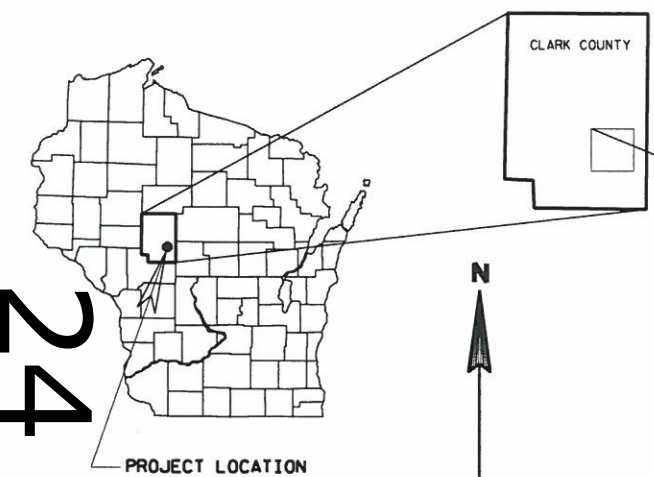


ORDER OF SHEETS	
Section No. 1	Title
Section No. 2	Typical Sections and Details (includes Erosion Control Plans)
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No.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

TOTAL SHEETS = 80



DESIGN DESIGNATION	
A.D.T. (2015)	= 1,000
A.D.T. (2035)	= 1,100
D.H.V.	= 110
D.	= 60/40
T.	= 6.7%
DESIGN SPEED	= 40 MPH
ESALS	= 153,300

CONVENTIONAL SYMBOLS
PLAN

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

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

END PROJECT
STA. 12+30
Y = 361382.01
X = 720312.90

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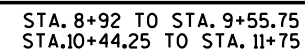
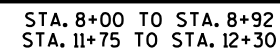
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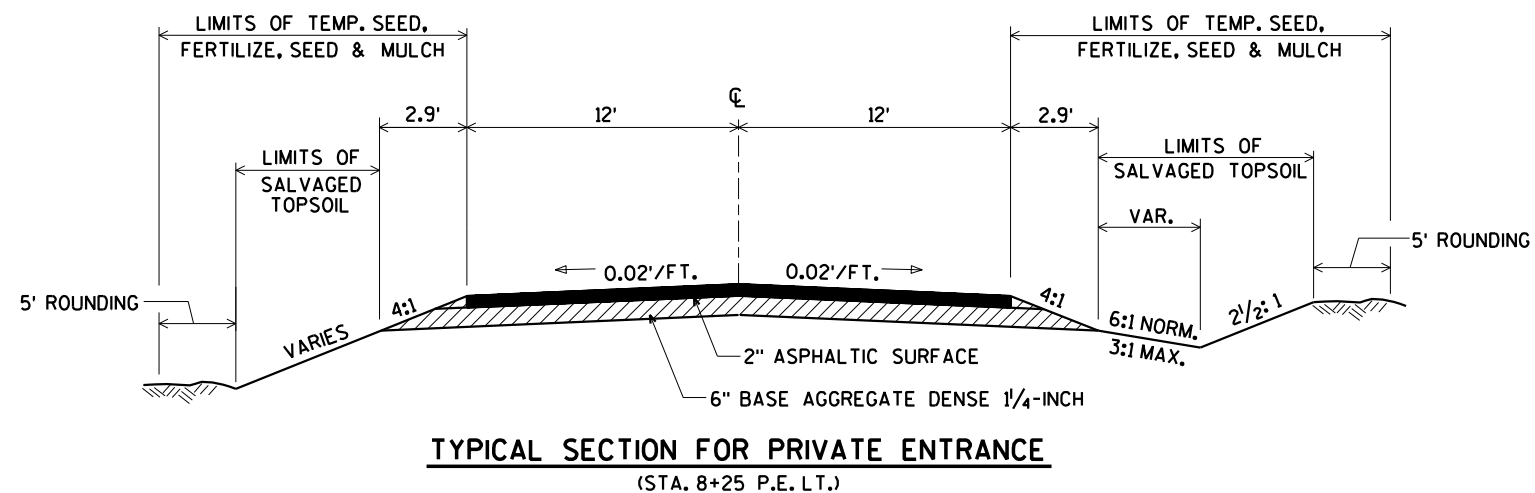
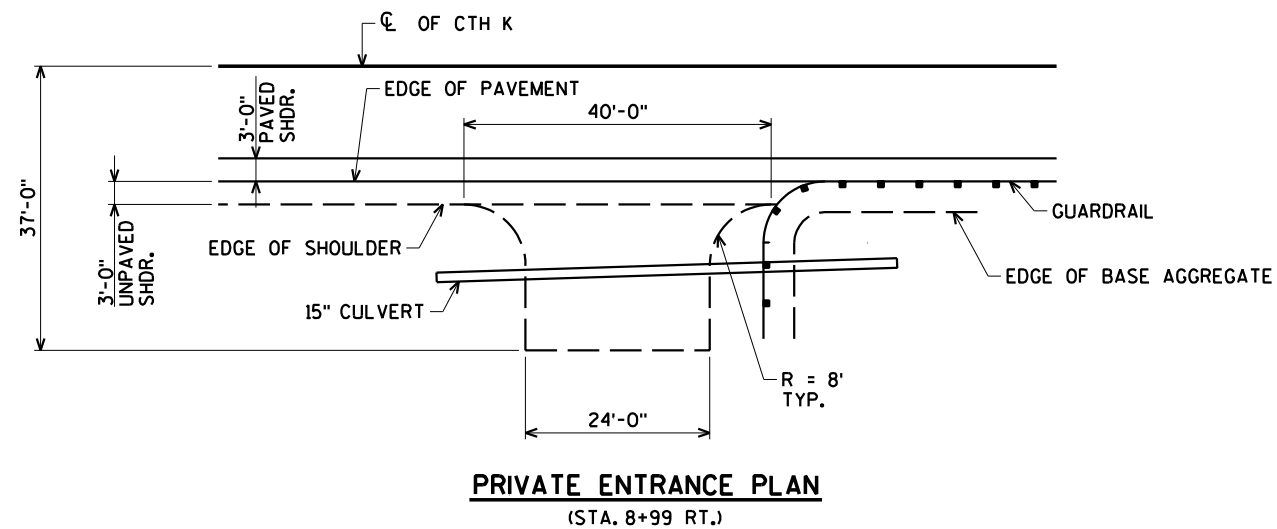
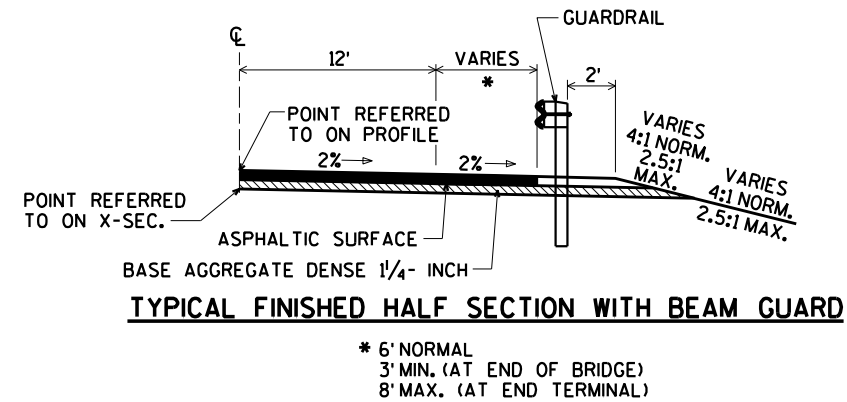
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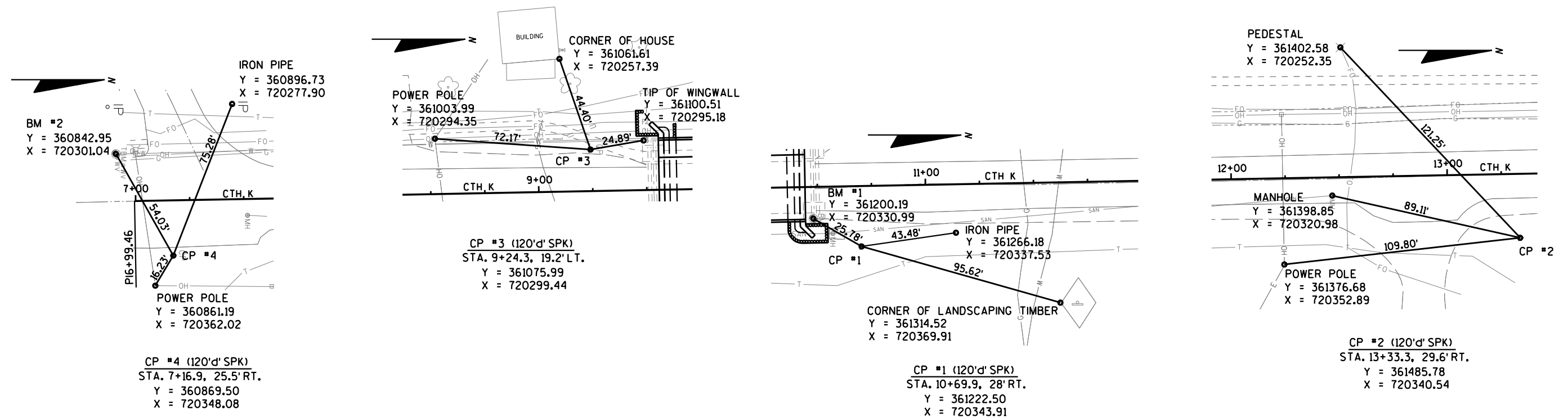
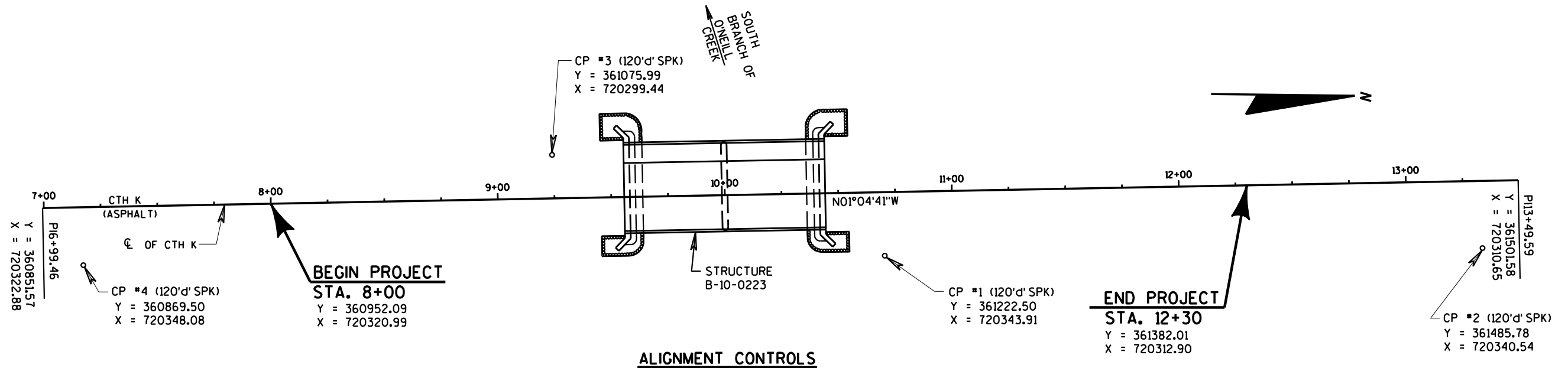


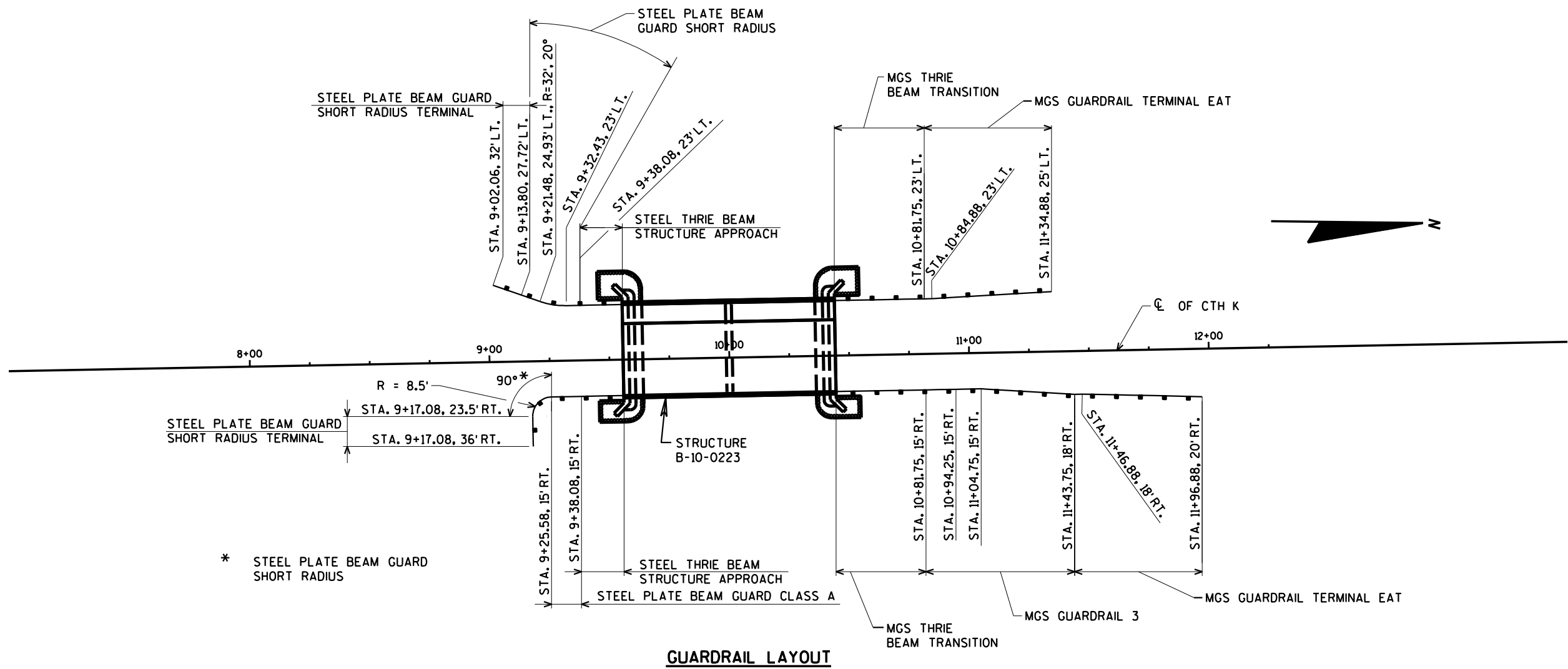
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EAU CLAIRE, WI. 54702
715-839-1609
christopher.j.willger@wisconsin.gov



ABBREVIATIONS

AC	ACRES
CHIS	CHISELED
CL	CENTERLINE
COR	CORNER
CWT	COUNT
CY	CUBIC YARD
EL	ELEVATION
GAL	GALLON
H	HOUSE
IP	IRON PIPE
LB	POUND
LF	LINEAR FEET
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MON	MONUMENT
NORM	NORMAL
OAL	OVERALL LENGTH
PC	POINT OF CURVATURE
PD	PEDESTAL
PI	POINT OF INTERSECTION
PK	PARKER-KALON
PL	PROPERTY LINE
PLE	PERMANENT LIMITED EASEMENT
PP	POWER POLE
PT	POINT OF TANGENCY
R	RADIUS
REQ'D	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
SF	SQUARE FEET
SHLDR	SHOULDER
STA	STATION
SY	SQUARE YARD
TLE	TEMPORARY LIMITED EASEMENT
VAR	VARIES
WL	WELL





DATE 25NOV14		E S T I M A T E O F Q U A N T I T I E S			
LINE				7846-03-70	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	4.000	4.000
0020	201.0205	GRUBBING	STA	4.000	4.000
0030	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 10+00	LS	1.000	1.000
0040	205.0100	EXCAVATION COMMON	CY	814.000	814.000
0050	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-10-0223	LS	1.000	1.000
0060	210.0100	BACKFILL STRUCTURE	CY	230.000	230.000
0070	213.0100	FINISHING ROADWAY (PROJECT) 01. 7846-03-70	EACH	1.000	1.000
0080	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	89.000	89.000
0090	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	880.000	880.000
0100	455.0605	TACK COAT	GAL	85.000	85.000
0110	465.0105	ASPHALTIC SURFACE	TON	345.000	345.000
0120	502.0100	CONCRETE MASONRY BRIDGES	CY	329.000	329.000
0130	502.3200	PROTECTIVE SURFACE TREATMENT	SY	440.000	440.000
0140	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	6,980.000	6,980.000
0150	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	47,230.000	47,230.000
0160	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-10-0223	LS	1.000	1.000
0170	513.7005	RAILING STEEL TYPE C1 (STRUCTURE) 01. B-10-0223	LS	1.000	1.000
0180	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	22.000	22.000
0190	520.0115	CULVERT PIPE CLASS III 15-INCH	LF	60.000	60.000
0200	520.0124	CULVERT PIPE CLASS III 24-INCH	LF	47.000	47.000
0210	520.1015	APRON ENDWALLS FOR CULVERT PIPE 15-INCH	EACH	2.000	2.000
0220	520.1024	APRON ENDWALLS FOR CULVERT PIPE 24-INCH	EACH	2.000	2.000
0230	522.1018	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	EACH	1.000	1.000
0240	550.0500	PILE POINTS	EACH	22.000	22.000
0250	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	520.000	520.000
0260	601.0407	CONCRETE CURB & GUTTER 18-INCH TYPE D	LF	175.000	175.000
0270	602.0405	CONCRETE SIDEWALK 4-INCH	SF	2,125.000	2,125.000
0280	606.0300	RIPRAP HEAVY	CY	115.000	115.000
0290	608.0318	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	LF	45.000	45.000
0300	611.0666	INLET COVERS TYPE Z	EACH	1.000	1.000
0310	611.3004	INLETS 4-FT DIAMETER	EACH	1.000	1.000
0320	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	160.000	160.000
0330	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2.000	2.000
0340	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	41.300	41.300
0350	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	12.500	12.500
0360	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	37.700	37.700
0370	614.0390	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	EACH	2.000	2.000
0380	614.2300	MGS GUARDRAIL 3	LF	62.000	62.000
0390	614.2500	MGS THRIE BEAM TRANSITION	LF	78.800	78.800
0400	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	2.000	2.000
0410	619.1000	MOBILIZATION	EACH	1.000	1.000
0420	625.0500	SALVAGED TOPSOIL	SY	1,075.000	1,075.000
0430	627.0200	MULCHING	SY	1,660.000	1,660.000
0440	628.1504	SILT FENCE	LF	816.000	816.000
0450	628.1520	SILT FENCE MAINTENANCE	LF	1,632.000	1,632.000

DATE 25NOV14			E S T I M A T E O F Q U A N T I T I E S		
LINE			7846-03-70		
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0460	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0470	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0480	628.2023	EROSION MAT CLASS II TYPE B	SY	190.000	190.000
0490	628.7015	INLET PROTECTION TYPE C	EACH	1.000	1.000
0500	628.7504	TEMPORARY DITCH CHECKS	LF	40.000	40.000
0510	629.0210	FERTILIZER TYPE B	CWT	1.500	1.500
0520	630.0120	SEEDING MIXTURE NO. 20	LB	60.000	60.000
0530	630.0200	SEEDING TEMPORARY	LB	60.000	60.000
0540	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	4.000	4.000
0550	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0560	638.2102	MOVING SIGNS TYPE II	EACH	4.000	4.000
0570	638.2602	REMOVING SIGNS TYPE II	EACH	2.000	2.000
0580	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	2.000	2.000
0590	638.4000	MOVING SMALL SIGN SUPPORTS	EACH	4.000	4.000
0600	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0610	643.0100	TRAFFIC CONTROL (PROJECT) 01. 7846-03-70	EACH	1.000	1.000
0620	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	195.000	195.000
0630	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,720.000	1,720.000
0640	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	3.000	3.000
0650	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	342.000	342.000
0660	650.5000	CONSTRUCTION STAKING BASE	LF	342.000	342.000
0670	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	175.000	175.000
0680	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-10-0223	LS	1.000	1.000
0690	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 7846-03-70	LS	1.000	1.000
0700	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	342.000	342.000
0710	690.0150	SAWING ASPHALT	LF	49.000	49.000
0720	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,974.000	1,974.000
0730	999.1000.S	SEISMOGRAPH	LS	1.000	1.000
0740	999.1500.S	CRACK AND DAMAGE SURVEY	LS	1.000	1.000
0750	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	1,200.000	1,200.000
0760	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	300.000	300.000

CLEARING AND GRUBBING (CATEGORY 0010)

STATION TO STATION	201.0105	201.0205
	CLEARING	GRUBBING
	STA	STA
Sta. 8+00 to Sta. 12+00	4	4

213.0100 FINISHING ROADWAY (CATEGORY 0010)

LOCATION	EACH
PROJECT 7846-03-70	1

BASE AGGREGATE DENSE (CATEGORY 0010)

STATION TO STATION	LOCATION	305.0110	305.0120
		3/4-INCH TON	1 1/4-INCH TON
Sta. 8+00 to Sta. 9+55.75 LT & RT	Shoulders	39	---
Sta. 10+44.25 to Sta. 12+30	Shoulders	43	---
Sta. 8+25 LT	Private Entrance	2	10
Sta. 8+99 RT	Private Entrance	5	---
Sta. 8+00 to Sta. 9+55.75	Mainline	---	395
Sta. 10+44.25 to Sta. 12+30	Mainline	---	475
TOTALS		89	880

EARTHWORK SUMMARY (CATEGORY 0010)

STATION TO STATION	205.0100		208.0100		
	EXCAVATION	FILL	EXPANDED	BORROW	WASTE
	COMMON CY	CY	FILL CY	CY	CY
STA. 8+00 TO STA. 12+30	814	363	426	0	342

455.0605 TACK COAT (CATEGORY 0010)

STATION TO STATION	LOCATION	GAL
Sta. 8+00 to Sta. 8+92	Mainline	23
Sta. 8+92 to Sta. 9+55.75	Mainline	14
Sta. 10+44.25 to Sta. 11+75	Mainline	28
Sta. 11+75 to Sta. 12+30	Mainline	14
Sta. 11+04.75 to Sta. 12+16.88	Shoulder	3
Sta. 8+25 LT	Private Entrance	3
TOTAL		85

465.0105 ASPHALTIC SURFACE (CATEGORY 0010)

STATION TO STATION	LOCATION	TON
Sta. 8+00 to Sta. 8+92	Mainline	87
Sta. 8+92 to Sta. 9+55.75	Mainline	59
Sta. 10+44.25 to Sta. 11+75	Mainline	124
Sta. 11+75 to Sta. 12+30	Mainline	53
Sta. 11+04.75 to Sta. 12+16.88	Shoulder	19
Sta. 8+25 LT	Private Entrance	3
TOTAL		345

DRAINAGE (CATEGORY 0010)									
STATION TO STATION	LOCATION	520.0115	520.1015	520.0124	520.1024	522.1018	608.0318	611.0666	611.3004
		CULVERT PIPE	APRON	CULVERT PIPE	APRON	ENDWALLS FOR	STORM SEWER	INLET	INLETS
		CLASS III*	CULVERT PIPE	CLASS III**	CULVERT PIPE	CULVERT PIPE	PIPE REINFORCED	COVERS	4-FT
		15-INCH	15-INCH	24-INCH	24-INCH	CONCRETE 18-INCH	18-INCH	TYPE Z	DIAMETER
		LF	EACH	LF	EACH	LF	LF	EACH	EACH
Sta. 8+75 to Sta. 9+35	RT	60	2						
Sta. 9+07 to Sta. 9+48	LT					1	45		
Sta. 11+84 to Sta. 12+30	LT								
Sta. 9+07 to Sta. 9+48	15' LT							1	1
Sta. 11+84.64 to Sta. 12+30	LT			47	2				
TOTALS		60	2	47	2	1	45	1	1
* STEEL PIPE MINIMUM THICKNESS = 0.064 INCHES, ALUMINUM PIPE MINIMUM THICKNESS = 0.060 INCHES									
** STEEL PIPE MINIMUM THICKNESS = 0.064 INCHES, ALUMINUM PIPE MINIMUM THICKNESS = 0.075 INCHES									

601.0407 CONCRETE CURB & GUTTER 18-INCH TYPE D (CATEGORY 0010)

STATION TO STATION	LOCATION	LF
Sta. 9+02 TO Sta. 9+56 LT	Mainline	54
Sta. 10+44 to Sta. 11+65 LT	Mainline	121
TOTAL		175

602.0405 CONCRETE SIDEWALK 4-INCH (CATEGORY 0010)

STATION TO STATION	LOCATION	SF
Sta. 8+00 to Sta. 8+25.00	LT	111
Sta. 8+25.00 to Sta. 9+02.45	LT	420
Sta. 9+02.45 to Sta. 9+55.75	LT	377
Sta. 10+44.25 to Sta. 11+34.88	LT	680
Sta. 11+34.88 to Sta. 11+64.88	LT	195
Sta. 11+64.88 to Sta. 12+30	LT	342
TOTALS		2,125

BEAM GUARD (CATEGORY 0010)							
STATION TO STATION	LOCATION	614.0200	614.0305	614.0345	614.0390	614.2300	614.2500
		STEEL THRIE	STEEL PLATE	STEEL PLATE	STEEL PLATE	MGS	MGS
		BEAM	BEAM GUARD	BEAM GUARD	BEAM GUARD	THRIE BEAM	GUARDRAIL
		STRUCTURE	CLASS A	SHORT	SHORT RADIUS	GUARDRAIL 3	TRANSITION
		APPROACH	RADIUS	TERMINAL	TERMINAL	TERMINAL EAT	
Sta. 9+02.06 to Sta. 9+13.80	LT				1		
Sta. 9+13.80 to Sta. 9+38.08	LT			24.3			
Sta. 9+17.08	RT				1		
Sta. 9+17.08 to Sta. 9+25.58	RT			13.4			
Sta. 9+25.58 to Sta. 9+55.75	RT		12.5				
Sta. 9+38.08 to Sta. 9+58+73	LT & RT	41.3					
Sta. 10+42.35 to Sta. 10+81.75	LT & RT						78.8
Sta. 10+81.75 to Sta. 11+43.75	RT					62.0	
Sta. 10+81.75 to Sta. 11+34.88	LT						1
Sta. 11+43.75 to Sta. 11+96.88	RT						1
TOTALS		41.3	12.5	37.7	2	62.0	78.8

619.1000 MOBILIZATION

LOCATION	EACH
PROJECT 7846-03-70 (CATEGORY 0010)	0.2
PROJECT 7846-03-70 (CATEGORY 0020)	0.8
TOTAL	1

SALVAGED TOPSOIL, MULCHING, FERTILIZER, SEED & TEMPORARY SEED (CATEGORY 0010)						
STATION TO STATION	LOCATION	625.0500	627.0200	629.0210	630.0120	630.0200
		SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER TYPE B CWT	SEEDING NO. 20 LB	SEEDING TEMPORARY LB
Sta. 8+00 to Sta. 12+30	Mainline	1,075	1,510	1.2	49	45
Undistributed		---	150	0.3	11	15
TOTALS		1,075	1,660	1.5	60	60

SILT FENCE & SILT FENCE MAINTENANCE (CATEGORY 0010)			
STATION TO STATION	LOCATION	628.1504	628.1520
		LF	MAINTENANCE LF
Sta. 8+00 to Sta. 9+67	LT & RT	340	680
Sta. 10+32 to Sta. 12+30	LT & RT	476	952
TOTALS		816	1,632

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL (CATEGORY 0010)			
LOCATION	628.1905	628.1910	
	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	
PROJECT 7846-03-70	4	2	

628.2023 EROSION MAT CLASS II TYPE B (CATEGORY 0010)		
STATION TO STATION	LOCATION	SY
Sta. 9+23 to Sta. 9+45	RT	27
Sta. 9+25 to Sta. 9+45	LT	27
Sta. 10+55 to Sta. 11+35	LT	120
Sta. 10+55 to Sta. 10+73	RT	16
TOTAL		190

628.7015 INLET PROTECTION TYPE C	
LOCATION	EACH
STA. 9+28 PE, 14' LT	1
TOTAL	
	1

628.7504 TEMPORARY DITCH CHECKS (CATEGORY 0010)	
LOCATION	LF
UNDISTRIBUTED	40
TOTAL	
	40

634.0612 WOOD POSTS 4X6 INCH X 12 FT (CATEGORY 0010)		
STATION	LOCATION	EACH
Sta. 9+55.75	LT (Object Marker)	1
Sta. 9+55.76	RT (Object Marker)	1
Sta. 10+44.25	LT (Object Marker)	1
Sta. 10+44.25	RT (Object Marker)	1
TOTAL		4

637.2230 SIGNS TYPE II REFLECTIVE F (CATEGORY 0010)			
STATION			SF
Sta. 9+55.75	LT (Object Marker)	W5-52L	3
Sta. 9+55.76	RT (Object Marker)	W5-52R	3
Sta. 10+44.25	LT (Object Marker)	W5-52R	3
Sta. 10+44.25	RT (Object Marker)	W5-52L	3
TOTAL			12

SIGNS (CATEGORY 0010)					
EXISTING LOCATION	PROPOSED LOCATION	638.2102	638.2602	638.3000	638.4000
		MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	MOVING SMALL SIGN SUPPORTS EACH
Sta. 8+05, 20' RT	Sta. 8+15, 24' RT	1	---	---	1
Sta. 9+48, 16' RT	Sta. 9+40, 24' RT	1	---	---	1
Sta. 9+51, 19' LT & 14' RT	---	---	1	1	---
Sta. 10+49, 19' LT & 14' RT	---	---	1	1	---
Sta. 10+78, 21' RT	Sta. 10+75, 24' RT	1	---	---	1
Sta. 11+46, 25' LT	Sta. 12+10, 24' LT	1	---	---	1
TOTALS		4	2	2	4

642.5001 FIELD OFFICE TYPE B (CATEGORY 0010)

LOCATION	EACH
PROJECT 7846-03-70	1

643.0100 TRAFFIC CONTROL (CATEGORY 0010)

LOCATION	EACH
PROJECT 7846-03-70	1

646.0106 PAVEMENT MARKING EPOXY 4-INCH

STATION	LF
Sta. 8+00 to Sta 12+30 DOUBLE SOLID YELLOW	860
Sta. 8+00 to Sta 12+30 WHITE EDGELINES	860
TOTAL	1720

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.4000	650.4500	650.5000	650.5500	650.6500	650.9910	650.9920
		STORM	SUBGRADE	BASE	CURB &	STRUCTURE	SUPPLEMENTARY	SLOPE
		SEWER	LF	LF	GUTTER	LAYOUT	CONTROL	STAKES
		EACH			LF	LS	LS	LF
0010	Sta. 8+00 to Sta. 12+30	3	342	342	175	---	1	342
0020	B-10-0223	---	---	---	---	1	---	---
TOTALS		3	342	342	175	1	1	342

690.0150 SAWING ASPHALT (CATEGORY 0010)

STATION	LOCATION	LF
Sta. 8+00	Mainline	26
Sta. 12+30	Mainline	23
TOTAL		49

CONVENTIONAL ABBREVIATIONS

ACCESS POINT/ DRIVEWAY CONNECTION	AP	REFERENCE LINE	R/L
ACCESS RIGHTS	AR	RELEASE OF RIGHTS	ROR
ACRES	AC	REMAINING	REM
AND OTHERS	ET AL	RIGHT-OF-WAY	R/W
CENTERLINE	C/L	SECTION	SEC
CERTIFIED SURVEY MAP	CSM	STATION	STA
CORNER	COR	TEMPORARY LIMITED EASEMENT	TLE
DOCUMENT	DOC	VOLUME	V
EASEMENT	EASE	CURVE DATA	
HIGHWAY EASEMENT	H.E.	LONG CHORD	LCH
LAND CONTRACT	LC	LONG CHORD BEARING	LCB
MONUMENT	MON	RADIUS	R
PAGE	PAGE	DEGREE OF CURVE	D
PERMANENT LIMITED EASEMENT	P.L.E.	CENTRAL ANGLE OR DELTA	DELTA
PROPERTY LINE	PL	LENGTH OF CURVE	L
RECORDED AS	(100')	TANGENT	TAN

CONVENTIONAL SYMBOLS

(1" UNLESS NOTED)

FOUND IRON PIPE/PIN

R/W MONUMENT

R/W STANDARD

SIGN

SECTION CORNER MONUMENT

SECTION CORNER SYMBOL

FEE (HATCH VARIES)

TEMPORARY LIMITED EASEMENT

PERMANENT LIMITED EASEMENT

R/W BOUNDARY POINT

PARCEL NUMBER

UTILITY PARCEL NUMBER

SIGN NUMBER (OFF PREMISE)

BUILDING

CONVENTIONAL UTILITY SYMBOLS

WATER

GAS

TELEPHONE

OVERHEAD

TRANSMISSION LINES

ELECTRIC

CABLE TELEVISION

FIBER OPTIC

SANITARY SEWER

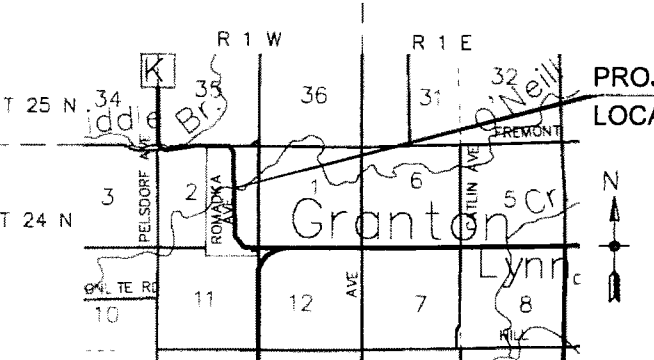
STORM SEWER

POWER POLE

TELEPHONE POLE

TELEPHONE PEDESTAL

ELECTRIC TOWER



NOTES

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, CLARK COUNTY, NAD83 (2011) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 (3/4" X 24" IRON STAKES, WEIGHING 1.50LBS/LF) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

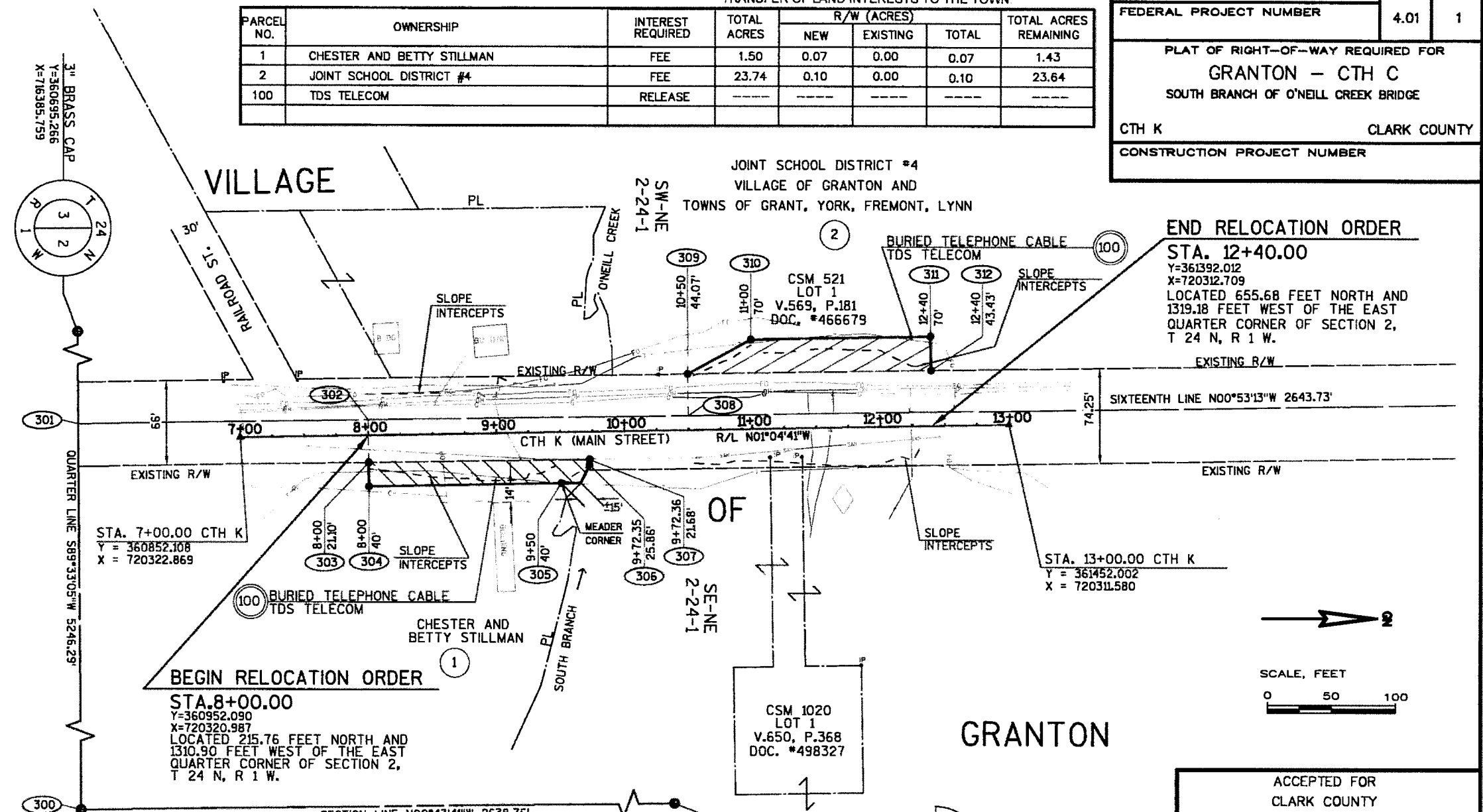
EXISTING RIGHT-OF-WAY FOR CTH K WAS DETERMINED FROM EXISTING PROPERTY MONUMENTATION/DEEDS, CERTIFIED SURVEY MAP 521 RECORDED IN VOLUME 569, PAGE 181 AS DOCUMENT NUMBER 466679, AND CONVEYANCE OF LANDS FOR HIGHWAY PURPOSES DOCUMENT NUMBER 217044 DATED FEBRUARY 15TH, 1937.

SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NO.	OWNERSHIP	INTEREST REQUIRED	TOTAL ACRES	R/W (ACRES)			TOTAL ACRES REMAINING
				NEW	EXISTING	TOTAL	
1	CHESTER AND BETTY STILLMAN	FEE	1.50	0.07	0.00	0.07	1.43
2	JOINT SCHOOL DISTRICT #4	FEE	23.74	0.10	0.00	0.10	23.64
100	TDS TELECOM	RELEASE	---	---	---	---	---

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE TOWN

R/W PROJECT NUMBER	7846-03-00	SHEET NUMBER	4.01	TOTAL SHEETS	1
FEDERAL PROJECT NUMBER	PLAT OF RIGHT-OF-WAY REQUIRED FOR GRANTON - CTH C SOUTH BRANCH OF O'NEILL CREEK BRIDGE				
CTH K	CLARK COUNTY				
CONSTRUCTION PROJECT NUMBER					



PARCEL 1 FEE

COURSE	BEARING	DISTANCE	PT NO	Y	X
300-301	S89° 33' 05"W	1319.74'	300	360736.335	721631.884
301-302	N00° 53' 13"W	225.88'	301	360726.004	720312.185
302-303	N88° 55' 19"E	33.40'	302	360951.859	720308.689
303-304	N88° 55' 19"E	18.90'	303	360952.487	720342.083
304-305	N01° 04' 41"W	150.00'	304	360952.842	720360.980
305-306	N33° 23' 52"W	26.45'	305	361102.816	720358.158
306-307	S89° 05' 45"W	4.19'	306	361124.895	720343.601
307-303	S00° 53' 13"E	172.36'	307	361124.829	720339.415

PARCEL 2 FEE

COURSE	BEARING	DISTANCE	PT NO	Y	X
300-301	S89° 33' 05"W	1319.74'	300	360736.335	721631.884
301-308	N00° 53' 13"W	475.88'	301	360726.004	720312.185
308-309	S88° 55' 19"W	32.60'	308	361201.830	720304.819
309-310	N28° 29' 32"W	56.33'	309	361201.217	720272.225
310-311	N01° 04' 41"W	140.00'	310	361250.720	720245.355
311-312	N88° 55' 19"E	26.57'	311	361390.695	720242.721
312-309	S00° 53' 13"E	190.00'	312	361391.195	720269.284

ACCEPTED FOR CLARK COUNTY

6-23-14

DATE

County Commissioner

PLAT PREPARED BY

AYRES ASSOCIATES

THIS SURVEY IS PREPARED AT THE REQUEST OF CLARK COUNTY HIGHWAY DEPARTMENT THE FIELD SURVEY WAS PERFORMED APRIL, 2013 THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

WISCONSIN

JOHN C. FAVORITE

S-1890

MADISON WI

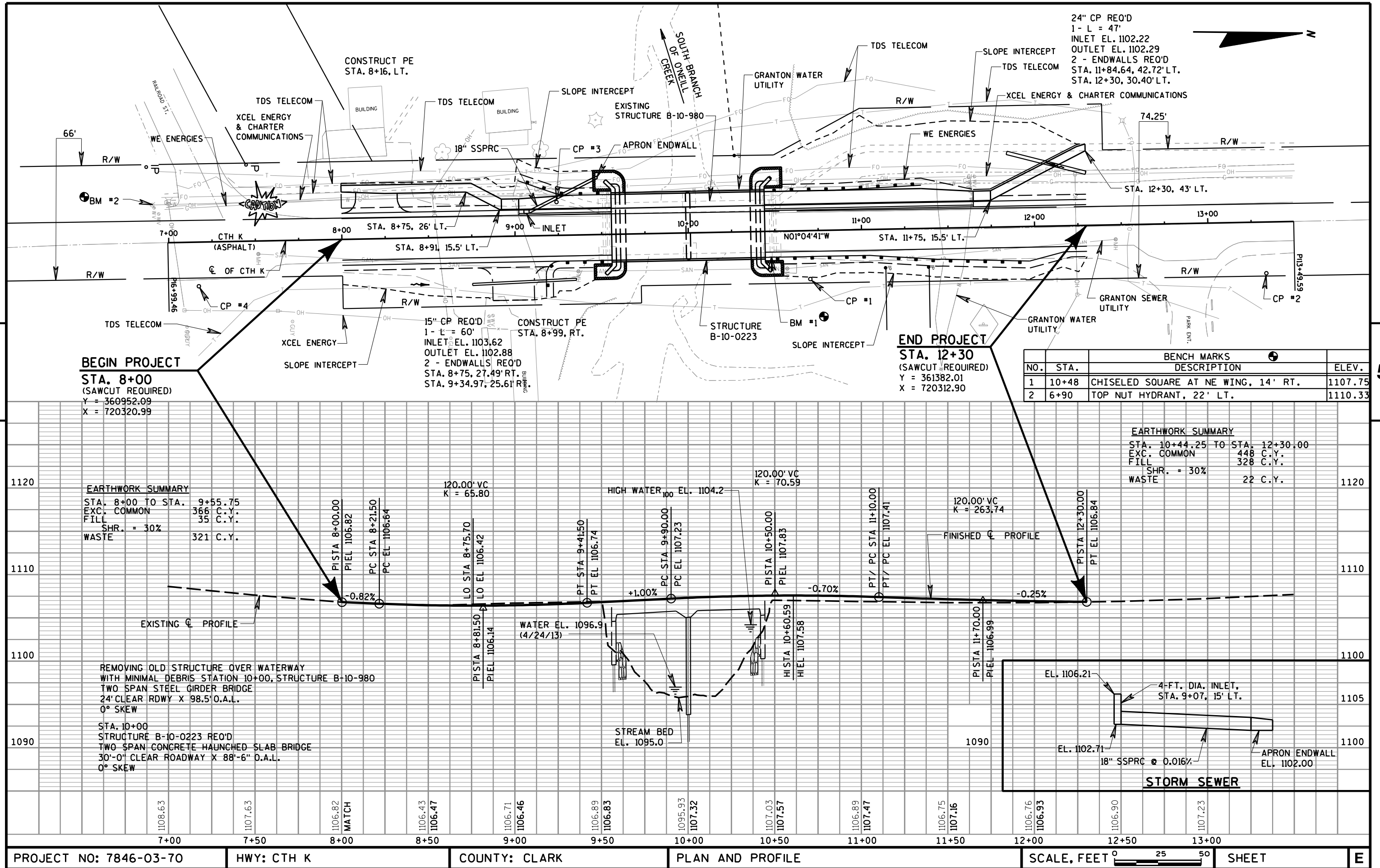
LAND SURVEYOR

DATE

June 16, 2014

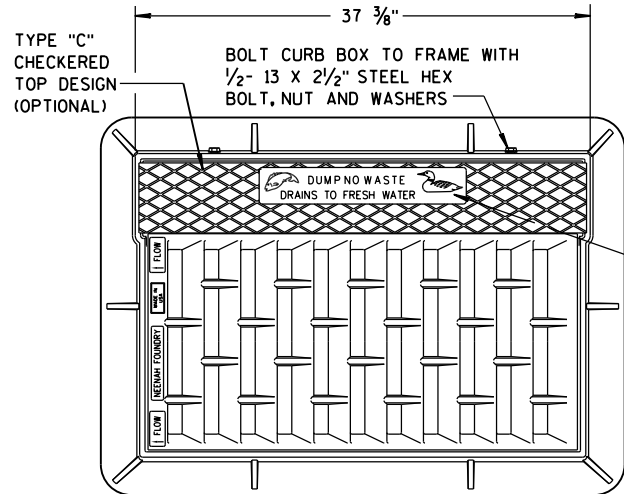
JOHN C. FAVORITE, R.L.S.

S-1890

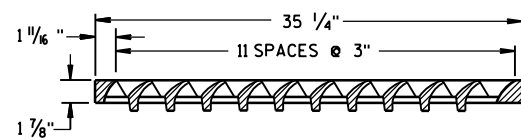
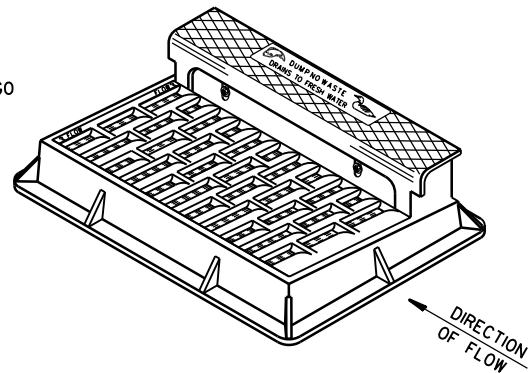


Standard Detail Drawing List

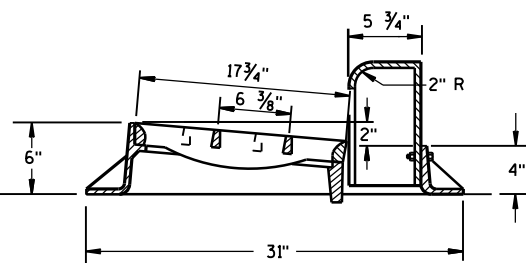
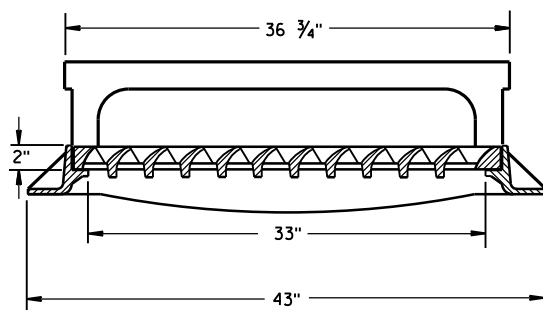
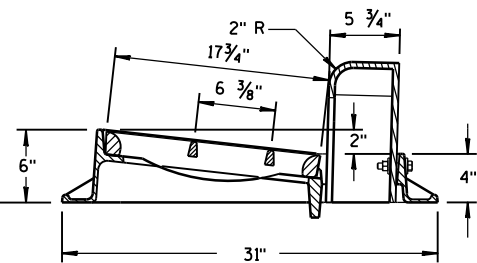
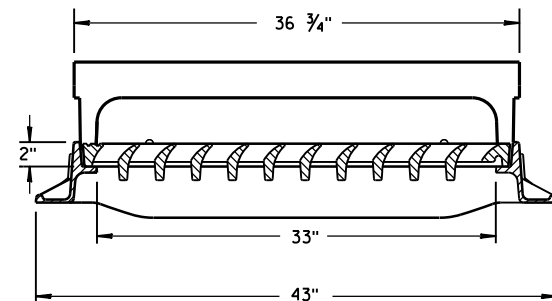
08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08C06-01	INLETS 3-FT AND 4-FT DIAMETER
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
14B15-08A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDERoads/DRI VEWAYS)
14B20-11A	STEEL THRI E BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11F	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-03A	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-03B	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B42-03C	MIDWEST GUARDRAI L SYSTEM (MGS) GUARDRAI L
14B44-02A	MIDWEST GUARDRAI L SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAI L SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAI L SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-03B	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-03C	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-03D	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
14B45-03H	MIDWEST GUARDRAI L SYSTEM THRI E BEAM TRANSI TION (MGS)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



NOTE:
GRATE IS REVERSIBLE.

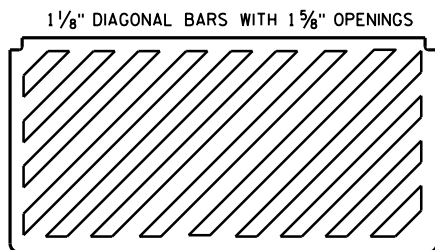


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

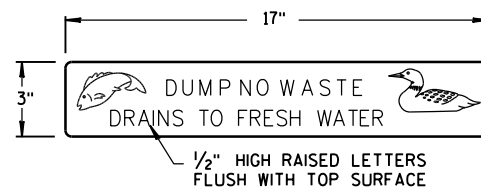


TYPE "H"

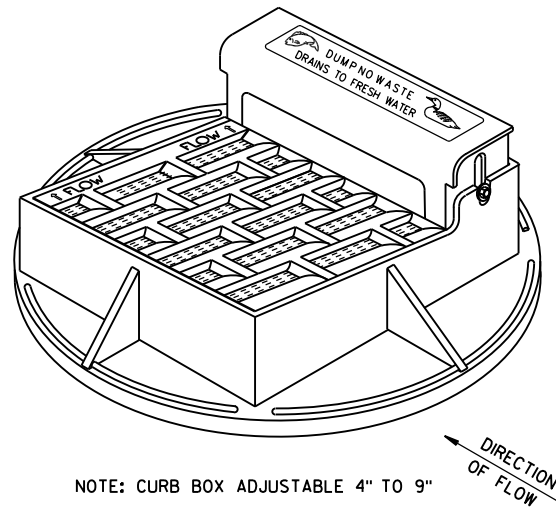
NOTE: EITHER CASTING IS ACCEPTABLE



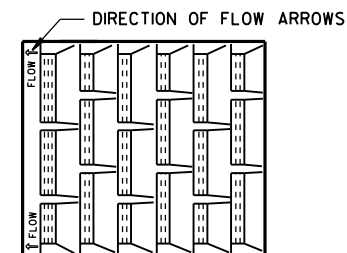
SPECIAL GRATE FOR
TYPE "H" COVER
(MEASURES 35 1/4" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)



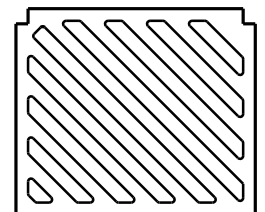
LOGO DETAIL



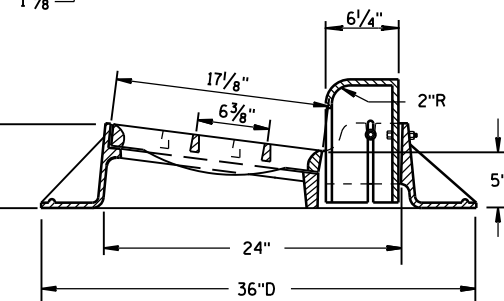
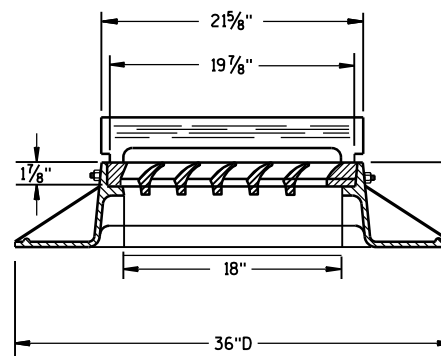
NOTE:
GRATE IS REVERSIBLE.



