

PROJECT ID: 3943-00-70
WITH: N/A

COUNTY: DODGE

ORDER OF SHEETS

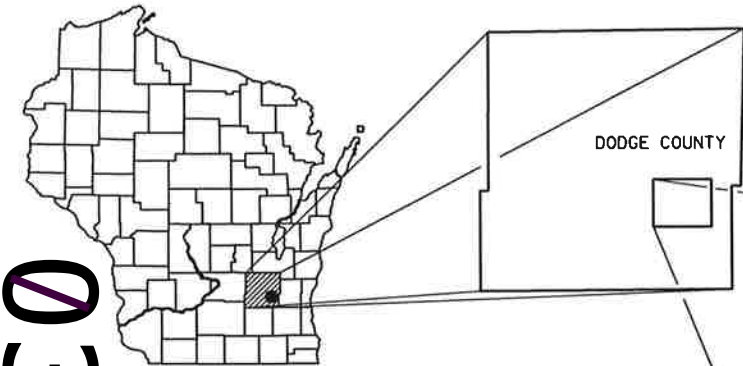
Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile (Includes Erosion Control)
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section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

TOTAL SHEETS = 64

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
RUBICON - HUSTISFORD
(RUBICON RIVER BRIDGE B-14-0215)
CTH EE
DODGE COUNTY

STATE PROJECT NUMBER
3943-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3943-00-70		



DESIGN DESIGNATION

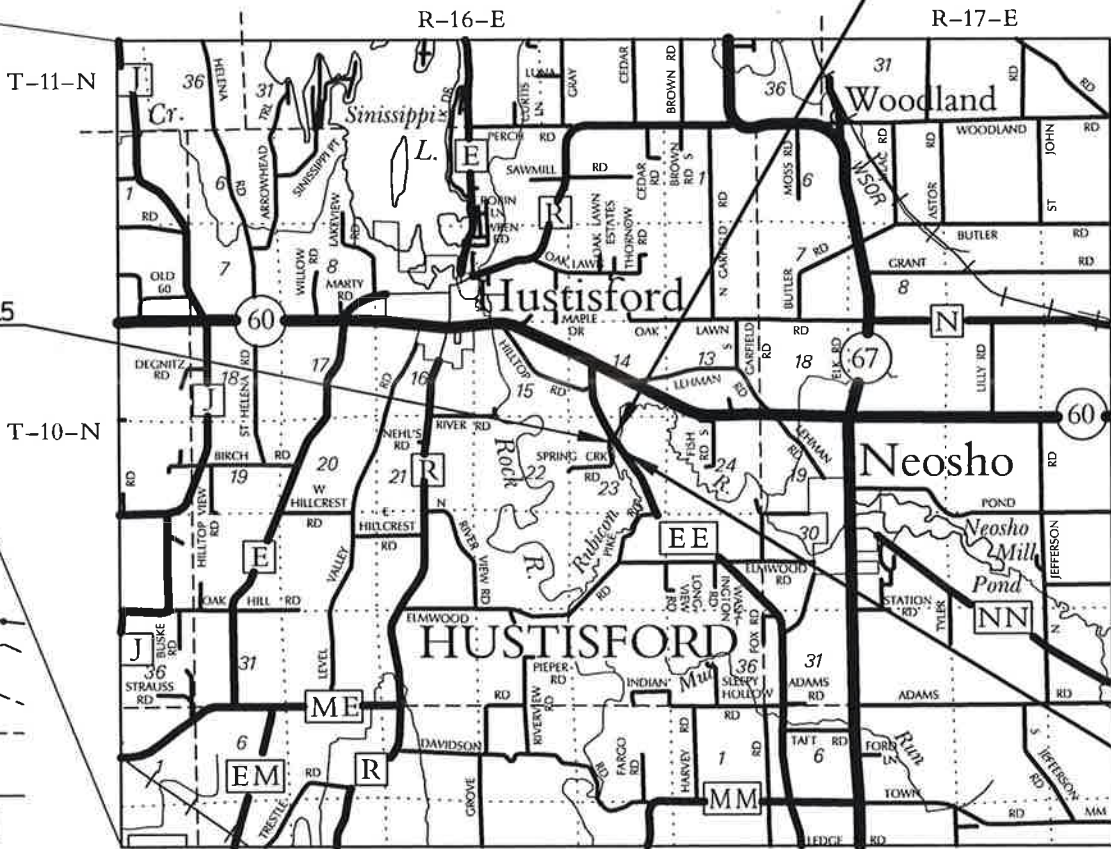
A.A.D.T. (2019)	= 1205
A.A.D.T. (2039)	= 1430
D.H.V.	= 3.1
D.D.	= 60/40
T.	= 3.7%
DESIGN SPEED	= 50 mph
ESALS	= N/A

CONVENTIONAL SYMBOLS

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

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

STRUCTURE B-14-0215



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.066 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DODGE COUNTY, HORIZONTAL DATUM NAD83 (2011).

END PROJECT 3943-00-70

STA. 11+50.00
Y = 674,712.838
X = 919,305.591

BEGIN PROJECT 3943-00-70

STA. 8+00.00
Y = 674,426.186
X = 919,506.416

ACCEPTED FOR
County of Dodge
7-12-2013
(Date)
County Highway Commissioner

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
MATTHEW R. BARR
E-26188
MADISON
WI
7/10/18
(Date)
(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: AYRES ASSOCIATES
Designer: AYRES ASSOCIATES
Management Consultant: KL Engineers, Inc.

APPROVED FOR THE DEPARTMENT
DATE: 7/24/18
Jeff Melville
(Management Consultant Signature)

GENERAL NOTES

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

NO TREES ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

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

WETLANDS ARE PRESENT AT THE LOCATIONS SHOWN IN THE PLANS. DO NOT OPERATE MACHINERY OUTSIDE OF THE SLOPE INTERCEPTS IN THESE LOCATIONS.

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 CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DODGE COUNTY, HORIZONTAL DATUM NAD83 (2011).

HMA LAYERS:
- UPPER: 1 3/4" (4LT58-285)
- LOWER: 2 1/4" (3LT58-285)

STANDARD ABBREVIATIONS

A.	ANNUAL	P.C.	POINT OF CURVATURE
A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC	P.I.	POINT OF INTERSECTION
AC.	ACRES	P.K.	PARKER-KALON
B.M.	BENCH MARK	P.L.	PROPERTY LINE
CL	CENTERLINE	P.P.	POWER POLE
CONC.	CONCRETE	P.T.	POINT OF TANGENCY
COR.	CORNER	R	RADIUS
CULV.	CULVERT	RL	REFERENCE LINE
D.H.V.	DESIGN HOURLY VOLUME	RT.	RIGHT
EL.	ELEVATION	SEC.	SECTION
H.	HOUSE	STA.	STATION
I.P.	IRON PIPE	TYP.	TYPICAL
LT.	LEFT	X	EAST COORDINATE
MON.	MONUMENT	Y	NORTH COORDINATE

CONTACTS

DODGE COUNTY PUBLIC WORKS

PETE THOMPSON
ASST. COMMISSIONER
HIGHWAY DEPT.
211E. CENTER STREET
JUNEAU, WI 53039-1309
P: (920) 386-3650
F: (920) 386-3525
E: PTHOMPSON@CO.DODGE.WI.US

TOWN OF HUSTISFORD

LEE MILLER - CHAIRMAN
N3906 COUNTY ROAD EE
NEOSHO, WI 53059
P: (920) 349-8425
C: (920) 349-3029
E: GHERR@FRONTIER.COM

DESIGNER

MATT BARR
AYRES ASSOCIATES
5201 EAST TERRACE DRIVE, SUITE 200
MADISON, WI 53718
P: (608) 443-1261
E: BARRM@AYRESASSOCIATES.COM

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

ERIC HEGGELUND
DNR SOUTH CENTRAL REGION HQ
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
P: (608) 275-3301
E: ERIC.HEGGELUND@WISCONSIN.GOV

UTILITIES

FRONTIER COMMUNICATION
DANA GILLET
100 COMMUNICATIONS DRIVE
SUN PRAIRIE, WI 53590
P: (608) 837-1605
C: (608) 512-2389
F: (608) 837-1741
E: DANA.GILLET@FTR.COM

HUSTISFORD UTILITIES
TODD TESSMAN
201 SOUTH LAKE STREET
P.O. BOX 345
HUSTISFORD, WI 53034
P: (920) 349-3650
E: TTESSMAN@HUSTISFORD.COM

CHARTER COMMUNICATIONS
RON FRASE
N3760 COUNTY RD DJ
JUNEAU, WI 53039
P: (920) 349-3202 X103
C: (608) 438-9648
E: RONALD.FRASE@CHARTER.COM

AMERICAN TRANSMISSION COMPANY
CHRIS DAILEY
P.O. BOX 47
WAUKESHA, WI 53187-0047
P: (262) 506-6884
E: CDAILEY@ATCLLC.COM

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



Dial 811 or (800) 242-8511

www.DiggersHotline.com

PROJECT NO: 3943-00-70

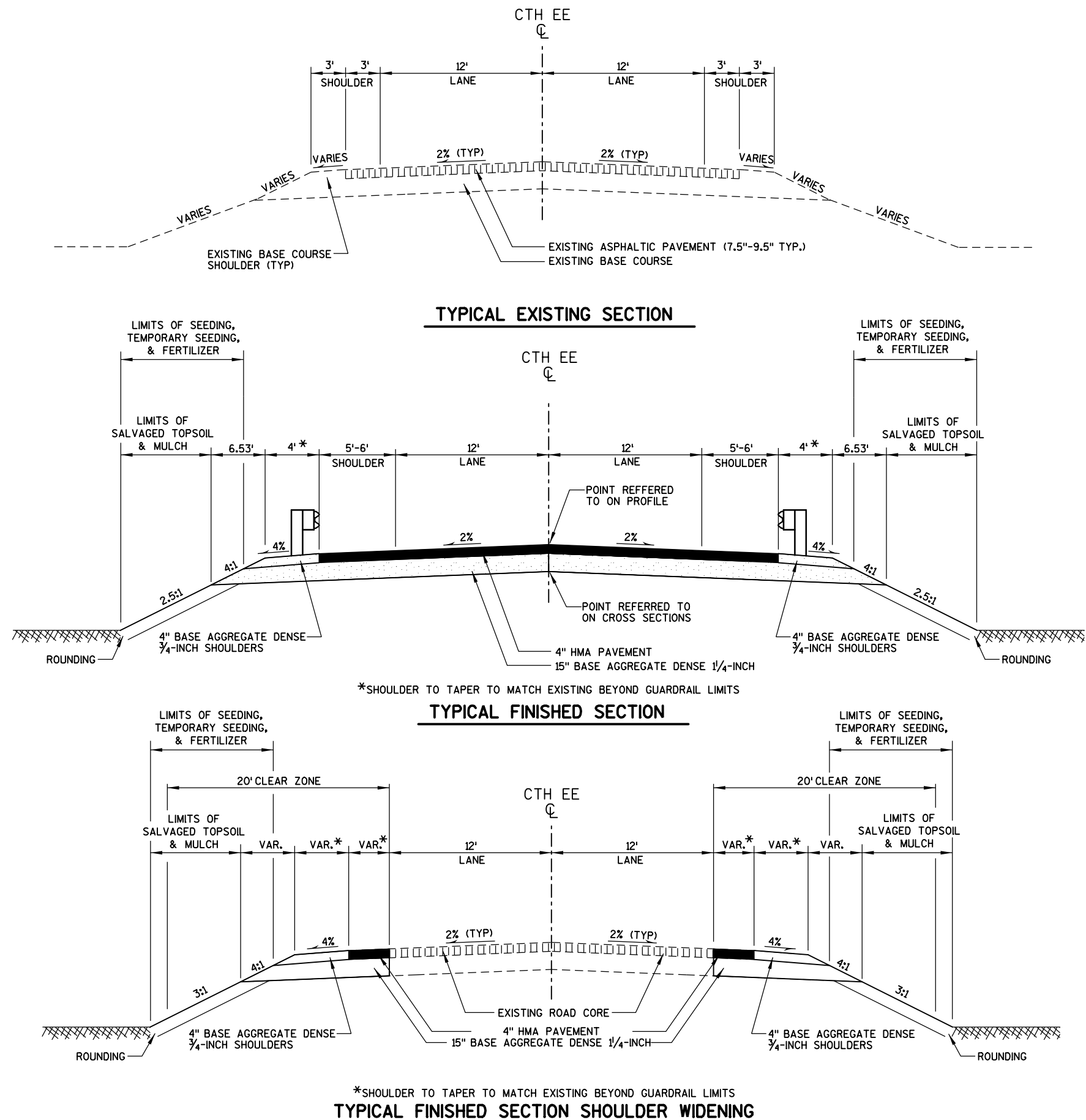
HWY: CTH EE

COUNTY: DODGE

TYPICAL SECTION

SHEET

E



Estimate Of Quantities

3943-00-70					
Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	4.000	4.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0008	205.0100	Excavation Common **P**	CY	718.000	718.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-14-0215	LS	1.000	1.000
0012	208.0100	Borrow	CY	610.000	610.000
0014	210.1500	Backfill Structure Type A	TON	580.000	580.000
0016	213.0100	Finishing Roadway (project) 01. 3943-00-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	100.000	100.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,595.000	1,595.000
0022	455.0605	Tack Coat	GAL	86.000	86.000
0024	460.2000	Incentive Density HMA Pavement	DOL	180.000	180.000
0026	460.5223	HMA Pavement 3 LT 58-28 S	TON	155.000	155.000
0028	460.5224	HMA Pavement 4 LT 58-28 S	TON	121.000	121.000
0030	502.0100	Concrete Masonry Bridges	CY	193.000	193.000
0032	502.3200	Protective Surface Treatment	SY	300.000	300.000
0034	502.3210	Pigmented Surface Sealer	SY	70.000	70.000
0036	503.0137	Prestressed Girder Type I 36W-Inch	LF	308.000	308.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	5,460.000	5,460.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	24,380.000	24,380.000
0042	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0044	506.4000	Steel Diaphragms (structure) 01. B-14-0215	EACH	3.000	3.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0048	550.0500	Pile Points	EACH	18.000	18.000
0050	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	540.000	540.000
0052	606.0300	Riprap Heavy	CY	380.000	380.000
0054	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	160.000	160.000
0056	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0058	614.0920	Salvaged Rail	LF	230.000	230.000
0060	614.2300	MGS Guardrail 3	LF	125.000	125.000
0062	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0064	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0066	618.0100	Maintenance And Repair of Haul Roads (project) 01. 3943-00-70	EACH	1.000	1.000
0068	619.1000	Mobilization	EACH	1.000	1.000
0070	624.0100	Water	MGAL	60.000	60.000
0072	625.0500	Salvaged Topsoil **P**	SY	1,730.000	1,730.000
0074	628.1504	Silt Fence	LF	970.000	970.000

Estimate Of Quantities

3943-00-70

Line	Item	Item Description	Unit	Total	Qty
0076	628.1520	Silt Fence Maintenance	LF	1,940.000	1,940.000
0078	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0080	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0082	628.2008	Erosion Mat Urban Class I Type B	SY	2,470.000	2,470.000
0084	628.6005	Turbidity Barriers	SY	295.000	295.000
0086	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0088	629.0210	Fertilizer Type B **P**	CWT	2.700	2.700
0090	630.0120	Seeding Mixture No. 20 **P**	LB	58.000	58.000
0092	630.0200	Seeding Temporary **P**	LB	58.000	58.000
0094	630.0300	Seeding Borrow Pit	LB	6.000	6.000
0096	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0098	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0100	638.2602	Removing Signs Type II	EACH	4.000	4.000
0102	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0104	642.5001	Field Office Type B	EACH	1.000	1.000
0106	643.0420	Traffic Control Barricades Type III	DAY	1,260.000	1,260.000
0108	643.0705	Traffic Control Warning Lights Type A	DAY	1,960.000	1,960.000
0110	643.0900	Traffic Control Signs	DAY	980.000	980.000
0112	643.5000	Traffic Control	EACH	1.000	1.000
0114	645.0111	Geotextile Type DF Schedule A	SY	110.000	110.000
0116	645.0120	Geotextile Type HR	SY	630.000	630.000
0118	646.1020	Marking Line Epoxy 4-Inch	LF	1,355.000	1,355.000
0120	650.4500	Construction Staking Subgrade	LF	375.000	375.000
0122	650.5000	Construction Staking Base	LF	375.000	375.000
0124	650.6500	Construction Staking Structure Layout (structure) 01. B-14-0215	LS	1.000	1.000
0126	650.9910	Construction Staking Supplemental Control (project) 01. 3943-00-70	LS	1.000	1.000
0128	650.9920	Construction Staking Slope Stakes	LF	375.000	375.000
0130	690.0150	Sawing Asphalt	LF	210.000	210.000
0132	715.0502	Incentive Strength Concrete Structures	DOL	1,158.000	1,158.000

CTH EE EARTHWORK SUMMARY

From/To Station	Location	Common Excavation**	Unexpanded Fill	Expanded Fill	Mass Ordinate +/-	Waste	Borrow	Comment:
		(1)		(2)				
		(item # 205.0100)		Factor				
		Cut		1.30			(item #208.0100)	
7+75 - 12+25	CTH EE	718	1021	1328	-610		610	

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

CLEARING AND GRUBBING

STATION	TO STATION	LOCATION	CLEARING	GRUBBING
			201.0105 STA	201.0205 STA
7+75	9+75	LT & RT	2	2
10+25	12+25	LT	2	2
TOTALS			4	4

MAINTENANCE AND REPAIR
OF HAUL ROADS
ID 3943-00-70

618.0100.01	
CATEGORY	EACH
0030	1

TOTAL 1

WATER

624.0100	
PURPOSE	WATER MGAL
COMPACTION	26.0
DUST CONTROL	34.0
TOTAL	60.0

PAVING AND BASE QUANTITIES

FINISHING ROADWAY
(ID 3943-00-70)

213.0100.01	
LOCATION	EACH
MAINLINE	1
TOTAL	1

STA	TO	STA	305.0110	305.0120	455.0605	460.5223	460.5224
			BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	TACK COAT GAL	HMA PAVEMENT 3 LT 58-28 S TON	HMA PAVEMENT 4 LT 58-28 S TON
7+75		9+57	50	805	44	80	62
10+35		12+25	45	715	38	68	53
UNDISTRIBUTED			5	75	4	7	6
TOTALS			100	1,595	86	155	121

GUARDRAIL

STA	TO	STA	LOCATION	614.0920	614.2300	614.2500	614.2610
				SALVAGED RAIL LF	MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
8+14		9+57	LT & RT	115	62.5	78.8	2
10+35		11+78	LT & RT	115	62.5	78.8	2
TOTALS				230	125	157.6	4

OBJECT MARKERS

STATION	LOCATION	634.0612	637.2230	638.2602	638.3000	SIGNAGE TYPE
		POSTS WOOD 4X6-INCH X 12-FT EACH	SIGNS TYPE II REFLECTIVE F SF	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
9+59	LT	1	3	1	1	W5-52L
9+53	RT	1	3	1	1	W5-52R
10+39	LT	1	3	1	1	W5-52R
10+33	RT	1	3	1	1	W5-52L
TOTALS		4	12	4	4	

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

EROSION CONTROL ITEMS

				625.0500	628.1504	628.1520	628.2008	629.0210	630.0120	630.0200	630.0300
				SALVAGED**	SILT FENCE	SILT FENCE	EROSION MAT	FERTILIZER**	SEEDING**	SEEDING**	SEEDING
				TOPSOIL		MAINTENANCE	URBAN	TYPE B	MIXTURE	TEMPORARY	BORROW
							CLASS I TYPE B		NO. 20		PIT
STA	TO	STA	LOCATION	SY	LF	LF	SY	CWT	LB	LB	LB
7+50	--	9+50	RT	445	220	440	590	0.7	15	15	3
8+00	--	9+50	LT	395	165	330	510	0.6	13	13	
10+35	--	12+00	RT	420	195	390	545	0.7	14	14	3
10+35	--	12+25	LT	470	195	390	600	0.7	16	16	
UNDISTRIBUTED				--	195	390	225	--	--	--	1
TOTALS				1,730	970	1,940	2,470	2.7	58	58	6

** PAY PLAN QUANTITY

EROSION CONTROL MOBILIZATION ITEMS

			628.1905	628.1910
			MOBILIZATIONS	MOBILIZATIONS
			EROSION	EMERGENCY
			CONTROL	EROSION
				CONTROL
LOCATION			EACH	EACH
ID 3934-00-70			2	2
TOTALS			2	2

TRAFFIC CONTROL ITEMS

TURBIDITY BARRIERS									
		628.6005			643.0420	643.0705	643.0900	643.5000	
		SY			BARRICADES	WARNING LIGHTS	SIGNS	TRAFFIC	
LOCATION			DURATION		TYPE III	TYPE A		CONTROL	
			LOCATION	DAYS	NO.	DAY	NO.	DAY	EACH
NORTH ABUT		140	PER SDD 15C2		18	1,260	28	1,960	14
SOUTH ABUT		130							980
UNDISTRIBUTED		25	CTH EE		--	--	--	--	1
TOTAL		295	TOTALS		1,260		1,960		980
									1

MARKING LINE EPOXY 4-INCH

					646.1020	
					YELLOW	WHITE
STA	TO	STA	LOCATION	DESCRIPTION	LF	
7+75	-	12+25	LT & RT	EDGE LINE	--	850
8+00	-	11+50	MIDDLE	CENTER LINE	438	--
UNDISTRIBUTED					22	45
SUBTOTALS					460	895
TOTAL					1355	

TEMPORARY DITCH CHECKS

LOCATION	628.7504
	LF
UNDISTRIBUTED	50
TOTAL	50

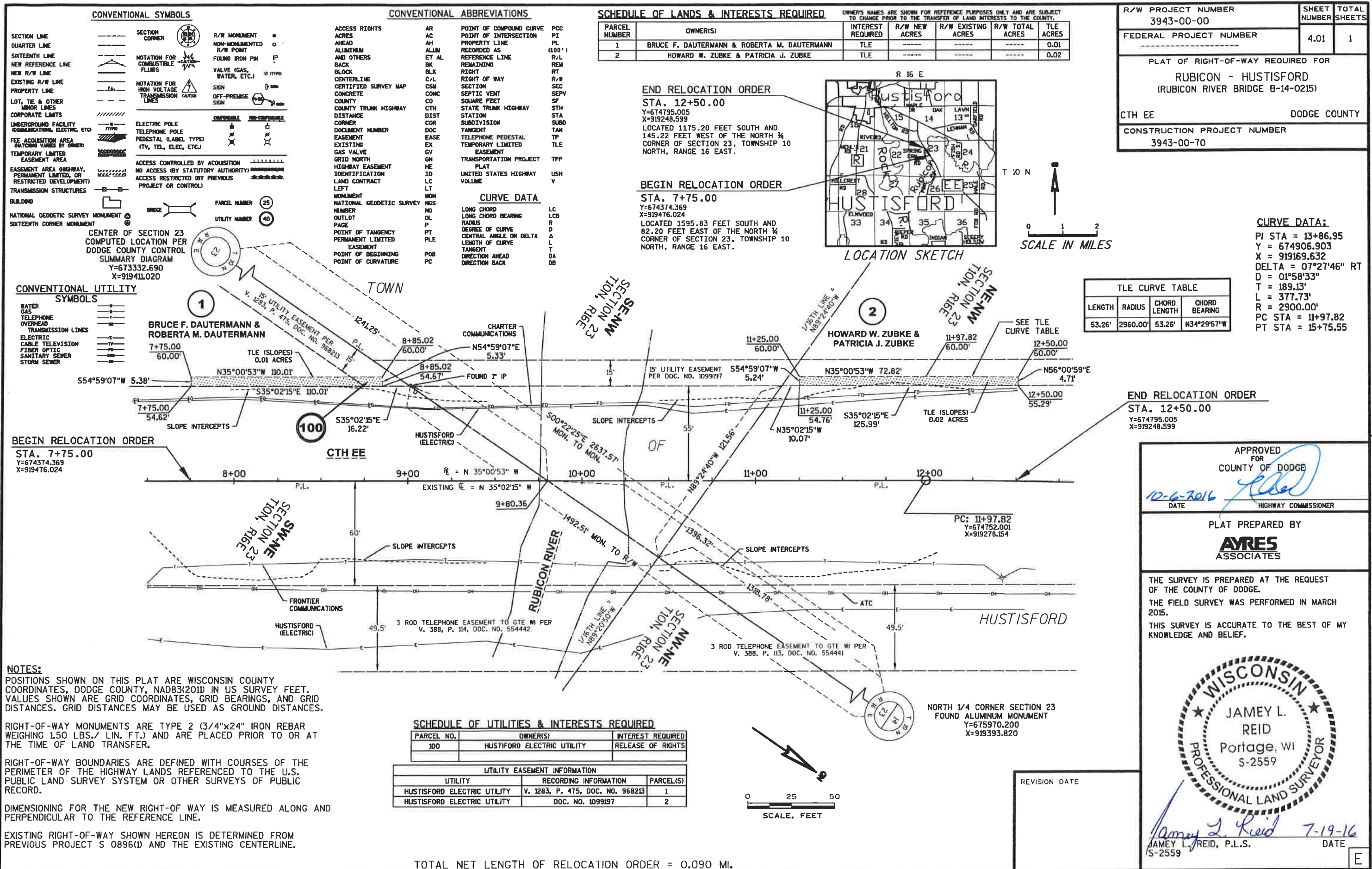
STAKING ITEMS

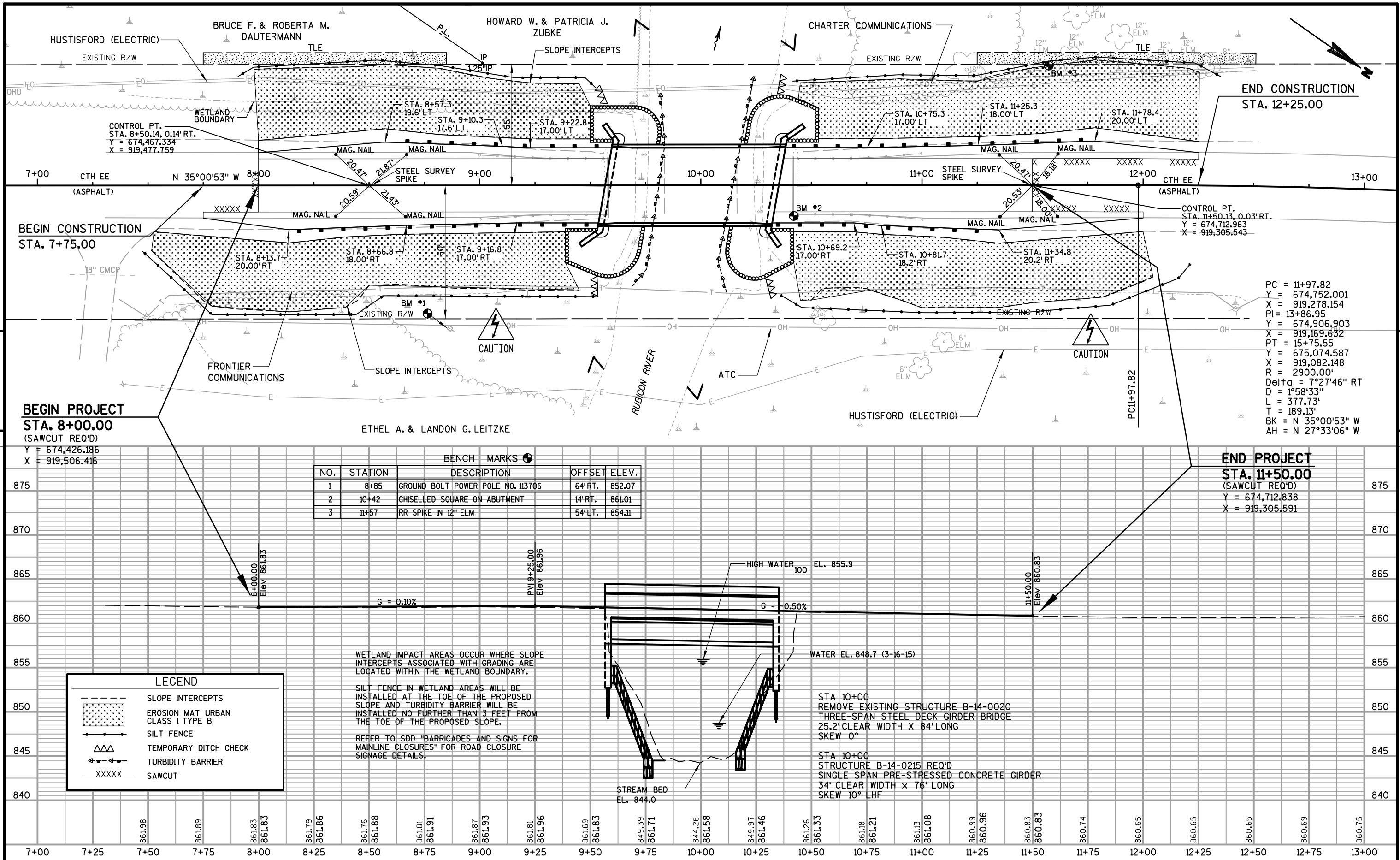
		650.4500	650.5000	650.6500.01	650.9910	650.9920
		CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION STAKING	CONSTRUCTION
		STAKING	STAKING	STAKING	SUPPLEMENTAL CONTROL	STAKING
		SUBGRADE	BASE	STRUCTURE LAYOUT	(3943-00-70)	SLOPE
				(B-14-0215)		STAKES
CATEGORY	LOCATION	LF	LF	LS	LS	LF
0010	7+75 - 12+25	375	375	--	1	375
0020	B-14-0215	--	--	1	--	--
TOTALS		375	375	1	1	375

SAWING ASPHALT

			690.0150
			LF
STATION	LOCATION		
7+75 - 8+00	LT & RT		55
11+50 - 12+25	LT & RT		155
TOTAL			210

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED





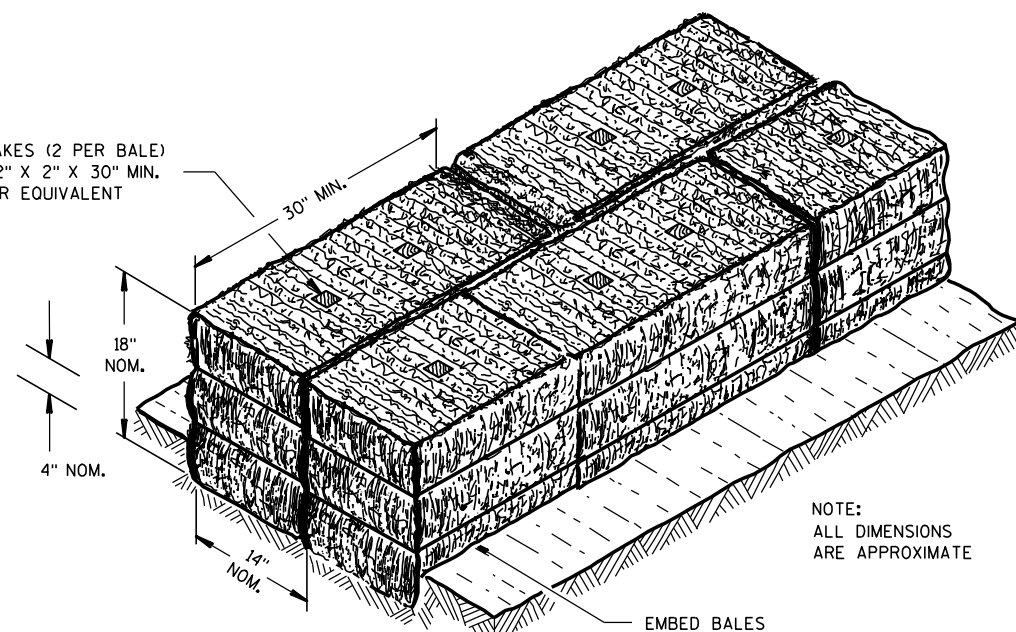
BENCH MARKS				
NO.	STATION	DESCRIPTION	OFFSET	ELEV.
1	8+85	GROUND BOLT POWER POLE NO. 113706	64'RT.	852.07
2	10+42	CHISELLED SQUARE ON ABUTMENT	14'RT.	861.01
3	11+57	RR SPIKE IN 12" ELM	54'LT.	854.11

END PROJECT
STA. 11+50.00
(SAWCUT REQ'D)
Y = 674,712.838
X = 919,305.591

Standard Detail Drawing List

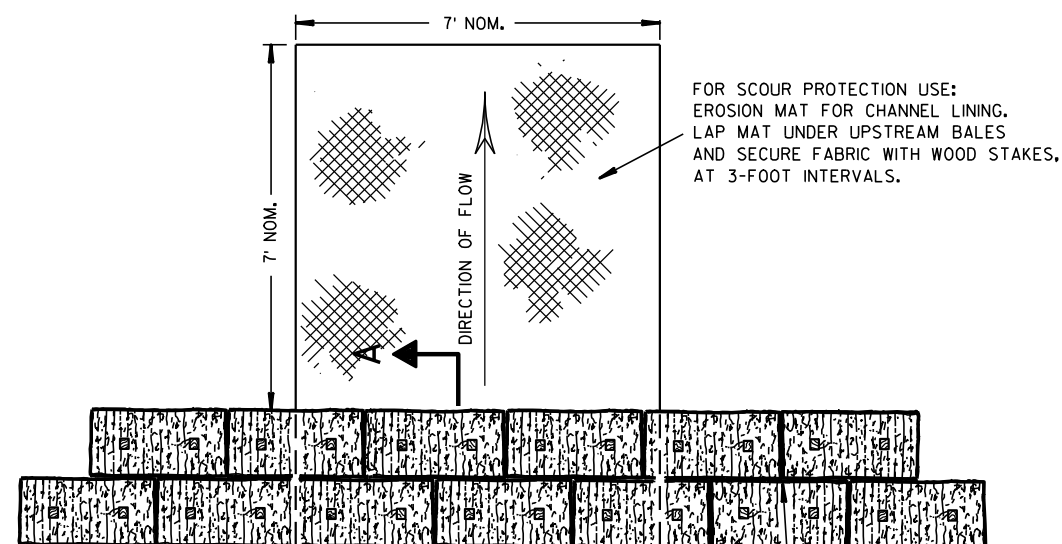
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

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



SECTION A-A

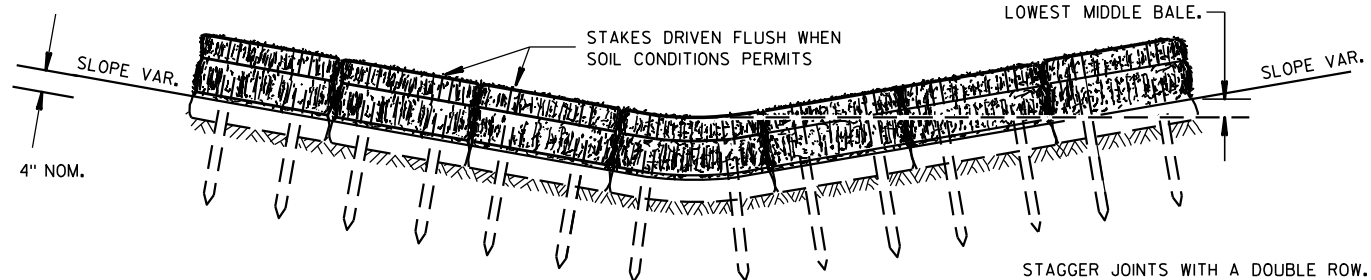
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

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



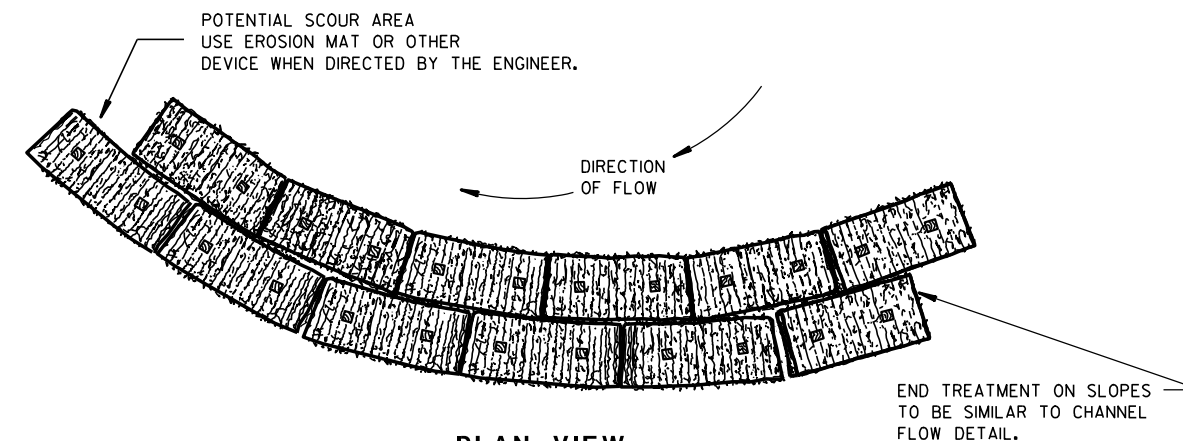
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

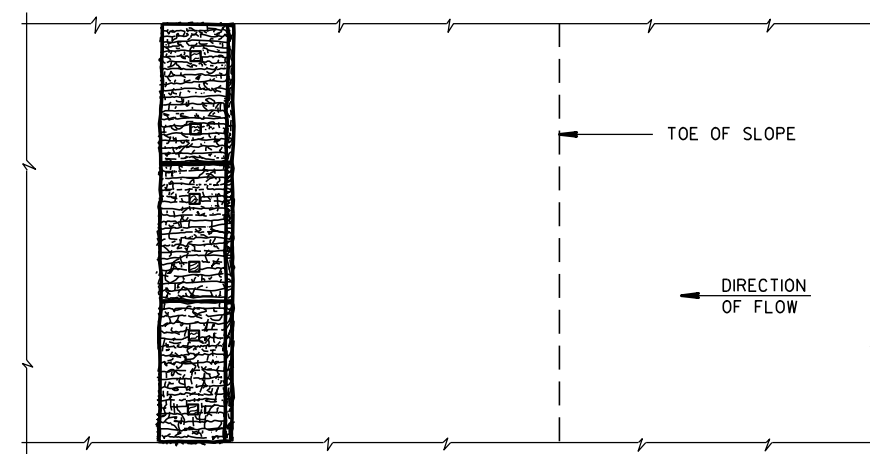
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

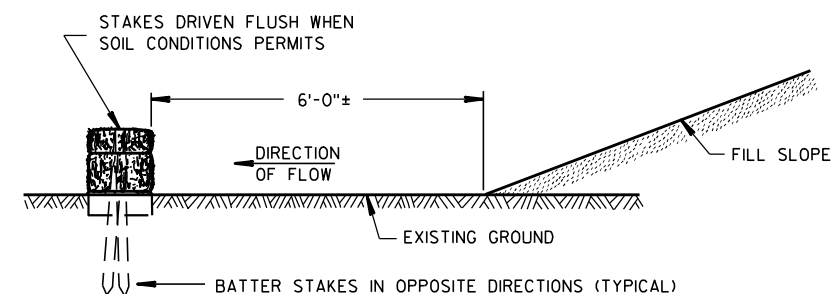


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

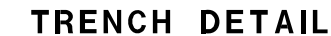
6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

