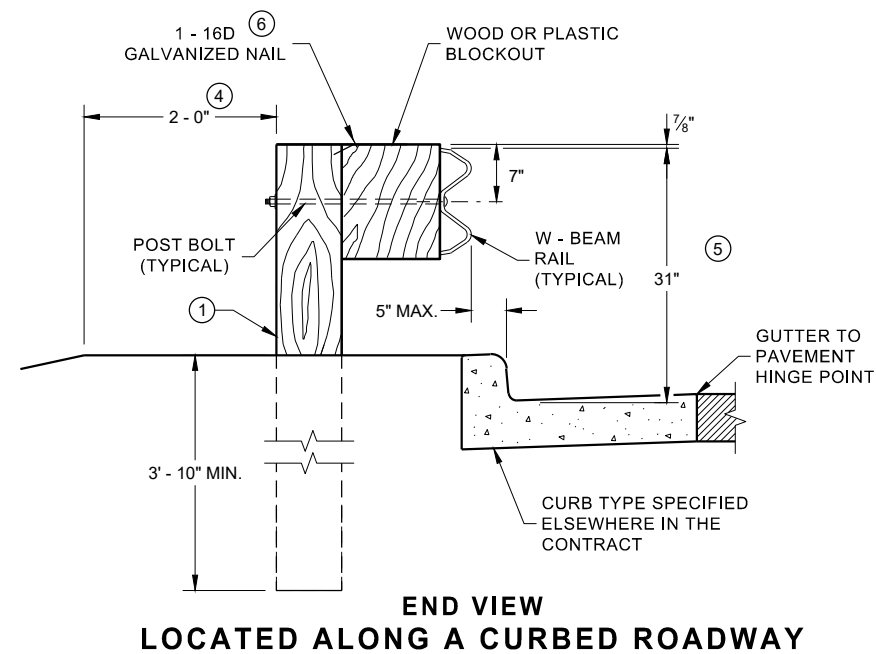
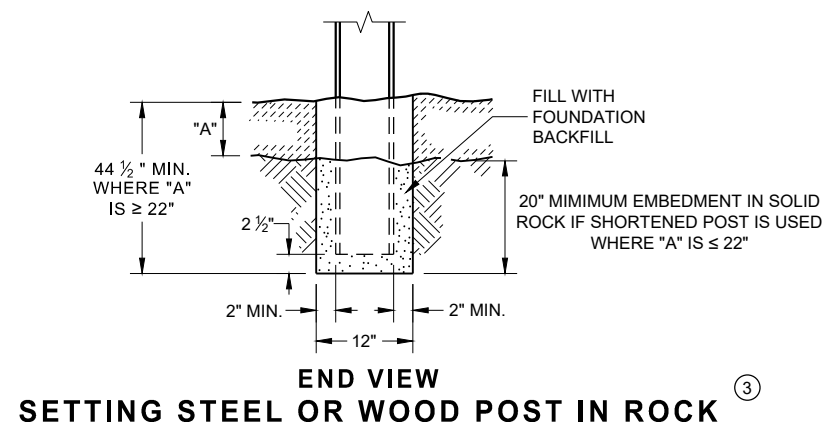
APPROVED

3/26/10  
DATE

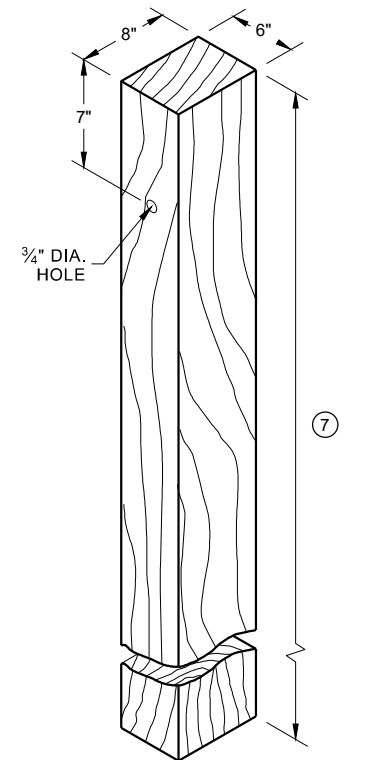
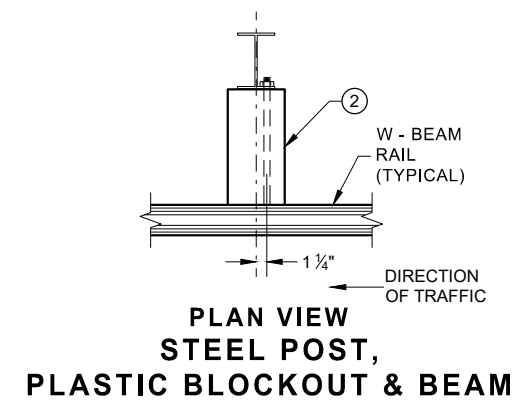
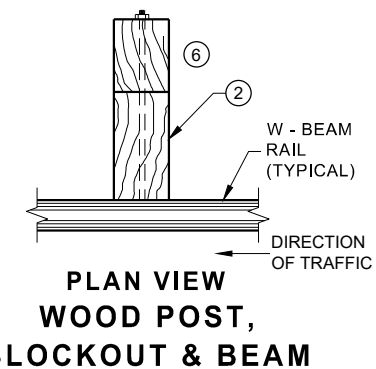
FHWA

/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

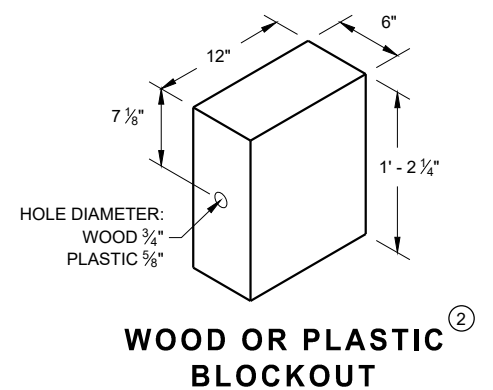
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".  
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

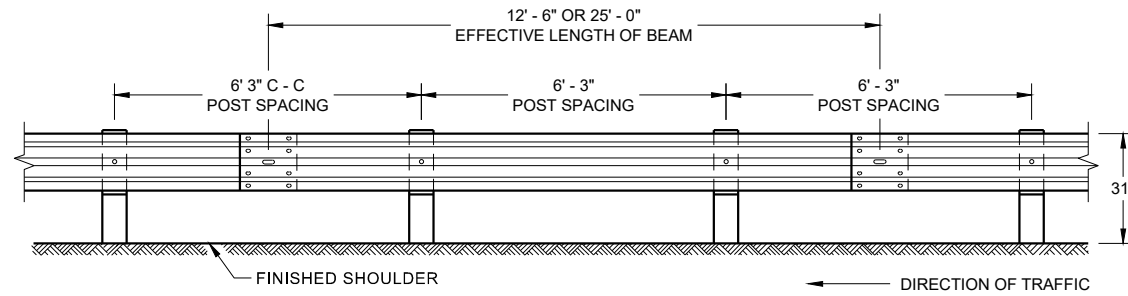


**STEEL POST & HOLE  
PUNCHING DETAIL  
(W 6 X 9) ①**

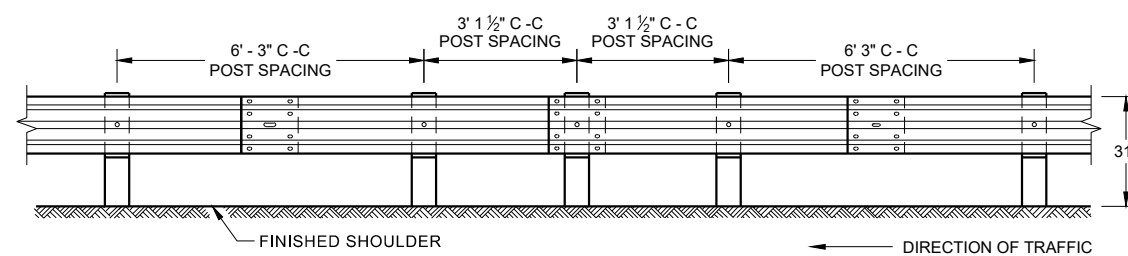


**WOOD POST (6" X 8") NOMINAL** <sup>(1)</sup>

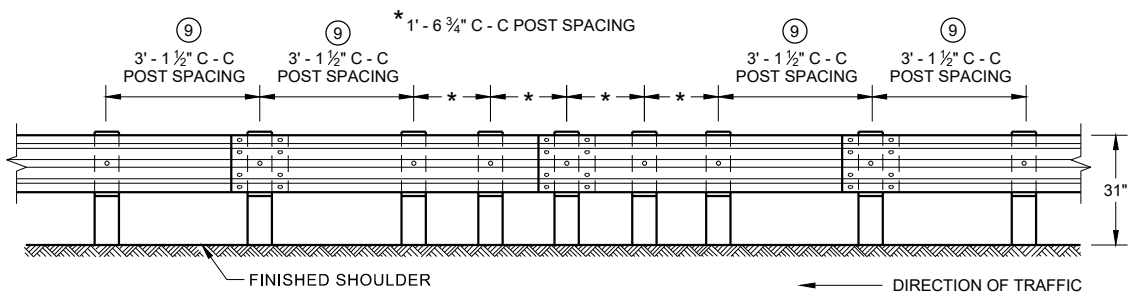




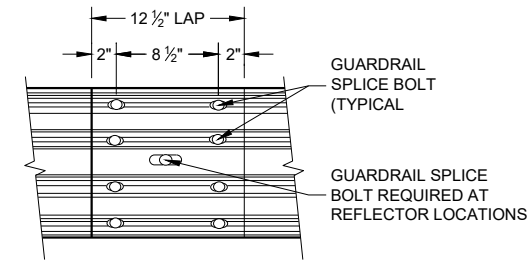
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



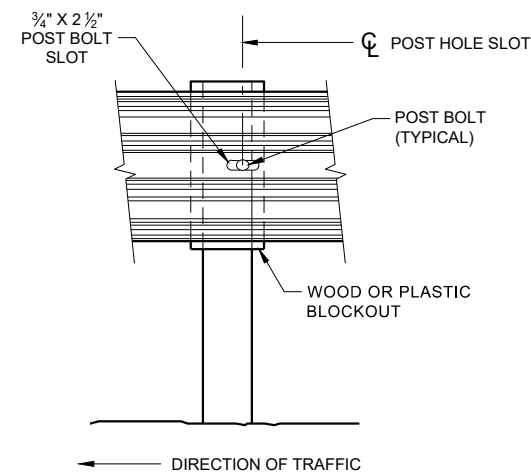
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



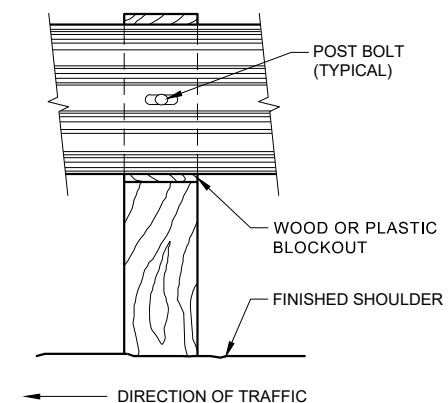
**FRONT VIEW  
QUARTER POST SPACING (QS)**



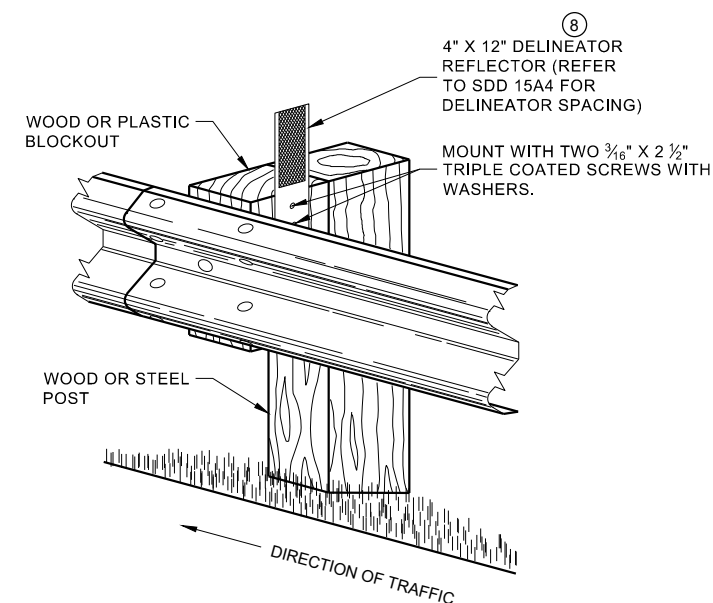
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



**FRONT VIEW AT STEEL POST**



**FRONT VIEW AT WOOD POST**



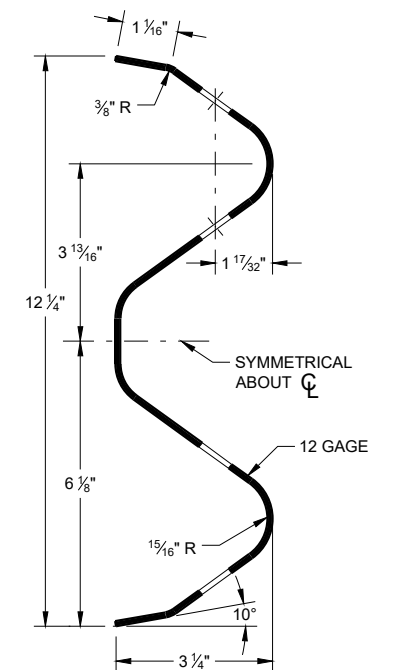
**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

## 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 3/8" 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.

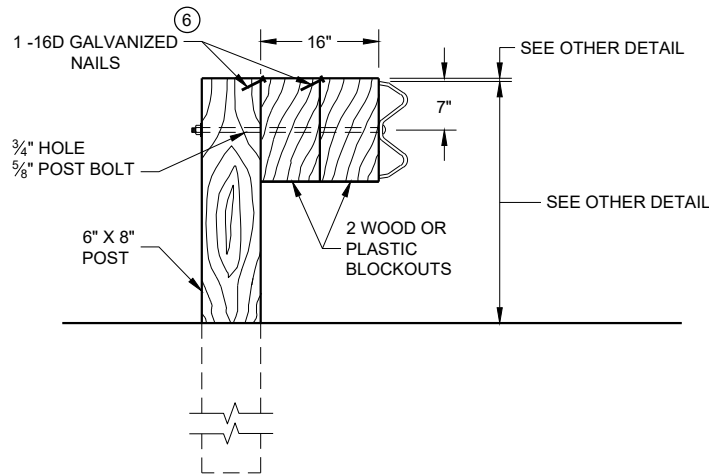
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



**SECTION THRU W-BEAM RAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

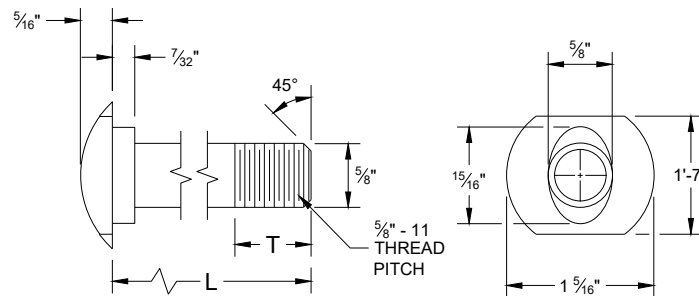
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

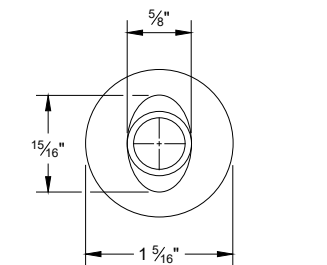
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

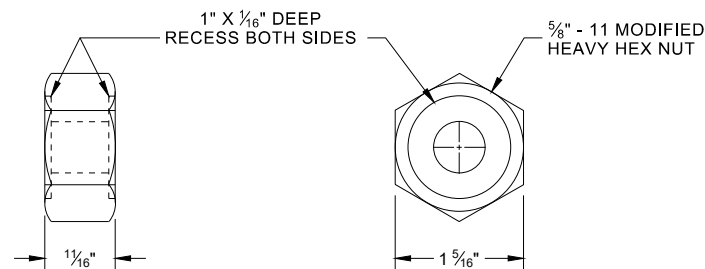


POST BOLT TABLE

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

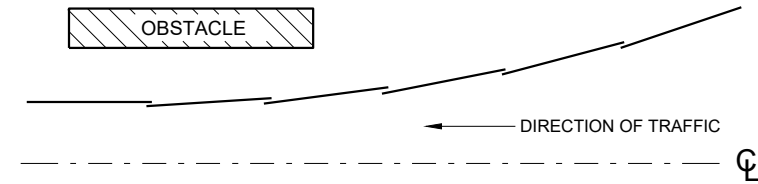


ALTERNATE BOLT HEAD

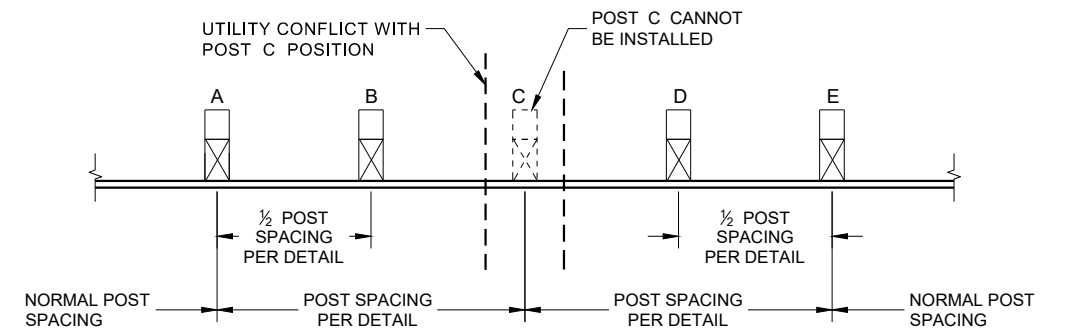


POST BOLT, SPLICE BOLT AND RECESS NUT

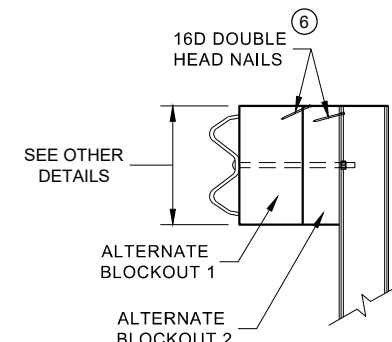
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



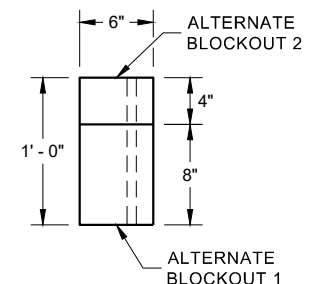
PLAN VIEW  
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION



SIDE VIEW



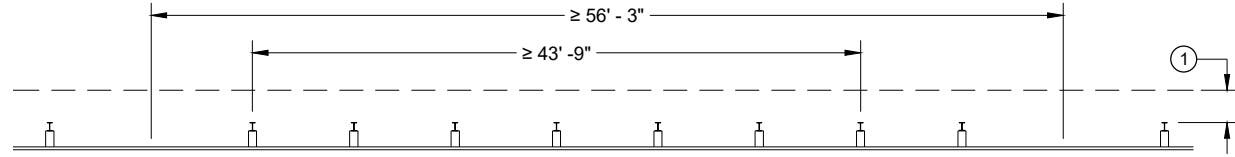
PLAN VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

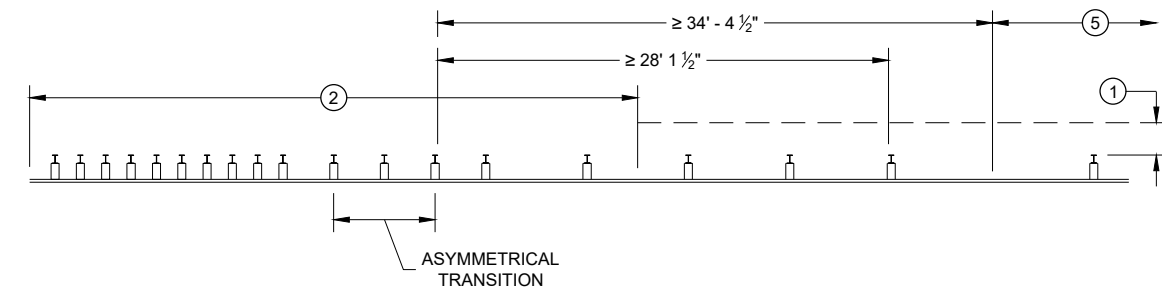
- NOTES:
- UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
- DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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

MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

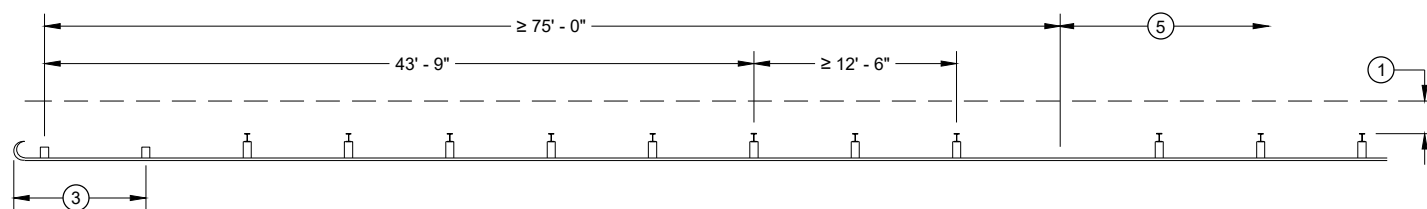
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



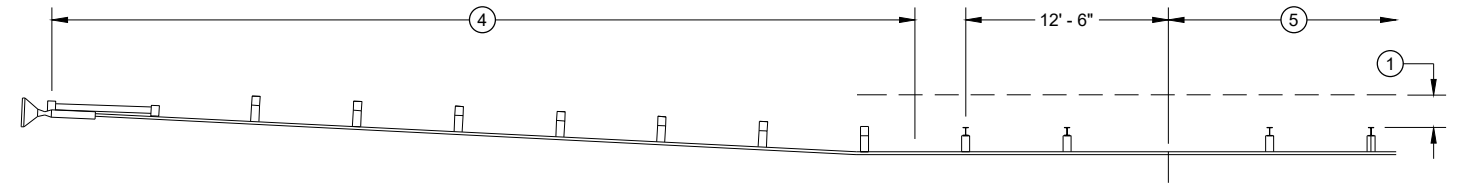
MISSING POST IN NORMAL BEAM GUARD RUN



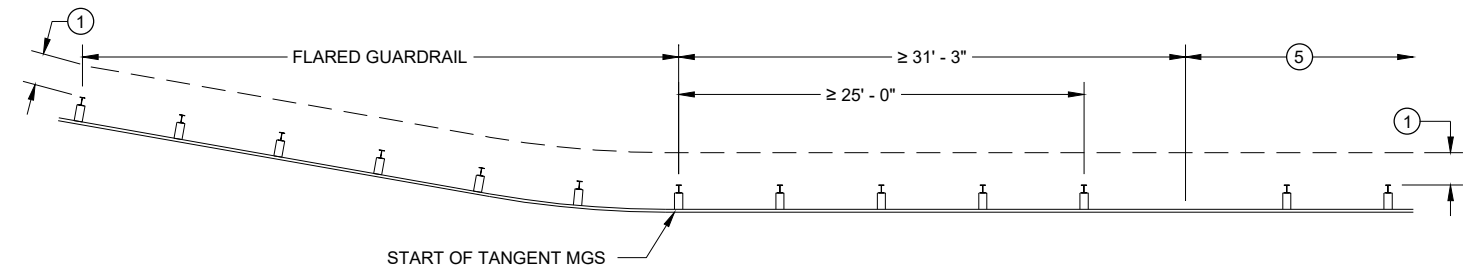
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



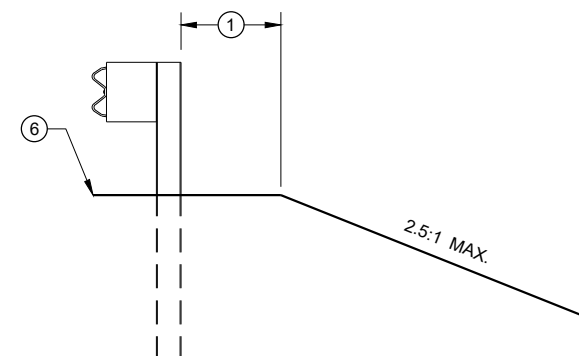
MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR TYPE 2 TERMINAL



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

- (1) MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- (2) SEE SDD 14B45 FOR MORE DETAILS.
- (3) SEE SDD 14B47 FOR MORE DETAILS.
- (4) SEE SDD 14B44 FOR MORE DETAILS.
- (5) SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- (6) SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



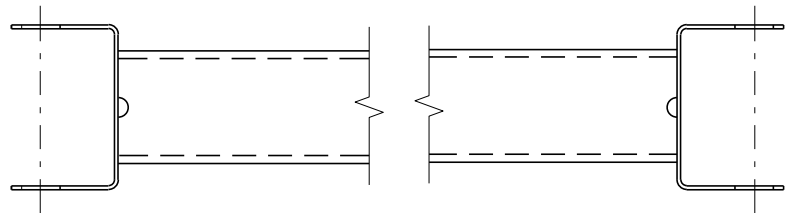
- A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

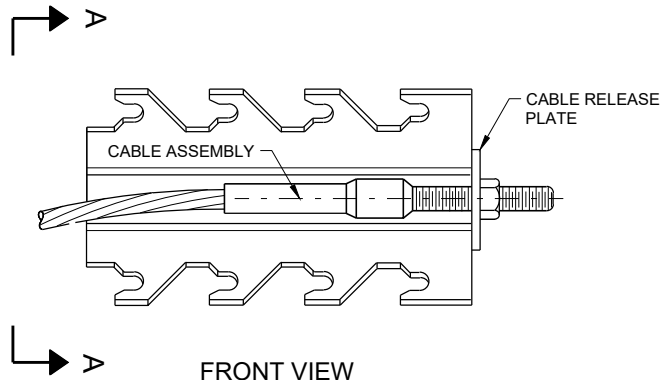


STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

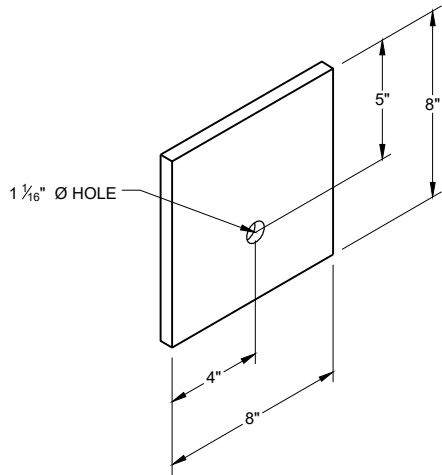
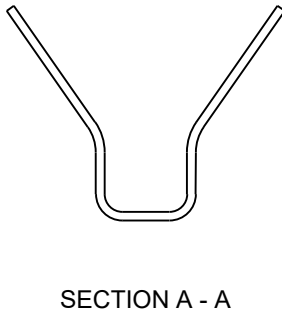


GENERIC GROUND STRUT<sup>⑨</sup> <sup>Ⓔ</sup>

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



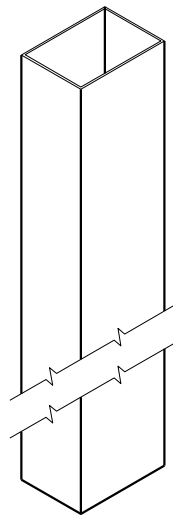
GENERIC ANCHOR CABLE BOX<sup>⑨</sup> <sup>Ⓔ</sup>



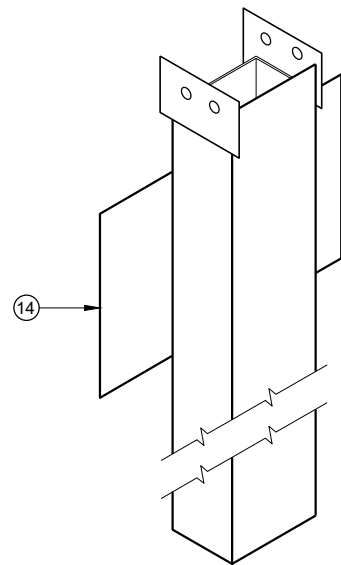
BEARING PLATE<sup>⑥</sup> <sup>Ⓔ</sup>

MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

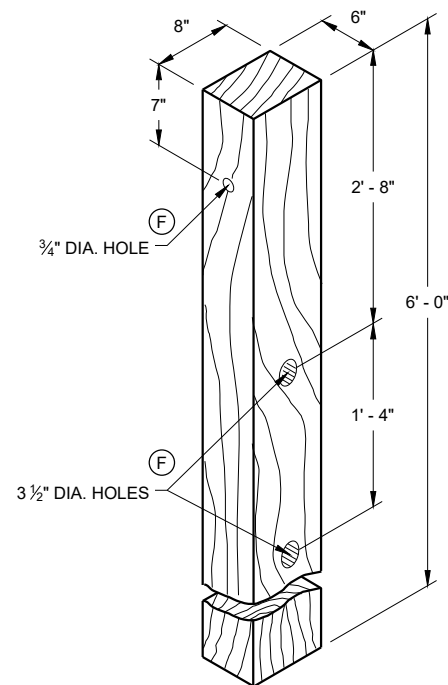
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



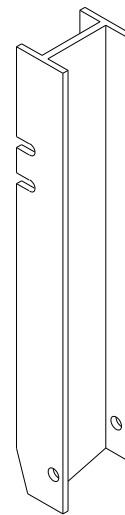
UPPER POST NO. 1 <sup>(1)</sup> (E)



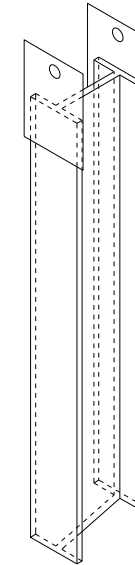
LOWER POST NO. 1 <sup>(2)</sup> (E)



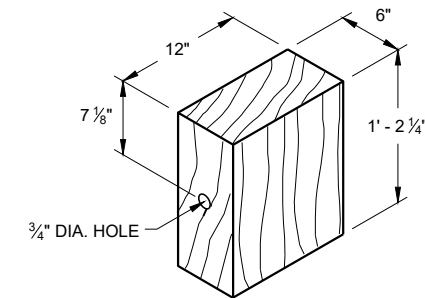
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



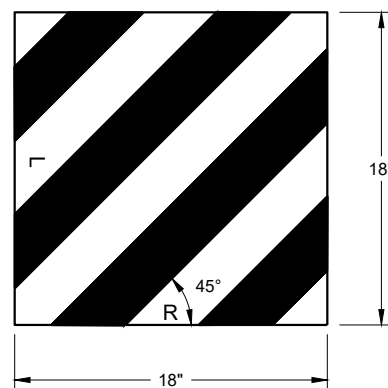
UPPER POST NO. 2 <sup>(15)</sup> (E)



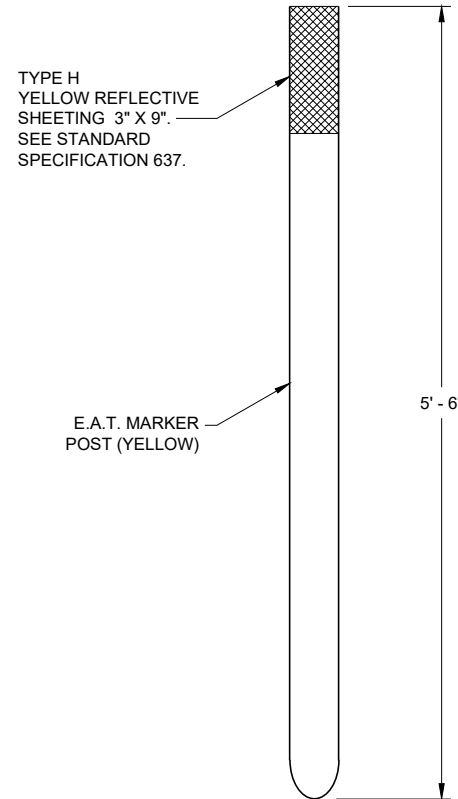
LOWER POST NO. 2 <sup>(16)</sup> (E)



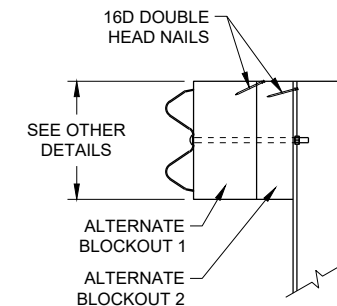
WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



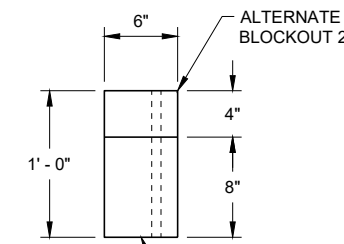
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>



E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



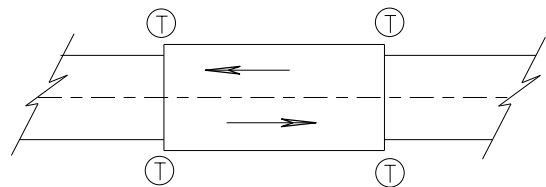
TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

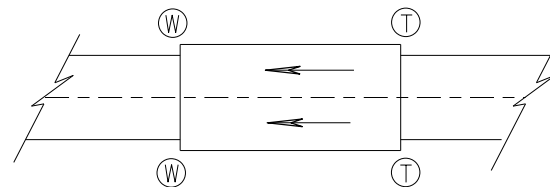
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

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**

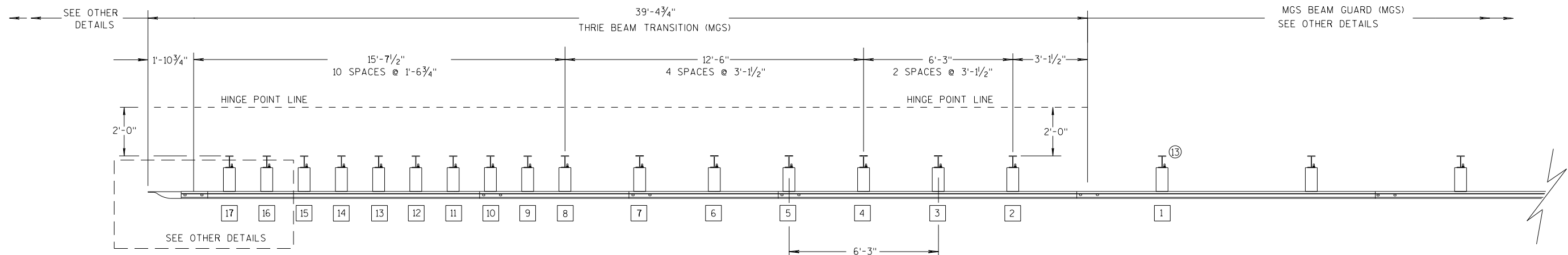
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

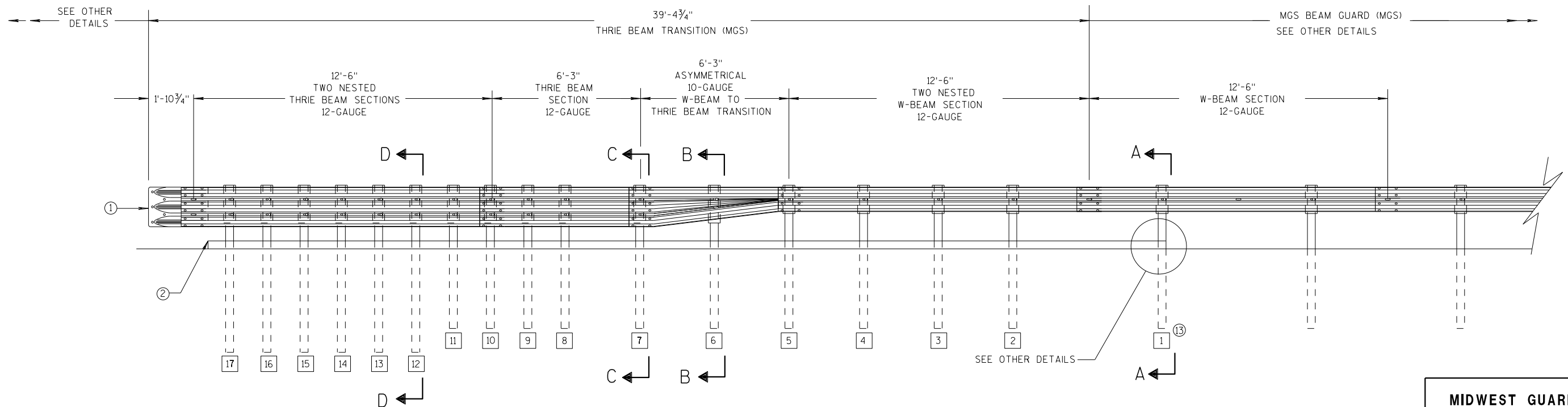
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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**

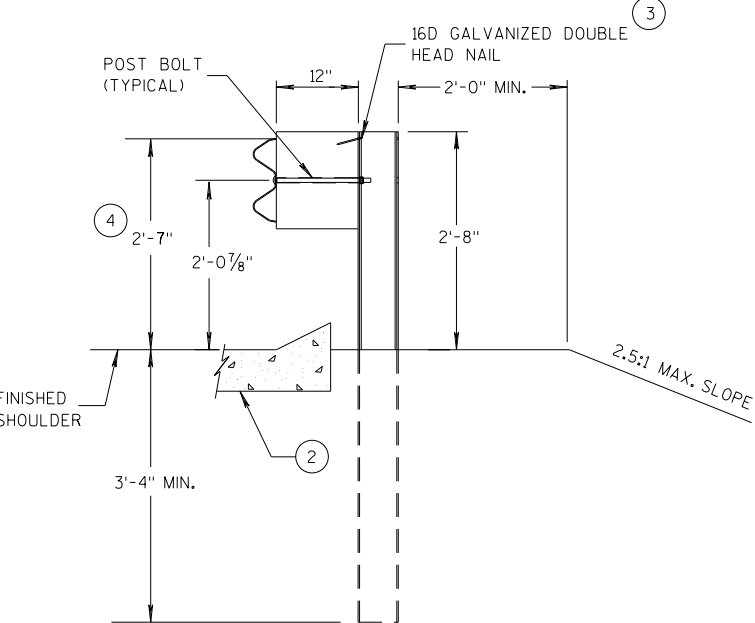
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