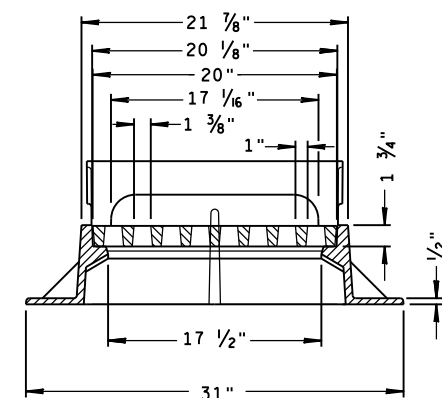
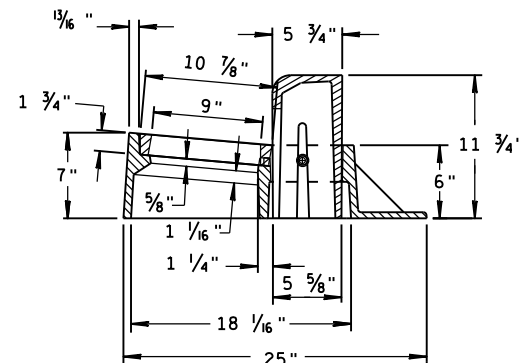
1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



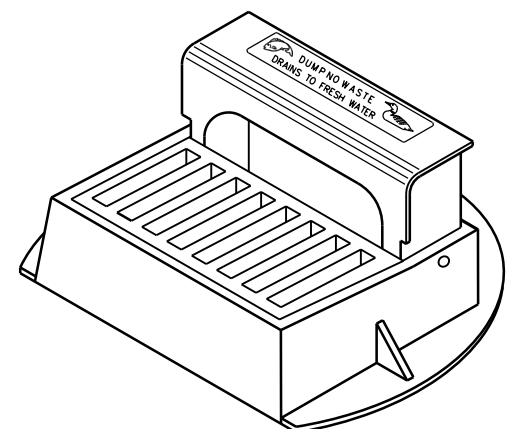
SPECIAL GRATE FOR
TYPE "A" COVER
(MEASURES 19 3/4" X 17" X 1 1/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "A"



TYPE "Z"

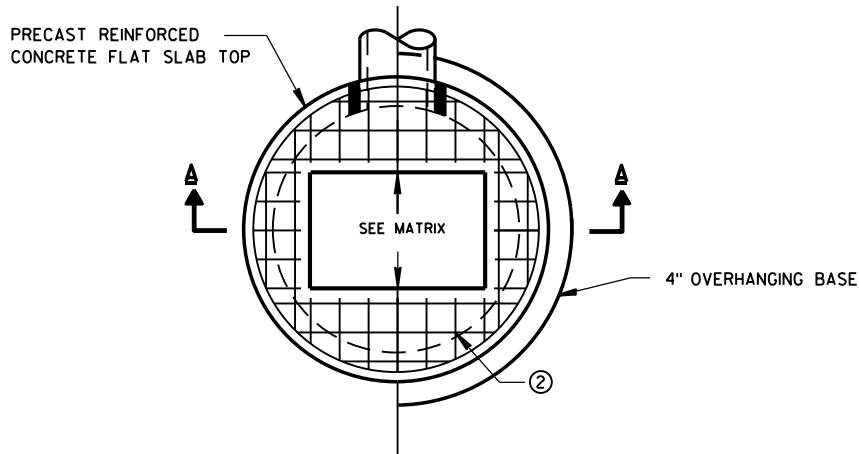


INLET COVERS
TYPE A, H, A-S, H-S & Z

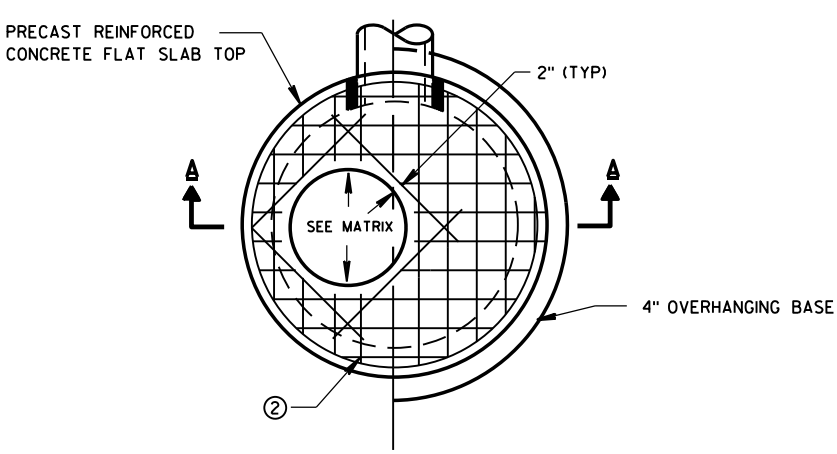
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
II-27-13
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

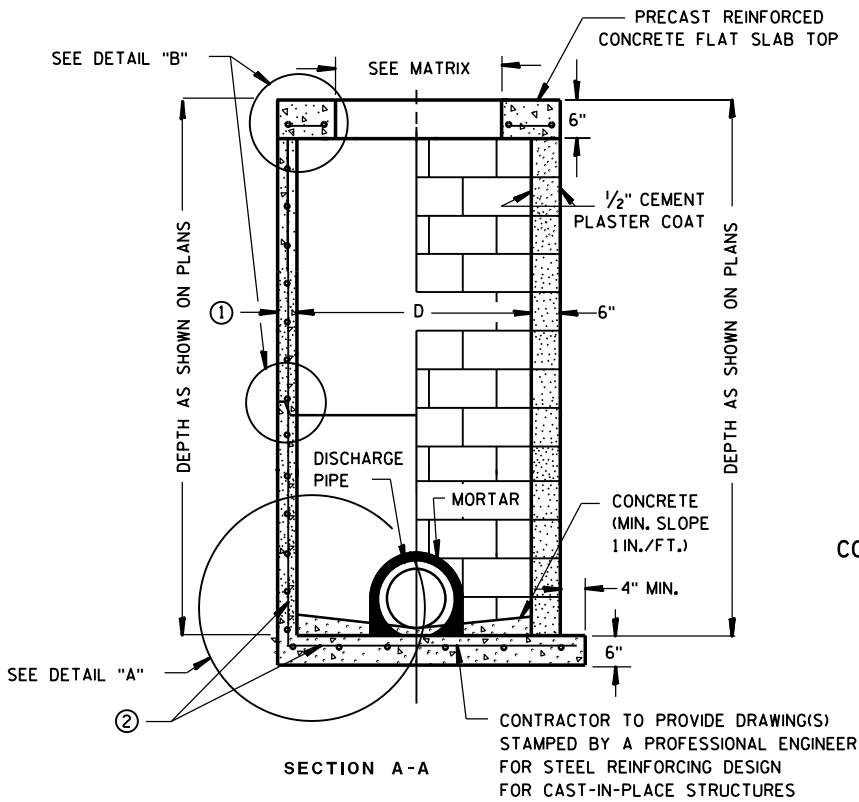


PLAN VIEW RECTANGULAR OPENING



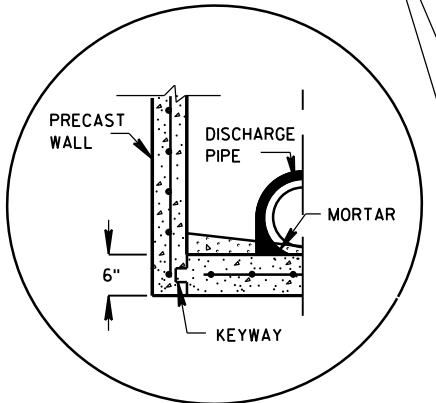
PLAN VIEW CIRCULAR OPENING

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

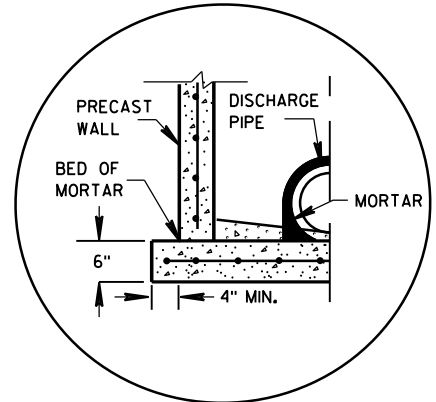


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE **CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

CIRCULAR INLETS W/ FLAT TOP

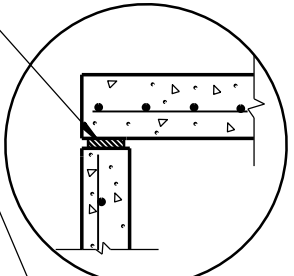


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

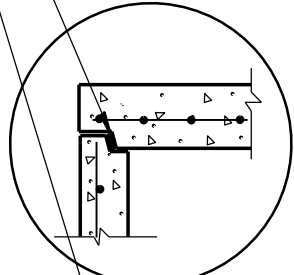


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

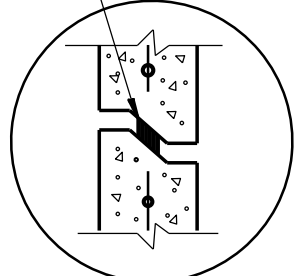
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

INLETS 3-FT AND 4-FT DIAMETER

GENERAL NOTES

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

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

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

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

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

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

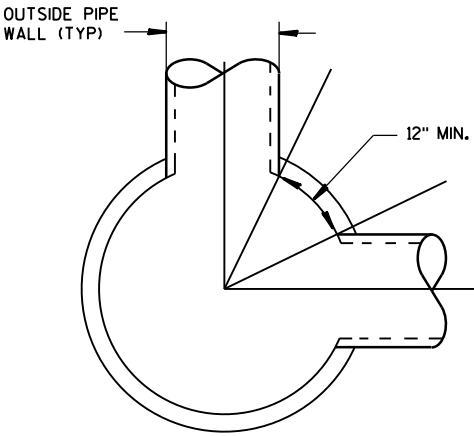
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X	X	X	X	
	2X2.5			X								
	2X3						X					
	2.5X3					X						



DETAIL "C"

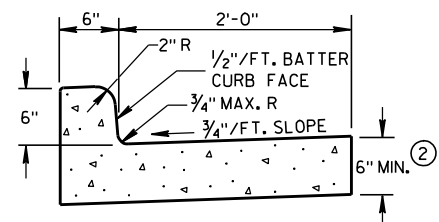
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

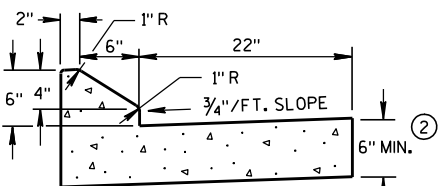
INLETS 3-FT AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

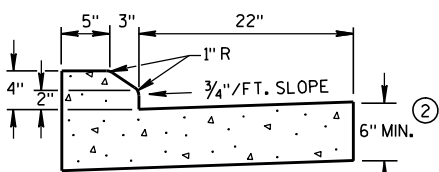
APPROVED
6/5/2012 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



TYPES A & D ①



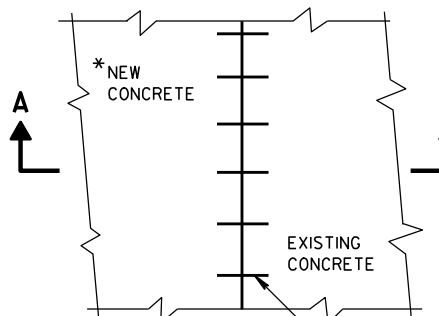
6" SLOPED CURB TYPES G & J ①



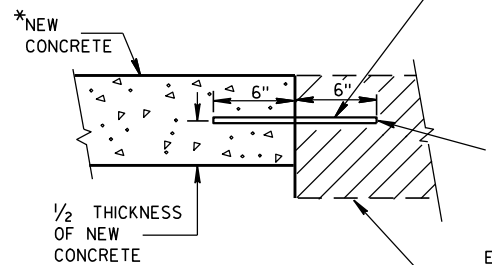
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

* NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.



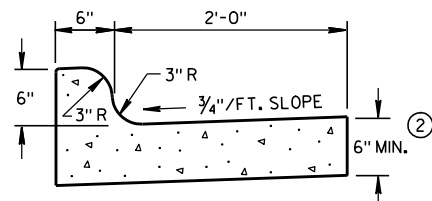
PLAN VIEW

SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

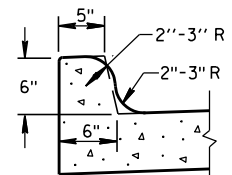
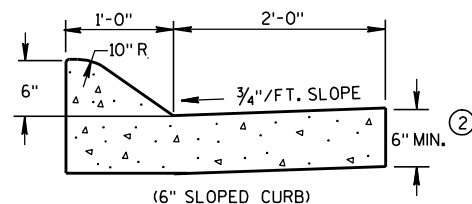
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

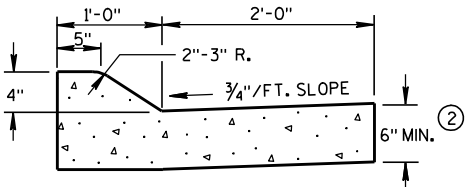
EXISTING
CONCRETE



TYPES K & L ①

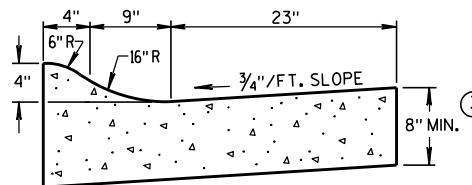
OPTIONAL CURB SHAPE
FOR TYPES K & L ①

(6" SLOPED CURB)



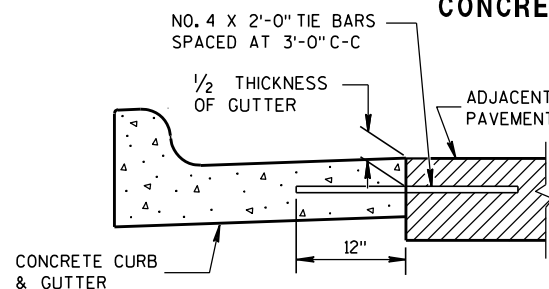
(4" SLOPED CURB)

TYPES A & D ①

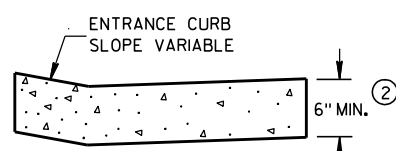


4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

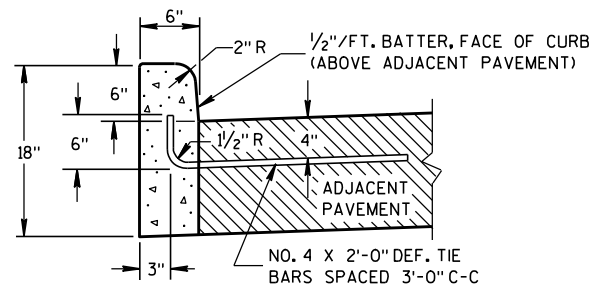


TYPICAL TIE BAR LOCATION ①



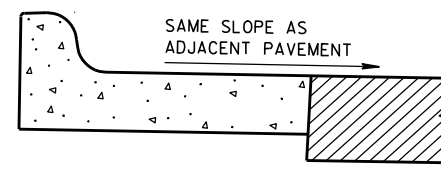
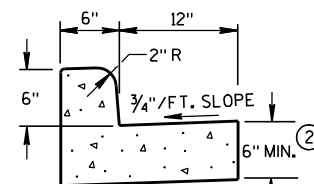
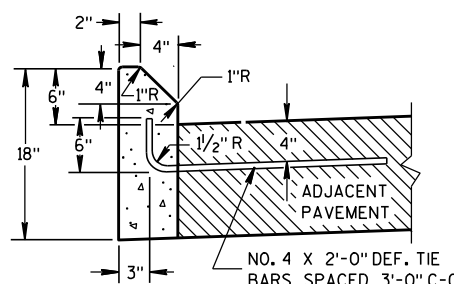
DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)



TYPES A & D ①

CONCRETE CURB

REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)TYPES A & D
CONCRETE CURB & GUTTER 18"

TYPES G & J ①

GENERAL NOTES

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

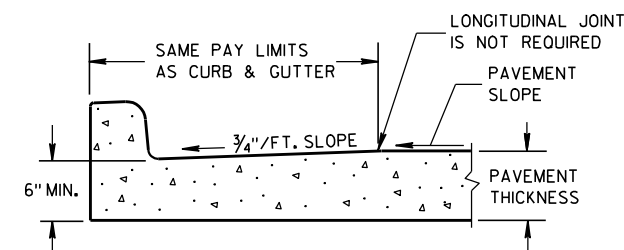
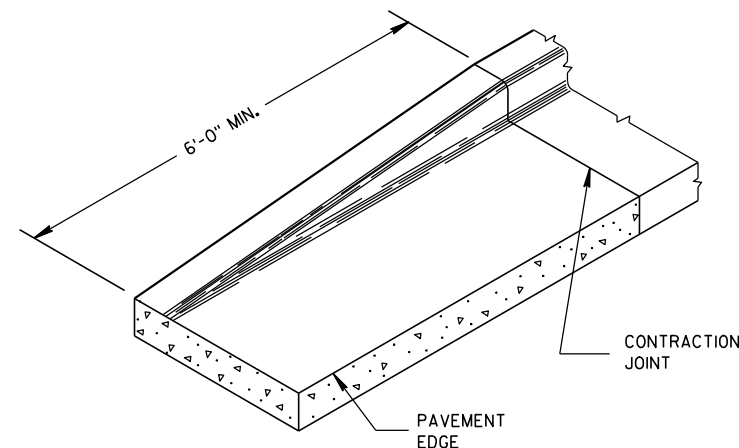
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER

END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

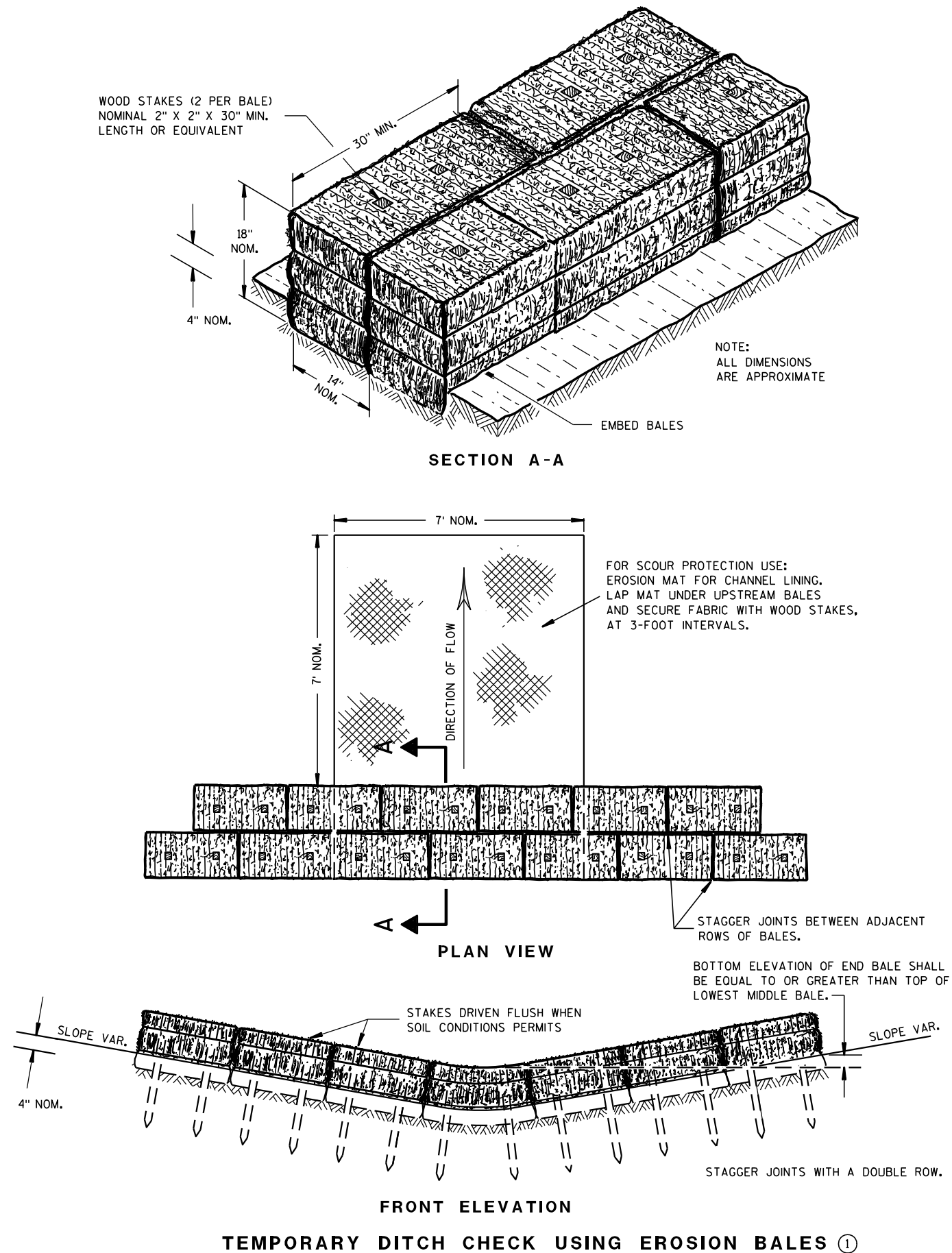
APPROVED

9/4/08

DATE

FHWA

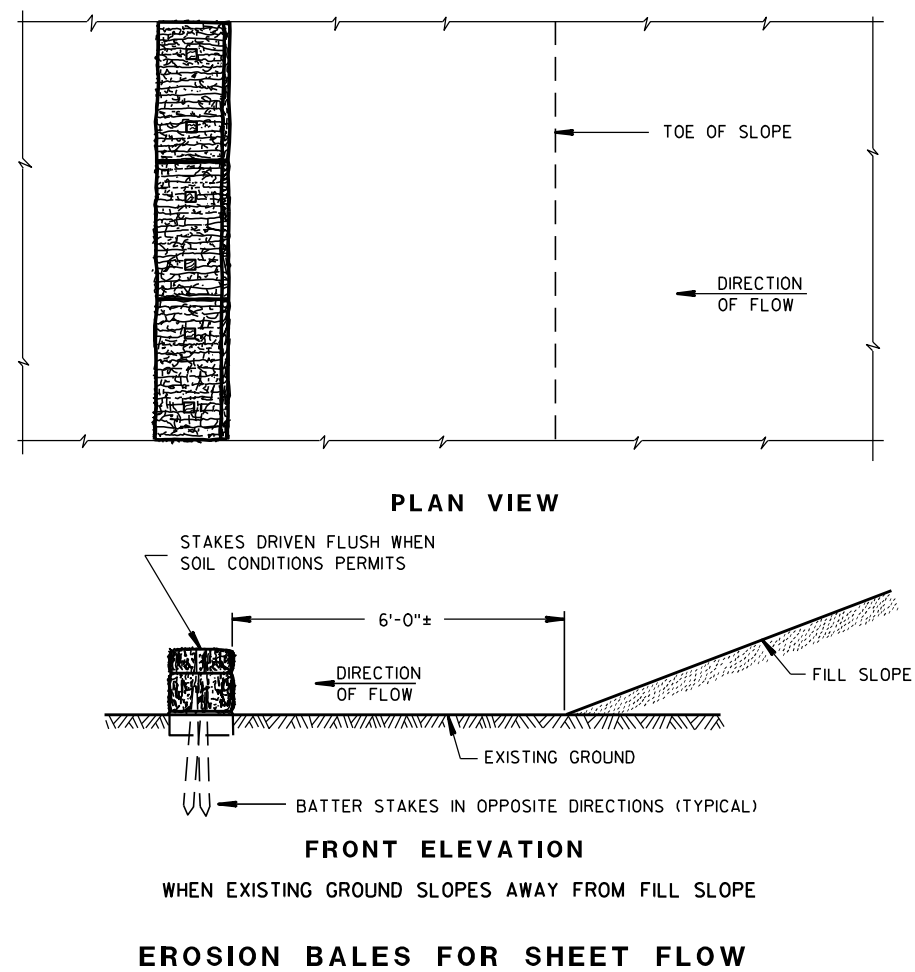
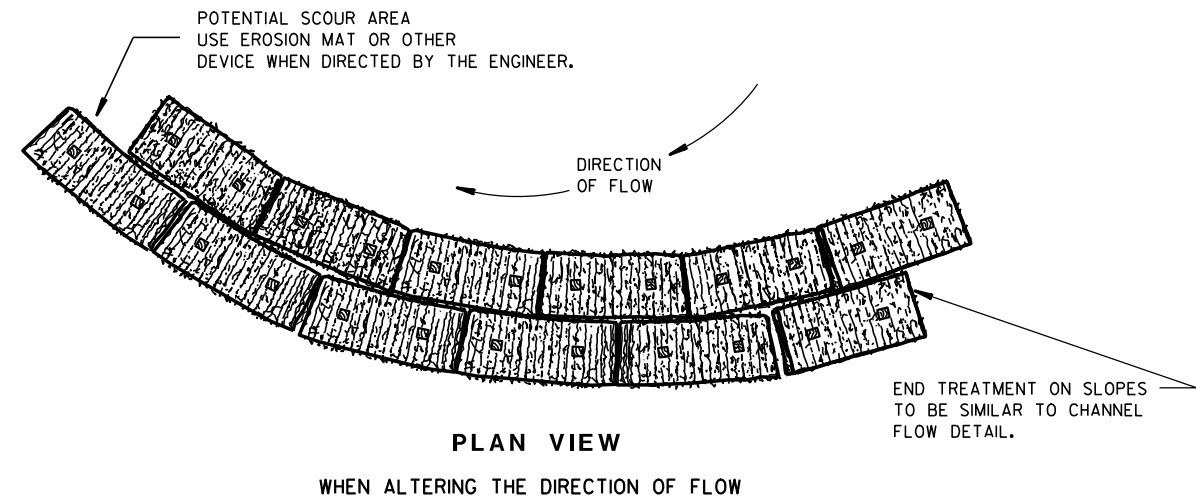
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



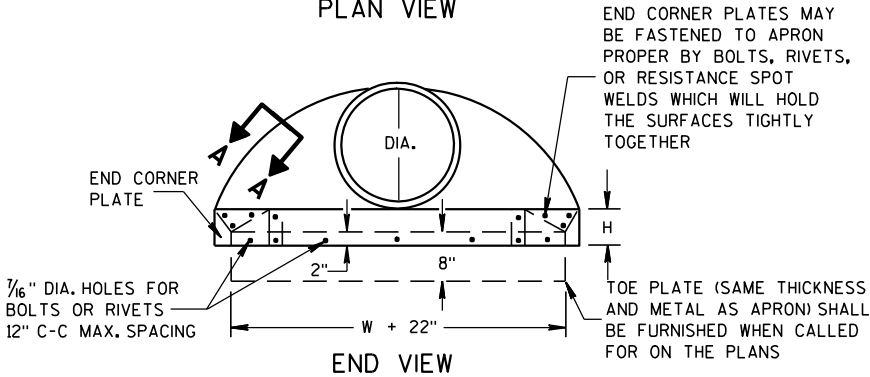
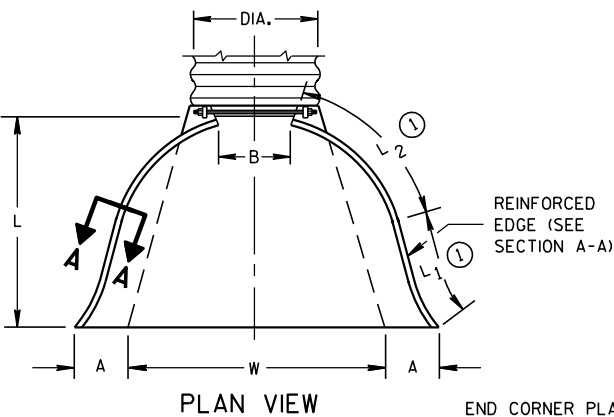
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



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

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

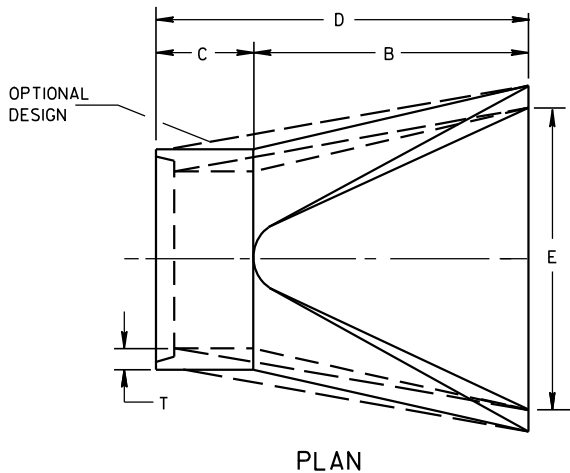
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



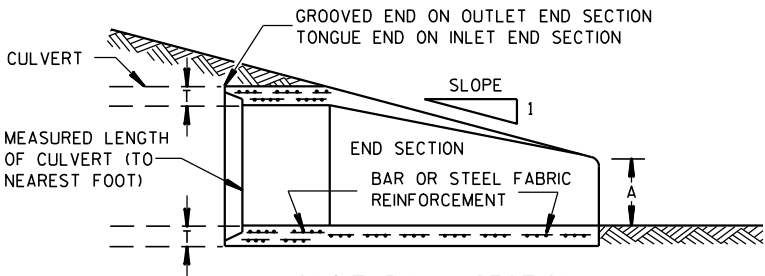
METAL ENDWALLS

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

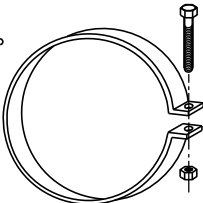
* MINIMUM
** MAXIMUM



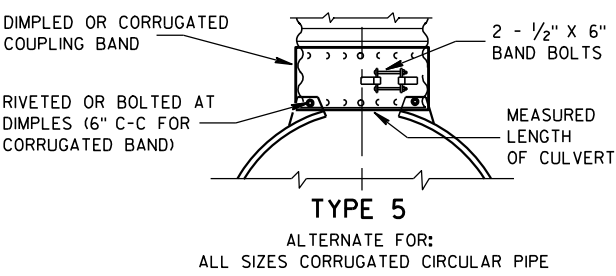
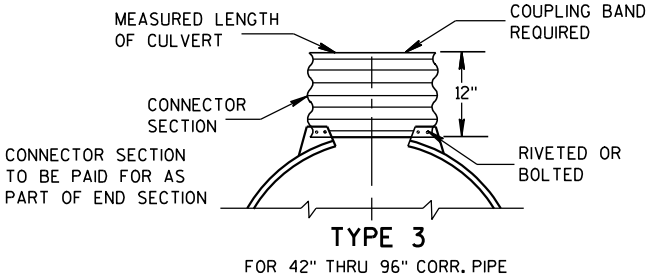
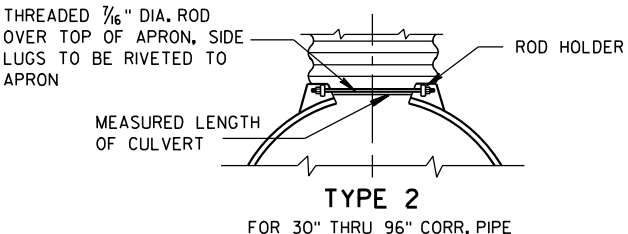
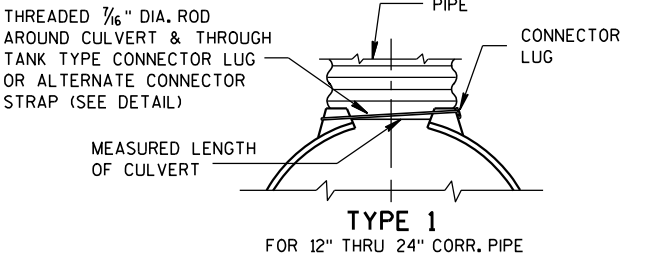
CONCRETE ENDWALLS



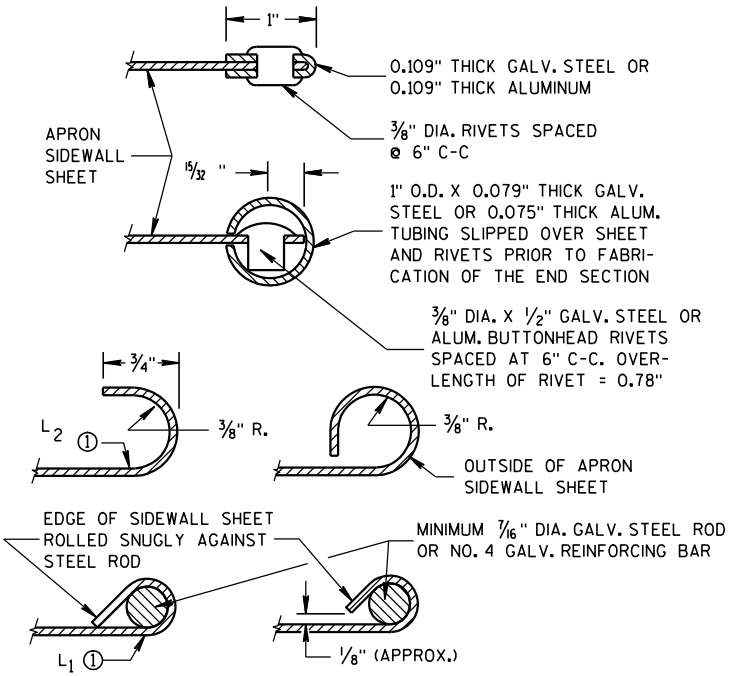
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



CONNECTION DETAILS



GENERAL NOTES

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

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

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

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

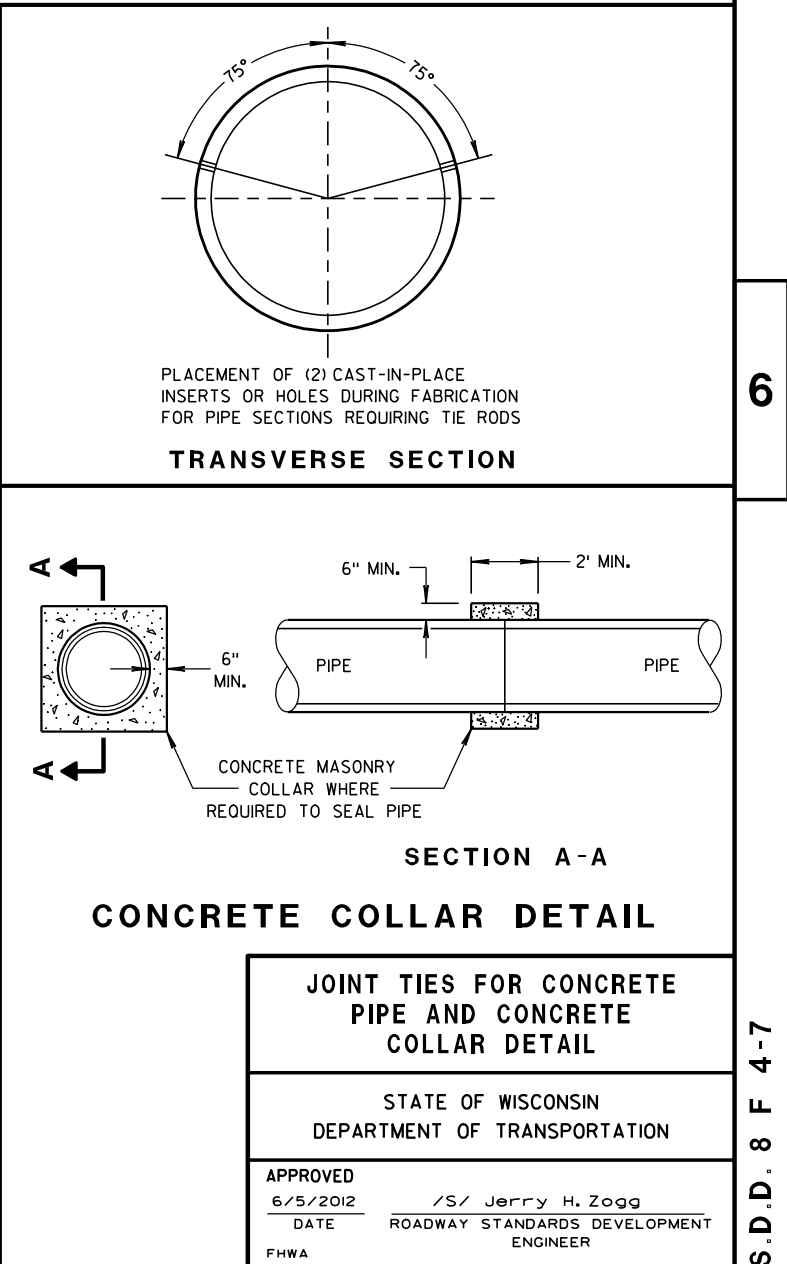
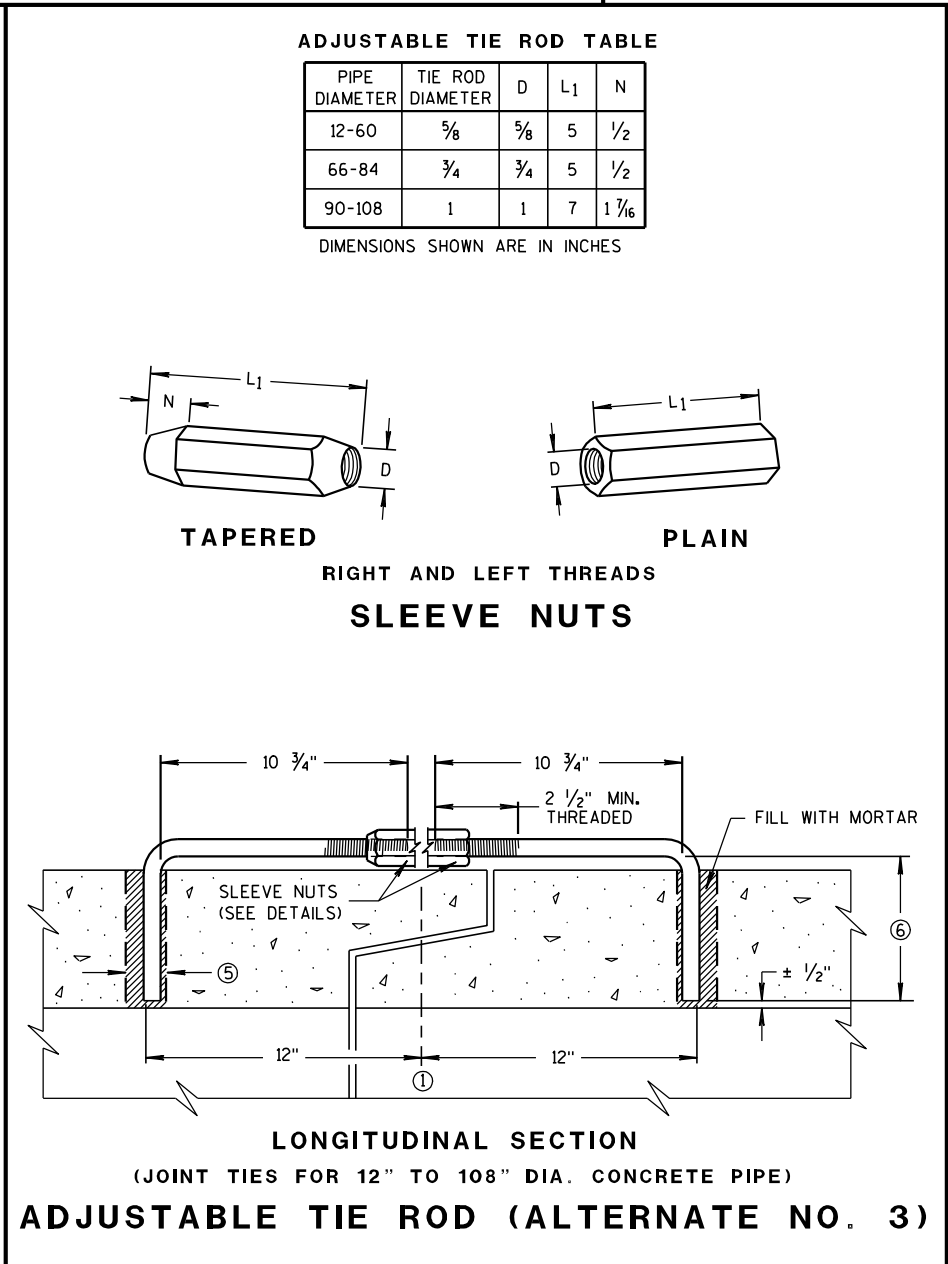
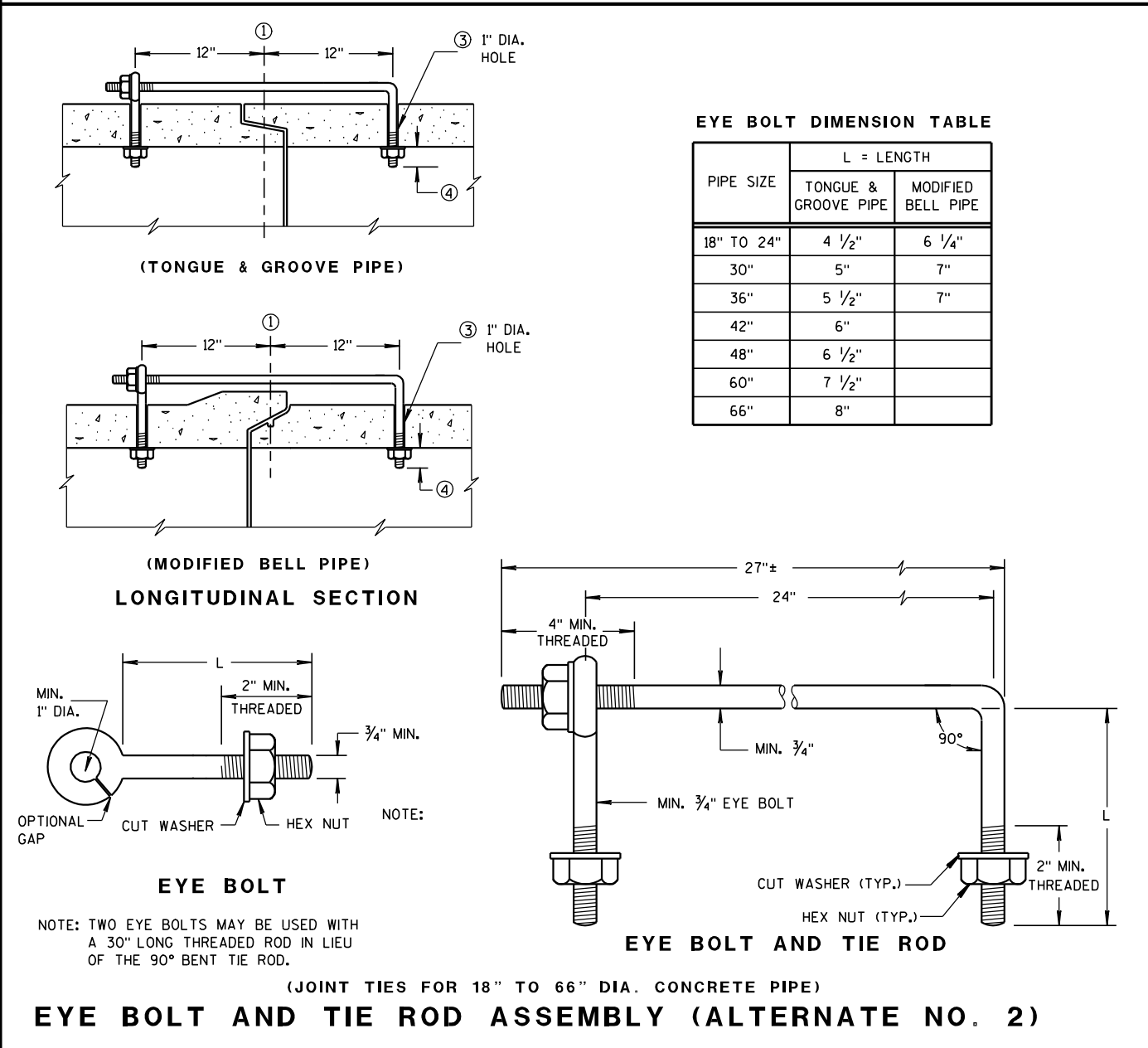
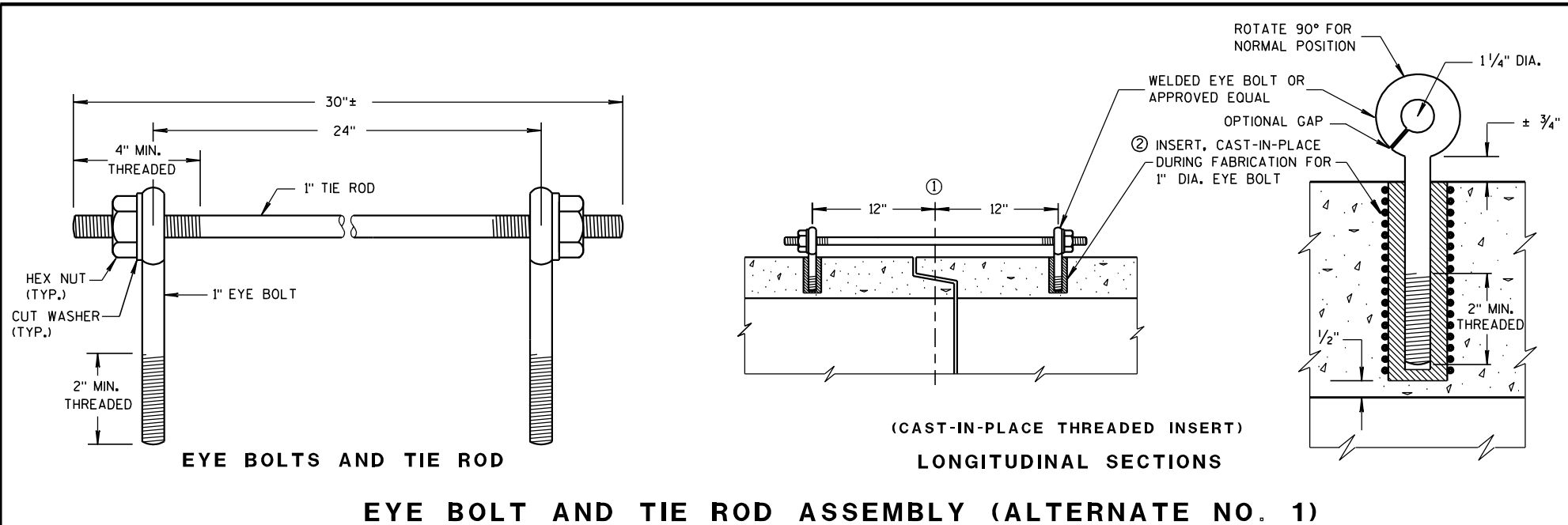
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

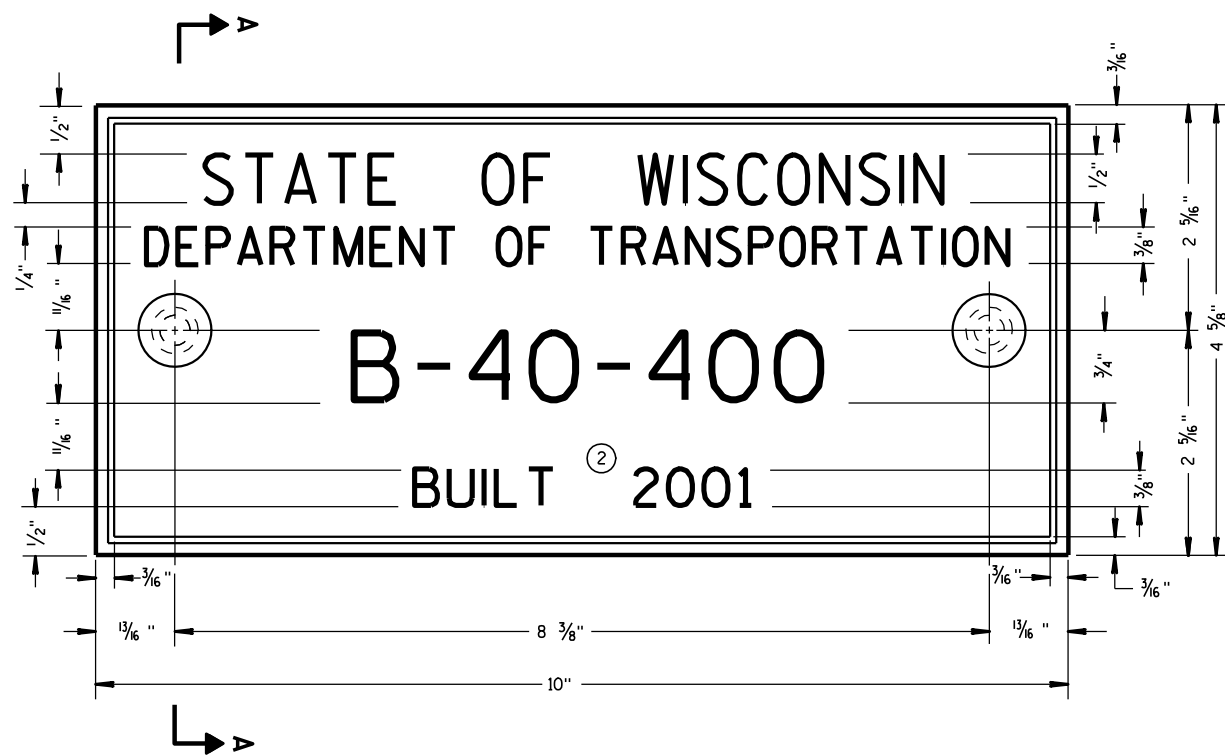
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
CULVERT PIPE

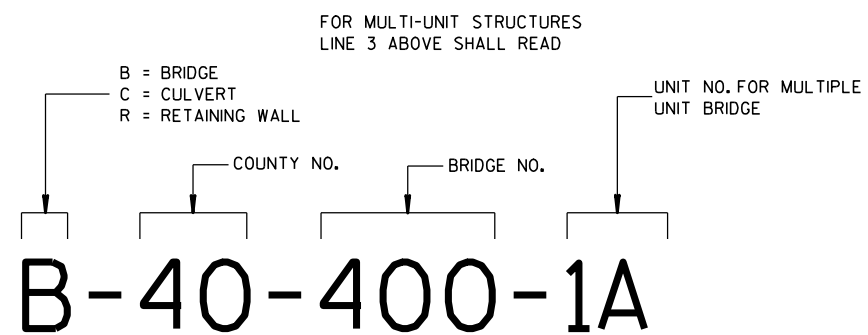
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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





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



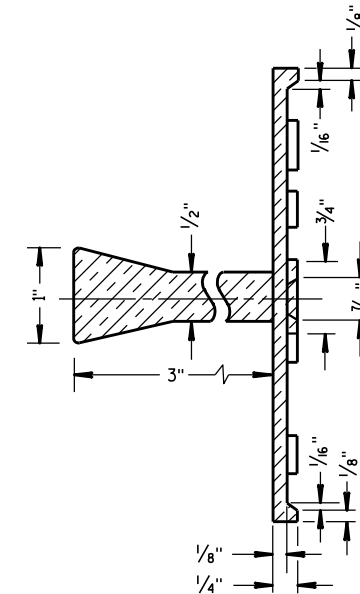
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

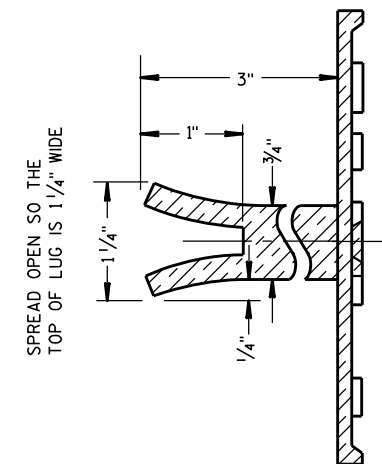
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

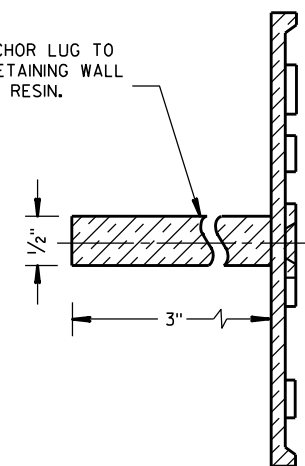


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

FHWA

/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

6

S.D.D. 14 B 15-8a

- 6

S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



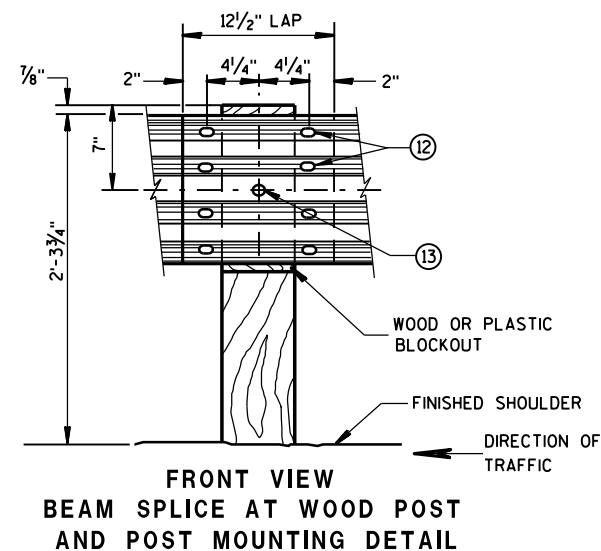
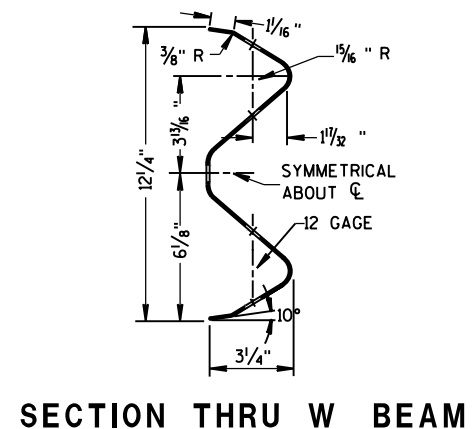
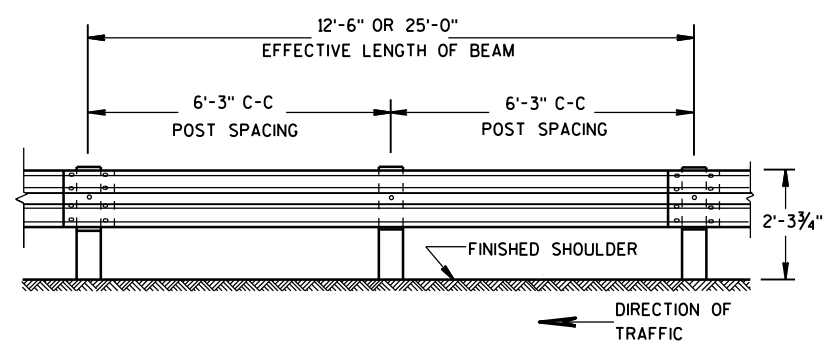
S.D.D. 14 B 15-8a



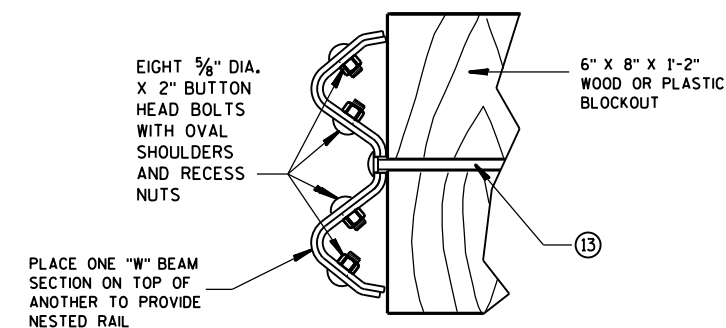
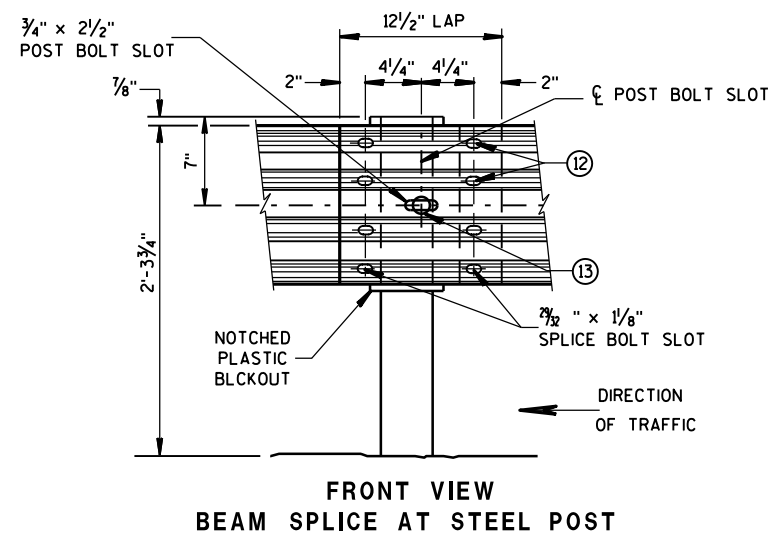
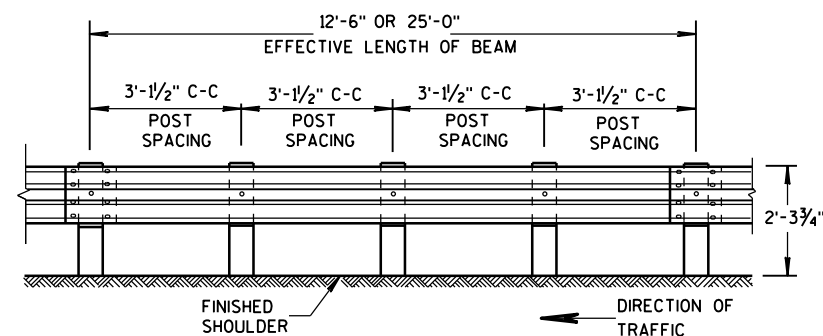
S.D.D. 14 B 15-8a

S.D.D. 14 B 15-8a

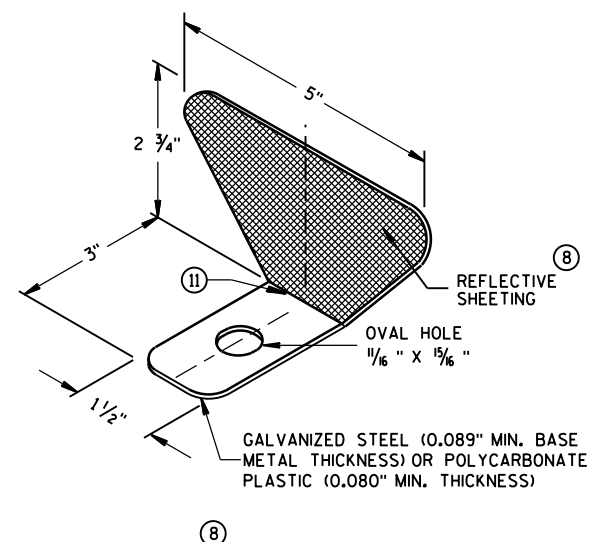
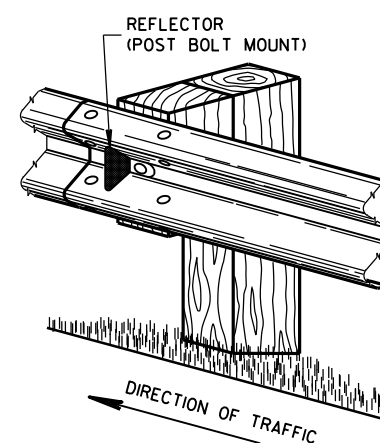
S.D.D. 14 B 15-8a



- ## GENERAL NOTES
- ⑧ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑩ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - ⑪ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
 - ⑫ 8 - $\frac{5}{8}$ " ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
 - ⑬ $\frac{5}{8}$ " DIA. BUTTON HEAD BOLT AND RECESS NUT WITH $\frac{5}{8}$ " DIA. F844 FLAT WASHER UNDER NUT.

