

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 = 60

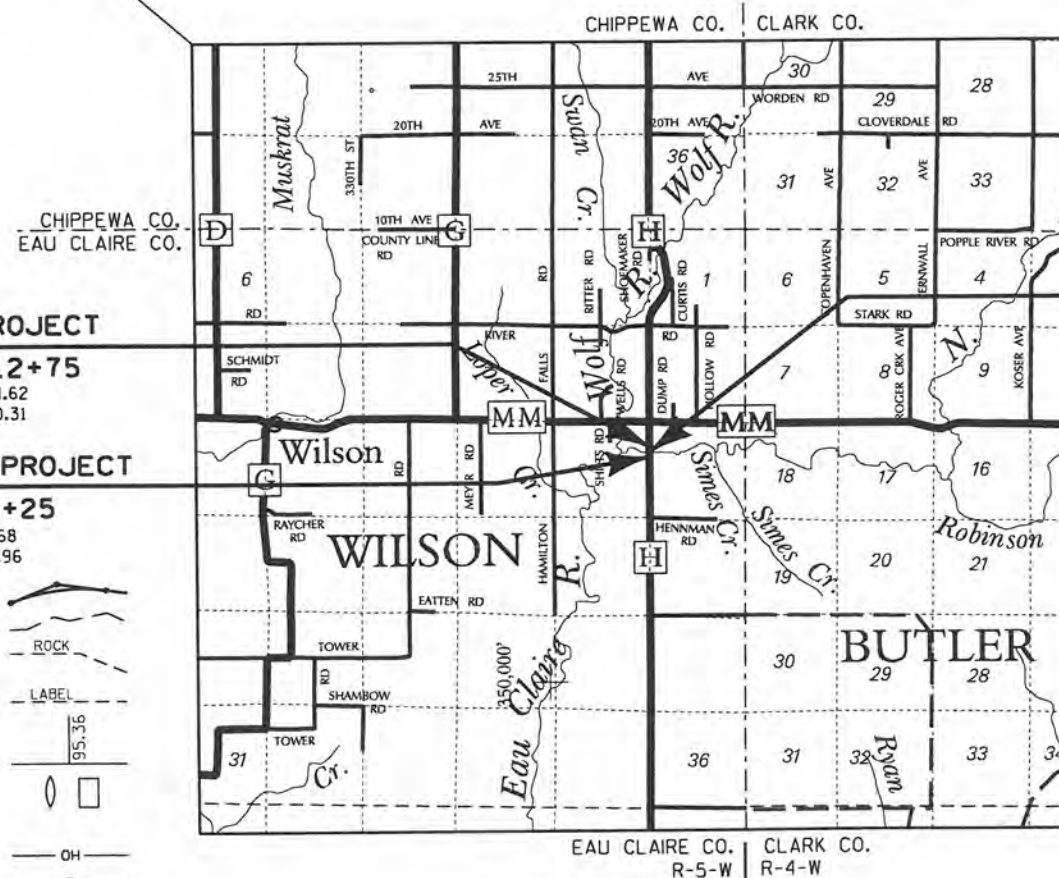
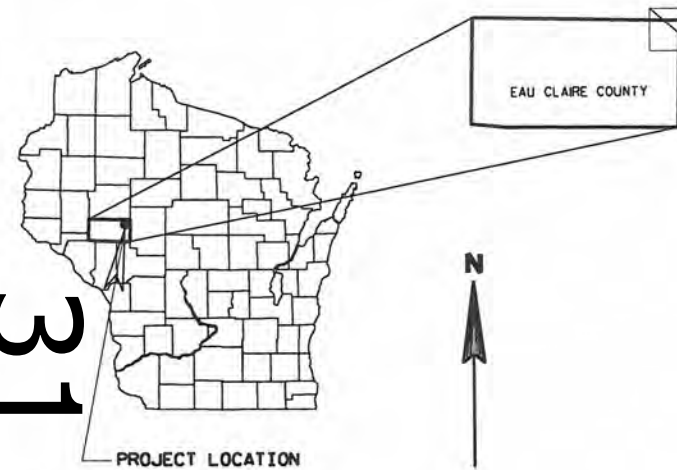
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

V FAIRCHILD - NORTH COUNTY LINE N FORK EAU CLAIRE RIVER BR B180005 CTH H EAU CLAIRE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7831-03-72		

STATE PROJECT NUMBER
7831-03-72



END PROJECT

STA. 12+75

Y = 283684.62
X = 483940.31

BEGIN PROJECT

STA. 7+25

Y = 283134.68
X = 483947.96

T-28-N
T-27-N

STRUCTURE B-18-0005

T-27-N
T-26-N

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.104 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO
THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS),
EAU CLAIRE COUNTY

DESIGN DESIGNATION

A.D.T. (2017)	=	280
A.D.T. (2037)	=	380
D.H.V.	=	30
D.	=	50/50
T.	=	5.3%
DESIGN SPEED	=	55 MPH
ESALS	=	44,000

CONVENTIONAL SYMBOLS PLAN

CORPORATE LIMITS	PL + 58.1
PROPERTY LINE	PL + 58.1
LOT LINE	PL + 58.1
LIMITED HIGHWAY EASEMENT	PL + 58.1
EXISTING RIGHT OF WAY	PL + 58.1
PROPOSED OR NEW R/W LINE	PL + 58.1
SLOPE INTERCEPT	PL + 58.1
REFERENCE LINE	PL + 58.1
EXISTING CULVERT	PL + 58.1
PROPOSED CULVERT (Box or Pipe)	PL + 58.1
COMBUSTIBLE FLUIDS	PL + 58.1
HIGH VOLTAGE	PL + 58.1
MARSH AREA	PL + 58.1
WOODED OR SHRUB AREA	PL + 58.1

PROFILE

GRADE LINE	PL + 58.1
ORIGINAL GROUND	PL + 58.1
MARSH OR ROCK PROFILE (To be noted as such)	PL + 58.1
SPECIAL DITCH	PL + 58.1
GRADE ELEVATION	PL + 58.1
CULVERT (Profile View)	PL + 58.1
UTILITIES	PL + 58.1
OVERHEAD ELECTRIC	PL + 58.1
ELECTRIC	PL + 58.1
FIBER OPTIC	PL + 58.1
GAS	PL + 58.1
SANITARY SEWER	PL + 58.1
STORM SEWER	PL + 58.1
TELEPHONE	PL + 58.1
WATER	PL + 58.1
UTILITY PEDESTAL	PL + 58.1
POWER POLE	PL + 58.1
TELEPHONE POLE	PL + 58.1

ACCEPTED FOR	
County	Eau Claire
Date	9-30-16
Highway Commissioner	
ORIGINAL PLANS PREPARED BY	
AYRES ASSOCIATES	
3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com	
CHRISTOPHER B. McMAHON E-29454 EAU CLAIRE, WI	
DATE 10/4/16	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Management Consultant	KNIGHT E/A INC.
C.O. Examiner	
APPROVED FOR THE DEPARTMENT	
DATE: 10/20/16	Ryan B. McKenna
Management Consultant Signature	



GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

NO TREES AND/OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

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

THE DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT TO BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCLUSIVE OF THE ROADBED, SHALL BE FERTILIZED, SEEDED, AND MULCHED AS DIRECTED BY THE ENGINEER.

SEED MIXTURE NO. 20 AND SEEDING TEMPORARY SHALL BE USED IN THE PROJECT AND SHALL BE PLACED AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLAN, OR AS DIRECTED BY THE ENGINEER. SILT FENCE TO BE PLACED PRIOR TO CONSTRUCTION AND IN PLACE PRIOR TO BRIDGE REMOVAL.

WHEN THE QUANTITY OF THE ITEM OF BASE LAYER OR SURFACE LAYER IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988, 2012 ADJUSTMENT.

SHRINKAGE IS ESTIMATED AT 30%

WETLANDS EXIST IN THE PROJECT AREA AND THE CONTRACTOR SHALL NOT DISTURB OUTSIDE OF THE SLOPE INTERCEPTS IN THESE AREAS

EAU CLAIRE ENERGY COOPERATIVE	CENTURYLINK
8214 HIGHWAY 12	835 RED IRON ROAD
P.O. BOX 368	BLACK RIVER FALLS, WI 54615
FALL CREEK, WI 54742-368	ATTN: DONNA SMOTHERS
ATTN: DON DRAEGER	715-284-4375
715-836-6479	donna.smothers@centurytel.com
ddraeger@ecec.com	

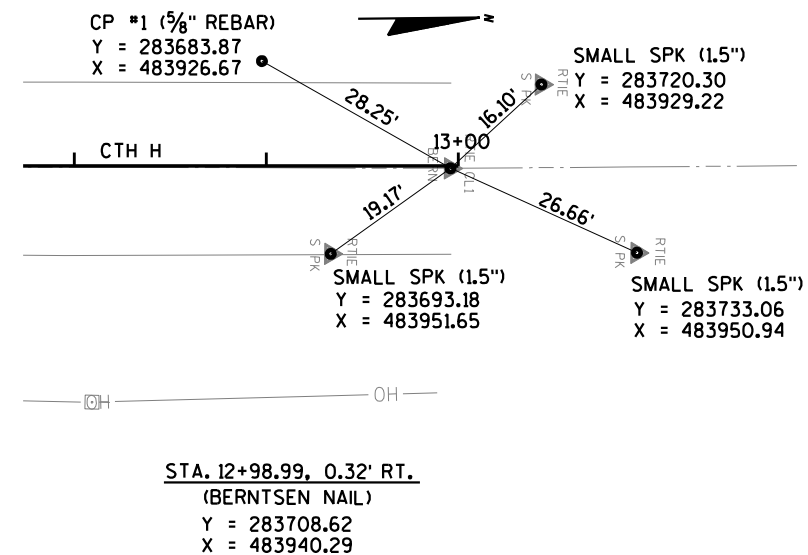
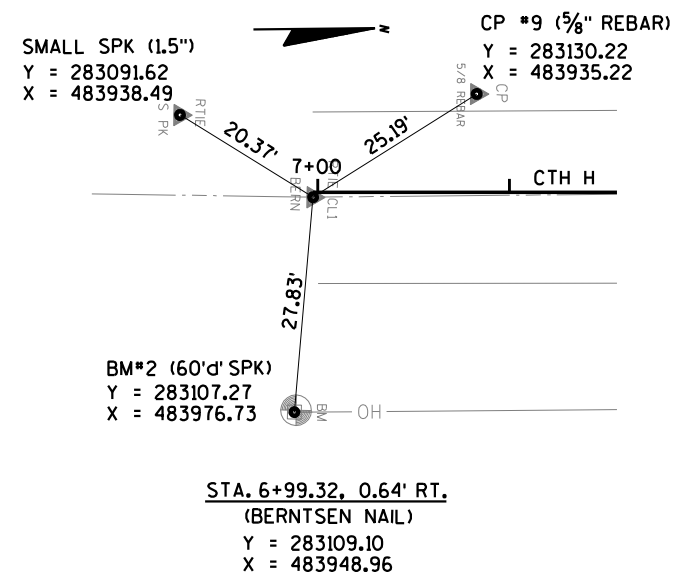
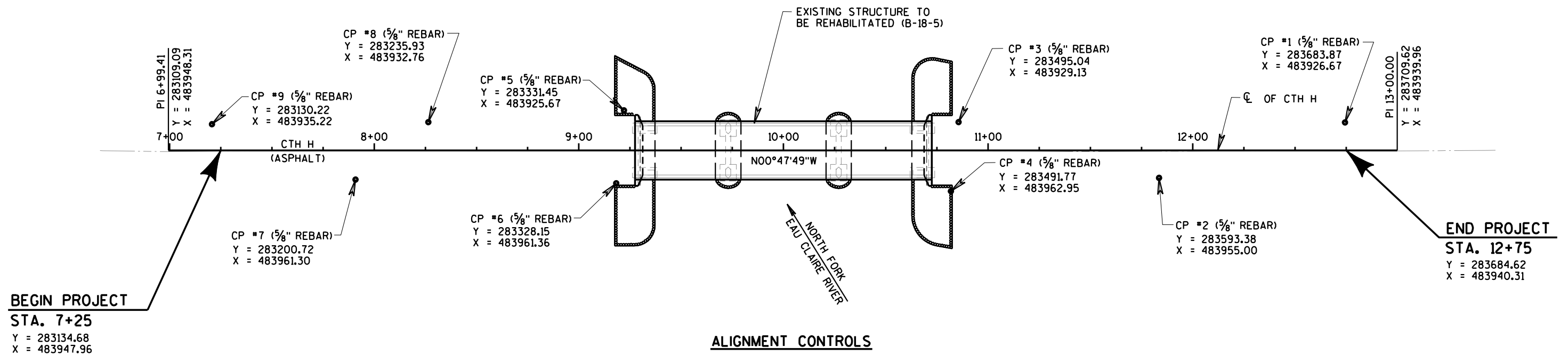
DIGGERS HOTLINE

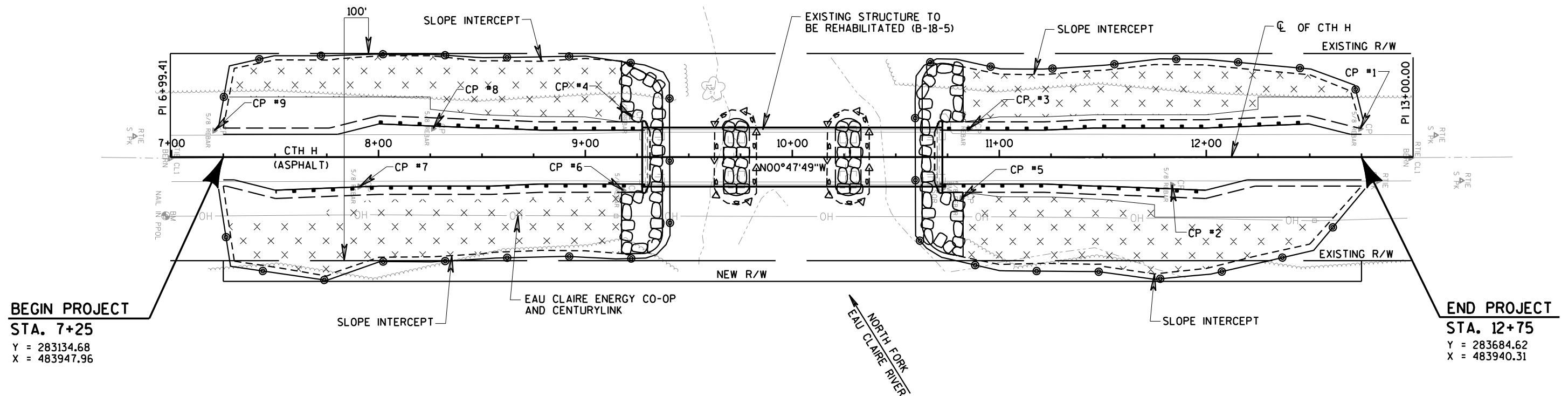
Dial **811** or (800)242-8511

www.DiggersHotline.com



CHRIS WILLGER
1300 WEST CLAIREMONT AVE.
P.O. BOX 4001
EAU CLAIRE, WI 54702-4001
715-839-1609
christopher.j.willger@wisconsin.gov





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

TOTAL PROJECT AREA = 1.39 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.89 ACRES

LEGEND

- × × × EROSION MAT CLASS II TYPE C
- TEMPORARY DITCH CHECKS (UNDISTRIBUTED)
- SILT FENCE
- RIPRAP HEAVY
- TURBIDITY BARRIER

PROJECT NO: 7831-03-72

HWY: CTH H

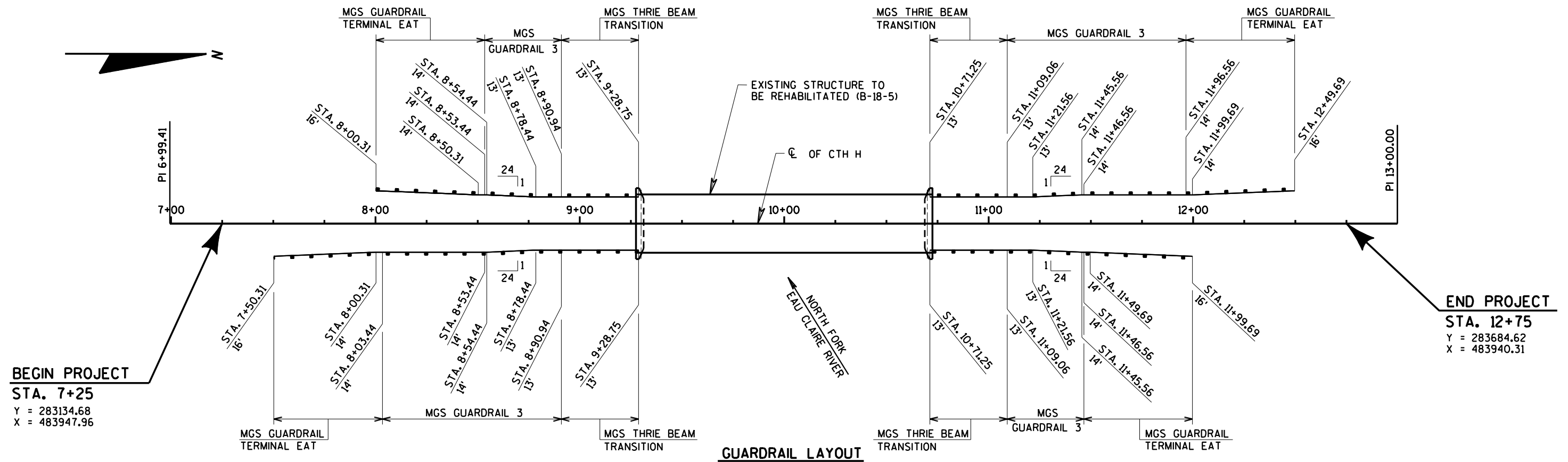
COUNTY: EAU CLAIRE

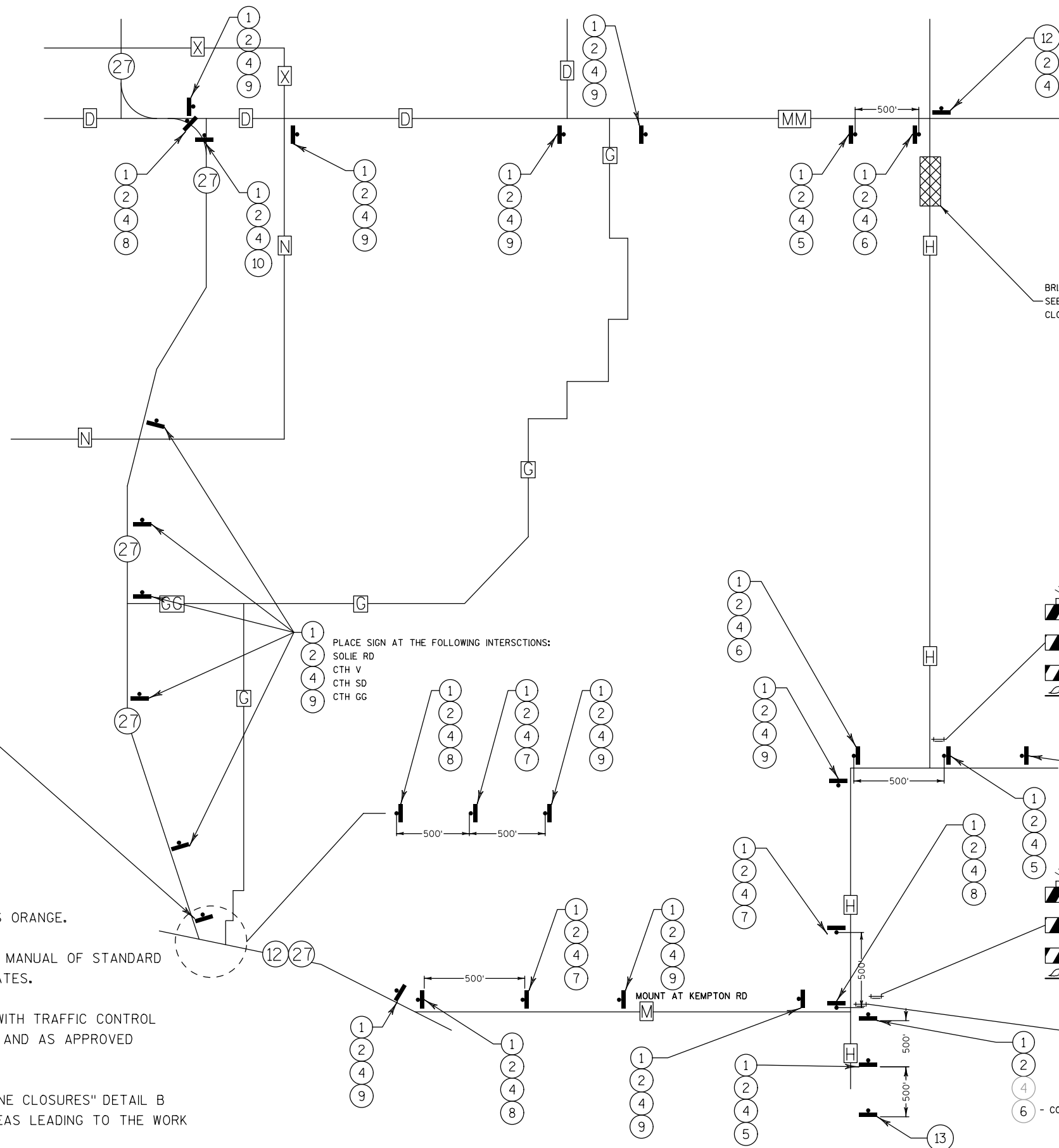
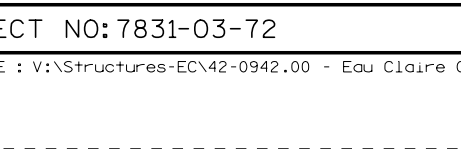
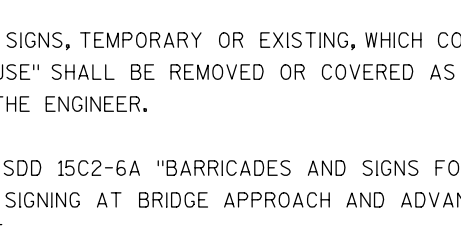
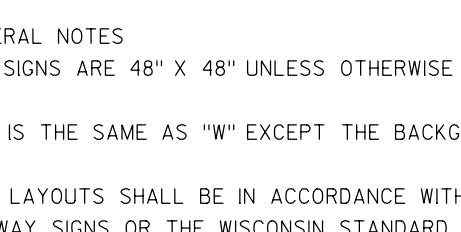
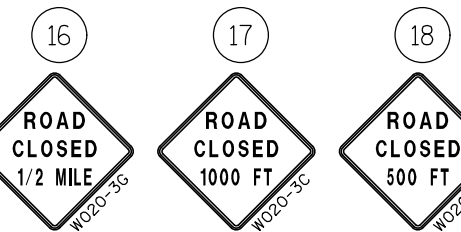
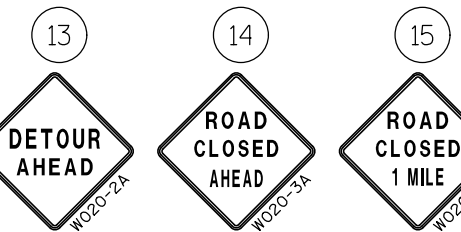
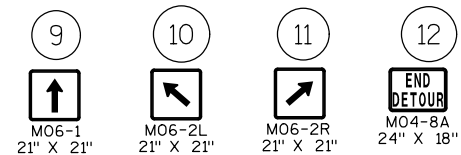
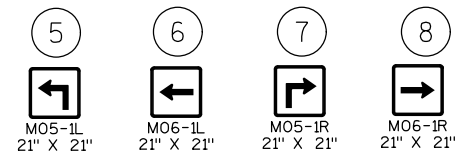
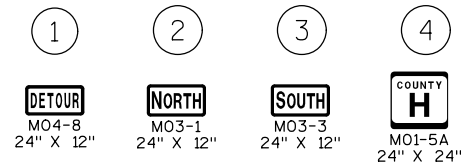
EROSION CONTROL

SCALE, FEET 0 25 50

SHEET

E





BRIDGE CLOSED TO CONSTRUCTION
SEE SDD 15C2-6A "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL B FOR SIGNING AT BRIDGE APPROACH

BRIDGE OUT
8 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3B
60" X 30"

BRIDGE OUT
12 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3B
60" X 30"

DETOUR
MO4-9L
30" X 24"

GENERAL NOTES

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

SEE SDD 15C2-6A "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL B FOR SIGNING AT BRIDGE APPROACH AND ADVANCED AREAS LEADING TO THE WORK ZONE.

PROJECT NO: 7831-03-72

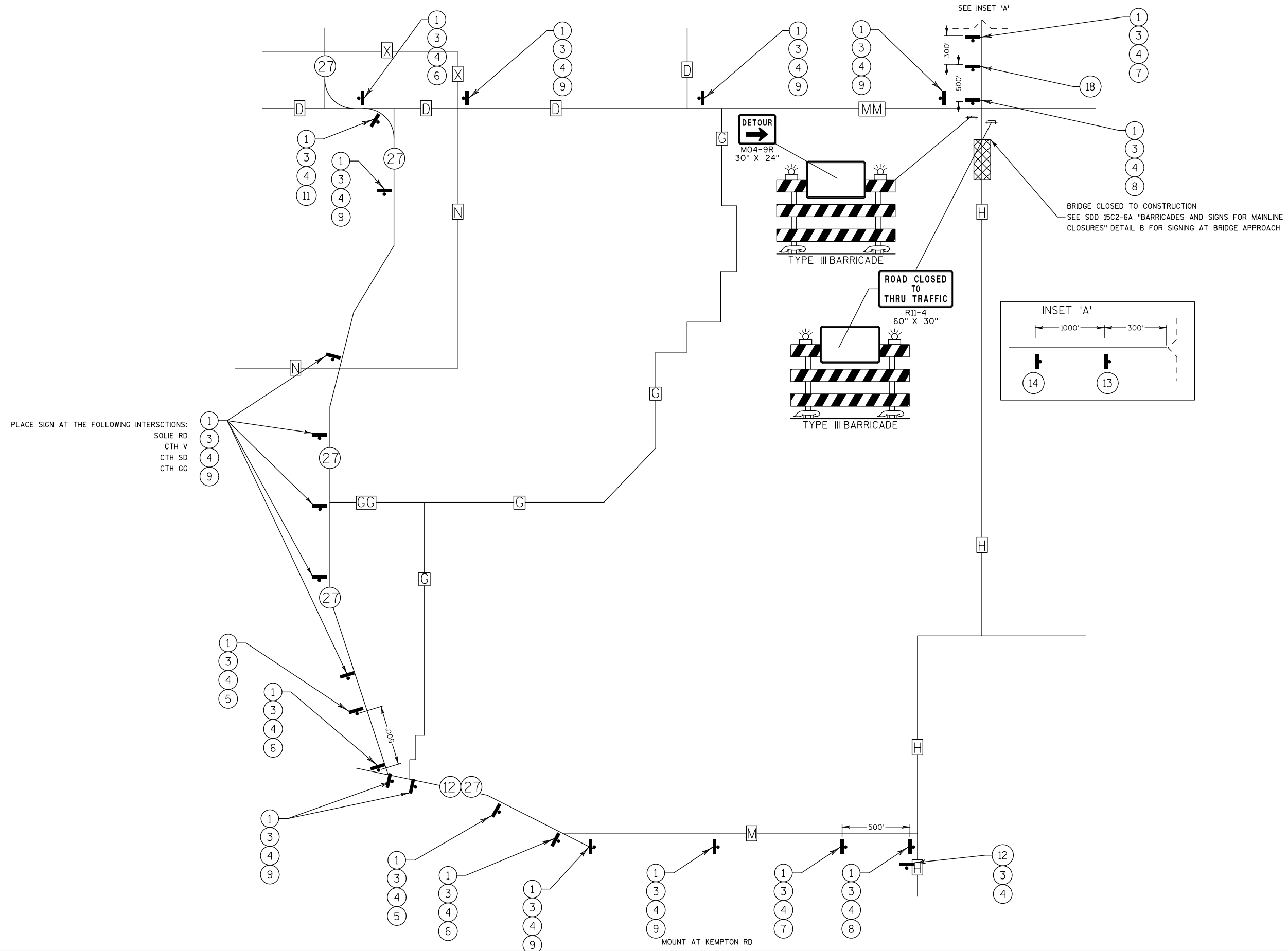
HWY: CTH H

COUNTY: EAU CLAIRE

TRAFFIC CONTROL

SHEET

E



Estimate Of Quantities

7831-03-72					
Line	Item	Item Description	Unit	Total	Qty
0010	201.0105	Clearing	STA	6.000	6.000
0020	201.0205	Grubbing	STA	6.000	6.000
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 **P**	CY	426.000	426.000
0050	206.1000	Excavation for Structures Bridges (structure) 01. B-18-5	LS	1.000	1.000
0060	208.0100	Borrow	CY	1,664.000	1,664.000
0070	210.1500	Backfill Structure Type A	TON	70.000	70.000
0080	213.0100	Finishing Roadway (project) 01. 7831-03-72	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	90.000	90.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	800.000	800.000
0110	455.0605	Tack Coat	GAL	84.000	84.000
0120	465.0105	Asphaltic Surface	TON	280.000	280.000
0130	502.0100	Concrete Masonry Bridges	CY	141.000	141.000
0140	502.3200	Protective Surface Treatment	SY	520.000	520.000
0150	502.4205	Adhesive Anchors No. 5 Bar	EACH	188.000	188.000
0160	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	31,690.000	31,690.000
0170	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	10.000	10.000
0180	506.7050.S	Removing Bearings (structure) 01. B-18-5	EACH	10.000	10.000
0190	509.1500	Concrete Surface Repair	SF	100.000	100.000
0200	513.4061	Railing Tubular Type M (structure) 01. B-18-5	LF	294.000	294.000
0210	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0220	517.0900.S	Preparation and Coating of Top Flanges (structure) 01. B-18-5	LS	1.000	1.000
0230	517.3000.S	Structure Overcoating Cleaning and Priming (structure) 01. B-18-5	LS	1.000	1.000
0240	517.4000.S	Containment and Collection of Waste Materials (structure) 01. B-18-5	LS	1.000	1.000
0250	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0260	606.0300	Riprap Heavy	CY	280.000	280.000
0270	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	110.000	110.000
0280	614.2300	MGS Guardrail 3	LF	250.000	250.000
0290	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0300	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0310	619.1000	Mobilization	EACH	1.000	1.000
0320	624.0100	Water	MGAL	30.000	30.000
0330	625.0500	Salvaged Topsoil **P**	SY	3,095.000	3,095.000
0340	627.0200	Mulching **P**	SY	1,240.000	1,240.000
0350	628.1504	Silt Fence	LF	1,425.000	1,425.000
0360	628.1520	Silt Fence Maintenance	LF	2,850.000	2,850.000
0370	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000

Estimate Of Quantities

7831-03-72					
Line	Item	Item Description	Unit	Total	Qty
0380	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0390	628.2027	Erosion Mat Class II Type C	SY	2,635.000	2,635.000
0400	628.6005	Turbidity Barriers	SY	320.000	320.000
0410	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0420	629.0210	Fertilizer Type B **P**	CWT	2.400	2.400
0430	630.0120	Seeding Mixture No. 20 **P**	LB	105.000	105.000
0440	630.0200	Seeding Temporary **P**	LB	35.000	35.000
0450	630.0300	Seeding Borrow Pit	LB	15.000	15.000
0460	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0470	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0480	638.2602	Removing Signs Type II	EACH	4.000	4.000
0490	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0500	642.5001	Field Office Type B	EACH	1.000	1.000
0510	643.0100	Traffic Control (project) 01. 7831-03-72	EACH	1.000	1.000
0520	643.0420	Traffic Control Barricades Type III	DAY	1,200.000	1,200.000
0530	643.0705	Traffic Control Warning Lights Type A	DAY	1,440.000	1,440.000
0540	643.0900	Traffic Control Signs	DAY	600.000	600.000
0550	643.0910	Traffic Control Covering Signs Type I	EACH	1.000	1.000
0560	643.2000	Traffic Control Detour (project) 01. 7831-03-72	EACH	1.000	1.000
0570	643.3000	Traffic Control Detour Signs	DAY	13,020.000	13,020.000
0580	645.0120	Geotextile Type HR	SY	420.000	420.000
0590	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,238.000	1,238.000
0600	650.4500	Construction Staking Subgrade	LF	405.000	405.000
0610	650.5000	Construction Staking Base	LF	405.000	405.000
0620	650.6500	Construction Staking Structure Layout (structure) 01. 7831-03-72	LS	1.000	1.000
0630	650.9910	Construction Staking Supplemental Control (project) 01. 7831-03-72	LS	1.000	1.000
0640	650.9920	Construction Staking Slope Stakes	LF	405.000	405.000
0650	690.0150	Sawing Asphalt	LF	44.000	44.000
0660	715.0502	Incentive Strength Concrete Structures	DOL	846.000	846.000
0670	SPV.0060	Special 01. Cleaning and Painting Bearings	EACH	10.000	10.000

CLEARING AND GRUBBING

			201.0105	201.0205
			CLEARING	GRUBBING
STATION	TO	STATION	LOCATION	STA
7+25	-	9+50	LT & RT	3
10+50	-	12+75	LT & RT	3
TOTALS			6	6

FINISHING ROADWAY
(ID 7831-03-72)

213.0100.01	
LOCATION	EACH
MAINLINE	1
TOTAL	
1	

PAVING AND BASE QUANTITIES

			305.0110	305.0120	455.0605	465.0105
			BASE AGGREGATE	BASE AGGREGATE	TACK	ASPHALTIC
			DENSE 3/4-INCH	DENSE 1 1/4-INCH	COAT	SURFACE
STA	TO	STA	TON	TON	GAL	TON
7+25	-	9+27.5	45	400	42	140
10+72.5	-	12+75	45	400	42	140
TOTALS			90	800	84	280

WATER

624.0100				
WATER				
STA	TO	STA	PURPOSE	MGAL
7+25	-	12+75	COMPACTION	20
7+25	-	12+75	DUST CONTROL	10
TOTAL				30

CTH H EARTHWORK SUMMARY

From/To Station	Location	Common Excavation** (1) (item # 205.0100)	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (item #208.0100)	Comment:
		Cut		Factor 1.30				
7+25 - 12+75	CTH H	426	1,608	2,090	-1,664		1,664	

- 1) Common Excavation is the Cut. Item number 205.0100.
2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor
3) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material on the project.
4) All quantities shown in CY.
**PAY PLAN QUANTITY

GUARDRAIL

				614.2300	614.2500	614.2610
				MGS	MGS THRIE	MGS GUARDRAIL
				GUARDRAIL 3	BEAM TRANSITION	TERMINAL EAT
STA	TO	STA	LOCATION	LF	LF	EACH
7+50	-	8+03	RT	-	-	1
8+00	-	8+53	LT	-	-	1
8+03	-	8+91	RT	87.5	-	-
8+53	-	8+91	LT	37.5	-	-
8+91	-	9+29	LT & RT	-	79	-
10+71	-	11+09	LT & RT	-	79	-
11+09	-	11+97	LT	87.5	-	-
11+09	-	11+47	RT	37.5	-	-
11+47	-	12+00	RT	-	-	1
11+97	-	12+50	LT	-	-	1
TOTALS				250	158	4

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

MOBILIZATION	
	619.1000
CATEGORY	EACH
0010	0.3
0020	0.7
TOTAL	1

EROSION CONTROL MOBILIZATION ITEMS		
	628.1905	628.1910
	MOBILIZATIONS	MOBILIZATIONS
	EROSION	EMERGENCY
	CONTROL	EROSION
		CONTROL
LOCATION	EACH	EACH
ID 7831-03-72	4	2
TOTALS	4	2

EROSION CONTROL ITEMS												
				625.0500	627.0200	628.1504	628.1520	628.2027	629.0210	630.0120	630.0200	630.0300
				SALVAGED**	MULCHING**	SILT FENCE	SILT FENCE	EROSION	FERTILIZER**	SEEDING**	SEEDING**	SEEDING
				TOPSOIL			MAINTENANCE	MAT	TYPE B	MIXTURE	TEMPORARY	BORROW
								CLASS II TYPE C		NO. 20		PIT
STA	TO	STA	LOCATION	SY	SY	LF	LF	SY	CWT	LB	LB	LB
7+25		10+00	RT	655	200	295	590	610	0.5	22	5	5
7+25		10+00	LT	620	270	290	580	510	0.5	21	7	
10+00		12+75	RT	700	295	275	550	560	0.5	23	8	6
10+00		12+75	LT	500	225	280	560	430	0.4	18	6	
UNDISTRIBUTED				620	250	285	570	525	0.5	21	8	4
TOTALS				3,095	1,240	1,425	2,850	2,635	2.4	105	35	15
** PAY PLAN QUANTITY												

TURBIDITY BARRIERS	
	628.6005
LOCATION	SY
PIER 1	115
PIER2	140
UNDISTRIBUTED	65
TOTAL	320

TEMPORARY DITCH CHECKS		
		628.7504
LOCATION	OFFSET	LF
UNDISTRIBUTED	LT	50

SIGNS				
		634.0612	637.2230	
		POSTS WOOD	SIGNS TYPE II	
		4X6-INCH X 12-FT	REFLECTIVE F	
STATION	LOCATION	EACH	SF	SIGNAGE TYPE
9+25	LT	1	3	W5-52L
9+25	RT	1	3	W5-52R
10+75	LT	1	3	W5-52R
10+75	RT	1	3	W5-52L
TOTALS		4	12	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

REMOVING SIGNS & SUPPORTS

	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	NOTES
9+25, LT & RT	2	2	OBJECT MARKERS (W5-52L/R)
10+75, LT & RT	2	2	OBJECT MARKERS (W5-52R/L)
TOTALS	4	4	

FIELD OFFICE TYPE B

	642.5001 EACH
CATEGORY	
0010	0.3
0020	0.7
TOTAL	1

STAKING ITEMS

	650.4500 CONSTRUCTION STAKING SUBGRADE	650.5000 CONSTRUCTION STAKING BASE	650.6500.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (B-18-0005)	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (7831-03-72)	650.9920 CONSTRUCTION STAKING SLOPE STAKES
CATEGORY	LOCATION	LF	LF	LS	LS
0010	7+25 - 12+75	405	405	--	1
0020	B-18-0005	--	--	1	--
TOTALS		405	405	1	1

PAVEMENT MARKING, EPOXY 4-INCH

					646.0106 YELLOW	WHITE
STA	TO	STA	LOCATION	DESCRIPTION	LF	
7+25	-	12+75	LT & RT	EDGE LINE	--	1,100
7+25	-	12+75	MIDDLE	DASHED CENTER LINE	138	--
SUBTOTALS					138	1,100
TOTAL					1,238	

SAWING ASPHALT

	690.0150 LF
STATION	
7+25	22
12+75	22
TOTAL	44

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

TRAFFIC CONTROL		
	643.0100	643.2000
	TRAFFIC CONTROL	TRAFFIC CONTROL DETOUR
	(PROJECT)	(PROJECT)
PROJECT NO.	EA	EA
7831-03-72	1	1

TRAFFIC CONTROL ITEMS						
			643.0420		643.0705	
			BARRICADES		WARNING LIGHTS	
			TYPE III		TYPE A	
PROJECT ID	DIRECTION	DURATION (DAYS)	NO.	DAYS	NO.	DAYS
7831-03-72	NB	60	11	660	16	960
	SB	60	9	540	8	480
TOTAL				1200		1440

TRAFFIC CONTROL SIGNS							
		643.0900	643.0910		643.3000		
			COVERING SIGNS				
			SIGNS		DETOUR SIGNS		
PROJECT ID	DIRECTION	DURATION (DAYS)	NO.	DAYS	TYPE I	NO.	DAYS
					EACH		
7831-03-72	NB	60	3	180	1	124	7440
	SB	60	7	420	0	93	5580
TOTAL				600	1		13020

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

NATHAN C. &
HEATHER K. WHITE

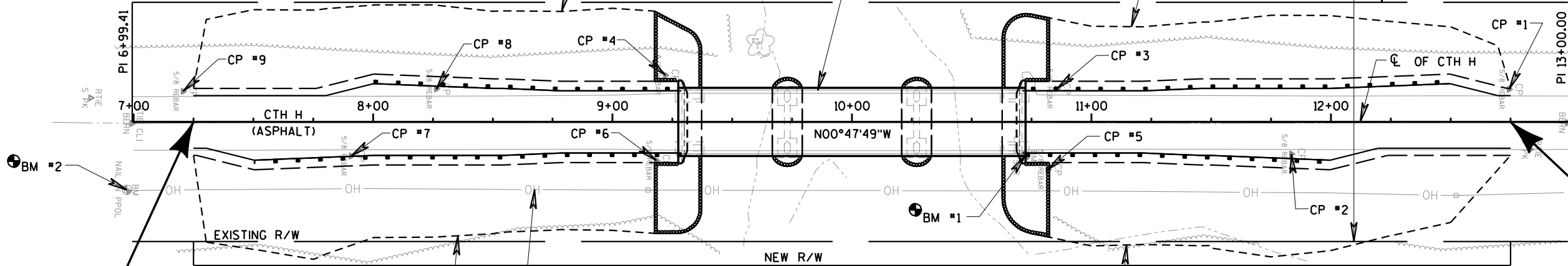
SLOPE INTERCEPT

EXISTING R/W

EXISTING STRUCTURE TO
BE REHABILITATED (B-18-5)

SLOPE INTERCEPT

100'



END PROJECT
STA. 12+75
(SAWCUT REQUIRED)
Y = 283684.62
X = 483940.31

BEGIN PROJECT
STA. 7+25
(SAWCUT REQUIRED)
Y = 283134.68
X = 483947.96

NOTES:
FOR ALIGNMENT CONTROLS AND TIES,
SEE ALIGNMENT TIES AND CONTROLS SHEET.
FOR GUARDRAIL LAYOUT, SEE
GUARDRAIL LAYOUT SHEET.