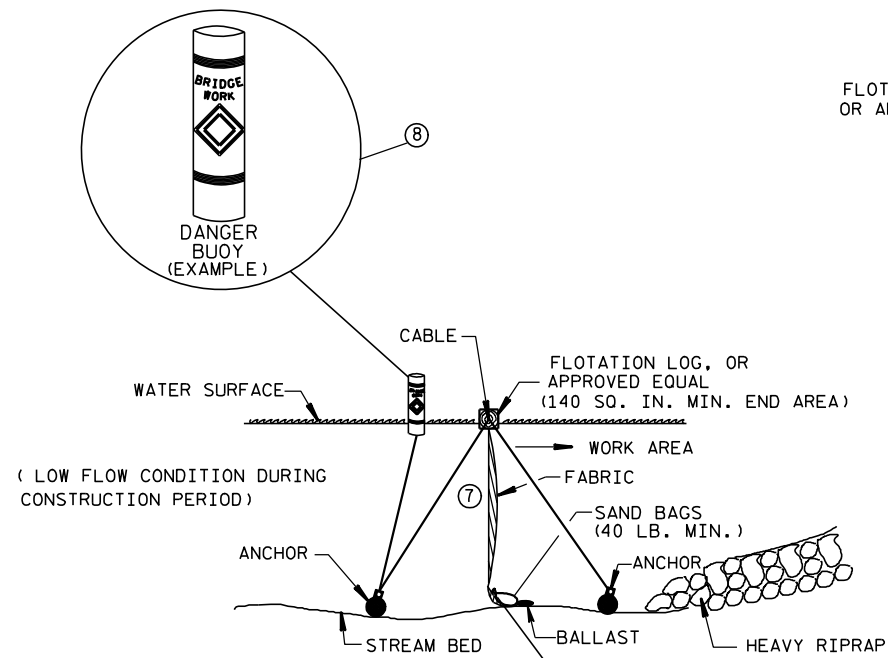
FHWA



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



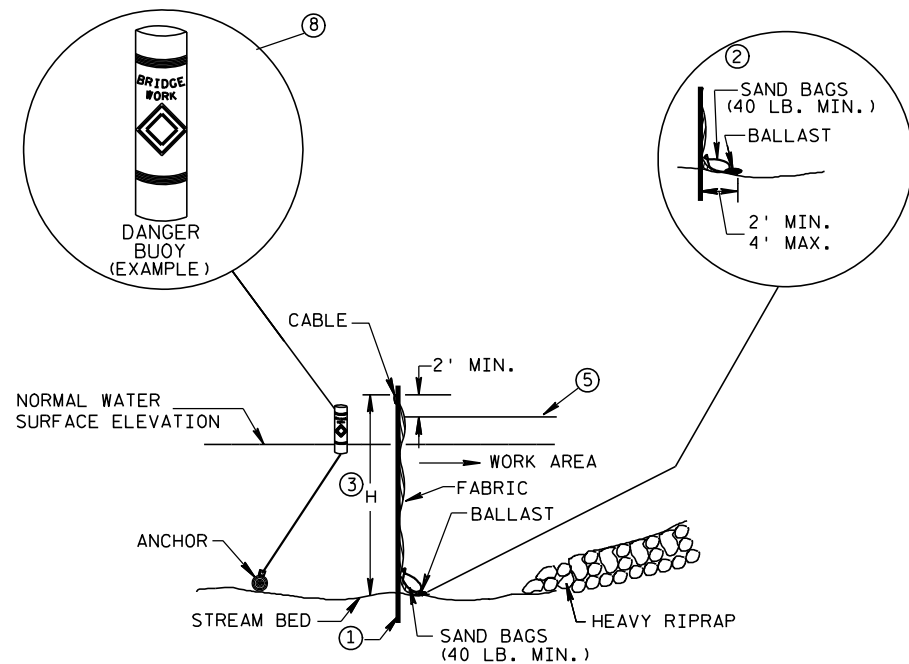
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05	/S/ Beth Cannestra
DATE	CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



SECTION B-B

TURBIDITY BARRIER FLOAT ALTERNATIVE

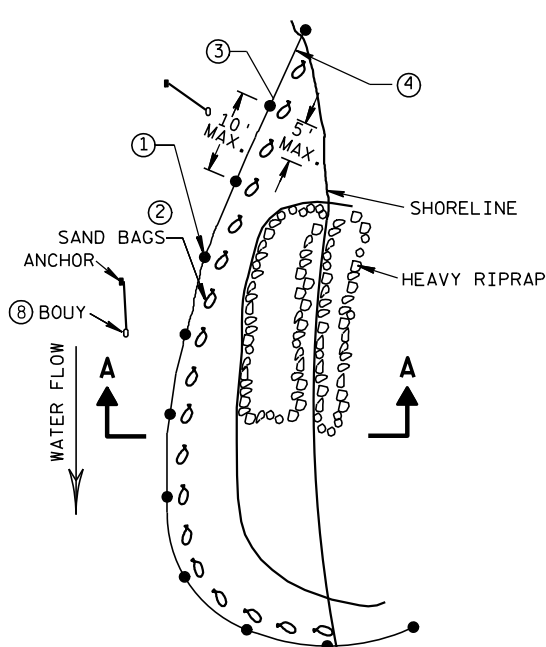
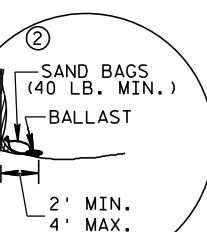
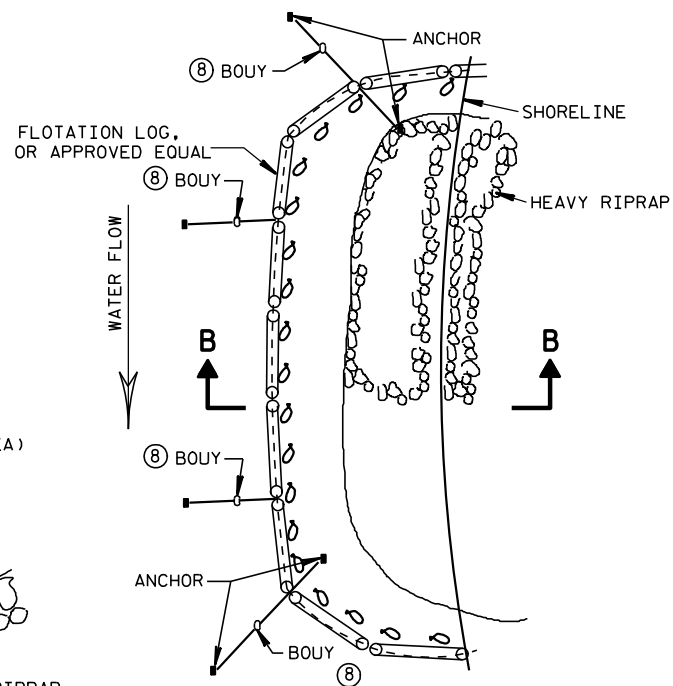
CAUTION - SEE NOTE 6



SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS



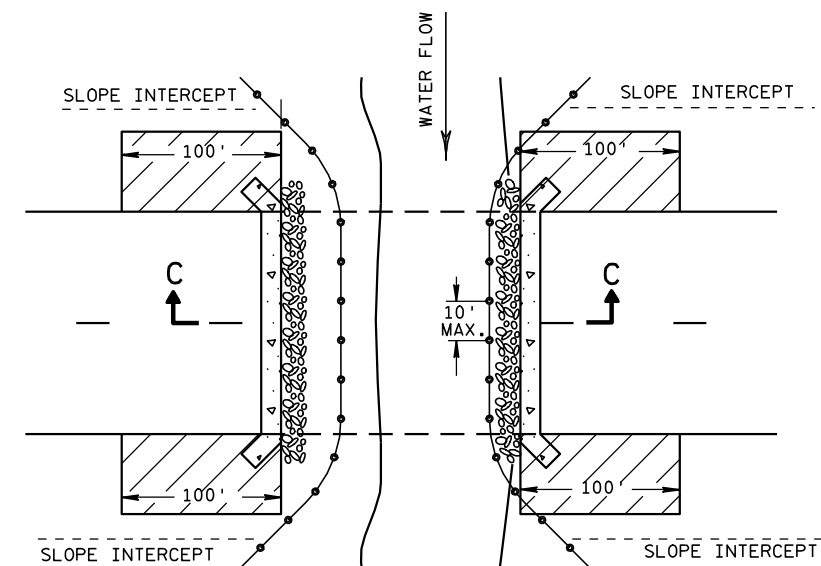
PLAN VIEW

GENERAL NOTES

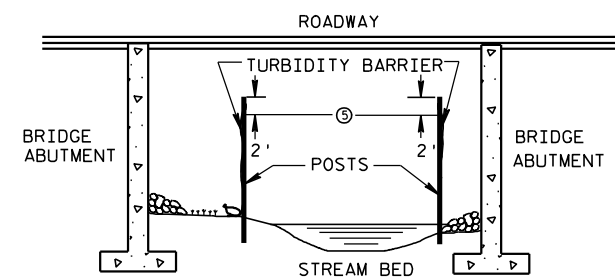
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② 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.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

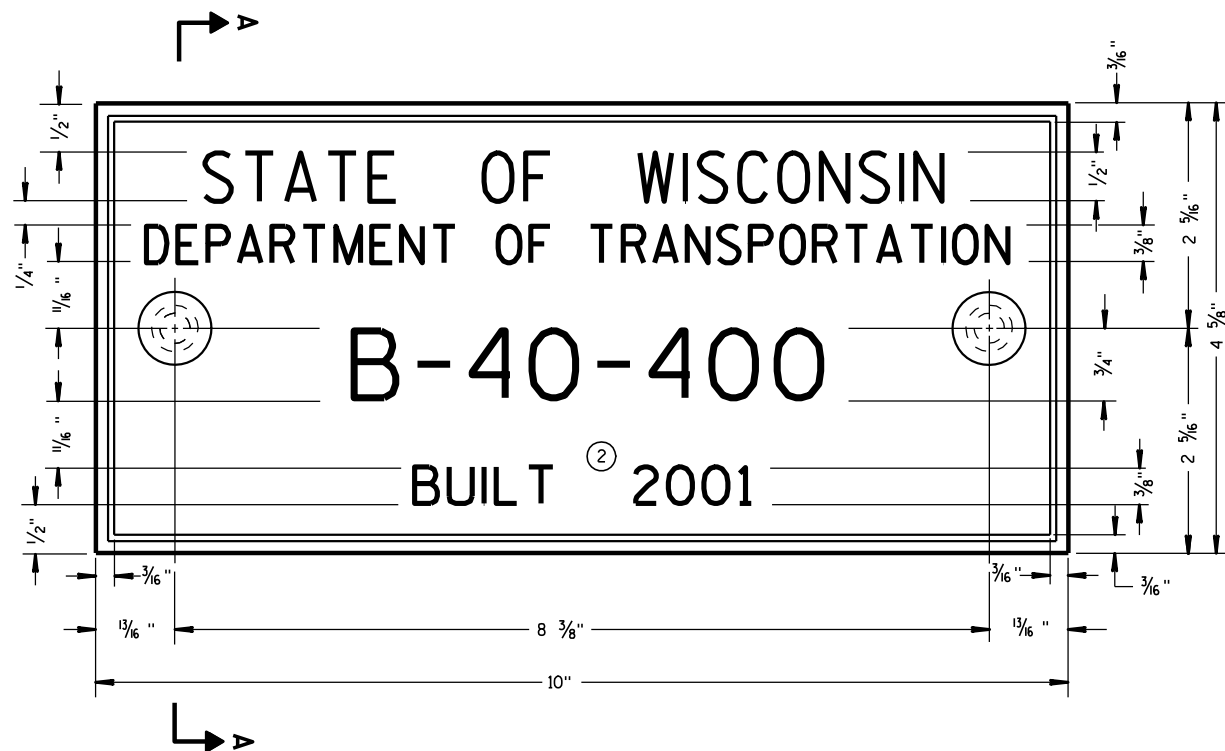
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

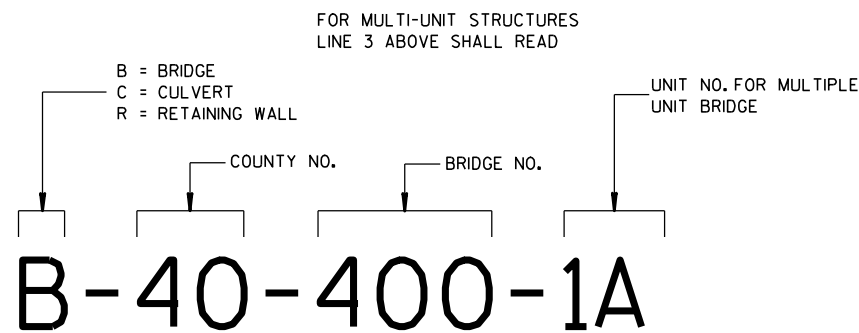
6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



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



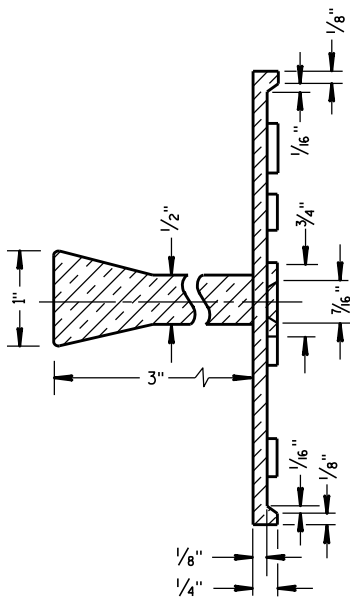
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

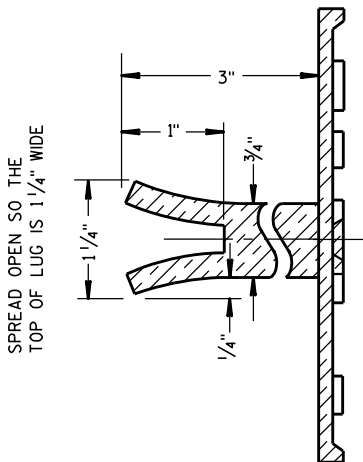
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

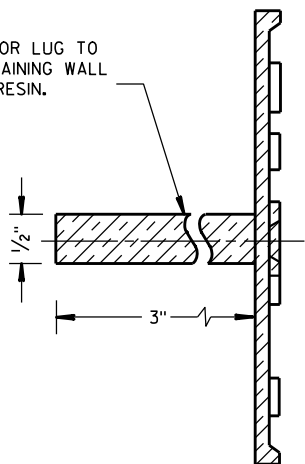


SECTION A-A



ALTERNATE LUG

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



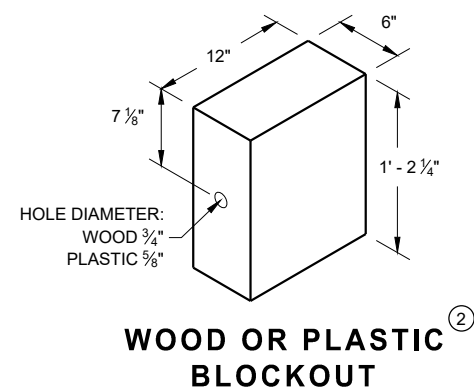
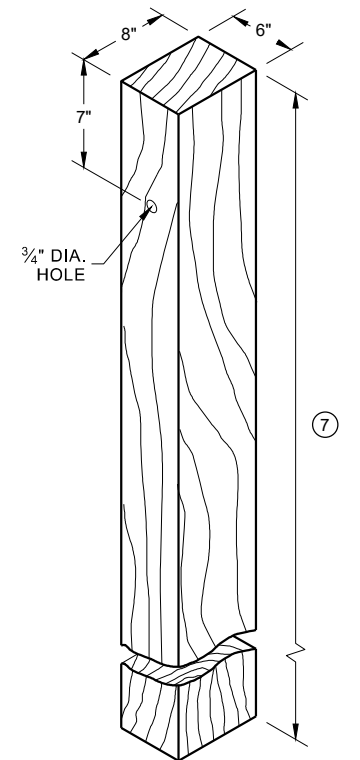
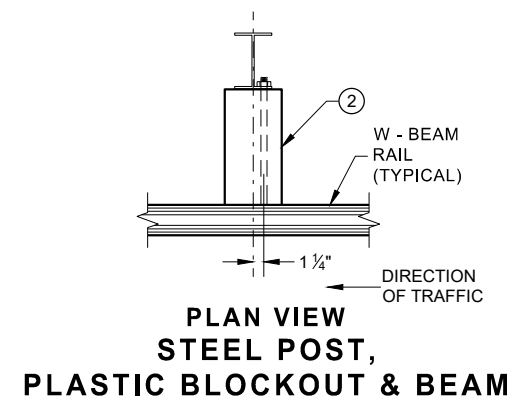
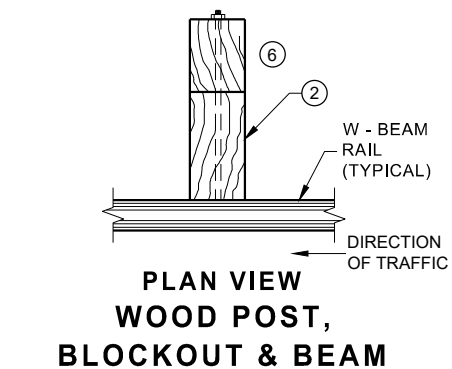
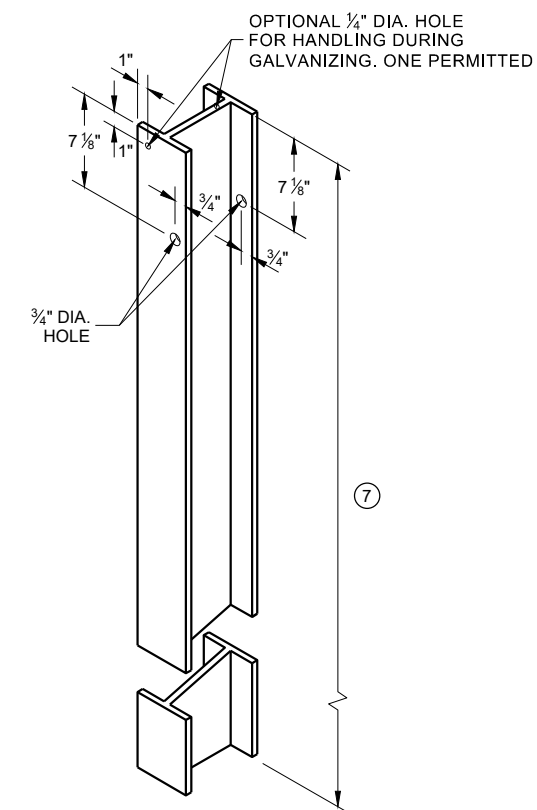
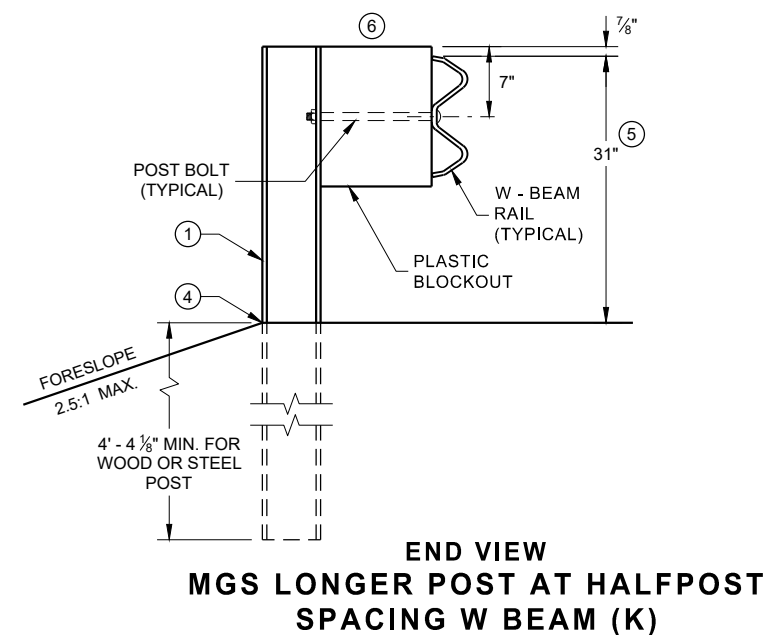
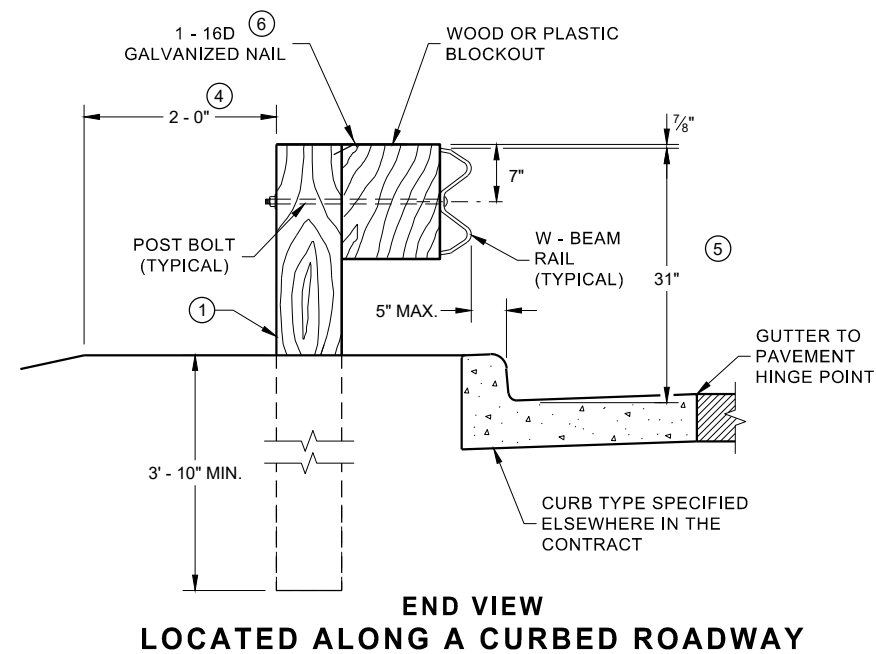
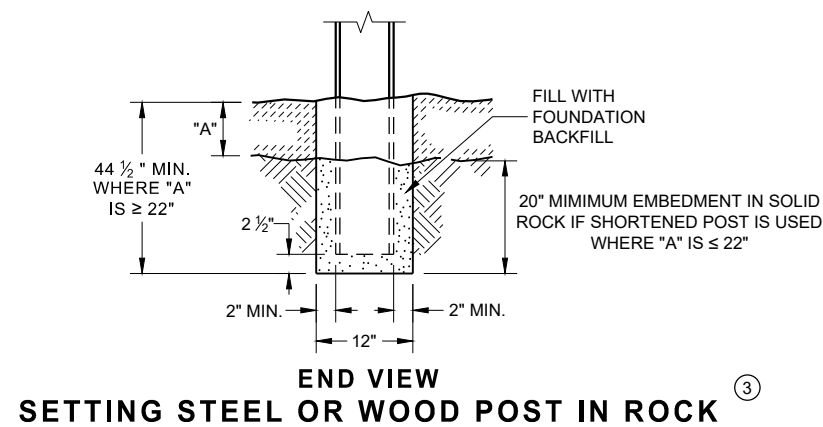
ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

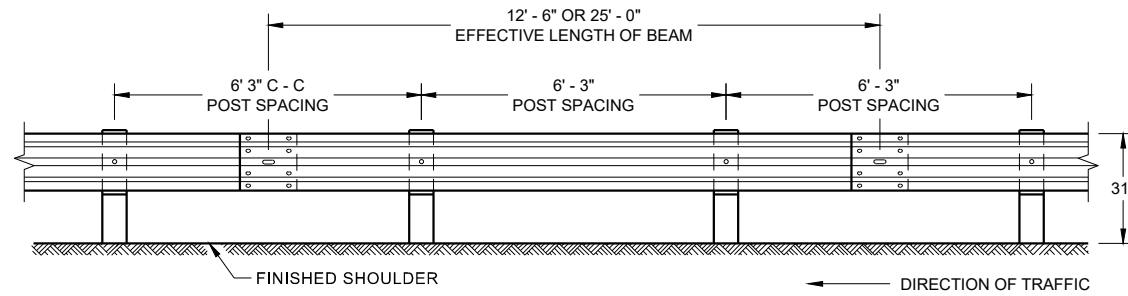
APPROVED
3/26/10
DATE
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA

- 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.
- 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.
- IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- 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.
- TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

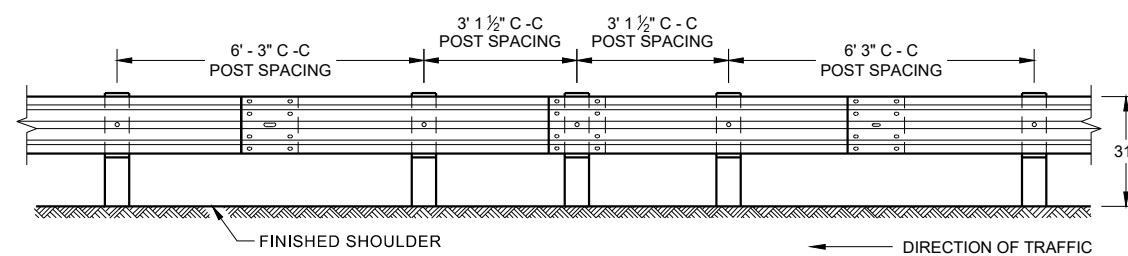


MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

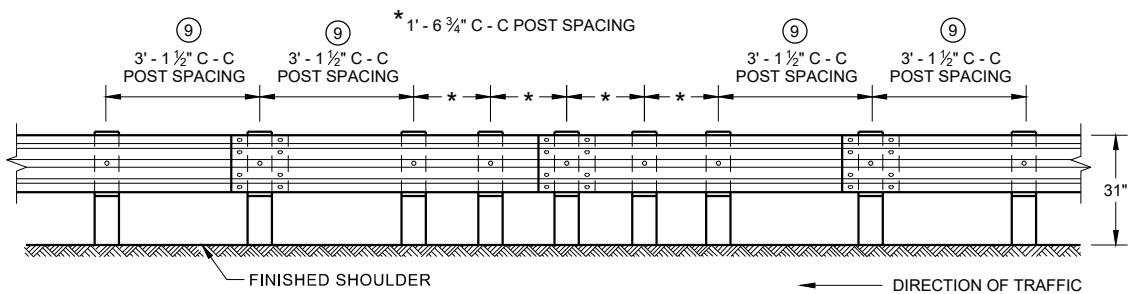
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



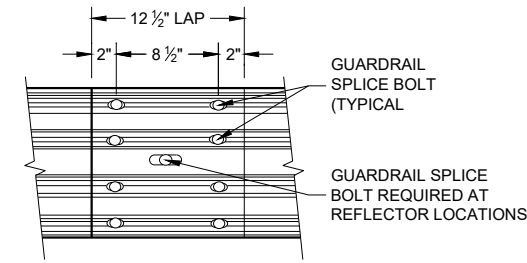
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



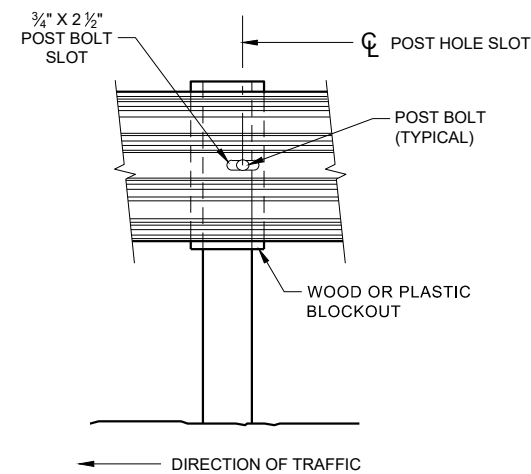
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



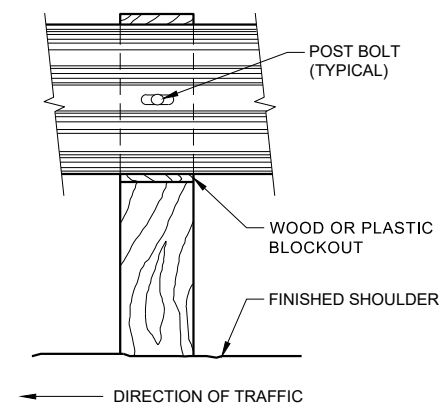
**FRONT VIEW
QUARTER POST SPACING (QS)**



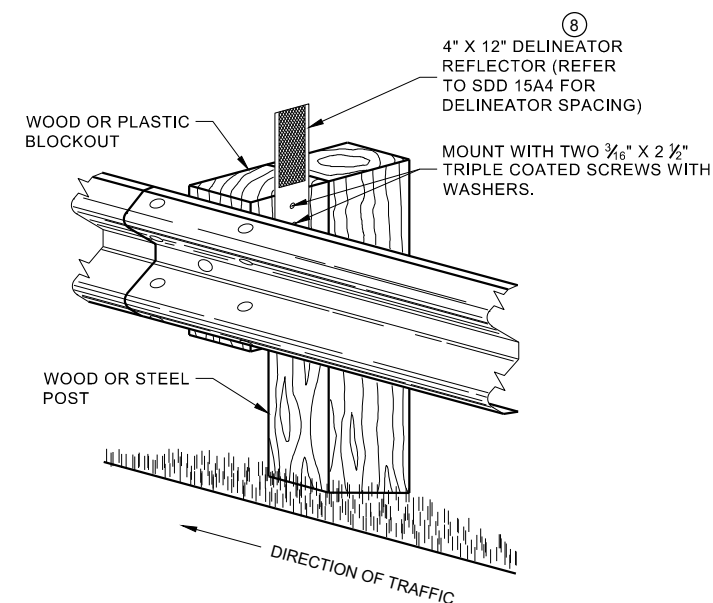
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



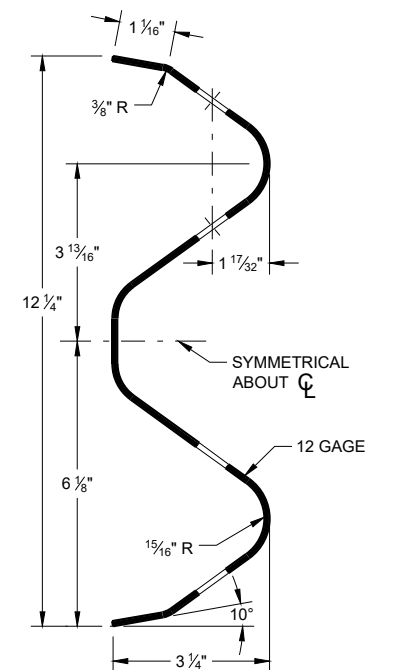
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

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

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

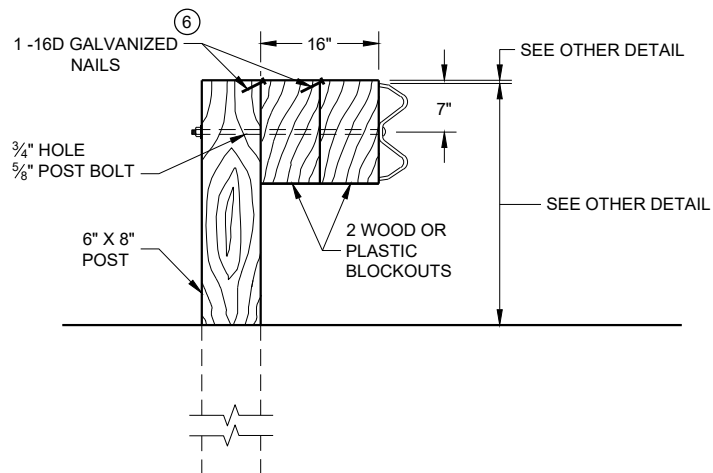
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

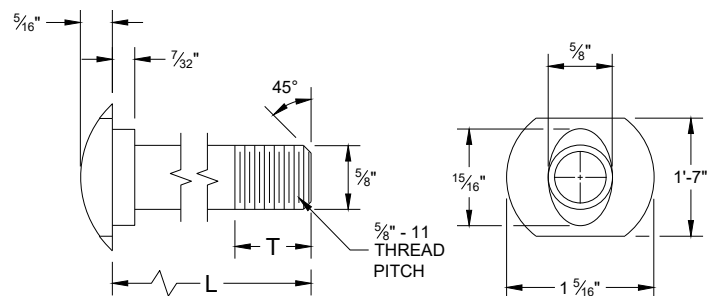
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

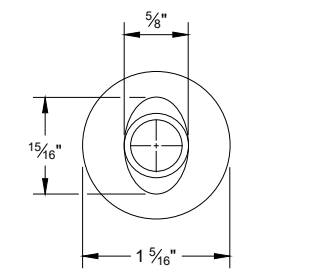
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

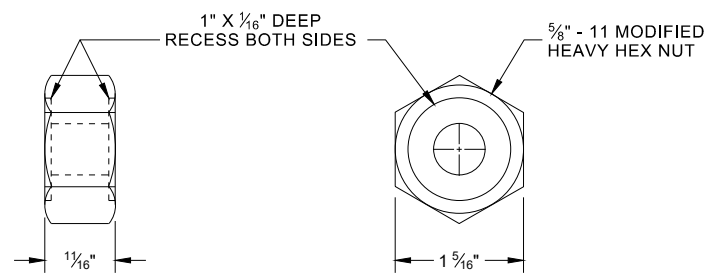


POST BOLT TABLE

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

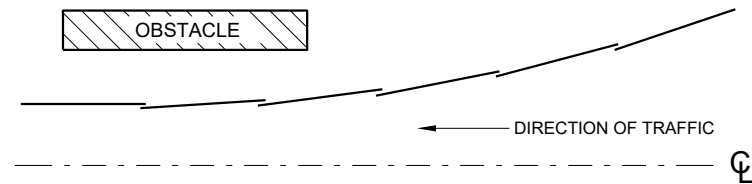


ALTERNATE BOLT HEAD

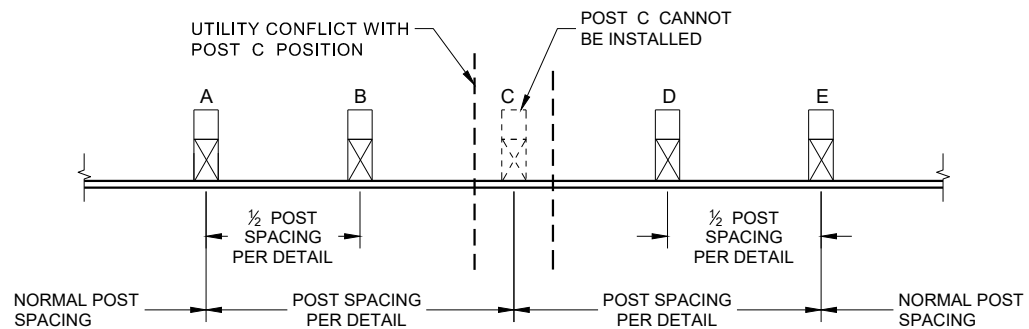


POST BOLT, SPLICE BOLT AND RECESS NUT

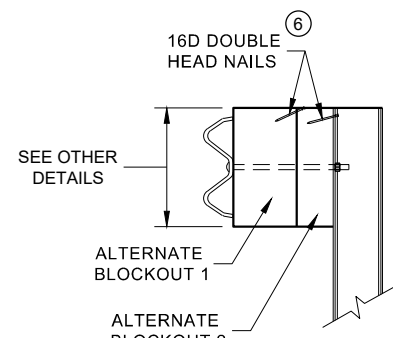
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



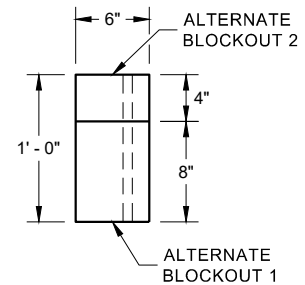
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



PLAN VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

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

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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 MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
 - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
 - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

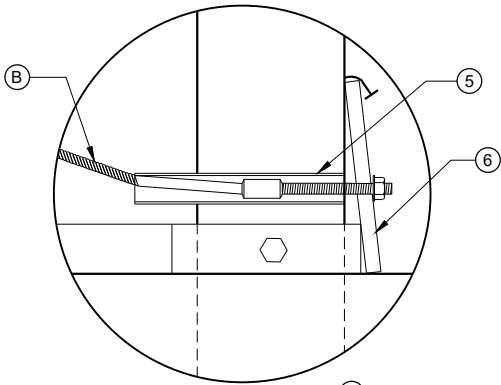
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

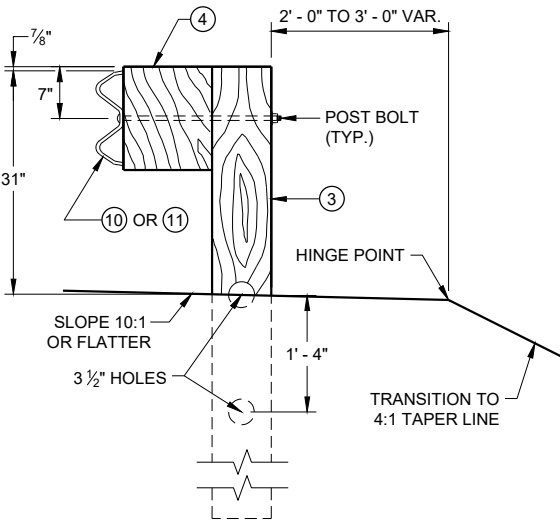
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

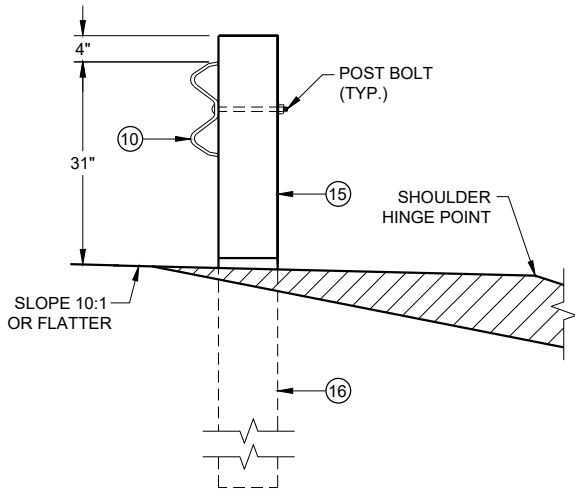
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



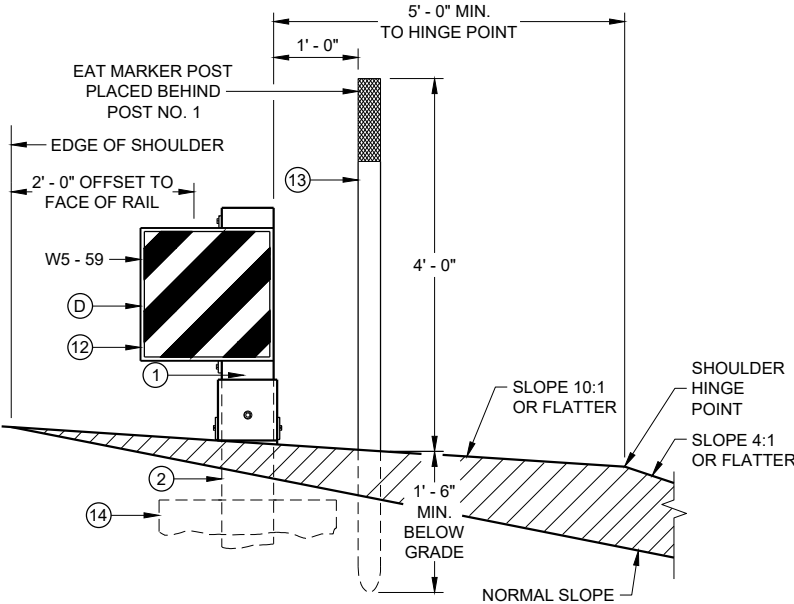
DETAIL "A"



