

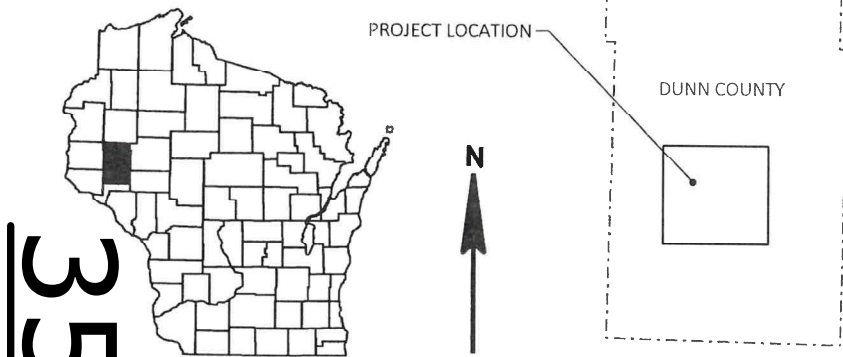
PROJECT ID: 7881-00-70
WITH: NA

COUNTY: DUNN

ORDER OF SHEETS

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

TOTAL SHEETS = 56



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T MENOMONIE, 390TH STREET

WILSON CREEK BRIDGE P-17-0062

LOCAL STREET DUNN COUNTY

STATE PROJECT NUMBER
7881-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7881-00-70	WISC 2024081	1

DESIGN DESIGNATION 7881-00-00/70

A.A.D.T.	2024	=	1,600
A.A.D.T.	2044	=	1,760
D.H.V.		=	150
D.D.		=	50/50
T.		=	8.5%
DESIGN SPEED		=	45 MPH
ESALS		=	240,000

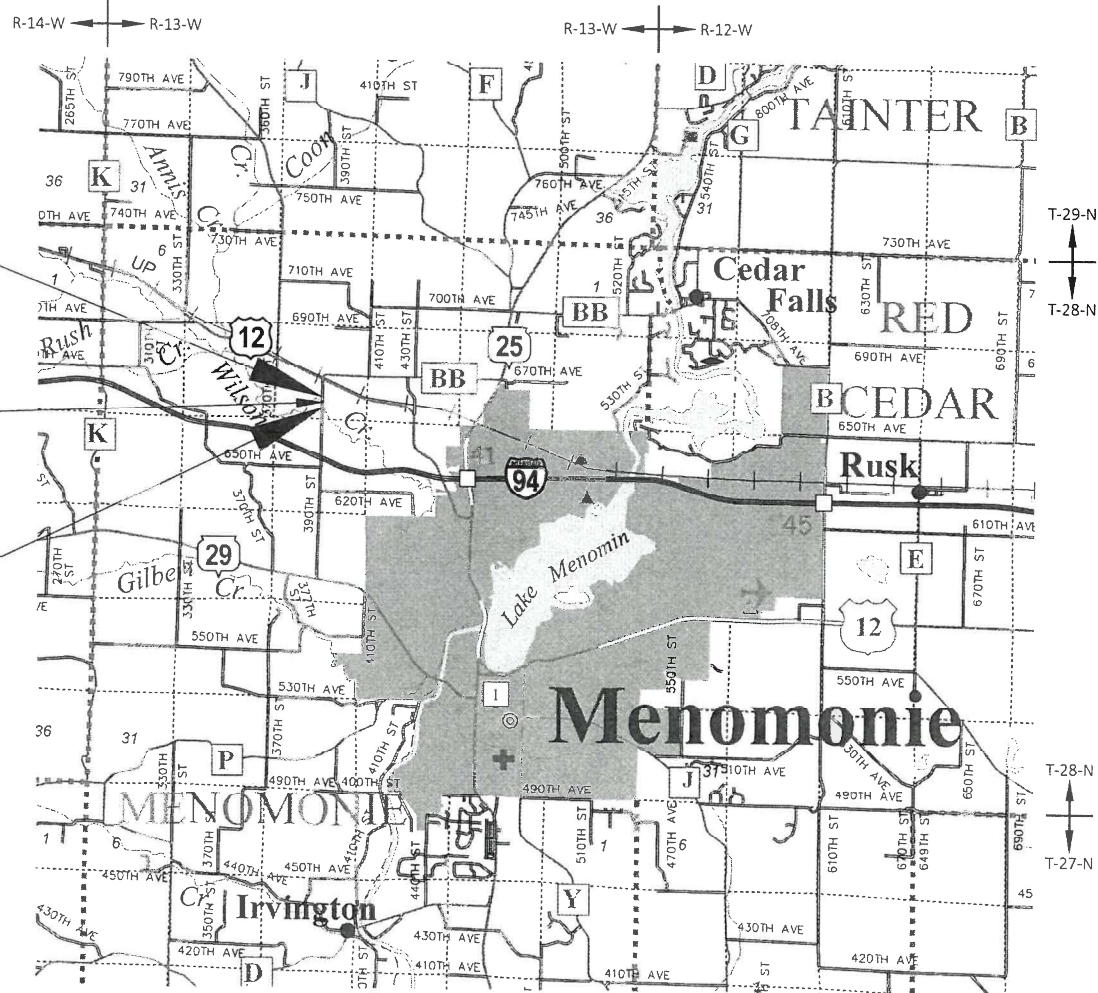
CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

END PROJECT
STA 43+50
Y = 186,123.70
X = 151,609.84

STRUCTURE P-17-0062
STA 41+41.44 - STA 42+12.55

BEGIN PROJECT
STA 40+10
Y = 185,783.70
X = 151,610.83



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 0.064 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DUNN COUNTY, NAD83 (1991), 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 (2011). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

ACCEPTED FOR
DUNN COUNTY
Date: 07/13/2023
Highway Commissioner

ORIGINAL PLANS PREPARED BY
WISCONSIN PROFESSIONAL ENGINEER
JACOB A. FRIBERG
E-43328
RICE LAKE
WI
DATE: 7/13/2023

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: COOPER ENGINEERING
Designer: COOPER ENGINEERING
Project Manager: MATTHEW BERG, PE
Regional Examiner: TOU YANG, PE
Regional Supervisor: TYLER RONGSTAD, PE

APPROVED FOR THE DEPARTMENT
DATE: 7/24/2023

LIST OF STANDARD ABBREVIATIONS

ABUT	ABUTMENT	LT.	LEFT
AC	ACRES	LS	LUMP SUM
AGG	AGGREGATE	MH	MANHOLE
AH	AHEAD	N	NORTH
ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
		PAVT	PAVEMENT
AVG.	AVERAGE	PC	POINT OF CURVATURE
ASPH	ASPHALTIC	PE	PRIVATE ENTRANCE
BK.	BACK	PI	POINT OF INTERSECTION
BM	BENCHMARK	PL	PROPERTY LINE
Δ	CENTRAL ANGLE OR DELTA	PP	POWER POLE
℄, C/L	CENTERLINE	PT	POINT OF TANGENCY
C & G	CURB AND GUTTER	R	RANGE, RADIUS
CABC	CRUSHED AGGREGATE BASE COURSE	RCCP	REINFORCED CONCRETE CULVERT PIPE
CONC.	CONCRETE	RD	ROAD
COR	CORNER	REBAR	REINFORCEMENT BAR
CORR	CORRUGATED	REQD	REQUIRED
CSCP	CORRUGATED STEEL CULVERT PIPE	RDWY	ROADWAY
CSPA	CORRUGATED STEEL PIPE ARCH	RHF	RIGHT HAND FORWARD
CTH	COUNTY TRUNK HIGHWAY	RL, R/L	REFERENCE LINE
CP.	CULVERT PIPE	RR	RAILROAD
CY	CUBIC YARD	RT.	RIGHT
CWT.	HUNDREDWEIGHT	R/W	RIGHT-OF-WAY
DIA	DIAMETER	S	SOUTH
D	DEGREE OF CURVE	SAN S	SANITARY SEWER
DHV	DESIGN HOURLY VOLUME	SDD	STANDARD DETAIL DRAWING
DWY	DRIVEWAY	SE	SUPER ELEVATION
EBS	EXC. BELOW SUB GRADE	SF.	SQUARE FEET
ELEV., EL	ELEVATION	SHLDR	SHOULDER
ELEC.	ELECTRIC	SPECS	SPECIFICATIONS
EXC	EXCAVATION	SQ.	SQUARE
EXIST	EXISTING	SS.	STORM SEWER
E	EAST	SY.	SQUARE YARD
FE	FIELD ENTRANCE	STH	STATE TRUNK HIGHWAY
FF.	FACE TO FACE	ST.	STREET
FL, F/L	FLOW LINE	STA.	STATION
FS	FULL SUPERELEVATION	SW	SIDEWALK
G	GARAGE	T	TANGENT
GN	GRID NORTH	TC	TOP OF CURB
H	HOUSE	℄, T/L	TRANSIT LINE
		TEL	TELEPHONE
		TEMP	TEMPORARY
		TLE	TEMPORARY LIMITED EASEMENT
		TYP	TYPICAL
HYD	HYDRANT	USH	UNITED STATES HIGHWAY
I	INTERSECTION ANGLE	UG	UNDERGROUND
INTERS	INTERSECTION	V	DESIGN SPEED
INV.	INVERT	VAR.	VARIABLE
IP	IRON PIN OR PIPE	VERT	VERTICAL
LC	LONG CHORD OF CURVE	YD	YARD
LF	LINEAR FOOT		
LHF	LEFT HAND FORWARD		
L	LENGTH OF CURVE		

GENERAL NOTES:

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

ACCESS TO ALL RESIDENCES & SIDE ROADS SHALL BE MAINTAINED DURING CONSTRUCTION.

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

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

390TH STREET WILL BE CLOSED DURING CONSTRUCTION AND NO DETOUR ROUTE WILL BE MARKED.

UTILITY CONTACTS

COMMUNICATIONS

AT&T DISTRIBUTION
 RICK PODOLAK
 304 S DEWEY ST
 EAU CLAIRE, WI 54701
 PHONE: (715) 839-5565
 EMAIL: rp4514@att.com

ELECTRIC

DUNN ENERGY COOP
 ALLISON ZIELSDORF
 E5725 600TH STREET
 P.O. BOX 220
 MENOMONIE, WI 54751
 PHONE: (715) 232-6240
 EMAIL: azielsdorf@dunnenergy.com

COMMUNICATIONS

SPECTRUM COMMUNICATIONS
 PAT ANDERSON
 1201 McCANN DRIVE
 ALTOONA, WI 54720
 PHONE: (715) 833-7381
 EMAIL: patrick.anderson@charter.com

COMMUNICATIONS

WEST WISCONSIN TELCOM
 BRAD SCHMIDTKNECHT
 E4528 CTY RD C, PO BOX 115
 DOWNSVILLE, WI 54735
 PHONE: (715) 231-2000
 EMAIL: brads@wwt.coop

ALL UTILITIES LISTED ARE MEMBERS OF DIGGERS HOTLINE



OTHER CONTACTS

DESIGN CONSULTANT

COOPER ENGINEERING
 JACOB FRIBERG
 2600 COLLEGE DRIVE
 RICE LAKE, WI 54868
 PHONE: (715) 234-7008
 EMAIL: jfriberg@cooperengineering.net

DUNN COUNTY

HIGHWAY COMMISSIONER
 DUSTIN BINDER
 3303 HIGHWAY 12 EAST
 MENOMONIE, WI
 PHONE: (715) 232-2181
 EMAIL: dbinder@co.dunn.wi.us

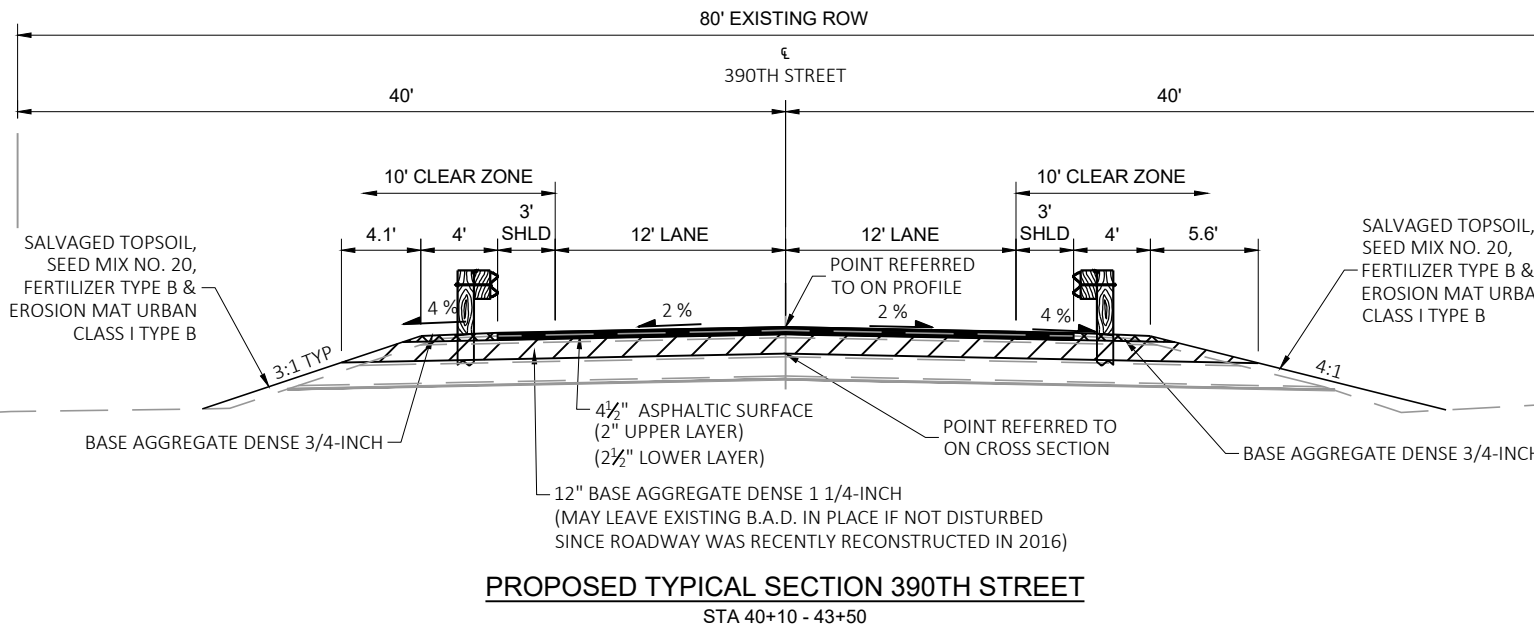
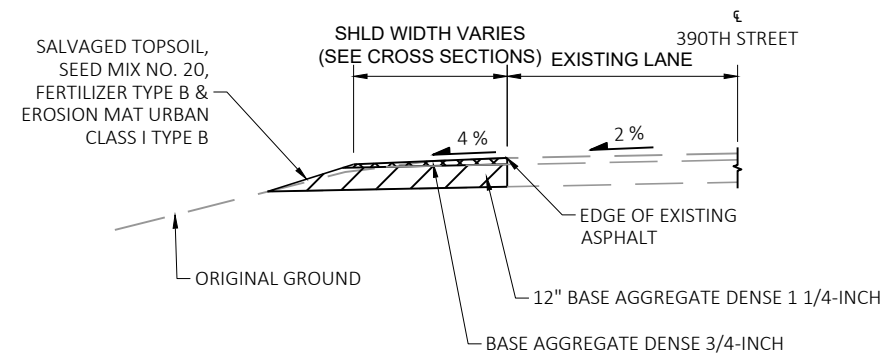
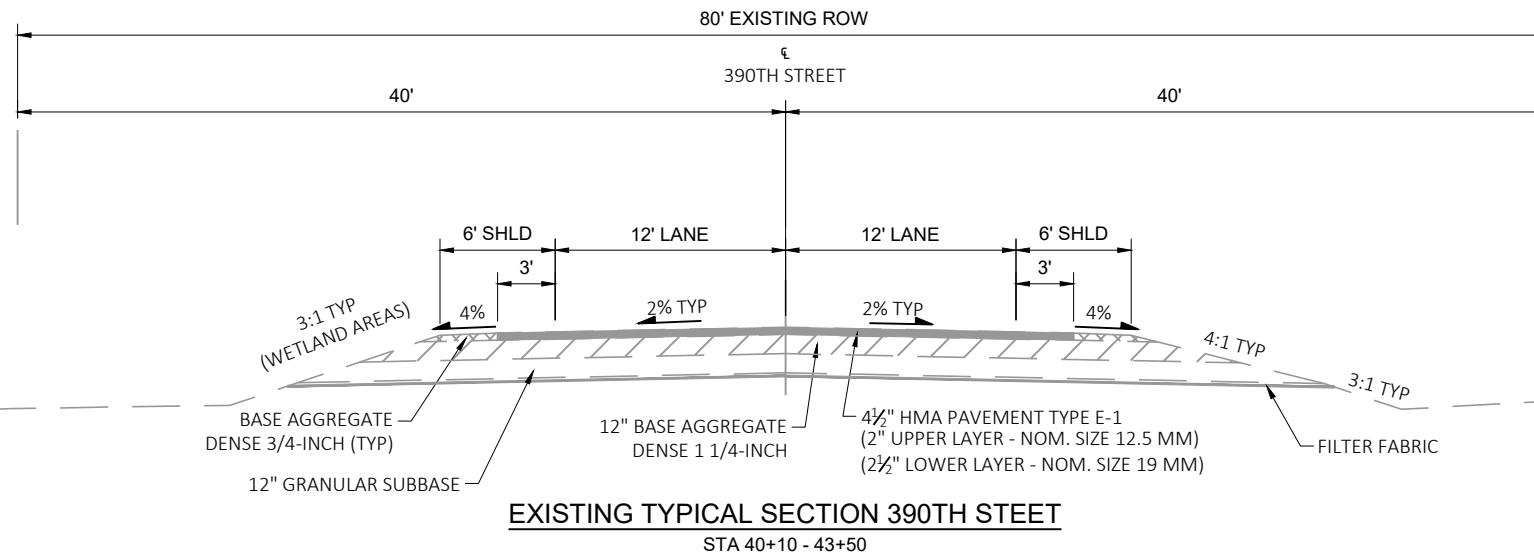
WDNR REGIONAL CONTACT

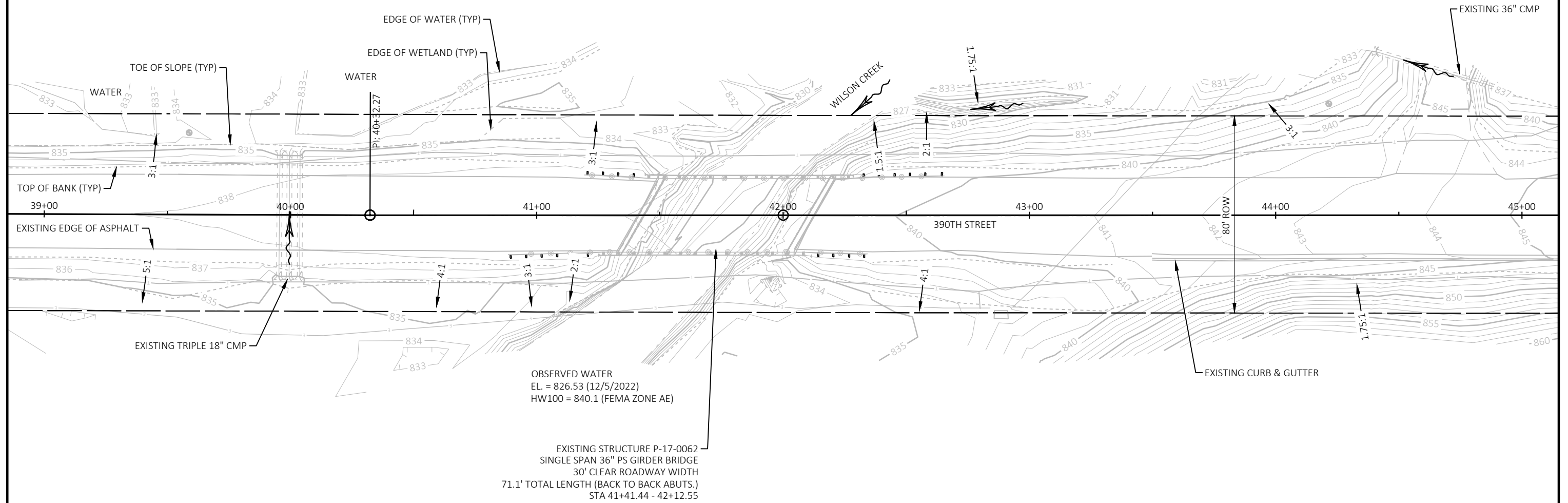
WDNR/WISDOT LIAISON
 LEAH NICOL
 1300 WEST CLAIREMONT AVENUE
 EAU CLAIRE, WI 54701
 PHONE: (715) 934-9014
 EMAIL: Leah.Nicol@wisconsin.gov

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP								
	A			B			C		
	SLOPE RANGE (%)			SLOPE RANGE (%)			SLOPE RANGE (%)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36
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 = 0.62 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.47 ACRES



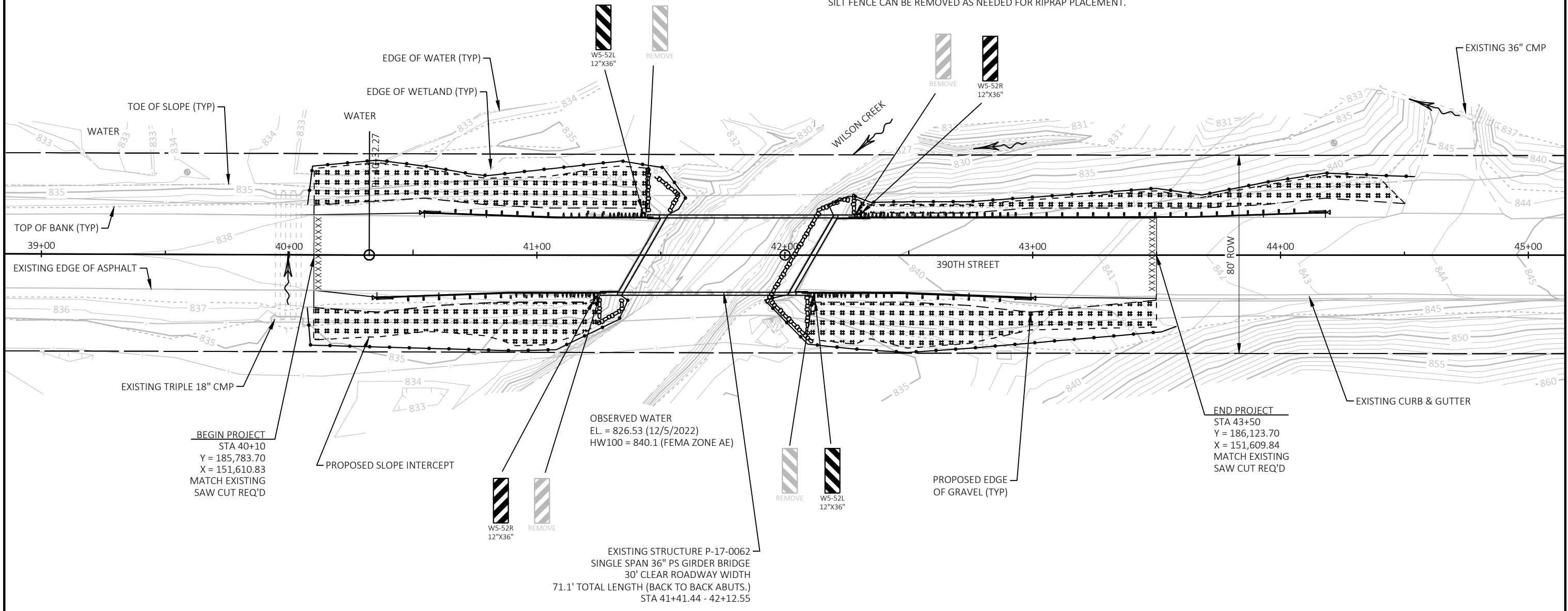


EROSION CONTROL LEGEND

- ##### EROSION MAT URBAN CLASS I TYPE B
- SILT FENCE
- RIP RAP
- - - SLOPE INTERCEPT
- ~> SURFACE WATER FLOW



SILT FENCE NOTE:
 TIE SILT FENCE INTO EXISTING ABUTMENTS PRIOR TO CONSTRUCTION.
 SILT FENCE CAN BE REMOVED AS NEEDED FOR RIPRAP PLACEMENT.

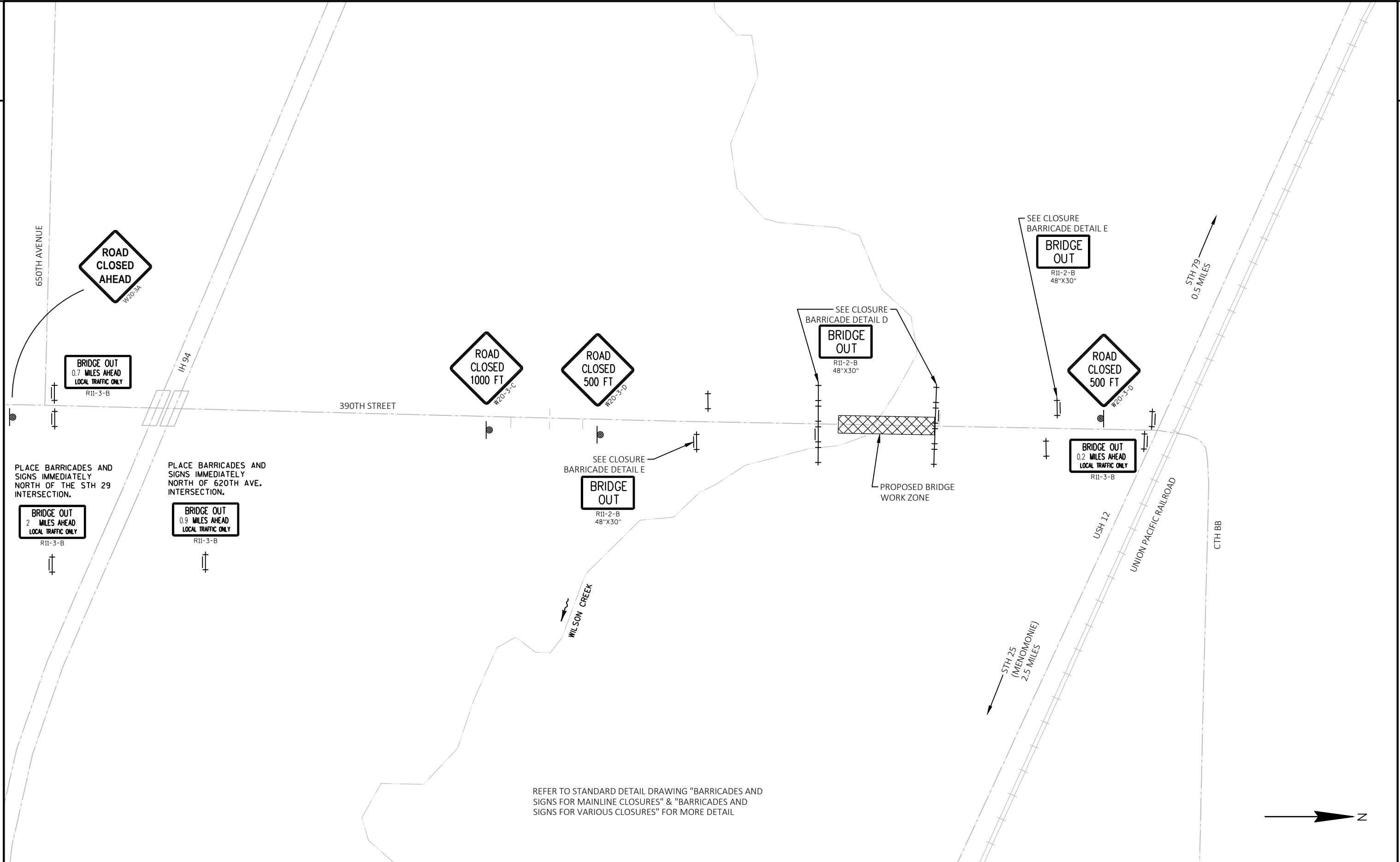


BEGIN PROJECT
 STA 40+10
 Y = 185,783.70
 X = 151,610.83
 MATCH EXISTING
 SAW CUT REQ'D

OBSERVED WATER
 EL. = 826.53 (12/5/2022)
 HW100 = 840.1 (FEMA ZONE AE)

END PROJECT
 STA 43+50
 Y = 186,123.70
 X = 151,609.84
 MATCH EXISTING
 SAW CUT REQ'D

EXISTING STRUCTURE P-17-0062
 SINGLE SPAN 36" PS GIRDER BRIDGE
 30' CLEAR ROADWAY WIDTH
 71.1' TOTAL LENGTH (BACK TO BACK ABUTS.)
 STA 41+41.44 - 42+12.55



PROJECT NO: 7881-00-70	HWY: 390TH STREET	COUNTY: DUNN	TRAFFIC CONTROL OVERVIEW	SHEET	E
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Estimate Of Quantities

7881-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-17-0062	EACH	1.000	1.000
0004	204.0165	Removing Guardrail	LF	130.000	130.000
0006	205.0100	Excavation Common	CY	500.000	500.000
0008	206.1001	Excavation for Structures Bridges (structure) 01. P-17-0062	EACH	1.000	1.000
0010	210.1500	Backfill Structure Type A	TON	30.000	30.000
0012	213.0100	Finishing Roadway (project) 01. 7881-00-70	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	150.000	150.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	880.000	880.000
0018	455.0605	Tack Coat	GAL	70.000	70.000
0020	465.0105	Asphaltic Surface	TON	240.000	240.000
0022	502.0100	Concrete Masonry Bridges	CY	59.000	59.000
0024	502.3200	Protective Surface Treatment	SY	305.000	305.000
0026	502.4205	Adhesive Anchors No. 5 Bar	EACH	136.000	136.000
0028	502.4206	Adhesive Anchors No. 6 Bar	EACH	66.000	66.000
0030	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	17,390.000	17,390.000
0032	506.4000	Steel Diaphragms (structure) 01. P-17-0062	EACH	5.000	5.000
0034	509.1500	Concrete Surface Repair	SF	2.000	2.000
0036	513.4061	Railing Tubular Type M	LF	172.000	172.000
0038	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0040	606.0300	Riprap Heavy	CY	55.000	55.000
0042	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	50.000	50.000
0044	614.2300	MGS Guardrail 3	LF	75.000	75.000
0046	614.2330	MGS Guardrail 3 K	LF	25.000	25.000
0048	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0050	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0052	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7881-00-70	EACH	1.000	1.000
0054	619.1000	Mobilization	EACH	1.000	1.000
0056	624.0100	Water	MGAL	10.000	10.000
0058	625.0500	Salvaged Topsoil	SY	900.000	900.000
0060	628.1504	Silt Fence	LF	950.000	950.000
0062	628.1520	Silt Fence Maintenance	LF	950.000	950.000
0064	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0066	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0068	628.2008	Erosion Mat Urban Class I Type B	SY	900.000	900.000
0070	629.0210	Fertilizer Type B	CWT	0.600	0.600
0072	630.0120	Seeding Mixture No. 20	LB	30.000	30.000
0074	630.0500	Seed Water	MGAL	25.000	25.000
0076	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0078	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0080	638.2602	Removing Signs Type II	EACH	4.000	4.000
0082	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0084	642.5001	Field Office Type B	EACH	1.000	1.000
0086	643.0420	Traffic Control Barricades Type III	DAY	1,600.000	1,600.000
0088	643.0705	Traffic Control Warning Lights Type A	DAY	2,720.000	2,720.000
0090	643.0900	Traffic Control Signs	DAY	1,280.000	1,280.000
0092	643.5000	Traffic Control	EACH	1.000	1.000
0094	645.0111	Geotextile Type DF Schedule A	SY	20.000	20.000
0096	645.0120	Geotextile Type HR	SY	75.000	75.000
0098	646.1020	Marking Line Epoxy 4-Inch	LF	1,360.000	1,360.000

Estimate Of Quantities

7881-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	650.4500	Construction Staking Subgrade	LF	343.000	343.000
0102	650.5000	Construction Staking Base	LF	343.000	343.000
0104	650.9911	Construction Staking Supplemental Control (project) 01. 7881-00-70	EACH	1.000	1.000
0106	650.9920	Construction Staking Slope Stakes	LF	343.000	343.000
0108	690.0150	Sawing Asphalt	LF	60.000	60.000
0110	715.0502	Incentive Strength Concrete Structures	DOL	590.000	590.000
0112	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 41+75	EACH	1.000	1.000
0114	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0116	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0118	SPV.0090	Special 01. FLASHING STAINLESS STEEL	LF	144.000	144.000

3

CATEGORY	POST #1 STA	LOCATION	MGS		MGS		MGS		MGS	
			REMOVING GUARDRAIL		GUARDRAIL		THRIE BEAM		GUARDRAIL	
			204.0165	614.2300	614.2330	614.2500	614.2610	614.2610	614.2610	614.2610
		LF	LF	EA	LF	EA				
0010	40+35	RT	39	-	-	39.4	1			
0010	40+55	LT	26	-	-	39.4	1			
0010	42+99	RT	26	-	-	39.4	1			
0010	44+18	LT	39	75	25	39.4	1			
TOTAL 0010			130	75	25	157.6	4			

CATEGORY	STATION TO STATION	SIDE	SALVAGED/ UNUSEABLE		EXPANDED		EXPANDED	
			EXCAVATION COMMON	PAVEMENT MATERIAL	AVAILABLE MATERIAL	UNEXPANDED FILL	FILL (FACTOR = 1.25)	MASS ORDINATE +/-
			205.0100					
			CY	CY	CY	CY	CY	CY
0010	40+10 - 41+41	LT/RT	215	55	160	75	95	65
0010	42+13 - 44+18	LT/RT	285	65	220	30	40	180
TOTAL 0010			500	120	380	105	135	245

3

CATEGORY	STATION TO STATION	SIDE	BASE		BASE		ASPHALTIC		SAWING	
			AGGREGATE		AGGREGATE		SURFACE		ASPHALT	
			3/4-INCH	1 1/4-INCH	TACK COAT	WATER	ASPHALT	ASPHALT		
			305.0110	305.0120	455.0605	465.0105	624.0100	690.0150		
			THICKNESS (IN)	LAYERS	TON	TON	GAL	TON	MGAL	LF
0010	40+10 - 41+41	LT/RT	4.5	2	65	410	35	120	4.6	30
0010	42+13 - 43+50	LT/RT	4.5	2	55	405	35	120	4.6	30
0010	43+50 - 44+18	LT	-	-	30	65	-	-	0.8	-
TOTAL 0010					150	880	70	240	10	60

CATEGORY	LOCATION	EROSION MAT		SEEDING		SEED WATER
		SALVAGED TOPSOIL	URBAN CLASS I TYPE B	FERTILIZER TYPE B	MIX NO. 20	
		625.0500	628.2008	629.0210	630.0120	
		SY	SY	CWT	LB	MGAL
0010	P-17-0062 SW	210	210	0.14	6	5
0010	P-17-0062 SE	170	170	0.11	5	4
0010	P-17-0062 NE	200	200	0.13	6	5
0010	P-17-0062 NW	140	140	0.09	4	4
0010	UNDISTRIBUTED	180	180	0.13	9	7
TOTAL 0010		900	900	0.6	30	25

CATEGORY	LOCATION	SILT FENCE	
		SILT FENCE	MAINTENANCE
		628.1504	628.1520
		LF	LF
0010	P-17-0062 SW	185	185
0010	P-17-0062 SE	155	155
0010	P-17-0062 NE	180	180
0010	P-17-0062 NW	240	240
0010	UNDISTRIBUTED	190	190
TOTAL 0010		950	950

PROJECT NO: 7881-00-70

HWY: 390TH STREET

COUNTY: DUNN

MISCELLANEOUS QUANTITIES

SHEET

E

3

CATEGORY	LOCATION	MOBILIZATIONS		REMARKS
		EROSION CONTROL	EMERGENCY	
		628.1905	628.1910	
0010	PROJECT	1	-	SILT FENCE
0010	PROJECT	1	-	RESTORATION SOUTH SIDE
0010	PROJECT	1	-	RESTORATION NORTH SIDE
0010	PROJECT	-	2	UNDISTRIBUTED
TOTAL 0010		3	2	

CATEGORY	LOCATION	POSTS				REMARKS
		WOOD	TYPE II	REMOVING	REMOVING	
		4x6-INCH x12 FT	REFLECTIVE F	SIGNS TYPE II	SMALL SIGN SUPPORTS	
		634.0612	637.2230	638.2602	638.3000	
0010	P-17-0062 SW	1	3	1	1	W5-52R
0010	P-17-0062 SE	1	3	1	1	W5-52L
0010	P-17-0062 NE	1	3	1	1	W5-52L
0010	P-17-0062 NW	1	3	1	1	W5-52R
TOTAL 0010		4	12	4	4	

3

CATEGORY	DAYS	TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		REMARKS
		BARRICADES	WARNING LIGHTS	WARNING LIGHTS	CONTROL	CONTROL		
		TYPE III	TYPE A	TYPE A	SIGNS	SIGNS		
		643.0420	643.0705	643.0900				
		#	DAYS	#	DAYS	#	DAYS	
0010	80	4	320	5	400	1	80	ROAD CLOSED DETAIL D SOUTH SIDE
0010	80	4	320	5	400	1	80	ROAD CLOSED DETAIL D NORTH SIDE
0010	80	8	640	16	1,280	10	800	ADVANCED ROAD CLOSED DETAIL C SOUTH SIDE
0010	80	4	320	8	640	4	320	ADVANCED ROAD CLOSED DETAIL C NORTH SIDE
TOTAL 0010		1,600		2,720		1,280		

CATEGORY	STATION TO	STATION	SIDE	MARKING LINE			REMARKS
				EPOXY	EPOXY	EPOXY	
				4-INCH	4-INCH, YELLOW	4-INCH, WHITE	
				646.1020	*	*	
				LF	LF	LF	
0010	40+10 -	43+50	CL	680	680	-	DOUBLE YELLOW CENTERLINE
0010	40+10 -	43+50	LT	340	-	340	LT WHITE EDGELINE
0010	40+10 -	43+50	RT	340	-	340	RT WHITE EDGELINE
TOTAL 0010				1360	680	680	

*FOR INFORMATION ONLY

CATEGORY	STATION TO	STATION	CONSTRUCTION			
			STAKING	CONSTRUCTION	STAKING	CONSTRUCTION
			SUBGRADE	STAKING BASE	SUPPLEMENTAL	STAKING
			650.4500	650.5000	650.9911	650.9920
			LF	LF	EA	LF
0010	40+10 -	41+45	135	135	0.5	135
0010	42+10 -	44+18	208	208	0.5	208
TOTAL 0010			343	343	1	343