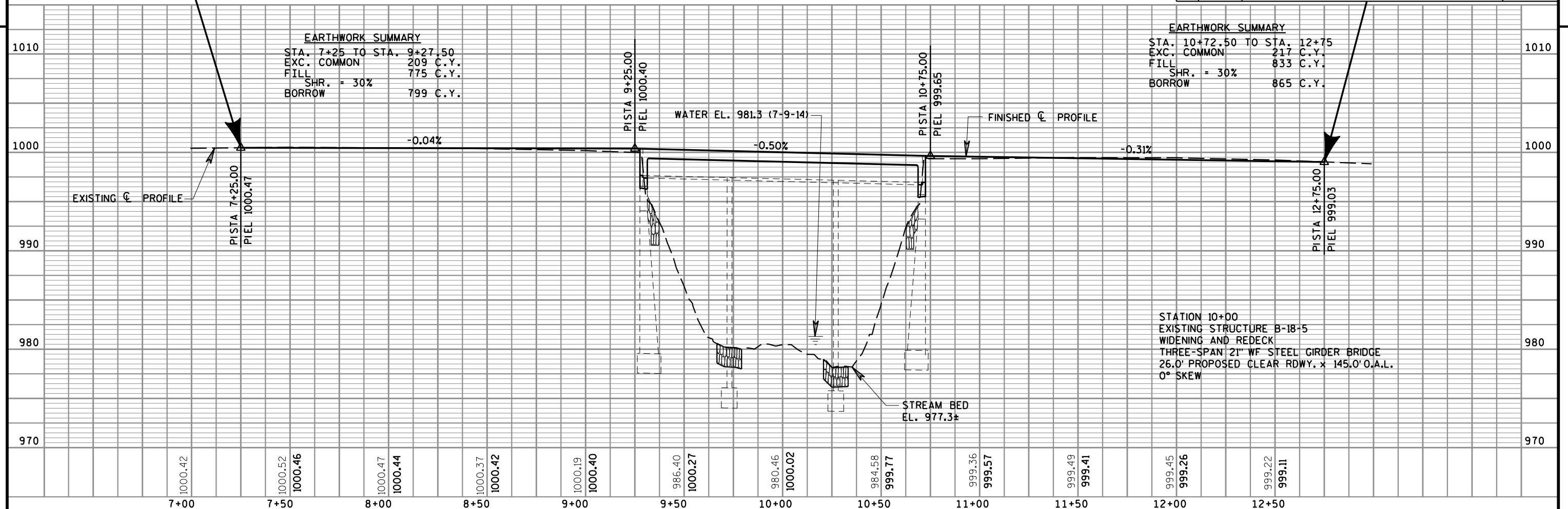
DANIEL M. &
CHERYL L. MEYER

NORTH FORK
EAU CLAIRE RIVER

NO.	STA.	BENCH MARKS	ELEV.
		DESCRIPTION	
1	10+72	CHIS. SQ. TOP OF NE WINGWALL, 14' RT	1000.06
2	6+97	60d SPK IN PP, 28' RT.	994.63

EARTHWORK SUMMARY
STA. 7+25 TO STA. 9+27.50
EXC. COMMON 209 C.Y.
FILL 775 C.Y.
SHR. = 30%
BORROW 799 C.Y.

EARTHWORK SUMMARY
STA. 10+72.50 TO STA. 12+75
EXC. COMMON 217 C.Y.
FILL 833 C.Y.
SHR. = 30%
BORROW 865 C.Y.



STATION 10+00
EXISTING STRUCTURE B-18-5
WIDENING AND REDECK
THREE-SPAN 21\"/>

PROJECT NO: 7831-03-72

HWY: CTH H

COUNTY: EAU CLAIRE

PLAN AND PROFILE

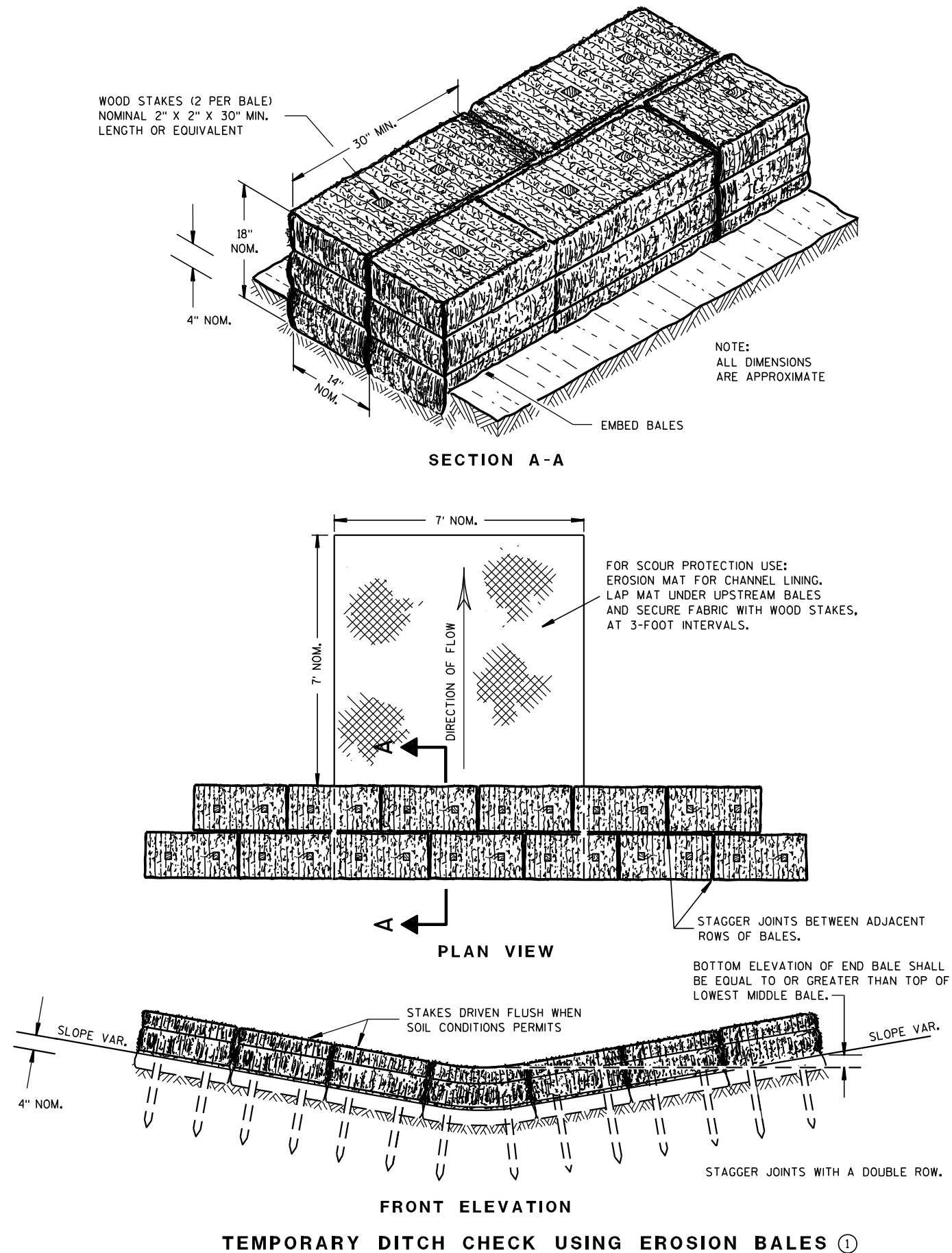
SCALE, FEET 0 25 50

SHEET

E

Standard Detail Drawing List

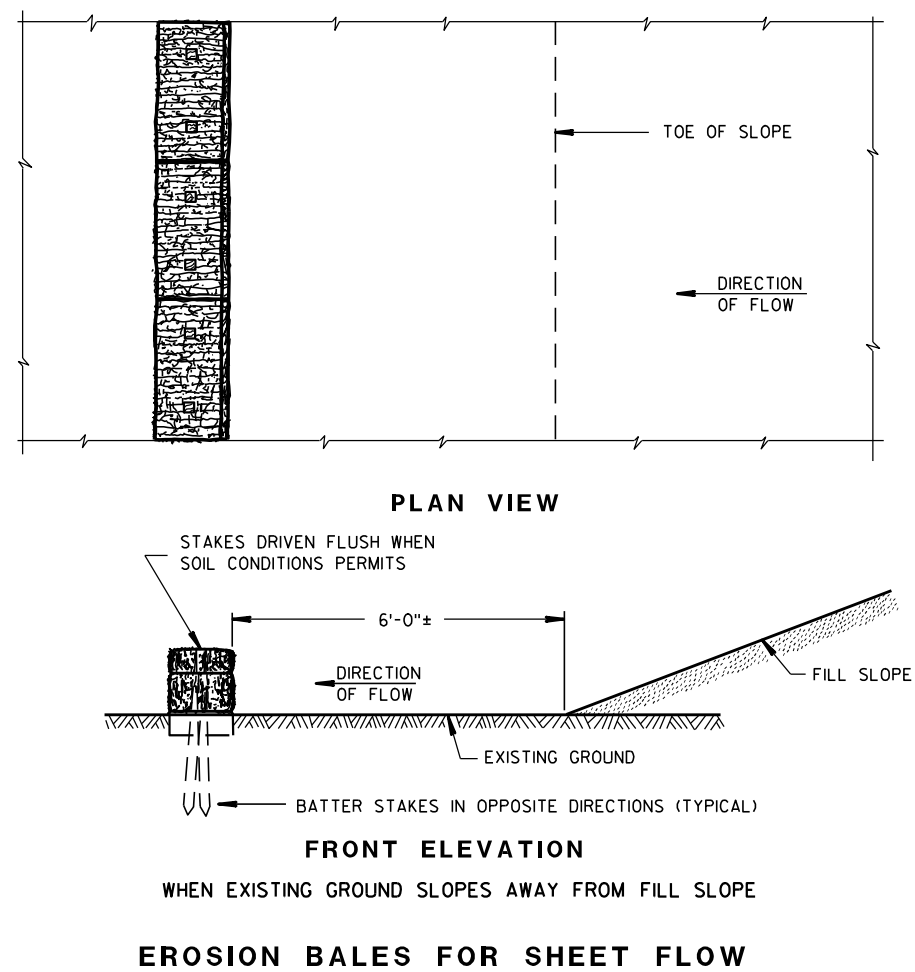
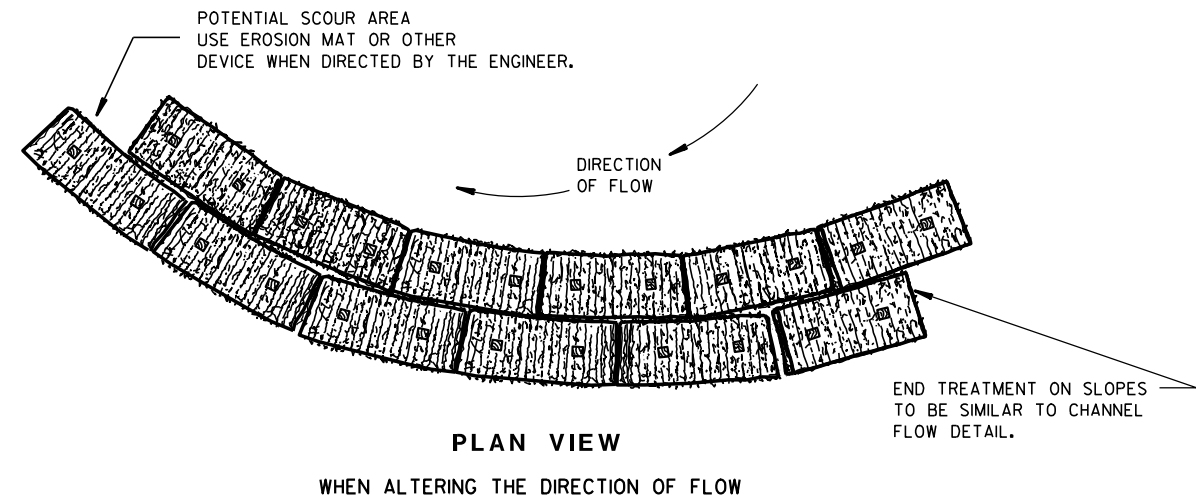
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



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.

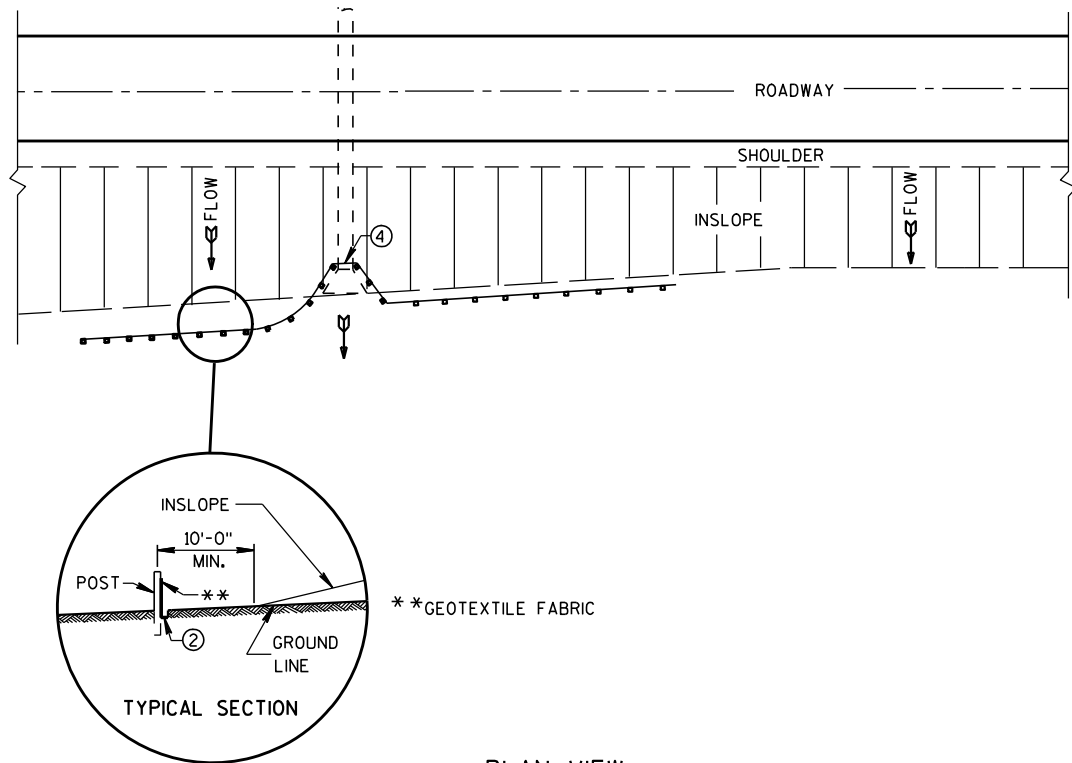
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

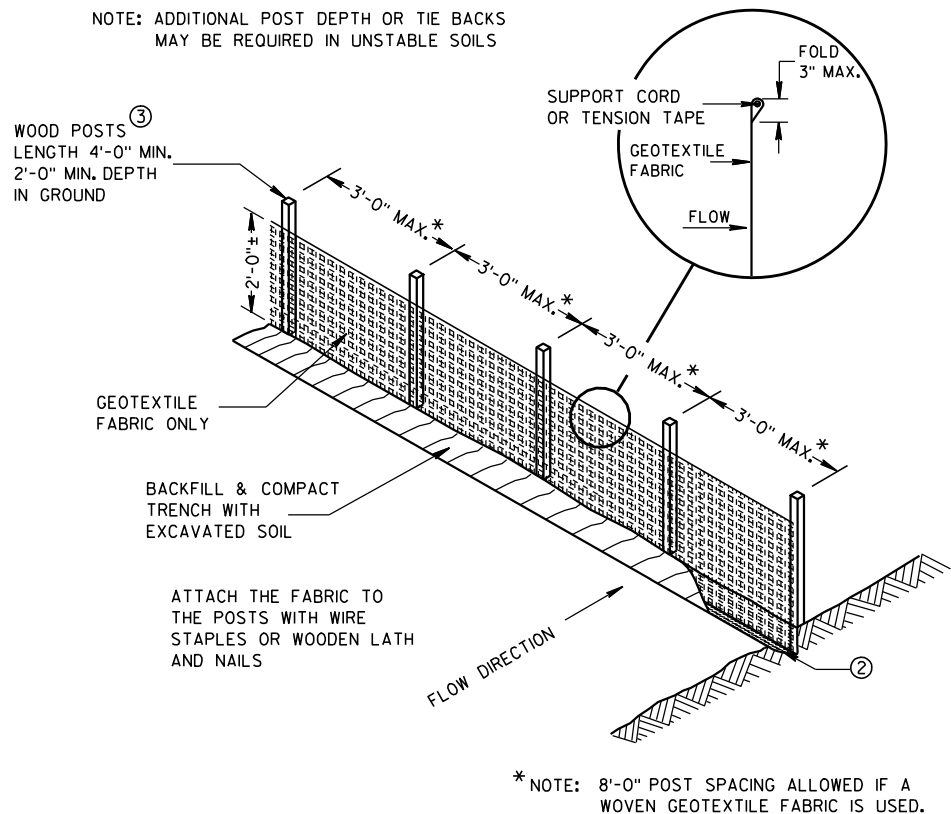
APPROVED

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

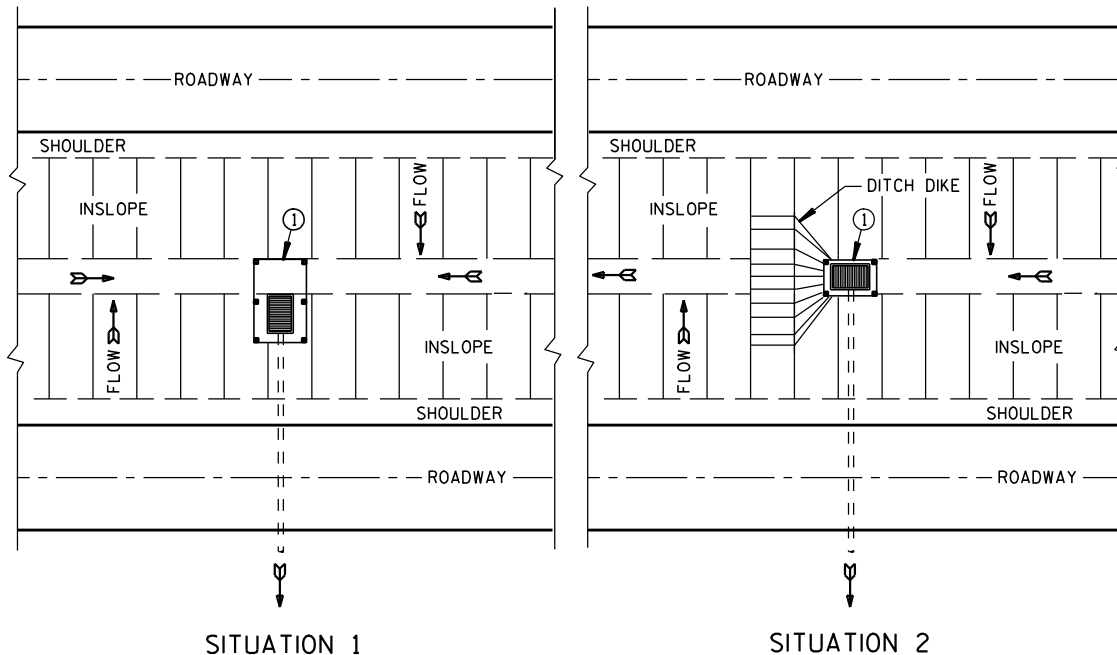
FHWA



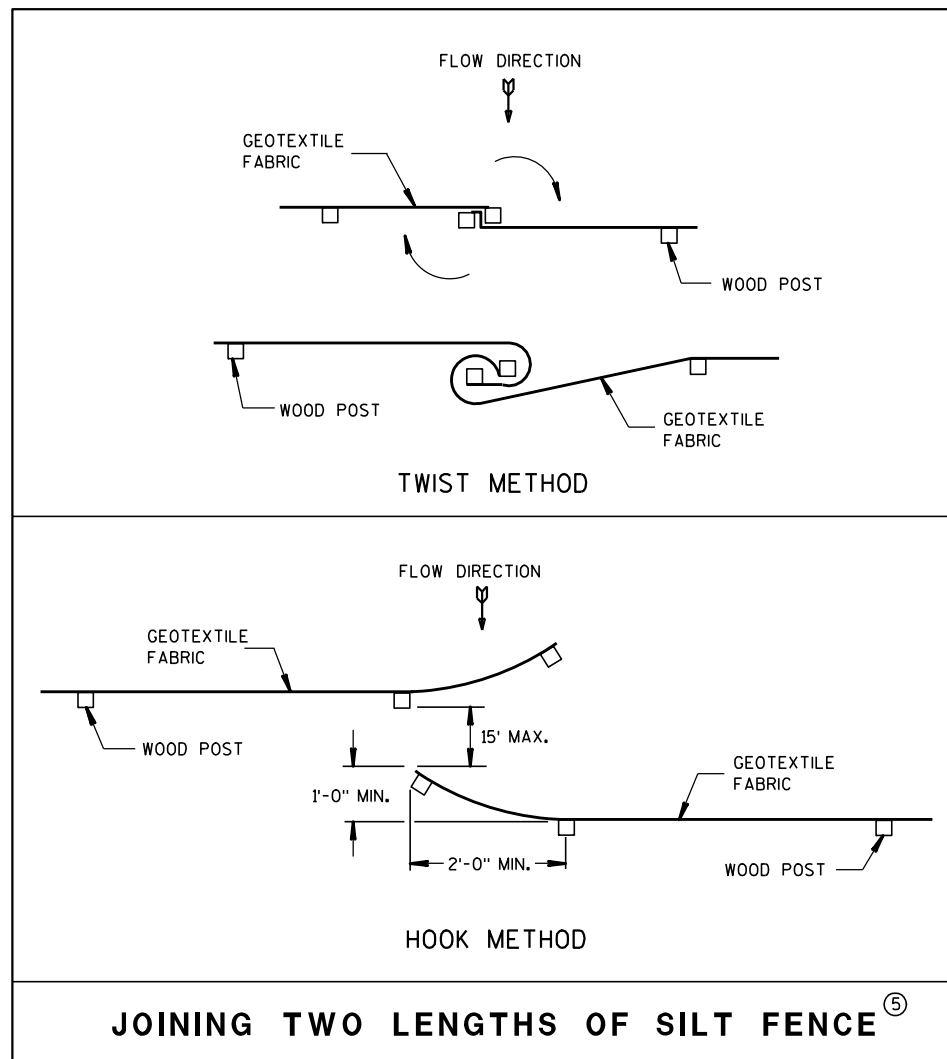
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

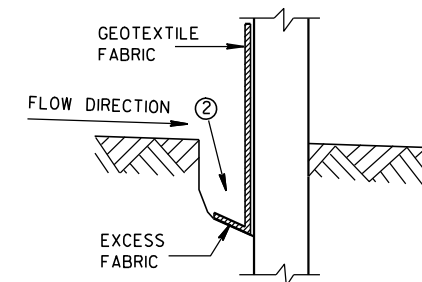


JOINING TWO LENGTHS OF SILT FENCE ⑤

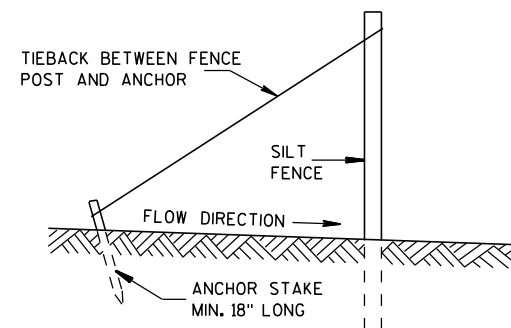
GENERAL NOTES

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

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

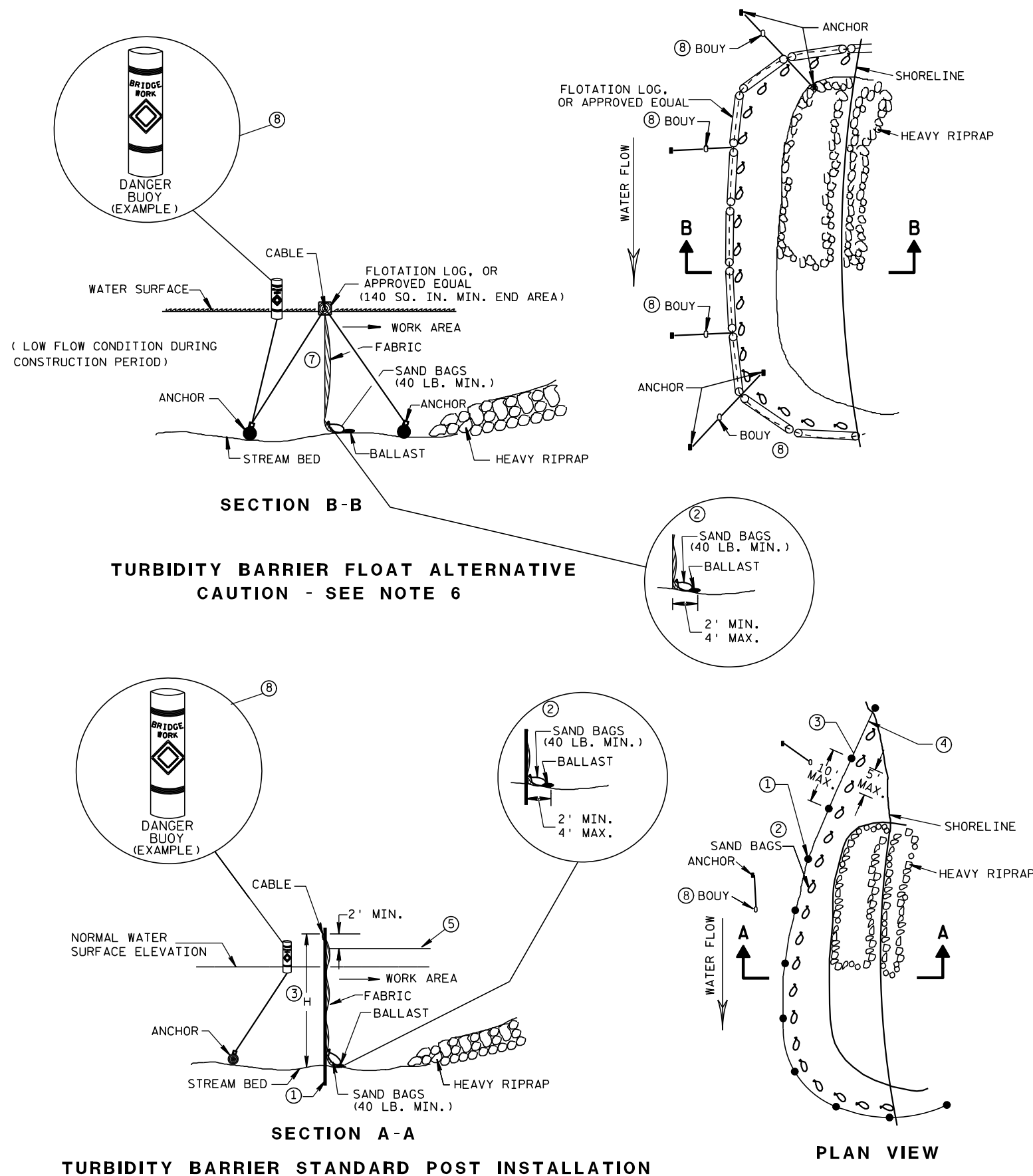


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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

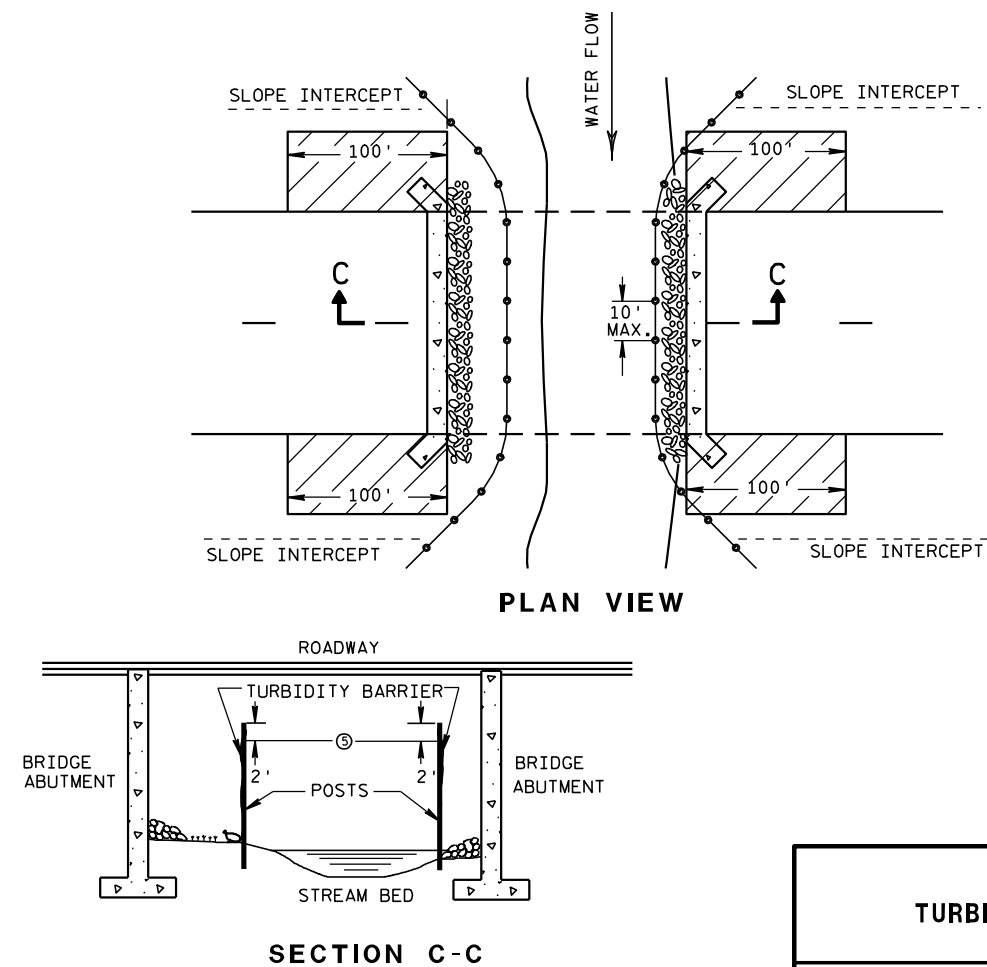


GENERAL NOTES

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

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

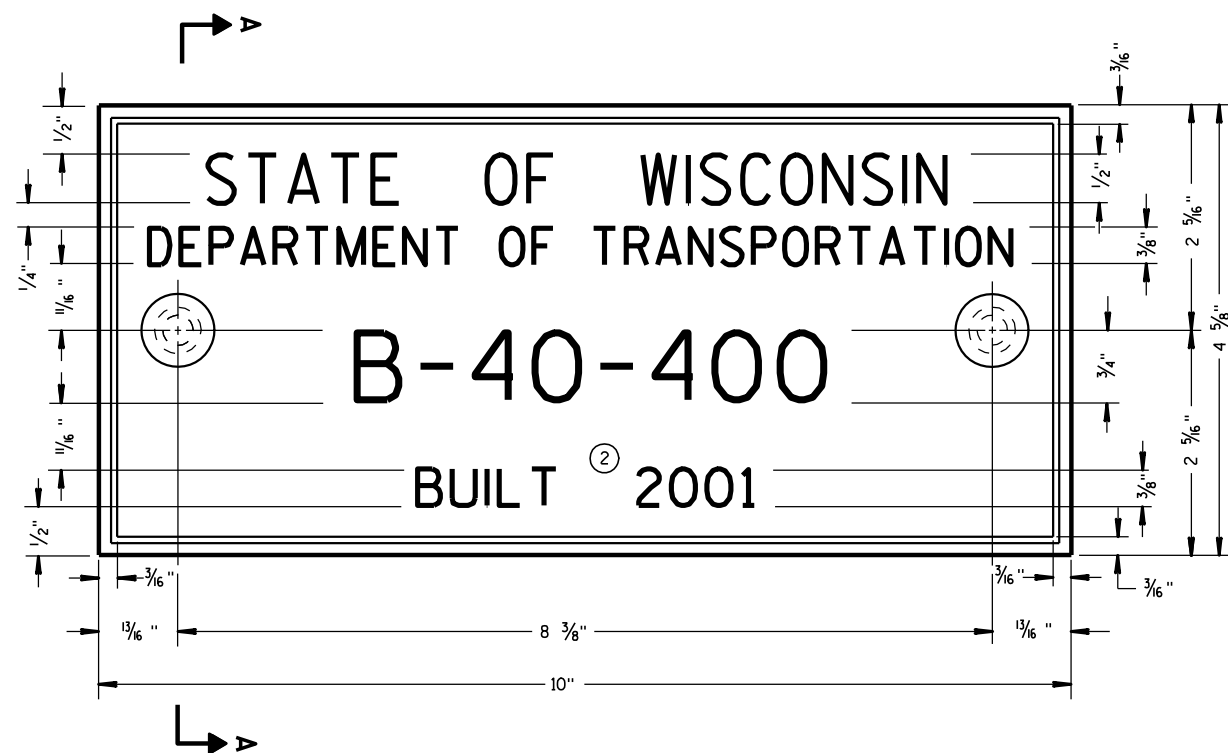
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

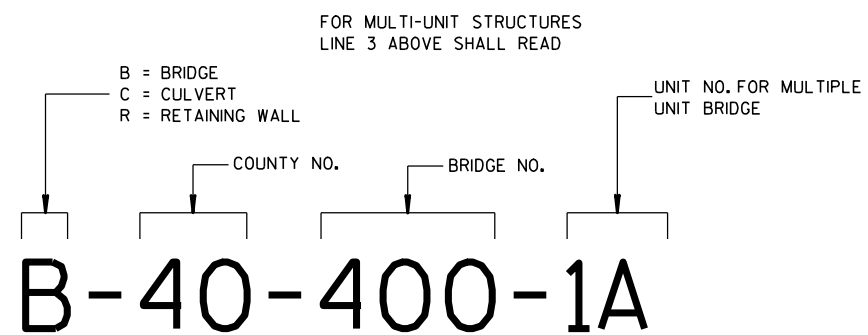
6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



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



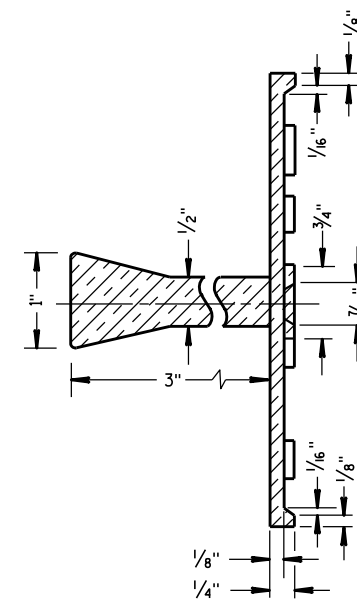
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

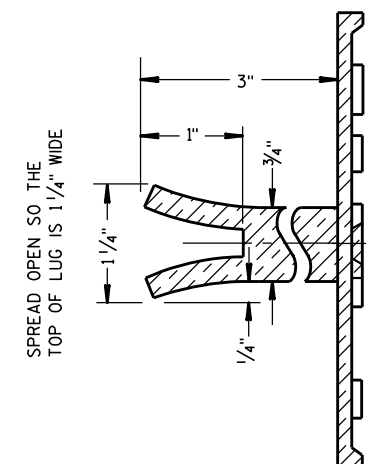
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