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

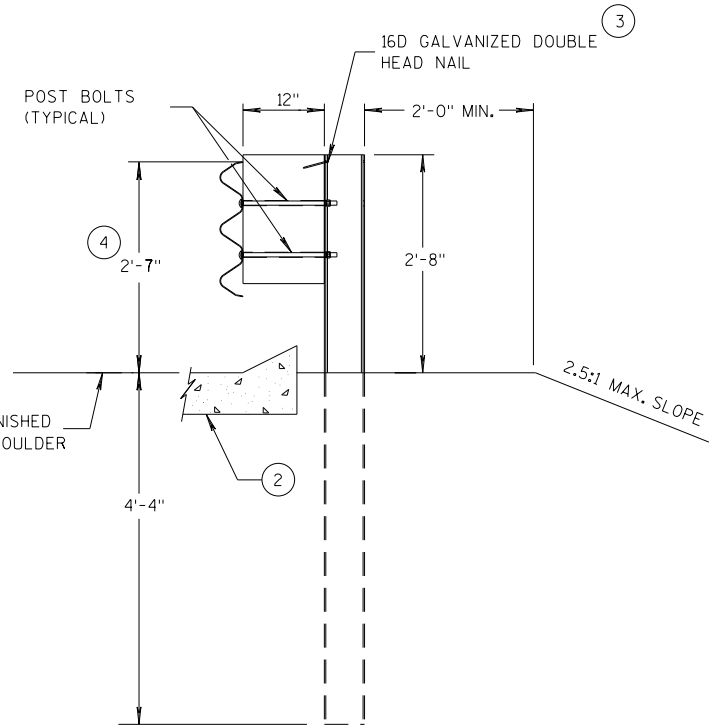
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

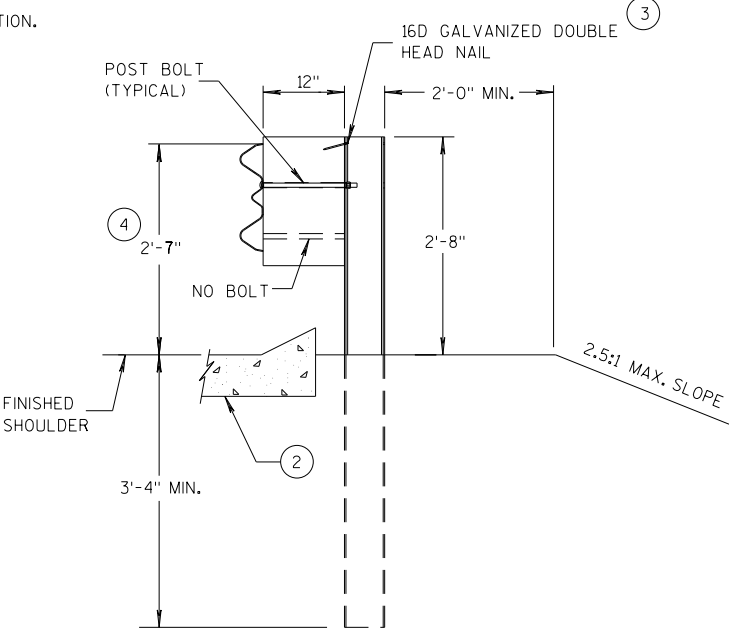
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm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



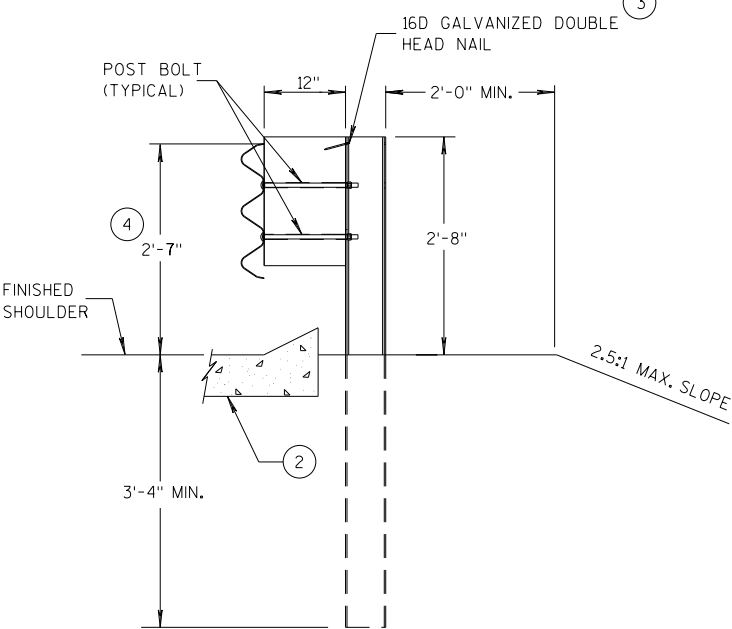
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

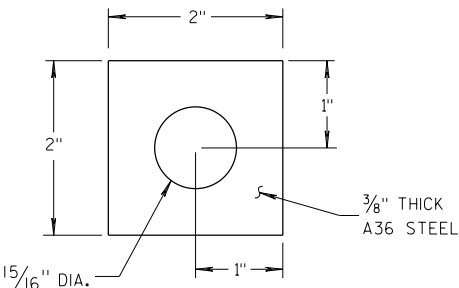
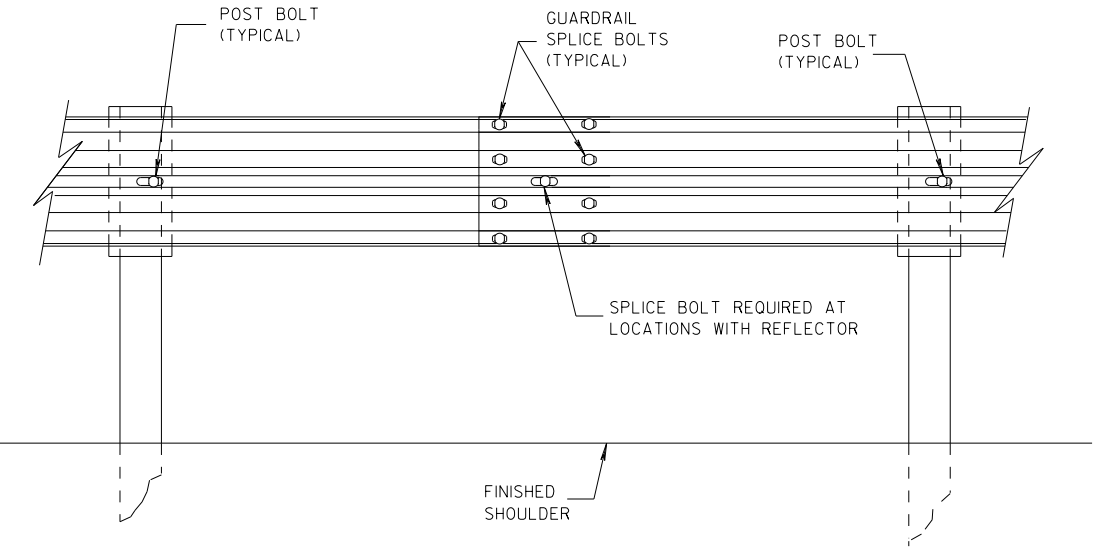
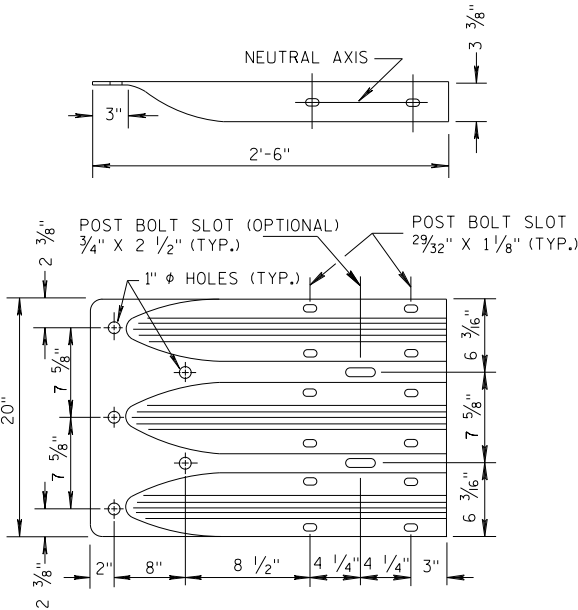


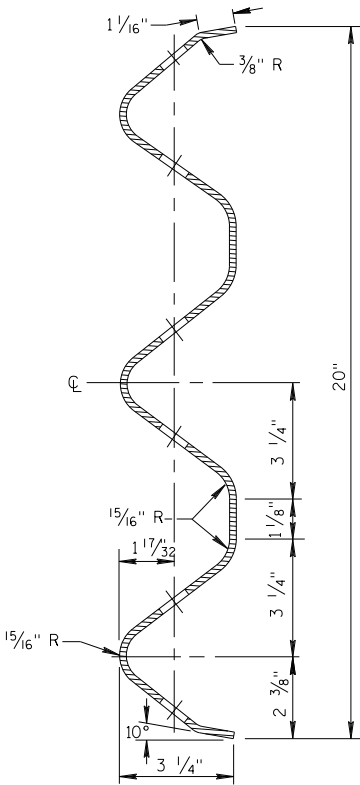
PLATE WASHER DETAIL



SPlice DETAIL



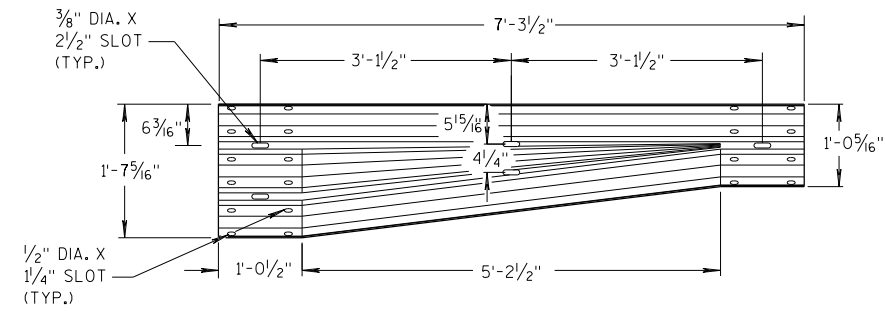
THRIE BEAM  
TERMINAL CONNECTOR



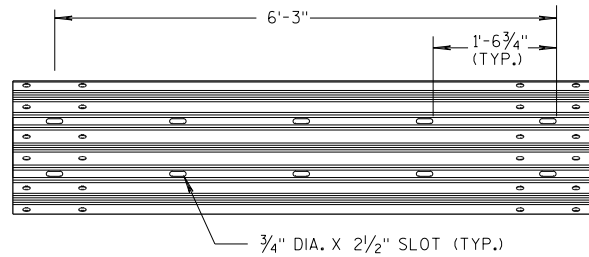
SECTION THRU THRIE  
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

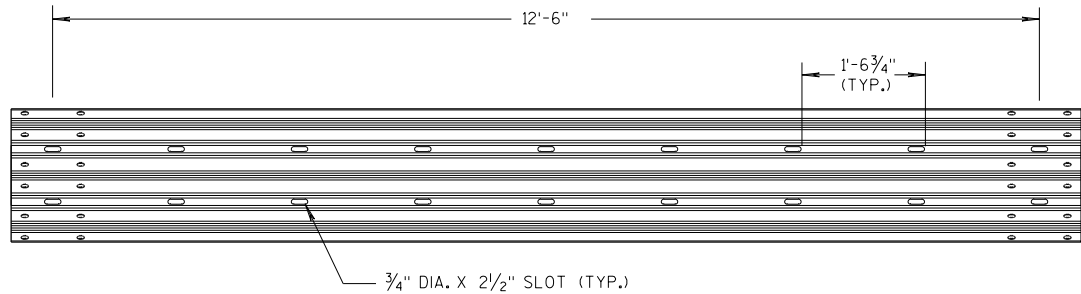
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



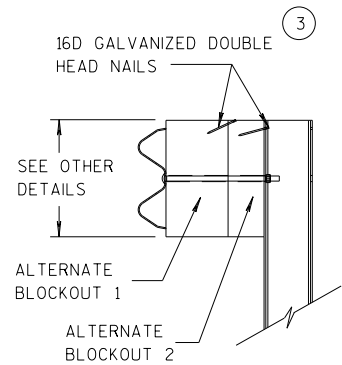
W-BEAM TO THRIE BEAM TRANSITION SECTION



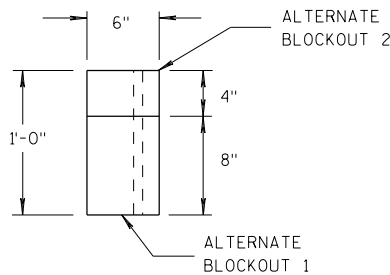
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

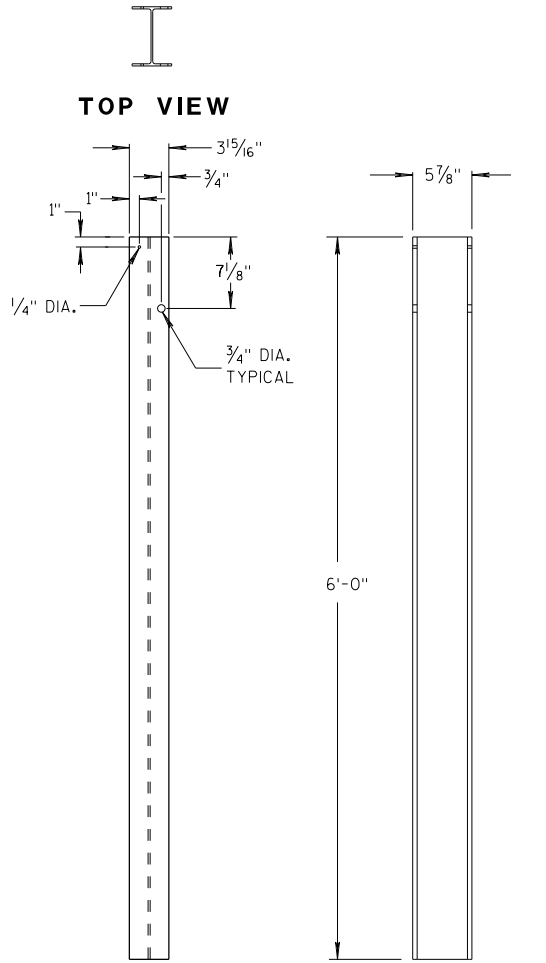


SIDE VIEW



TOP VIEW

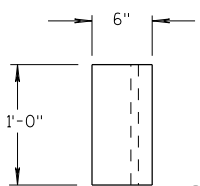
ALTERNATE WOOD BLOCKOUT DETAIL



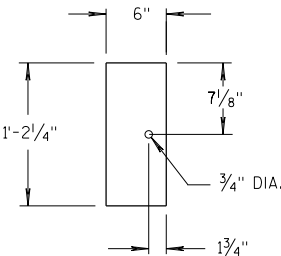
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

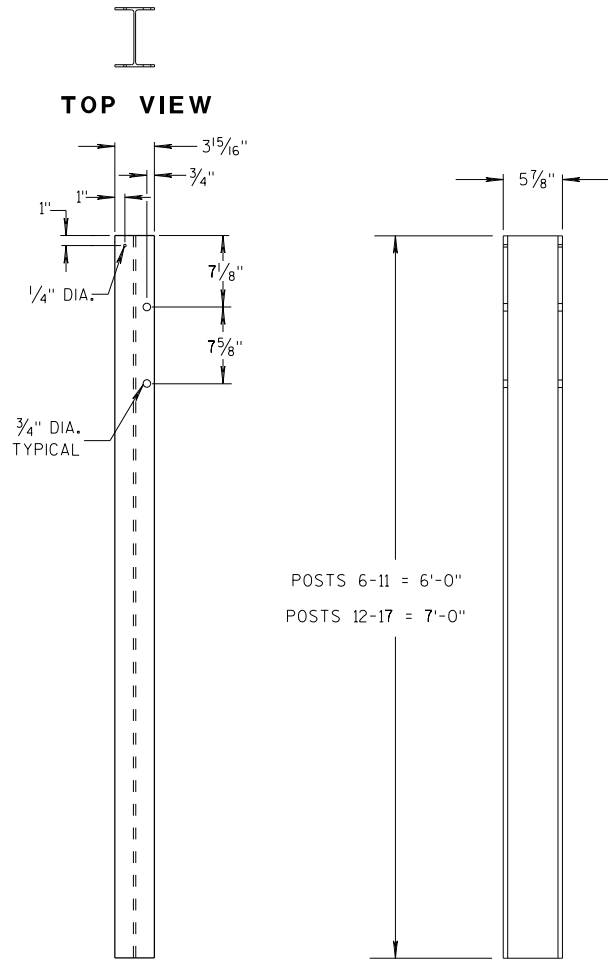


TOP VIEW



FRONT VIEW

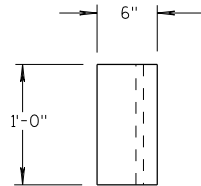
BLOCKOUT POSTS 1-5



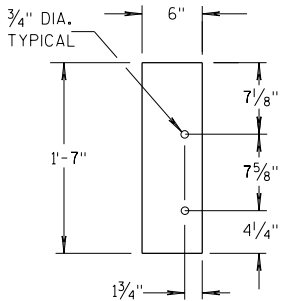
FRONT VIEW

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.

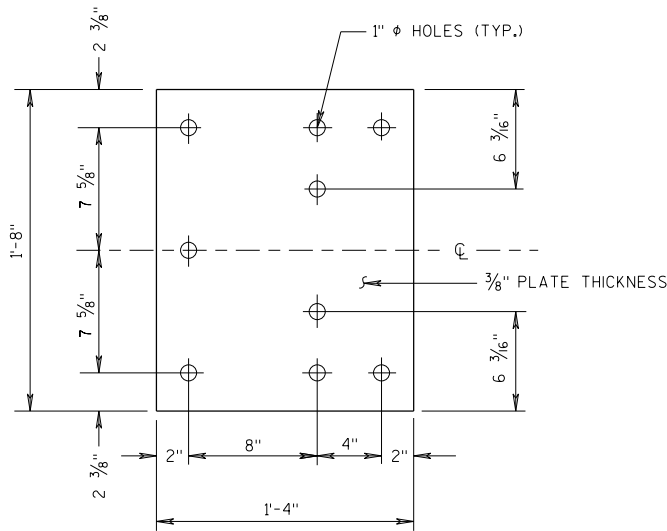
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

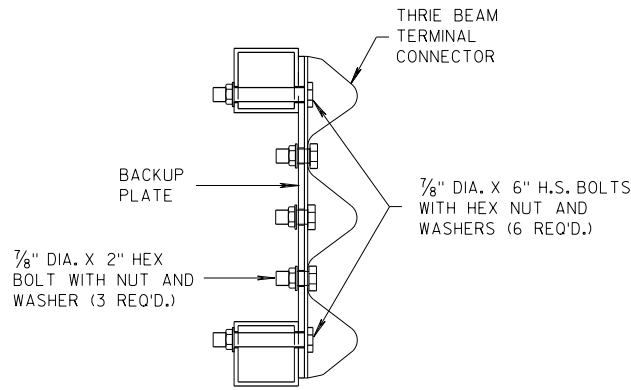
⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

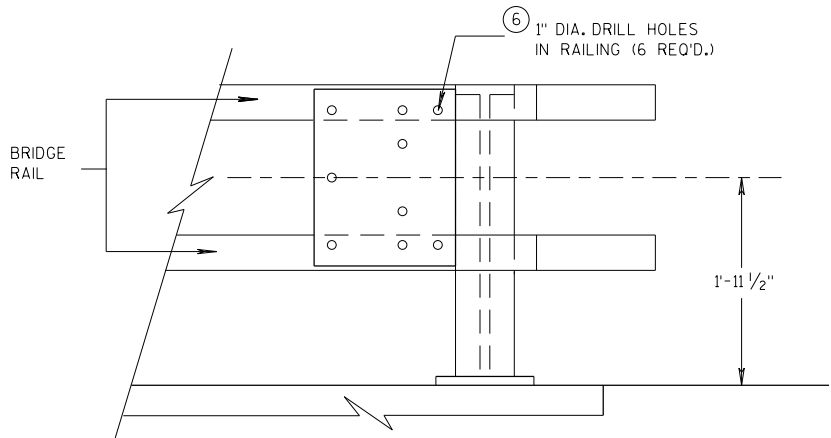
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



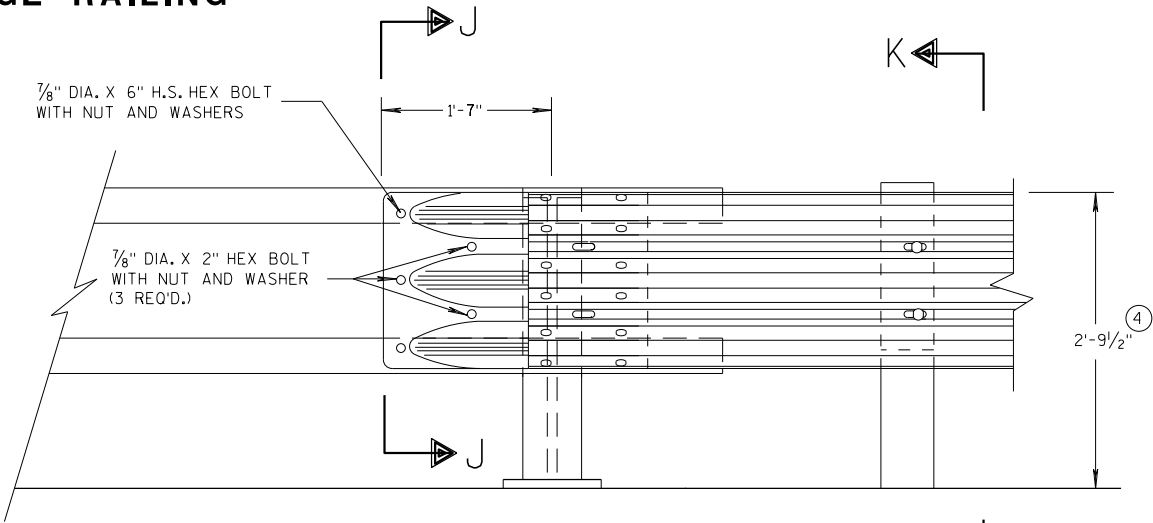
BACK-UP PLATE DETAIL



SECTION J-J

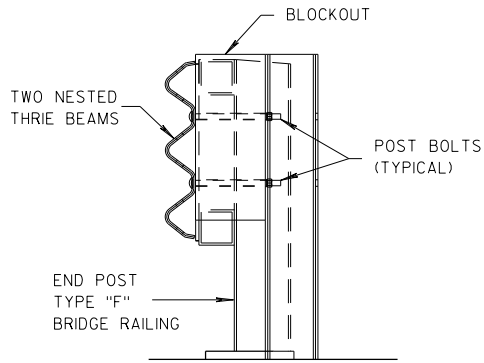


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

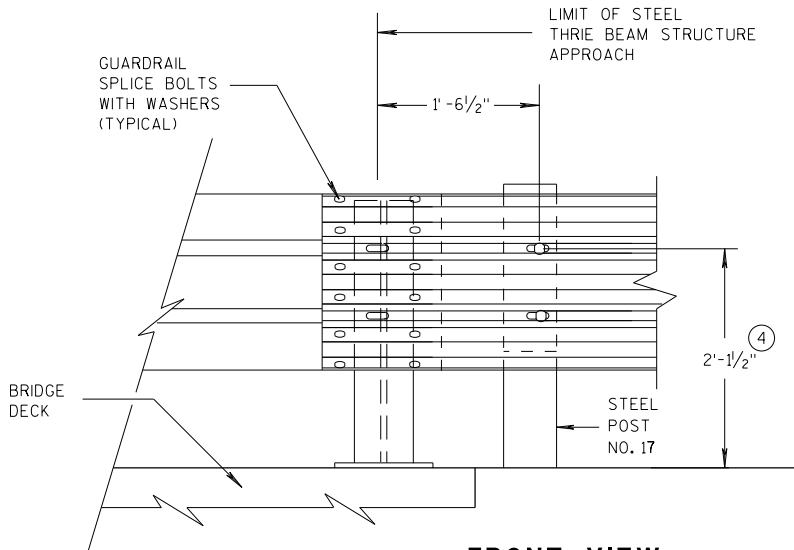
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

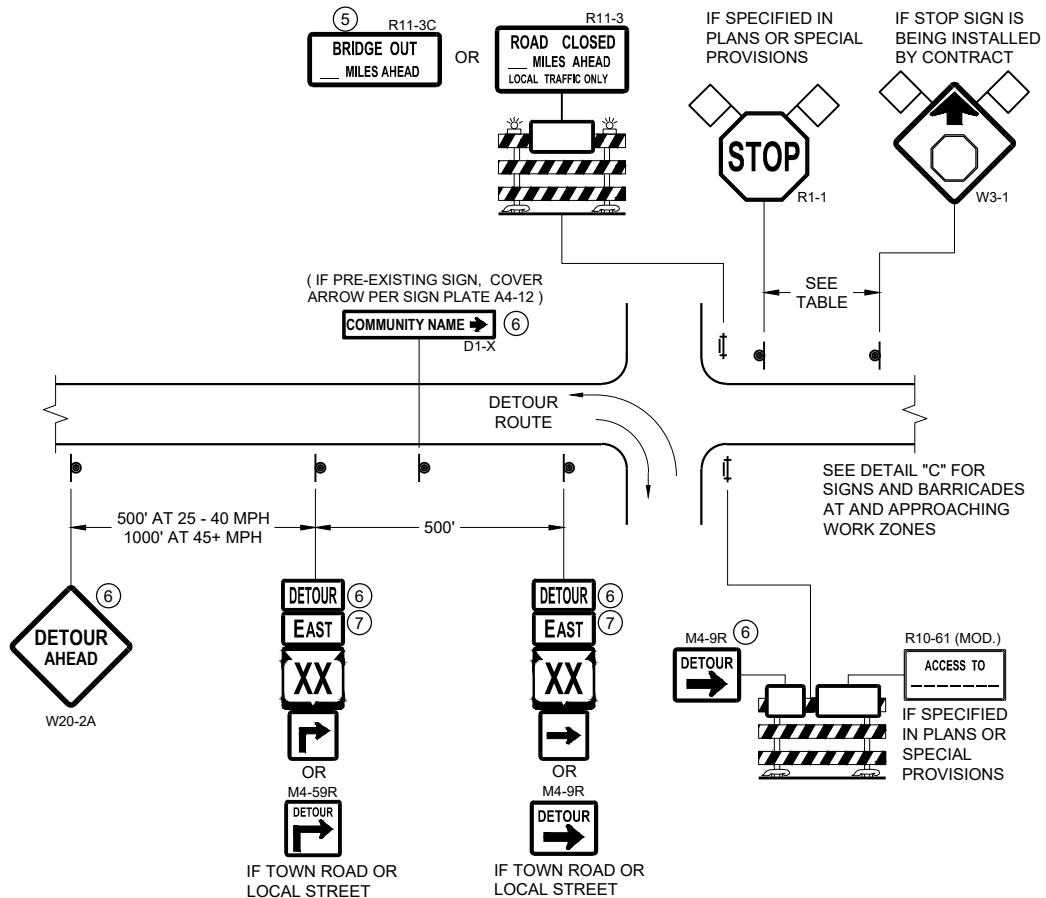


FRONT VIEW

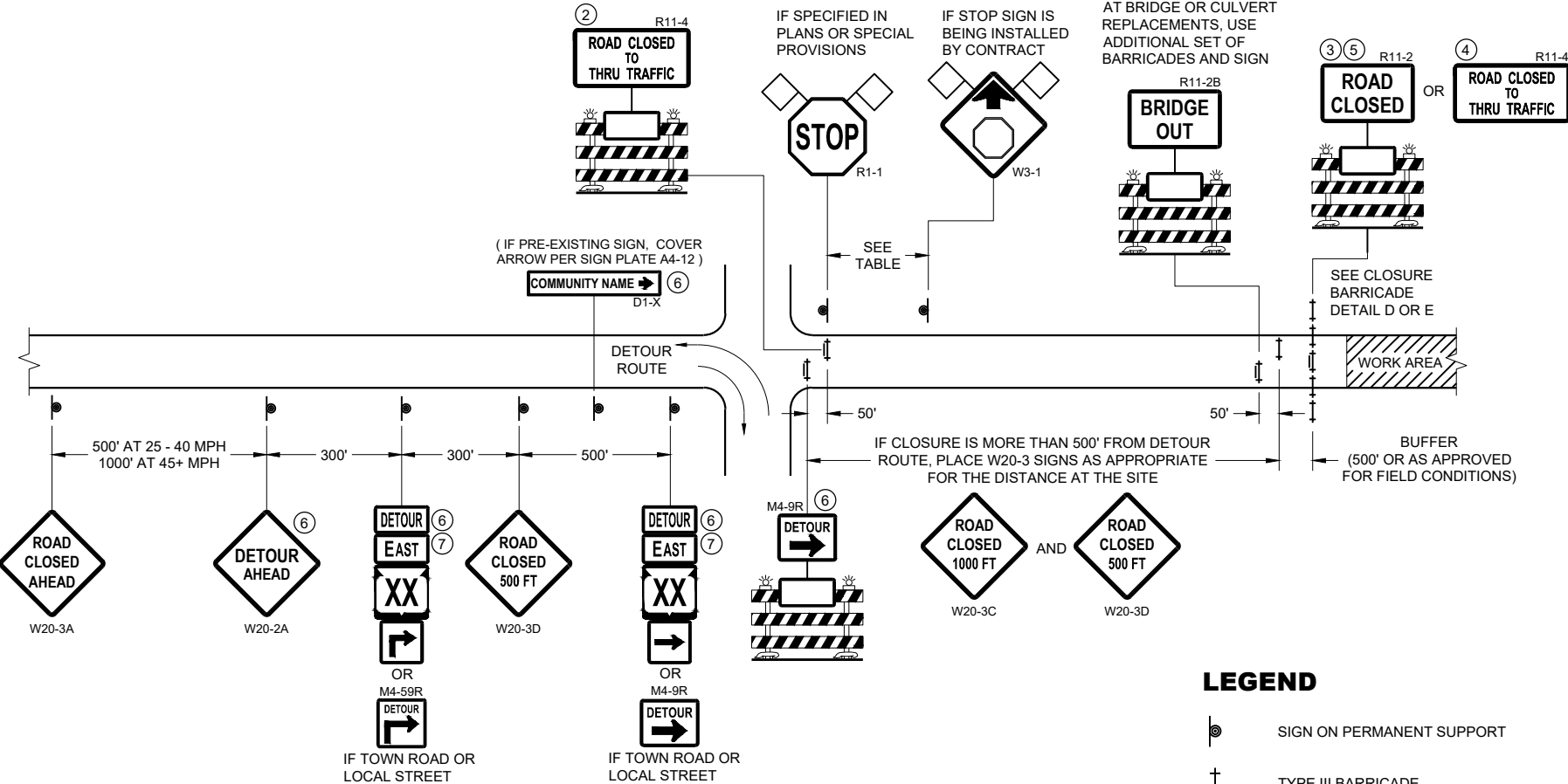
THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

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	

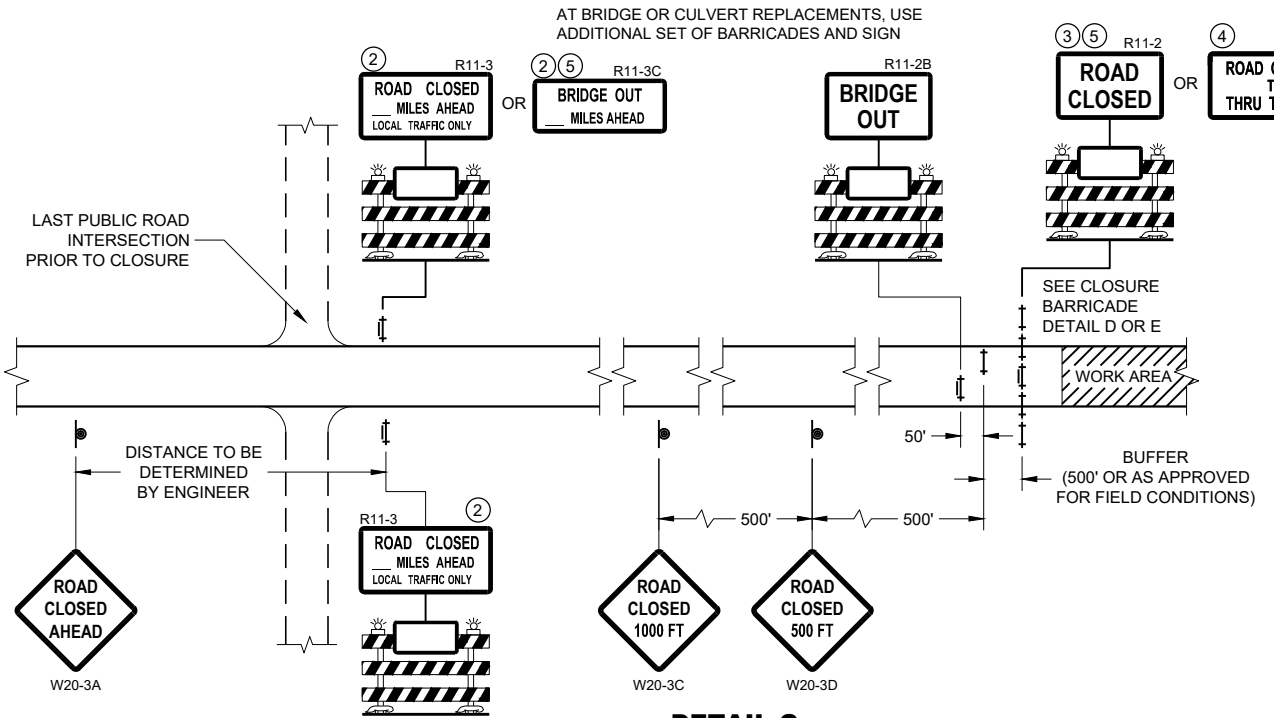




**DETAIL A**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )



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



**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

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

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

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

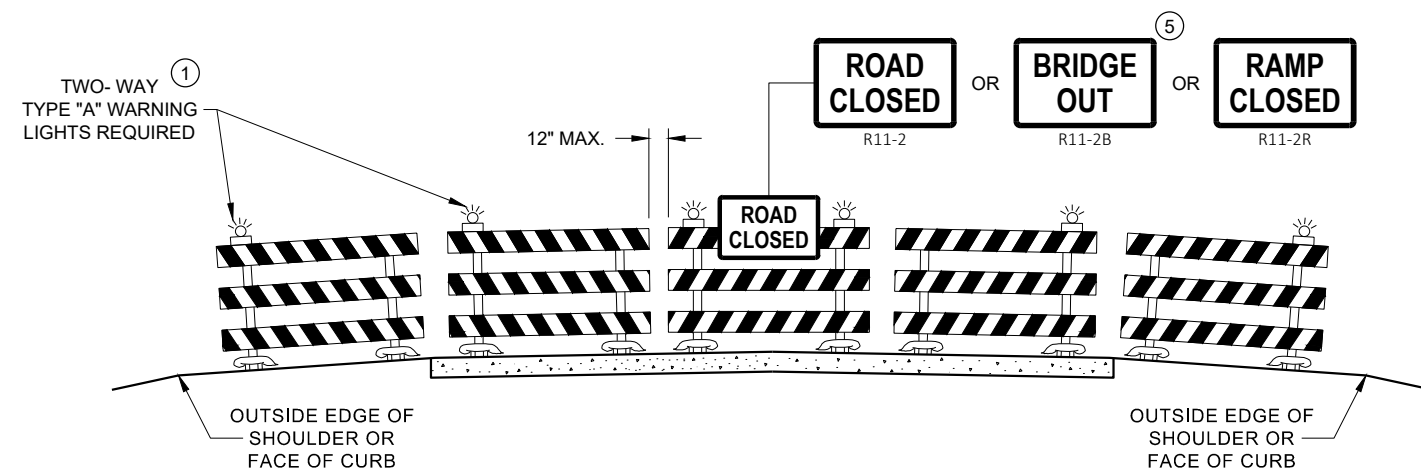
**DETOUR** M4 - 8  
**EAST** M3 - X  
**XX** OR **XX** OR **COUNTY X**  
M1 - 4 M1 - 6 M1 - 5A  
**→** OR **→**  
M05 - 1 M06 - 1

**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

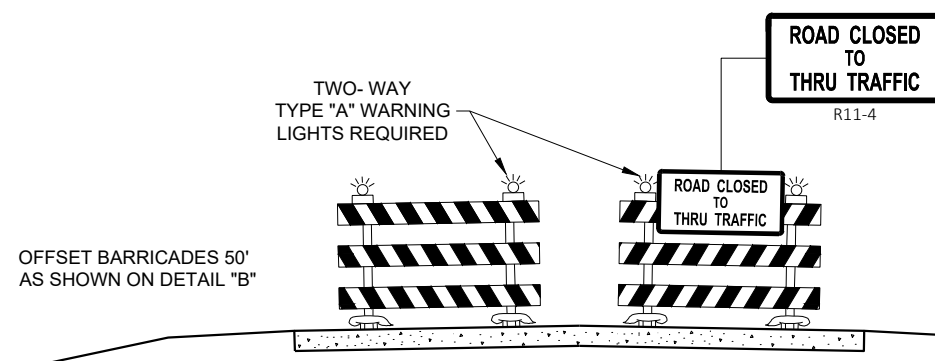
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /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.