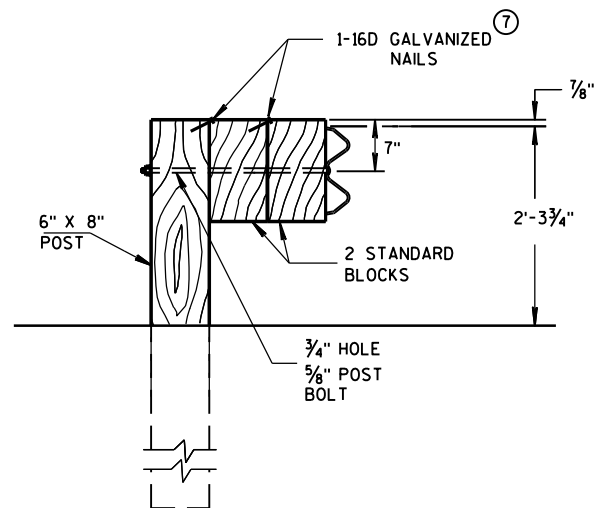


	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 1 ⁽¹⁰⁾	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⁽¹¹⁾	3



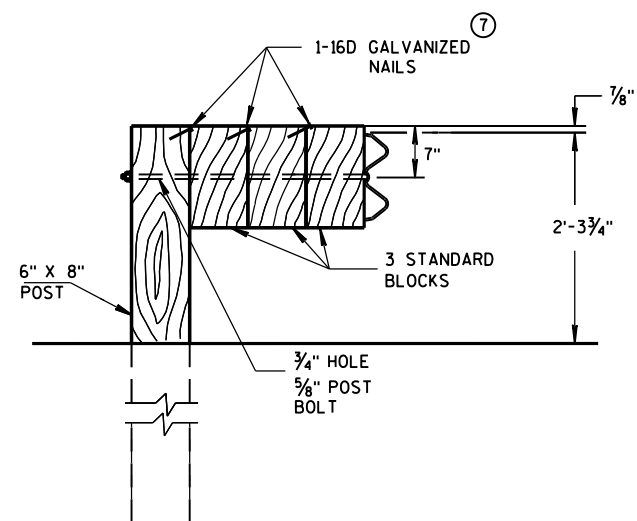
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

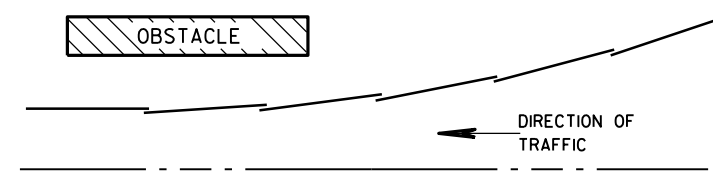


DETAIL FOR TRIPLE BLOCKS

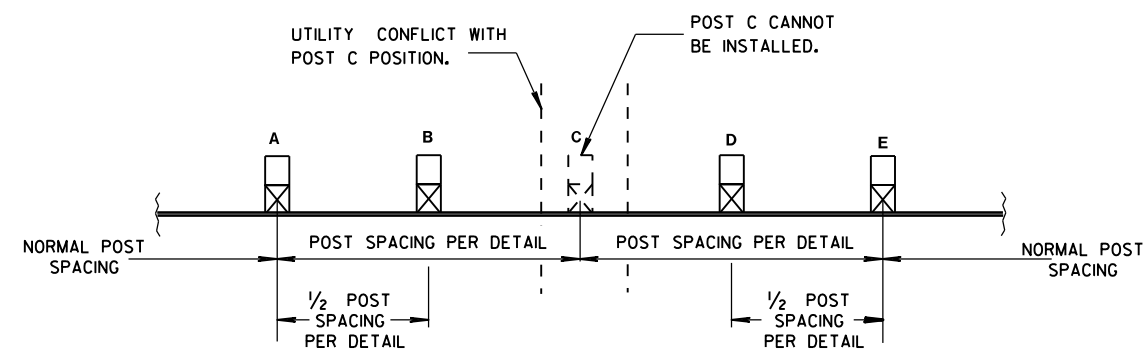
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA 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.



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

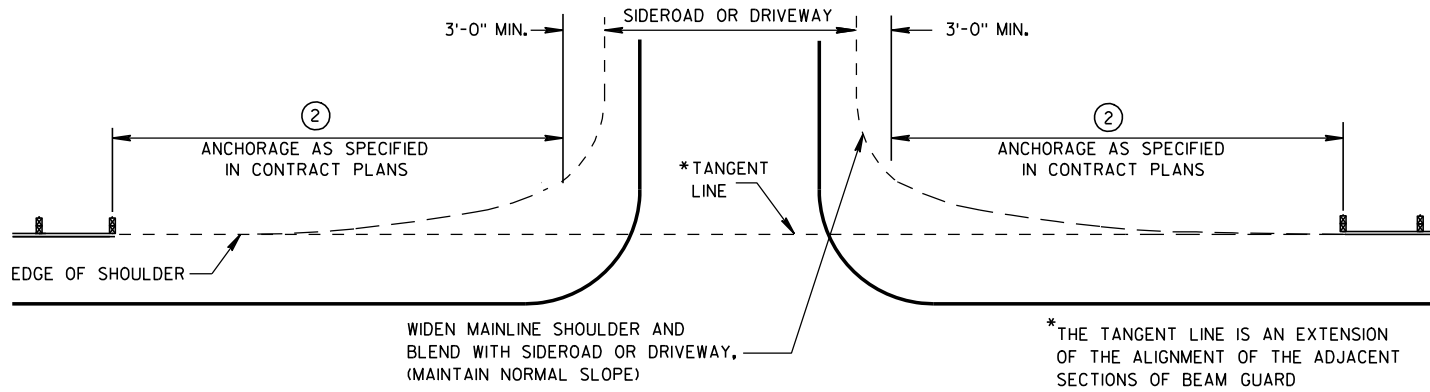
APPROVED

June 2014

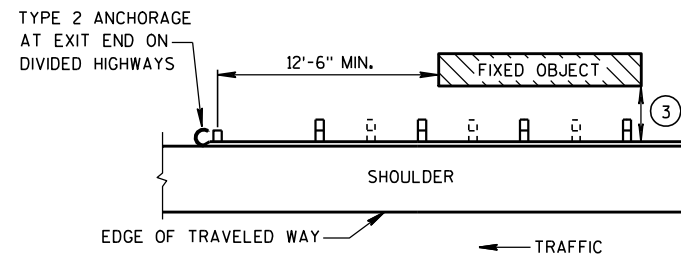
DATE

FHWA

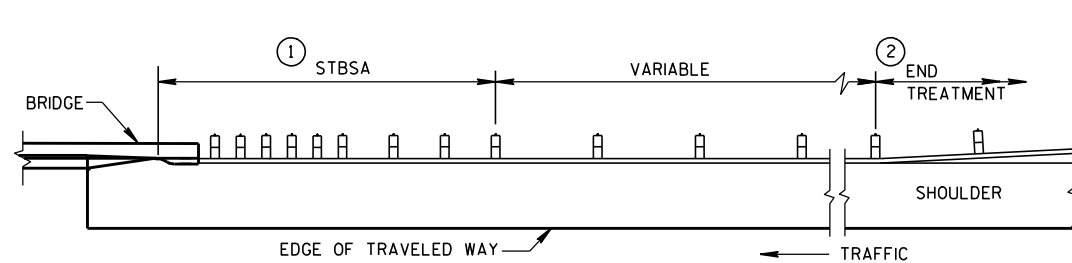
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



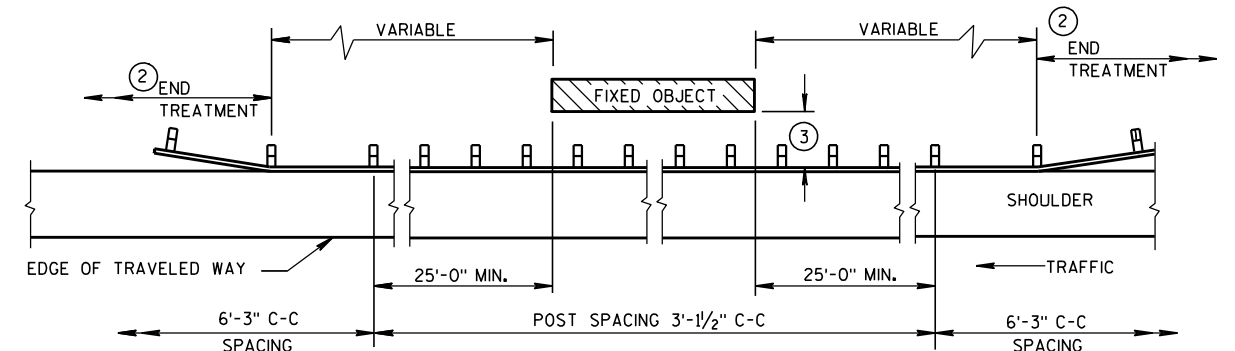
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

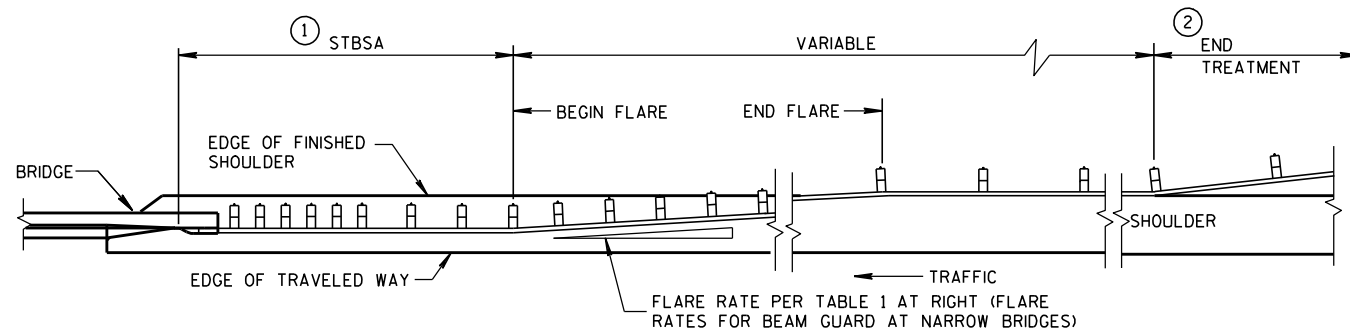


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

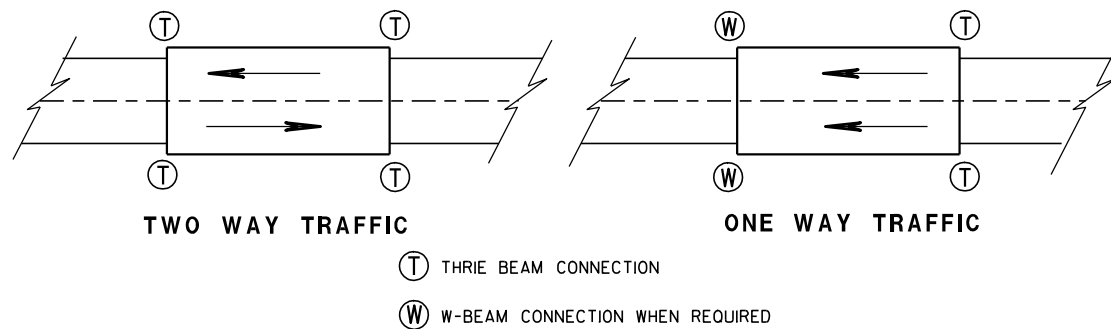
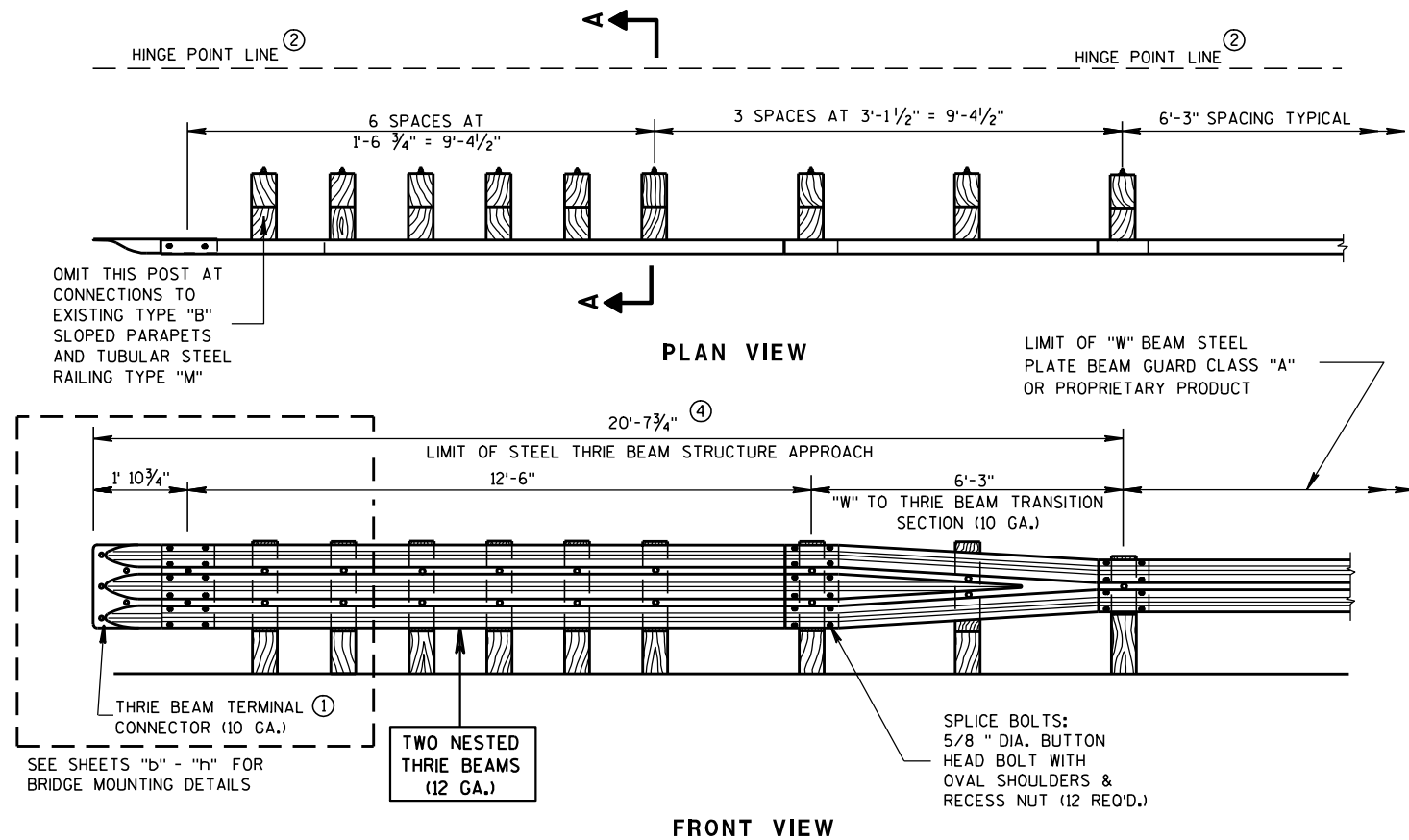
- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

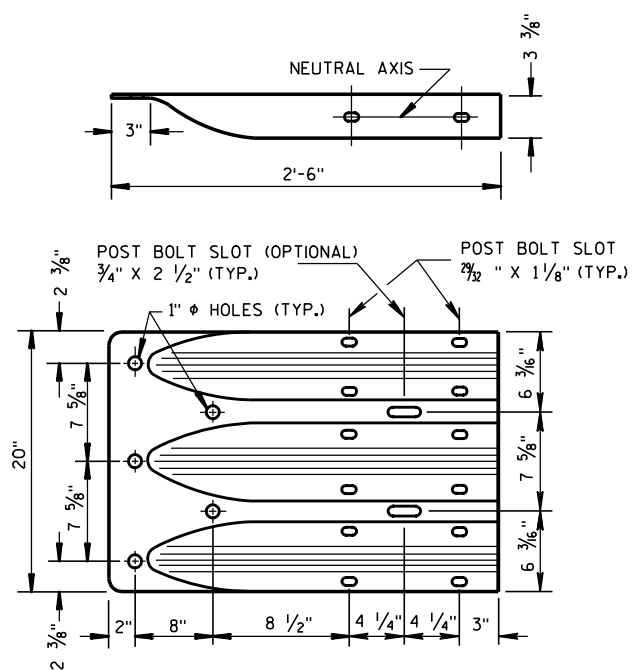
STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

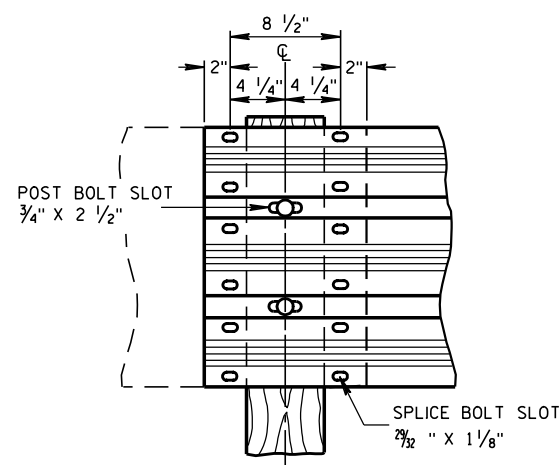
APPROVED
8-21-07
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



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



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

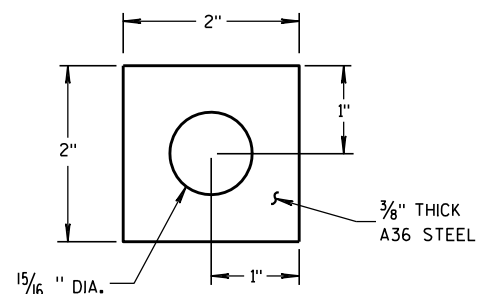
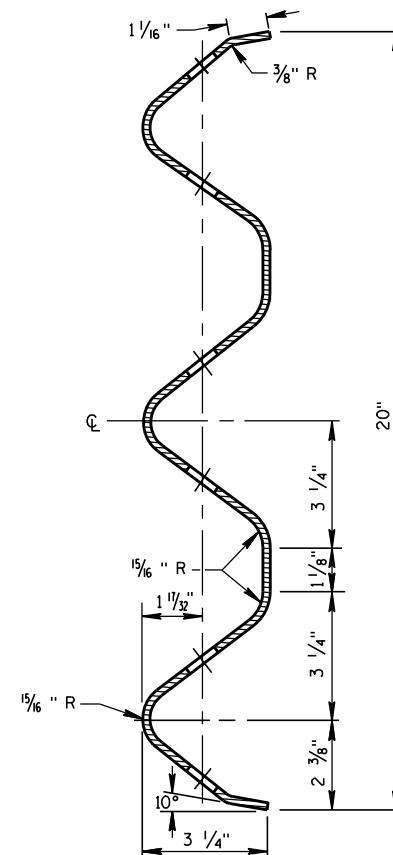


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

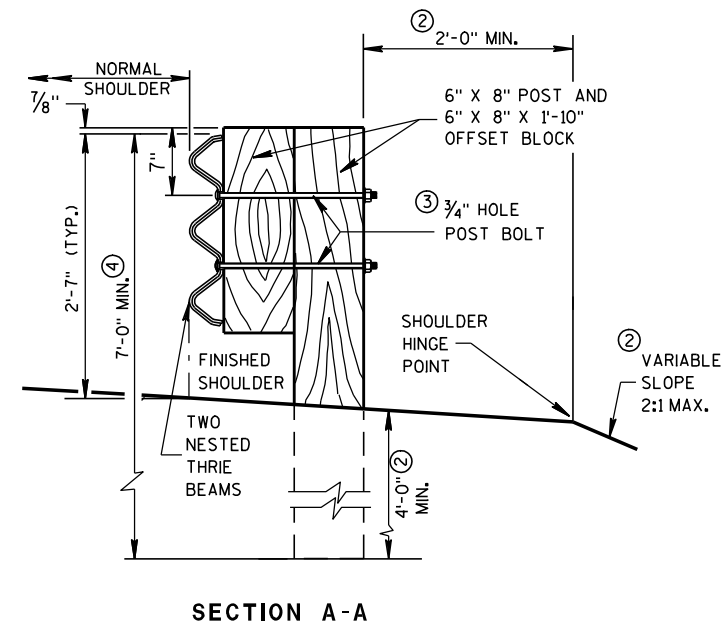
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

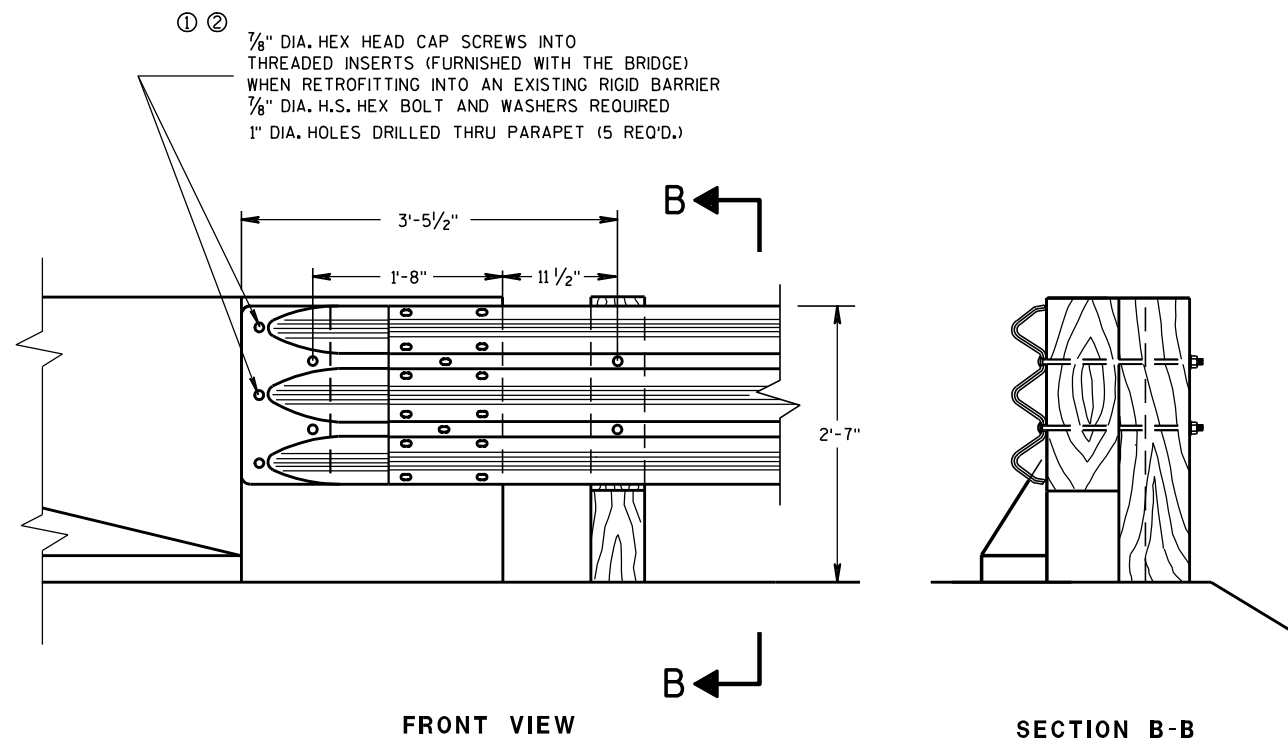
DATE

FHWA

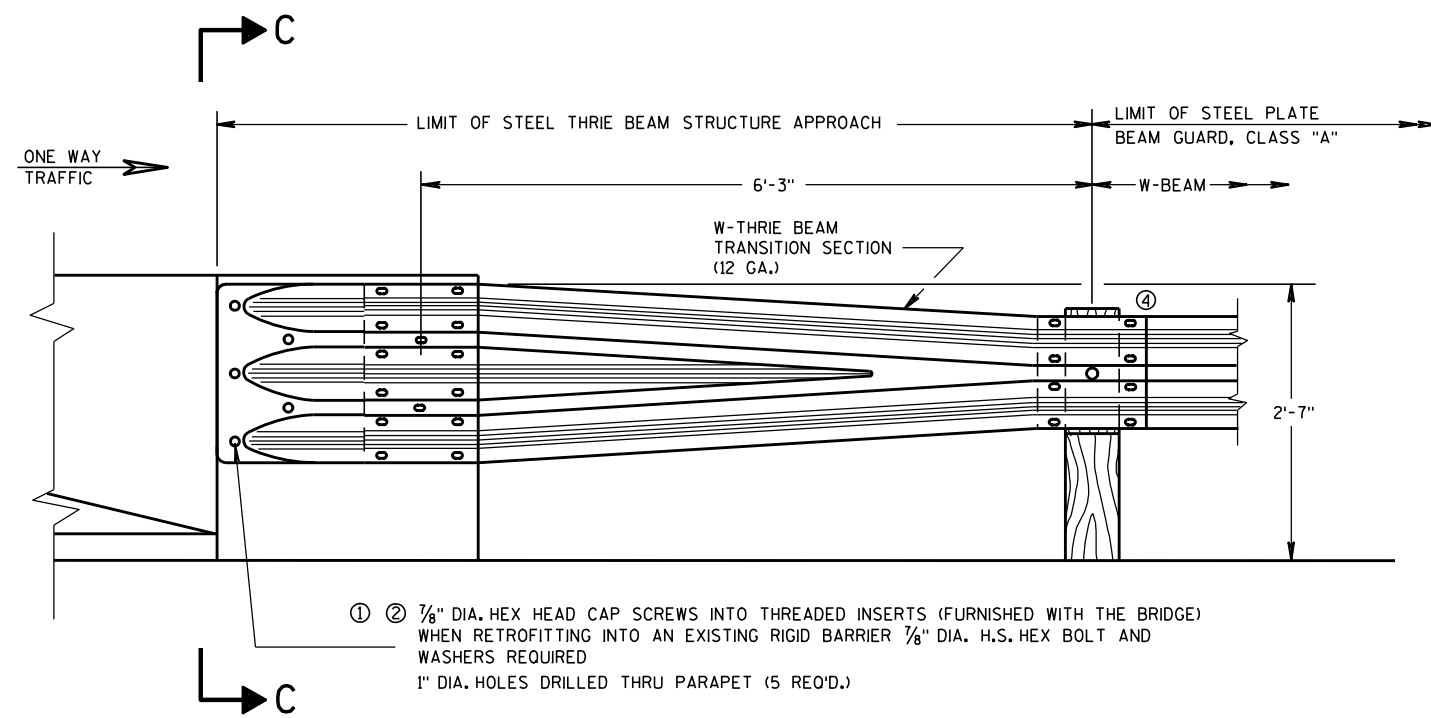
/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER



THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

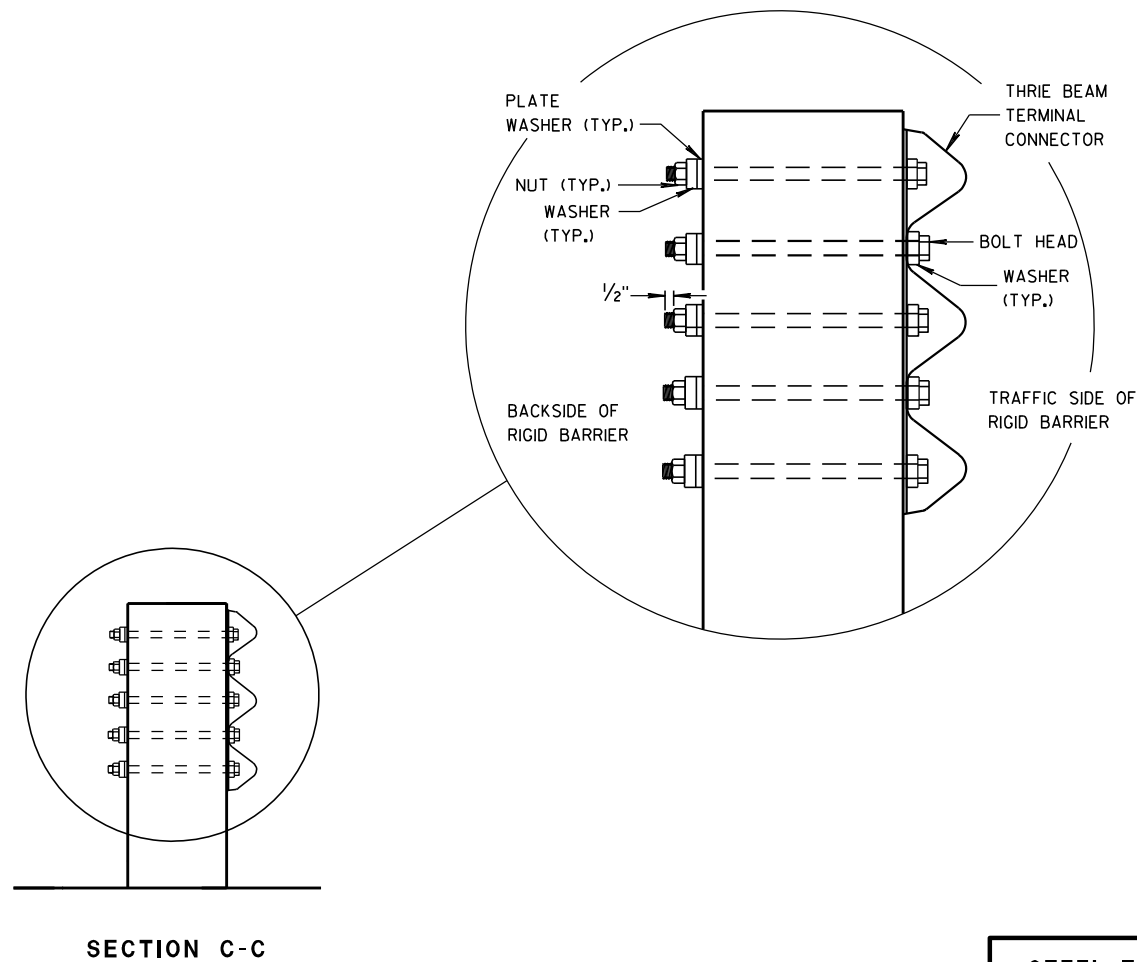
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
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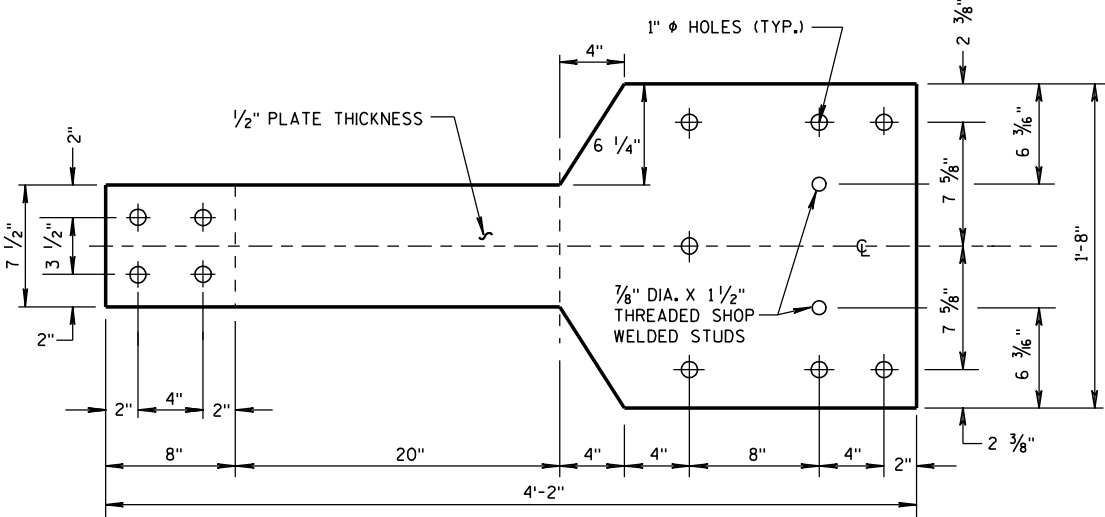
8/31/2012
DATE

FHWA

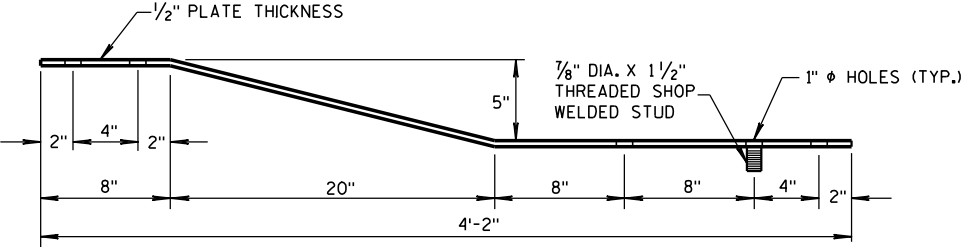
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

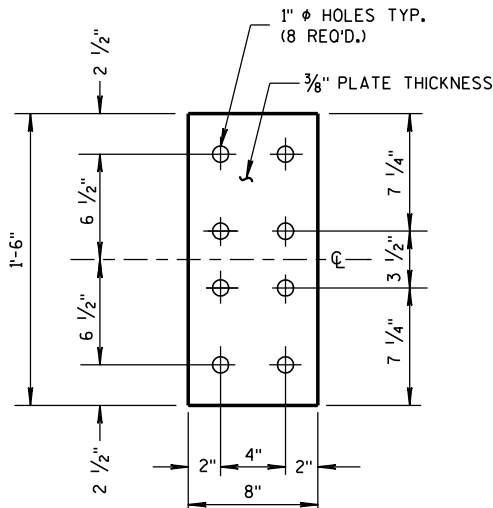
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



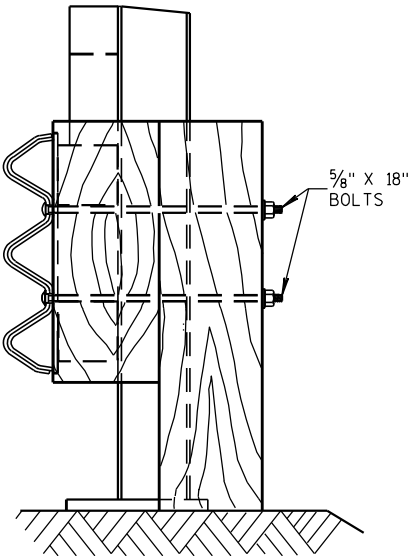
FRONT VIEW



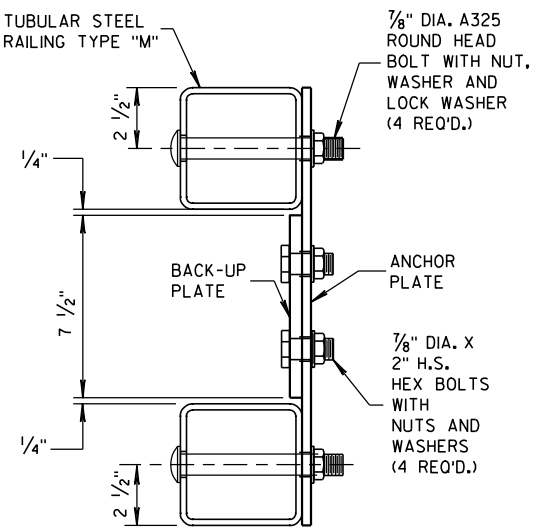
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



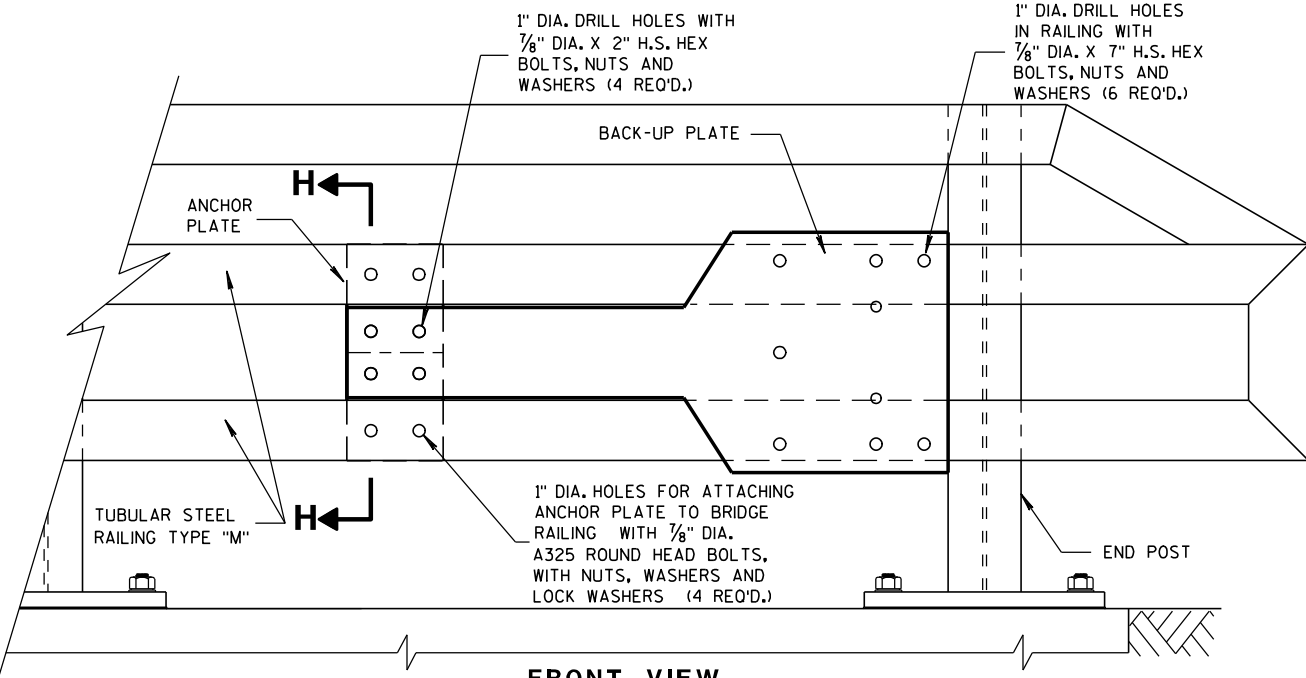
FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

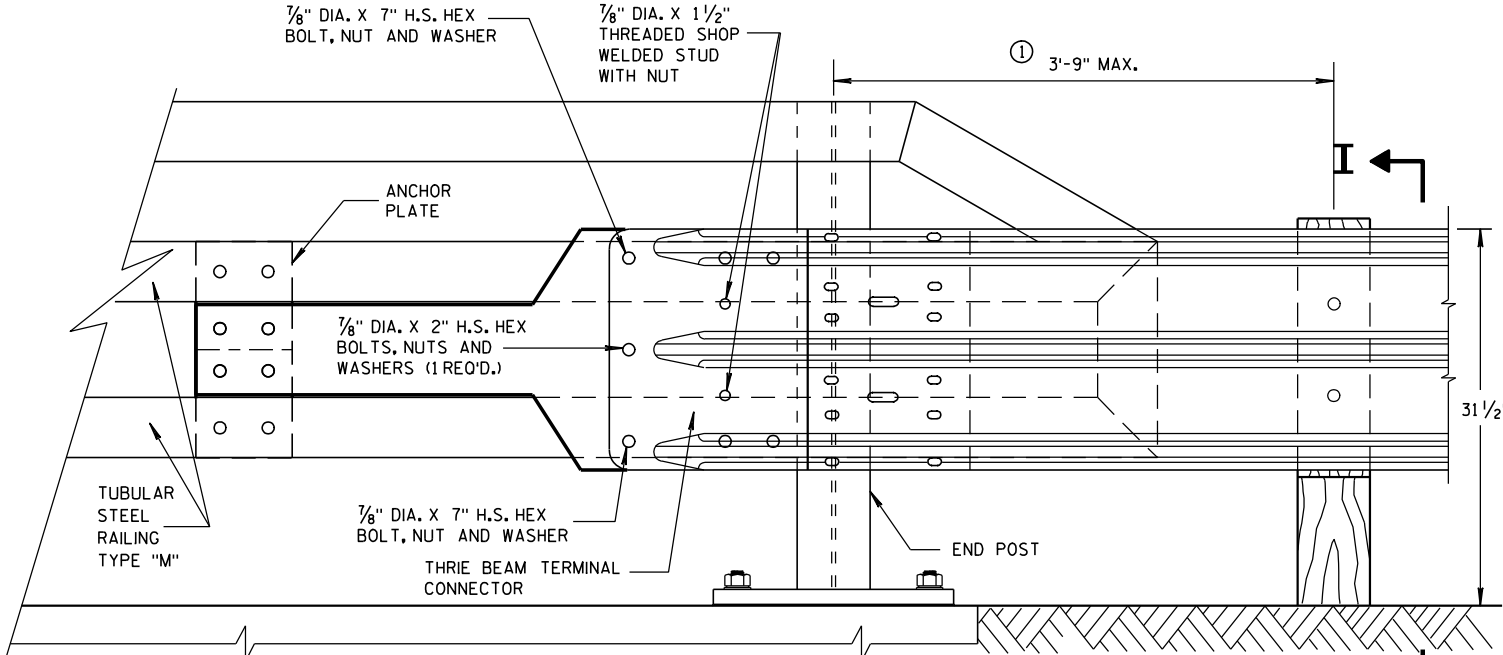


SECTION H-H

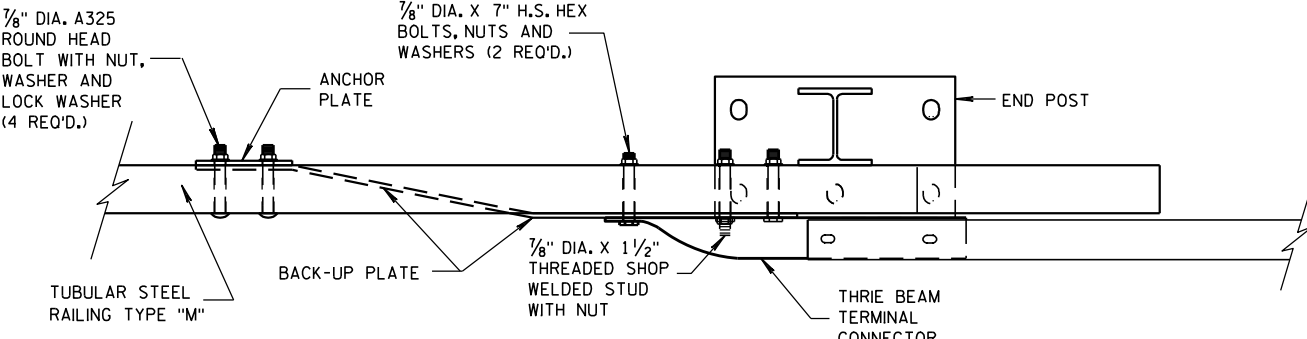


FRONT VIEW

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



FRONT VIEW



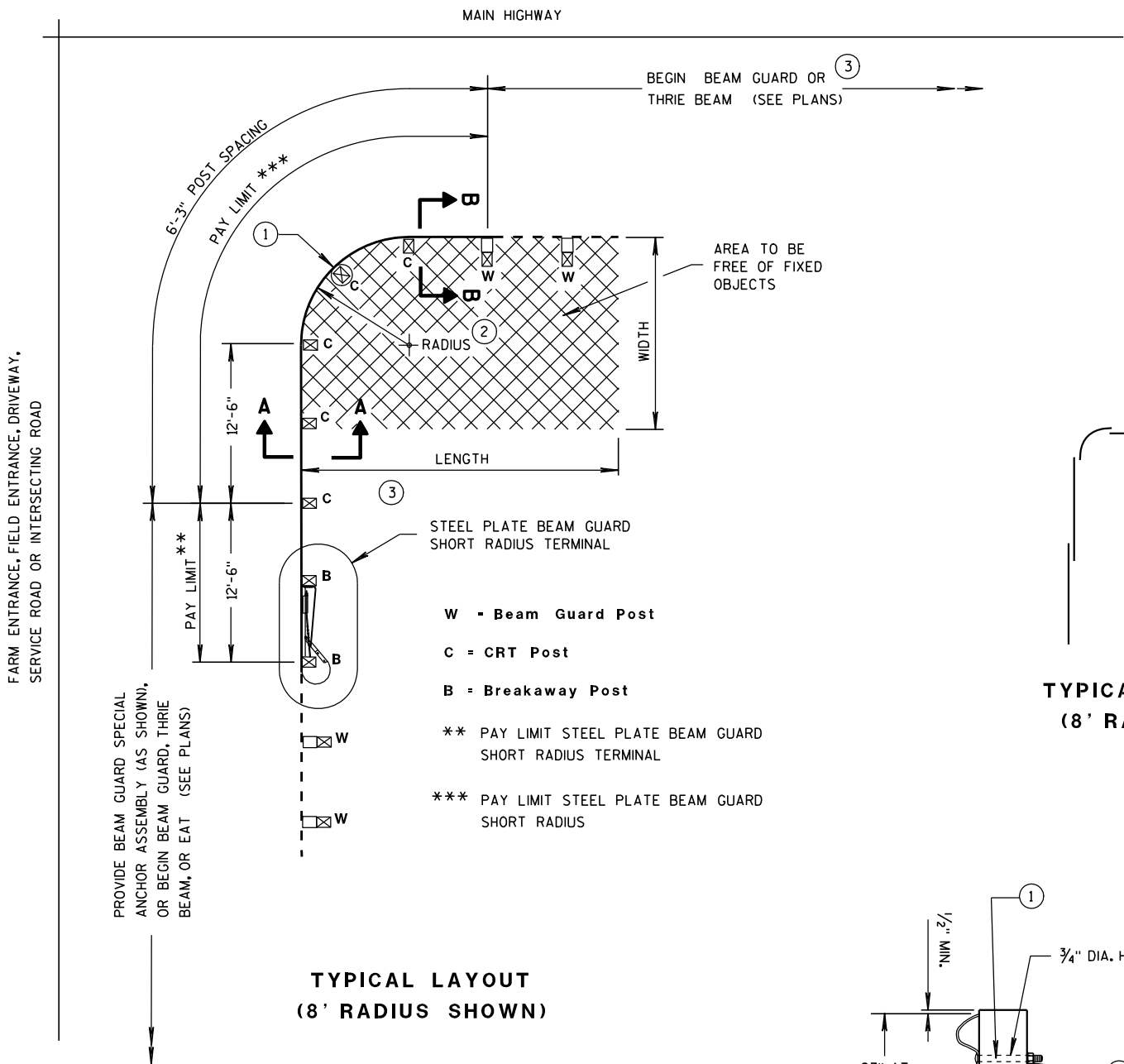
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