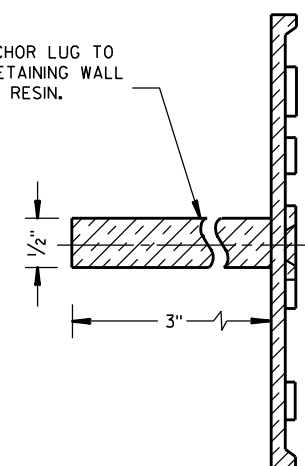


SECTION A-A



ALTERNATE LUG

- 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

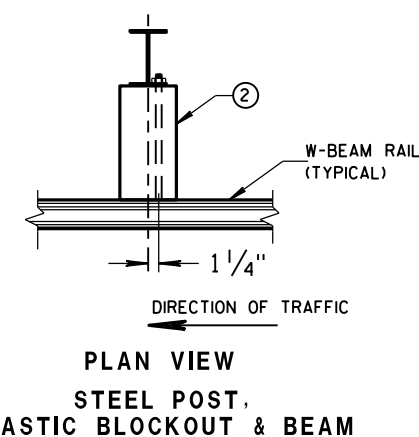
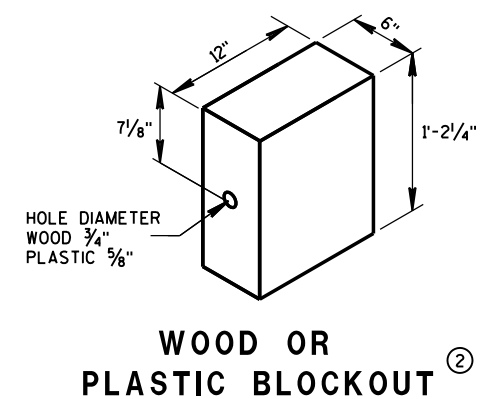
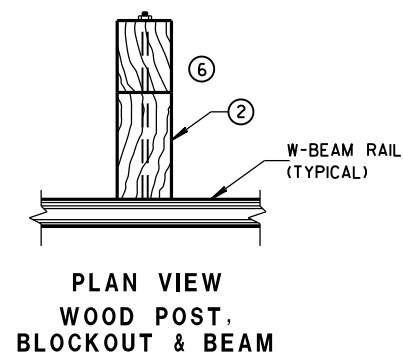
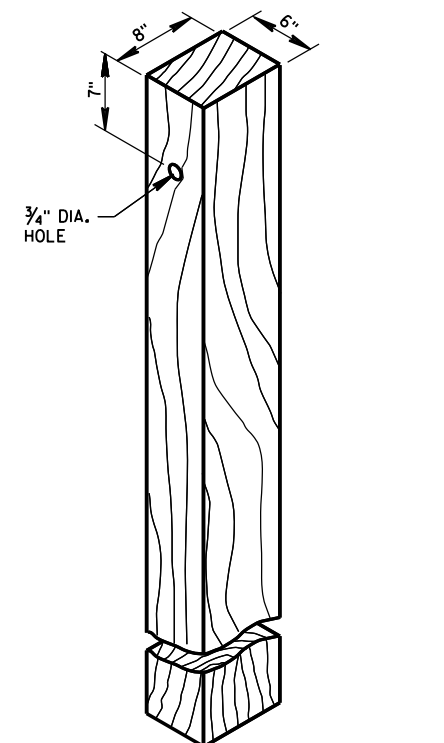
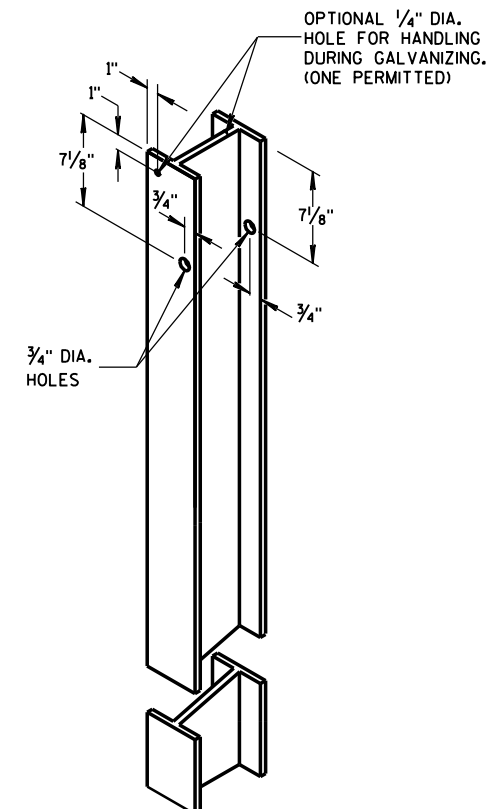
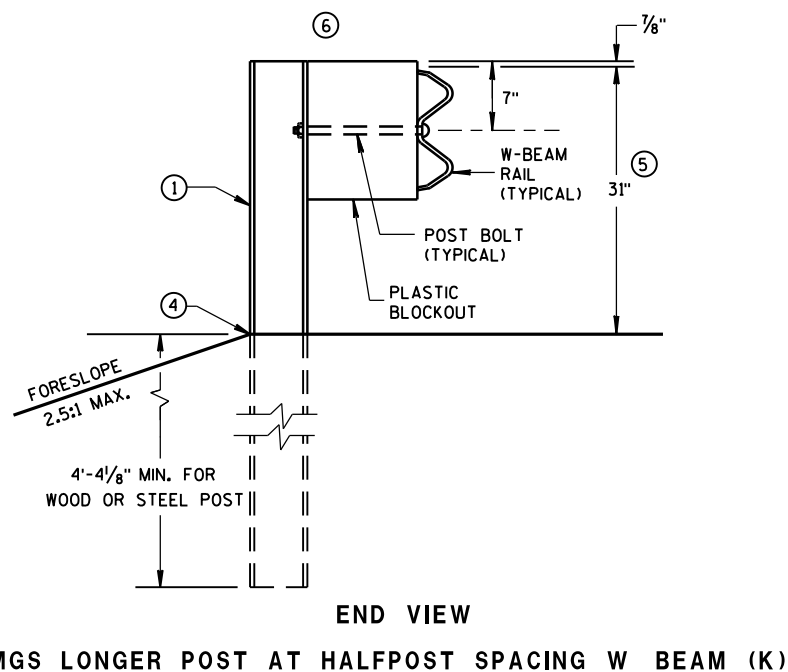
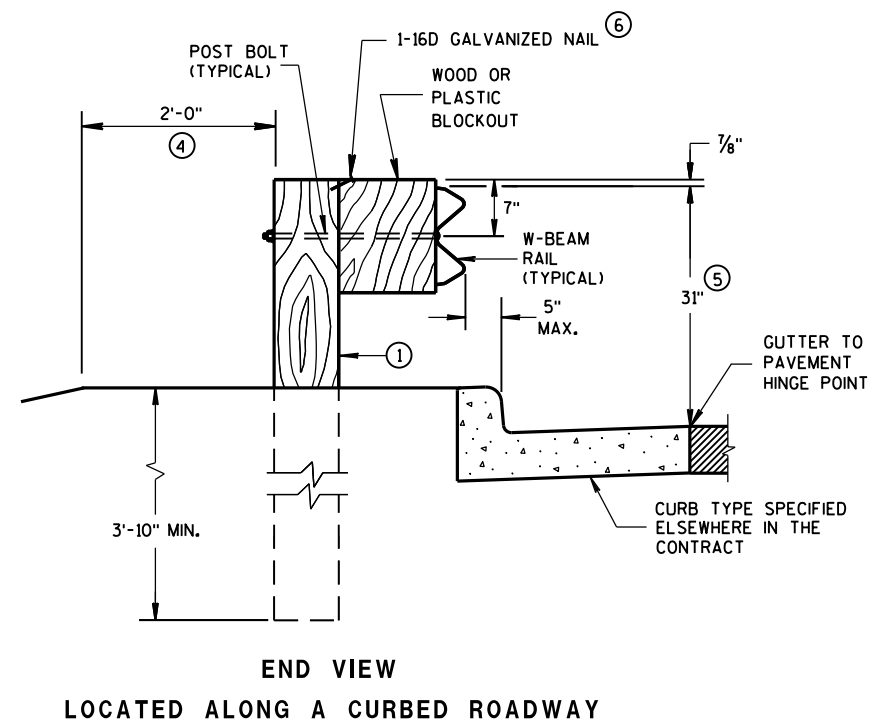
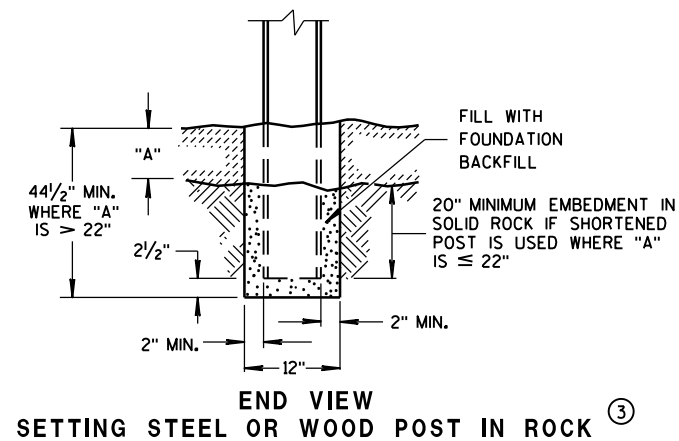
APPROVED

3/26/10
DATE

FHWA

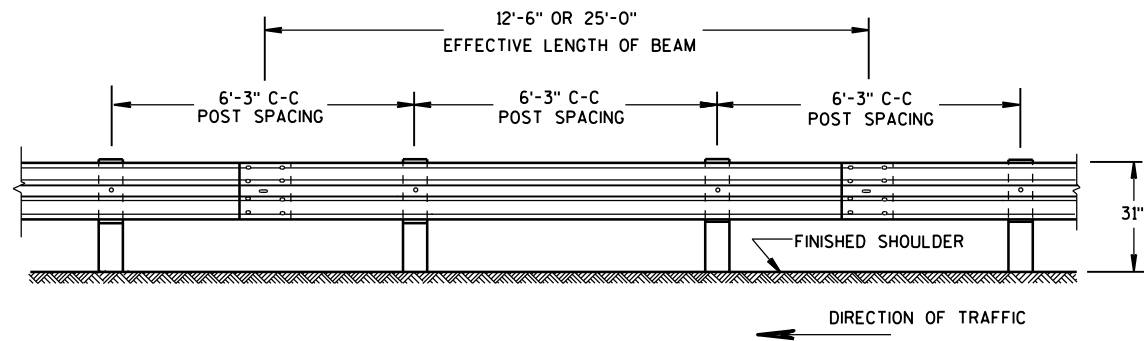
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO THE LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



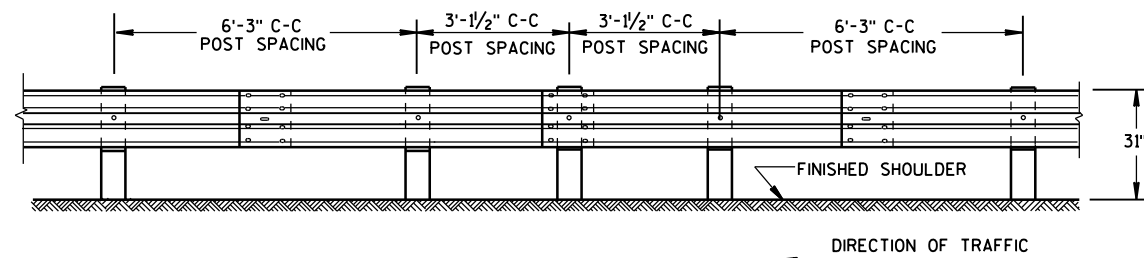
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



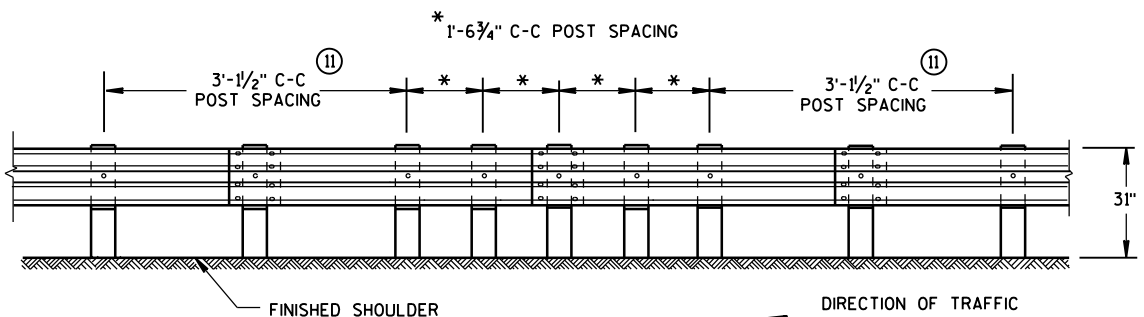
FRONT VIEW

POST SPACING STANDARD INSTALLATION



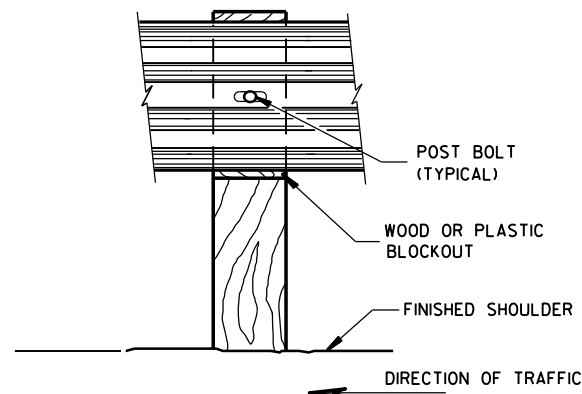
FRONT VIEW

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

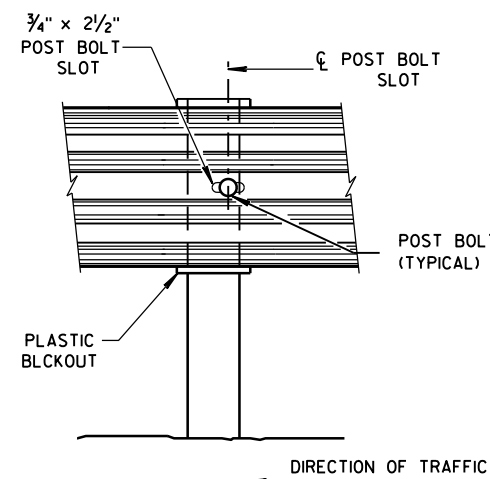


FRONT VIEW

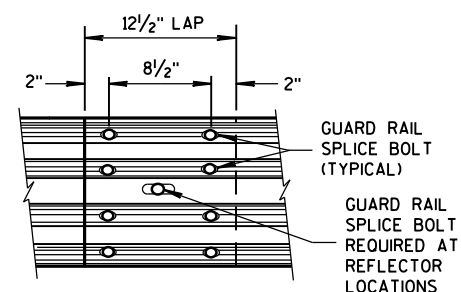
QUARTER POST SPACING (QS)



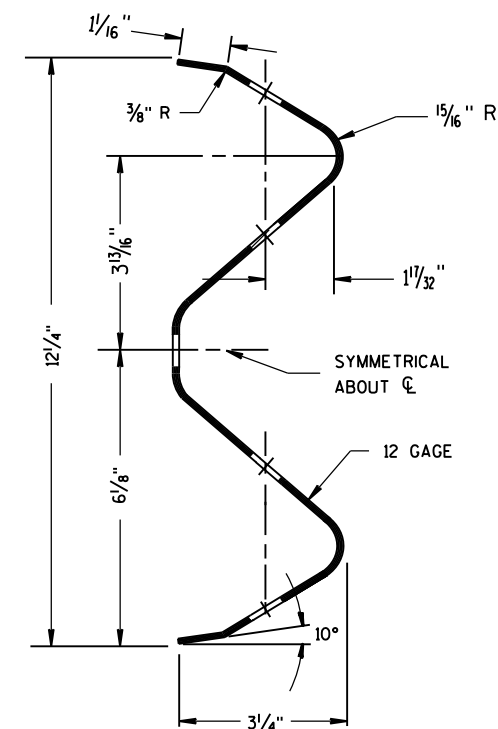
FRONT VIEW AT WOOD POST



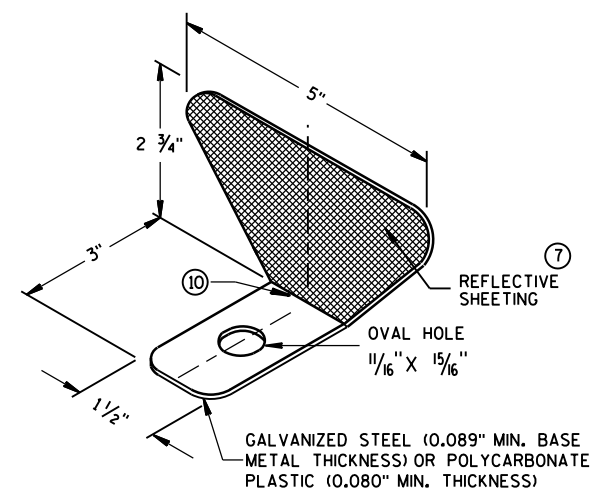
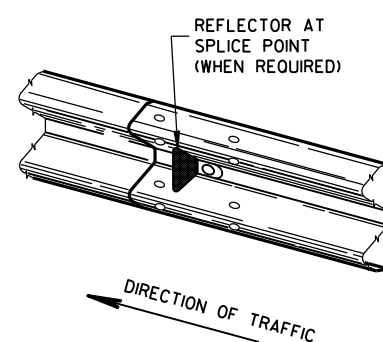
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

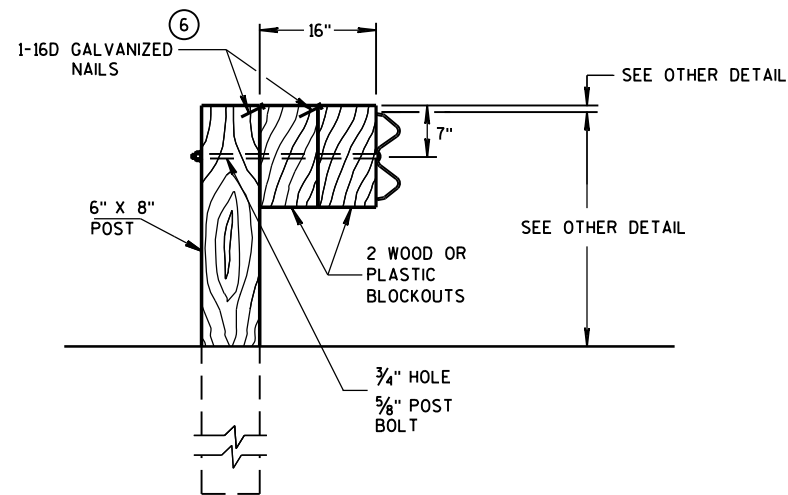
- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF 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

	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	

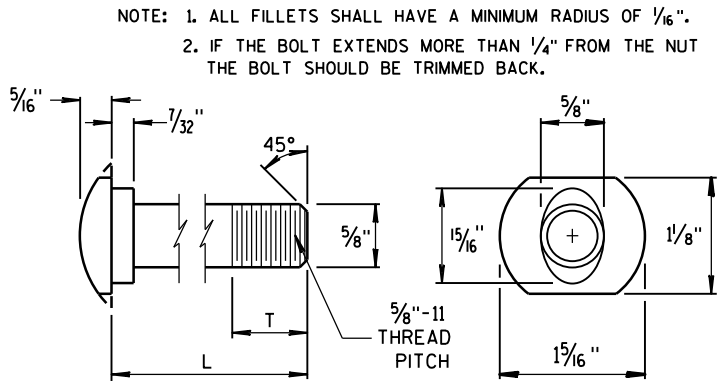
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



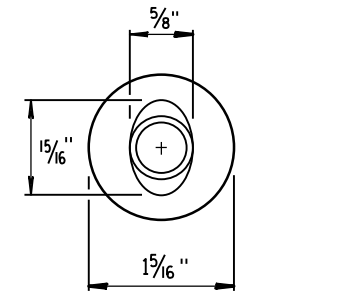
DETAIL FOR 16" BLOCKOUT DEPTH

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.

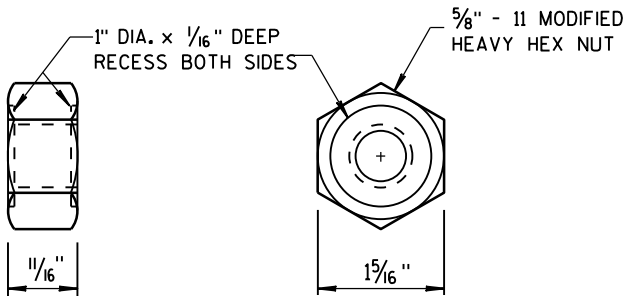


POST BOLT TABLE

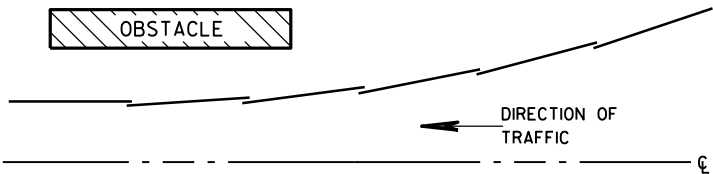
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



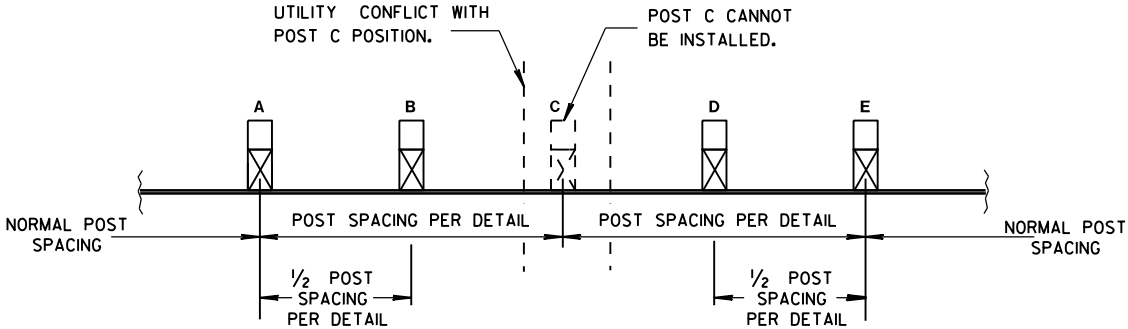
ALTERNATE BOLT HEAD



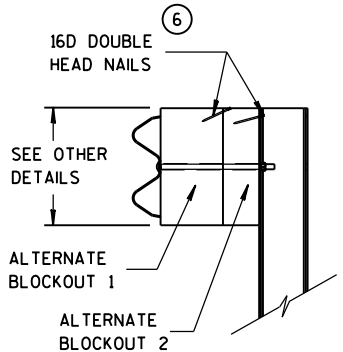
POST BOLT, SPLICE BOLT AND RECESS NUT



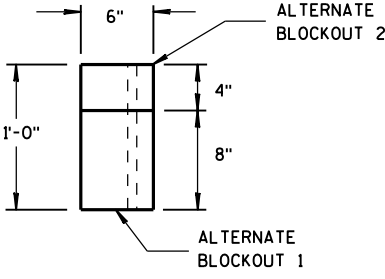
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

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

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 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.

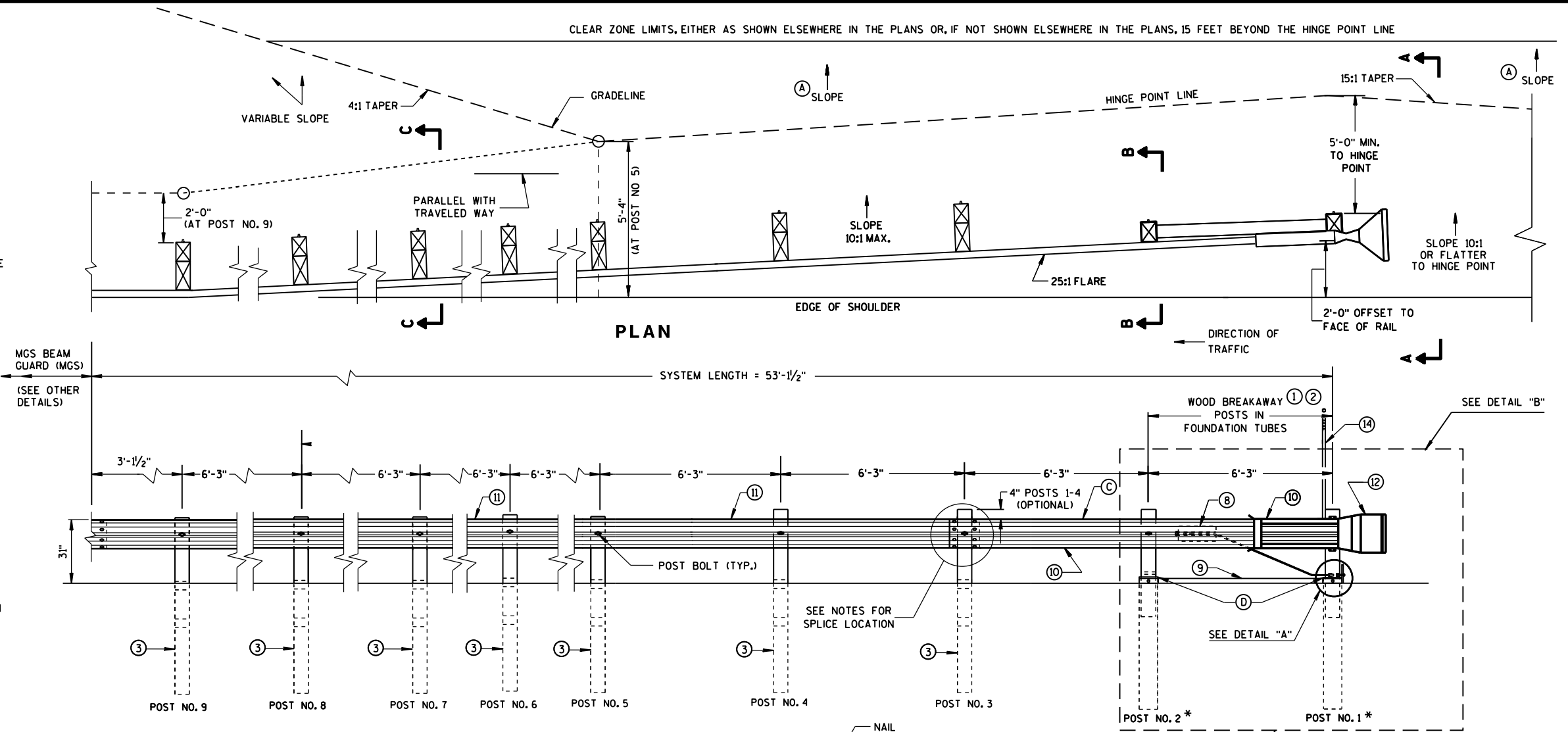
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

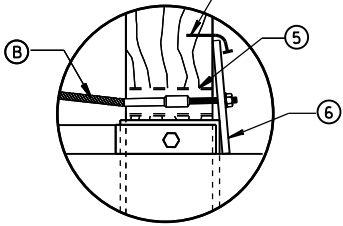
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

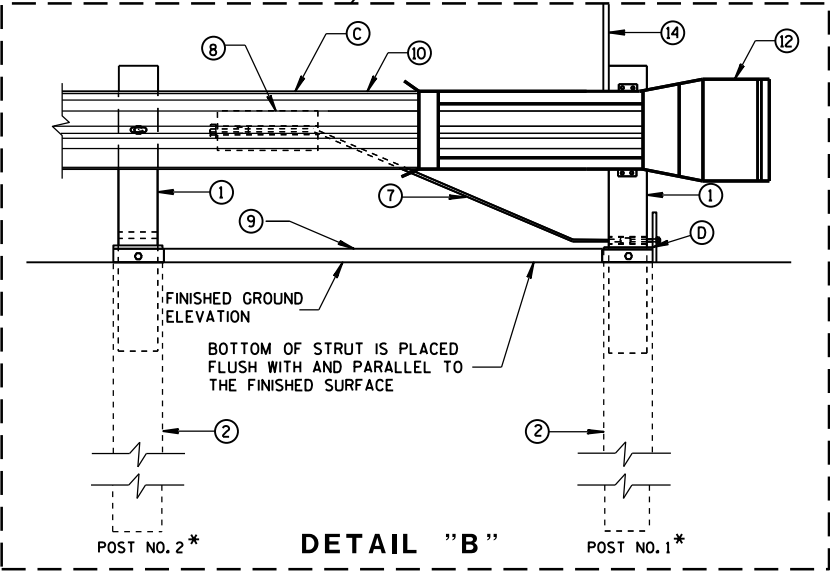
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



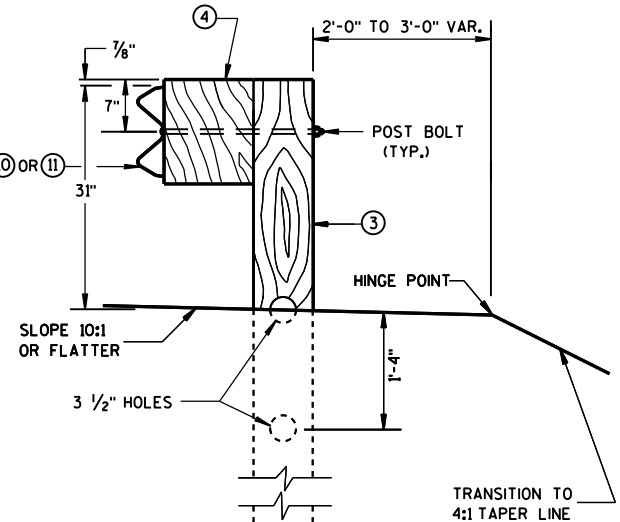
ELEVATION



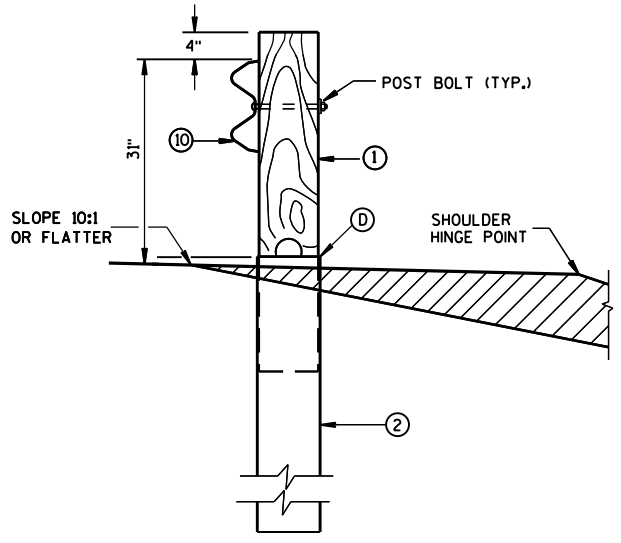
DETAIL "A"



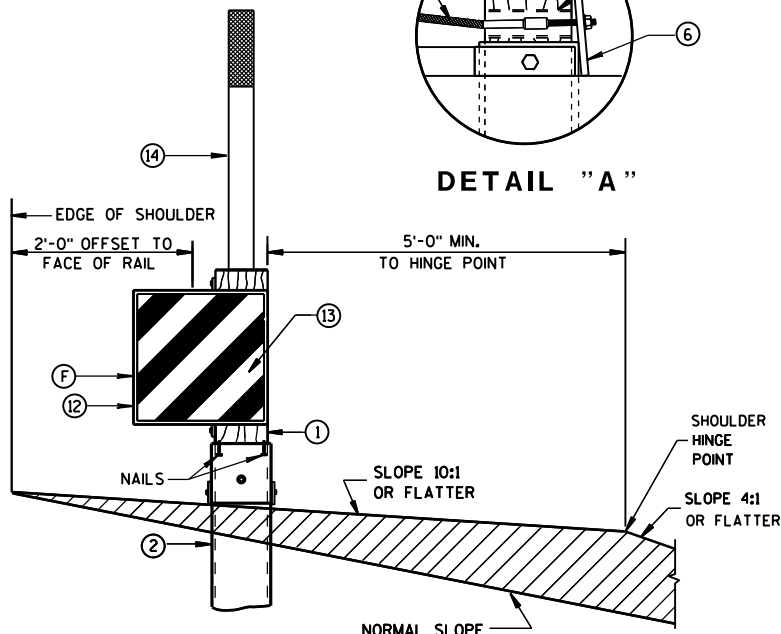
DETAIL "B"



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



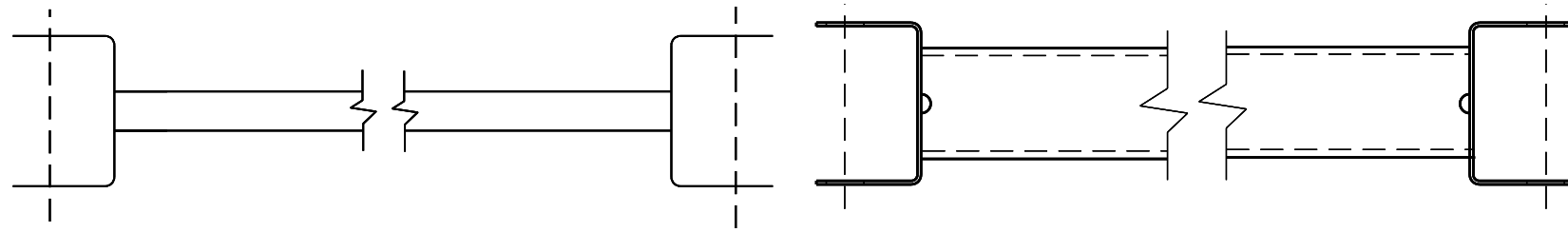
SECTION B-B
TYPICAL AT POST NO. 2*



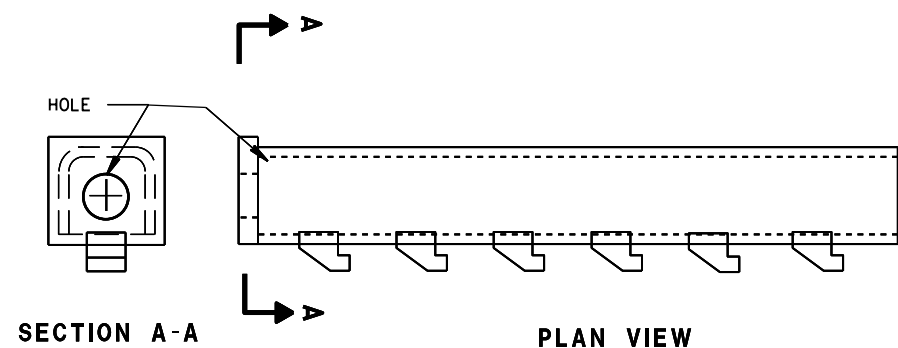
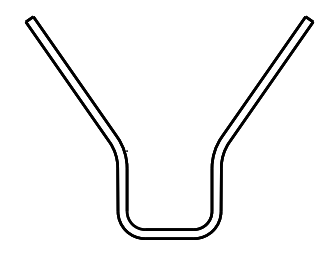
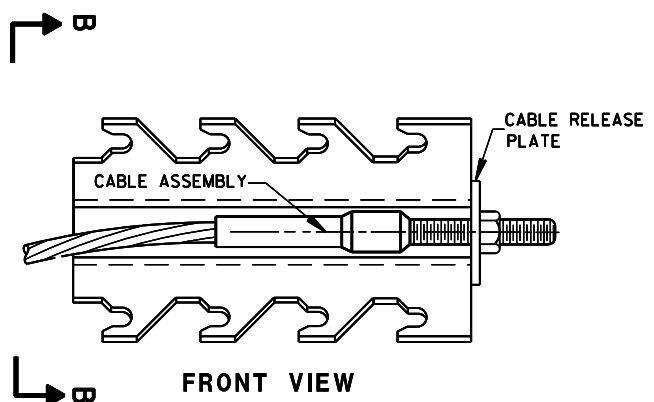
SECTION A-A
TYPICAL AT POST NO. 1*

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



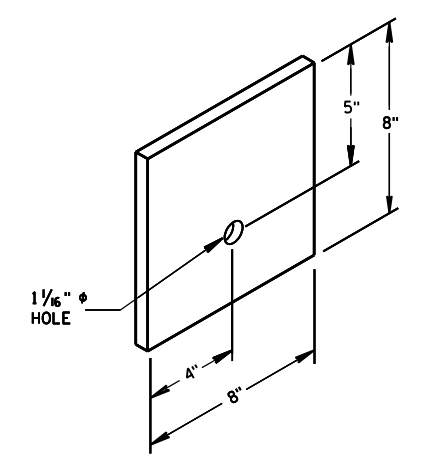
9 H
GENERIC GROUND STRUT



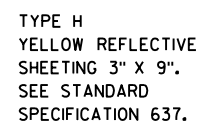
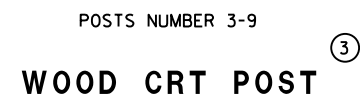
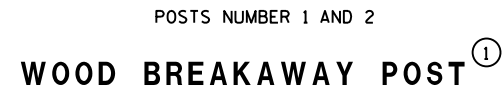
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

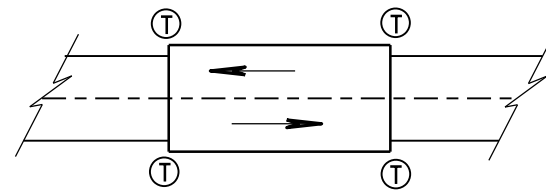
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND 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

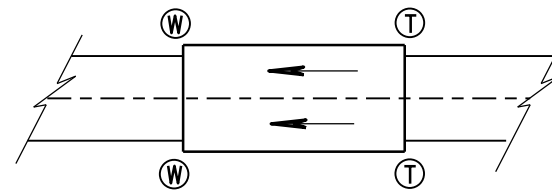


MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014	<i>/s/ Jerry H. Zogg</i>
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