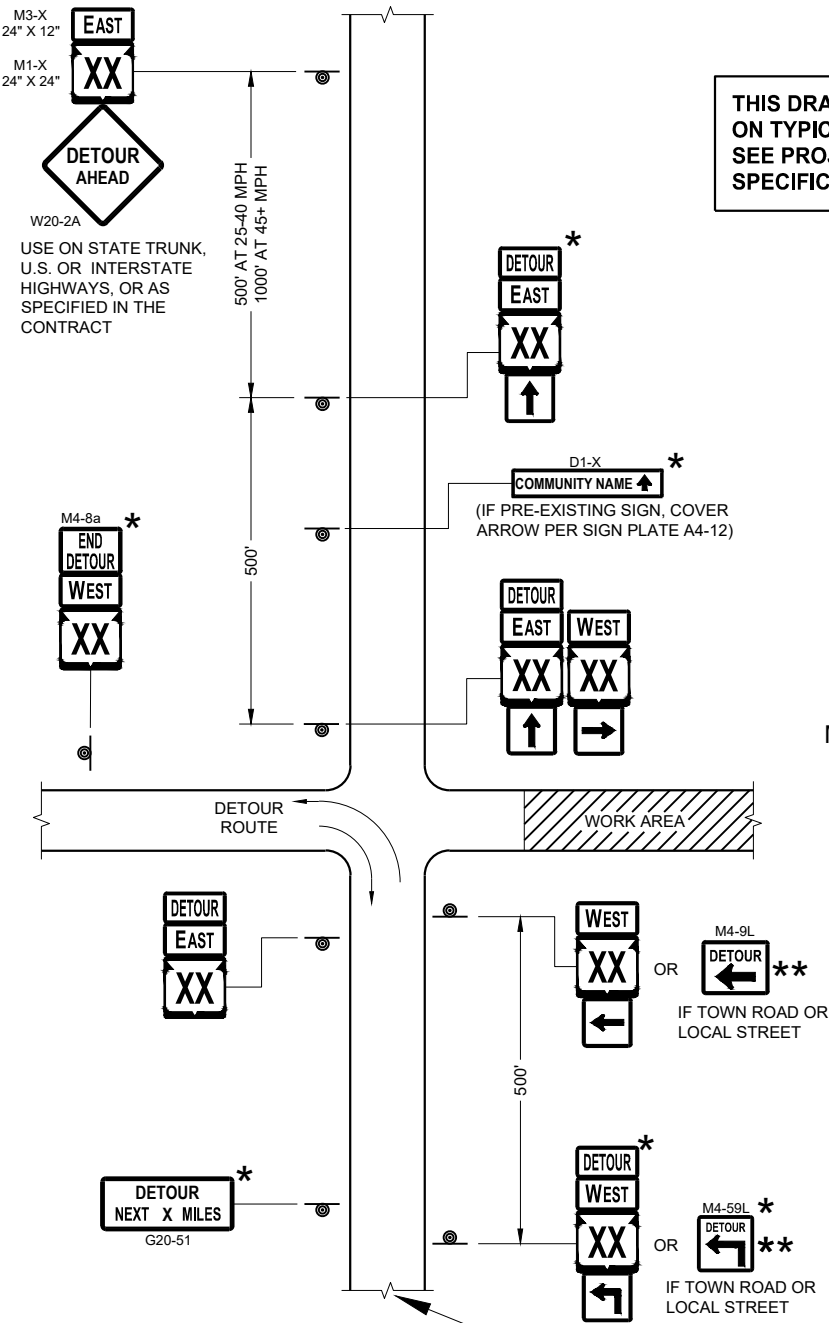
## BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINEER

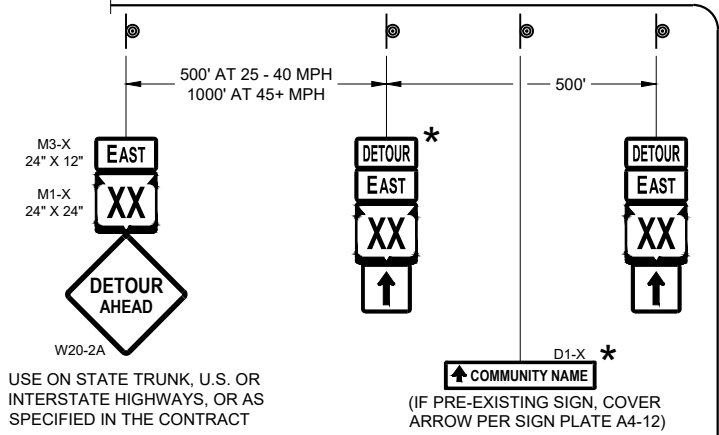
FHWA



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 EAST 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.

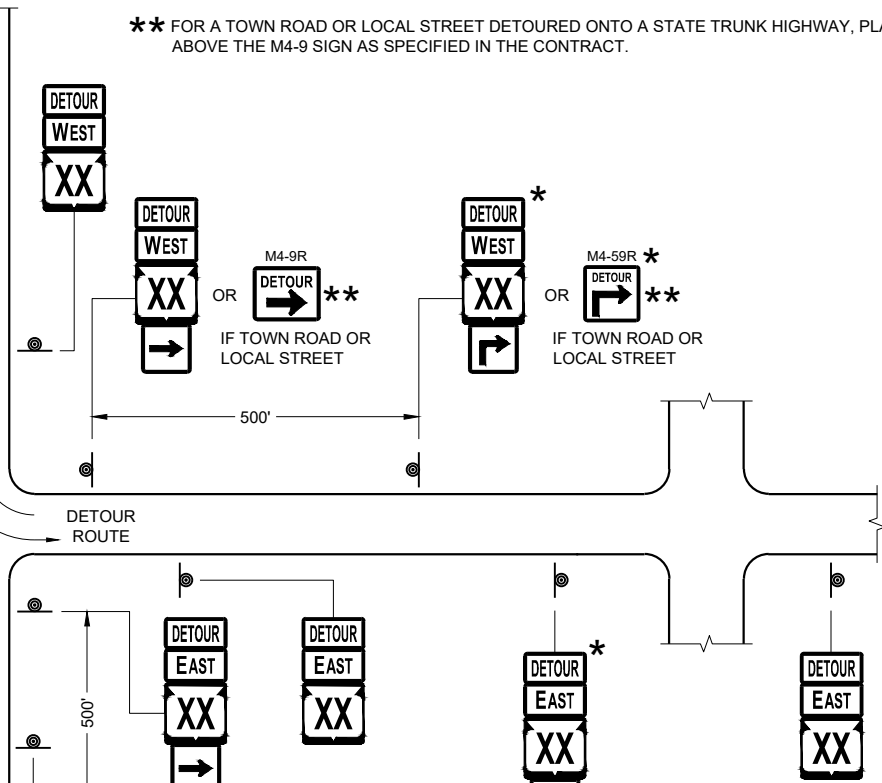
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

"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" (30" X 30" 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 M4-59 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.



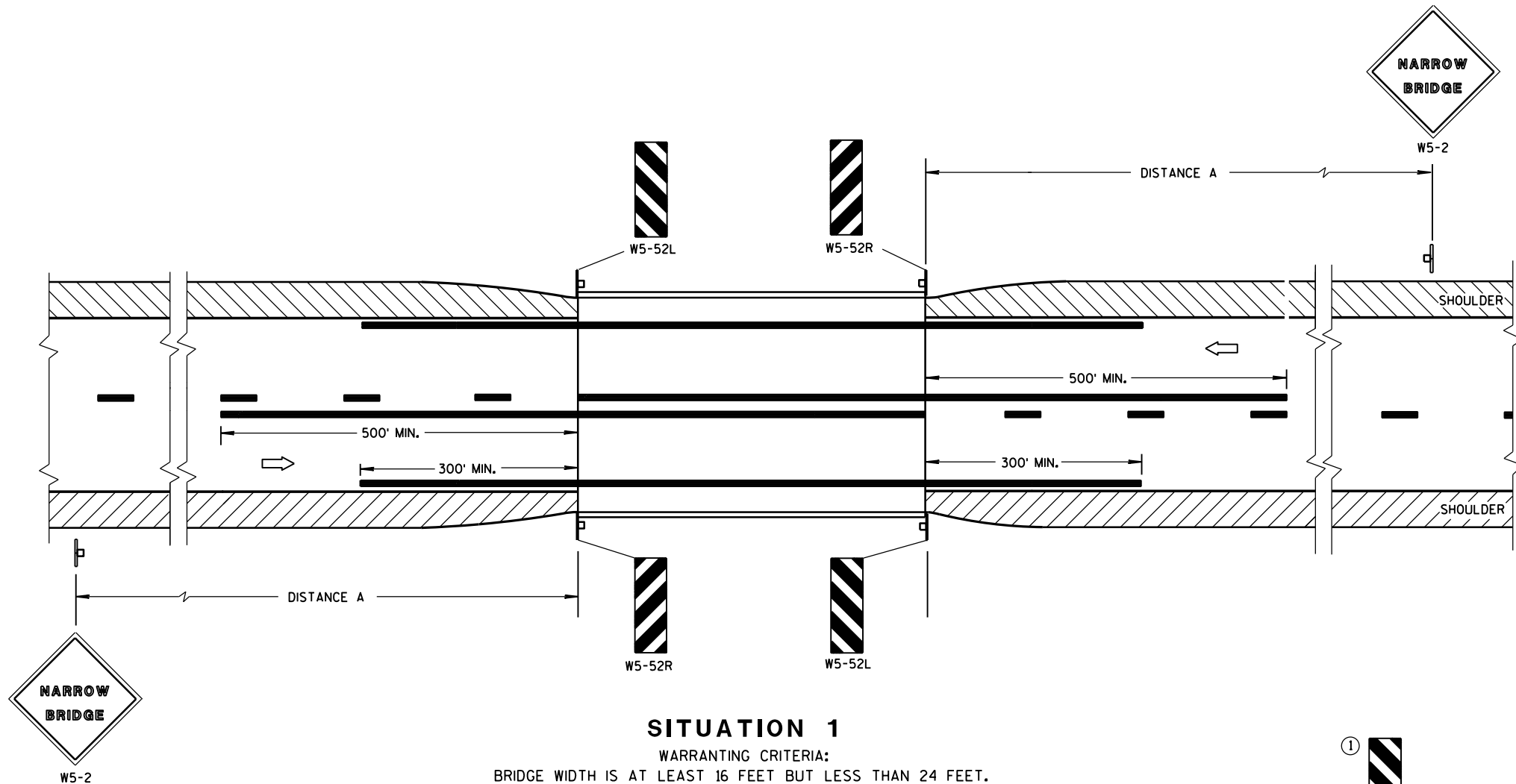
PLACE SIGNS BEYOND INTERSECTIONS  
WITH STATE OR COUNTY TRUNK  
HIGHWAYS OR AT 4 MILE MAXIMUM  
SPACING (4 BLOCKS IF URBAN AREA)

DETOUR SIGNING  
FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



### SITUATION 1

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

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A "
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

### GENERAL NOTES

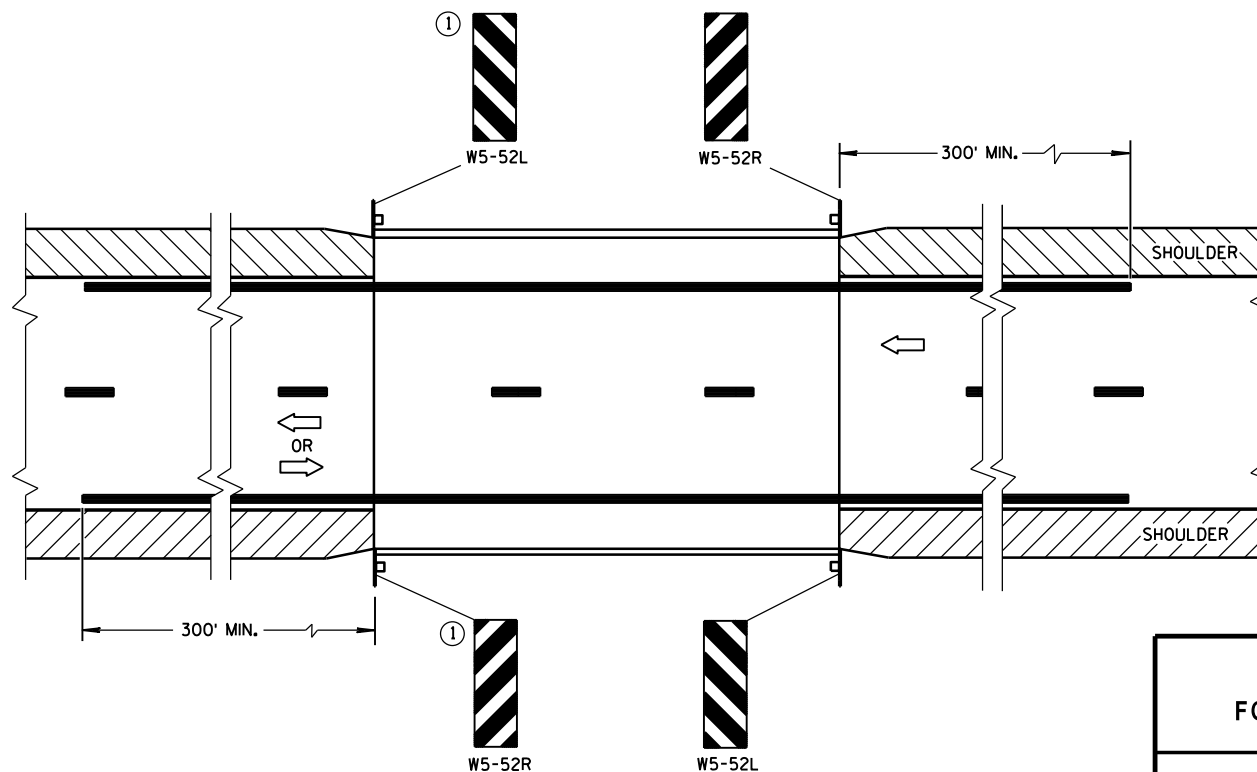
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



### SITUATION 2

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

### SIGNING & MARKING FOR TWO LANE BRIDGES

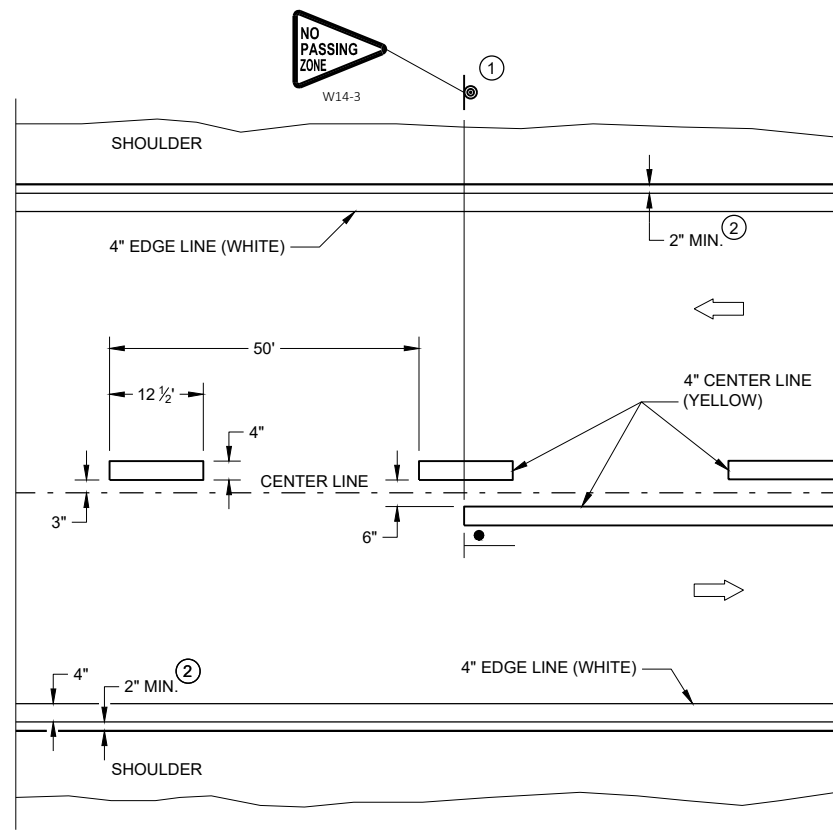
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

#### APPROVED

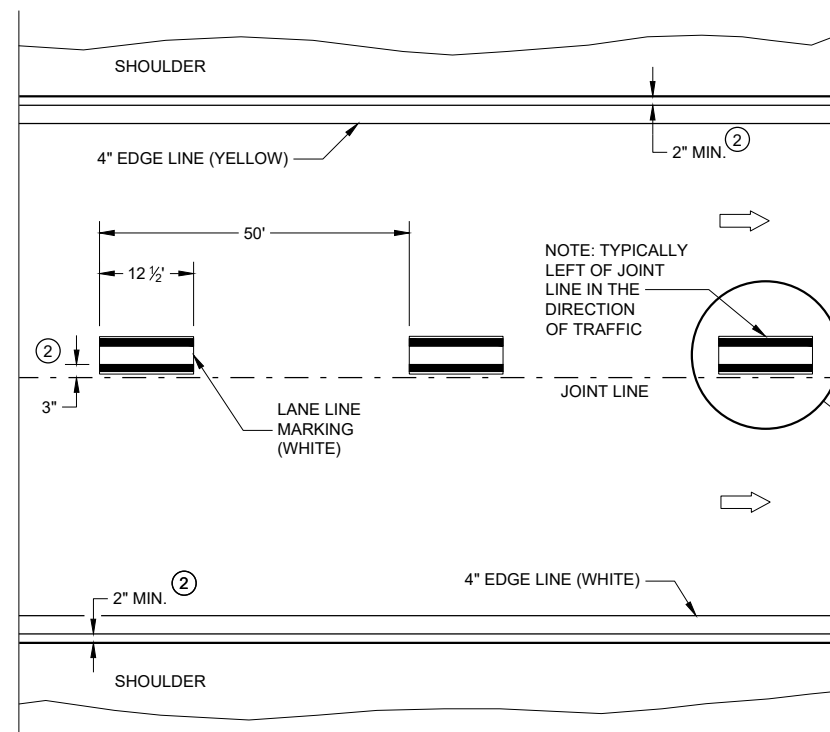
June 2017  
DATE

/S/ Matthew R. Rauch  
STATE SIGNING AND MARKING ENGINEER

FHWA

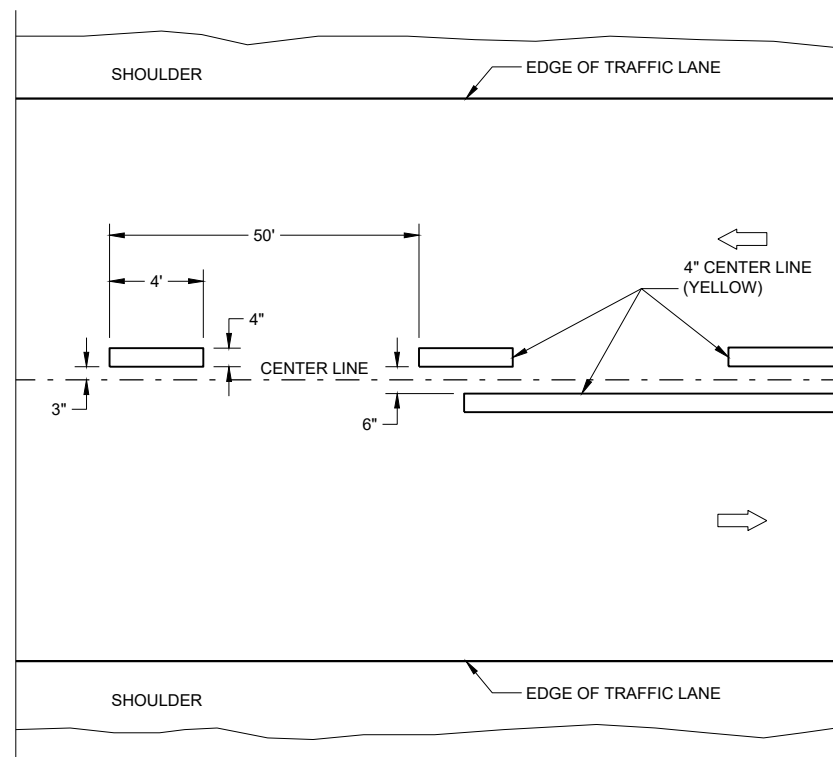


## TWO WAY TRAFFIC

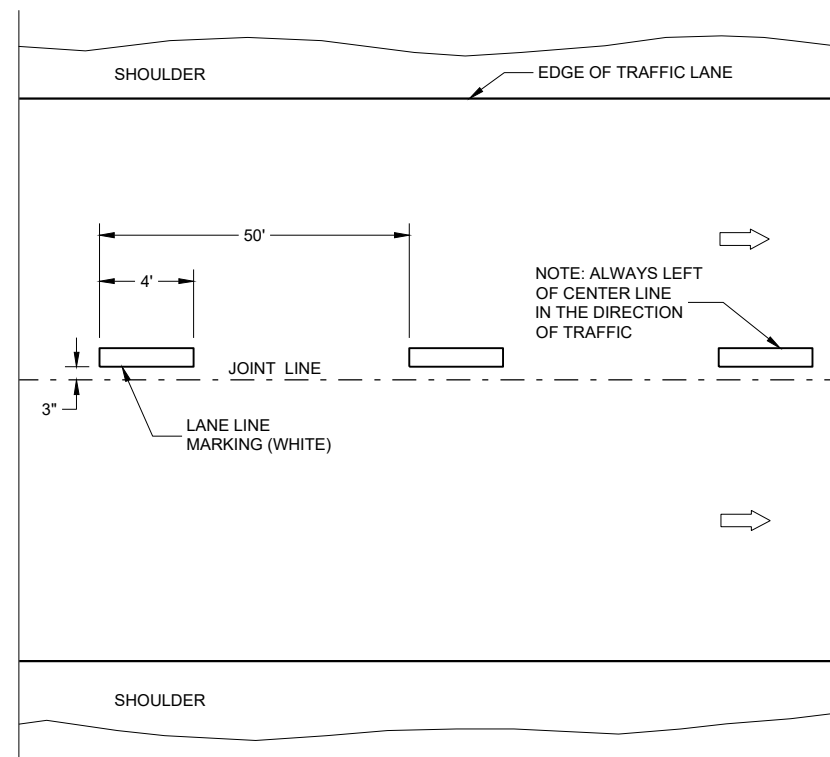


## ONE WAY TRAFFIC

## PERMANENT PAVEMENT MARKING



## TWO WAY TRAFFIC



## ONE WAY TRAFFIC




## TEMPORARY PAVEMENT MARKING

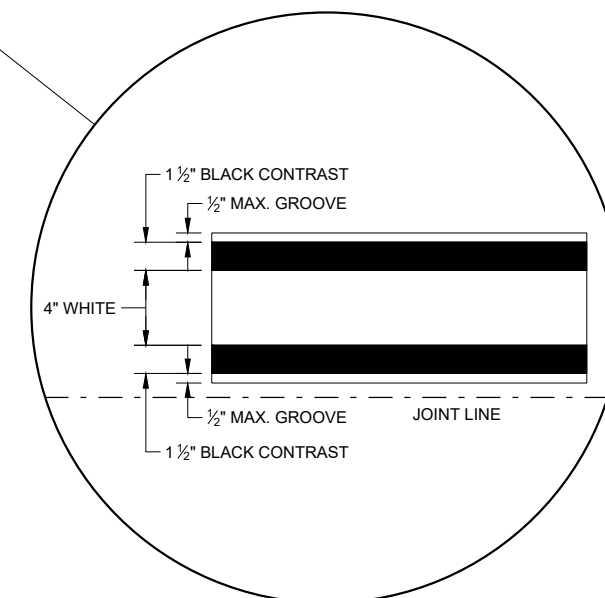
## GENERAL NOTES

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 WITH 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

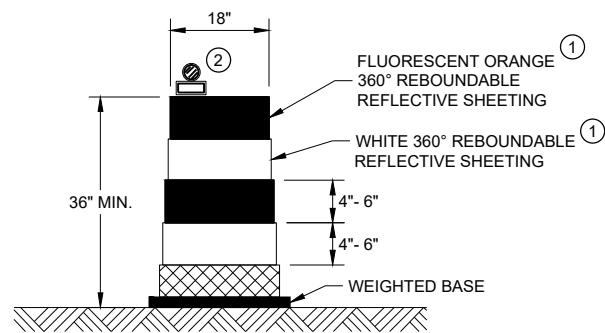


### LONGITUDINAL MARKING (MAINLINE)

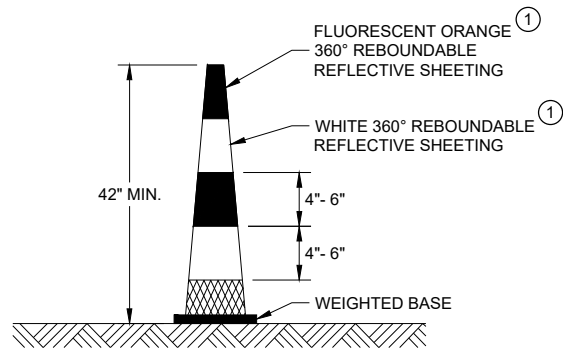
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020  
DATE

/S/ Matthew Rauch  
STATEWIDE SIGNING AND MARKING  
ENGINEER

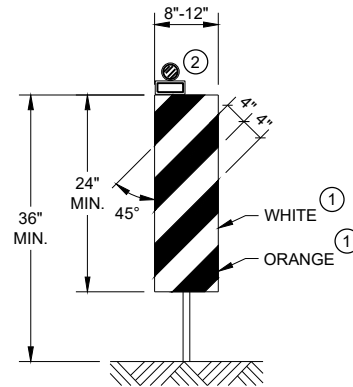


DRUM



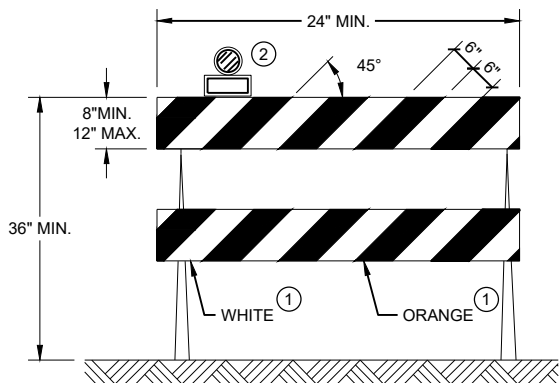
42" CONE

DO NOT USE IN TAPERS  
½ SPACING OF DRUMS



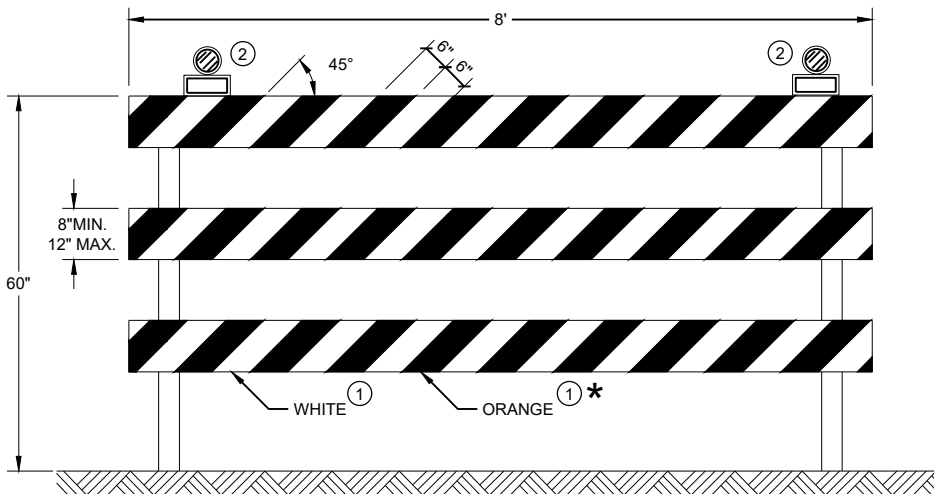
VERTICAL PANEL

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



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES  
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD  
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP  
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

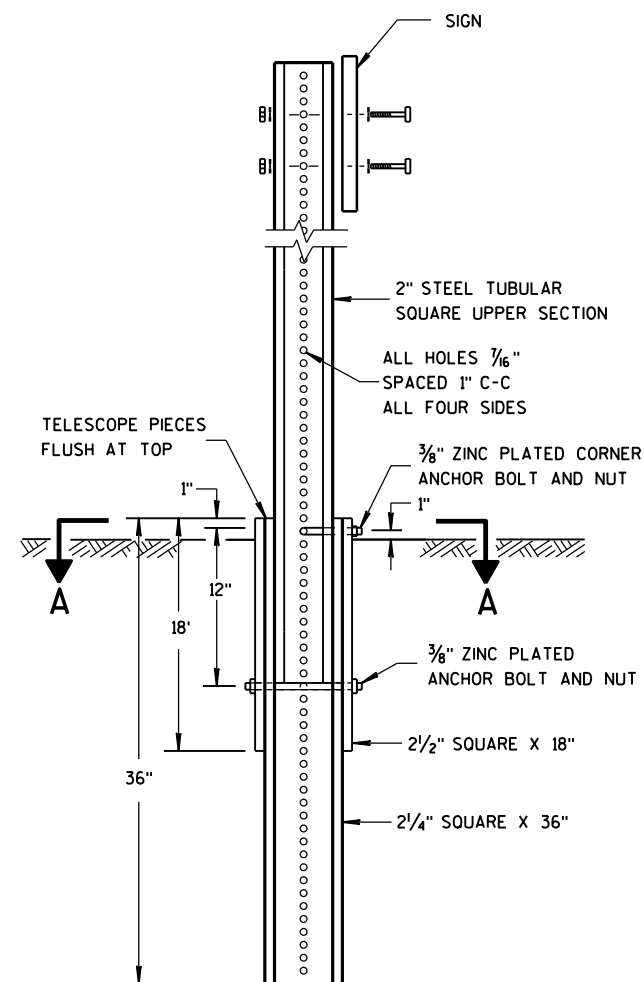
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

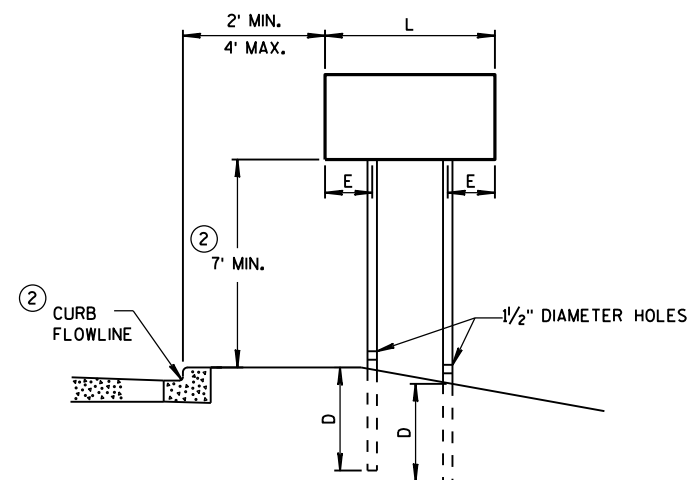
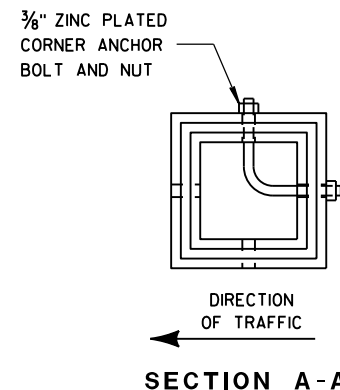


DETAIL OF TUBULAR  
STEEL SIGN POST

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL 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

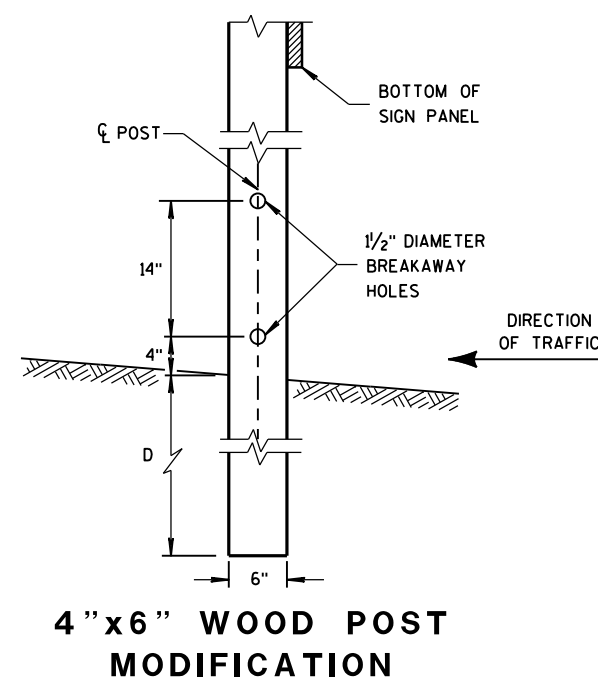
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL  
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).  
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED  
ON TUBULAR STEEL POSTS.



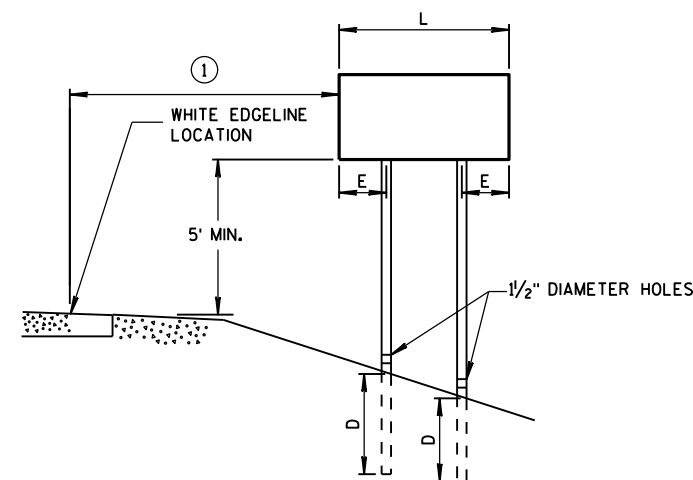
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH	
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4 "x6 " WOOD POST  
MODIFICATION



RURAL AREA

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE ③

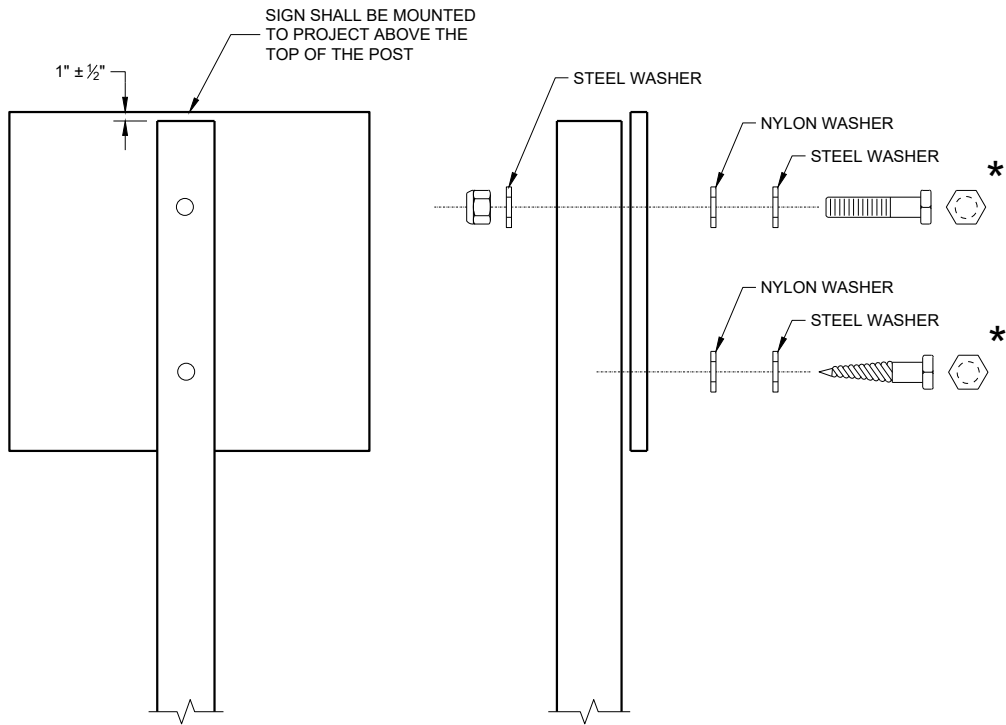
GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL  
SIGN MOUNTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





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.

WOOD POST (4" x 6")  
LAG SCREWS - 3/8" x 3"  
MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")  
MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS  
RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM  
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,  
GRIP RANGE 0.042 - 0.375 INCH

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 0.080 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER  
THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS  
TO POSTS

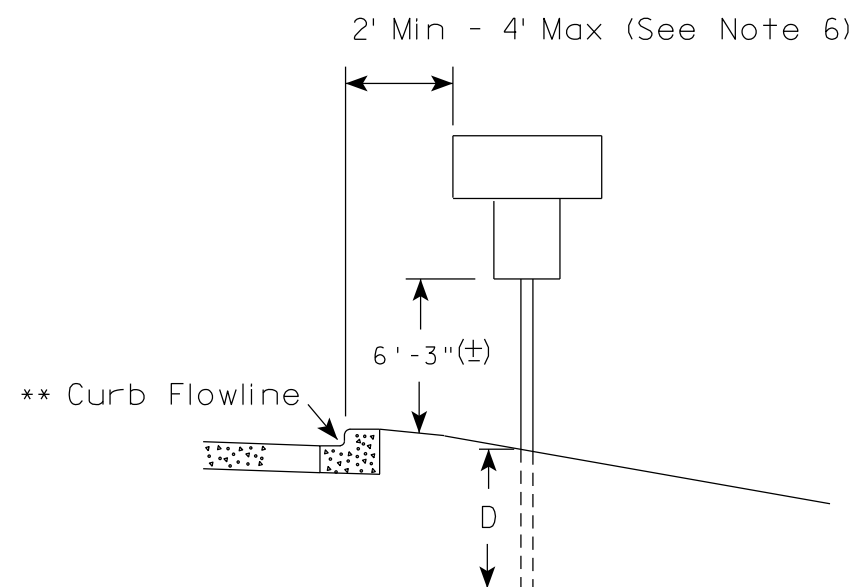
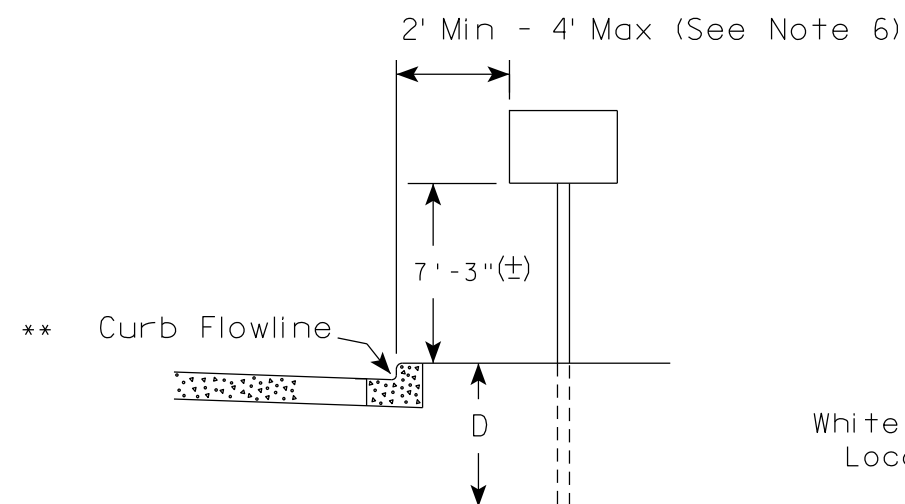
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINEER

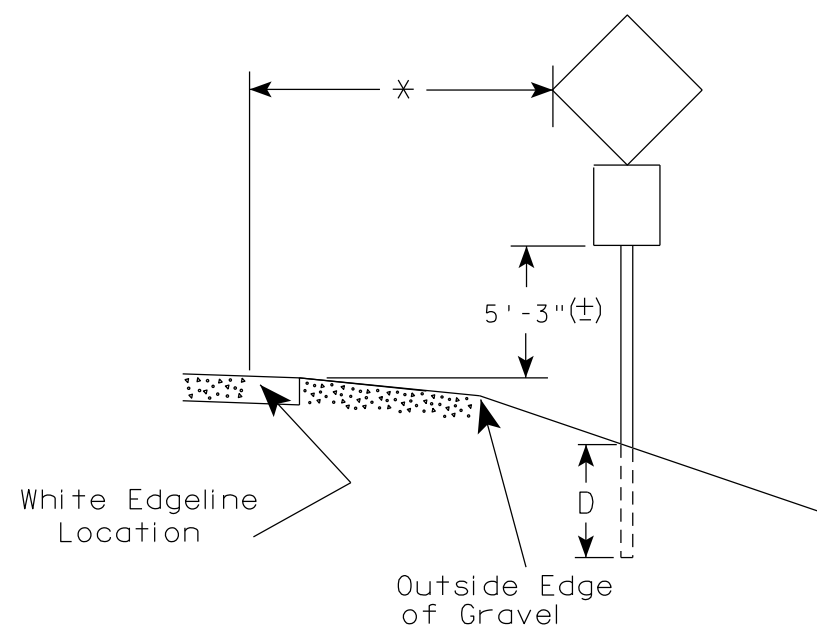
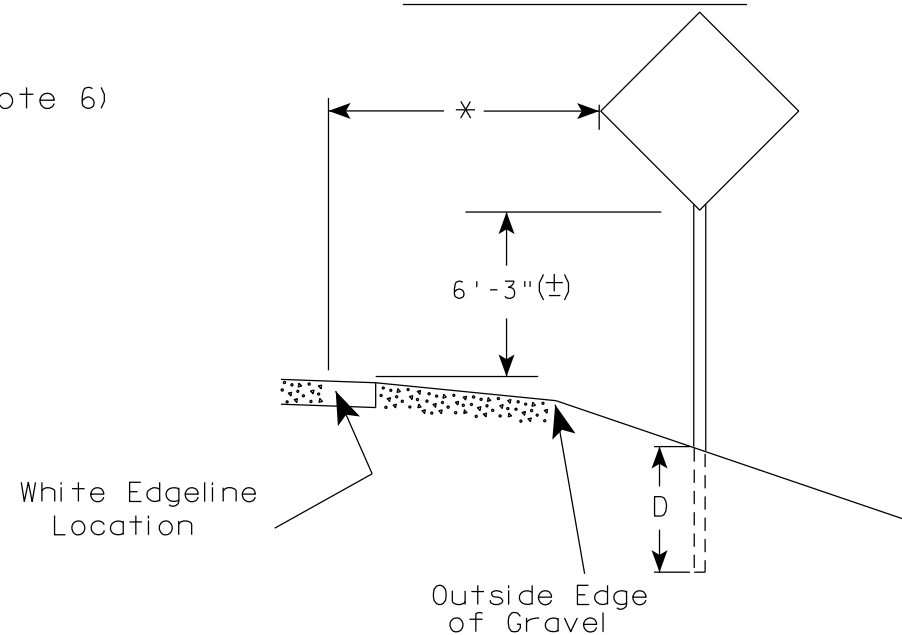
FHWA

# URBAN AREA



✱✱ 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.