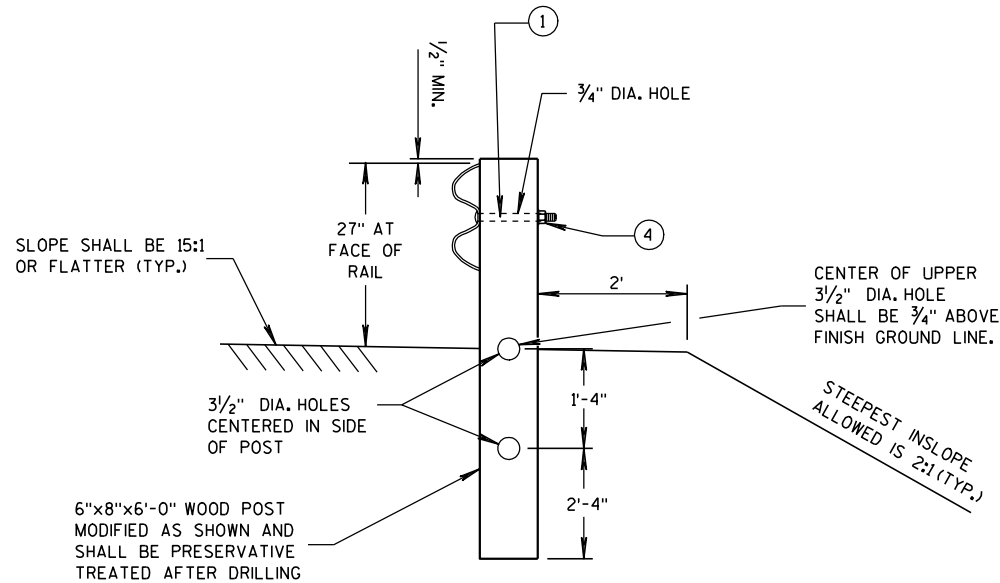
**STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



TYPICAL LAYOUT
(8' RADIUS SHOWN)



SECTION A-A
(CRT POST)

TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

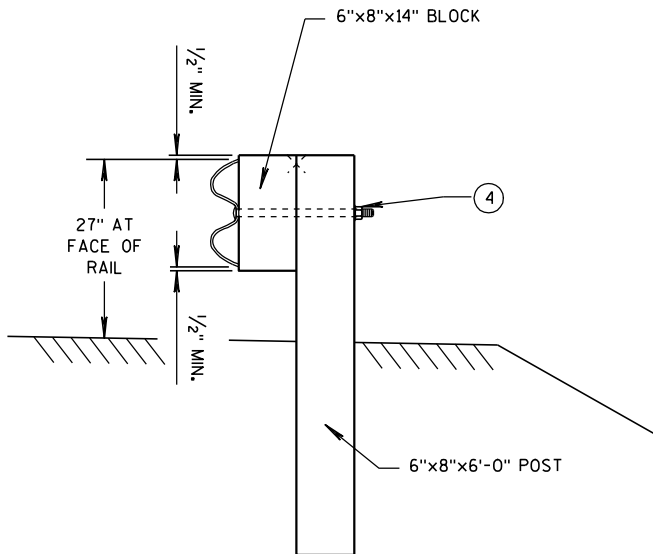
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- ① ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- ② RADIUS FROM 8' - 36'. SEE PLAN.
- ③ HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- ④ 5/8" Ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

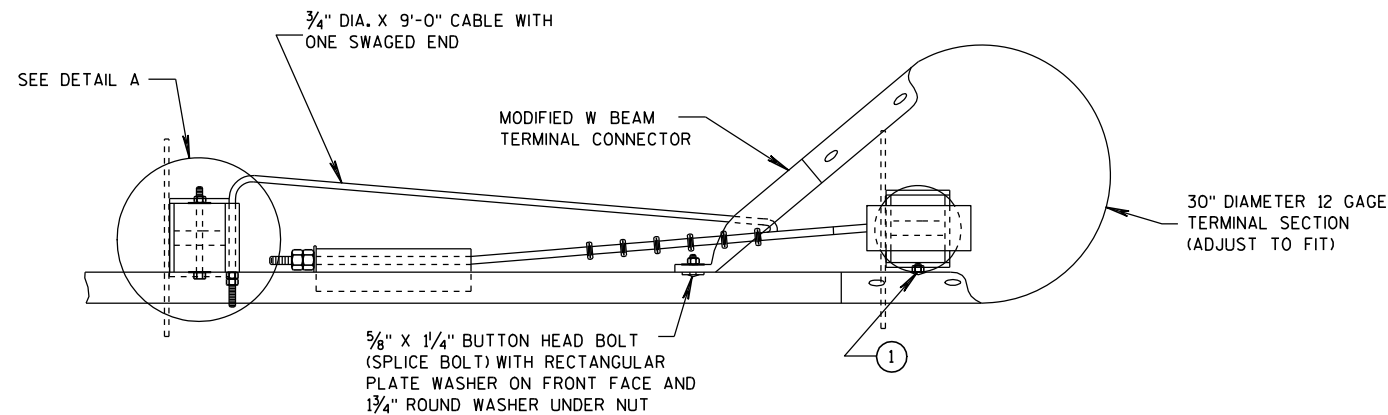
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



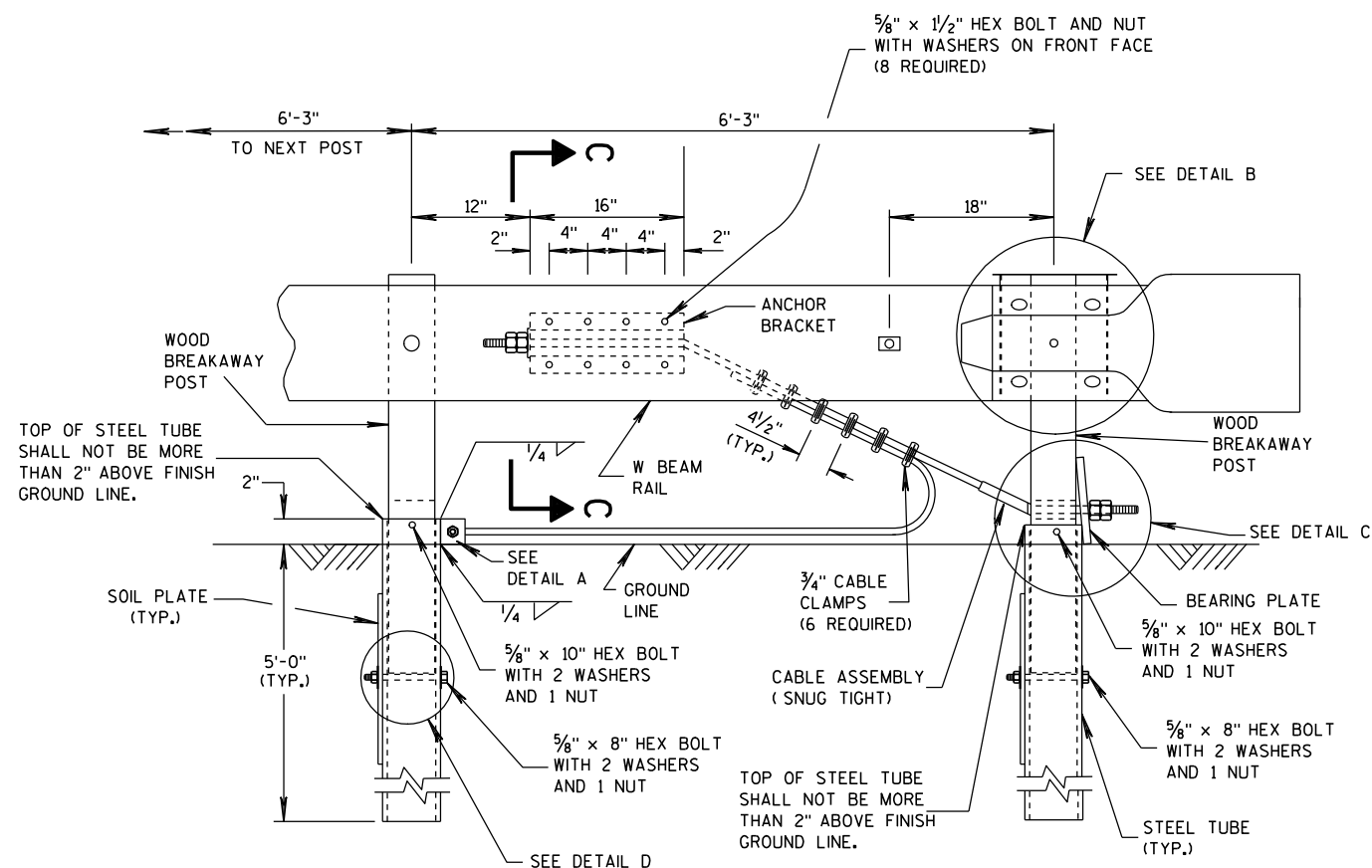
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

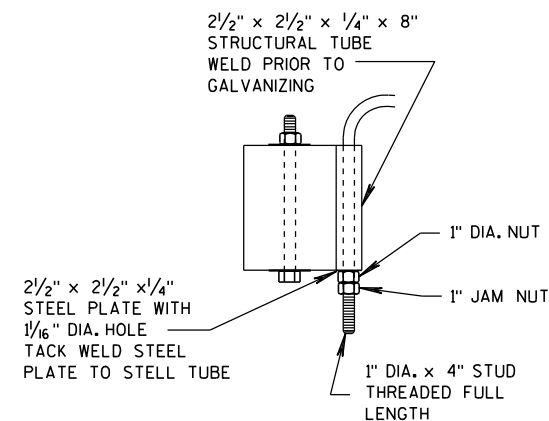


ELEVATION VIEW

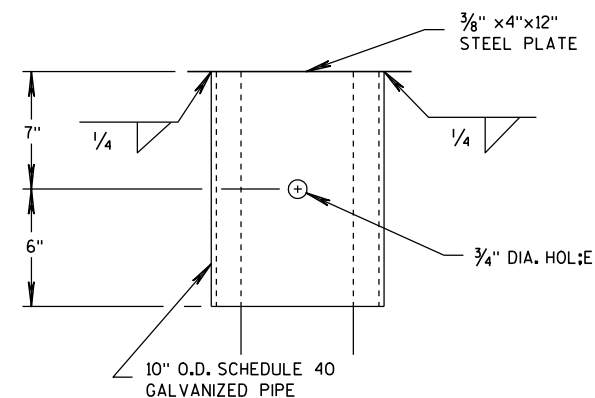
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5/8" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED FLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A

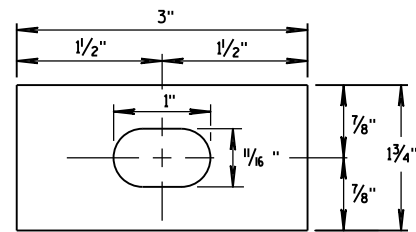


DETAIL B

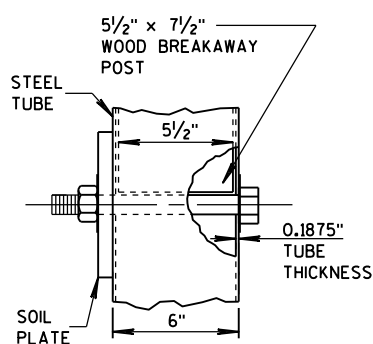
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

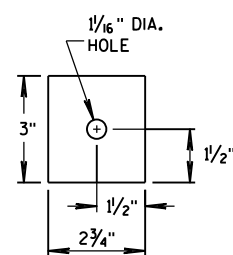
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



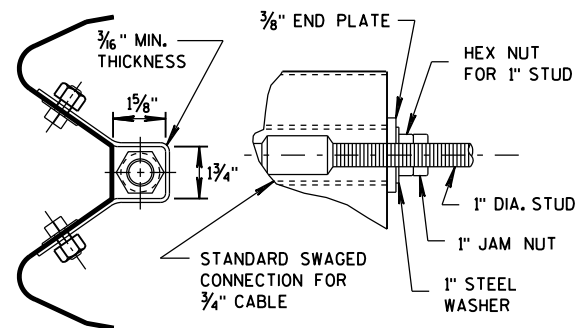
**RECTANGULAR
PLATE WASHER**



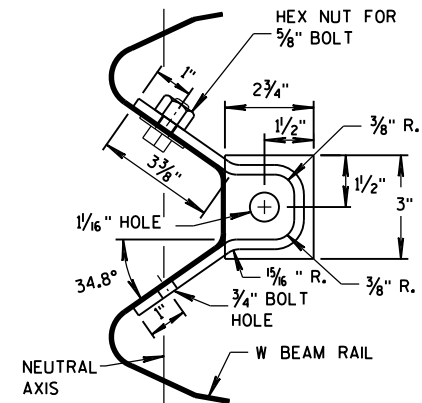
DETAIL D



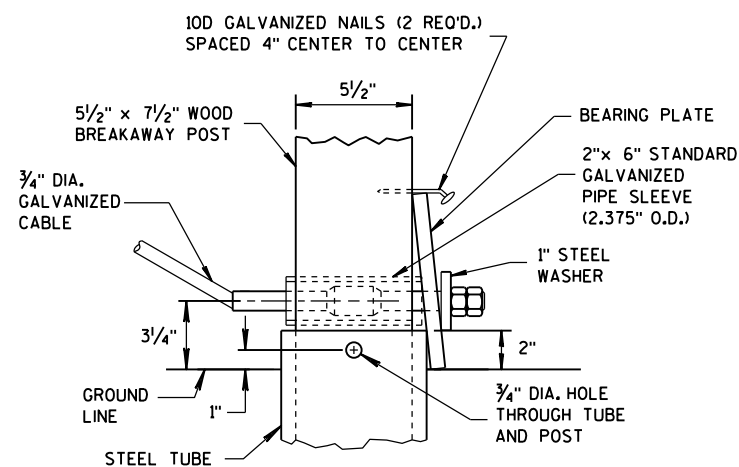
END PLATE



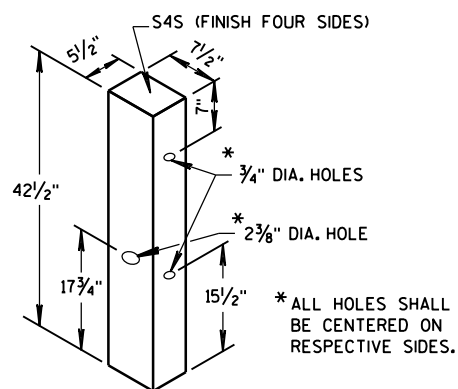
**SECTION C-C
(END PLATE REMOVED)**



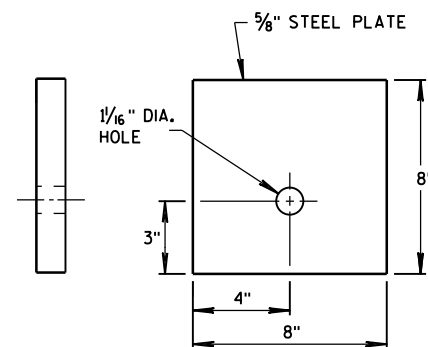
ANCHOR BRACKET



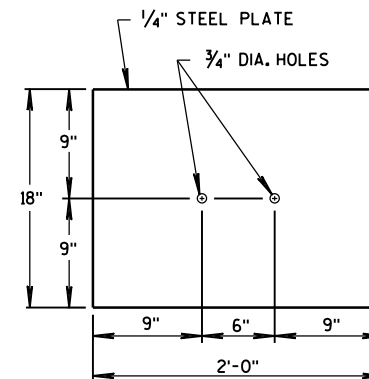
DETAIL C



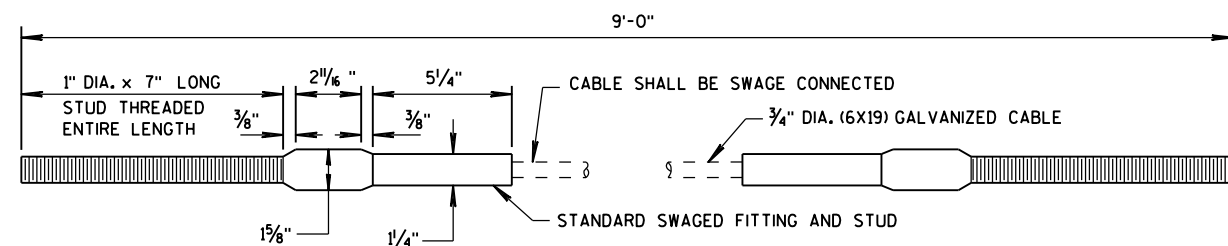
WOOD BREAKAWAY POST



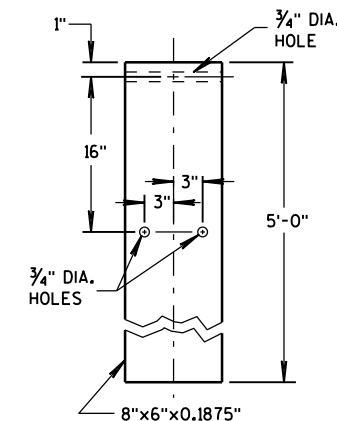
BEARING PLATE



SOIL PLATE



CABLE ASSEMBLY



STEEL TUBE

**STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

APPROVED
DATE 12/18/08 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

6

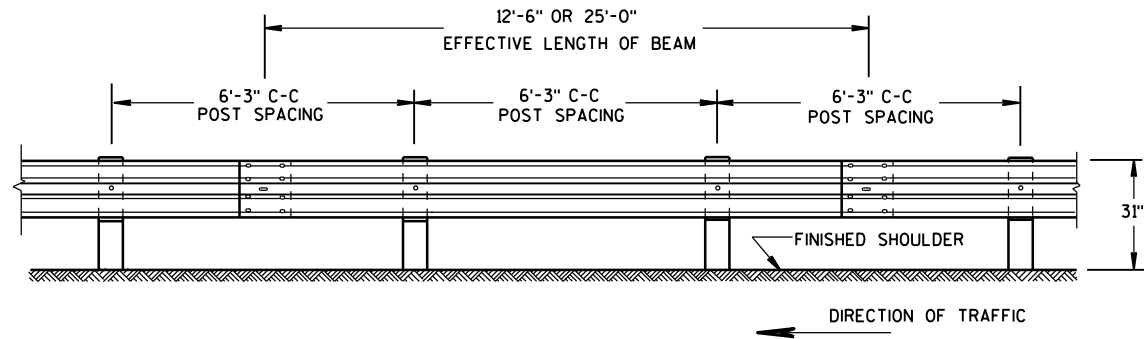
- S.D.D. 14 B 42-3a**



S.D.D. 14 B 42-3a

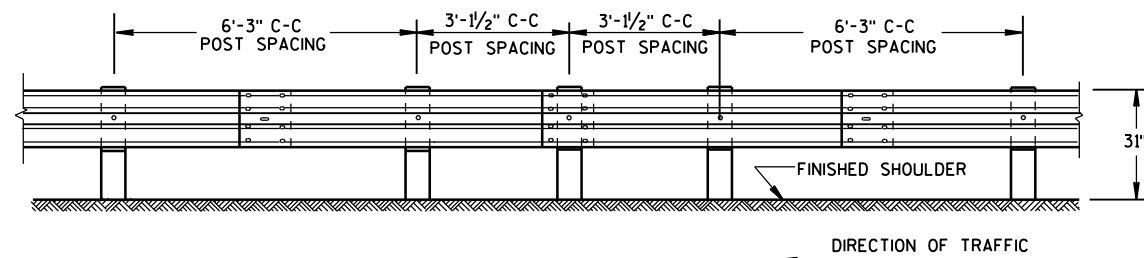


S.D.D. 14 B 42-3a



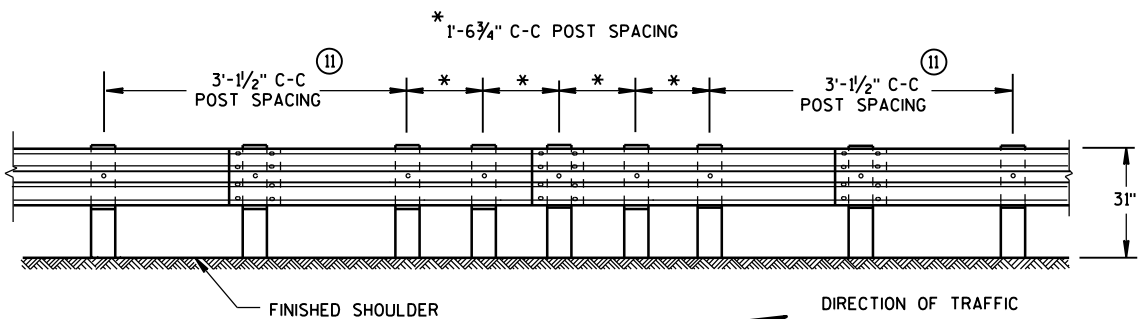
FRONT VIEW

POST SPACING STANDARD INSTALLATION



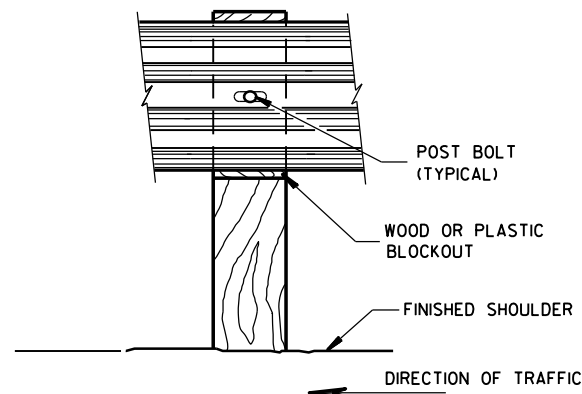
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

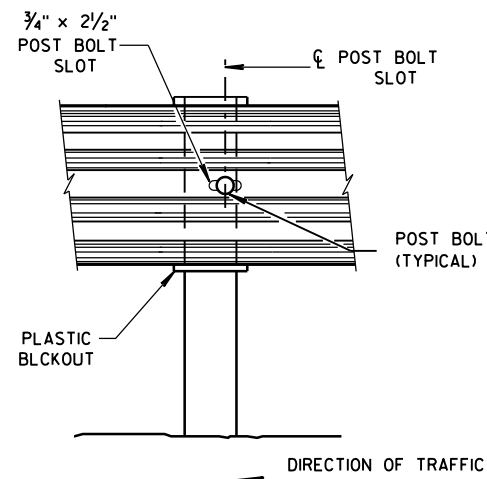


FRONT VIEW

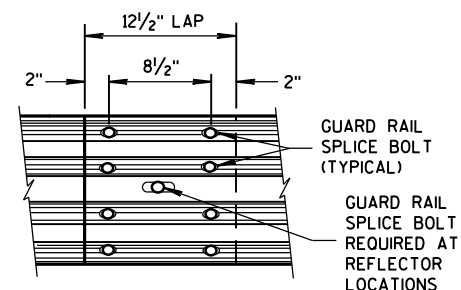
QUARTER POST SPACING (QS)



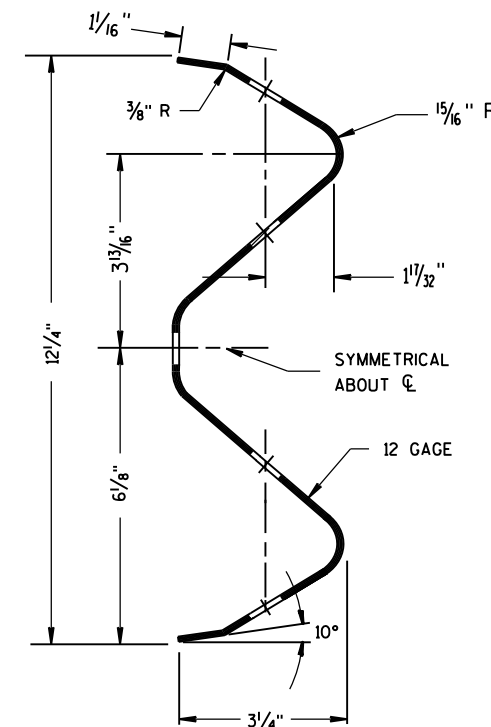
FRONT VIEW AT WOOD POST



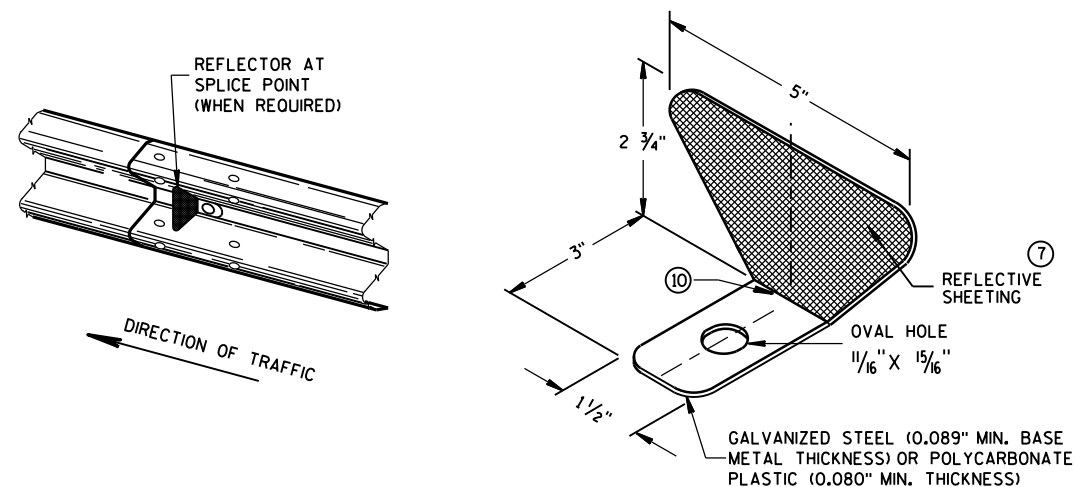
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

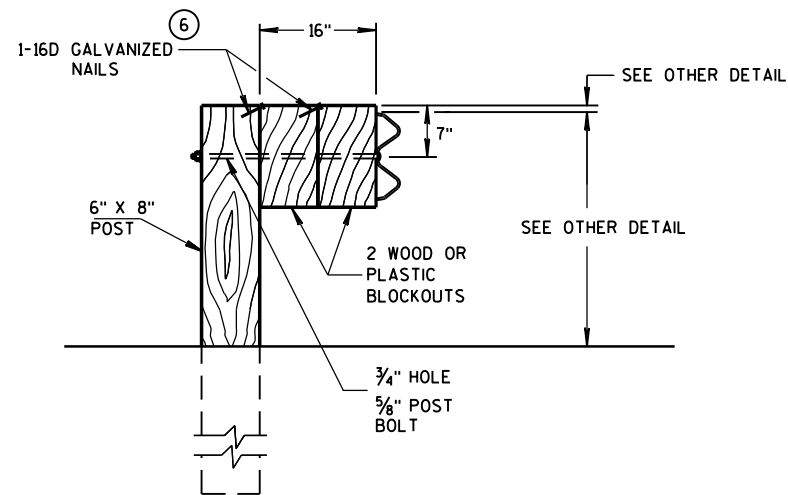
GENERAL NOTES

- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
 - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ^⑧				
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ^⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ^⑩	3
	> 200'	100' C-C	2	

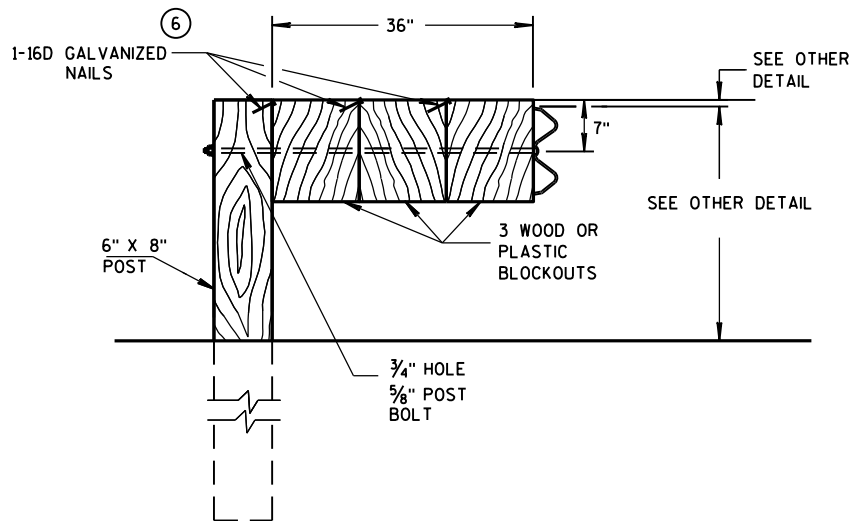
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

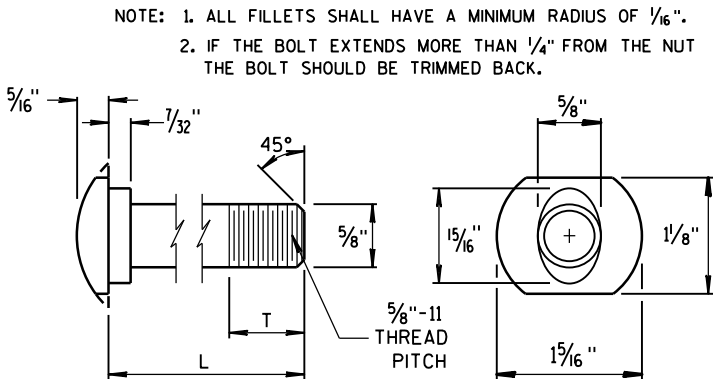
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

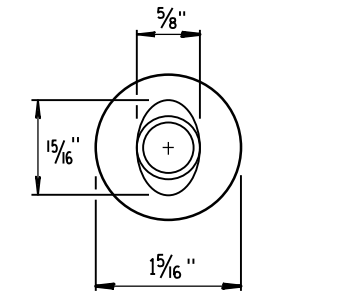
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

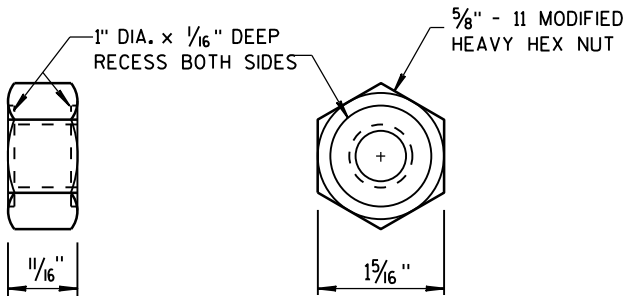


POST BOLT TABLE

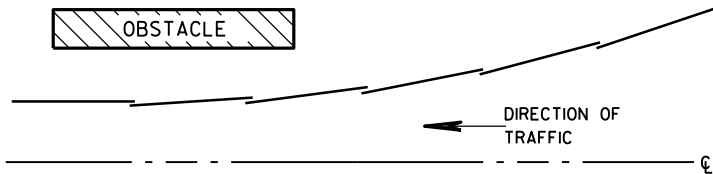
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



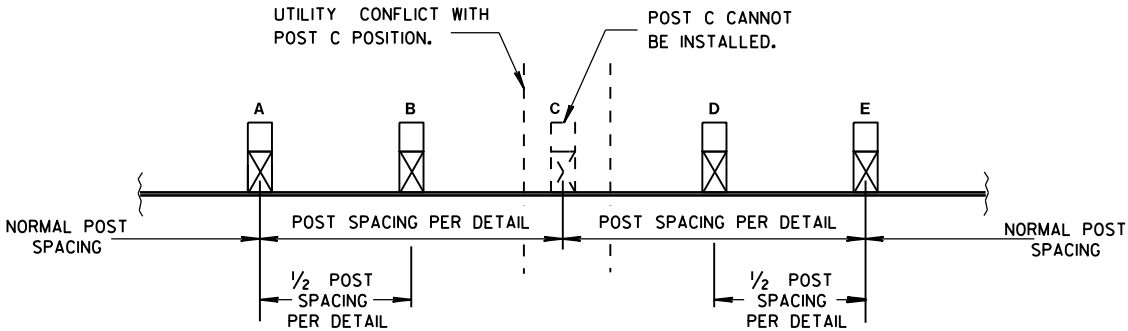
ALTERNATE BOLT HEAD



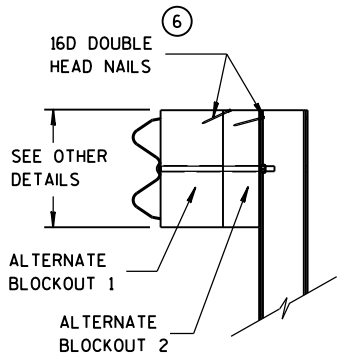
POST BOLT
AND RECESS NUT



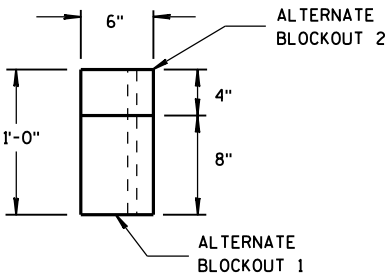
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

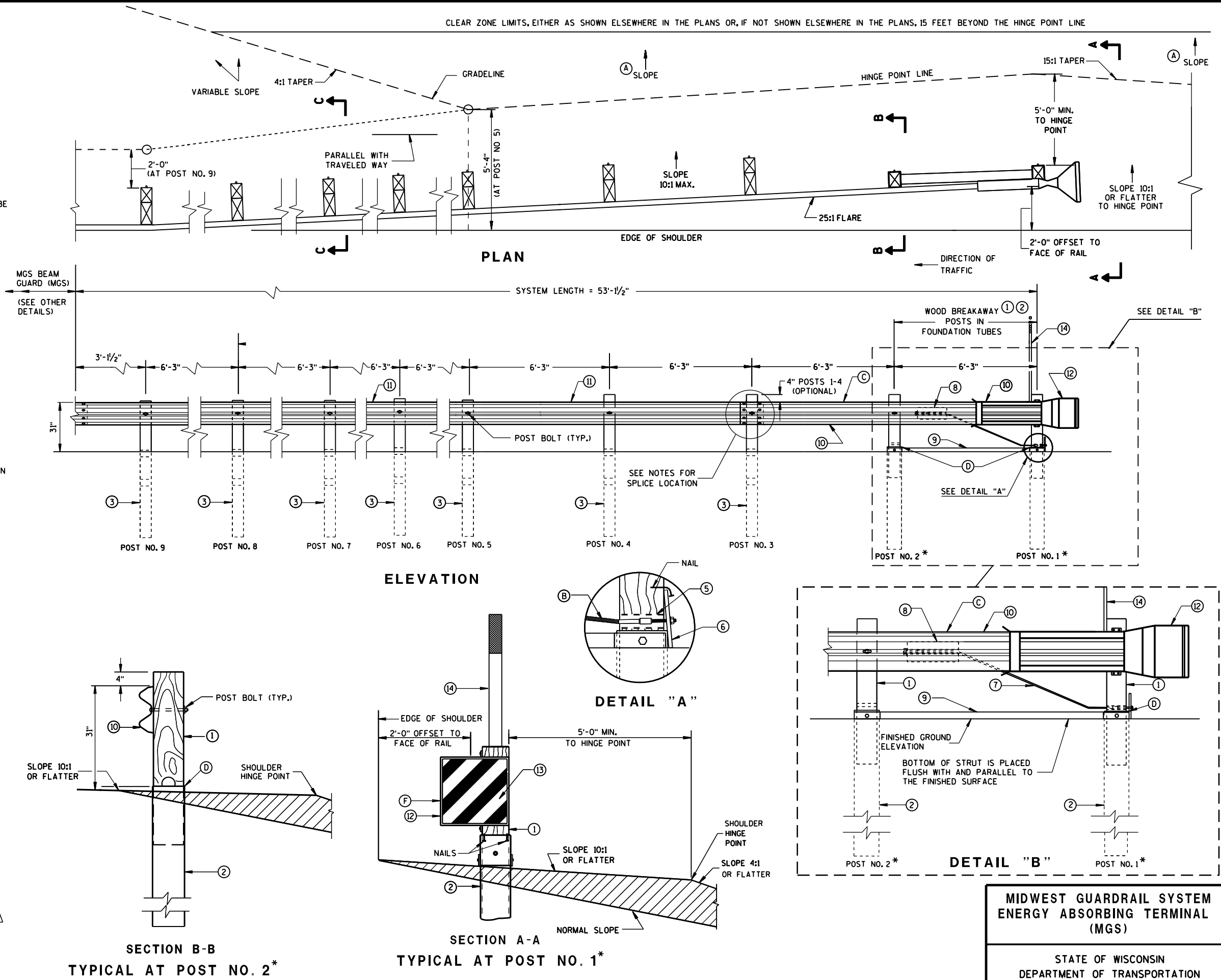
SEE SDD 14B42 FOR MORE INFORMATION.

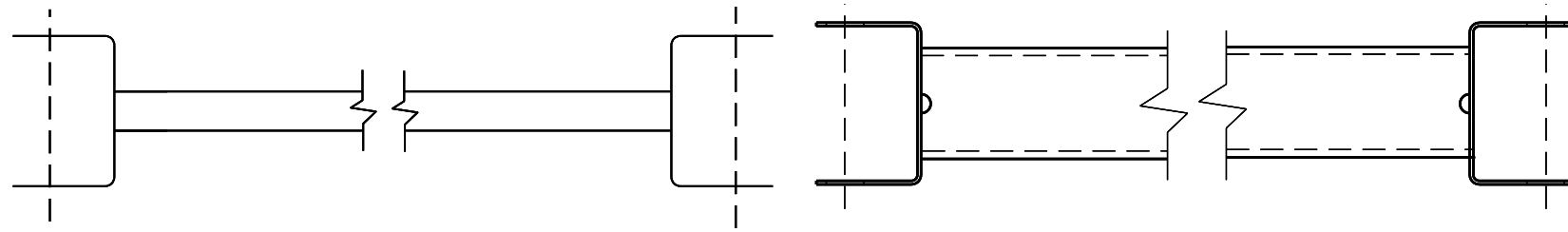
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

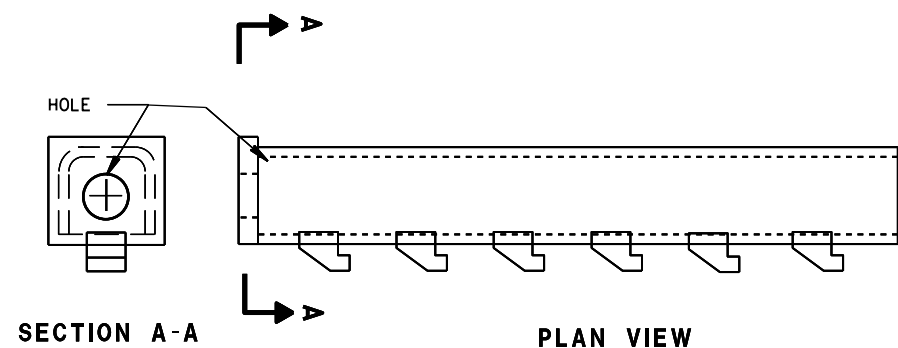
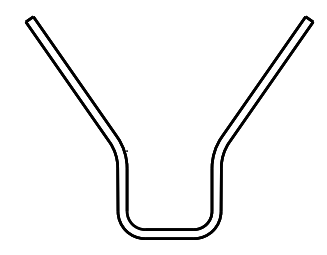
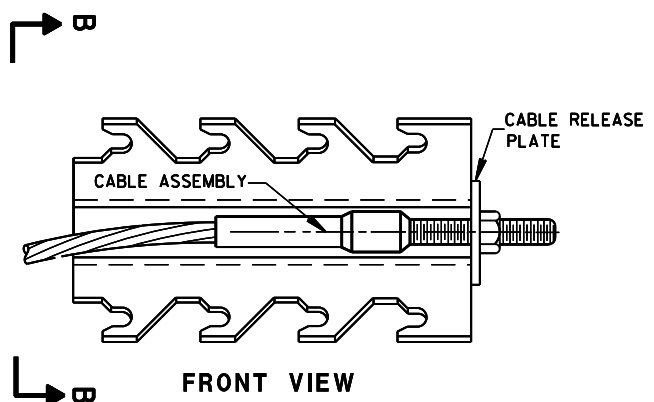
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3/2" 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.





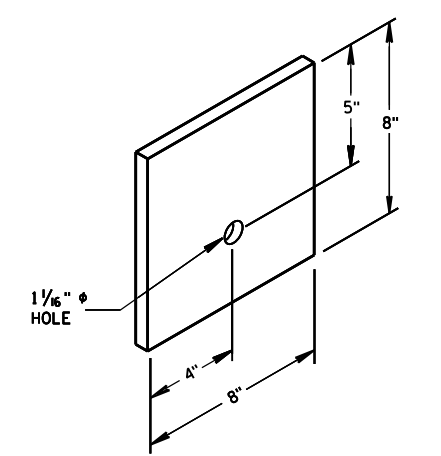
9 H
GENERIC GROUND STRUT



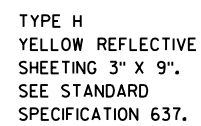
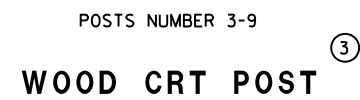
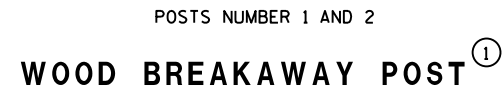
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

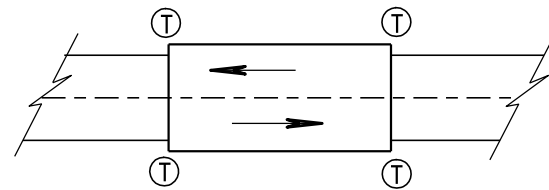
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



⑥
BEARING PLATE

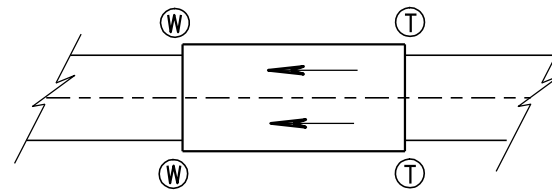


MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

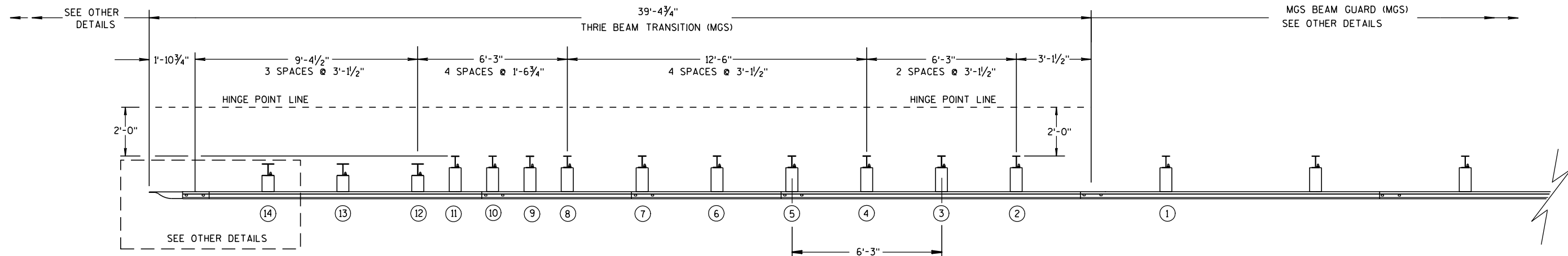
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

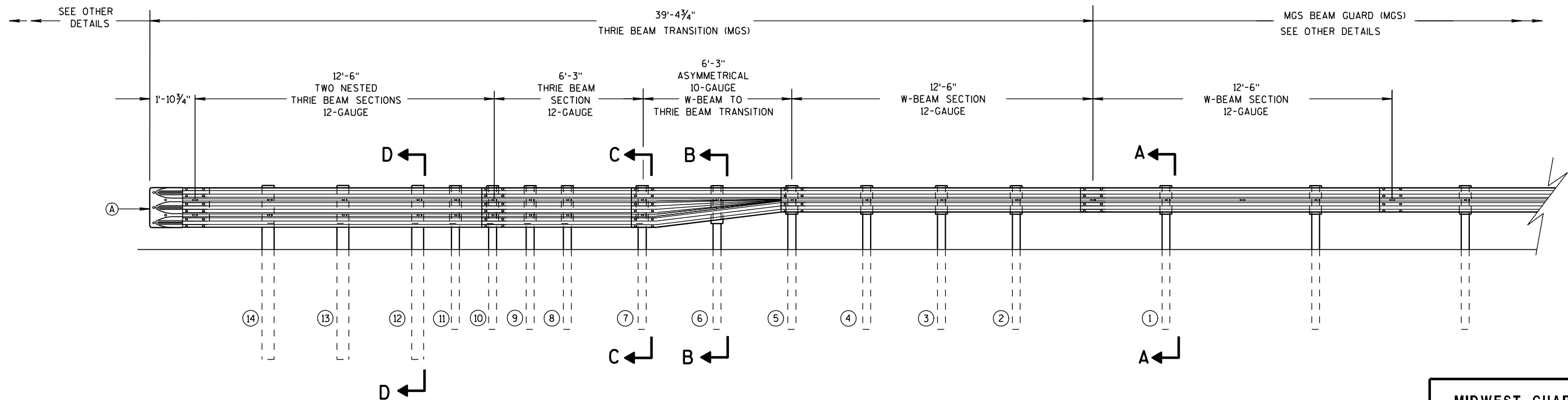
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

Ⓐ BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

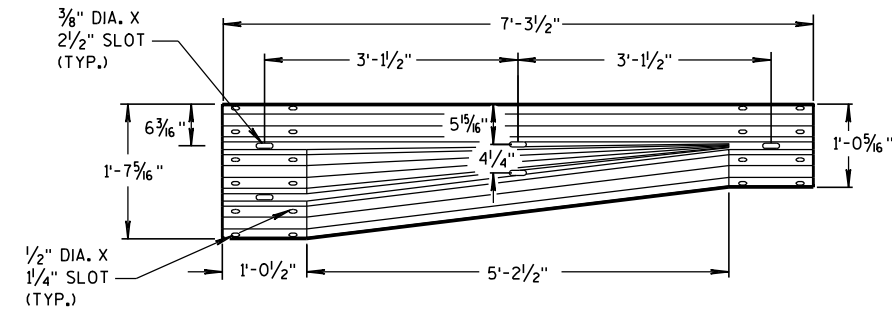
6

S.D.D. 14 B 45-3b

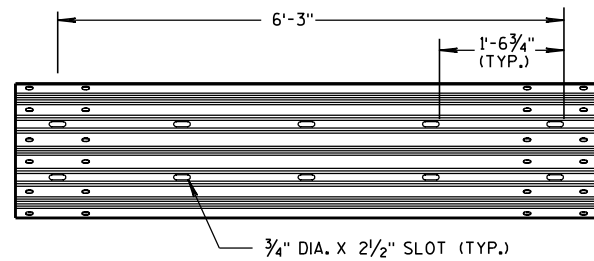


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

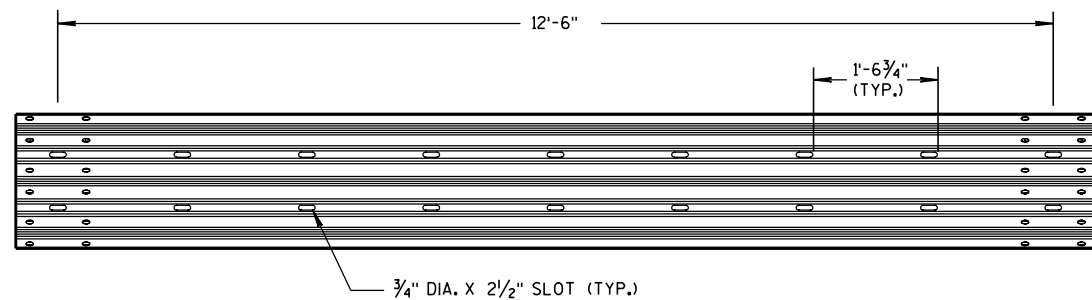
S.D.D. 14 B 45-3b



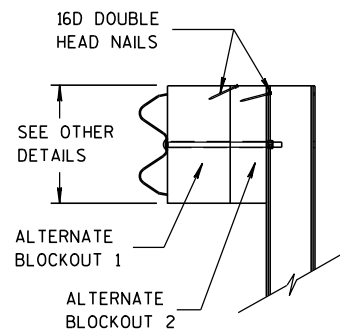
W-BEAM TO THRIE BEAM TRANSITION SECTION



6'-3" THRIE BEAM SECTION

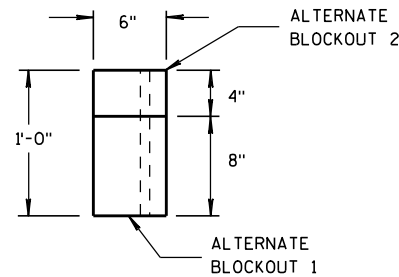


12'-6" THRIE BEAM SECTION

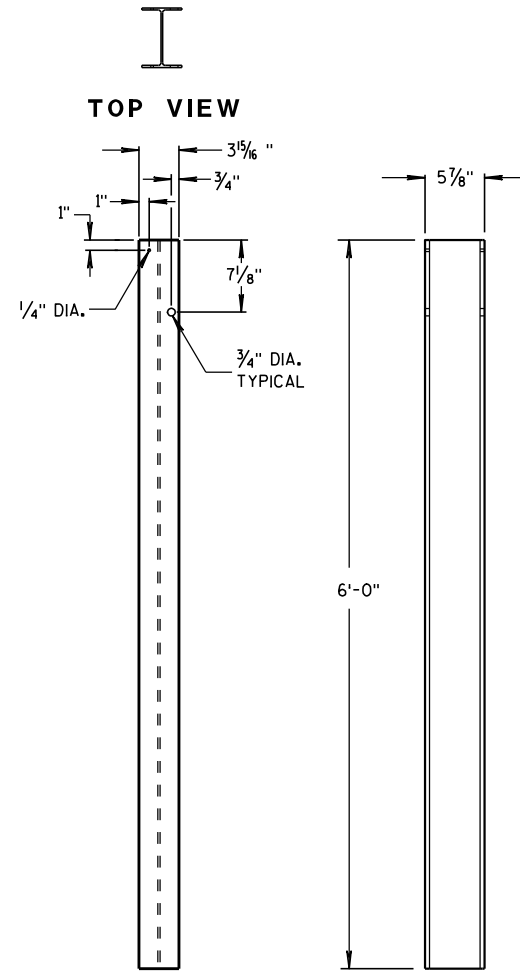


SIDE VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



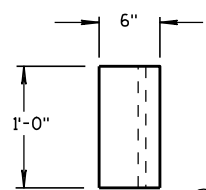
TOP VIEW



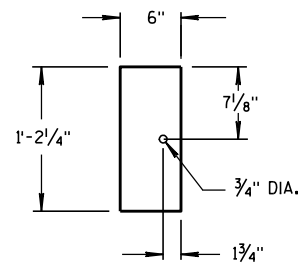
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

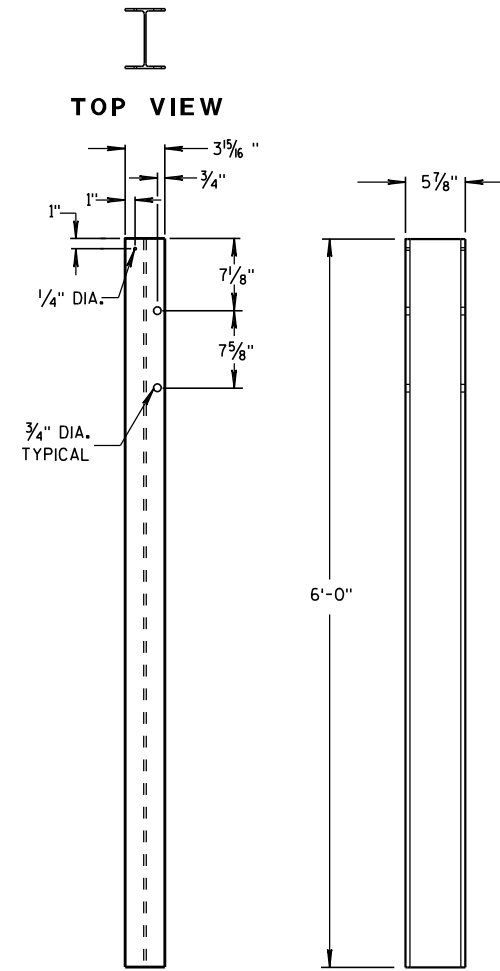


TOP VIEW



FRONT VIEW

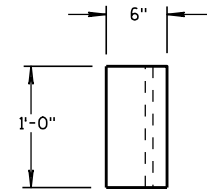
BLOCKOUT POSTS 1-5



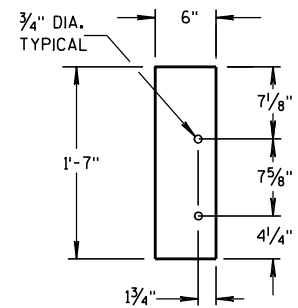
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-11