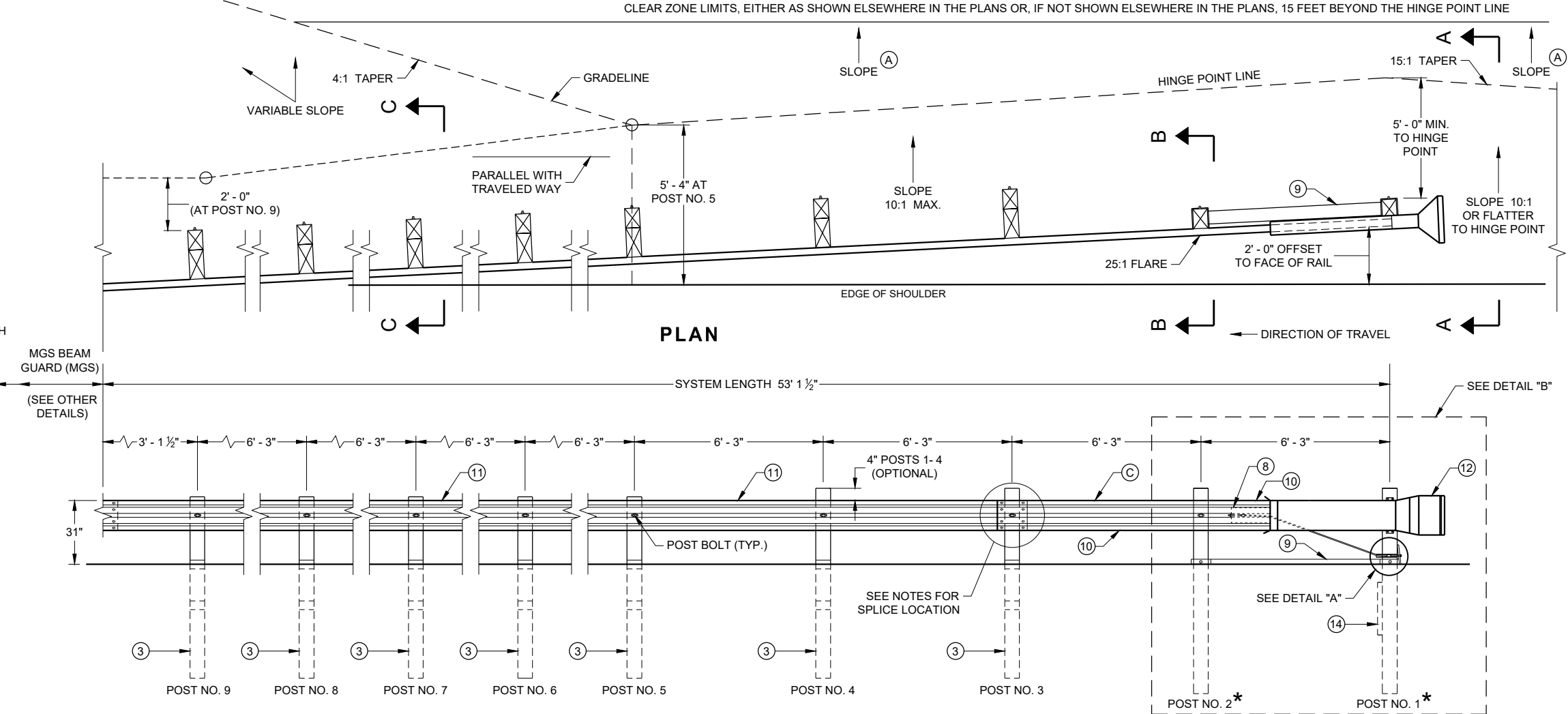
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*

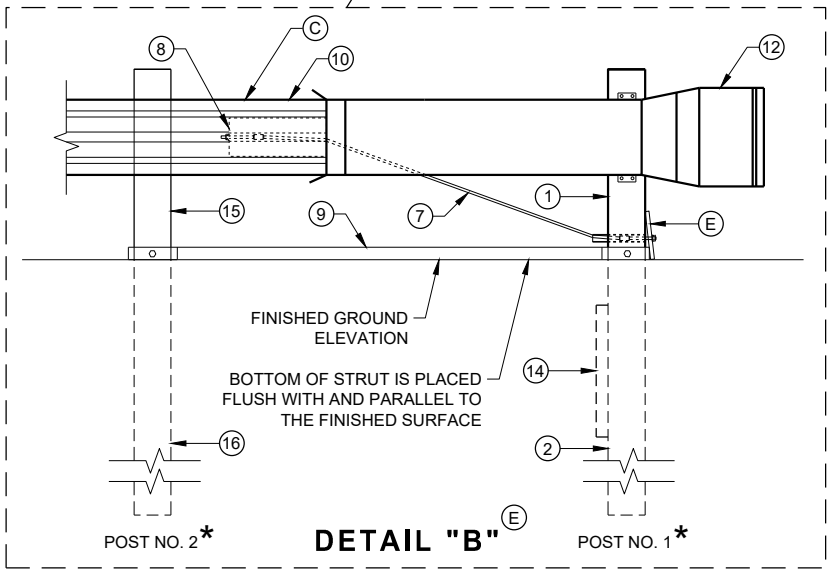


SECTION A - A
TYPICAL AT POST NO. 1*



PLAN

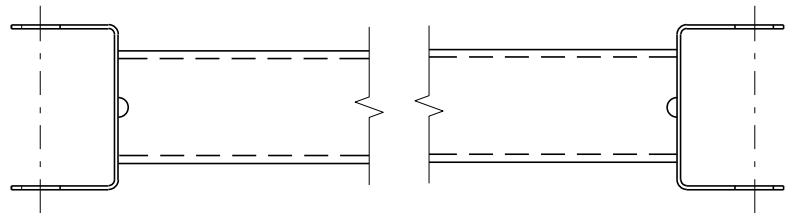
ELEVATION



DETAIL "B"

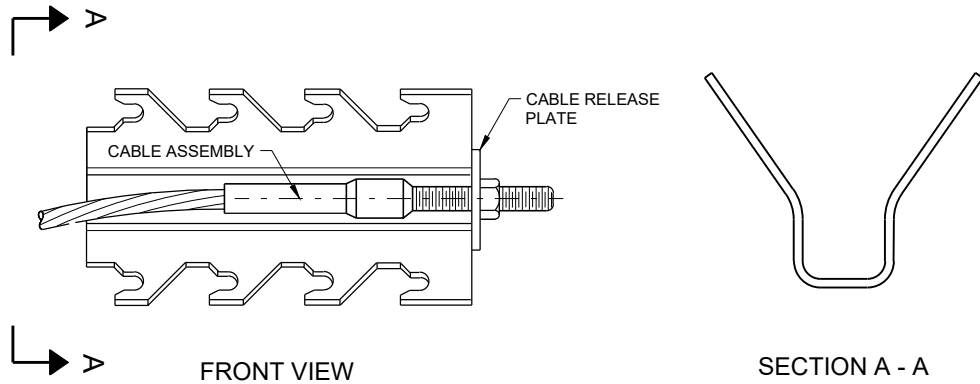
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

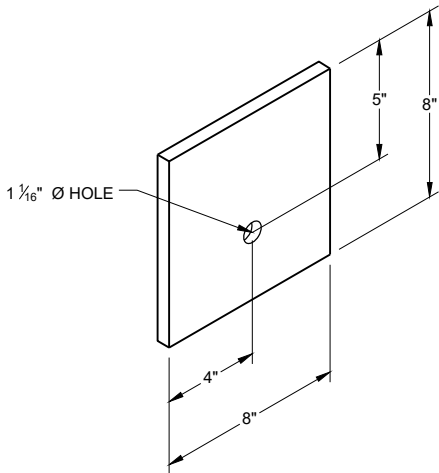


GENERIC GROUND STRUT⁹ ^E

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



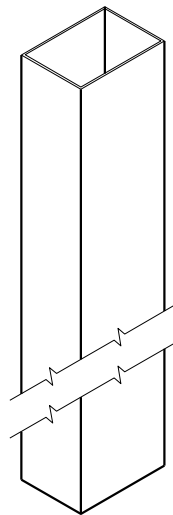
GENERIC ANCHOR CABLE BOX⁹ ^E



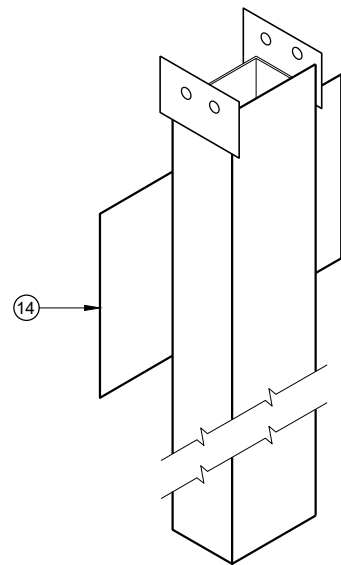
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

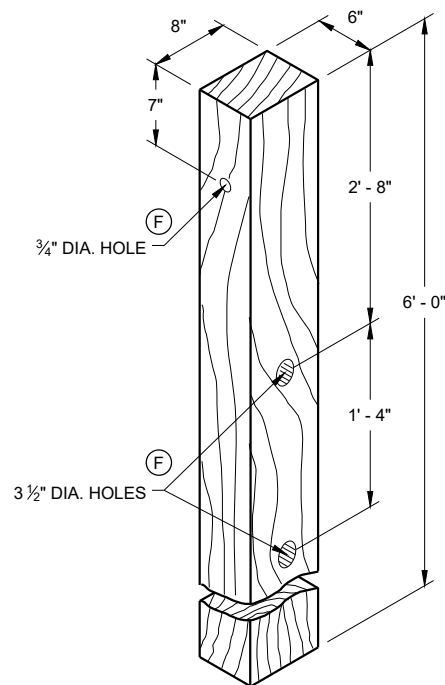
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



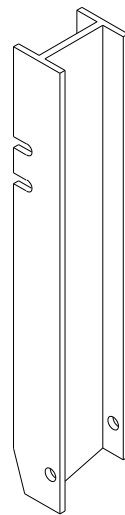
UPPER POST NO. 1 ⁽¹⁾ (E)



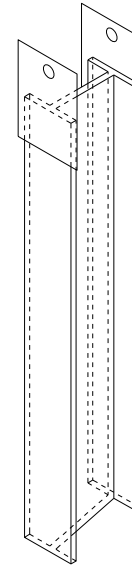
LOWER POST NO. 1 ⁽²⁾ (E)



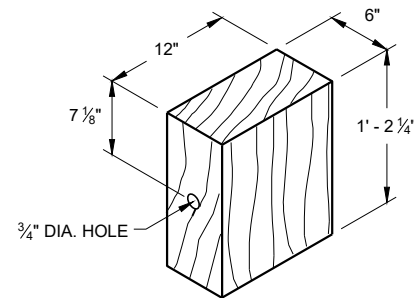
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



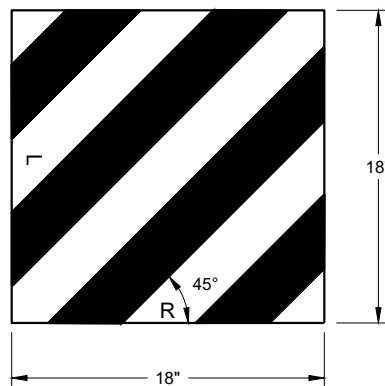
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



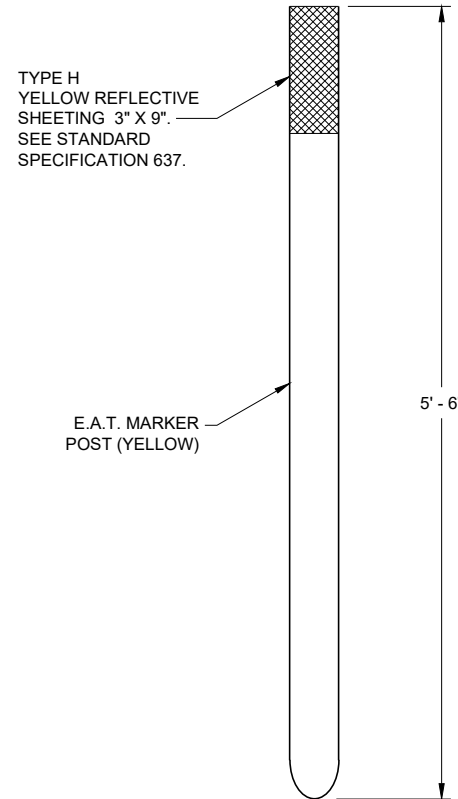
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



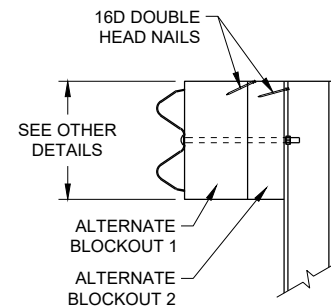
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



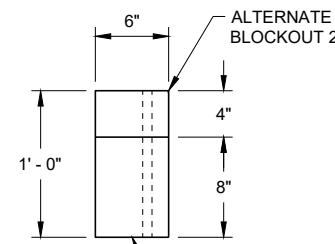
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



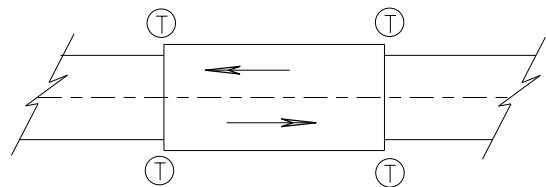
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

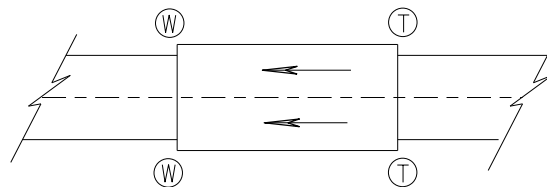
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

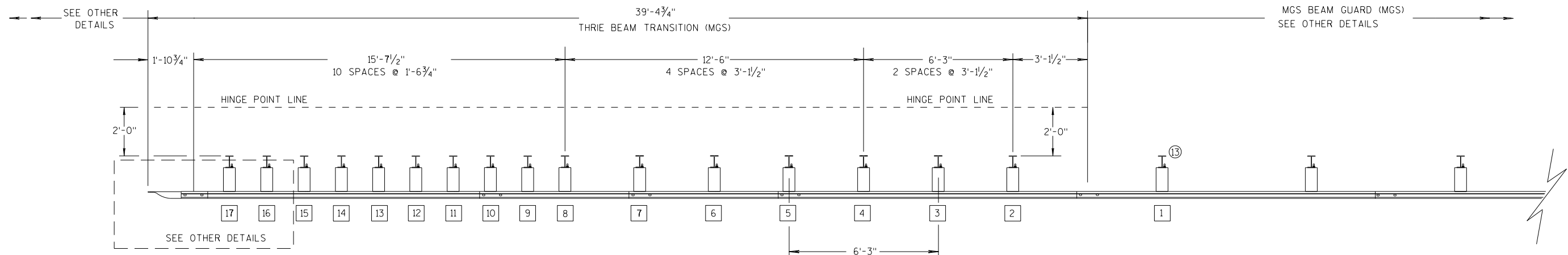
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

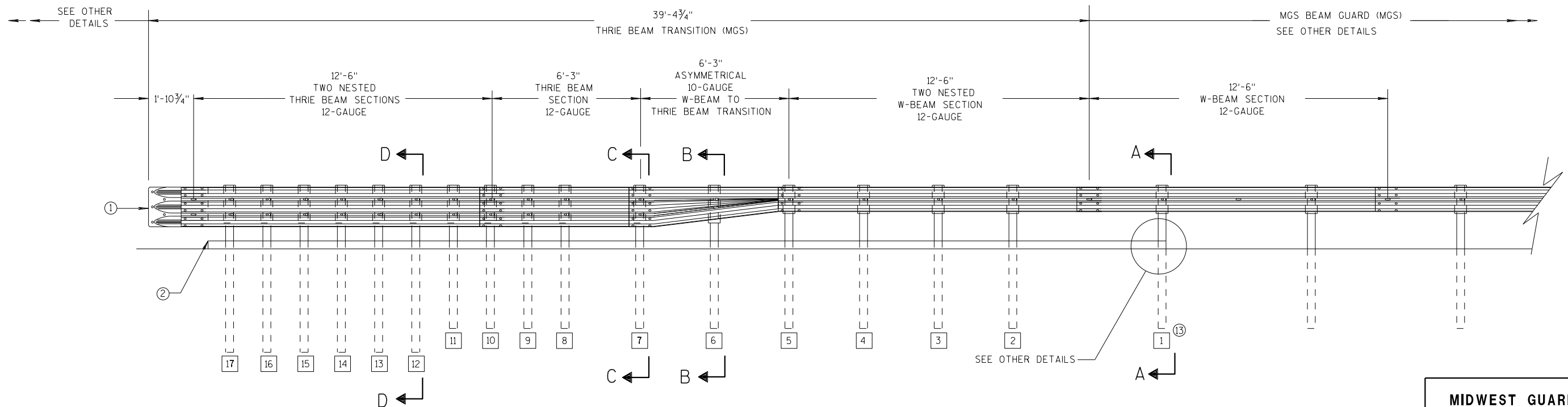
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

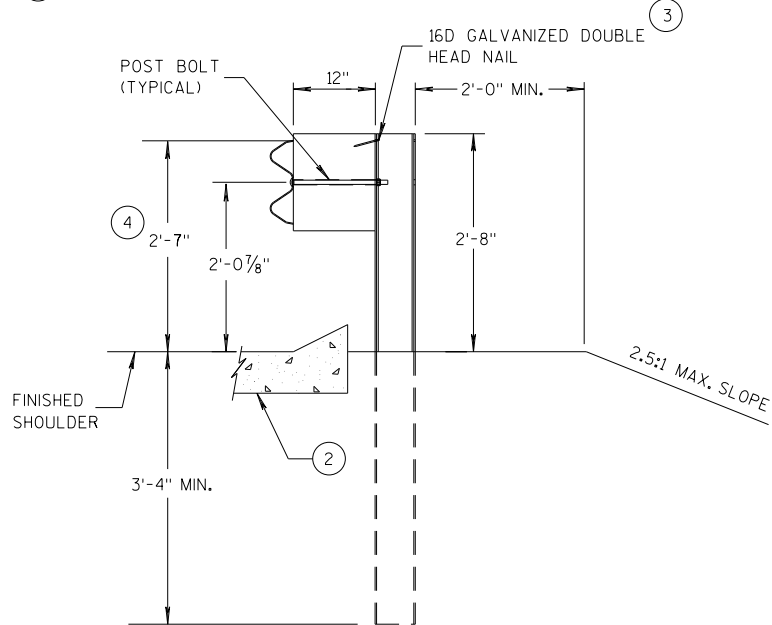
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

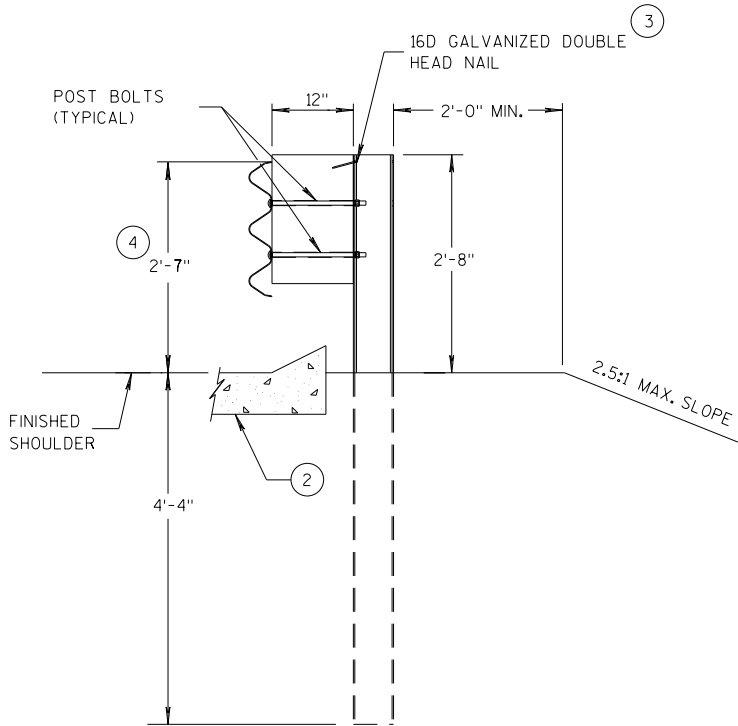
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

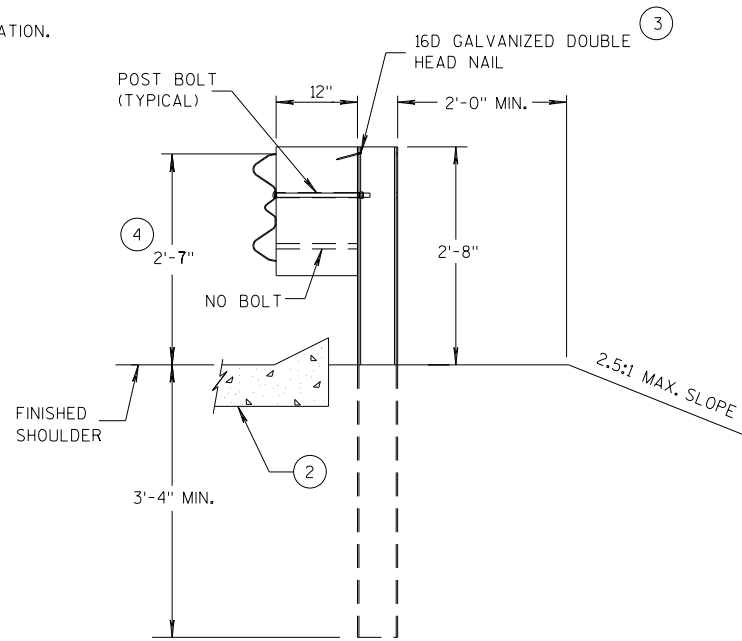
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



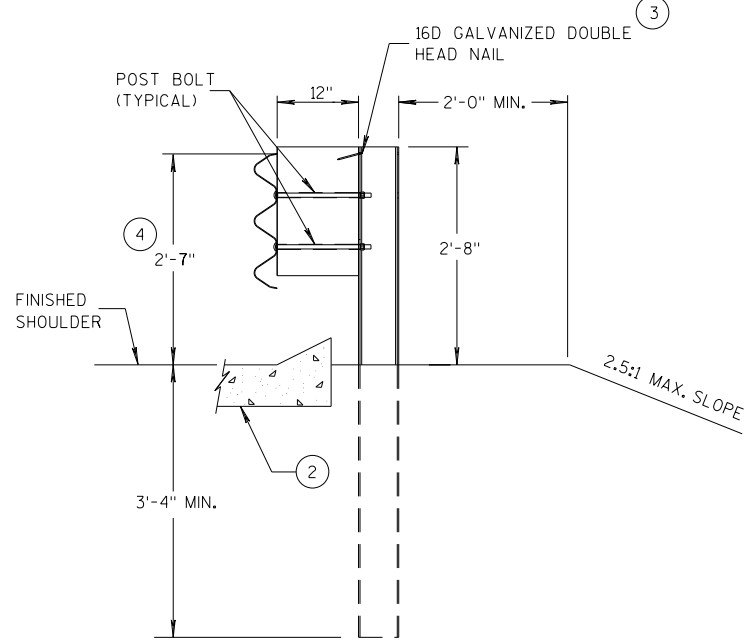
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

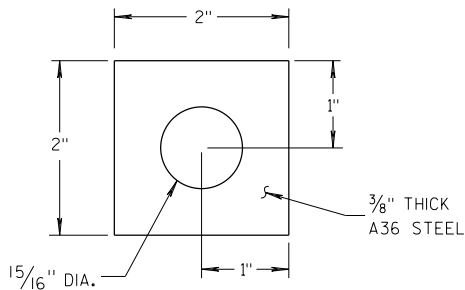
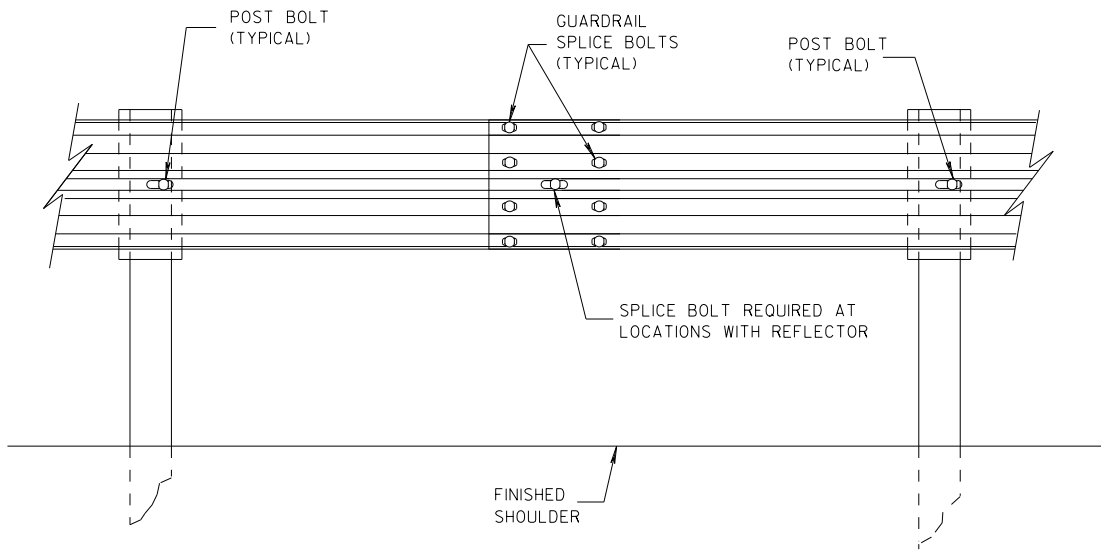
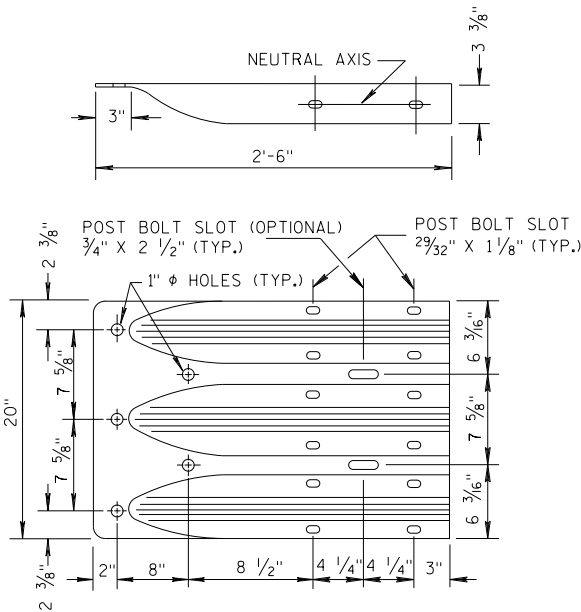


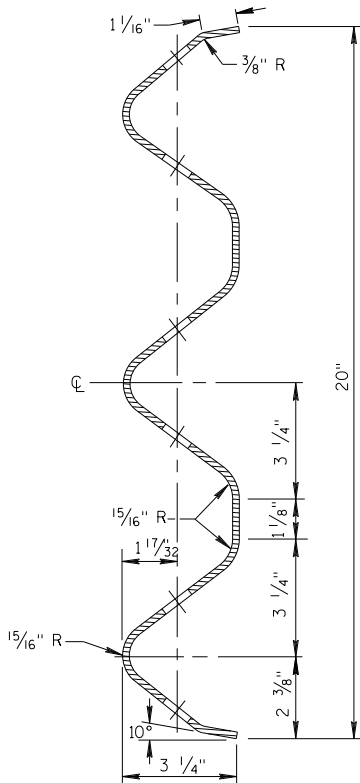
PLATE WASHER DETAIL



SPLICE DETAIL



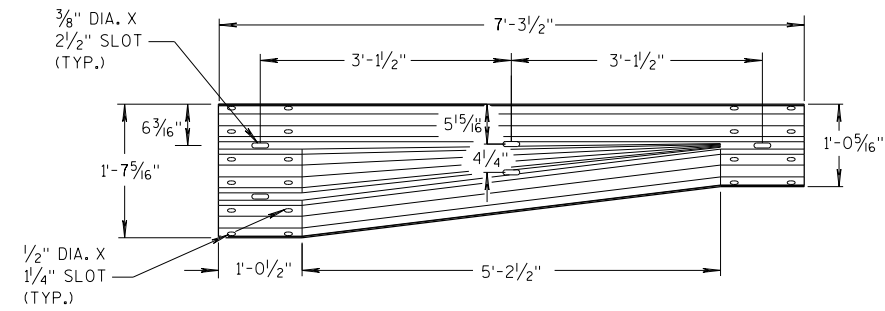
THRIE BEAM
TERMINAL CONNECTOR



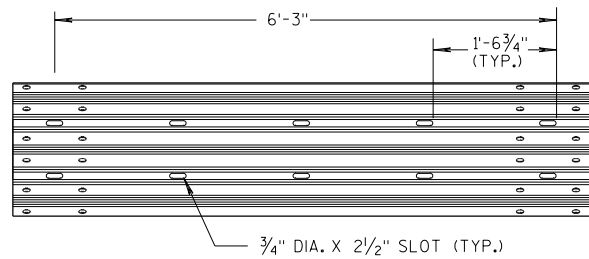
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

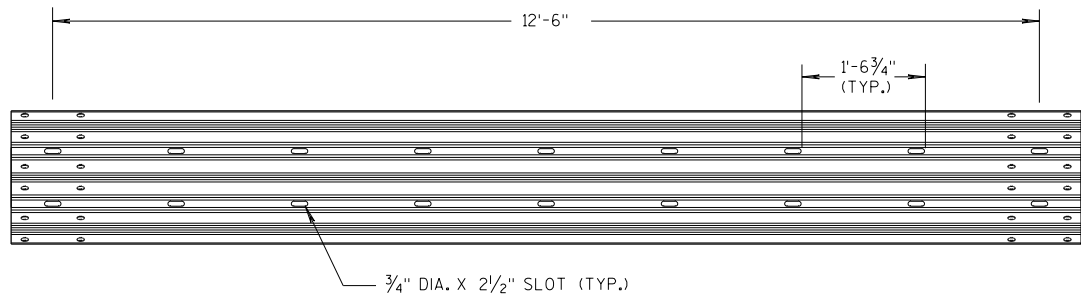
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



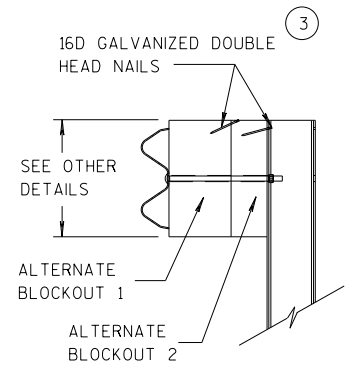
W-BEAM TO THRIE BEAM TRANSITION SECTION



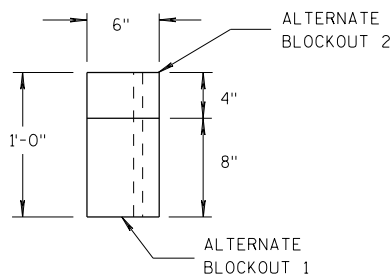
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

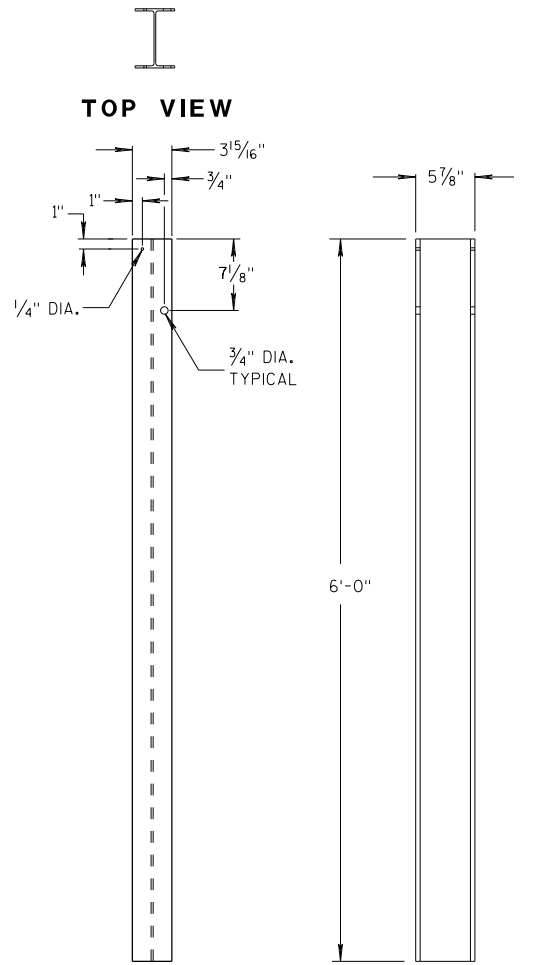


SIDE VIEW



TOP VIEW

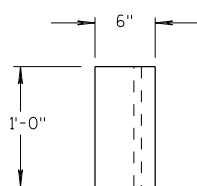
ALTERNATE WOOD BLOCKOUT DETAIL



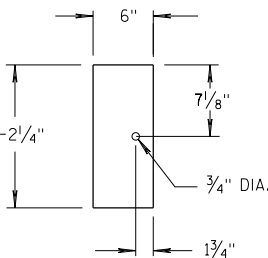
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

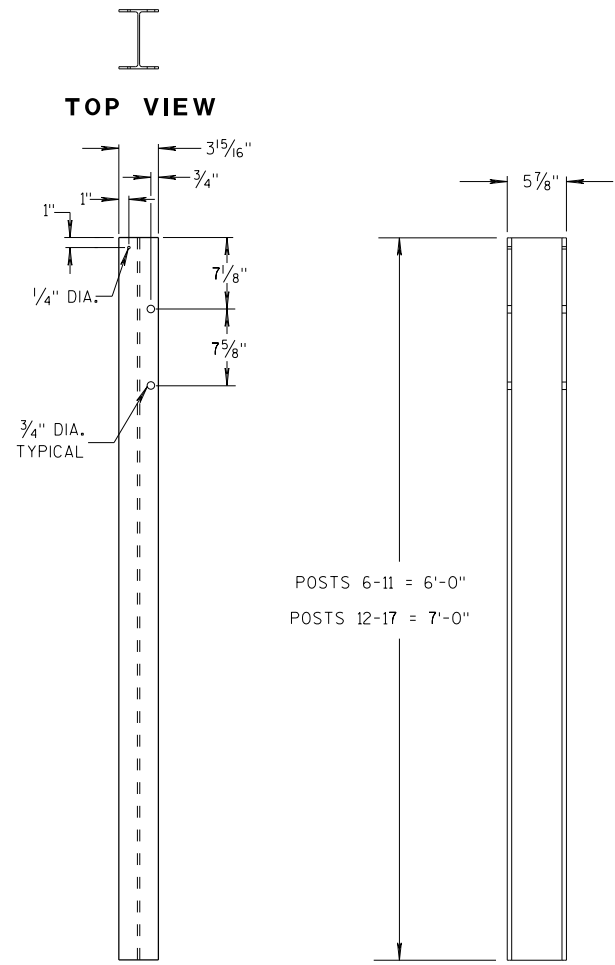


TOP VIEW



FRONT VIEW

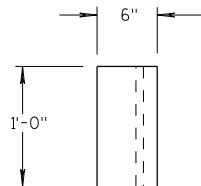
BLOCKOUT POSTS 1-5



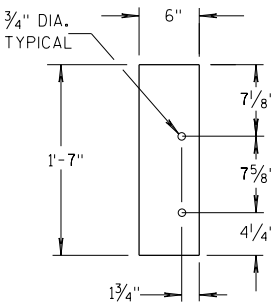
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

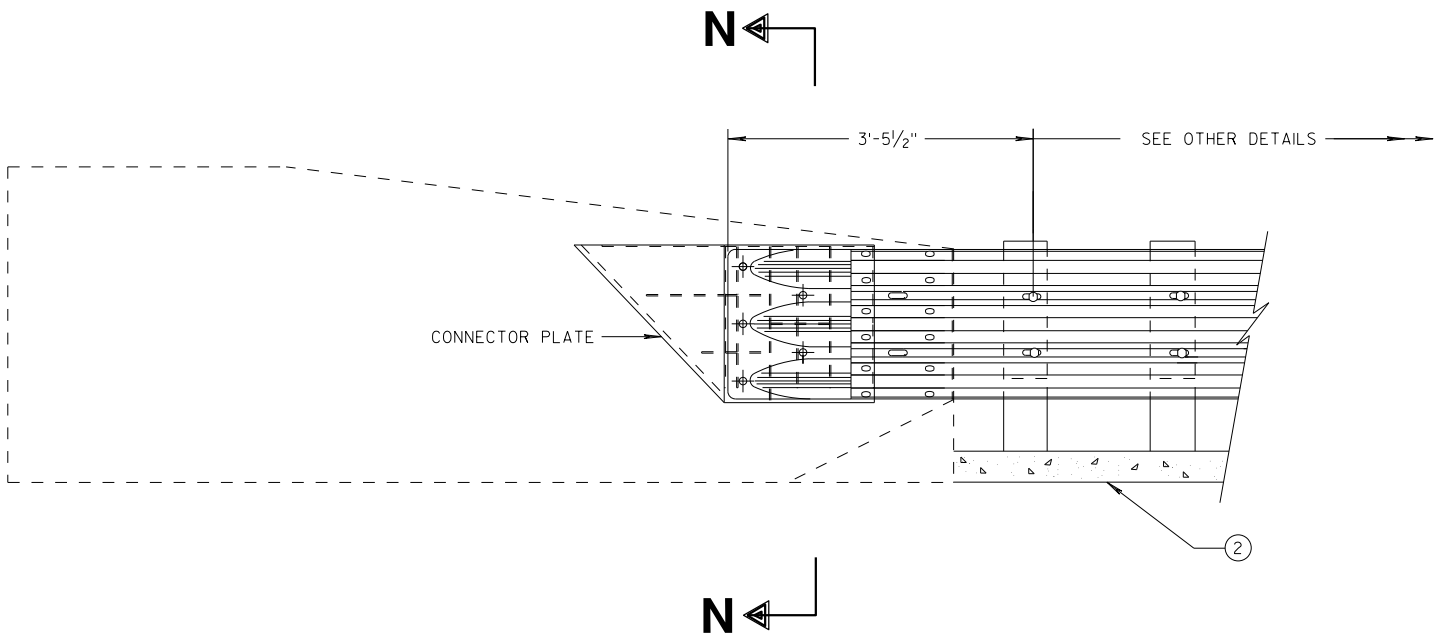
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

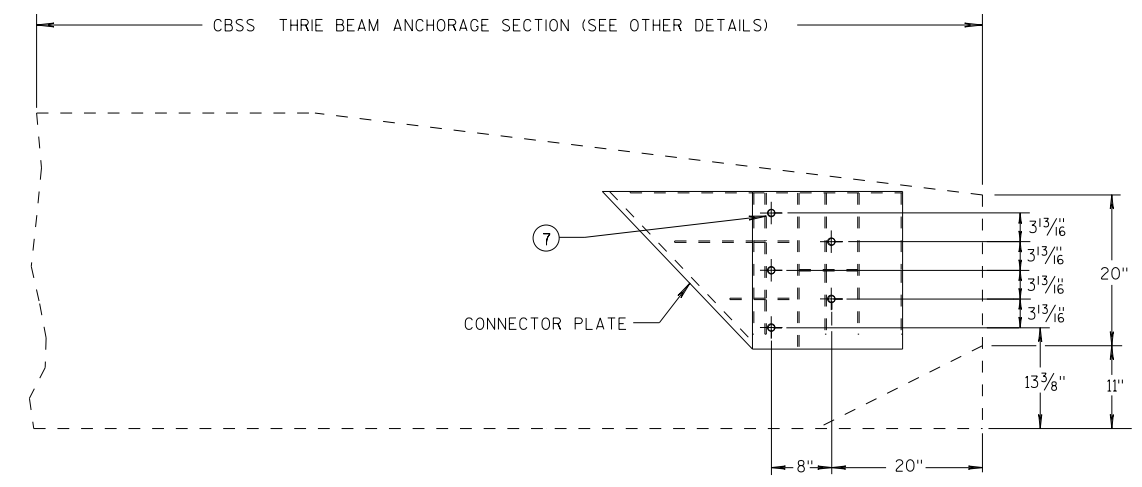
⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