PROJECT NO: 7881-00-70

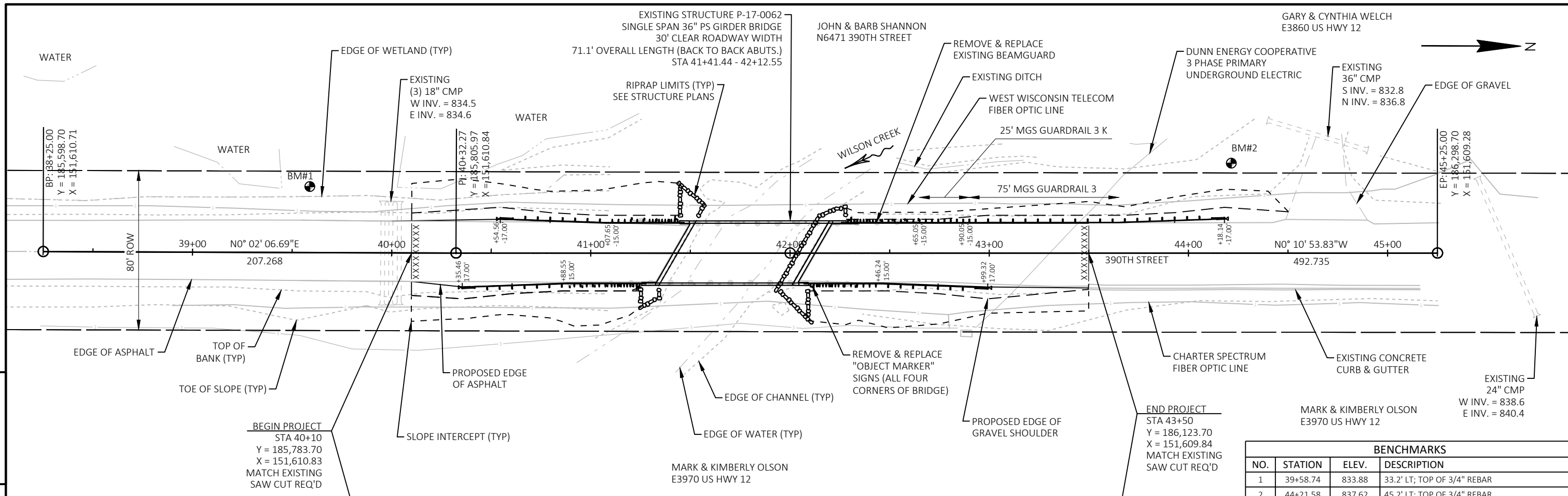
HWY: 390TH STREET

COUNTY: DUNN

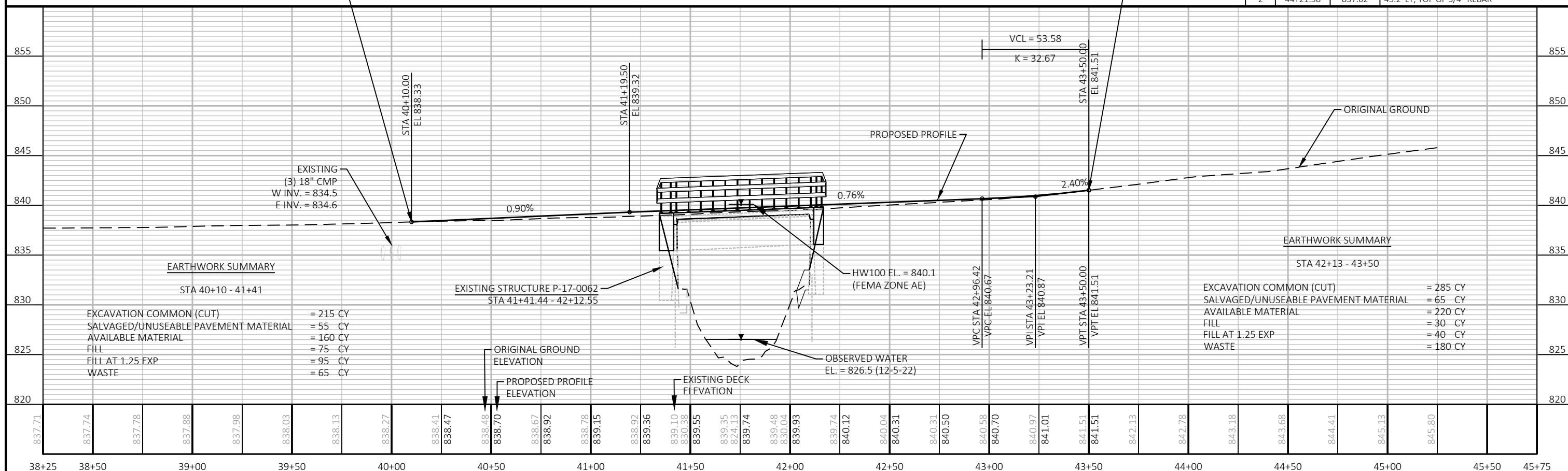
MISCELLANEOUS QUANTITIES

SHEET

E



BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
1	39+58.74	833.88	33.2' LT; TOP OF 3/4" REBAR
2	44+21.58	837.62	45.2' LT; TOP OF 3/4" REBAR

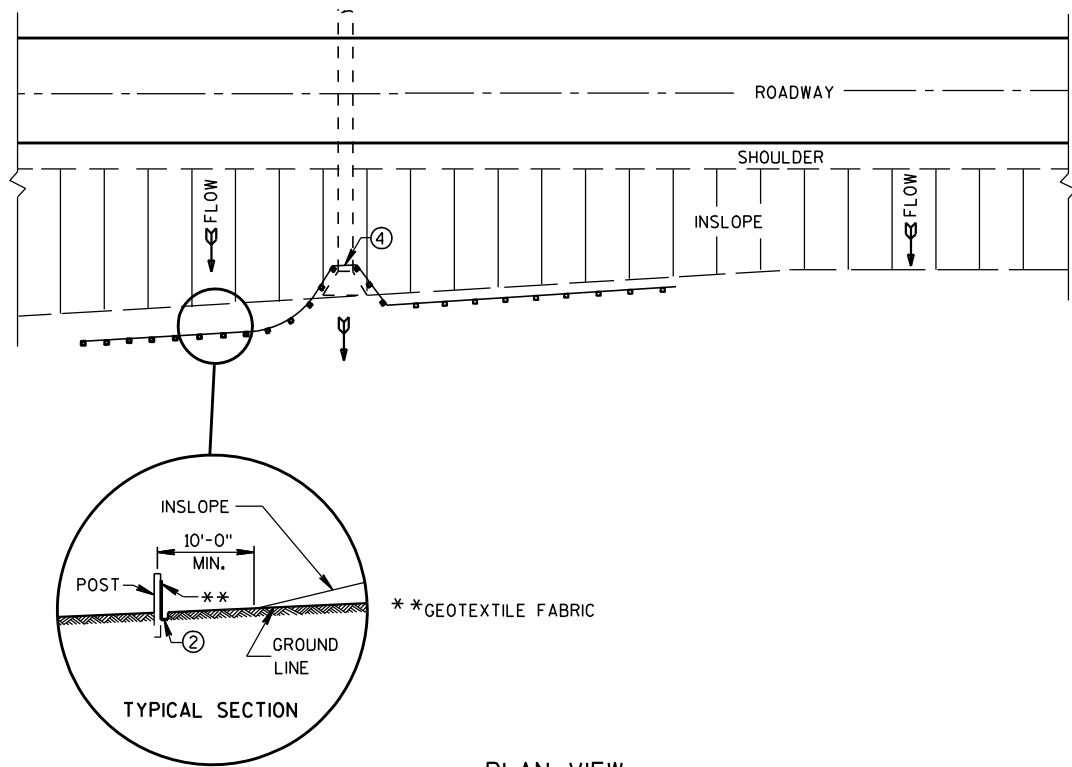


837.71	837.74	837.78	837.88	837.98	838.03	838.13	838.27	838.41	838.47	838.48	838.70	838.67	838.92	838.78	839.15	838.92	839.36	839.10	830.38	839.55	839.35	824.13	839.74	839.48	830.04	839.93	839.74	840.12	840.04	840.31	840.31	840.50	840.58	840.70	840.97	841.01	841.51	841.51	842.13	842.78	843.18	843.68	844.41	845.13	845.80
38+25	38+50	39+00	39+50	40+00	40+50	41+00	41+50	42+00	42+50	43+00	43+50	44+00	44+50	45+00	45+50	45+75																													

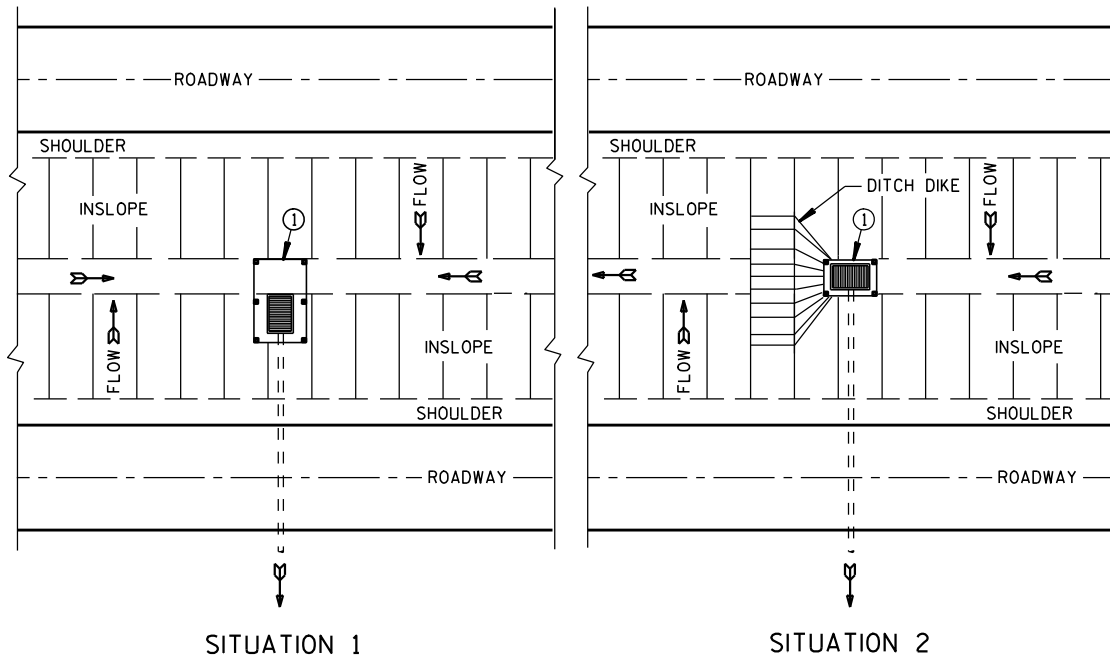
PROJECT NO: 7881-00-70 HWY: 390TH STREET COUNTY: DUNN PLAN AND PROFILE: 390TH STREET SHEET: E

Standard Detail Drawing List

08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

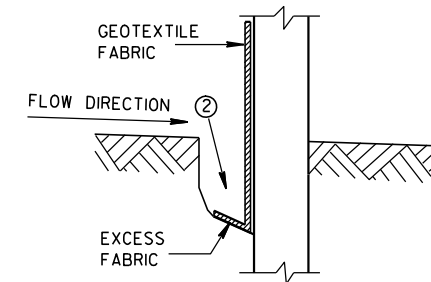


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

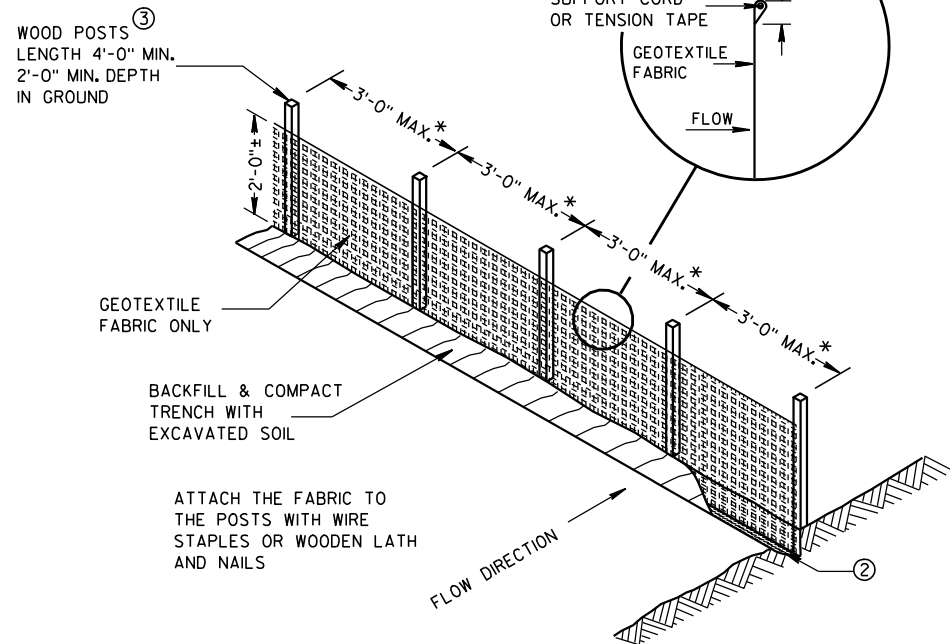
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

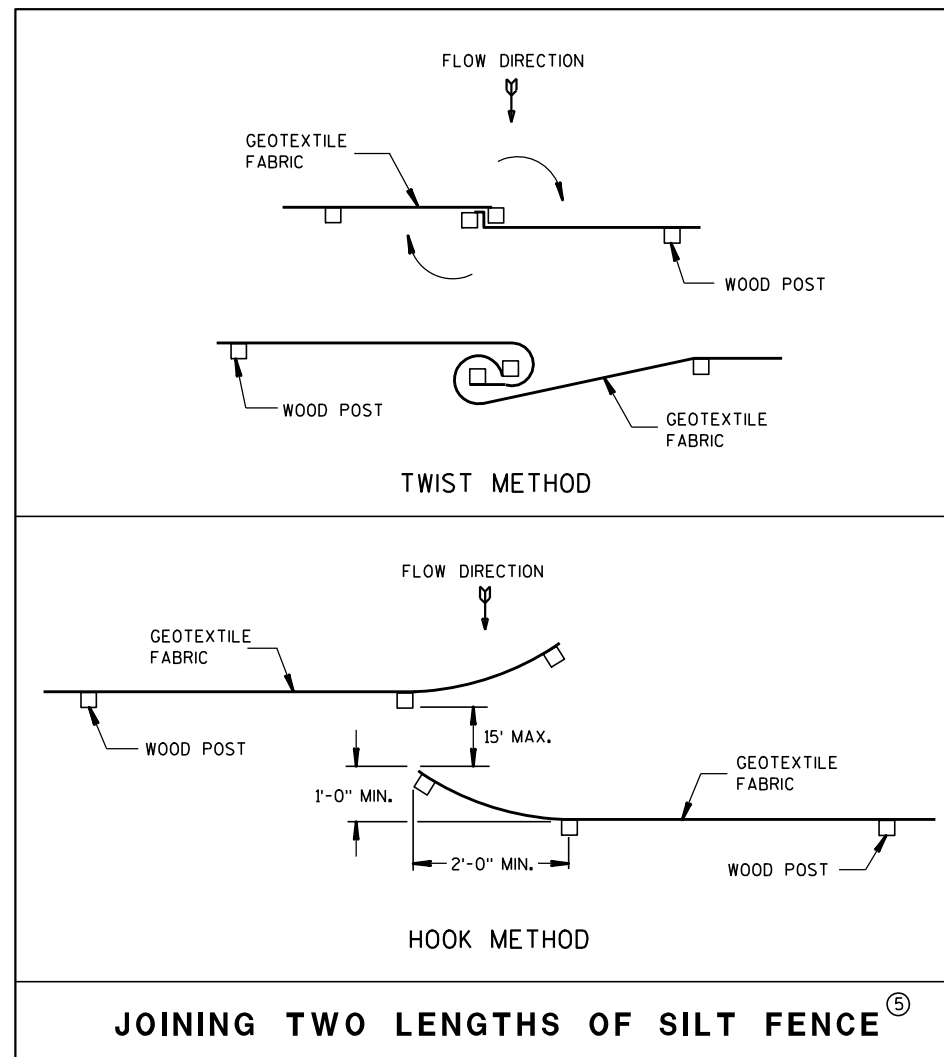


TRENCH DETAIL

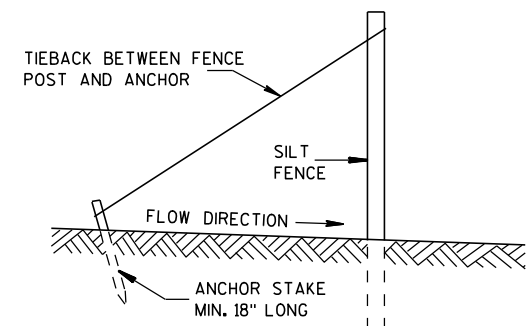
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

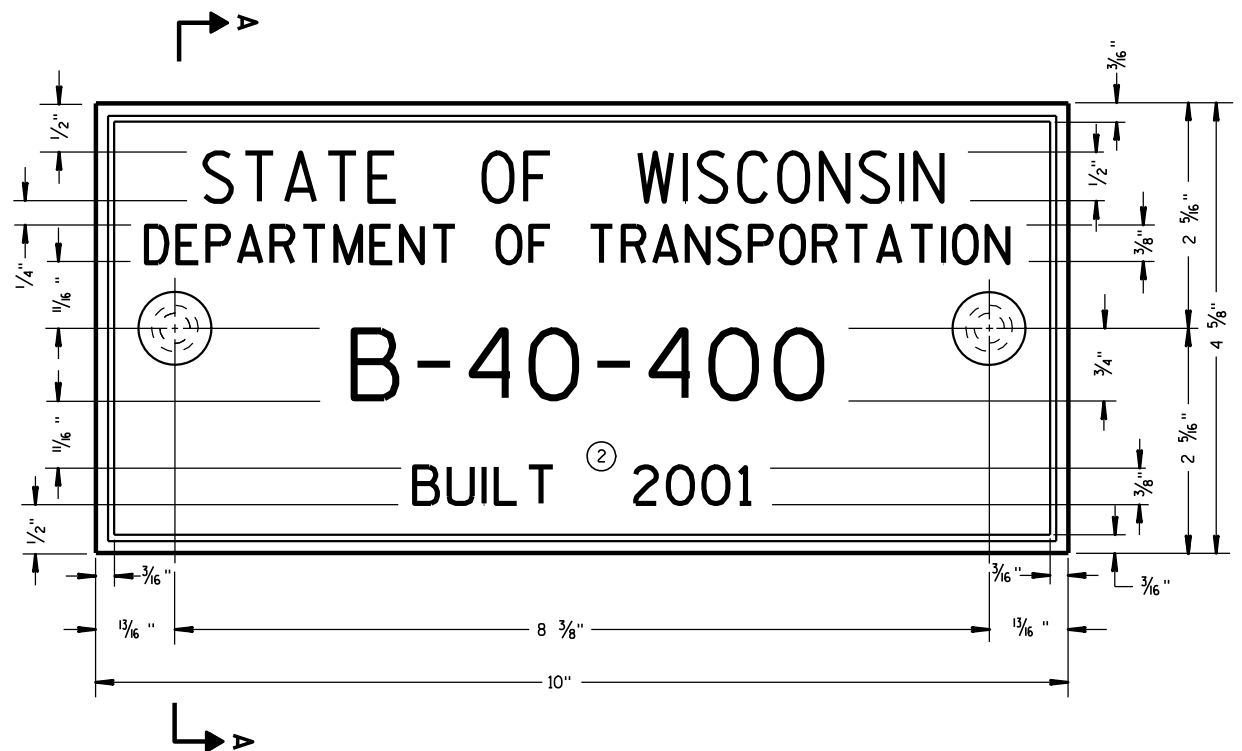


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



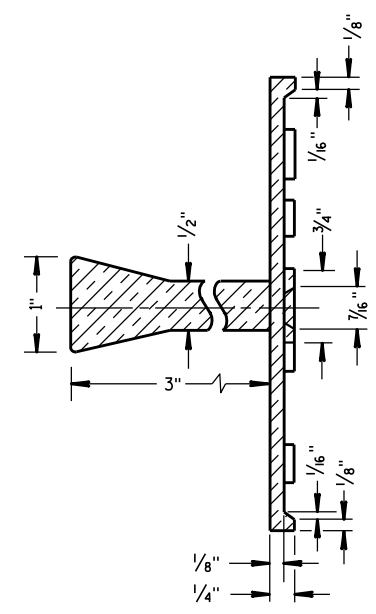
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

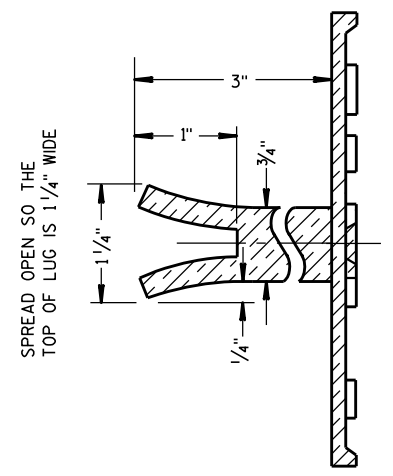
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.



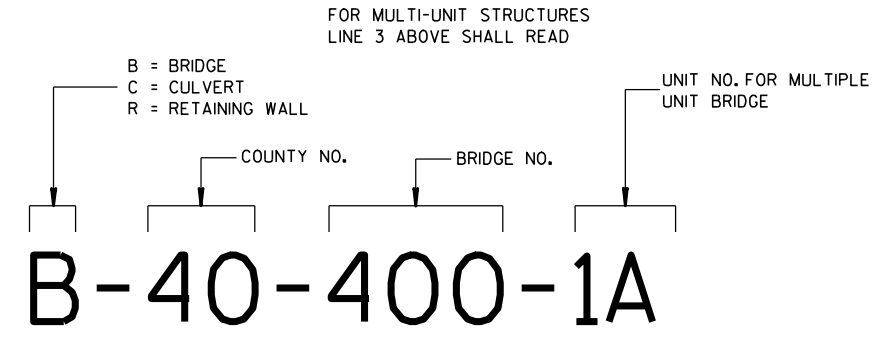
SECTION A-A



ALTERNATE LUG

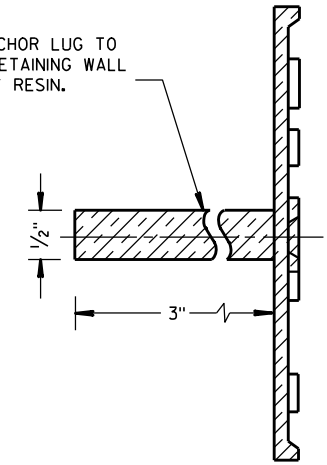
6

6



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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



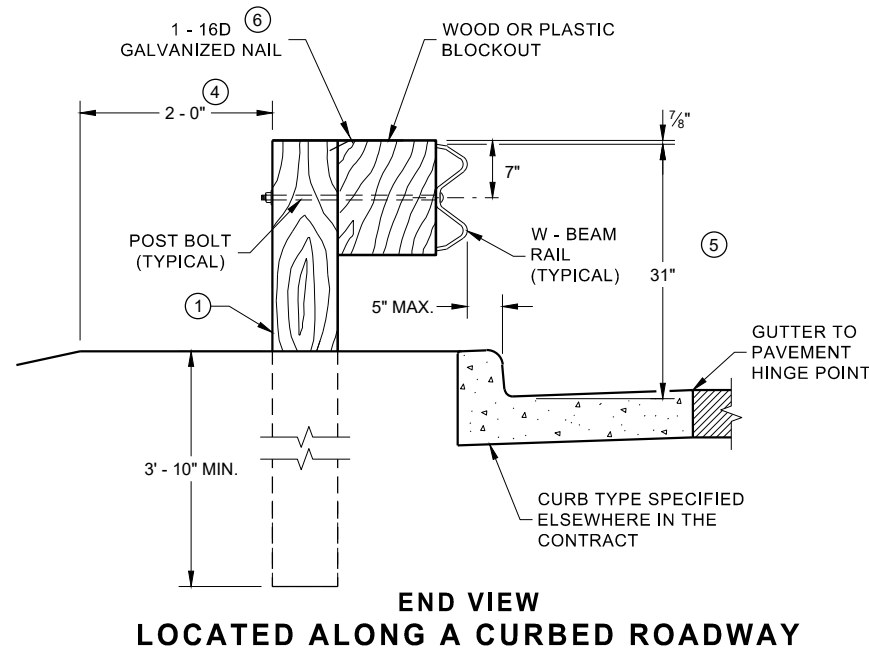
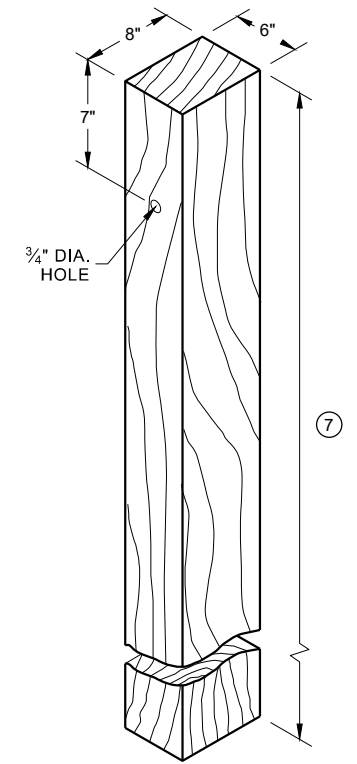
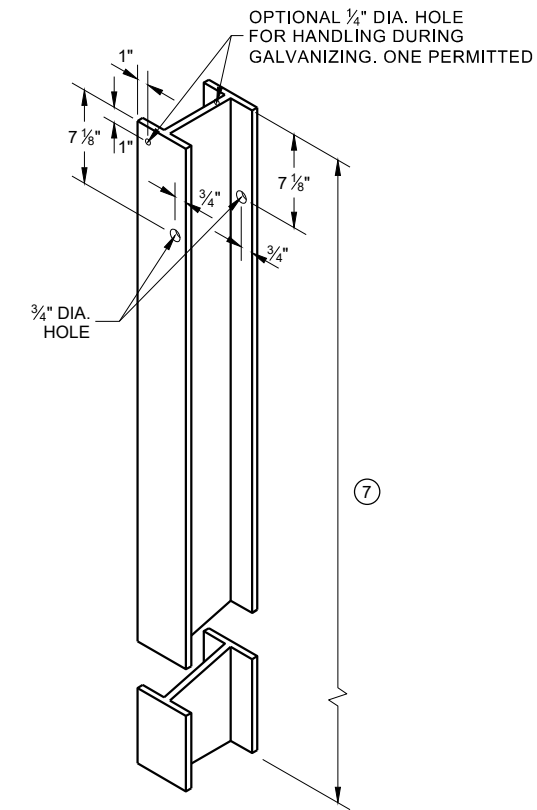
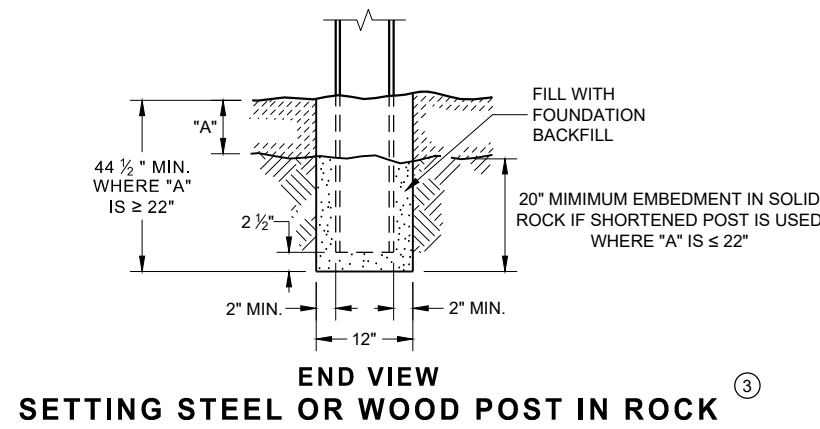
ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

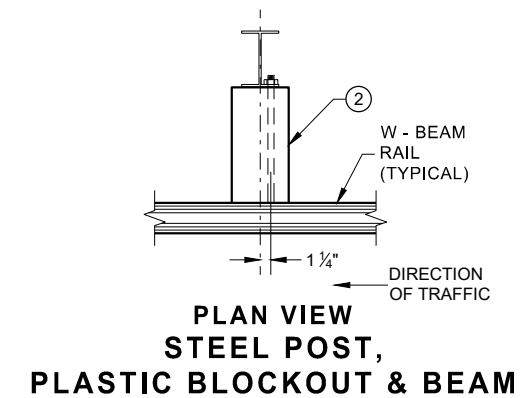
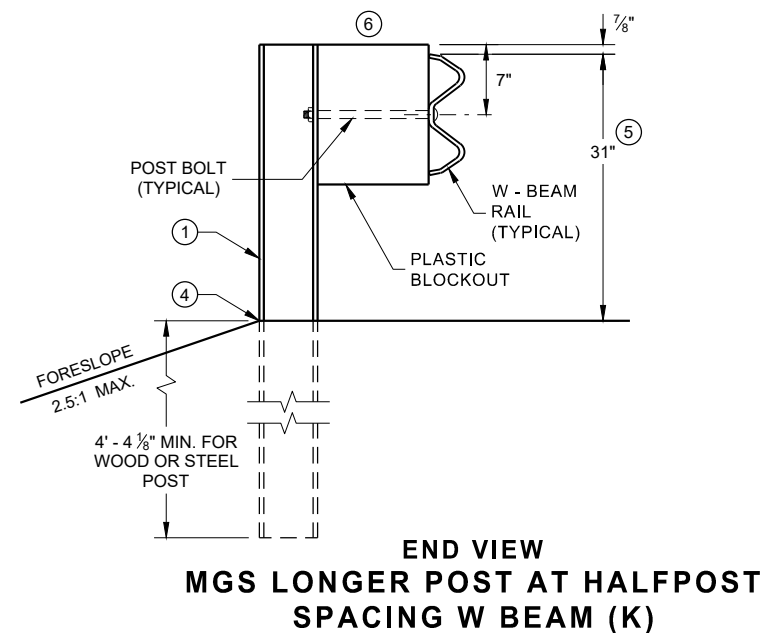
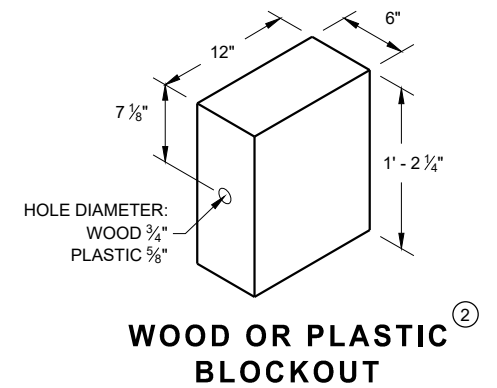
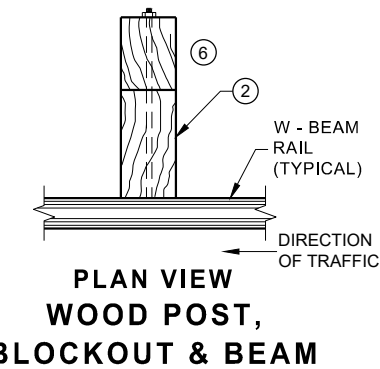
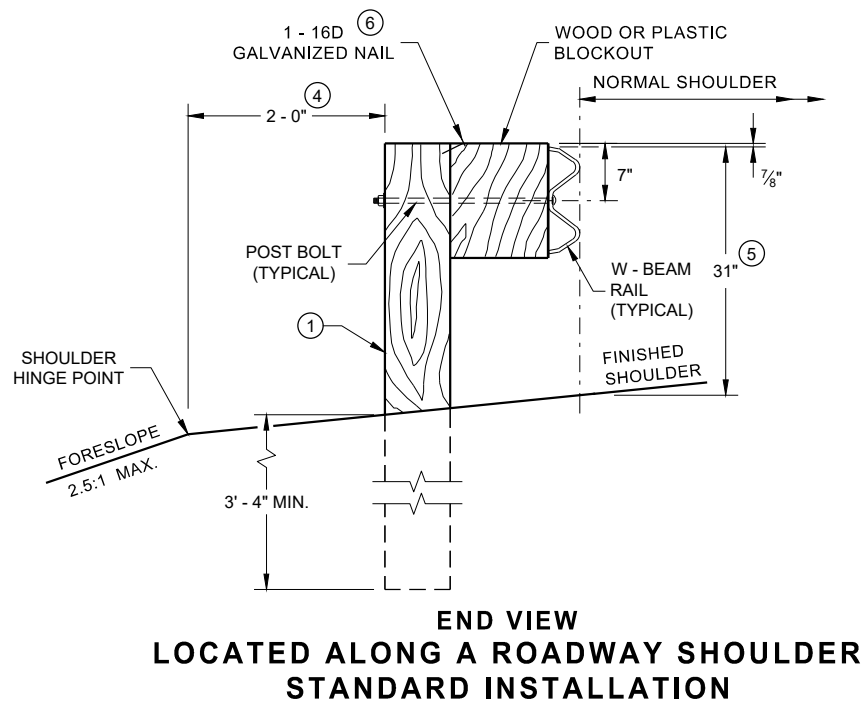
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	

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



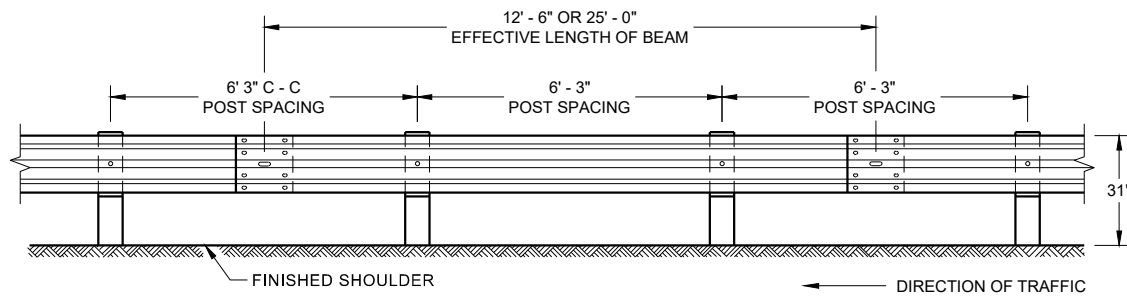
**STEEL POST & HOLE PUNCHING DETAIL
(W 6 X 9)** ①

**WOOD POST
(6" X 8") NOMINAL** ①

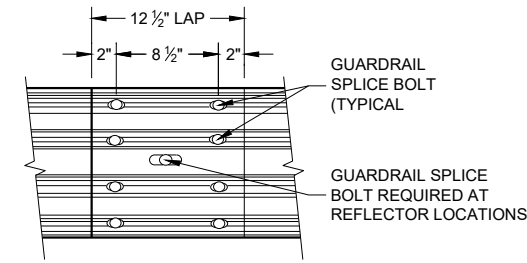


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



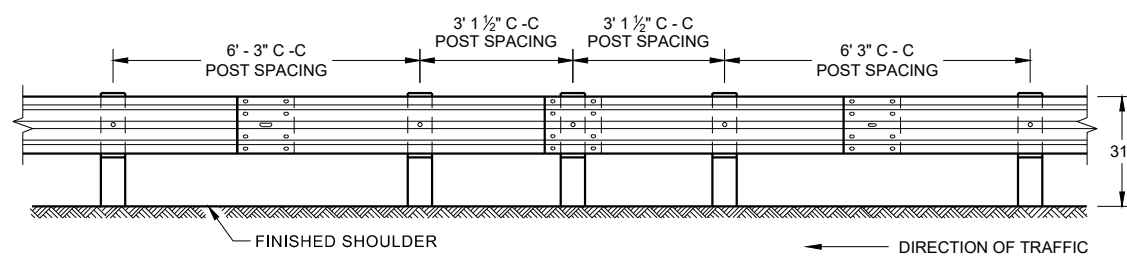
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



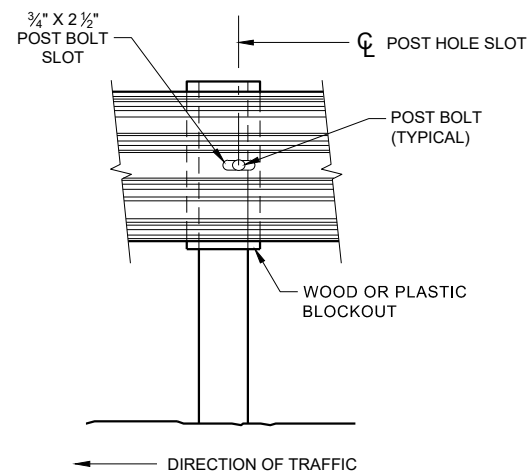
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

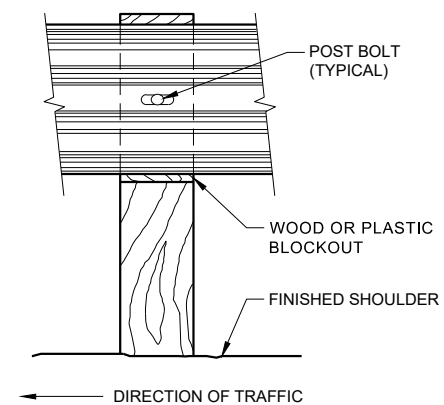
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



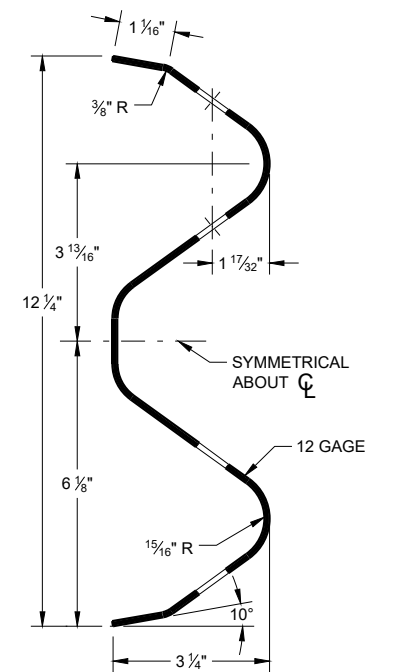
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



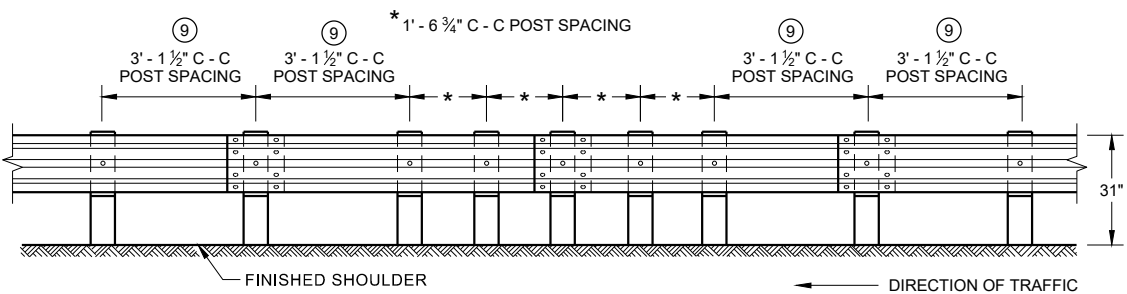
FRONT VIEW AT STEEL POST



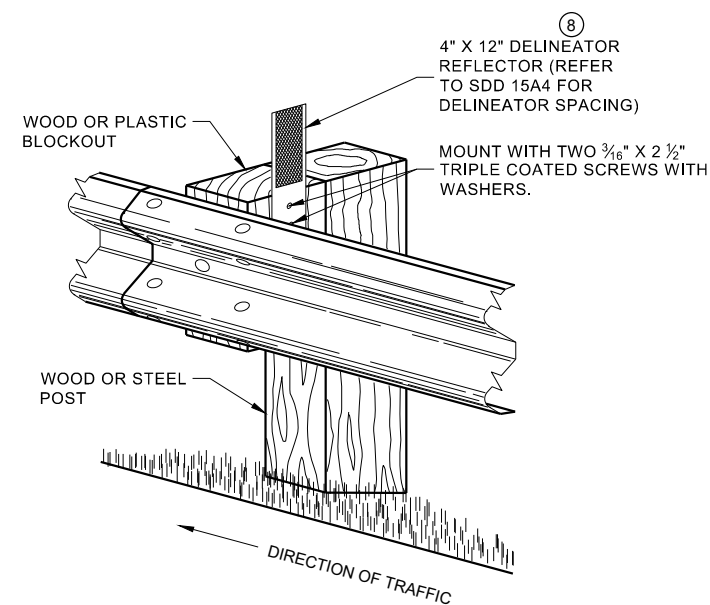
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

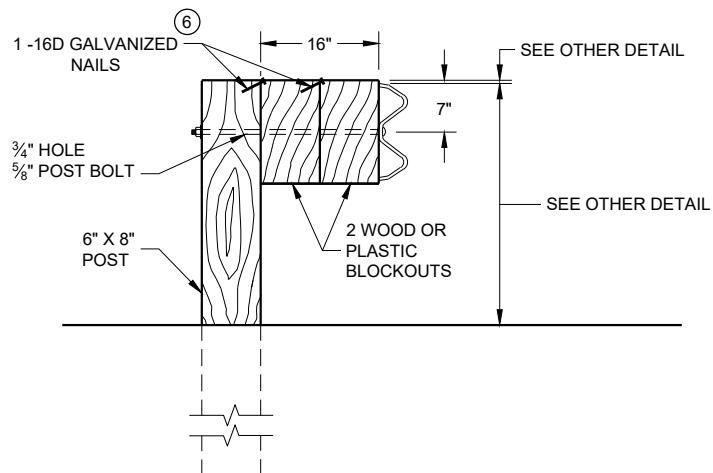
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

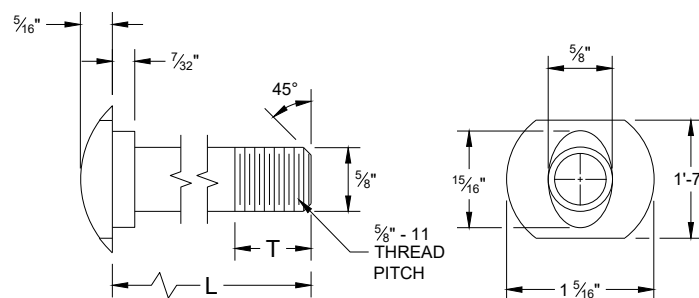


DETAIL FOR 16" BLOCKOUT DEPTH

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.