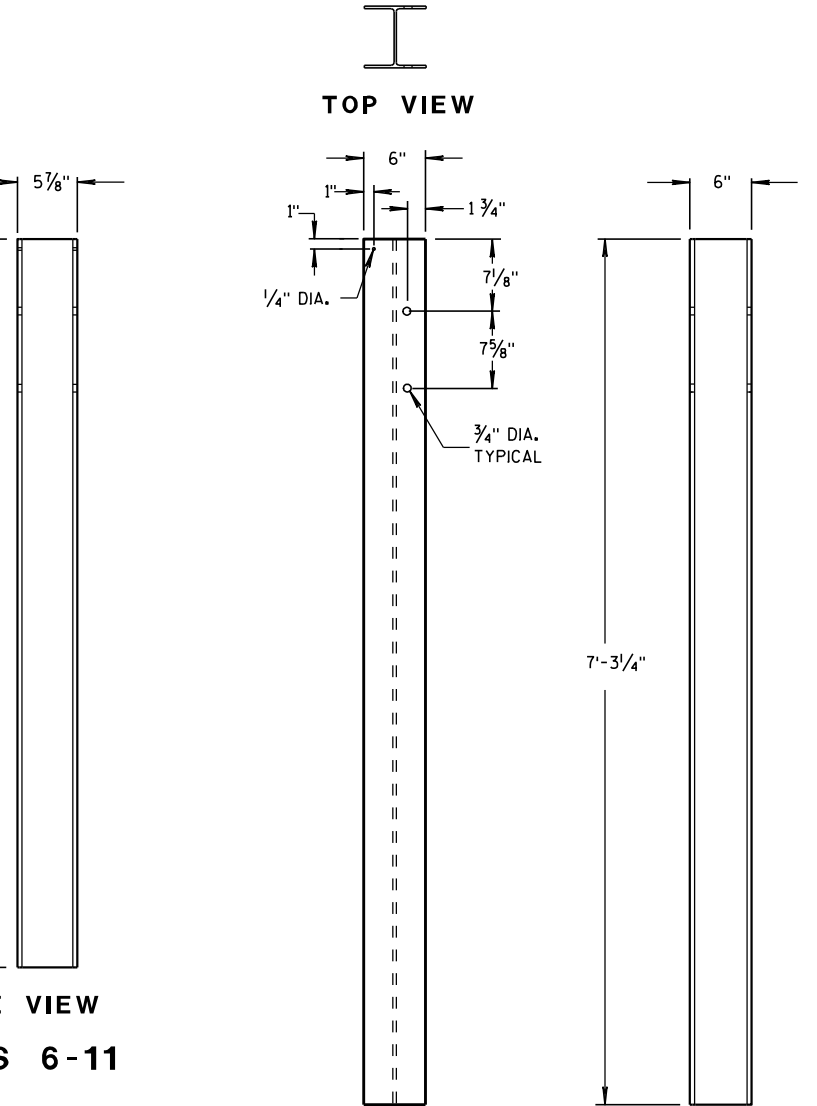


TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

SIDE VIEW

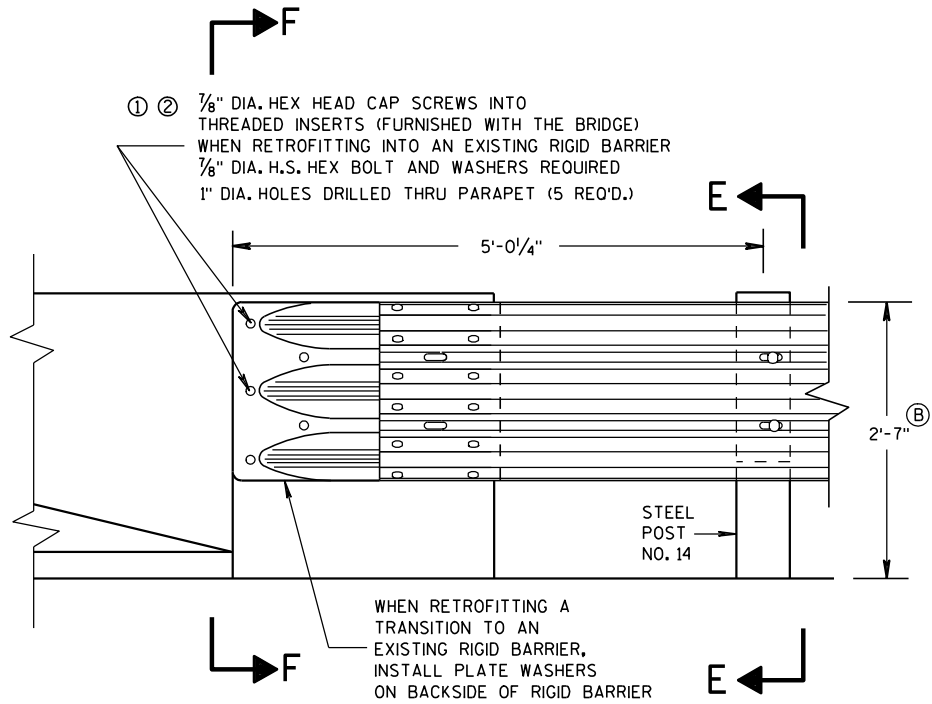
STEEL POSTS 12-14

STEEL POST SIZES

POST NUMBER	SECTION TYPE	LENGTH
①	W6x9	72"
②	W6x9	72"
③	W6x9	72"
④	W6x9	72"
⑤	W6x9	72"
⑥	W6x9	72"
⑦	W6x9	72"
⑧	W6x9	72"
⑨	W6x9	72"
⑩	W6x9	72"
⑪	W6x9	72"
⑫	W6x15	87 1/8"
⑬	W6x15	87 1/8"
⑭	W6x15	87 1/8"

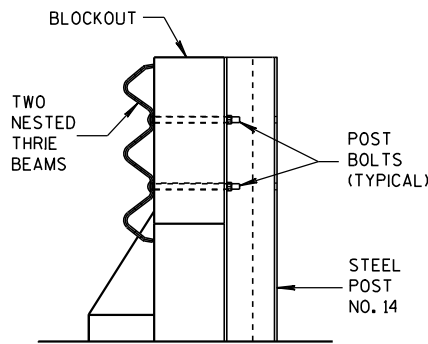
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS

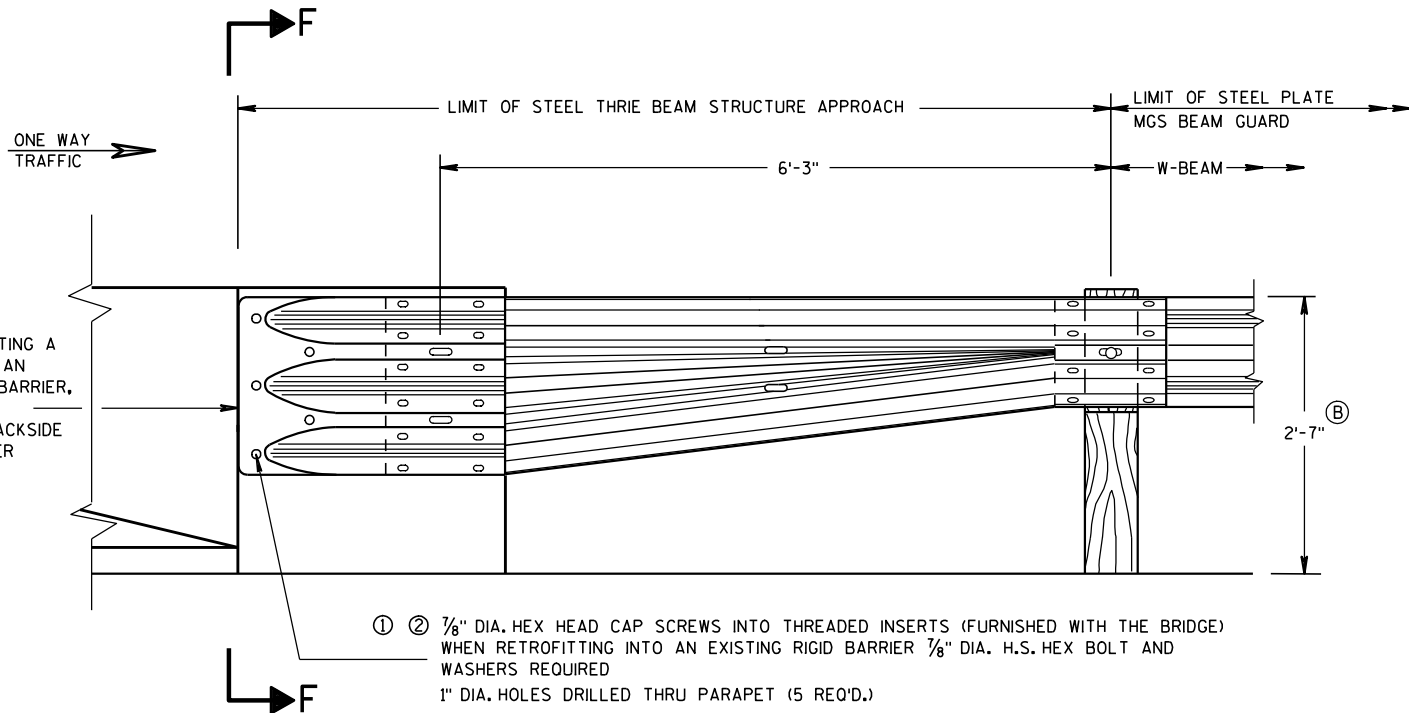


SECTION E-E

GENERAL NOTES

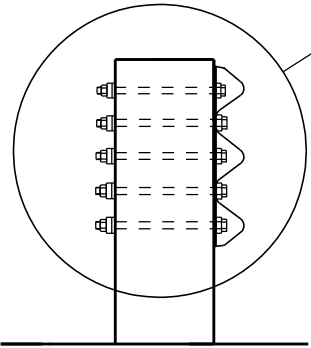
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS, BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- (B) TOLERANCE FOR TOP OF BEAM IS ± 1".

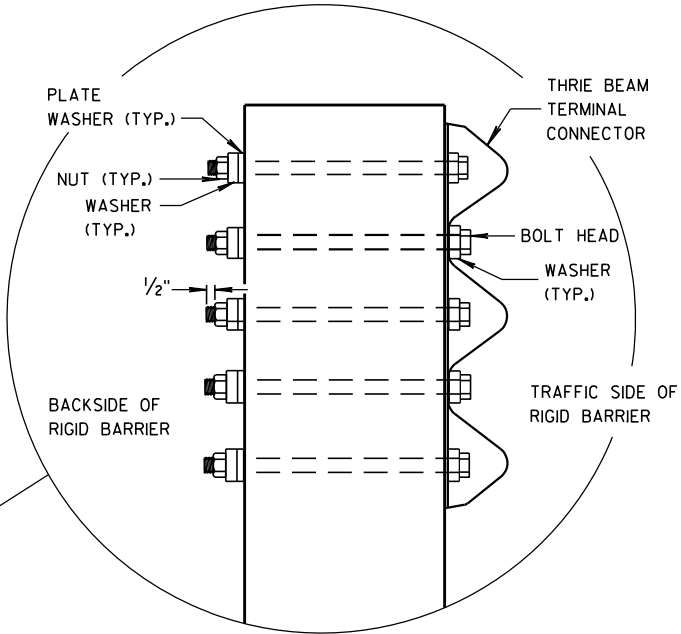


FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



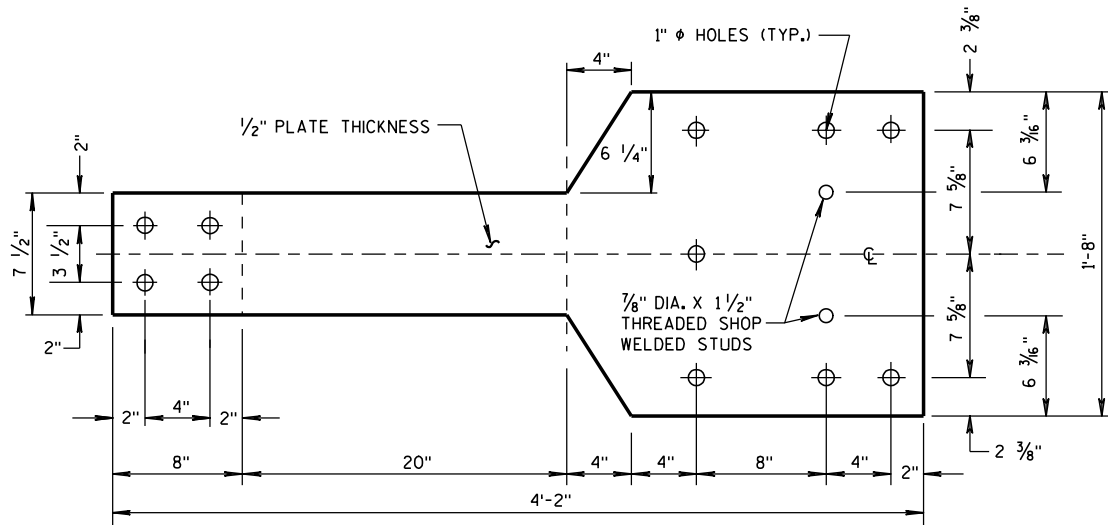
SECTION F-F



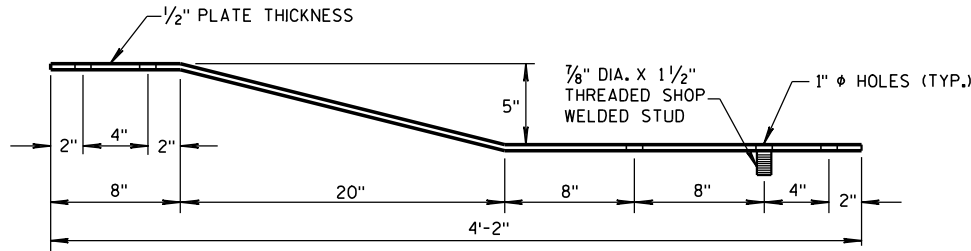
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

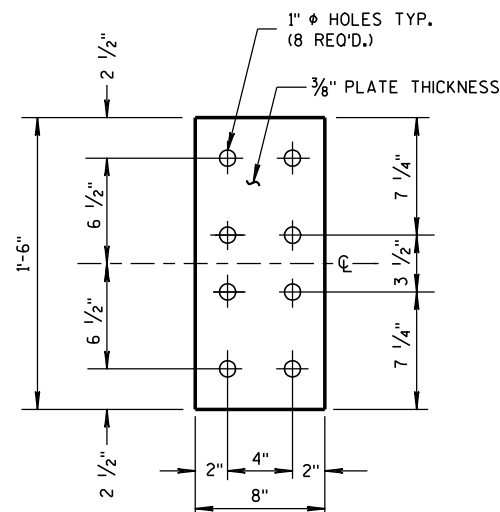
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



FRONT VIEW

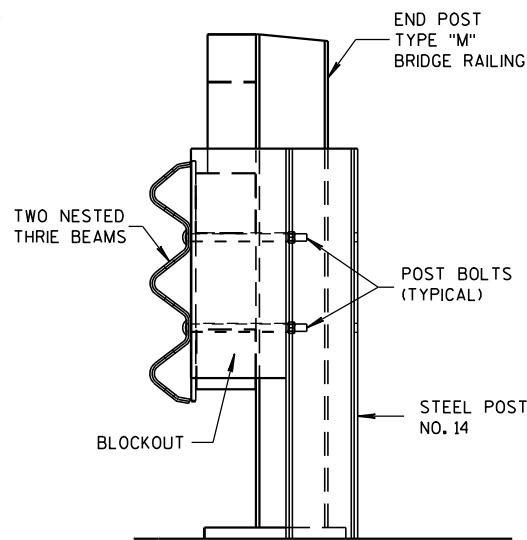


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

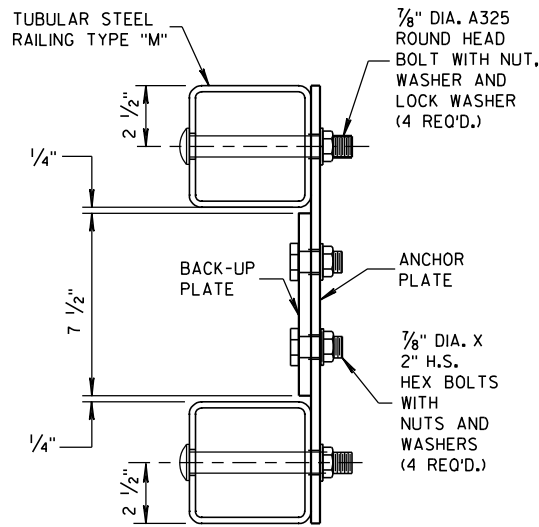


FRONT VIEW

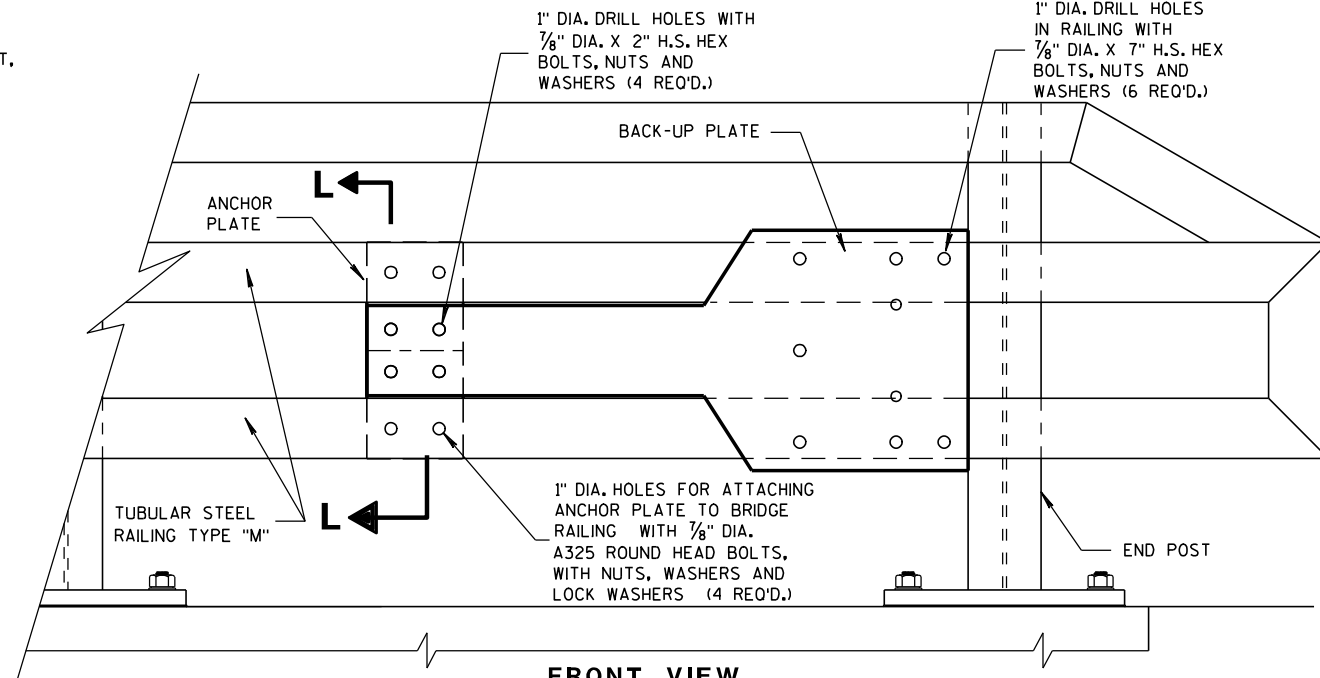
ANCHOR
PLATE DETAIL,
TYPE "M"



SECTION M-M

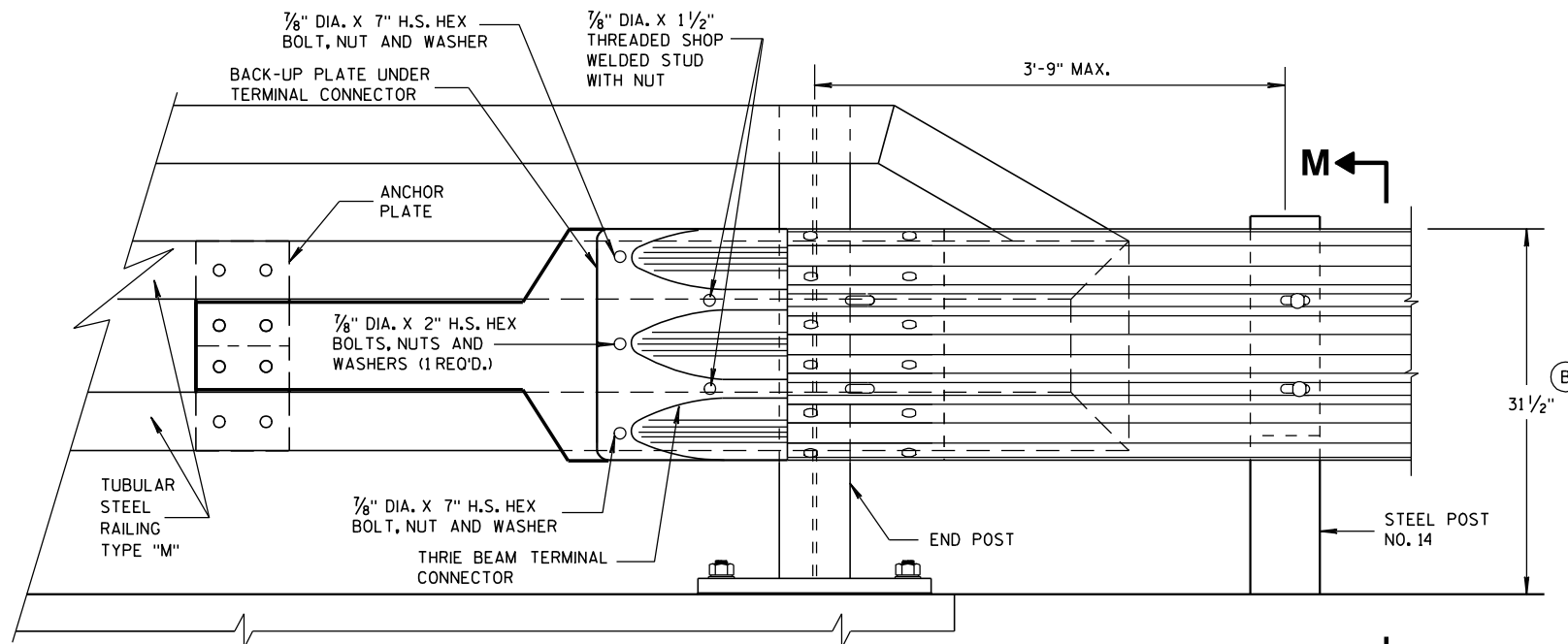


SECTION L-L

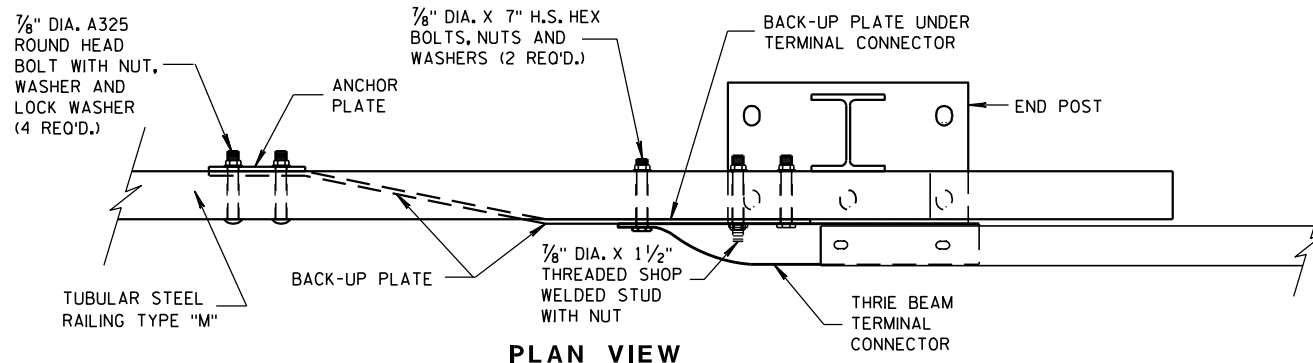


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

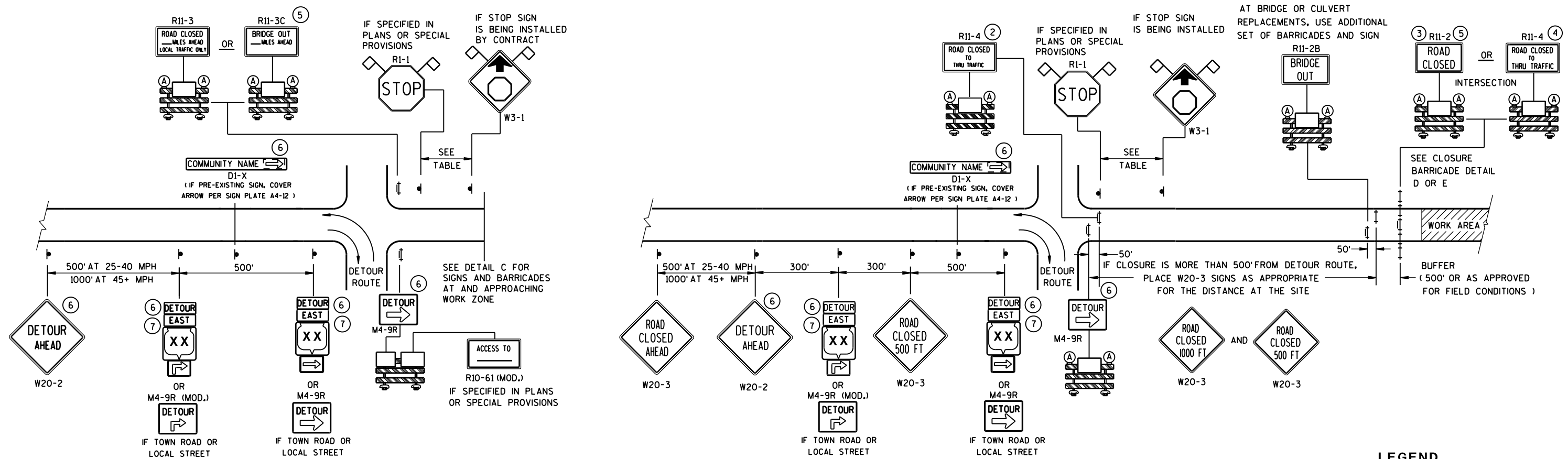
APPROVED

8-31-2012

DATE

FHWA

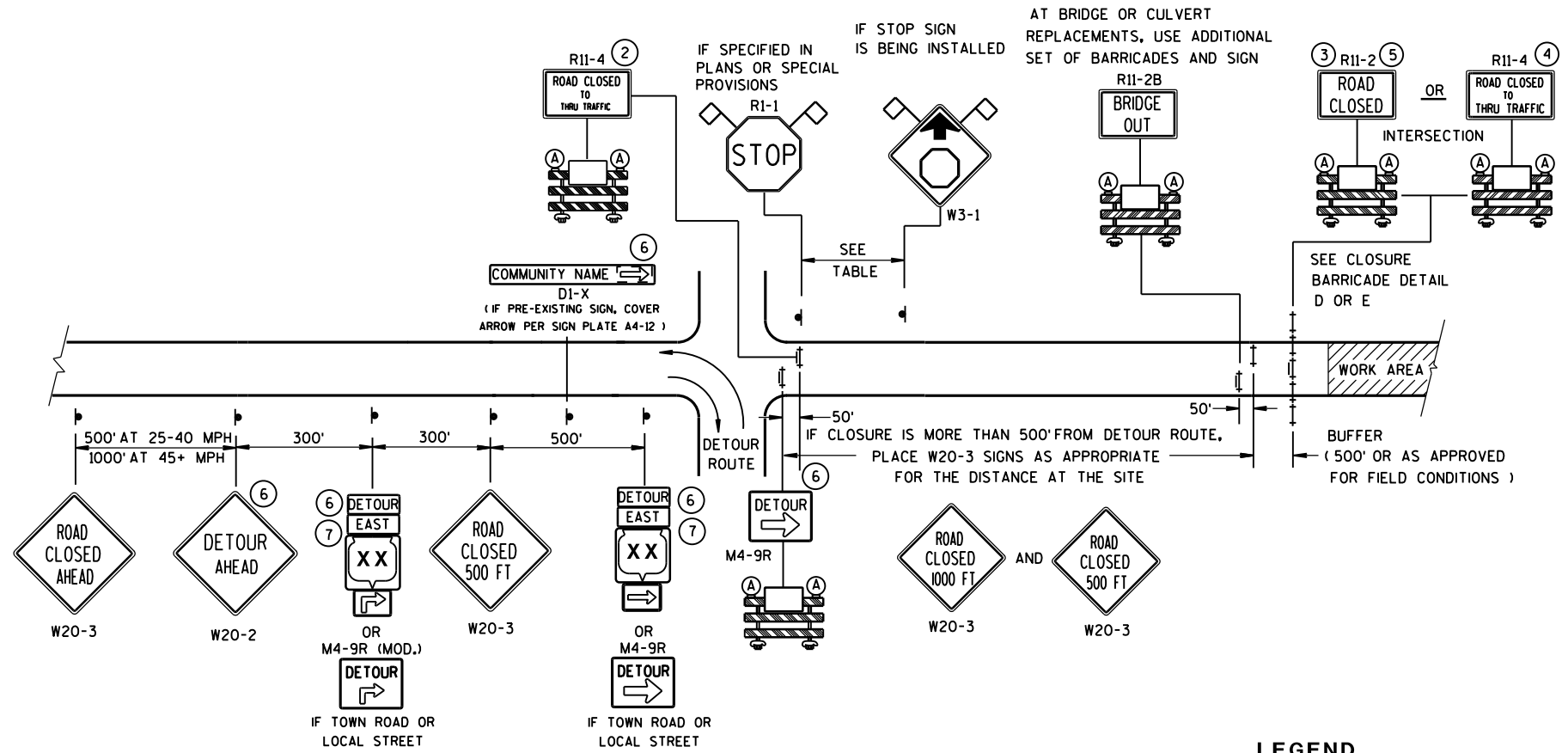
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

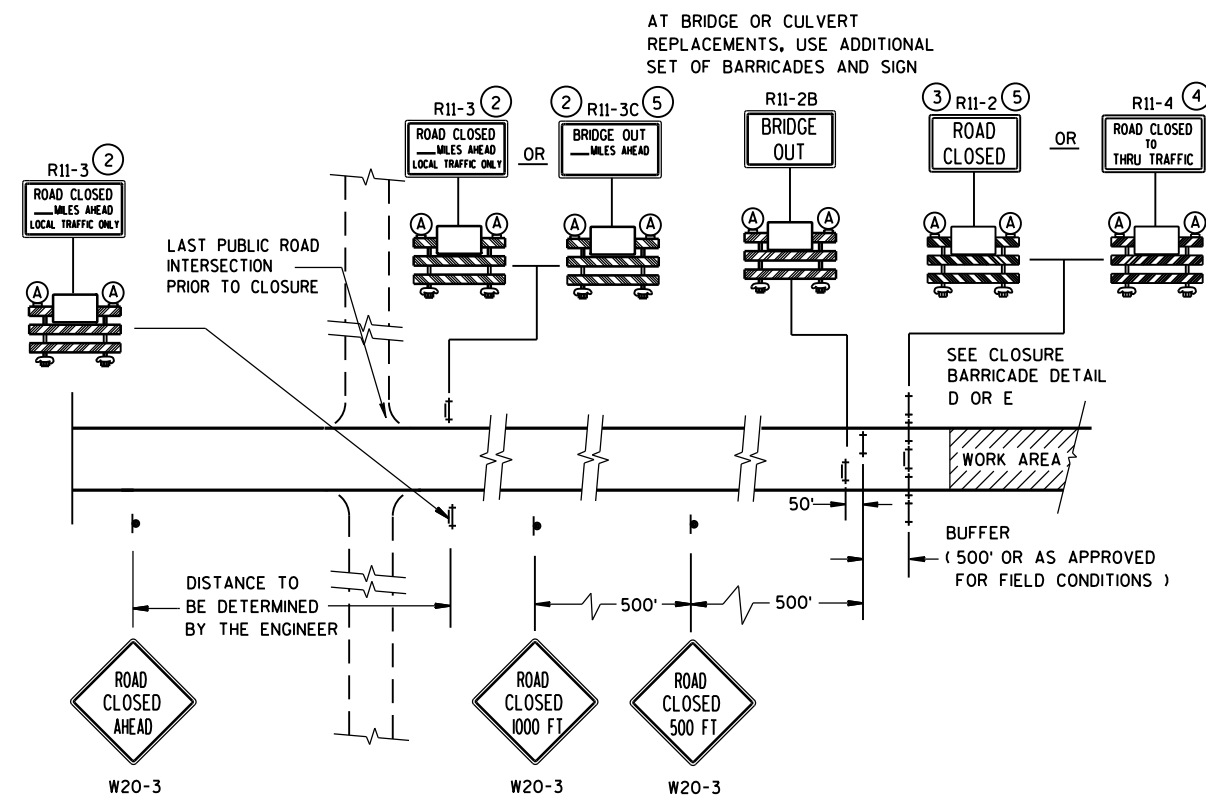
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B





MAINLINE CLOSURE WITH POSTED DETOUR


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










DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

LEGEND


-  SIGN ON PERMANENT SUPPORT
 TYPE III BARRICADE
 TYPE III BARRICADE WITH ATTACHED SIGN
 TYPE "A" WARNING LIGHT (FLASHING)

 WORK AREA

 M4-8
 M3-X
 M1-4
 M1-5A
 M1-6

 OR 

M05-1 M06-1

 FLAGS, 16" X 16" MIN., (ORANGE)

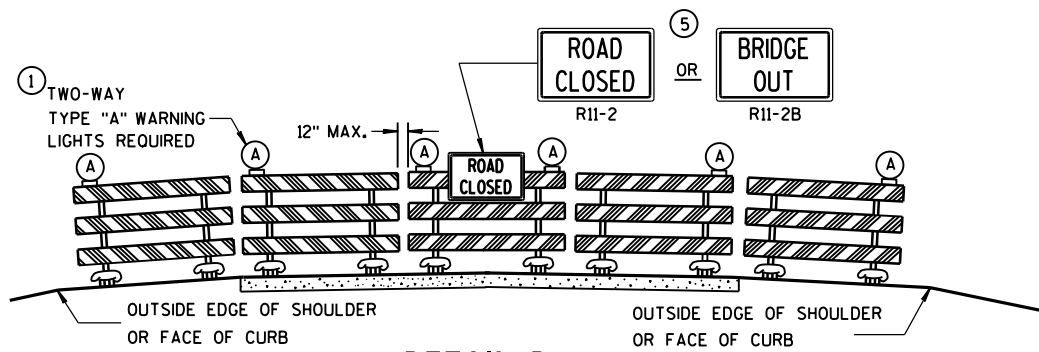
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (F T)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

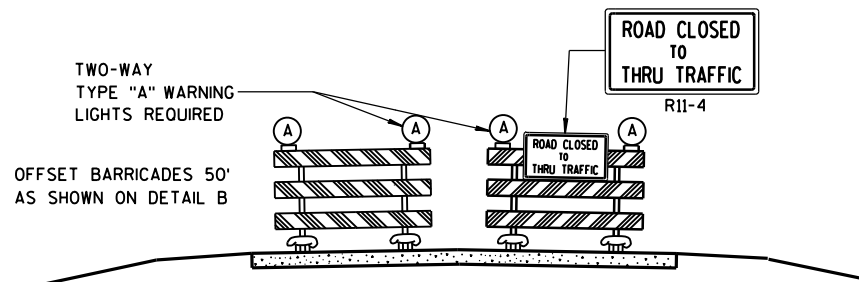
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013	/S/ Travis Feltes
DATE	STATE TRAFFIC ENGINEER OF DESIGN
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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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:

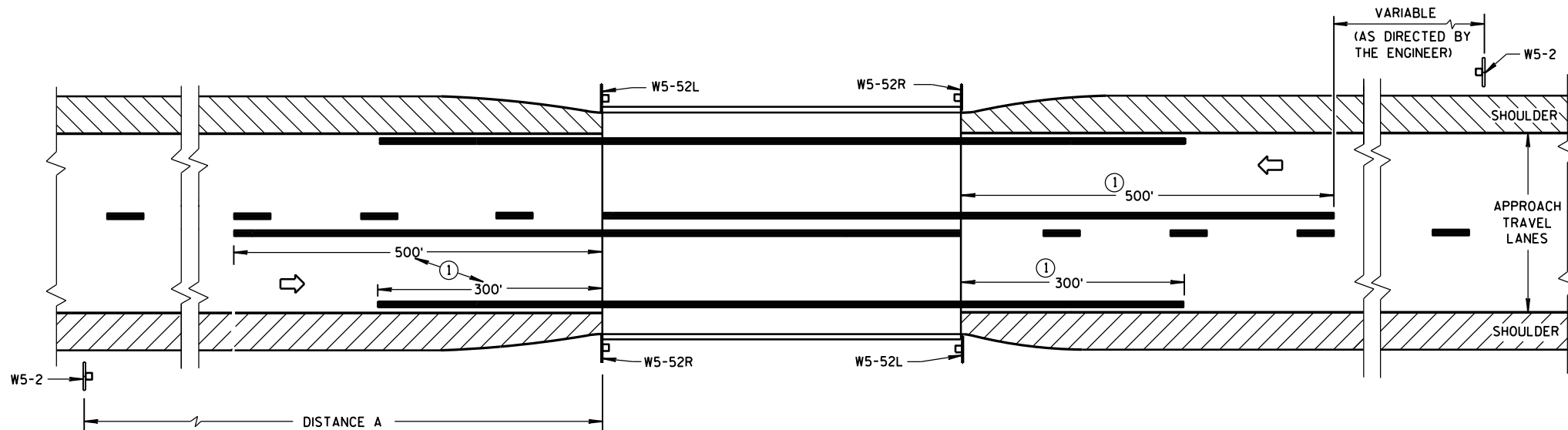
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- 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 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 LANE 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
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



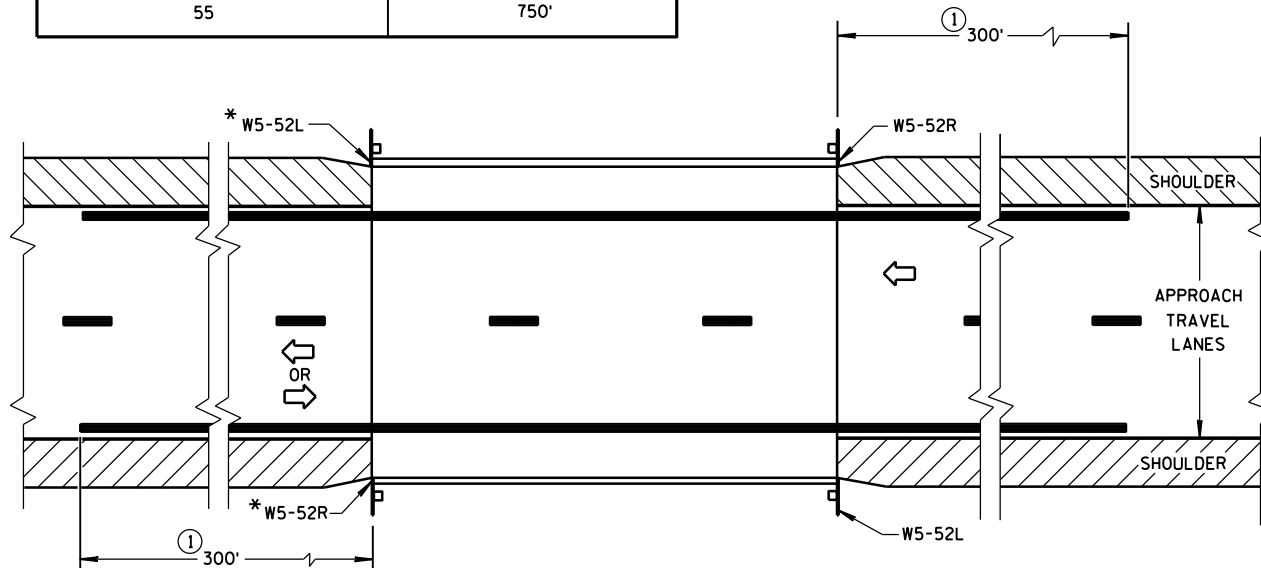
SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

DISTANCE TABLE

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

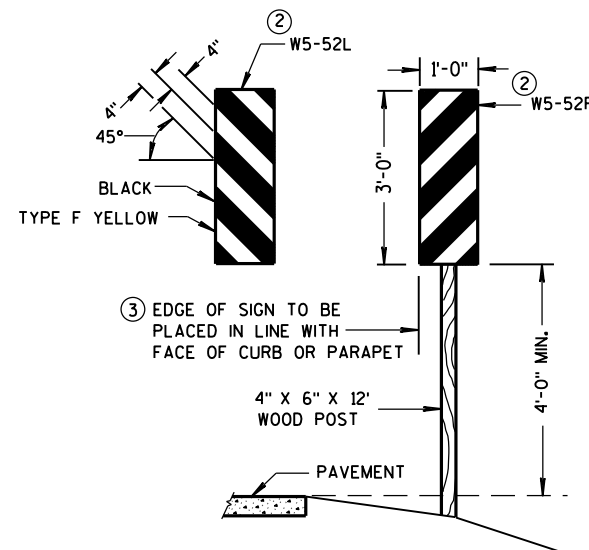


*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



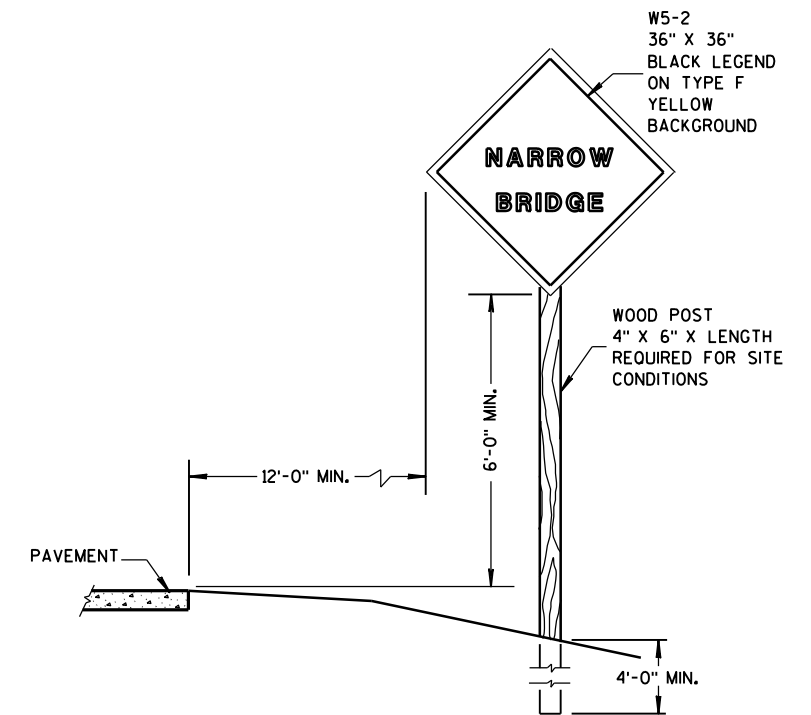
OBJECT MARKER PLACEMENT

GENERAL NOTES

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

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

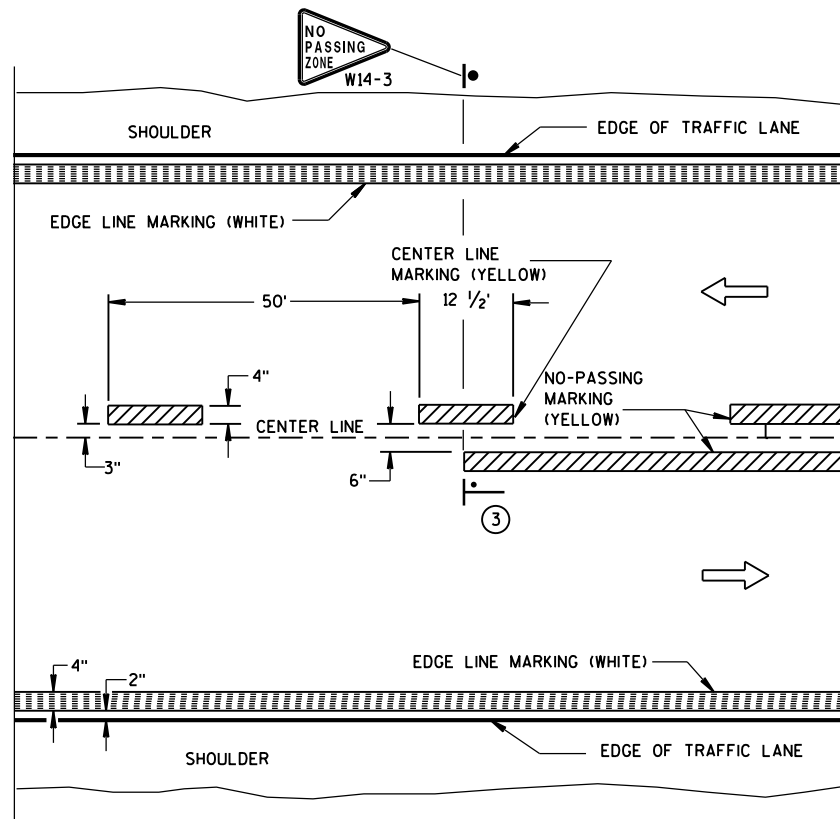
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

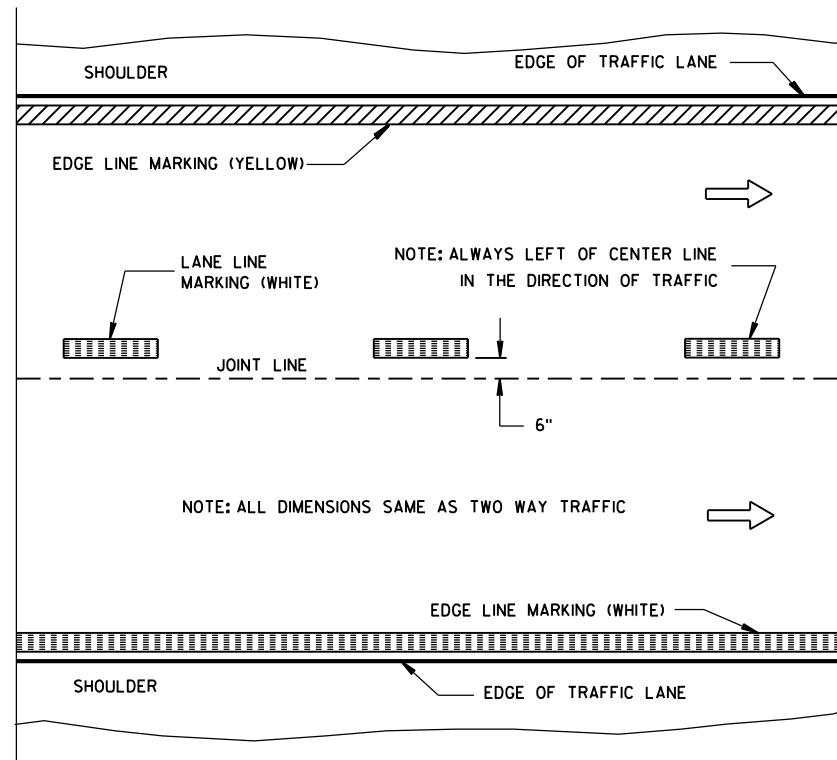
3-2014
DATE

FHWA

/S/ Travis Fettes
STATE TRAFFIC ENGINEER OF DESIGN

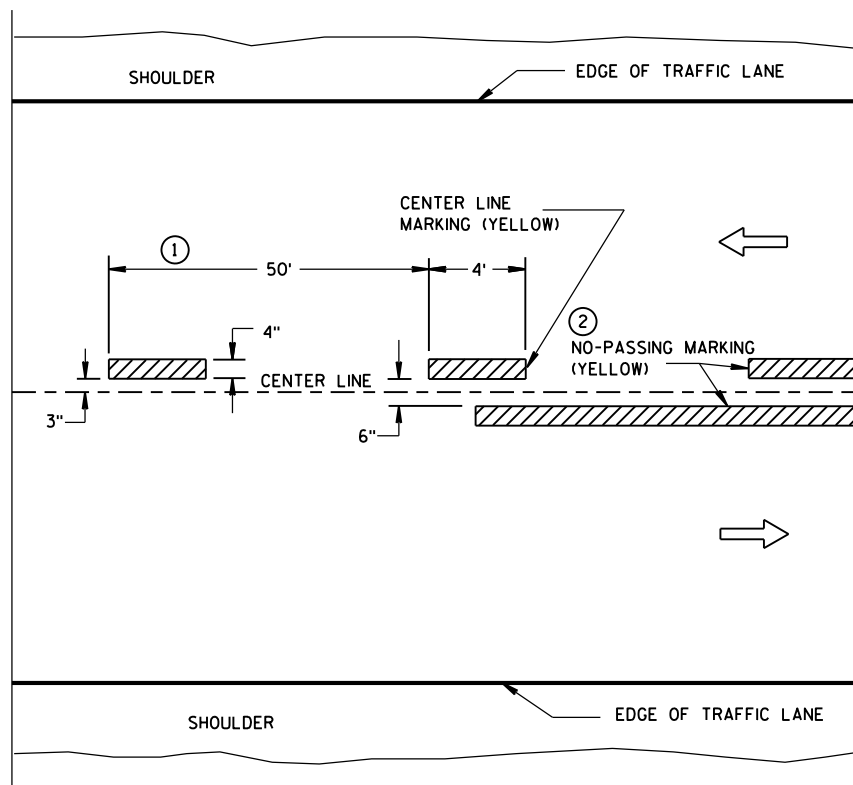


TWO WAY TRAFFIC

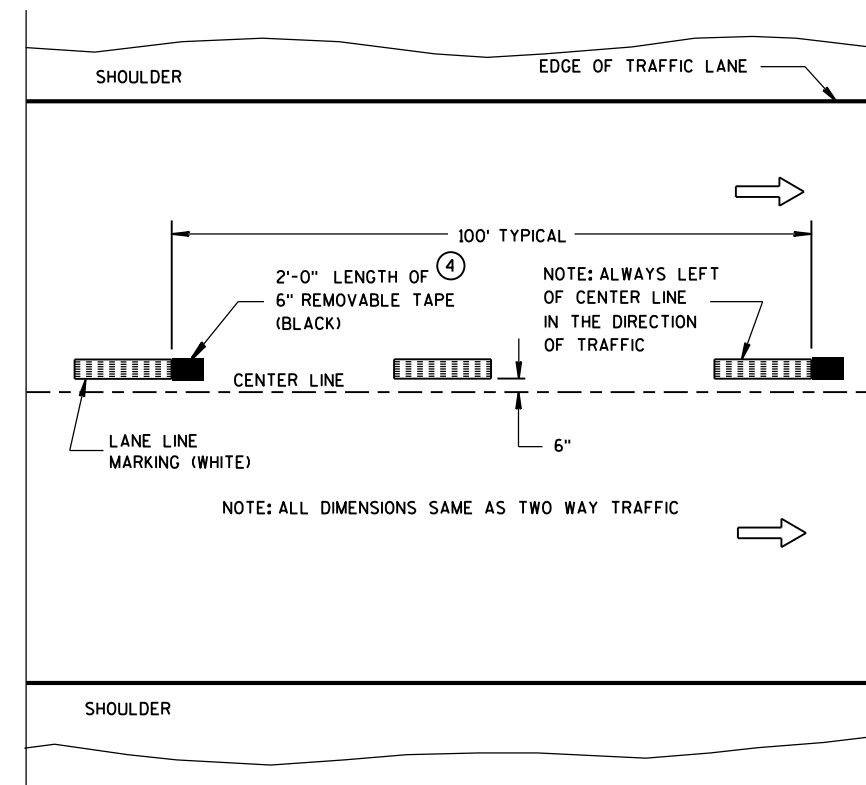


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

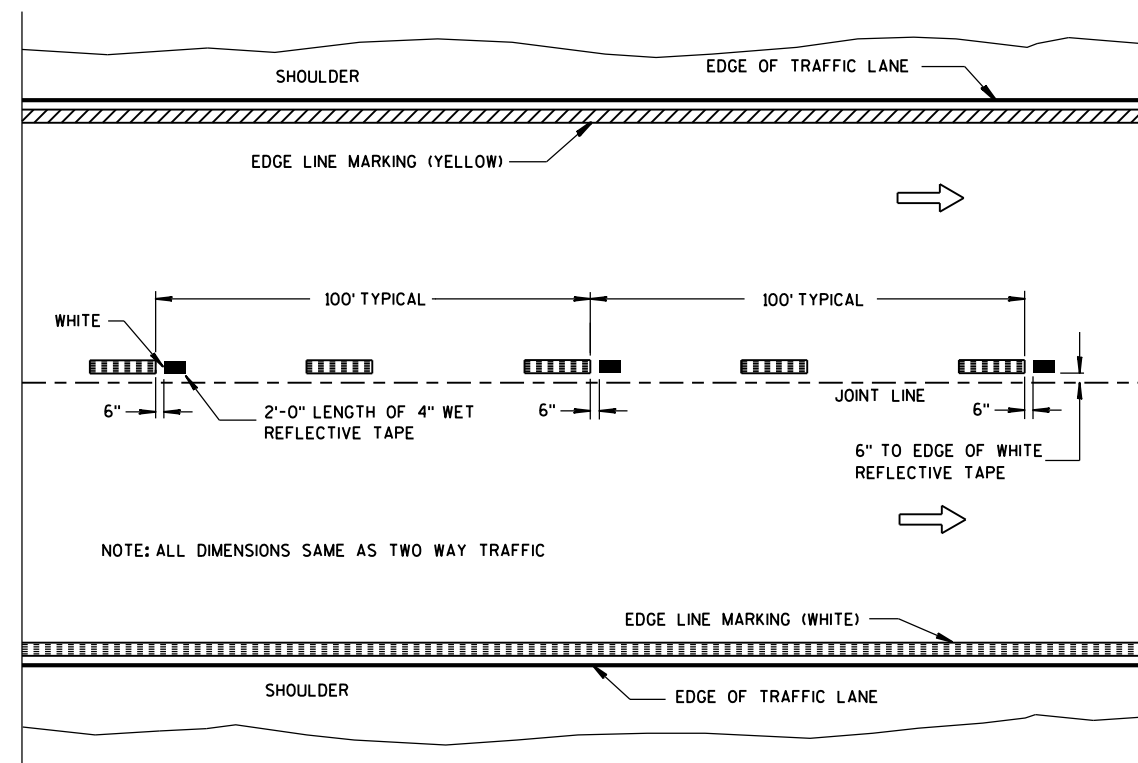
GENERAL NOTES

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

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

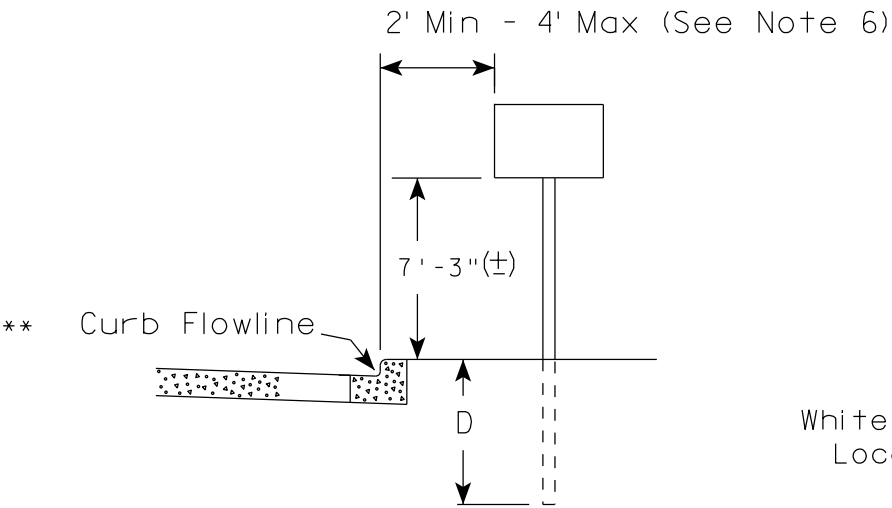
PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

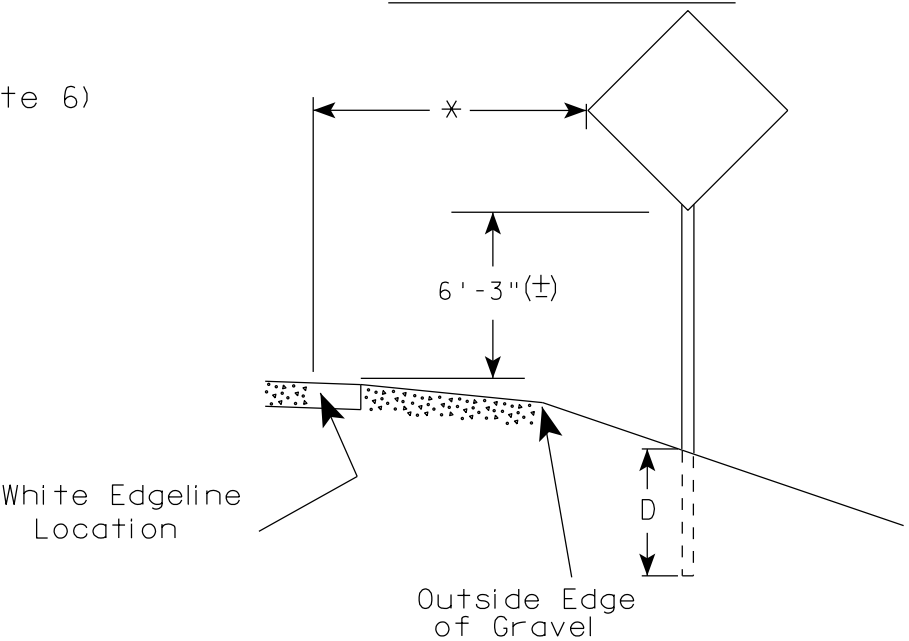
APPROVED
5-13-2013
DATE
FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

URBAN AREA



RURAL AREA (See Note 2)



- GENERAL NOTES
1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
 2. If signs are mounted on barrier wall, see A4-10 sign plate.
 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 J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. The (±) tolerance for mounting height is 3 inches.
 8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
 9. 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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

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.