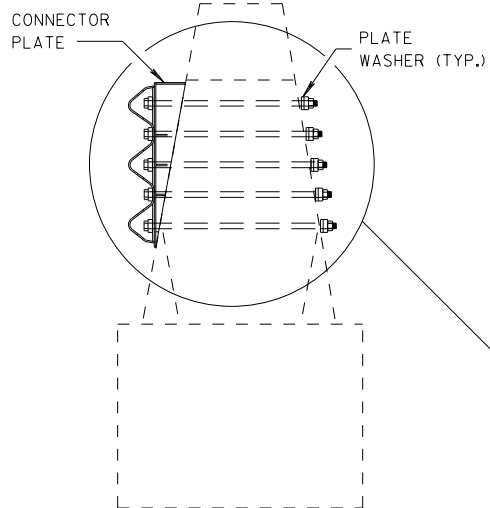
THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



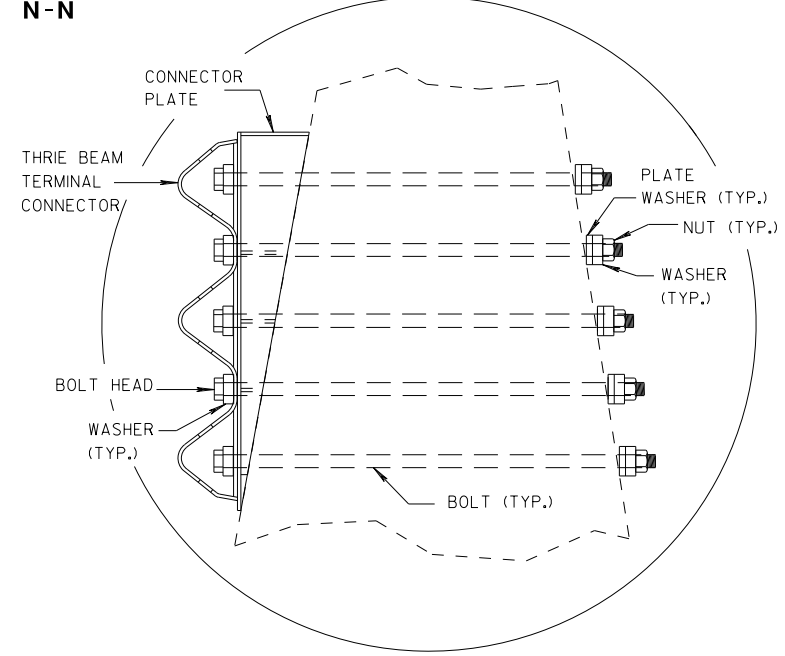
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

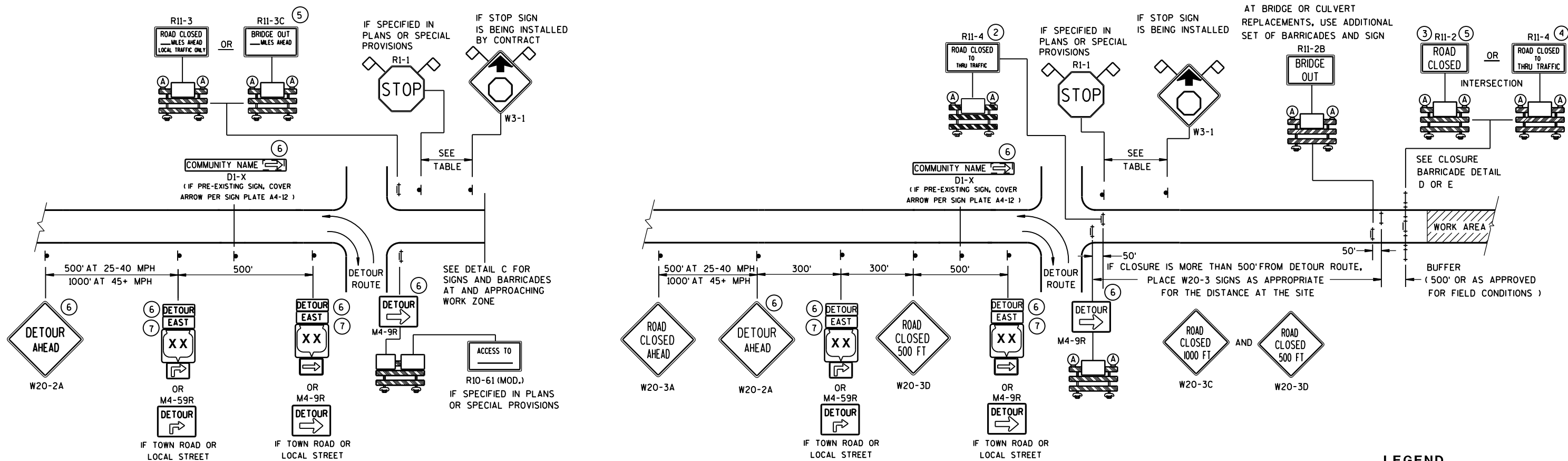
- CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
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)

LEGEND

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

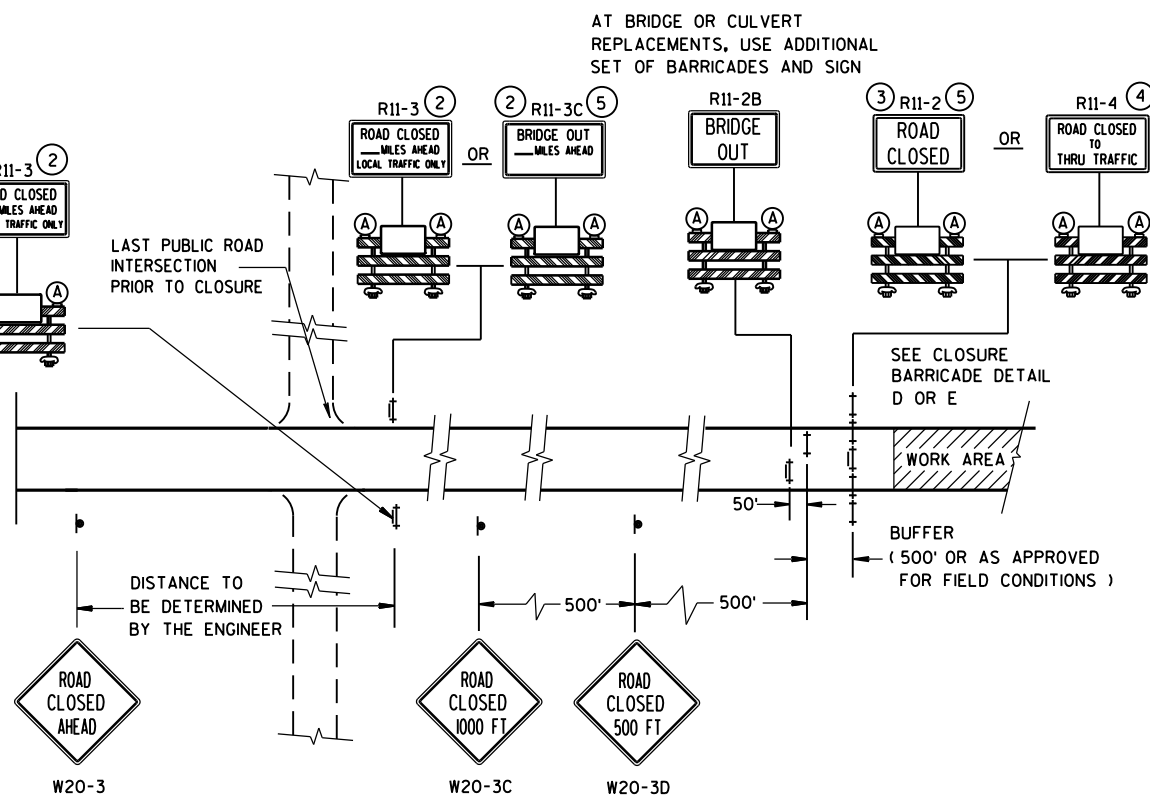
WORK AREA

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



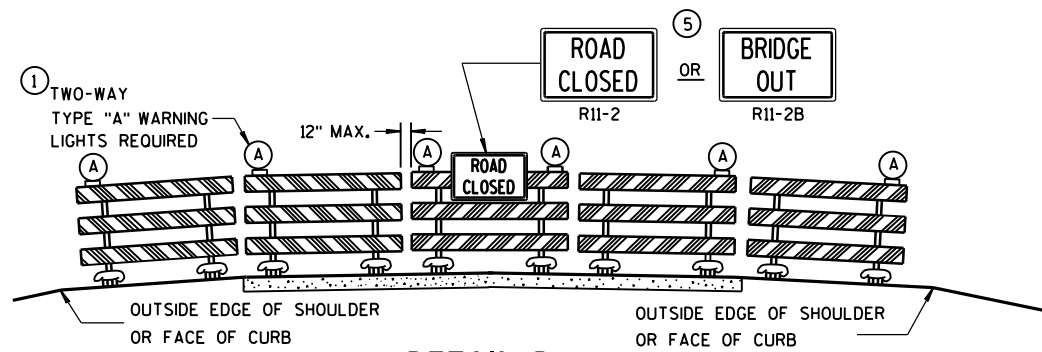
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

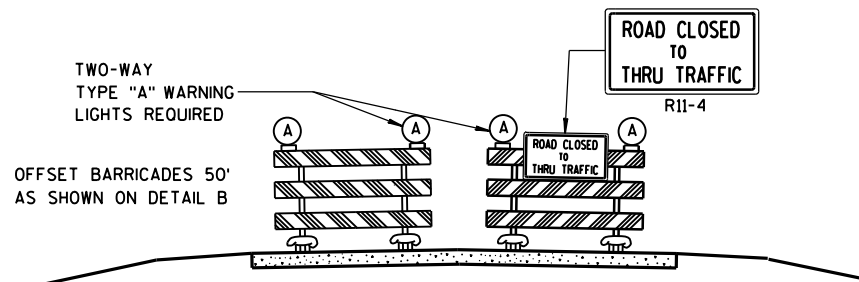
**BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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.

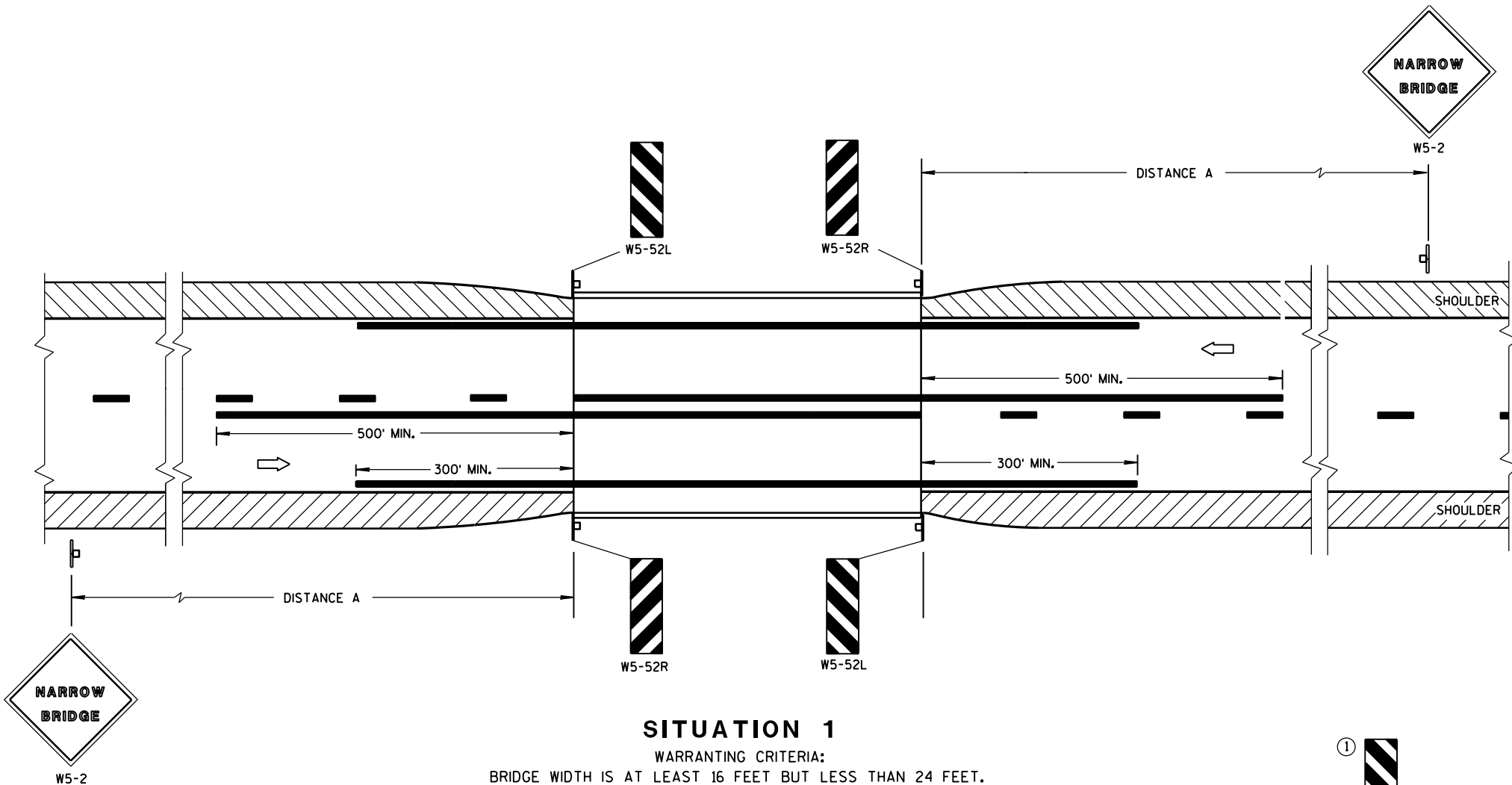
R1-1 SHALL BE 36" X 36".

- 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



SITUATION 1

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

DISTANCE TABLE

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

GENERAL NOTES

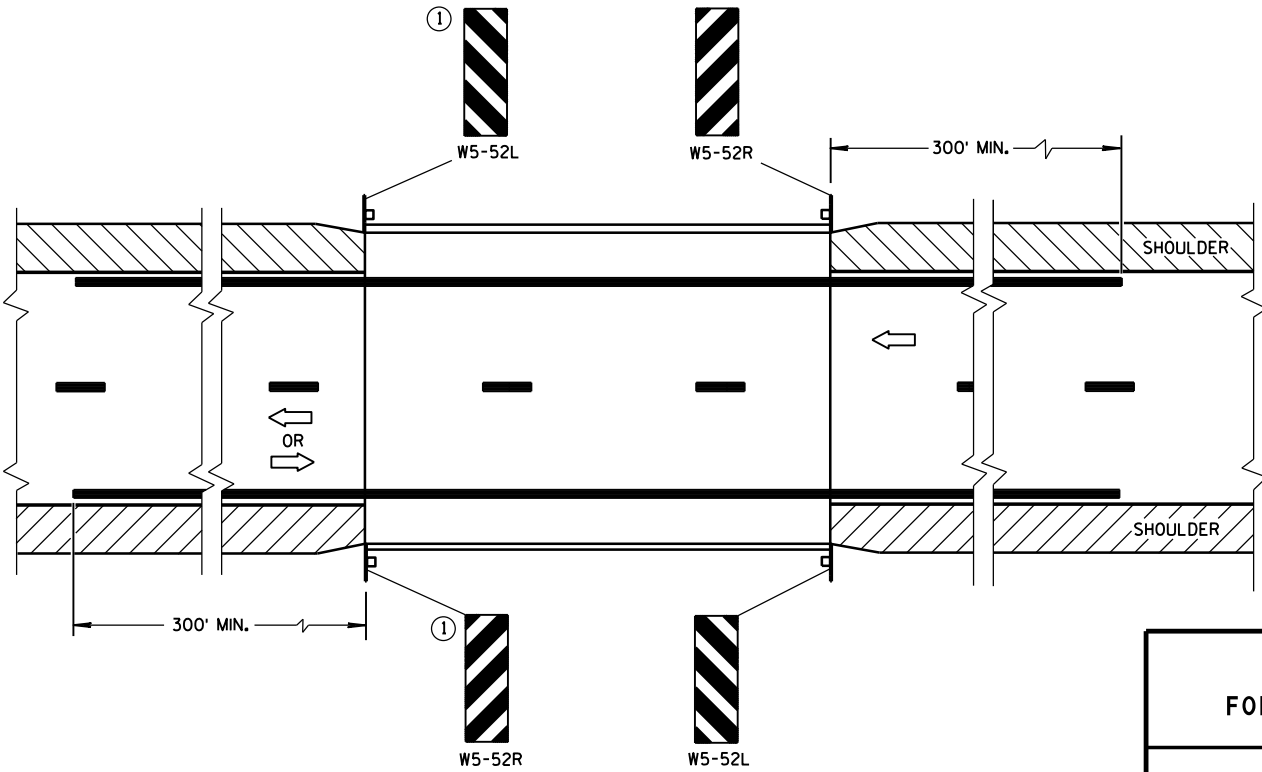
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



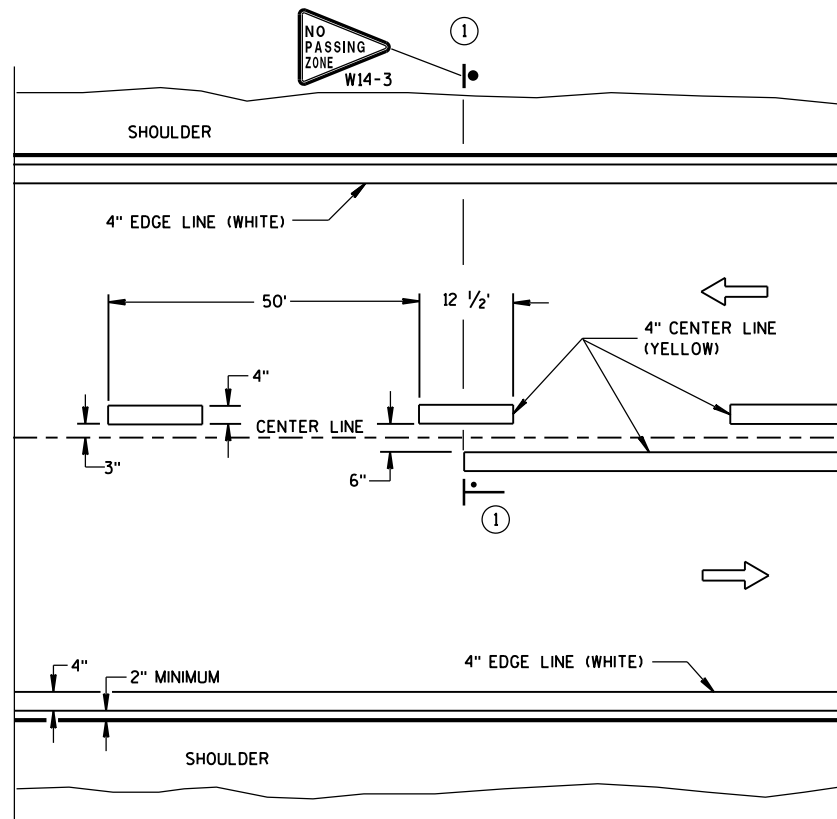
SITUATION 2

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

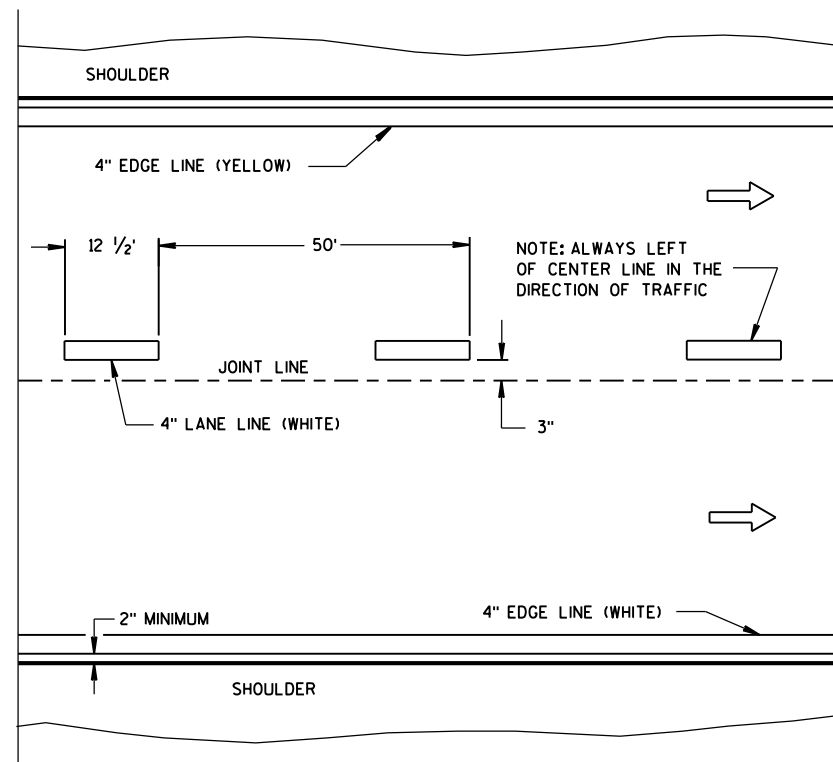
**SIGNING & MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

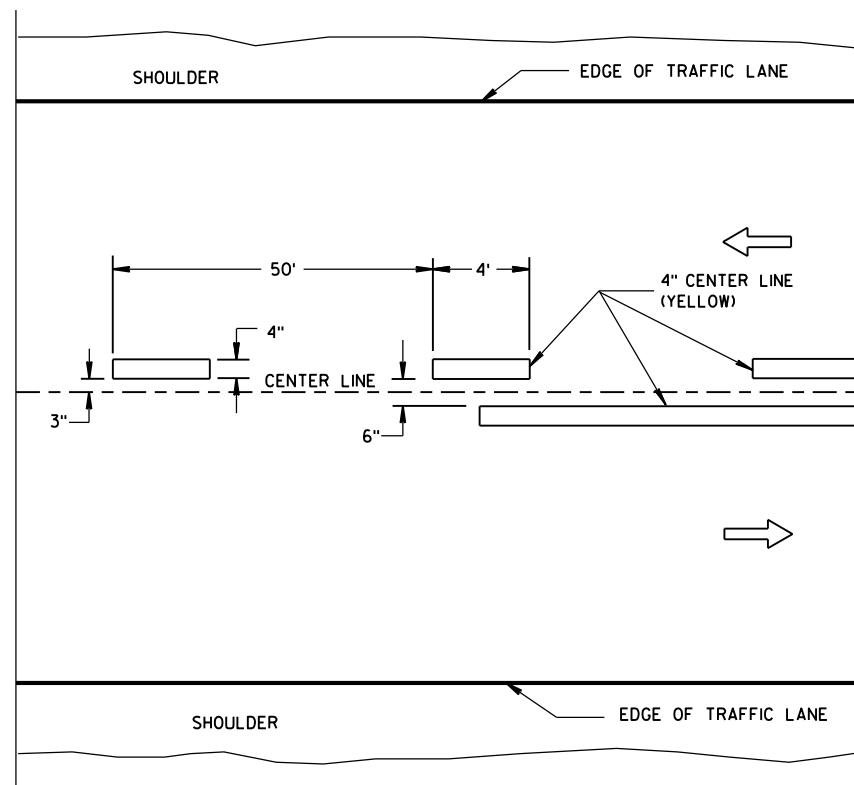


TWO WAY TRAFFIC

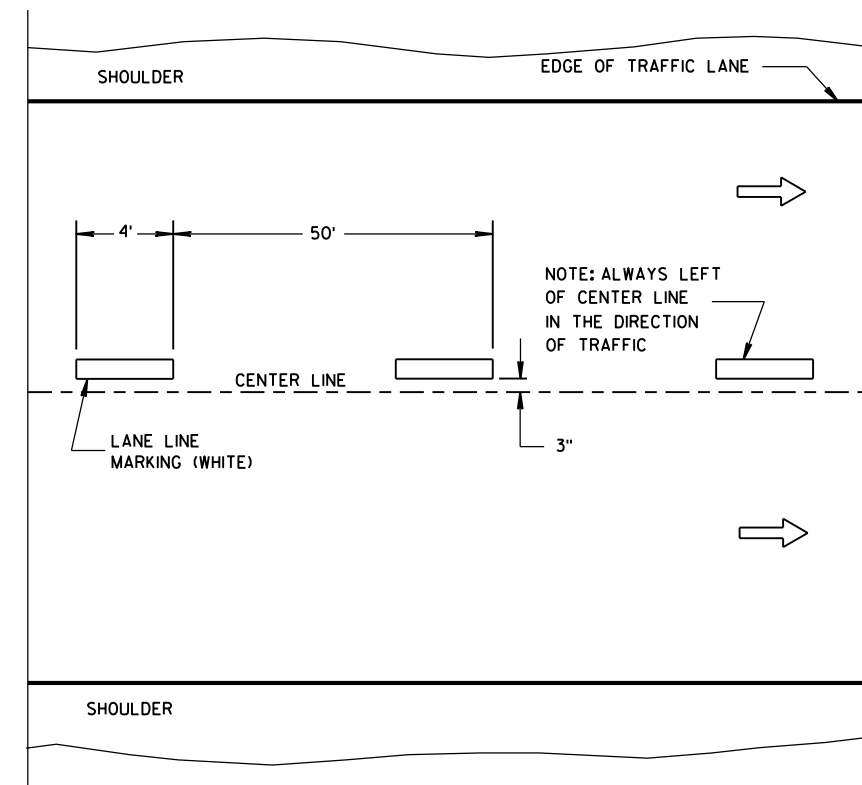


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

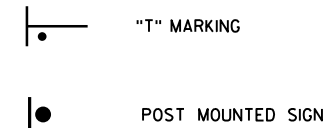
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

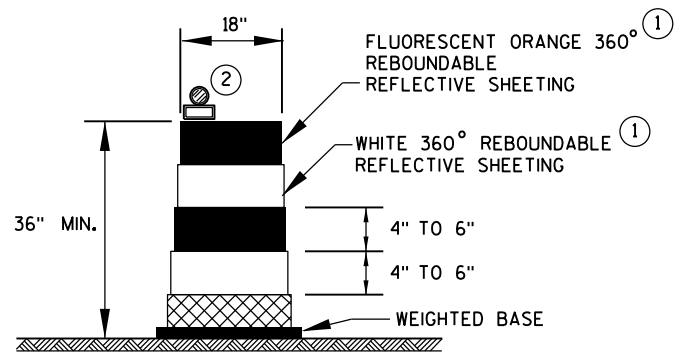
NOTE

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

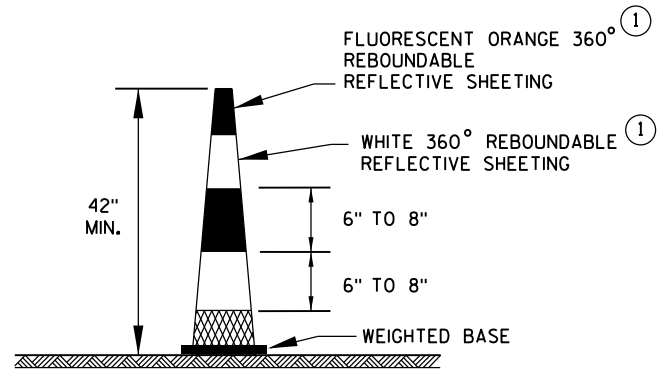
LEGEND



LONGITUDINAL MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	/s/ Matthew R. Rauch
DATE	STATE SIGNING AND MARKING ENGINEER
FHWA	



DRUM

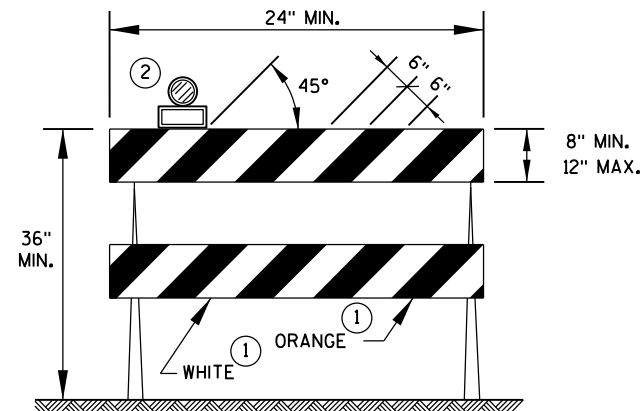


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

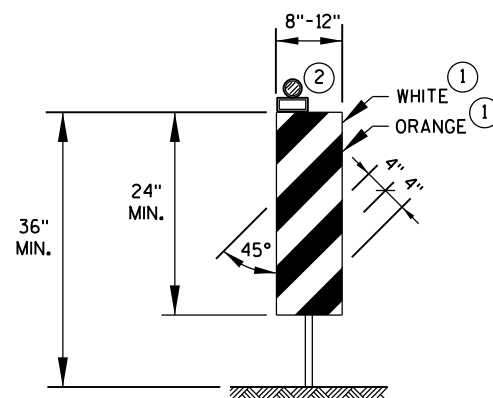
GENERAL NOTES

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



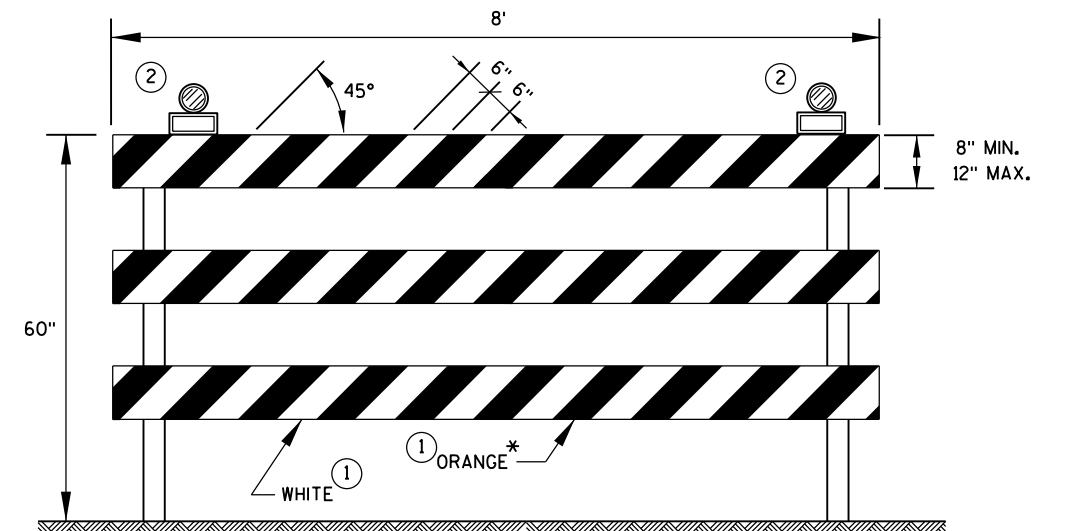
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 BARRICADE

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

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

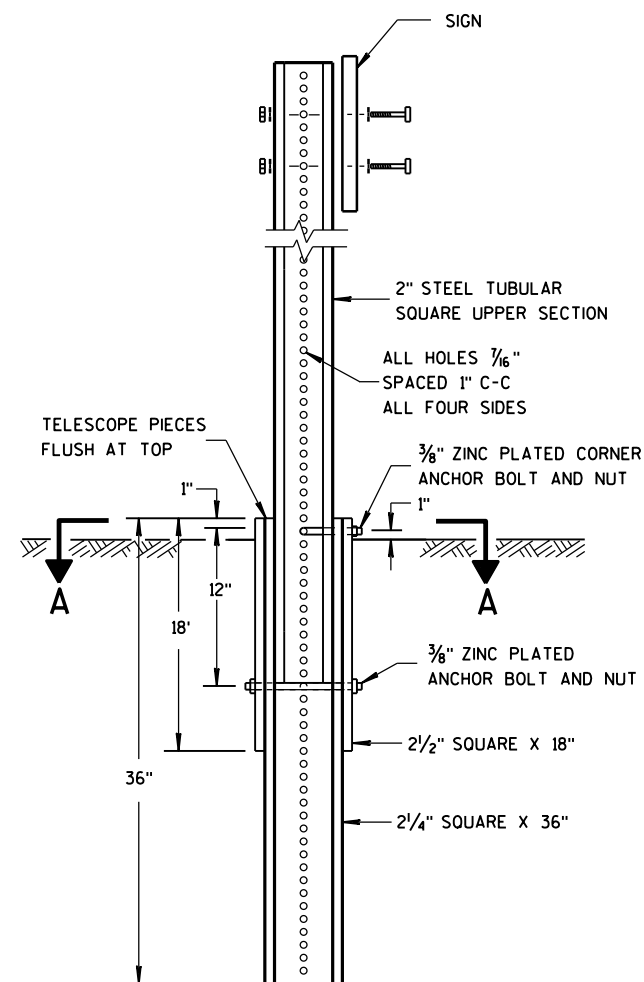
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

FHWA

/S/ Andrew Heidtke
WORK ZONE ENGINEER



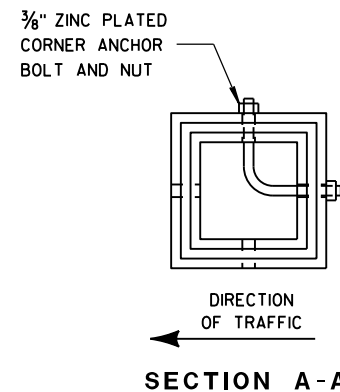
DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

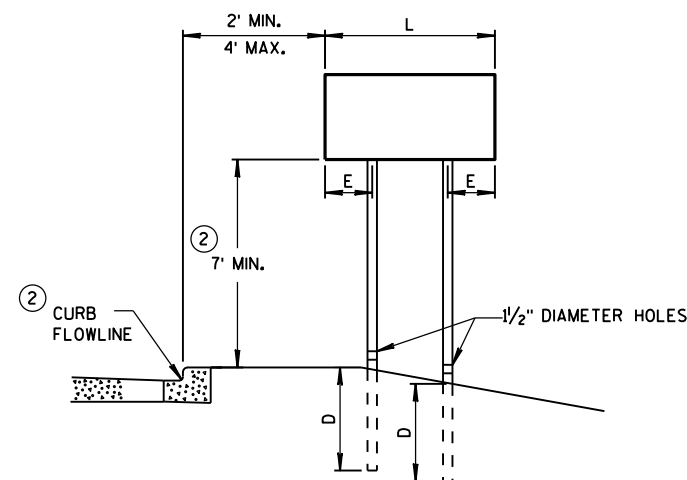
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



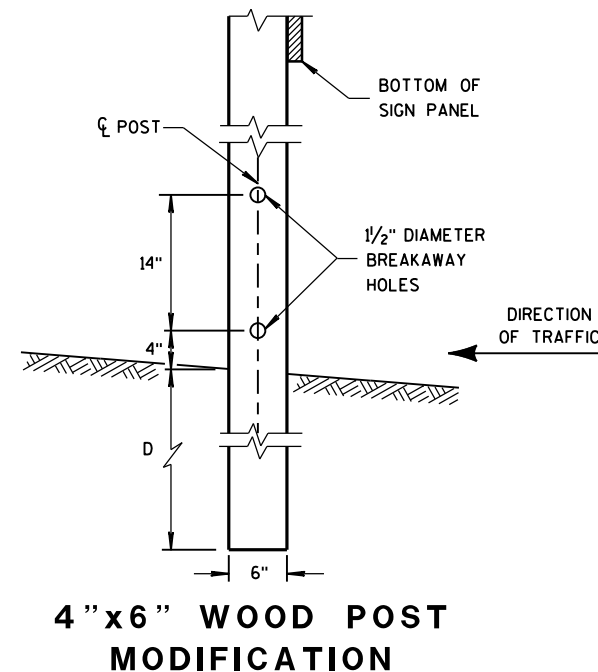
SECTION A-A



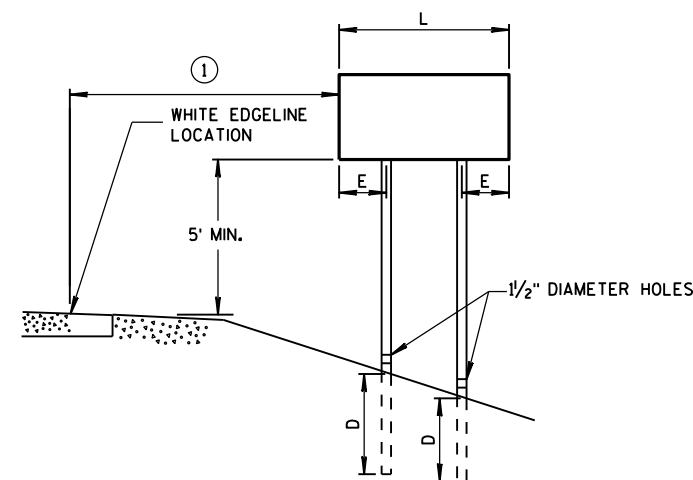
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

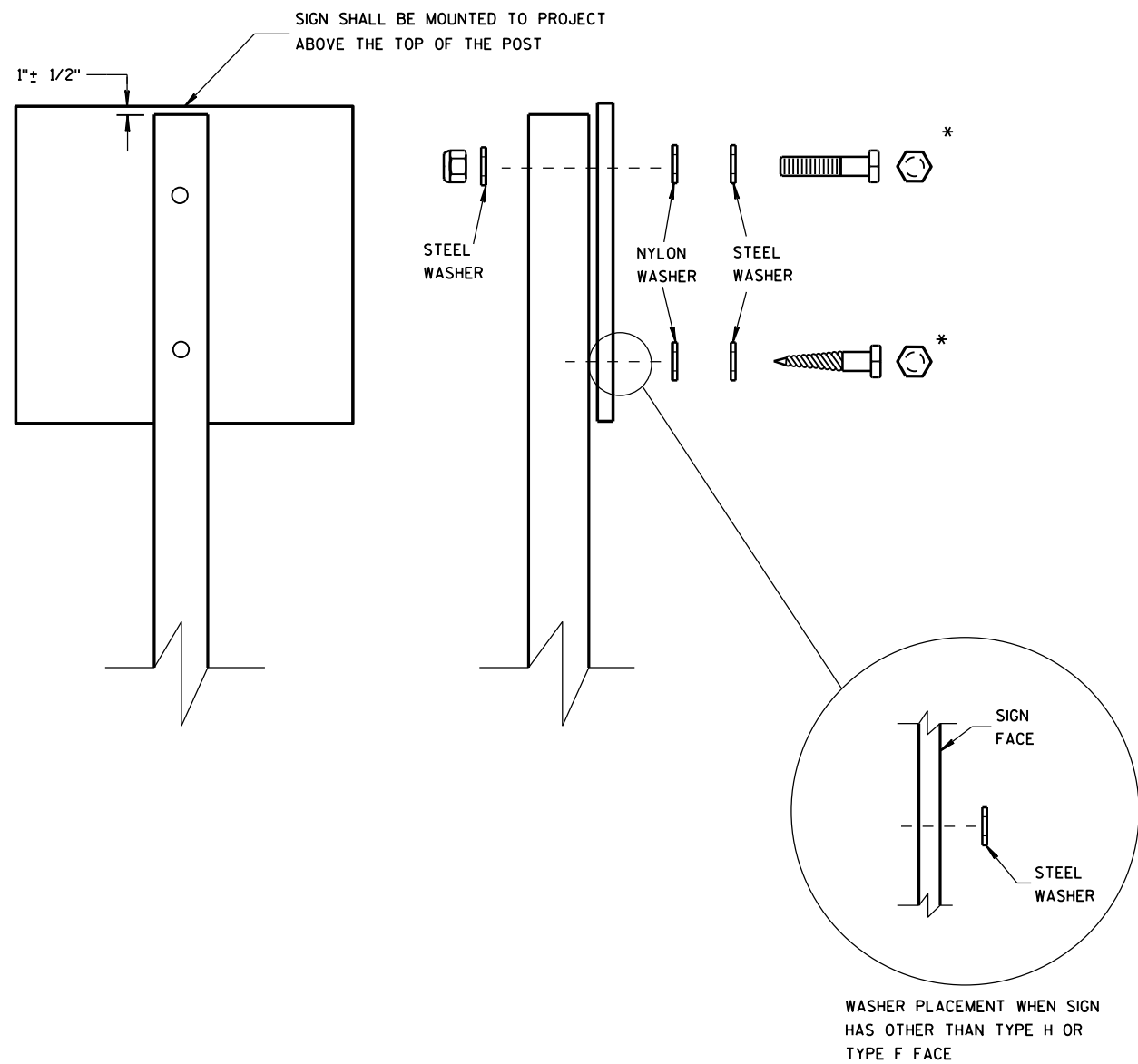
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