# RURAL AREA (See Note 2)



✱ 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.

## POST EMBEDMENT DEPTH

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

## GENERAL NOTES

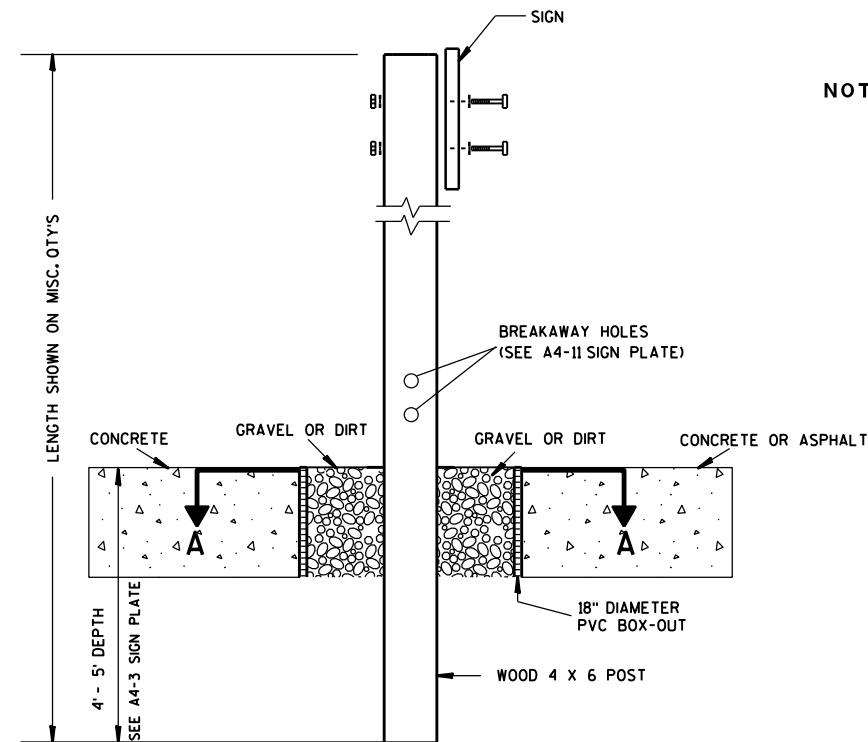
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel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

## TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

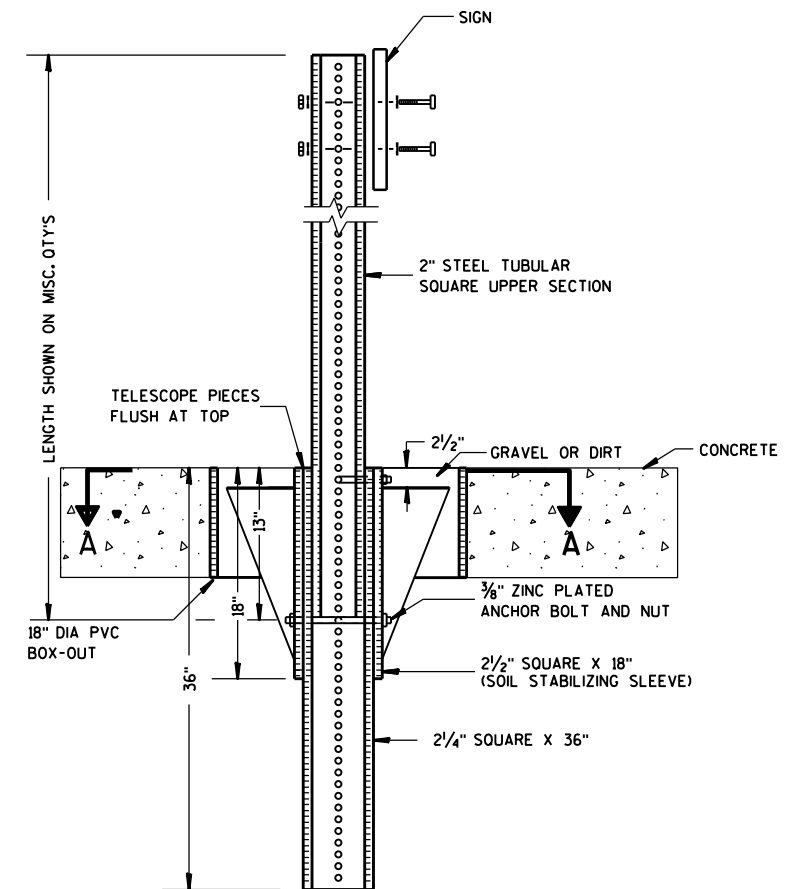
DATE 5/13/2020 PLATE NO. A4-3.22



### ELEVATION VIEW

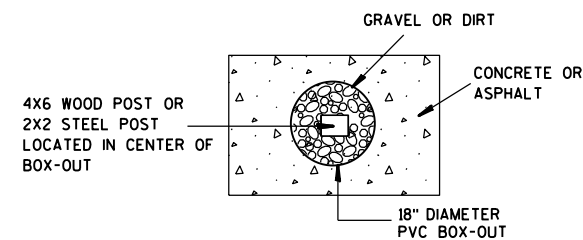
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

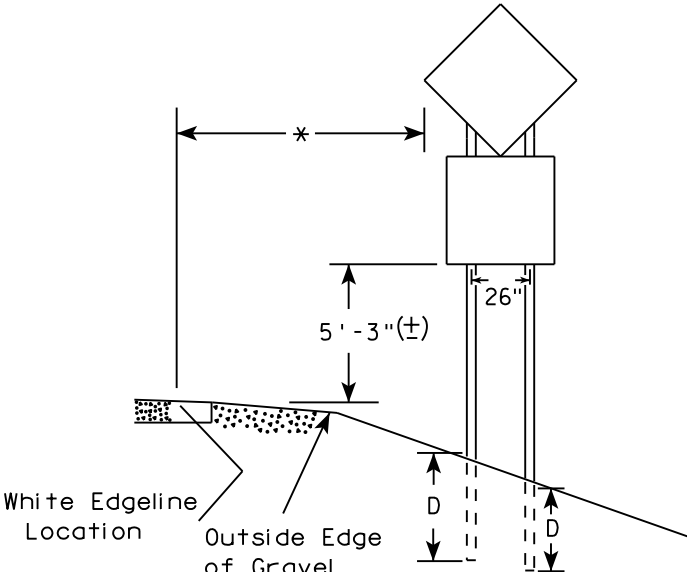
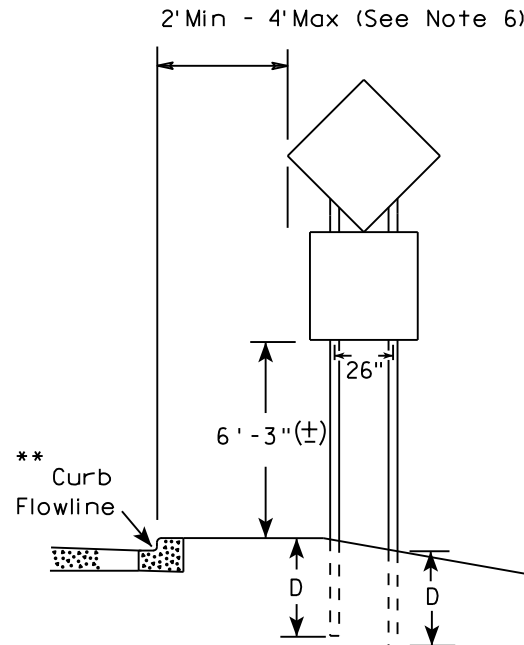
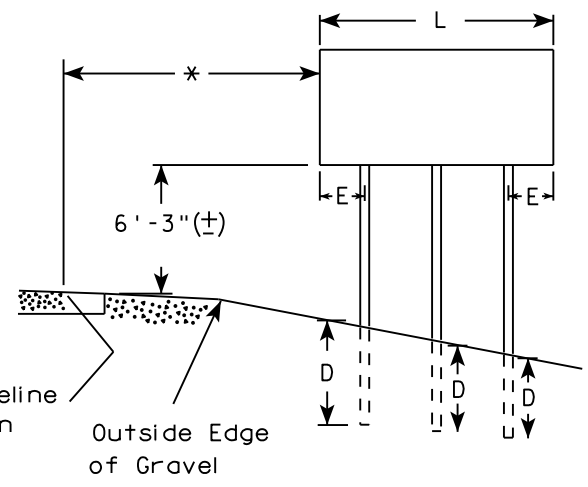
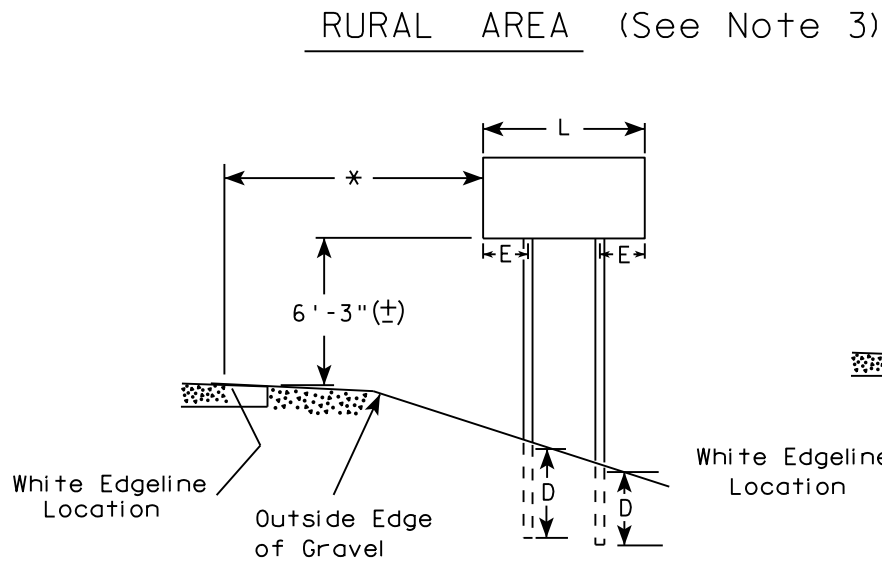
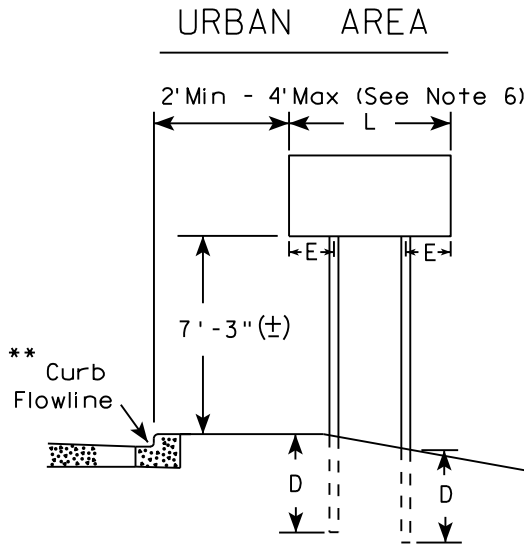
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



\*\*\*

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

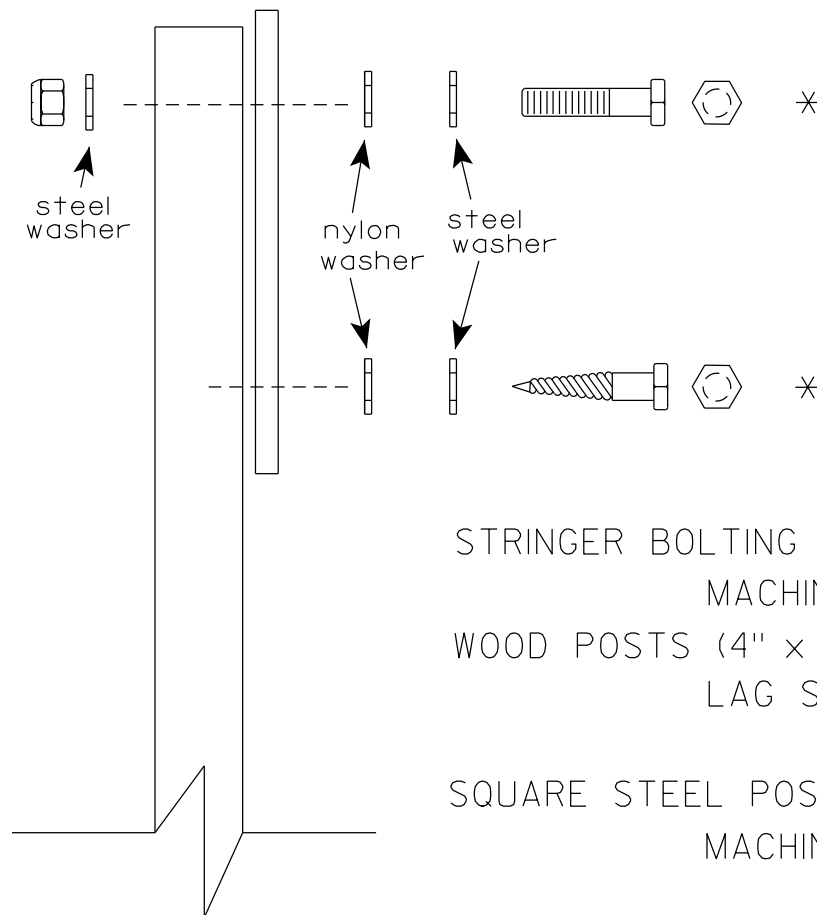
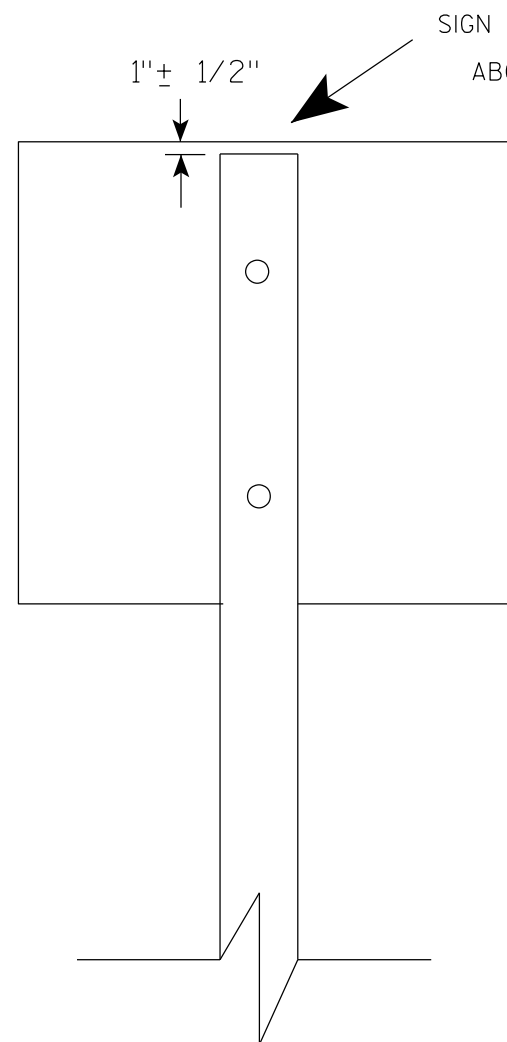
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 8/21/17	PLATE NO. A4-4.15

- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
  2. See tables below for required number of posts.
  3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
  4. The (±) tolerance for mounting height is 3 inches.
  5. J-Assemblies are considered to be one sign for mounting height.
  6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
  7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
  8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-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" (±).

- \* 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.

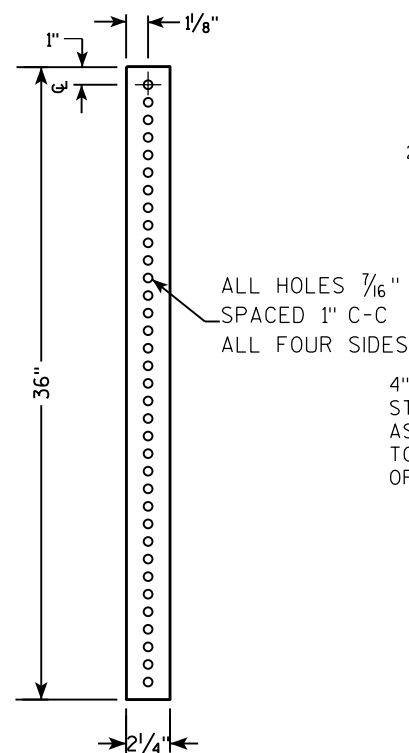
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

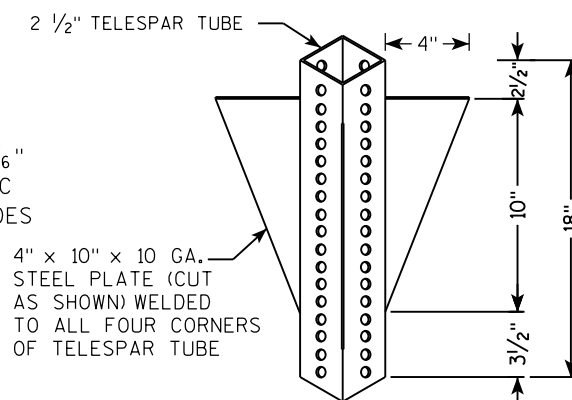
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

- SIGN
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- 2" STEEL TUBULAR SQUARE UPPER SECTION
- ALL HOLES  $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
- 2 1/2" GRAVEL OR DIRT
- $\frac{3}{16}$ " ZINC PLATED ANCHOR BOLT AND NUT
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- 2 1/4" SQUARE X 36"

**Cross Section Labels:**

- TELESCOPE PIECES FLUSH AT TOP
- 13"
- 18"
- 36"
- 18" DIA SCHEDULE 40 PVC BOX-OUT

**Vertical Dimension:**

- LENGTH SHOWN ON MISC. QTY'S

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

**Side View (Left):**

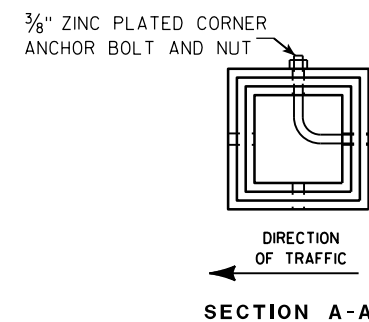
- Overall height dimension: LENGTH SHOWN ON MISC. QTYS.
- Top section: 2" STEEL TUBULAR SQUARE UPPER SECTION.
- Telescope pieces: TELESCOPE PIECES FLUSH AT TOP.
- Vertical dimensions from ground line: 36", 18", 12".
- Ground line with downward arrow 'A'.

**End View (Right):**

- Top section: 2" STEEL TUBULAR SQUARE UPPER SECTION.
- Sign: SIGN (indicated by a bracket).
- Sign mounting: SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL.
- Anchor bolts: 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT (indicated by a bracket).
- Vertical dimension for anchor bolt: 1".
- Ground line with downward arrow 'A'.
- Soil stabilizing sleeve: 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE).
- Bottom section: 2 1/4" SQUARE X 36".

**Common Specifications:**

- ALL HOLES 7/16" SPACED 1" C-C
- ALL FOUR SIDES



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:

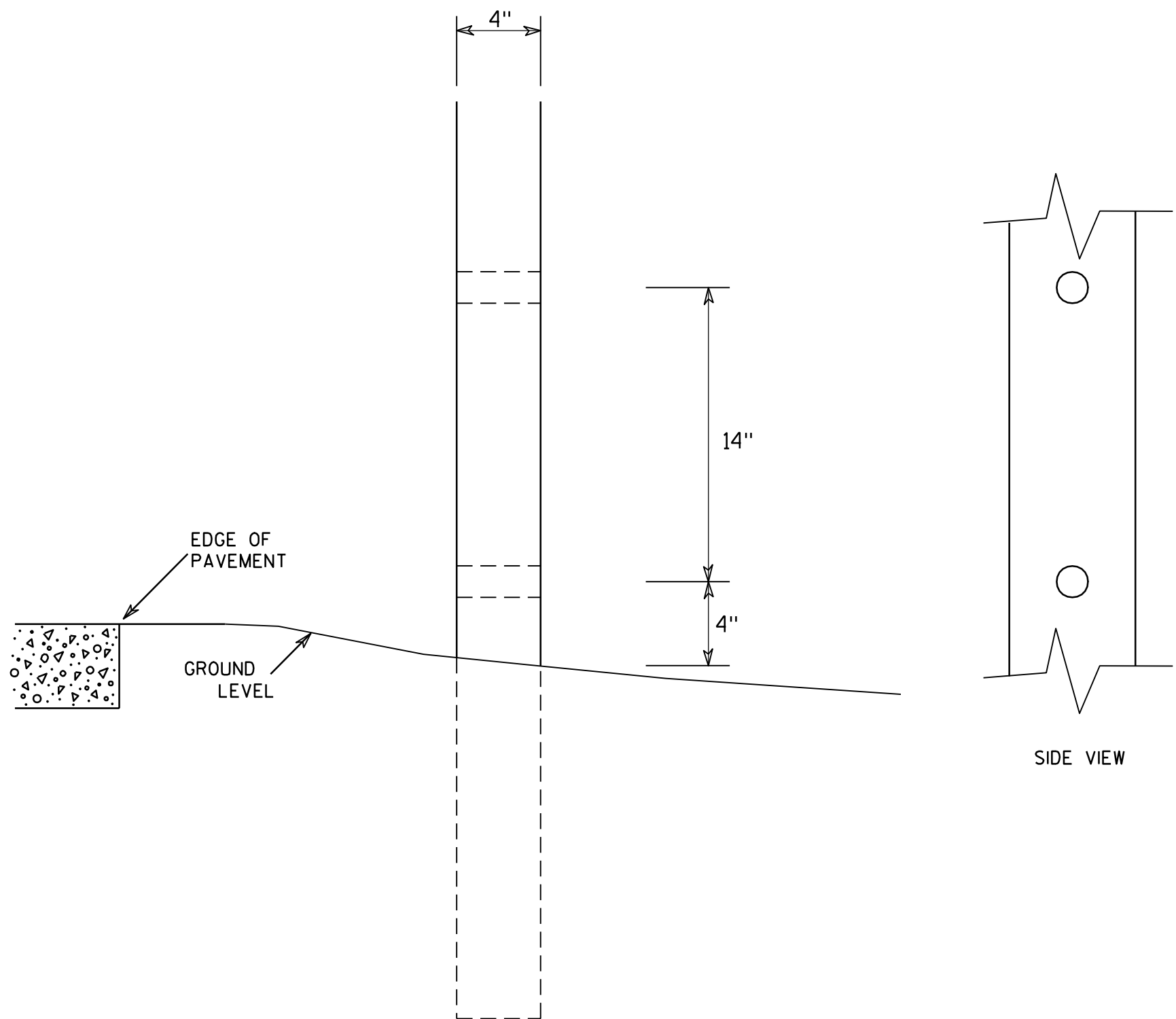
HWY:

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:

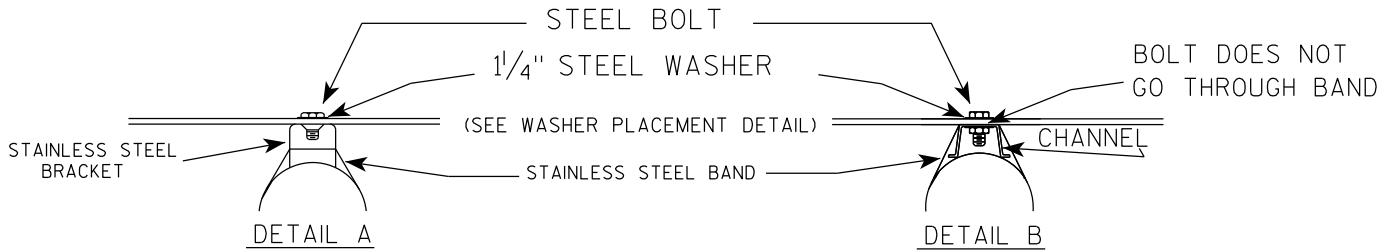
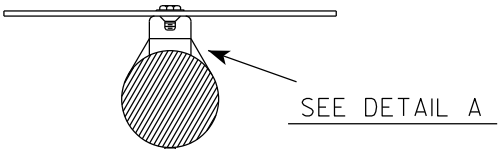
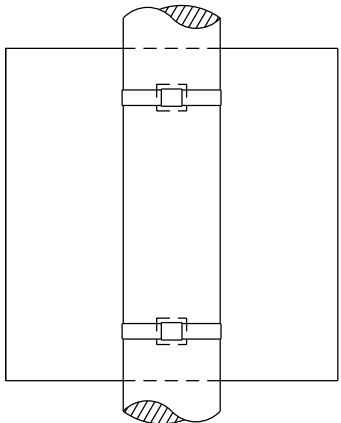
COUNTY:

SHEET NO:

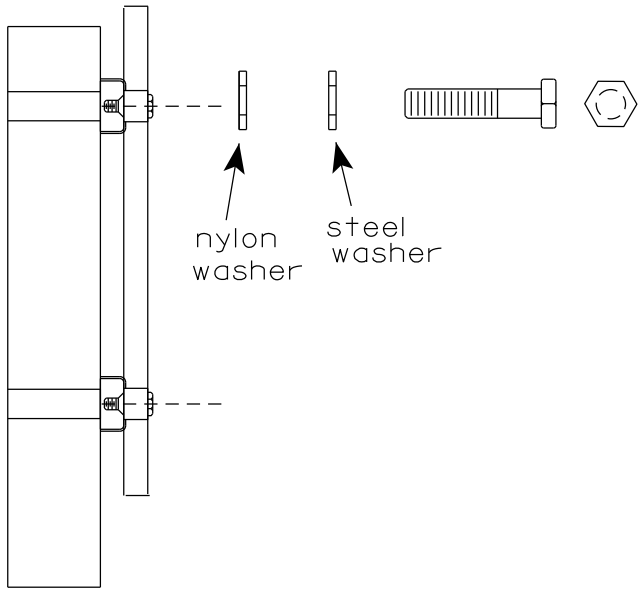
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

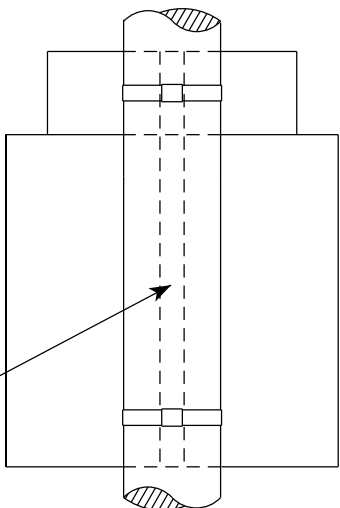


WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

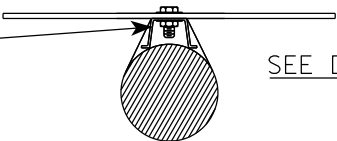
GENERAL NOTES

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



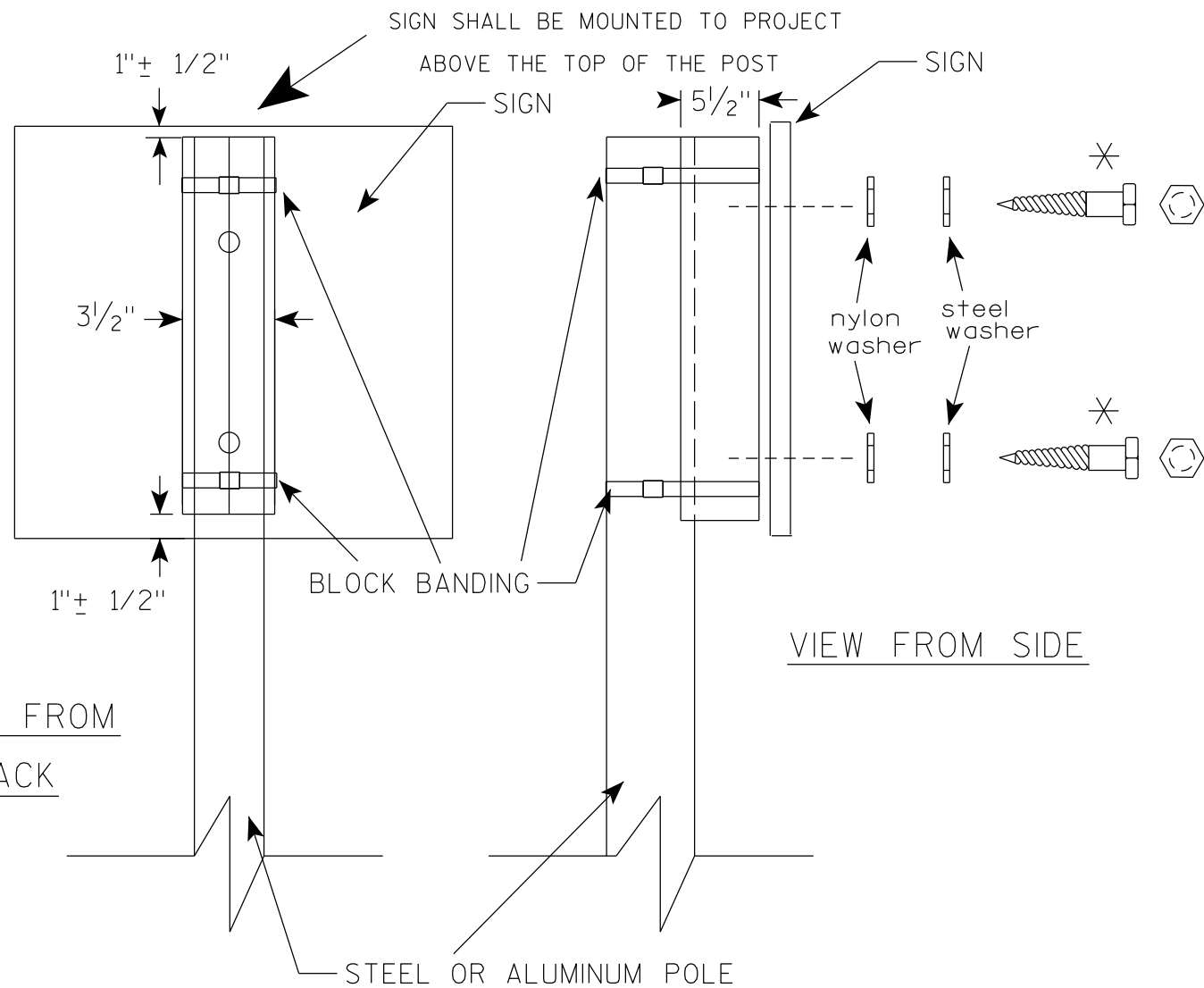
STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

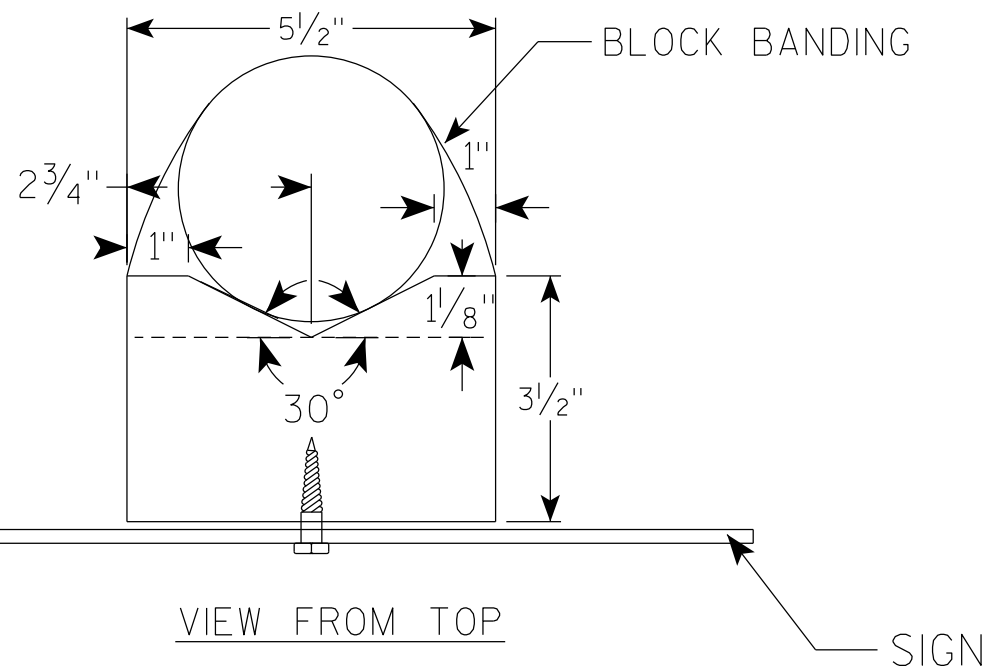
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM  
BACK



VIEW FROM SIDE



## 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  $1\frac{1}{4}$ " O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE  $1\frac{1}{4}$ " 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

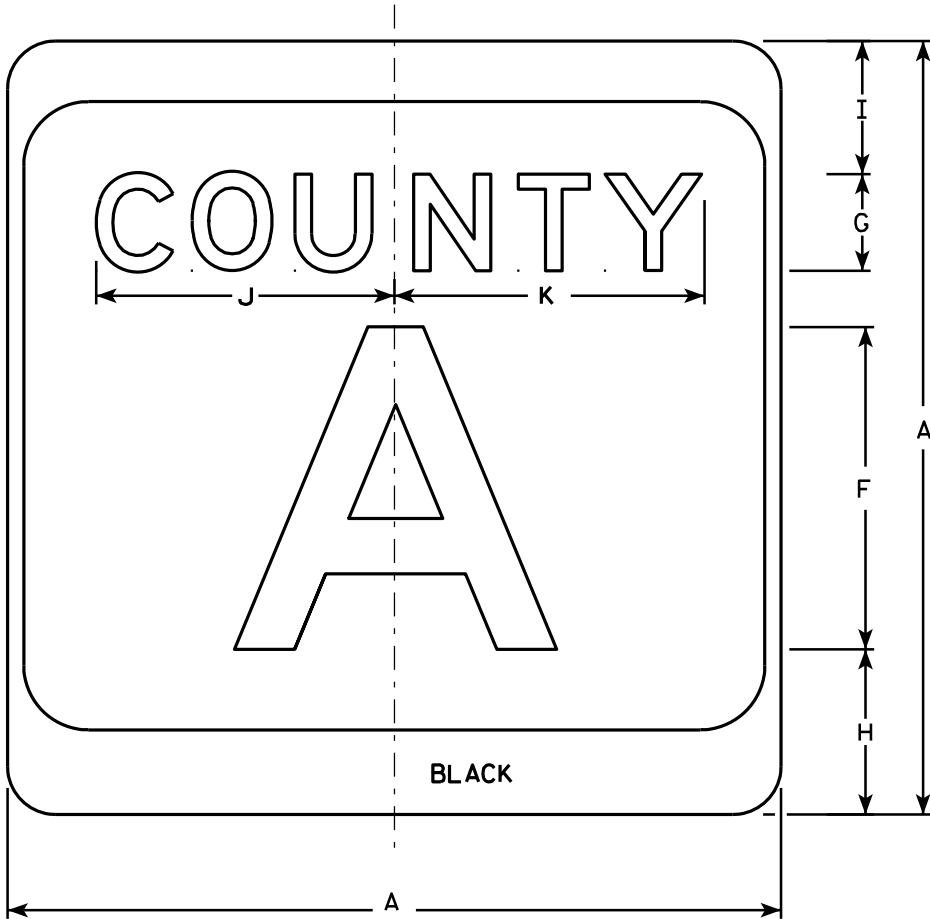
DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

