

GRE  
PROJECT ID:  
WITH: N/A

1150-74-71

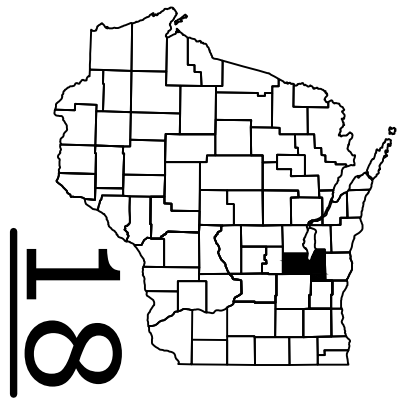
COUNTY:  
FOND DU LAC

JANUARY 2023

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
<del>Section No.</del>	<del>4</del>	<del>Right of Way Plat</del>
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
<del>Section No.</del>	<del>7</del>	<del>Sign Plates</del>
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 82



DESIGN DESIGNATION

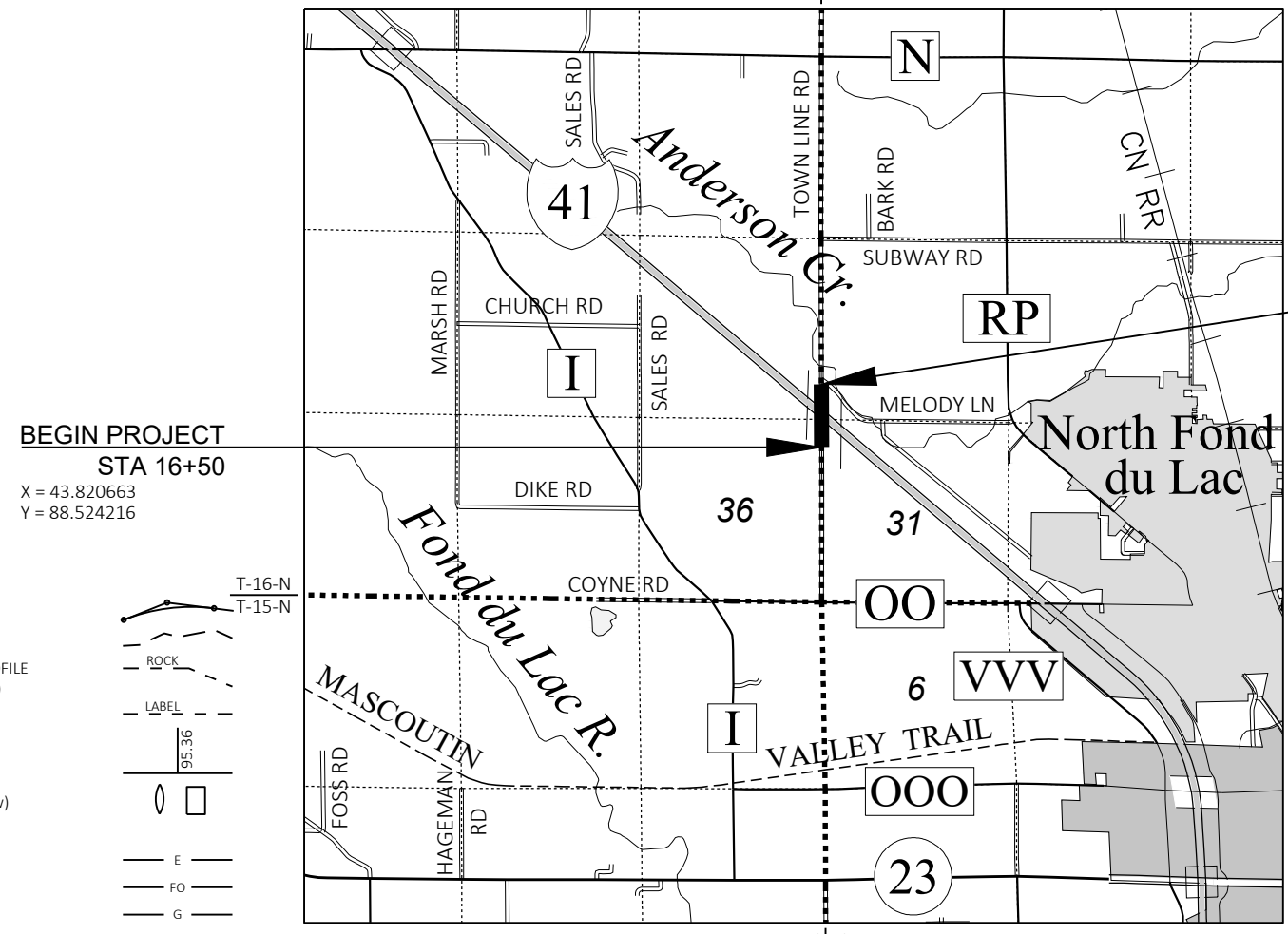
A.A.D.T.	2023	=	41500
A.A.D.T.	2043	=	48590
D.H.V.		=	10.1
D.D.		=	64/36
T.		=	22.9%
DESIGN SPEED		=	70
ESALS		=	23,000,000

CONVENTIONAL SYMBOLS

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PLAN OF PROPOSED IMPROVEMENT  
**FOND DU LAC - OSHKOSH**  
TOWN LINE ROAD OVERPASS  
IH 41  
FOND DU LAC COUNTY

STATE PROJECT NUMBER  
**1150-74-71**



**BEGIN PROJECT**  
STA 16+50  
X = 43.820663  
Y = 88.524216

**END PROJECT**  
STA 23+46  
X = 43.822494  
Y = 88.524229

LAYOUT  
SCALE 0 1 MI  
TOTAL NET LENGTH OF CENTERLINE = 0.002 MI

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1150-74-71	WISC 2023151	1

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	NE REGION
Surveyor	J. SCHWAB
Designer	B. LEARST
Project Manager	R. WAGNER
Regional Examiner	R. WAGNER
Regional Supervisor	R. WAGNER
APPROVED FOR THE DEPARTMENT	<i>Bryson Leart</i> (Signature)
DATE: 7/15/22	

GENERAL NOTES

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

THE EXACT CONSTRUCTION LIMITS AND LOCATIONS OF ALL ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- TRAFFIC CONTROL
- DETOUR PLAN
- ALIGNMENT PLAN

DNR LIAISON

JAY SCHIEFELBEIN  
2984 SHAWANO AVE.  
GREEN BAY, WI 54313  
(920) 360-3784  
jeremiah.schiefelbein@wisconsin.gov

FOND DU LAC COUNTY HIGHWAY COMMISSIONER

TOM JANKE  
301 DIXIE ST  
PO BOX 1234  
FOND DU LAC, WI 54936-1234  
(920) 929-3489  
tom.janke@fdlco.wi.gov

NE REGION SURVEY COORDINATOR

CORMAC MCINNIS, RLS  
944 VANDERPERREN WAY  
GREEN BAY, WI 54304  
(920) 492-5638  
cormac.mcinnis@dot.wi.gov

NE REGION DESIGN PROJECT MANAGER

BRYAN LEARST, PE  
944 VANDERPERREN WAY  
GREEN BAY, WI 54304  
(920) 366-5639  
bryan.learst@dot.wi.gov

UTILITIES CONTACTS

COMMUNICATIONS

PAETEC COMMUNICATIONS, LLC  
ERIC BECKER  
314 N DANZ AVE  
GREEN BAY, WI 54302-3526  
(920) 461-9825  
ERIC.BECKER@WINDSTREAM.COM

ELECTRICAL TRANSMISSION

ATC MANAGEMENT, INC.  
CHRIS DAILEY  
P.O. BOX 47  
WAUKESHA, WI 53187  
(262) 506-6884  
CDAILEY@ATCLLC.COM

ELECTRICITY

ALLIANT ENERGY  
BILL BASTIAN  
883 W SCOTT ST  
FOND DU LAC, WI 54935  
(920) 322-6716  
VILLIAMBASTIAN@ALLIANTENERGY.COM

SEWER

VILLAGE OF NORTH FOND DU LAC  
DEPARTMENT OF PUBLIC WORKS  
MITCH VIS  
16 GARFIELD ST  
NORTH FOND DU LAC, WI 54937  
(920) 929-3765  
MVIS@NFDL.ORG

WATER

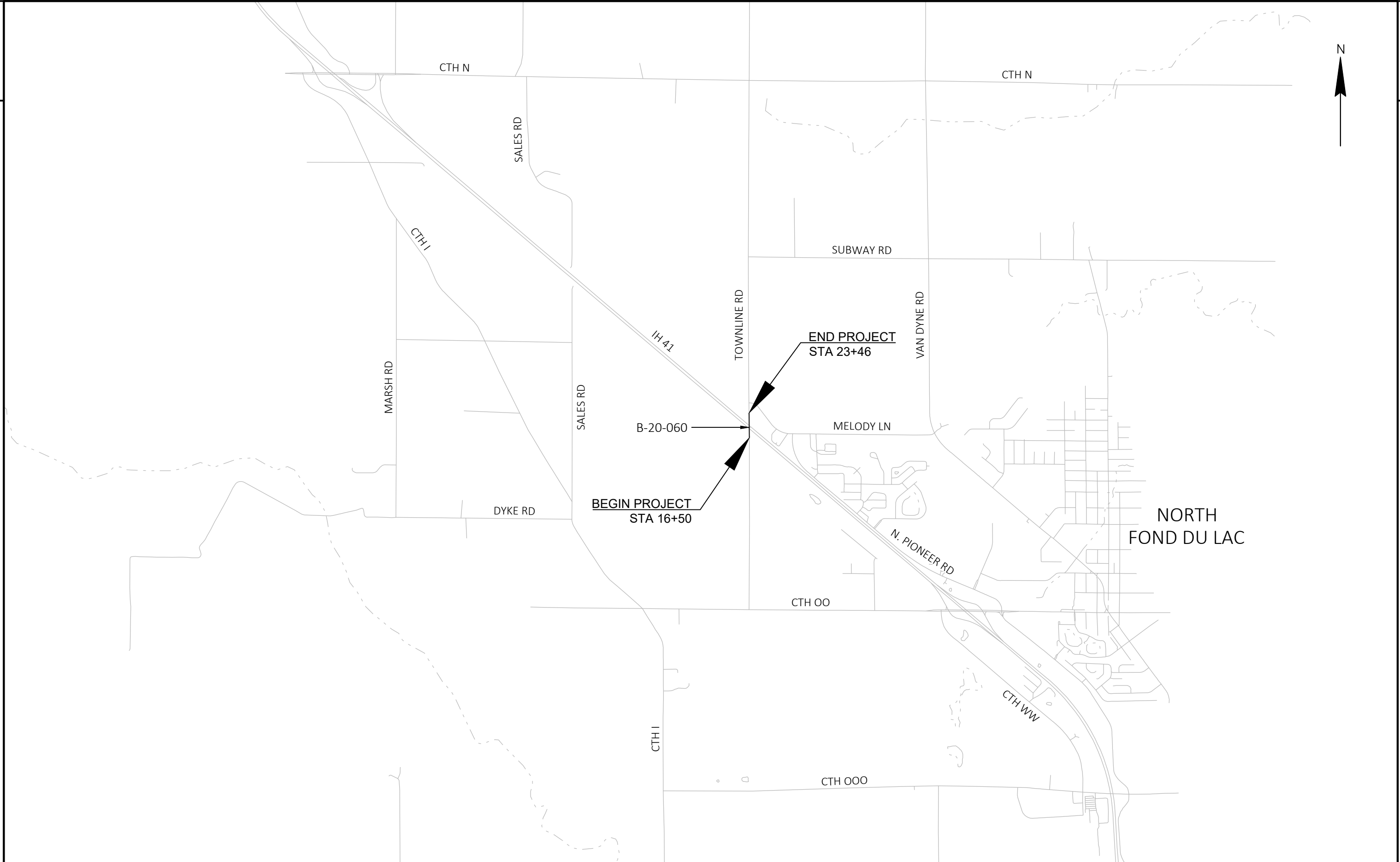
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**RUNOFF COEFFICIENT TABLE**