- WOOD 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

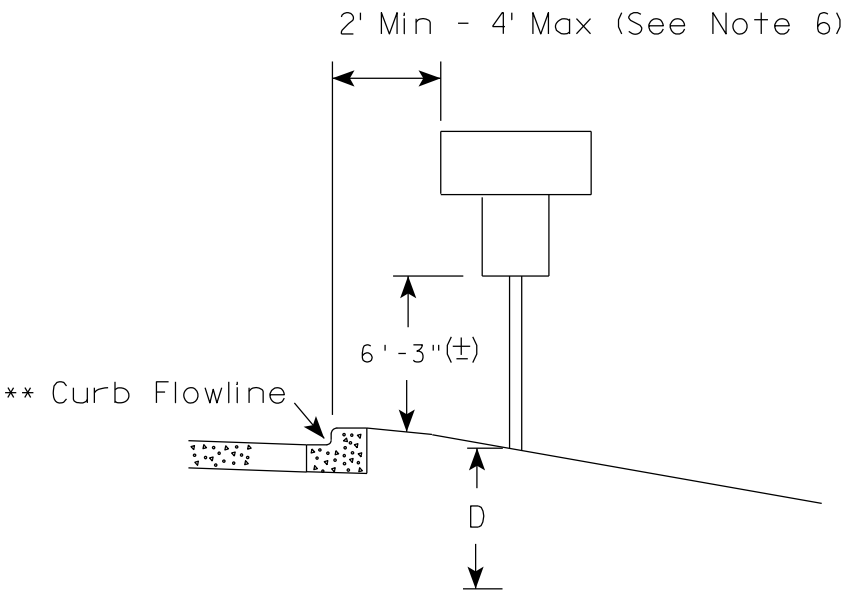
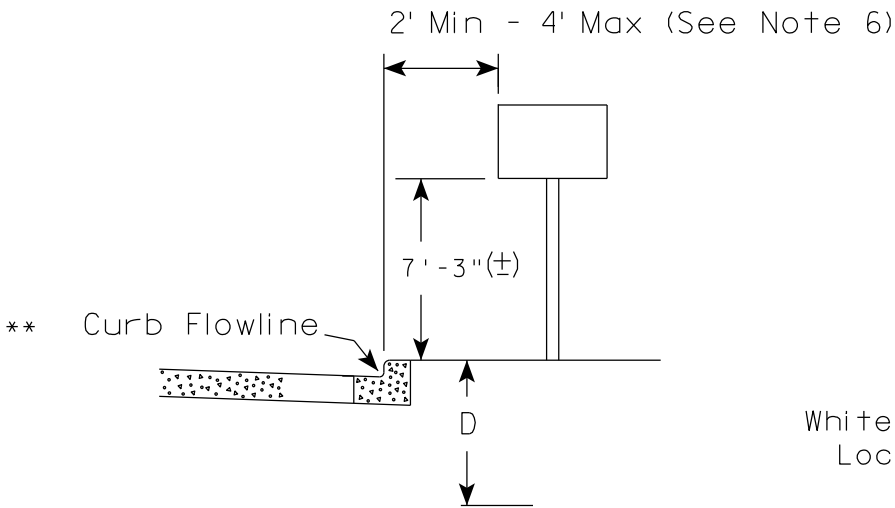
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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

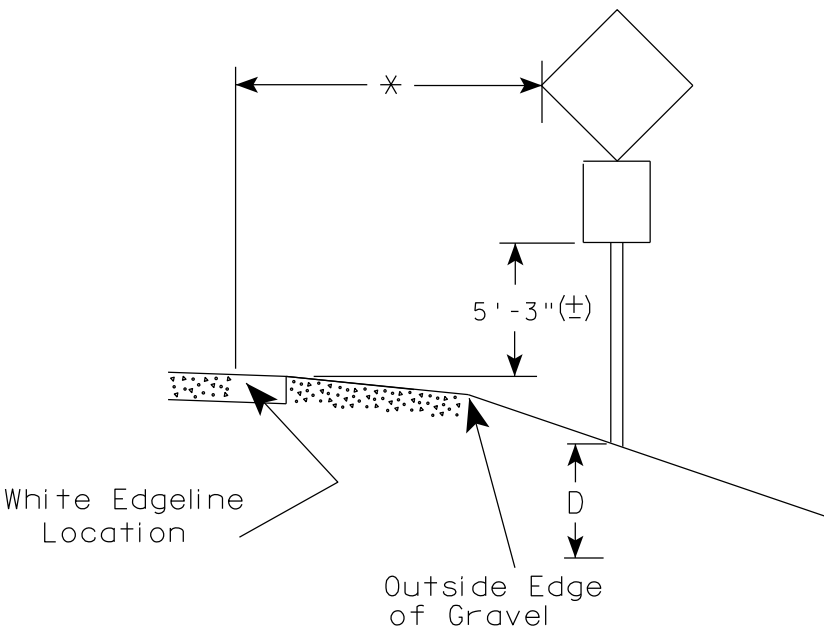
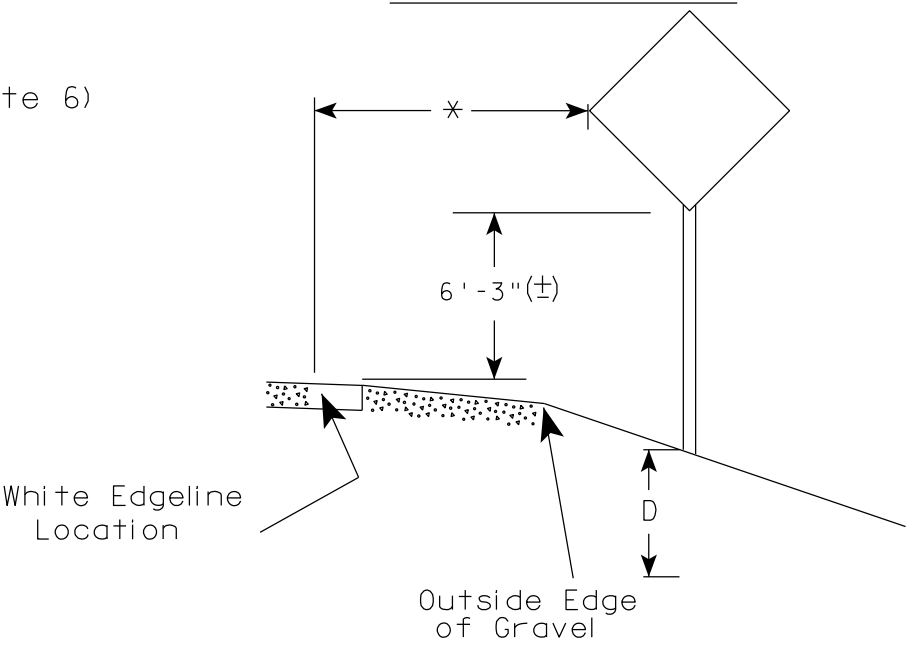
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on 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" (±).

POST EMBEDMENT DEPTH

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

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

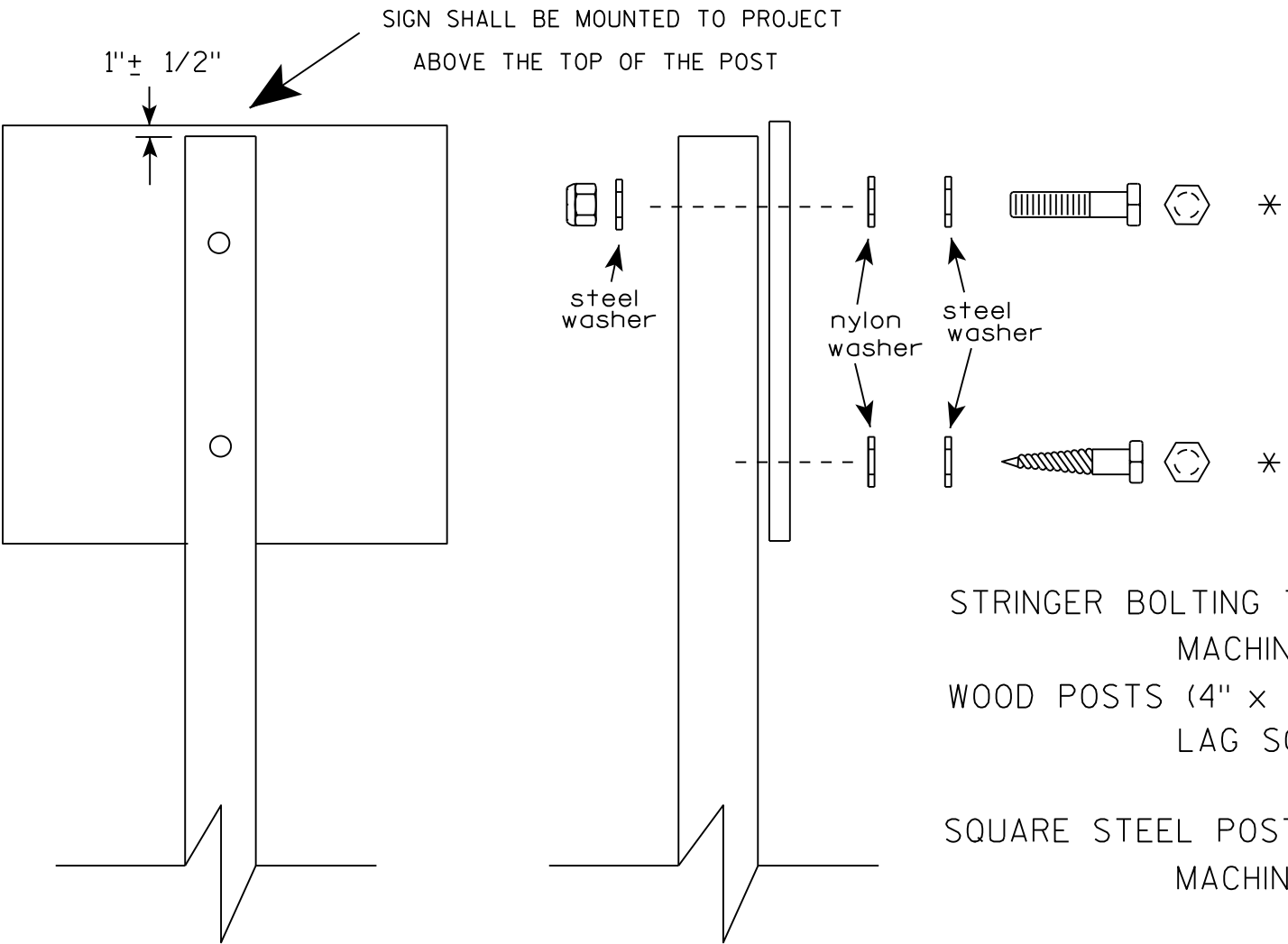
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

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



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

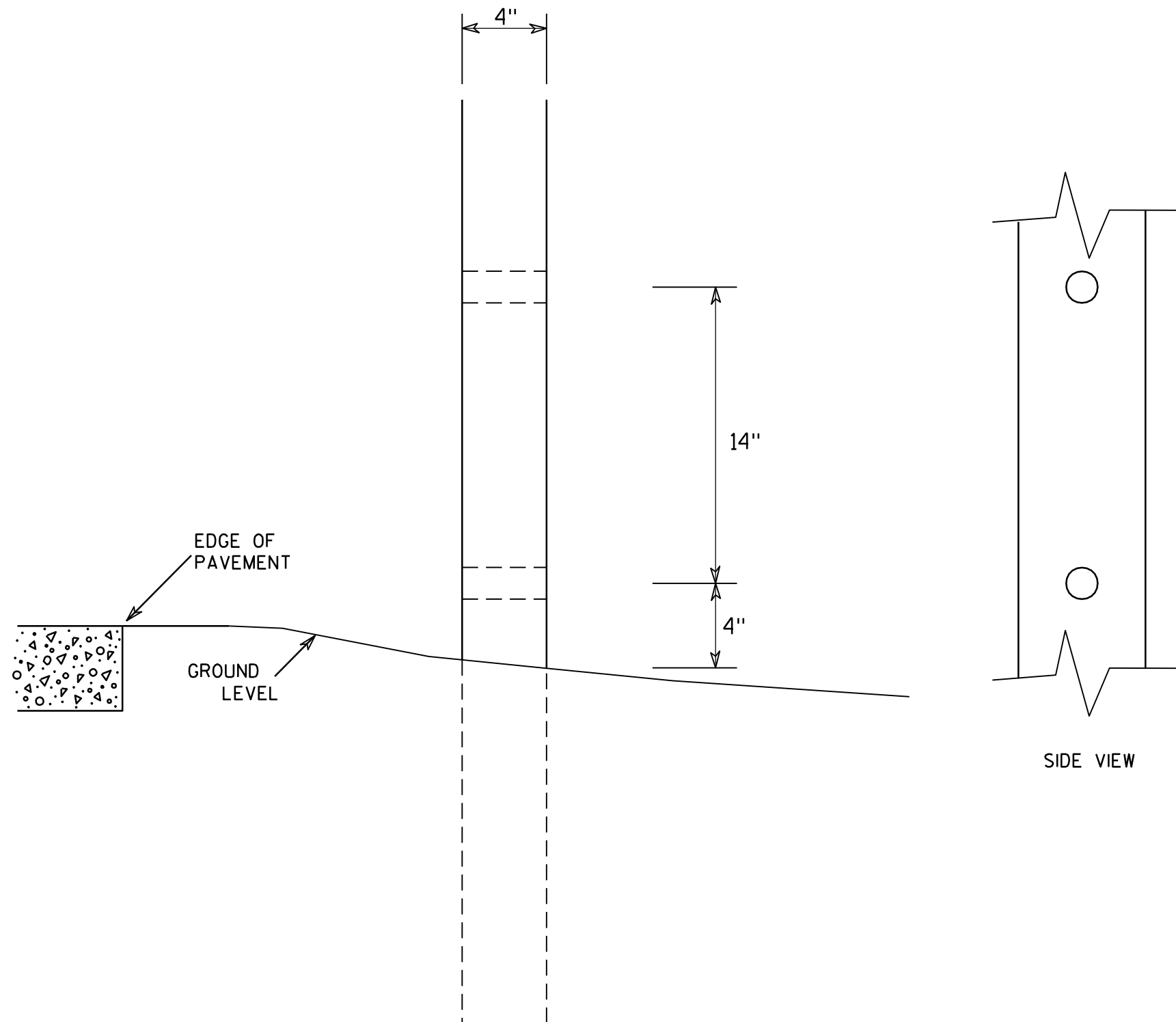
- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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.

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

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 8/11/16	PLATE NO. A4-8.8



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

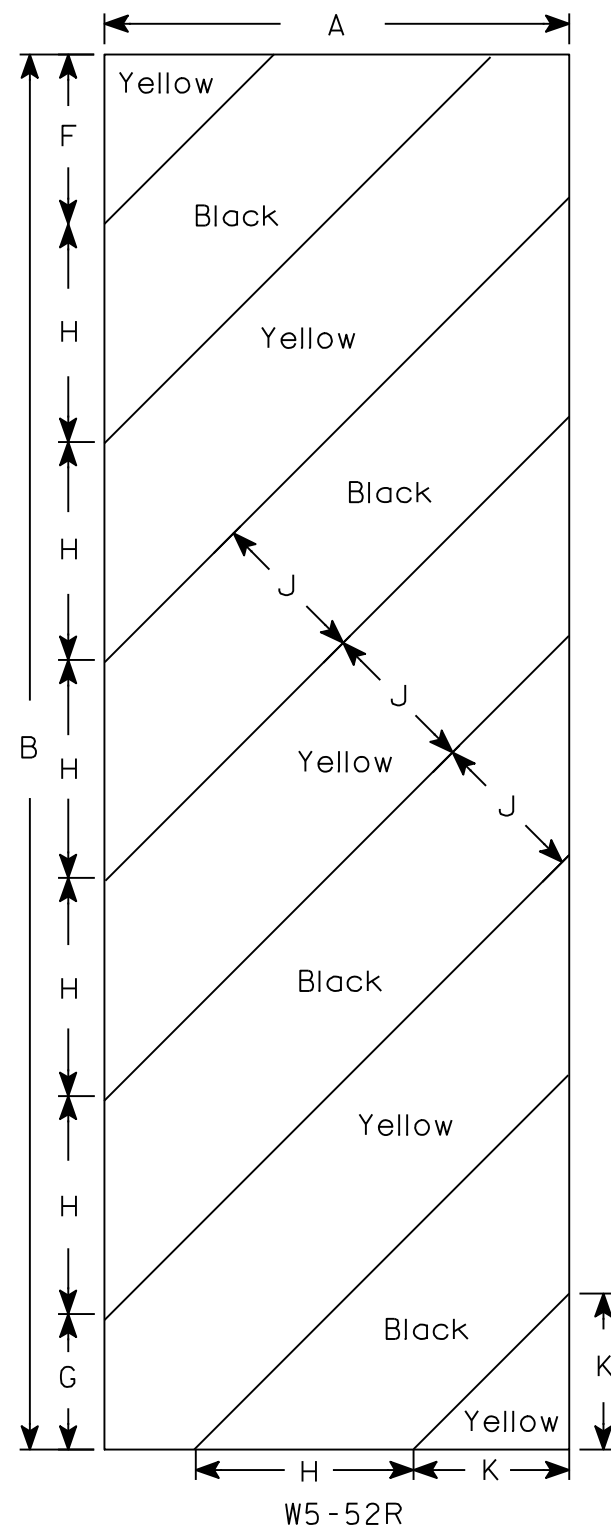
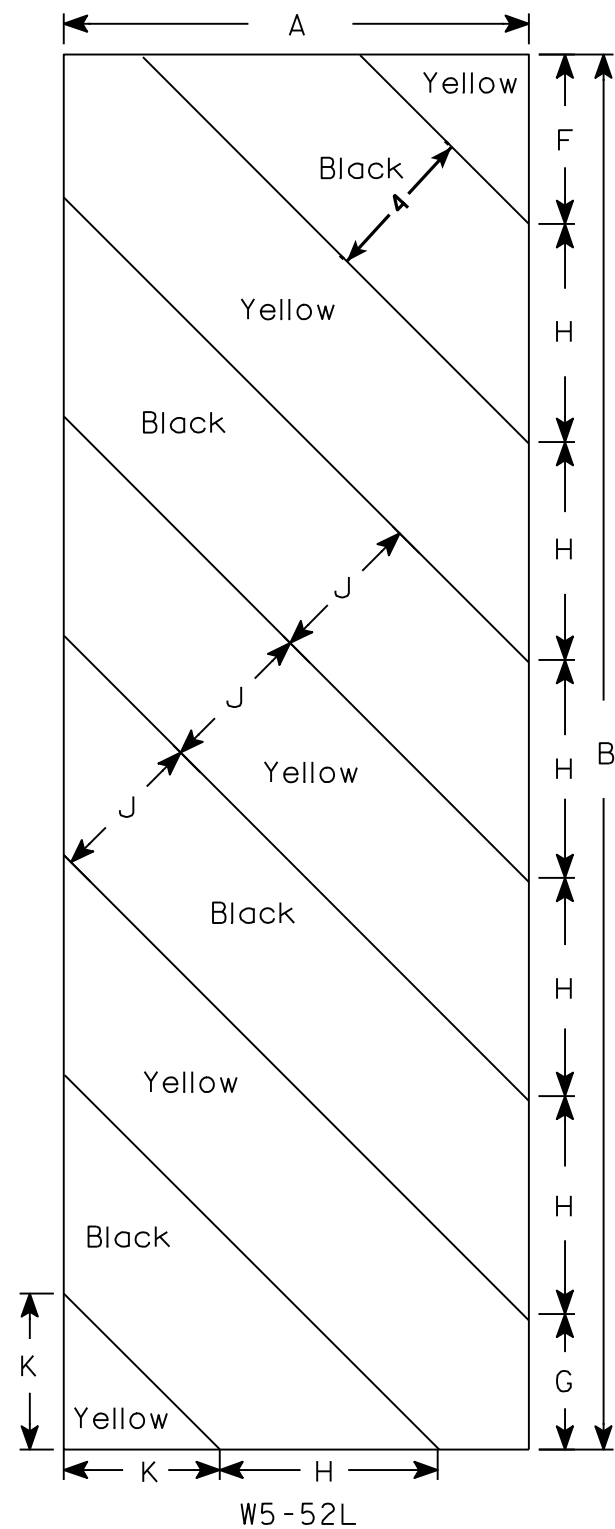
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

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

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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

HWY:

COUNTY:

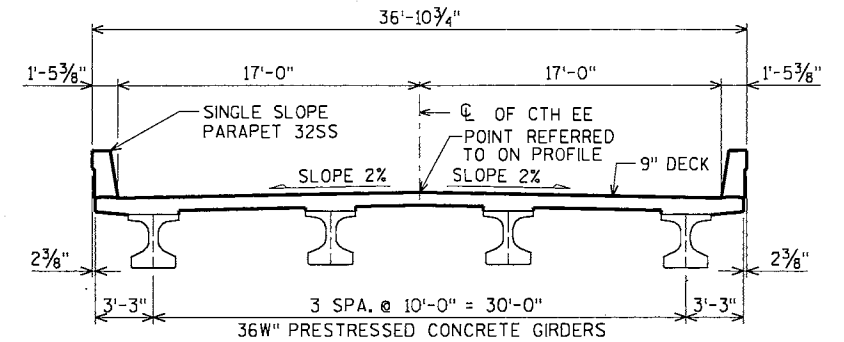
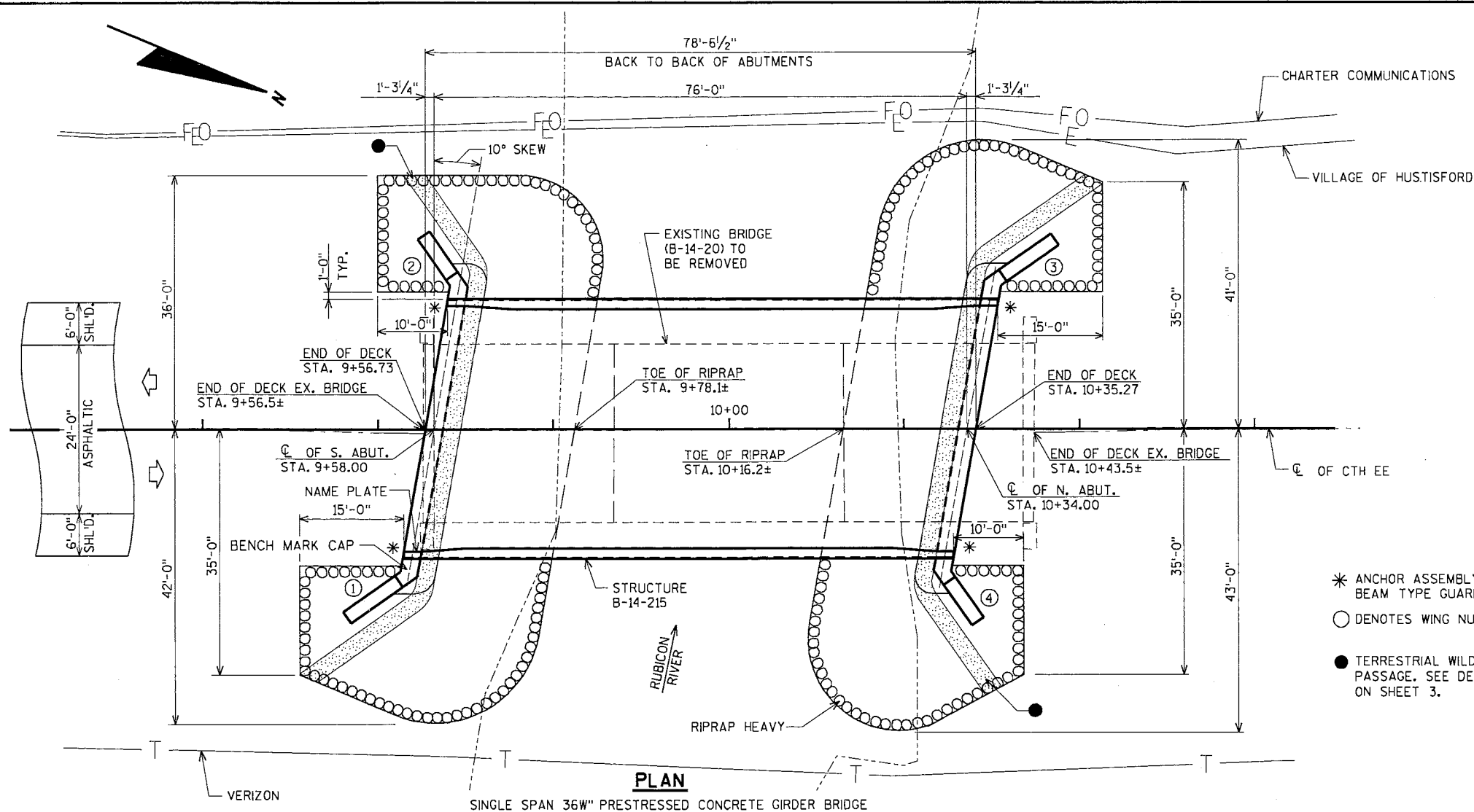
SHEET NO:

E

\$PRNAME\$
U:\41-0695.30 - dodge co. cth ee over rubicon river\bridge\41069530 gp.dgn

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

8



TYPICAL SECTION THRU BRIDGE

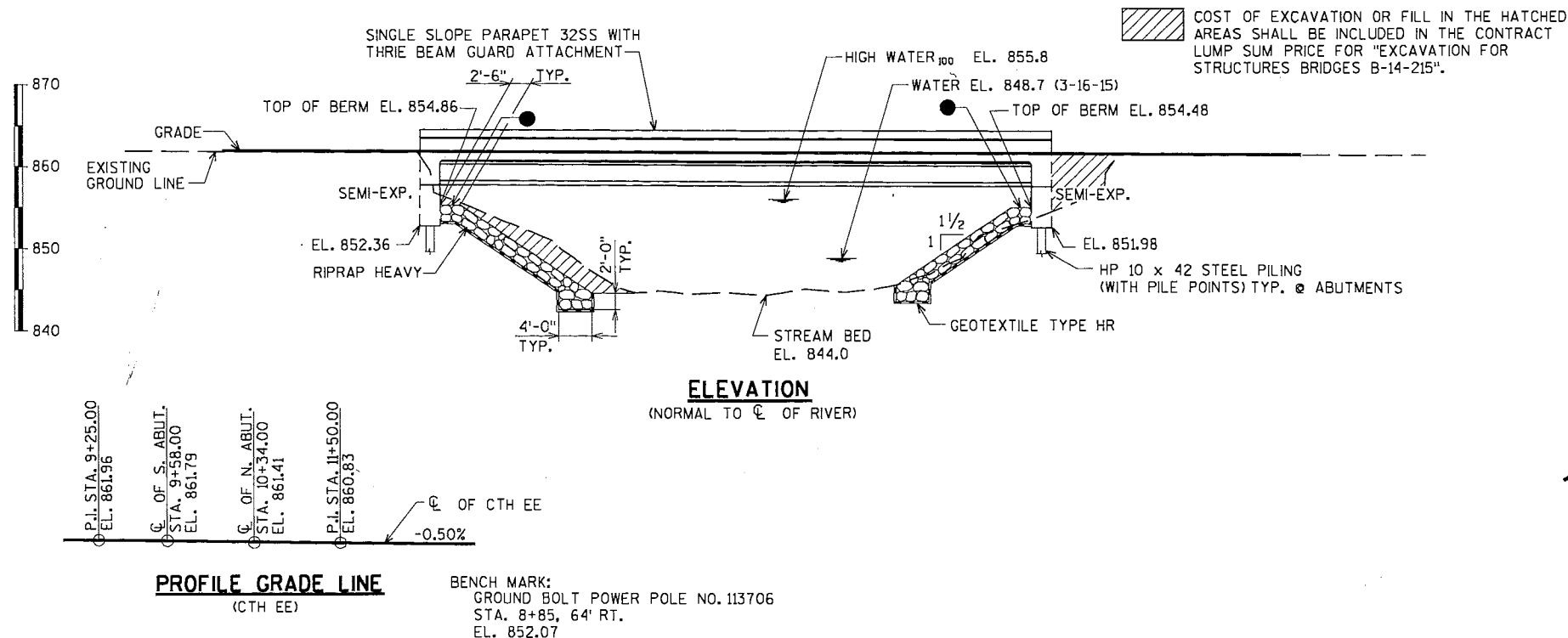
LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES & DESIGN DATA
3. GENERAL NOTES & DETAILS
4. SUBSURFACE EXPLORATION
5. SOUTH ABUTMENT
6. SOUTH ABUTMENT WING 1 DETAILS
7. SOUTH ABUTMENT WING 2 DETAILS
8. SOUTH ABUTMENT DETAILS & BILL OF BARS
9. NORTH ABUTMENT
10. NORTH ABUTMENT WING 3 DETAILS
11. NORTH ABUTMENT WING 4 DETAILS
12. NORTH ABUTMENT DETAILS & BILL OF BARS
13. 36W" PRESTRESSED GIRDER DETAILS
14. 36W" PRESTRESSED GIRDER DETAILS
15. STEEL INTER. DIAPHRAGM DETAILS
16. SUPERSTRUCTURE
17. SUPERSTRUCTURE PLAN
18. SINGLE SLOPE PARAPET 32SS

* ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.
○ DENOTES WING NUMBER.

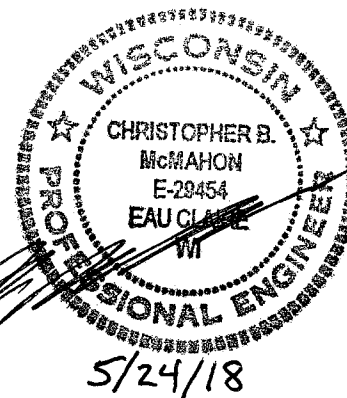
● TERRESTRIAL WILDLIFE PASSAGE. SEE DETAIL ON SHEET 3.

FOR DESIGN DATA
SEE SHEET 2



PROFILE GRADE LINE
(CTH EE)

BENCH MARK:
GROUND BOLT POWER POLE NO. 113706
STA. 8+85, 64' RT.
EL. 852.07



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

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

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
AYRES ASSOCIATES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> ^{SR} 08/07/18 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-14-215			
CTH EE OVER RUBICON RIVER			
COUNTY	DODGE	TOWN/CITY/VILLAGE	HUSTIFORD
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	JWZ	DESIGN CK'D.	CJM
DRAWN BY	CLS	PLANS CK'D.	CBM
GENERAL PLAN			SHEET 1 OF 18

\$PRNAME\$
U:\41-069530 - Dodge Co, CTH EE over Rubicon River\BRIDGE\41069530 gp.dgn

STATE PROJECT NUMBER

3943-00-70

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-14-215	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	290	290	-----	580
502.0100	CONCRETE MASONRY BRIDGES	CY	32	32	129	193
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	300	300
502.3210	PIGMENTED SURFACE SEALER	SY	-----	-----	70	70
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	-----	-----	308	308
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,730	2,730	-----	5,460
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,600	1,600	21,180	24,380
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-----	-----	8	8
506.4000	STEEL DIAPHRAGMS B-14-215	EACH	-----	-----	3	3
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	8	-----	16
550.0500	PILE POINTS	EACH	9	9	-----	18
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	270	270	-----	540
606.0300	RIPRAP HEAVY	CY	190	190	-----	380
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	80	-----	160
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	2	-----	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	55	55	-----	110
645.0120	GEOTEXTILE TYPE HR	SY	320	310	-----	630
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.16
OPERATING RATING FACTOR: 1.78
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

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) _____ fy = 60,000 p.s.i.

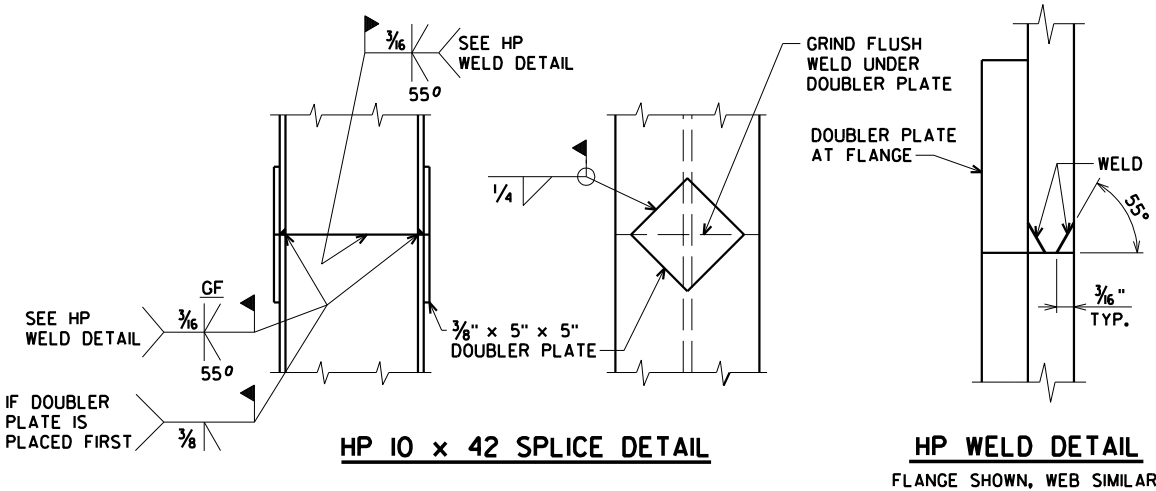
36W" PRESTRESSED GIRDER
CONCRETE MASONRY _____ f'c = 8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF _____ = 270,000 p.s.i.

HYDRAULIC DATA:
100 YEAR FLOOD
DRAINAGE AREA = 80.6 sq. mi. REGULATORY HIGH WATER₁₀₀ EL. 855.9
WATERWAY AREA = 526 sq. ft.
V = 6.0 f.p.s.
Q₁₀₀ = 3,150 c.f.s.
HIGH WATER₁₀₀ EL. 855.8
HIGH WATER₂ EL. 852.1
RDWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 8
NAVD 88 DATUM

FOUNDATION DATA:
ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED LENGTH 30'-0".

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

TRAFFIC DATA:
A.A.D.T. = 1,200 (2017)
A.A.D.T. = 1,400 (2037)
R.D.S. = 50 M.P.H.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
QUANTITIES & DESIGN DATA			SHEET 2 OF 18

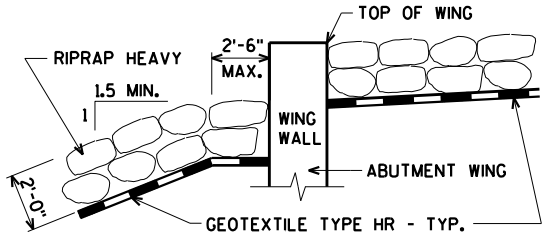
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

\$PRNAME\$
U:\41-0695.30 - Dodge Co, CTH EE over Rubicon River-BRIDGES\41069530 gp.dgn

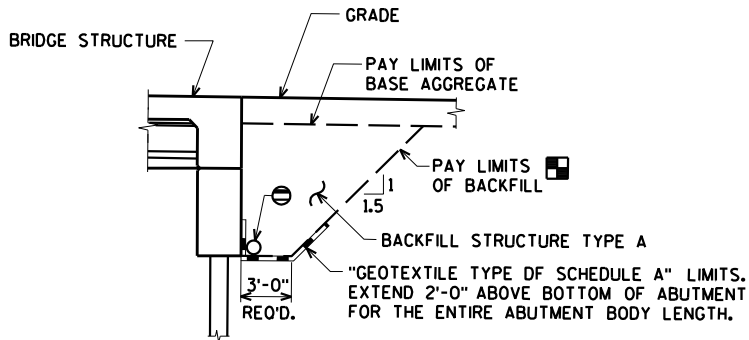
STATE PROJECT NUMBER

3943-00-70

NOTE: PLACE RIPRAP HEAVY AS SHOWN IN WING ELEVATION DETAIL



TYPICAL FILL SECTION AT WING TIPS

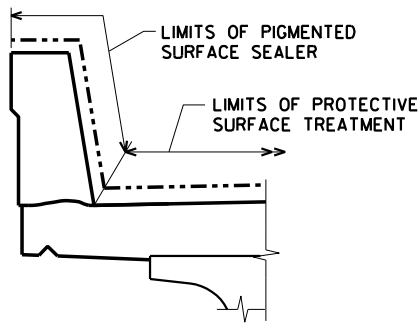


BACKFILL STRUCTURE LIMITS

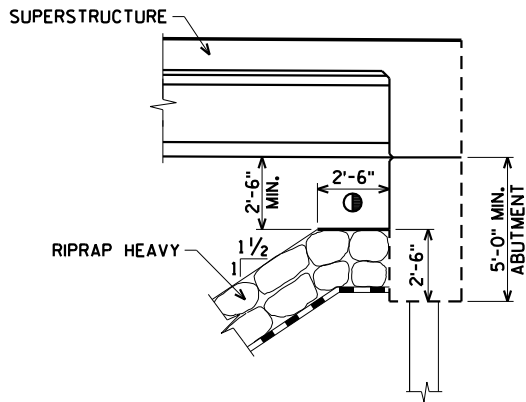
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCLUDED WITH EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 7.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" 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.
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 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 AND IN THE ABUTMENT DETAILS.
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.
THE EXISTING STRUCTURE, B-14-20, TO BE REMOVED, IS A THREE SPAN STEEL DECK GIRDER BRIDGE, 84.0 FT. LONG WITH A 25.0 FT. CLEAR ROADWAY WIDTH.
AT BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.
BEVEL EXPOSED EDGES OF CONCRETE $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.



PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL



TERRESTRIAL WILDLIFE PASSAGE DETAIL

- FILL VOIDS IN RIPRAP HEAVY WITH TRAFFIC BOND LIMESTONE SCREENINGS $\frac{3}{8}$ -INCH TO FULLY FILL ALL VOIDS AND LEAVE, ON AVERAGE, TWO INCHES ABOVE THE LOWEST ROCK POINTS WHERE THEY ABUT EACH OTHER. PROVIDE LEVEL SURFACE OF THE TERRESTRIAL WILDLIFE PASSAGE. THE TRANSITIONS OF THE AT-GRADE TERRESTRIAL WILDLIFE PASSAGE TO THE EDGES OF THE RIPRAP HEAVY SHALL BE GRADUAL WITH NO MORE THAN 2:1 SLOPE. TRAFFIC BOND LIMESTONE SHALL BE COMPACTED IN PLACE. TRAFFIC BOND LIMESTONE TO BE INCIDENTAL IN THE BID ITEM "RIPRAP HEAVY".