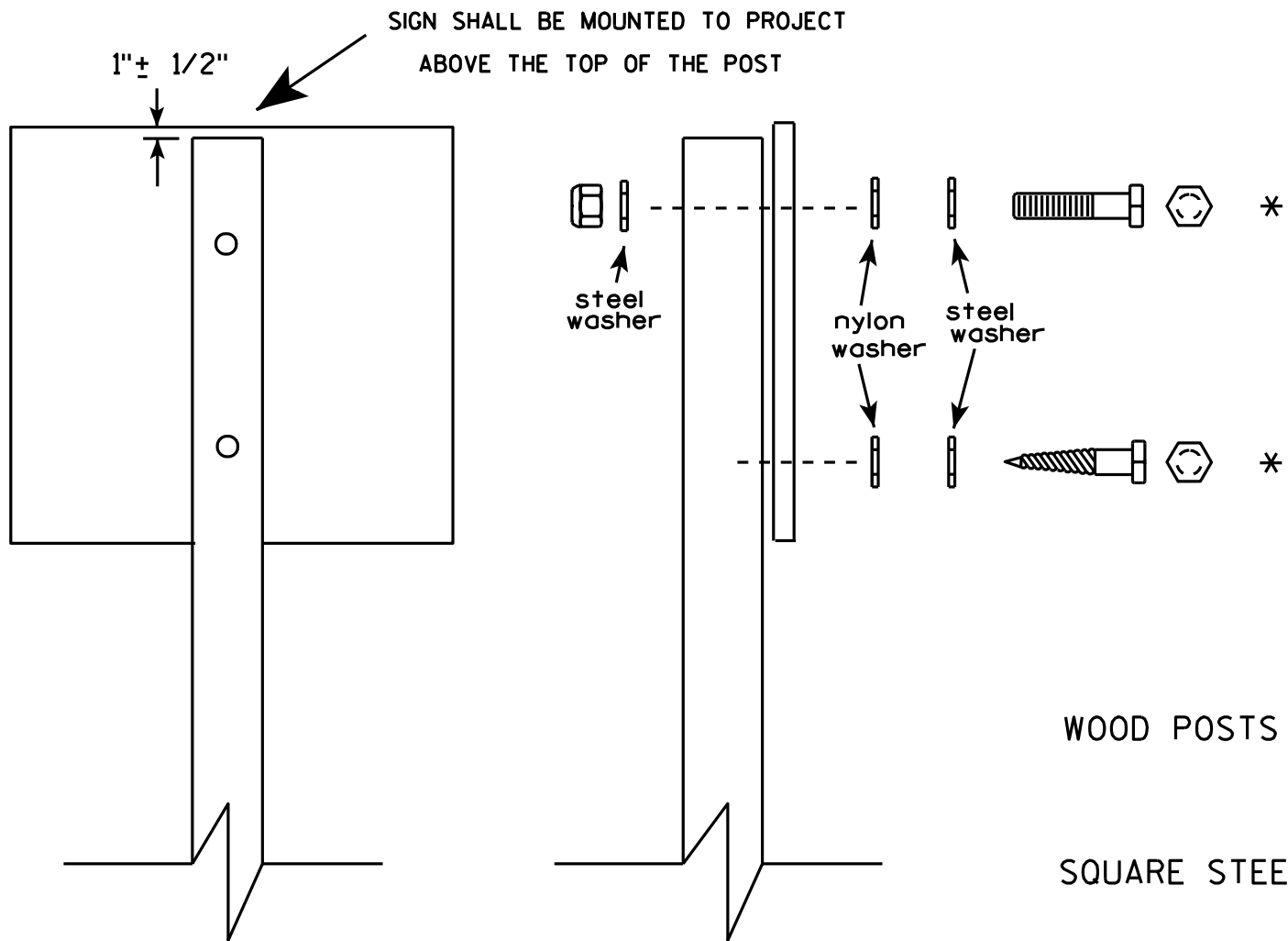
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

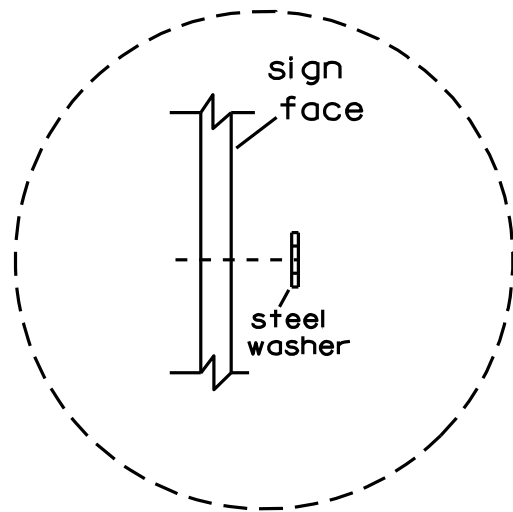


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

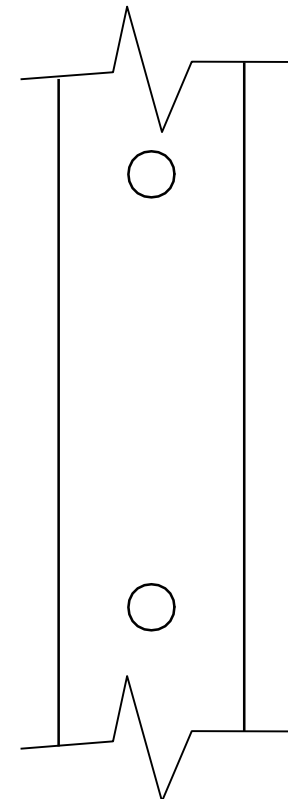
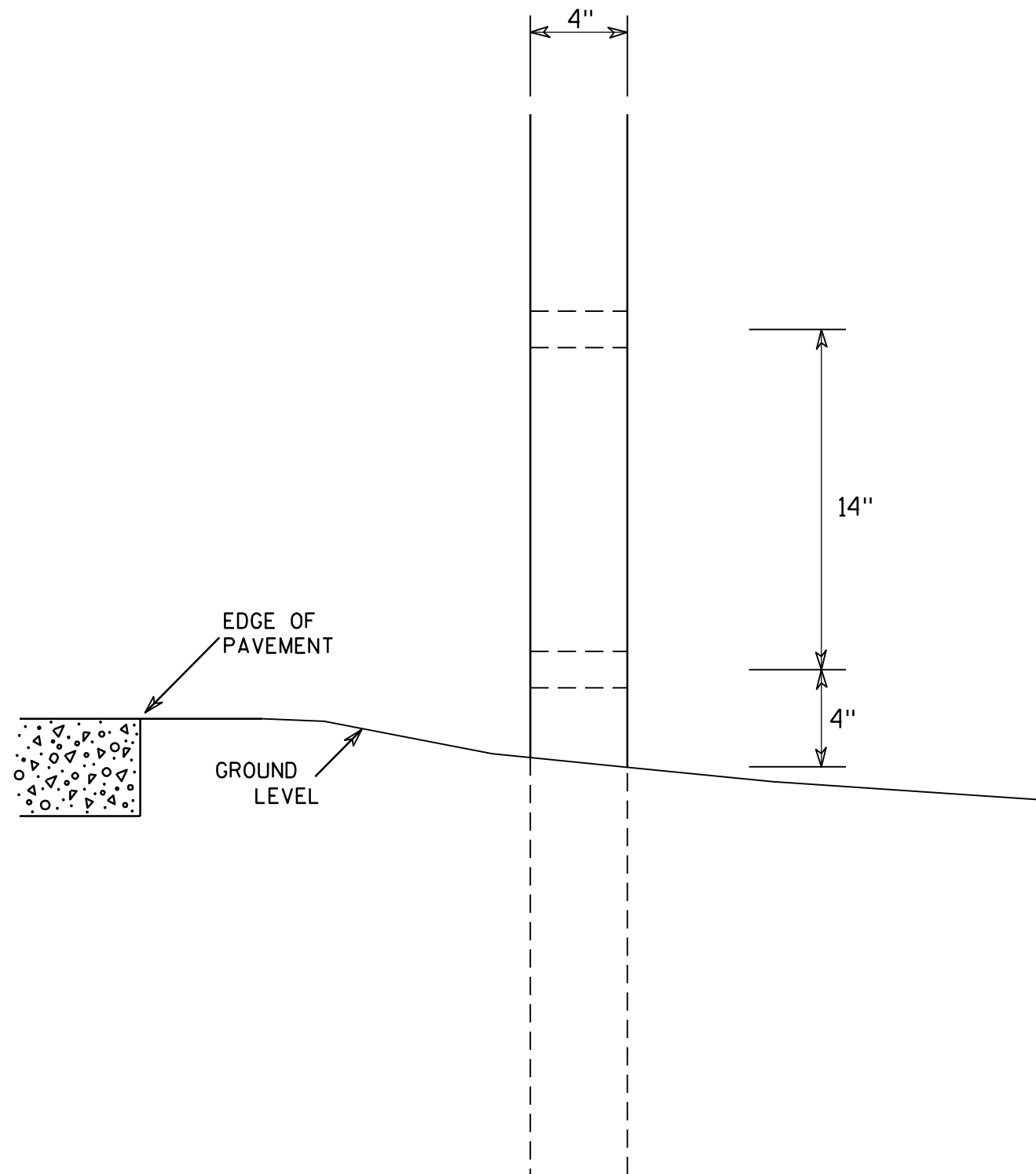
- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 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 for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

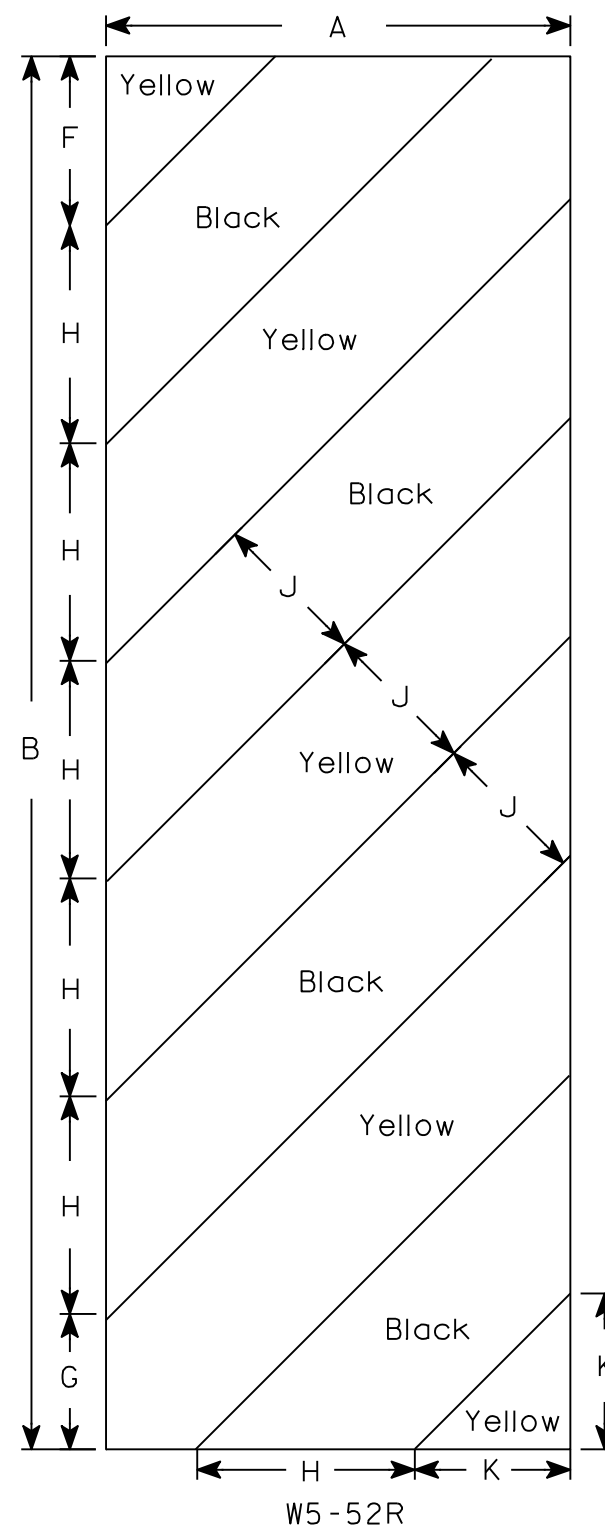
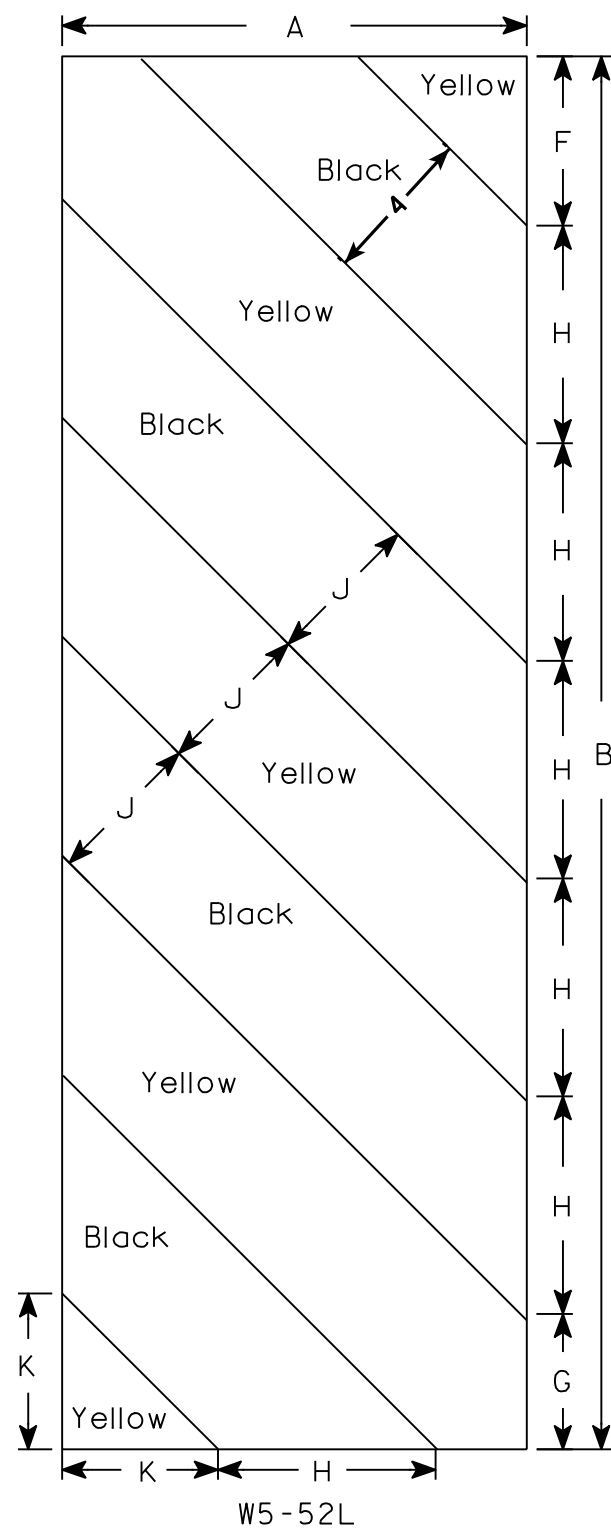
PROJECT NO: 7846-03-70

HWY: CTH K

COUNTY: CLARK

SHEET NO:

E



NOTES

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

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

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

PROJECT NO: 7846-03-70

HWY: CTH K

COUNTY: CLARK

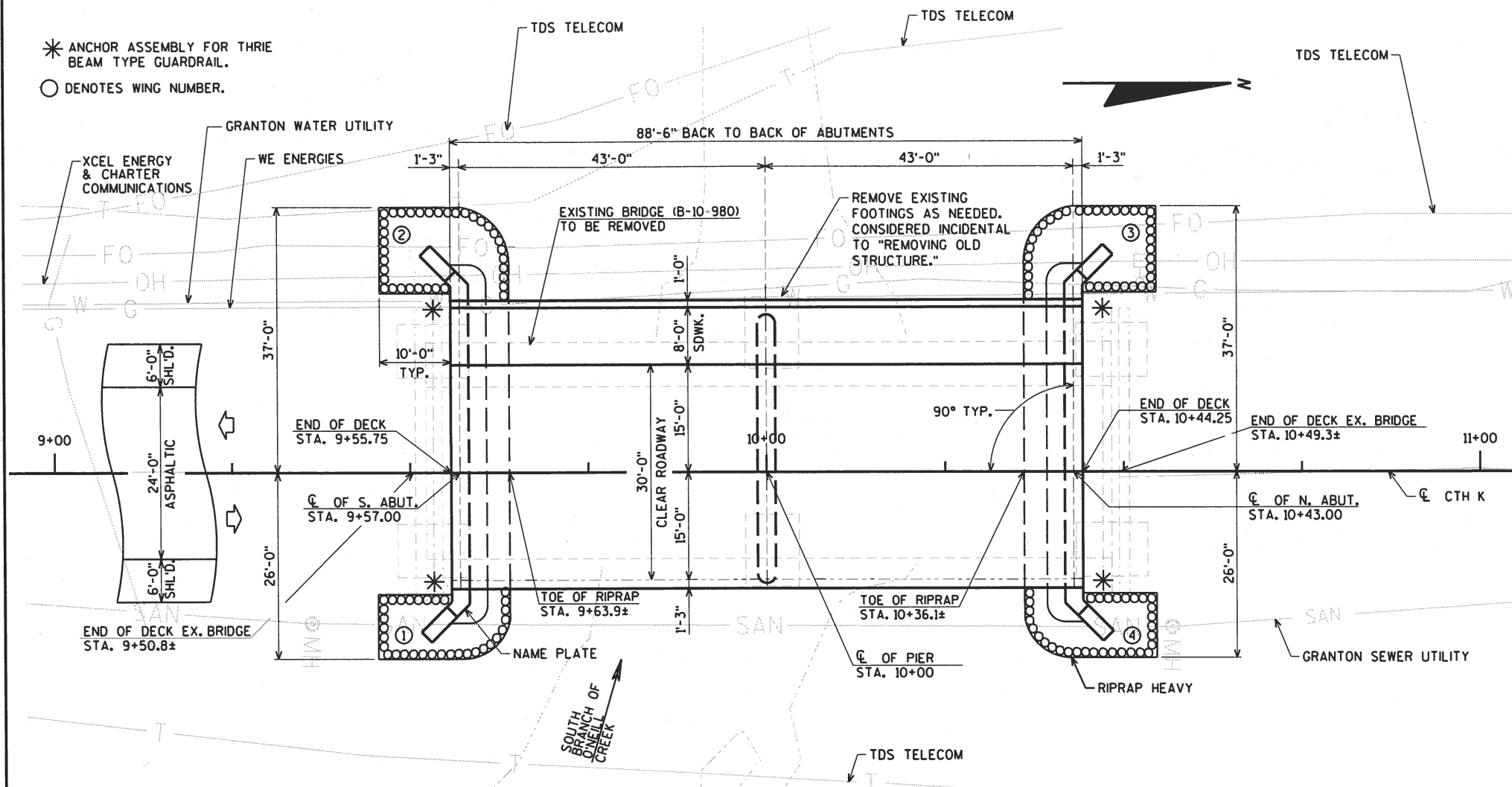
SHEET NO:

E

7846-03-70

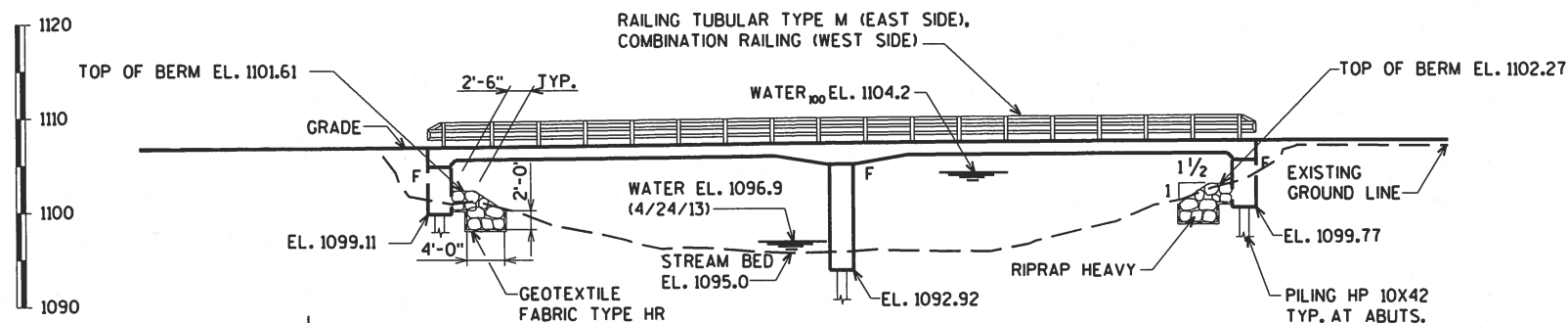
* ANCHOR ASSEMBLY FOR THRE BEAM TYPE GUARDRAIL.

○ DENOTES WING NUMBER.

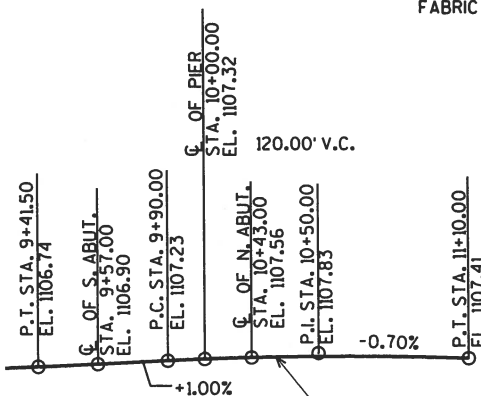


PLAN

2 SPAN CONCRETE HAUNCHED SLAB



ELEVATION

PROFILE GRADE LINE
(CTH K)

BENCH MARK:
CHISLED SQUARE AT NE CORNER OF BRIDGE ON TOP OF WINGWALL
STA. 10+48, 14' RT.
EL. 1107.75

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.07
OPERATING RATING FACTOR: 1.38
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 "/S.F.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY { SUPERSTRUCTURE f'_c = 4,000 p.s.i.
ALL OTHER f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) f_y = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FLOOD

DRAINAGE AREA = 16.5 sq. mi.
WATERWAY AREA = 437 sq. ft.
V = 5.7 f.p.s.
 Q_{100} = 2,500 c.f.s.
HIGH WATER₁₀₀ EL. 1104.2
HIGH WATER₂ EL. 1100.6
RDWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 5
DATUM = NAVD88 (2007)

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 135 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 20'-0" AT THE NORTH ABUTMENT AND 25'-0" AT THE SOUTH ABUTMENT.

PIER TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 25'-0".

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

LIST OF DRAWINGS

1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES & NOTES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT WING 1 DETAILS
6. SOUTH ABUTMENT WING 2 DETAILS & BILL OF BARS
7. NORTH ABUTMENT
8. NORTH ABUTMENT WING 3 DETAILS
9. NORTH ABUTMENT WING 4 DETAILS & BILL OF BARS
10. PIER
11. SUPERSTRUCTURE
12. SUPERSTRUCTURE DETAILS
13. SUPERSTRUCTURE DETAILS
14. VERTICAL FACE PARAPET TYPE A
15. RAILING STEEL TYPE C1
16. RAILING TUBULAR TYPE M

FOR TYPICAL SECTION, BID ITEMS, AND GENERAL NOTES
SEE SHEET 2

TRAFFIC DATA:

A.D.T. = 1,000 (2014)
A.D.T. = 1,100 (2034)
R.D.S. = 40 M.P.H.



BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED *William C. Dreher* KAR **09/16/14**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-10-223

CTH K OVER SOUTH BRANCH O'NEILL CREEK

COUNTY CLARK TOWN/CITY/VILLAGE GRANTON

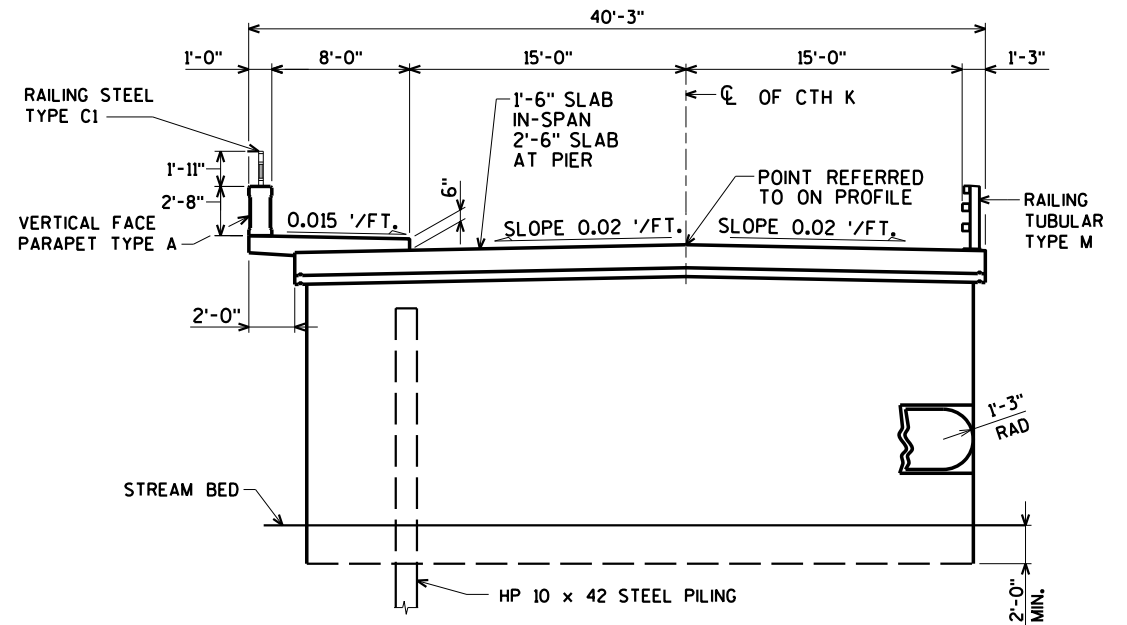
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY AEB CK'D. CUM BY CUM PLANS CK'D. **BNS**

GENERAL PLAN

SHEET 1 OF 16

BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	PIER	N. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-----	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-10-223	LS	-----	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	115	-----	115	-----	230
502.0100	CONCRETE MASONRY BRIDGES	CY	28	39	28	234	329
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	-----	440	440
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2,600	1,780	2,600	-----	6980
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	820	80	820	45,510	47,230
513.4060	RAILING TUBULAR TYPE M B-10-223	LS	-----	-----	-----	-----	1
513.7005	RAILING STEEL TYPE C1 B-10-223	LS	-----	-----	-----	-----	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11	-----	11	-----	22
550.0500	PILE POINTS	EACH	6	10	6	-----	22
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	120	250	120	-----	520
606.0300	RIPRAP HEAVY	CY	60	-----	55	-----	115
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	-----	80	-----	160
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1	-----	1	-----	2
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	100	-----	95	-----	195
	NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	-----	½" & ¾"



The image contains two technical drawings. The left drawing, titled "HP 10 x 42 SPLICE DETAIL", shows a side view of a splice between two H-beams. It includes labels for "SEE HP WELD DETAIL", "GF" (grind flush), "55°", "3/8\" x 5\" x 5\" DOUBLER PLATE", and "IF DOUBLER PLATE IS PLACED FIRST". The right drawing, titled "HP WELD DETAIL", shows a cross-section of the flange weld. It includes labels for "GRIND FLUSH WELD UNDER DOUBLER PLATE", "DOUBLER PLATE AT FLANGE", "WELD", "55°", and "3/8\" TYP.". Both drawings use standard engineering symbols for welds and dimensions.

HP 10 x 42 SPLICE DETAIL

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

GENERAL NOTES

\$PRFNAME\$
U:±42-0891.00 - Clark County, CTH K, Oneill Creek±BRIDGE±420891_gp.DGN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY		CJM	PLANS CK'D. AEB
TYP. SECTION, QUANT. & NOTES		SHEET 2 OF 16	

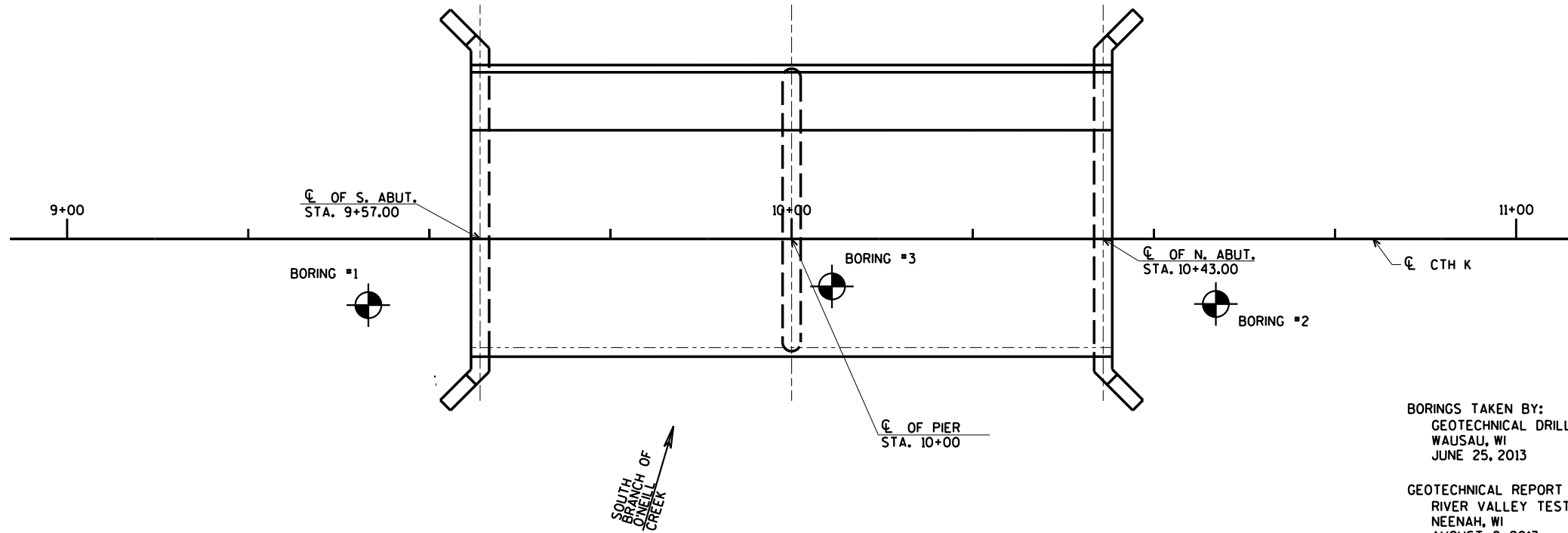
ORIGINAL PLANS PREPARED BY

AYRES
ASSOCIATES

3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

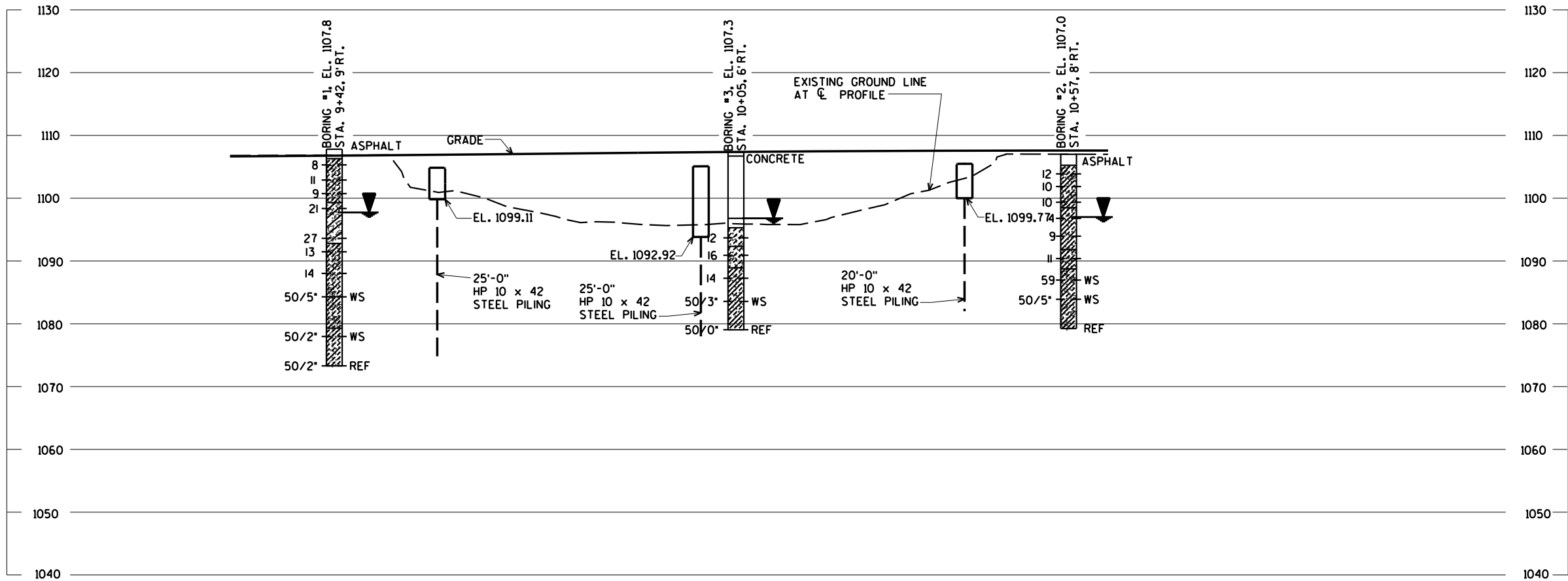
\$PRNAME\$
U:\42-0891.00 - Clark County, CTH K, Oneill Creek+BRIDGE+420891.SOLS.dgn

8



BORINGS TAKEN BY:
GEOTECHNICAL DRILLING CONTRACTORS, LLC
WAUSAU, WI
JUNE 25, 2013

GEOTECHNICAL REPORT BY:
RIVER VALLEY TESTING, INC.
NEENAH, WI
AUGUST 8, 2013



STATE PROJECT NUMBER

7846-03-70

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6"
PENETRATION
PROBING TAKEN WITH
A 350" WT.
FALLING 18" ON A 2"
O.D. POINT.

LEGEND OF BORING

BORING NO.
STA.
ELEV.
UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140" WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION

SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140" HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CAGED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

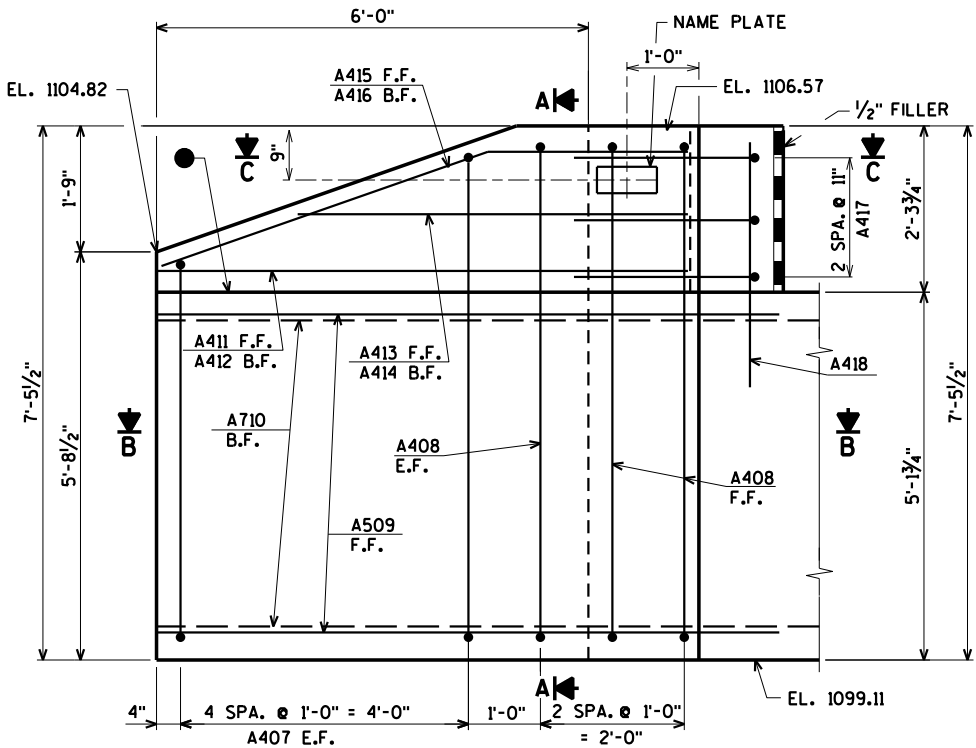
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

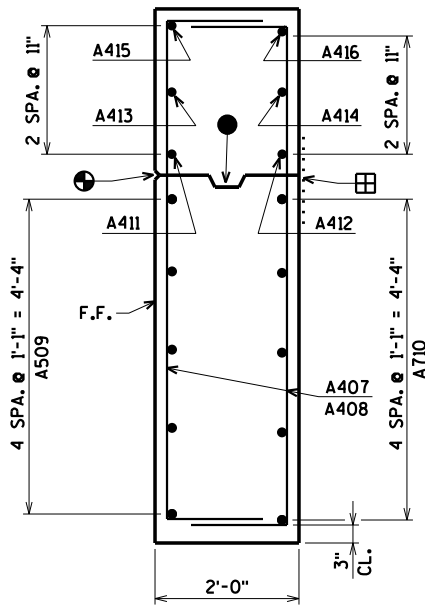
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY		CJM	PLANS CK'D. AEB
SUBSURFACE EXPLORATION			SHEET 3 OF 16

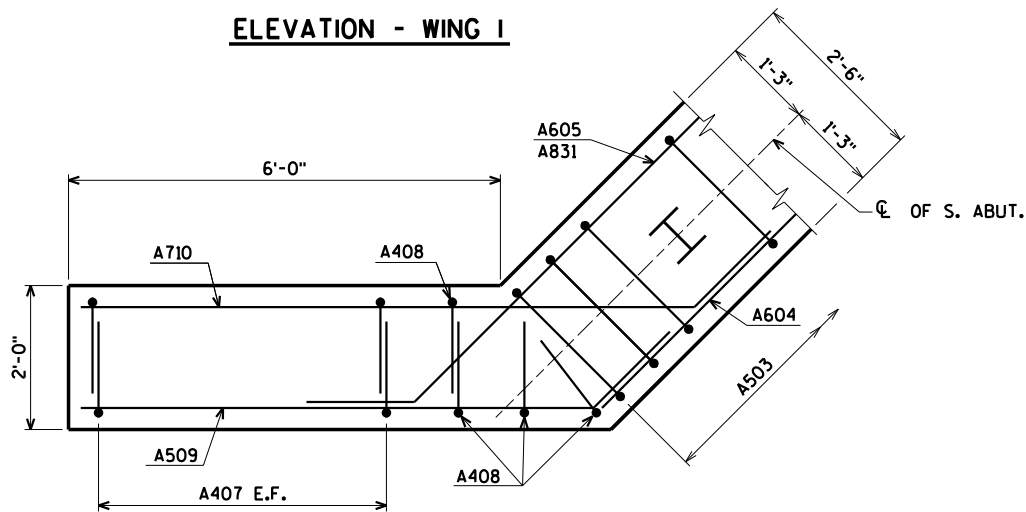




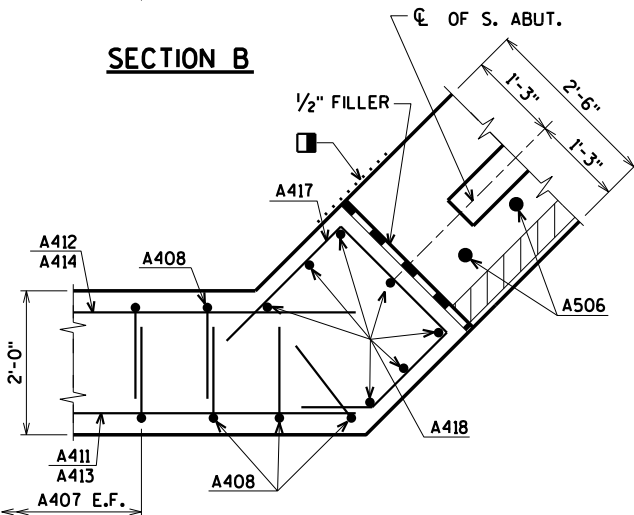
ELEVATION - WING 1



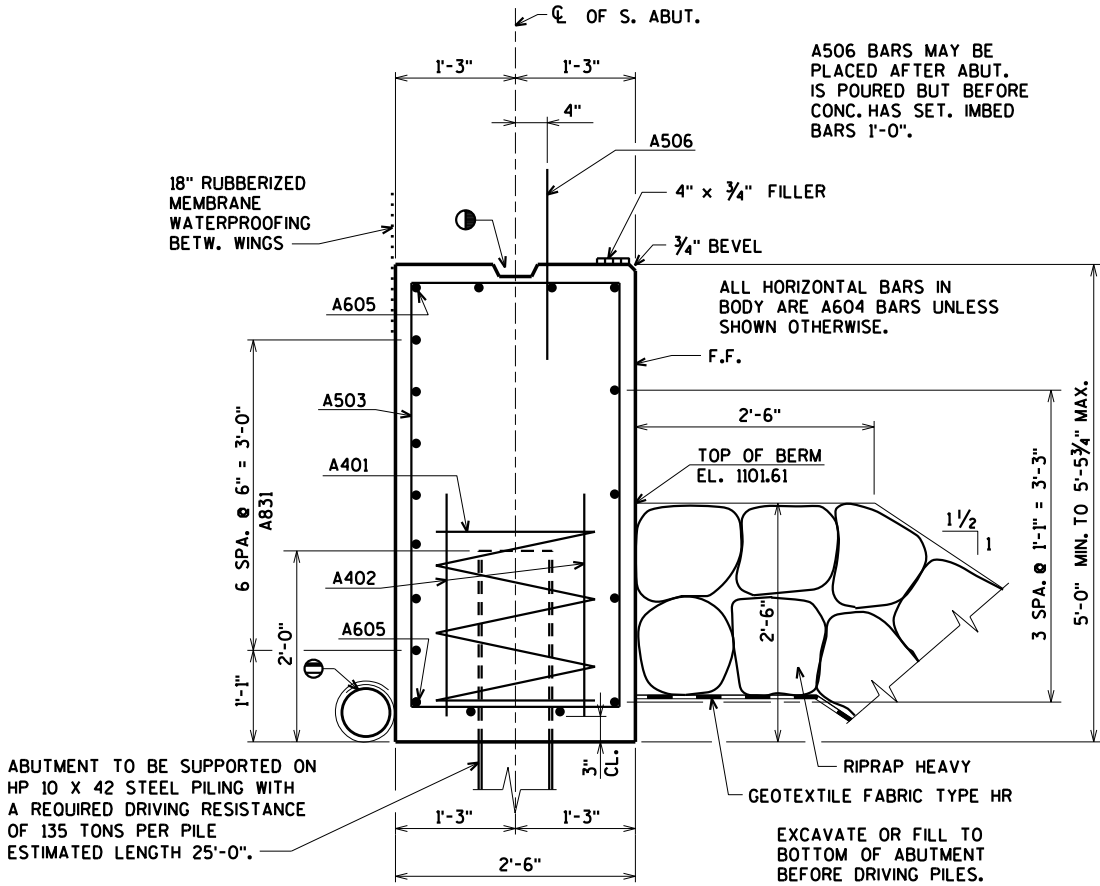
SECTION A



SECTION B



SECTION C



TYPICAL SECTION THRU BODY

PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

3/4" V-GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPlice DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

WORK THIS SHEET WITH SHEETS 4 & 6.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY CJM		PLANS CK'D. AEB	
SOUTH ABUTMENT WING 1 DETAILS			SHEET 5 OF 16

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	820* COATED 2,600* UNCOATED
							LOCATION
A401		6	28-0	X			BODY @ PILES
A402		12	2-3				BODY @ PILES
A503		55	13-10	X			BODY VERT.
A604		9	44-9				BODY HORIZ. F.F.
A605		4	27-8	X			BODY HORIZ. B.F.
A506	X	40	2-0				BODY DOWELS
A407	X	10	8-6	X		⊗	WING 1 VERT. E.F.
A408	X	4	9-6	X			WING 1 VERT. E.F.
A509	X	5	8-7	X			WING 1 HORIZ. F.F.
A710	X	5	10-4	X			WING 1 HORIZ. B.F.
A411	X	1	7-2				WING 1 HORIZ. F.F.
A412	X	1	7-2				WING 1 HORIZ. B.F.
A413	X	1	4-8				WING 1 HORIZ. F.F.
A414	X	1	4-8				WING 1 HORIZ. B.F.
A415	X	1	7-5	X			WING 1 DIAG. F.F.
A416	X	1	7-5	X			WING 1 DIAG. B.F.
A417	X	3	6-7	X			WING 1 HORIZ.
A418	X	7	3-3				WING 1 VERT.
A419	X	10	8-4	X		⊗	WING 2 VERT. E.F.
A420	X	4	9-4	X			WING 2 VERT. E.F.
A521	X	5	8-7	X			WING 2 HORIZ. F.F.
A722	X	5	10-4	X			WING 2 HORIZ. B.F.
A423	X	1	7-2				WING 2 HORIZ. F.F.
A424	X	1	7-2				WING 2 HORIZ. B.F.
A425	X	1	4-11				WING 2 HORIZ. F.F.
A426	X	1	4-11				WING 2 HORIZ. B.F.
A427	X	1	7-5	X			WING 2 DIAG. F.F.
A428	X	1	7-5	X			WING 2 DIAG. B.F.
A429	X	3	6-7	X			WING 2 HORIZ.
A430	X	7	3-3				WING 2 VERT.
A831		14	28-7	X			BODY HORIZ. B.F.