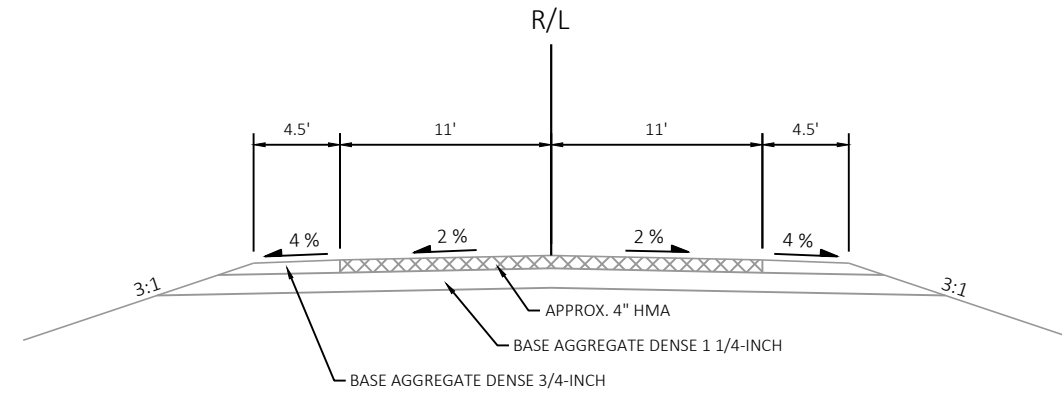
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

TOTAL PROJECT AREA = \_\_\_\_\_ ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = \_\_\_\_\_ ACRES



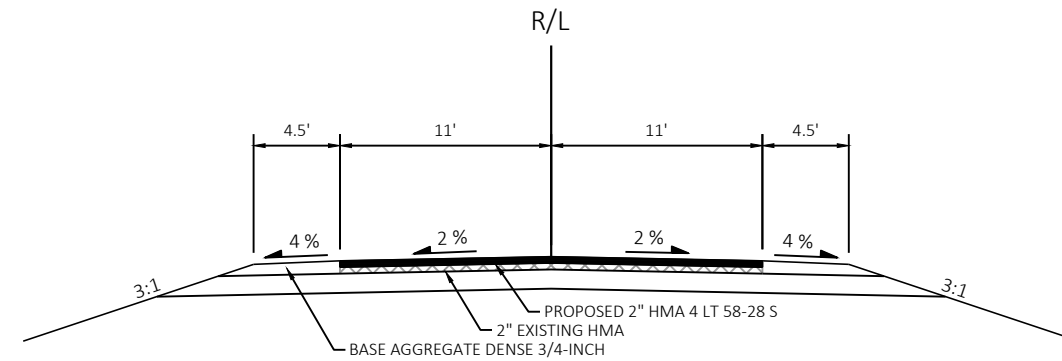


PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	PROJECT OVERVIEW	SHEET	E
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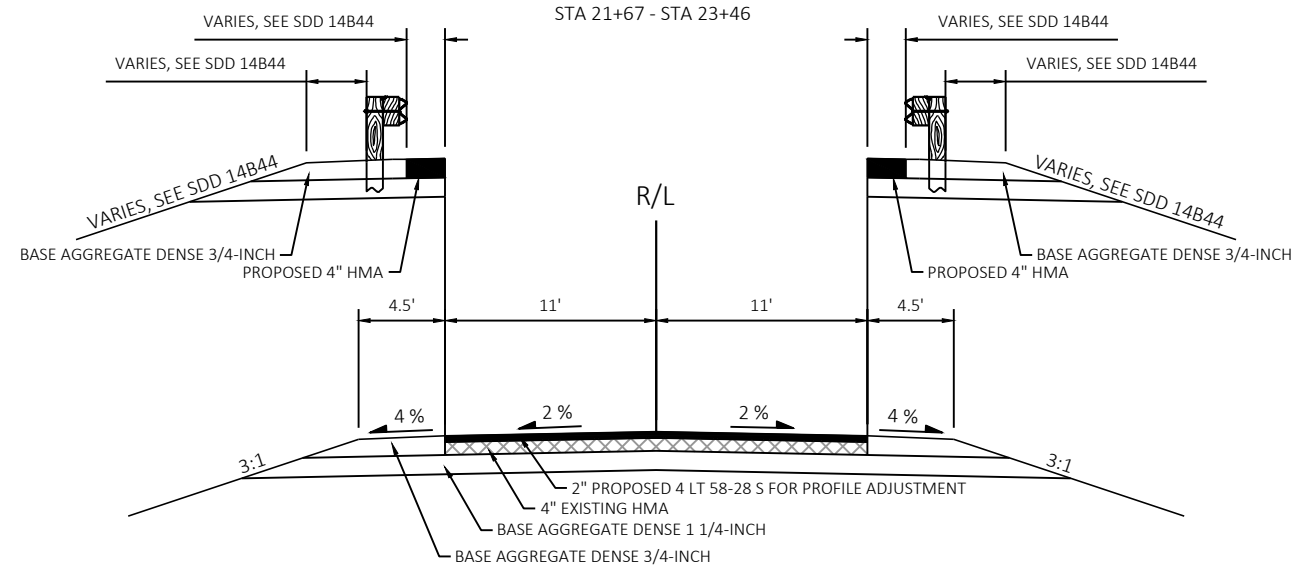
**EXISTING TYPICAL SECTION**  
**TOWN LINE RD**

STA 18+33 TO STA 18+83  
STA 21+17 - STA 21+67



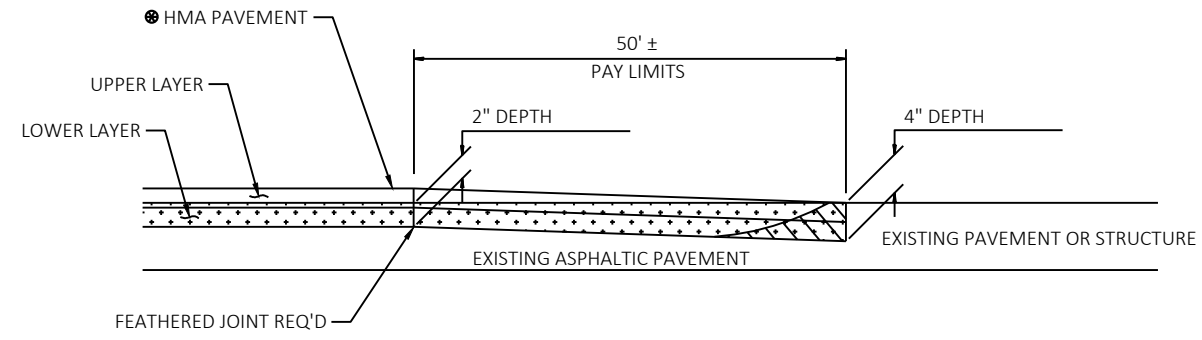
**PROPOSED TYPICAL SECTION**  
**TOWN LINE RD**

STA 16+50 TO STA 18+33  
STA 21+67 - STA 23+46



**PROPOSED TYPICAL SECTION**  
**TOWN LINE RD**

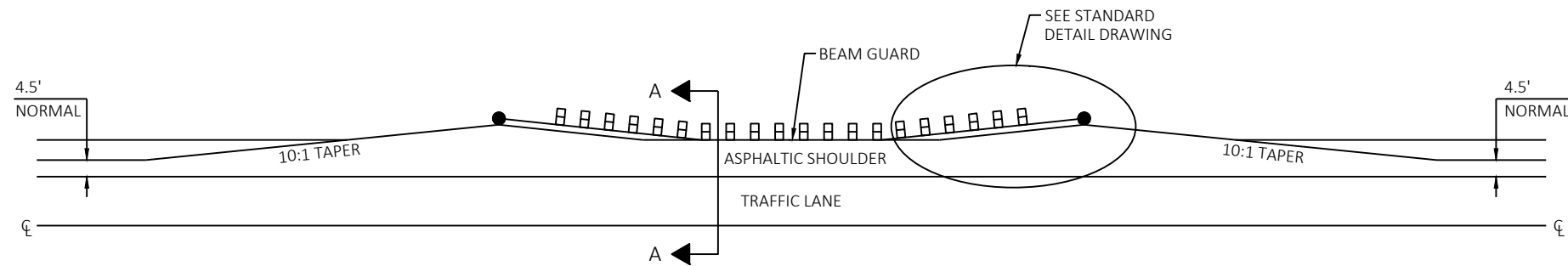
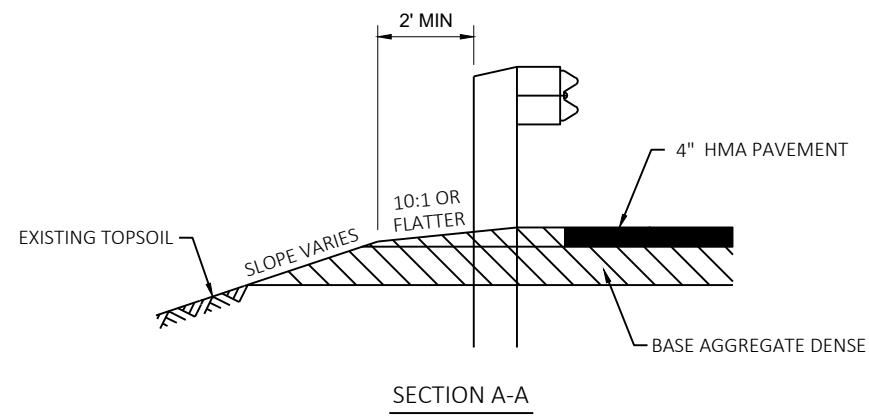
STA 18+33 TO STA 18+83  
STA 21+17 - STA 21+67



- SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS
- ◻ REMOVING ASPHALTIC SURFACE, MILLING
- ◻ REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE