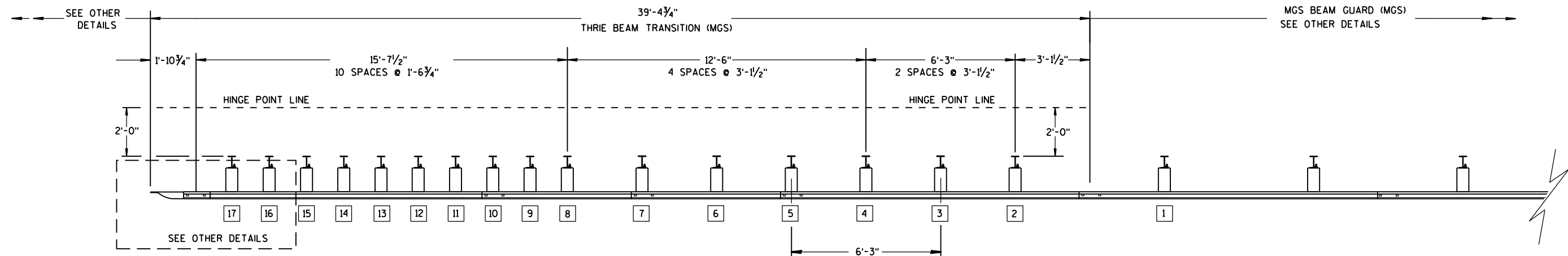
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

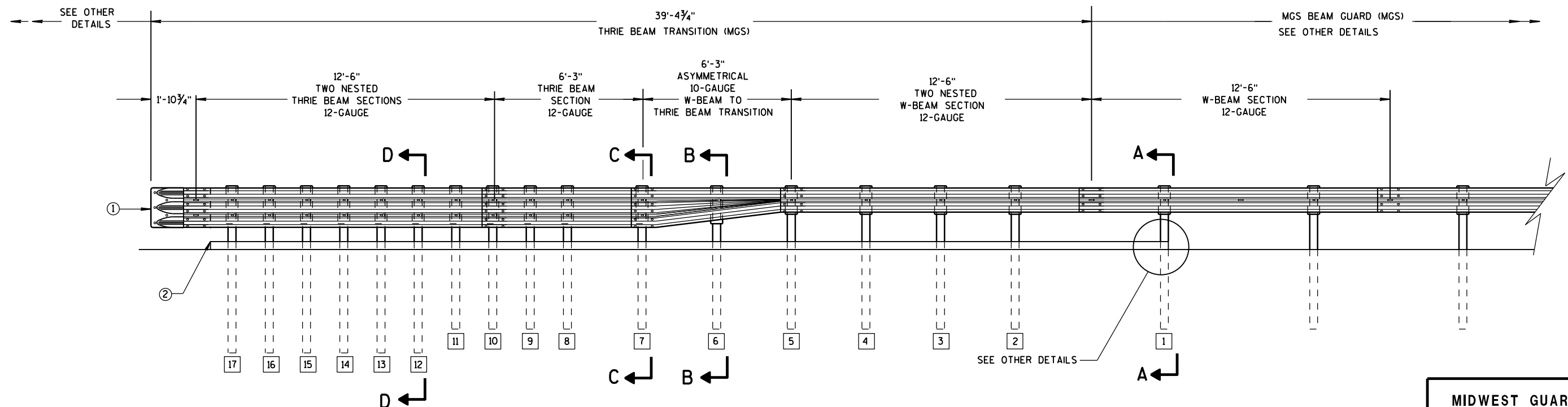
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

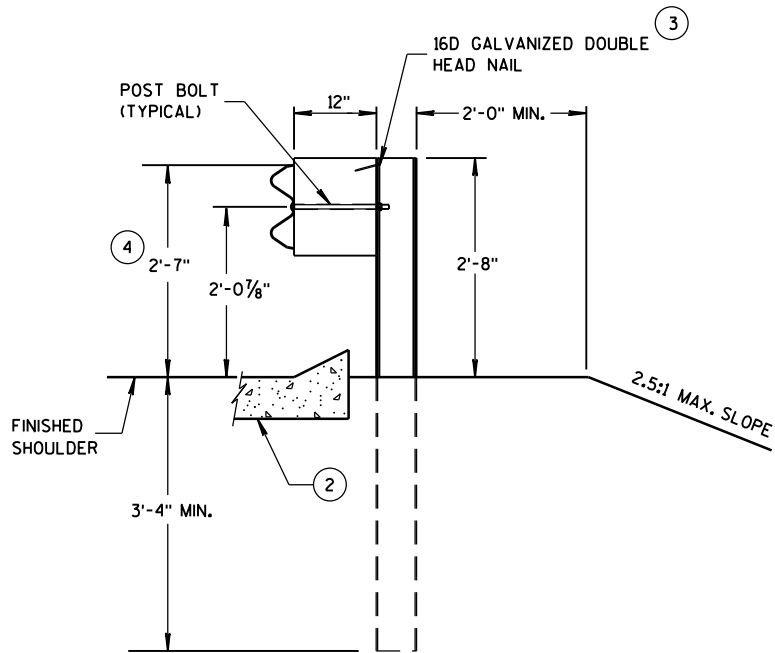
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

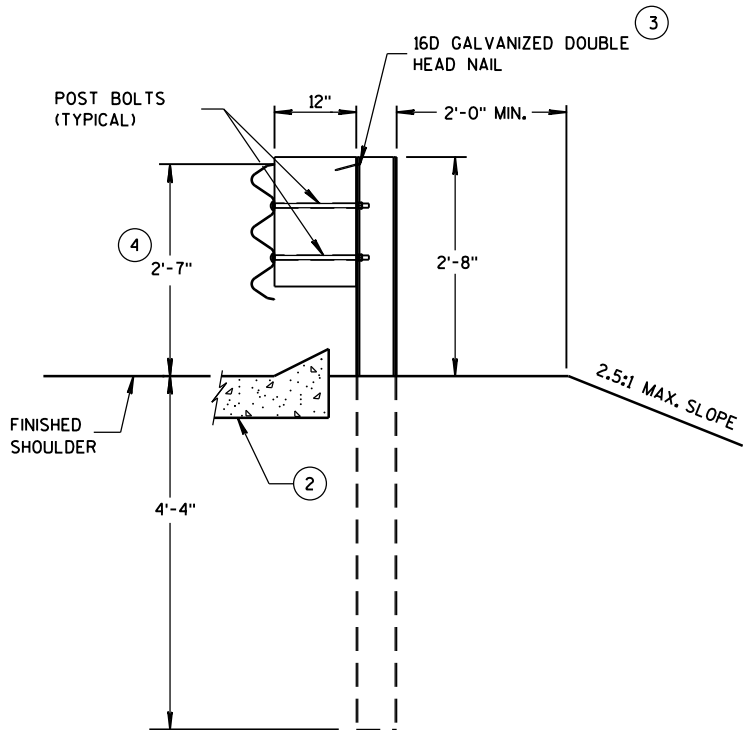
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

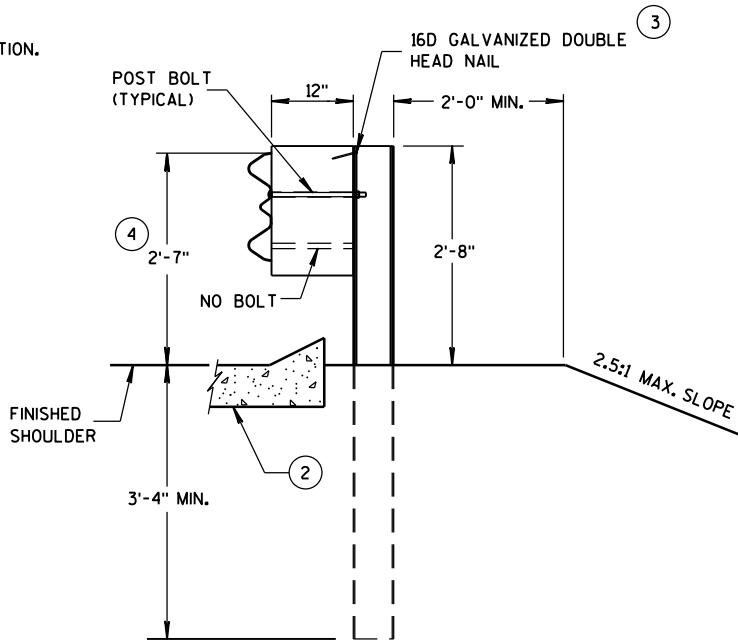
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



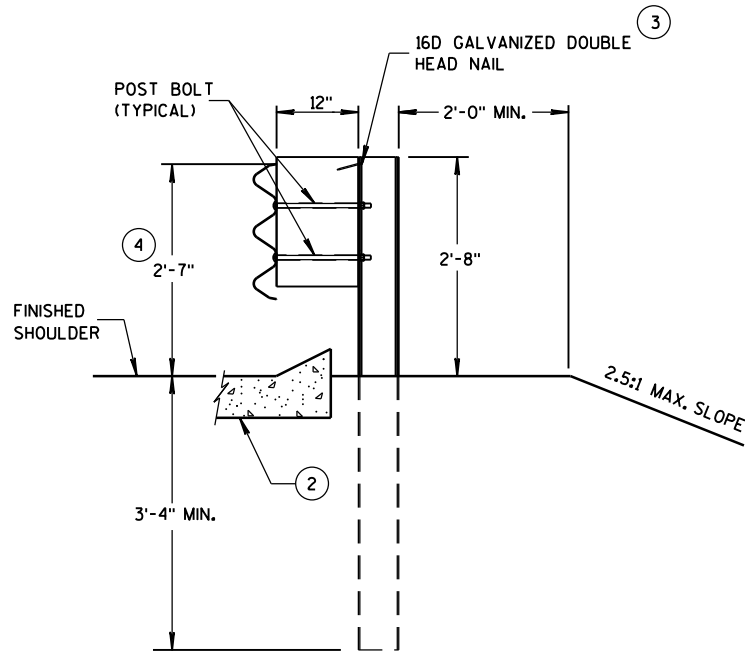
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

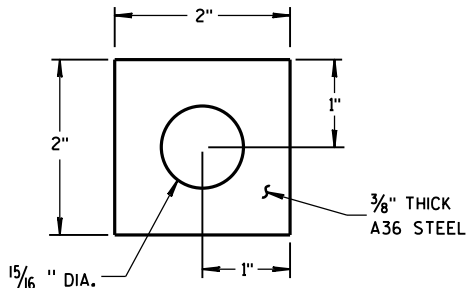
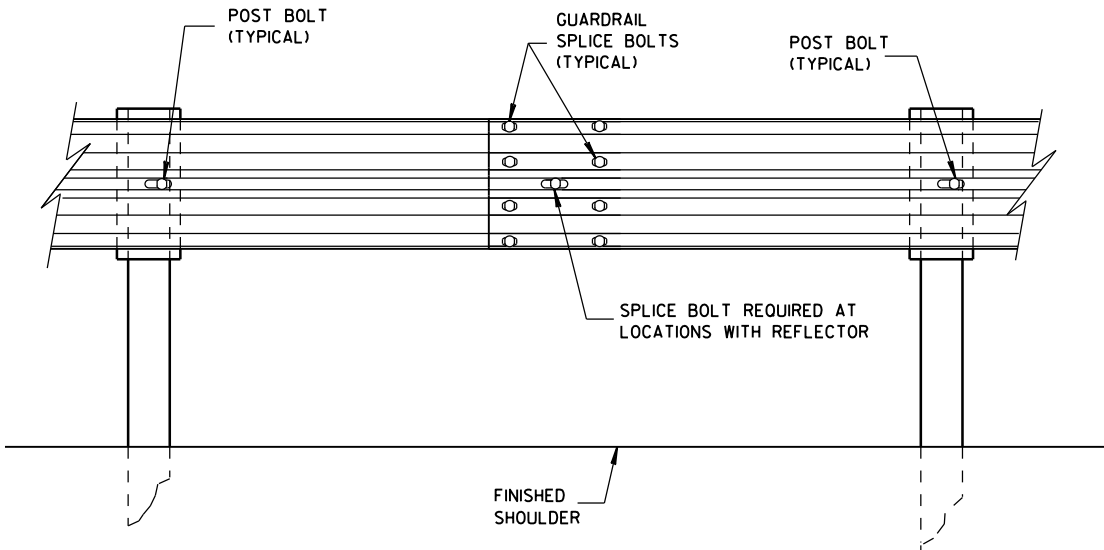
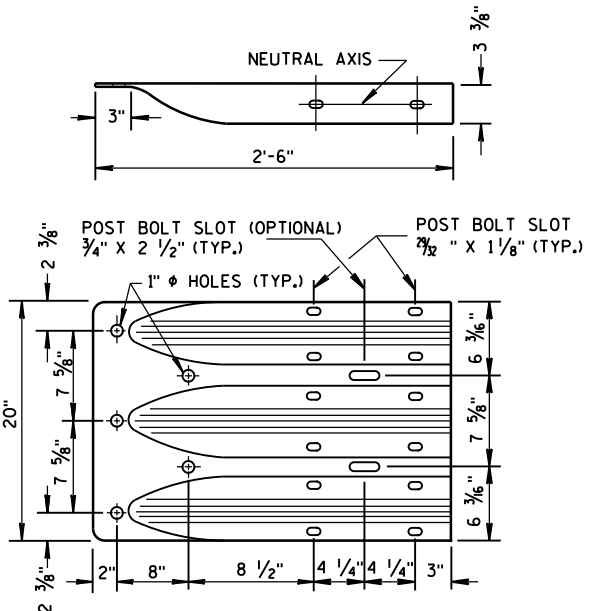


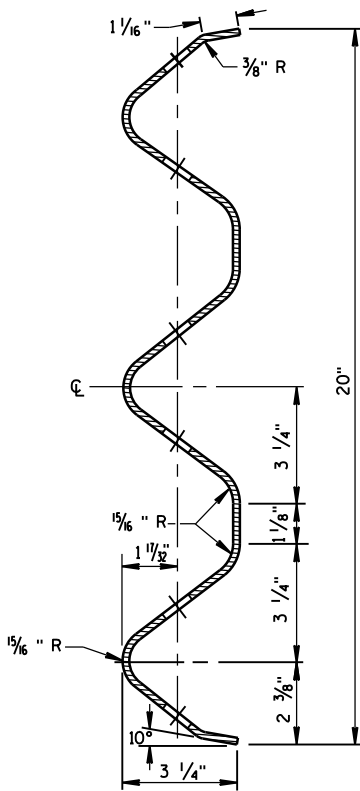
PLATE WASHER DETAIL



SPlice DETAIL



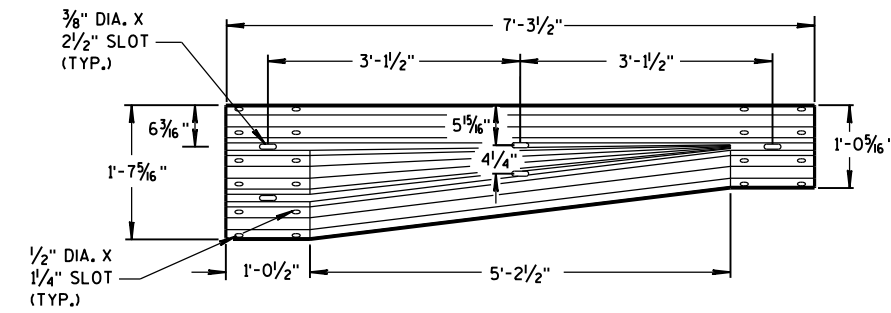
THRIE BEAM
TERMINAL CONNECTOR



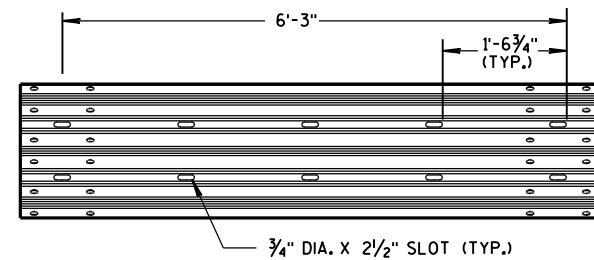
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

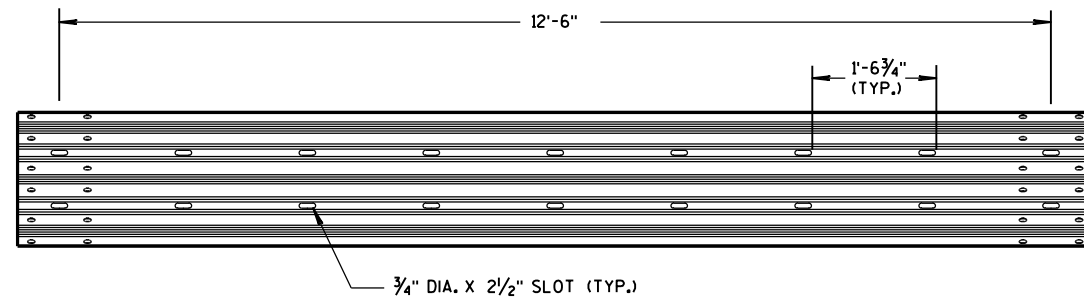
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



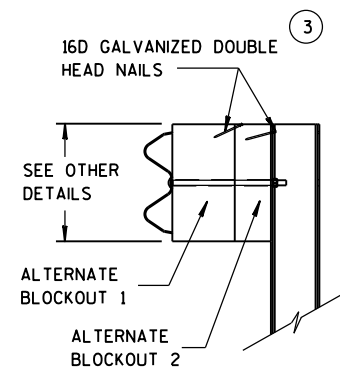
W-BEAM TO THRIE BEAM TRANSITION SECTION



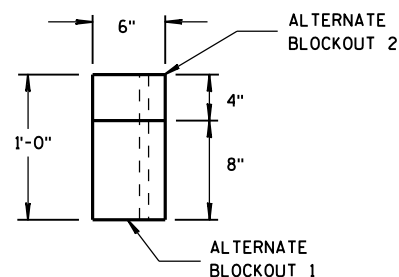
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

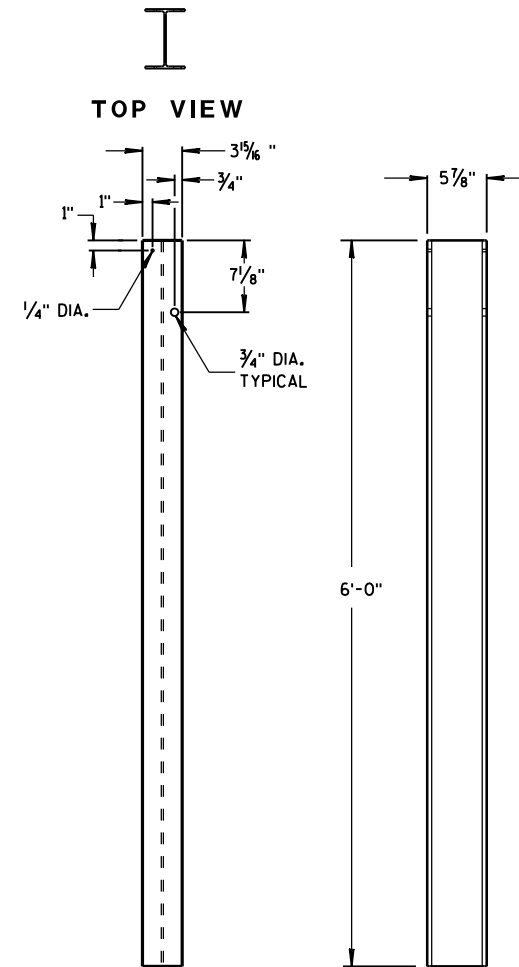


SIDE VIEW



TOP VIEW

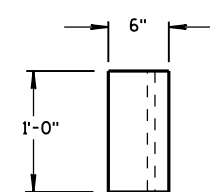
ALTERNATE WOOD BLOCKOUT DETAIL



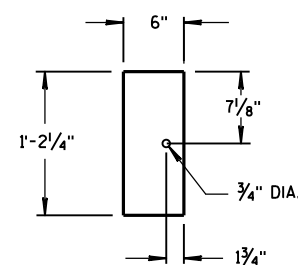
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

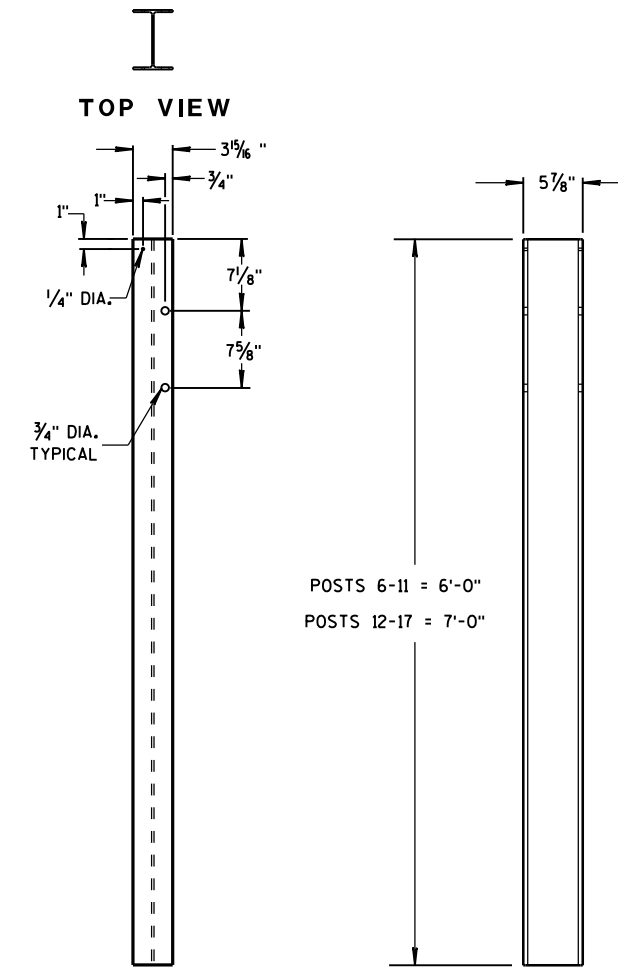


TOP VIEW



FRONT VIEW

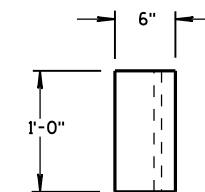
BLOCKOUT
POSTS 1-5



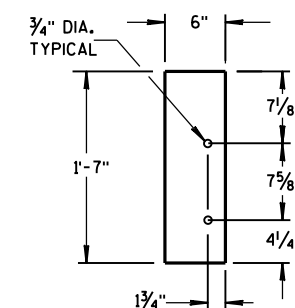
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

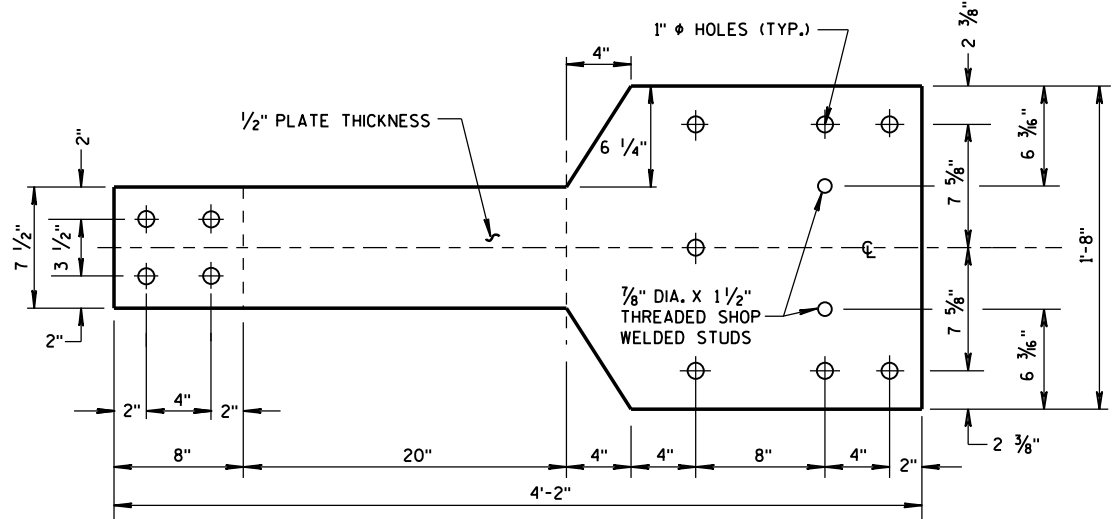
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

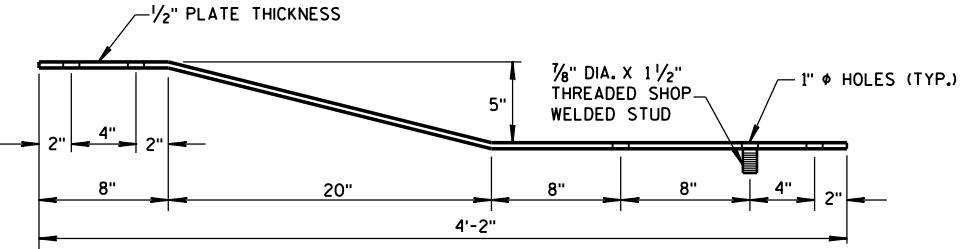
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

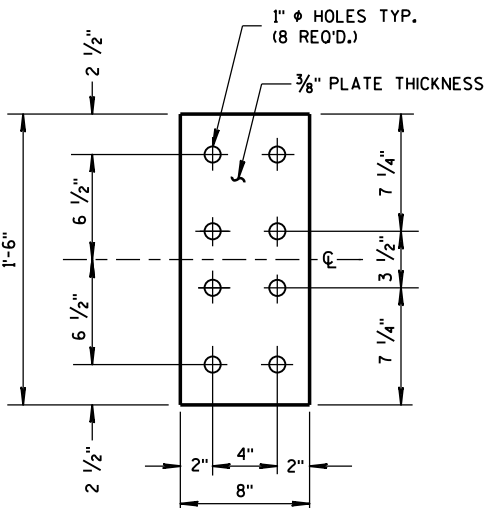


FRONT VIEW



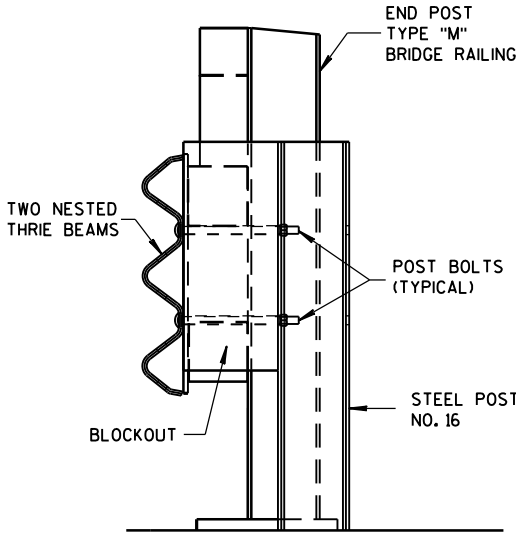
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

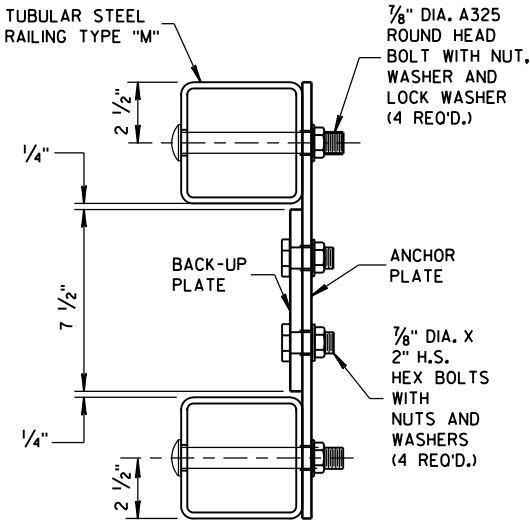


FRONT VIEW

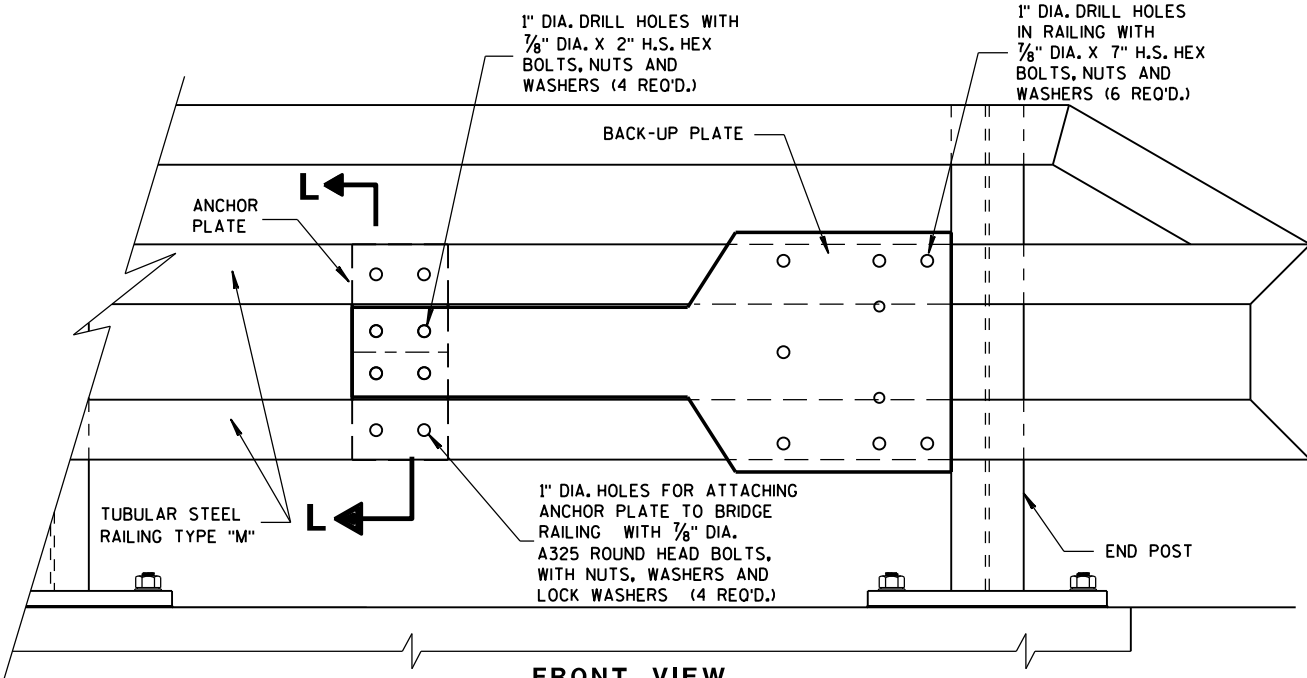
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

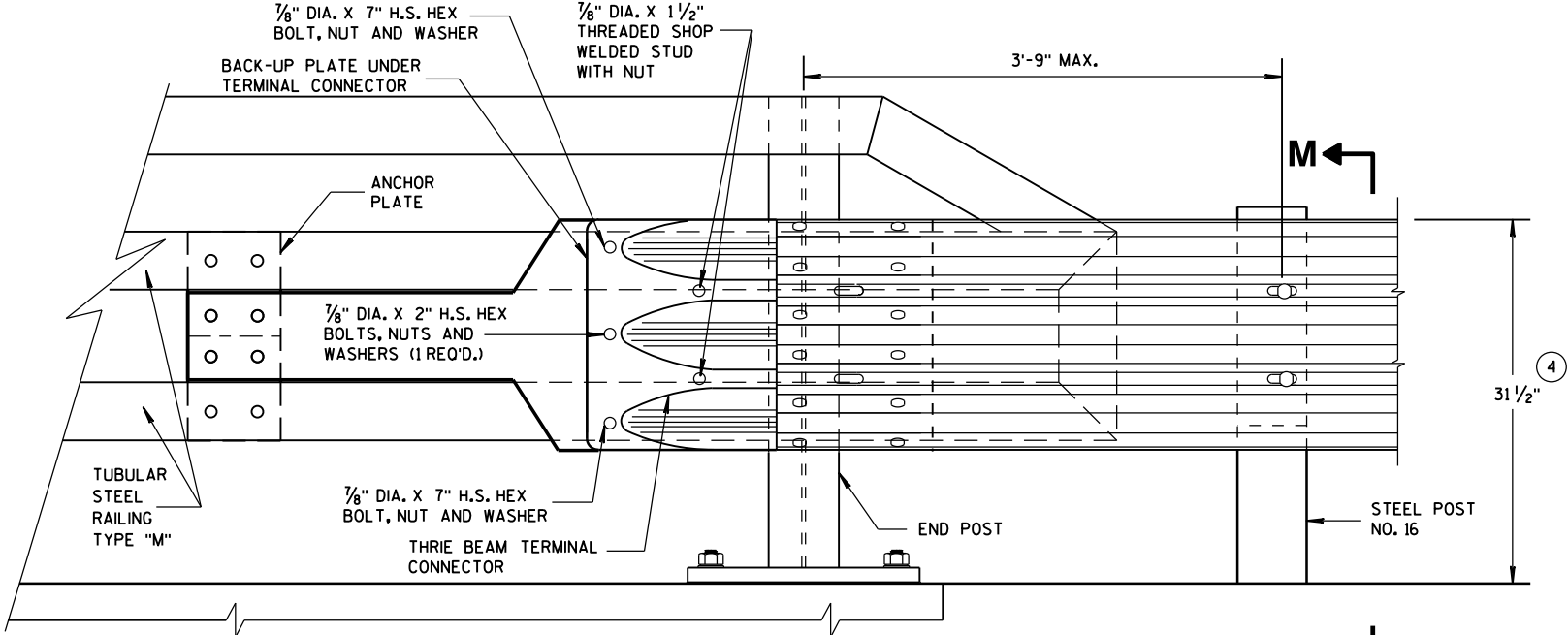


SECTION L-L

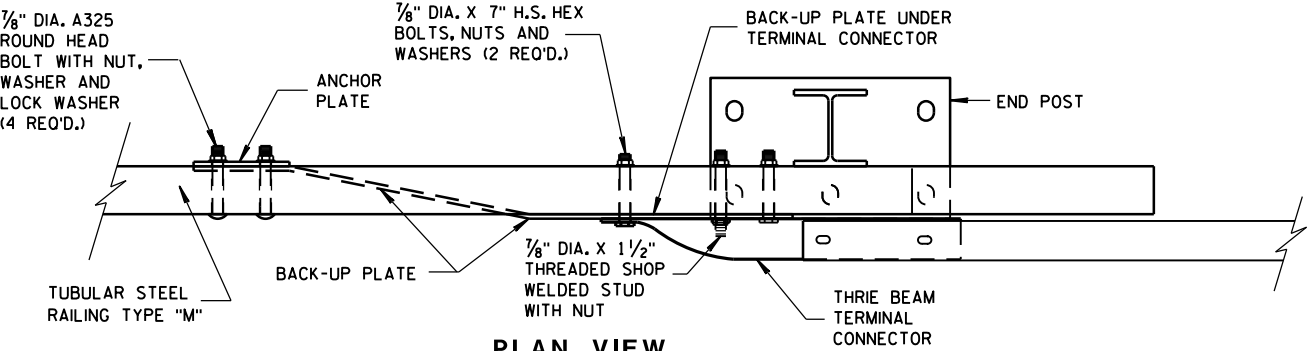


FRONT VIEW

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



FRONT VIEW



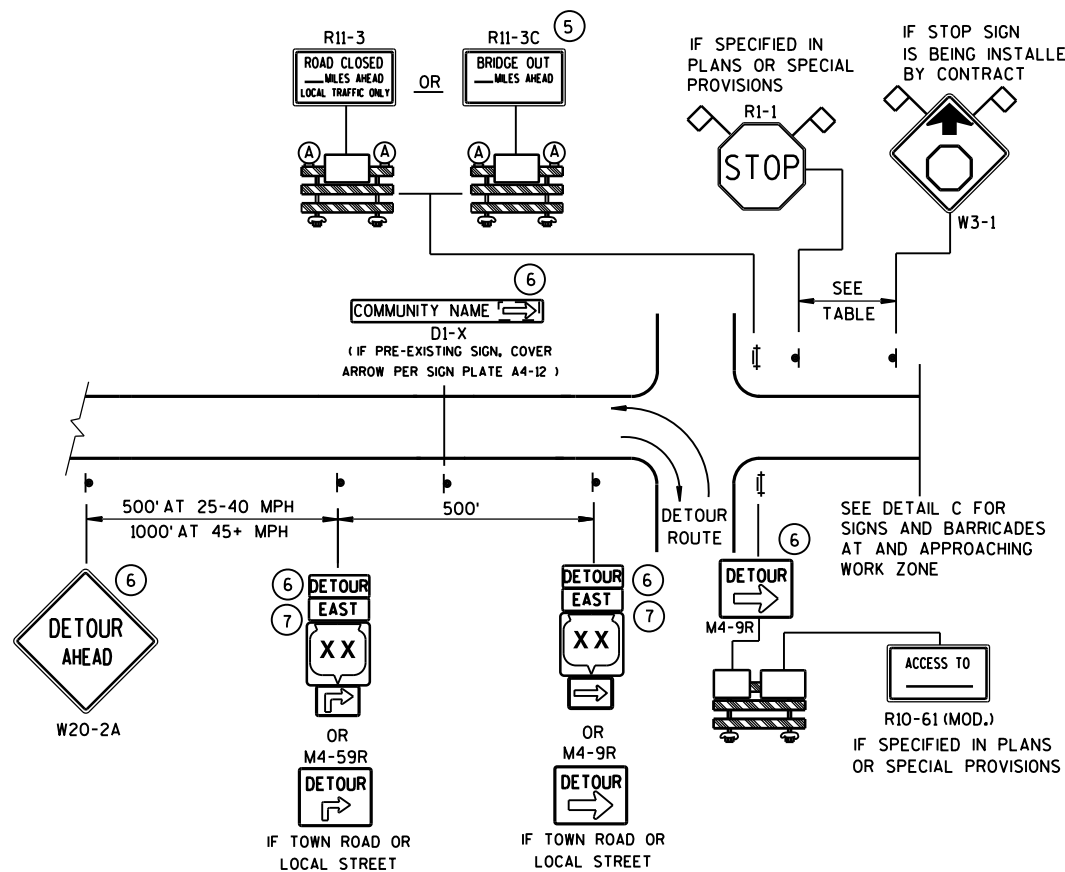
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