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
GENERAL NOTES & DETAILS			SHEET 3 OF 18

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
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Eau Claire, WI 54701
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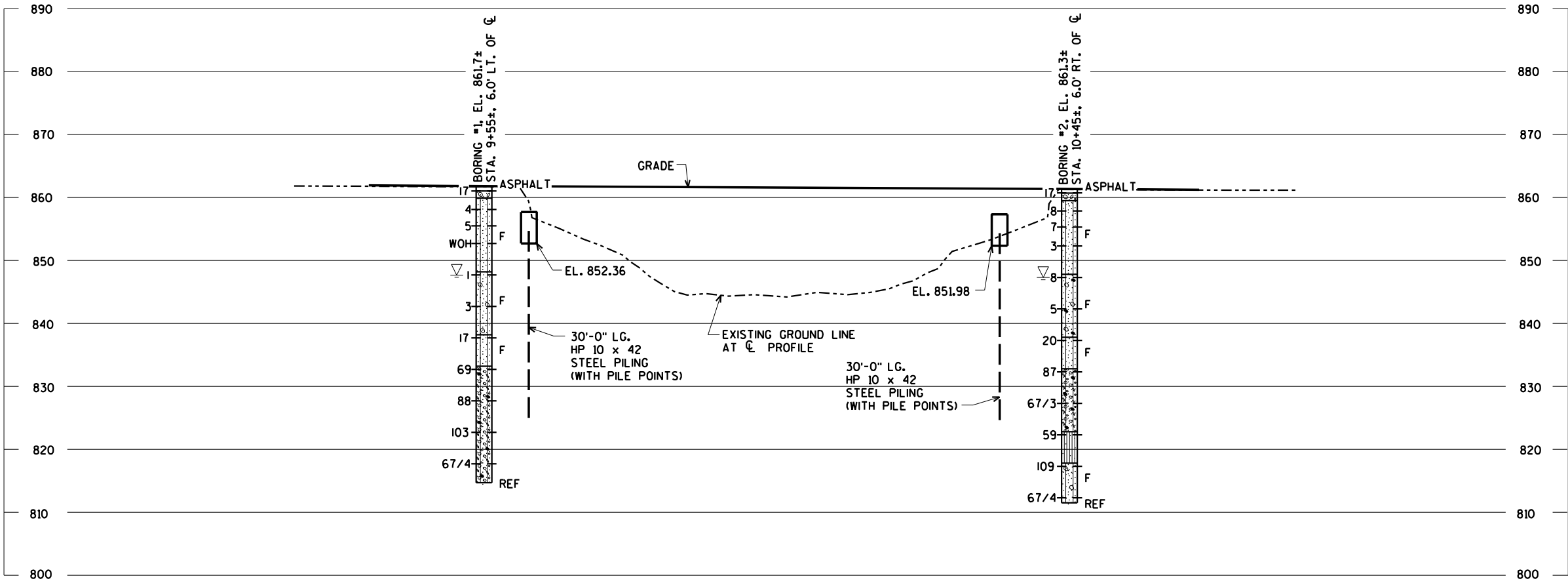
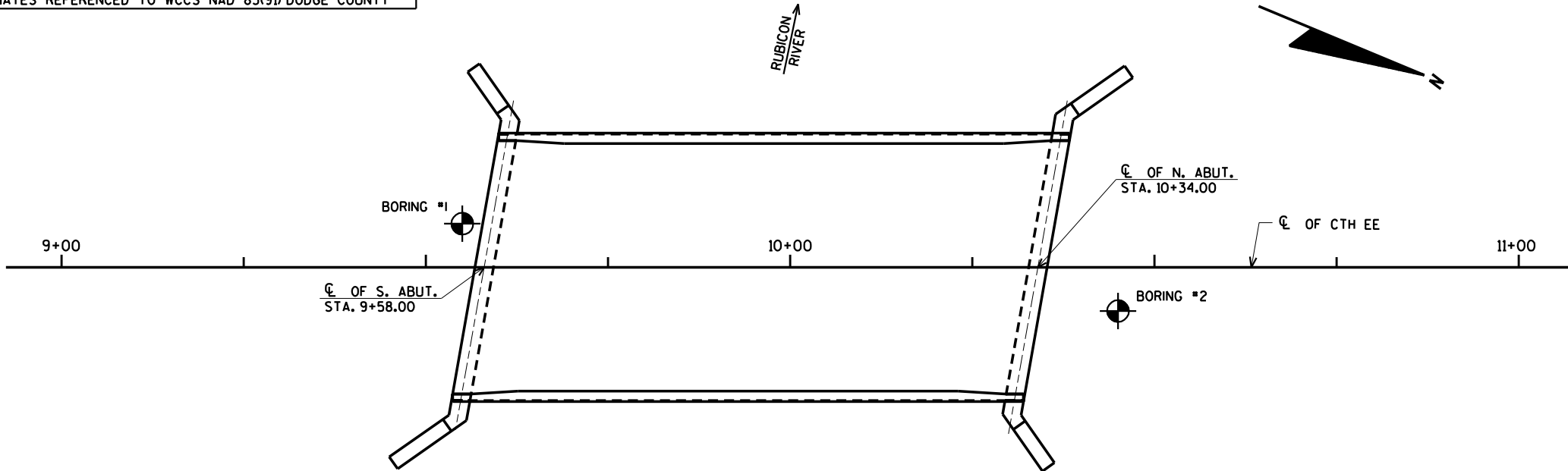
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U:\41-0695.30 - Dodge Co, CTH EE over Rubicon River\BRIDGE\41069530 soils.dgn

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8/18/15	674549.69	919412.57
2	8/18/15	674630.29	919370.75

BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.

REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.

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



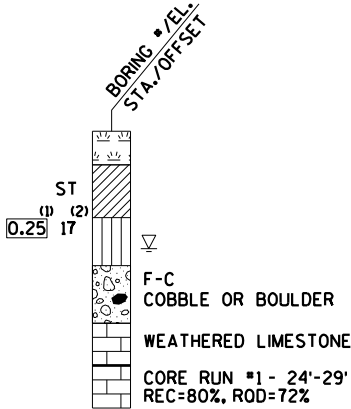
STATE PROJECT NUMBER

3943-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▽ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

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

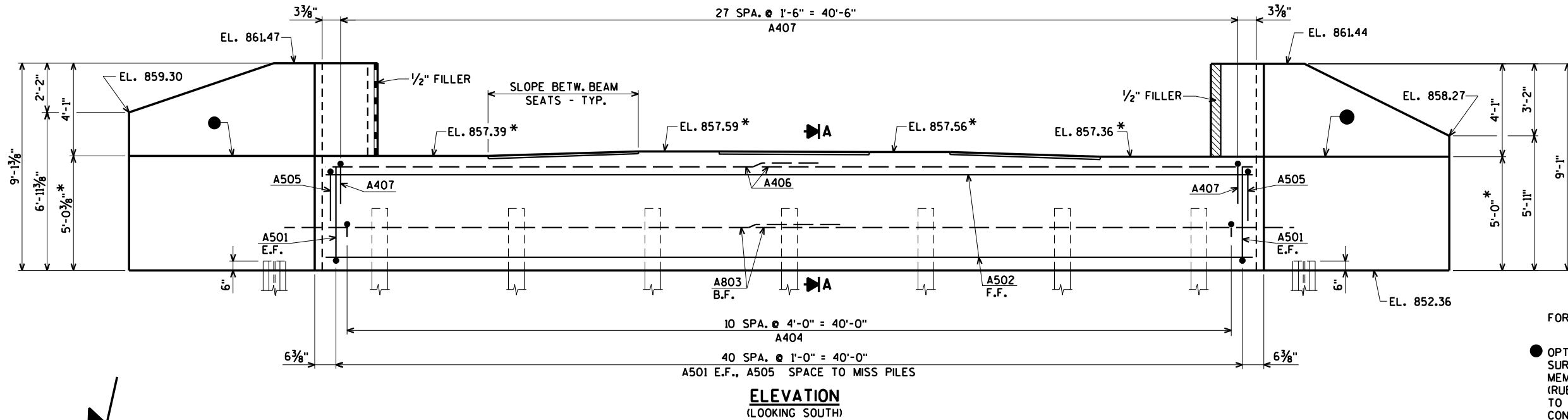
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
SUBSURFACE EXPLORATION		SHEET 4 OF 18	

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

* ELEVATIONS AND DIMENSIONS
 TAKEN AT ϕ OF ABUT.



FOR SECTION A SEE SHEET 8

● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F. (RUBBERIZED MEMBRANE WATERPROOFING INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES" IF CONST. JOINT IS USED).

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

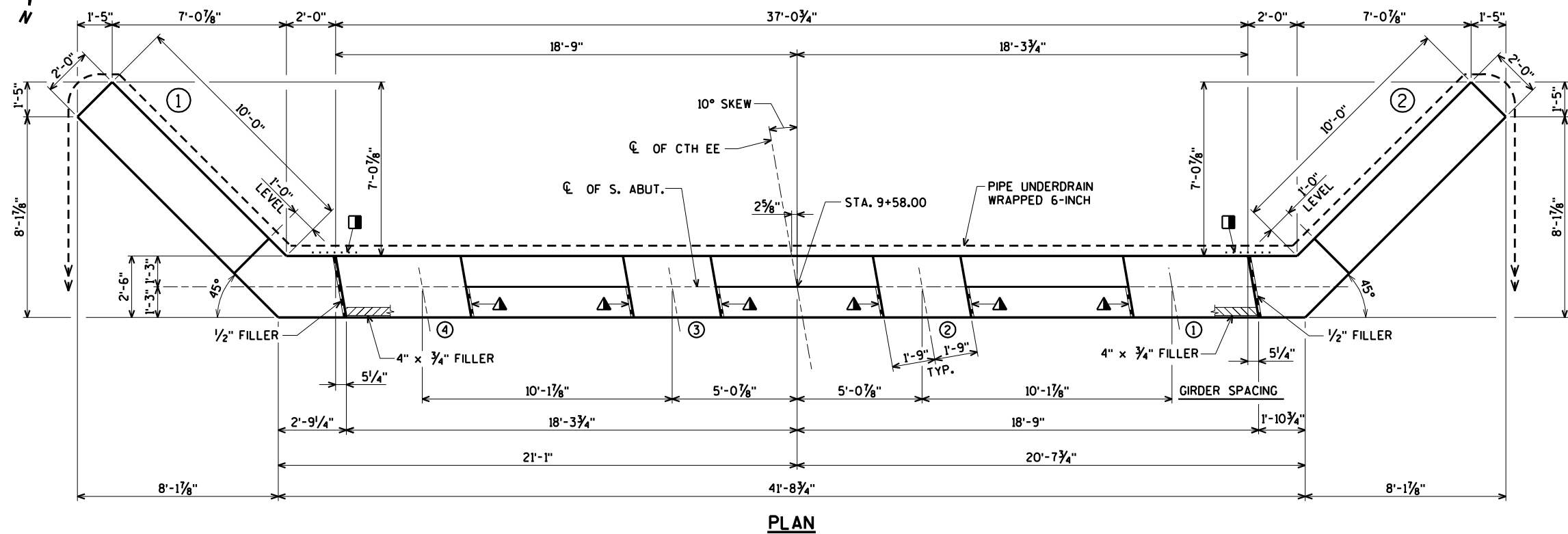
▲ $\frac{3}{4}$ " CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPlice DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
SOUTH ABUTMENT			SHEET 5 OF 18

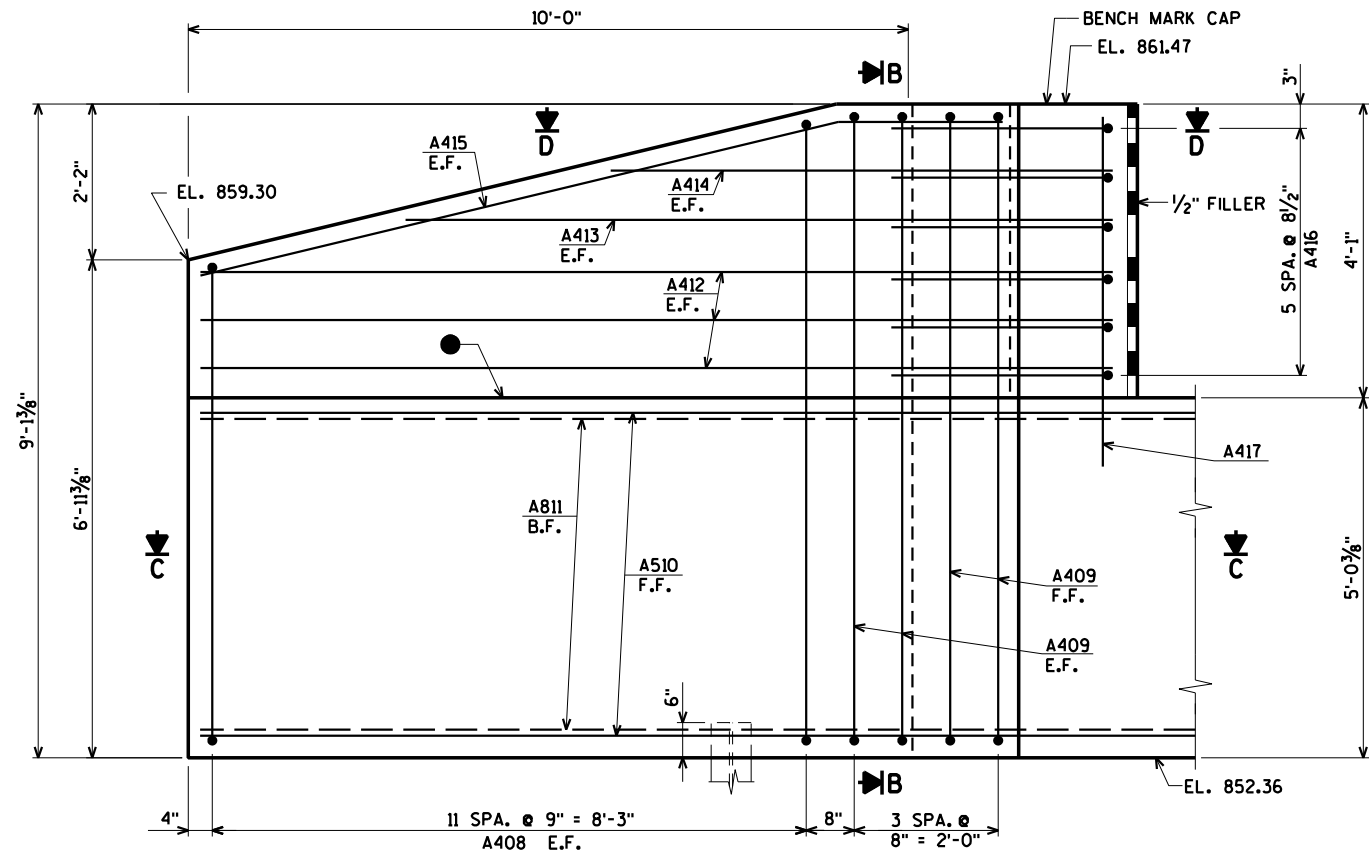
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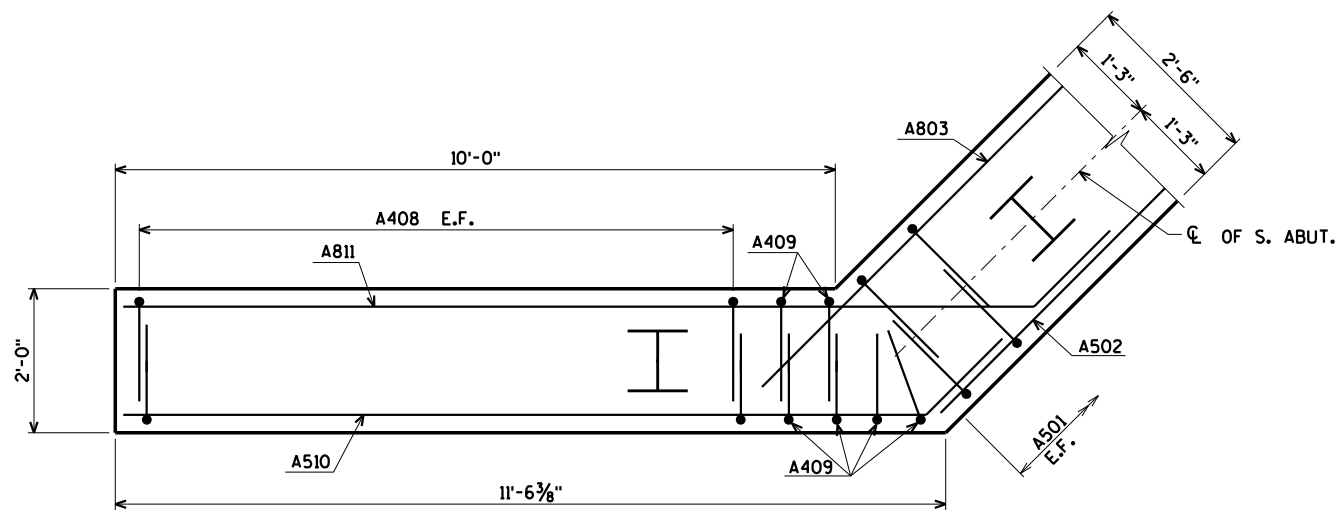
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STATE PROJECT NUMBER

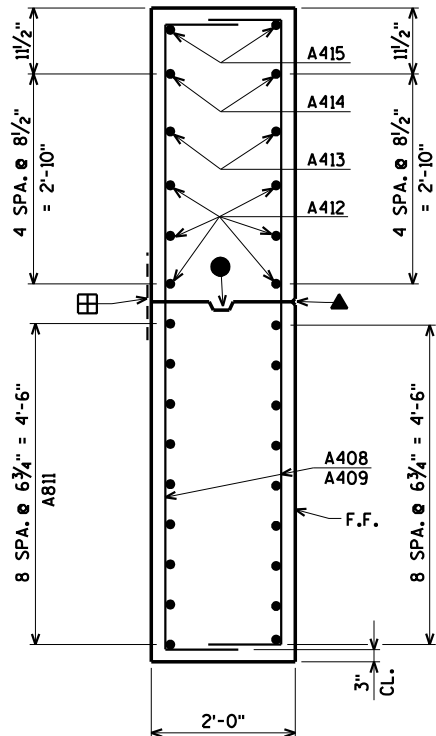
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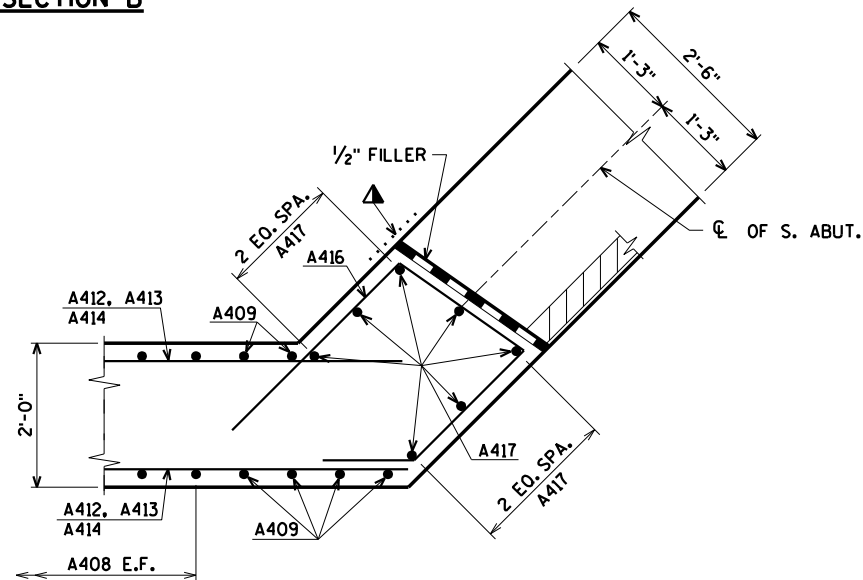
ELEVATION - WING I



SECTION C



SECTION B



SECTION D

- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
 - OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
 - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
 - ⊞ RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JOINT IS USED (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
- FOR PILE SPlice DETAIL SEE SHEET 2.
- F.F. DENOTES FRONT FACE.
B.F. DENOTES BACK FACE.
E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
SOUTH ABUTMENT WING 1 DETAILS			SHEET 6 OF 18

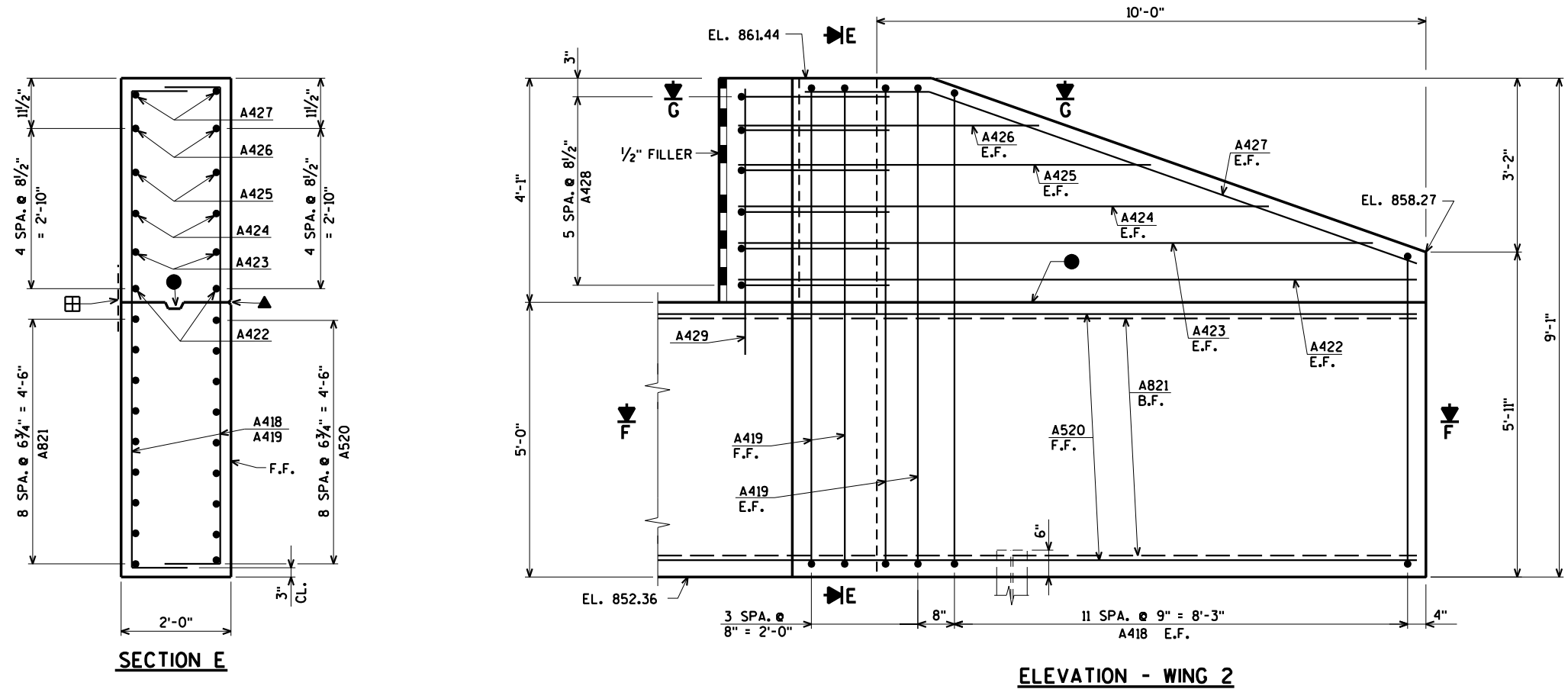
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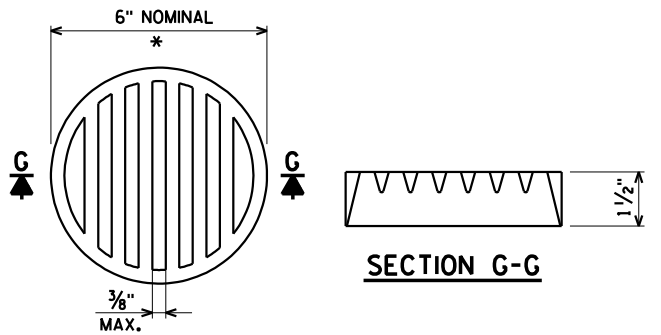
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STATE PROJECT NUMBER

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- FOR PILE SPLICE DETAIL SEE SHEET 2.
- F.F. DENOTES FRONT FACE.
B.F. DENOTES BACK FACE.
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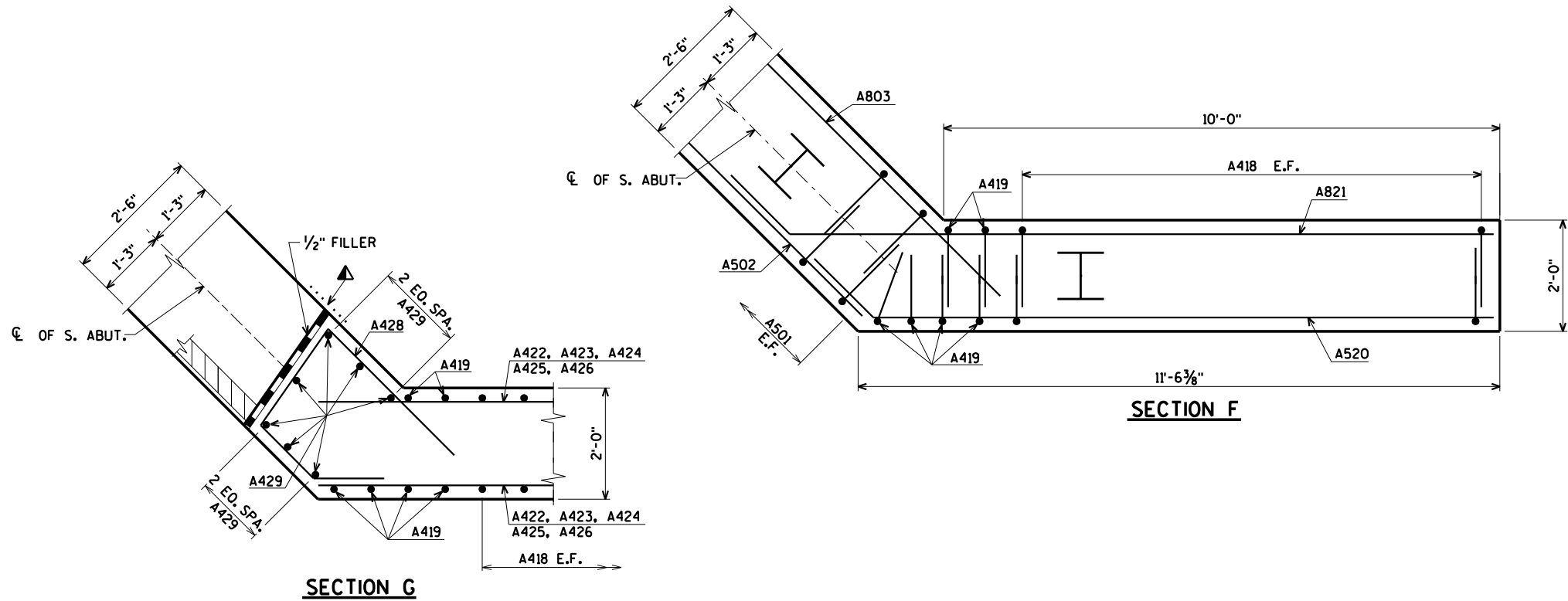


* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

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

RODENT SHIELD DETAIL



NO.	DATE	REVISION	BY
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STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
SOUTH ABUTMENT WING 2 DETAILS		SHEET 7 OF 18	

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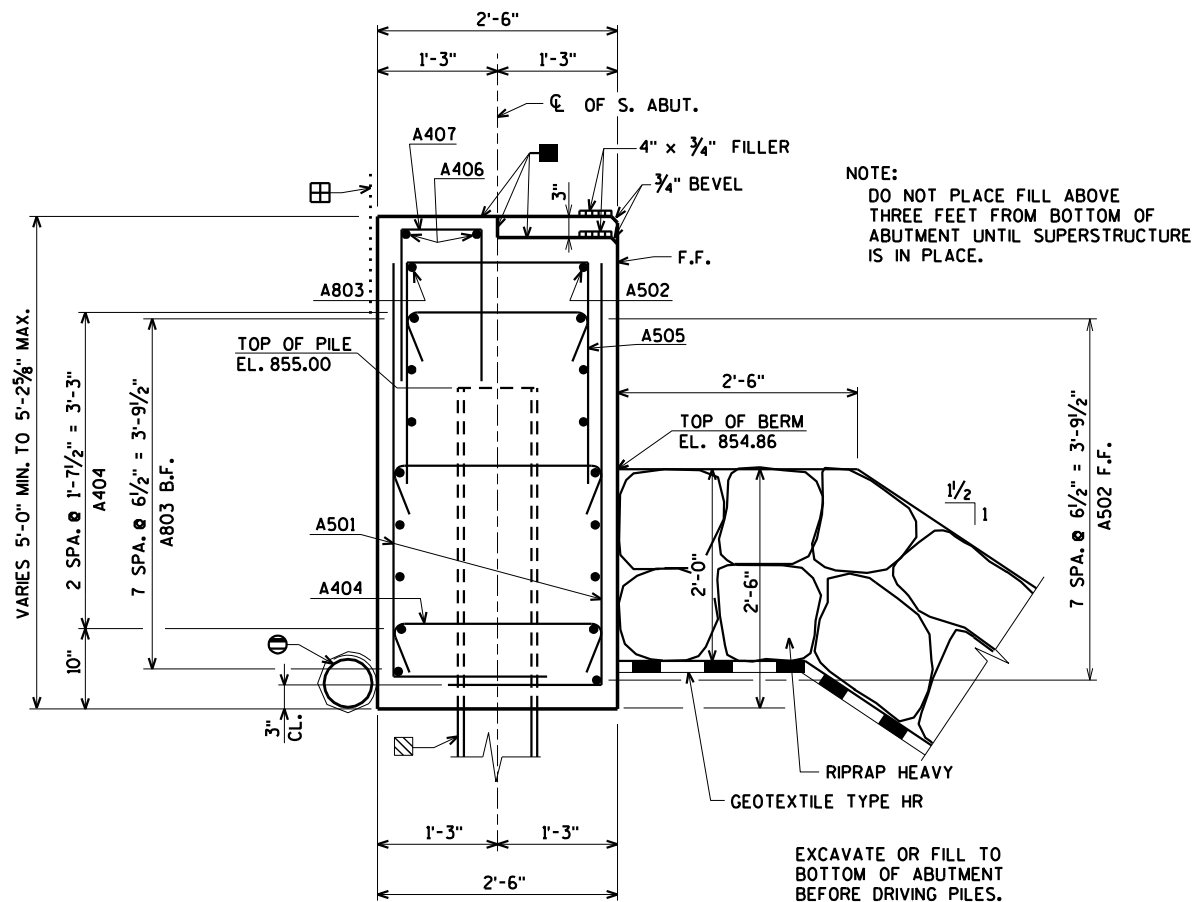
BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2,730* UNCOATED 1,600* COATED
							LOCATION
A501		82	5-9	X			BODY VERT. E.F.
A502		9	41-7				BODY HORIZ. F.F.
A803		18	27-0	X			BODY HORIZ. B.F.
A404		33	2-9	X			BODY TIES
A505		41	8-3	X			BODY VERT. TOP
A406		4	21-4				BODY HORIZ. TOP
A407		28	4-5	X			BODY VERT. TOP
A408	X	24	10-0	X	⊗		WING 1 VERT. E.F.
A409	X	6	11-2	X			WING 1 VERT. E.F.
A510	X	9	12-9	X			WING 1 HORIZ. F.F.
A811	X	9	14-6	X			WING 1 HORIZ. B.F.
A412	X	6	11-2				WING 1 HORIZ. E.F.
A413	X	2	8-8				WING 1 HORIZ. E.F.
A414	X	2	5-7				WING 1 HORIZ. E.F.
A415	X	2	10-5	X			WING 1 DIAG. E.F.
A416	X	6	8-11	X			WING 1 HORIZ.
A417	X	7	5-5				WING 1 VERT.
A418	X	24	9-0	X	⊗		WING 2 VERT. E.F.
A419	X	6	11-2	X			WING 2 VERT. E.F.
A520	X	9	12-9	X			WING 2 HORIZ. F.F.
A821	X	9	14-6	X			WING 2 HORIZ. B.F.
A422	X	2	11-2				WING 2 HORIZ. E.F.
A423	X	2	10-7				WING 2 HORIZ. E.F.
A424	X	2	8-7				WING 2 HORIZ. E.F.
A425	X	2	6-7				WING 2 HORIZ. E.F.
A426	X	2	4-7				WING 2 HORIZ. E.F.
A427	X	2	10-8	X			WING 2 DIAG. E.F.
A428	X	6	8-1	X			WING 2 HORIZ.
A429	X	7	5-5				WING 2 VERT.

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

■ 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".

E.F. DENOTES EACH FACE

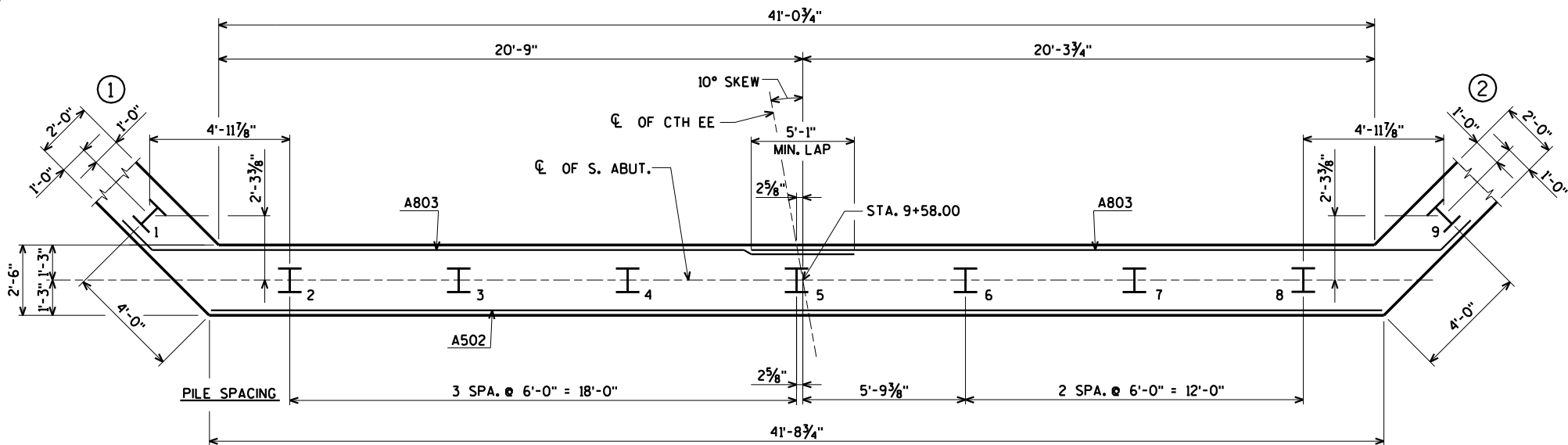
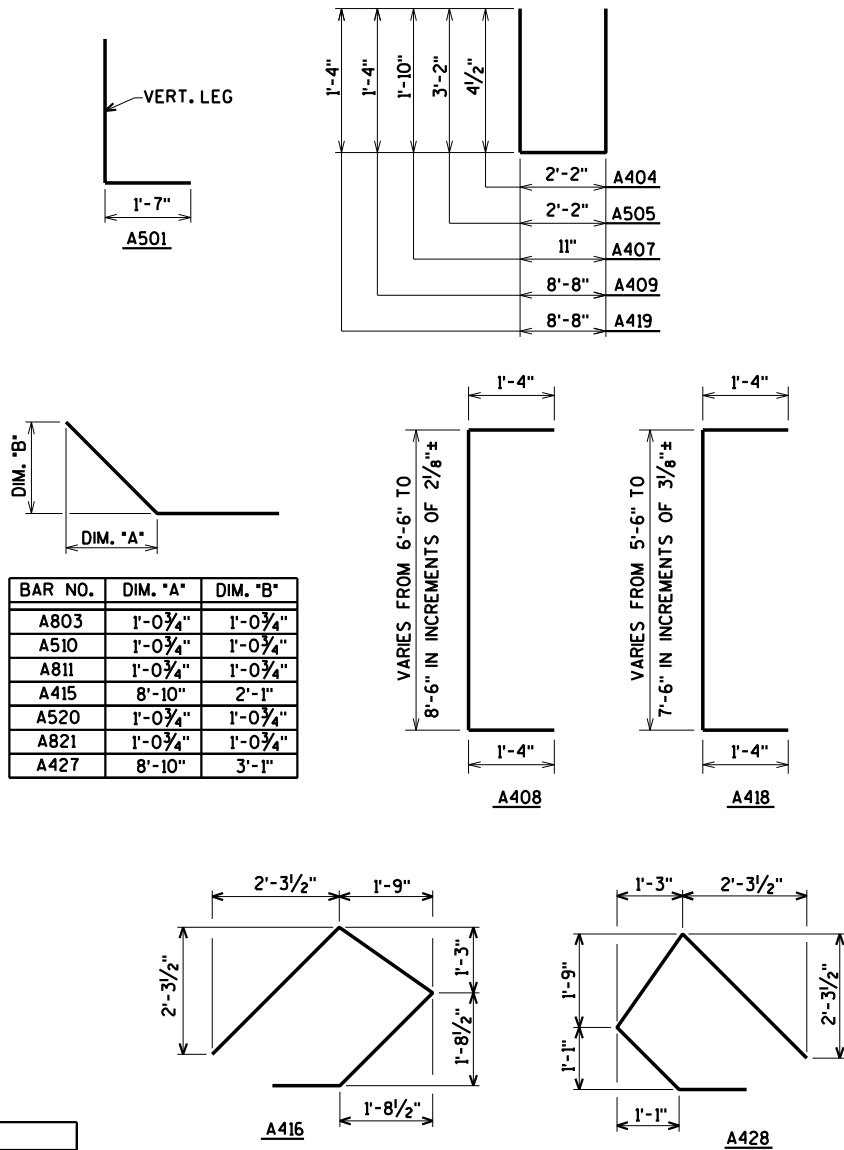
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
		DRAWN BY	CLC PLANS CK'D. CJM
SOUTH ABUTMENT DETAILS & BILL OF BARS		SHEET 8 OF 18	



ABUTMENT TO BE SUPPORTED
ON HP 10 x 42 STEEL PILING (WITH PILE
POINTS) DRIVEN TO A REQ'D. DRIVING
RESISTANCE OF 180 TONS PER PILE
ESTIMATED LENGTH 30'-0".

BAR MARK	NO REQ'D.	LENGTH
A408	2 SERIES OF 12	9'-0" TO 11'-0"
A418	2 SERIES OF 12	8'-0" TO 10'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.



PILE LAYOUT

* ELEVATIONS AND DIMENSIONS
TAKEN AT C OF ABUT.