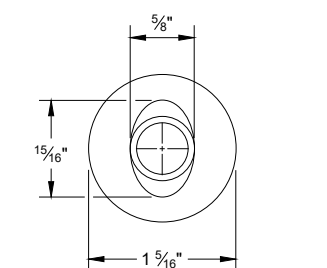
NOTE:

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

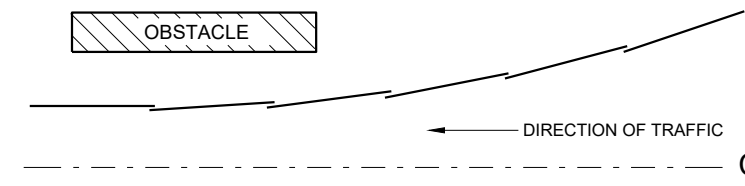


POST BOLT TABLE

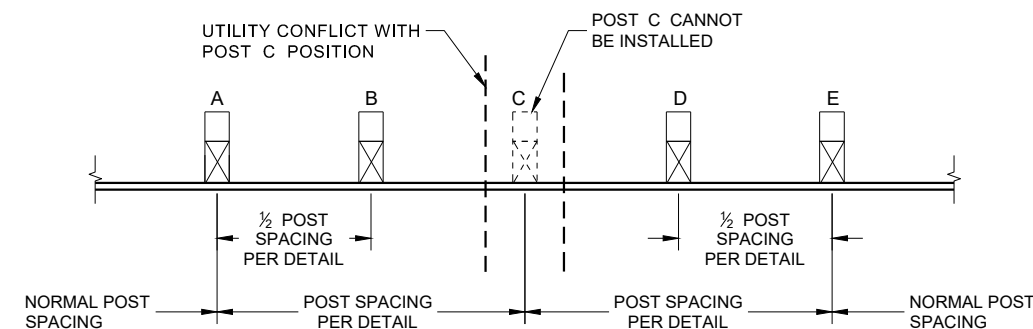
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



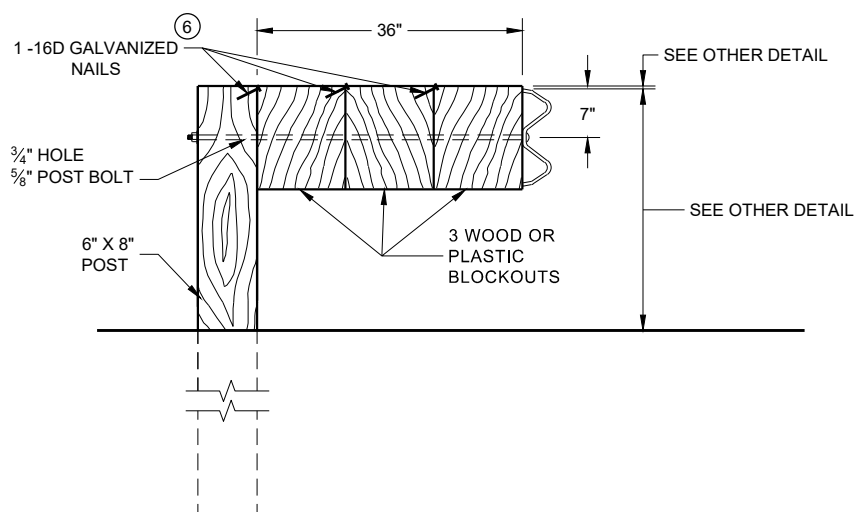
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

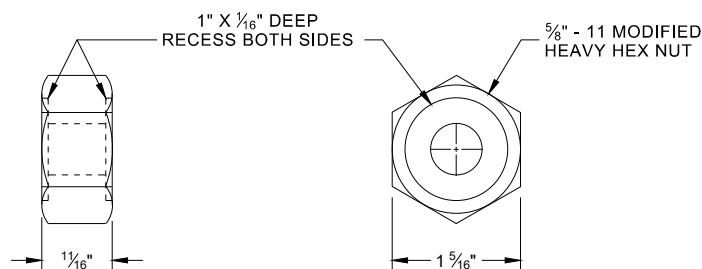


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

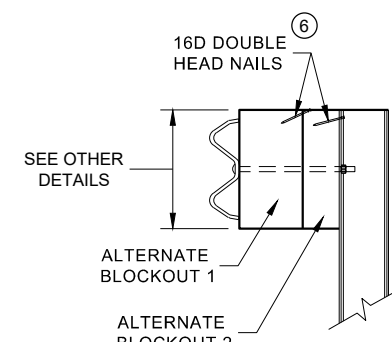


DETAIL FOR 36" BLOCKOUT DEPTH

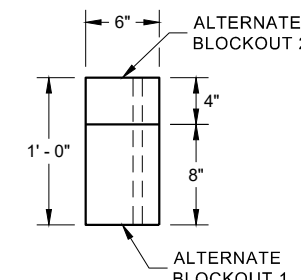
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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



**POST BOLT, SPLICE BOLT
AND RECESS NUT**



SIDE VIEW



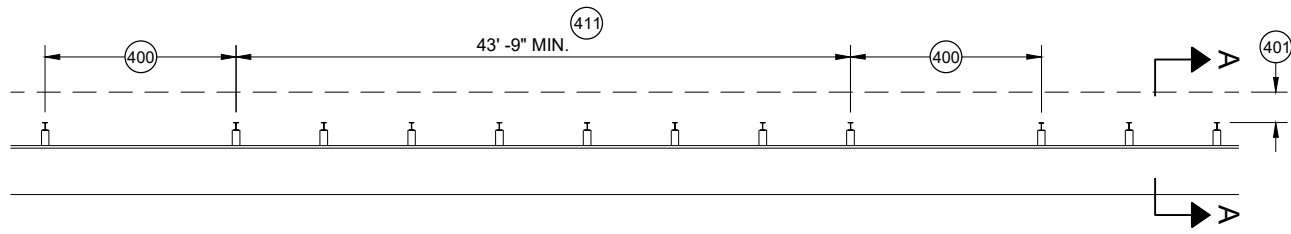
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

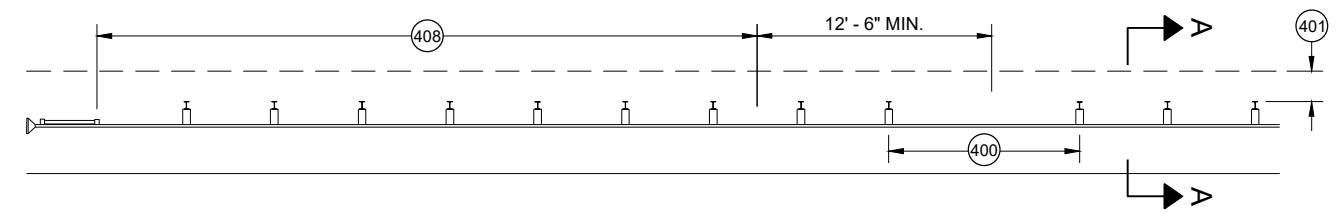
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

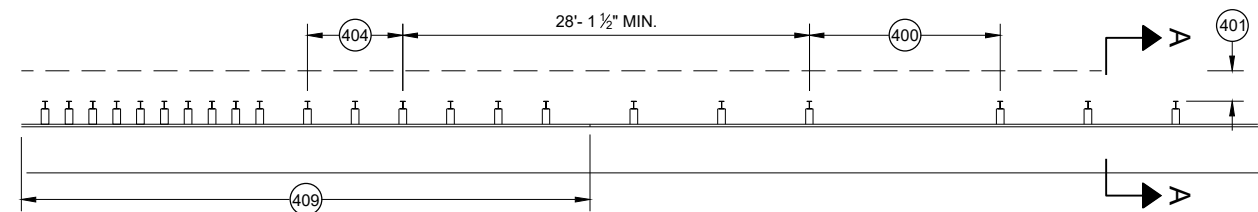
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



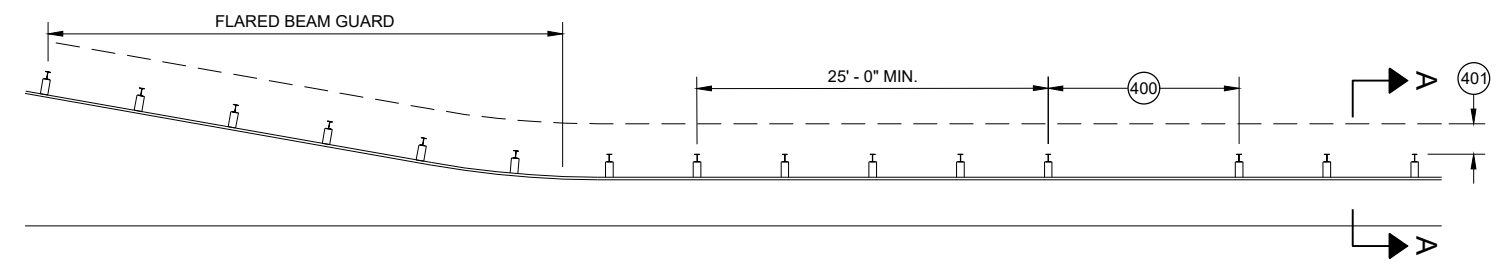
MISSING POST IN MGS GUARDRAIL



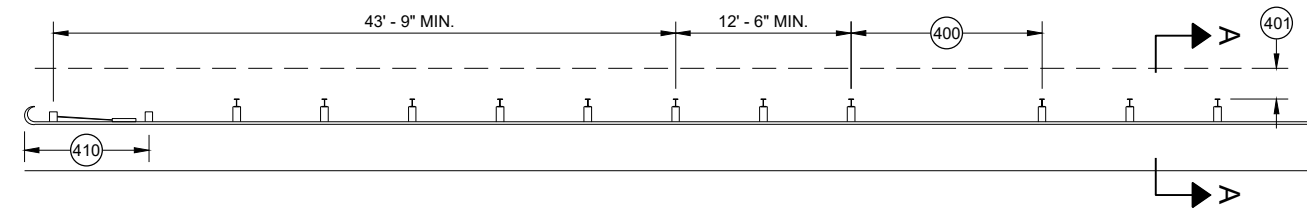
MISSING POST IN MGS GUARDRAIL NEAR EAT



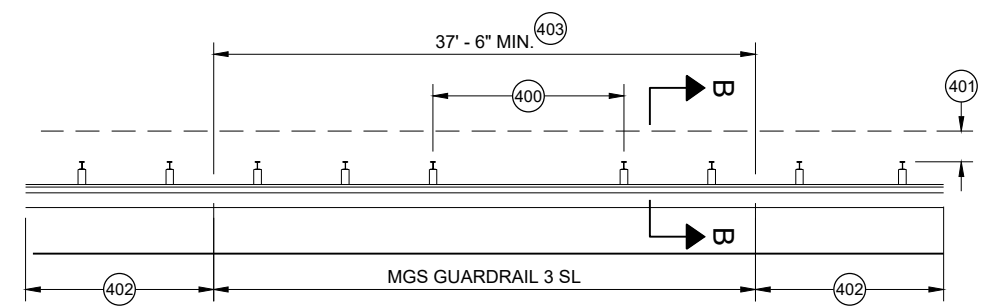
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

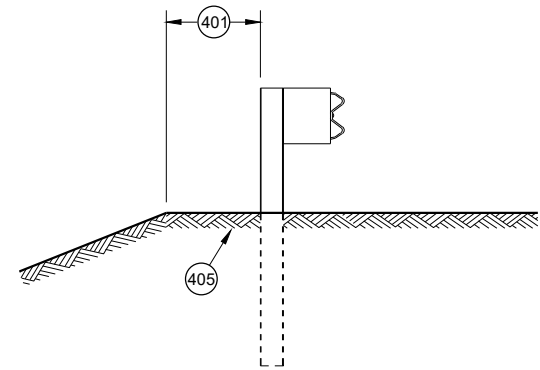


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

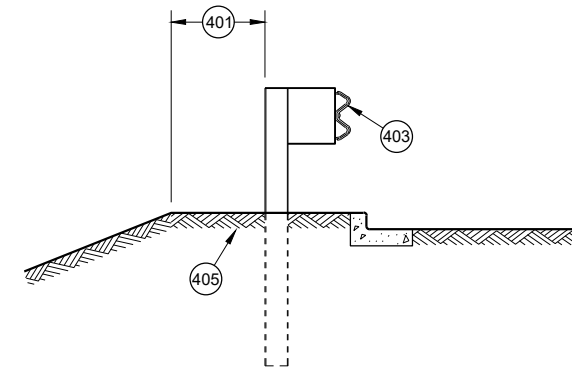


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

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

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE 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.

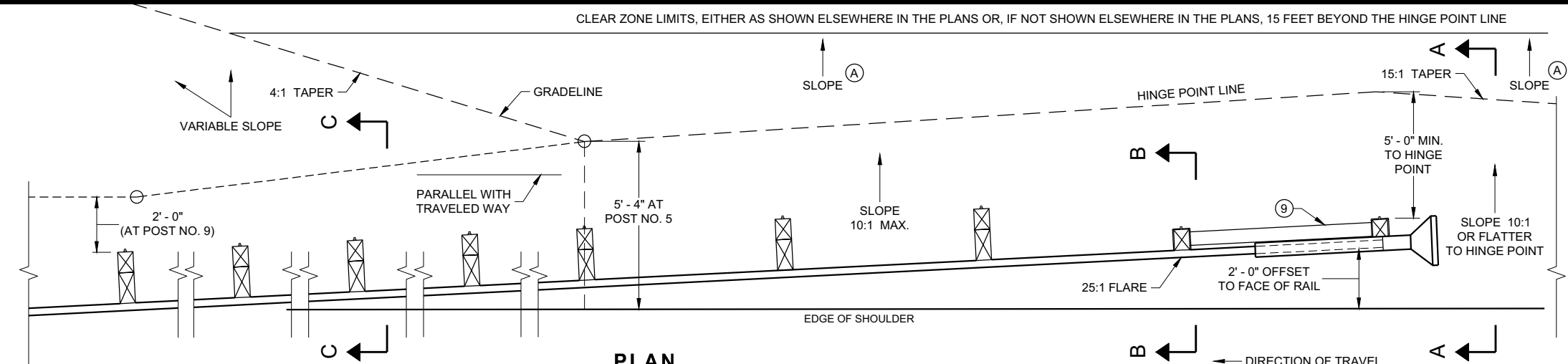
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

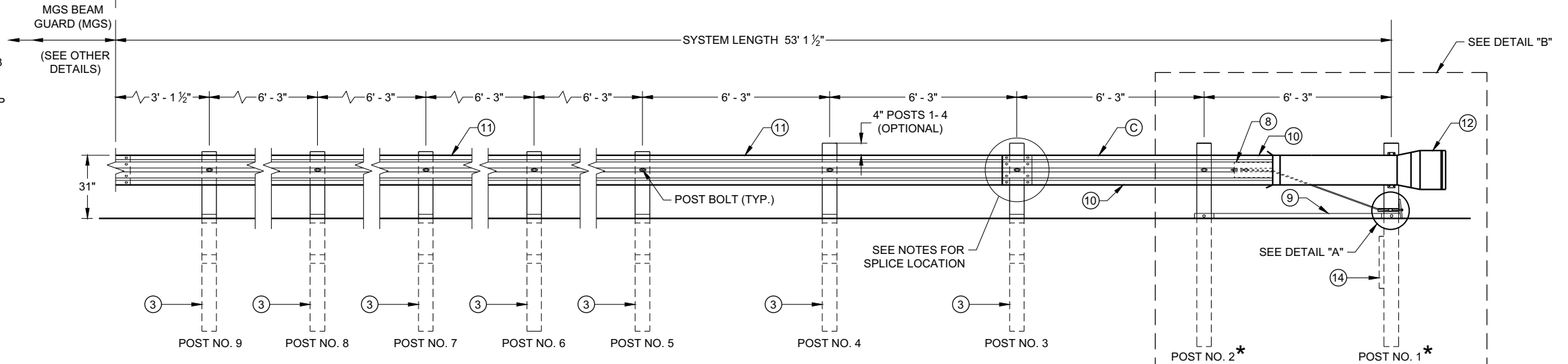
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

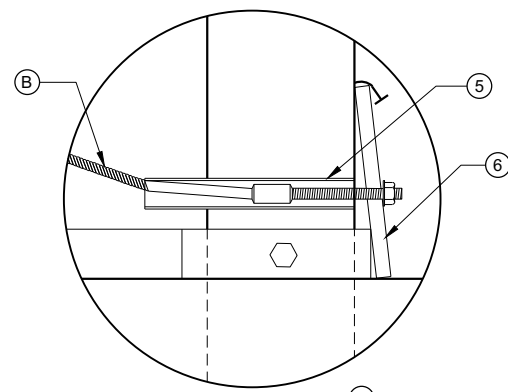
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



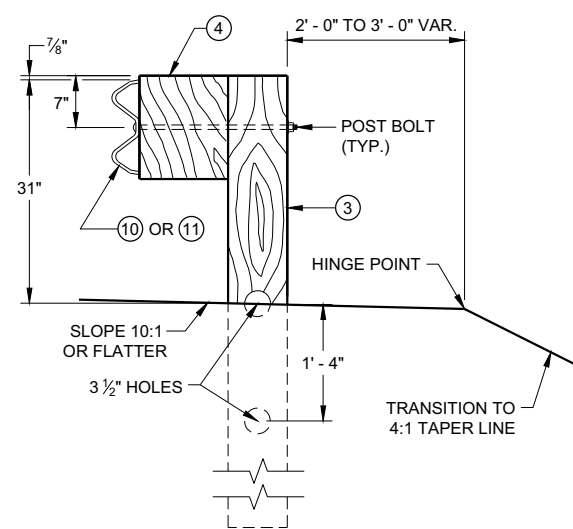
PLAN



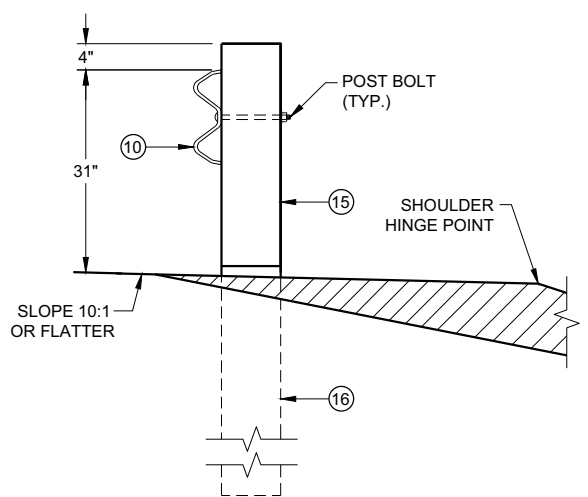
ELEVATION



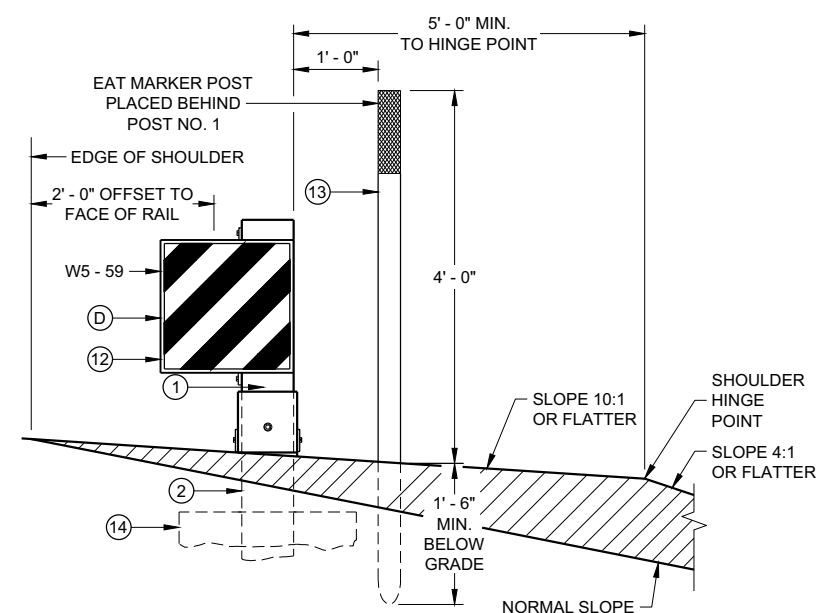
DETAIL "A"



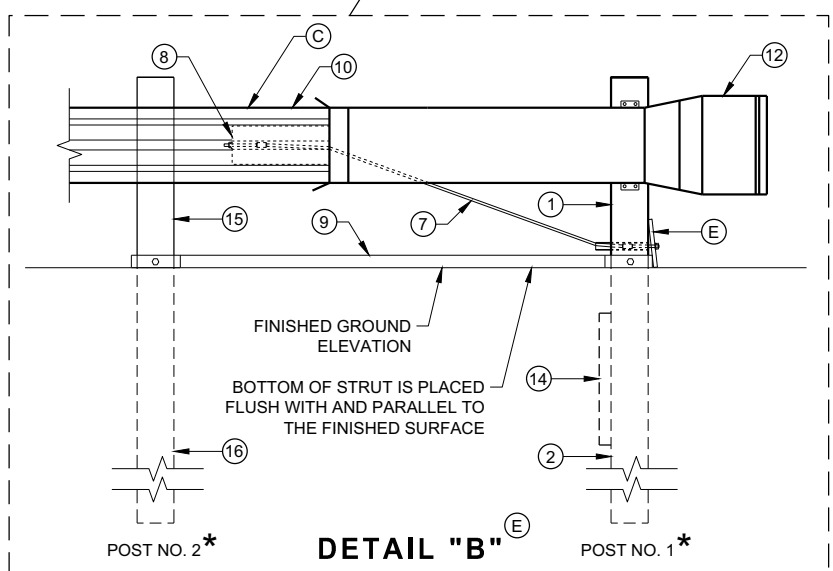
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B
TYPICAL AT POST NO. 2***



**SECTION A - A
TYPICAL AT POST NO. 1***



DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

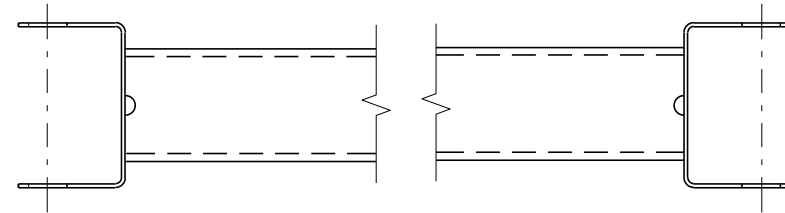
6

SDD 14B44 - 04a

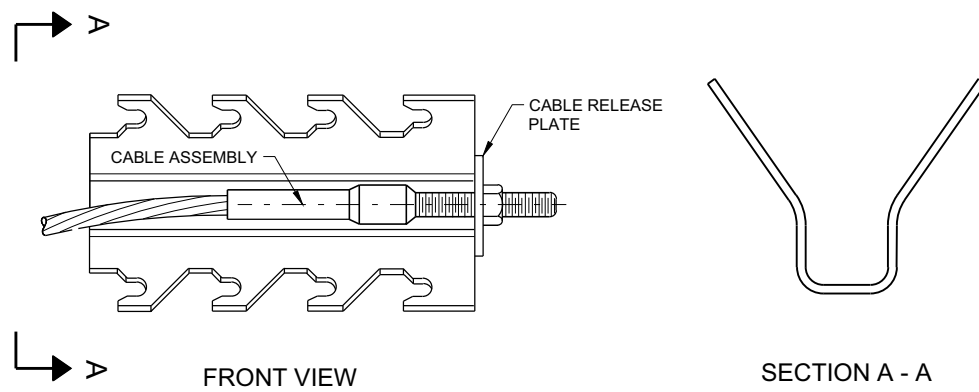
SDD 14B44 - 04a

BILL OF MATERIALS

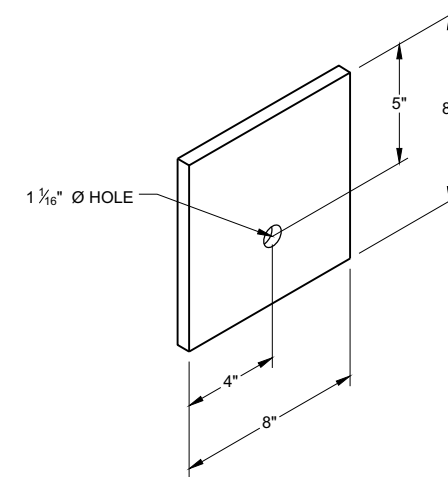
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL 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



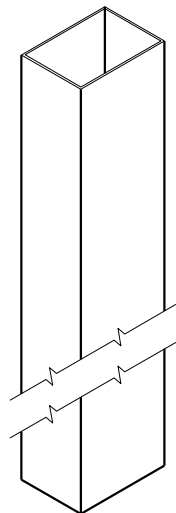
GENERIC GROUND STRUT ⑨ ⑤



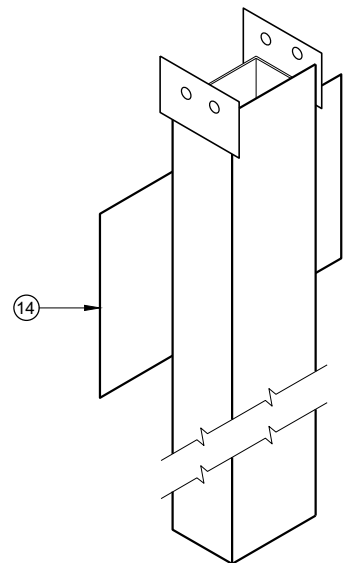
GENERIC ANCHOR CABLE BOX ⑨ ⑤



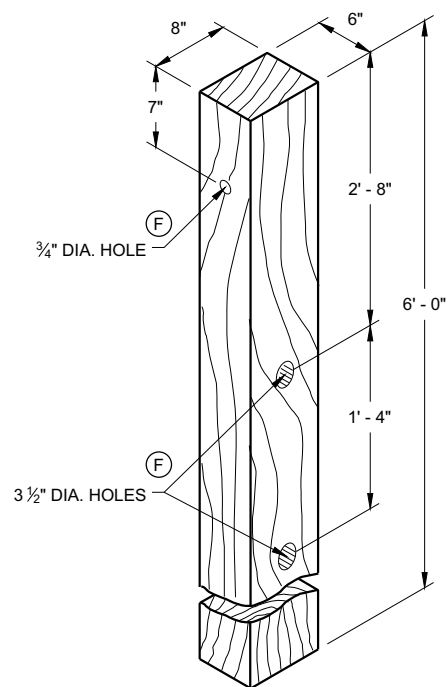
BEARING PLATE ⑥ ⑤



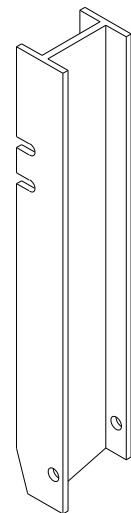
UPPER POST NO. 1 ⁽¹⁾ (E)



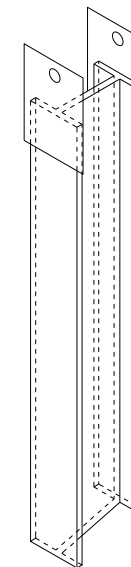
LOWER POST NO. 1 ⁽²⁾ (E)



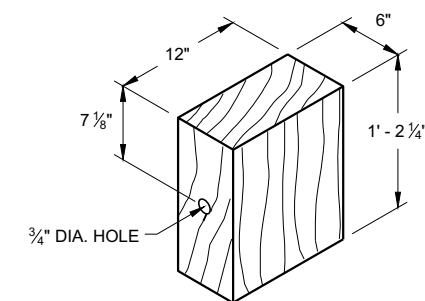
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

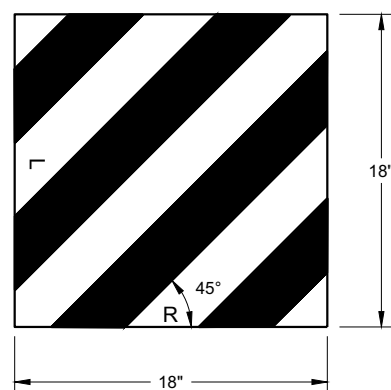


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

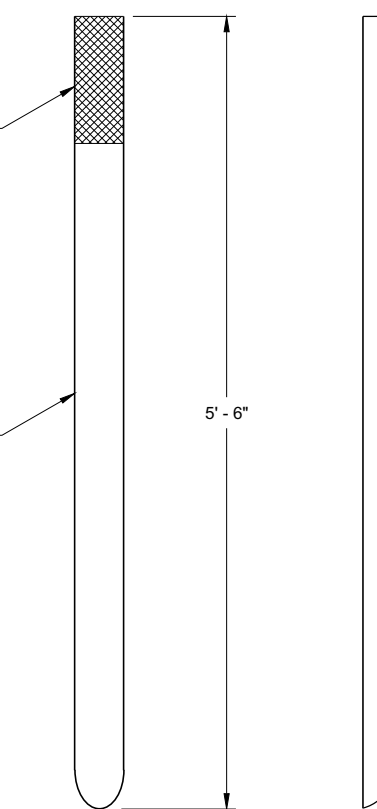
6



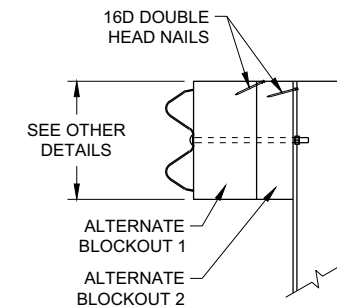
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

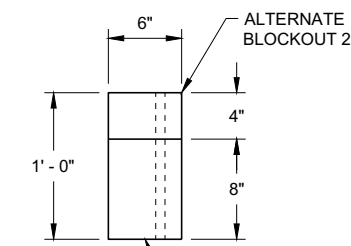
E.A.T. MARKER
POST (YELLOW)



FRONT VIEW SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

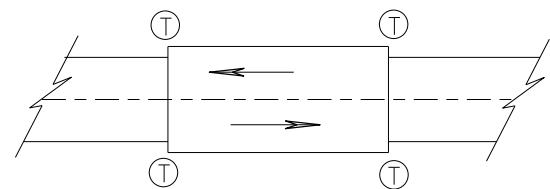
SDD 14B44 - 04c

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

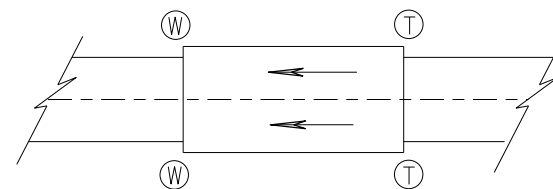
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

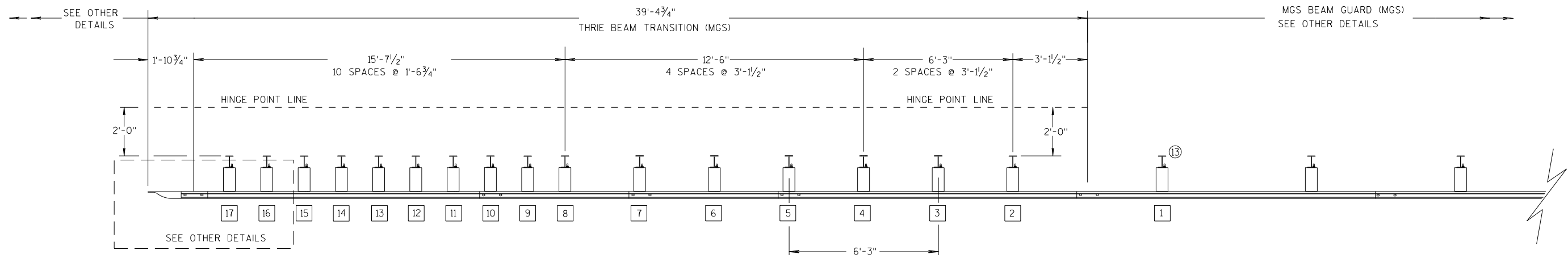
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

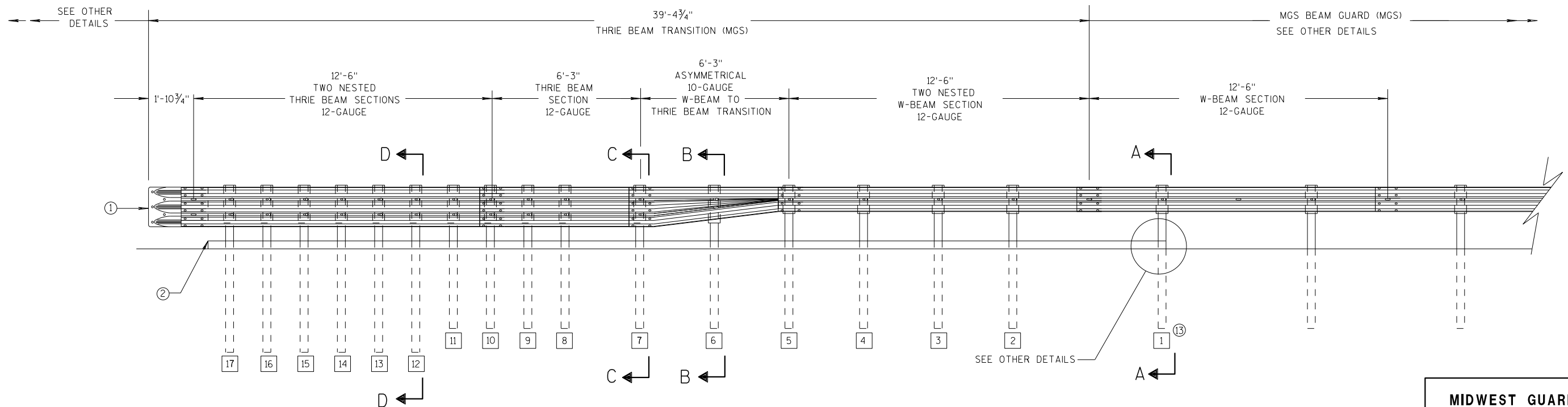
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

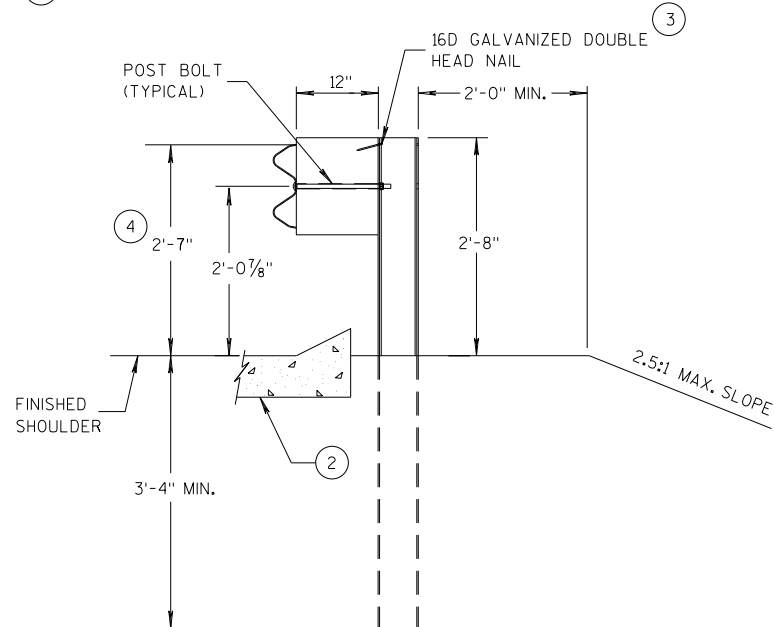
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