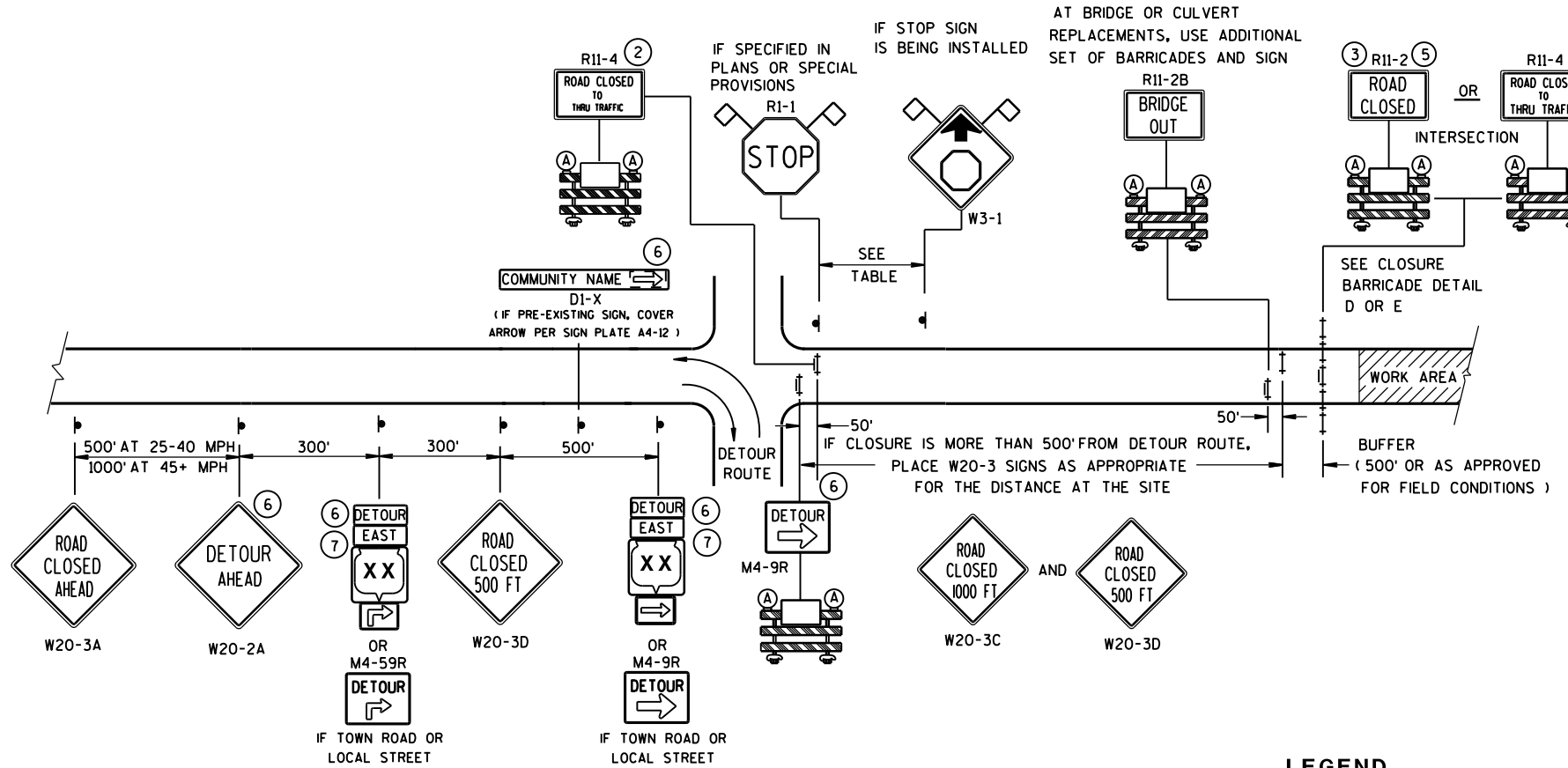
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

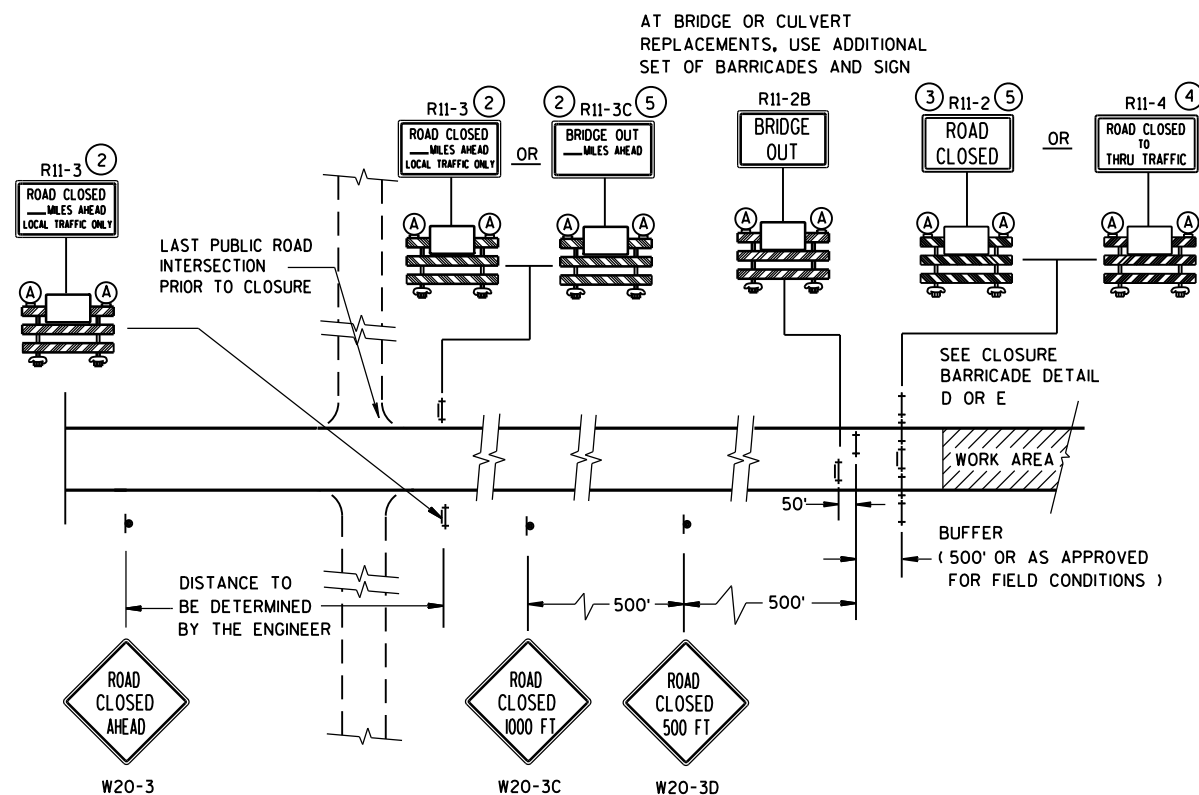
APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



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

DETOUR EAST M4-8
M3-X
XX OR COUNTY XX OR XX
M1-4 M1-5A M1-6

M05-1 OR M06-1

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

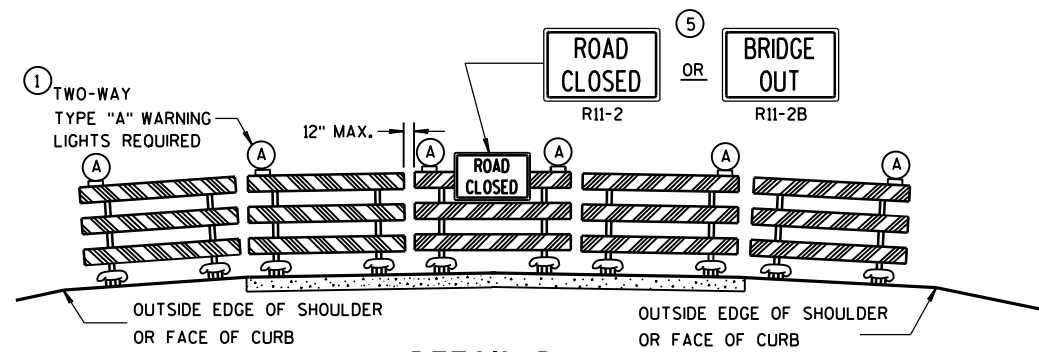
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

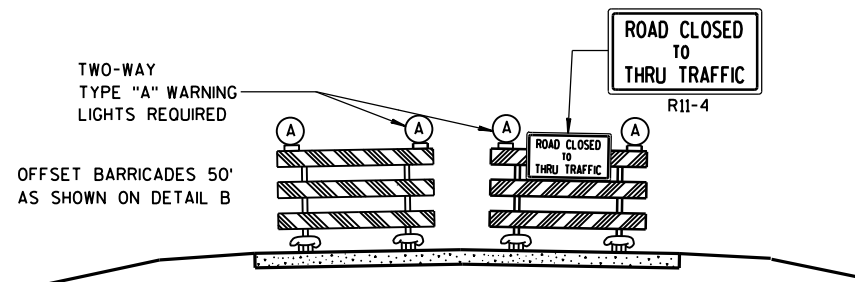
BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



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.

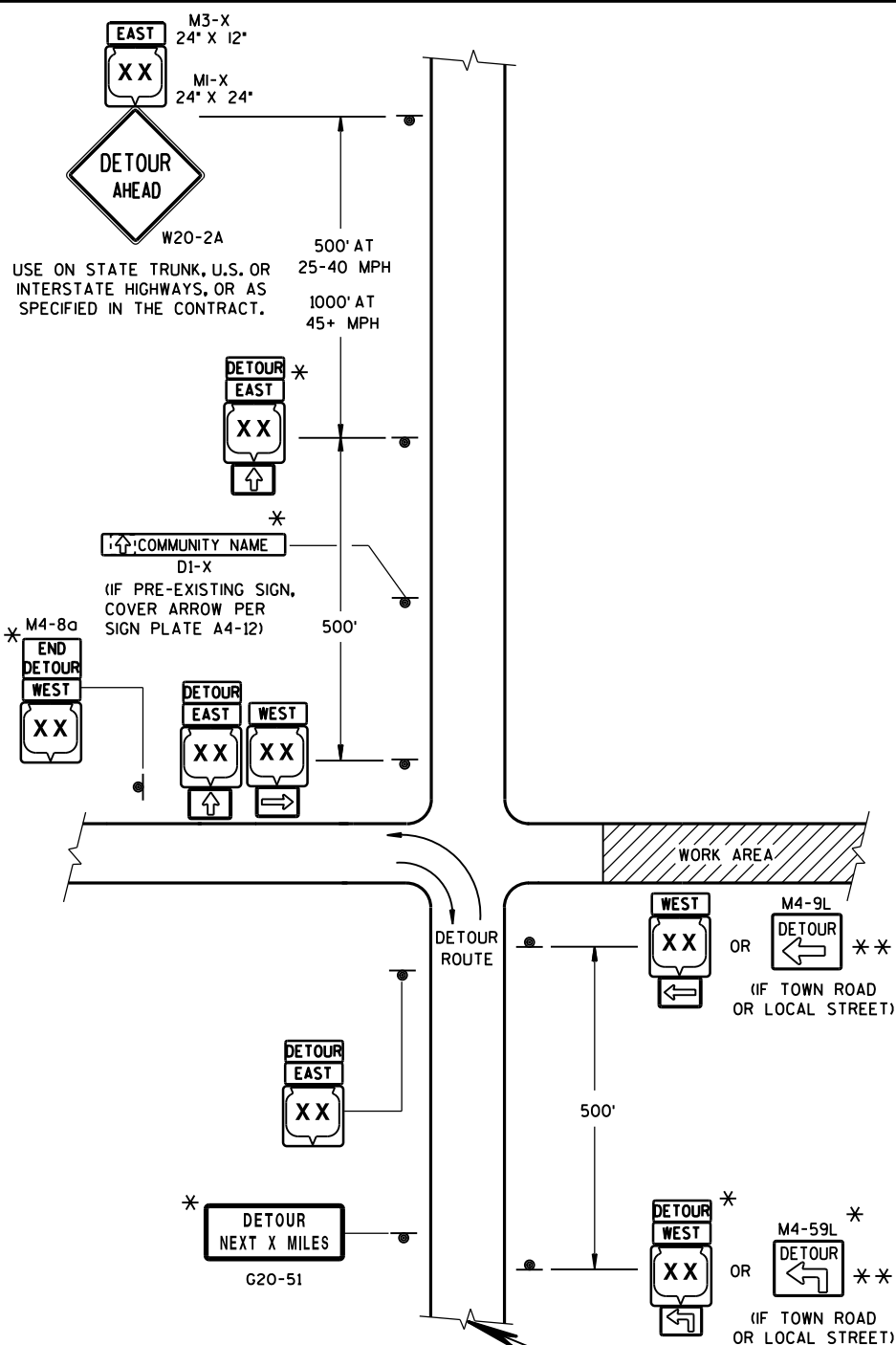
R1-1 SHALL BE 36" X 36".

- 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

Sept. 2015 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA

M4-8
M3-X

OR OR
MI-4 MI-5A MI-6

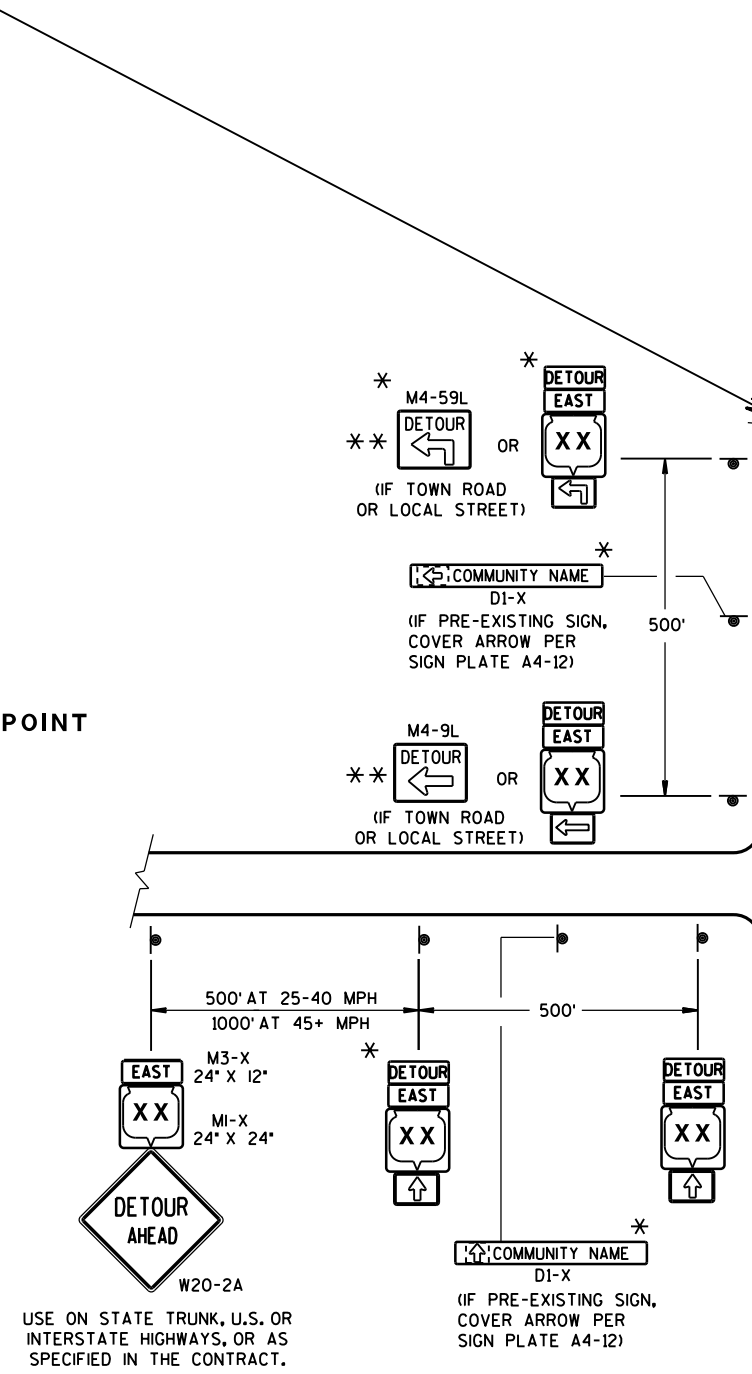
OR OR
M05-1 M06-1 M06-1

SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD 15C2-SHEET "a"

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

MATCH POINT

DETAIL F
DETOUR SIGNING



GENERAL NOTES

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

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

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

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

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

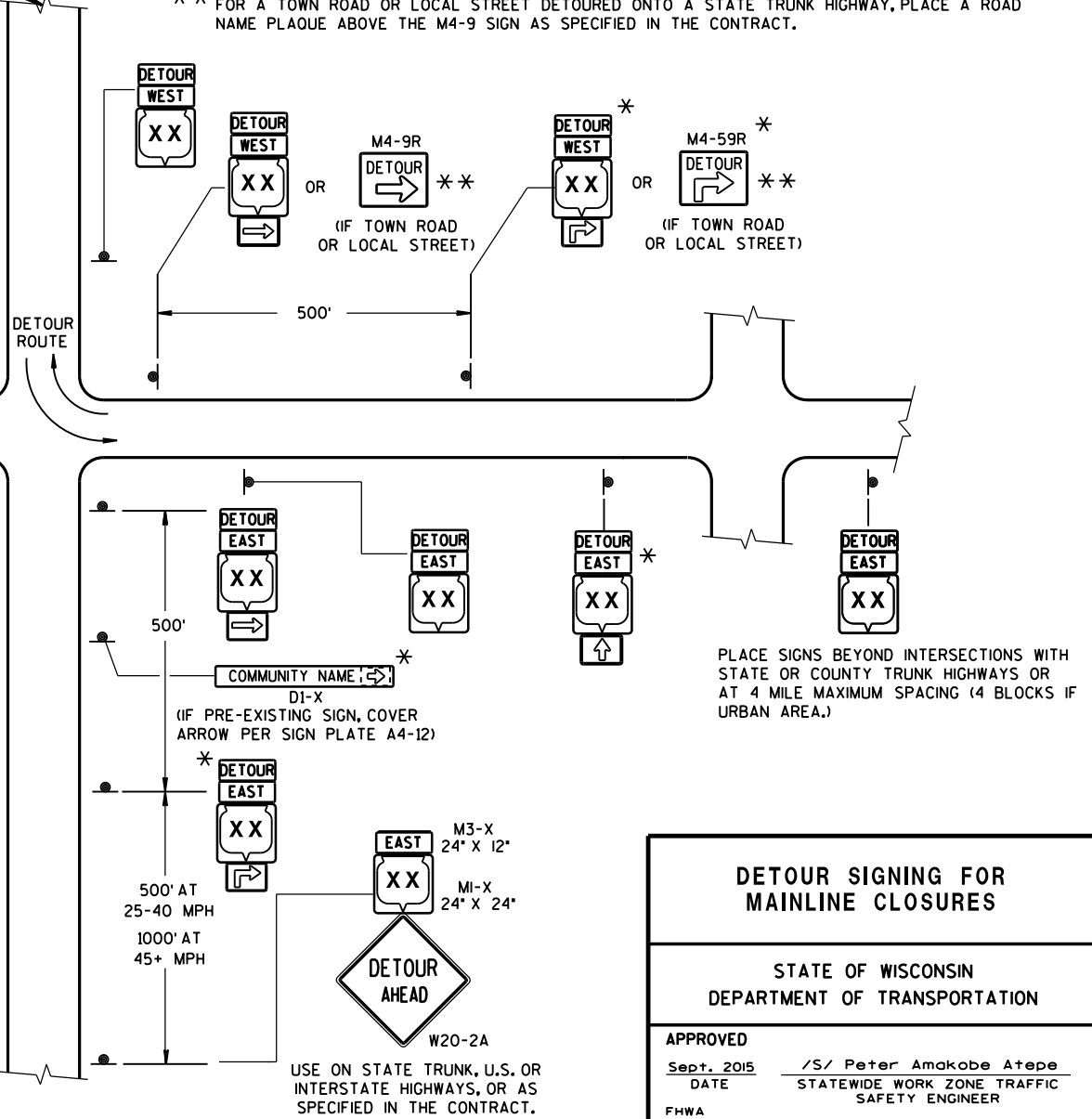
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- MI-4, MI-5A, AND MI-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

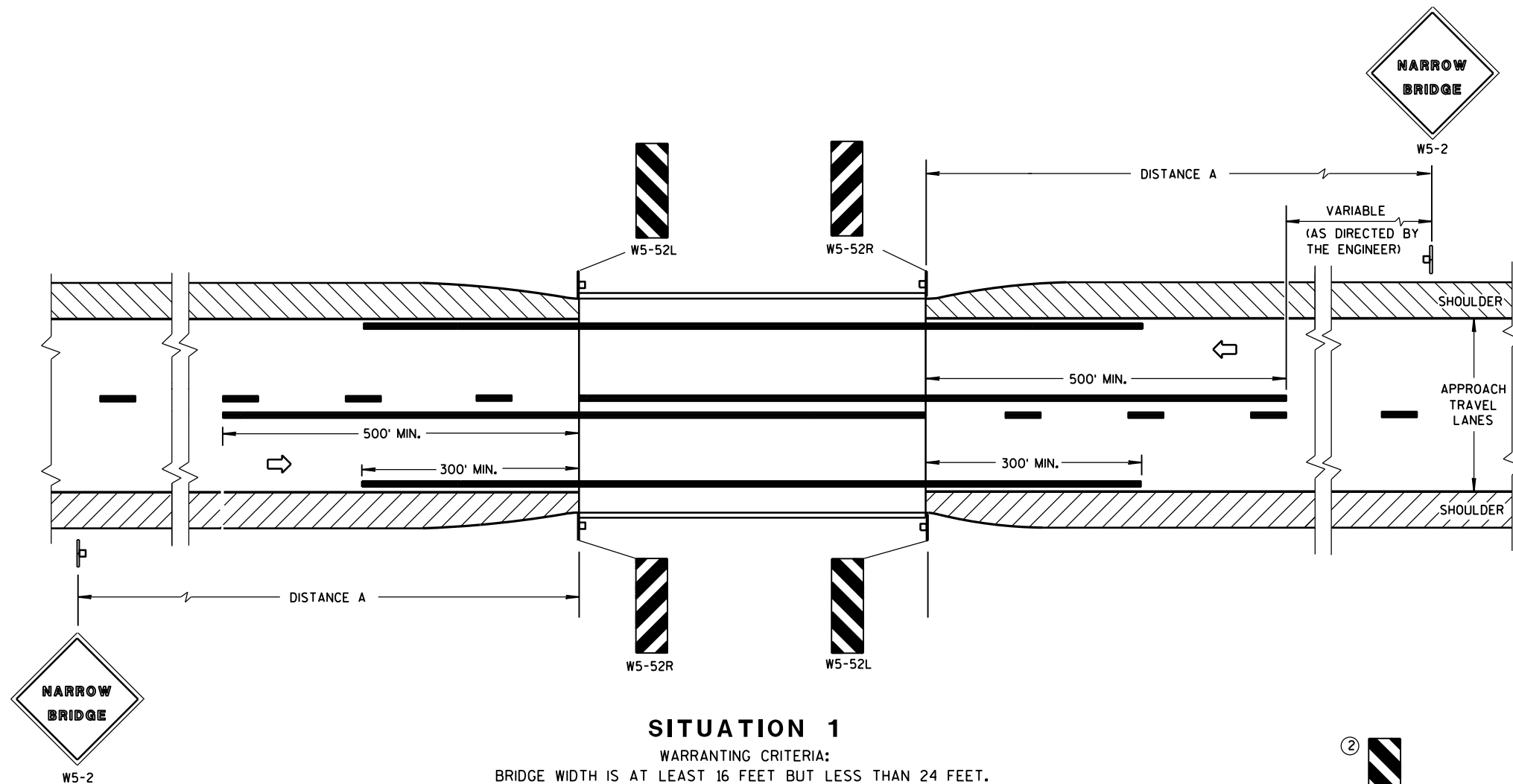
** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



**DETOUR SIGNING FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE Sept. 2015 /S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER
FHWA



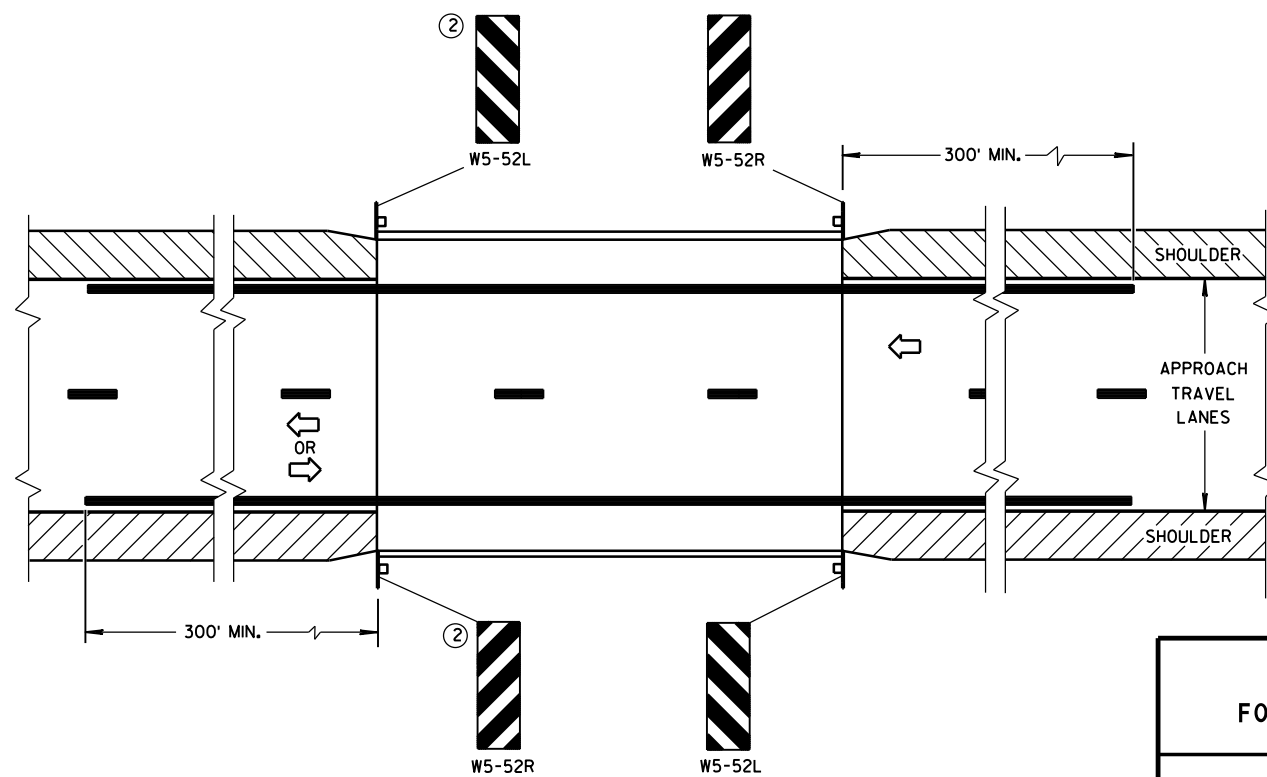
DISTANCE TABLE

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

GENERAL NOTES

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

- ① LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ② OMIT ON ONE-WAY TRAVELLED WAYS.
- ③ EDGE OF W5-52 SIGN SHALL BE PLACED IN LINE WITH FACE OF CURB OR PARAPET.

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

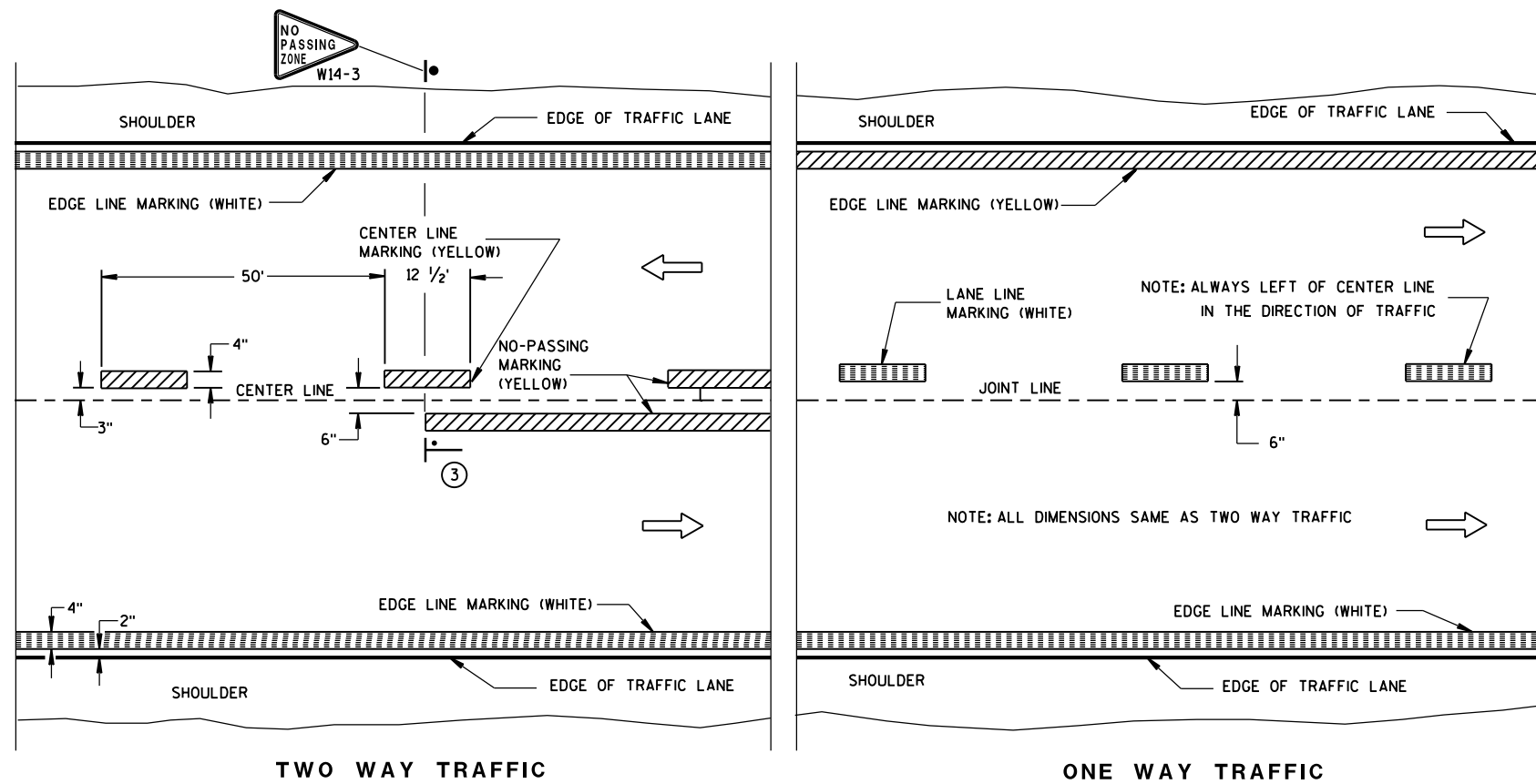
APPROVED

4-18-16

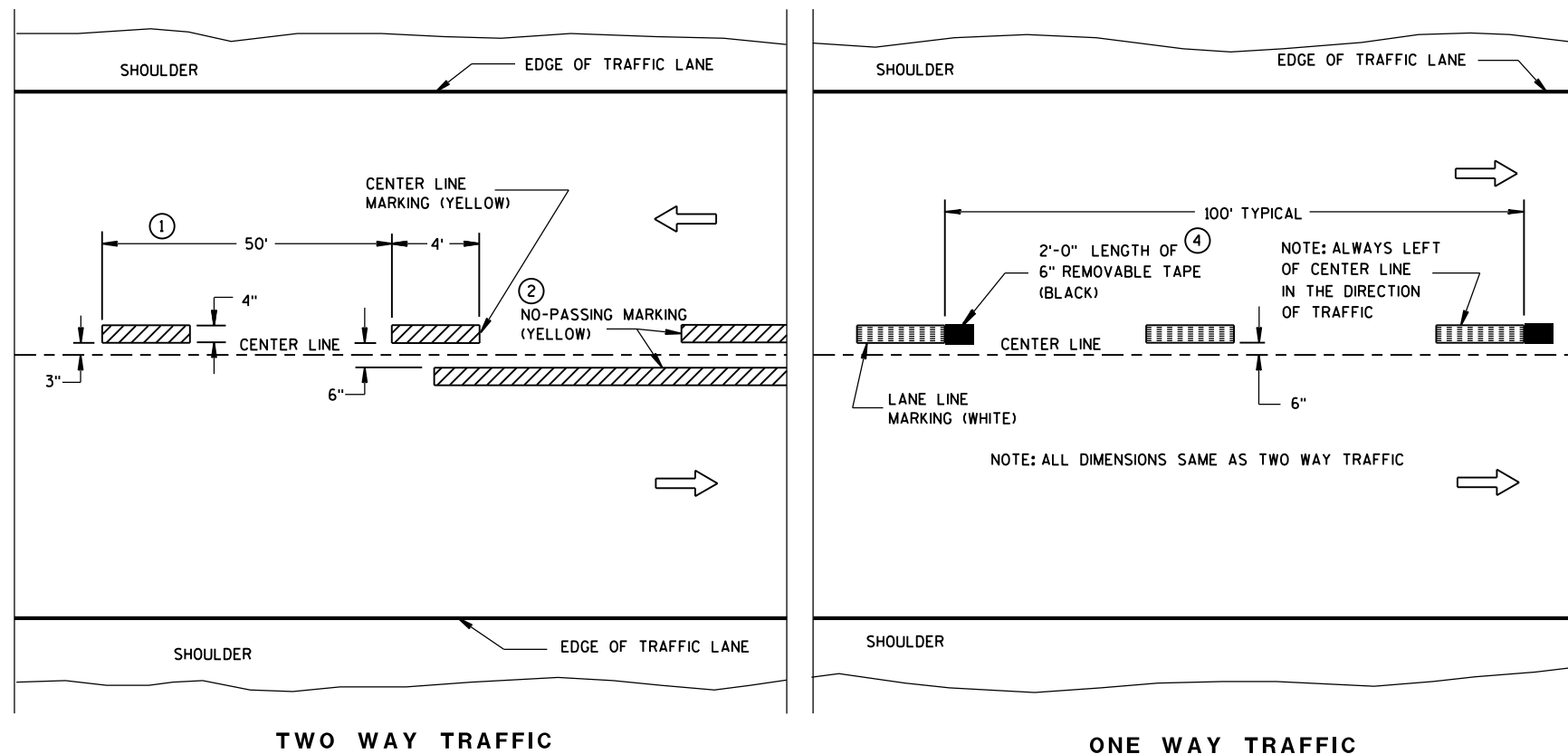
DATE

FHWA

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



PERMANENT PAVEMENT MARKING



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

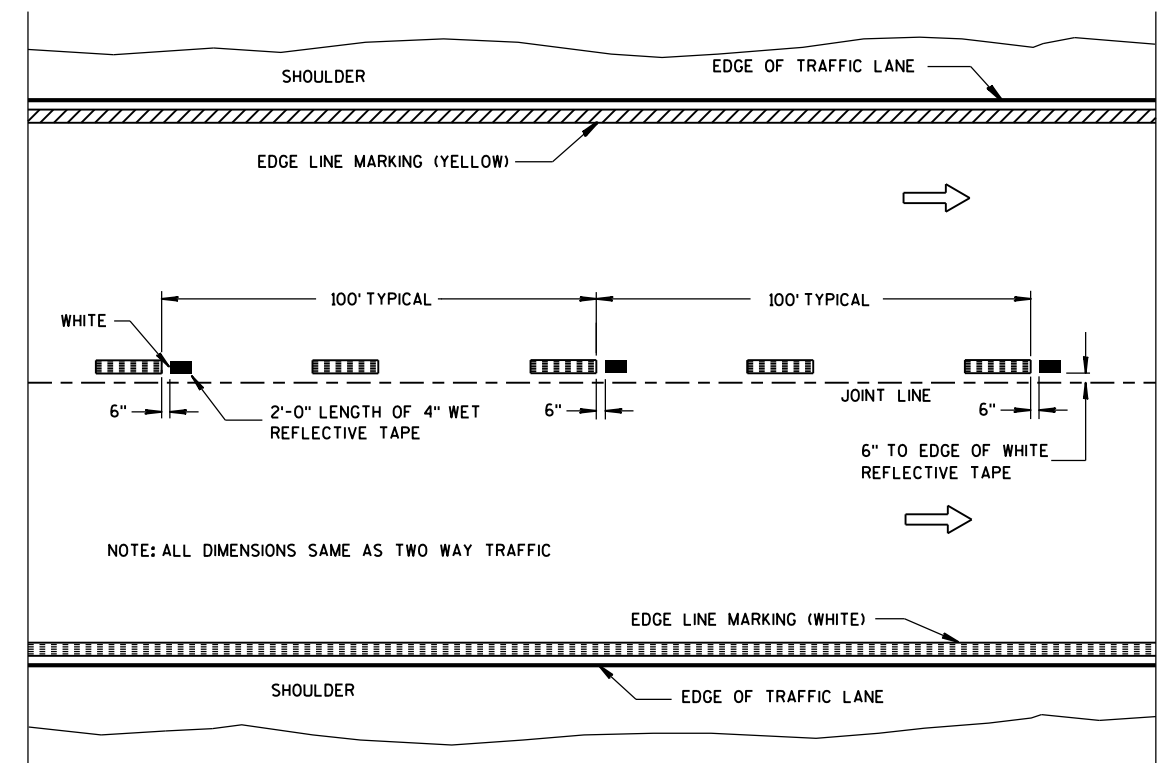
GENERAL NOTES

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 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

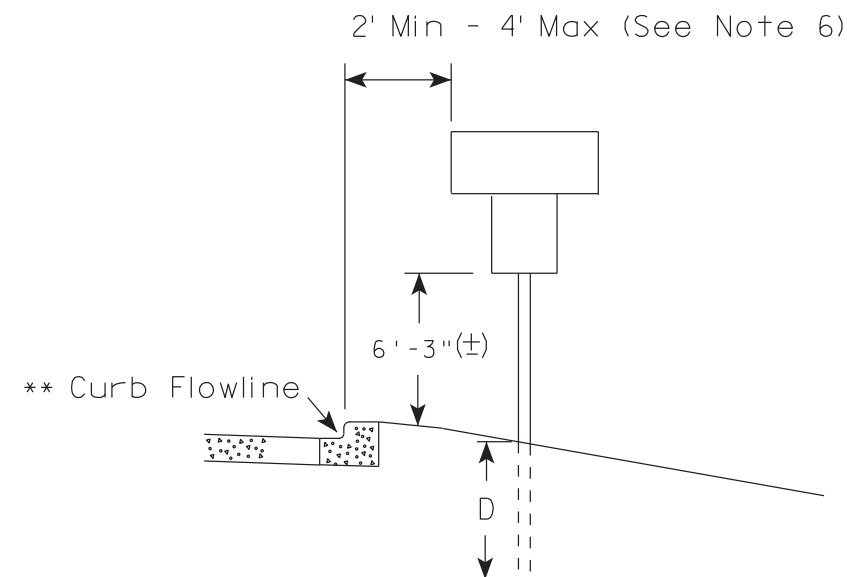
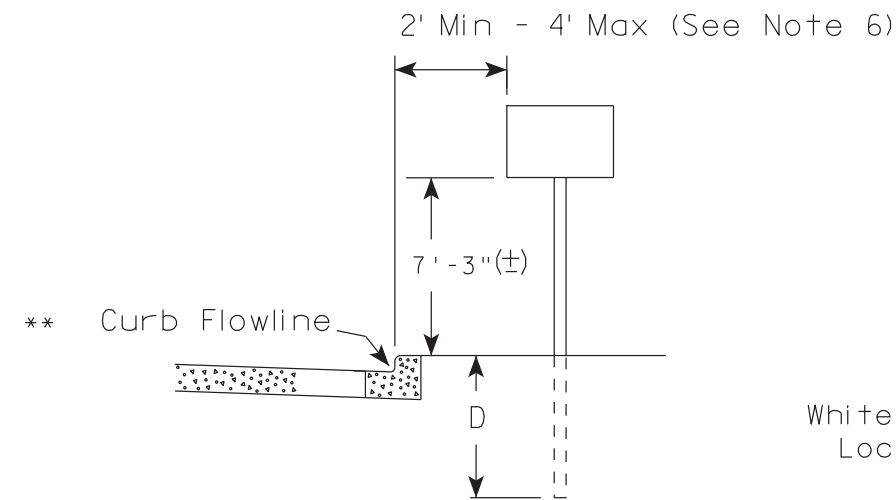
APPROVED