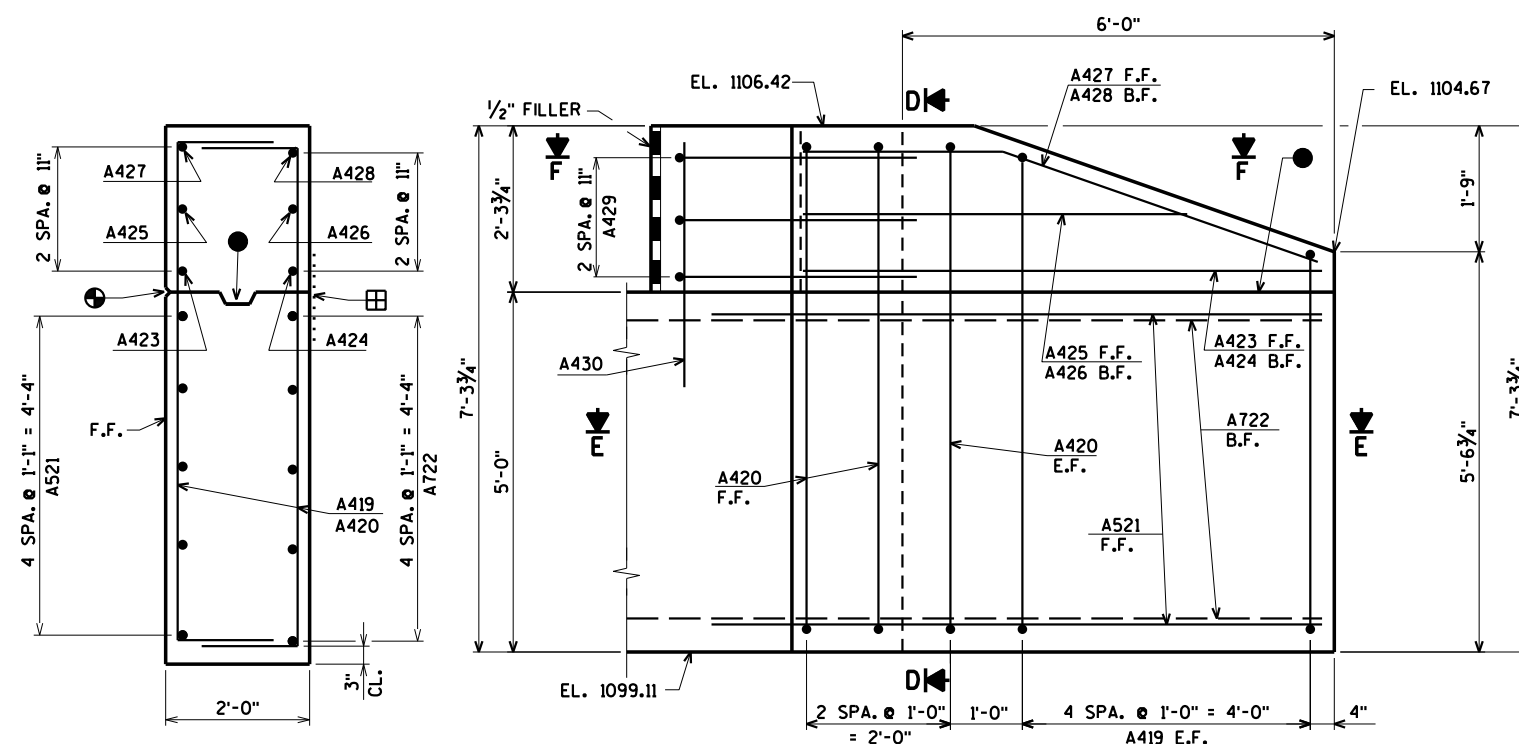
⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR MARK	NO REQ'D.	LENGTH
A407	2 SERIES OF 4	7'-9" TO 9'-3"
A419	2 SERIES OF 4	7'-7" TO 9'-1"

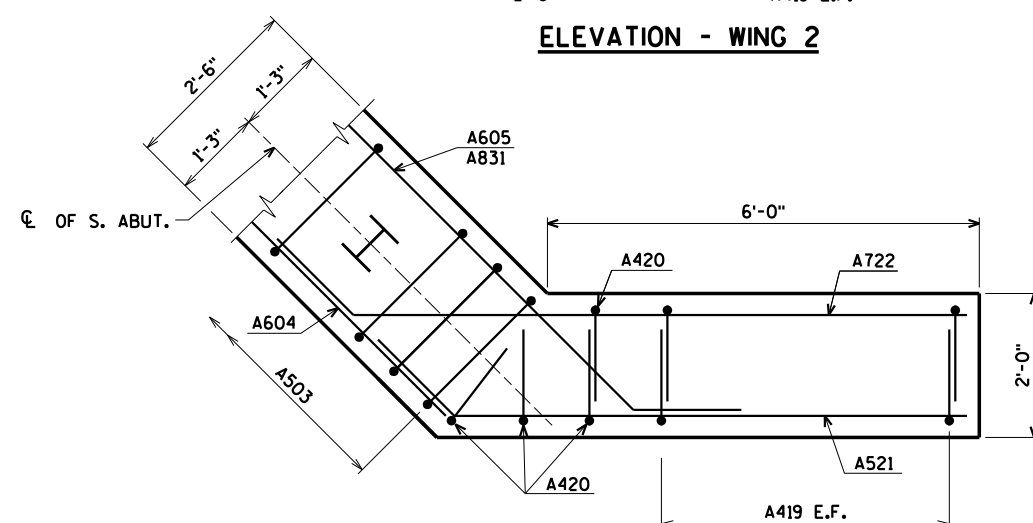
NO.	DATE	REVISION	BY
-----	------	----------	----

	DRAWN BY	CJM	PLANS CK'D.	AEE
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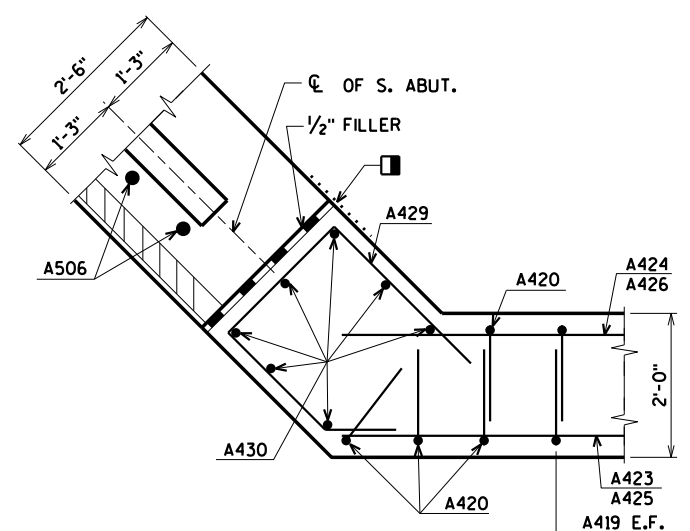
SHEET 6 OF 16



ELEVATION - WING 2

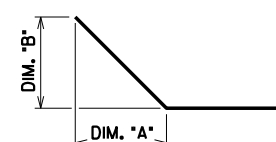


SECTION E



SECTION F

BAR NO.	DIM. "A"	DIM. "B"
A605	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A509	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A710	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A415	4'-9"	1'-7"
A416	4'-9"	1'-7"
A521	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A722	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
A427	4'-9"	1'-7"
A428	4'-9"	1'-7"
A831	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "



- F.F. DENOTES FRONT FACE

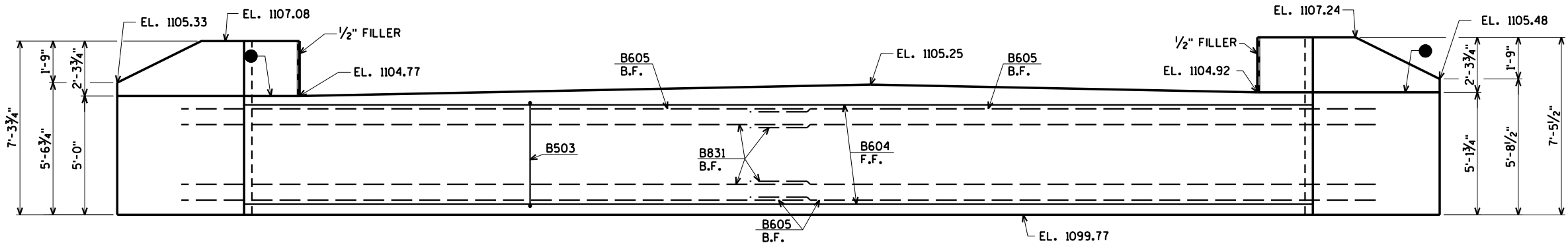
AYRES
ASSOCIATES

**3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com**

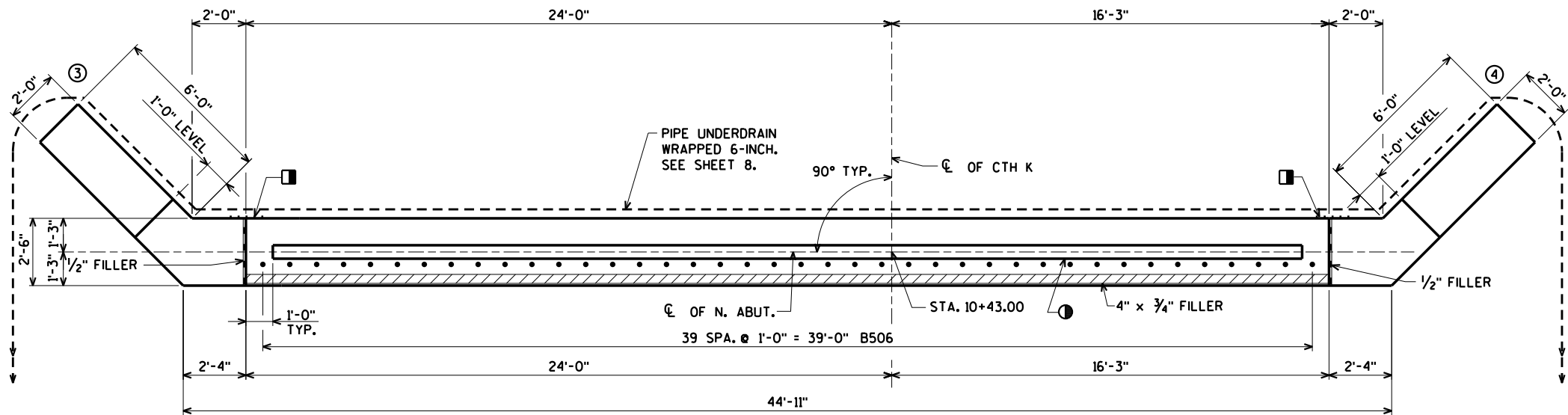
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

STATE PROJECT NUMBER

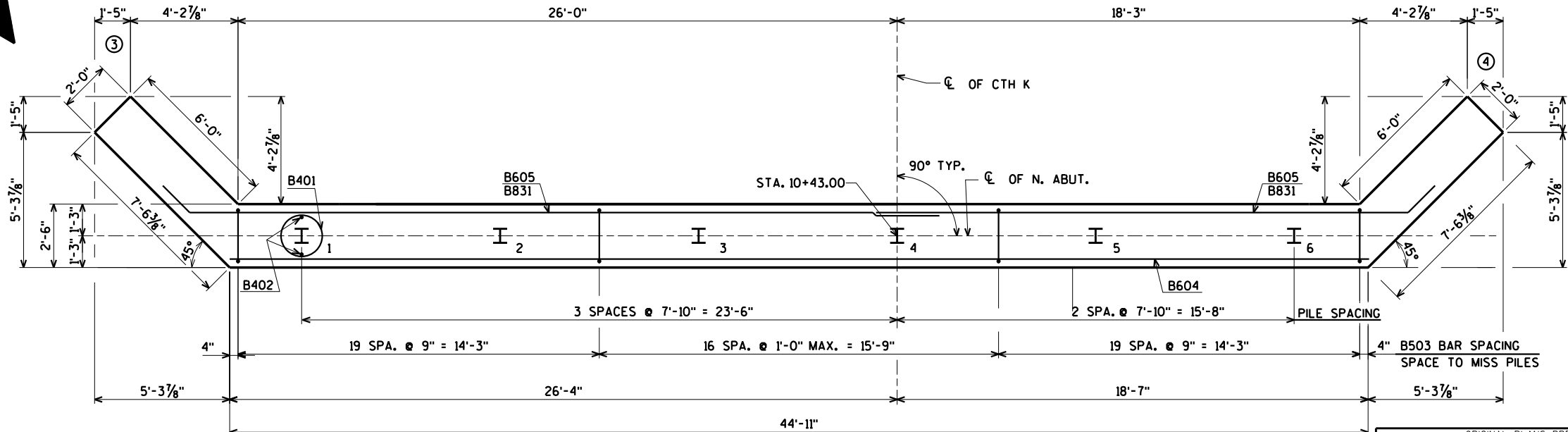
7846-03-70



ELEVATION
(LOOKING NORTH)



PLAN



PILE LAYOUT

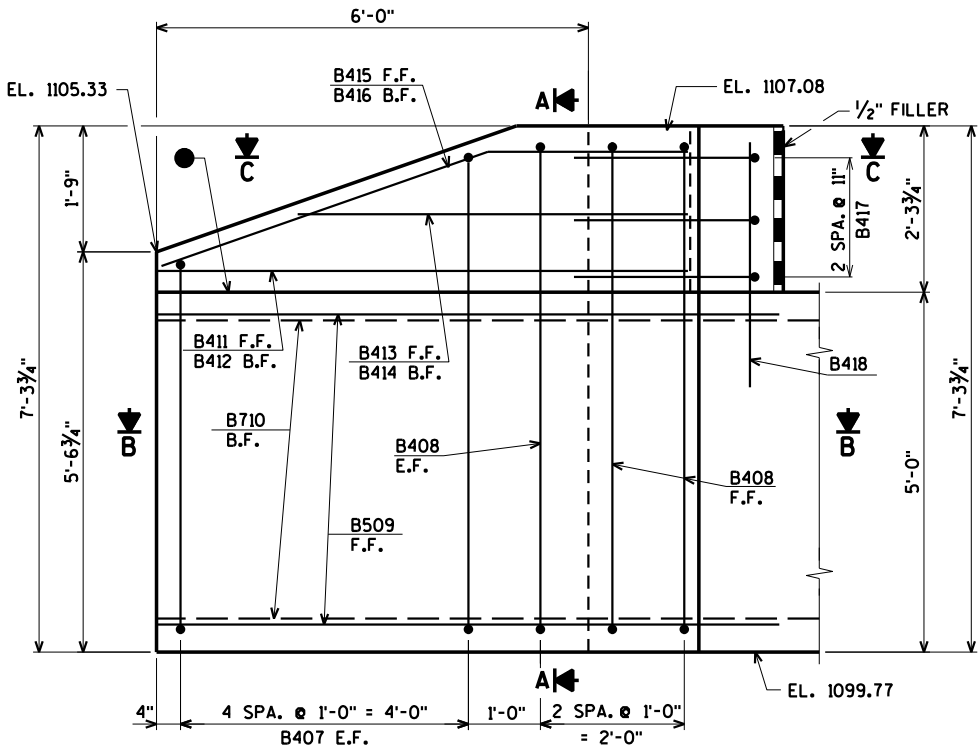
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
 - ① KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
 - VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.
- FOR PILE SPICE DETAIL SEE SHEET 2.
- B.F. DENOTES BACK FACE
E.F. DENOTES EACH FACE
F.F. DENOTES FRONT FACE

WORK THIS SHEET WITH SHEETS 8 & 9

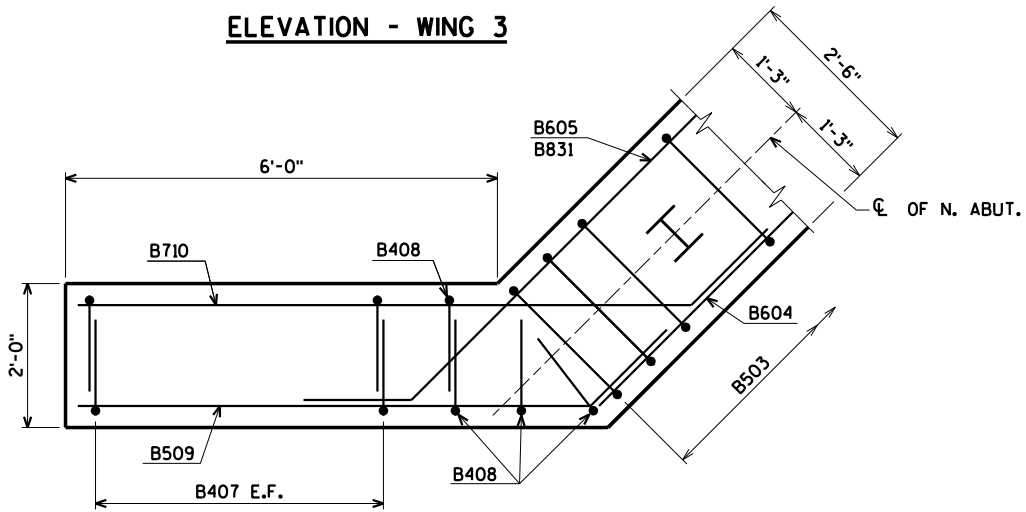
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY CJM		PLANS CK'D. AEB	
NORTH ABUTMENT		SHEET 7 OF 16	

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

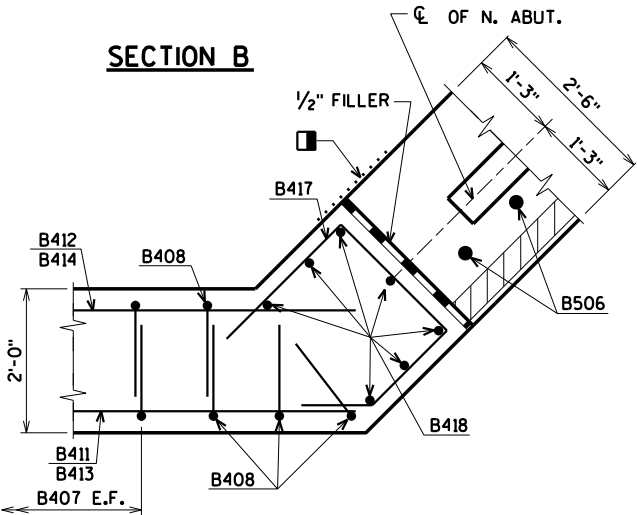
\$PRFNAME\$
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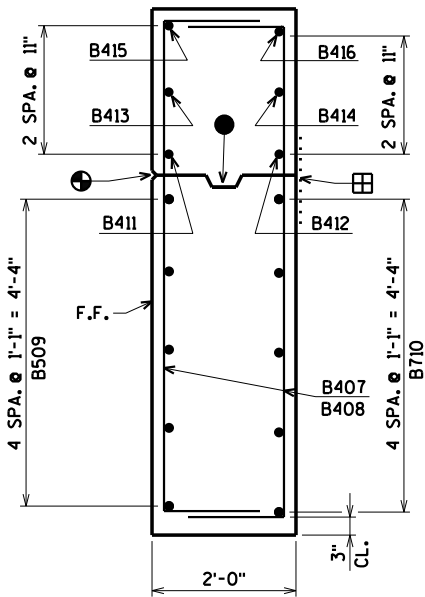
ELEVATION - WING 3



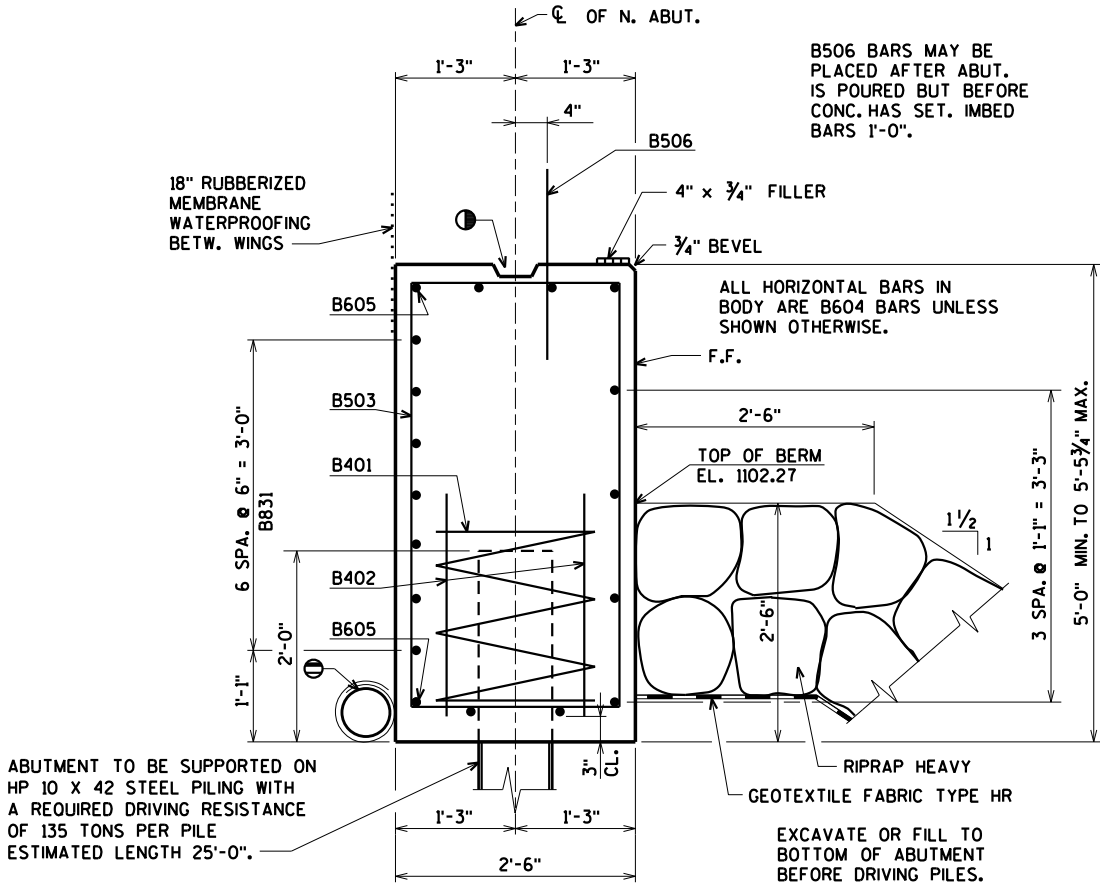
SECTION A



SECTION B



SECTION C



TYPICAL SECTION THRU BODY

PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SDD REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

3/4" V-GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPlice DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

WORK THIS SHEET WITH SHEETS 7 & 9

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY CJM		PLANS CK'D. AEB	
NORTH ABUTMENT WING 3 DETAILS			SHEET 8 OF 16

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	820" COATED 2,600" UNCOATED
							LOCATION
B401		6	28-0	X			BODY @ PILES
B402		12	2-3				BODY @ PILES
B503		55	13-10	X			BODY VERT.
B604		9	44-9				BODY HORIZ. F.F.
B605		4	27-8	X			BODY HORIZ. B.F.
B506	X	40	2-0				BODY DOWELS
B407	X	10	8-4	X		⊗	WING 3 VERT. E.F.
B408	X	4	9-4	X			WING 3 VERT. E.F.
B509	X	5	8-7	X			WING 3 HORIZ. F.F.
B710	X	5	10-4	X			WING 3 HORIZ. B.F.
B411	X	1	7-2				WING 3 HORIZ. F.F.
B412	X	1	7-2				WING 3 HORIZ. B.F.
B413	X	1	4-11				WING 3 HORIZ. F.F.
B414	X	1	4-11				WING 3 HORIZ. B.F.
B415	X	1	7-5	X			WING 3 DIAG. F.F.
B416	X	1	7-5	X			WING 3 DIAG. B.F.
B417	X	3	6-7	X			WING 3 HORIZ.
B418	X	7	3-3				WING 3 VERT.
B419	X	10	8-6	X		⊗	WING 4 VERT. E.F.
B420	X	4	9-3	X			WING 4 VERT. E.F.
B521	X	5	8-7	X			WING 4 HORIZ. F.F.
B722	X	5	10-4	X			WING 4 HORIZ. B.F.
B423	X	1	7-2				WING 4 HORIZ. F.F.
B424	X	1	7-2				WING 4 HORIZ. B.F.
B425	X	1	4-11				WING 4 HORIZ. F.F.
B426	X	1	4-11				WING 4 HORIZ. B.F.
B427	X	1	7-5	X			WING 4 DIAG. F.F.
B428	X	1	7-5	X			WING 4 DIAG. B.F.
B429	X	3	6-7	X			WING 4 HORIZ.
B430	X	7	3-3				WING 4 VERT.
B831		14	28-7	X			BODY HORIZ. B.F.

BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
B407	2 SERIES OF 4	7' - 7" TO 9' - 1"
B419	2 SERIES OF 4	7' - 9" TO 9' - 3"

BUNDLE AND TAG EACH SERIES SEPARATELY.

WORK THIS SHEET WITH SHEETS 7 & 8

NO.	DATE	REVISION	BY
-----	------	----------	----

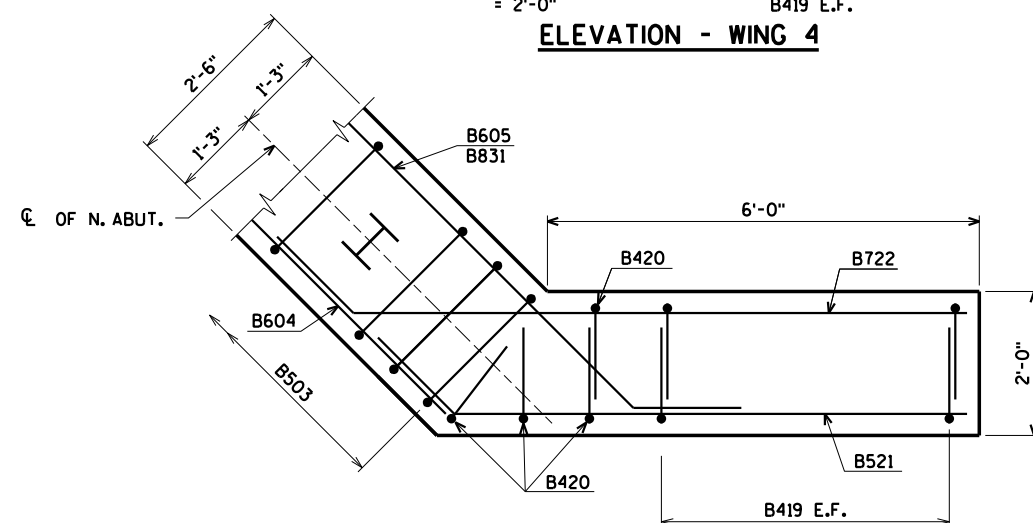
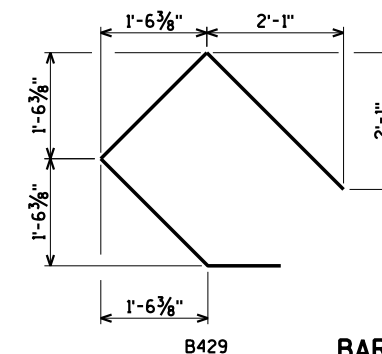
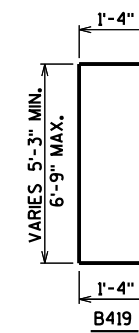
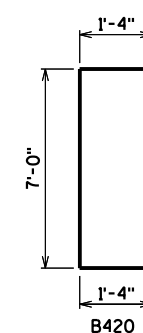
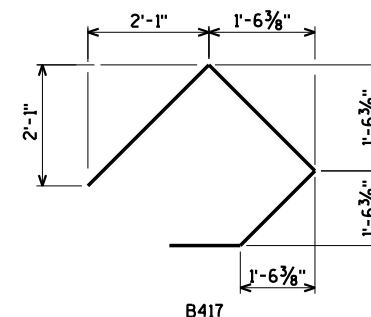
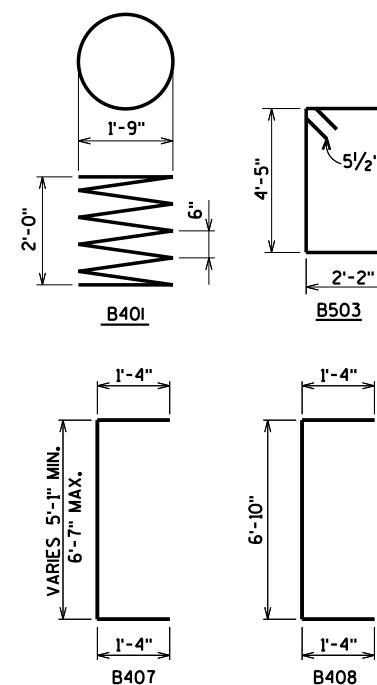
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-10-223

	DRAWN BY	CJM	PLANS CK'D.	AEE
--	-------------	-----	----------------	-----

NORTH ABUTMENT
WING 4 DETAILS
& BILL OF BARS

SHEET 9 OF 16



BAR NO.	DIM. "A"	DIM. "B"
B605	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
B509	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
B710	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
B415	4'-9"	1'-7"
B416	4'-9"	1'-7"
B521	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
B722	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "
B427	4'-9"	1'-7"
B428	4'-9"	1'-7"
B831	1'-0 $\frac{3}{4}$ "	1'-0 $\frac{3}{4}$ "

☐ 18" RUBBERIZED MEMBRANE WATERPROOFING
ON BACK FACE. NOT REQUIRED IF CONST.
JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

● 3/4" 'V' GROOVE ON F.F. OF WING WALL
NOT REQUIRED IF CONST. JT. IS NOT USED.

■ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

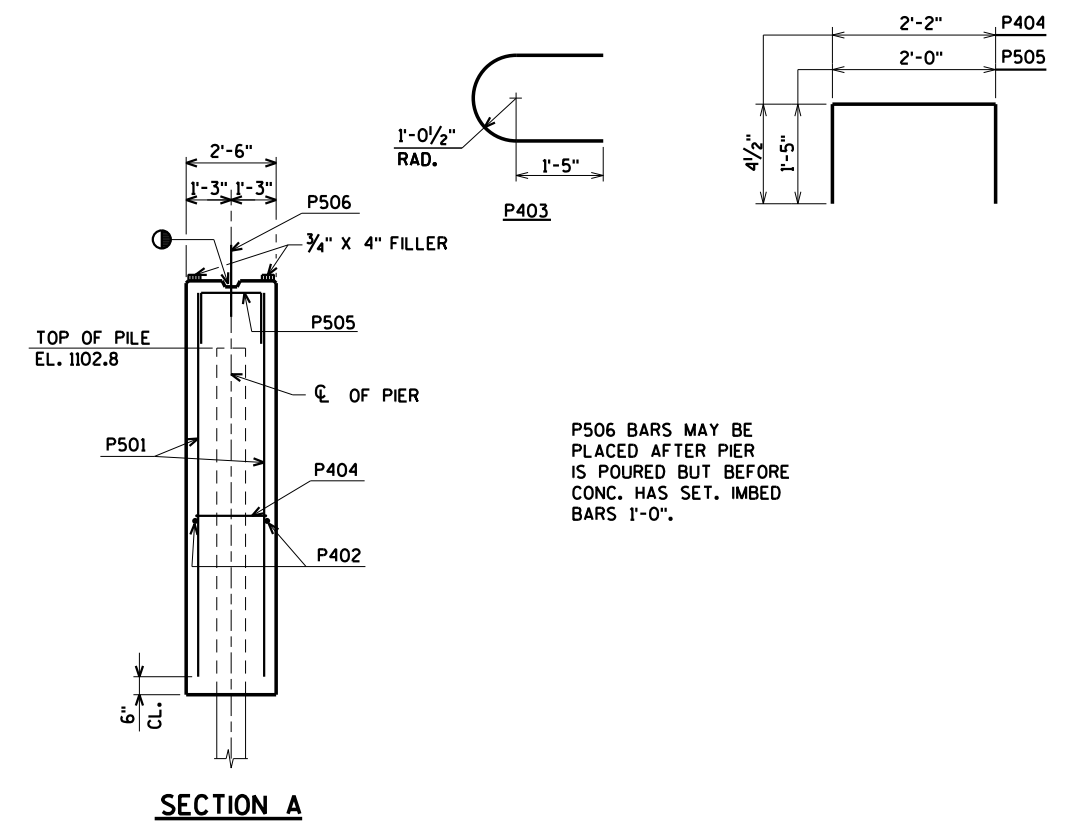
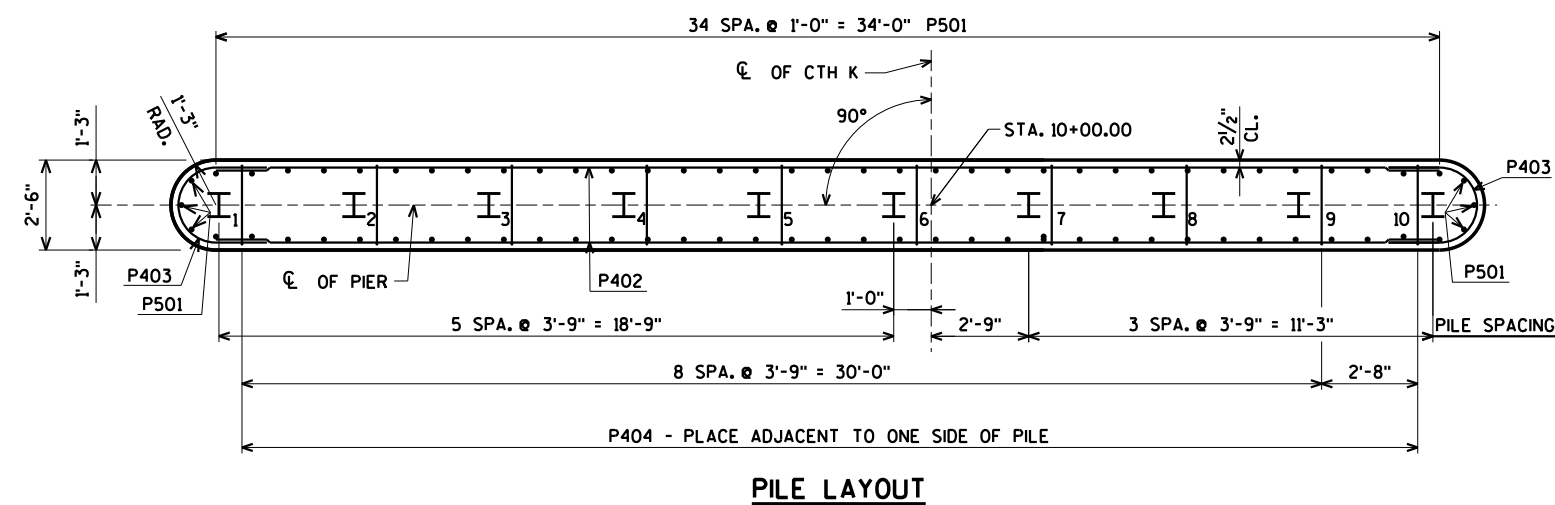
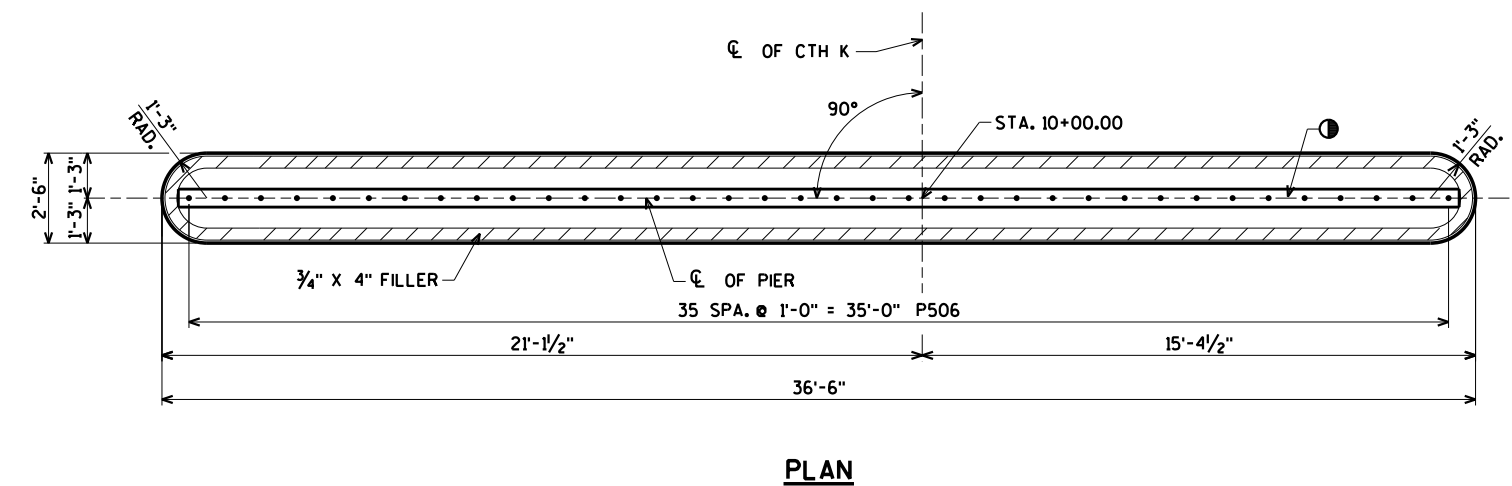
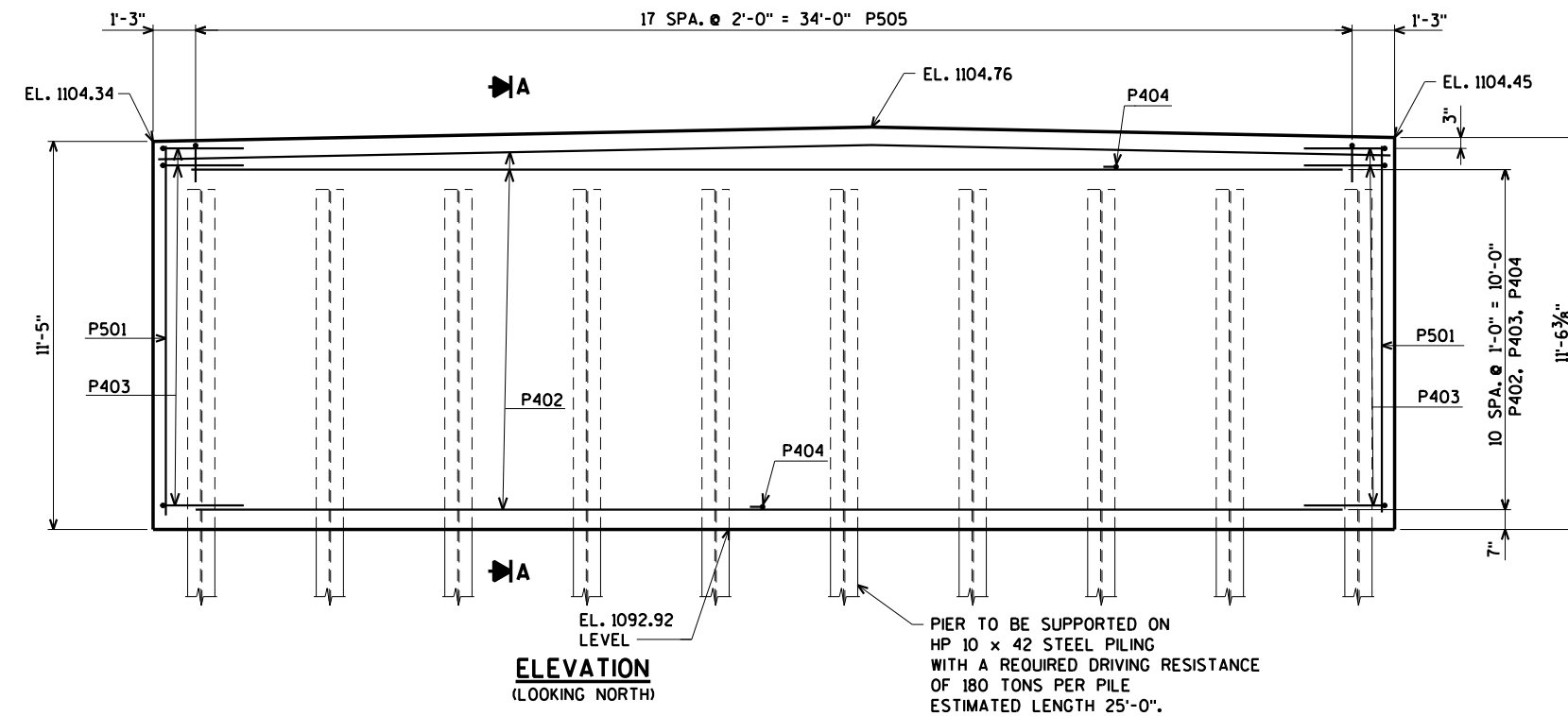
ORIGINAL PLANS PREPARED BY

AVRES
ASSOCIATES

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[illegible]

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



P506 BARS MAY BE
PLACED AFTER PIER
IS POURED BUT BEFORE
CONC. HAS SET. IMBED
BARS 1'-0".

① KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

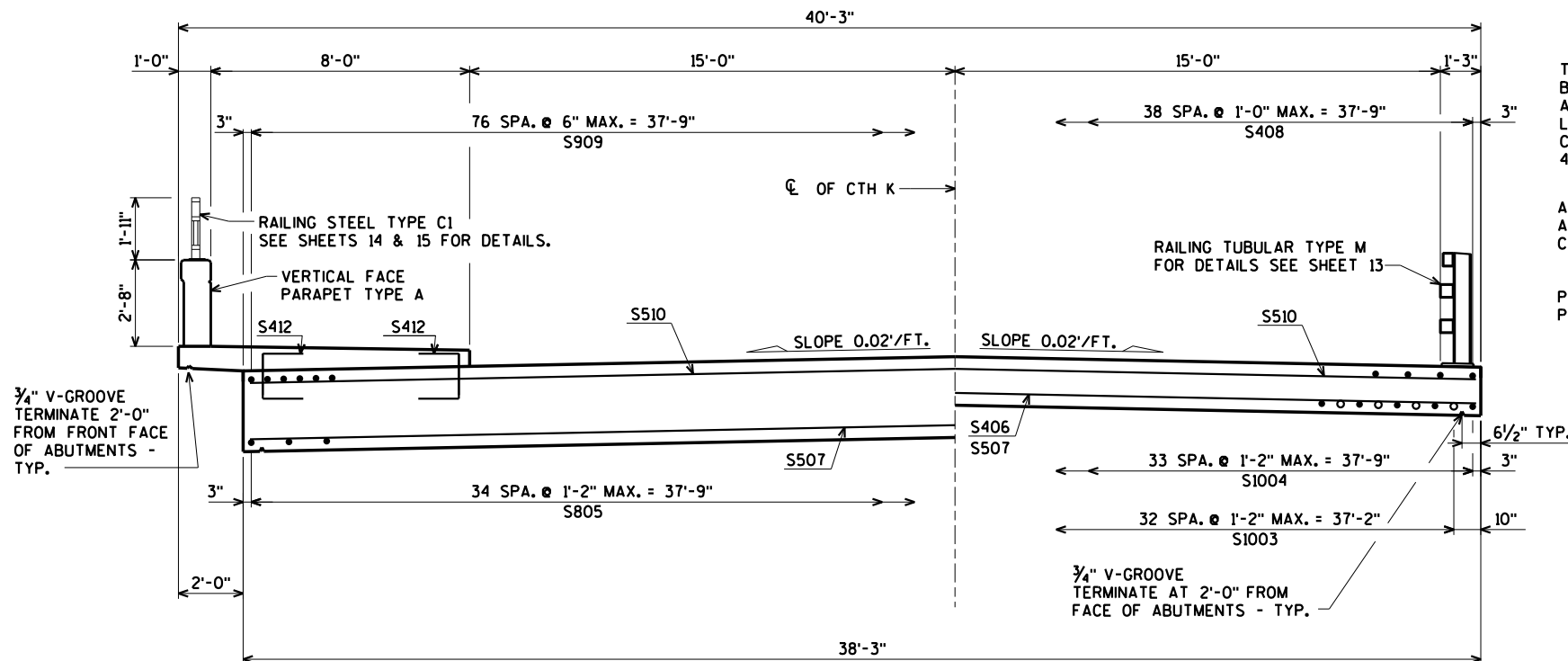
FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-12-23			
DRAWN BY		CJM	PLANS CK'D. AEB
PIER		SHEET 10 OF 16	

\$PRNAME\$
U:\42-0891.00 - Clark County, CTH K, Oneill Creek\BRIDGE\420891L SUPER.DGN

STATE PROJECT NUMBER

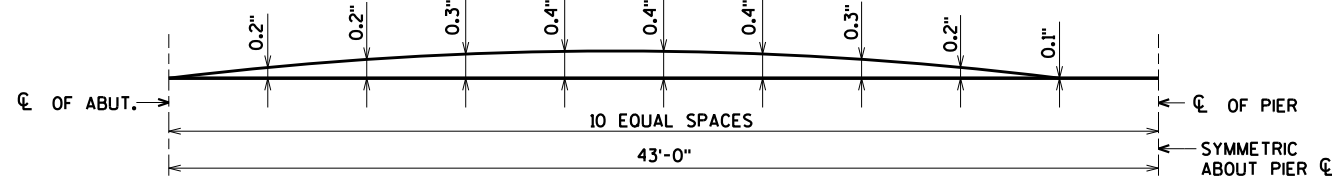
7846-03-70



AT PIER

IN SPAN

CROSS SECTION THRU ROADWAY
(LOOKING NORTH)



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FLASEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS, THE CL OF PIERS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN CL.

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

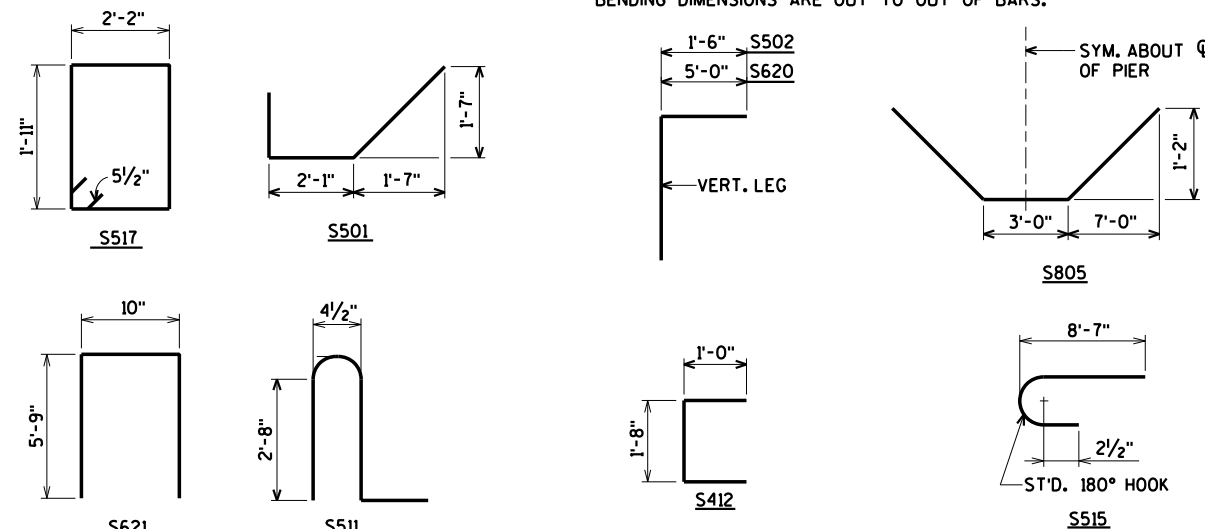
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PARAPETS PLACED ON TOP OF THIS SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	45,510* COATED
						LOCATION
S501	X	78	5'-7"	X		SLAB @ ABUT.
S502	X	78	3'-2"	X		SLAB @ ABUT.
S1003	X	66	27'-11"			SLAB LONG. BOT.
S1004	X	68	42'-3"			SLAB LONG. BOT.
S805	X	35	17'-3"	X		SLAB LONG. BOT. @ PIER
S406	X	56	37'-10"			SLAB TRANS. BOT.
S507	X	40	37'-10"			SLAB TRANS. BOT.
S408	X	78	20'-3"			SLAB LONG. TOP
S909	X	77	39'-5"			SLAB LONG. TOP @ PIER
S510	X	89	37'-10"			SLAB TRANS. TOP
S511	X	89	6'-8"	X		SDWK. AT PARAPET VERT.
S412	X	354	3'-8"	X		SLAB AT SIDEWALK
S413	X	60	3'-4"			SDWK. TRANS BOT.
S414	X	42	30'-6"			SDWK. LONG BOT. & TOP
S515	X	176	9'-2"	X		SDWK. AT PARAPET HORIZONTAL
S416	X	9	30'-6"			PARAPET HORIZ.
S517	X	6	8'-9"	X		SIDEWALK @ PARAPET VERT.
S418	X	4	3'-6"			SLAB TRANS. @ ABUT. @ SIDEWALK
S619	X	52	6'-0"			SLAB @ INT. RAIL POSTS
S620	X	8	6'-0"	X		SLAB @ END RAIL POSTS
S621	X	4	12'-0"	X		SLAB @ RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



TOP OF DECK ELEVATIONS

LOCATION	CL OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF PIER	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF N. ABUT.
W. EDGE OF SLAB	1106.42	1106.46	1106.51	1106.55	1106.59	1106.64	1106.68	1106.72	1106.76	1106.80	1106.84	1106.88	1106.91	1106.94	1106.97	1106.99	1107.02	1107.04	1107.05	1107.07	1107.08
CL OF CTH K	1106.90	1106.94	1106.99	1107.03	1107.07	1107.12	1107.16	1107.20	1107.24	1107.28	1107.32	1107.36	1107.39	1107.42	1107.45	1107.47	1107.50	1107.52	1107.53	1107.55	1107.56
E. EDGE OF SLAB	1106.58	1106.62	1106.66	1106.70	1106.75	1106.79	1106.83	1106.88	1106.92	1106.96	1107.00	1107.03	1107.07	1107.10	1107.12	1107.15	1107.17	1107.19	1107.21	1107.22	1107.24

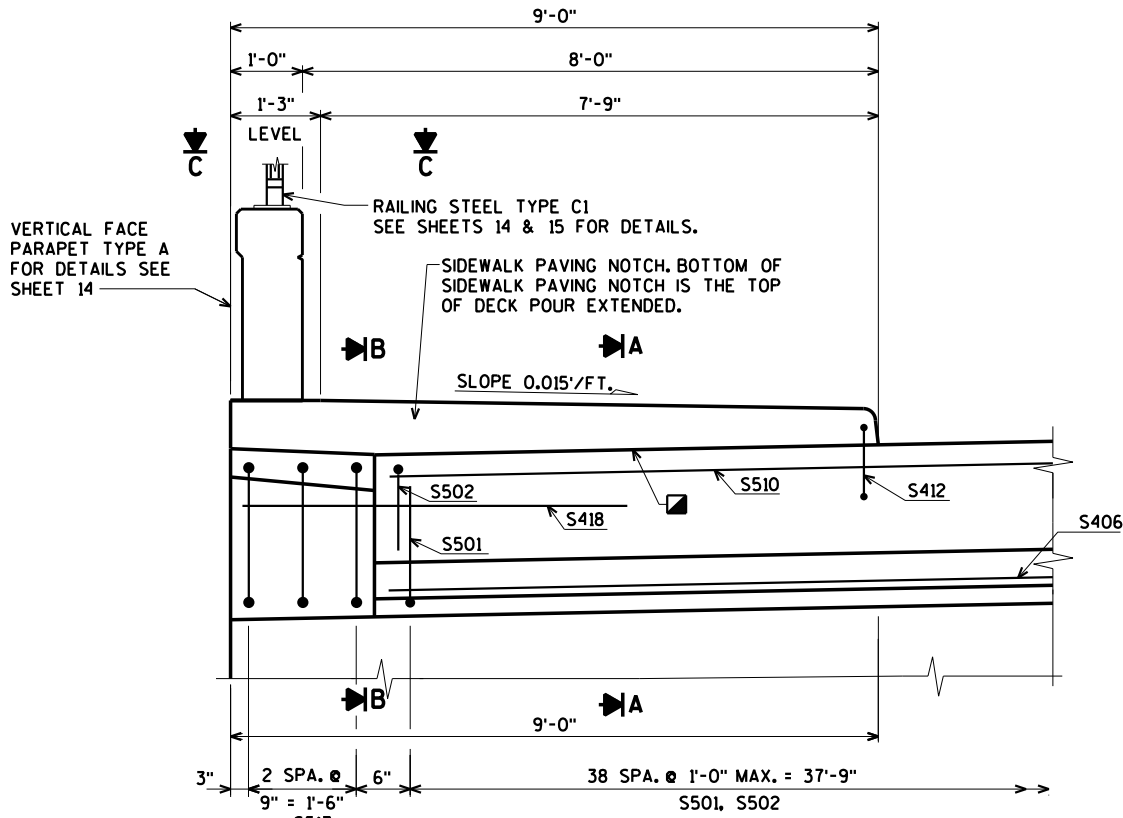
ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY		CJM	PLANS CK'D. AEB
SUPERSTRUCTURE		SHEET 11 OF 16	

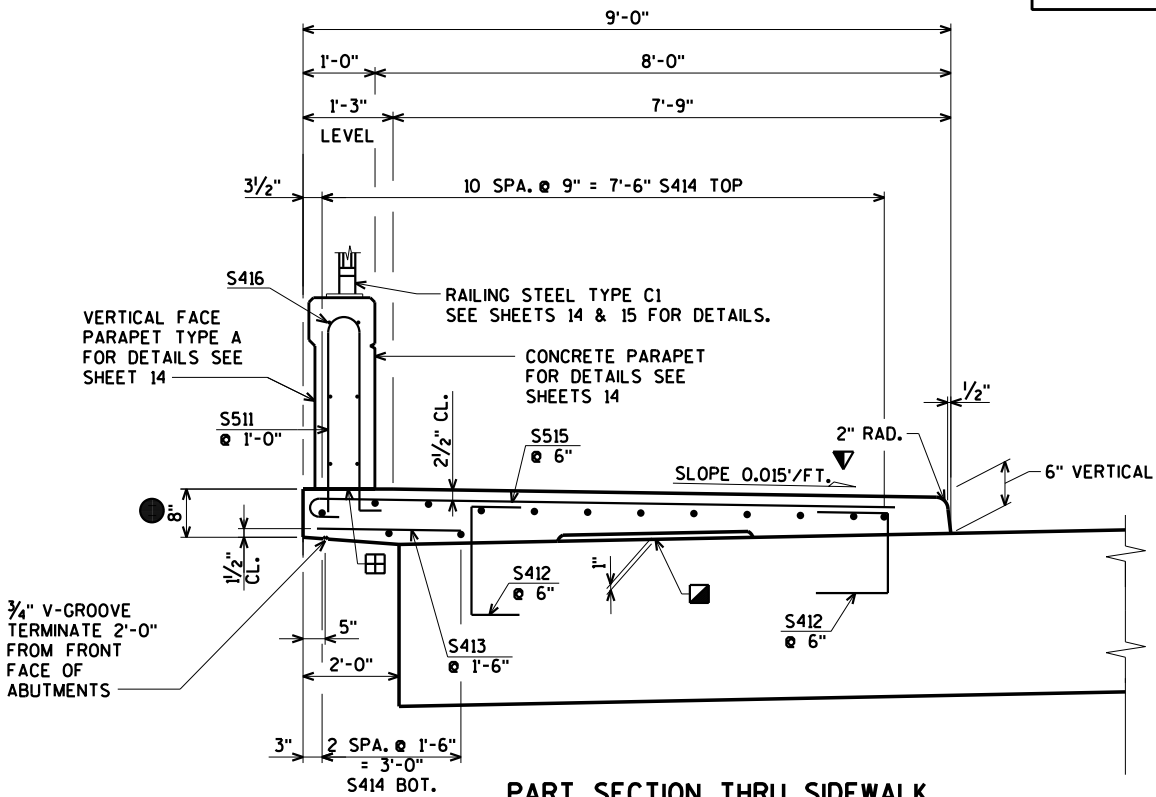
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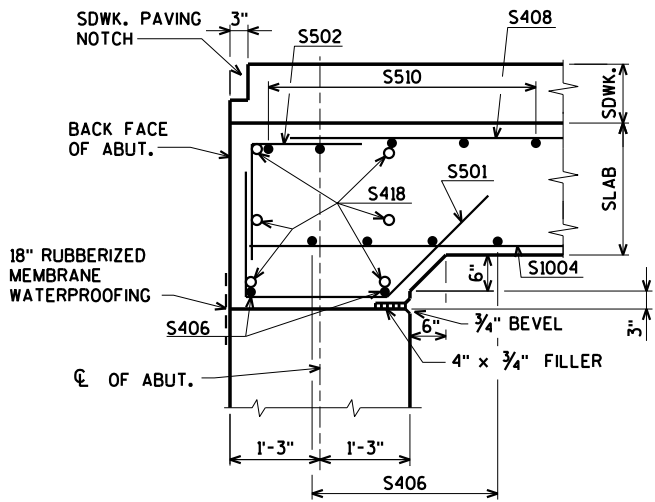
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY		CJM	PLANS CK'D. AEB
SUPERSTRUCTURE DETAILS			SHEET 12 OF 16



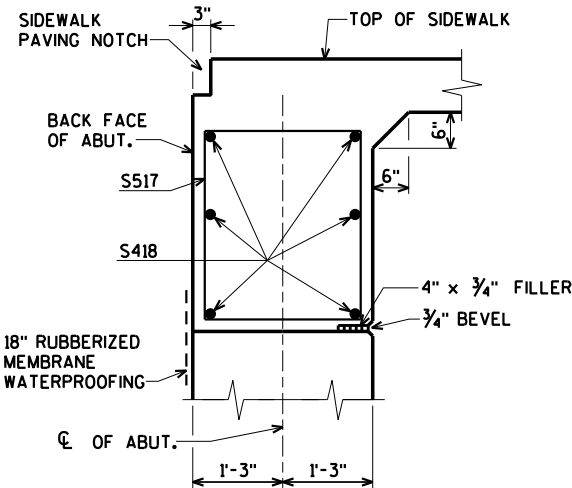
PART SECTION AT ABUTMENT



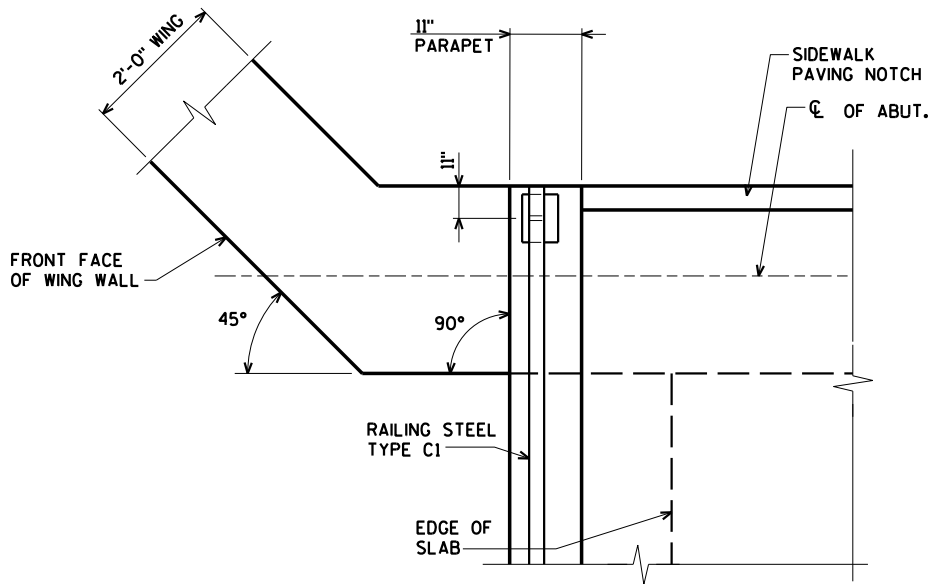
PART SECTION THRU SIDEWALK



SECTION A



SECTION B



SECTION C

WING 3 SHOWN - WING 2 SIMILAR

- ± 0.005% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 0.02% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 8" MIN SIDEWALK THICKNESS ALSO REQUIRED AT THE EDGE OF SLAB.
- CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH, FOR DECK POIR, MATCH BRIDGE CROSS-SLOPE.
- HORIZ. CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY CJM		PLANS CK'D. AEB	
SUPERSTRUCTURE DETAILS			SHEET 13 OF 16

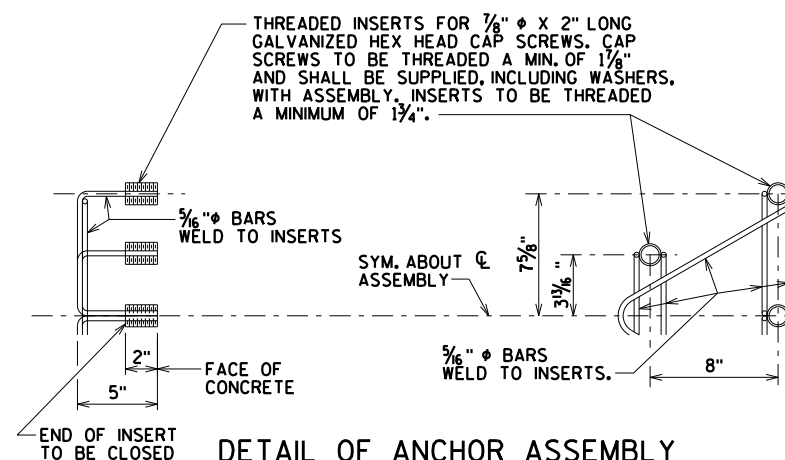
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PART ELEVATION OF PARAPET



WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF $\frac{1}{8}$ " ZINC OR PLASTIC PLATE CUT AS SHOWN IN SECTION B-B BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH AN APPROVED LIQUID BOND BREAKER AND PLATE SEPARATORS MAY BE OMITTED.