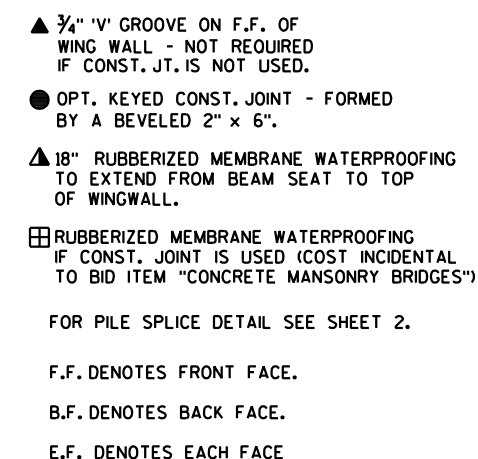
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION				
STRUCTURE B-14-215				
		DRAWN BY	CLS	PLANS CK'D. CJM
NORTH ABUTMENT			SHEET 9 OF	



- F.F. DENOTES FRONT FACE.
B.F. DENOTES BACK FACE.
E.F. DENOTES EACH FACE



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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
		DRAWN BY	CLS
		PLANS CK'D.	CJM
NORTH ABUTMENT WING 3 DETAILS		SHEET 10 OF 1	



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
		DRAWN BY	CLS PLANS CK'D. CJM
NORTH ABUTMENT WING 4 DETAILS		SHEET 11 OF 18	

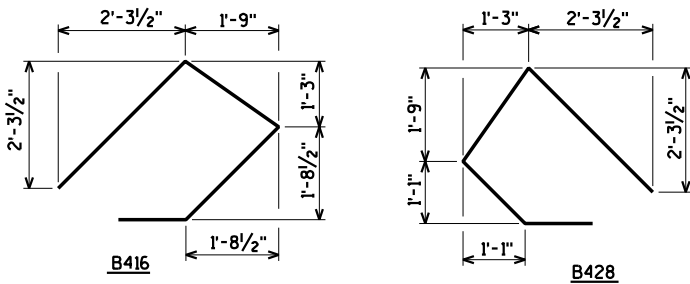
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B409	X	6	11-2	X			WING 3 VERT. E.F.
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B811	X	9	14-6	X			WING 3 HORIZ. B.F.
B412	X	6	11-2				WING 3 HORIZ. E.F.
B413	X	2	8-8				WING 3 HORIZ. E.F.
B414	X	2	5-7				WING 3 HORIZ. E.F.
B415	X	2	10-5	X			WING 3 DIAG. E.F.
B416	X	6	8-11	X			WING 3 HORIZ.
B417	X	7	5-5				WING 3 VERT.
B418	X	24	9-0	X	⊗		WING 4 VERT. E.F.
B419	X	6	11-2	X			WING 4 VERT. E.F.
B520	X	9	12-9	X			WING 4 HORIZ. F.F.
B821	X	9	14-6	X			WING 4 HORIZ. B.F.
B422	X	2	11-2				WING 4 HORIZ. E.F.
B423	X	2	10-7				WING 4 HORIZ. E.F.
B424	X	2	8-7				WING 4 HORIZ. E.F.
B425	X	2	6-7				WING 4 HORIZ. E.F.
B426	X	2	4-7				WING 4 HORIZ. E.F.
B427	X	2	10-8	X			WING 4 DIAG. E.F.
B428	X	6	8-1	X			WING 4 HORIZ.
B429	X	7	5-5				WING 4 VERT.

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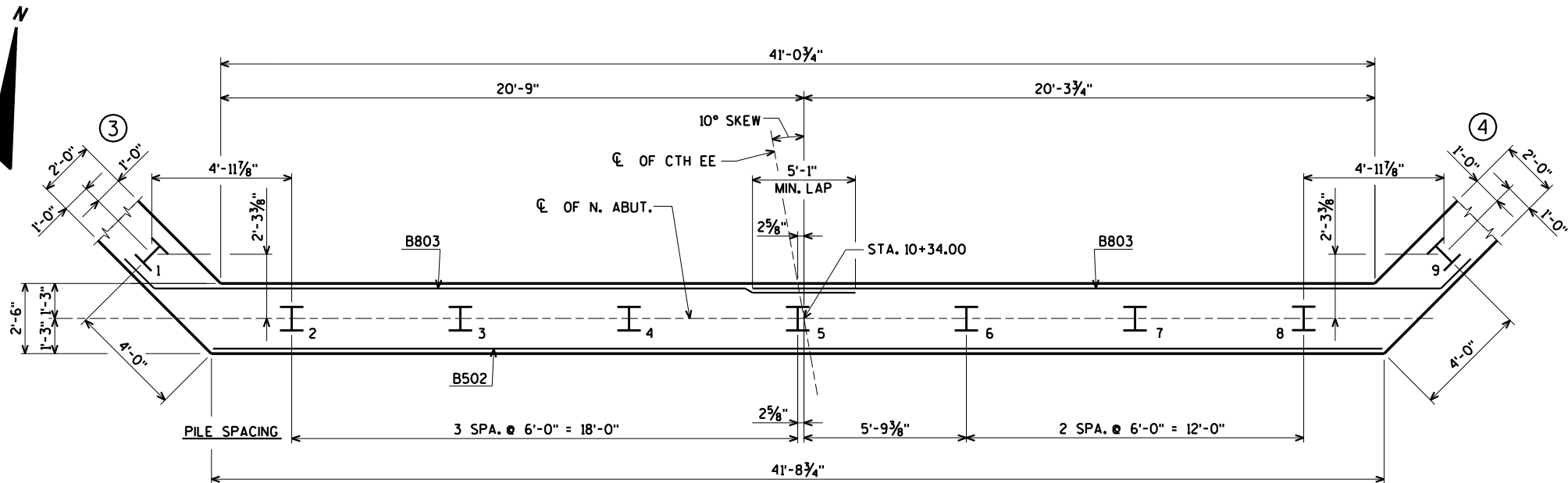
E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
NORTH ABUTMENT DETAILS & BILL OF BARS		SHEET 12 OF 18	



BAR MARK	NO REQ'D.	LENGTH
B408	2 SERIES OF 12	9'-0" TO 11'-0"
B418	2 SERIES OF 12	8'-0" TO 10'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.



PILE LAYOUT

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECTION 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH A THICK COAT OF BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

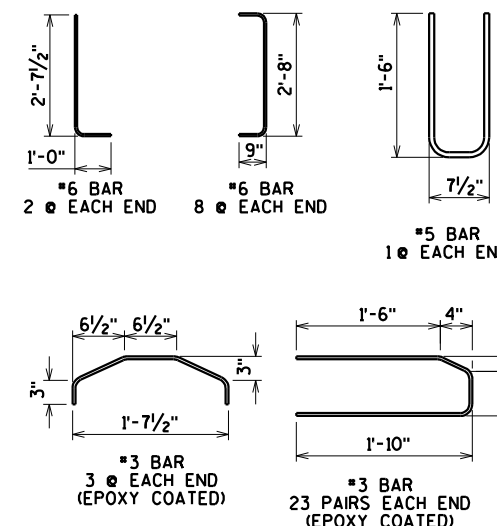
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF)
ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP
REINFORCEMENT SHOWN, UPON APPROVAL OF THE
STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE
LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF
270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE
"STEEL INTER. DIAPHRAGM DETAILS" SHEET.



(B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"

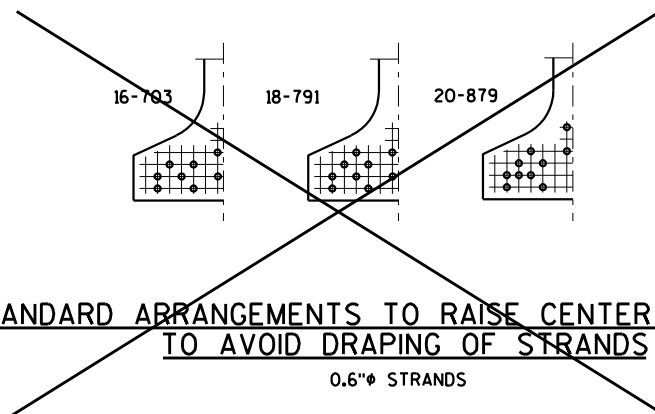
* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

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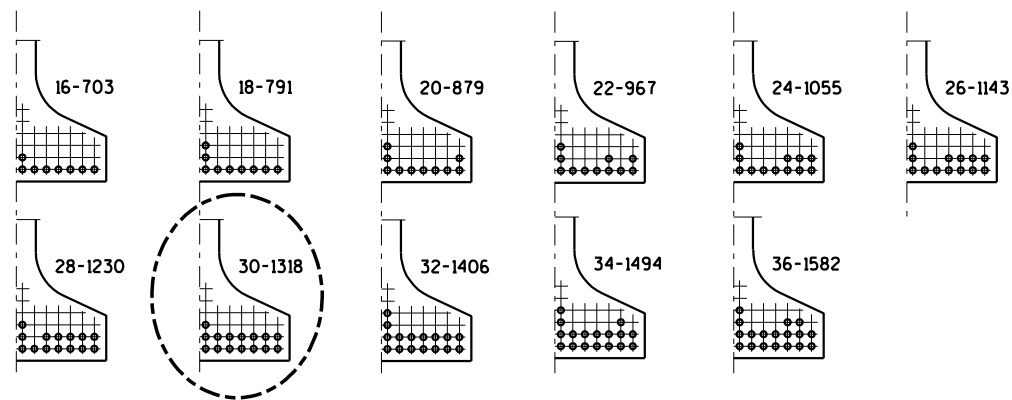
STATE PROJECT NUMBER

3943-00-70



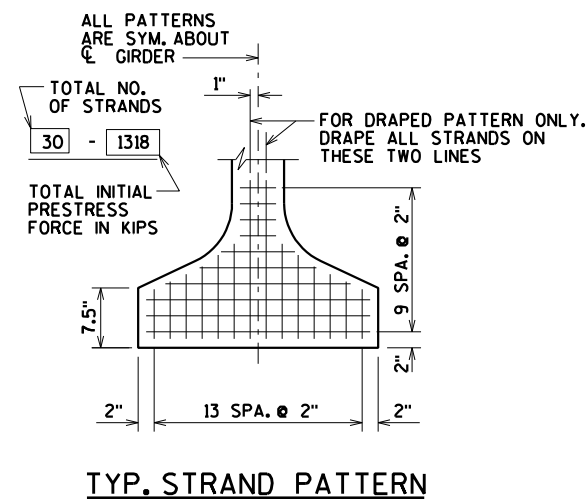
**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF STRANDS**

0.6" ϕ STRANDS

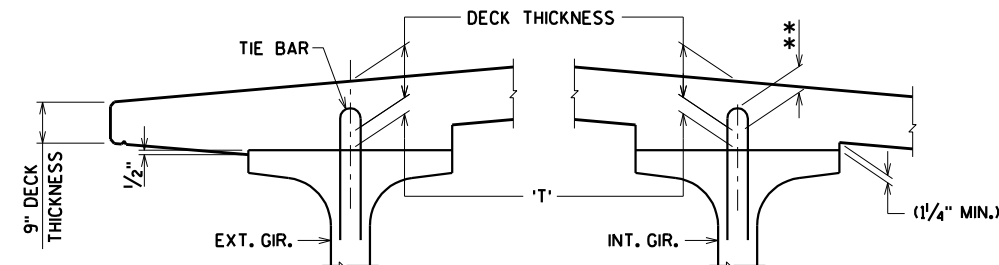


ARRANGEMENT AT ϕ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" ϕ STRANDS



TYP. STRAND PATTERN



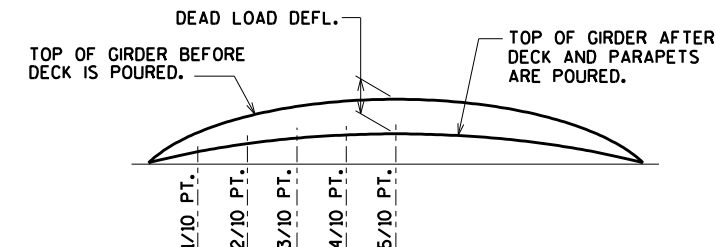
DECK HAUNCH DETAIL

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

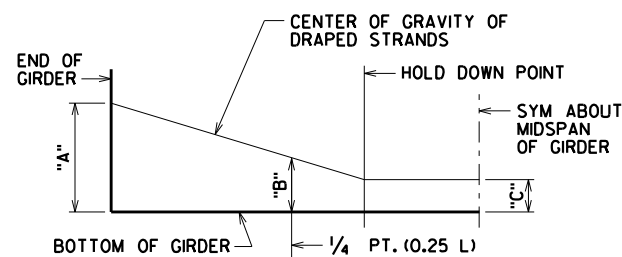
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ϕ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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

NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	3.1

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

8

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
	DRAWN BY	CLS	PLANS CK'D. CJM
36W" PRESTRESSED GIRDER DETAILS			SHEET 14 OF 18

NOTES

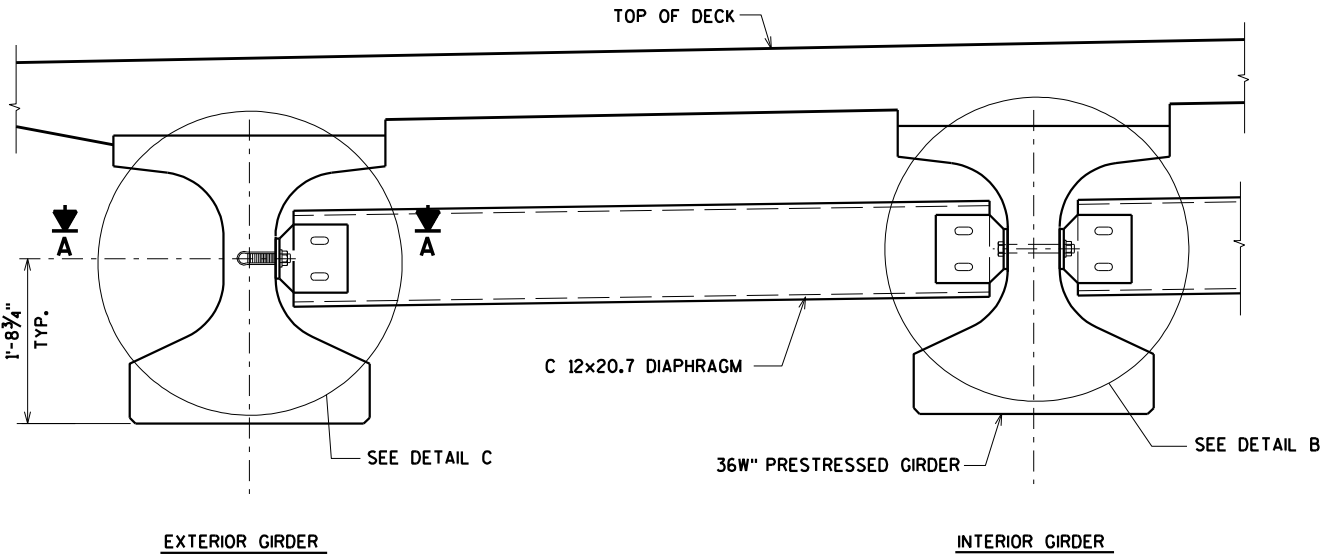
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-14-215", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

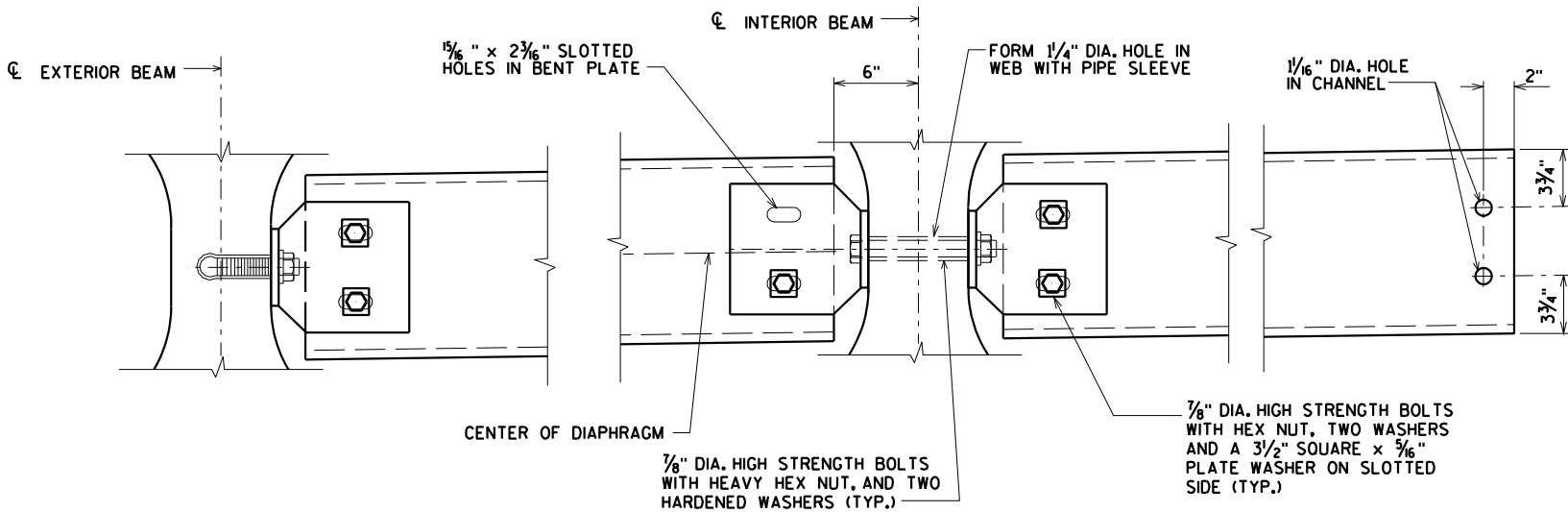
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

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

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

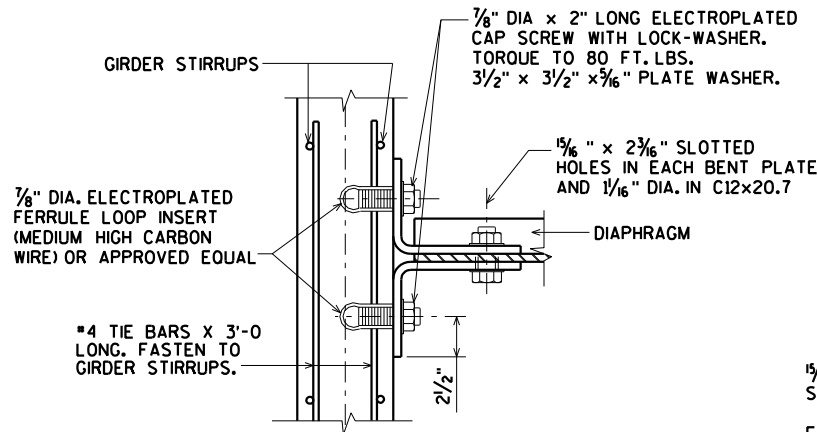


PART TRANSVERSE SECTION AT DIAPHRAGM

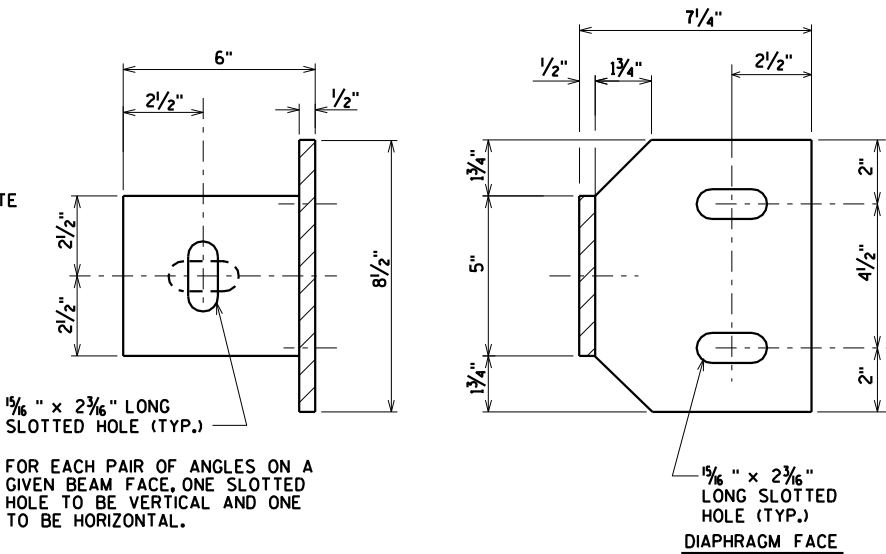


DETAIL C

DETAIL B

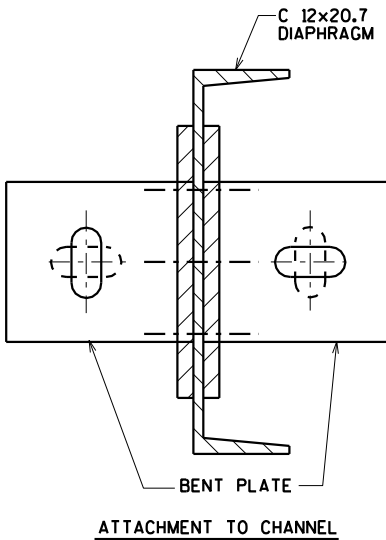


SECTION A-A
(FOR EXTERIOR ATTACHMENT)



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY
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STRUCTURE B-14-215			
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STEEL INTER. DIAPHRAGM DETAILS			SHEET 15 OF 18

\$PRFNAME\$
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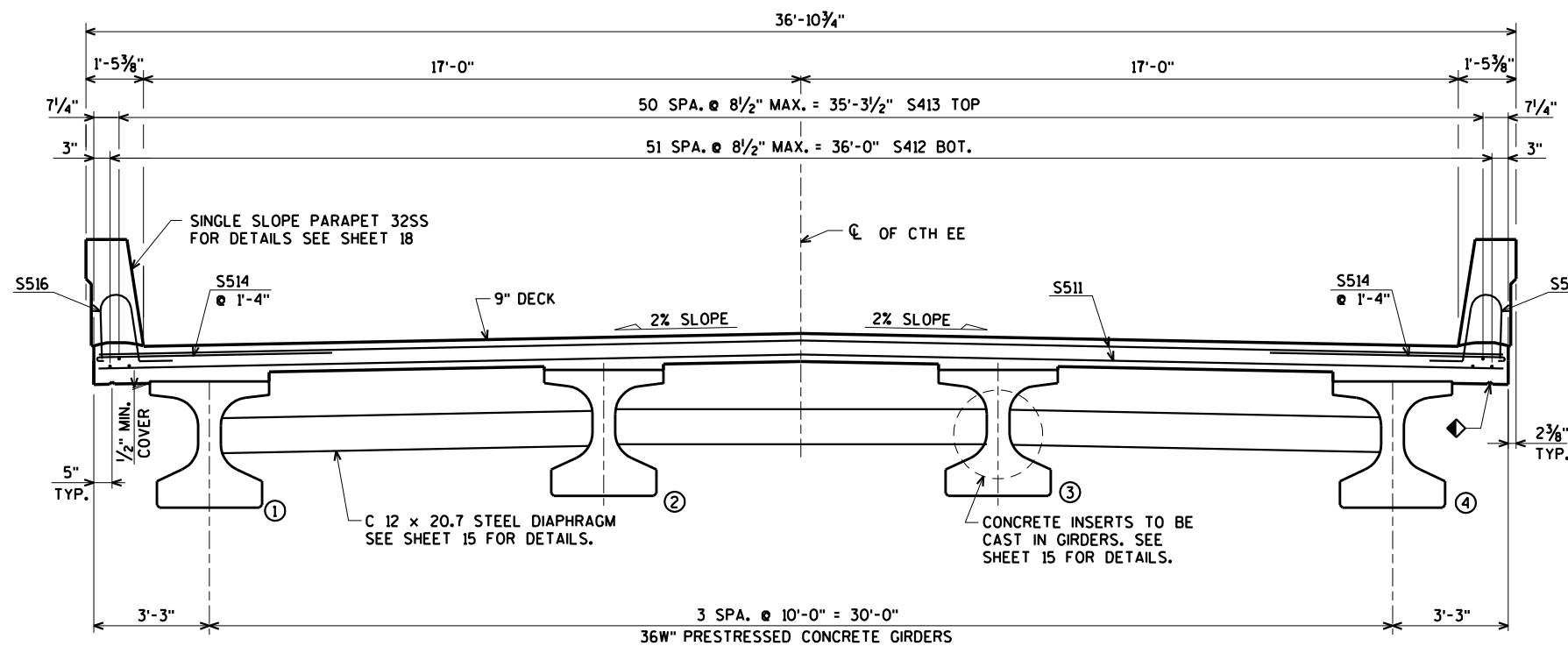
STATE PROJECT NUMBER

3943-00-70

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	21,180* COATED
							LOCATION
S401	X	42	3-2	X			DIAPH. @ ABUT. VERT. @ NOTCH
S402	X	12	6-4				DIAPH. @ ABUT. HORIZ. @ NOTCH
S503	X	72	11-6	X			DIAPH. @ ABUT. VERT.
S504	X	16	7-10	X			DIAPH. @ ABUT. VERT. @ GIRDERS
S505	X	72	5-3	X			DIAPH. @ ABUT. VERT.
S606	X	10	36-8				DIAPH. @ ABUT. HORIZ.
S607	X	30	5-9				DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S608	X	4	1-8				DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S609	X	8	2-8				DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S510	X	16	6-0				DIAPH. @ ABUT. HORIZ. THRU GDRS.
S511	X	235	36-8				DECK TRANS. TOP & BOT.
S412	X	104	40-0				DECK LONG. BOT.
S413	X	102	40-4				DECK LONG. TOP
S514	X	118	4-7	X			DECK TRANS. TOP @ EDGES
S515	X	68	4-4	X			DECK @ PARAPET VERT.
S516	X	186	4-5	X			DECK @ PARAPET VERT.
S517	X	186	5-0	X			PARAPET VERT.
S518	X	20	40-5				PARAPET HORIZ.
S519	X	4	40-5	X			PARAPET HORIZ.
S520	X	48	2-9	X			DECK @ PARAPET VERT.
S521	X	44	4-9	X			PARAPET VERT.
S522	X	24	4-10	X			PARAPET VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



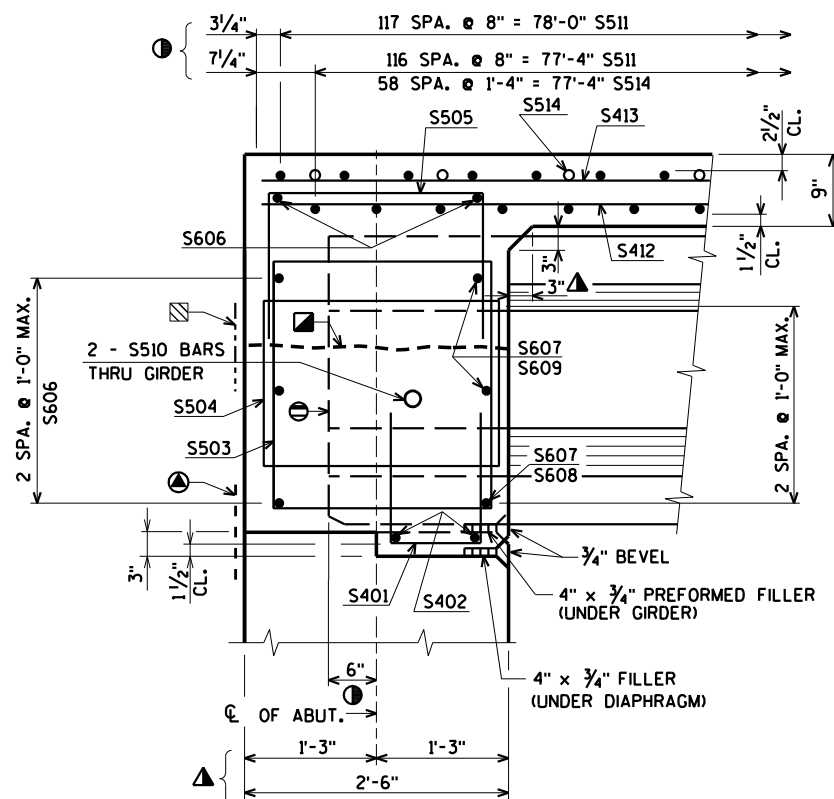
3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM - TYP.

END OF GIRDER

18" RUBBERIZED MEMBRANE WATERPROOFING

18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")

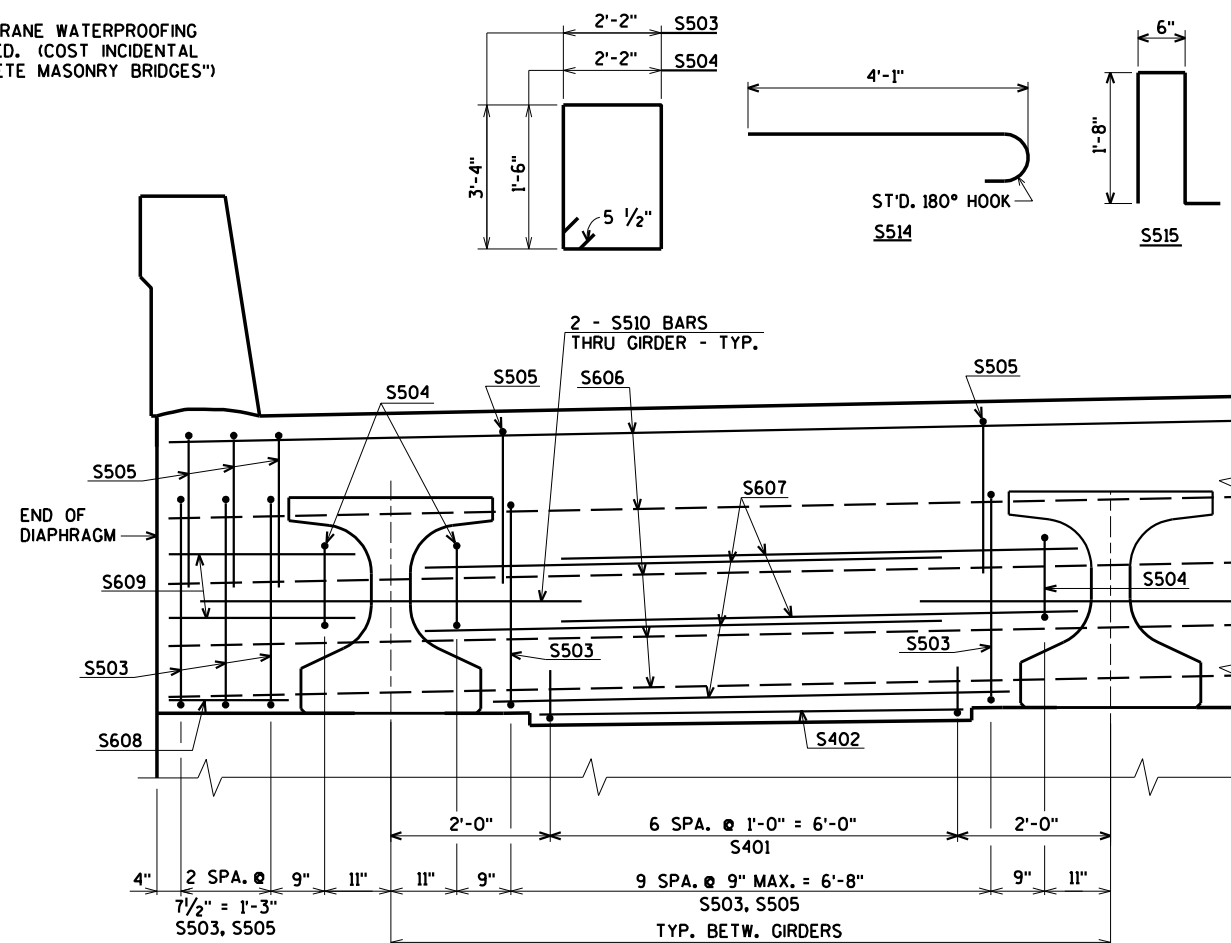
OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.



PART LONGITUDINAL SECTION

DIMENSIONS MEASURED ALONG CL OF GIRDER.

DIMENSIONS MEASURED NORMAL TO CL OF SUBSTRUCTURE UNIT.



PART ELEVATION AT ABUTMENT

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
SUPERSTRUCTURE			SHEET 16 OF 18



PLAN

	£ OF BRG. S. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	£ OF BRG. N. ABUT.
W. EDGE OF DECK	861.44	861.40	861.36	861.32	861.29	861.25	861.21	861.17	861.13	861.10	861.06
GIRDER 1	861.48	861.44	861.40	861.36	861.33	861.29	861.25	861.21	861.17	861.14	861.10
GIRDER 2	861.68	861.64	861.60	861.56	861.53	861.49	861.45	861.41	861.37	861.34	861.30
£ OF CTH EE	861.79	861.76	861.72	861.68	861.64	861.60	861.57	861.53	861.49	861.45	861.41
GIRDER 3	861.71	861.67	861.63	861.59	861.56	861.52	861.48	861.44	861.40	861.37	861.33
GIRDER 4	861.51	861.47	861.43	861.39	861.36	861.32	861.28	861.24	861.20	861.17	861.13
E. EDGE OF DECK	861.47	861.43	861.39	861.35	861.32	861.28	861.24	861.20	861.16	861.13	861.09

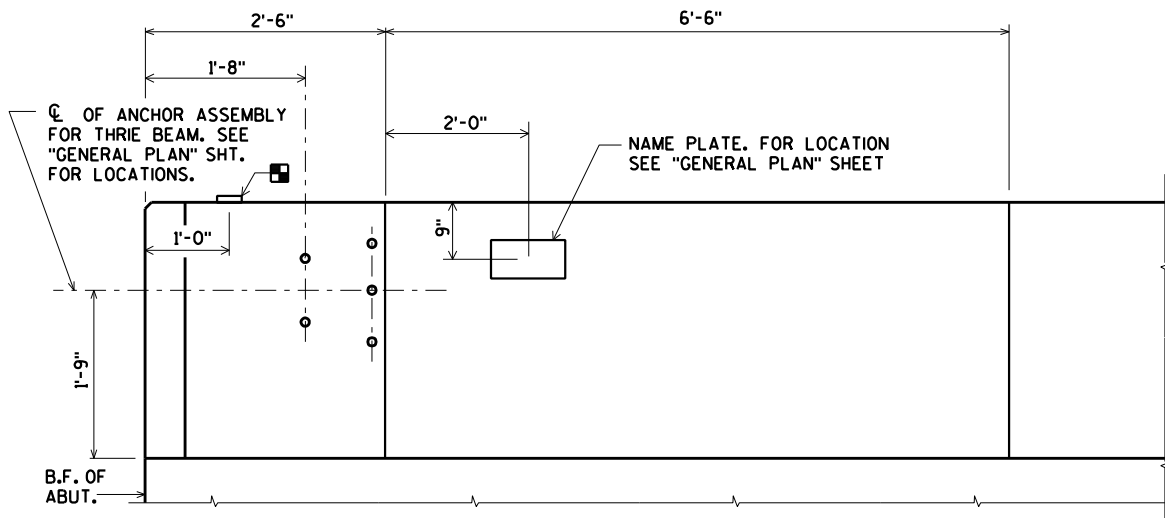
GIRDER	DIM. 'A'	DIM. 'B'
1	35' - 10 ¹ / ₄ "	41' - 1 ³ / ₄ "
2	37' - 7 ³ / ₈ "	39' - 4 ⁵ / ₈ "
3	39' - 4 ⁵ / ₈ "	37' - 7 ³ / ₈ "
4	41' - 1 ³ / ₄ "	35' - 10 ¹ / ₄ "



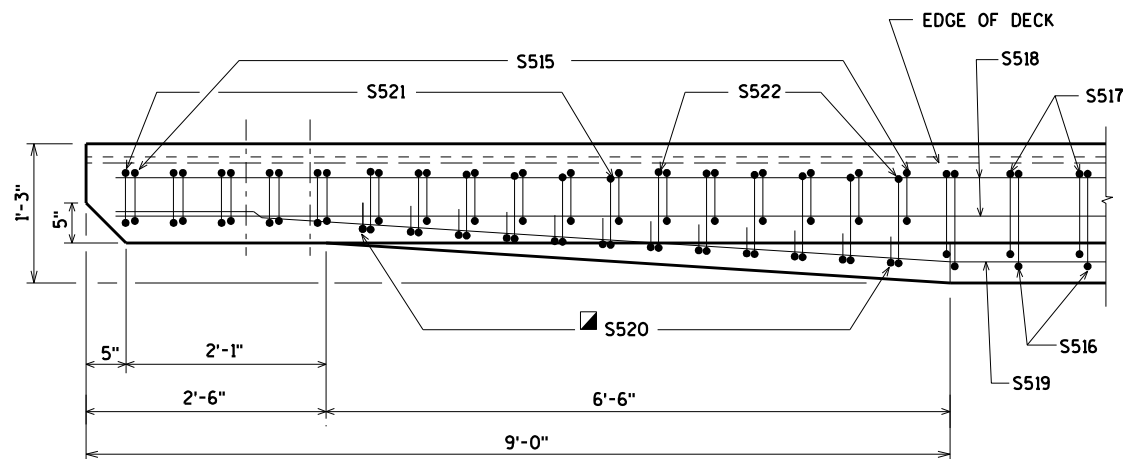
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
		DRAWN BY	CLS
		PLANS CK'D.	CJM
SUPERSTRUCTURE PLAN		SHEET 17 OF 18	

\$PRFNAMES
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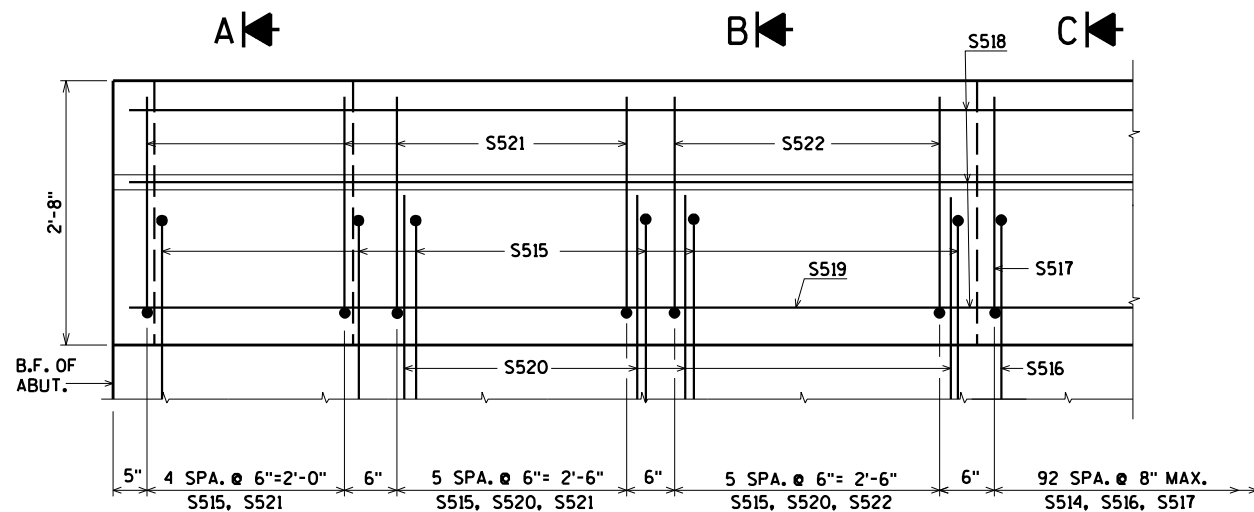
8