5-13-2013
DATE

FHWA

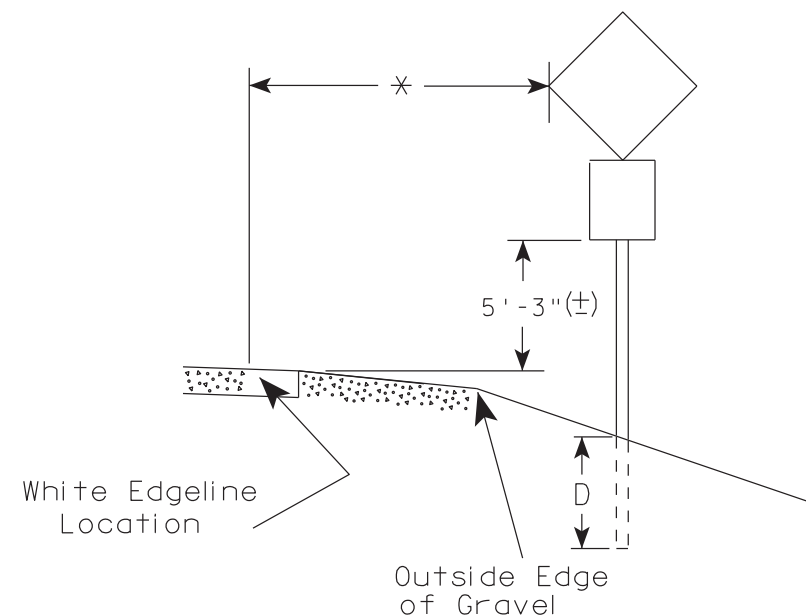
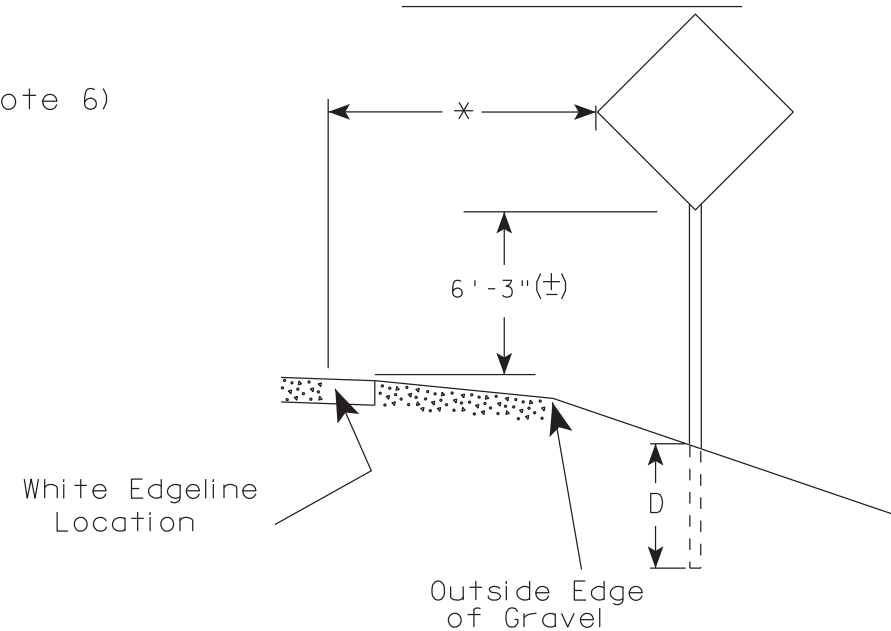
/S/ Travis Feltes
STATE TRAFFIC ENGINEER

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

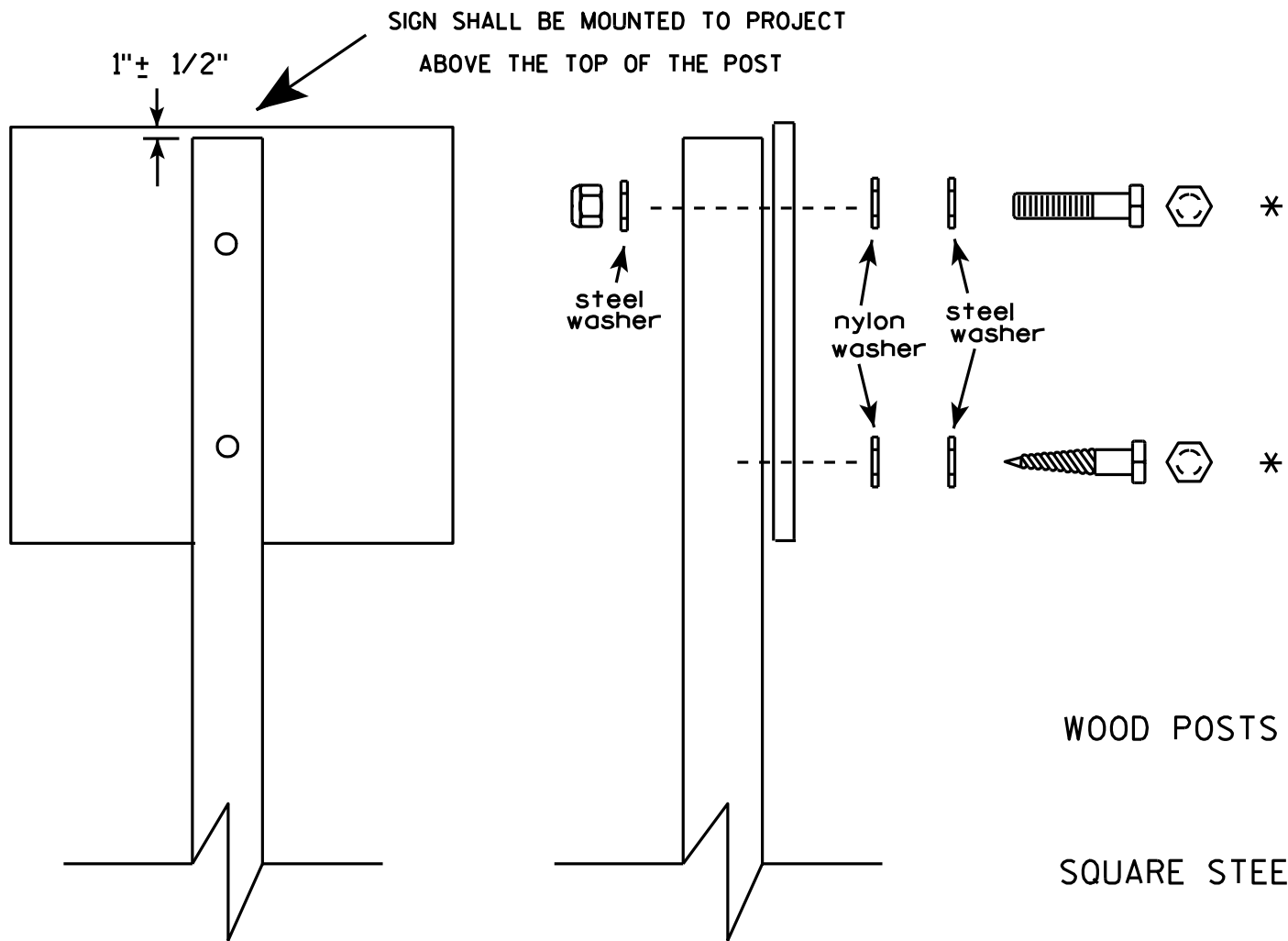
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) 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 signs 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), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

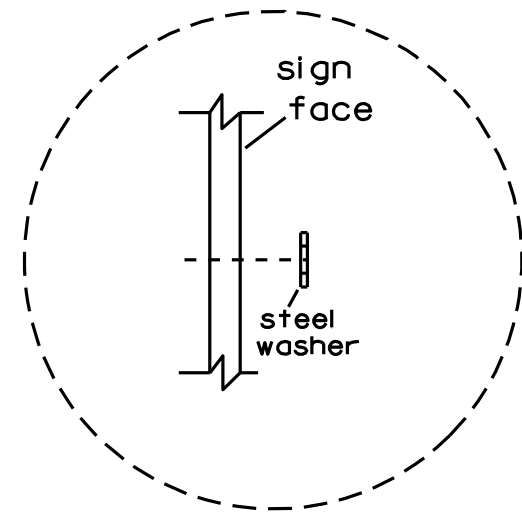


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

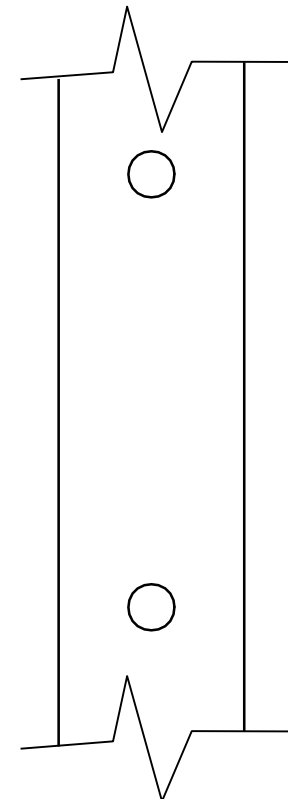
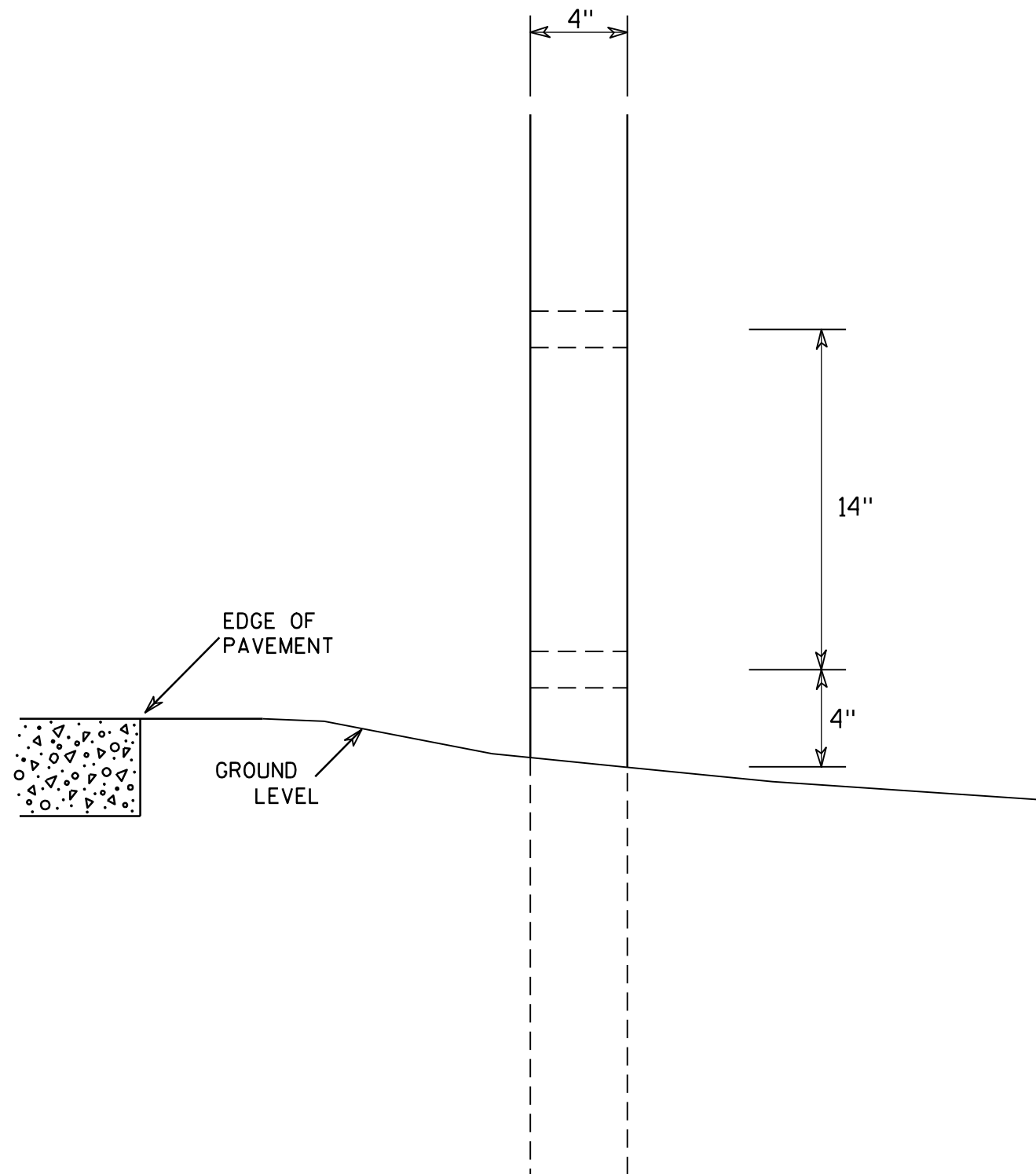
- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375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

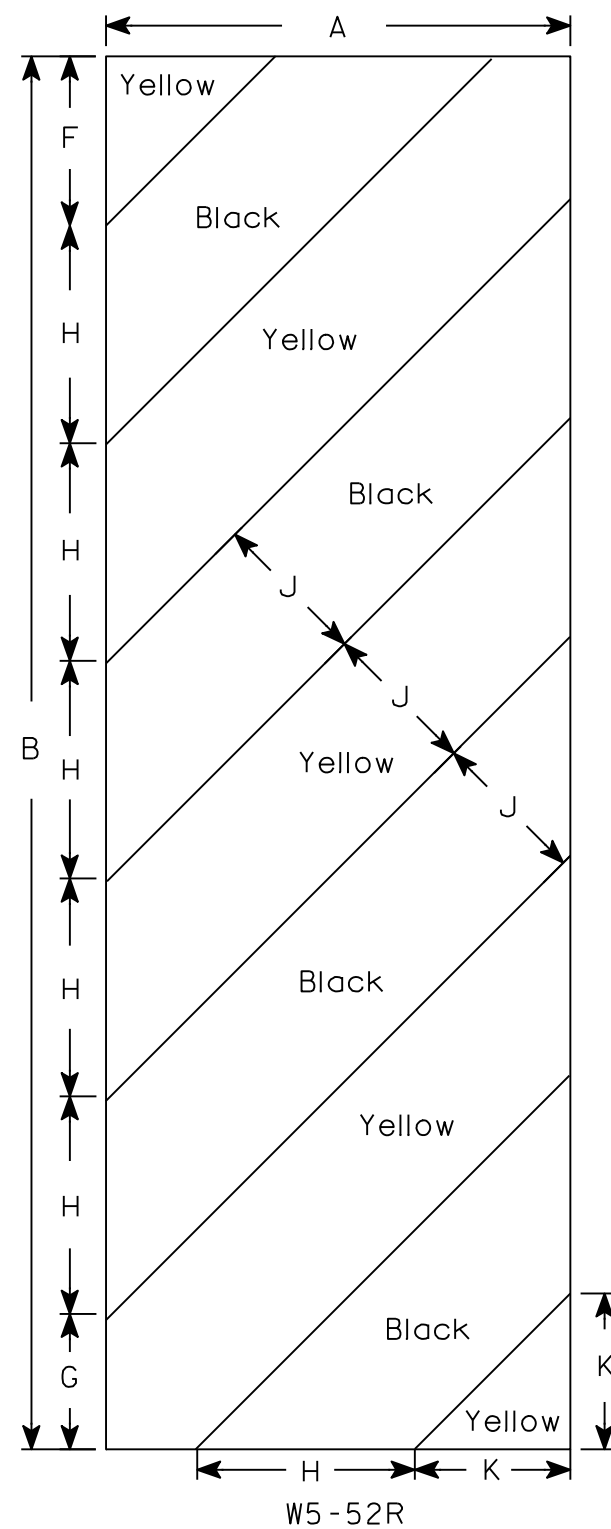
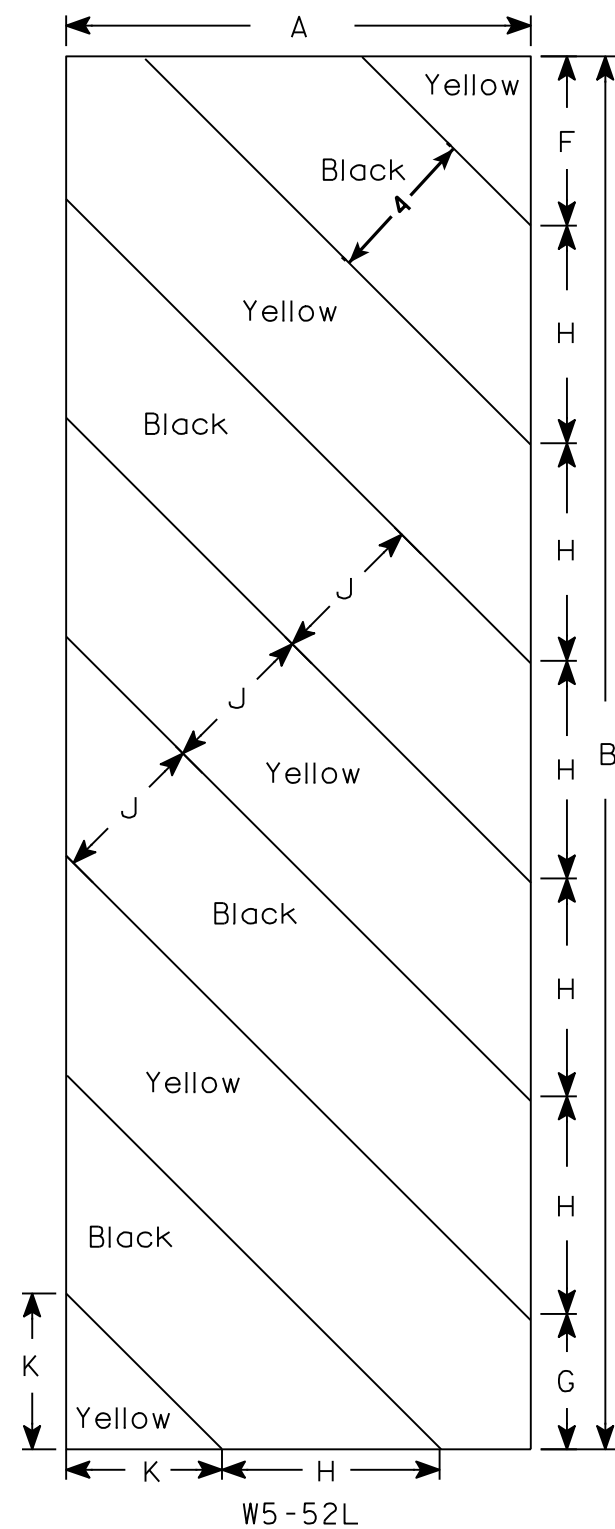
PROJECT NO: 7831-03-72

HWY: CTH H

COUNTY: EAU CLAIRE

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.

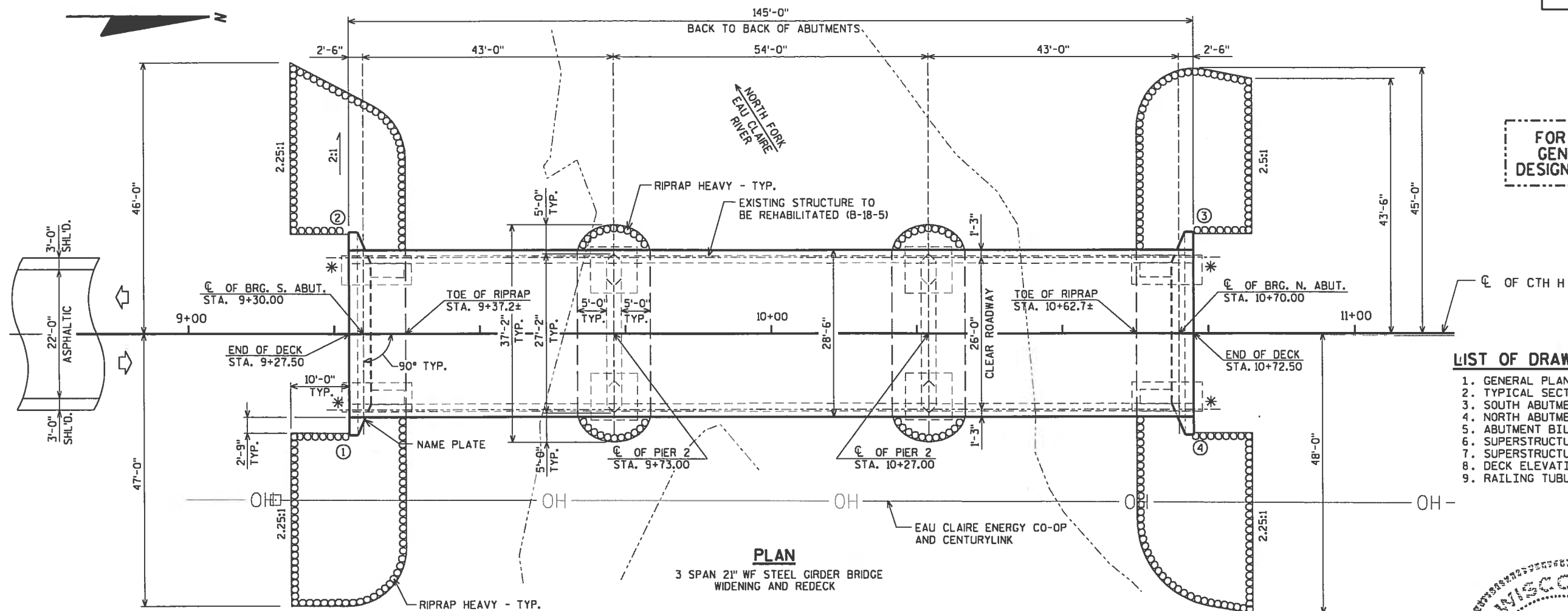
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
2M	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
3	18	54				6	5 1⁄2	8 1⁄2	45°	6	6 9⁄16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



FOR TYPICAL SECTION,
GENERAL NOTES, AND
DESIGN DATA, SEE SHEET 2

LIST OF DRAWINGS

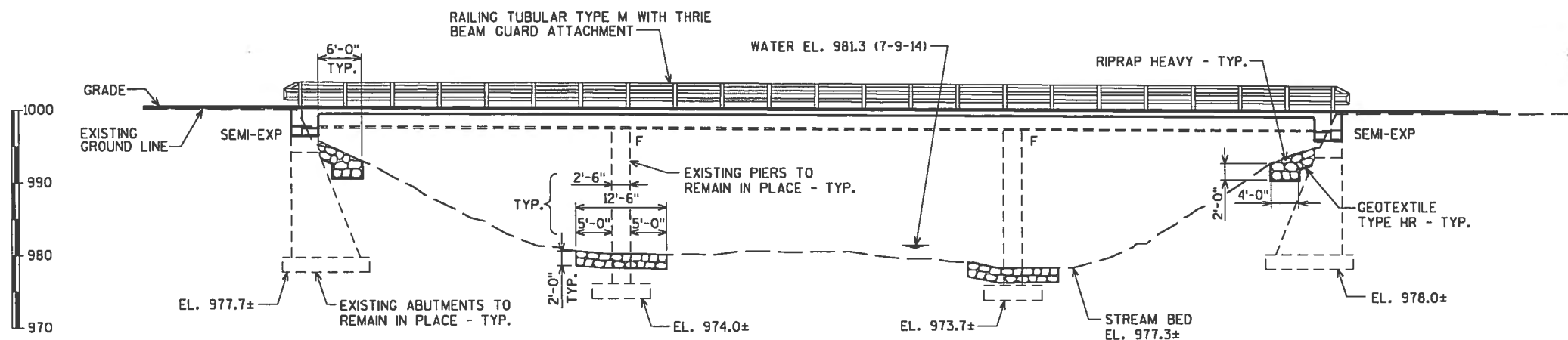
1. GENERAL PLAN
2. TYPICAL SECTION, DESIGN DATA, AND NOTES
3. SOUTH ABUTMENT
4. NORTH ABUTMENT
5. ABUTMENT BILL OF BARS
6. SUPERSTRUCTURE
7. SUPERSTRUCTURE PLAN
8. DECK ELEVATIONS
9. RAILING TUBULAR TYPE M

PLAN

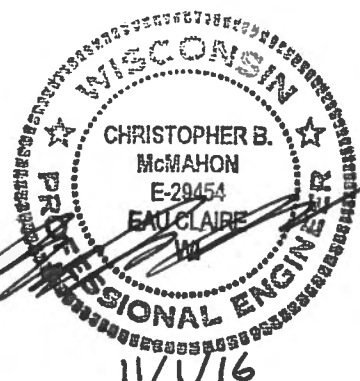
3 SPAN 21' WF STEEL GIRDER BRIDGE
WIDENING AND REDECK

*ANCHOR ASSEMBLY FOR THRIE
BEAM TYPE GUARDRAIL.

○ DENOTES WING NUMBER.



ELEVATION



NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY AYRES ASSOCIATES 3433 Oakwood Hills Parkway Eau Claire, WI 54601 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> SR		11/17/16	
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
STRUCTURE B-18-5			
CTH H OVER NORTH FORK EAU CLAIRE RIVER			
COUNTY	EAU CLAIRE	TOWN/CITY/VILLAGE	WILSON
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY	AEB	DESIGN CK'D.	CKJ
DRAWN BY	CLS	PLANS CK'D.	CBM
GENERAL PLAN			SHEET 1 OF 9

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

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

\$PRNAME\$
U:\42-0342.00 - Eau Claire Co.CTH H-BRIDGE\420942 gp rehdb.dgn

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:

\$PRNAME\$
U:\42-0942.00 - Eau Claire Co. CTH H-BRIDGE\420942 gp rehab.dgn

8

STATE PROJECT NUMBER

7831-03-72

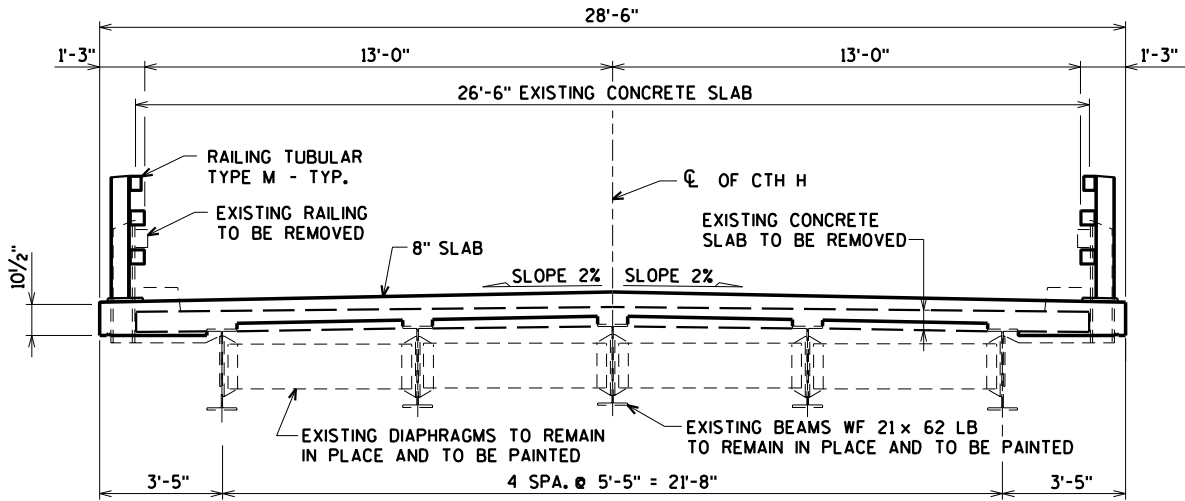
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	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-18-5	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	35	35	-----	70
502.0100	CONCRETE MASONRY BRIDGES	CY	6	6	129	141
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	520	520
502.4205	ADHESIVE ANCHORS NO. 5 BARS	EACH	94	94	-----	188
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	520	520	30,650	31,690
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	5	5	-----	10
506.7050.S	REMOVING BEARINGS B-18-5	EACH	5	5	-----	10
** 509.1500	CONCRETE SURFACE REPAIR	SF	-----	-----	-----	100
513.4061	RAILING TUBULAR TYPE M B-18-5	LF	-----	-----	294	294
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	7	-----	14
517.0900.S	PREPARATION AND COATING OF TOP FLANGES B-18-5	LS	-----	-----	-----	1
517.3000.S	STRUCTURE OVERCOATING CLEANING AND PRIMING B-18-5	LS	-----	-----	-----	1
517.4000.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-18-5	LS	-----	-----	-----	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	-----	-----	-----	1
☆ 606.0300	RIPRAP HEAVY	CY	105	105	-----	280
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	55	55	-----	110
645.0120	GEOTEXTILE TYPE HR	SY	210	210	-----	420
■ SPV.0060	CLEANING AND PAINTING BEARINGS	EACH	-----	-----	-----	10
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

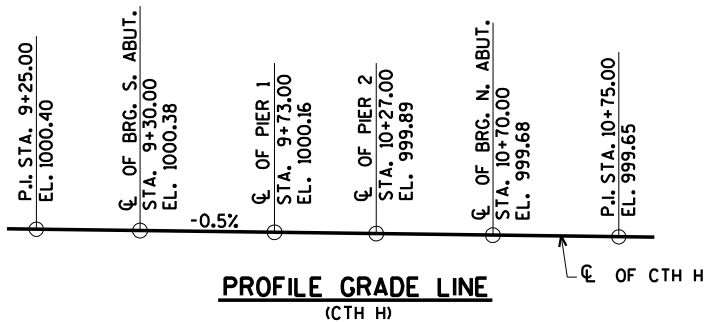
** UNDISTRIBUTED FOR ABUTMENTS AND PIERS AS DIRECTED BY THE ENGINEER.

☆ 70 C.Y. ALSO REQUIRED AT PIERS (35 CY AT EACH PIER)

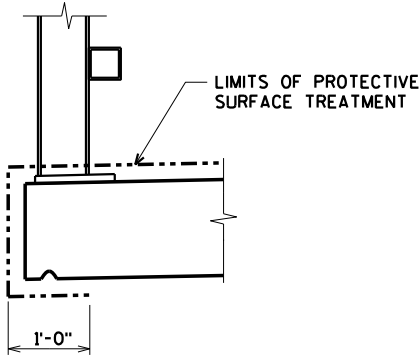
■ PIER BEARINGS



TYPICAL SECTION THRU BRIDGE



BENCH MARK:
CHIS. SQ. TOP OF NE WINGWALL
STA. 10+72, 14' RT.
EL. 1000.06



PROTECTIVE SURFACE TREATMENT DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DIMENSIONS ARE BASED ON ORIGINAL STRUCTURE PLANS.
BAR STEEL SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.
REMOVE EXISTING FLOOR DRAINS AND DOWN SPOUTS, INCLUDED IN BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS".
ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT.
THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW THE ORIGINAL CONSTRUCTION YEAR OF 1954.
AT ABUTMENTS ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.
VARIATIONS TO THE NEW GRADE LINE OVER 1/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET.
UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.
JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.
THE MINIMUM CONCRETE HAUNCH SHALL BE 2" FOR DESIGN CALCULATIONS AND THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE DEPTH OF 2 3/8", WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
EXISTING BEARINGS AT THE ABUTMENTS WILL BE REMOVED AND REPLACED BY ELASTOMERIC BEARING PADS PLACED ON NEW BEAM SEATS.
ALL EXISTING STRUCTURAL STEEL SHALL BE PAINTED. THE PAINT COLOR OF THE FINISH TOP COAT SHALL BE LIGHT GRAY (FEDERAL COLOR NO. 26293).

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HL-93 / HS-20
INVENTORY RATING FACTOR: HS-15
OPERATING RATING FACTOR: HS-25
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 190 KIPS

MATERIAL PROPERTIES:

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.

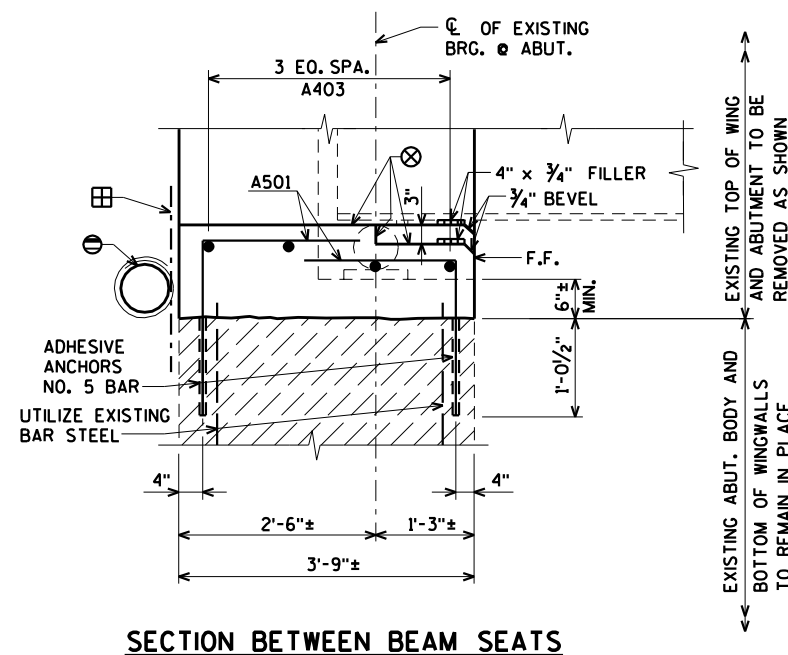
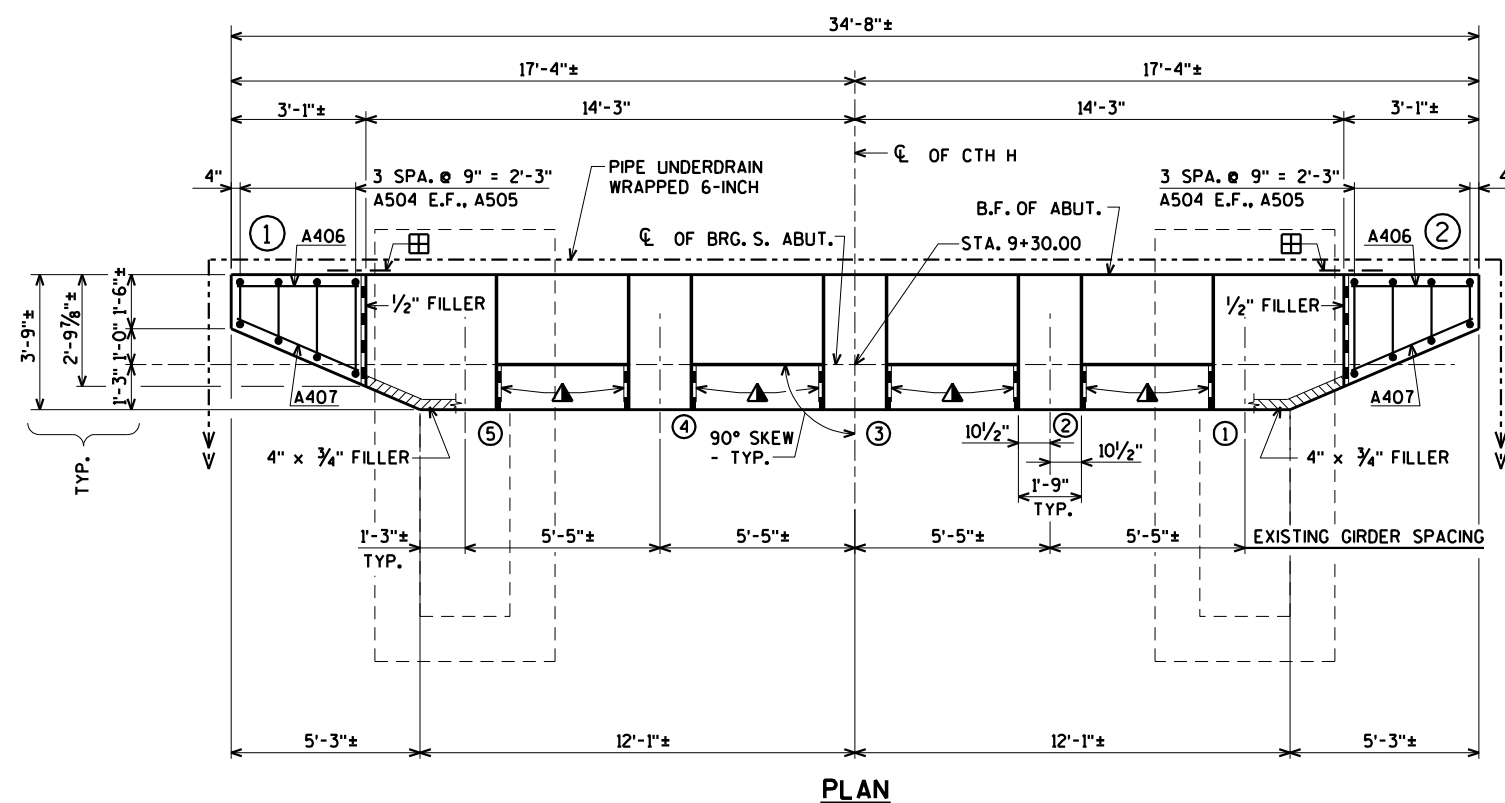
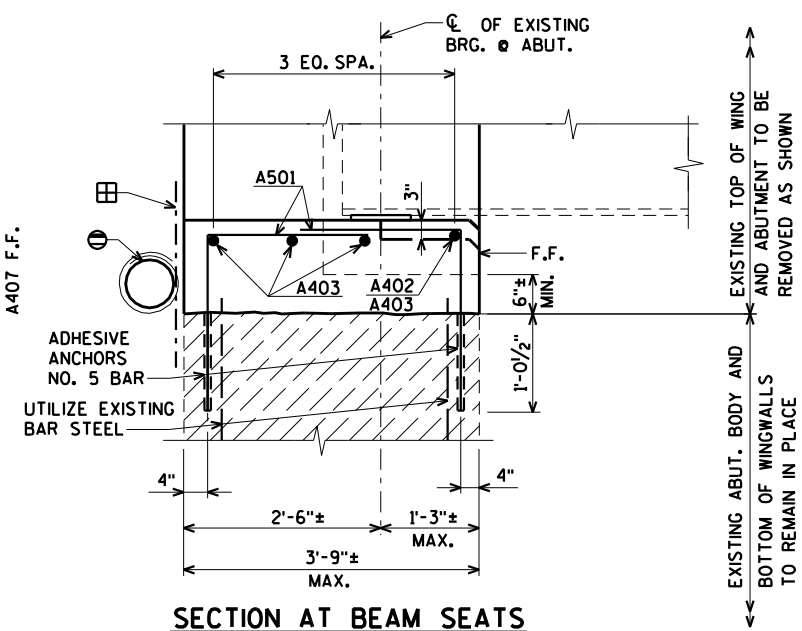
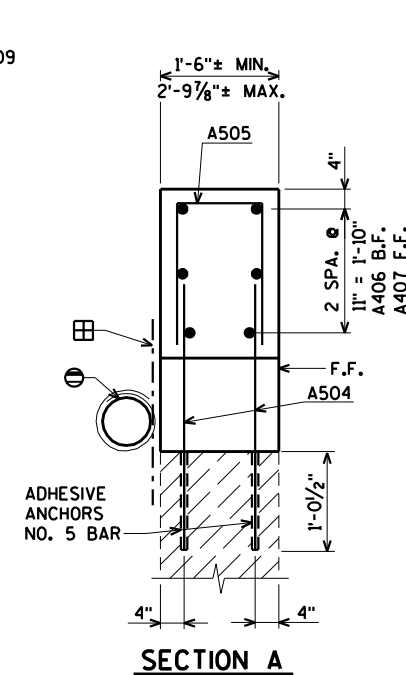
TRAFFIC DATA:

A.D.T. = 350 (2016)
A.D.T. = 470 (2036)
R.D.S. = 55 M.P.H.