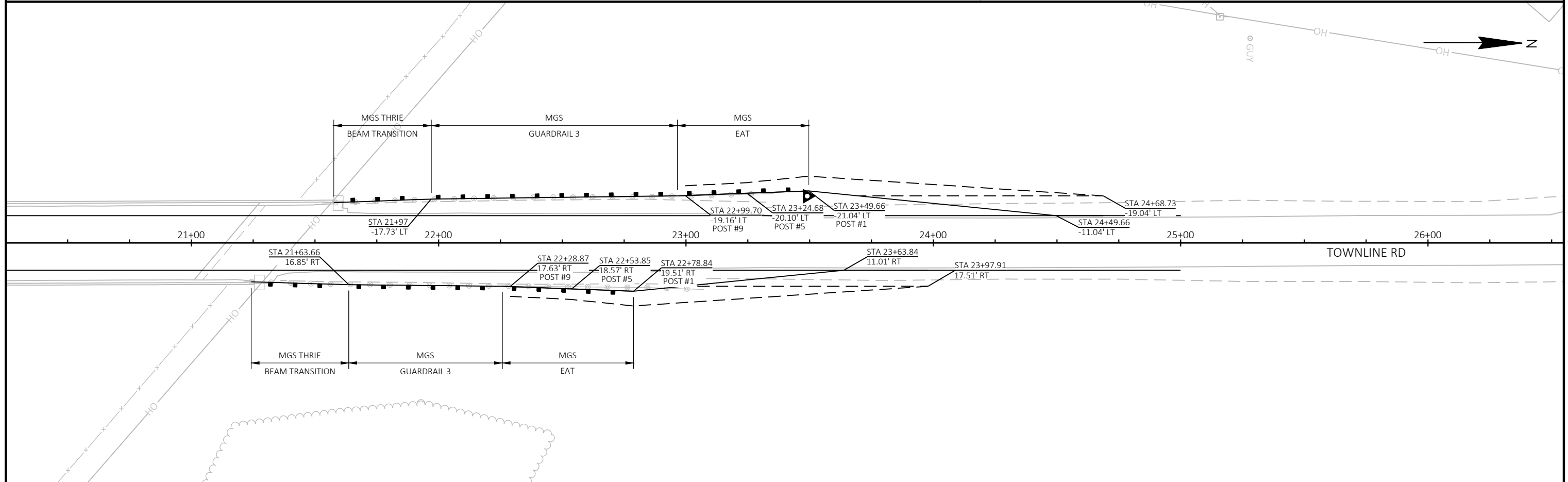
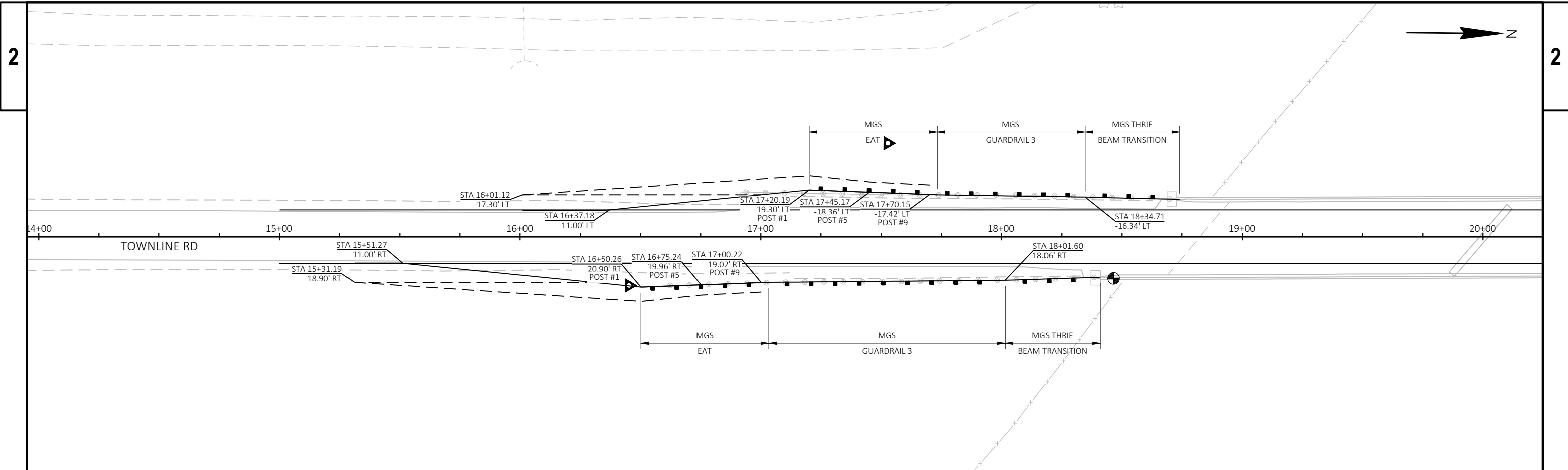
**BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS (PROFILE CHANGE)**

STA 18+33 - STA 18+83  
STA 21+17 - STA 21+67



**(253) DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD**

STA 16+50  
STA 17+20  
STA 21+24  
STA 21+58

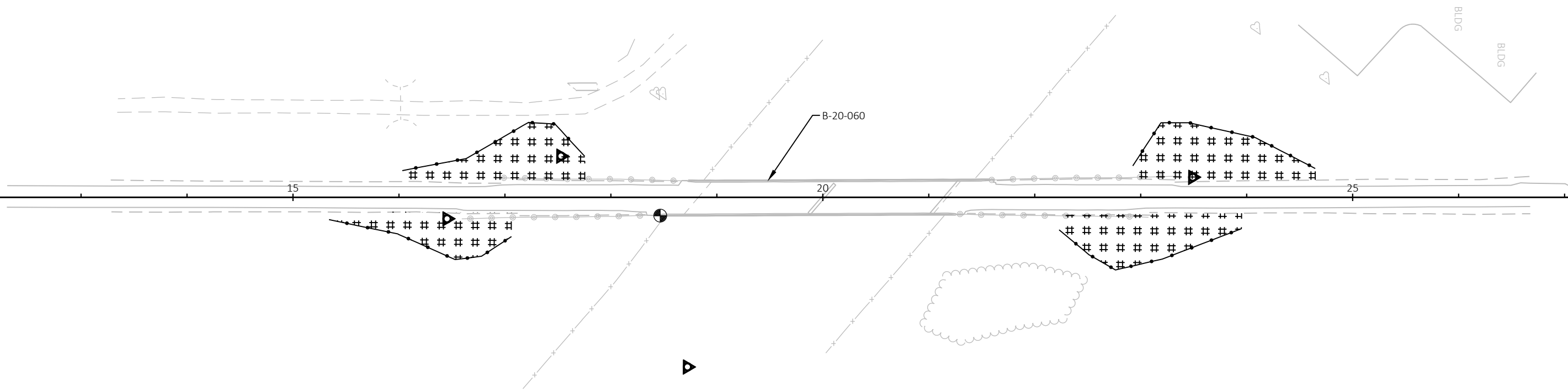
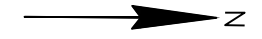


PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	PLAN DETAILS	SHEET	E
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**LEGEND**

—●— SILT FENCE

▣ EROSION CONTROL MAT CLASS I, TYPE A



Estimate Of Quantities

1150-74-71

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	4.000	4.000
0004	203.0211.S	Abatement of Asbestos Containing Material (structure) 01. B-20-060	EACH	1.000	1.000
0006	203.0220	Removing Structure (structure) 01. B-20-060	EACH	1.000	1.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	244.000	244.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	1,262.000	1,262.000
0012	204.0165	Removing Guardrail	LF	738.000	738.000
0014	204.0220	Removing Inlets	EACH	4.000	4.000
0016	205.0100	Excavation Common	CY	3.000	3.000
0018	206.1001	Excavation for Structures Bridges (structure) 01. B-20-060	EACH	1.000	1.000
0020	208.0100	Borrow	CY	1,036.000	1,036.000
0022	210.1500	Backfill Structure Type A	TON	330.000	330.000
0024	213.0100	Finishing Roadway (project) 01. 1150-74-71	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	37.000	37.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	114.000	114.000
0030	415.0070	Concrete Pavement 7-Inch	SY	22.000	22.000
0032	415.0410	Concrete Pavement Approach Slab	SY	149.000	149.000
0034	416.0610	Drilled Tie Bars	EACH	8.000	8.000
0036	416.1010	Concrete Surface Drains	CY	8.000	8.000
0038	455.0605	Tack Coat	GAL	154.000	154.000
0040	460.2000	Incentive Density HMA Pavement	DOL	210.000	210.000
0042	460.5224	HMA Pavement 4 LT 58-28 S	TON	325.000	325.000
0044	502.0100	Concrete Masonry Bridges	CY	327.000	327.000
0046	502.3101	Expansion Device	LF	80.000	80.000
0048	502.3200	Protective Surface Treatment	SY	808.000	808.000
0050	502.3210	Pigmented Surface Sealer	SY	281.000	281.000
0052	502.4204	Adhesive Anchors No. 4 Bar	EACH	6.000	6.000
0054	502.4205	Adhesive Anchors No. 5 Bar	EACH	172.000	172.000
0056	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	69,490.000	69,490.000
0058	509.1500	Concrete Surface Repair	SF	10.000	10.000
0060	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0062	517.0901.S	Preparation and Coating of Top Flanges (structure) 01. B-20-060	EACH	1.000	1.000
0064	517.3001.S	Structure Overcoating Cleaning and Priming (structure) 01. B-20-060	EACH	1.000	1.000
0066	517.4001.S	Containment and Collection of Waste Materials (structure) 01. B-20-060	EACH	1.000	1.000
0068	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	187.000	187.000
0070	606.0200	Riprap Medium	CY	12.000	12.000
0072	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0074	614.2300	MGS Guardrail 3	LF	324.000	324.000
0076	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0078	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0080	616.0405	Fence Chain Link Salvaged 5-FT	LF	80.000	80.000
0082	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1150-74-71	EACH	1.000	1.000
0084	619.1000	Mobilization	EACH	1.000	1.000
0086	624.0100	Water	MGAL	2.000	2.000
0088	625.0500	Salvaged Topsoil	SY	3,871.000	3,871.000
0090	628.1504	Silt Fence	LF	968.000	968.000
0092	628.1520	Silt Fence Maintenance	LF	968.000	968.000
0094	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0096	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0098	628.2002	Erosion Mat Class I Type A	SY	3,871.000	3,871.000



Estimate Of Quantities

1150-74-71

Line	Item	Item Description	Unit	Total	Qty
0100	629.0205	Fertilizer Type A	CWT	5.000	5.000
0102	630.0130	Seeding Mixture No. 30	LB	70.000	70.000
0104	630.0500	Seed Water	MGAL	174.000	174.000
0106	642.5001	Field Office Type B	EACH	1.000	1.000
0108	643.0300	Traffic Control Drums	DAY	774.000	774.000
0110	643.0420	Traffic Control Barricades Type III	DAY	1,098.000	1,098.000
0112	643.0705	Traffic Control Warning Lights Type A	DAY	1,716.000	1,716.000
0114	643.0715	Traffic Control Warning Lights Type C	DAY	324.000	324.000
0116	643.0800	Traffic Control Arrow Boards	DAY	36.000	36.000
0118	643.0900	Traffic Control Signs	DAY	1,002.000	1,002.000
0120	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0122	643.5000	Traffic Control	EACH	1.000	1.000
0124	645.0120	Geotextile Type HR	SY	24.000	24.000
0126	646.1020	Marking Line Epoxy 4-Inch	LF	1,392.000	1,392.000
0128	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	84.000	84.000
0130	650.6501	Construction Staking Structure Layout (structure) 01. B-20-060	EACH	1.000	1.000
0132	650.7000	Construction Staking Concrete Pavement	LF	54.000	54.000
0134	650.9911	Construction Staking Supplemental Control (project) 01. 1150-74-71	EACH	1.000	1.000
0136	650.9920	Construction Staking Slope Stakes	LF	774.000	774.000
0138	715.0502	Incentive Strength Concrete Structures	DOL	1,960.000	1,960.000
0140	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0142	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0144	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,200.000	1,200.000

3

REMOVALS

STATION	TO	STATION	LOCATION	203.0100	204.0115	204.0120	204.0165	204.0220
				REMOVING SMALL PIPE CULVERTS 18- INCH CORRUGATED STEEL EACH	REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	REMOVING ASPHALTIC SURFACE MILLING SY	REMOVING GUARDRAIL LF	REMOVING INLETS EACH
16+50	-	18+83	TOWN LINE ROAD RT	1	---	---	186	1
17+20	-	18+74	TOWN LINE ROAD LT	1	---	---	183	1
18+33	-	18+83	STRUCTURE APPROACH	---	122	636	---	---
21+24	-	22+79	TOWN LINE ROAD RT	1	---	---	186	1
21+58	-	23+50	TOWN LINE ROAD LT	1	---	---	183	1
21+17	-	21+67	STRUCTURE APPROACH	---	122	626	---	---
TOTAL 0010				4	244	1,262	738	4

BASE AGGREGATE

STATION	TO	STATION	LOCATION	305.0110	305.0120	624.0100
				BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4- INCH TON	WATER MGAL
16+50	-	18+51	STRUCTURE APPROACH LT	19	---	---
16+50	-	18+16	STRUCTURE APPROACH RT	16	---	---
18+54	-	18+95	APPROACH SLAB	---	57	---
21+05	-	21+45	APPROACH SLAB	---	57	---
21+43	-	23+50	STRUCTURE APPROACH RT	20	---	---
21+75	-	23+50	STRUCTURE APPROACH LT	17	---	---
16+50	-	23+50	COMPACTION & DUST CONTROL	---	---	2
TOTAL 0010				37	114	2