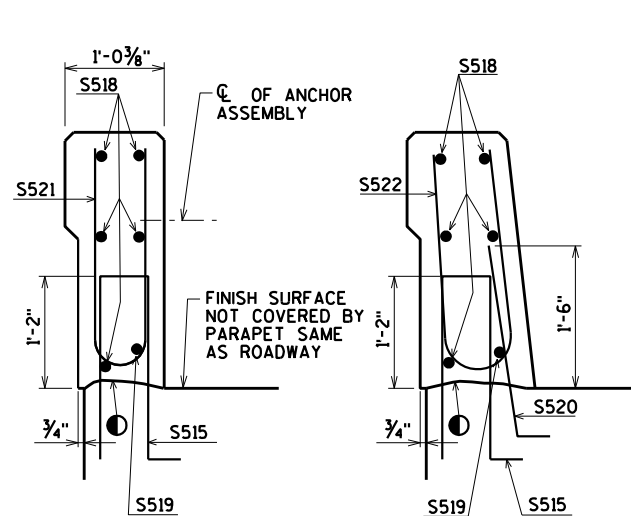
INSIDE ELEVATION



PLAN

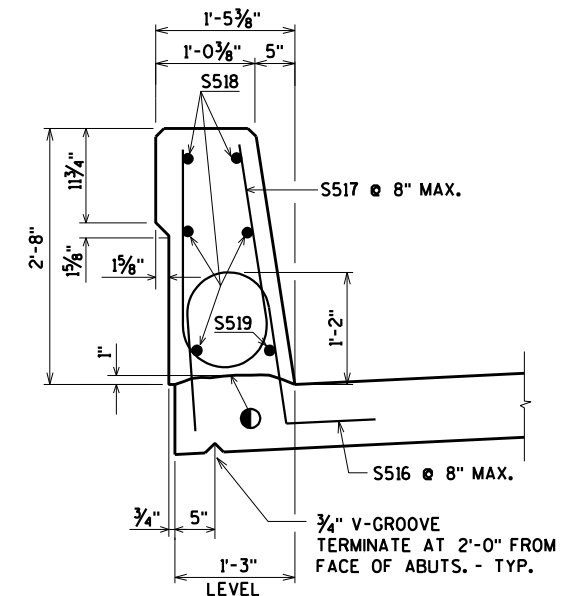


OUTSIDE ELEVATION



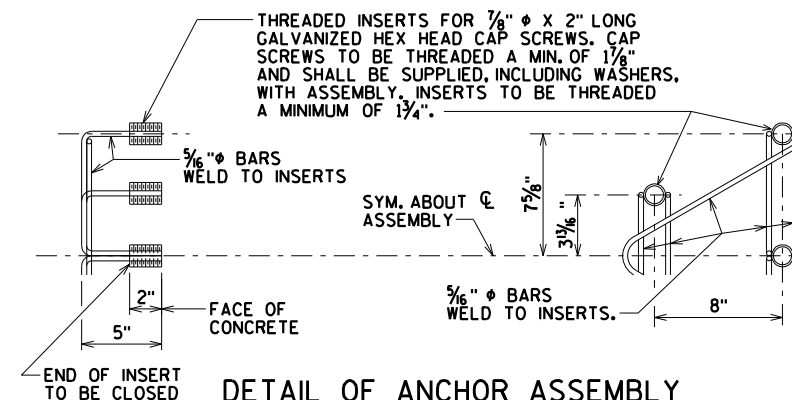
SECTION A

SECTION B



SECTION THRU PARAPET ON BRIDGE
SECTION C

- CONST. JOINT - STRIKE OFF AS SHOWN.
- S520 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE S520 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- BENCHMARK CAP



DETAIL OF ANCHOR ASSEMBLY

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

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

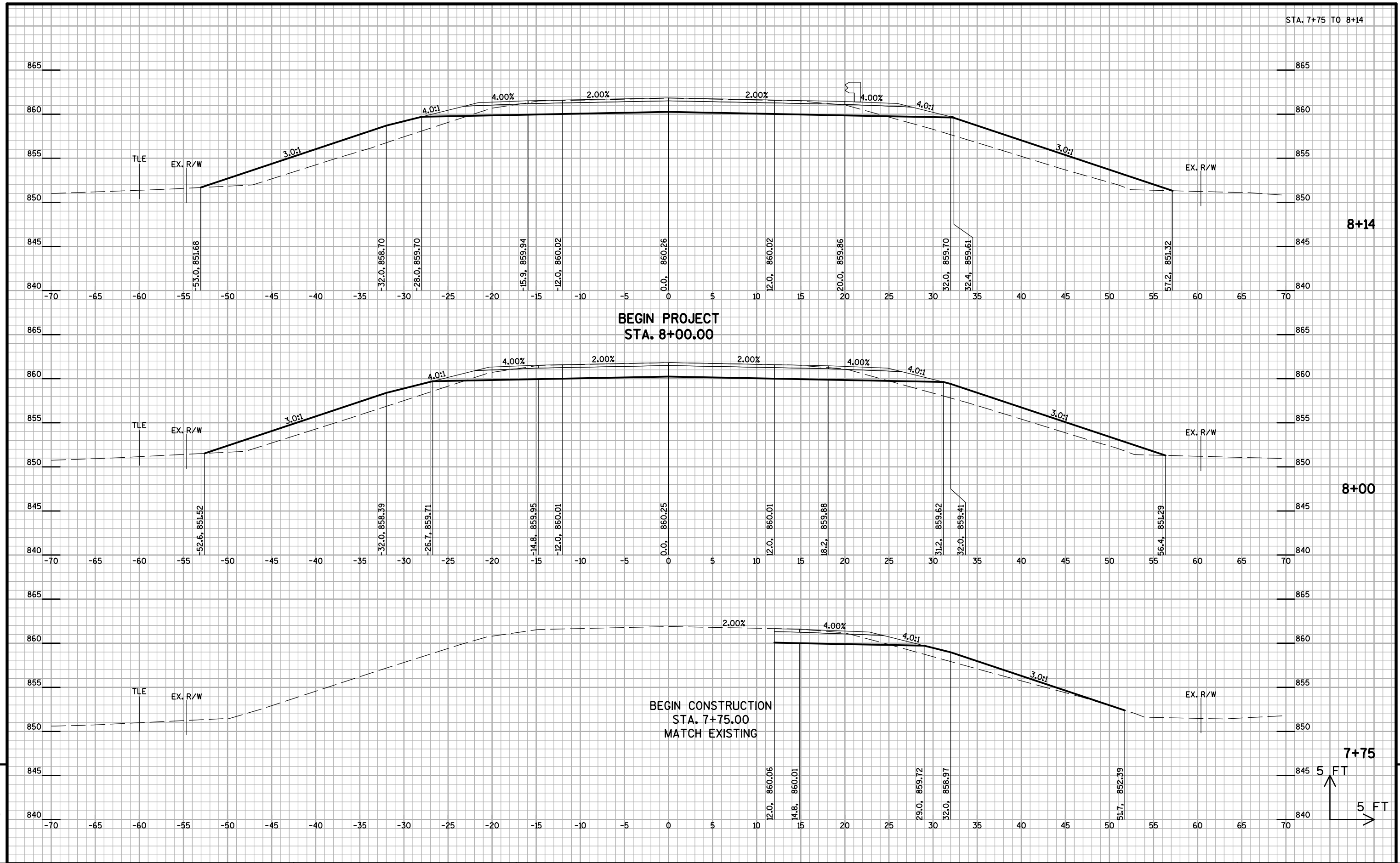
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-14-215			
DRAWN BY		CLS	PLANS CK'D. CJM
SINGLE SLOPE PARAPET 32SS			SHEET 18 OF 18

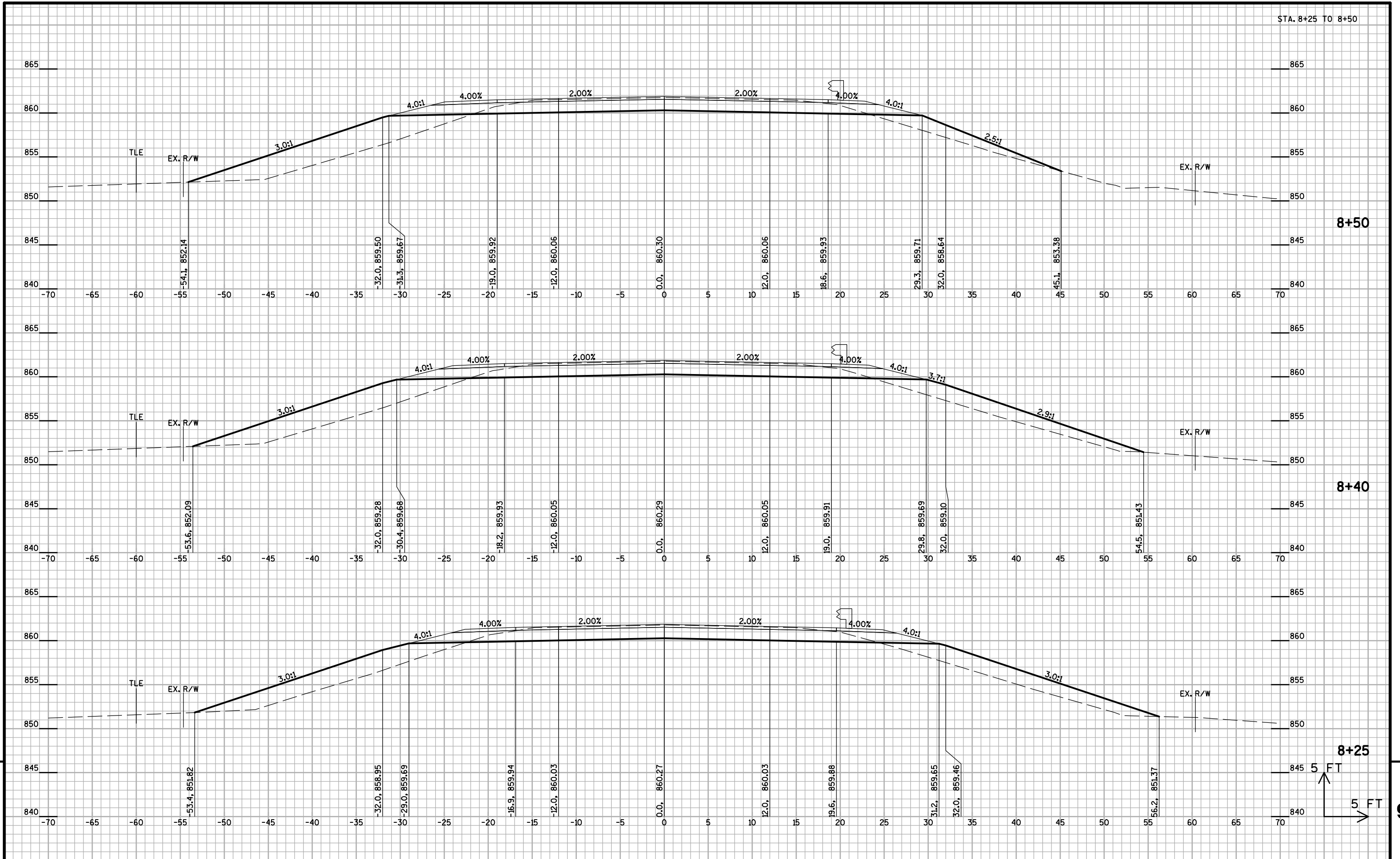
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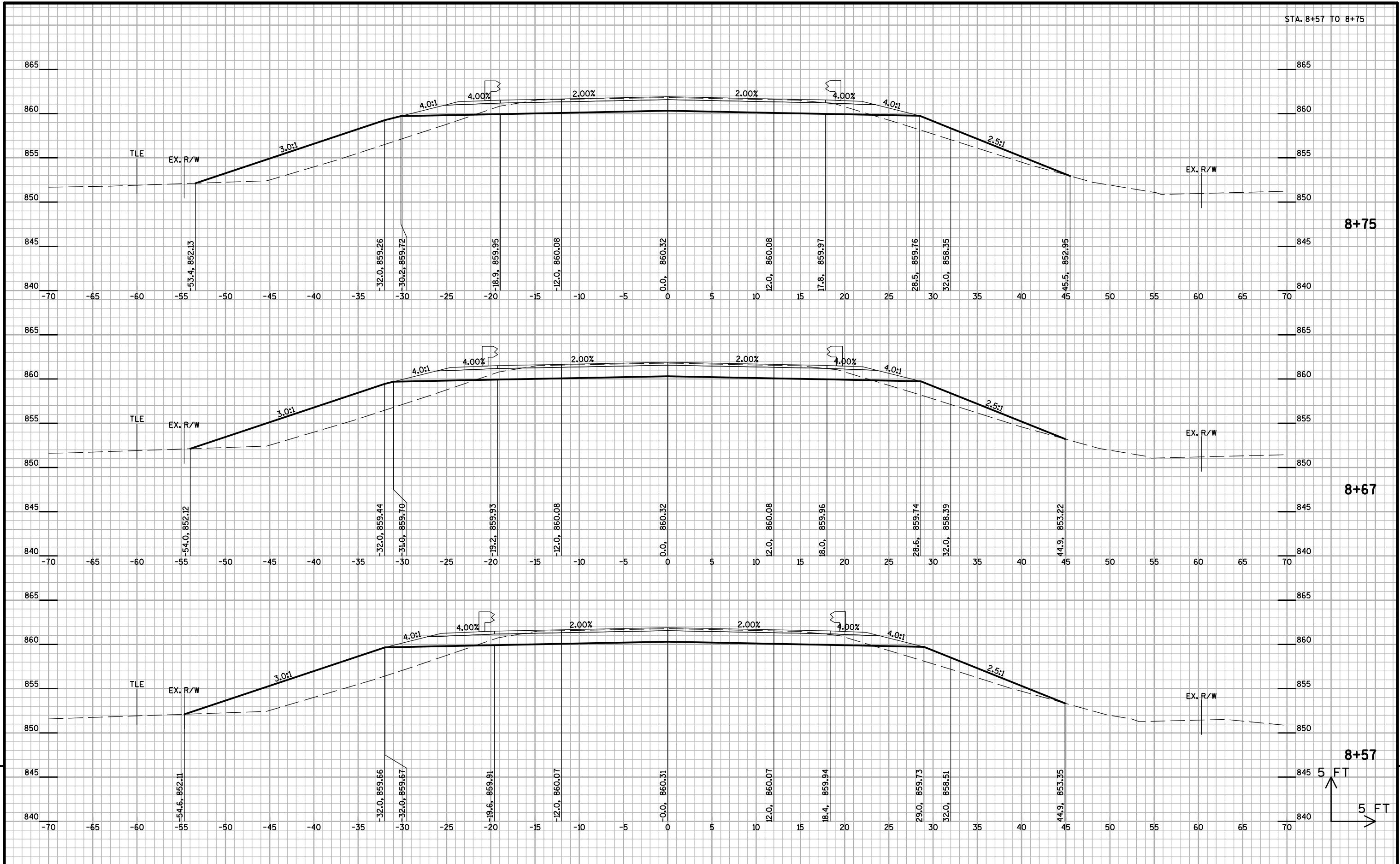
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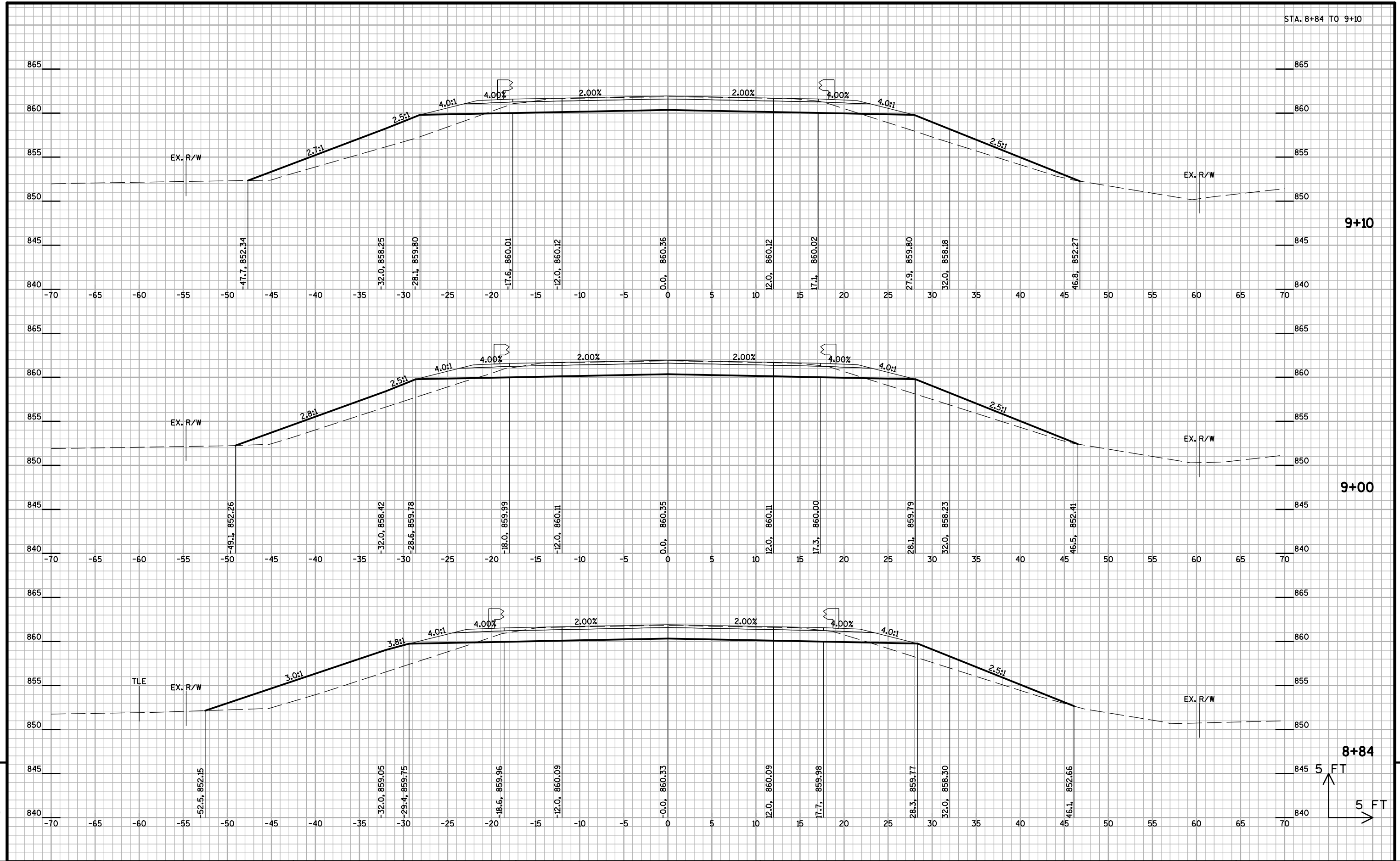
CTH EE COMPUTER EARTHWORK								
Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Cut	Expanded	
							Fill	
				Note 1	Note 2	Note 1	1.00 1.30	Note 3
7+75	--	15.2	14.1					
8+00	25	64.8	69.7	37	39	37	50	-13
8+14	14	62.5	89.8	33	41	70	104	-34
8+25	11	60.7	93.7	25	37	95	153	-58
8+40	15	58.5	96.8	33	53	128	222	-93
8+50	10	57.2	85.4	21	34	150	265	-116
8+57	7	57.6	88.4	15	23	165	295	-130
8+67	10	58.0	83.2	21	32	186	336	-150
8+75	8	58.4	79.7	17	24	203	367	-164
8+84	9	58.9	74.8	20	26	223	401	-178
9+00	16	58.9	58.3	35	39	258	452	-194
9+10	10	56.6	64.2	21	23	279	482	-203
9+25	15	53.3	69.7	31	37	310	530	-220
9+40	15	47.7	86.2	28	43	338	586	-249
9+57	17	47.7	86.2	30	54	368	657	-289
NEW BRIDGE	--	--	--	--	--	--	--	--
10+35	--	51.0	80.9	--	--	--	--	--
10+55	20	51.0	80.9	37	59	405	734	-329
10+75	20	60.0	68.5	41	55	446	806	-360
10+82	7	63.2	72.0	16	18	462	829	-367
11+00	18	70.5	83.4	45	52	507	897	-390
11+08	8	70.8	81.3	21	24	527	928	-401
11+25	17	68.7	77.2	44	50	571	993	-422
11+35	10	67.4	82.2	25	30	597	1032	-435
11+48	13	66.1	79.4	32	39	629	1082	-453
11+50	2	66.1	81.0	5	6	634	1090	-456
11+75	25	26.1	86.4	43	77	676	1191	-514
11+78	3	25.8	87.2	3	10	679	1203	-524
12+00	22	26.1	57.1	21	59	700	1280	-579
12+25	25	11.2	22.6	17	37	718	1328	-610
				718	1021			

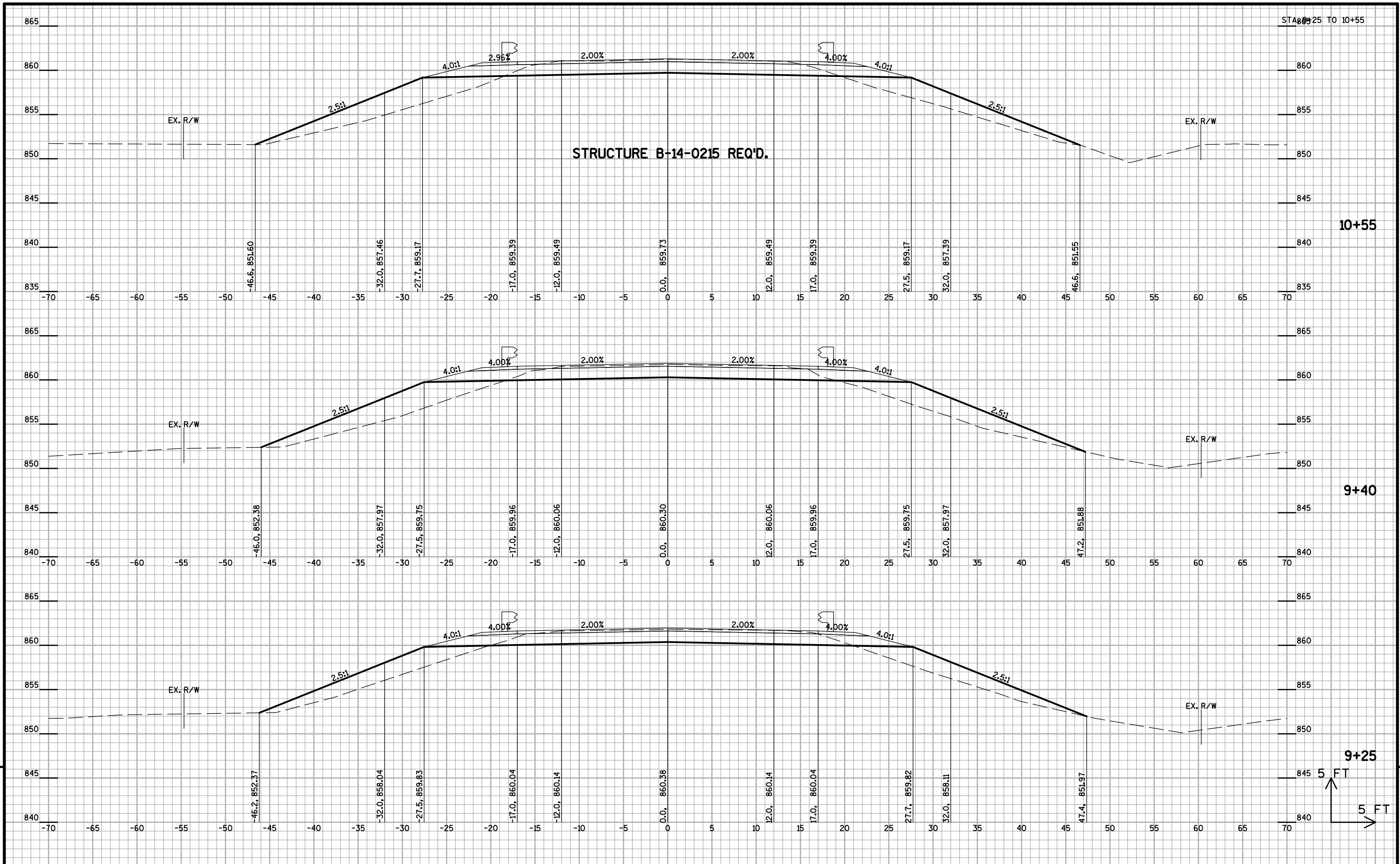
Note 1 - Cut	Cut includes existing asphalt pavement. Assumed to be reused as fill outside the 1:1 road core.
Note 2 - Fill	Volume needed to be filled.
Note 3 - Mass Ordinate	(Cut) - (Fill * 1.30)

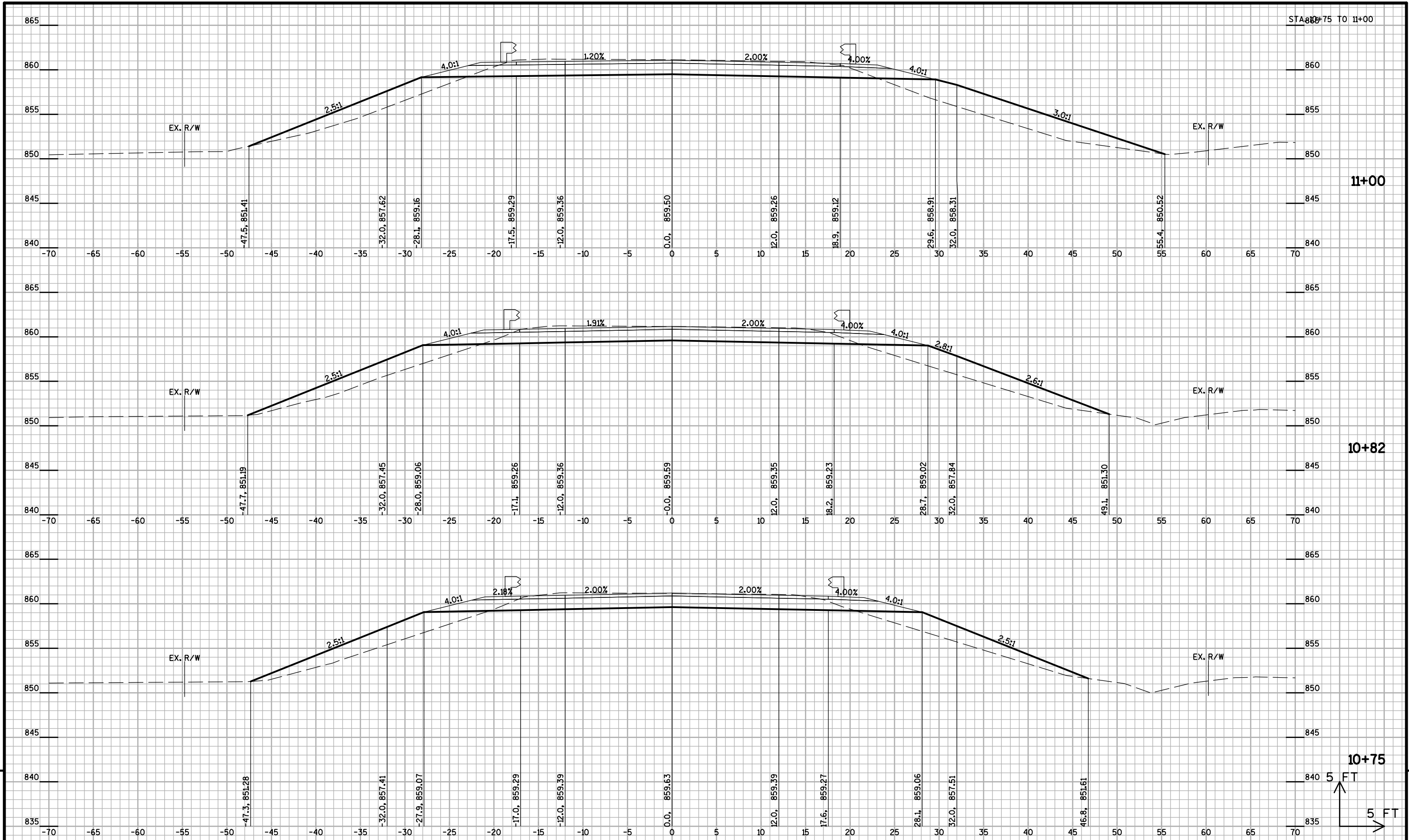


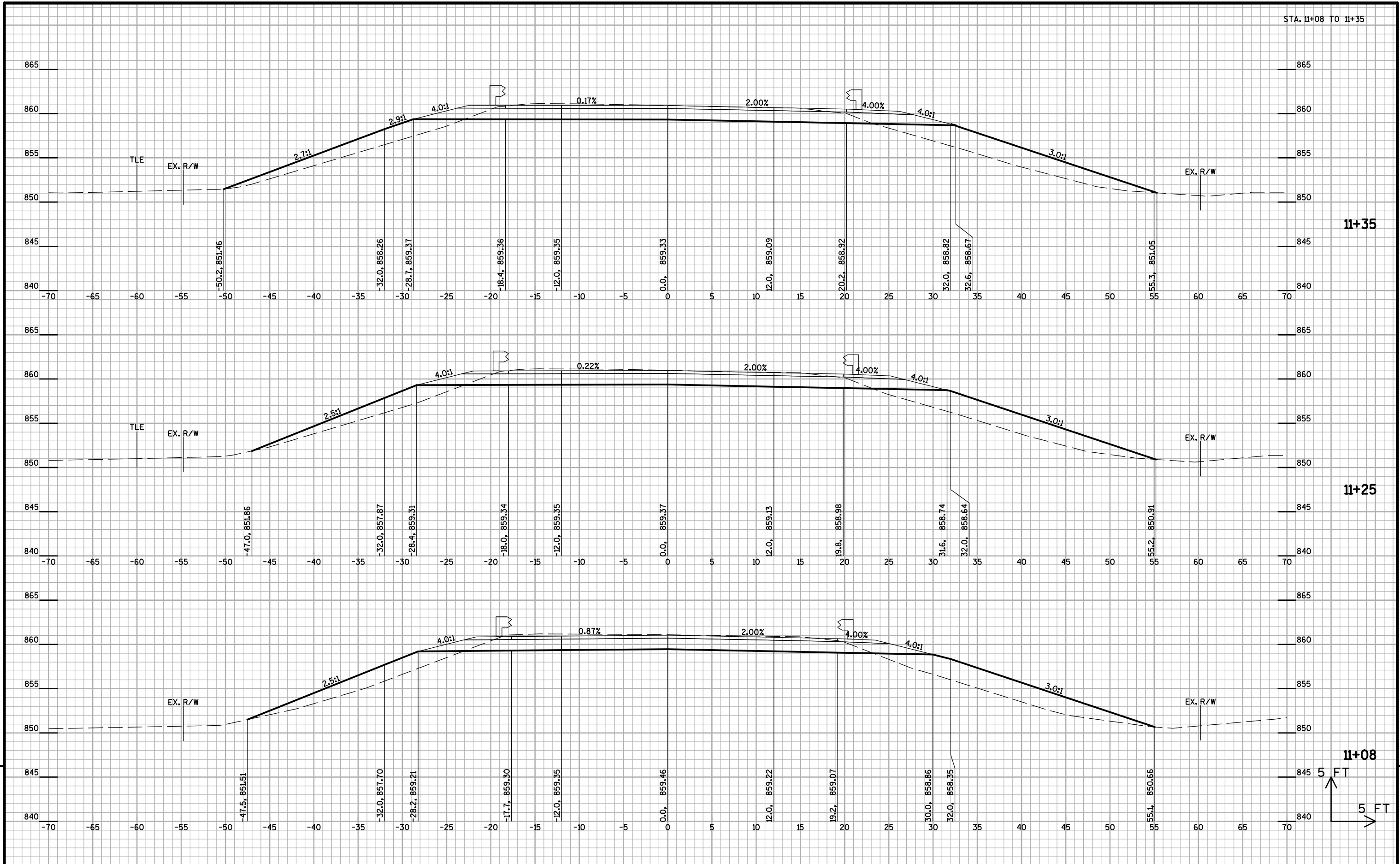


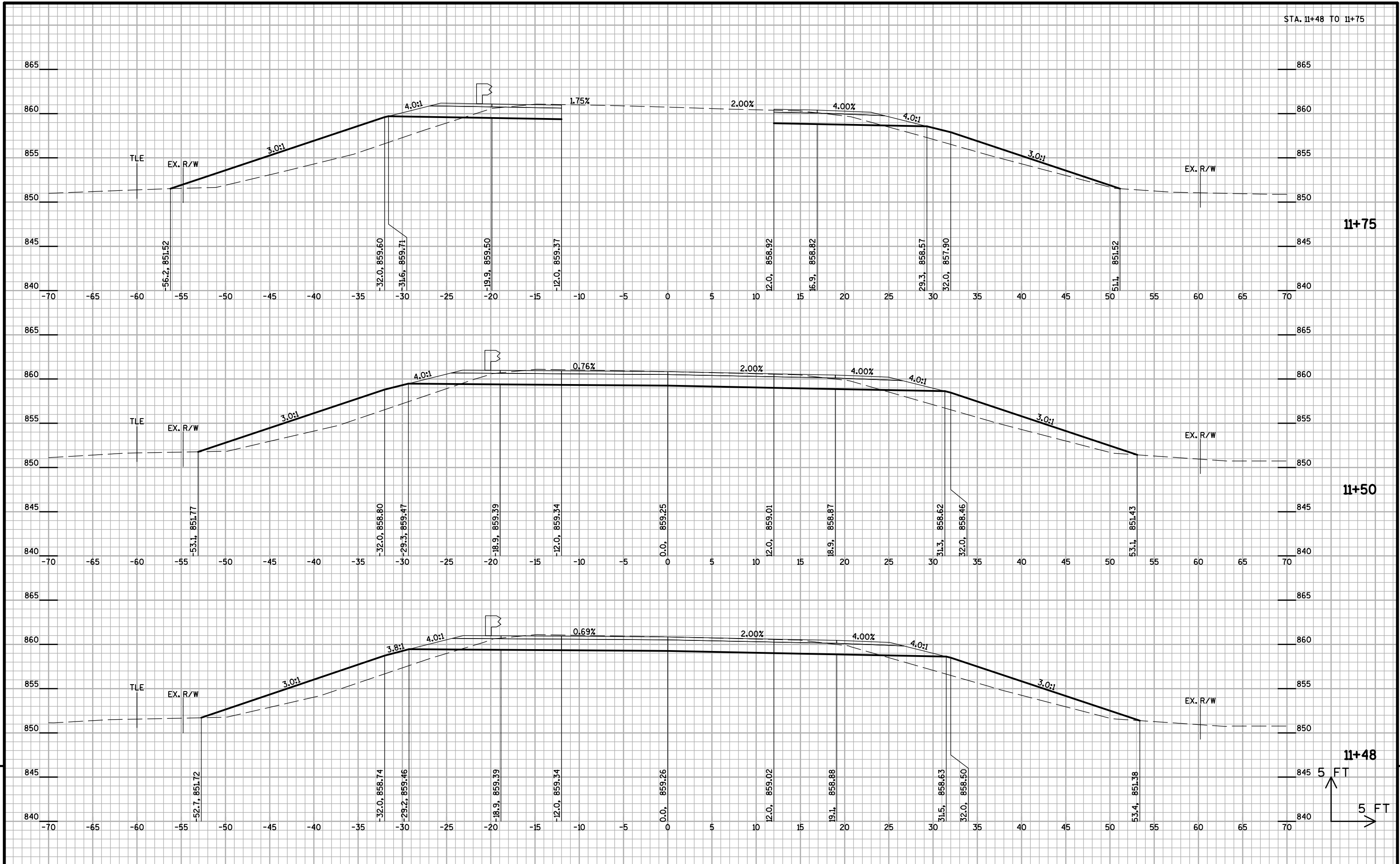


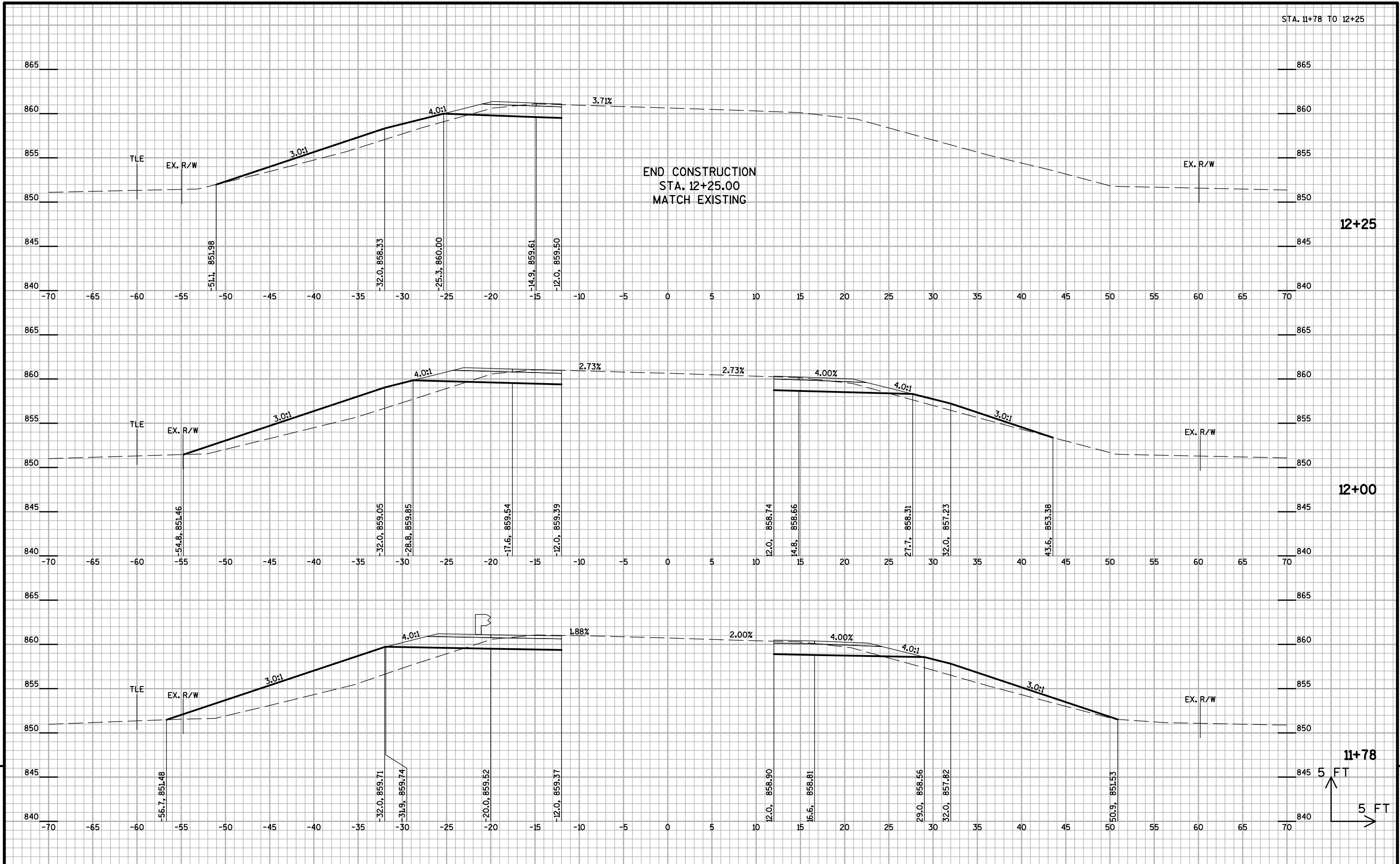




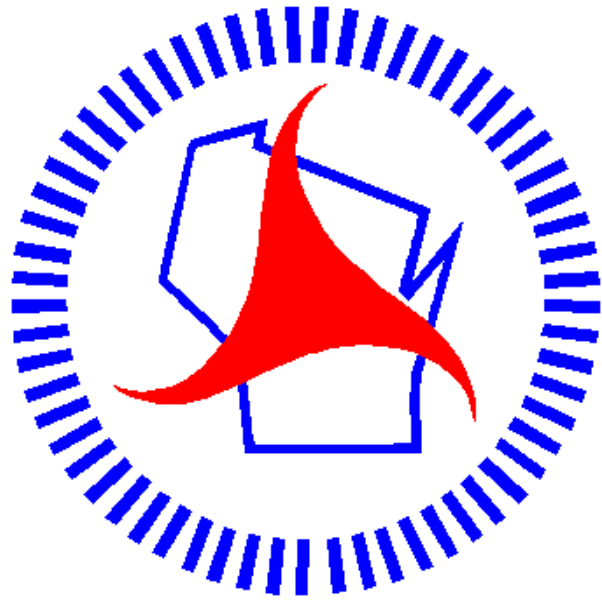








Notes



Wisconsin Department of Transportation

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through innovation and exceptional service.

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