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-18-5			
DRAWN BY		CLS	PLANS CK'D. CBM
TYPICAL SECTION, DESIGN DATA, AND NOTES			SHEET 2 OF 9

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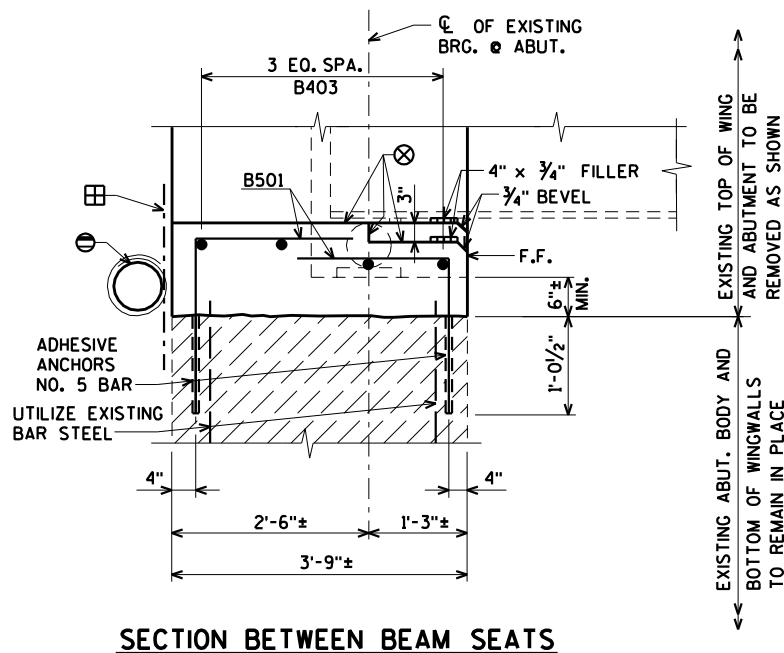
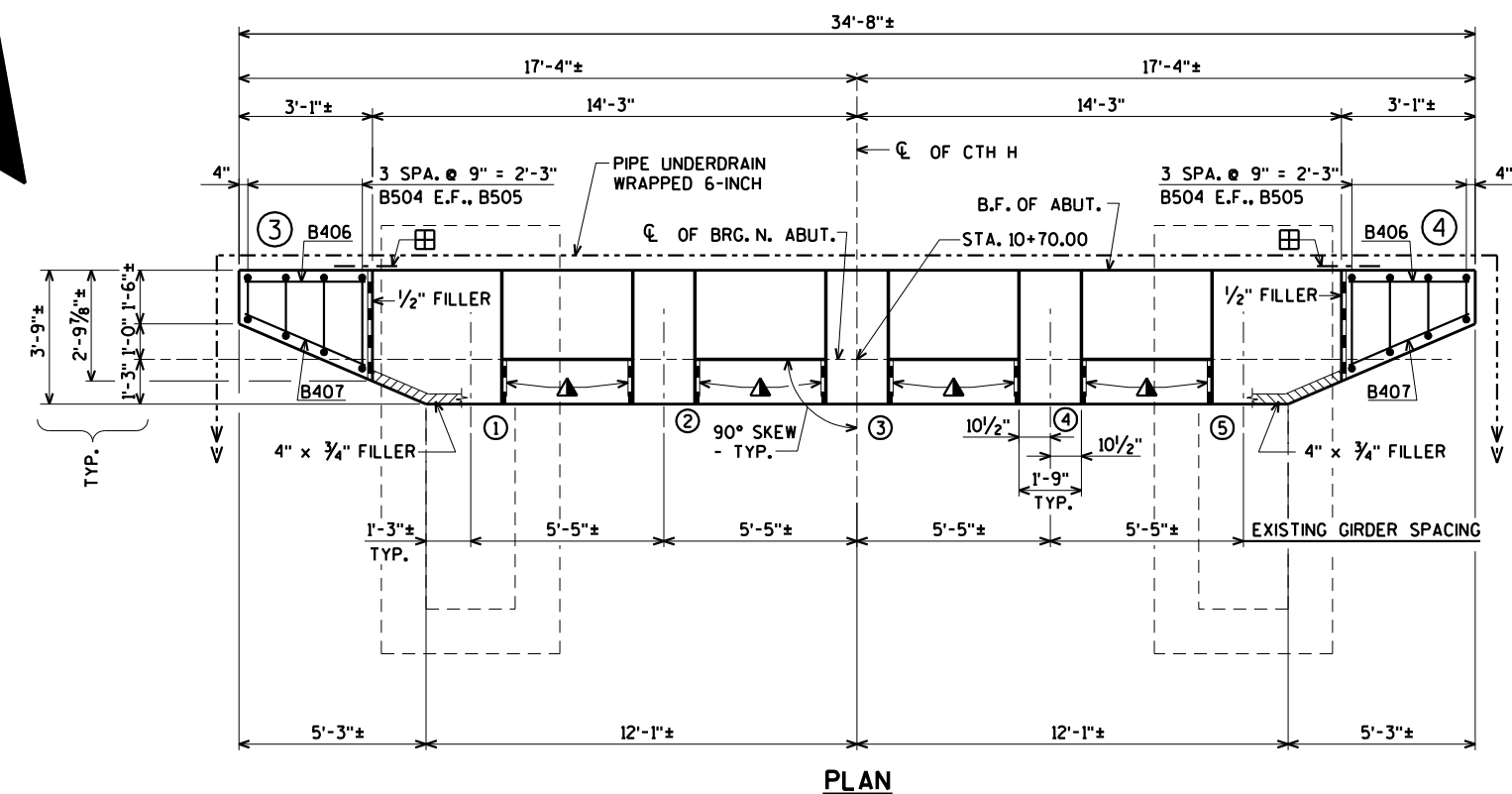
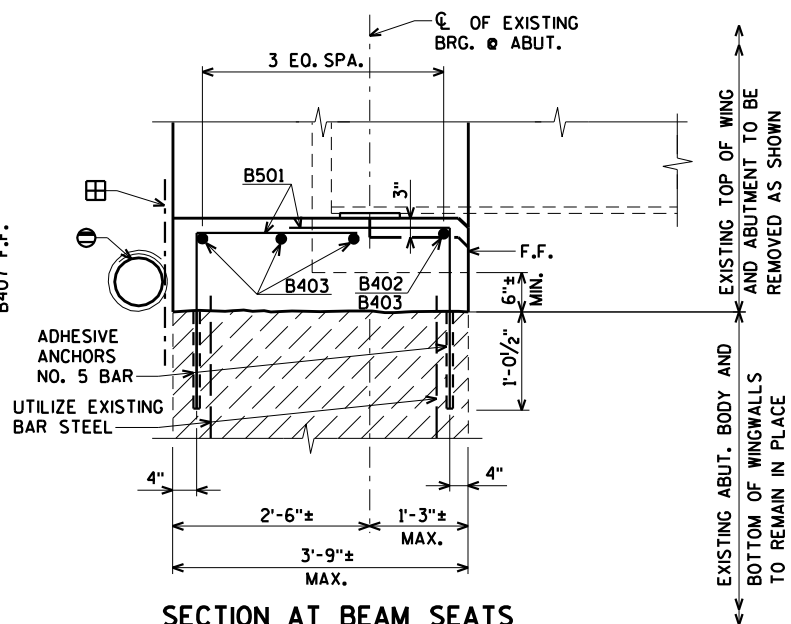
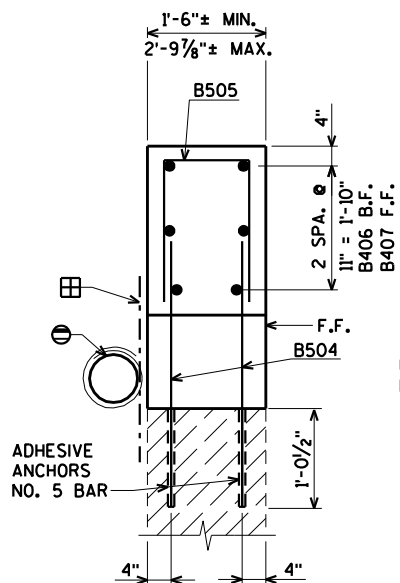
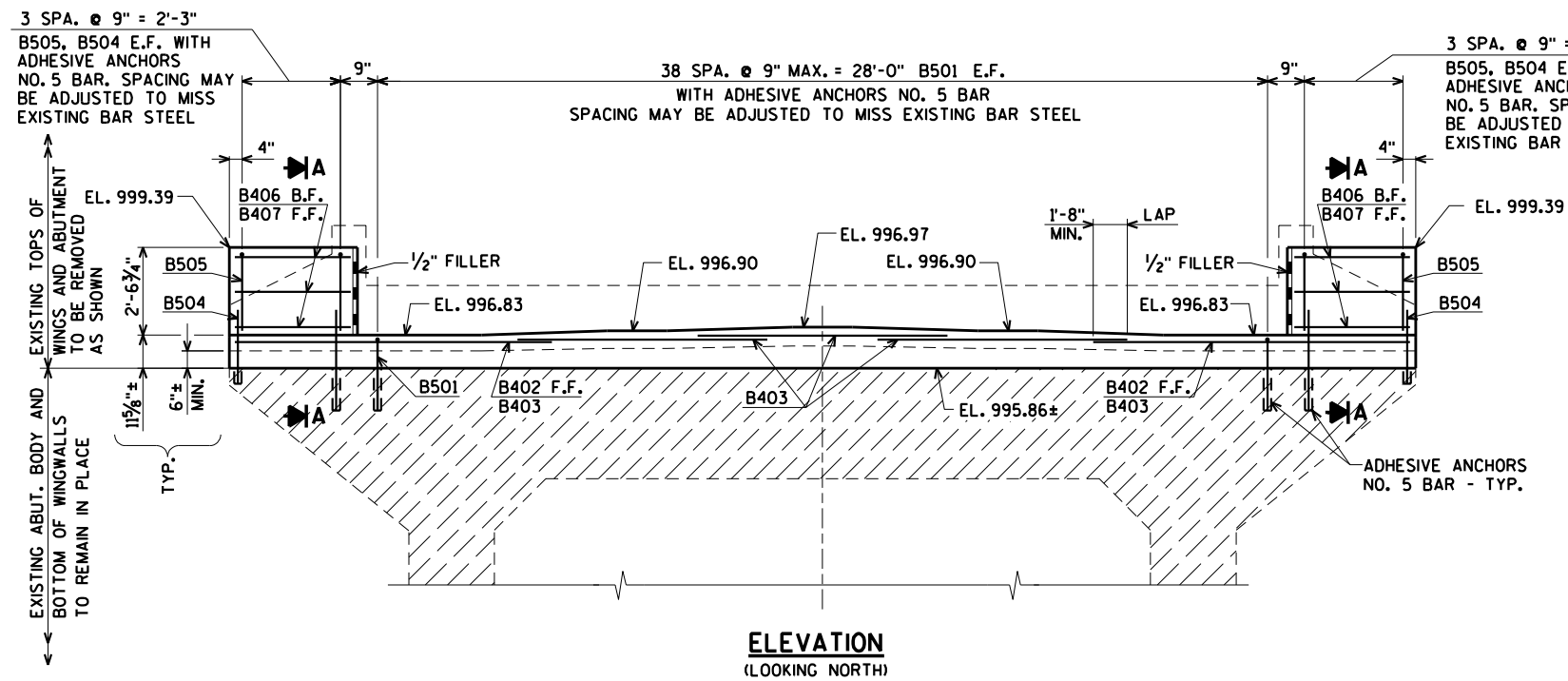


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STRUCTURE B-18-5			
DRAWN BY		CLS	PLANS CK'D. CBM
SOUTH ABUTMENT		SHEET 3 OF 9	



▲ 3/4" CORK FILLER ON VERTICAL FACE ONLY.

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 5.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

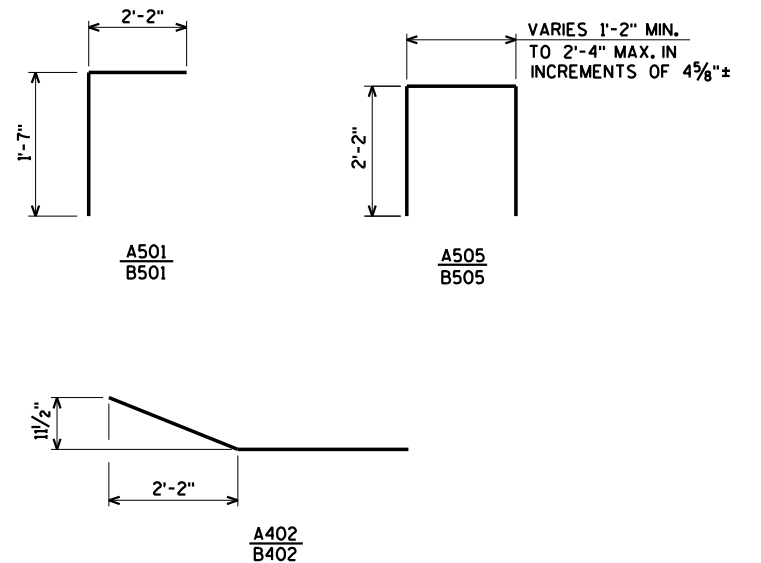
E.F. DENOTES EACH FACE

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NO.	DATE	REVISION	BY
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STRUCTURE B-18-5			
DRAWN BY		CLS	PLANS CK'D. CBM
NORTH ABUTMENT		SHEET 4 OF 9	

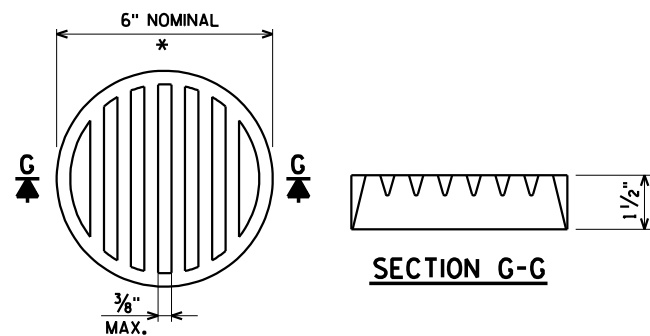
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● ADHESIVE ANCHORS NO. 5 BAR

[illegible]

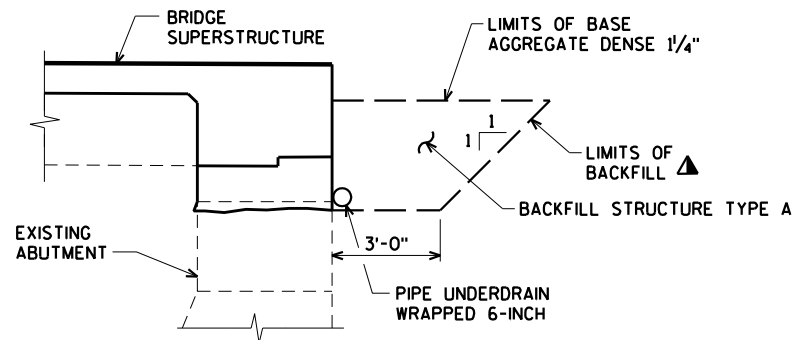
BAR MARK	NO REQ'D.	LENGTH
A505	2 SERIES OF 4	5' - 3" TO 6' - 5"
B505	2 SERIES OF 4	5' - 3" TO 6' - 7"

BUNDLE AND TAG EACH SERIES SEPARATELY.



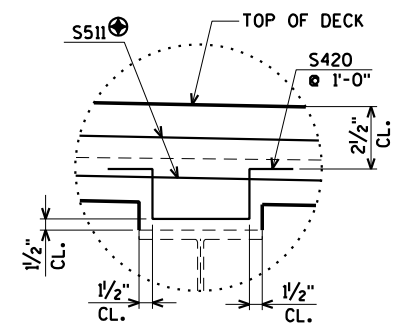
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH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

RODENT SHIELD DETAIL



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

NO.	DATE	REVISION	BY
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STRUCTURE B-18-5			
		DRAWN BY	CL5 PLANS CK'D. CBM
ABUTMENT BILL OF BARS		SHEET 5 OF 9	

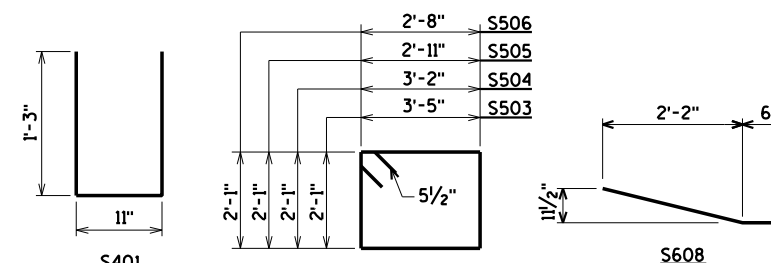


 TILT S420 BARS AS
REQ'D. TO MAINTAIN
2 1/2" CLEAR

3/4" V-GROOVE. EXTEND V-GROOVE
TO 6" FROM FRONT FACE OF
ABUTMENT DIAPHRAGM - TYP.

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	30,650" COATED
							LOCATION
S401	X	40	3-3	X			DIAPH. @ ABUT. VERT. @ NOTCH
S402	X	16	3-4				DIAPH. @ ABUT. HORIZ. @ NOTCH
S503	X	60	11-8	X			DIAPH. @ ABUT. VERT.
S504	X	4	11-2	X			DIAPH. @ ABUT. VERT. @ CORNERS
S505	X	4	10-8	X			DIAPH. @ ABUT. VERT. @ CORNERS
S506	X	4	10-2	X			DIAPH. @ ABUT. VERT. @ CORNERS
S607	X	24	4-4				DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S608	X	12	2-10	X			DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S609	X	10	28-2				DIAPH. @ ABUT. HORIZ.
S510	X	20	6-0				DIAPH. @ ABUT. HORIZ. THRU GDRS.
S511	X	435	28-2				SLAB TRANS. TOP & BOT.
S412	X	188	37-5				SLAB LONG. BOT.
S413	X	80	34-3				SLAB LONG. TOP SPAN 1 & 3
S414	X	40	31-10				SLAB LONG. TOP SPAN 2
S615	X	80	25-6				SLAB LONG. TOP @ PIERS
S616	X	92	12-0	X			SLAB @ RAIL POSTS
S617	X	168	6-0				SLAB @ INT. RAIL POSTS
S618	X	16	6-0	X			SLAB @ END RAIL POSTS
S419	X	434	3-8	X			SLAB TRANS. BOT. @ OVERHANGS
S420	X	755	2-7	X			SLAB @ GIRDER HAUNCHES

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.
 ⬤ ADJUST SPACING OF S511 BARS AS NECESSARY IN ORDER TO AVOID EXISTING SHEAR LUG CHANNELS.



217 SPA. @ 8" MAX. = 143'-6" S511, S519

3" SPA. @ 8" MAX.

3" CL.

1 1/2" CL.

6" MIN.

2'-6" ±

1'-3" ± MAX.

3'-9" ± MAX.

CL. OF EXISTING BRG. @ ABUT.

EXISTING ABUTMENT TO REMAIN IN PLACE

1/2" FILL

OPT. CONST. JT.

S609

S503, S504

S505, S506

S607

S608

S607

S608

S402

S401

3"

3"

6"

2 SPA. @ 8" MAX.

3/4" PREFORMED FILLER UNDER GIRDER

3/4" BEVEL

4" x 3/4" PREFORMED FILLER UNDER DIAPHRAGM

S413

S412

2 1/2" CL.

8"

1 1/2" CL.

EXISTING GIRDER TO REMAIN IN PLACE

TYP. SECTION THRU ABUTMENT BACKWALL

⊗ FIELD DRILL 1 1/2" Ø HOLE IN WEB
OF EXISTING GIRDERS FOR 2 - S510
BARS. FIELD DRILLING INCLUDED IN BID
ITEM "CONCRETE MASONRY BRIDGES".

☐ 18" RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACK FACE OF ABUTMENT AND WINGS.

Technical drawing of a bridge deck cross-section showing reinforcement details. The drawing includes labels for reinforcement bars (S506, S505, S504, S503, S607, S609, S503, S608, S401, S402), dimensions (1'-1 1/2", 4 SPA. @ 9 1/2" = 3'-2", 1'-1 1/2", 5 1/2", 3 SPA. @ 9" = 2'-3", 8 1/2", 8 1/2", 6 SPA. @ 8" = 4'-0", 8 1/2", 3'-5", 5'-5", 5'-5"), and notes (EXISTING STEEL GIRDERS - TYP., 2 - S510 BARS THRU GIRDER - TYP., SYM. ABOUT C OF ROADWAY).

PART SECTION AT ABUTMENT
(LOOKING NORTH)

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-18-5

	DRAWN BY	C.L.S.	PLANS CHK'D.	C.B.I.
--	-------------	--------	-----------------	--------

y | SUPERSTRUCTURE

SHEET 6 OF 9



3'-9"

2'-6"

1'-3"

CL. OF EXISTING BRG. @ ABUT.

4"

4" x 3/4" PREFORMED FILLER UNDER DIAPHRAGM

3/4" CORK FILLER ON VERT. FACE ONLY

90° - TYP.

END OF GIRDER

3/4" PREFORMED FILLER UNDER GIRDER

4"

1/2" x 8" x 1'-1" NON-LAMINATED ELASTOMERIC BEARING PAD

6 1/2"

3/4" CORK FILLER ON VERT. FACE ONLY

BEARING PAD DETAIL

NO.	DATE	REVISION	BY
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STRUCTURE B-18-5			
DRAWN BY		CLS	PLANS CK'D. CBM
SUPERSTRUCTURE PLAN			SHEET 7 OF 9

\$PRNAME\$
U:\42-0942.00 - Eau Claire Co. CTH H±BRIDGE#420942 super.dgn

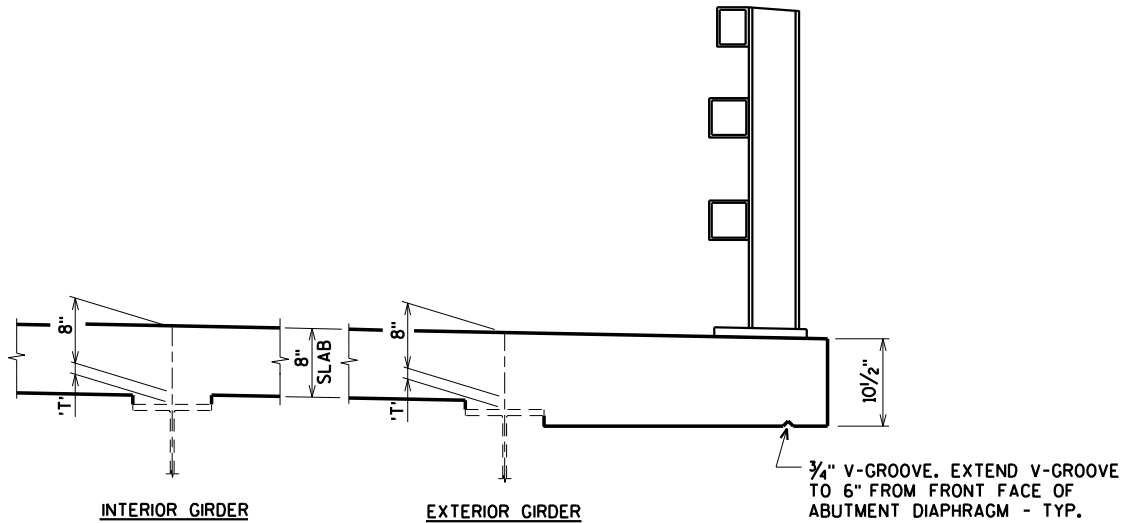
STATE PROJECT NUMBER

7831-03-72

TOP OF DECK ELEVATIONS

	℄ OF BRG. S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF PIER 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF PIER 2
W. EDGE OF DECK	1000.09	1000.07	1000.05	1000.03	1000.01	999.99	999.96	999.94	999.92	999.90	999.88	999.85	999.83	999.80	999.77	999.75	999.72	999.69	999.66	999.64	999.61
GIRDER 1	1000.16	1000.14	1000.12	1000.09	1000.07	1000.05	1000.03	1000.01	999.98	999.96	999.94	999.91	999.89	999.86	999.83	999.81	999.78	999.75	999.72	999.70	999.67
GIRDER 2	1000.27	1000.25	1000.23	1000.20	1000.18	1000.16	1000.14	1000.12	1000.09	1000.07	1000.05	1000.02	1000.00	999.97	999.94	999.92	999.89	999.86	999.83	999.81	999.78
℄ & GIRDER 3	1000.38	1000.36	1000.34	1000.31	1000.29	1000.27	1000.25	1000.23	1000.20	1000.18	1000.16	1000.13	1000.11	1000.08	1000.05	1000.03	1000.00	999.97	999.94	999.92	999.89
GIRDER 4	1000.27	1000.25	1000.23	1000.20	1000.18	1000.16	1000.14	1000.12	1000.09	1000.07	1000.05	1000.02	1000.00	999.97	999.94	999.92	999.89	999.86	999.83	999.81	999.78
GIRDER 5	1000.16	1000.14	1000.12	1000.09	1000.07	1000.05	1000.03	1000.01	999.98	999.96	999.94	999.91	999.89	999.86	999.83	999.81	999.78	999.75	999.72	999.70	999.67
E. EDGE OF DECK	1000.09	1000.07	1000.05	1000.03	1000.01	999.99	999.96	999.94	999.92	999.90	999.88	999.85	999.83	999.80	999.77	999.75	999.72	999.69	999.66	999.64	999.61

	℄ OF PIER 2	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF BRG. N. ABUT.
W. EDGE OF DECK	999.61	999.59	999.57	999.54	999.52	999.50	999.48	999.46	999.43	999.41	999.39
GIRDER 1	999.67	999.65	999.63	999.61	999.59	999.57	999.54	999.52	999.50	999.48	999.46
GIRDER 2	999.78	999.76	999.74	999.72	999.70	999.68	999.65	999.63	999.61	999.59	999.57
℄ & GIRDER 3	999.89	999.87	999.85	999.83	999.81	999.79	999.76	999.74	999.72	999.70	999.68
GIRDER 4	999.78	999.76	999.74	999.72	999.70	999.68	999.65	999.63	999.61	999.59	999.57
GIRDER 5	999.67	999.65	999.63	999.61	999.59	999.57	999.54	999.52	999.50	999.48	999.46
E. EDGE OF DECK	999.61	999.59	999.57	999.54	999.52	999.50	999.48	999.46	999.43	999.41	999.39

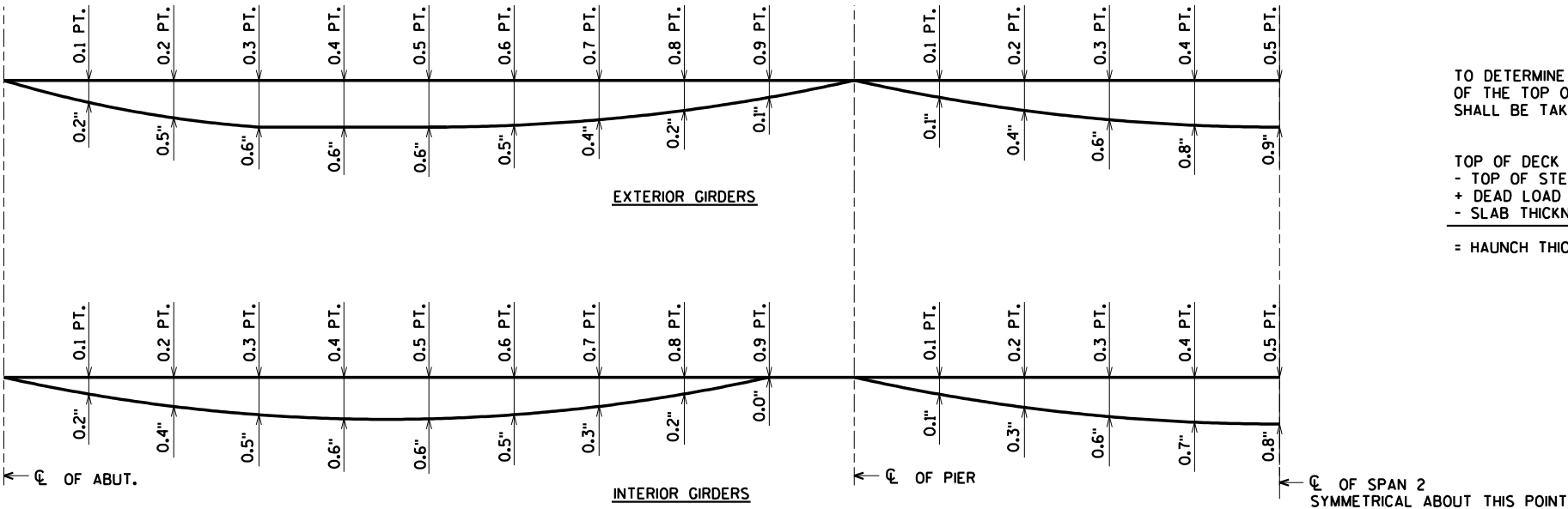


SLAB HAUNCH DETAIL

TO DETERMINE 'T': AFTER ALL OF THE EXISTING DECK HAS BEEN REMOVED. ELEVATIONS OF THE TOP OR TOP OF SPLICE PLATES, OR TOP OF COVER PLATES WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS, AND AT TENTH POINTS OF EACH SPAN.

TOP OF DECK ELEVATION AT FINAL GRADE
- TOP OF STEEL ELEVATION
+ DEAD LOAD DEFLECTION: DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED
- SLAB THICKNESS (8")

= HAUNCH THICKNESS 'T'



DEAD LOAD DEFLECTIONS

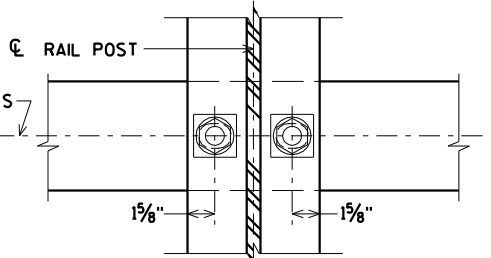
NOTE: DEFLECTIONS ARE THEORETICAL AND MAY VARY IN THE FIELD.
DEAD LOAD DEFLECTION = CONCRETE DECK DEFLECTION
+ COMPOSITE DEAD LOAD DEFLECTION.

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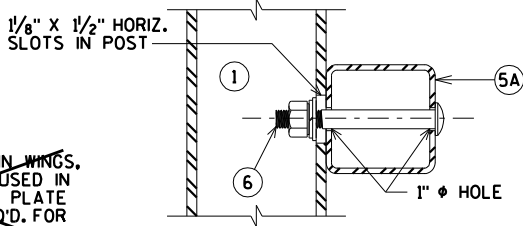
NO.	DATE	REVISION	BY
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STRUCTURE B-18-5			
DRAWN BY		CLS	PLANS CK'D. CBM
DECK ELEVATIONS		SHEET 8 OF 9	

LEGEND

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



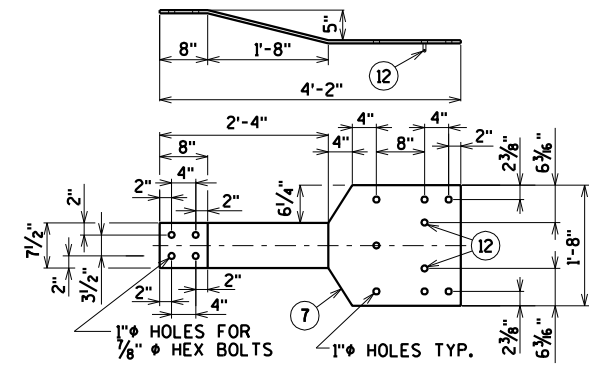
SECTION THRU POST WEB



SECTION THRU RAIL

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

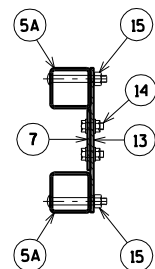
TYPICAL RAIL TO POST CONNECTIONS



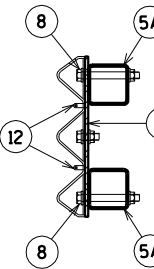
BACK-UP PLATE DETAIL
(AT BEAM GUARD ATTACHMENT)

GENERAL NOTES

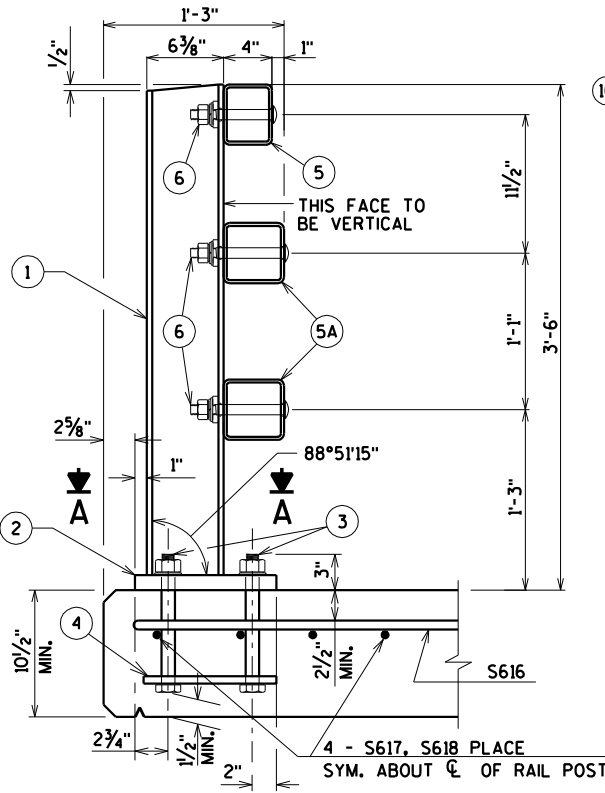
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-18-5" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).