3

PAVEMENT

STATION	TO	STATION	LOCATION	415.0070	415.0410	455.0605	460.5224
				CONCRETE PAVEMENT 7- INCH SY	CONCRETE PAVEMENT APPROACH SLAB SY	TACK COAT GAL	HMA PAVEMENT 4 LT 58-28 S TON
16+50	-	18+83	STRUCTURE APPROACH	---	---	77	157
18+54	-	18+95	APPROACH SLAB	12	74	---	---
21+05	-	21+45	APPROACH SLAB	10	75	---	---
21+17	-	23+50	STRUCTURE APPROACH	---	---	77	168
TOTAL 0010				22	149	154	325

BEAM GUARD

STATION	TO	STATION	LOCATION	614.2300	614.2500	614.2610
				MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
16+50	-	18+41	TOWN LINE ROAD RT	100	39	1
17+20	-	18+74	TOWN LINE ROAD LT	62	39	1
21+24	-	22+79	TOWN LINE ROAD RT	62	39	1
21+58	-	23+50	TOWN LINE ROAD LT	100	39	1
TOTAL 0010				324	156	4

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)				FACTOR 1.25				
DIVISION 1											
QR-TOWNLINE	15+50/24+50		3	0	3	831	1,039	-1,036	0	1,036	
DIVISION 1 SUBTOTAL			3	0	3	831	1,039	-1,036	0	1,036	
GRAND TOTAL			3	0	3	831	1,039	-1,036	0	1,036	
TOTAL COMMON EXC			3								

**NOTES:**

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
- 5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (13) EXPANDED FILL FACTOR = X.6X
- (14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- (15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

FLUMES

STATION	LOCATION	416.0610 DRILLED TIE BARS EACH	416.1010 CONCRETE SURFACE DRAINS CY	601.0588 CONCRETE CURB & GUTTER 4- INCH SLOPED 36- INCH TYPE TBT LF	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
18+34	TOWN LINE ROAD RT	2	2	53	3	6
18+67	TOWN LINE ROAD LT	2	2	44	3	6
21+33	TOWN LINE ROAD RT	2	2	42	3	6
21+61	TOWN LINE ROAD LT	2	2	48	3	6
TOTAL 0010		8	8	187	12	24

FENCING

STATION	TO	STATION	LOCATION	616.0405 FENCE CHAIN LINK SALVAGED 5-FT LF
16+50	-	18+41	TOWN LINE ROAD RT	20
17+20	-	18+74	TOWN LINE ROAD LT	20
21+24	-	22+79	TOWN LINE ROAD RT	20
21+58	-	23+50	TOWN LINE ROAD LT	20
TOTAL 0010				80

EROSION CONTROL

STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2002 EROSION MAT CLASS I TYPE A SY	629.0205 FERTILIZER TYPE A CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0500 SEED WATER MGAL
15+34	-	17+06	TOWN LINE ROAD RT	610	184	184	---	---	610	1	11	27
16+03	-	17+75	TOWN LINE ROAD LT	759	196	196	---	---	759	1	14	34
22+23	-	23+95	TOWN LINE ROAD RT	823	191	191	---	---	823	1	15	37
22+93	-	24+65	TOWN LINE ROAD LT	905	203	203	---	---	905	1	16	41
15+00	-	25+00	UNDISTRIBUTED	774	194	194	4	2	774	1	14	35
TOTAL 0010				3,871	968	968	4	2	3,871	5	70	174

PAVEMENT MARKING

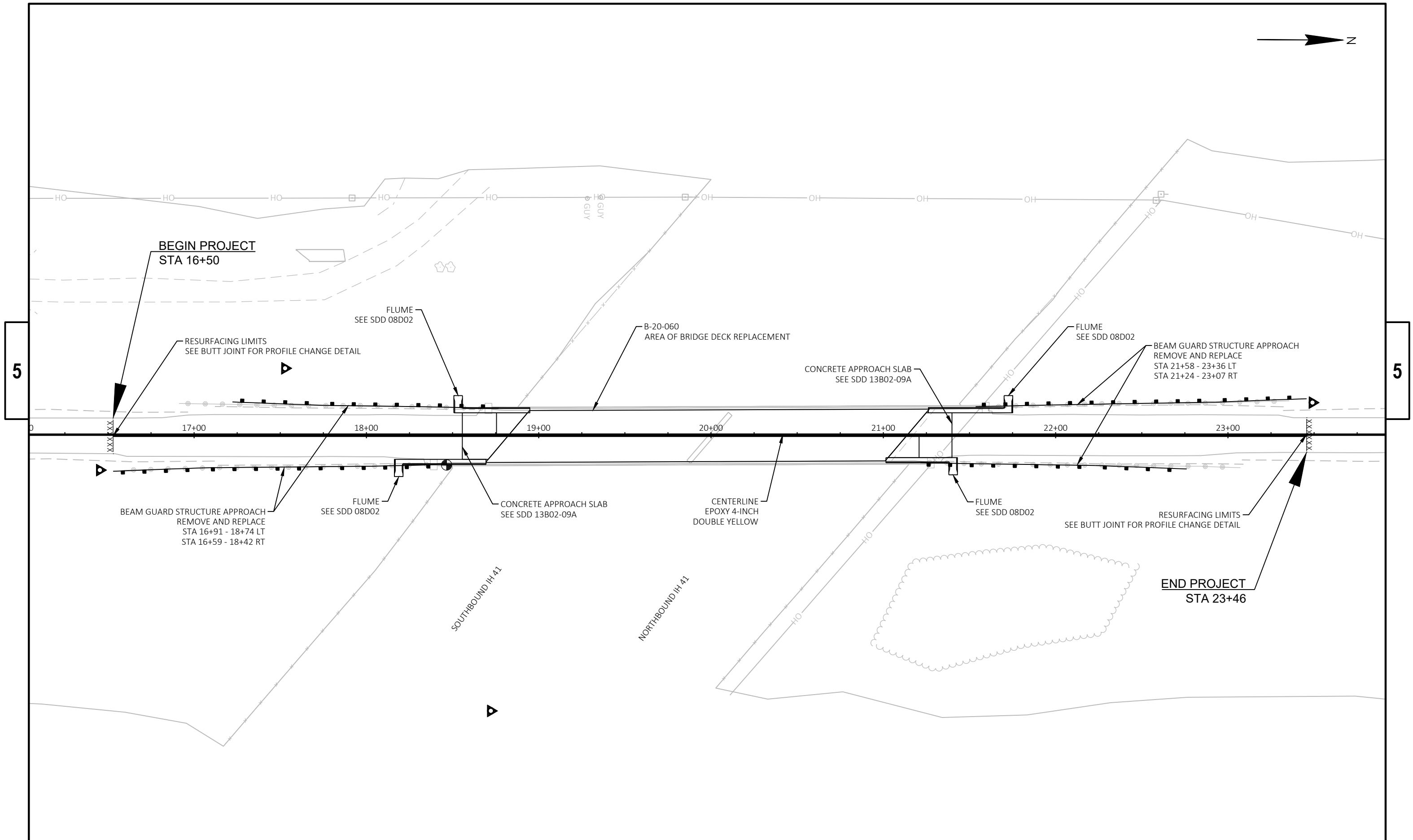
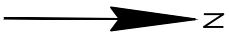
STATION	TO	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH LF	REMARKS
18+82	-	21+14	TOWN LINE ROAD	1,392	YELLOW CENTERLINE
TOTAL 0010				1,392	

TRAFFIC CONTROL - SUMMARY

STATION	TO	STATION	LOCATION	CLOSURE DURATION DAYS	643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1050		643.5000	REMARKS
					TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL WARNING LIGHTS TYPE C		TRAFFIC CONTROL ARROW BOARDS		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS PCMS		TRAFFIC CONTROL	
					EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	
15+00	-	17+06	SOUTH OF CLOSURE	60	---	---	4	240	8	480	---	---	---	---	6	360	1	7	1	
	-		B-20-060 SOUTH	60	---	---	5	300	6	360	---	---	---	---	1	60	---	---	---	
	-		B-20-060 NORTH	60	---	---	5	300	6	360	---	---	---	---	1	60	---	---	---	
22+23	-	25+00	NORTH OF CLOSURE	60	---	---	4	240	8	480	---	---	---	---	6	360	1	7	---	
			41 NB LANE CLOSURE	9	43	387	1	9	2	18	18	162	2	18	9	81	1	7	---	
			41 SB LANE CLOSURE	9	43	387	1	9	2	18	18	162	2	18	9	81	1	7	---	
TOTAL 0010					86	774	20	1,098	32	1,716	36	324	4	36	32	1,002	4	28	1	

STAKING

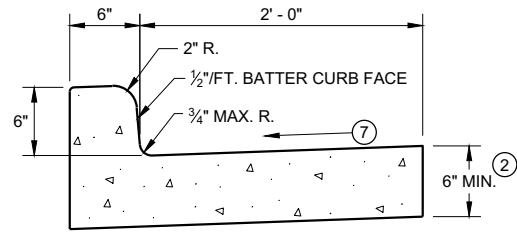
STATION	TO	STATION	LOCATION	650.5500	650.6500.01	650.9910.01	650.7000	650.9920
				CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. 1150-74-71) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 1150-74-71) EACH	CONSTRUCTION STAKING CONCRETE PAVEMENT LF	CONSTRUCTION STAKING SLOPE STAKES LF
16+25	-	23+75	B-20-060	---	1	1	---	---
15+34	-	17+06	TOWN LINE ROAD RT	40	---	---	---	184
16+03	-	17+75	TOWN LINE ROAD LT	5	---	---	---	196
18+54	-	18+95	APPROACH SLAB	---	---	---	27	---
21+05	-	21+45	APPROACH SLAB	---	---	---	27	---
22+23	-	23+95	TOWN LINE ROAD RT	3	---	---	---	191
22+93	-	24+65	TOWN LINE ROAD LT	36	---	---	---	203
TOTAL 0010				84	1	1	54	774



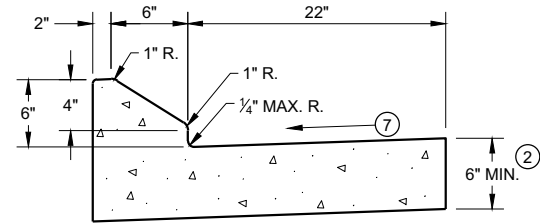
PROJECT NO: 1150-74-00	HWY: IH 41	COUNTY: FOND DU LAC	PLAN AND PROFILE: TOWN LINE ROAD	SHEET	<b>E</b>
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## Standard Detail Drawing List

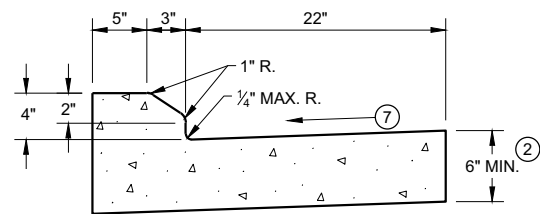
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-07A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-10	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-21A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C19-07A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15D12-10A	TRAFFIC CONTROL, LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



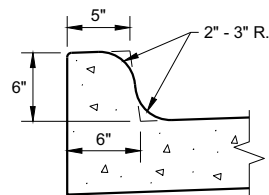
TYPES A<sup>1</sup> & D



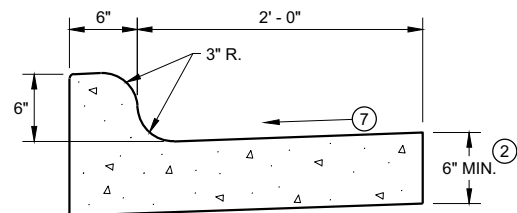
6" SLOPED CURB TYPES G<sup>1</sup> & J



4" SLOPED CURB TYPES G<sup>1</sup> & J

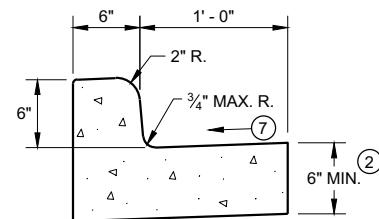


TYPES K<sup>1</sup> & L  
(OPTIONAL CURB SHAPE)