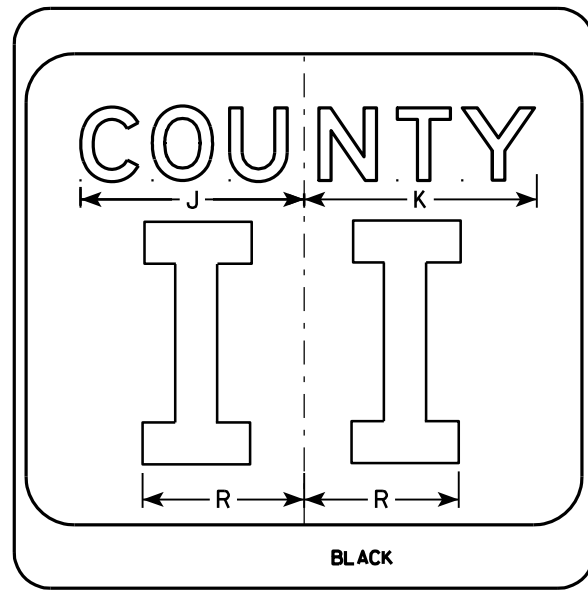
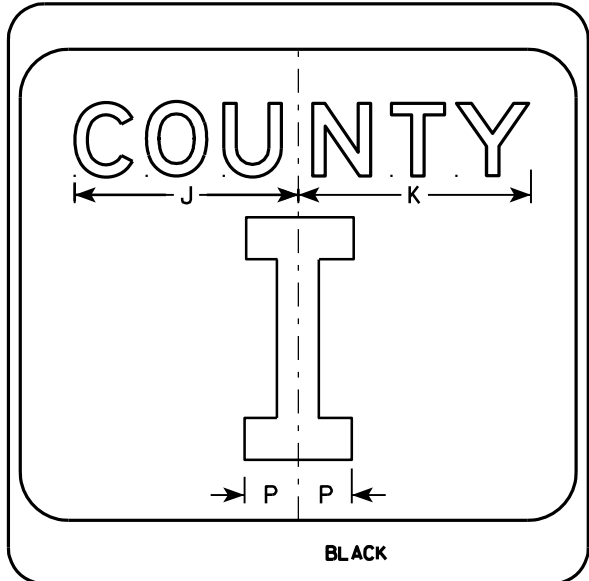
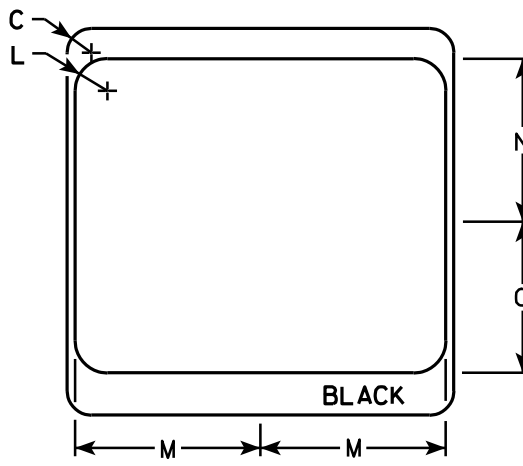
SHEET NO:

E

7



M1-5A



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White & Black - See Note 7  
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. 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.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs  
Background - Type H Reflective  
Detour or temporary Signs  
Background - Reflective

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
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 9/27/11 PLATE NO. M1-5A.8

PROJECT NO:

HWY:

COUNTY:

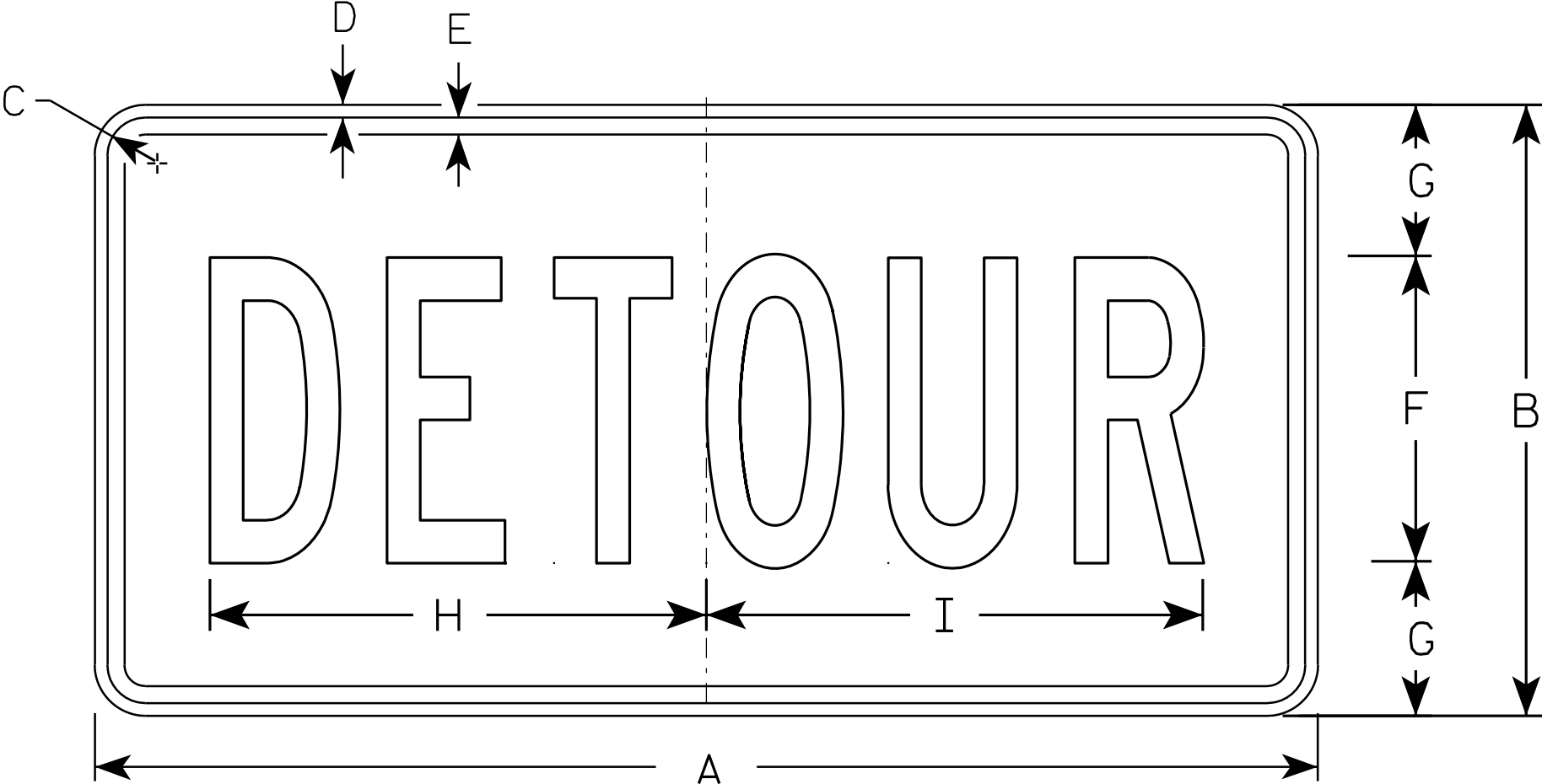
SHEET NO:

E

7

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 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.



M4 - 8

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 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

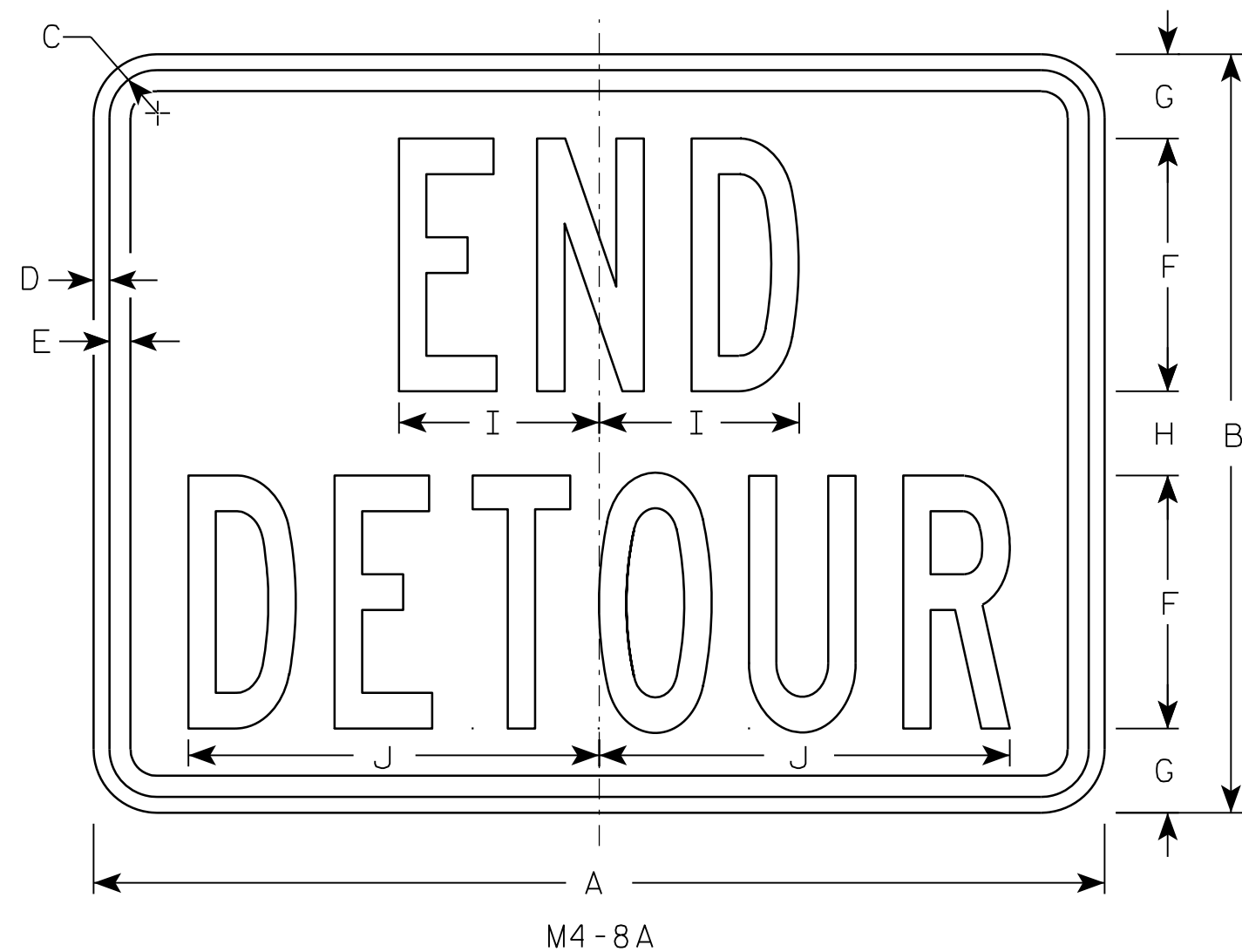
STANDARD SIGN  
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

7



### NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
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 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

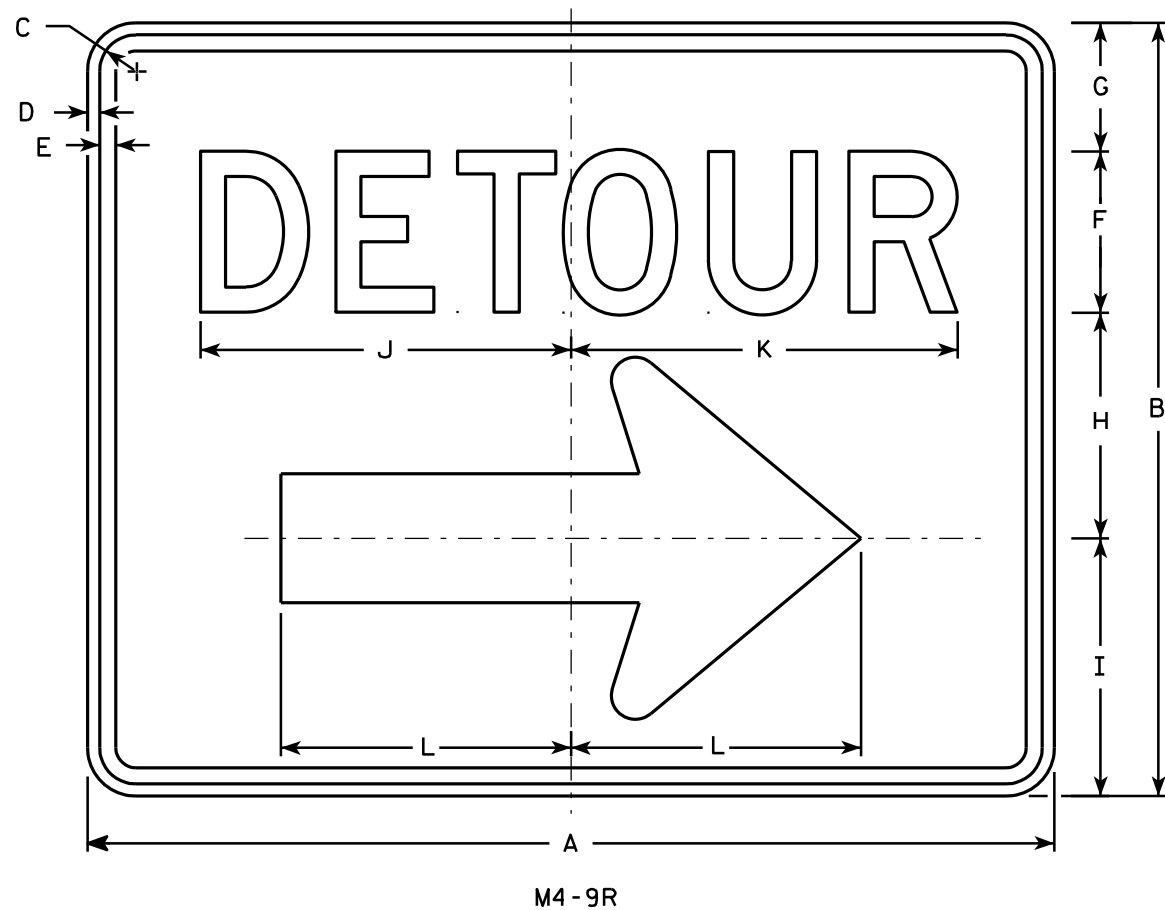
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---

STANDARD SIGN  
M4-8A

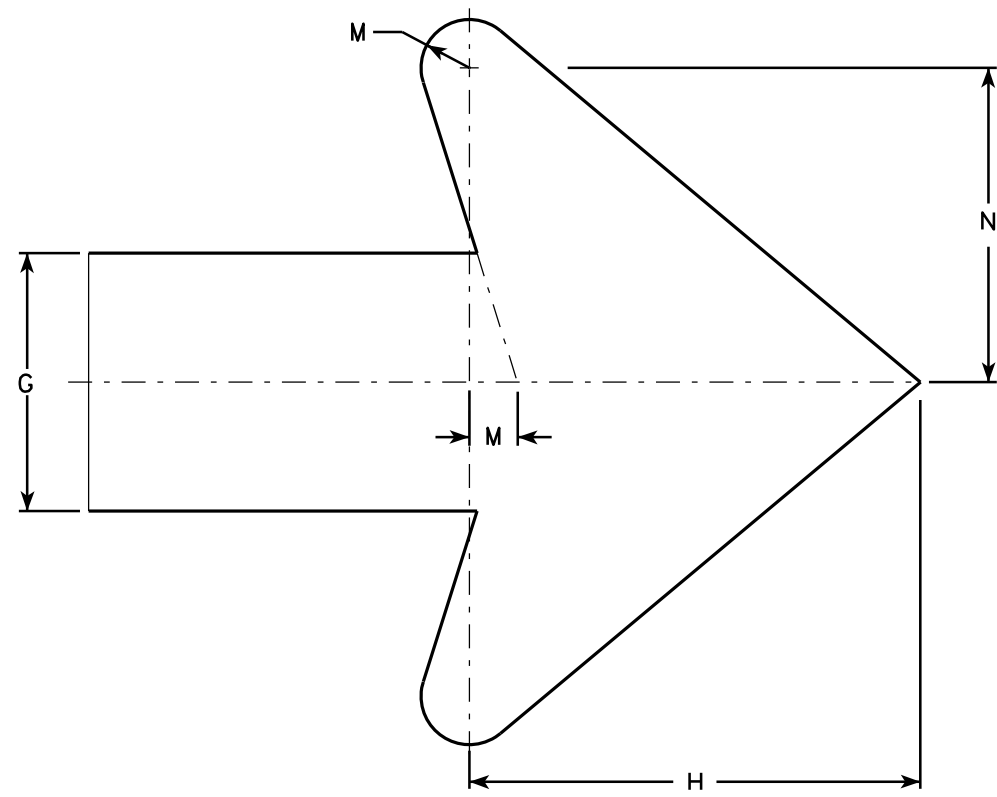
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2



- NOTES**
1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
  2. Color:  
Background - Orange  
Message - Black
  3. Message Series - D
  4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
  5. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

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

STANDARD SIGN  
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

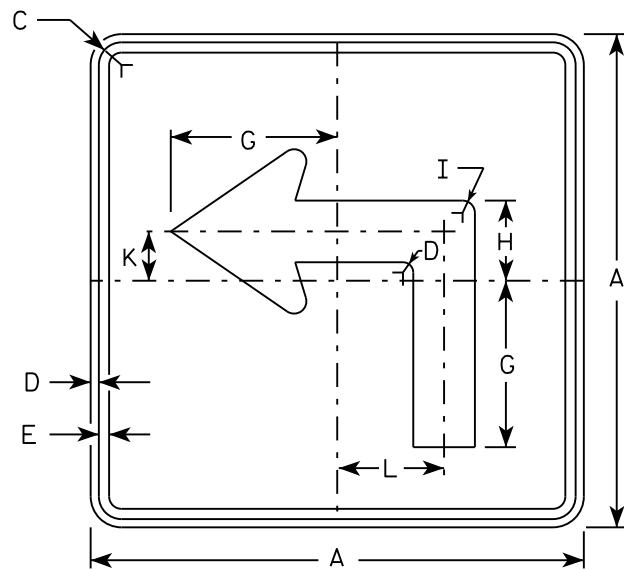
PROJECT NO:

HWY:

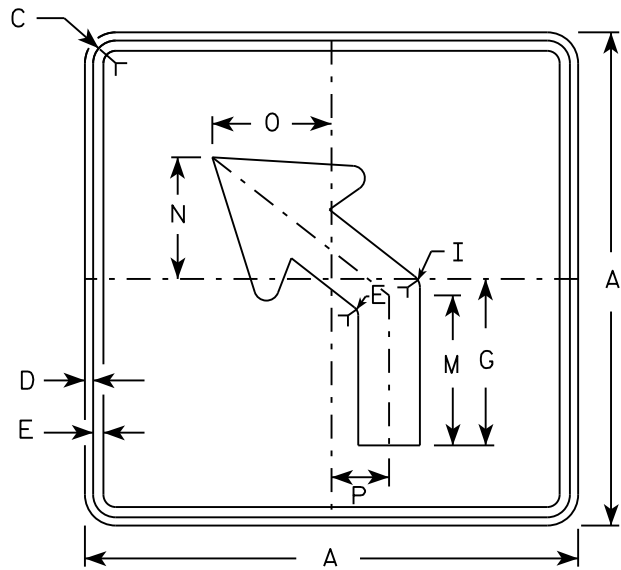
COUNTY:

SHEET NO:

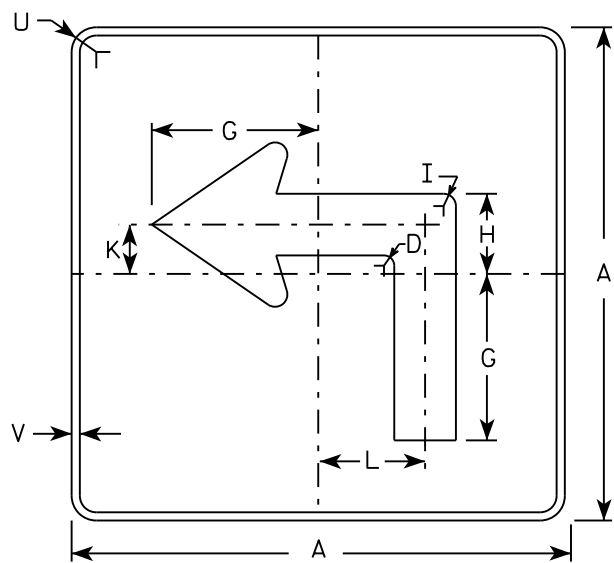
E



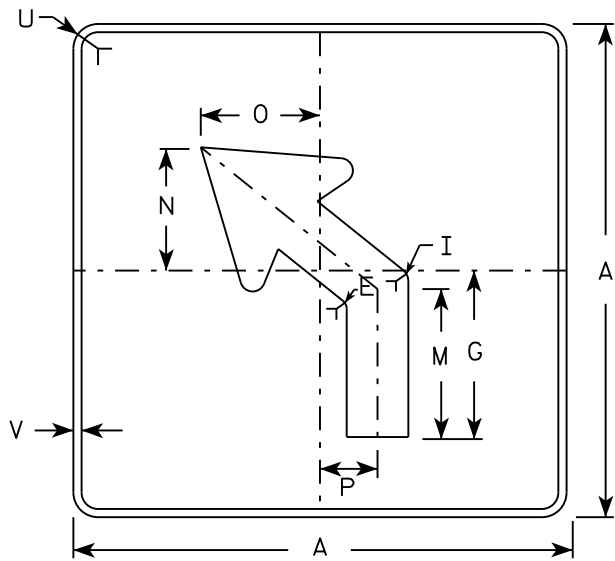
M5-1L  
MM5-1L  
M05-1L  
MP5-1L



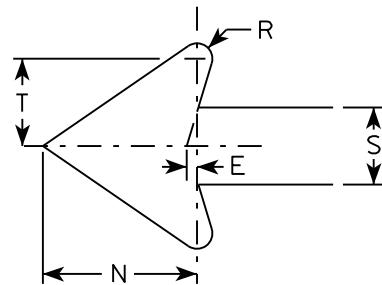
M5-2L  
MM5-2L  
M05-2L  
MP5-2L



MB5-1L  
MK5-1L  
MN5-1L  
MR5-1L



MB5-2L  
MK5-2L  
MN5-2L  
MR5-2L



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 - Type H Reflective  
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																											
2	21		1 1/8	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 1/2	1/2					3.06
3	30		1 3/8	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 7/8	1/2					6.25
4	30		1 3/8	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 7/8	1/2					6.25
5	30		1 3/8	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 7/8	1/2					6.25

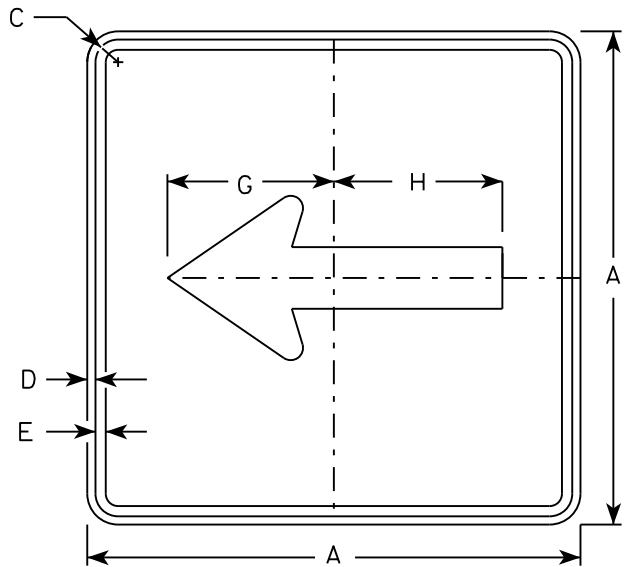
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---

STANDARD SIGN  
M5-1 & M5-2

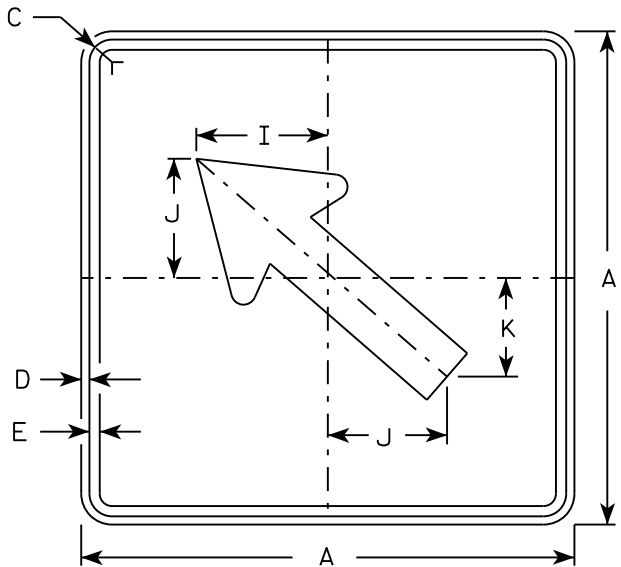
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

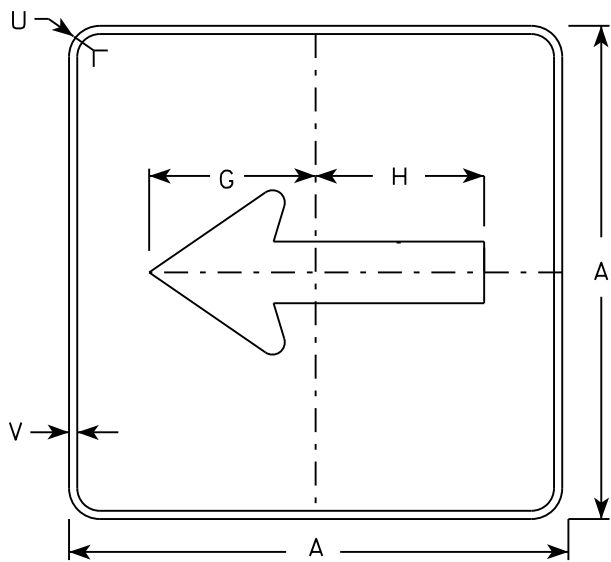
DATE 10/15/15      PLATE NO. M5-1.13



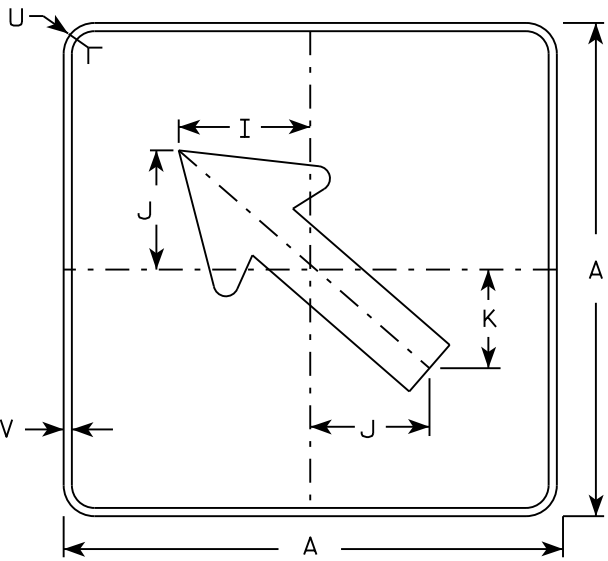
M6 - 1  
MM6 - 1  
M06 - 1  
MP6 - 1



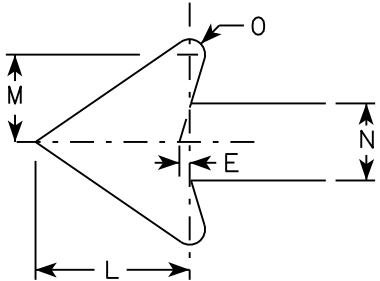
M6 - 2  
MM6 - 2  
M06 - 2  
MP6 - 2



MB6 - 1  
MK6 - 1  
MN6 - 1  
MR6 - 1



MB6 - 2  
MK6 - 2  
MN6 - 2  
MR6 - 2



NOTES

- Signs are Type II - Type H 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																											
2	21		1 1/8	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 1/2	1/2					3.06
3	30		1 3/8	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 7/8	1/2					6.25
4	30		1 3/8	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 7/8	1/2					6.25
5	30		1 3/8	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 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN  
M6 - 1 & M6 - 2  
SERIES

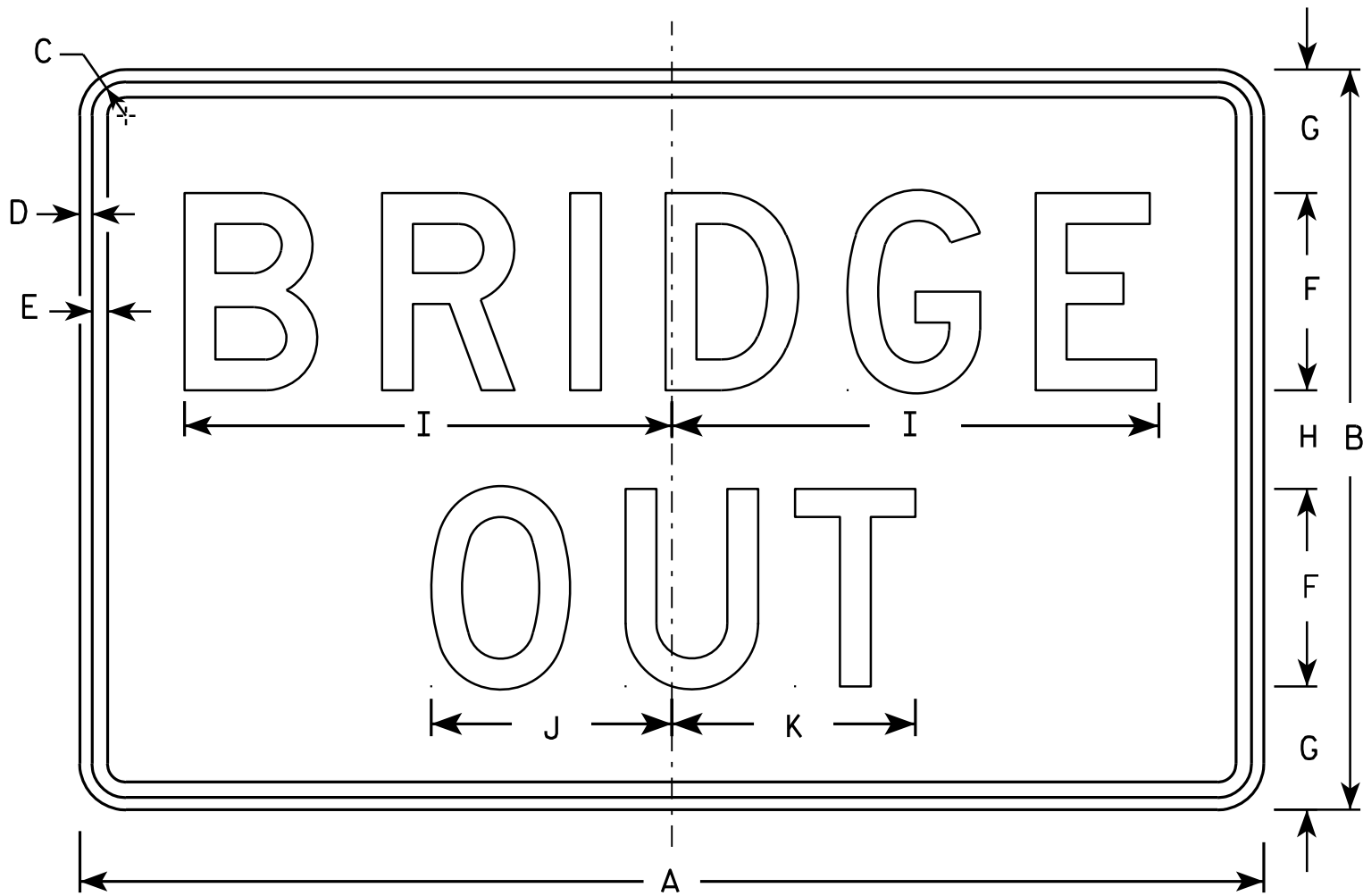
WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
  - Background - White
  - Message - Black
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



R11-2B

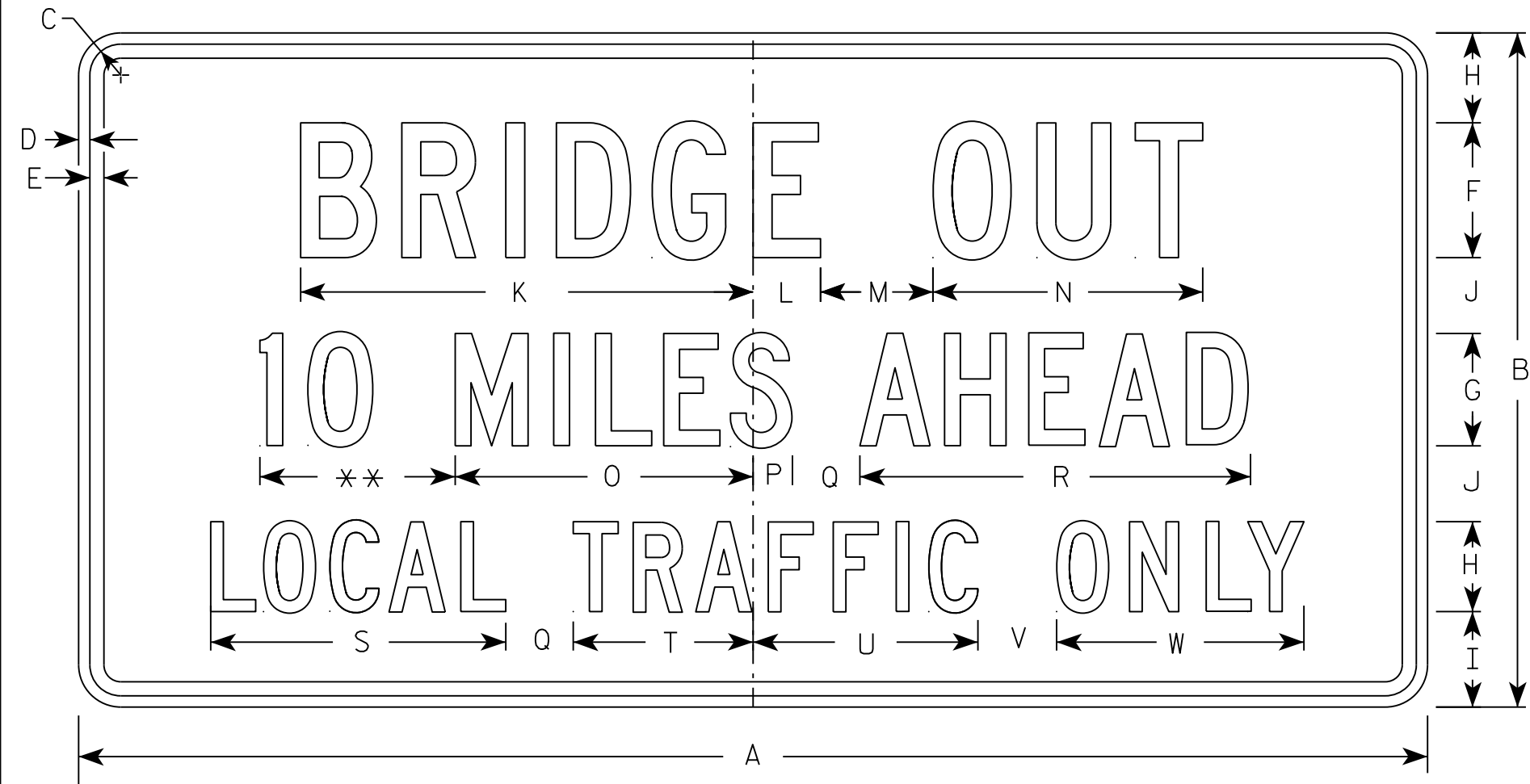
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN	
R11-2B	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/11	PLATE NO. R11-2B.2



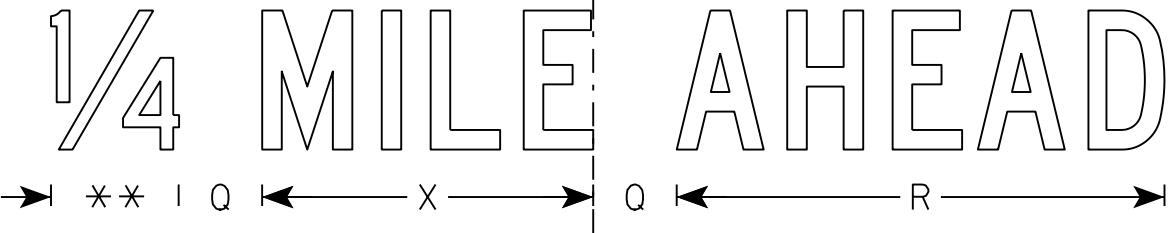
NOTES

- 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.



\*\* See Note 5

R11-3B



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 3⁄8	1⁄2	5⁄8	4	3	2 1⁄2	2	2	13 1⁄4	2 1⁄4	3	8	8	1 1⁄2	2	10 3⁄4	8 3⁄8	4 3⁄4	6 1⁄2	2	6 3⁄4	7 1⁄8			4.5
2S	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	4 1⁄4	3 3⁄8	20 1⁄8	3	5	12	13 1⁄4	1 3⁄4	3	17 3⁄8	13 1⁄8	8	10	3 1⁄2	11	11 7⁄8			12.5
2M	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	4 1⁄4	3 3⁄8	20 1⁄8	3	5	12	13 1⁄4	1 3⁄4	3	17 3⁄8	13 1⁄8	8	10	3 1⁄2	11	11 7⁄8			12.5
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

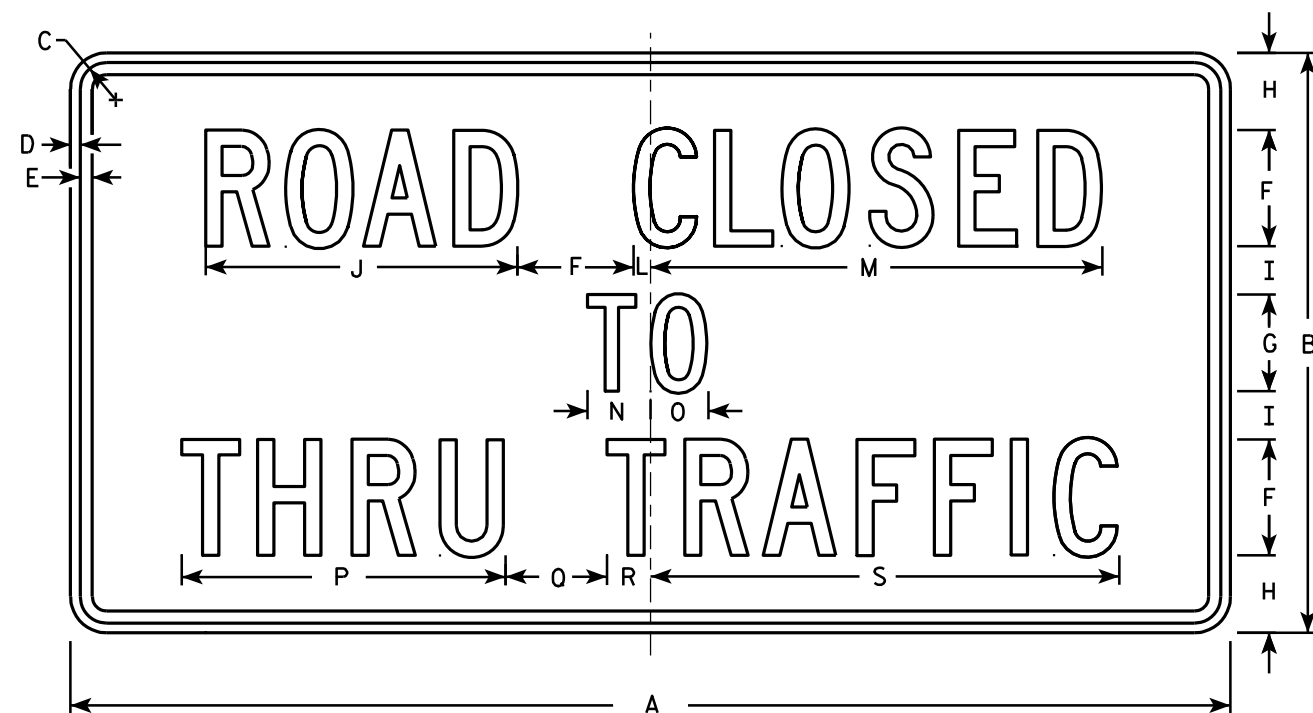
E

STANDARD SIGN  
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/21/17 PLATE NO. R11-3B.3



R11-4

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 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.