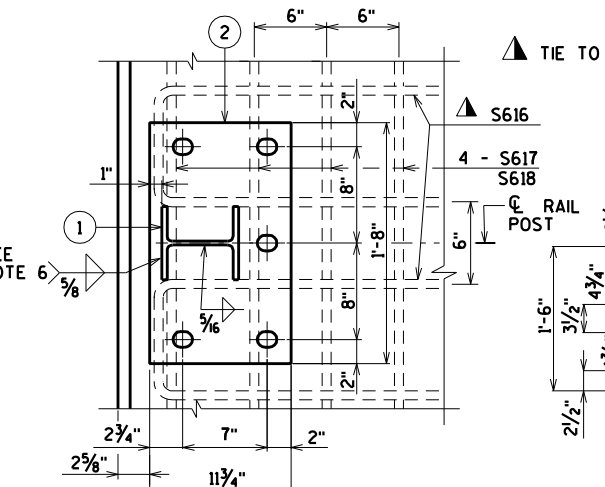
SECTION C



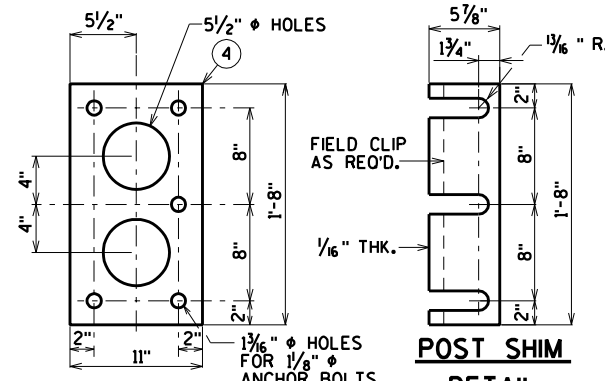
SECTION D



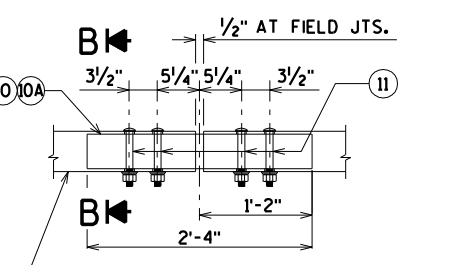
SECTION THRU RAILING ON DECK



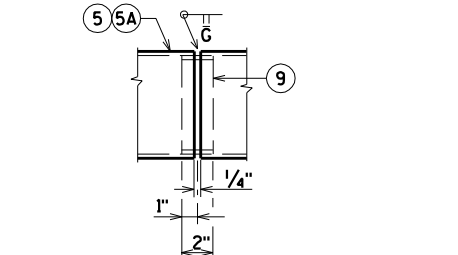
SECTION A



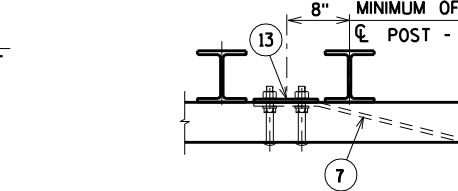
ANCHOR PLATE
(AT RAIL TO DECK CONNECTION)



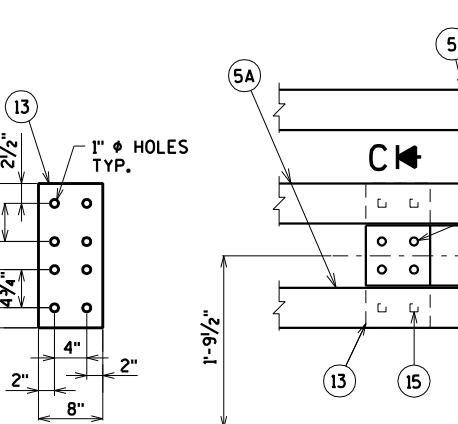
FIELD ERECTION JOINT DETAIL



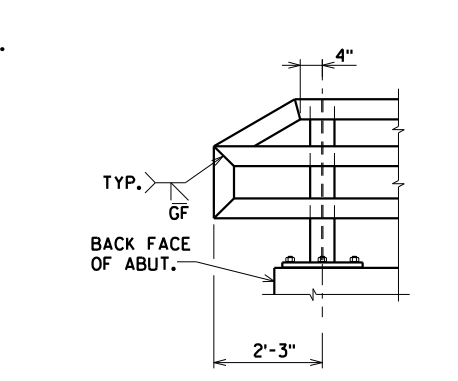
SHOP RAIL SPLICE DETAIL
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



TOP VIEW AT END POST
(THRIE BEAM RAIL ATTACHMENT)



ANCHOR PLATE
(AT BEAM GUARD ATTACHMENT)

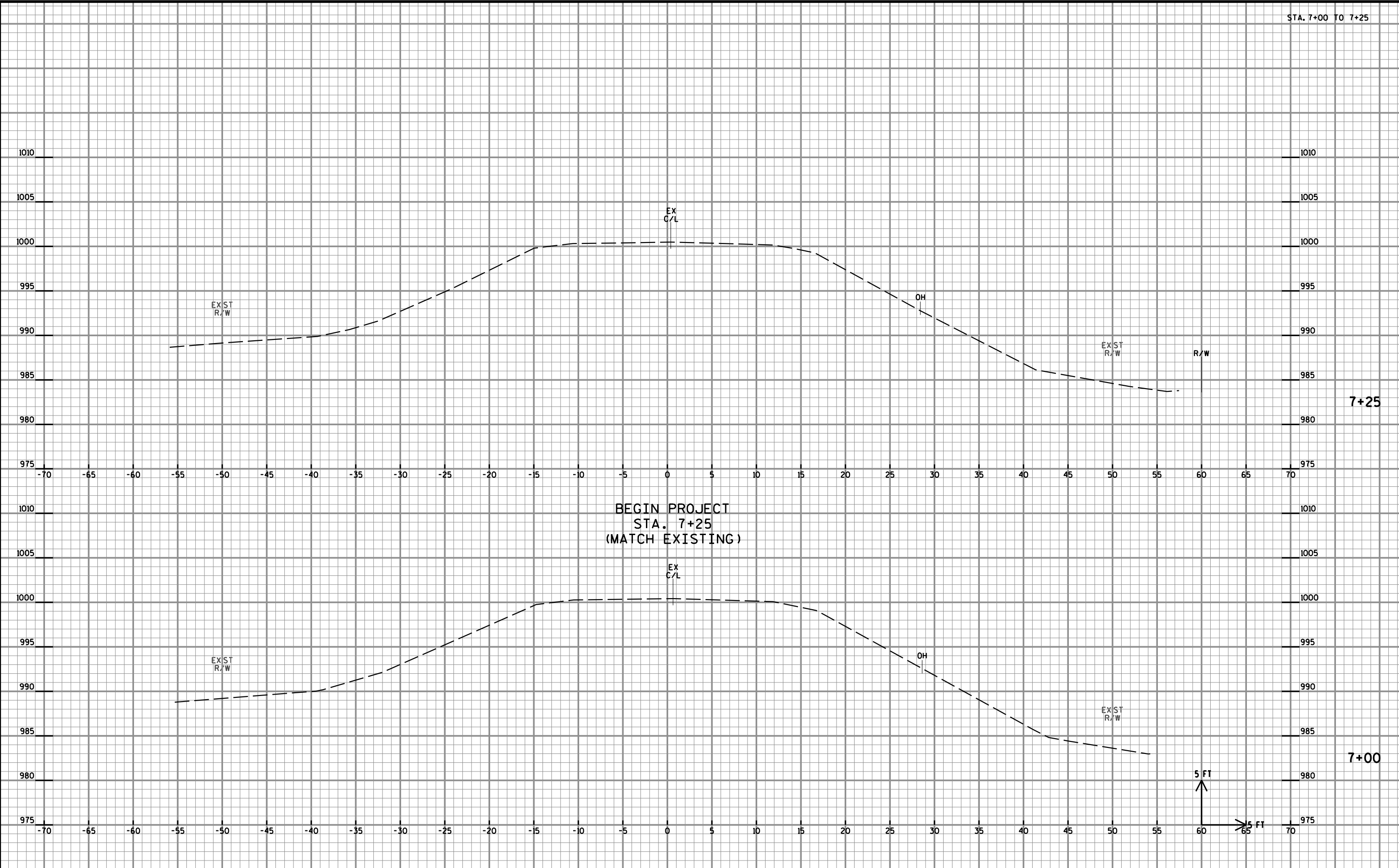


DETAIL AT END POST
(THRIE BEAM RAIL ATTACHMENT)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-18-5			
DRAWN BY CLS		PLANS CK'D. CBM	
RAILING TUBULAR TYPE M			SHEET 9 OF 9

Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Cut 1.00 Note 1	Expanded Fill 1.30	
7+25	--	29.4	0					
7+50	25	31.1	174.9	28	81	28	105	-77
7+75	25	30.6	176.2	29	163	57	317	-260
8+00	25	30.2	124.4	28	139	85	498	-413
8+25	25	29.5	113.1	28	110	113	641	-528
8+50	25	28.8	85.2	27	92	140	761	-621
8+75	25	25.3	79.0	25	76	165	859	-694
9+00	25	22.6	83.7	22	75	187	957	-770
9+25	25	20.9	1.4	20	39	207	1008	-801
9+27.5	2.5	20.9	1.4	2	0	209	1008	-799
NEW BRIDGE	--	--	--	--	--	--	--	--
10+72.5	--	20.8	15.8	--	--	--	--	--
10+75	2.5	20.8	15.8	2	1	211	1009	-798
11+00	25	22.0	91.8	20	50	231	1074	-843
11+25	25	26.9	106.9	23	92	254	1194	-939
11+50	25	31.5	106.9	27	99	281	1322	-1041
11+75	25	31.9	186.8	29	136	310	1499	-1189
12+00	25	32.9	178.7	30	169	340	1719	-1379
12+25	25	31.8	130.9	30	143	370	1905	-1535
12+50	25	30.5	88.7	29	102	399	2037	-1638
12+75	25	28.7	0	27	41	426	2091	-1664
				426	1608			

Note 1 - Cut	Cut includes existing asphalt pavement. Assumed to be reused as fill outside the 1:1 road core.
Note 2 - Fill	Volume needed to be filled.
Note 3 - Mass Ordinate	(Cut) - (Fill * 1.30)



PROJECT NO: 7831-03-72

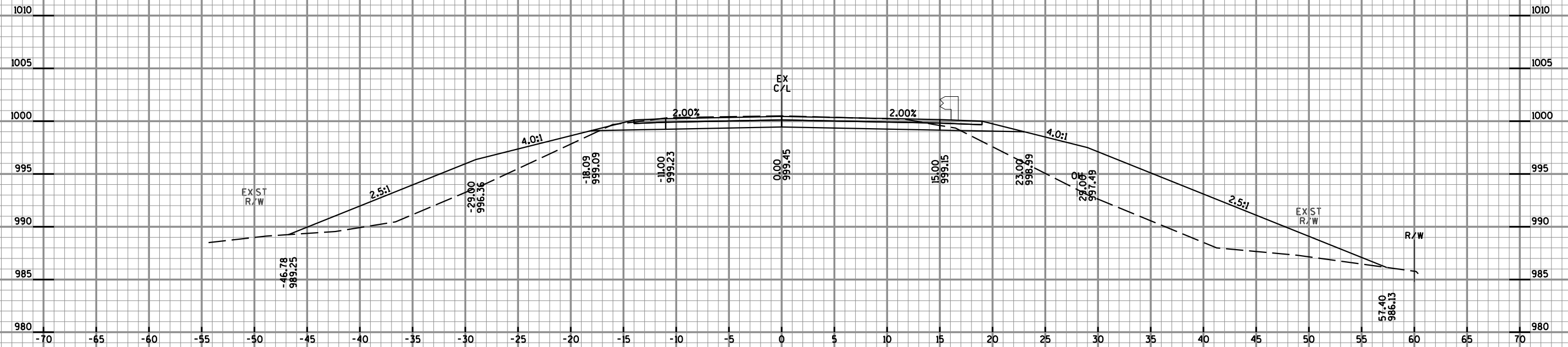
HWY: CTH H

COUNTY: EAU CLAIRE

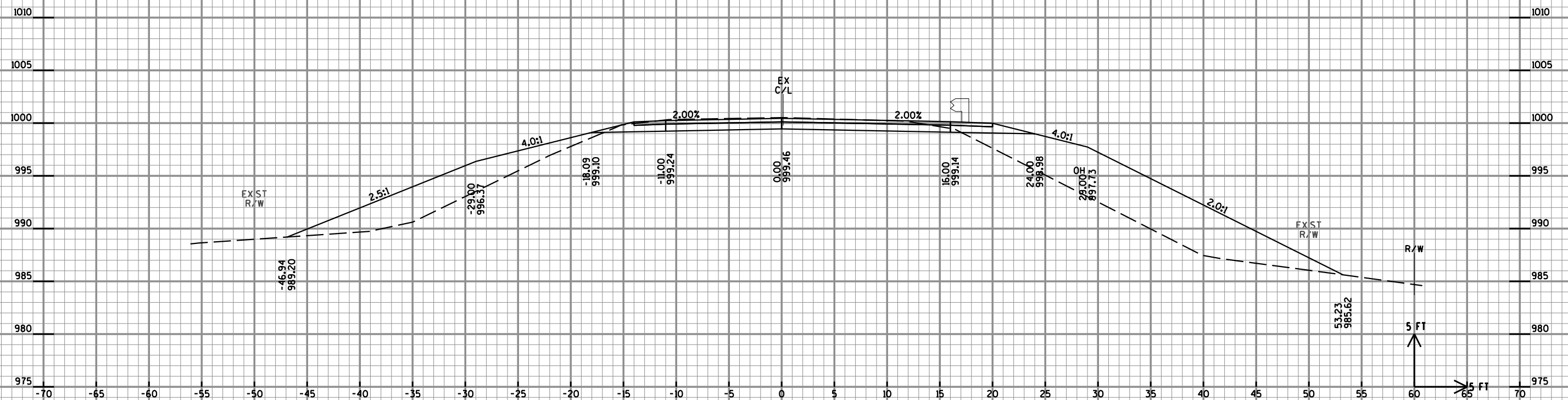
CROSS SECTIONS

SHEET

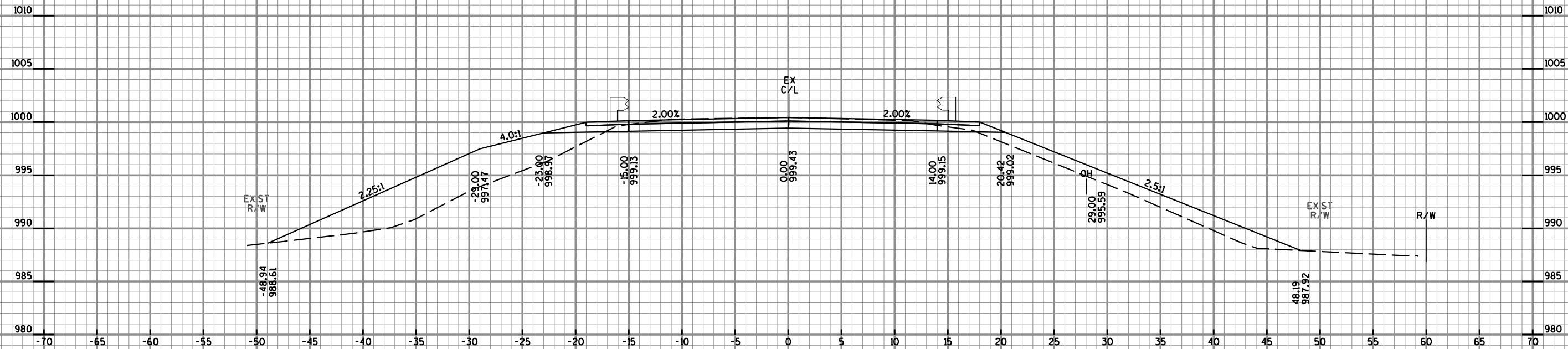
E



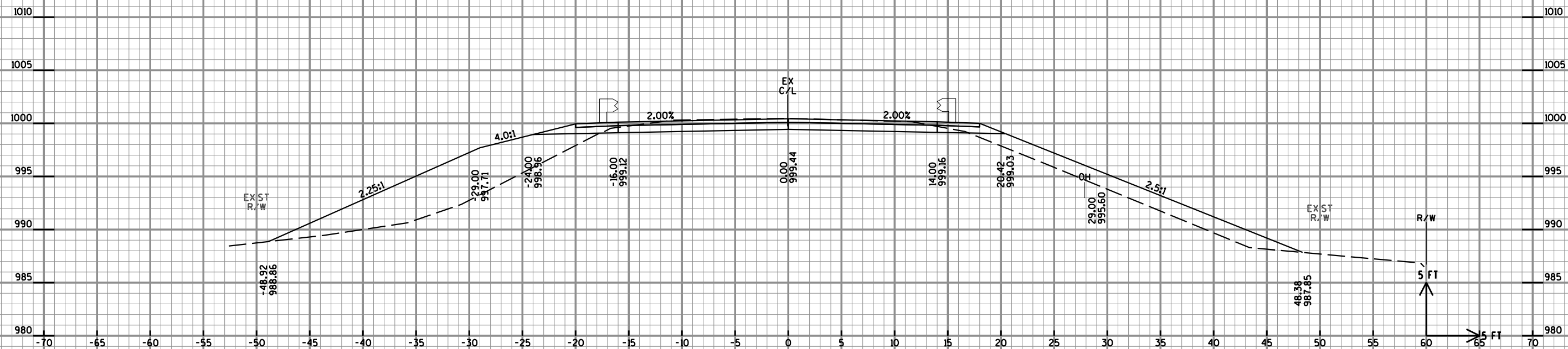
POST 5 RT
7+75



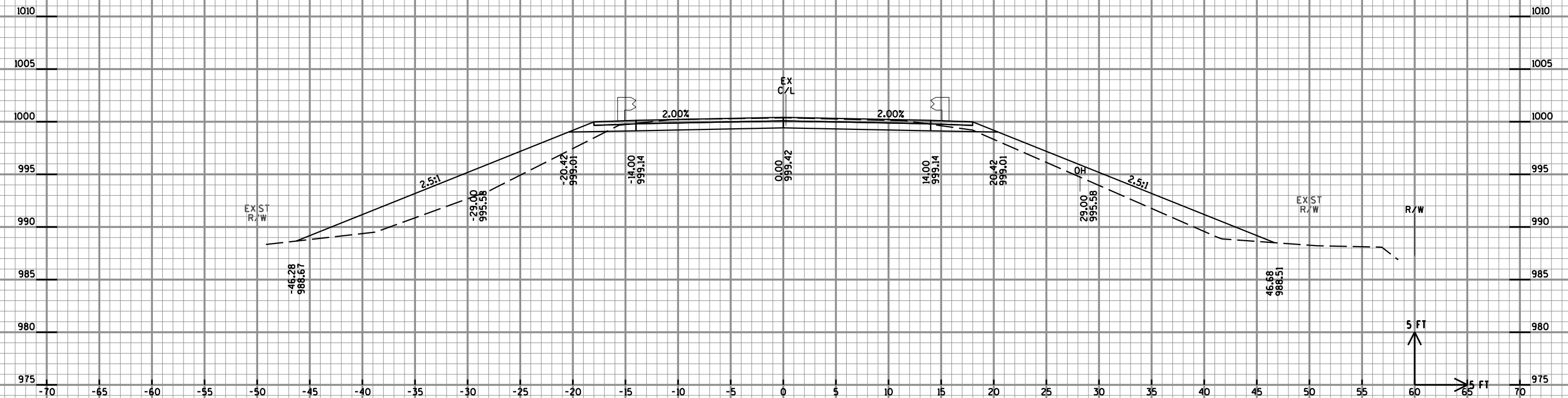
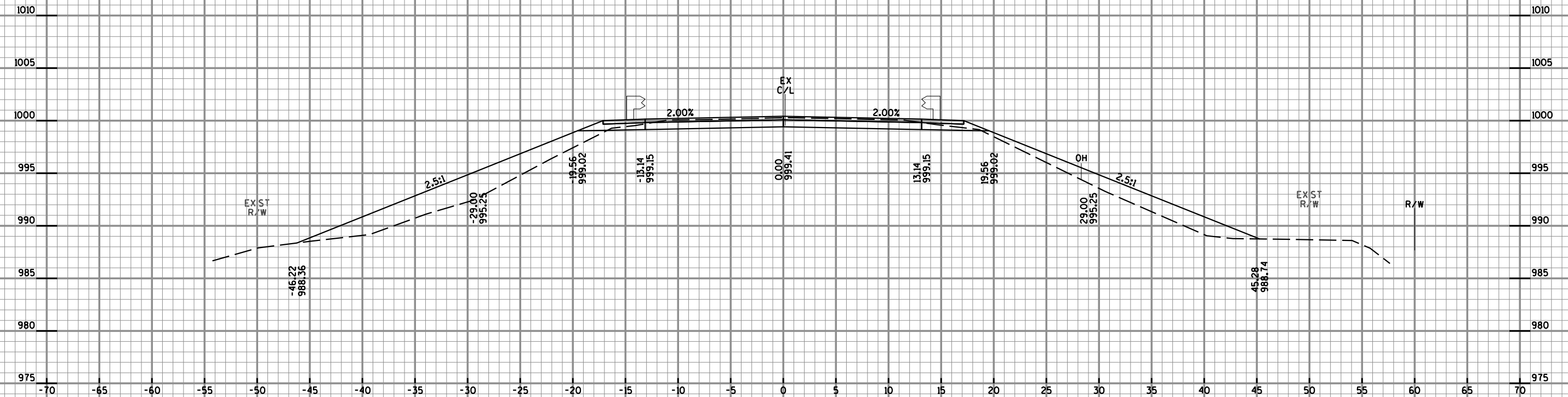
POST 1 RT
7+50

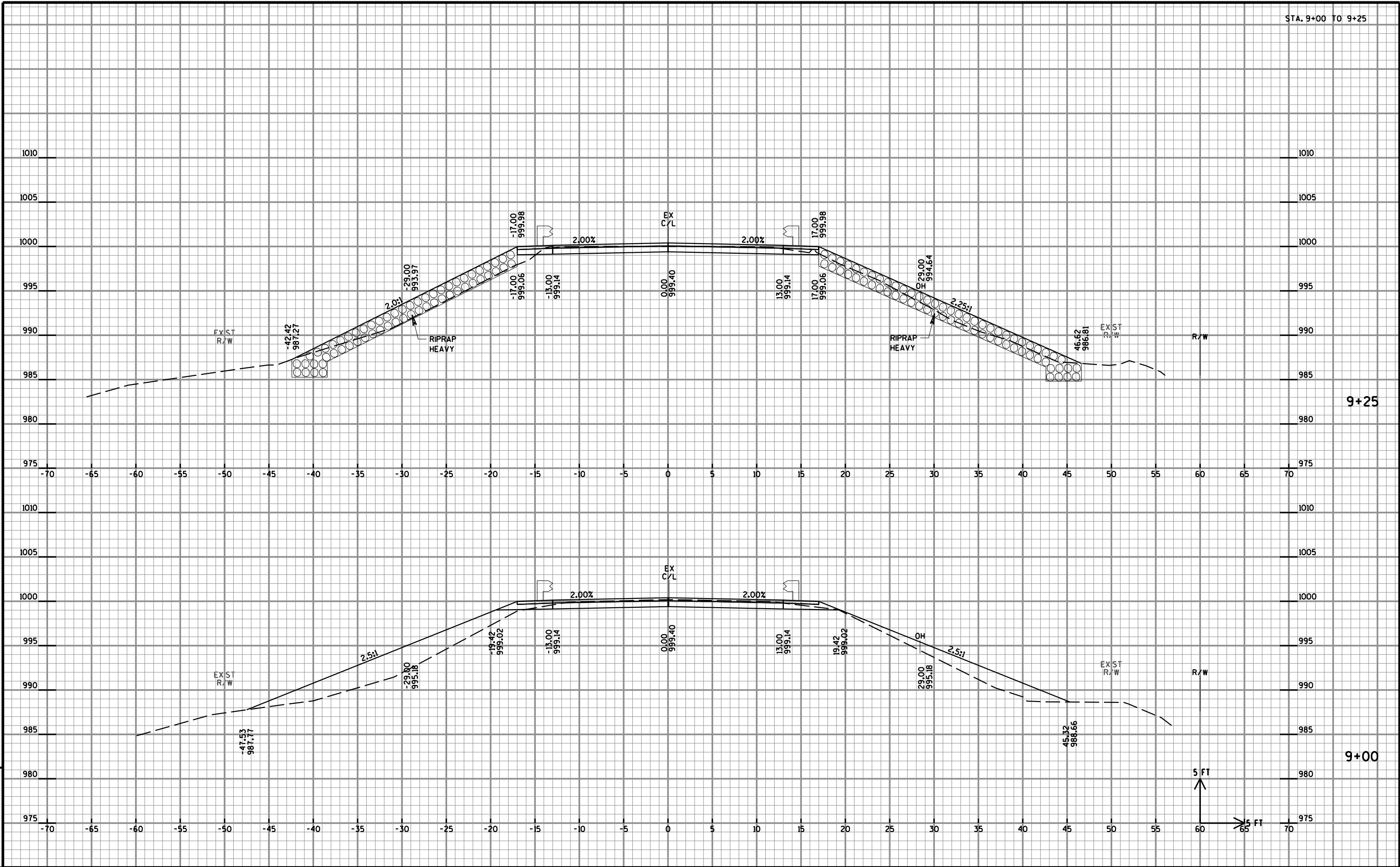


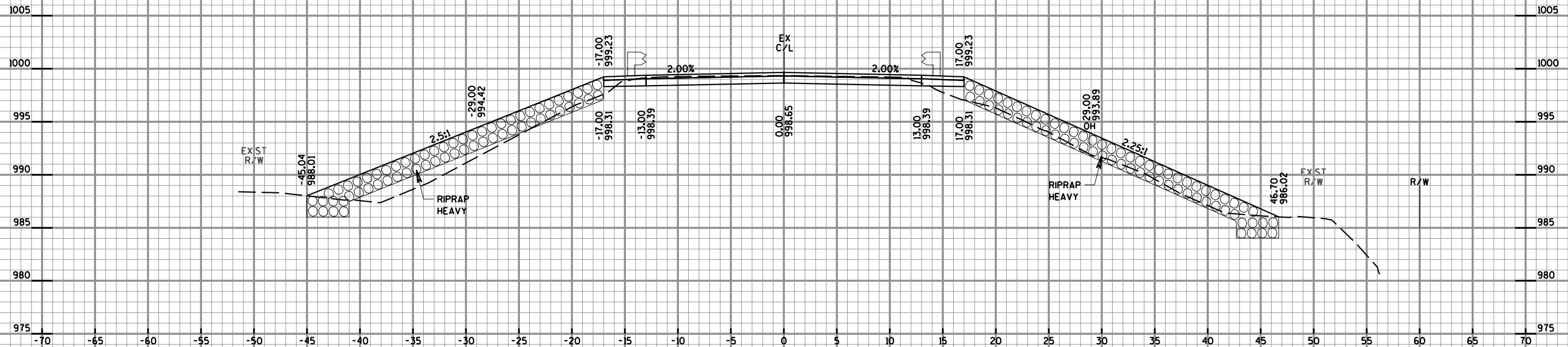
POST 5 LT
8+25



POST 1 LT
POST 9 RT
8+00

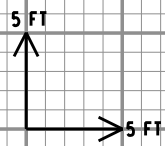


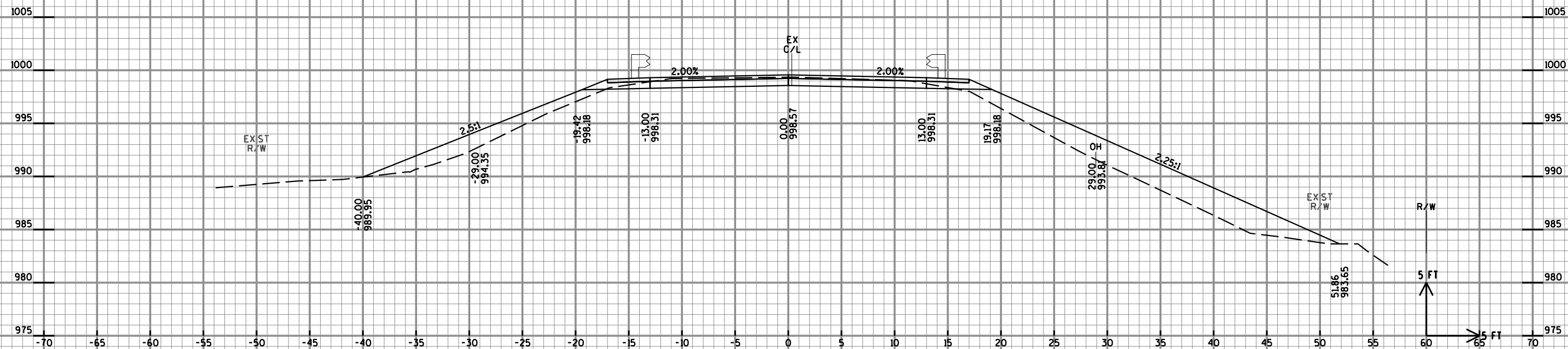
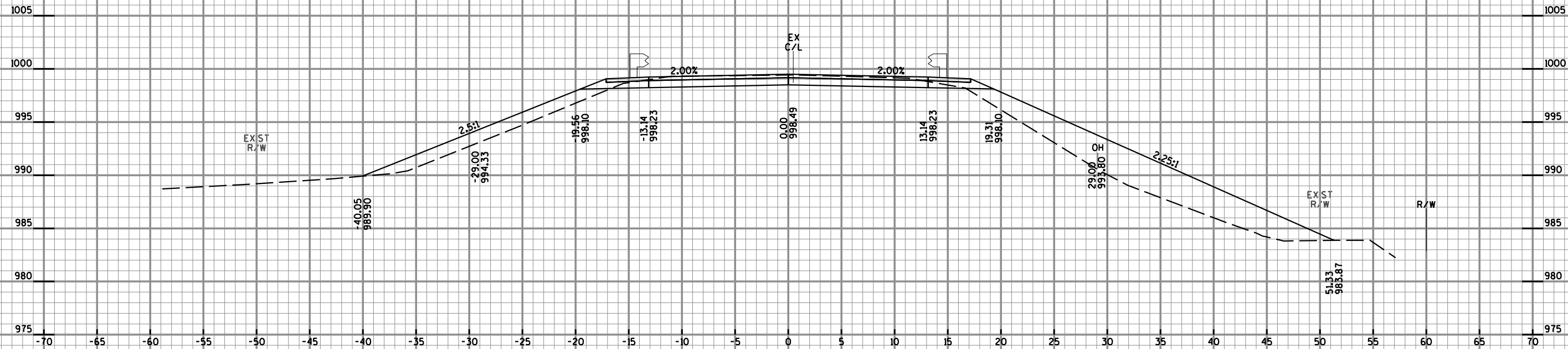


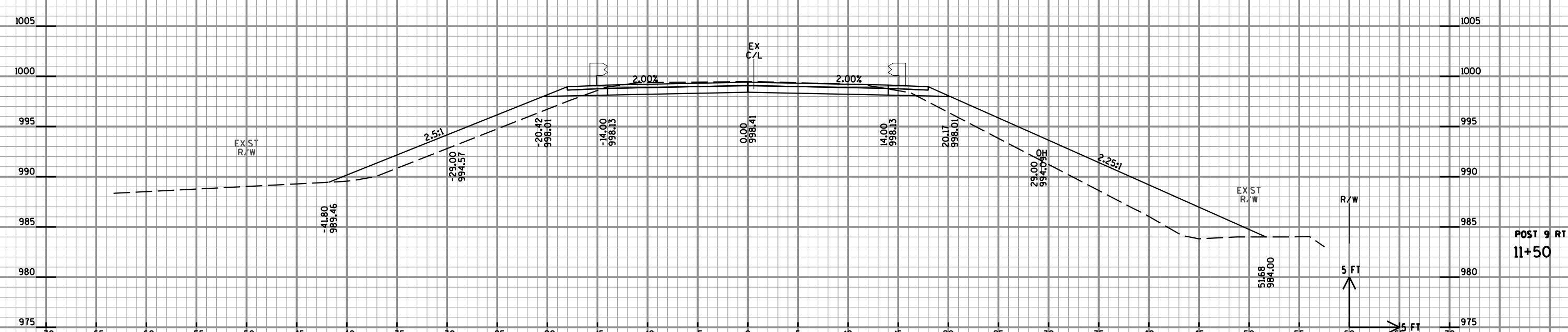
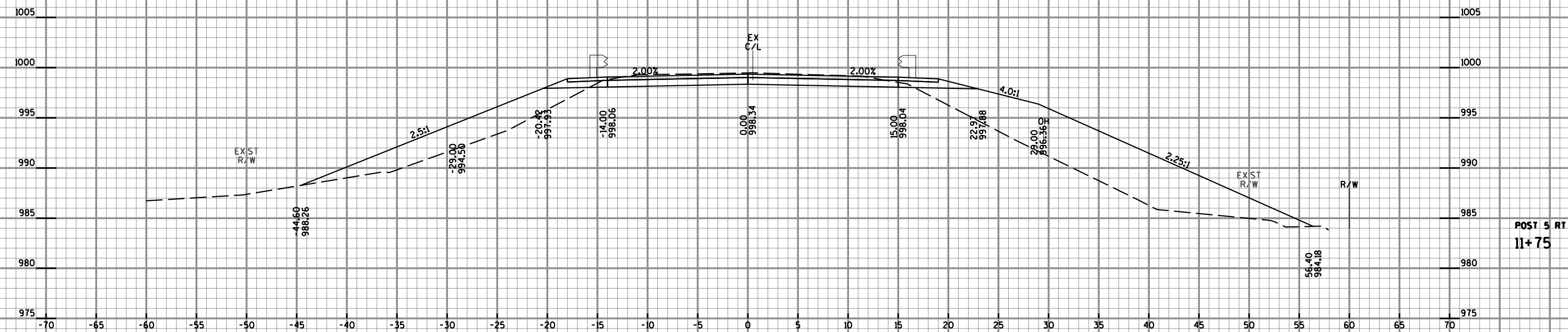


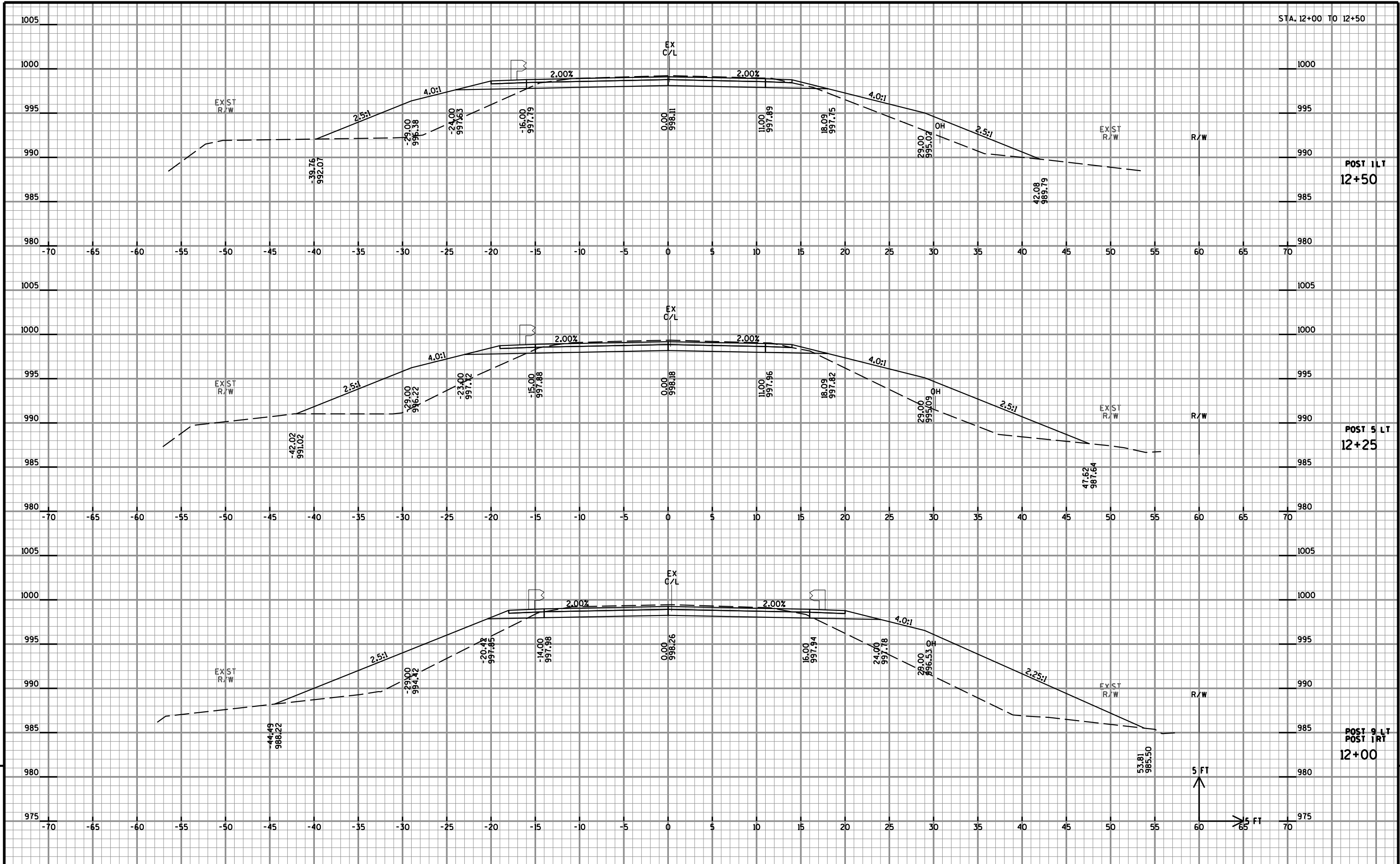
10+75

REHABILITATION STRUCTURE B-18-0005

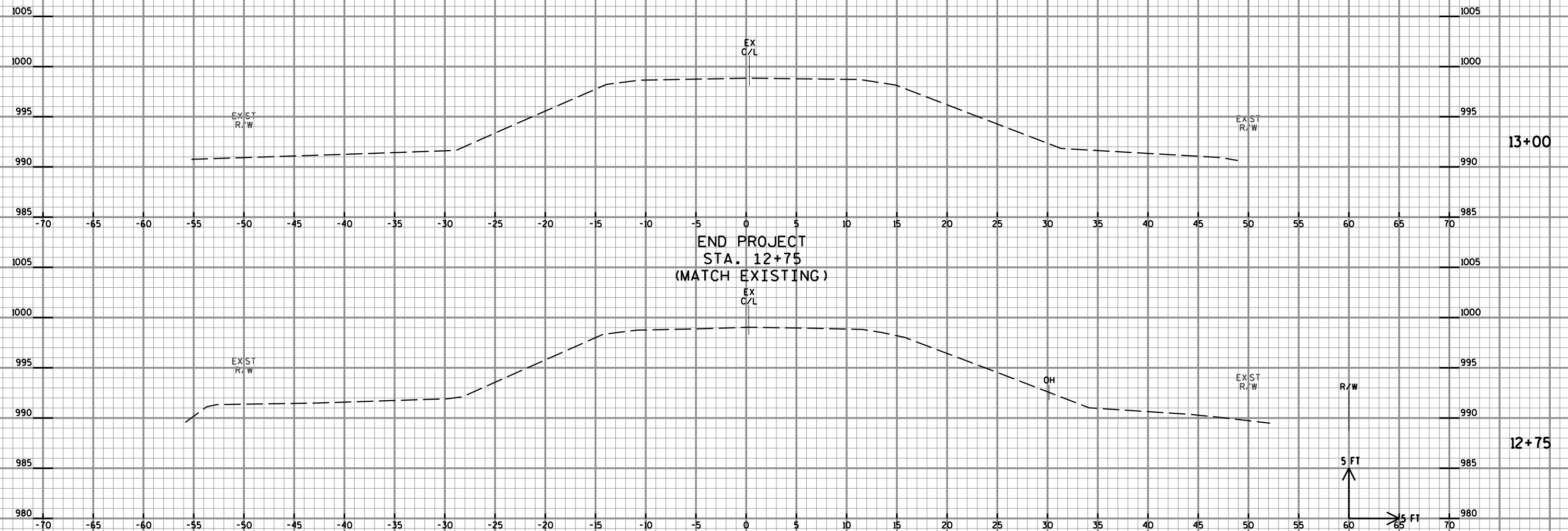








STA. 12+75 TO 13+00



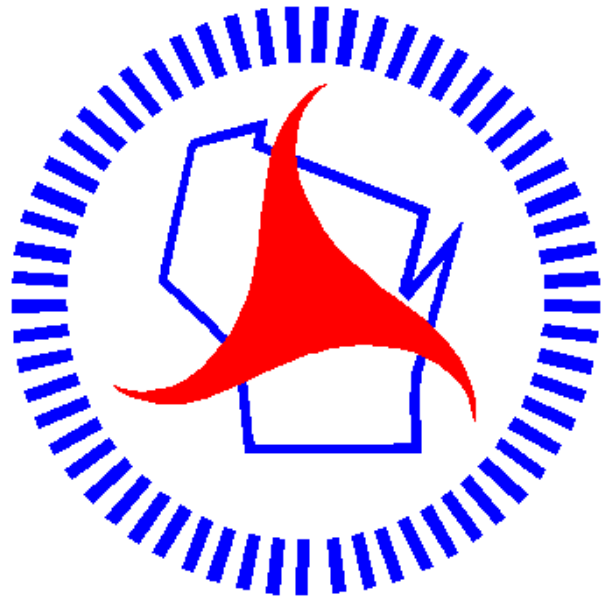
PROJECT NO: 7831-03-72

HWY: CTH H

COUNTY: EAU CLAIRE

CROSS SECTIONS

SHEET



Wisconsin Department of Transportation

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through innovation and exceptional service.

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