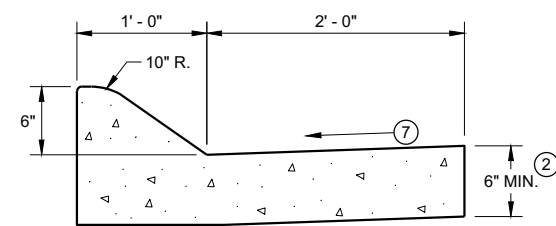
TYPES K<sup>1</sup> & L

CONCRETE CURB AND GUTTER 30"

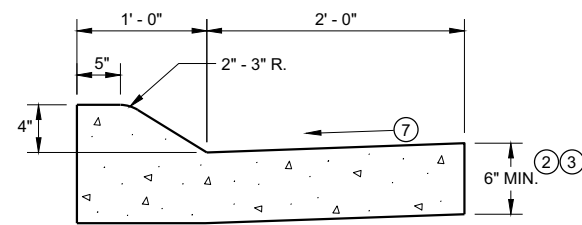


TYPES A<sup>1</sup> & D

CONCRETE CURB AND GUTTER 18"

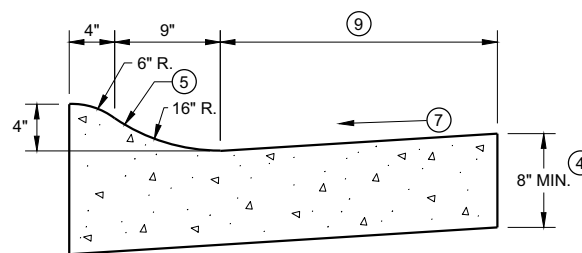


6" SLOPED CURB TYPES A<sup>1</sup> & D



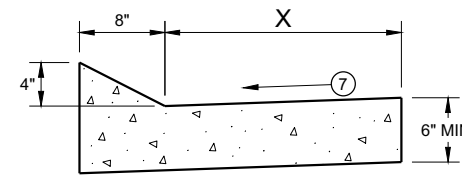
4" SLOPED CURB TYPES A<sup>1</sup> & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R<sup>1</sup> & T

TBT & TBTT	X
30"	22"
36"	28"

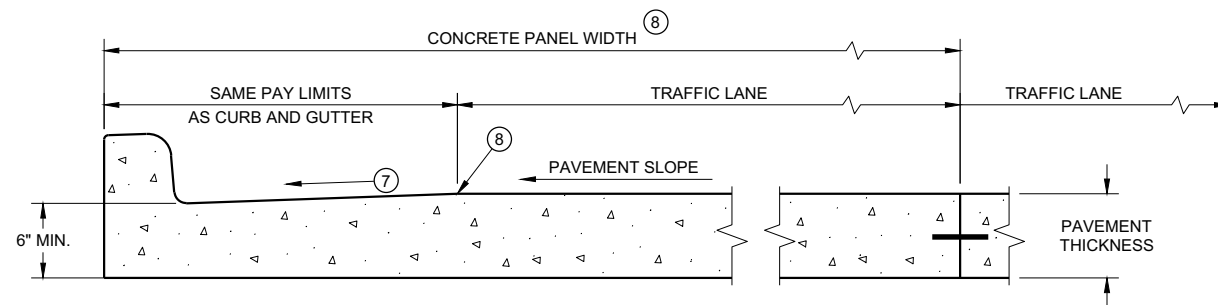


TYPES TBT & TBTT<sup>1</sup>

CONCRETE CURB AND GUTTER

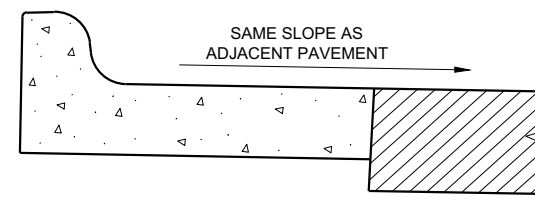
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT \*  
WITH INTEGRAL CURB AND GUTTER

\* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER<sup>6</sup>  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

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

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

INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

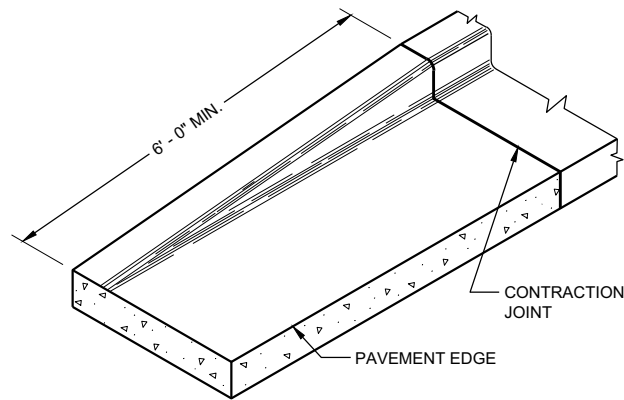
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES  
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

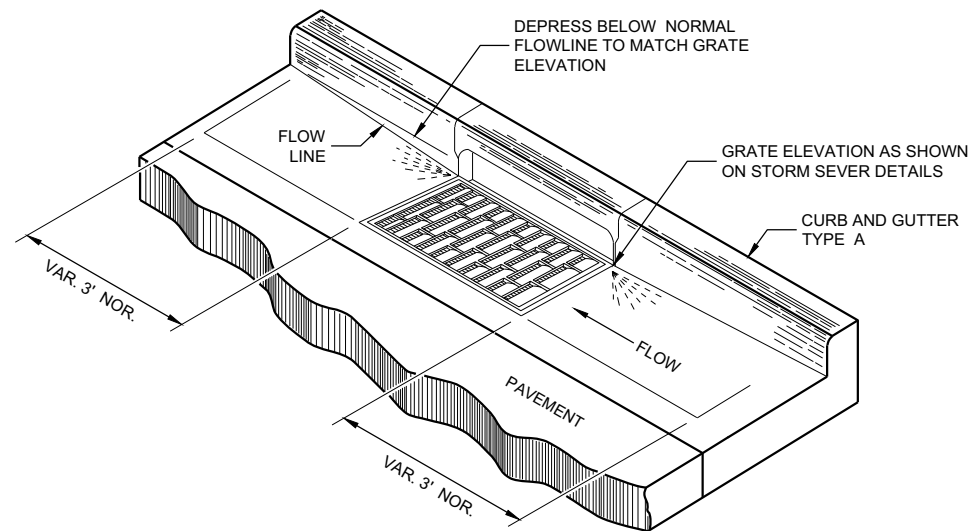
6

6





**END SECTION CURB AND GUTTER**



**DETAIL OF CURB AND GUTTER AT INLETS**  
(TYPICAL H INLET COVER SHOWN)

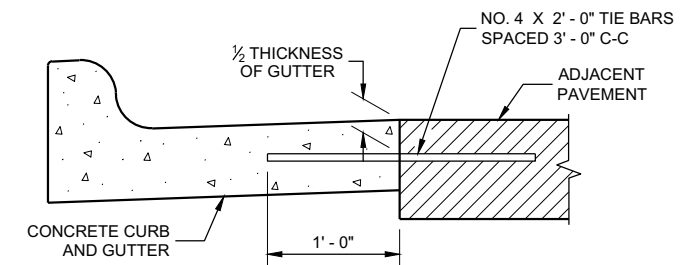
**GENERAL NOTES**

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

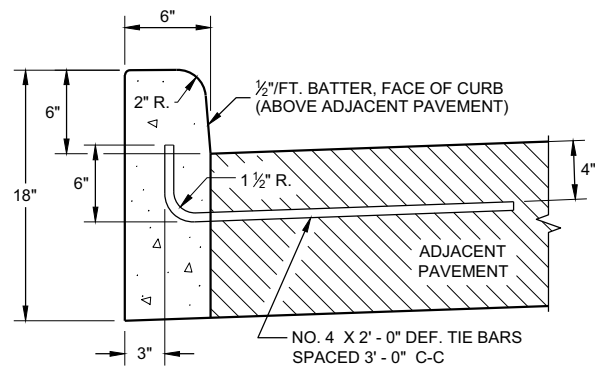
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

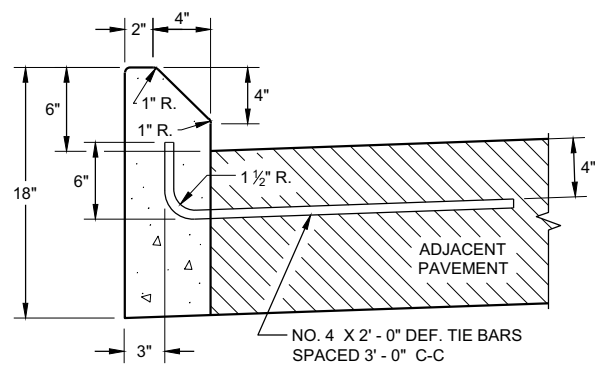
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