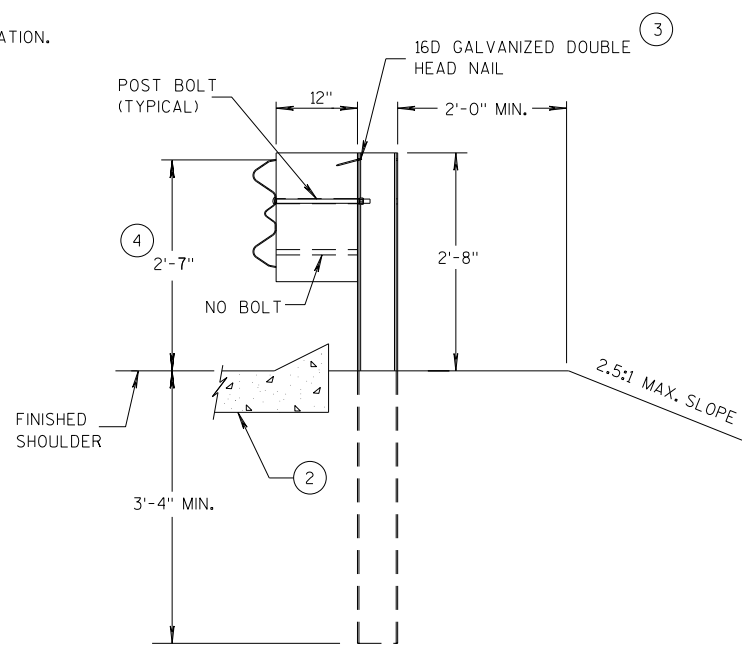
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

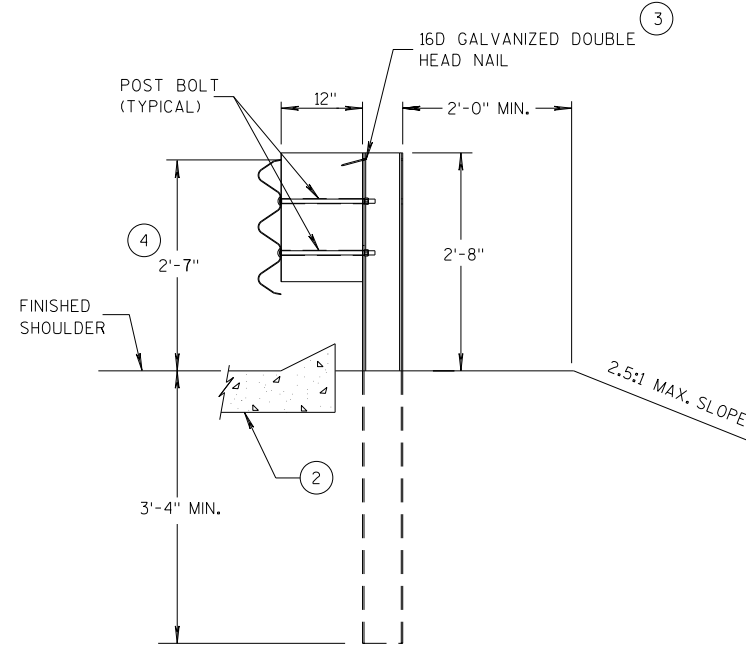
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**

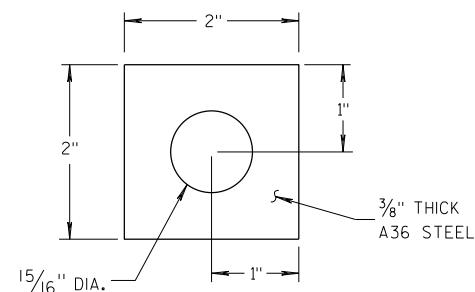
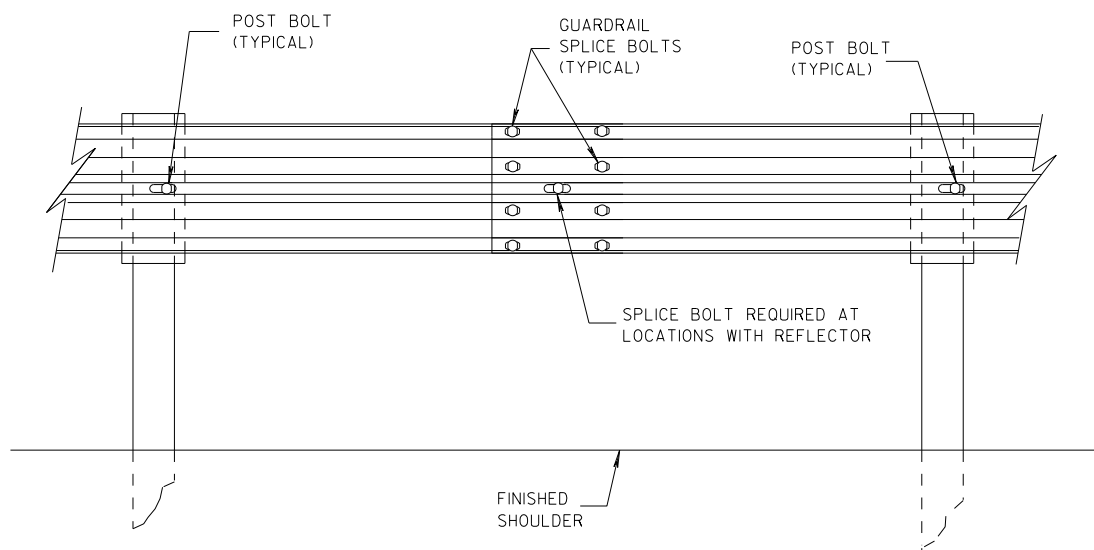
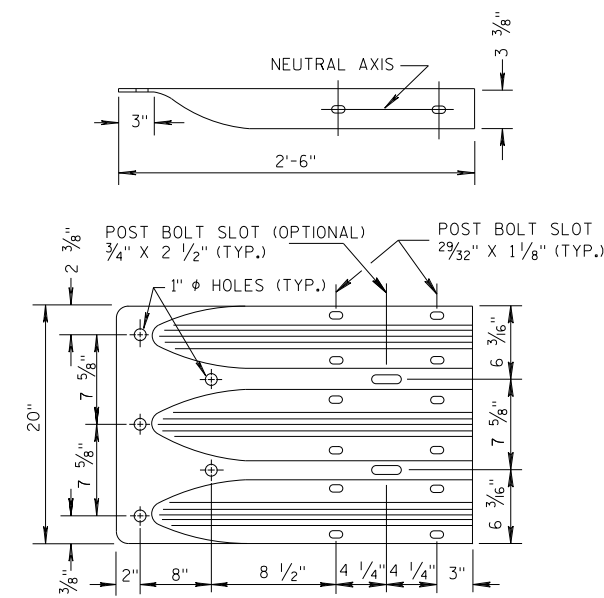


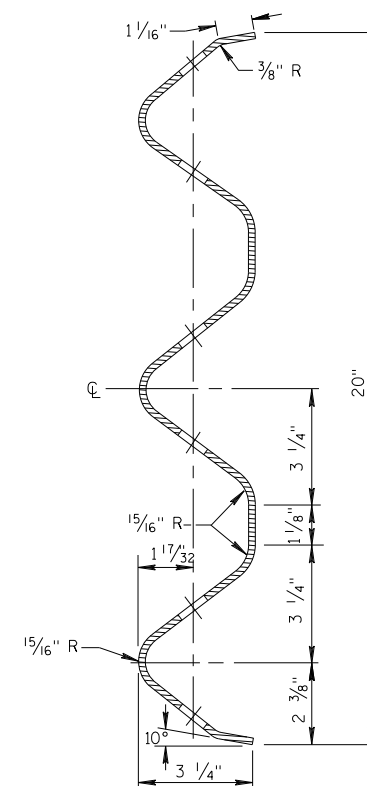
PLATE WASHER DETAIL



SPLICE DETAIL



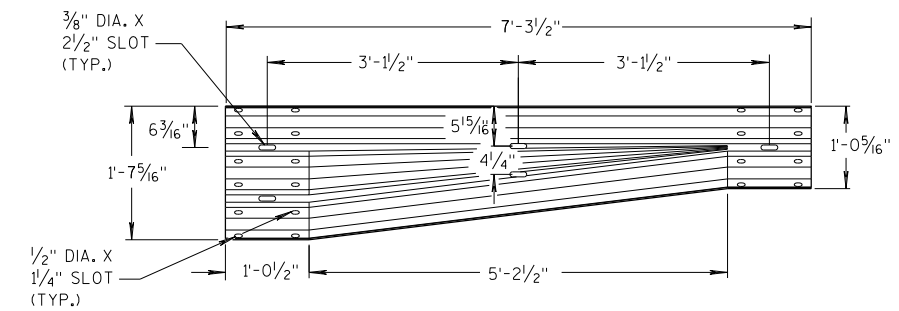
**THRIE BEAM
TERMINAL CONNECTOR**



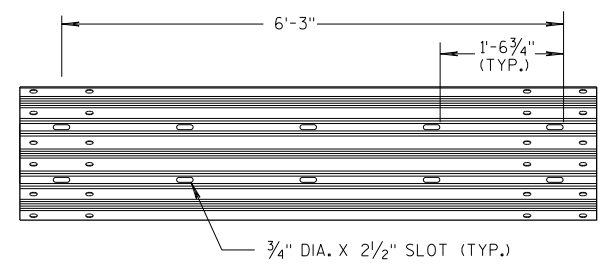
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

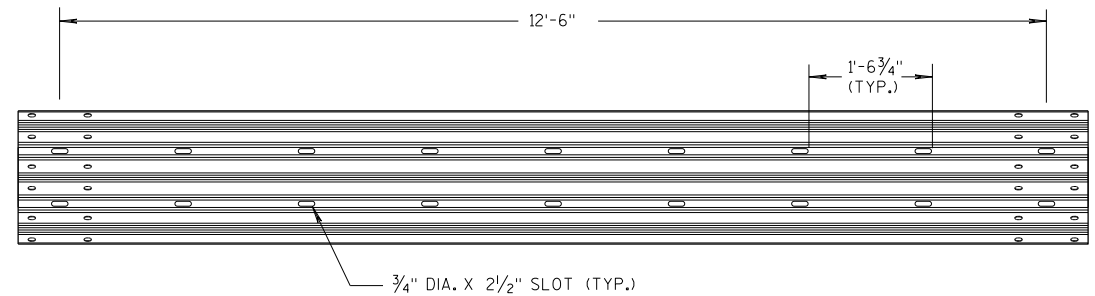
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



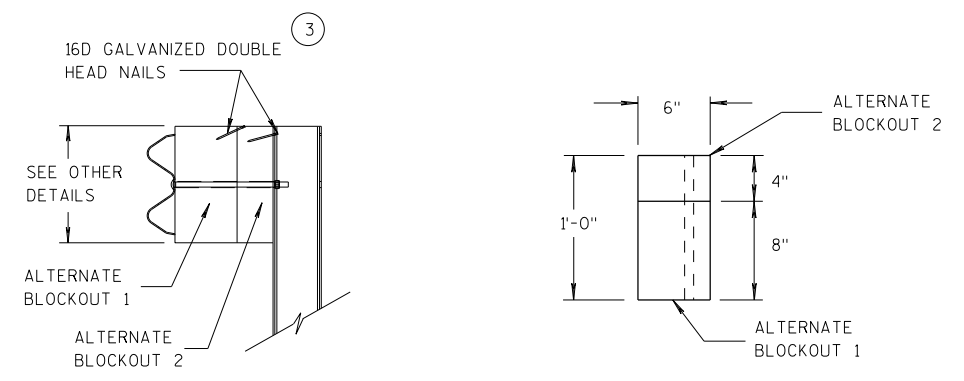
W-BEAM TO THRIE BEAM TRANSITION SECTION



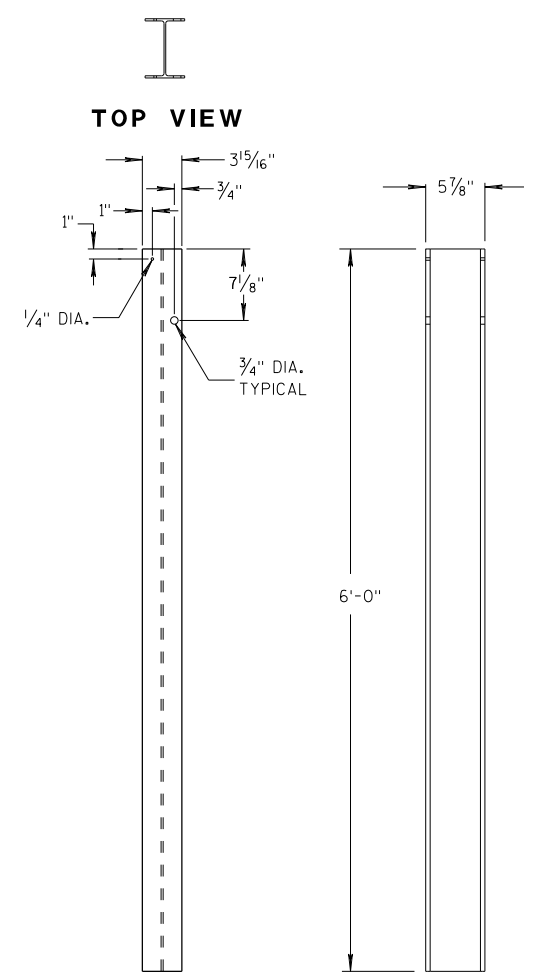
6'-3\"/>



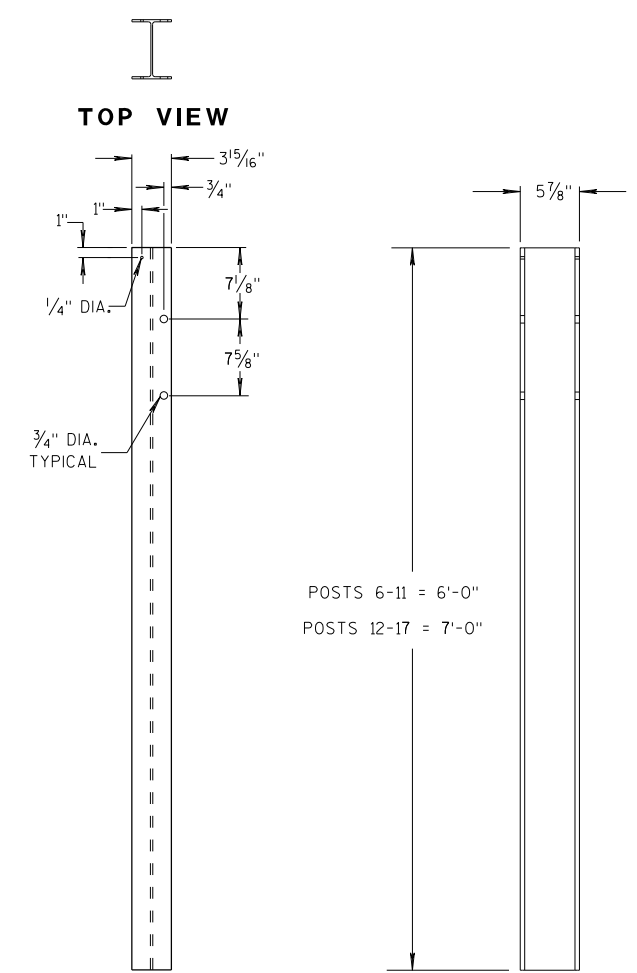
12'-6\"/>



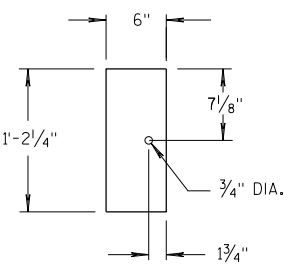
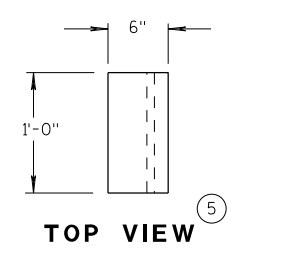
ALTERNATE WOOD BLOCKOUT DETAIL



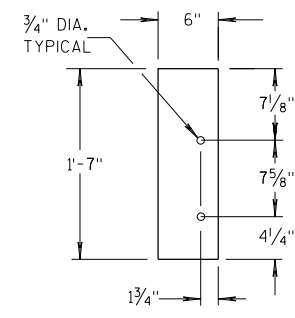
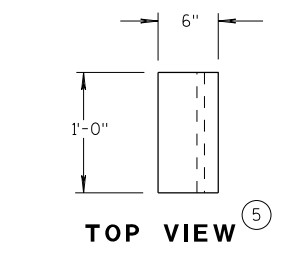
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



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

6

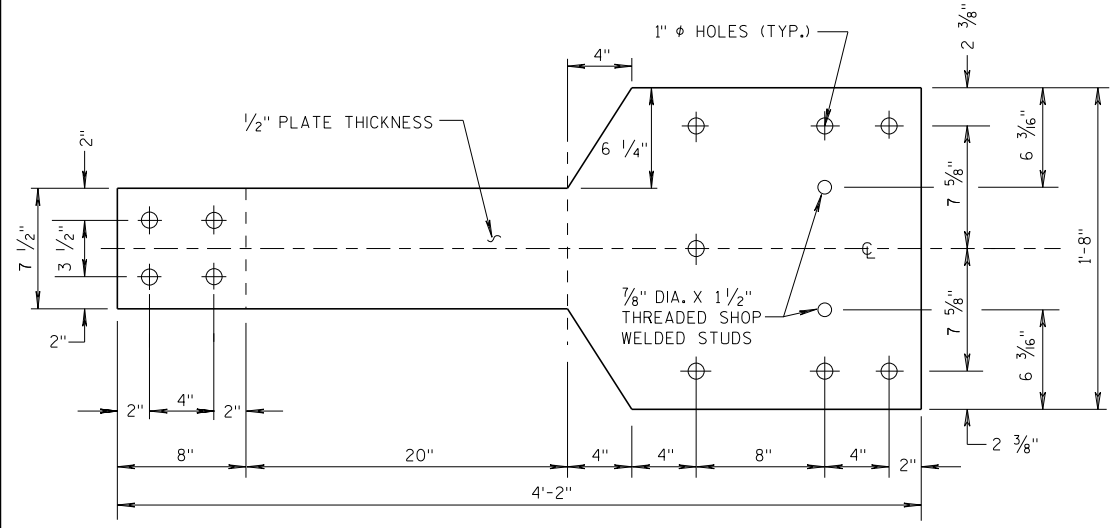
6

S.D.D. 14 B 45-5c

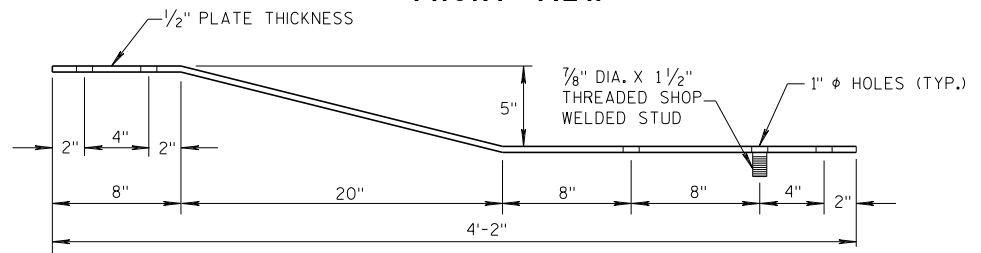
S.D.D. 14 B 45-5c

GENERAL NOTES

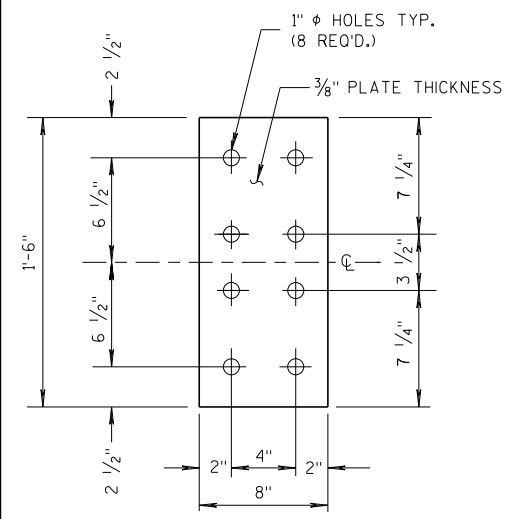
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



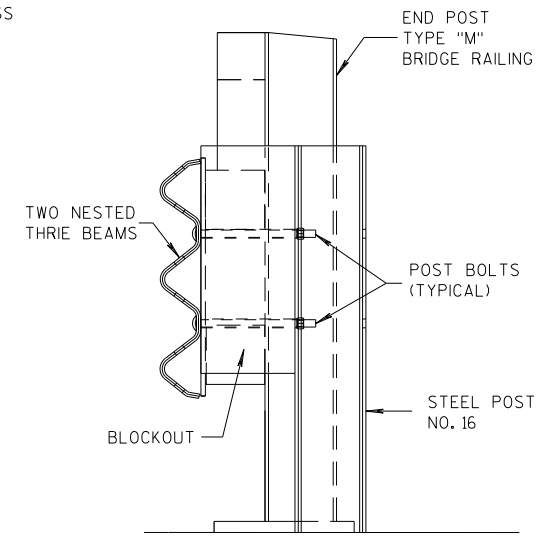
FRONT VIEW



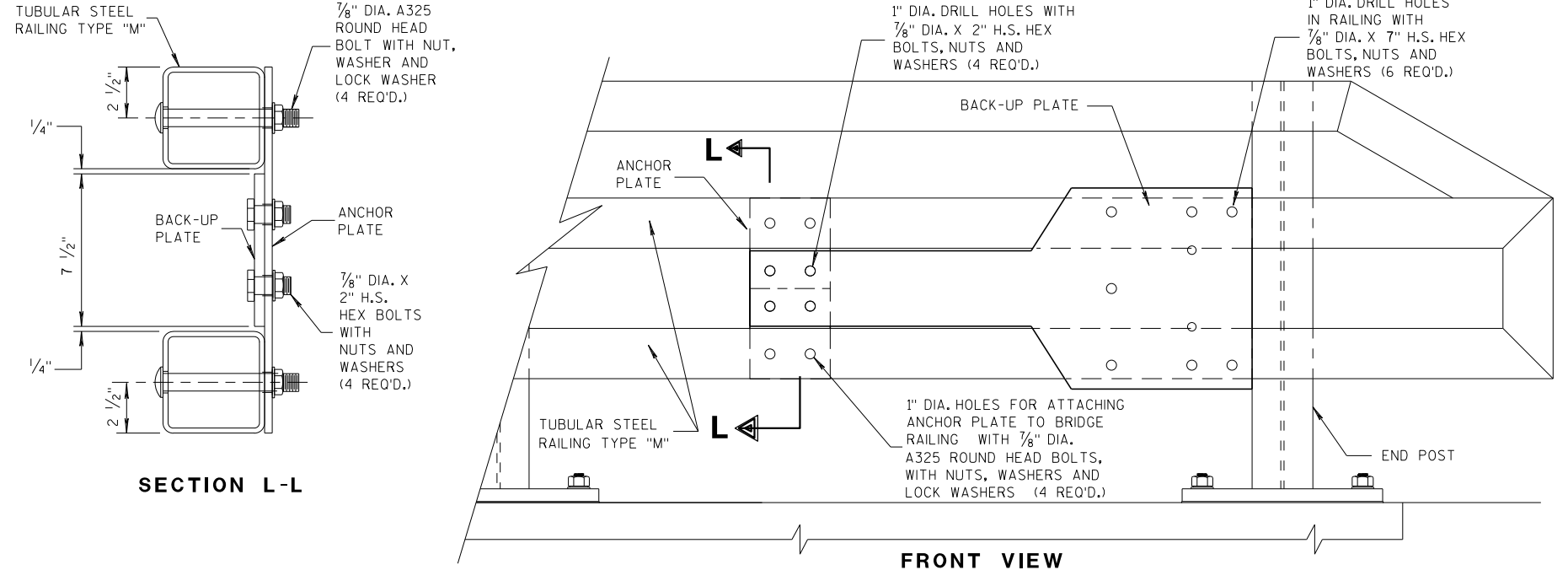
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



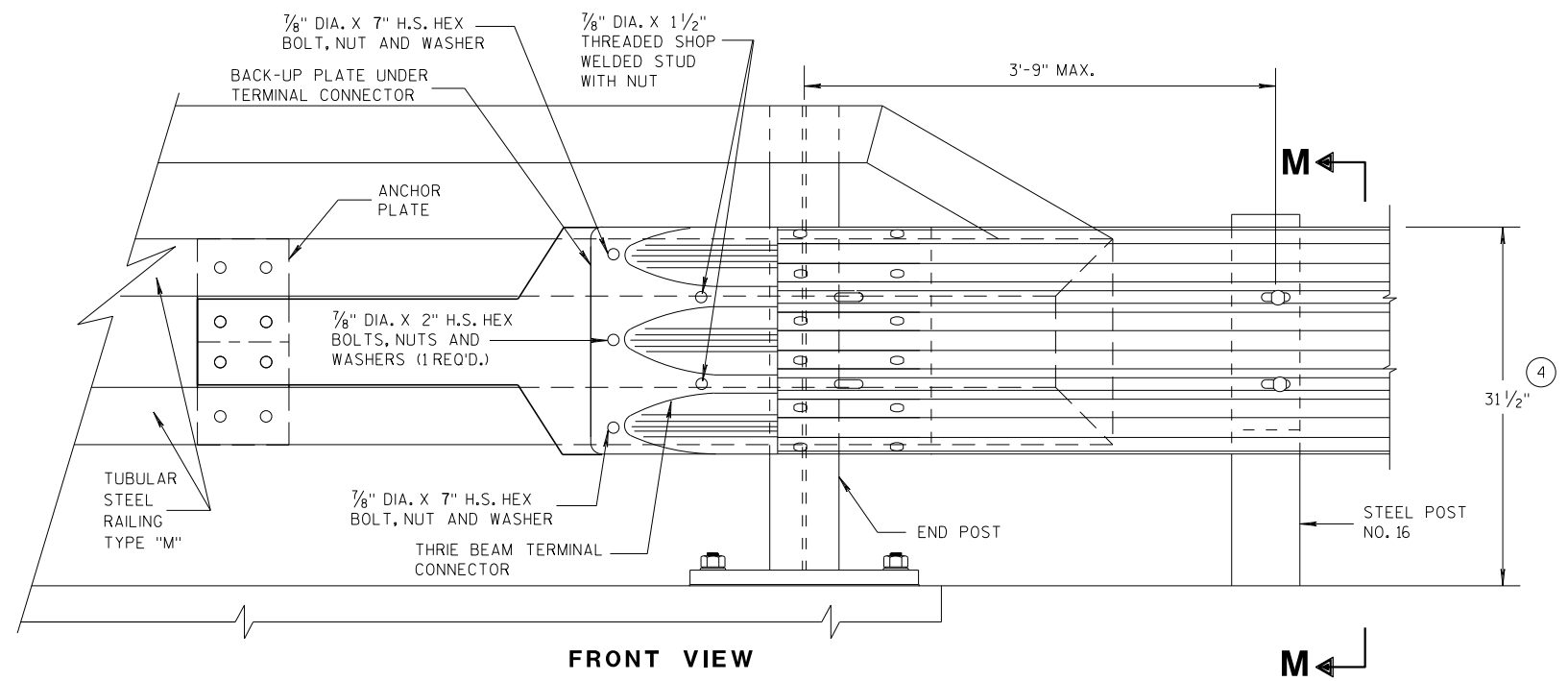
**FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"**



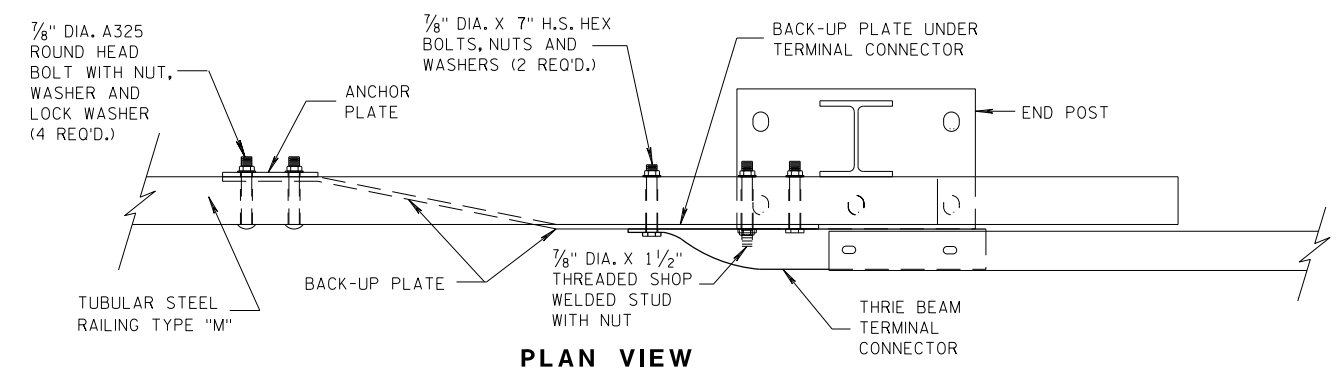
SECTION M-M



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



FRONT VIEW



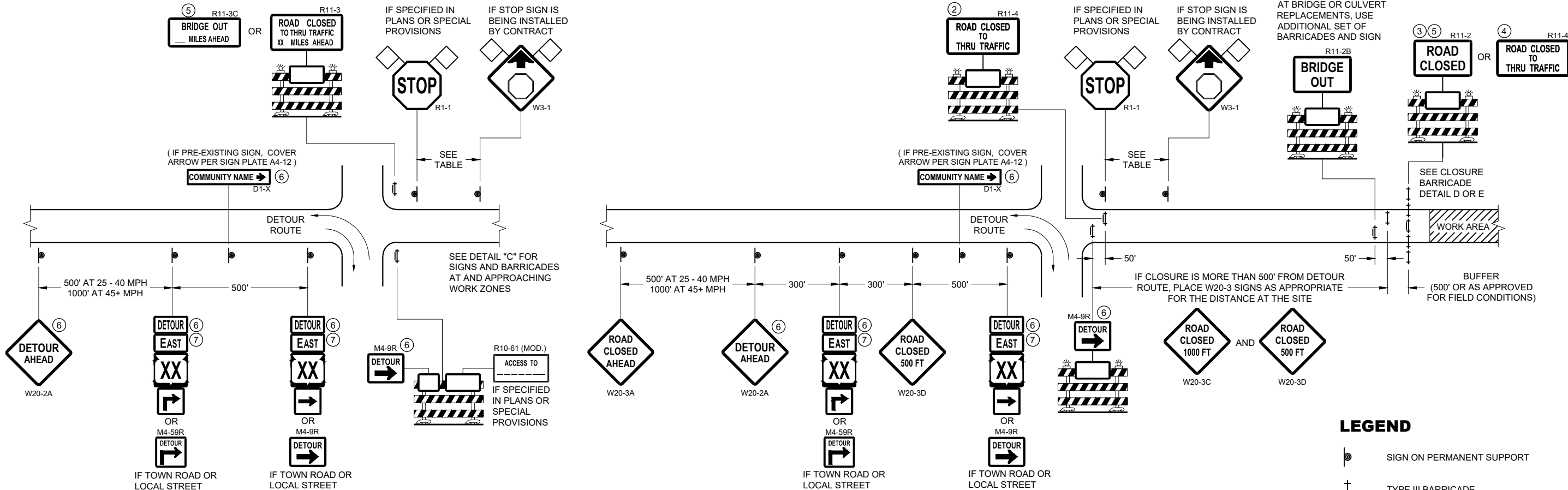
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

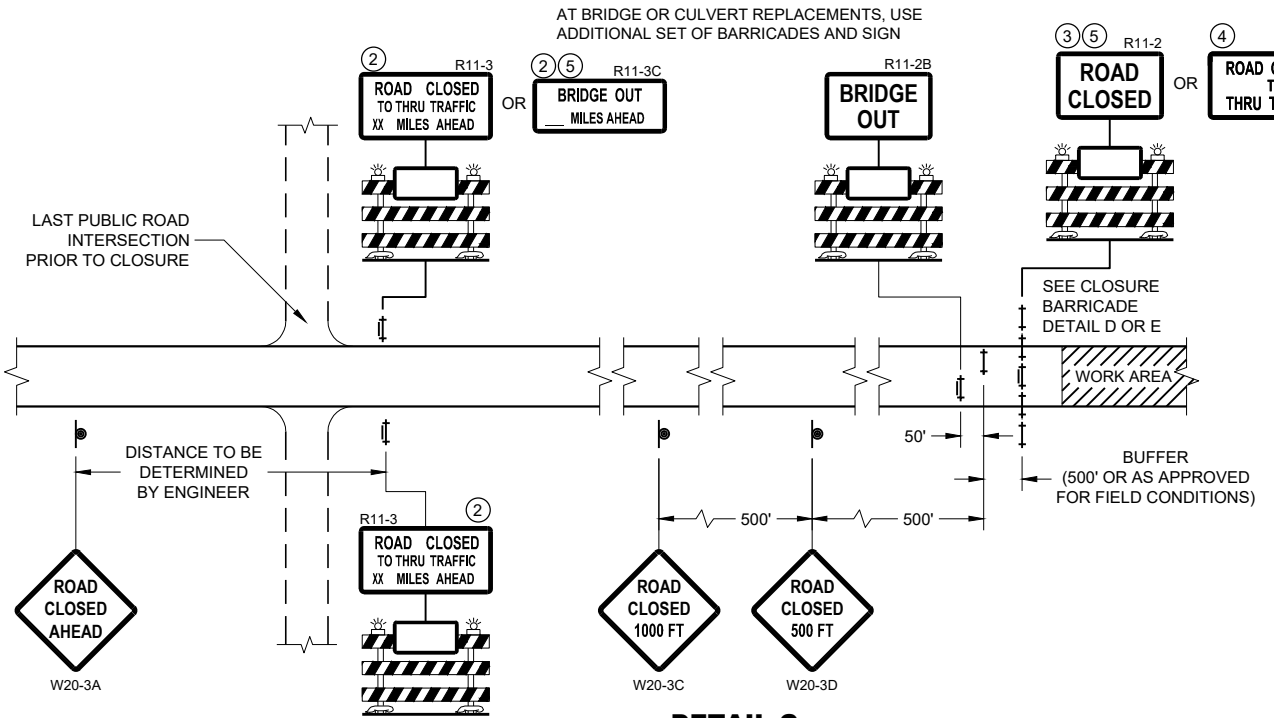
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

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

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



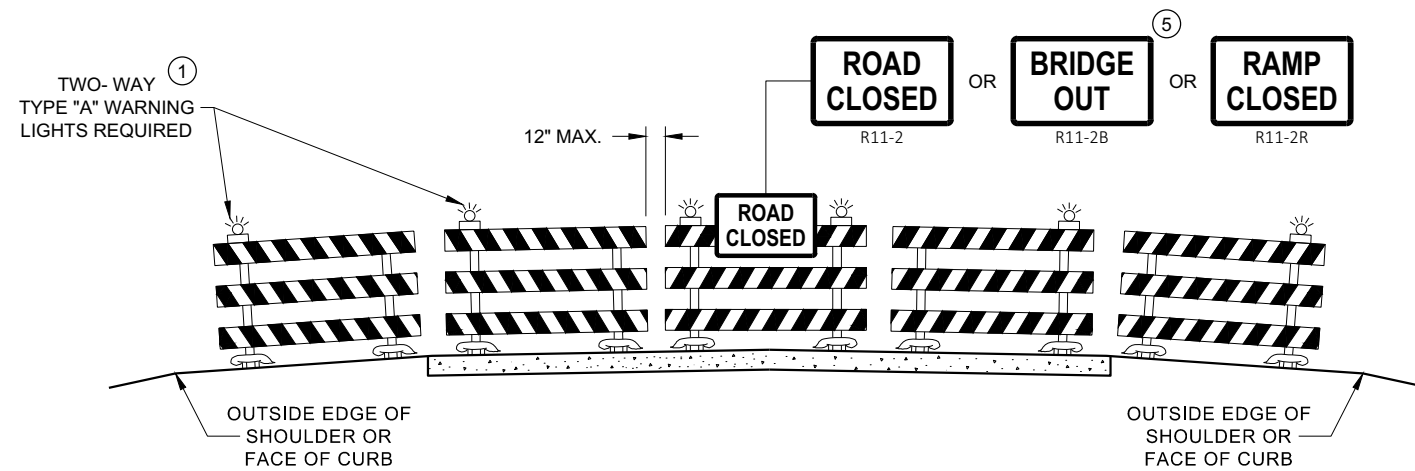
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

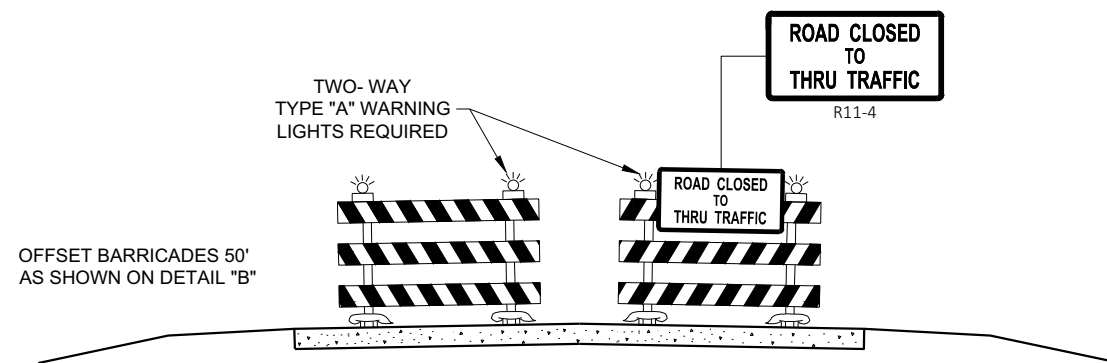
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE 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"

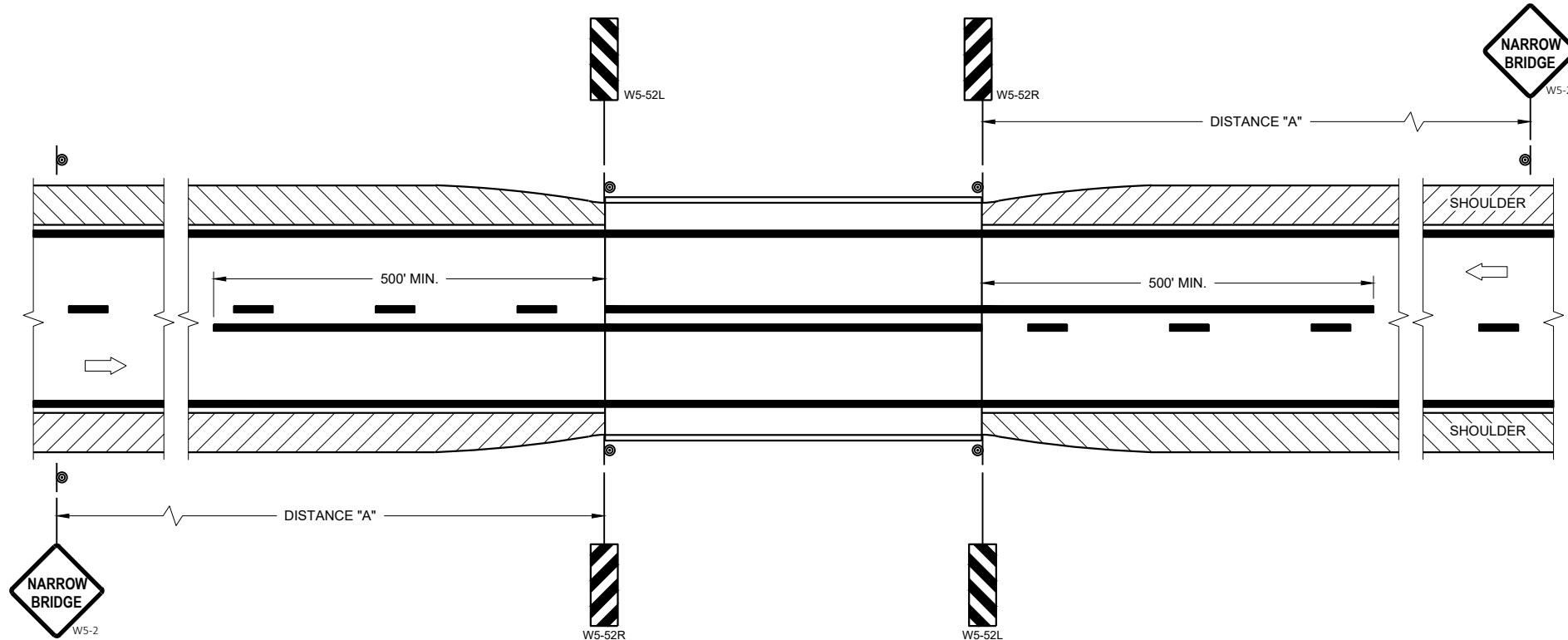
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS 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**