DETAIL OF ANCHOR ASSEMBLY

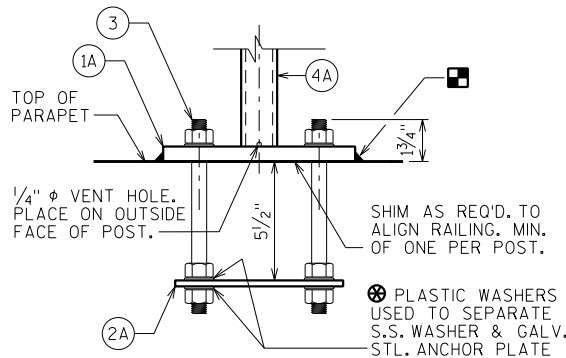
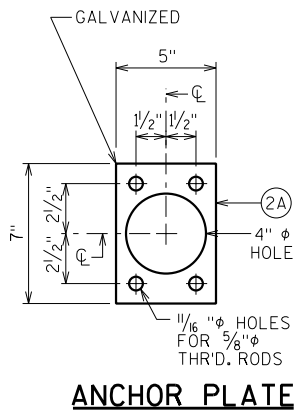
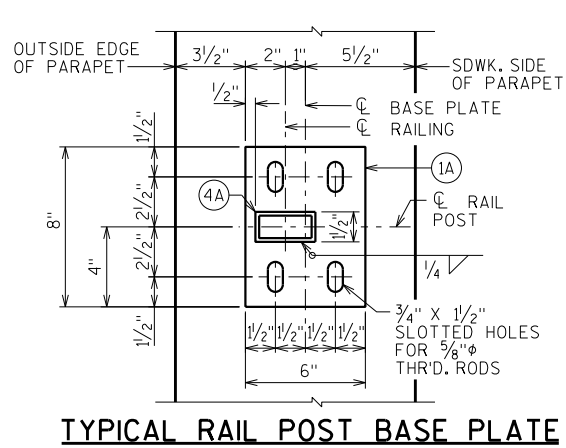
NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD". EACH.

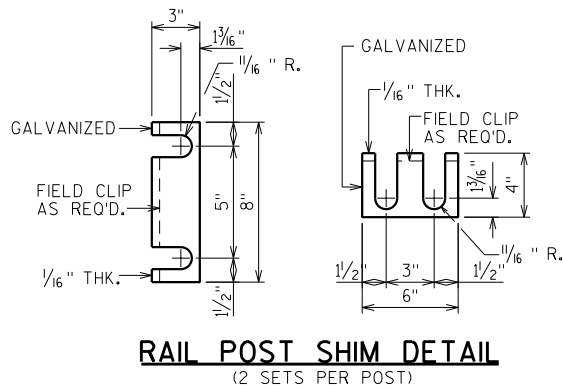
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
		DRAWN BY	CJM
		PLANS CK'D.	AEE
VERTICAL FACE PARAPET A		SHEET 14 OF 1	

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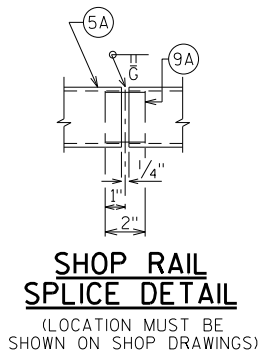
8



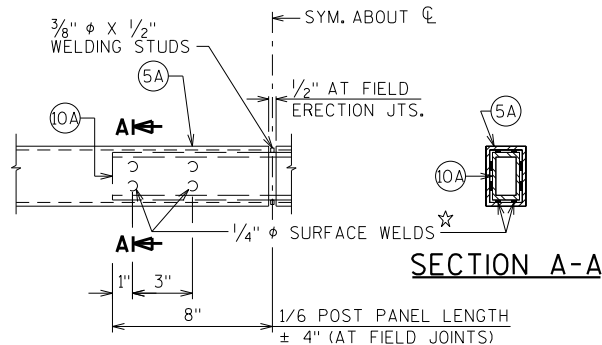
ANCHORAGE FOR RAIL POSTS
NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE S ANCHORS ARE USED.



RAIL POST SHIM DETAIL
(2 SETS PER POST)



SHOP RAIL SPLICE DETAIL



FIELD ERECTION JOINT DETAIL

☆ MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

STATE PROJECT NUMBER

7846-03-70

LEGEND

- 1A PLATE 5/8" X 6" X 8" WITH 3/4" X 1/2" SLOTTED HOLES.
- 2A 1/4" X 5" X 7" ANCHOR PLATE WITH 1/16" HOLES FOR THRD. RODS NO. 3.
- 3 5/8" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE MASONRY ANCHORS TYPE S 5/8"-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS.)
- 4A STRUCTURAL TUBING 3" X 1 1/2" X 3/16". PLACE VERTICAL. WELD TO NO. 1 & 5.
- 5A STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- 6B BAR 1" X 1 1/2" PICKETS. WELD TO NO. 5. PLACE VERTICAL.
- 6C BAR 1" X 1 1/2" PICKETS. WELD TO NO. 11. PLACE VERTICAL.
- 8 STRUCTURAL TUBING 5" Ø (STANDARD SIZE) (5.563" O.D.) 1/2" LONG SLICES. WELD TO NO. 5A.
- 9A RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".
- 10A RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.)

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C1B-10-223", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

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

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS, PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. 27038, BLACK.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

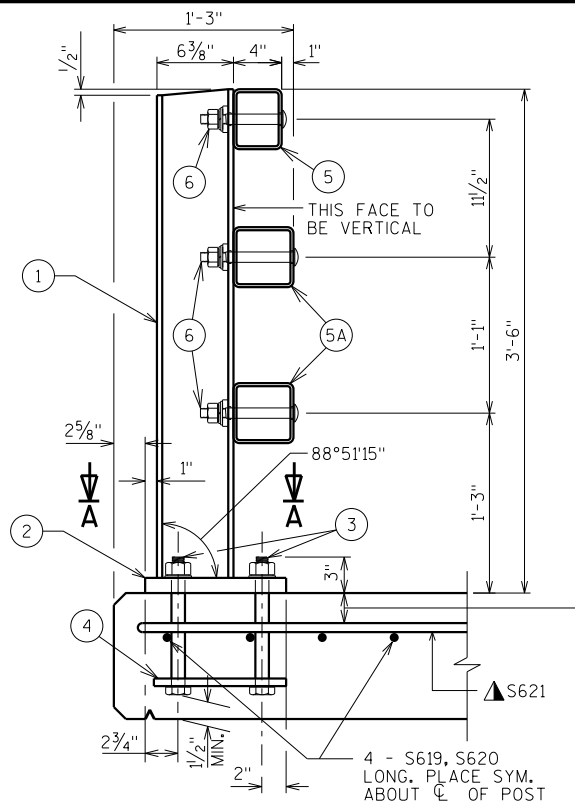
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY		CJM	PLANS CK'D. AEB
COMBINATION RAIL TYPE "C1"			SHEET 15 OF 16

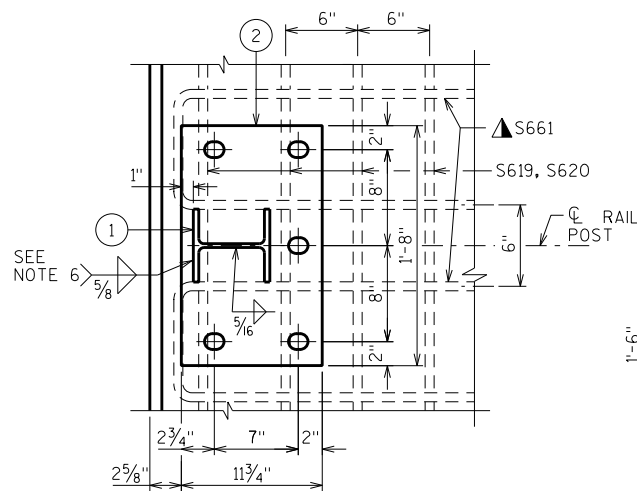
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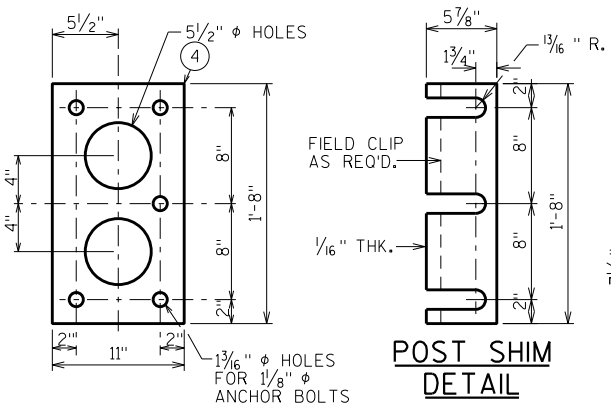
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SECTION THRU RAILING ON DECK

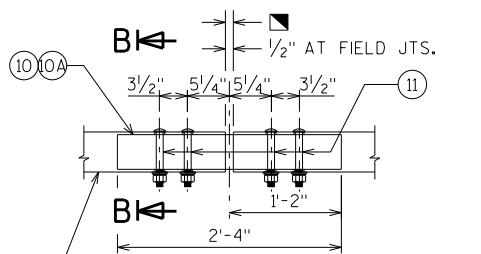


SECTION A-A

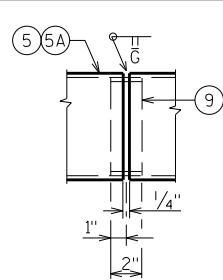


ANCHOR PLATE

POST SHIM
DETAIL

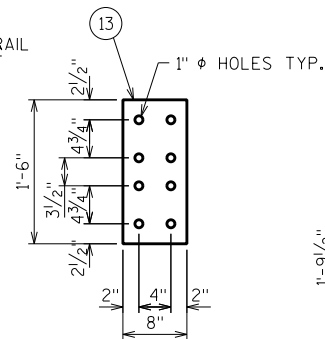


FIELD ERECTION JOINT DETAIL

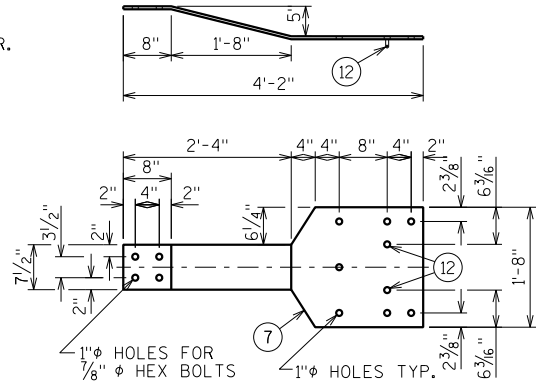


SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS

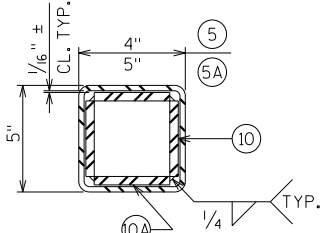


ANCHOR PLATE
AT BEAM GUARD ATTACHMENT

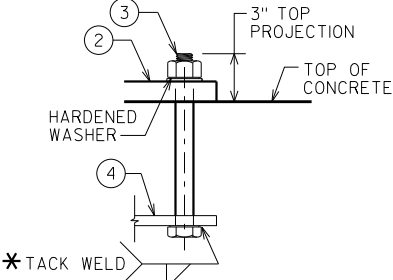


BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT

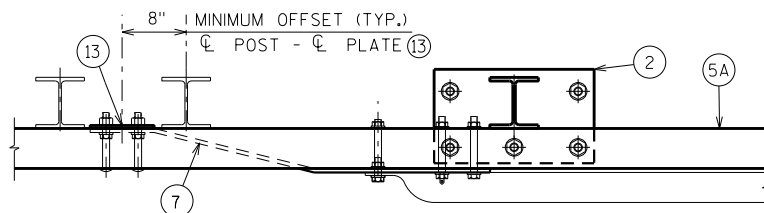


SECTION B-B



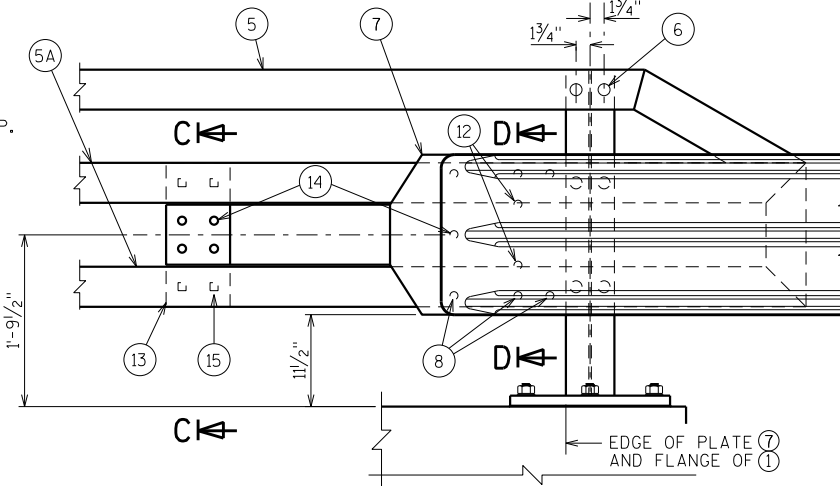
ANCHOR BOLTS

* TACK WELD



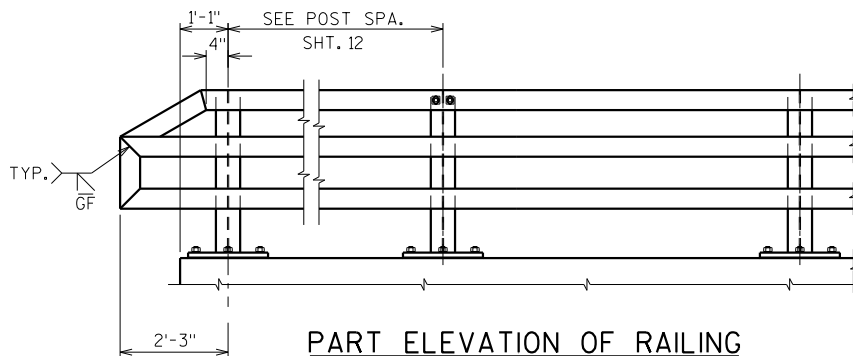
TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT

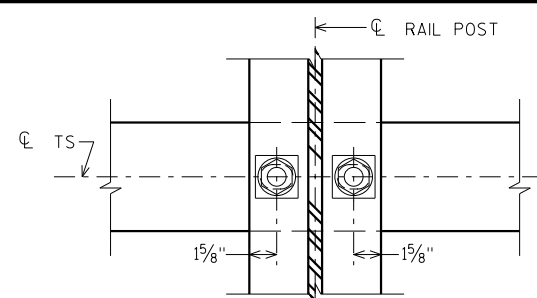


DETAIL AT END POST

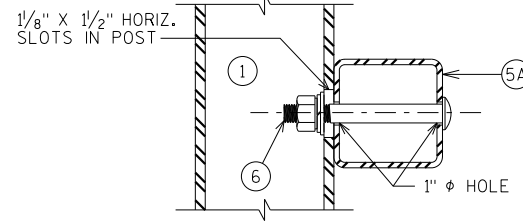
THRIE BEAM RAIL ATTACHMENT



PART ELEVATION OF RAILING



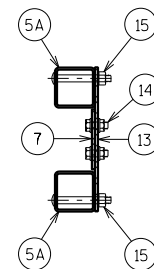
SECTION THRU POST WEB



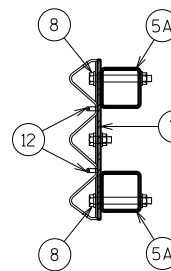
SECTION THRU RAIL

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

TYPICAL RAIL TO POST CONNECTIONS



SECTION C-C



SECTION D-D

LEGEND

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

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-10-223" WHICH INCLUDES ALL ITEMS SHOWN.
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
- WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
- PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

▲ TIE TO TOP MAT OF STEEL.

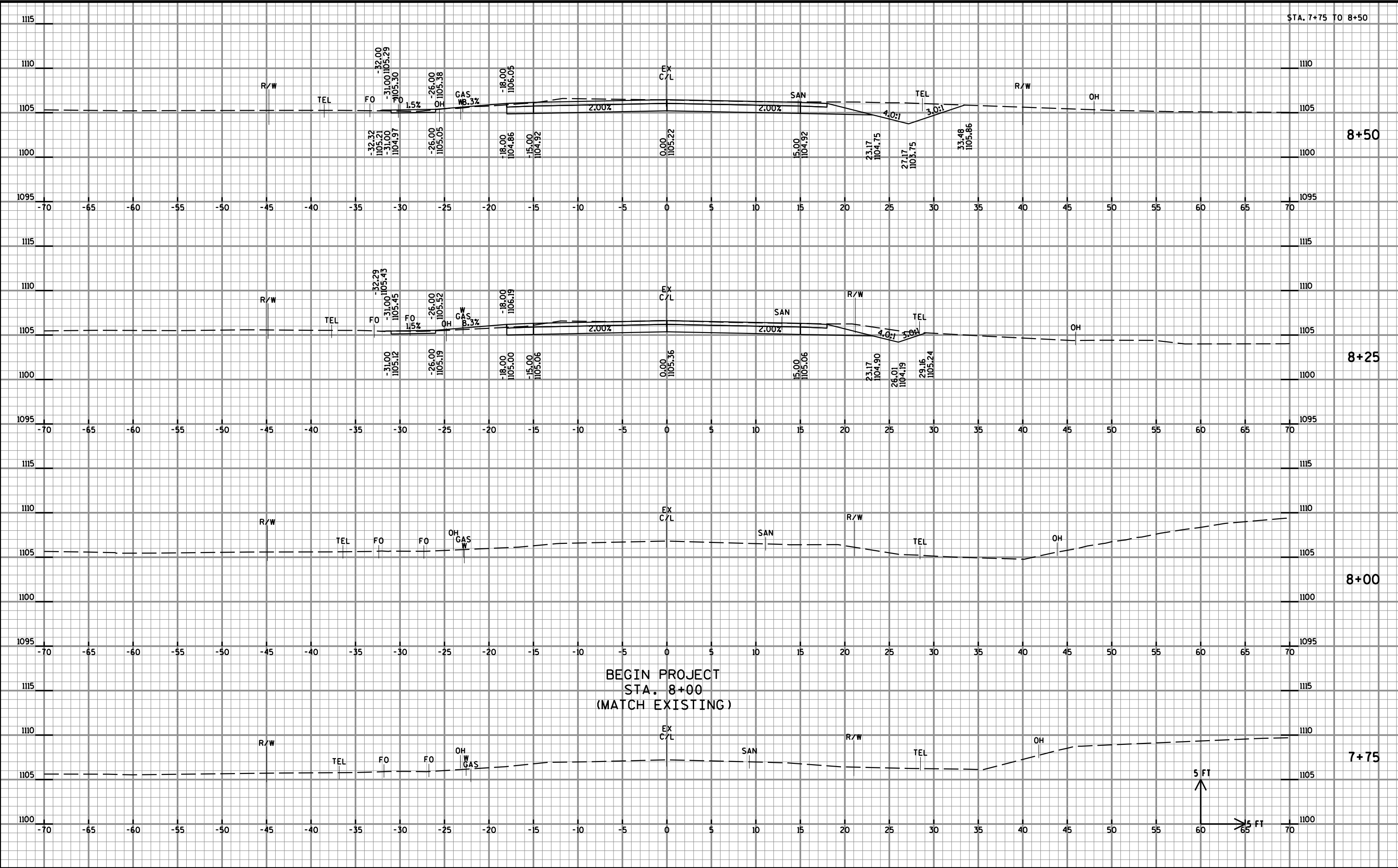
STATE PROJECT NUMBER			
7846-03-70			
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-10-223			
DRAWN BY		CJM	PLANS CK'D. AEB
TUBULAR STEEL RAILING TYPE M			SHEET 16 OF 16

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

EARTHWORK SUMMARY (CATEGORY 0010)												
DIVISION	STATION	AREA			INCREMENTAL VOLUME			CUMULATIVE VOLUME				
		CUT SF	SALVAGED/ UNUSEABLE PAVEMENT	FILL SF	CUT (1) CY	SALVAGED/ UNUSEABLE PAVEMENT	FILL (3) CY	CUT (1) 1.00 CY	EXPANDED FILL (4) 1.30 CY	MASS ORDINATE ±(5) CY		
			MATERIAL SF			MATERIAL (2) CY						
1 CTH K	8+00	0	0	0								
	8+25	57	0	2	26	0	1	26	1	25		
	8+50	70	0	1	59	0	1	85	3	82		
	8+75	80	0	3	69	0	2	154	5	149		
	9+00	88	0	9	77	0	5	231	12	219		
	9+25	76	0	16	75	0	11	306	26	280		
	9+50	55	0	17	60	0	15	366	46	321		
	STRUCTURE (B-10-0223)											
	10+50	30	0	16	40	0	14	40	18	22		
	10+75	58	0	15	22	0	6	62	26	36		
	10+85	65	0	21	38	0	28	100	62	38		
	11+00	75	0	80	25	0	30	125	101	24		
	11+10	62	0	82	36	0	46	161	161	0		
	11+25	67	0	85	25	0	31	186	202	-16		
	11+35	68	0	84	31	0	34	217	246	-29		
	11+47	73	0	71	8	0	8	225	256	-31		
	11+50	80	0	68	69	0	43	294	312	-18		
	11+72	90	0	40	10	0	4	304	317	-13		
	11+75	92	0	38	74	0	39	378	368	10		
	11+97	92	0	59	9	0	7	387	377	10		
	12+00	80	0	60	57	0	36	444	424	20		
	12+25	43	0	19	4	0	2	448	426	22		
	12+30	0	0									
	TOTALS											
						814	0	363				
	205.0100 EXCAVATION COMMON =					SAY 814	WASTE = SAY 342					

NOTES:
1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN. ITEM NUMBER 205.0100
2) SALVAGED/UNUSEABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
4) EXPANDED FILL FACTOR = 1.30 EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
5) THE MASS ORDINATE ± QTY CALCULATED FOR THE DIVISION.

PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.



PROJECT NO: 7846-03-70

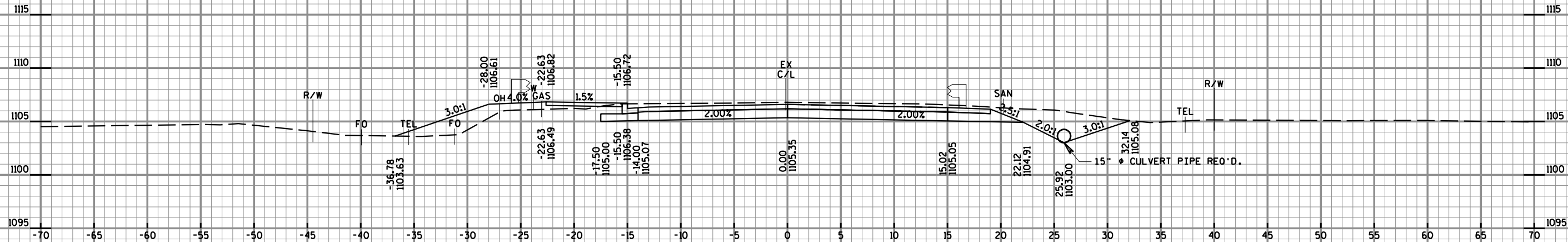
HWY: CTH K

COUNTY: CLARK

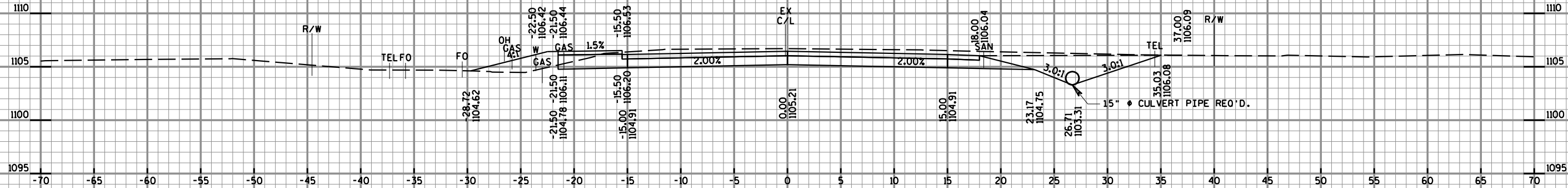
CROSS SECTIONS

SHEET

E

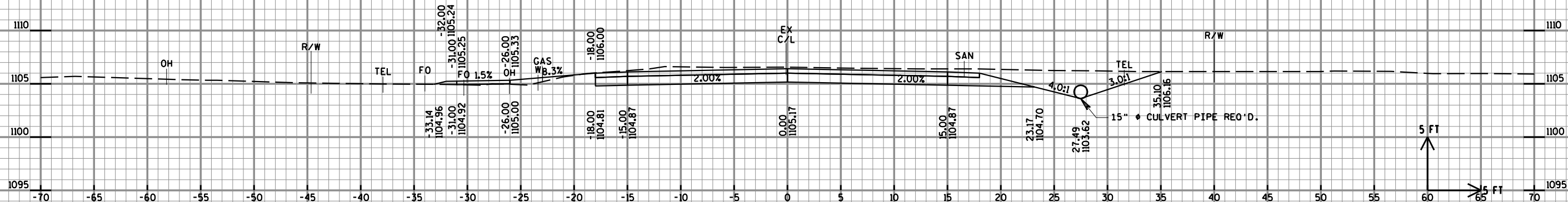


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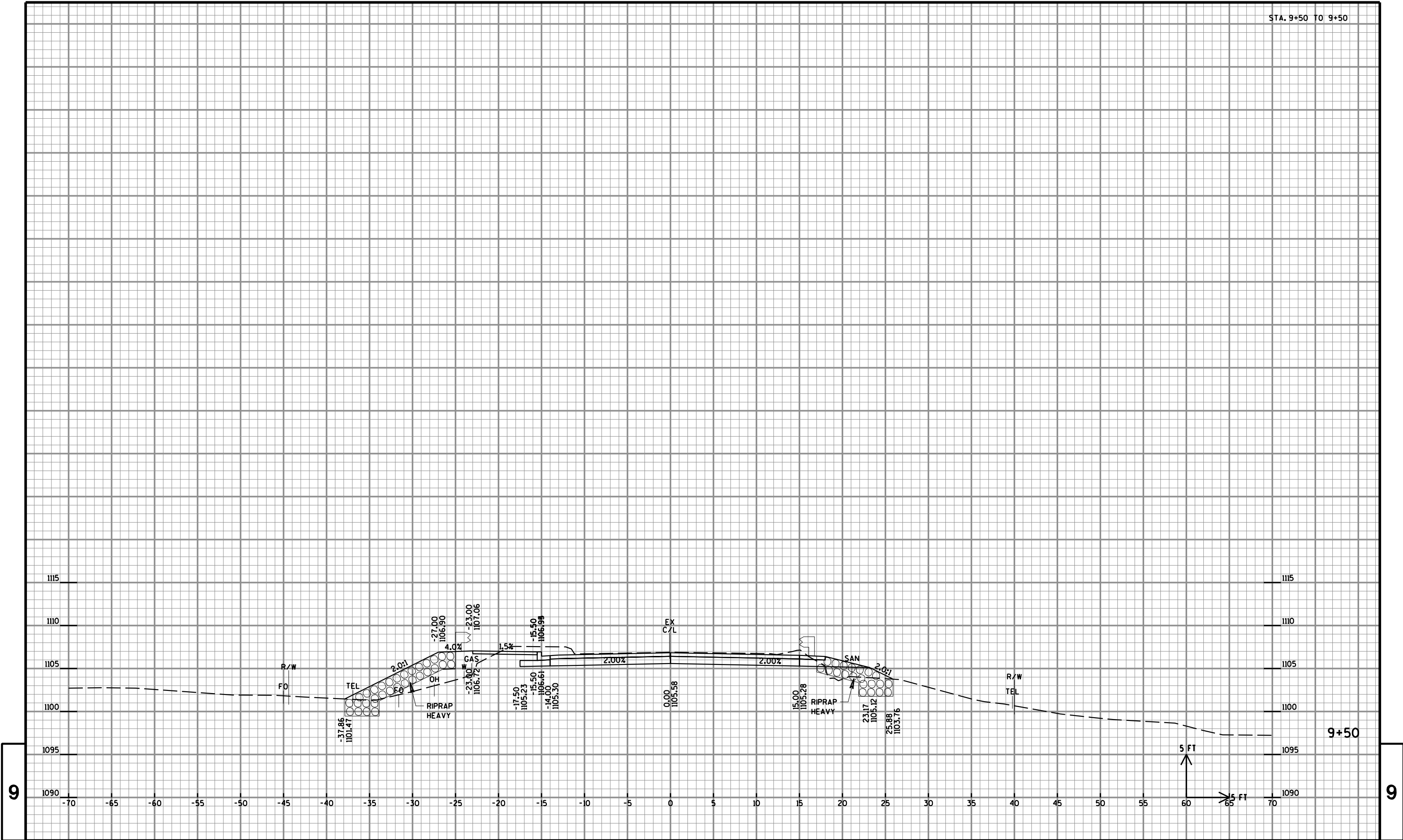


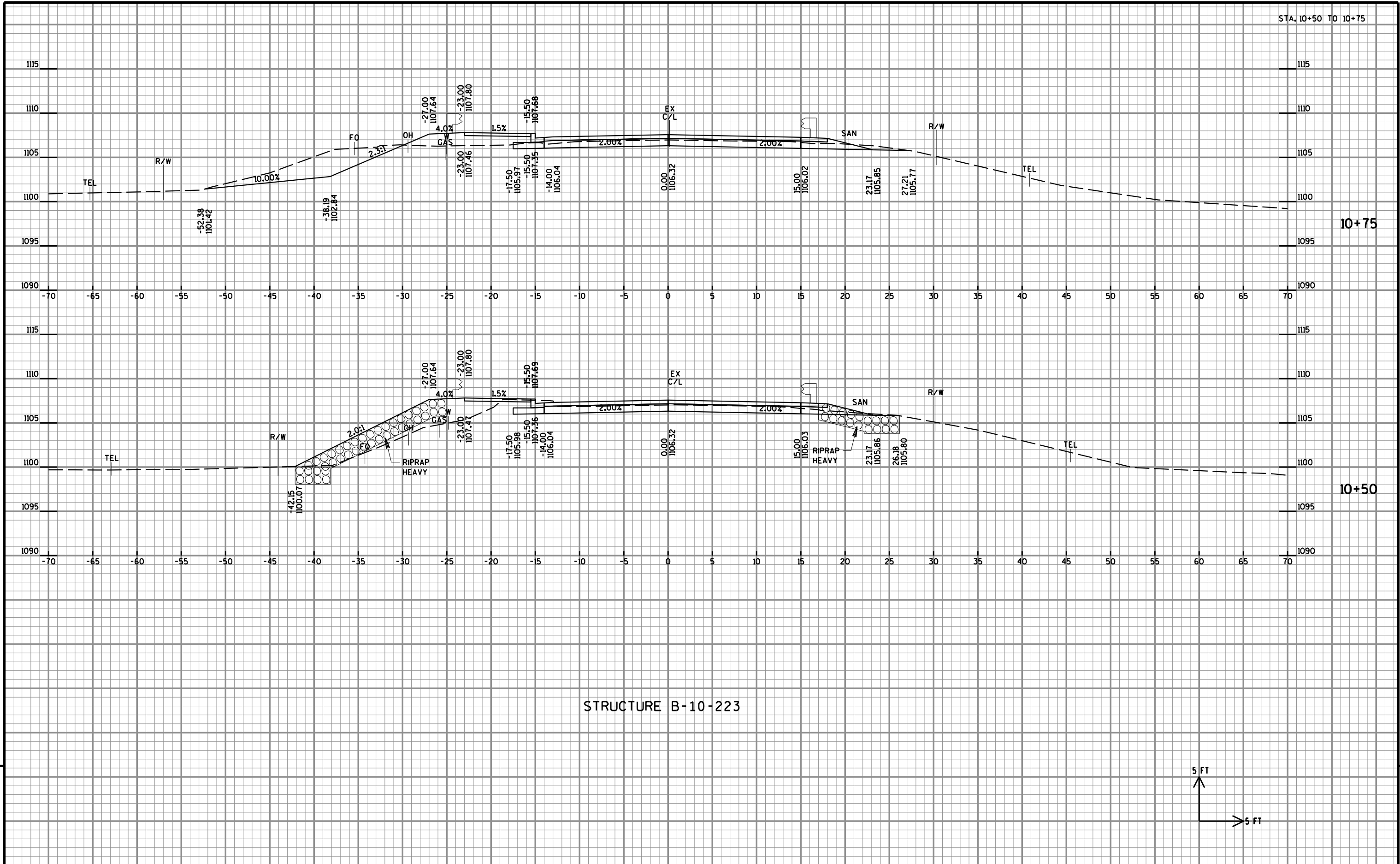
P.E. RT.

9+00

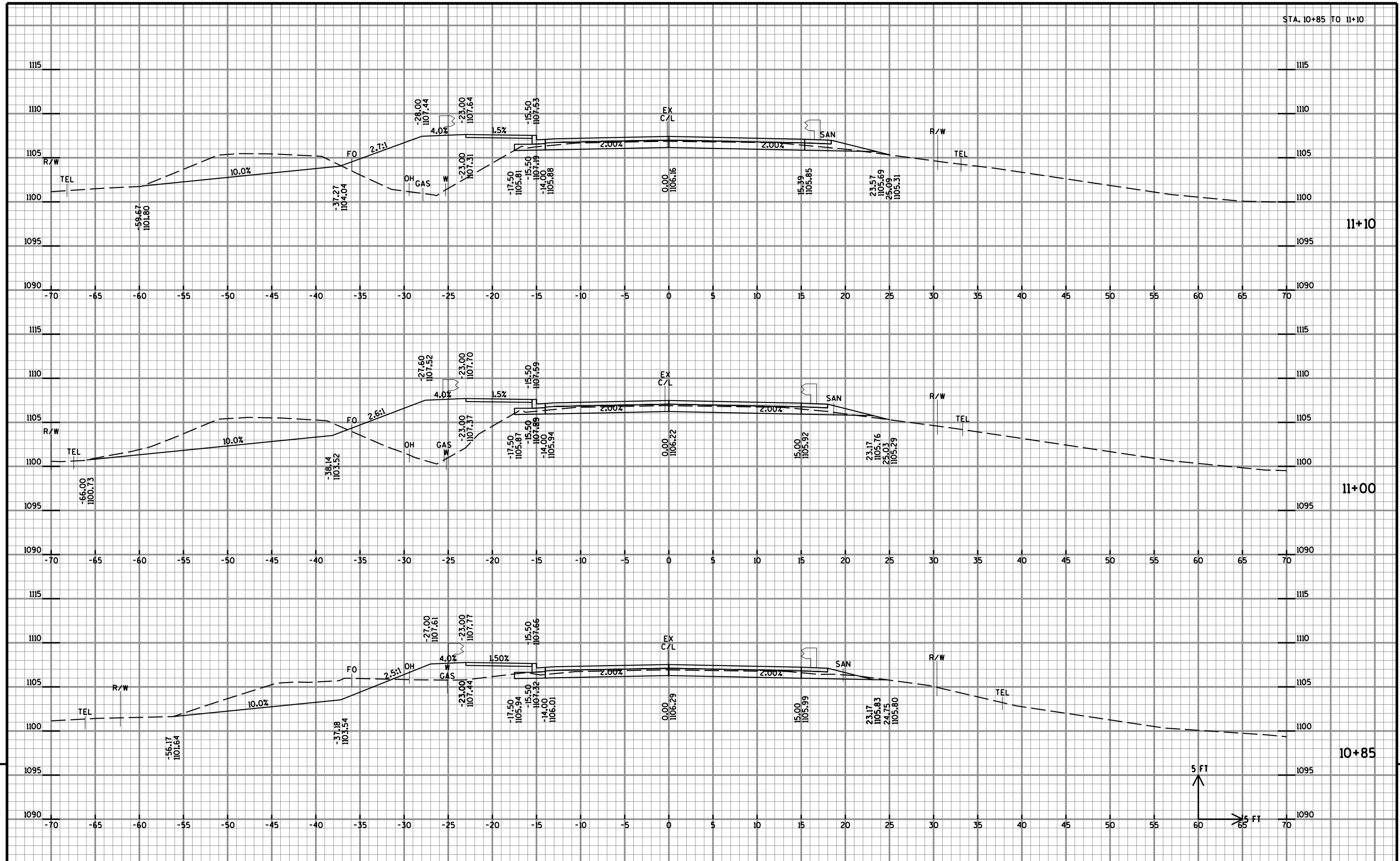


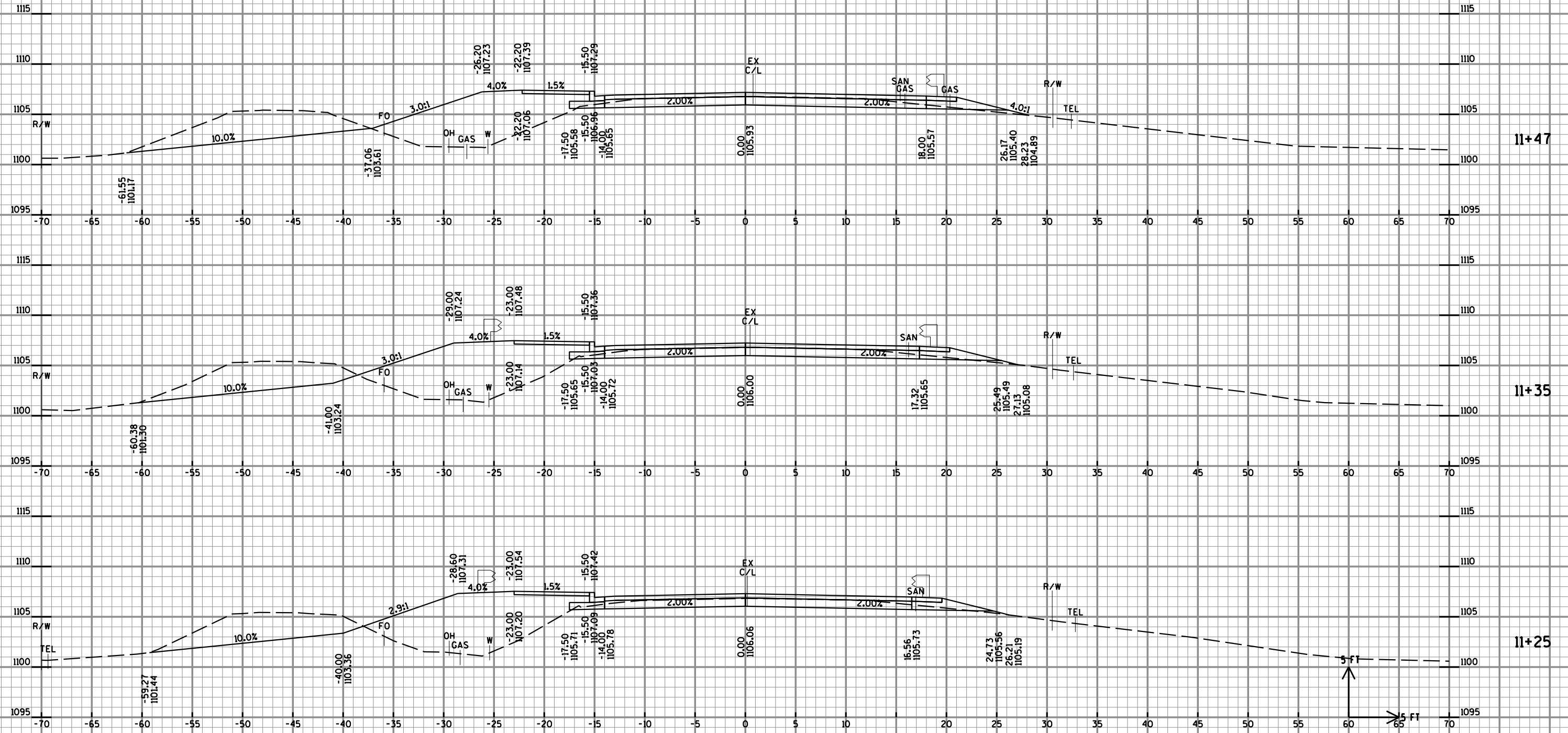
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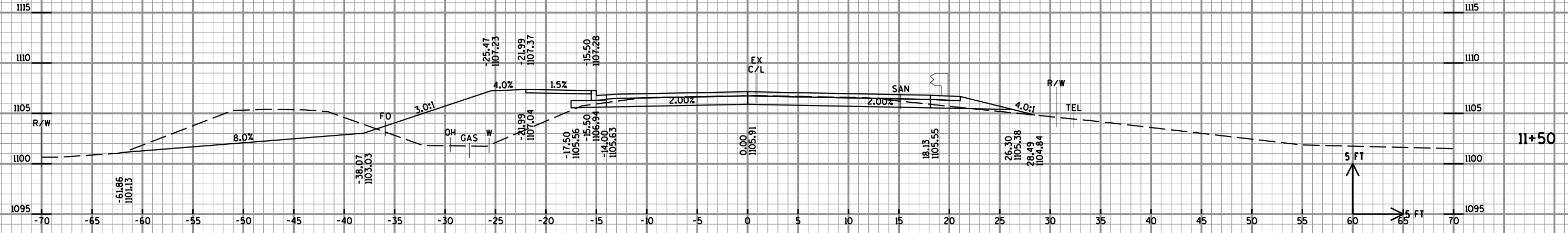
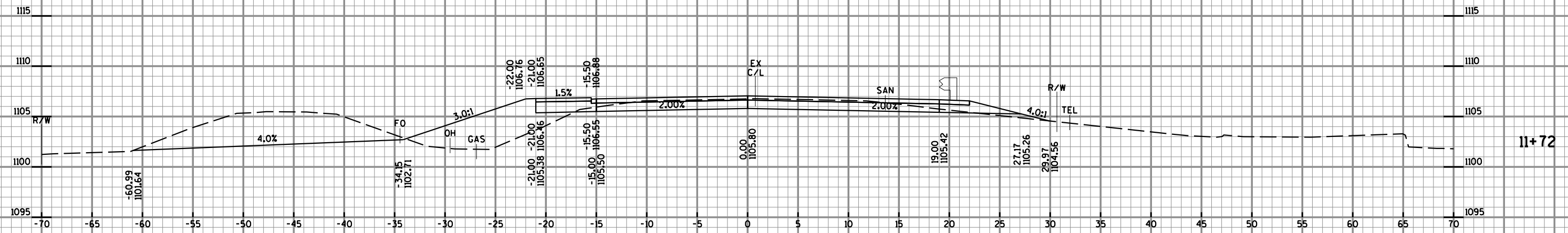
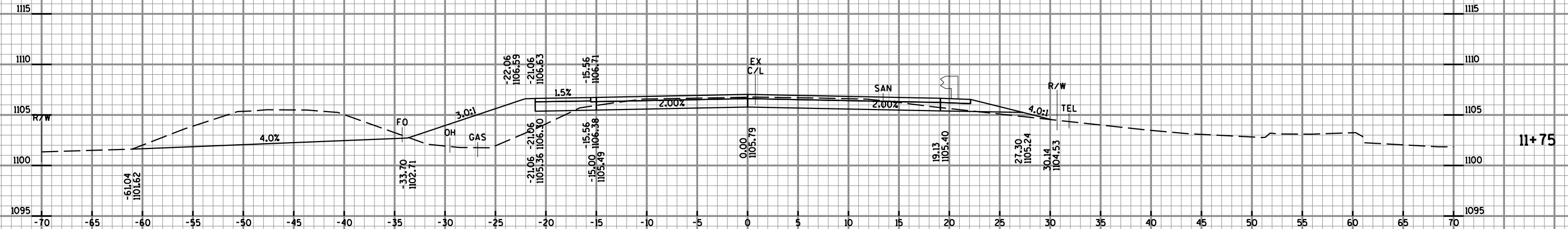


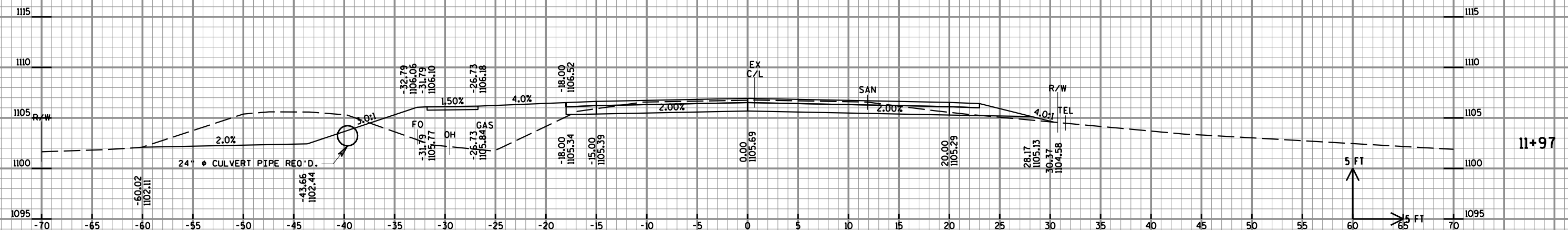
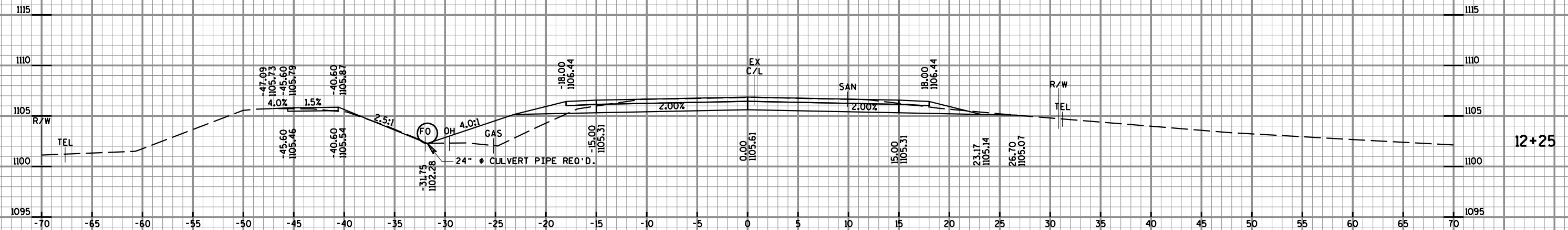


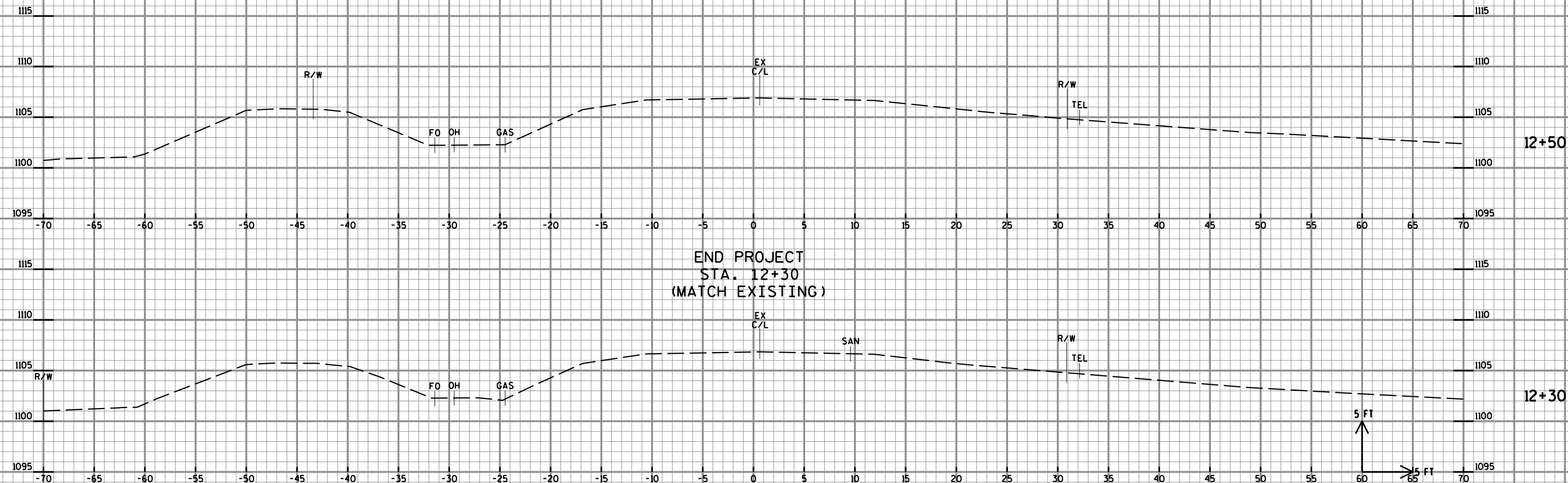
STRUCTURE B-10-223











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