**TYPICAL TIE BAR LOCATION** ①

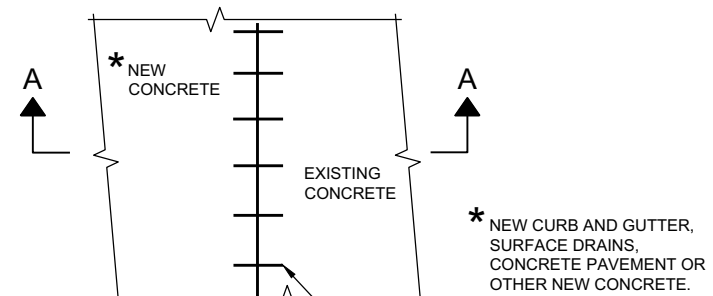


**TYPES A ① & D**

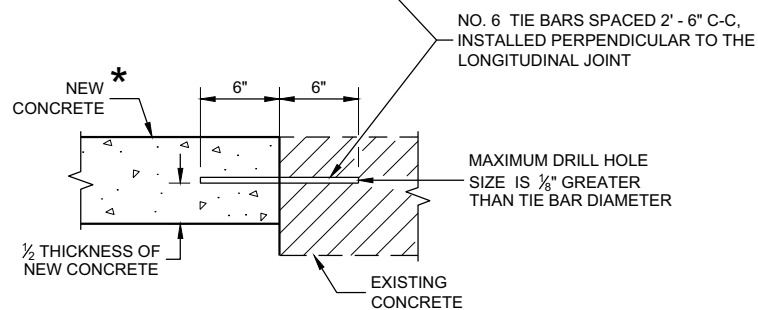


**TYPES G ① & J**

**CONCRETE CURB**

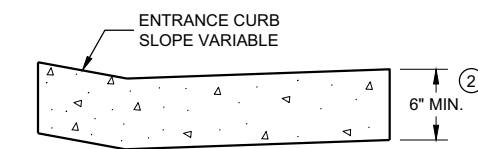


**PLAN VIEW**



**SECTION A - A**

**TIE BARS DRILLED INTO EXISTING PAVEMENT**



**DRIVEWAY ENTRANCE CURB** ⑨  
(WHEN DIRECTED BY THE ENGINEER)

**CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

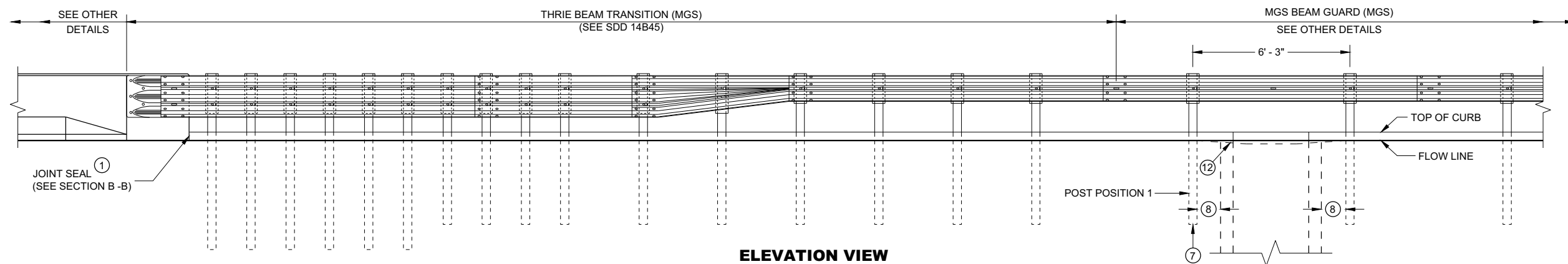
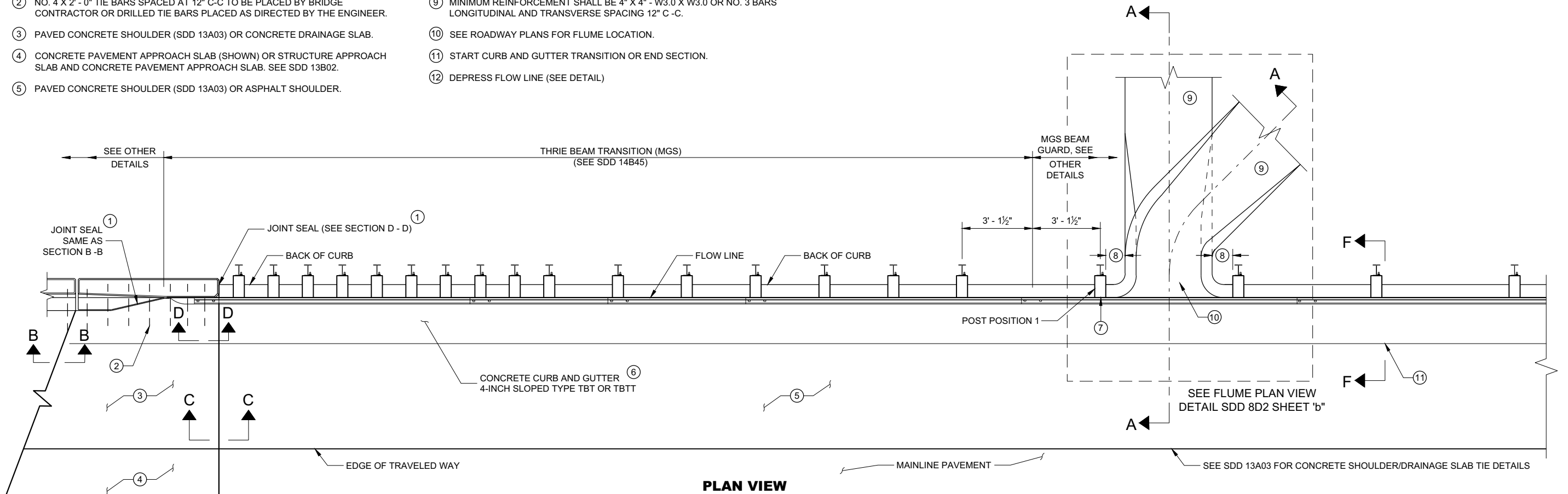
**GENERAL NOTES**

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

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)

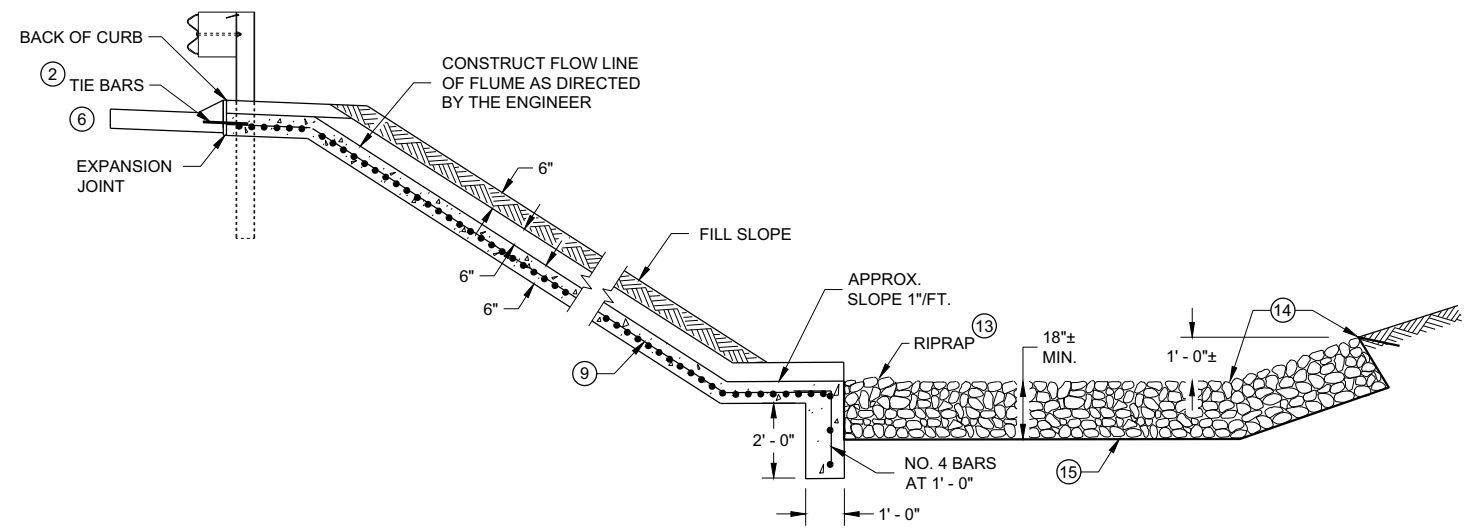


**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

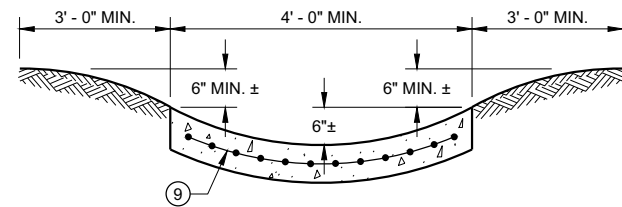
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

SDD 08D02 - 07a

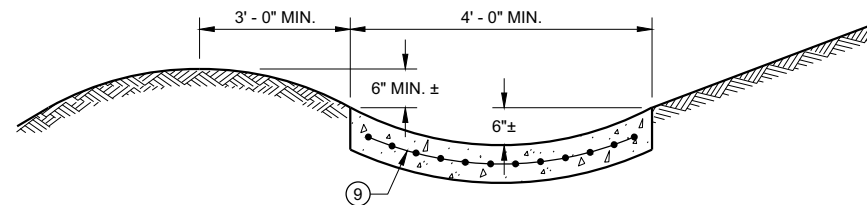
SDD 08D02 - 07a



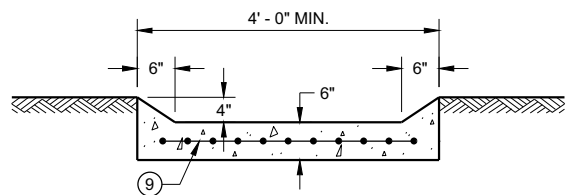
SECTION A - A



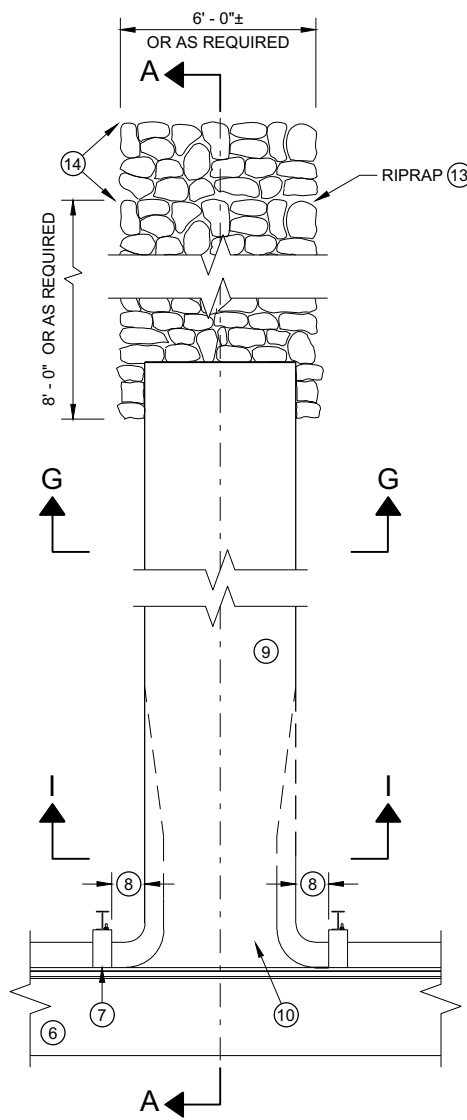
SECTION G - G



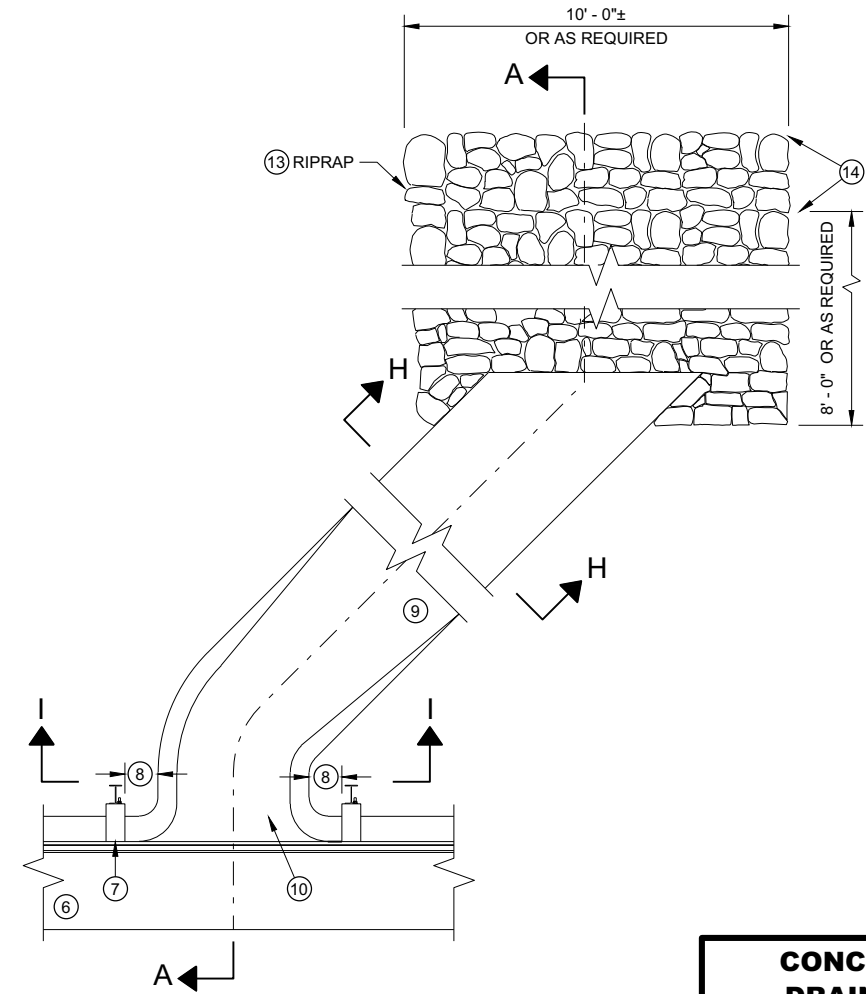
SECTION H - H



SECTION I - I



PLAN VIEW PERPENDICULAR FLUME



PLAN VIEW SKEWED FLUME

**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.

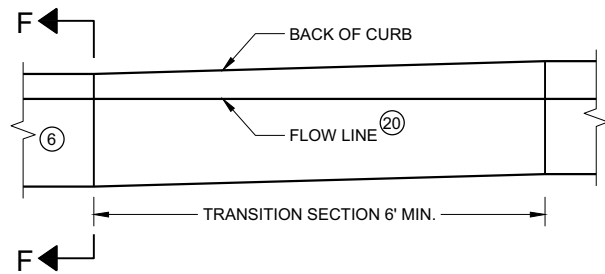
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