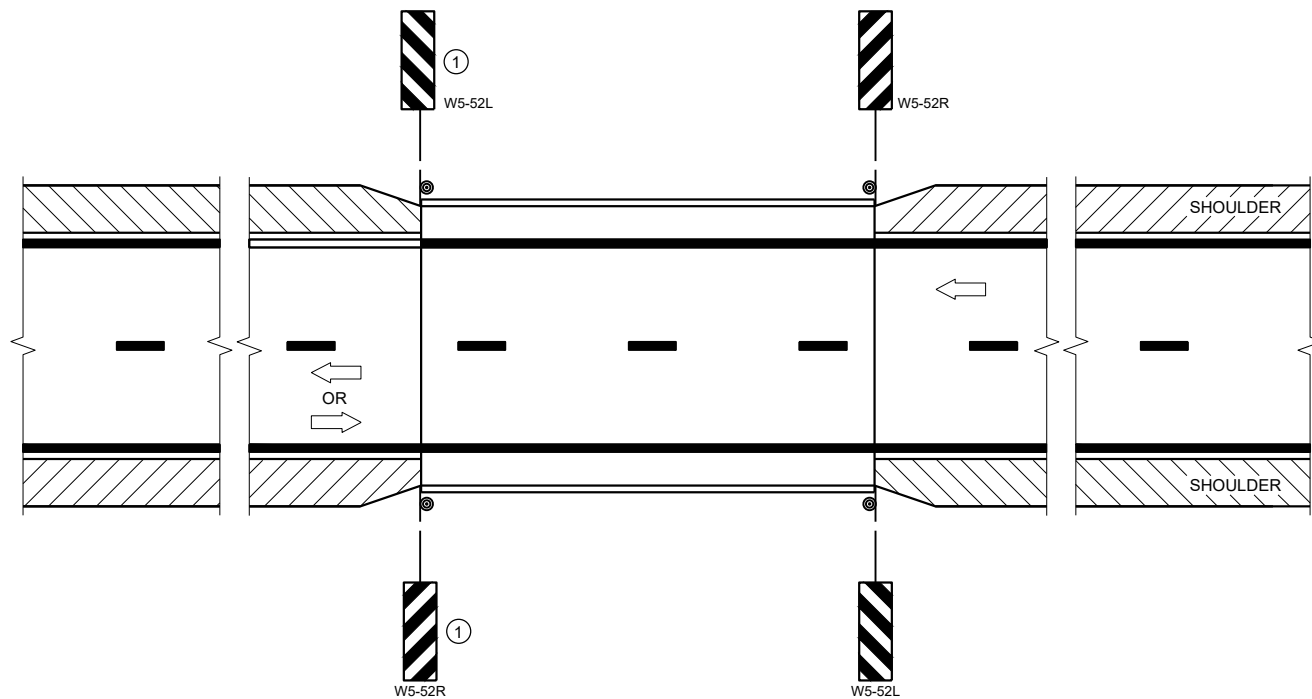
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

SIGNING AND MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION




APPROVED
 May 2023 /S/ Jeannie Silver
 DATE STATE SIGNING AND MARKING ENGINEER

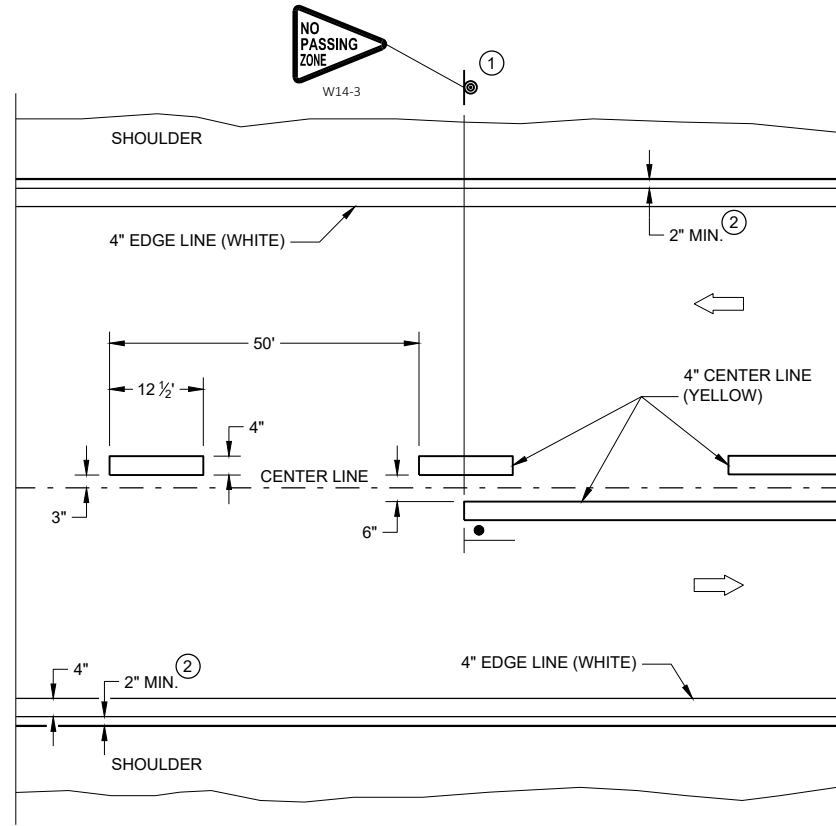
GENERAL NOTES

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

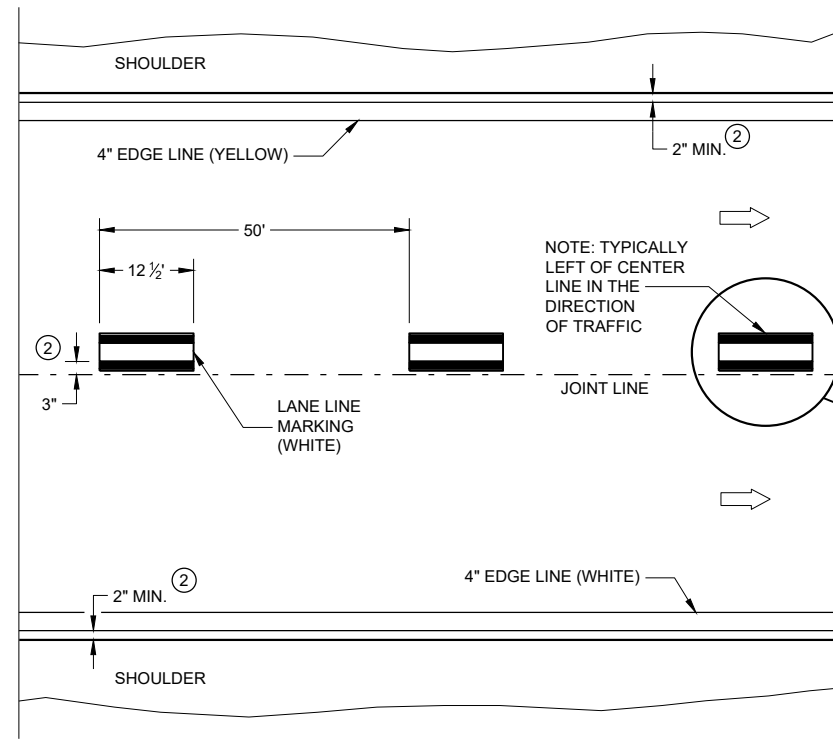
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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

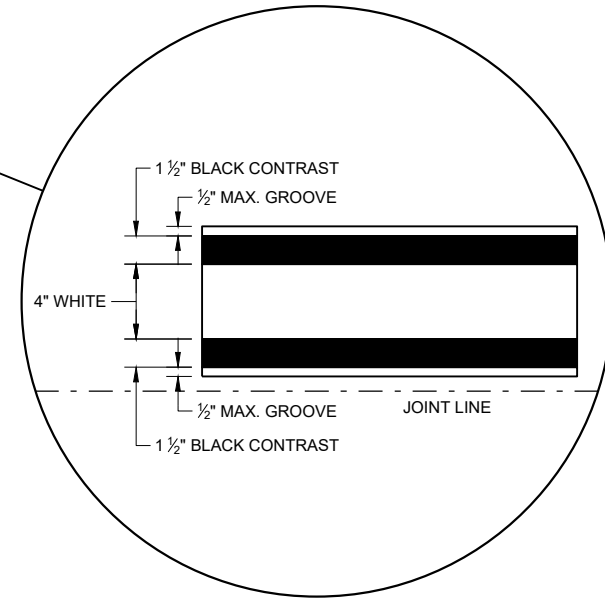


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



6

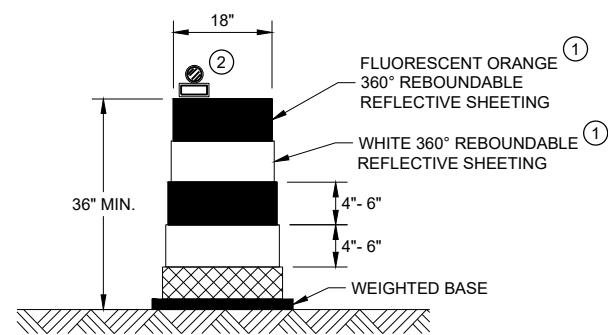
6

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

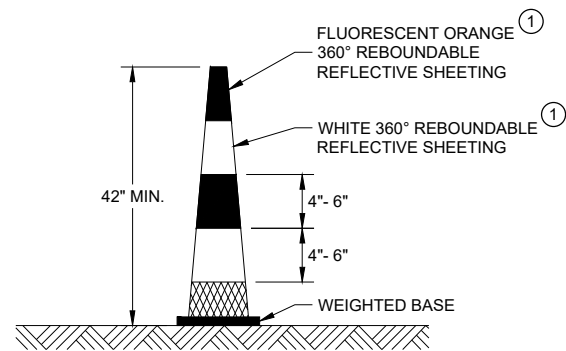
APPROVED
DATE: May 2022 /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



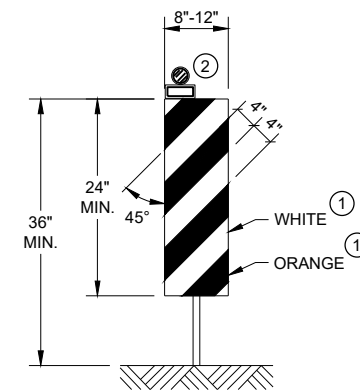
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

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

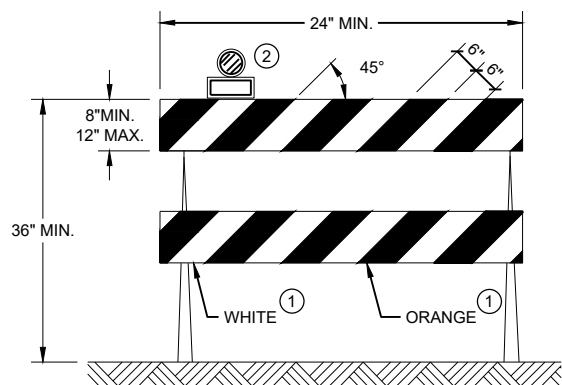


VERTICAL PANEL

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

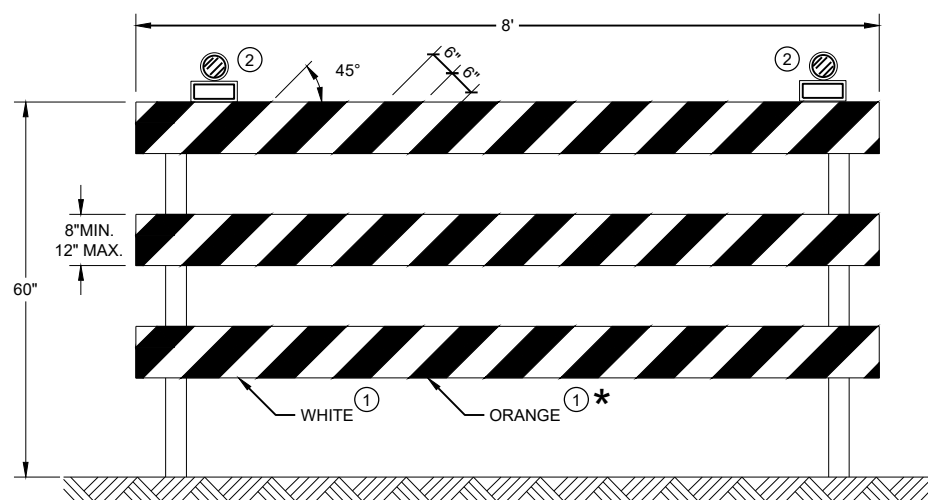
GENERAL NOTES

- 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.



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.



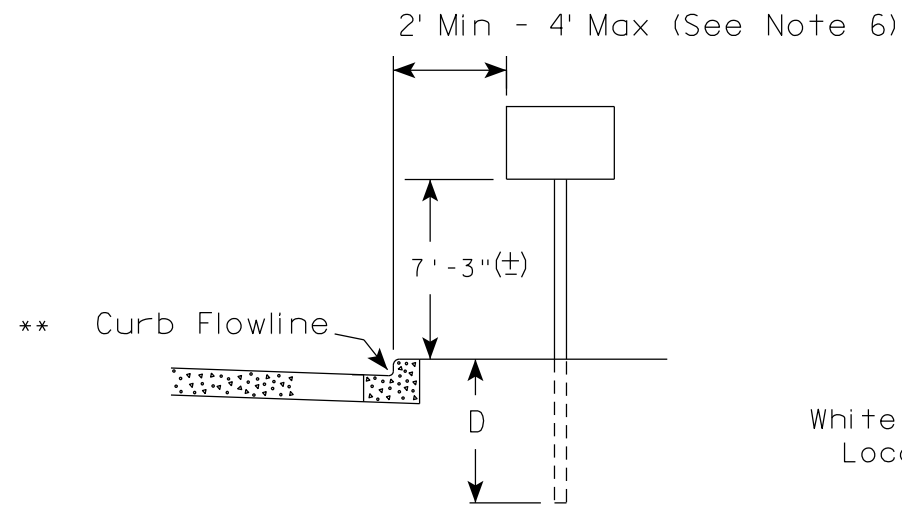
TYPE III BARRICADE

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

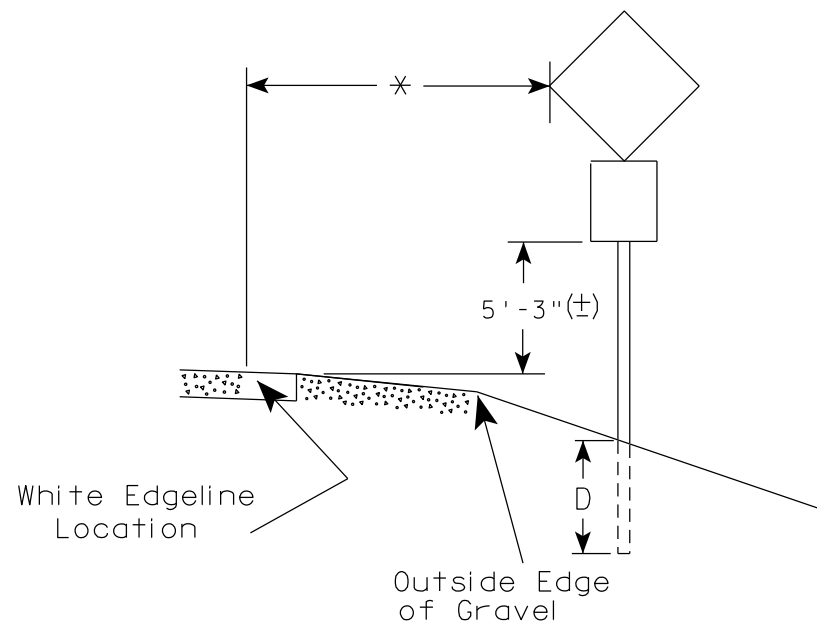
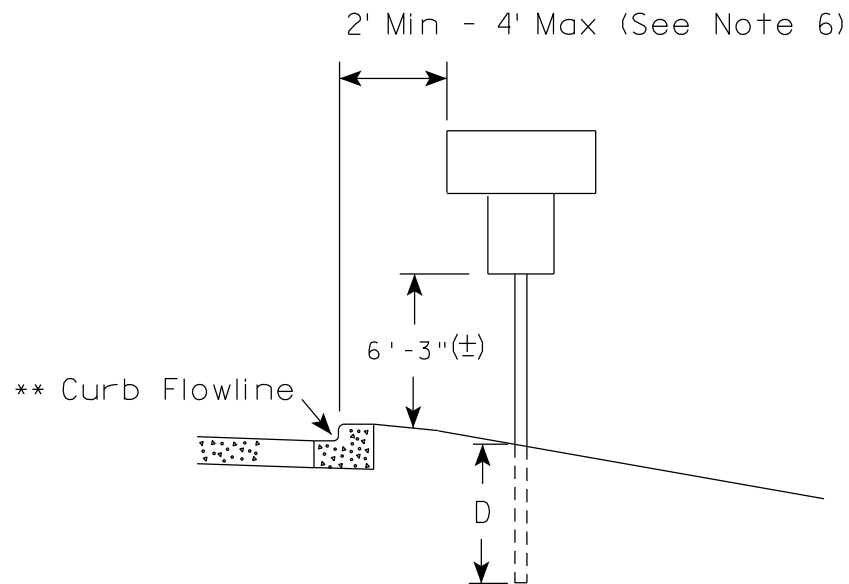
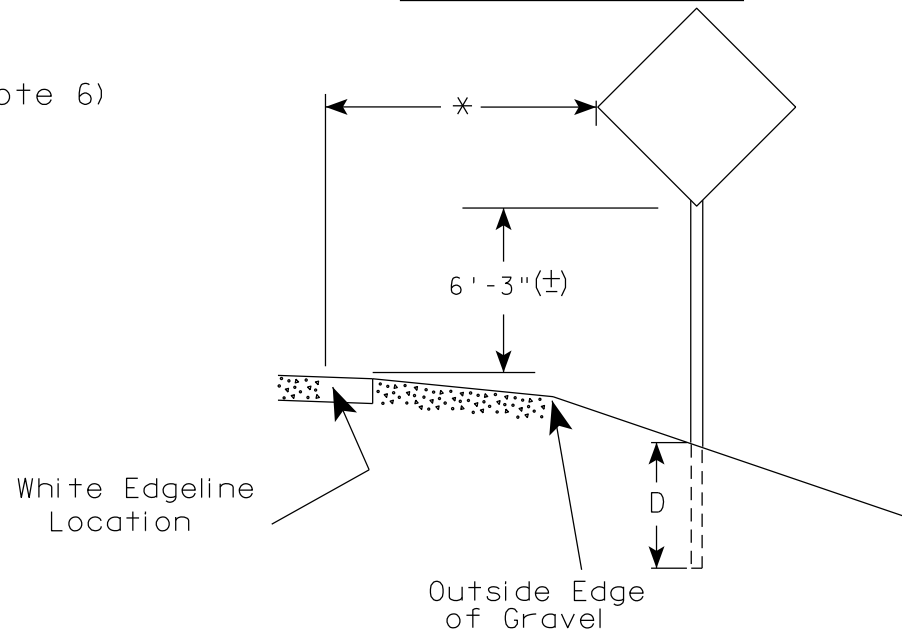
* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

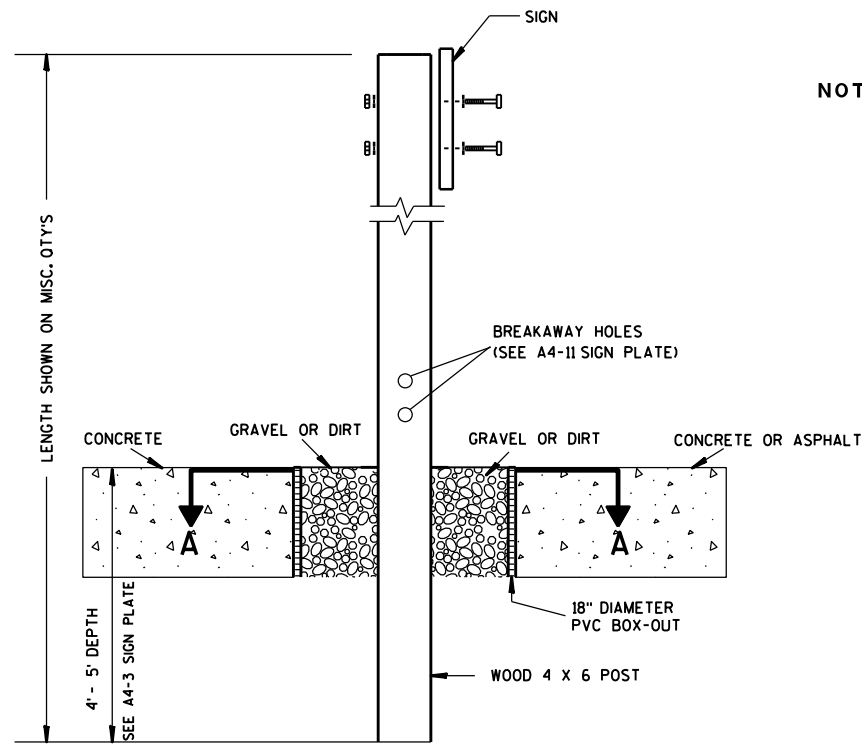
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

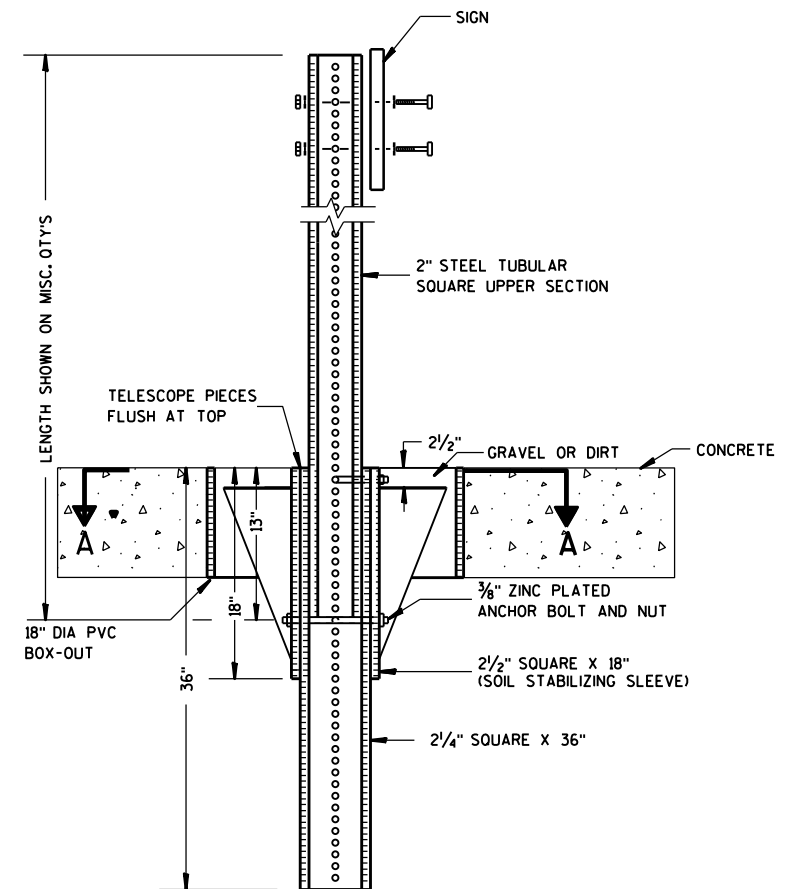
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

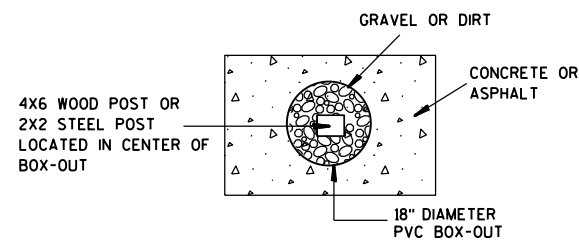
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

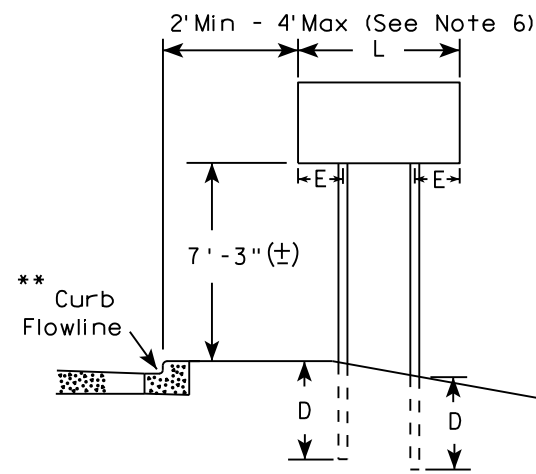
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

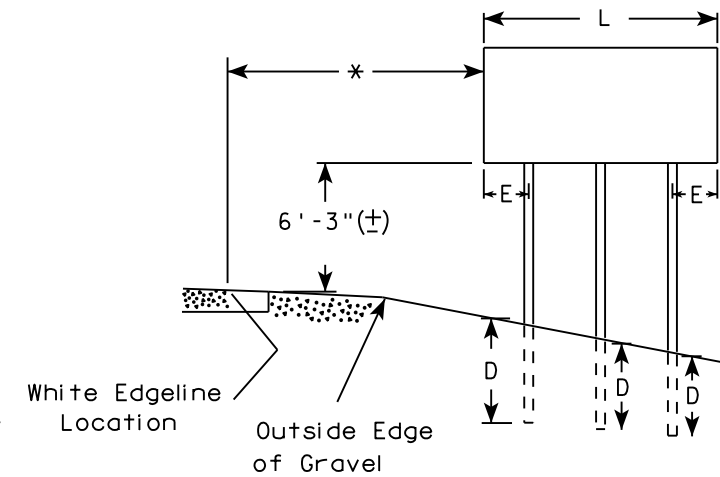
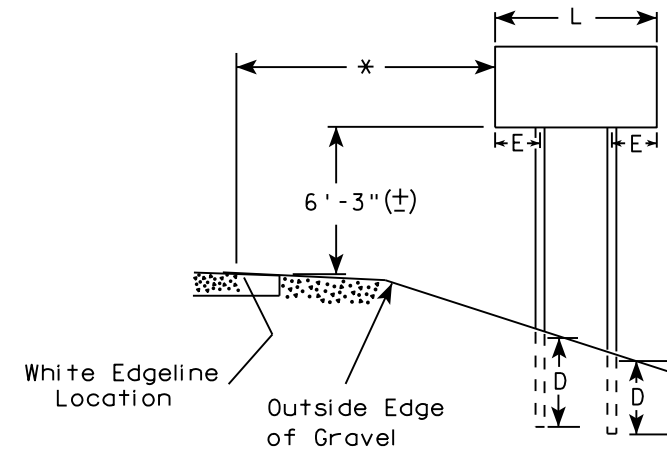
GENERAL NOTES

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" (±).

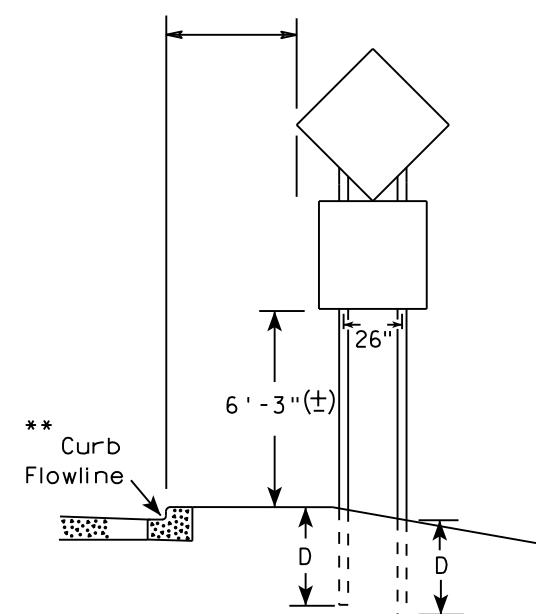
URBAN AREA



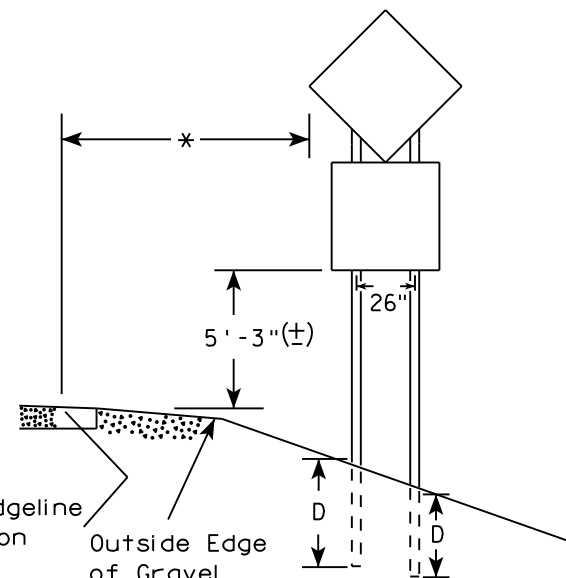
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

* 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.

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

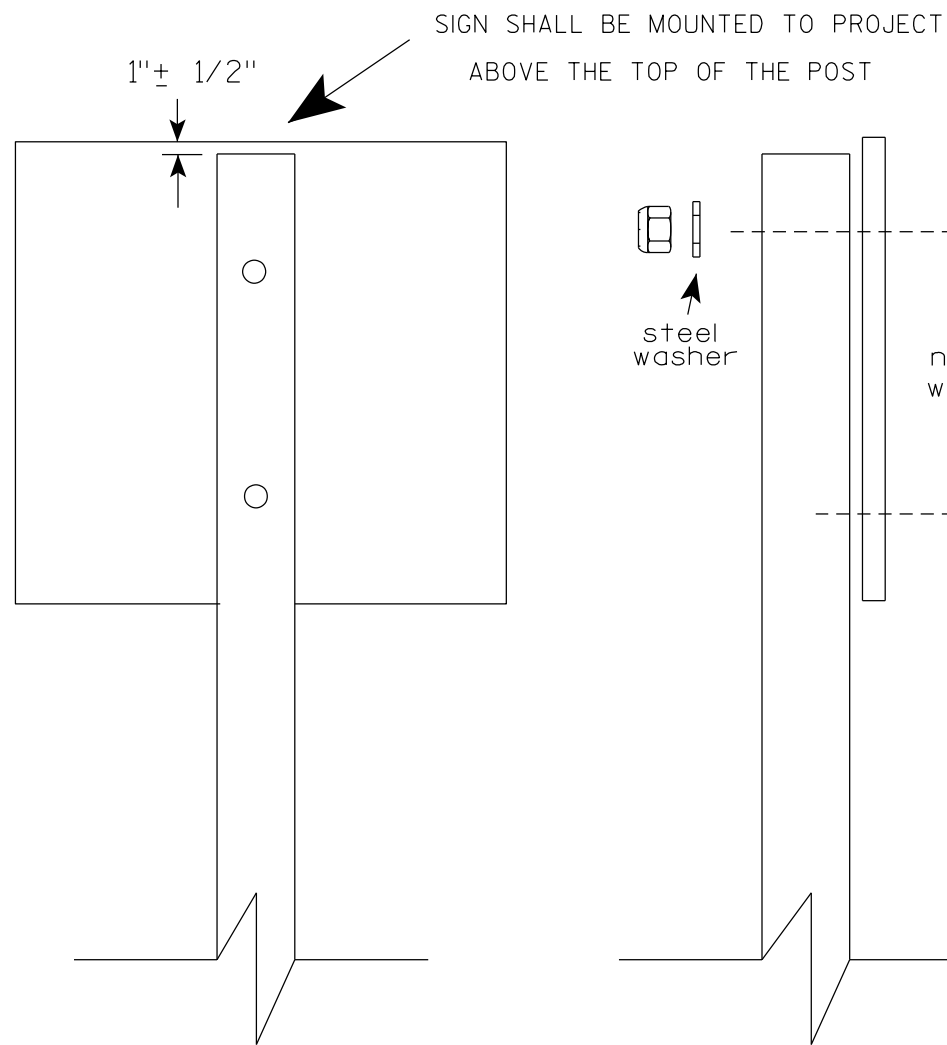
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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 - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 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 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 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

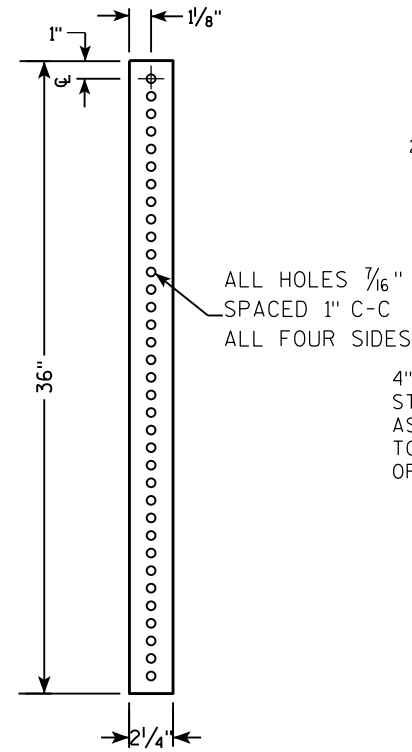
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

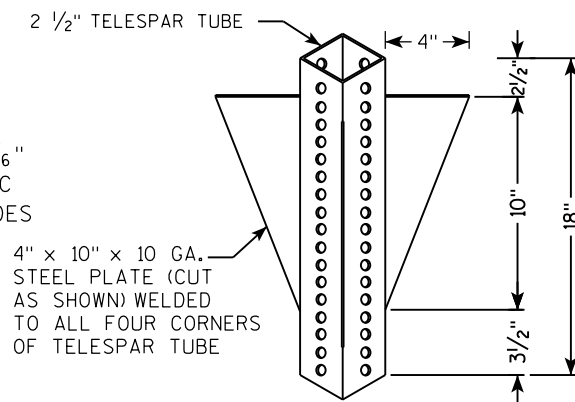
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

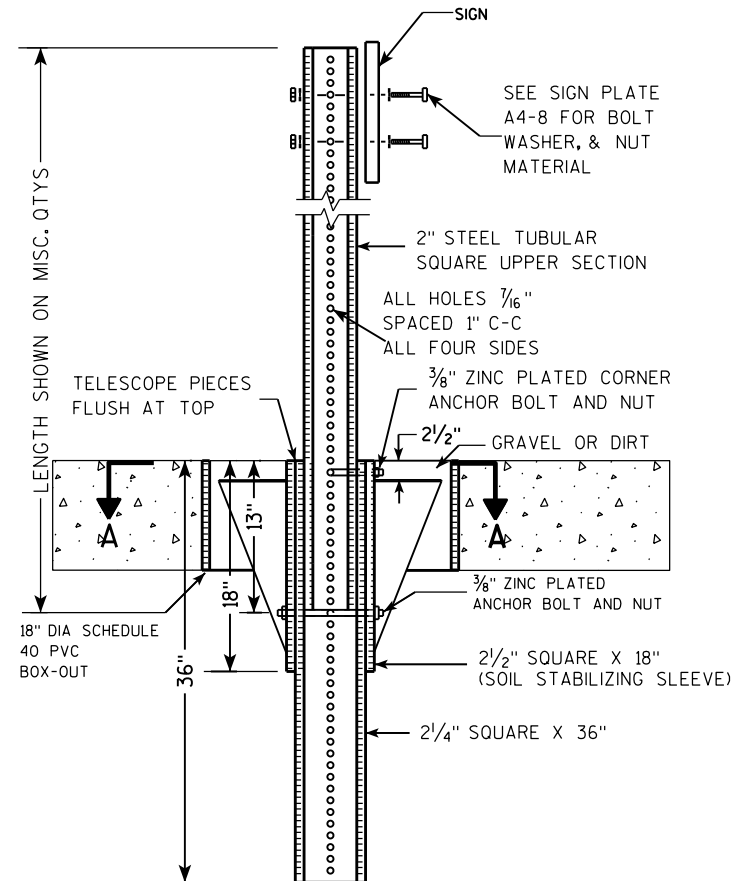
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



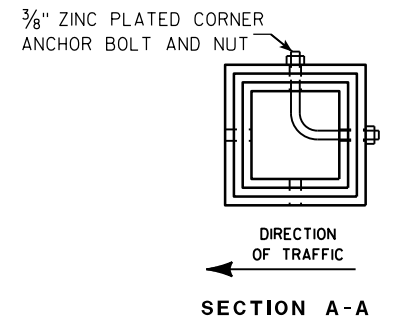
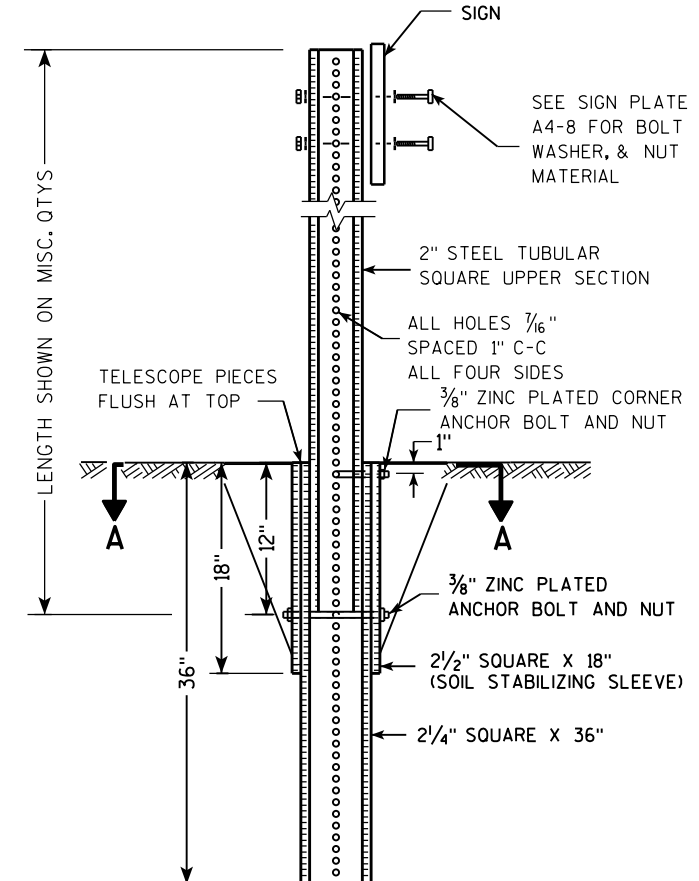
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