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	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	2 1⁄2	16 1⁄8		7⁄8	23 3⁄8	3 1⁄4	3	16 3⁄4	5 1⁄4	2 1⁄4	24 1⁄4								12.5
2M	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	2 1⁄2	16 1⁄8		7⁄8	23 3⁄8	3 1⁄4	3	16 3⁄4	5 1⁄4	2 1⁄4	24 1⁄4								12.5
3																											
4																											
5																											

STANDARD SIGN  
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

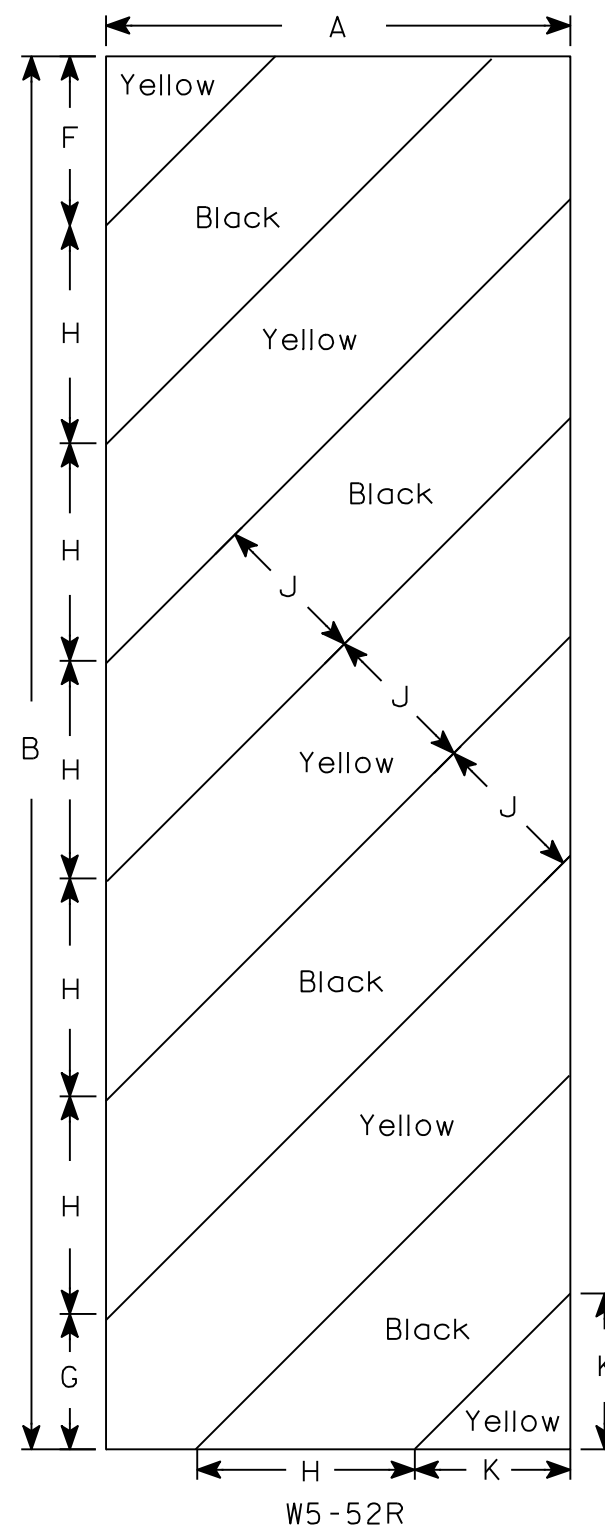
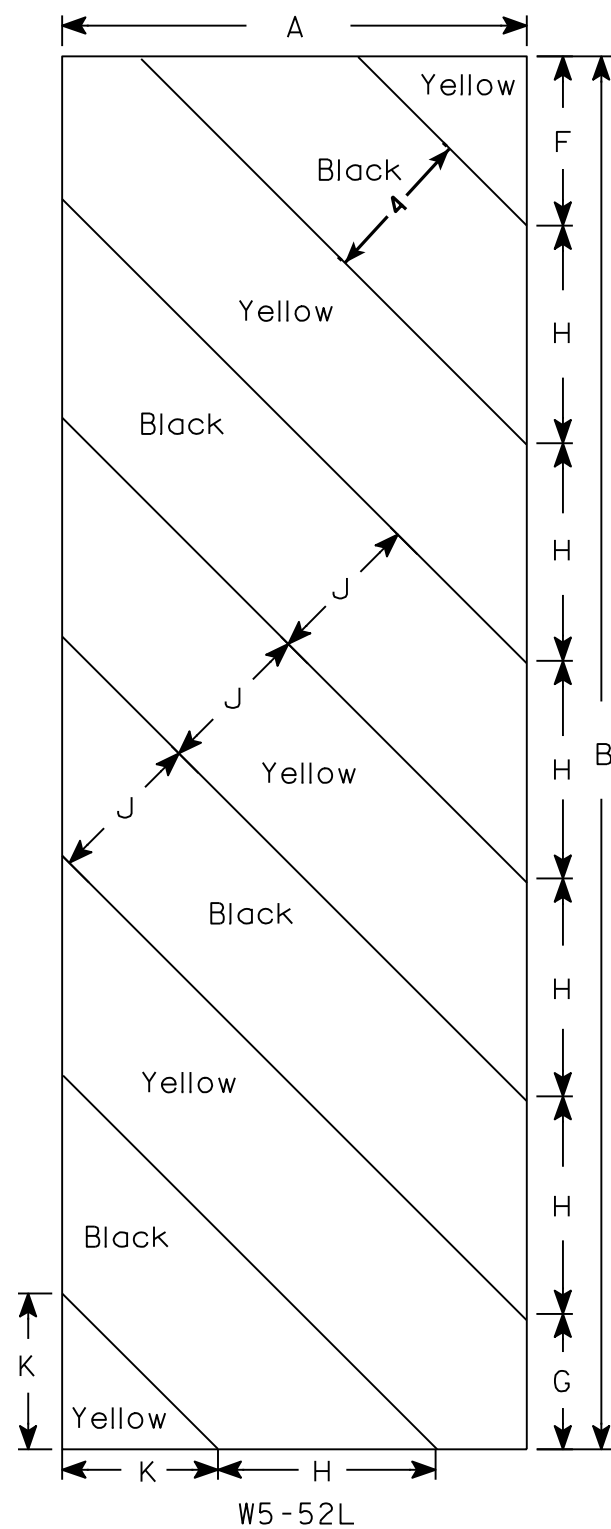
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



## NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
  - Background - Yellow
  - Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

[illegible]

STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch  
for State Traffic Engineer  
DATE 5/29/12 PLATE NO. W5-52.9

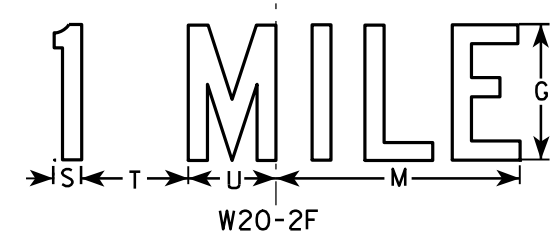
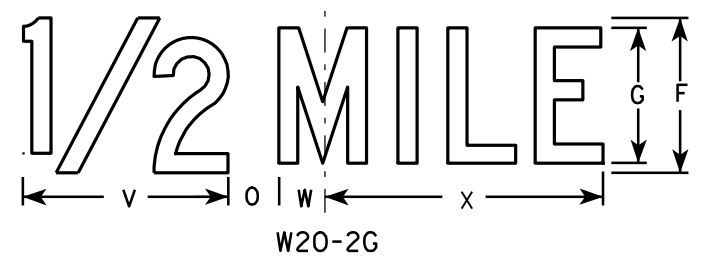
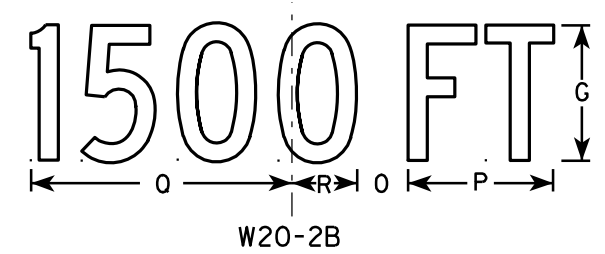
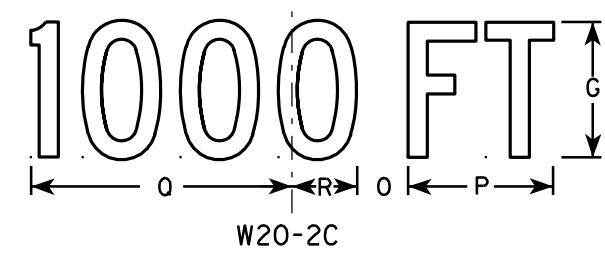
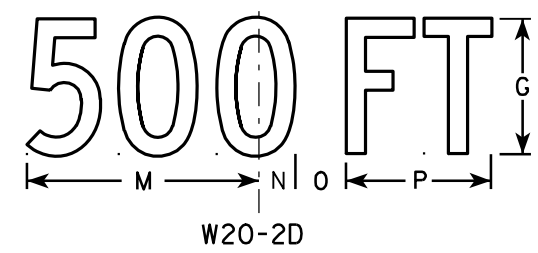
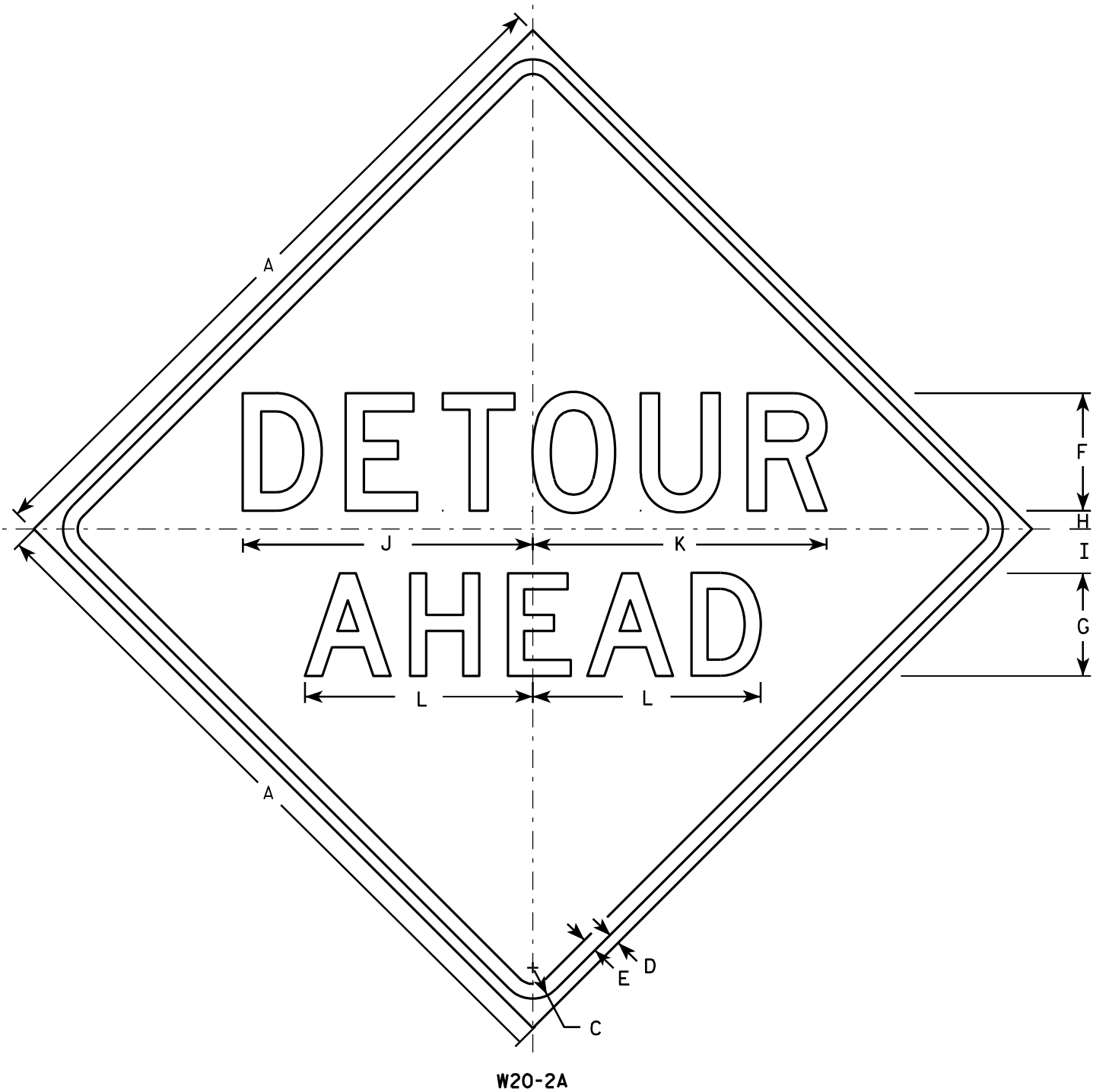
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. 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		1 5/8	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		2 1/4	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		2 1/4	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		2 1/4	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		2 1/4	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		2 1/4	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 *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

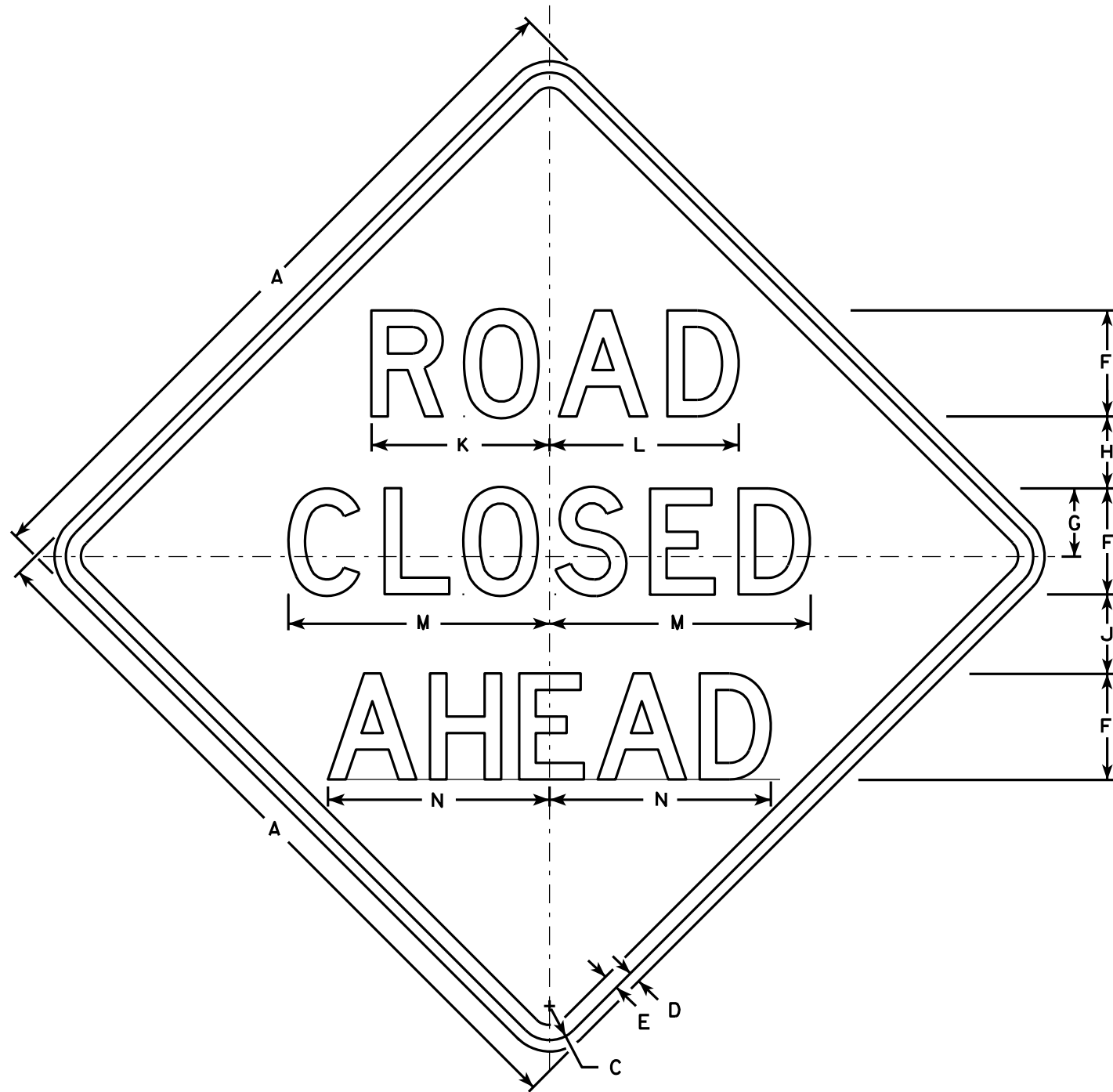
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



W20-3A

500 FT

W20-3D

1000 FT

W20-3C

1500 FT

W20-3B

1/2 MILE

W20-3G

1 MILE

W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.  
Line 3 is Series D for AHEAD and Series C for all other distances.

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

STANDARD SIGN  
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

## NOTES

- INDICATES WING NUMBER  
\* ANCHOR ASSEMBLY FOR THRIE BEAM GUARD  
WL WING LENGTH

PI STA = 54+71.79  
Y = 333600.036  
X = 801859.278  
DELTA = 64°51'36"  
D = 8°36'57"  
T = 422.51'  
L = 752.80'  
R = 665.00'  
PC STA = 50+49.28  
PT STA = 58+02.07

STATE PROJECT NUMBER

7157-00-70

## DESIGN DATA

LIVE LOAD: \_\_\_\_\_  
DESIGN LOADING: \_\_\_\_\_ HL-93  
INVENTORY RATING FACTOR: \_\_\_\_\_ 1.14  
OPERATING RATING FACTOR: \_\_\_\_\_ 1.47  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING  
SURFACE OF 20 LBS. PER SQUARE FOOT (DEAD LOAD).

MATERIAL PROPERTIES:  
CONCRETE MASONRY, SLAB SUPERSTRUCTURE  $f'_c = 4,000$  P.S.I.  
ALL OTHER  $f'_c = 3,500$  P.S.I.  
HIGH STRENGTH BAR STEEL REINFORCEMENT  $f_y = 60,000$  P.S.I.

## FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING  
RESISTANCE OF 180 \*TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC  
FORMULA. ESTIMATED LENGTHS ARE 70'-0" AT NORTH ABUTMENT AND 75'-0" AT SOUTH  
ABUTMENT.

\*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE  
REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED  
GATES TO DETERMINE DRIVEN PILE CAPACITY.

## HYDRAULIC DATA:

## 100 YEAR FREQUENCY

$Q_{100}$  \_\_\_\_\_ 3,360.00 C.F.S.  
VELOCITY \_\_\_\_\_ 8.89 FT./SEC.  
HIGH WATER ELEVATION \_\_\_\_\_ 675.94  
WATERWAY AREA \_\_\_\_\_ 377.92 SQ. FT.  
DRAINAGE AREA \_\_\_\_\_ 46.4 SQ. MI.  
SCOUR CRITICAL CODE \_\_\_\_\_ 5  
OVER TOPPING FREQUENCY \_\_\_\_\_ N/A

## 2 YEAR FREQUENCY

$Q_2$  \_\_\_\_\_ 1291 C.F.S.  
VELOCITY \_\_\_\_\_ 5.67 FT./SEC.  
HIGH WATER ELEVATION \_\_\_\_\_ 672.00

## ROADWAY OVERFLOW DESIGN FREQUENCY

OVERTOPPING FREQUENCY \_\_\_\_\_ 100 YEARS

## TRAFFIC DATA:

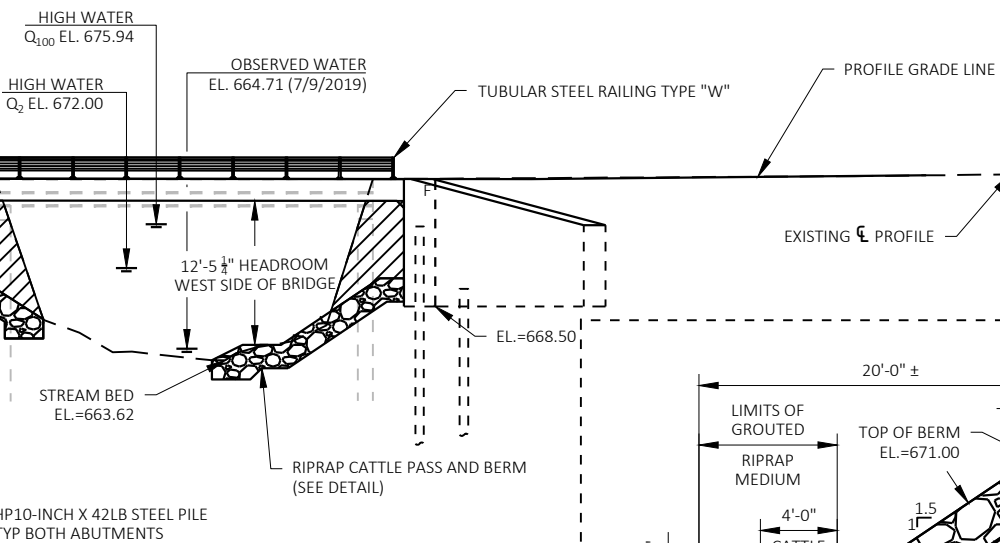
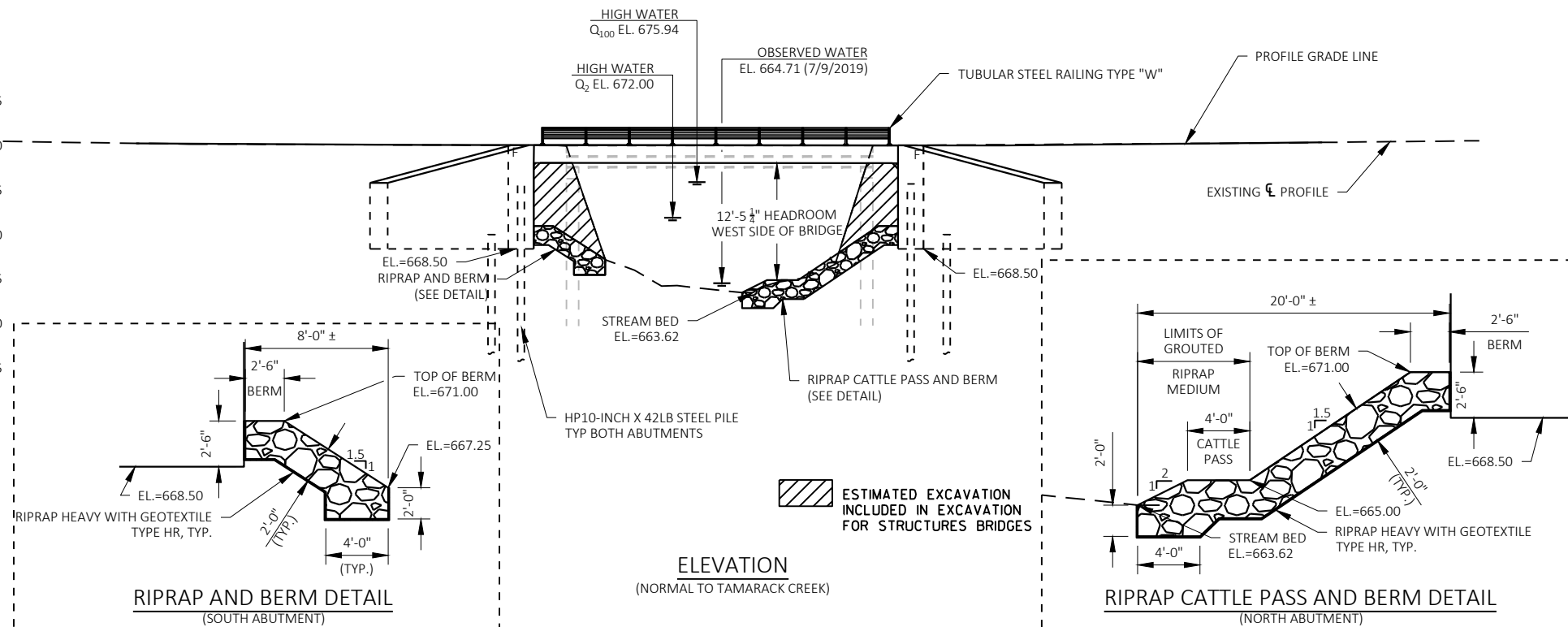
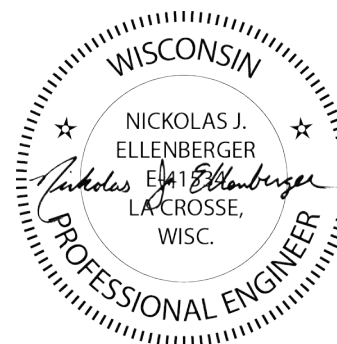
AADT (2021) = 815  
AADT (2041) = 897  
ROADWAY DESIGN SPEED = 44 MPH

## LIST OF DRAWINGS:

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. ABUTMENTS
5. ABUTMENT DETAILS
6. SUPERSTRUCTURE
7. STEEL RAILING TYPE W

## BENCHMARKS

NO.	DESCRIPTION	Y	X	ELEVATION
BM #1	PK NAIL	333172.447	801889.434	680.457

PLAN  
(SINGLE SPAN FLAT CONCRETE SLAB STRUCTURE)ELEVATION  
(NORMAL TO TAMARACK CREEK)RIPRAP AND BERM DETAIL  
(SOUTH ABUTMENT)RIPRAP CATTLE PASS AND BERM DETAIL  
(NORTH ABUTMENT)

BRIDGE OFFICE CONTACT  
AARON BONK, P.E.  
(608) 261-0261

CONSULTANT CONTACT  
NICK ELLENBERGER, P.E.  
(608) 789-2034

NO.	DATE	REVISION	BY
ORIGINAL		PLANS PREPARED BY	
		LA CROSSE OFFICE	
		201 MAIN STREET	
		SUITE 1020	
		LA CROSSE, WI 54601	
		STATE OF WISCONSIN	
		DEPARTMENT OF TRANSPORTATION	
ACCEPTED		SPR 11/23/20	
		CHIEF STRUCTURES DESIGN ENGINEER	
		DATE	
		STRUCTURE B-61-241	
		CTH G OVER TAMARACK CREEK	
		COUNTY TREMPLEALEAU	TOWN TREMPLEALEAU
		DESIGN SPEC.	
		AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS	
DESIGNED BY	DCM	DESIGN CK'D BY	NJE
DRAWN BY	NLH	PLANS CK'D BY	ASN
		GENERAL PLAN	
		SHEET 1 OF 7	

I.D. 7157-00-70

DATE: 11/12/2020 10:55 AM

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE 'HR' TO THE LIMITS SHOWN ON THE GENERAL PLAN SHEET AND ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-61-241" SHALL BE THE EXISTING GROUND LINE.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THIS STRUCTURE WILL REPLACE THE EXISTING BRIDGE, B-61-0967, A 43.6' LONG BY 25.5' CLEAR ROADWAY WIDTH SINGLE SPAN STEEL DECK GIRDER BRIDGE.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

AT THE ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153 TYPE I, II, OR III OR AASHTO DESIGNATION M213

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED PER STANDARD SPECIFICATIONS AND TO THE LIMITS SHOWN IN DETAIL ON THIS SHEET.

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

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK AND  $\frac{3}{8}$ " CONCRETE SCREWS.

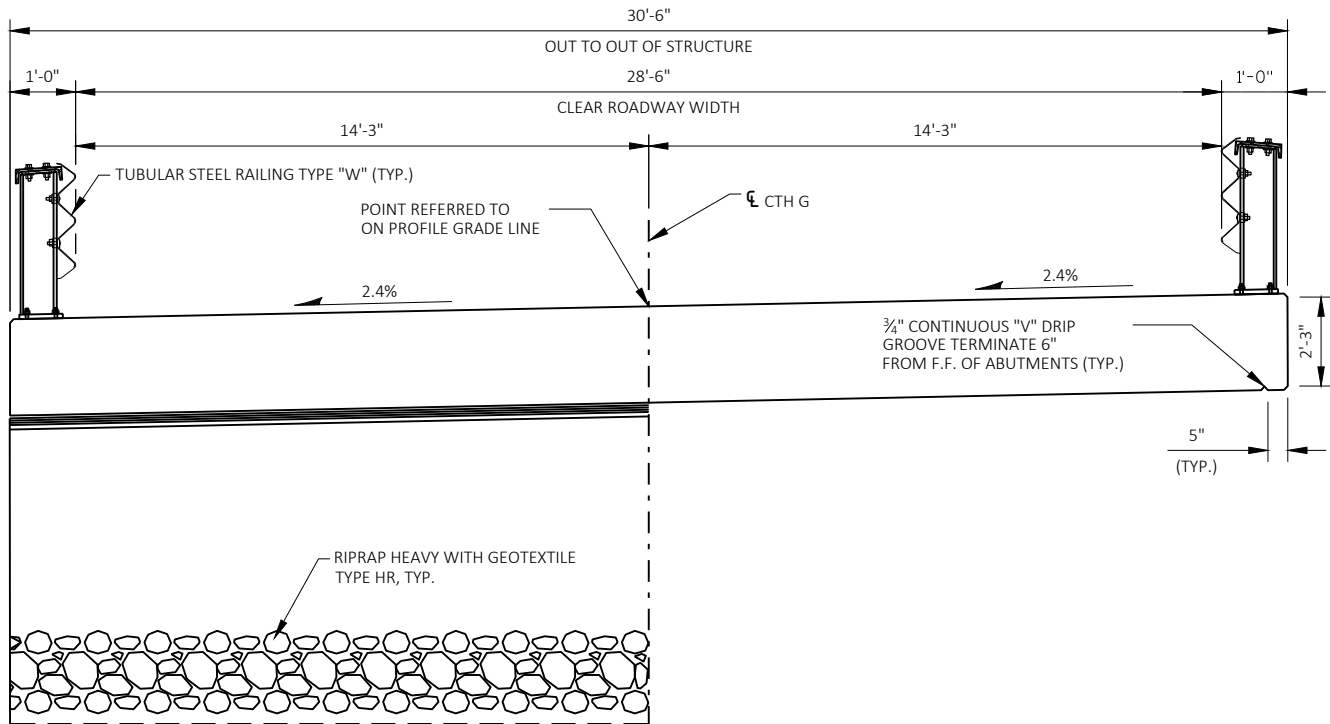
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO B.F. OF ABUTMENT DIAPHRAGM.

TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK/SLAB SURFACE.

THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.



AT ABUTMENT  
(PILING NOT SHOWN)

IN SPAN

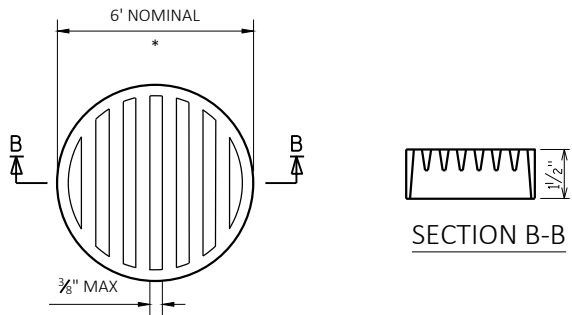
CROSS SECTION THROUGH BRIDGE  
(LOOKING NORTH)

"GEOTEXTILE TYPE DF SCHEDULE A" LIMITS

PIPE UNDERDRAIN WRAPPED 6-INCH

TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL THIS SHEET

PIPE UNDERDRAIN DETAILS

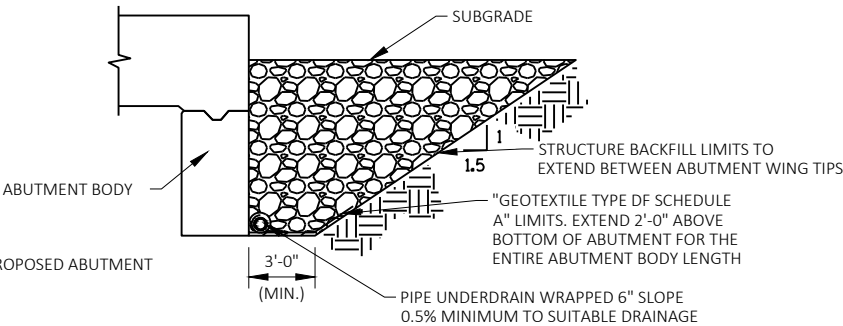


RODENT SHIELD DETAIL

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

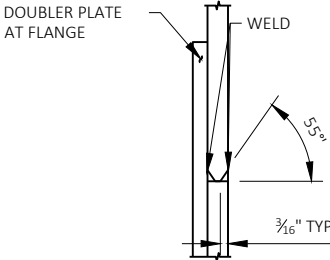
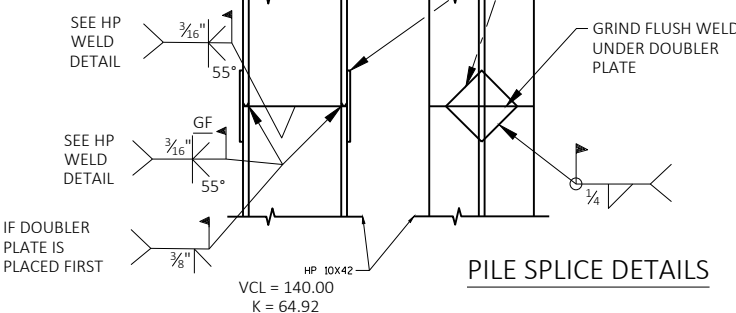
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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.