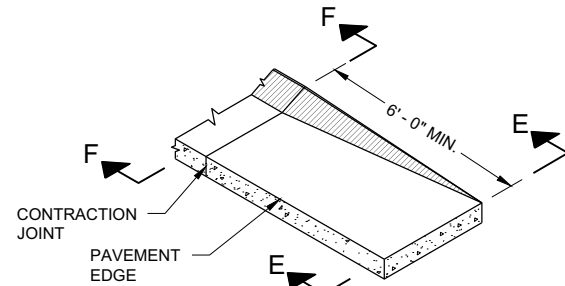
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

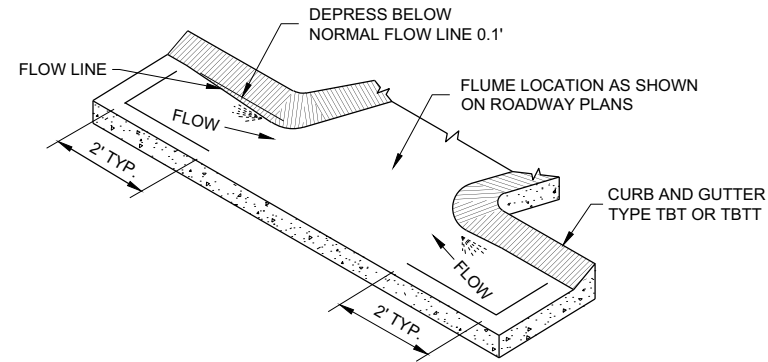
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



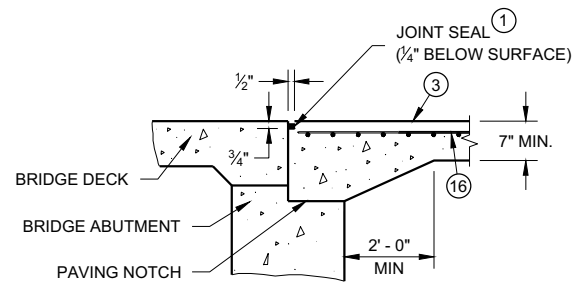
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

**GENERAL NOTES**

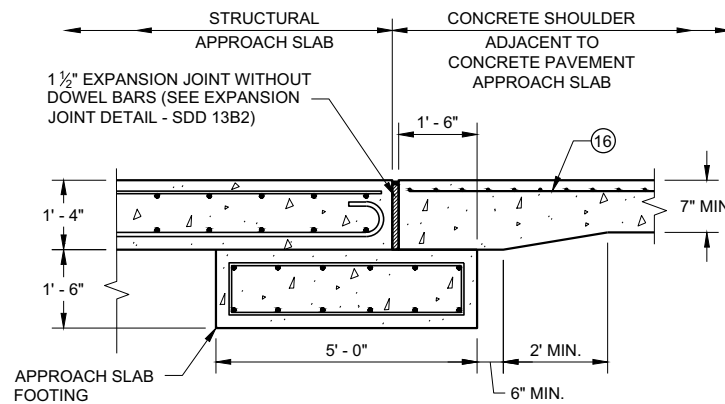
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

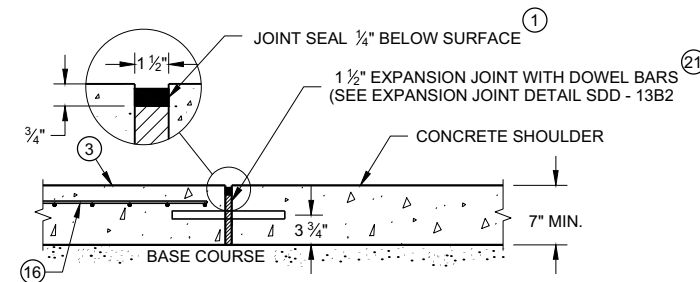
- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



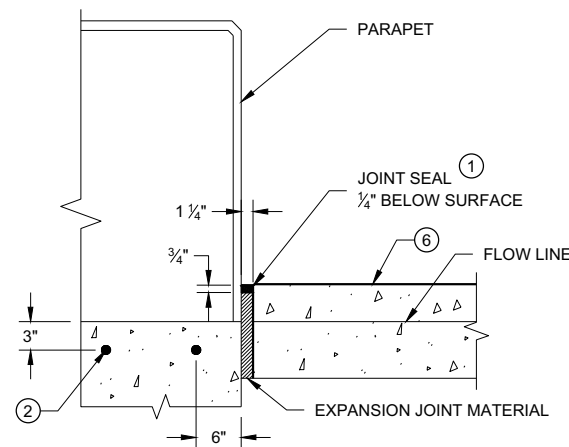
**SECTION B-B**



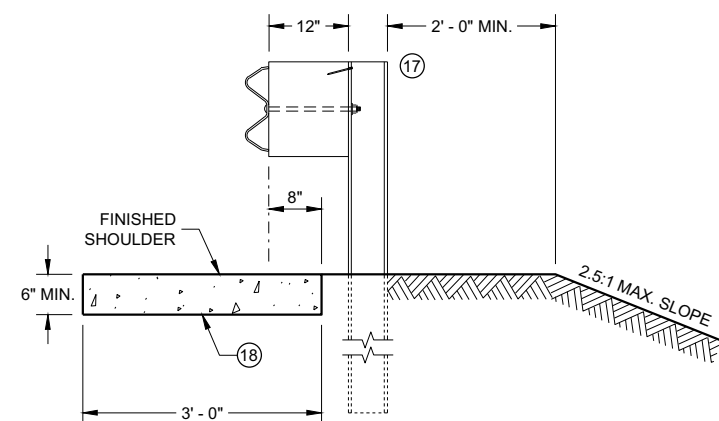
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



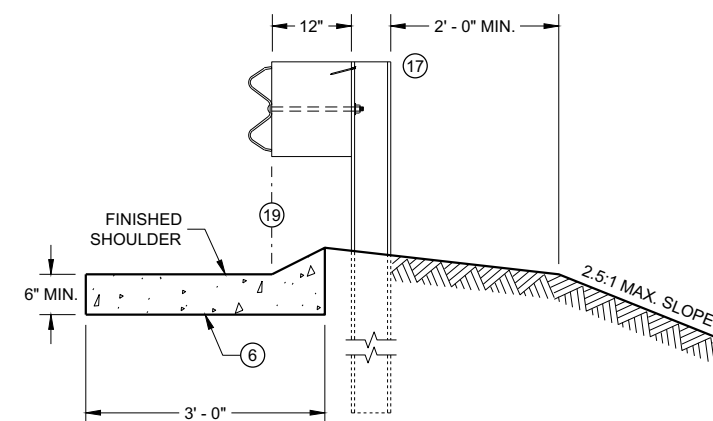
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

6

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SDD08D02 - 07C

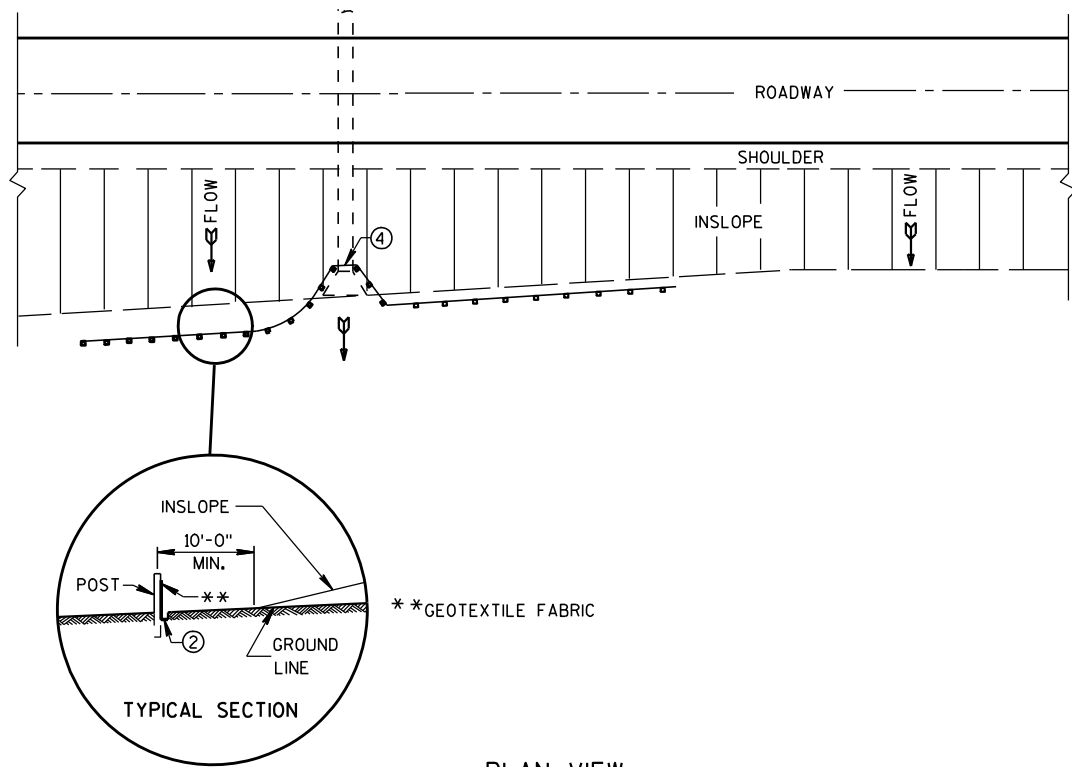
SDD08D02 - 07C

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

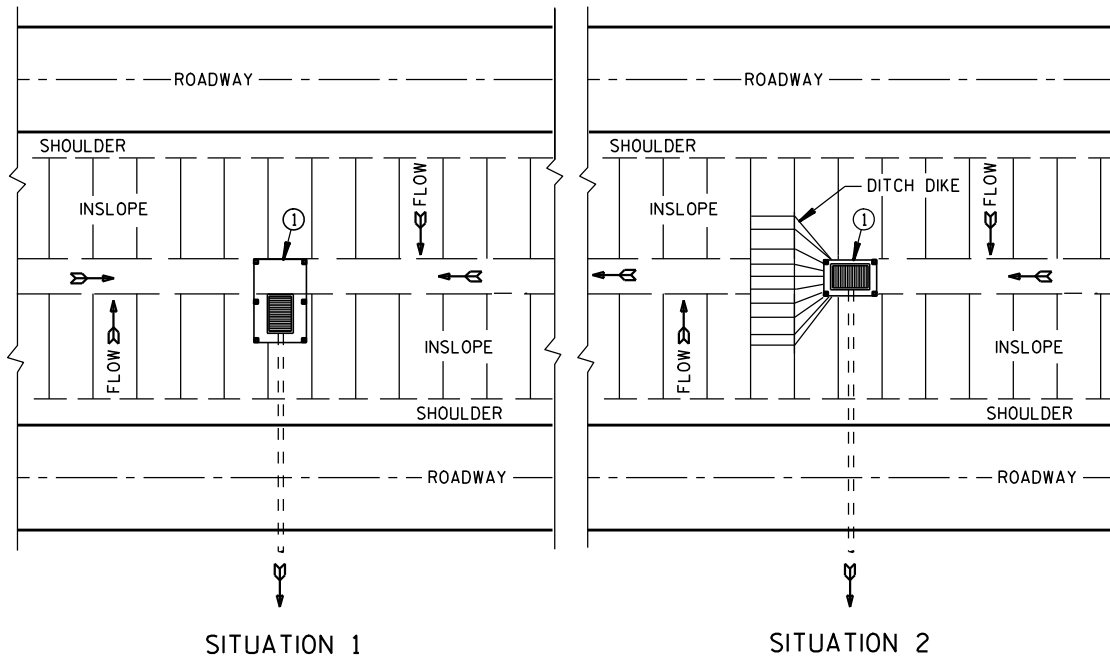
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