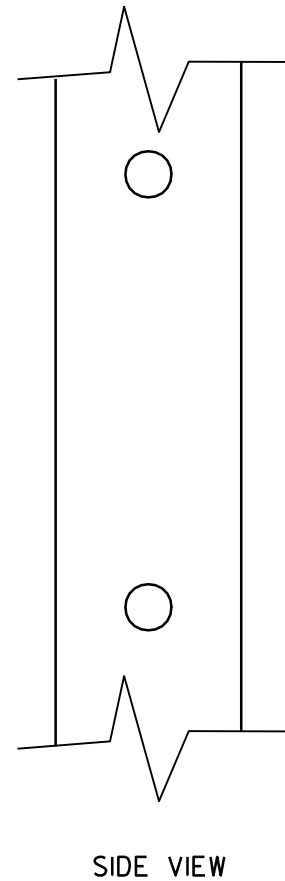
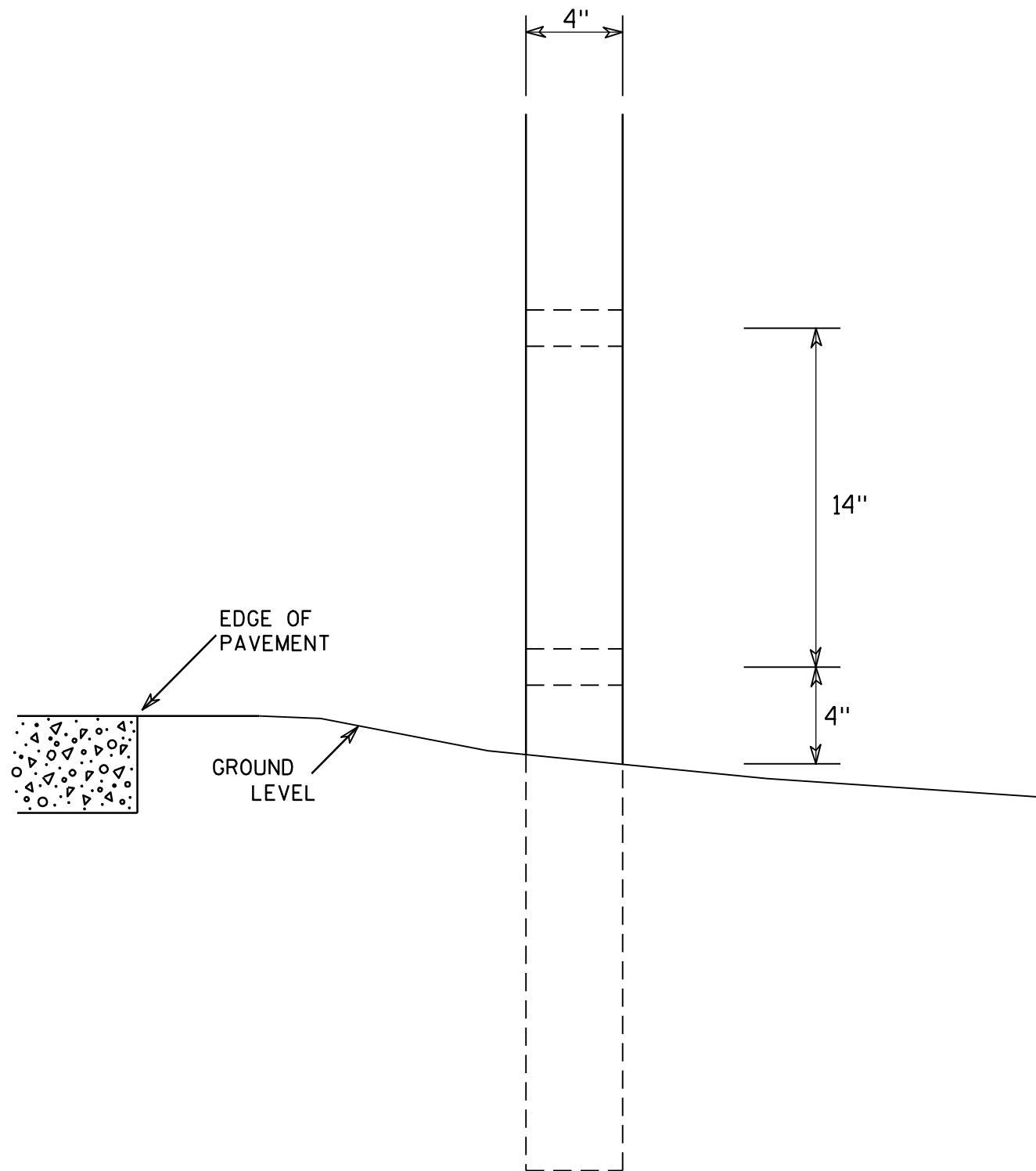
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



GENERAL NOTES

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

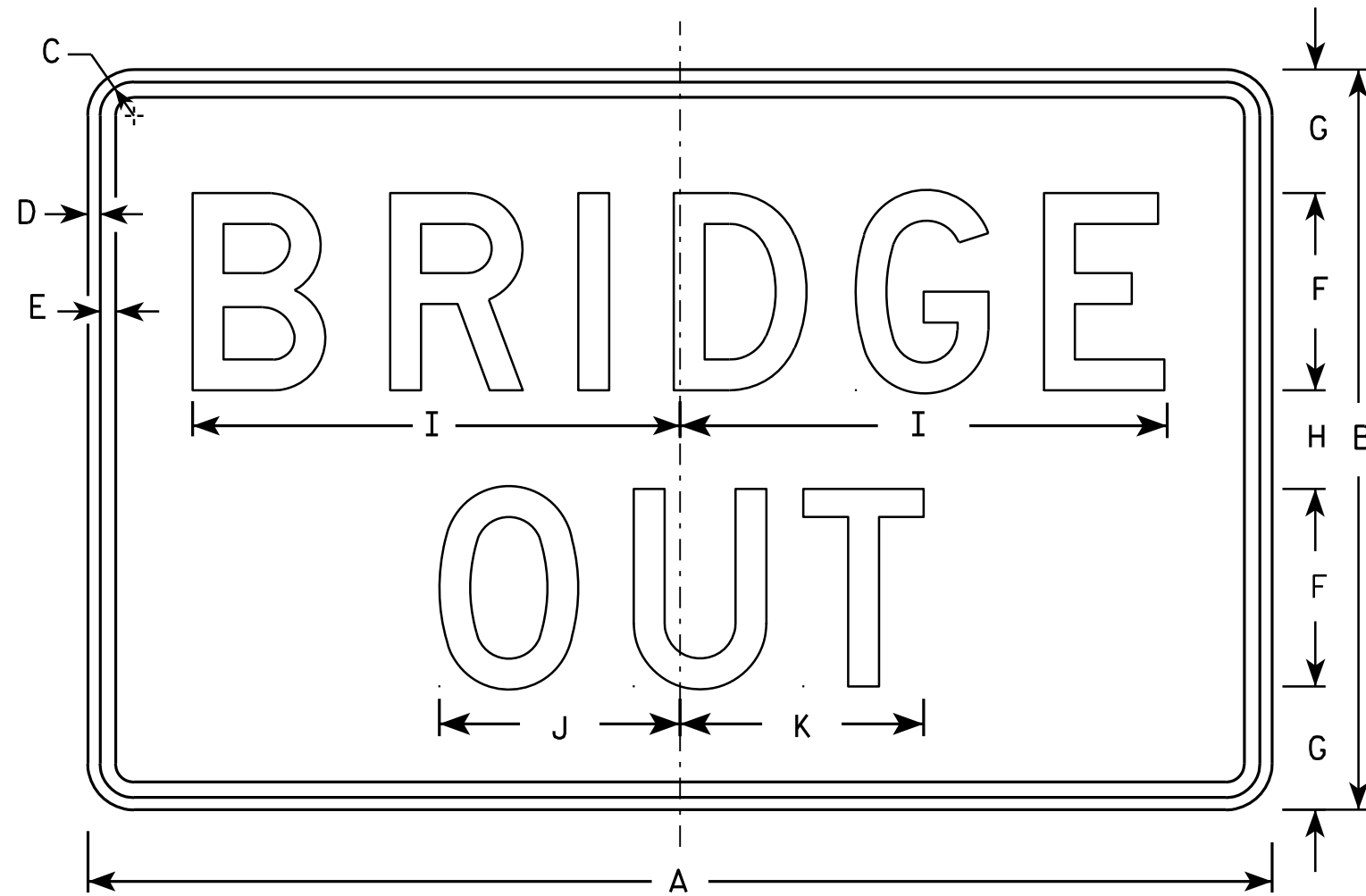
7

7

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

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	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

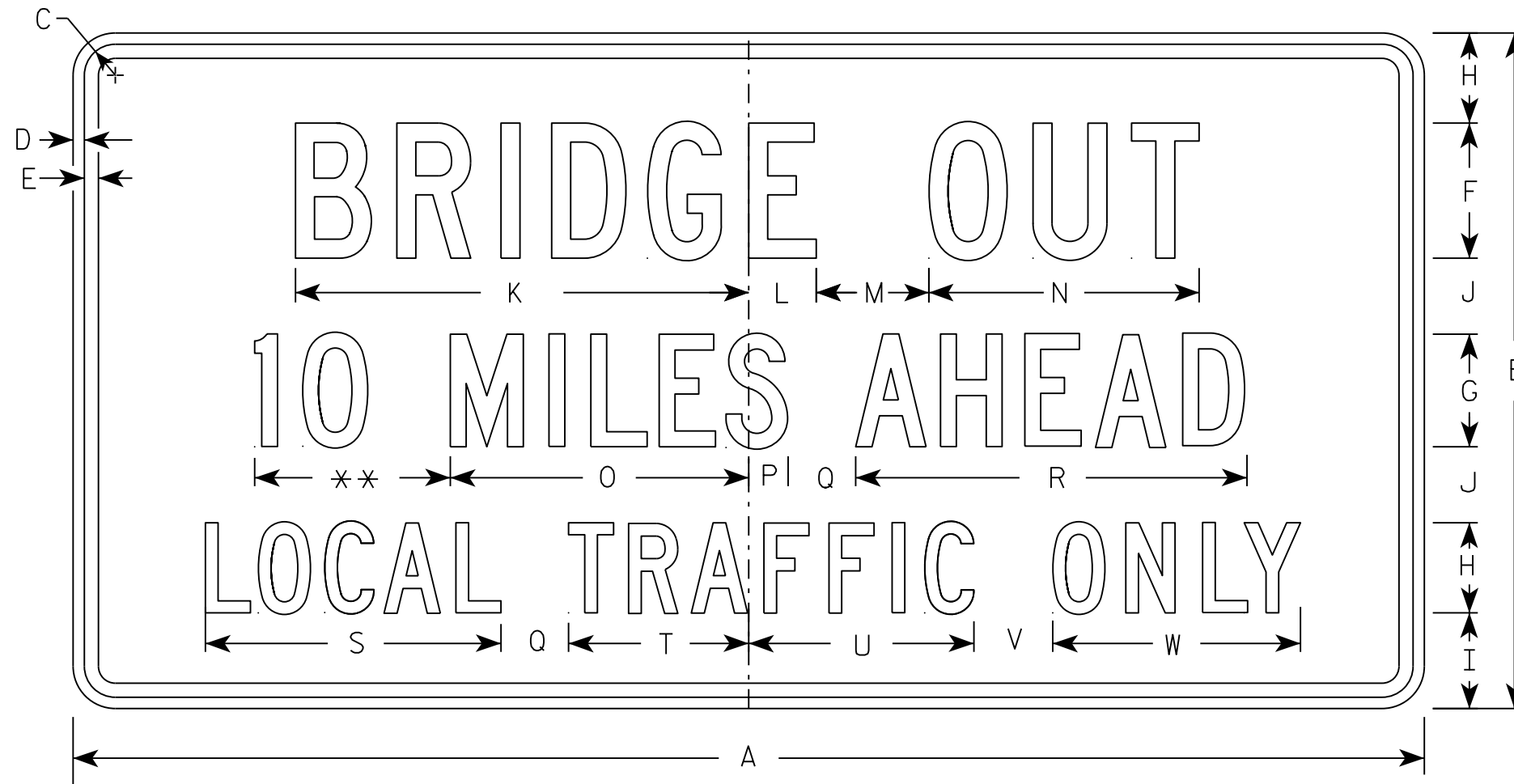
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO: _____ SHEET NO: _____ E

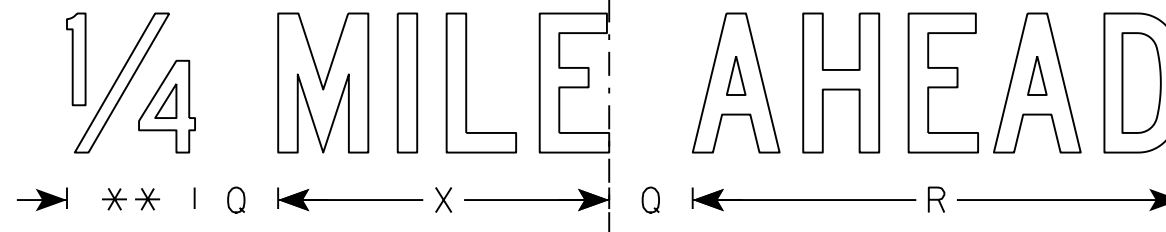
NOTES

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																											

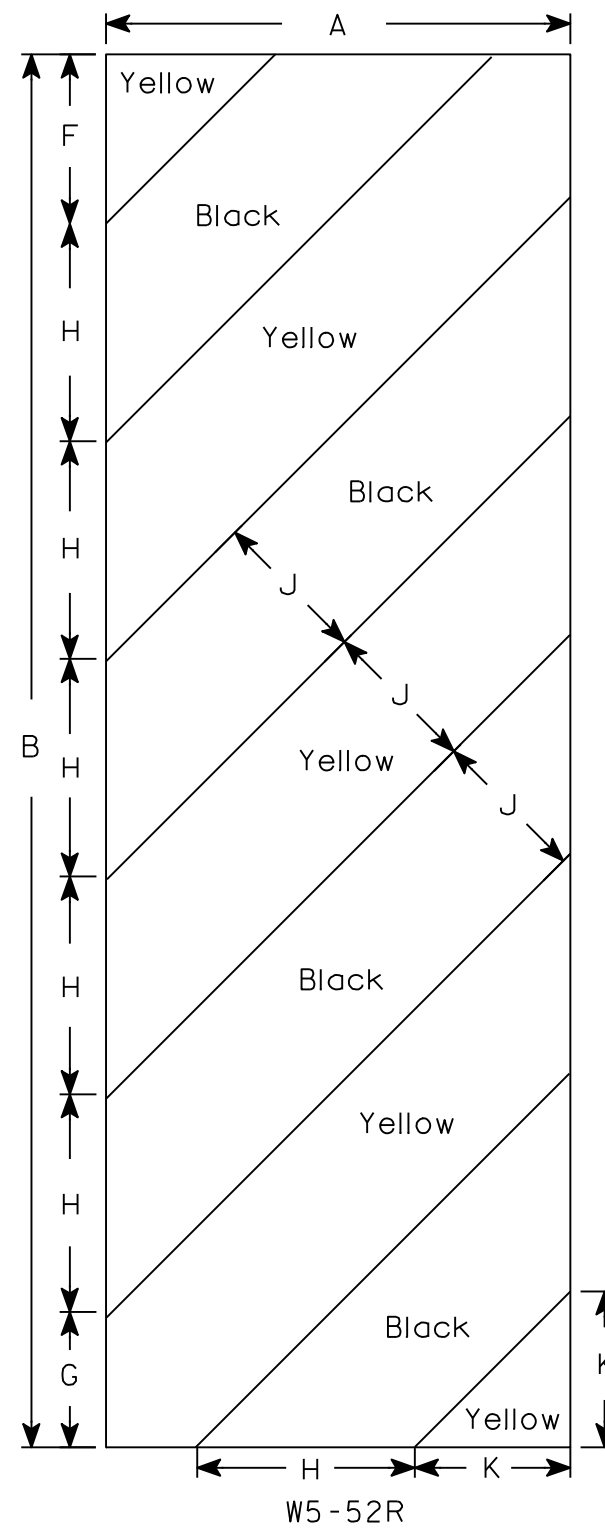
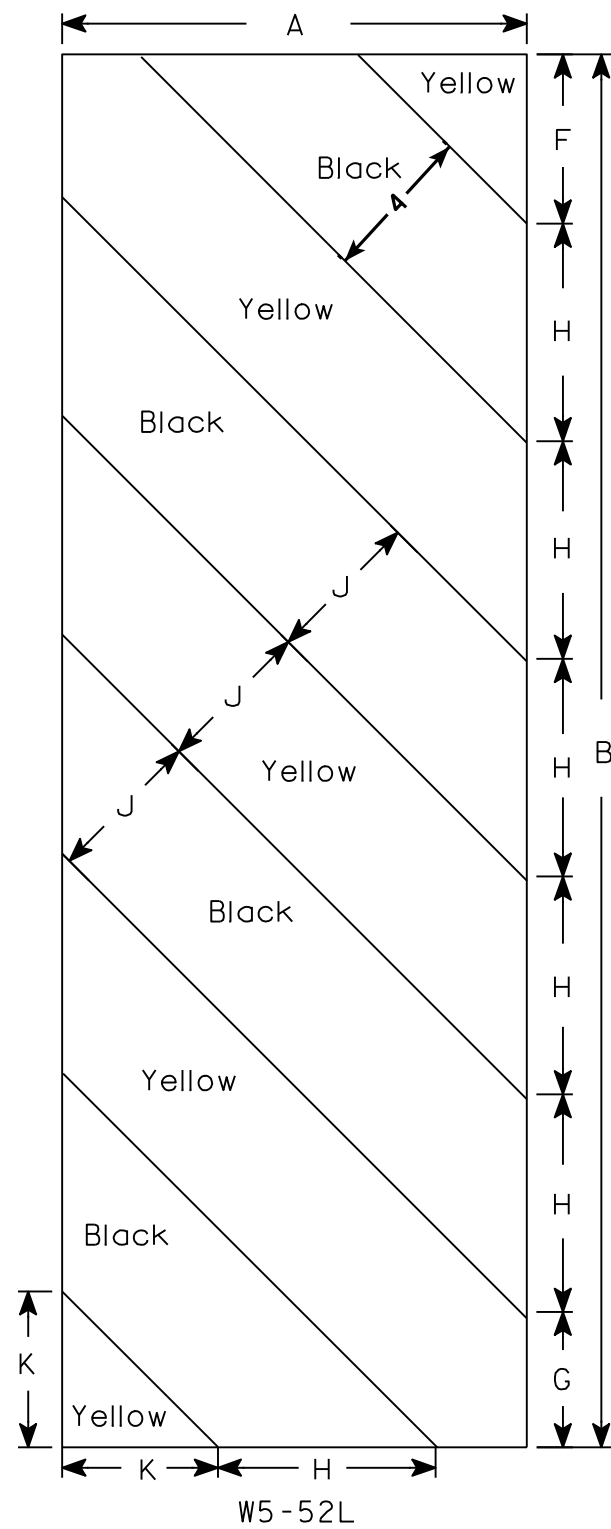
STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

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.

7

7

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

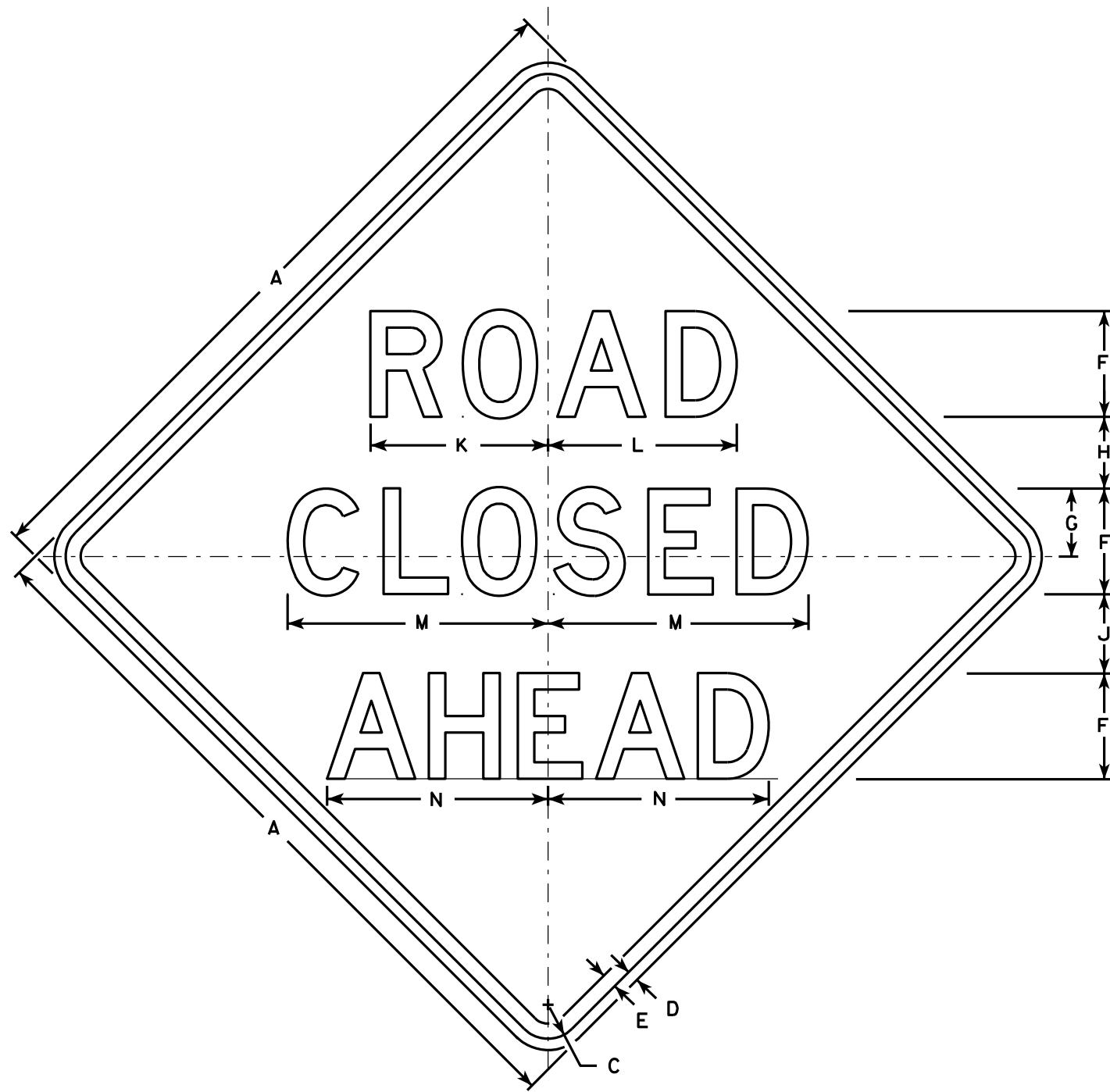
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

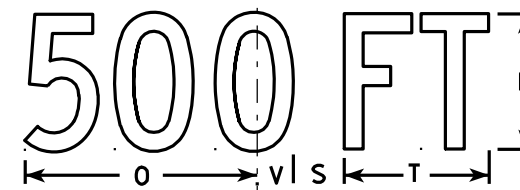
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

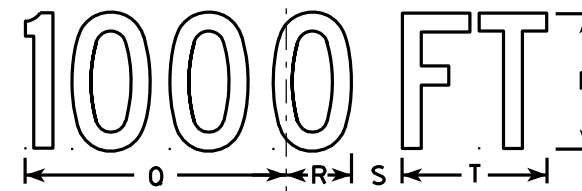
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



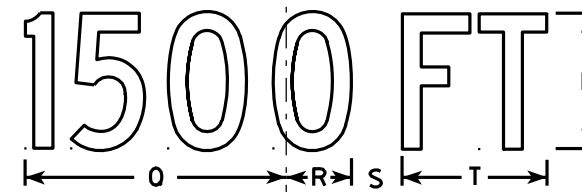
W20-3A



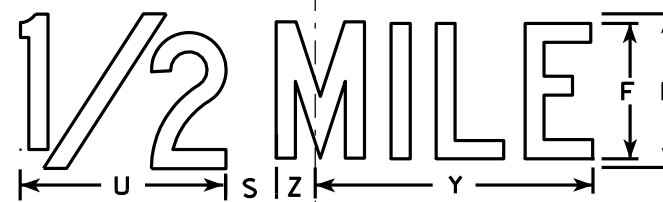
W20-3D



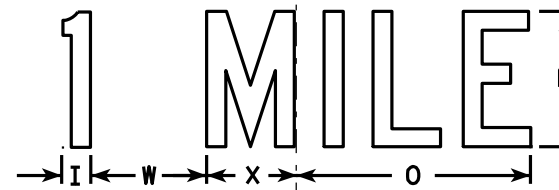
W20-3C



W20-3B



W20-3G



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.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		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

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS15
 INVENTORY RATING: HS = 13
 OPERATING RATING: HS = 27
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 170 (KIPS)

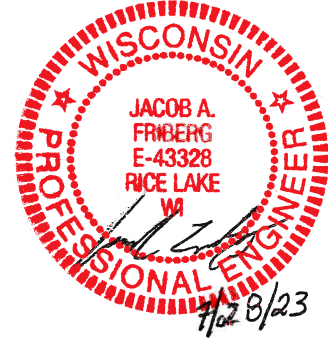
MATERIAL PROPERTIES:

CONCRETE MASONRY:
 SUPERSTRUCTURE $f_c = 4,000$ PSI
 ALL OTHER $f_c = 3,500$ PSI
 BAR STEEL REINFORCEMENT
 GRADE 60 $f_y = 60,000$ PSI

TRAFFIC DATA

FEATURE ON:

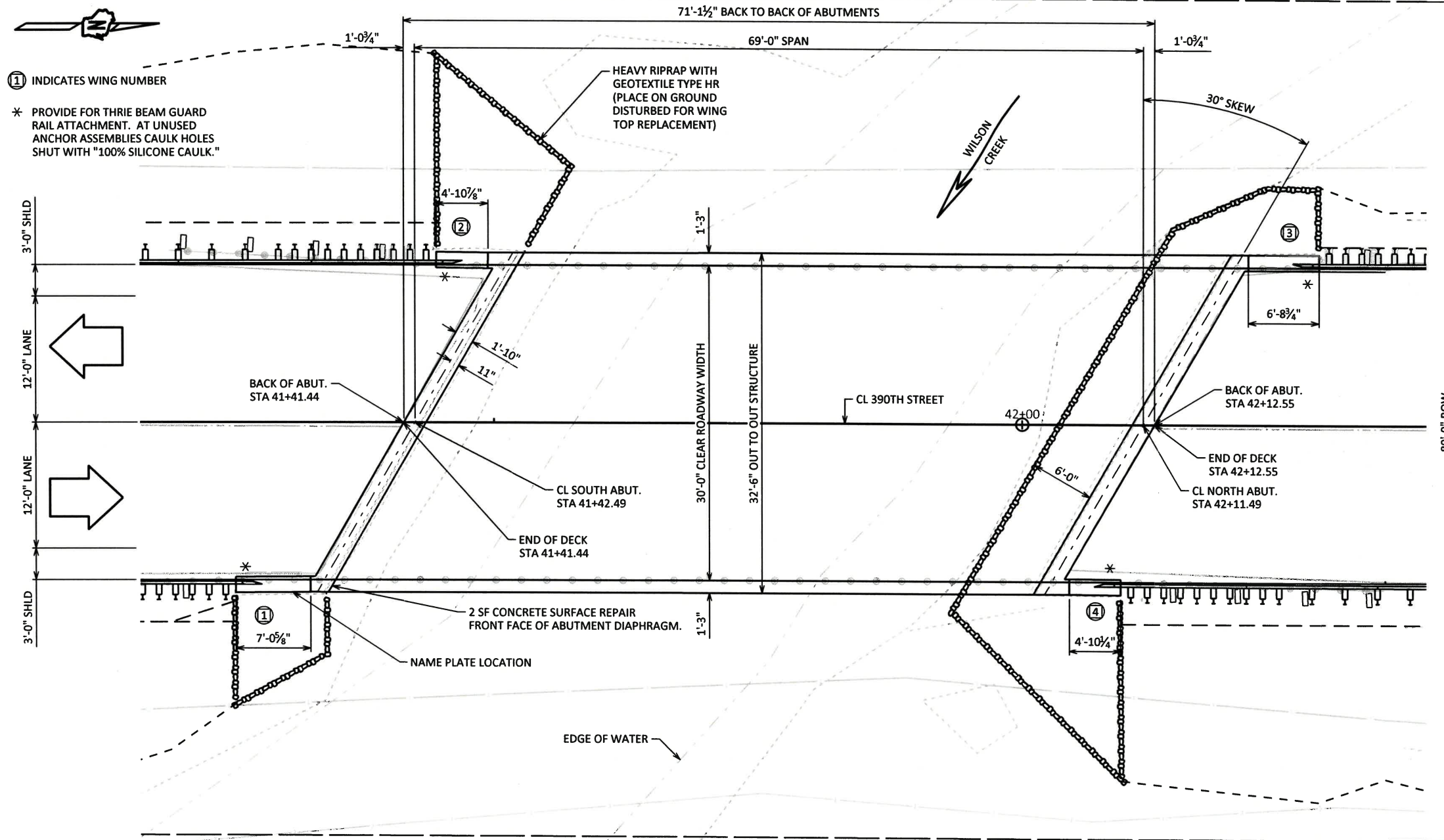
ADT = 1,600 (2024)
 ADT = 1,760 (2044)
 R.D.S. = 45 MPH



STRUCTURE DESIGN CONTACTS:
 JACOB FRIBERG 715-234-7008
 AARON BONK 608-261-0261

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
2	44+21.58	45.2' LT; TOP OF 3/4" REBAR	837.62

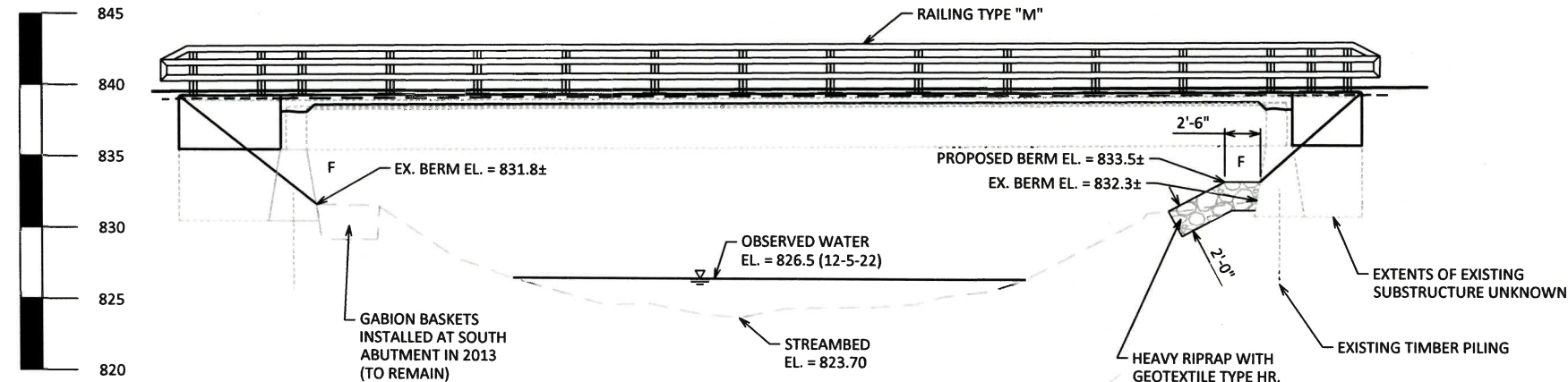


PLAN VIEW P-17-0062

DECK REPLACEMENT - SINGLE SPAN 36" PRESTRESSED GIRDER

LIST OF DRAWINGS:

- 1 DECK REPLACEMENT
- 2 REMOVAL PLAN & QUANTITIES
- 3 SOUTH ABUTMENT
- 4 NORTH ABUTMENT
- 5 STEEL DIAPHRAGM
- 6 SUPERSTRUCTURE
- 7 SUPERSTRUCTURE DETAILS
- 8 TUBULAR STEEL RAILING TYPE 'M'



ELEVATION VIEW
 NORMAL TO WILSON CREEK

NO.	DATE	REVISION	BY

COOPER ENGINEERING 2600 COLLEGE DRIVE, P.O. BOX 230
 RICE LAKE, WISCONSIN 54868-0230
 TELEPHONE (715) 234-7008
 FAX (715) 234-1025

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR 08/01/23
 CHIEF STRUCTURES DESIGN ENGINEER DATE

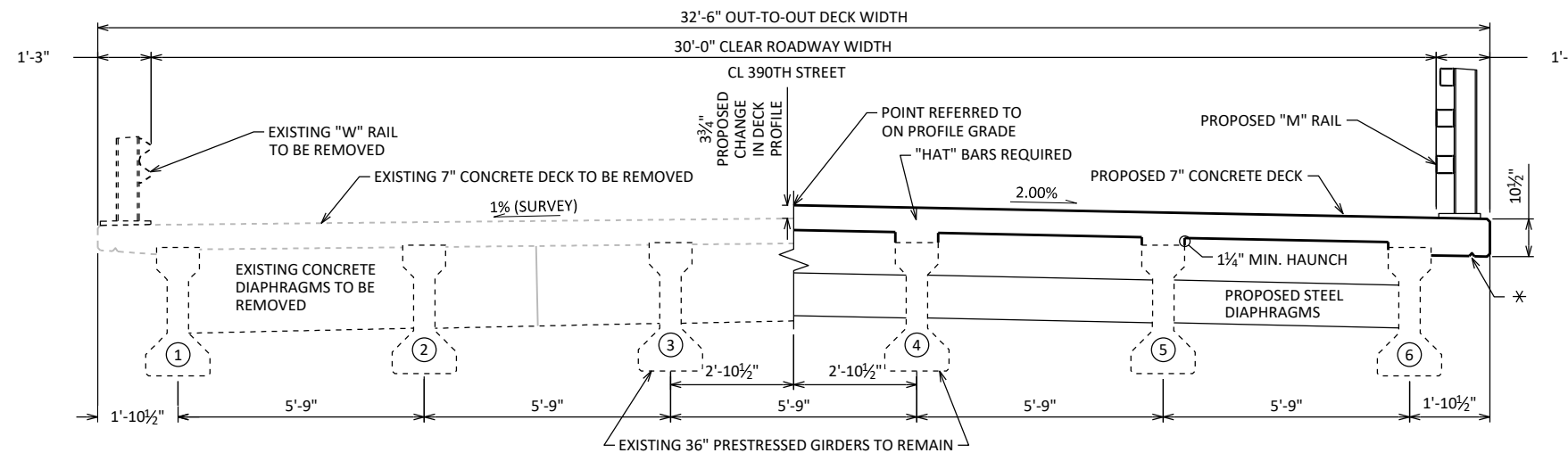
STRUCTURE P-17-0062

390TH STREET OVER WILSON CREEK

COUNTY DUNN TOWN MENOMONIE

DESIGN SPEC. REHABILITATION N/A
 DESIGNED BY JAF DESIGNED CK'D SKP DRAWN BY JAF PLANS CK'D SKP

DECK REPLACEMENT SHEET 1 OF 8

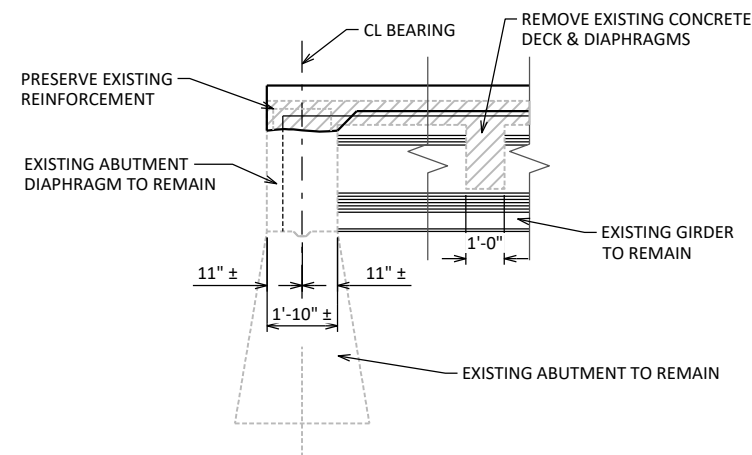


EXISTING HALF CROSS SECTION

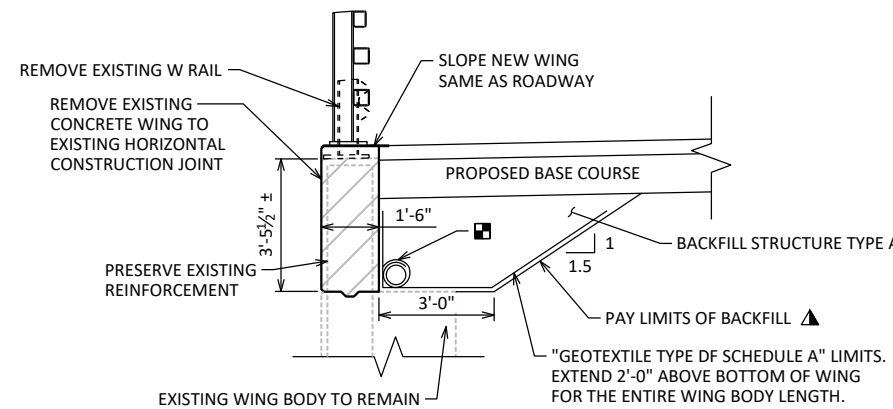
PROPOSED HALF CROSS SECTION

CROSS SECTION THRU BRIDGE (LOOKING NORTH)

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



TYPICAL SECTION THRU ABUTMENT

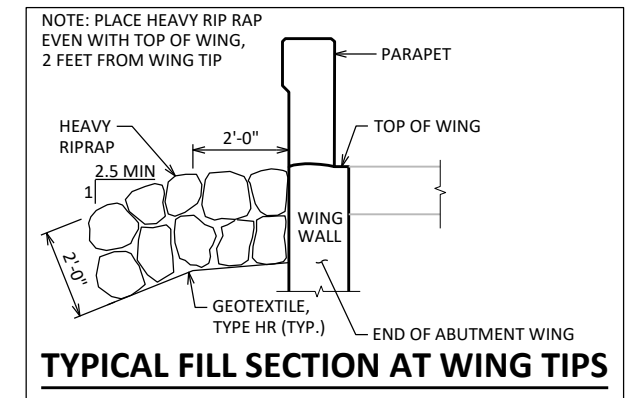


TYPICAL SECTION THRU WING

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

GENERAL NOTES

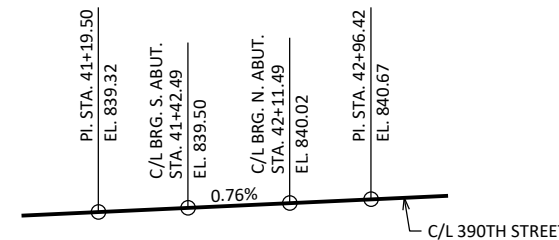
- THE BRIDGE WILL BE CLOSED TO ALL TRAFFIC DURING CONSTRUCTION.
- DRAWINGS SHALL NOT BE SCALED.
- DIMENSIONS SHOWN ARE BASED ON FIELD SURVEY AND STRUCTURE INSPECTION REPORTS.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
- VARIATIONS TO THE NEW GRADE LINE OVER 3/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.
- THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR 1972.
- CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE EXISTING GIRDER, INCLUDING SHEAR STIRRUPS. SAWCUTTING OF THE EXISTING SHEAR STIRRUPS IS NOT ALLOWED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES P-17-0062" SHALL BE THE EXISTING GROUNDLINE.
- AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP SURFACE, SIDE, AND 1'-0" UNDERSIDE OF CONCRETE DECK.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENT.
- THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE SUPERSTRUCTURE SHEET.
- ALL STATIONS AND ELEVATIONS ARE IN FEET.
- ELEVATIONS SHOWN ON THE PLANS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)
- THE COORDINATE SYSTEM FOR THIS PROJECT IS WISCONSIN COUNTY COORDINATE SYSTEM (WCCS) - DUNN COUNTY.