STRUCTURE BACKFILL & PIPE UNDERDRAIN DETAIL  
(TYPICAL AT BOTH ABUTMENTS)

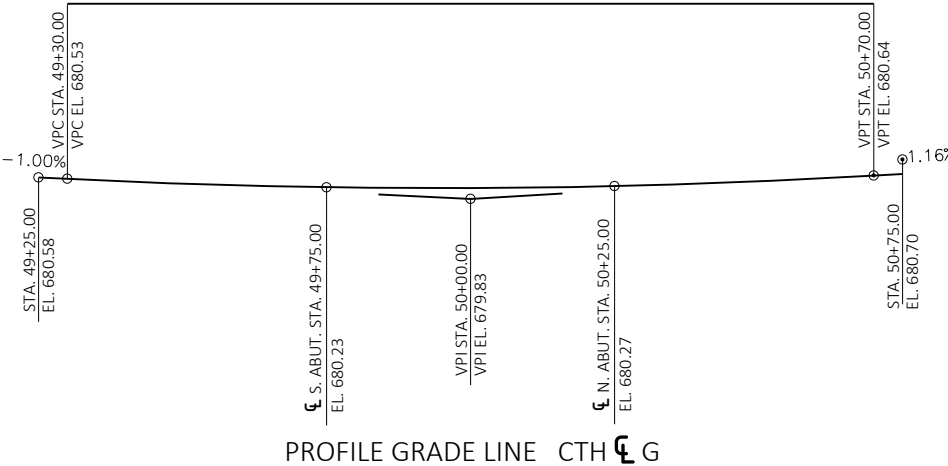
\* OSHA MINIMUM REQUIREMENT A SLOPE OF 1.5:1 WAS USED FOR QUANTITY CALCULATIONS



HP WELD DETAIL  
FLANGE SHOWN, WEB SIMILAR

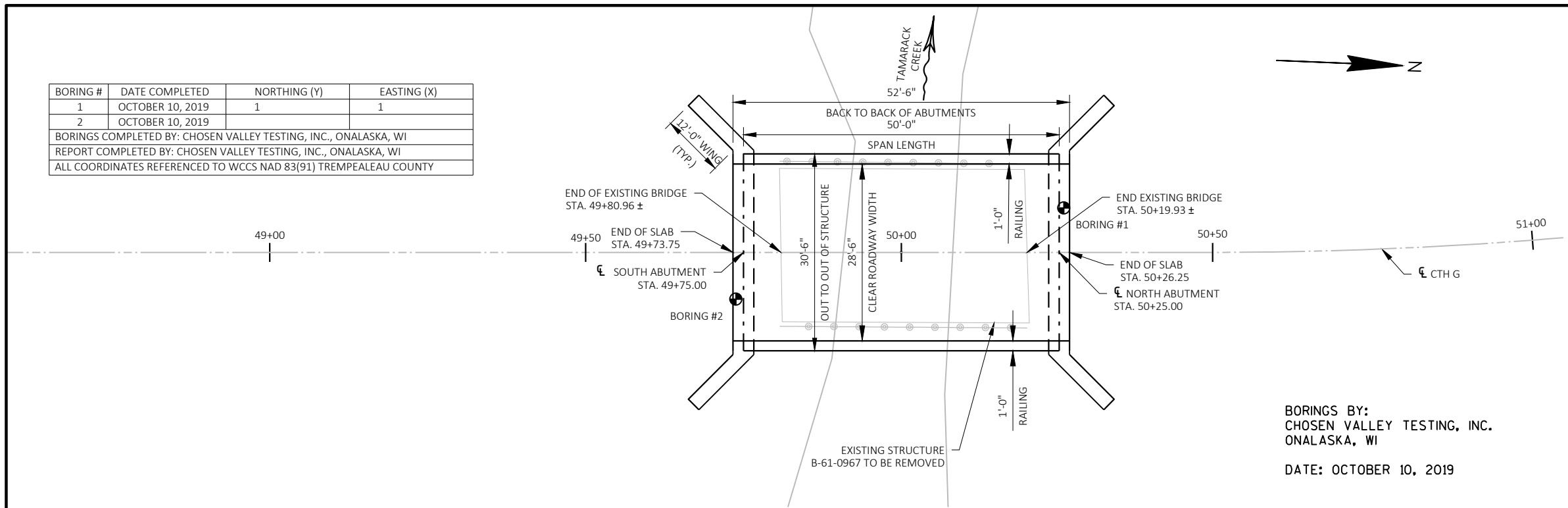
TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTALS
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 50+00	LS	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES, BRIDGES B-61-241	LS	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	275	275	---	550
502.0100	CONCRETE MASONRY BRIDGES	CY	49	49	158	256
502.3200	PROTECTIVE SURFACE TREATMENT	SY	21	21	219	261
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,560	2,560	---	5,120
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,937	1,937	22,175	26,049
513.7051	RAILING STEEL TYPE W	LF	---	---	100	100
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	7	---	14
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	508	466	---	974
606.0300	RIPRAP HEAVY	CY	83	121	---	204
606.0600	GROUTED RIPRAP MEDIUM	CY	---	28	---	28
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	97	97	---	194
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	44	44	---	88
645.0120	GEOTEXTILE TYPE HR	SY	49	89	---	138
SPV.0090.01	FLASHING STAINLESS STEEL	LF	---	---	105	105
NON BID ITEMS						
	FILLER	SIZE				1/2" & 3/4"

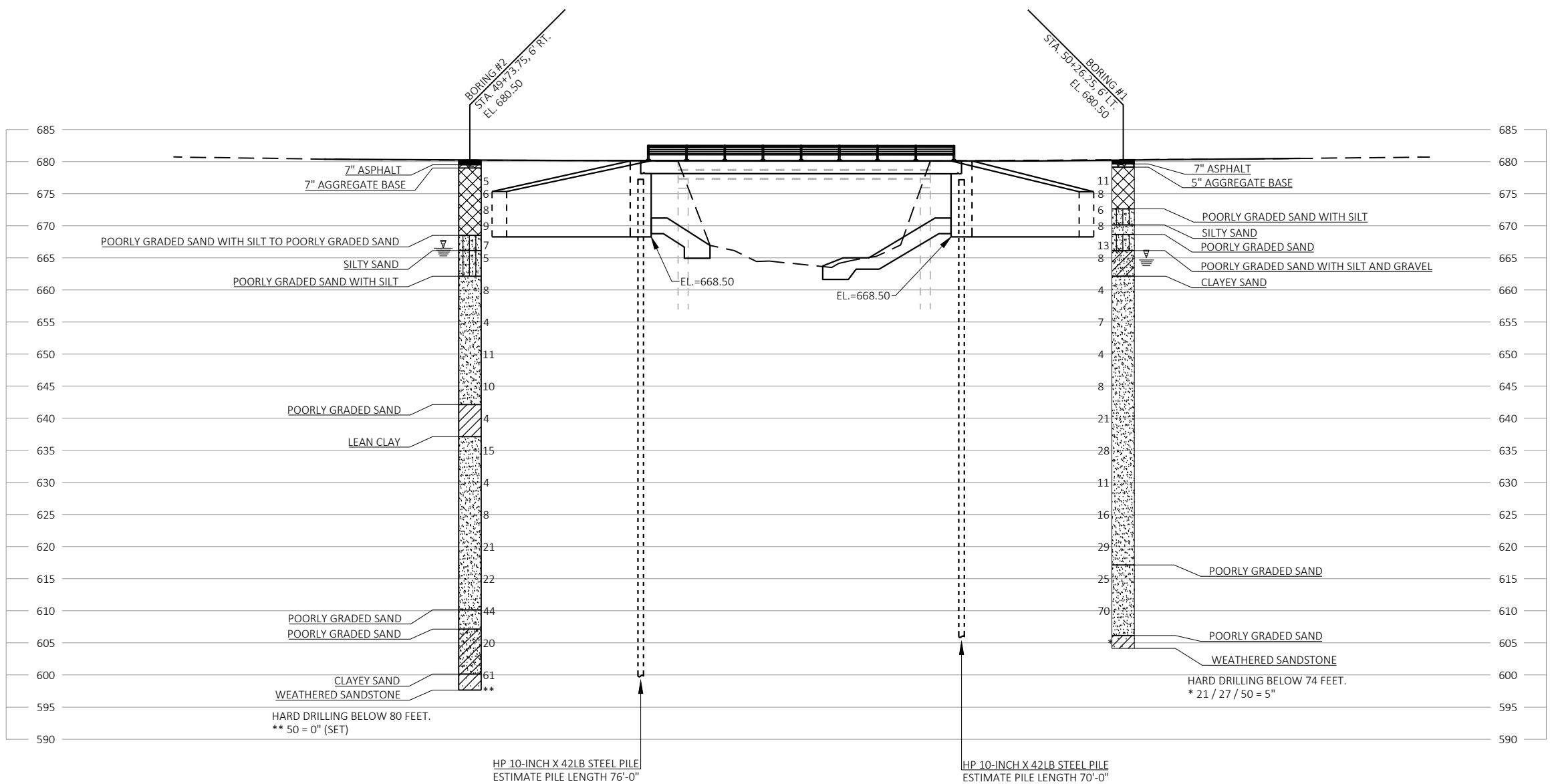


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-61-241			
DRAWN BY NLH		PLANS CK'D. ASN	
CROSS SECTION & QUANTITIES		SHEET 2 OF 7	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	OCTOBER 10, 2019	1	1
2	OCTOBER 10, 2019		
BORINGS COMPLETED BY: CHOSEN VALLEY TESTING, INC., ONALASKA, WI			
REPORT COMPLETED BY: CHOSEN VALLEY TESTING, INC., ONALASKA, WI			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) TREMPLEAU COUNTY			



BORINGS BY:  
CHOSEN VALLEY TESTING, INC.  
ONALASKA, WI  
DATE: OCTOBER 10, 2019



STATE PROJECT NUMBER		
7157-00-70		
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

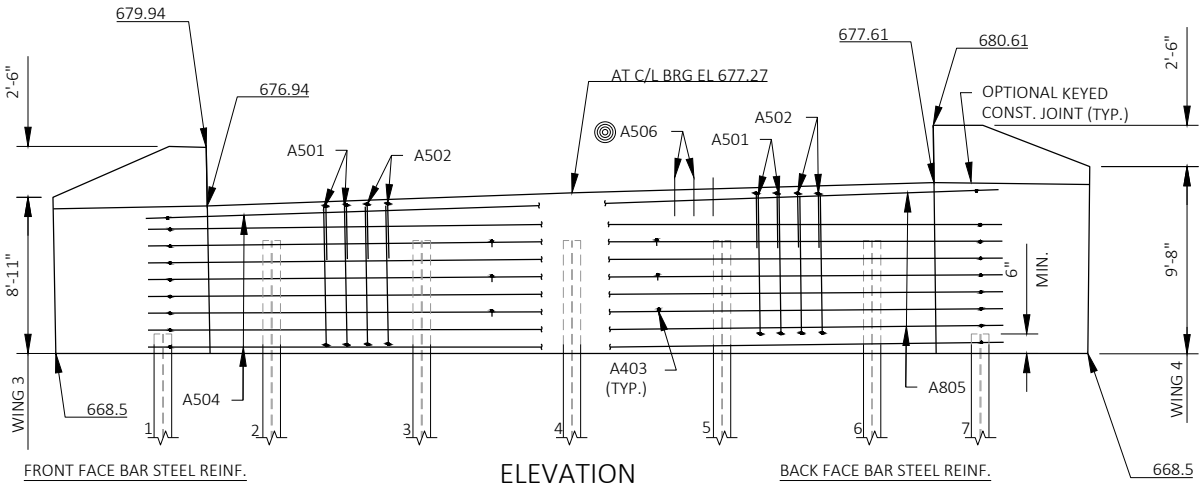
F-Fine M-Medium C-Coarse st-shelby tube

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

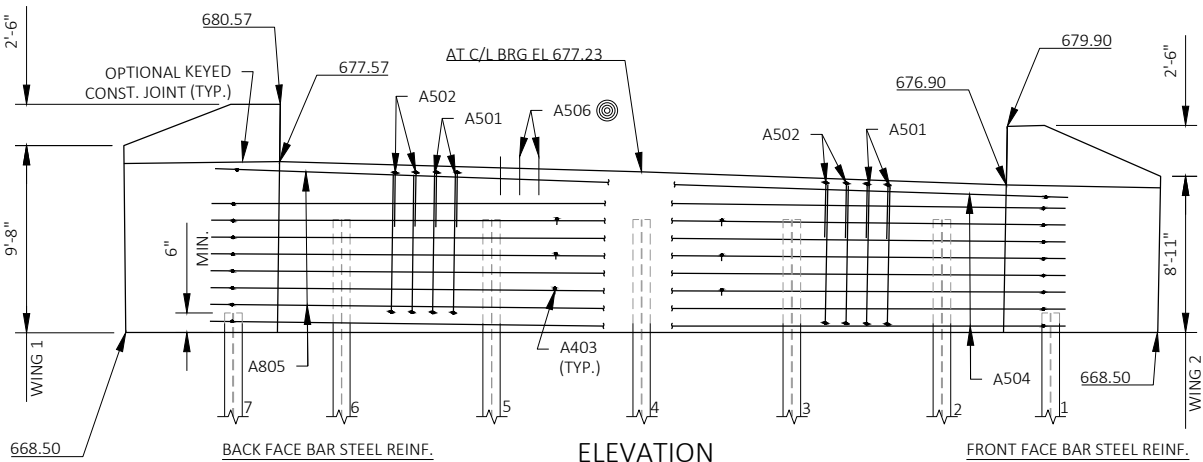
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-61-241			
DRAWN BY NLH		PLANS CK'D. ASN	
SUBSURFACE EXPLORATION		SHEET 3 OF 7	

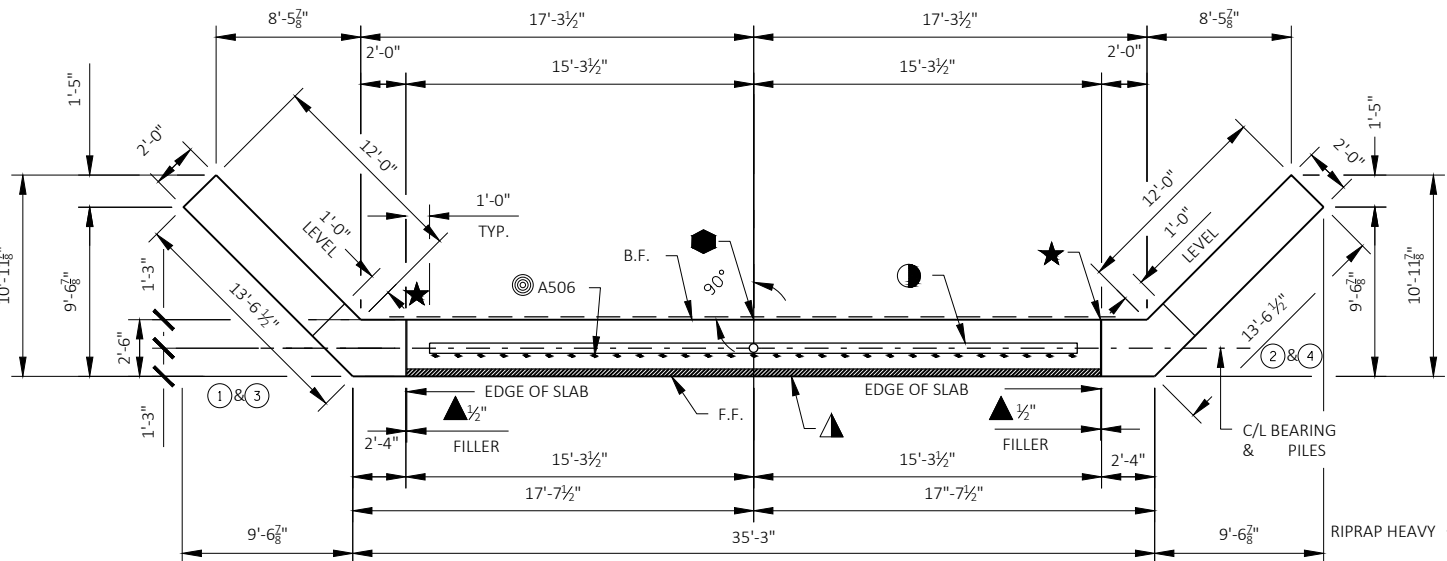




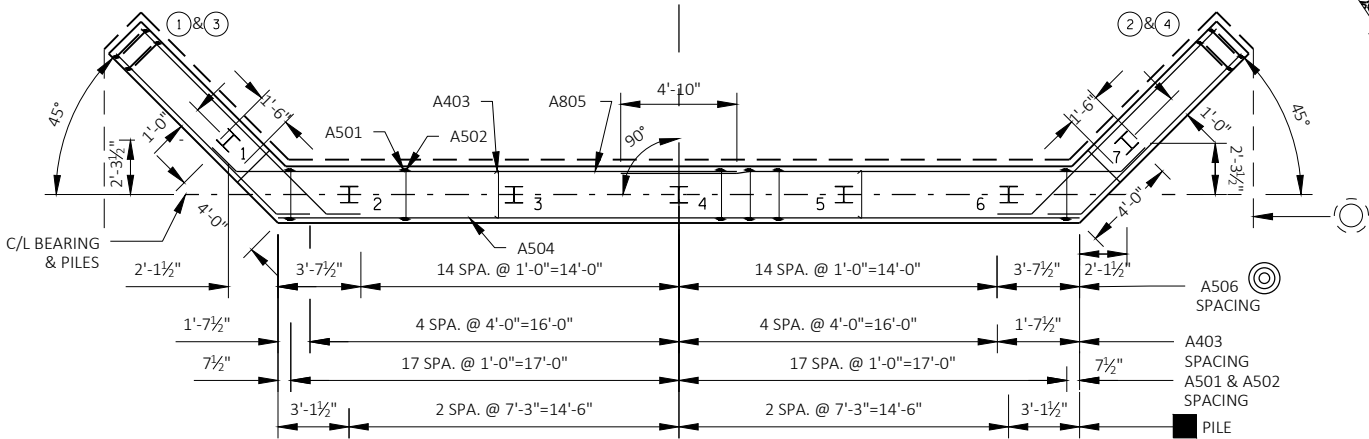
ELEVATION  
(NORTH ABUTMENT LOOKING NORTH)



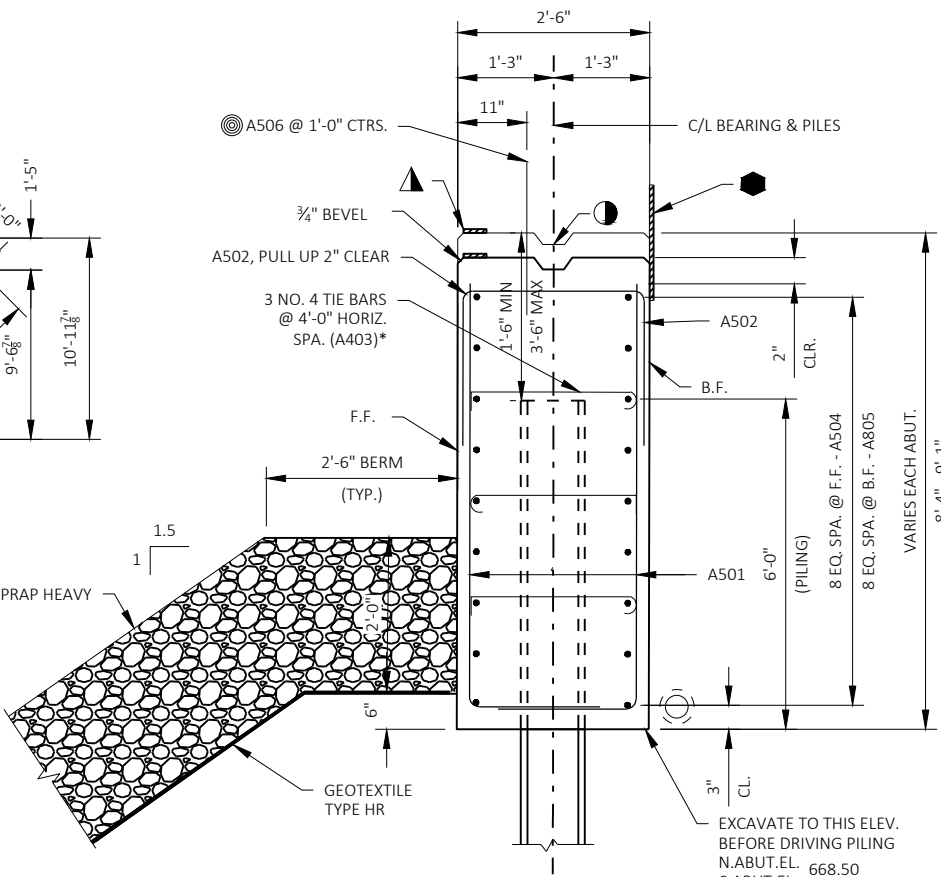
ELEVATION  
(SOUTH ABUTMENT LOOKING SOUTH)



PLAN



LAYOUT



TYPICAL SECTION THRU ABUTMENT

NOTES

SOME BARS ARE OMITTED FOR CLARITY, SEE SHEET 5 FOR BILL OF BARS

DO NOT PLACE FILL HIGHER THAN 3 FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - FRONT FACE

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 \*TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTHS ARE 70'-0" AT NORTH ABUTMENT AND 75'-0" AT SOUTH ABUTMENT

LEGEND

OPTIONAL KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6 IF JOINT IS USED PLACE RUBBERIZED MEMBRANE WATERPROOFING ON B.F. OF WING.

KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.

1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).

4"x3/4" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.

VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.

HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS. PLACE BOTTOM HALF HORIZONTAL AT HAUNCHED AREA OF WINGS IF OPTIONAL CONSTRUCTION JOINT IS USED.

PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.

INDICATES WING NUMBER.

A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0"

PILE SPACING MEASURED AT BASE OF ABUTMENT BODY.

\* ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LATER OF TIES

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-61-241			
DRAWN BY NLH		PLANS CK'D. ASN	
ABUTMENTS		SHEET 4 OF 7	

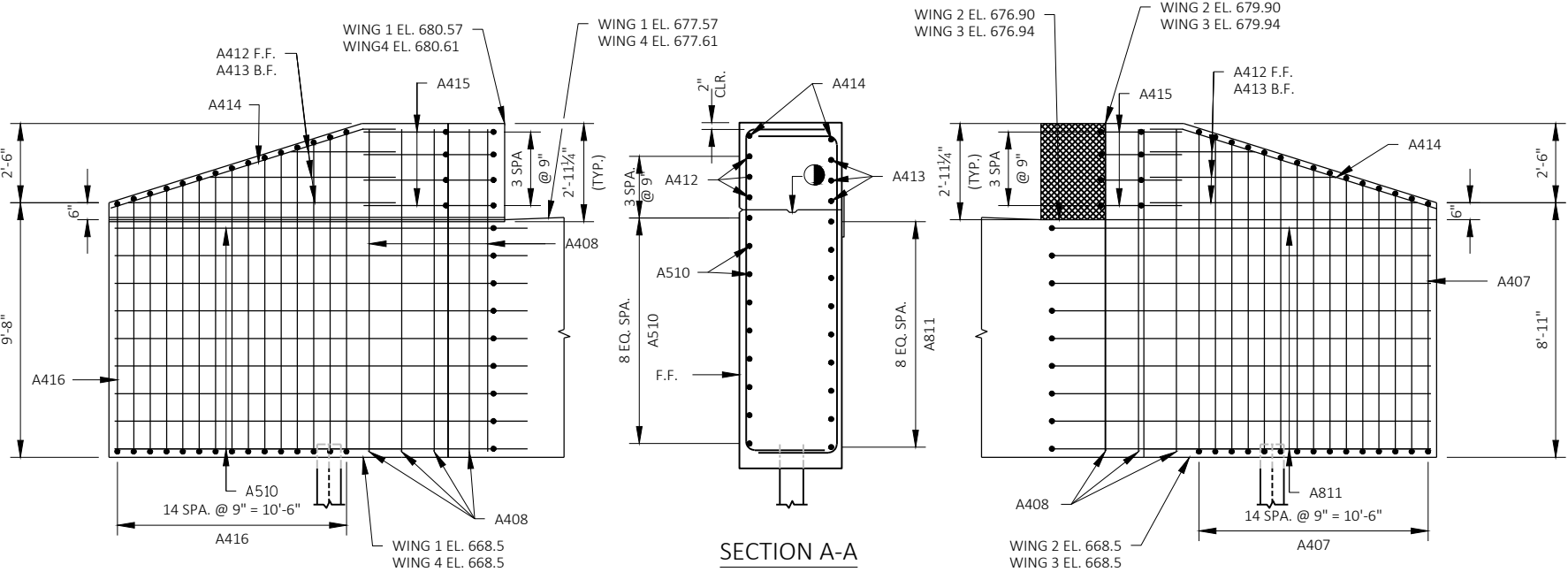
BILL OF BARS (COATED) 3,873 LBS.  
(UNCOATED) 5,120 LBS.

MARK	NUMBER REQUIRED		LENGTH	BENT	BAR SERIES	LOCATION
	COATED	UNCOATED				
A5C1	-	140	9'-5"	X		BODY - VERT. - F.F. & B.F.
A5C2	-	70	9'-9"	X		BODY - VERT. - TOP
A4C3	-	54	3'-0"	X		TIE BARS
A5C4	-	18	35'-0"			BODY - HORIZ. - F.F.
A8C5	-	36	23'-8"	X		BODY - HORIZ. - B.F.
A5C6	58	-	2'-0"			BODY - VERT. - DOWELS
A4C7	60	-	12'-3"	X	*	WINGS 2 & 3 - VERT. - F.F. & B.F.
A4C8	18	-	11'-9"			WINGS 2 & 3 - VERT.
A4C9	18	-	11'-0"			WINGS 1 & 4 - VERT.
A510	36	-	14'-8"	X		WINGS - VERT. - F.F.
A811	36	-	16'-2"	X		WINGS - HORIZ. - B.F.
A412	12	-	9'-11"		*	WINGS - HORIZ. - F.F. & B.F.
A413	12	-	8'-5"		*	WINGS - HORIZ. - F.F. & B.F.
A414	8	-	12'-0"	X		WINGS - HORIZ. - F.F. & B.F. - TOP
A415	16	-	9'-6"	X		WINGS - HORIZ. - TOP
A416	60	-	13'-0"	X	*	WINGS 1 & 4 - VERT. - F.F. & B.F.
A417	20	-	3'-5"	X		WINGS - CORNER STRIPS

\* - TOTAL SHOWN IS FOR BOTH ABUTMENTS  
- LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.  
- DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS  
- EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL REINFORCEMENT

BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
A407	4 SEES OF 3	11'-0" TO 13'-5"
A412	4 SEES OF 3	13'-3" TO 16'-7"
A413	4 SEES OF 3	11'-3" TO 15'-1"
A415	4 SEES OF 3	11'-8" TO 14'-3"



F.F. ELEVATION-WINGS 1 & 4

F.F. ELEVATION-WINGS 2 & 3

LEGEND

OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2X6. 3/4" "V" GROOVE AT FRONT FACE OF WING WALL AND HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK FACE IF CONSTRUCTION JOINT IS USED. COST IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

NOTES

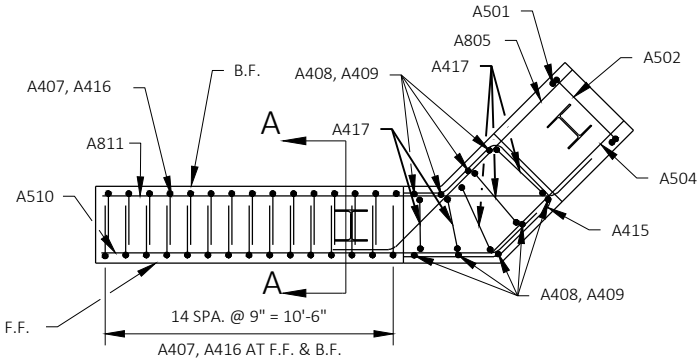
SOME BARS ARE OMITTED FOR CLARITY, SEE THIS SHEET FOR BILL OF BARS

SPACE REINFORCEMENT TO MISS PILING

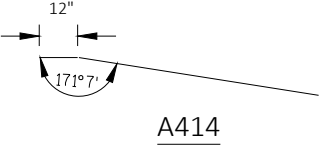
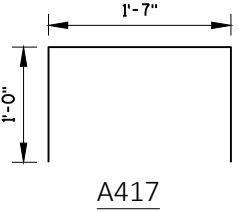
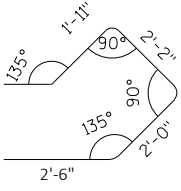
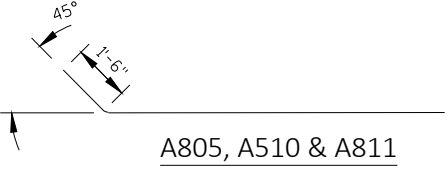
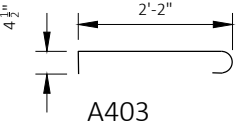
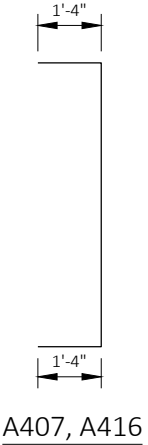
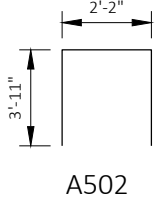
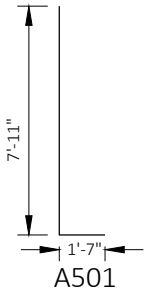
F.F. - FRONT FACE

B.F. - FRONT FACE

FOUNDATION DATA:  
ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 \*TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA ESTIMATED LENGTHS ARE 70'-0" AT NORTH ABUTMENT AND 75'-0" AT SOUTH ABUTMENT.



PLAN VIEW - WINGS 1 & 4  
WINGS 1 & 4 SHOWN, WINGS 2 & 3 SIMILAR



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-61-241			
DRAWN BY NLH		PLANS CK'D. NJE	
ABUTMENT DETAILS		SHEET 5 OF 7	

GENERAL NOTES

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

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

BILL OF BARS (COATED) 22,175 LBS.				
MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	62	7'-9"	X	DIAPHRAGM @ ABUTS. - LONGIT.
S1102	31	52'-2"		SLAB BOTTOM - LONGIT.
S1103	30	39'-4"		SLAB BOTTOM - LONGIT.
S504	136	30'-2"		SLAB TOP & BOTTOM - TRANS.
S505	31	52'-2"		SLAB TOP - LONGIT.
S606	36	12'-0"	X	SLAB @ RAIL POST, TWO PER POST - TRANS
S607	28	4'-0"		SLAB @ RAIL POST, TWO PER POST - LONGIT.
S608	8	4'-0"	X	SLAB @ END RAIL POST, TWO PER POST - LONGIT.
- DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR. - EPOXY COAT ALL SUPERSTRUCTURE BAR STELL REINFORCEMENT. - FOR ACTUAL LENGTHS. BEND BAR AFTER CUTTING				

CAMBER DIAGRAM

CAMBER SPANS AS SHOWN ABOVE AND IN THE TABLE OF VALUES TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

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

TOP OF SLAB ELEVATION AT FINAL GRADE

- SLAB THICKNESS

+ CAMBER

+ FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE  
(TO BE COMPUTED BY THE CONTRACTOR)

= TOP OF SLAB FALSEWORK ELEVATION

SURVEY TOP OF SLAB ELEVATIONS

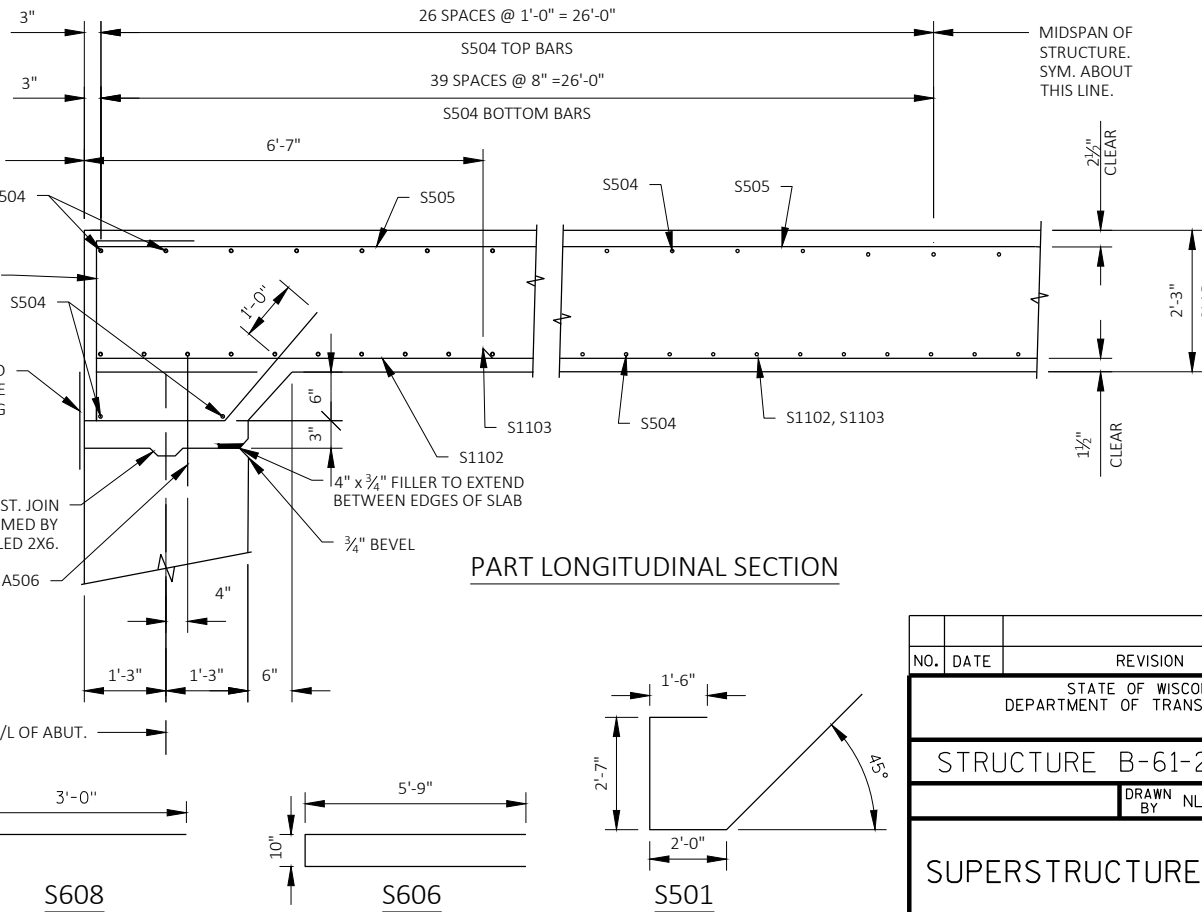
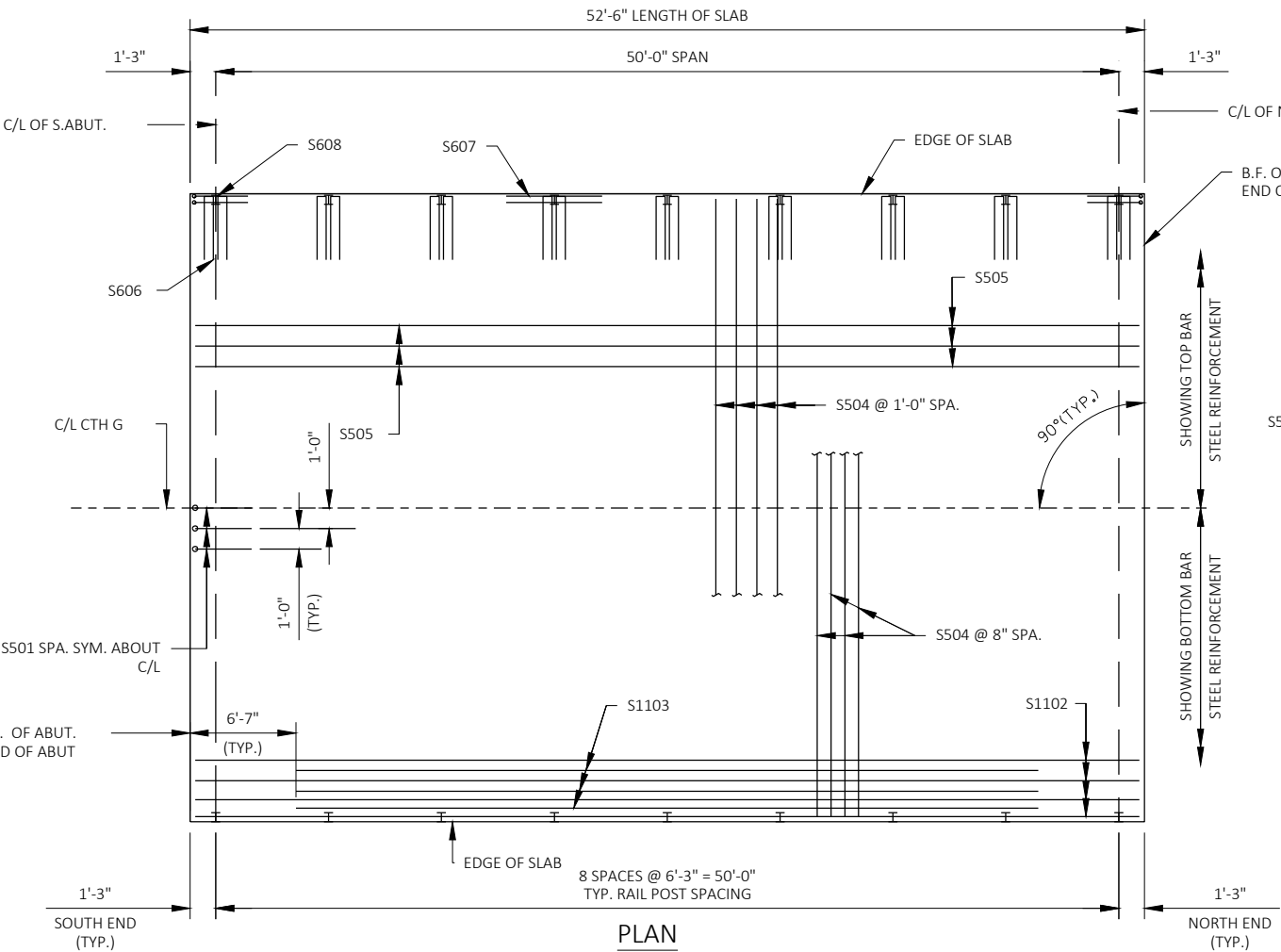
LOCATION	SPAN POINT	WEST SLAB EDGE	C/L CTH G	EAST SLAB EDGE
SOUTH ABUT.	1.0			
	1.5			
NORTH ABUT.	2.0			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS AND AT THE 0.5 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR C/L. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

SURVEY TOP OF SLAB ELEVATIONS AND CAMBER VALUES

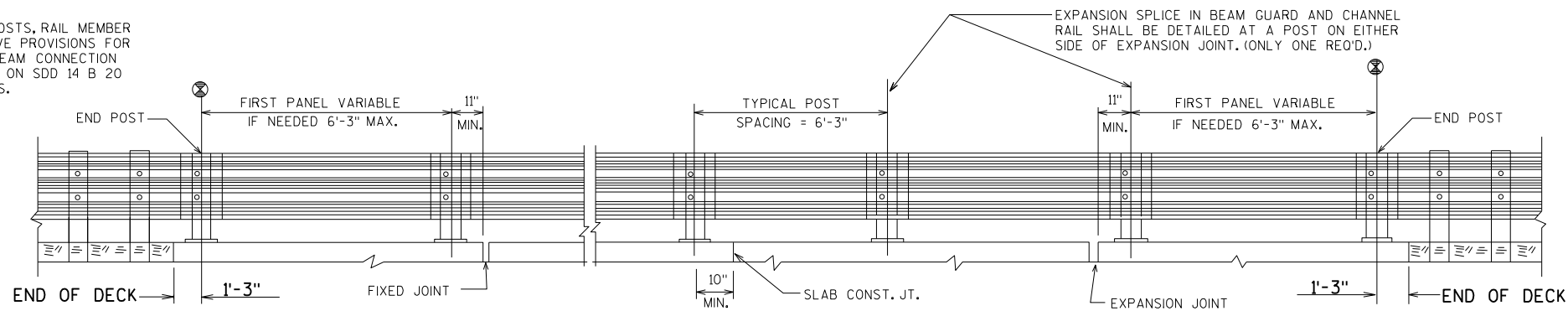
LOCATION	SPAN POINT	EAST SLAB EDGE	C/L CTH G	WEST SLAB EDGE	CAMBER VALUE (INCHES)
SOUTH ABUT.	1.0	686.80	686.83	679.88	0.0
	1.1	686.89	686.92	679.88	0.0
	1.2	686.55	686.21	679.88	1.3
	1.3	686.57	686.22	679.88	1.7
	1.4	686.57	686.20	679.84	2.0
	1.5	686.57	686.21	679.84	2.1
	1.6	686.58	686.21	679.85	2.0
	1.7	686.59	686.22	679.85	1.7
NORTH ABUT.	1.8	686.80	686.88	679.88	1.5
	1.9	686.82	686.85	679.88	0.7
NORTH ABUT.	2.0	686.84	686.87	679.90	0.0

CROSS SECTION THRU BRIDGE  
(LOOKING NORTH)



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-61-241			
DRAWN BY NLH		PLANS CK'D. ASN	
SUPERSTRUCTURE		SHEET 6 OF 7	

AT END POSTS, RAIL MEMBER SHALL HAVE PROVISIONS FOR A THREE BEAM CONNECTION AS SHOWN ON SDD 14 B 20 STANDARDS.



### LEGEND

- ① W6x25 WITH 2 -  $\frac{3}{4}$ " x  $2\frac{1}{2}$ " VERT. SLOTS IN FLG. (SLOT ON OTHER SIDE OF WEB IS OPTIONAL) FOR NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POSTS VERTICAL AND NORMAL TO GRADE LINE.
- ② C8x11.5 WITH  $\frac{1}{16}$ " DIA. HOLES FOR NO. 8.
- ③ BASE PLATE 1" x  $9\frac{1}{2}$ " x 10" WITH  $\frac{1}{16}$ " x  $\frac{1}{2}$ " SLOTTED HOLES FOR ANCHOR BOLTS NO. 4. WELD TO NO. 1 AS SHOWN.
- ④ A325 -  $\frac{7}{8}$ " HEX BOLTS (GALVANIZED) WITH A325 NUT AND WASHER, 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 15". USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 3. CHAMFER TOP OF BOLTS BEFORE THREADING.
- ⑤  $\frac{1}{4}$ " x 8" x 8" FLAT BAR WITH  $\frac{5}{16}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 4.
- ⑥  $1\frac{3}{4}$ " x 3" MOUNTING BOLT WASHER (GALVANIZED).
- ⑦  $\frac{5}{8}$ " DIA. BUTTON HEAD POST MOUNTING BOLT WITH ROUND WASHER AND NUT.
- ⑧  $\frac{5}{8}$ " DIA. x 2" HEX BOLTS WITH NUT AND TWO WASHERS EACH.
- ⑨ PLATE  $\frac{1}{2}$ " x  $5\frac{3}{4}$ " x 6" AT BASIC POST CONNECTION.  $\frac{1}{4}$ " DIA. HOLES IN PLATE.  $\frac{1}{16}$ " DIA. HOLES IN CHANNEL.
- ⑩ PLATE  $\frac{1}{2}$ " x  $5\frac{3}{4}$ " x  $1'-2\frac{1}{2}"$ .  $\frac{1}{4}$ " DIA. HOLES IN PLATE.  $\frac{1}{16}$ " DIA. HOLES IN CHANNEL. EXPANSION SLOTS ON JOINT SIDE OF POST.  $\frac{1}{16}$ " x  $2\frac{1}{4}$ " IN PLATE.  $\frac{1}{16}$ " x  $2\frac{1}{4}$ " IN CHANNEL. (AT EXPANSION SPLICE.)
- ⑪ PLATE  $\frac{1}{2}$ " x  $5\frac{3}{4}$ " x  $11\frac{1}{2}"$ .  $\frac{1}{4}$ " DIA. HOLES IN PLATE.  $\frac{1}{16}$ " DIA. HOLES IN CHANNEL. (AT TYPICAL SPLICE.)

### NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE W" WHICH INCLUDES ALL ITEMS SHOWN.

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 CUTS.

ALL MATERIAL EXCEPT ANCHORAGE DETAIL NO. 5 SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND CHANNELS SHALL BE GIVEN A NO. 6 COMMERCIAL BLAST CLEANING BY SSPC SPECS.

ALL MATERIAL USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

FILL BOLT SLOT OPENINGS IN POST SHIMS & PLATE NO. 3 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

SEE STANDARD SPECIFICATIONS FOR RAIL TYPE.

CHANNEL MEMBER SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF EIGHT (EXCEPT AT ABUTMENTS).

AT EXPANSION SLOTS IN RAIL AND CHANNEL MEMBERS, TIGHTEN BOLTS, BACK OFF ONE HALF TURN AND BURR THREADS. RAIL MEMBERS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC AND THE UPPER RAIL SHALL LAP THE LOWER RAIL.

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

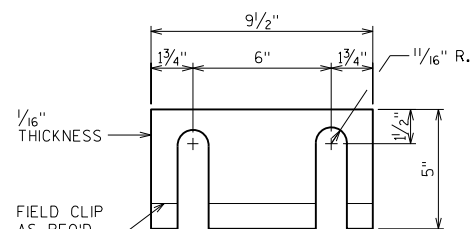
SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.

▲ TIE TO TOP MAT OF STEEL. PUT THESE BARS IN BILL OF BARS FOR SUPERSTRUCTURE.

⊗ PAY LIMITS FOR TYPE "W" STEEL RAILING.

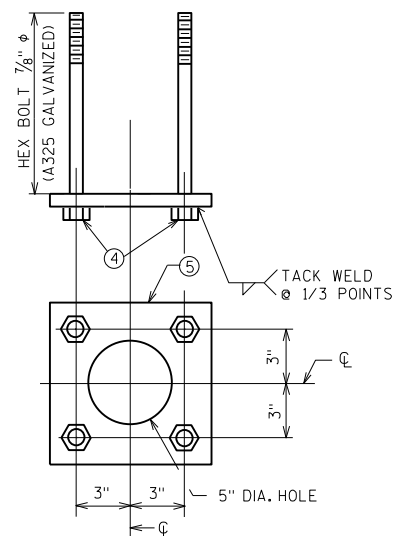
WEIGHT = 45 LB/FT

### ELEVATION OF RAILING

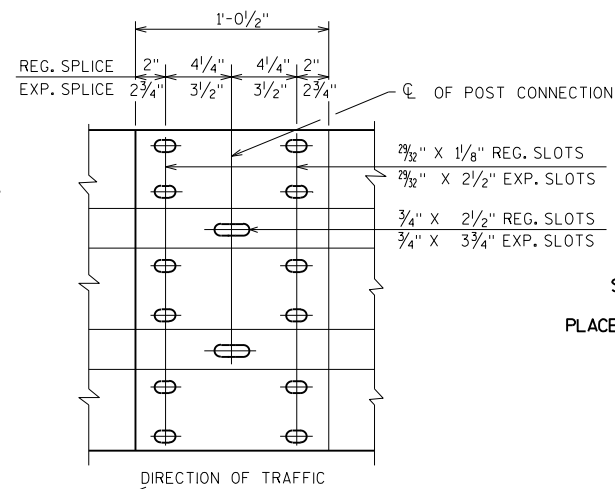


### POST SHIM DETAIL

4 PER POST

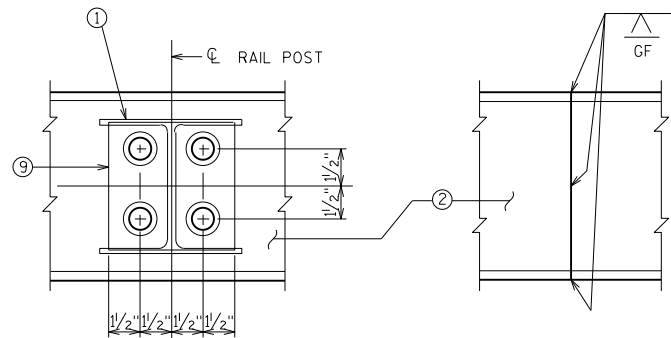


### ANCHORAGE DETAIL



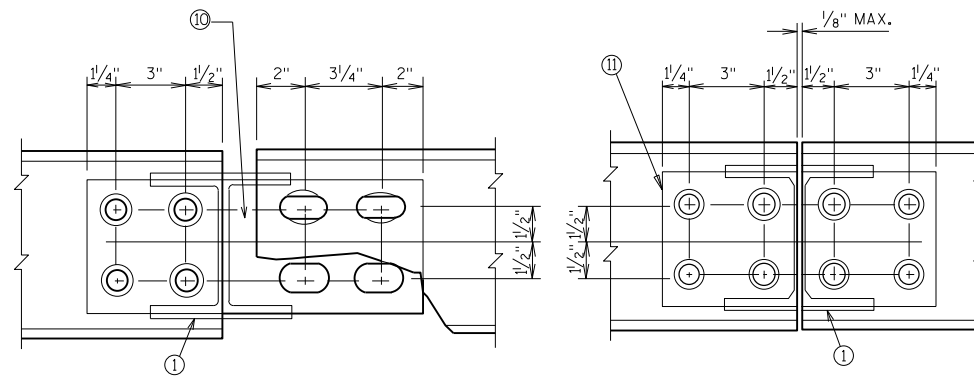
### RAIL MEMBER SPLICE

$\frac{5}{8}$ " DIA. BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS.



### BASIC POST CONNECTION

### OPTIONAL SHOP SPLICE



### EXPANSION SPLICE

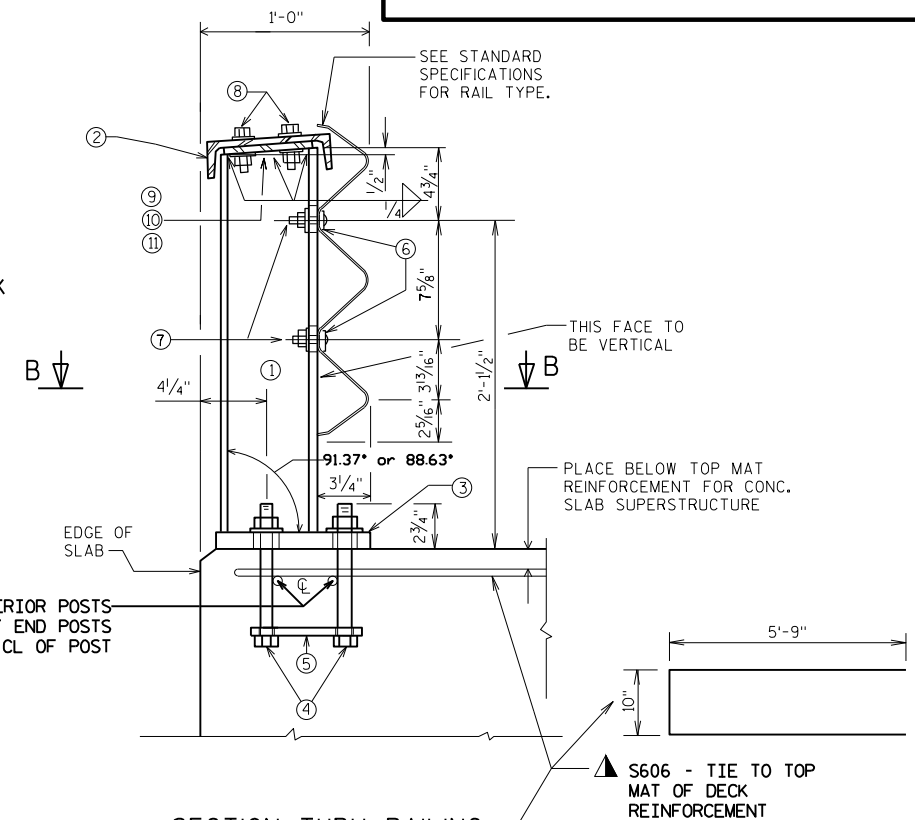
### TYPICAL SPLICE

### CHANNEL MEMBER DETAILS

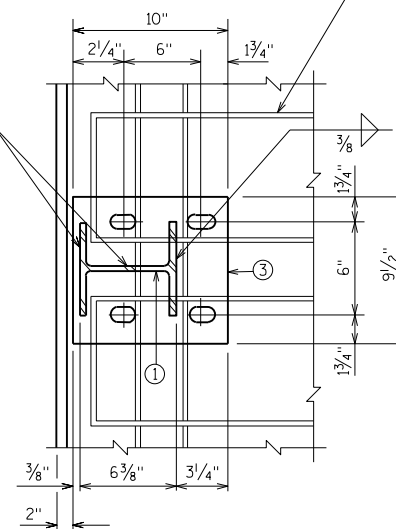
SHIM PLATES 6" x  $\frac{1}{16}$ " x 6" MAY BE USED BETWEEN TOP OF POST AND CHANNEL MEMBER TO ACHIEVE VERT ALIGNMENT

STATE PROJECT NUMBER

7157-00-70



### SECTION THRU RAILING



### SECTION B-B

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-61-241			
DRAWN BY NLH		PLANS CK'D. ASN	
STEEL RAILING TYPE W		SHEET 7 OF 7	

I.D. 7157-00-70

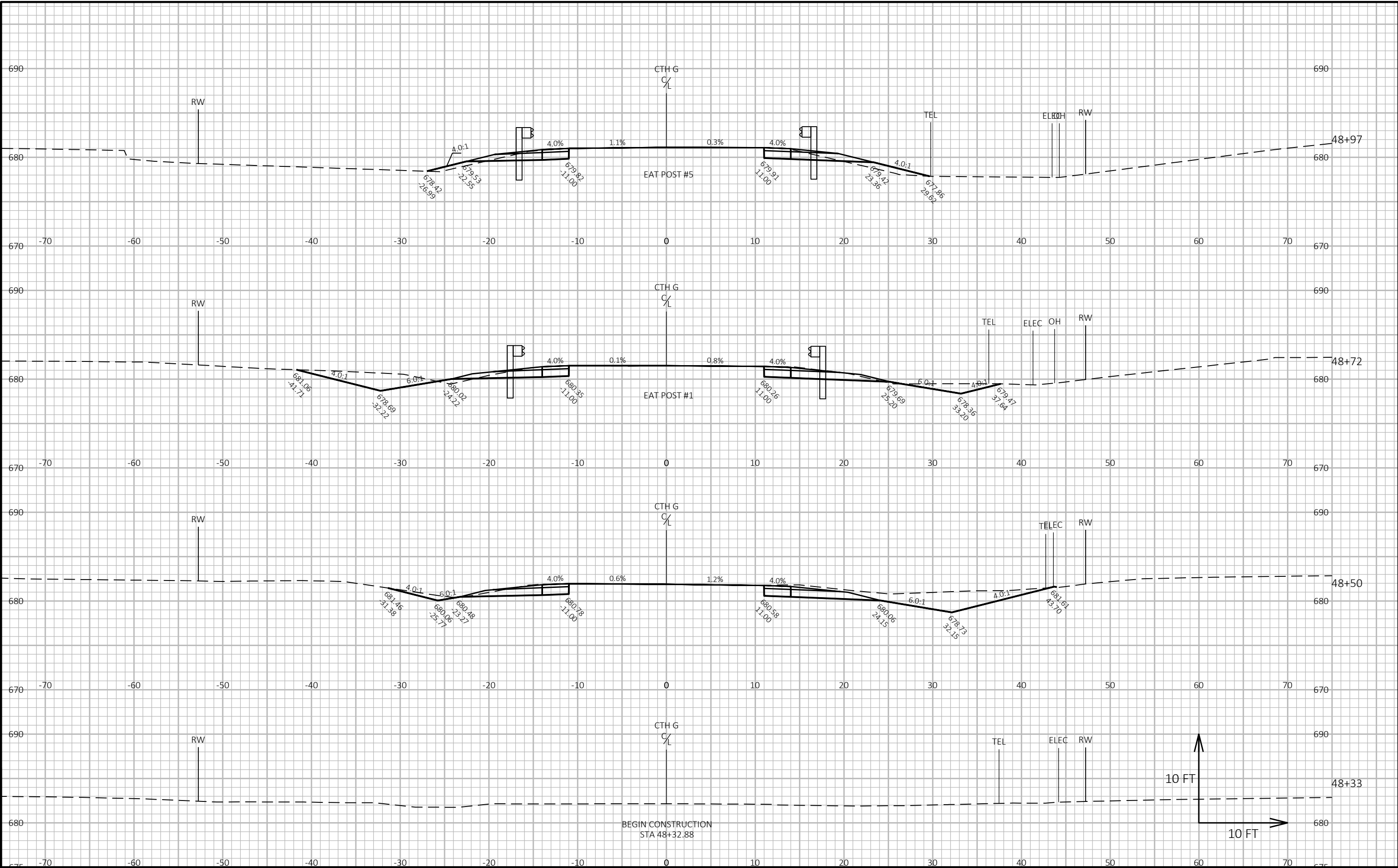
DATE: 11/12/2020 10:56 AM

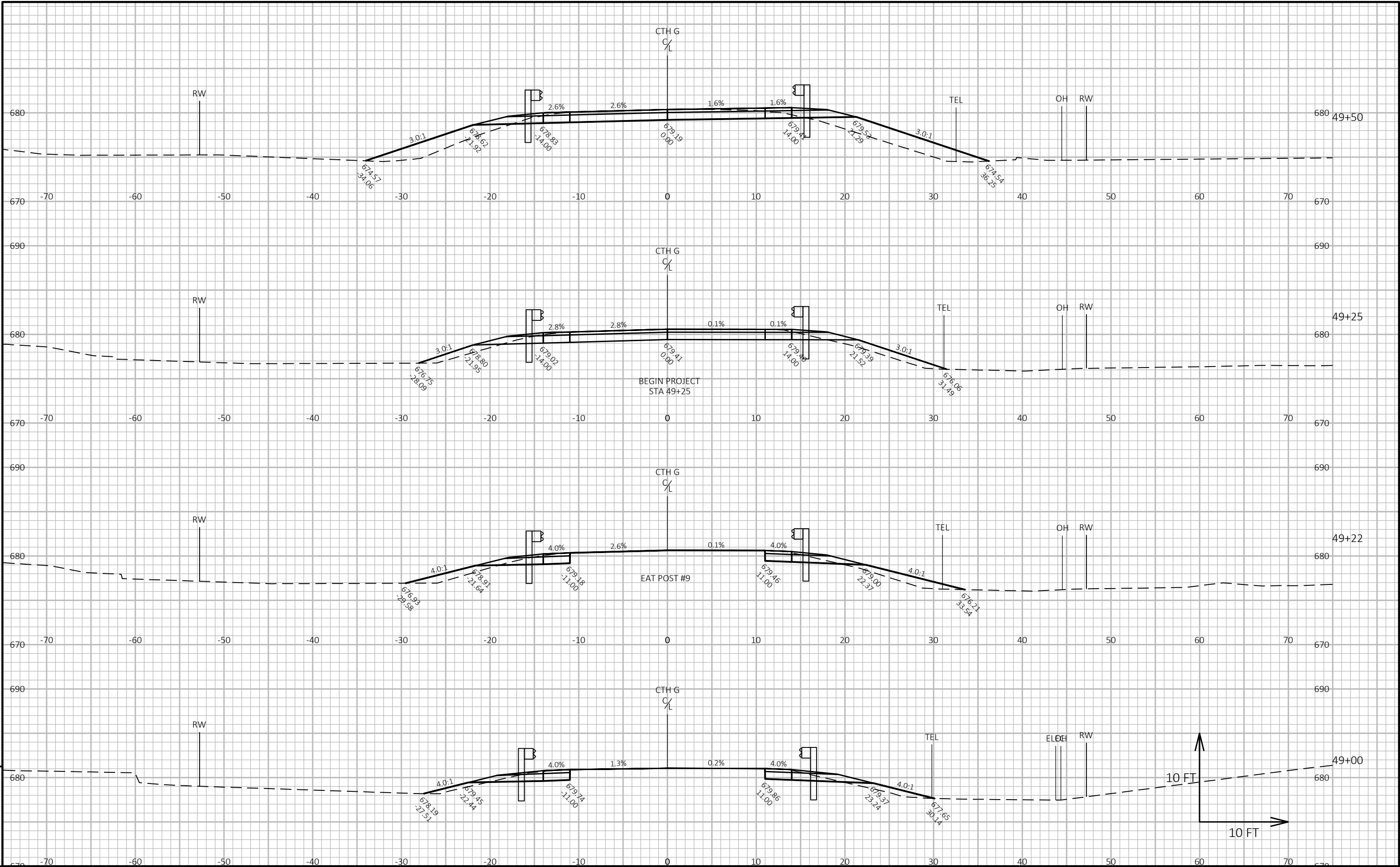
DIVISION 1 - CTHG-CL

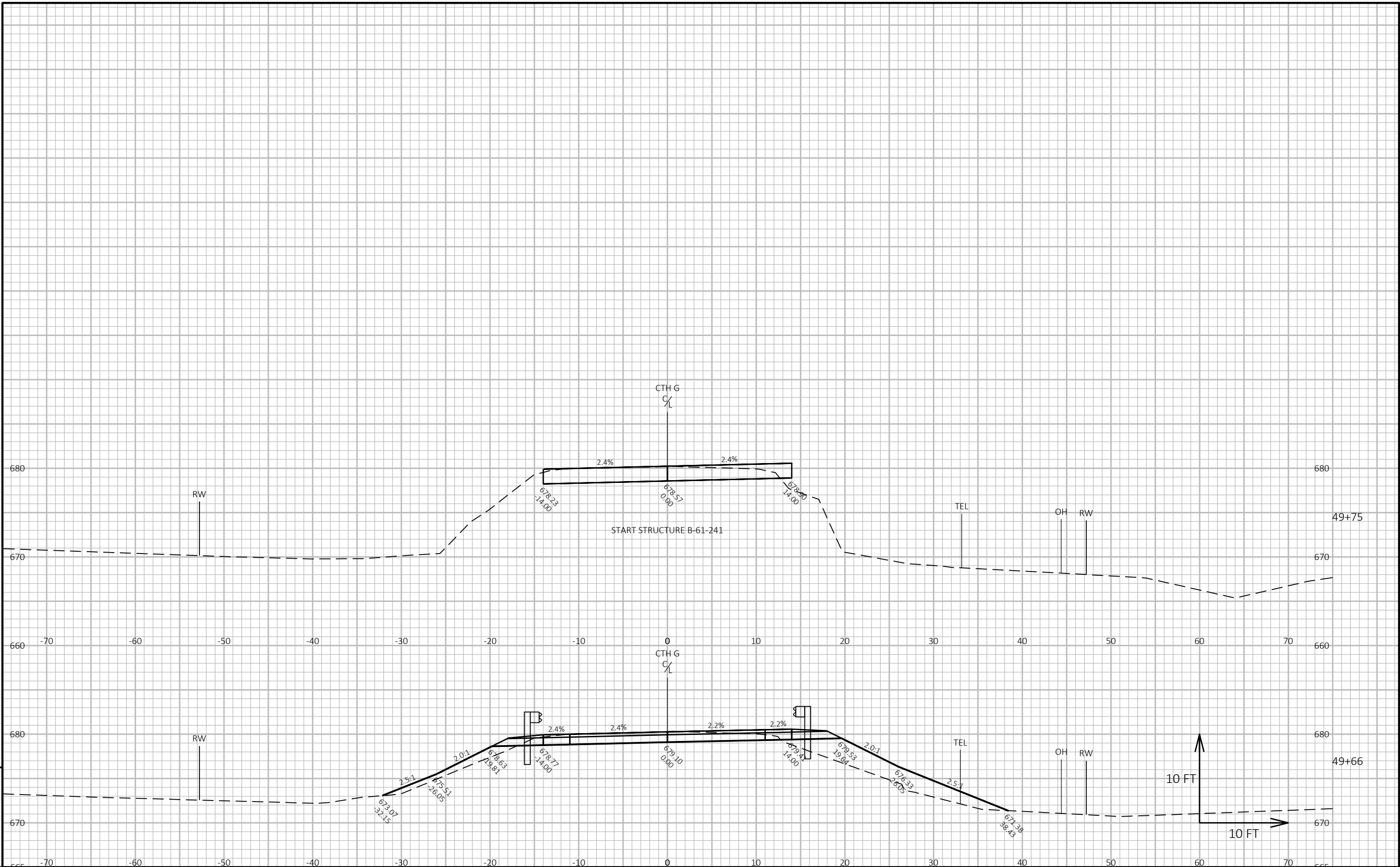
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.30	
48+32.884	4832.88	0.00	0.00	0.00	0.00	0	0	0	0	0	0
48+50	4850.00	17.12	51.31	0.00	0.04	16	0	0	16	0	16
48+71.913	4871.91	21.91	43.25	0.00	1.45	38	0	1	54	1	53
48+96.913	4896.91	25.00	14.01	0.00	6.34	27	0	4	81	7	75
49+00	4900.00	3.09	13.80	0.00	6.97	2	0	1	83	8	75
49+21.913	4921.91	21.91	12.88	0.00	14.59	11	0	9	94	20	75
49+25.01	4925.01	3.10	36.93	0.00	12.54	3	0	2	97	22	75
49+50	4950.00	24.99	31.01	0.00	44.46	31	0	26	128	56	72
49+65.59	4965.59	15.59	28.51	0.00	52.42	17	0	28	145	92	53
49+75	4975.00	9.41	0.00	0.00	0.00	5	0	9	150	104	46

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.30	
50+24.961	5024.96	0.00	0.00	0.00	0.00	0	0	0	0	0	0
50+34.41	5034.41	9.45	32.72	0.00	90.51	6	0	16	6	21	-15
50+50	5050.00	15.59	36.62	0.00	52.36	20	0	41	26	74	-48
50+75	5075.00	25.00	39.35	0.00	9.19	35	0	28	61	111	-50
50+77.53	5077.53	2.53	13.66	0.00	13.59	2	0	1	63	112	-49
50+78.745	5078.75	1.22	13.80	0.00	16.58	1	0	1	64	113	-49
51+00	5100.00	21.25	15.63	0.00	13.50	12	0	12	76	129	-53
51+02.015	5102.01	2.01	15.70	0.00	17.48	1	0	1	77	130	-53
51+04.283	5104.28	2.27	15.78	0.00	19.17	1	0	2	78	133	-55
51+25	5125.00	20.72	17.16	0.00	21.58	13	0	16	91	153	-62
51+26.499	5126.50	1.50	17.68	0.00	22.98	1	0	1	92	155	63
51+29.821	5129.82	3.32	21.10	0.00	23.41	2	0	3	94	159	-65
51+50	5150.00	20.18	27.30	0.00	18.87	18	0	16	112	179	-67
52+00	5200.00	50.00	34.00	0.00	5.60	57	0	23	169	209	-40
52+50	5250.00	50.00	31.06	0.00	0.00	60	0	5	229	216	13
52+58.39	5258.39	8.39	0.05	0.00	0.00	5	0	0	234	216	18

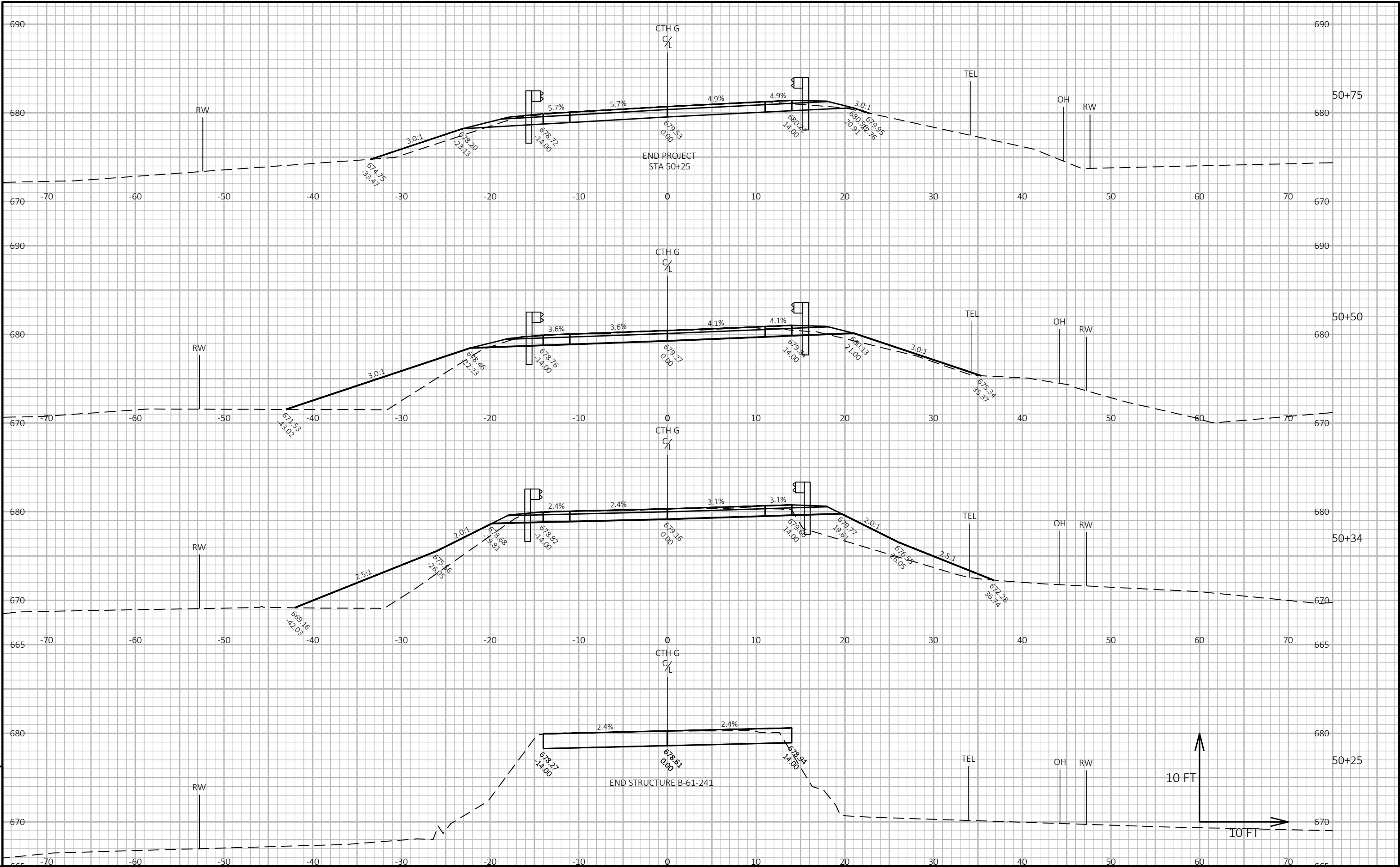
Notes:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATER	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME

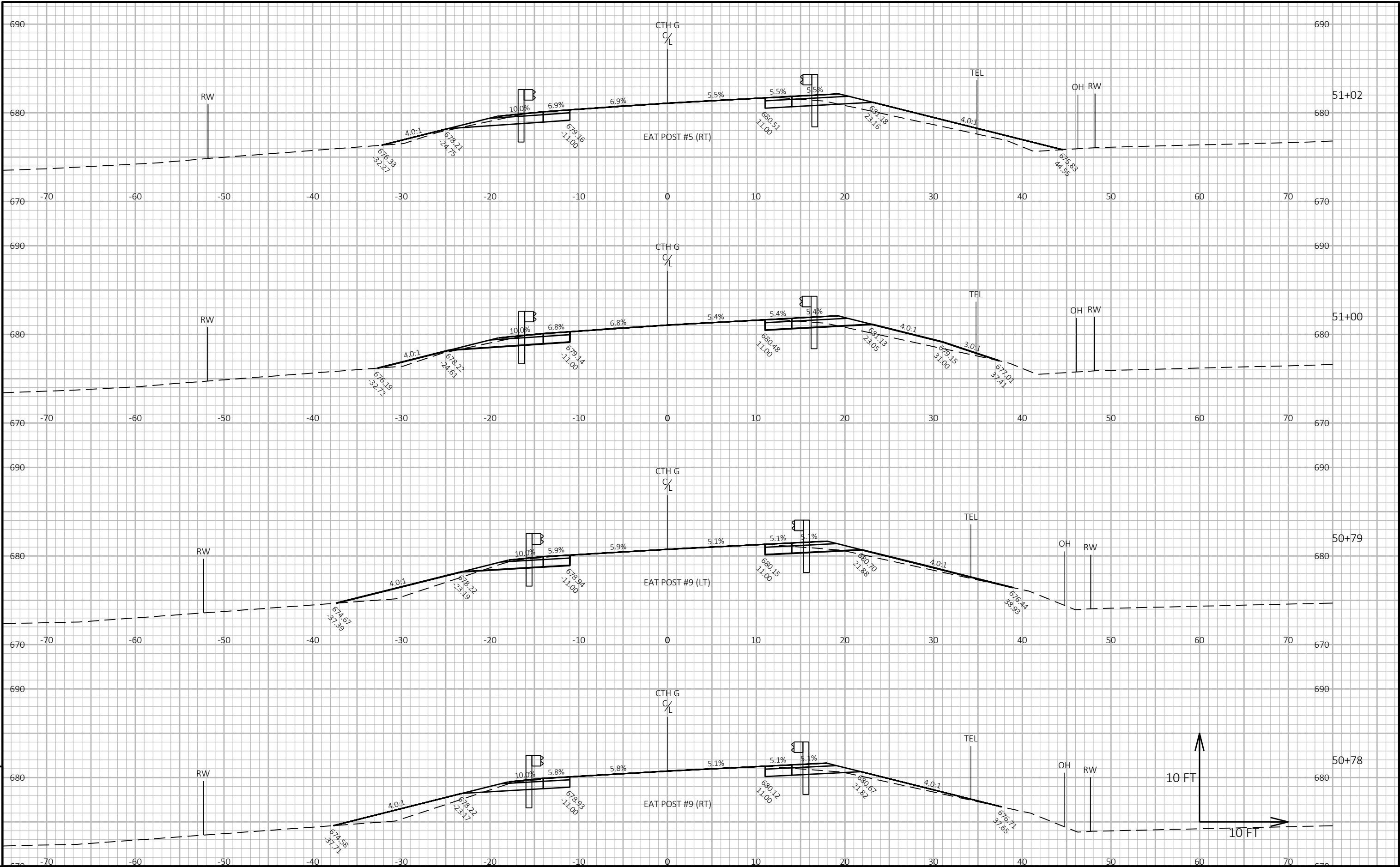


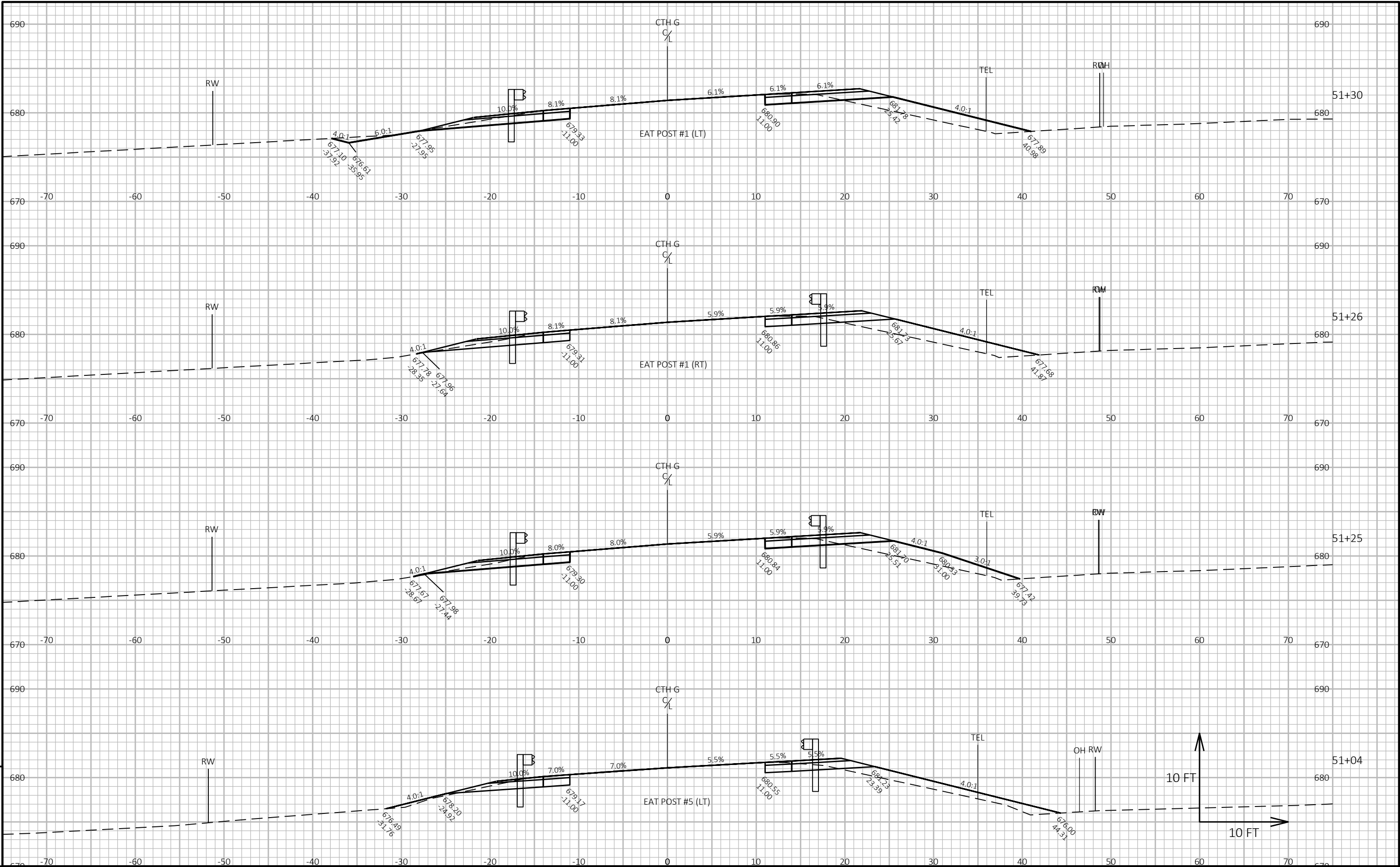


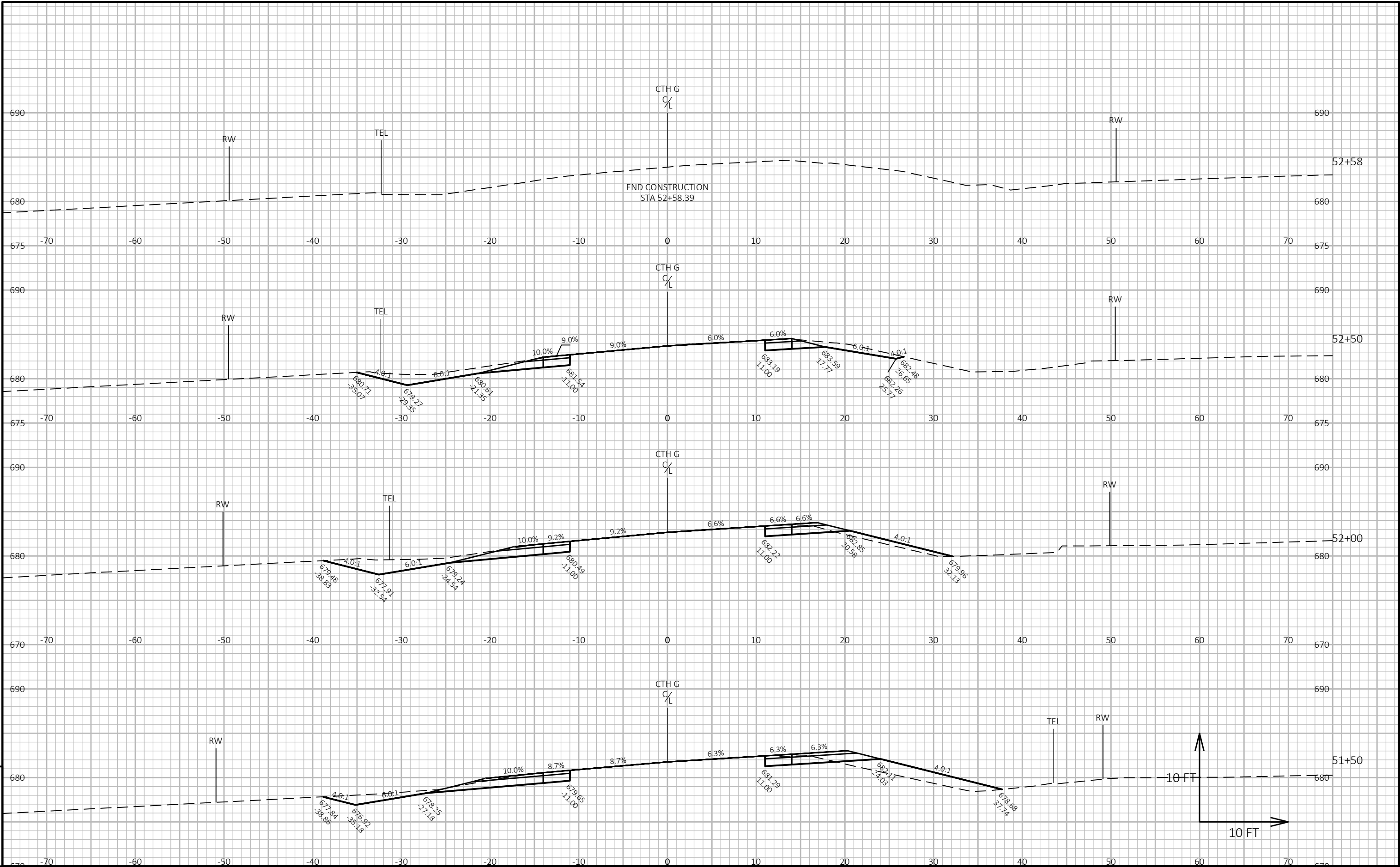












## Notes



## *Wisconsin Department of Transportation*

Dedicated people creating transportation solutions  
through innovation and exceptional service.

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