TYPICAL FILL SECTION AT WING TIPS

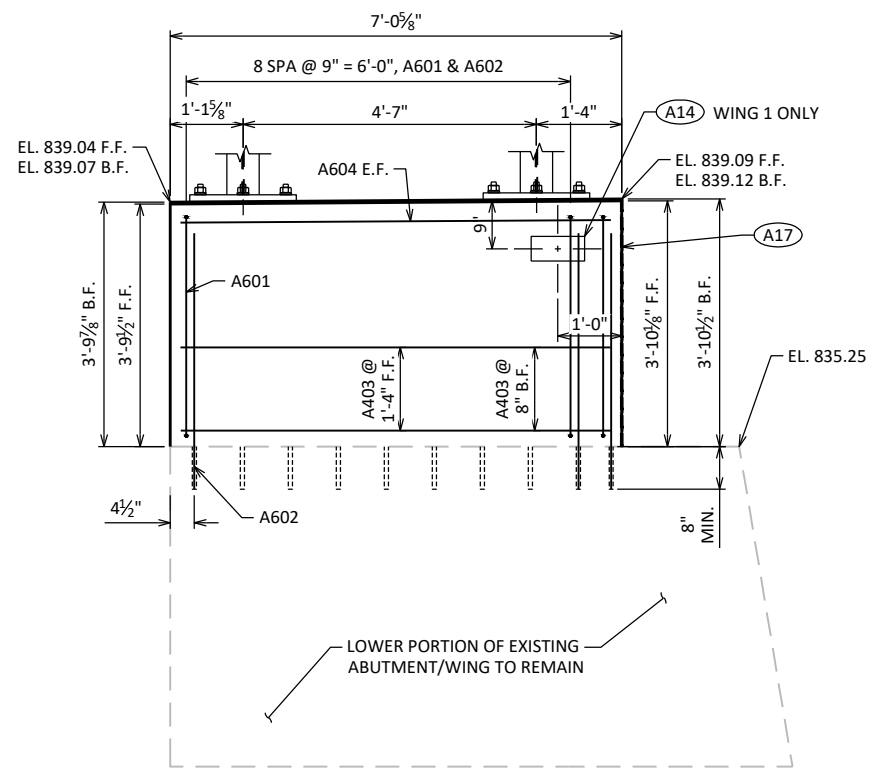
TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (P-17-0062)	EACH	-	-	-	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES (P-17-0062)	EACH	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	15	15	-	30
502.0100	CONCRETE MASONRY BRIDGES	CY	2.5	2.5	54.0	59
502.3200	PROTECTIVE SURFACE TREATMENT	SY	10	10	285	305
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	-	-	136	136
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	34	32	-	66
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	550	520	16,320	17,390
506.4000	STEEL DIAPHRAGMS (P-17-0062)	EACH	-	-	5	5
509.1500	CONCRETE SURFACE REPAIR	SF	-	-	-	2
513.4061	RAILING TUBULAR TYPE M	LF	-	-	172	172
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	9	-	18
606.0300	RIPRAP HEAVY	CY	20	35	-	55
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	25	25	-	50
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	10	10	-	20
645.0120	GEOTEXTILE TYPE HR	SY	25	50	-	75
SPV.0090.01	FLASHING STAINLESS STEEL	LF	-	-	144	144

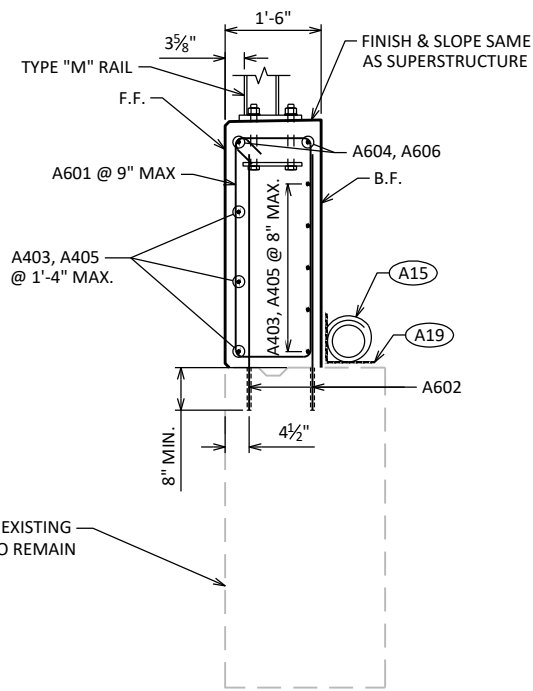


PROFILE GRADE LINE

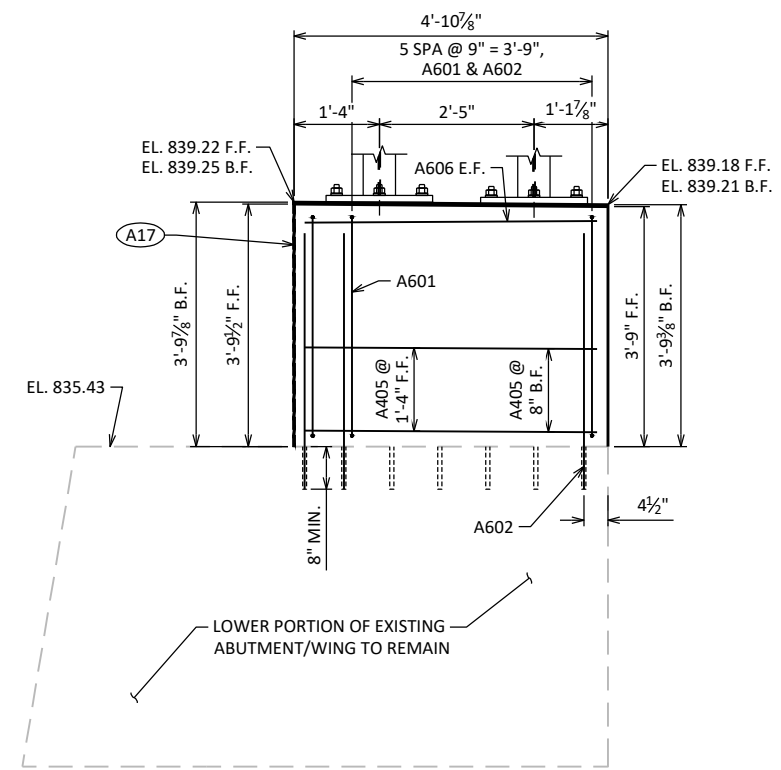
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY JAF		PLANS CK'D SKP	
REMOVAL PLAN & QUANTITIES			SHEET 2



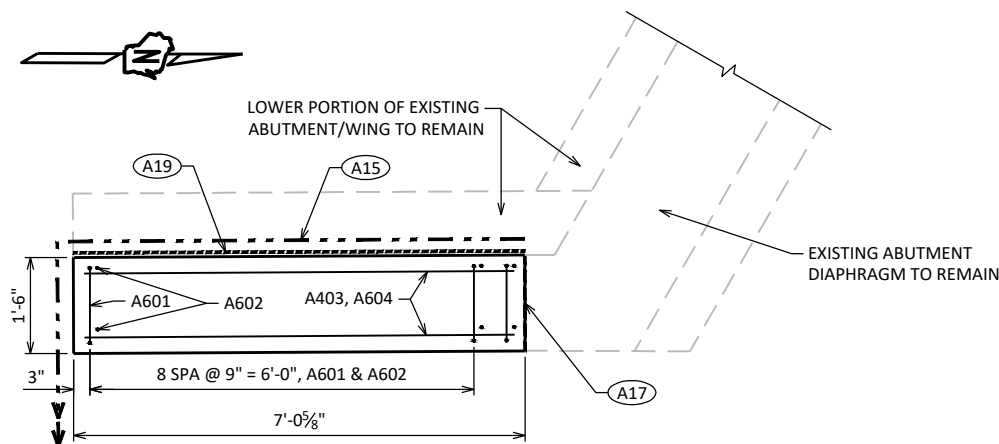
WING 1 ELEVATION



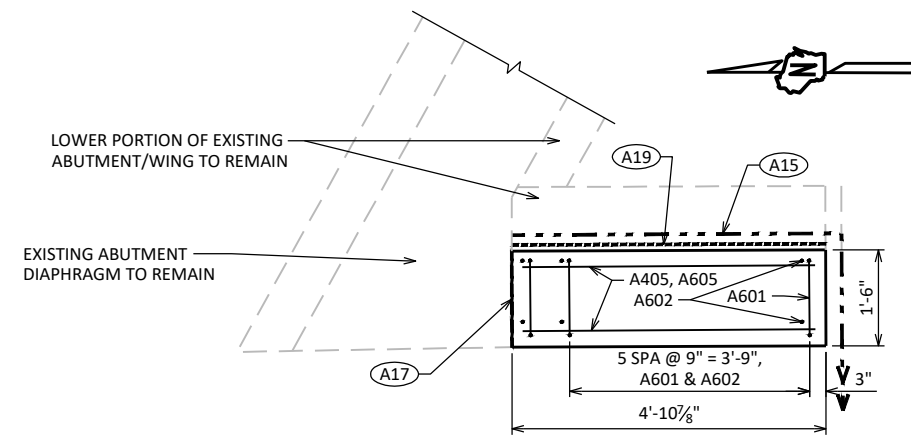
SECTION THRU WING



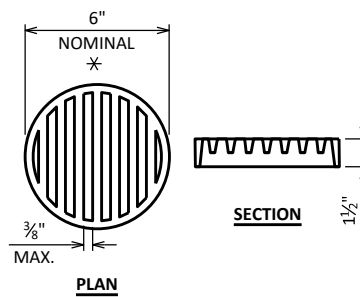
WING 2 ELEVATION



WING 1 PLAN



WING 2 PLAN

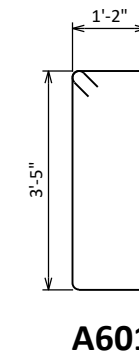


RODENT SHIELD DETAIL

* 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.



A601

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A601	X	17	10'-0"	X		WINGS VERT.
A602	X	34	4'-0"			WINGS VERT. ADHESIVE ANCHOR
A403	X	8	6'-7"			WING 1 HORIZ.
A604	X	2	6'-7"			WING 1 HORIZ. TOP
A405	X	8	4'-5"			WING 2 HORIZ.
A606	X	2	4'-5"			WING 2 HORIZ. TOP

* ADHESIVE ANCHORS NO. 6 BAR REQ'D. EMBED BARS 8" MIN., 1'-3" MAX. INTO EXISTING CONCRETE. MIN. EDGE DISTANCE = 4 1/2" FOR NO. 6 BAR.

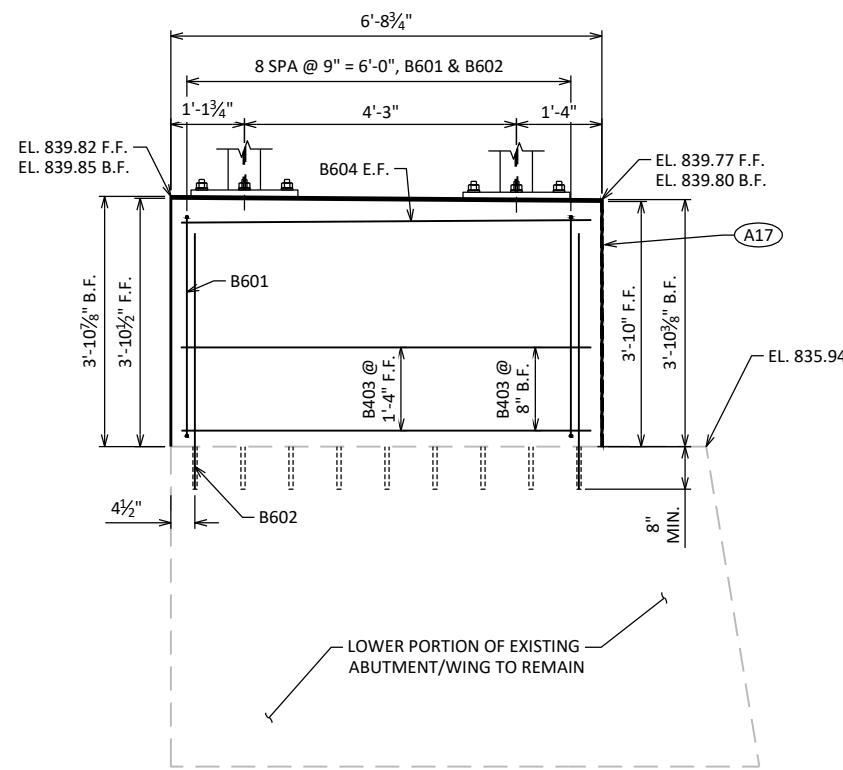
(A14) CONTRACTOR SHALL SUPPLY A NEW NAME PLATE PER 502.3.11 OF STD. SPEC.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

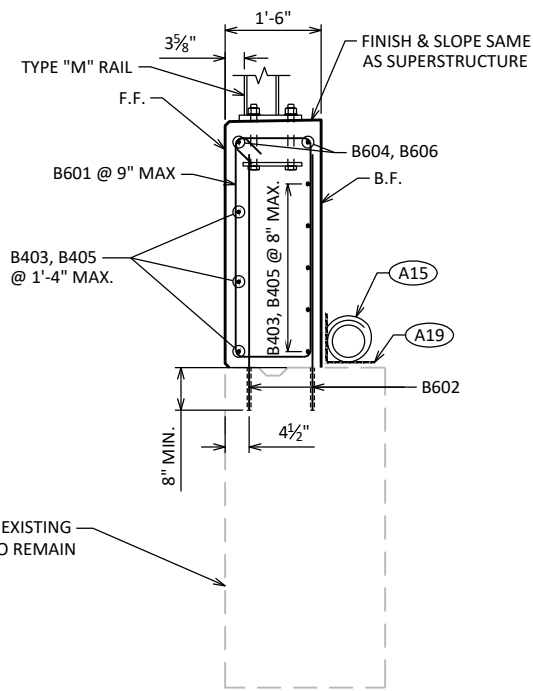
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

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

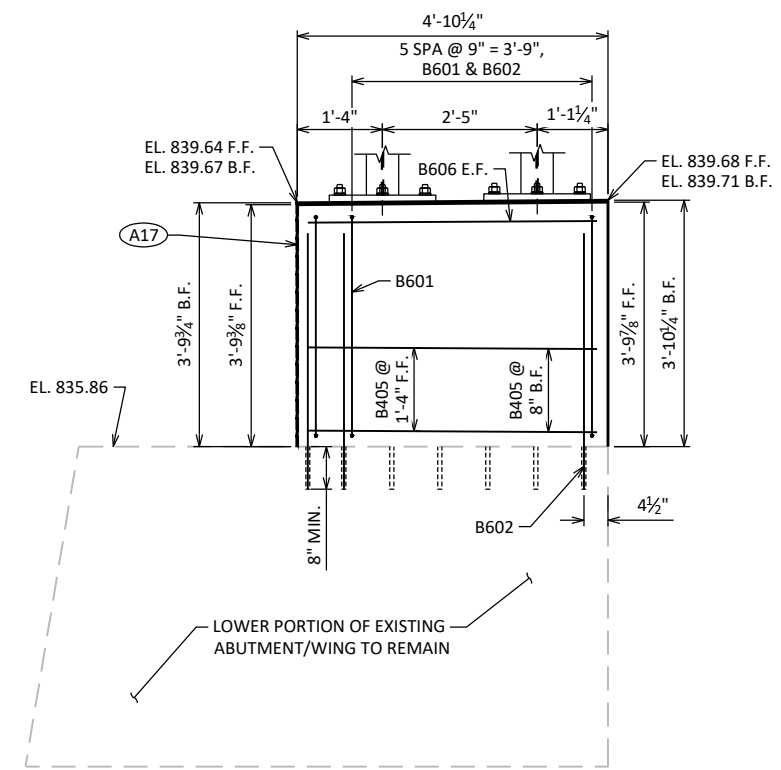
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY: JAF		PLANS CK'D: SKP	
SOUTH ABUTMENT		SHEET 3	



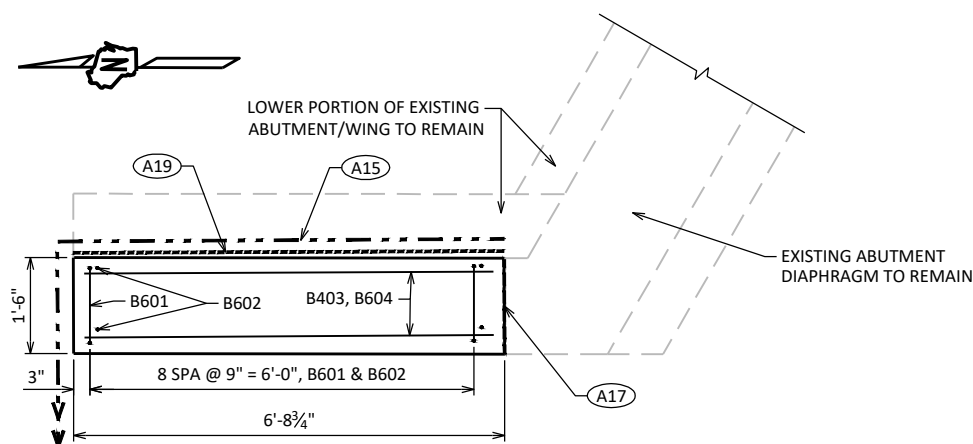
WING 3 ELEVATION



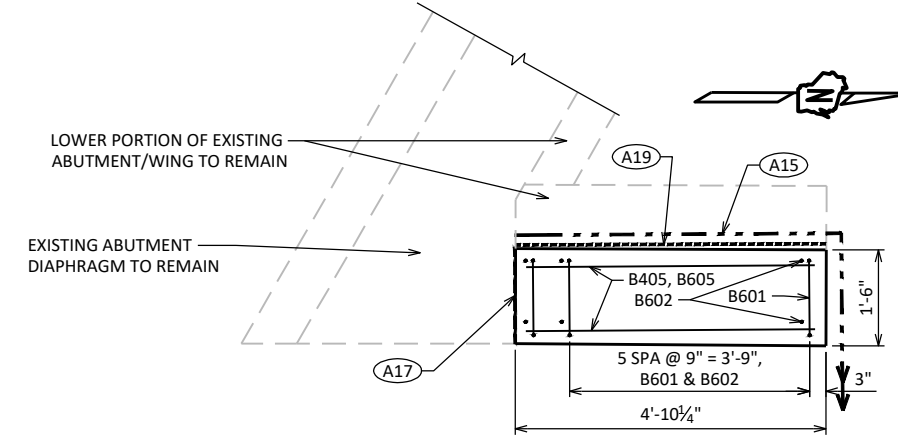
SECTION THRU WING



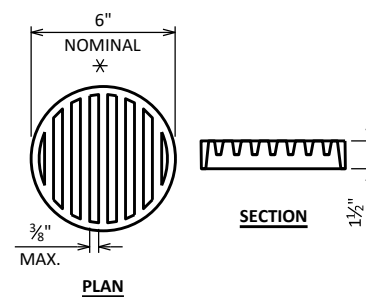
WING 4 ELEVATION



WING 3 PLAN



WING 4 PLAN

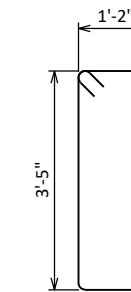


RODENT SHIELD DETAIL

* 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.



B601

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B601	X	16	10'-0"	X		WINGS VERT.
* B602	X	32	4'-0"			WINGS VERT. ADHESIVE ANCHOR
B403	X	8	6'-3"			WING 3 HORIZ.
B604	X	2	6'-3"			WING 3 HORIZ. TOP
B405	X	8	4'-5"			WING 4 HORIZ.
B606	X	2	4'-5"			WING 4 HORIZ. TOP

* ADHESIVE ANCHORS NO. 6 BAR REQ'D. EMBED BARS 8" MIN., 1'-3" MAX. INTO EXISTING CONCRETE. MIN. EDGE DISTANCE = 4 1/2" FOR NO. 6 BAR.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

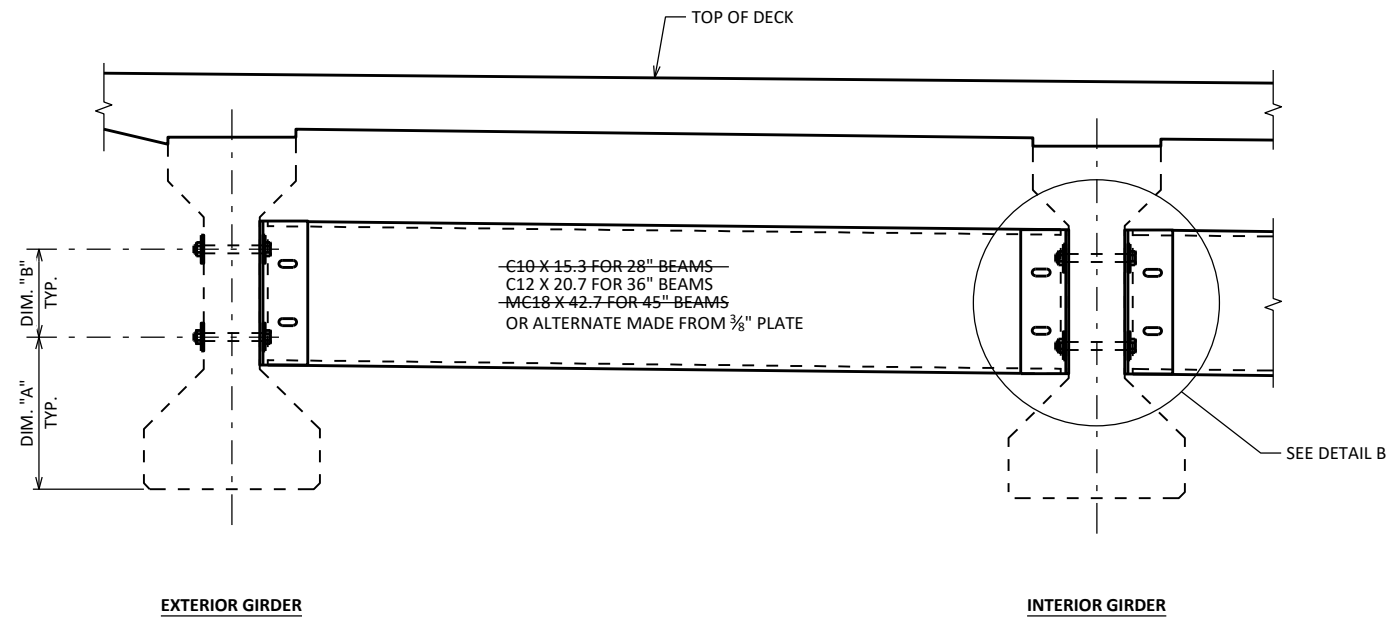
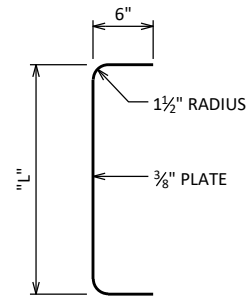
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY		JAF	PLANS CK'D SKP
NORTH ABUTMENT		SHEET 4	

TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
28"	1'-0 ⁷ / ₈ "	5 ⁷ / ₈ "	9 ¹ / ₂ "	2 ¹ / ₄ "
36"	1'-2 ⁷ / ₈ "	9 ⁷ / ₈ "	1'-1 ¹ / ₂ "	3 ³ / ₄ "
45"	1'-5 ³ / ₈ "	1'-1 ⁷ / ₈ "	1'-5 ¹ / ₂ "	2 ¹ / ₄ "
45W"	1'-9 ¹ / ₈ "	8 ⁷ / ₈ "	1'-0 ¹ / ₂ "	2 ³ / ₄ "
54"	1'-7 ⁷ / ₈ "	1'-5 ⁷ / ₈ "	1'-9 ¹ / ₂ "	4 ¹ / ₄ "
54W"	1'-9 ¹ / ₈ "	1'-5 ⁷ / ₈ "	1'-9 ¹ / ₂ "	4 ¹ / ₄ "



NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS P-17-62", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

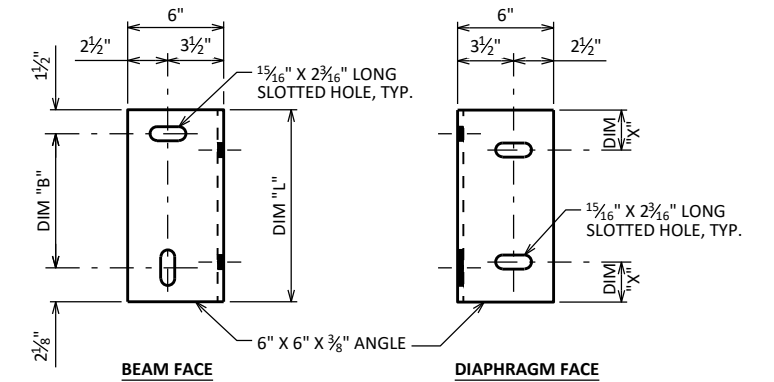
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

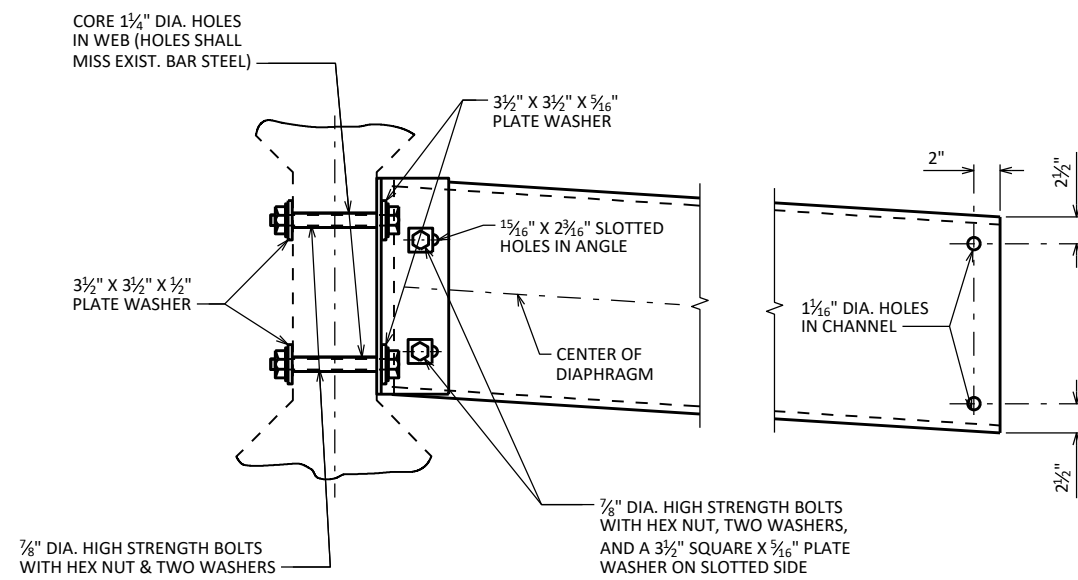
SECTION THRU ALTERNATE DIAPHRAGM

*DIM "X" = 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM

PART TRANSVERSE SECTION AT DIAPHRAGM



DIAPHRAGM SUPPORT



(FOR EXTERIOR GIRDERS & STAGGERED DIAPHRAGMS)

DETAIL B

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY		PLANS CK'D	
JAF		SKP	
STEEL DIAPHRAGM		SHEET 5	

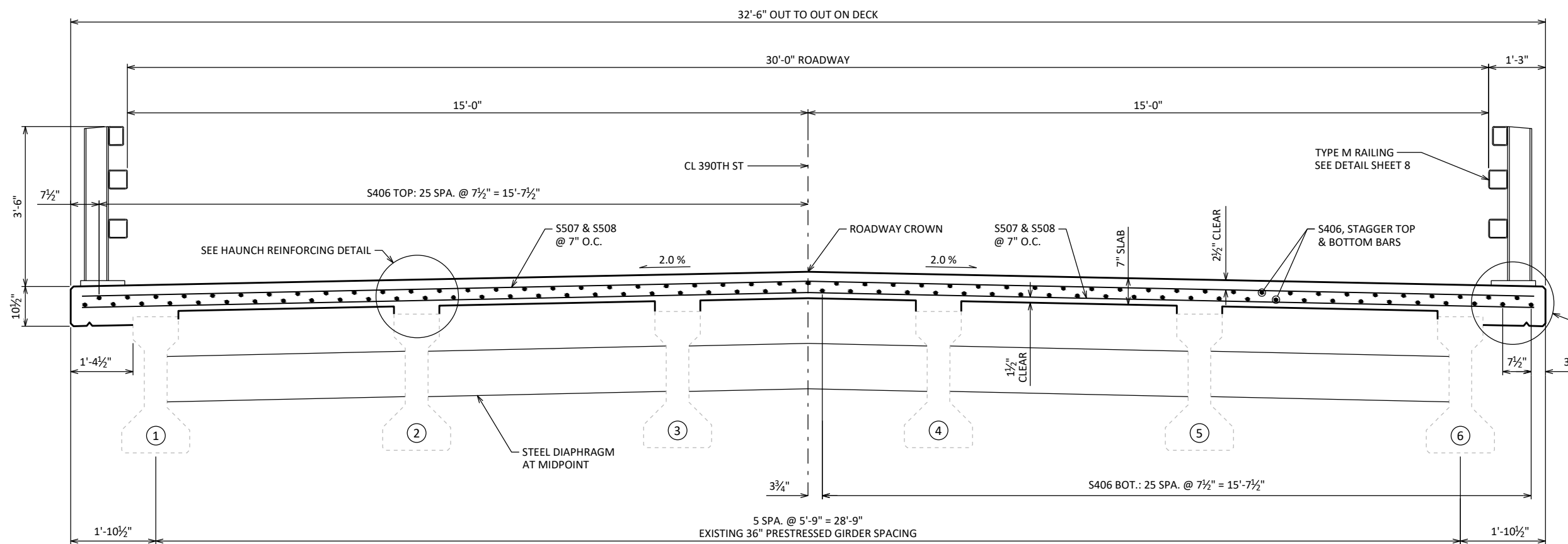
SCALE = 2.00

GENERAL NOTES

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

TRANSVERSE BARS SHALL BE PLACED PERPENDICULAR TO THE $\%$ OF GIRDERS.

THE SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).



CROSS SECTION THRU BRIDGE
LOOKING NORTH

RAILING NOT SHOWN FOR CLARITY

$\frac{3}{16}$ " X $1\frac{3}{4}$ " (MIN.) CONCRETE SCREWS SPACED AT 1'-0" EACH ROW. STAGGER ROWS.

FLASHING STAINLESS STEEL NOTES:

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, AND $\frac{3}{16}$ " CONCRETE SCREWS.

FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

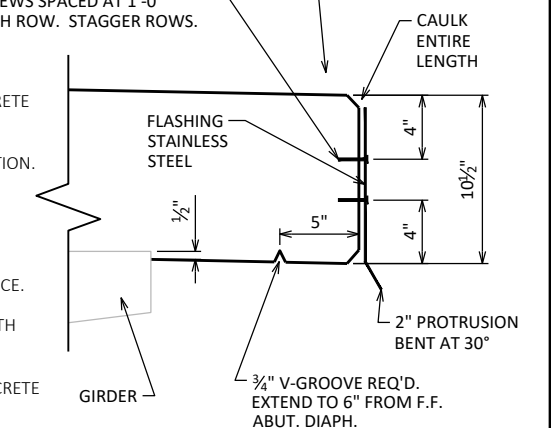
EXTEND FLASHING TO B.F. ABUTMENT DIAPHRAGM.

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

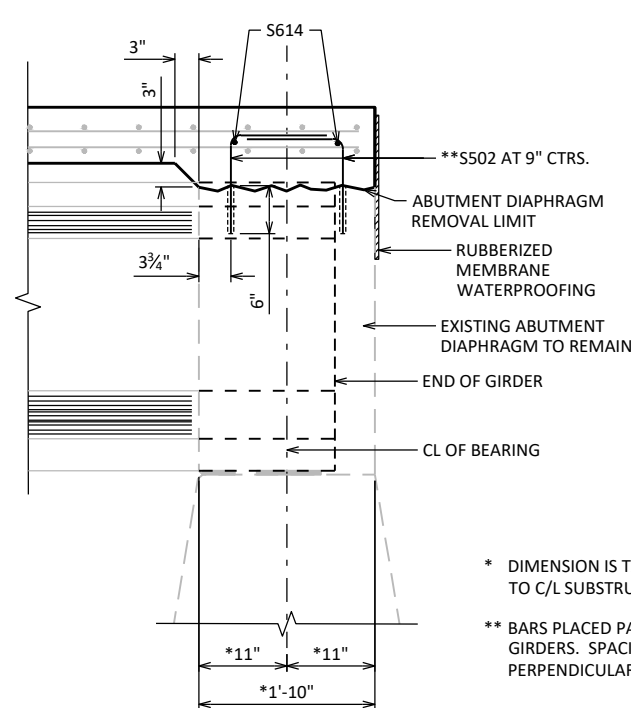
THE FLASHING IS TO BE CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.

PROVIDE 2" MINIMUM FLASHING OVERLAP, FASTEN WITH $\frac{3}{16}$ " X 2" (MIN.) CONCRETE SCREWS.

CAULK SHALL BE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER.



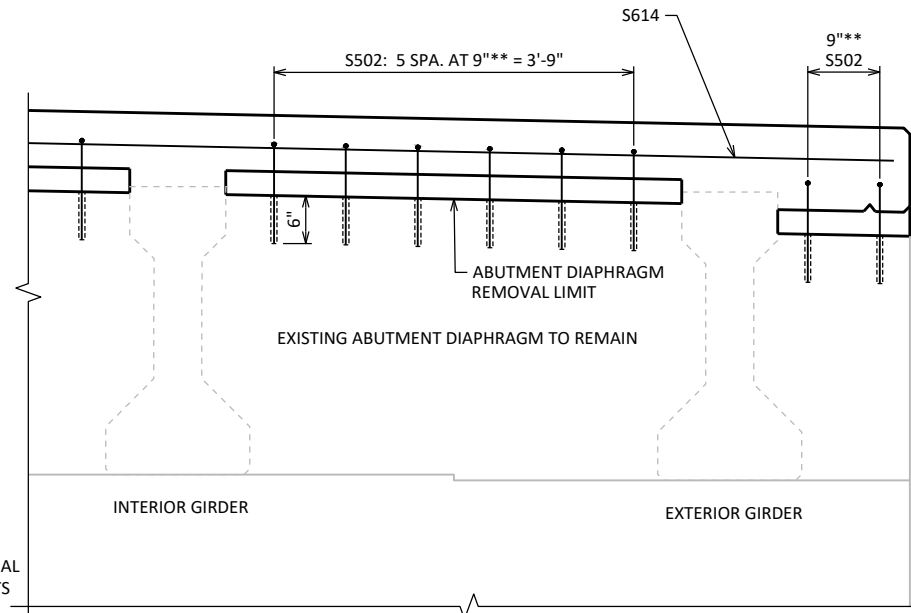
EDGE OF DECK DETAIL



SECTION THROUGH DIAPHRAGM AT ABUTMENT

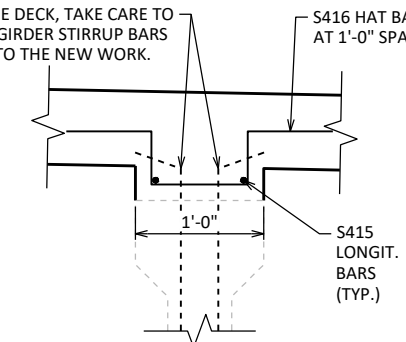
* DIMENSION IS TAKEN NORMAL TO C/L SUBSTRUCTURE UNITS

** BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO C/L GIRDERS



PART TRANSVERSE SECTION AT ABUTMENT DIAPHRAGM

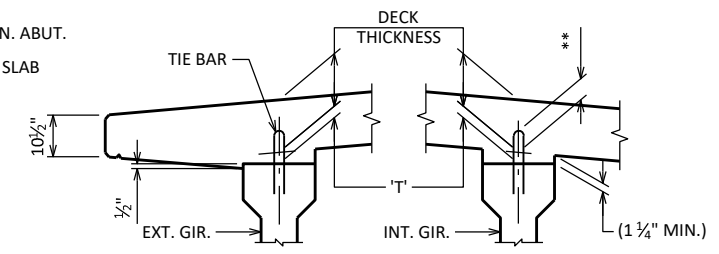
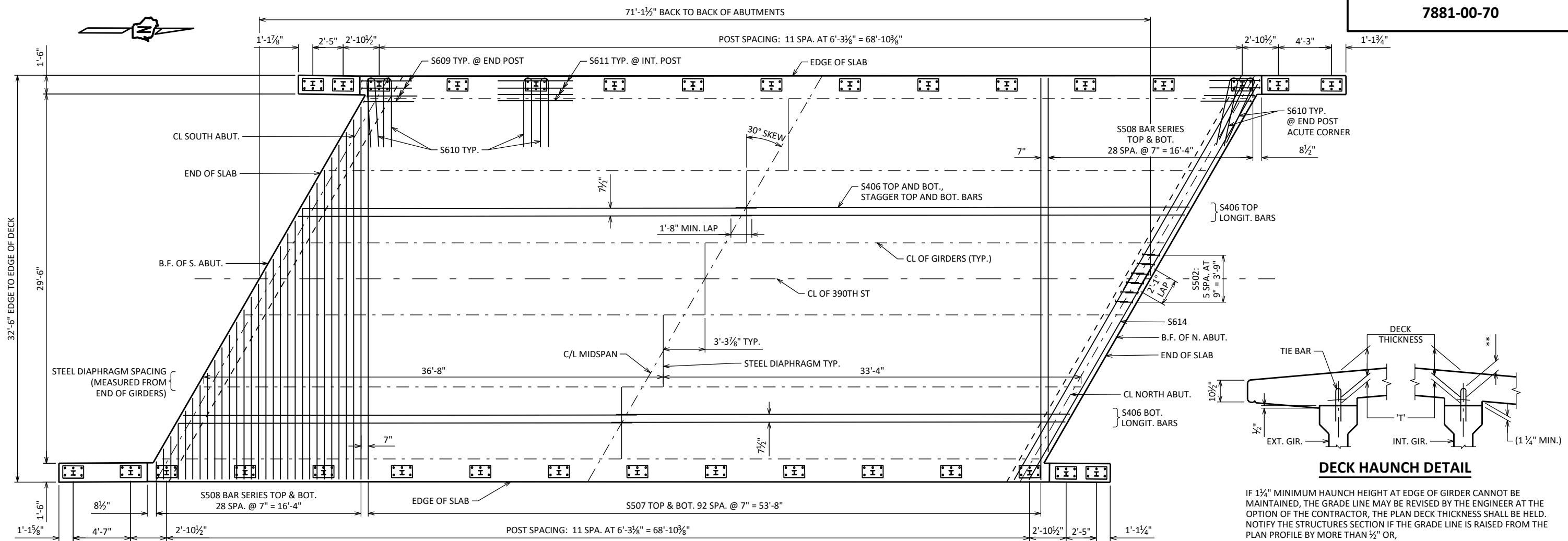
DURING REMOVAL OF THE DECK, TAKE CARE TO PRESERVE THE EXISTING GIRDER STIRRUP BARS FOR INCORPORATION INTO THE NEW WORK.



HAUNCH REINFORCING DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY		TAG	PLANS CK'D JAF
SUPERSTRUCTURE			SHEET 6

SCALE =

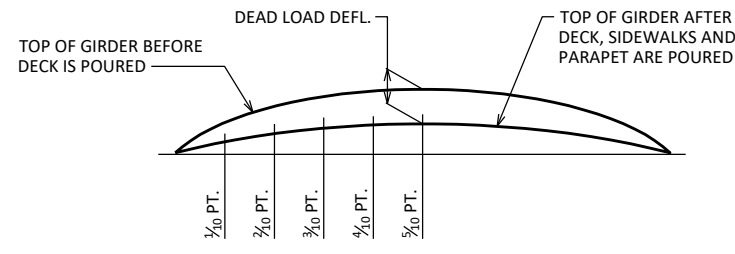


IF 1 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR,
 ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT C/L OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
 - TOP OF GIRDER ELEVATION
 + DEAD LOAD DEFLECTION
 - DECK THICKNESS
 = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2 1/2" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM

SPAN	GIRDER	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10
1	EXT. GIRDER	0.7	1.3	1.8	2.2	2.3	2.2	1.8	1.3	0.7
	INT. GIRDER	0.8	1.6	2.2	2.6	2.7	2.6	2.2	1.6	0.8

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

TOP OF DECK ELEVATIONS

LOCATION	C/L S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L N. ABUT.
W. EOD	839.24	839.29	839.35	839.40	839.45	839.51	839.56	839.61	839.66	839.72	839.77
GIRDER 1	839.27	839.32	839.38	839.43	839.48	839.53	839.59	839.64	839.69	839.75	839.80
GIRDER 2	839.36	839.41	839.47	839.52	839.57	839.62	839.68	839.73	839.78	839.83	839.89
GIRDER 3	839.45	839.50	839.56	839.61	839.66	839.71	839.77	839.82	839.87	839.92	839.98
CL CROWN	839.50	839.55	839.60	839.65	839.71	839.76	839.81	839.86	839.92	839.97	840.02
GIRDER 4	839.43	839.48	839.53	839.58	839.64	839.69	839.74	839.79	839.85	839.90	839.95
GIRDER 5	839.28	839.34	839.39	839.44	839.50	839.55	839.60	839.65	839.71	839.76	839.81
GIRDER 6	839.14	839.20	839.25	839.30	839.36	839.41	839.46	839.51	839.57	839.62	839.67
E. EOD	839.10	839.15	839.20	839.26	839.31	839.36	839.41	839.47	839.52	839.57	839.63

PLAN

S502

S609

S610

S416

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X					NOT USED
S502	X	136	1'-11"	X		DIAPHRAGM @ ABUTS. - TOP L BAR
S503	X					NOT USED
S404	X					NOT USED
S505	X					NOT USED
S406	X	206	36'-3"			DECK, TOP & BOTTOM, LONGIT.
S507	X	186	32'-0"			DECK, TOP & BOTTOM, TRANSVERSE
S508	X	116	15'-7"			DECK, TOP & BOTTOM, TRANSVERSE BAR SERIES
S609	X	16	4'-10"	X		DECK @ RAIL POST - LONGIT., END CORNERS
S610	X	48	11'-2"	X		DECK @ RAIL POST - TRANSVERSE, 2 PER POST
S611	X	80	6'-0"			DECK @ RAIL POST - LONGIT., 4 PER POST
S612	X					NOT USED
S613	X					NOT USED
S614	X	8	19'-8"			DIAPHRAGM @ ABUTS. - HORIZ.
S415	X	20	36'-3"			GIRDER HAUNCH - LONGIT.
S416	X	350	2'-7"	X		GIRDER HAUNCH - VERT. HAT BARS

★ ADHESIVE ANCHORS NO. 5 BAR REQ'D. EMBED BARS 6" MIN., 12" MAX. INTO EXISTING CONCRETE. MIN. EDGE DISTANCE = 3 3/4" FOR NO. 5 BAR.
 ▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
S508	4 SERIES OF 29	1'-6" TO 29'-8"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY		TAG	PLANS CK'D JAF
SUPERSTRUCTURE DETAILS			SHEET 7

8

8

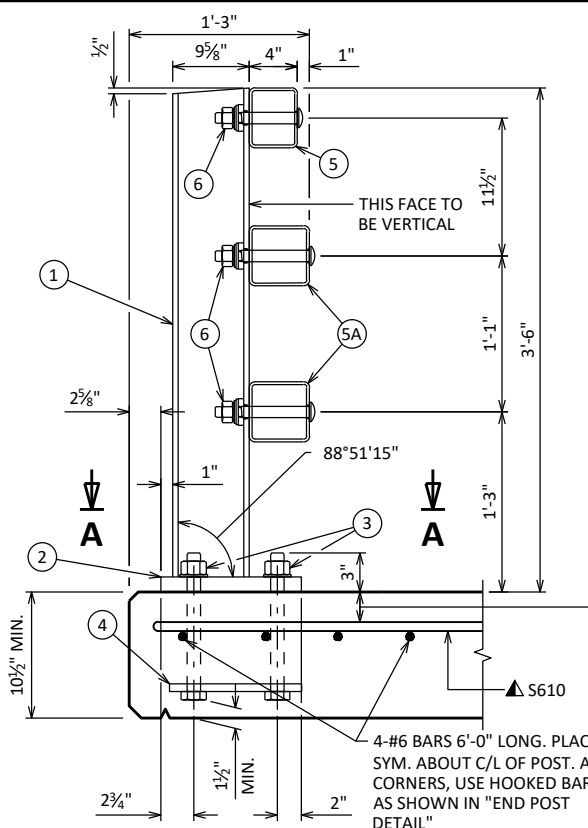
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LEGEND

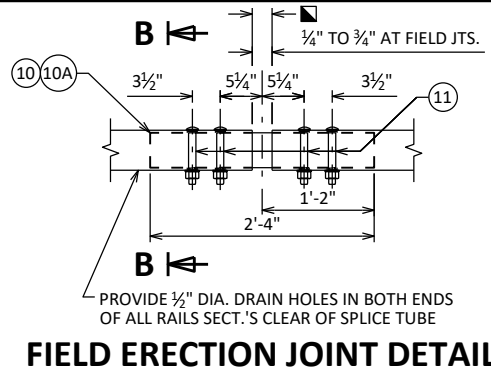
- ① W6 X 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1 1/4" X 1 1/4" X 1'-8" WITH 1 1/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- ④ 3/8" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 3/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" X 3 3/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5. 3/8" X 3 3/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/16" X 1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 3/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- ⑫ 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- ⑬ 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

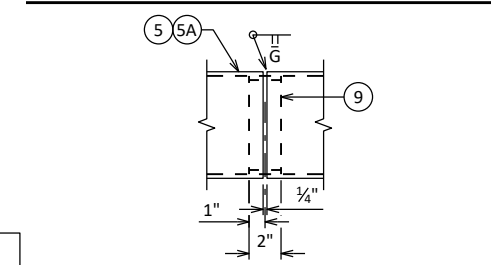
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES,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



SECTION THRU RAILING ON DECK

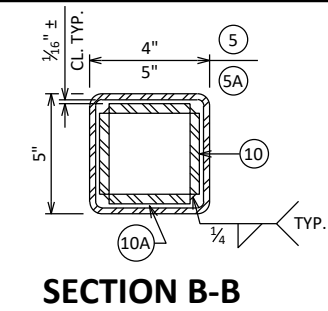


FIELD ERECTION JOINT DETAIL

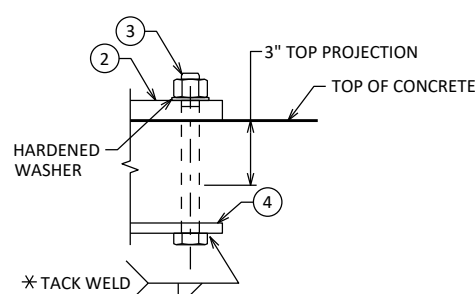


SHOP RAIL SPLICE DETAIL

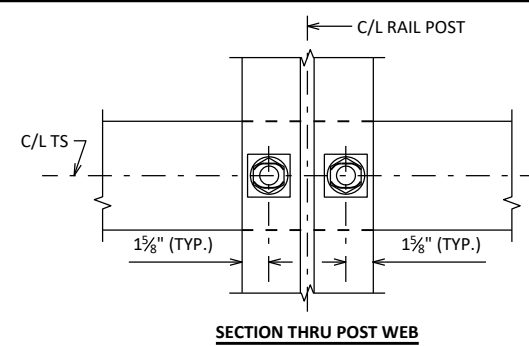
LOCATION MUST BE SHOWN ON SHOP DRAWINGS
2 1/2" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT



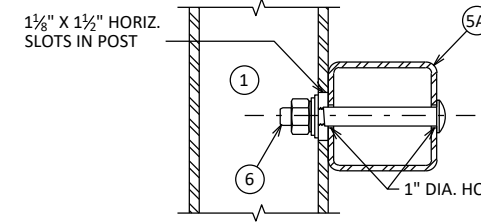
SECTION B-B



ANCHOR BOLTS

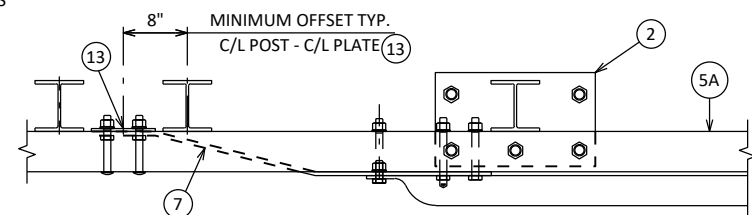


SECTION THRU POST WEB

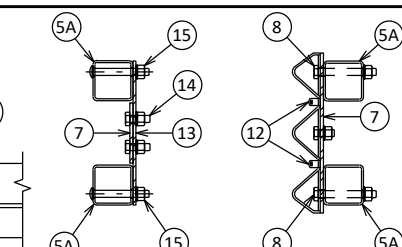


SECTION THRU RAIL
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

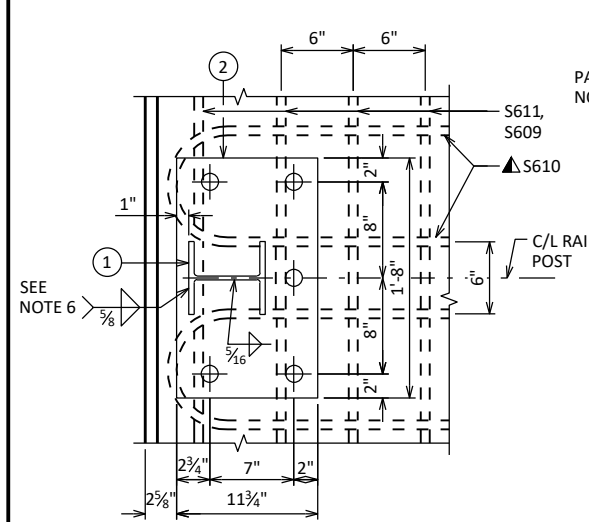
TYPICAL RAIL TO POST CONNECTIONS



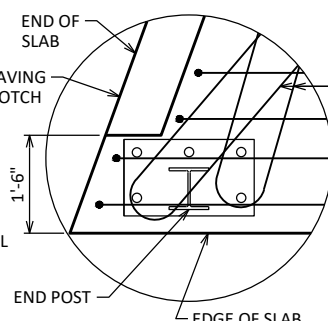
TOP VIEW AT END POST
THRIE BEAM RAIL ATTACHMENT



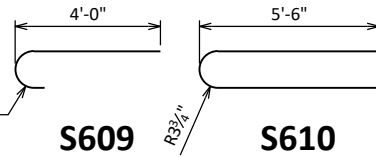
SECTION C-C SECTION D-D



SECTION A-A

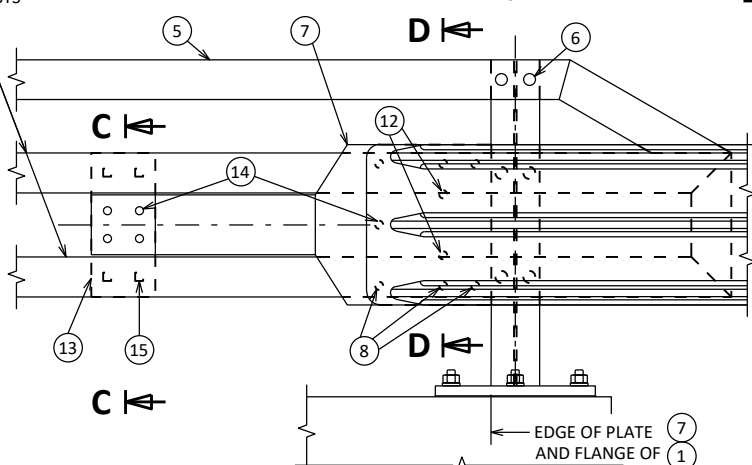


END POST DETAIL
REINFORCEMENT AT CORNERS

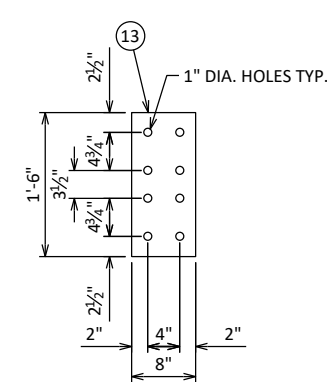


S609

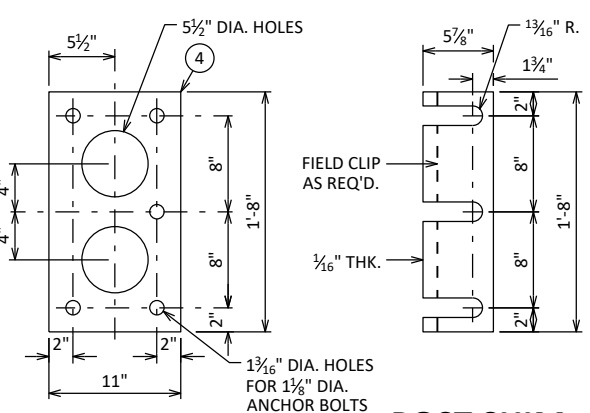
S610



DETAIL AT END POST
THRIE BEAM RAIL ATTACHMENT

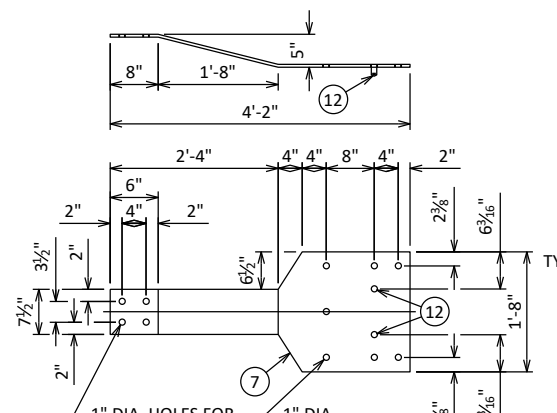


ANCHOR PLATE
AT BEAM GUARD ATTACHMENT

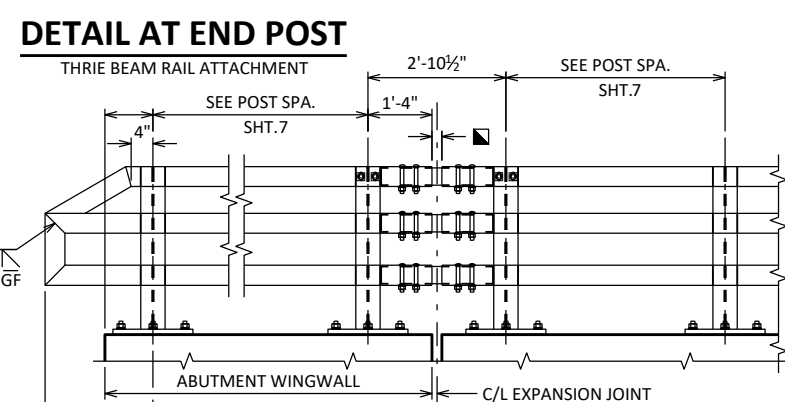


ANCHOR PLATE
AT RAIL TO DECK CONNECTION

POST SHIM
DETAIL



BACK-UP PLATE DETAIL
AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

- ▲ TIE TO TOP MAT OF STEEL.
- * ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.
- RDWY. OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & (1/4" TO 3/4") OPENING FOR A1 ABUTMENT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE P-17-0062			
DRAWN BY		JAF	PLANS CK'D
TUBULAR STEEL RAILING TYPE "M"			SHEET 8

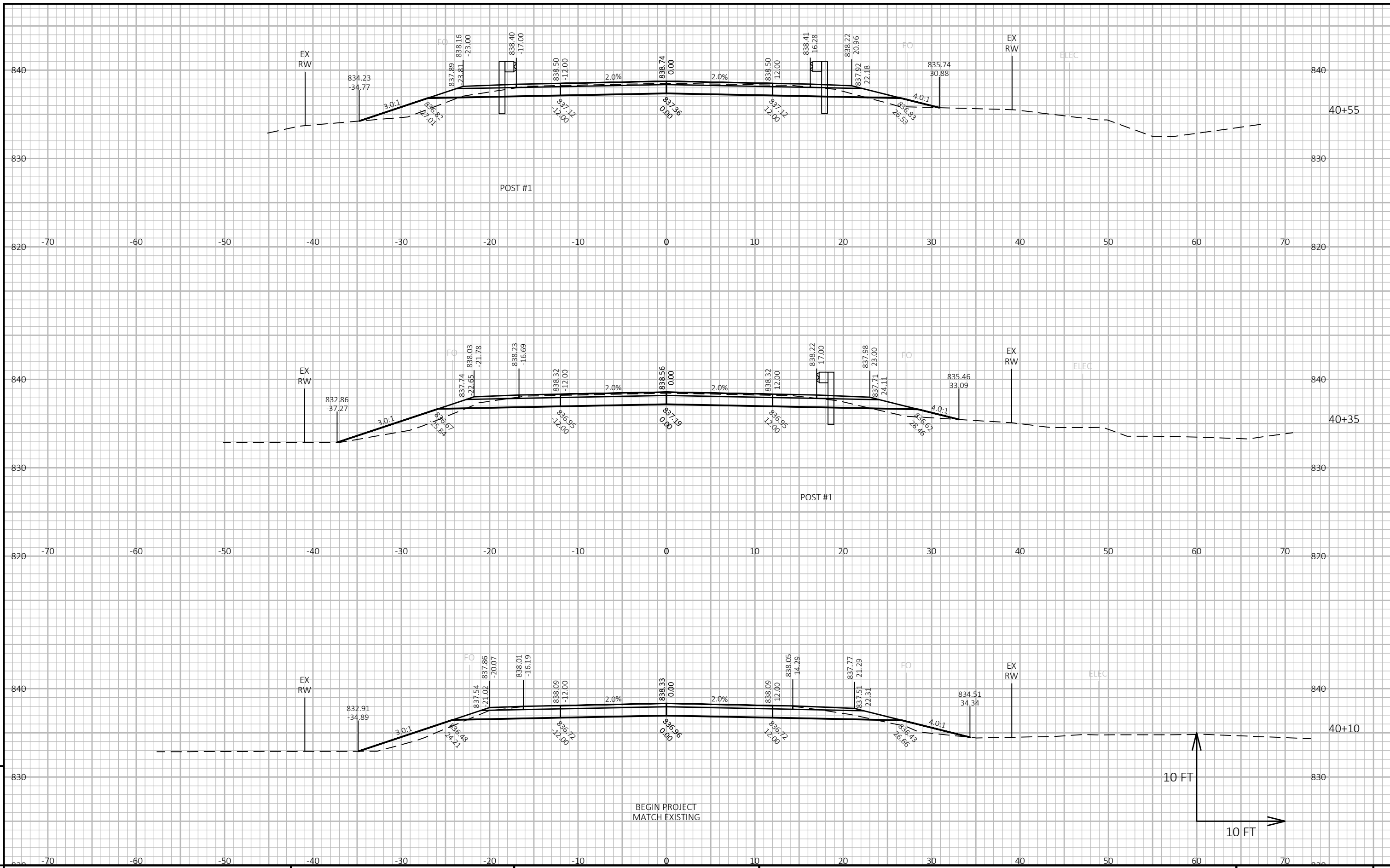
390TH STREET

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/ UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	MASS ORDINATE NOTE 5
40+10	0	54.48	11.37	13.22	0	0	0	0	0	0
40+35	25	49.59	11.33	16.91	48	11	14	48	18	20
40+55	20	45.60	11.29	13.00	35	8	11	83	31	33
40+60	5	45.51	11.29	10.97	8	2	2	91	34	36
40+80	20	45.46	11.40	7.78	34	8	7	125	43	54
40+85	5	44.97	11.37	9.62	8	2	2	133	45	57
41+05	20	38.61	11.22	20.49	31	8	11	164	59	66
41+25	20	34.56	10.92	13.40	26	8	10	190	71	72
41+44	19	19.21	6.08	32.13	25	7	18	215	95	65
BRIDGE								215	95	65
42+10	0	13.89	3.27	20.23	0	0	0	215	95	65
42+28	18	33.63	11.07	19.37	17	10	14	232	112	56
42+49	21	41.02	11.33	8.49	29	9	7	261	124	64
42+74	25	47.56	11.22	3.67	41	10	6	302	132	88
42+99	25	57.63	11.52	0.47	49	11	2	351	134	123
43+50	51	56.71	11.89	0.30	108	22	1	459	135	208
43+68	18	7.46	0.00	0.00	21	4	0	480	135	225
43+93	25	10.66	0.00	0.01	8	0	0	488	135	233
44+18	25	16.28	0.00	0.04	12	0	0	500	135	245
COLUMN TOTAL					500	120	105			

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

9

9



PROJECT NO: 7881-00-70

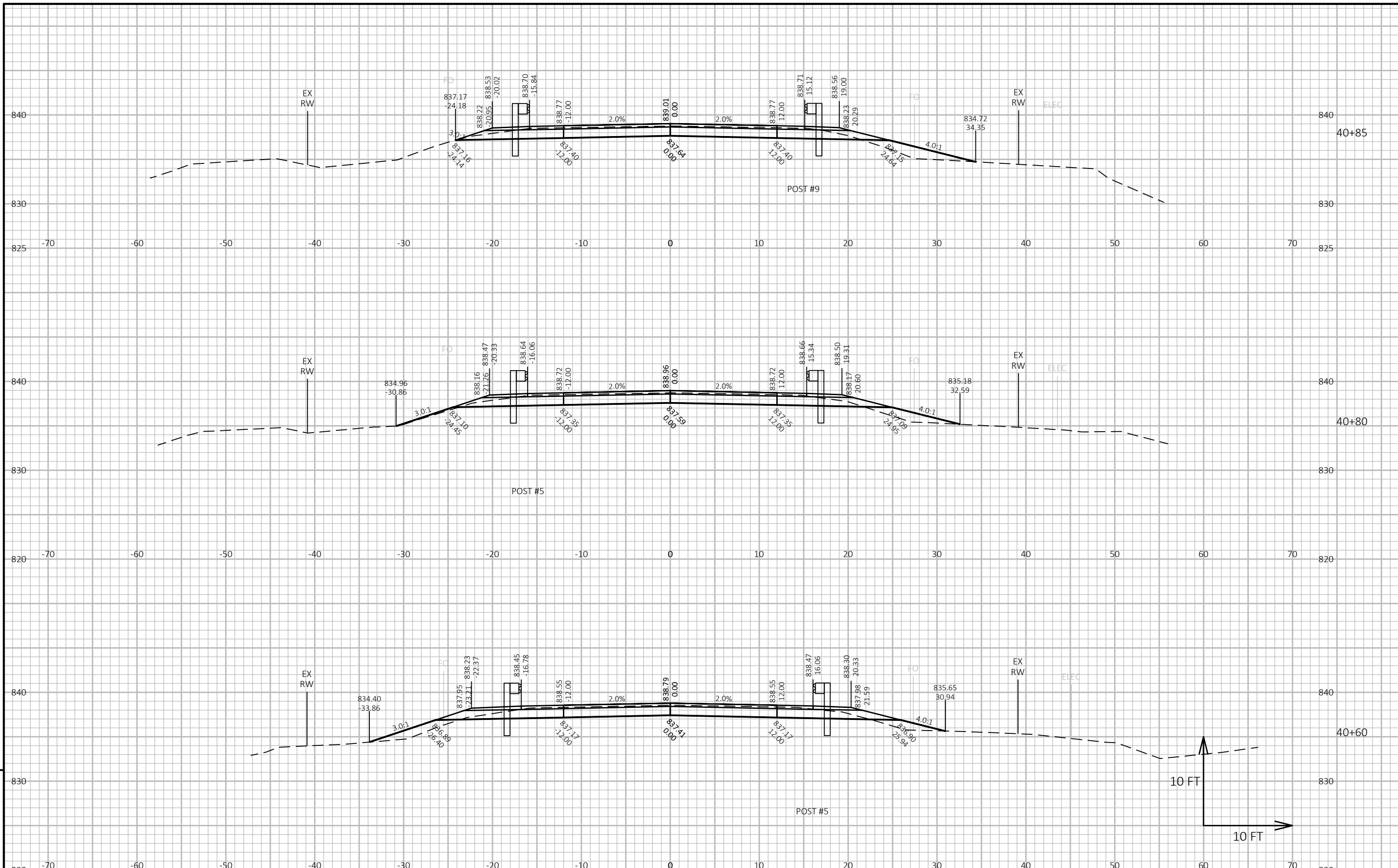
HWY: 390TH STREET

COUNTY: DUNN

CROSS SECTIONS: 390TH STREET

SHEET

E



PROJECT NO: 7881-00-70

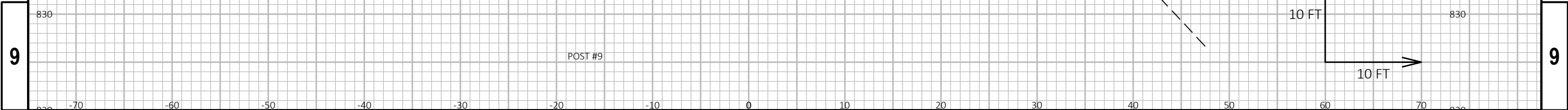
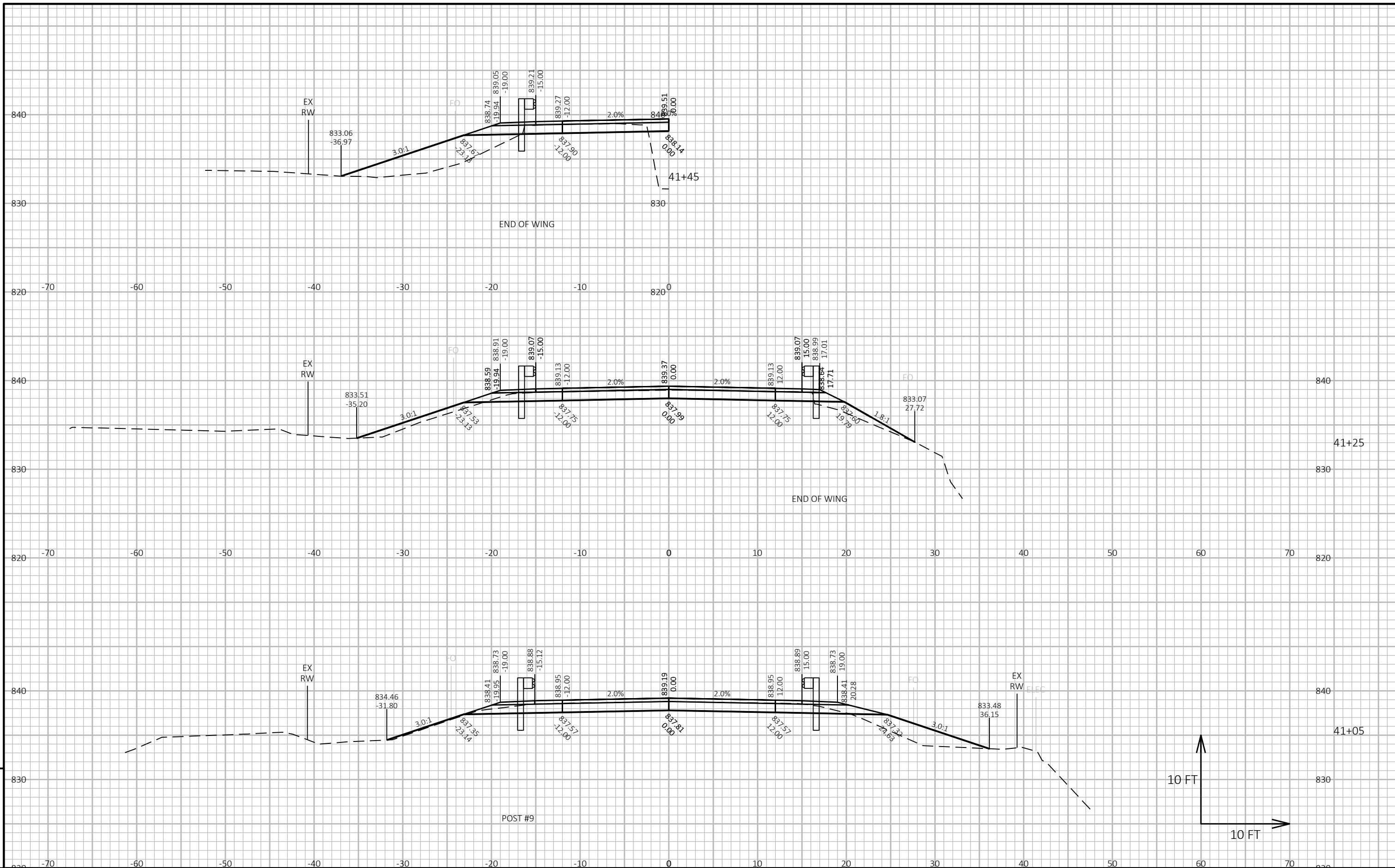
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COUNTY: DUNN

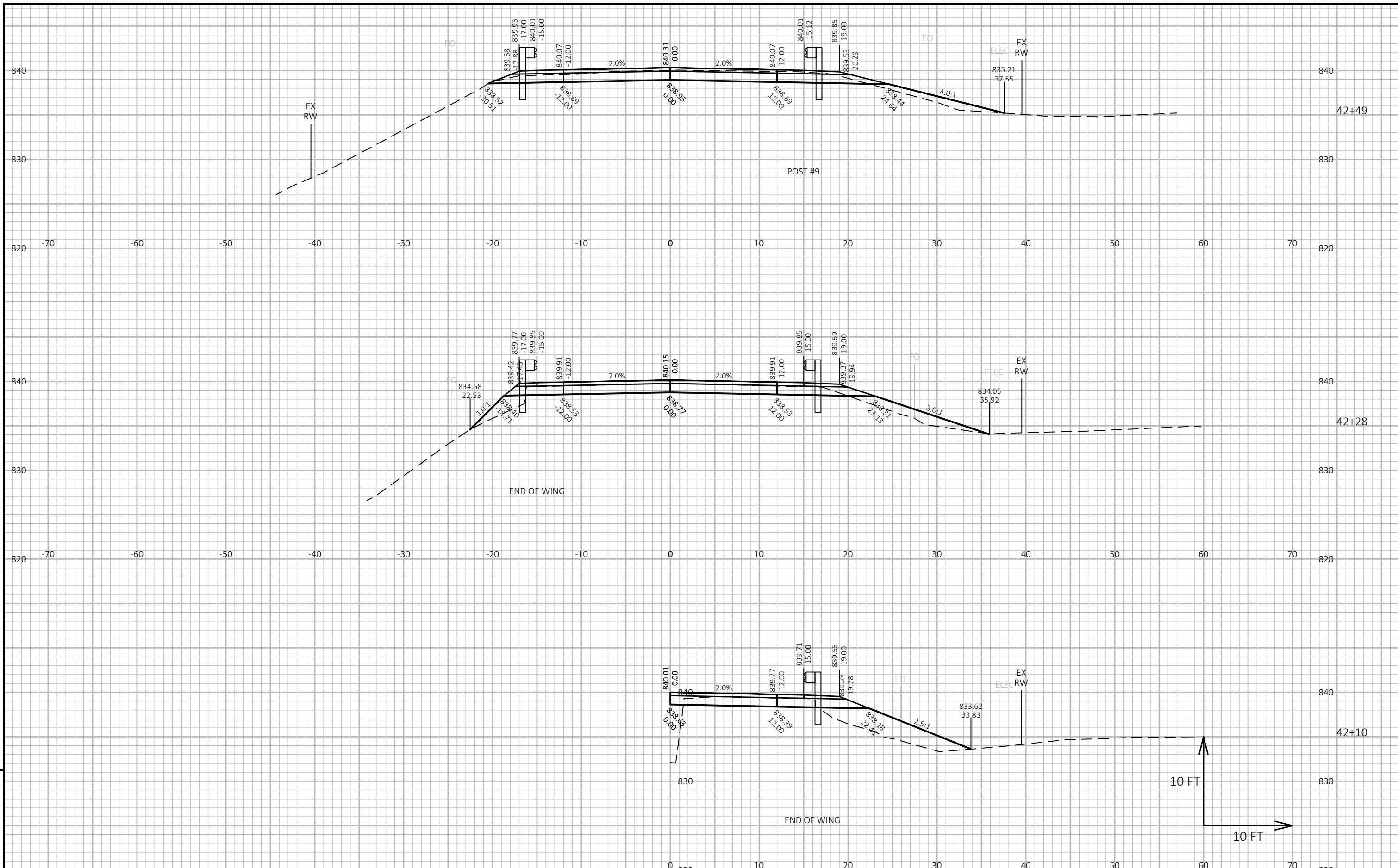
CROSS SECTIONS: 390TH STREET

SHEET

E



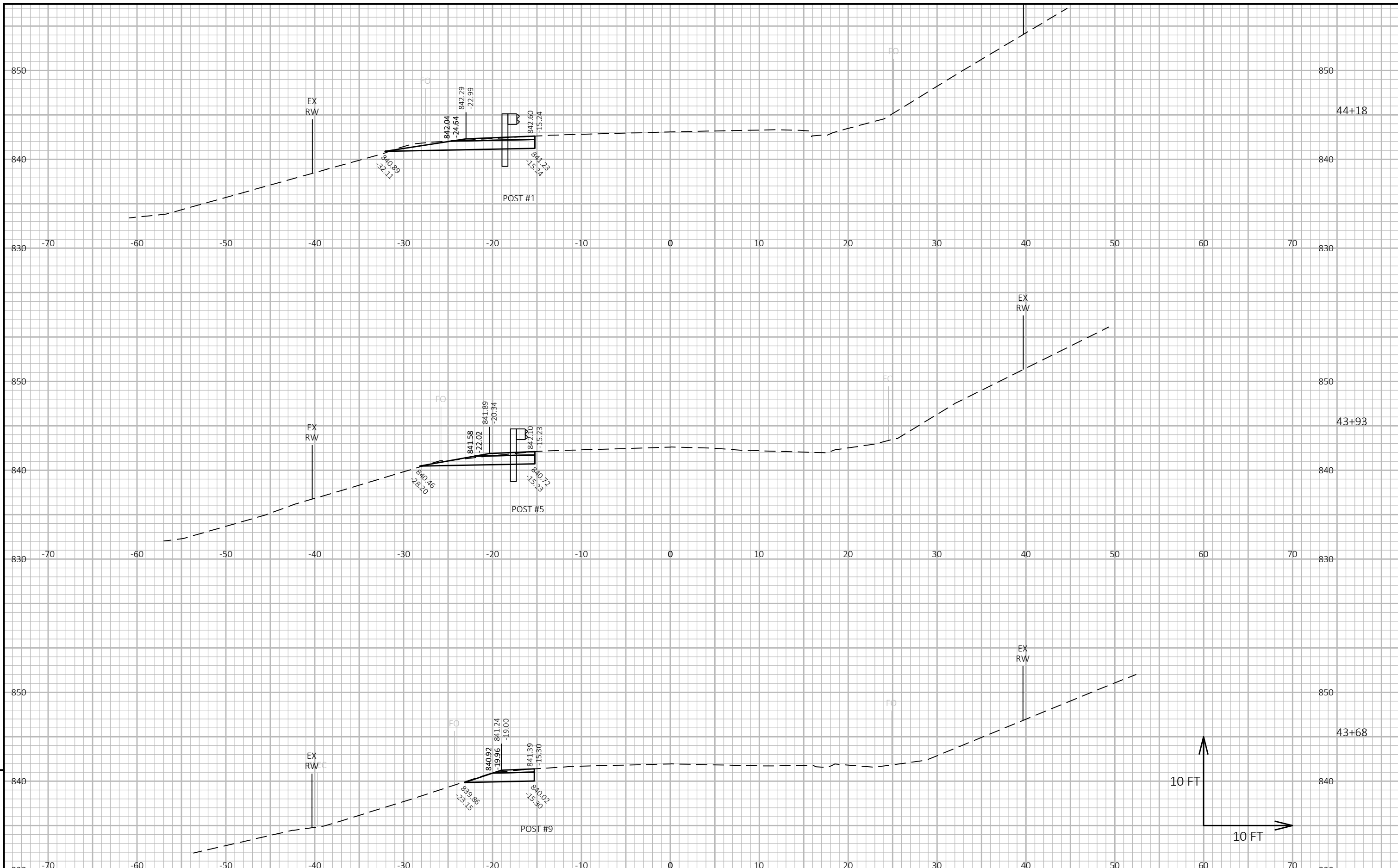
PROJECT NO: 7881-00-70 HWY: 390TH STREET COUNTY: DUNN CROSS SECTIONS: 390TH STREET SHEET E



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PROJECT NO: 7881-00-70 HWY: 390TH STREET COUNTY: DUNN CROSS SECTIONS: 390TH STREET SHEET E



PROJECT NO: 7881-00-70

HWY: 390TH STREET

COUNTY: DUNN

CROSS SECTIONS: 390TH STREET

SHEET

E



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