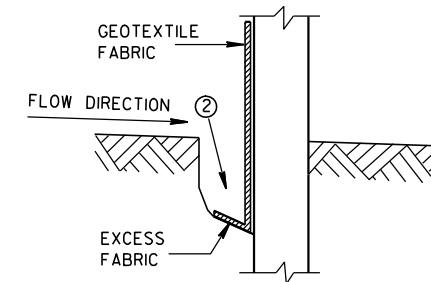


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

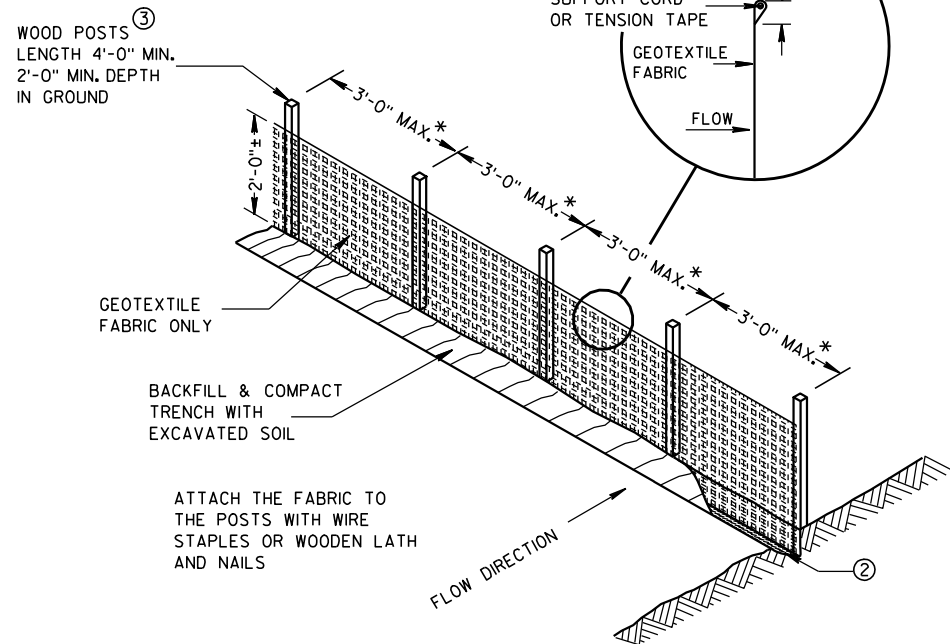
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



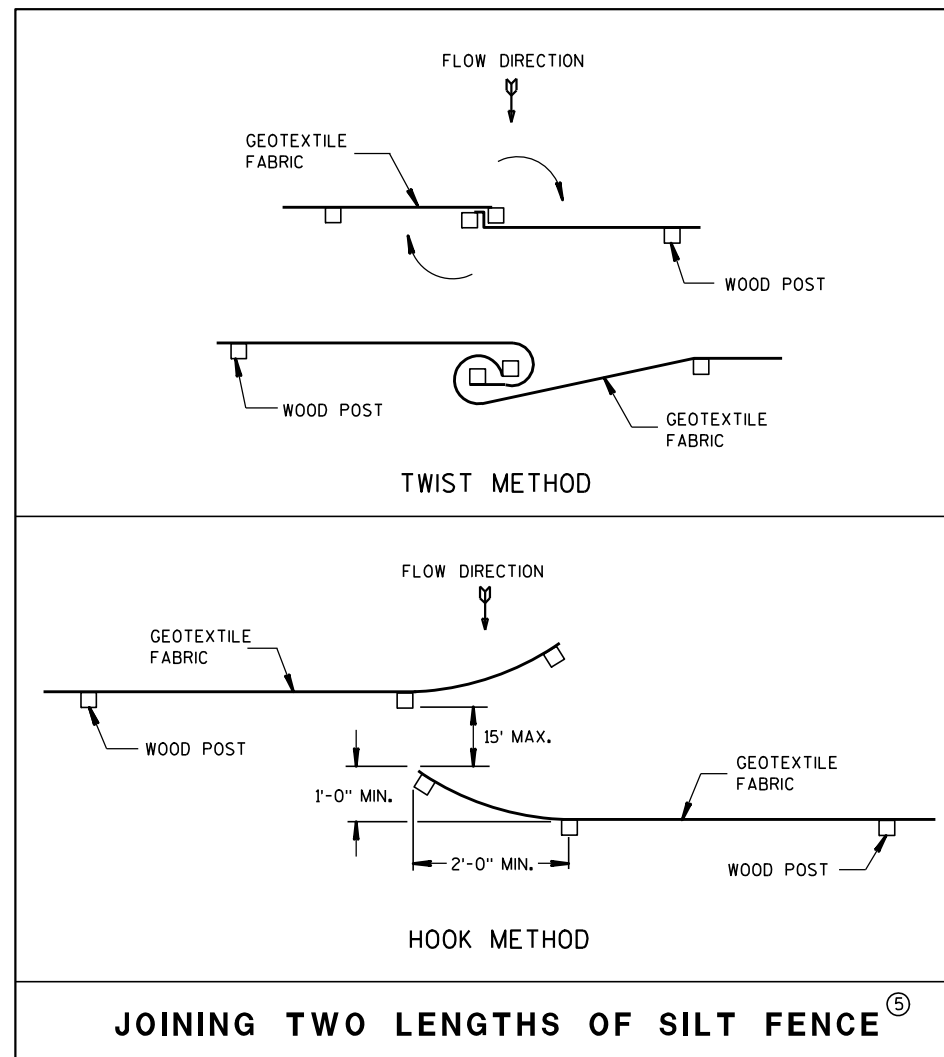
TRENCH DETAIL

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

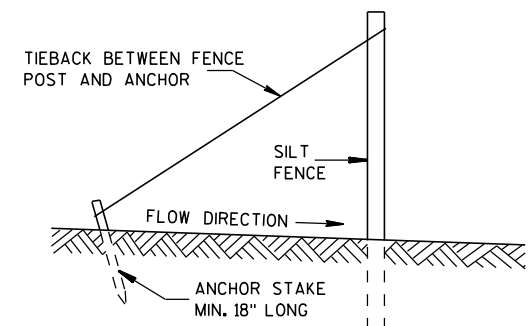


SILT FENCE

\* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤

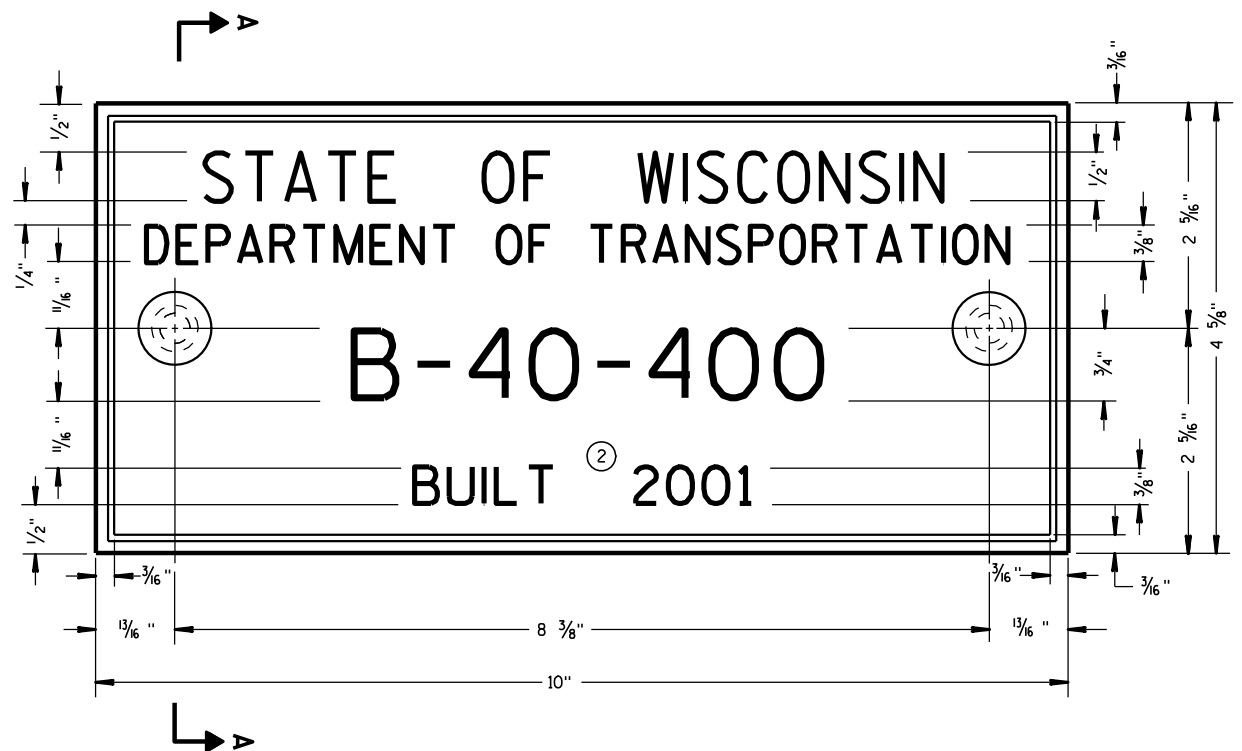


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



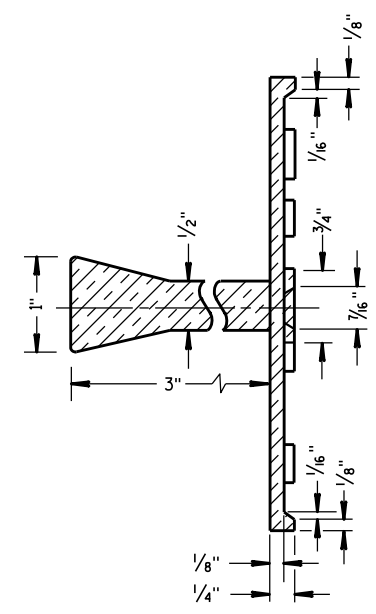
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

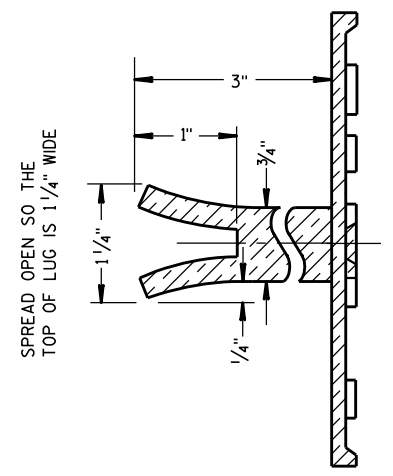
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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



**SECTION A-A**



SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

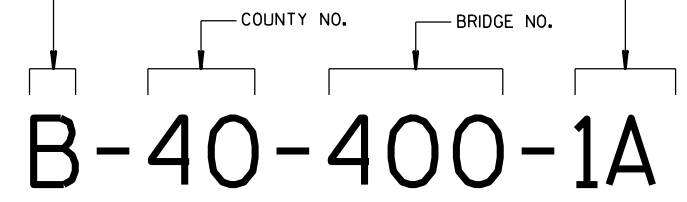
**ALTERNATE LUG**

6

6

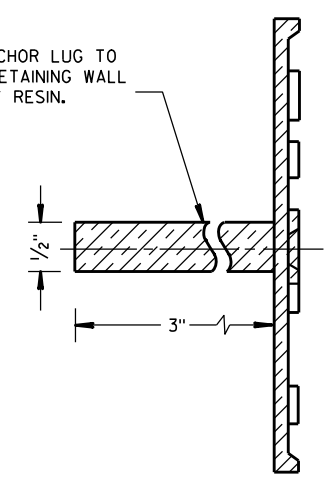
FOR MULTI-UNIT STRUCTURES  
LINE 3 ABOVE SHALL READ

- B = BRIDGE
- C = CULVERT
- R = RETAINING WALL
- UNIT NO. FOR MULTIPLE UNIT BRIDGE



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

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

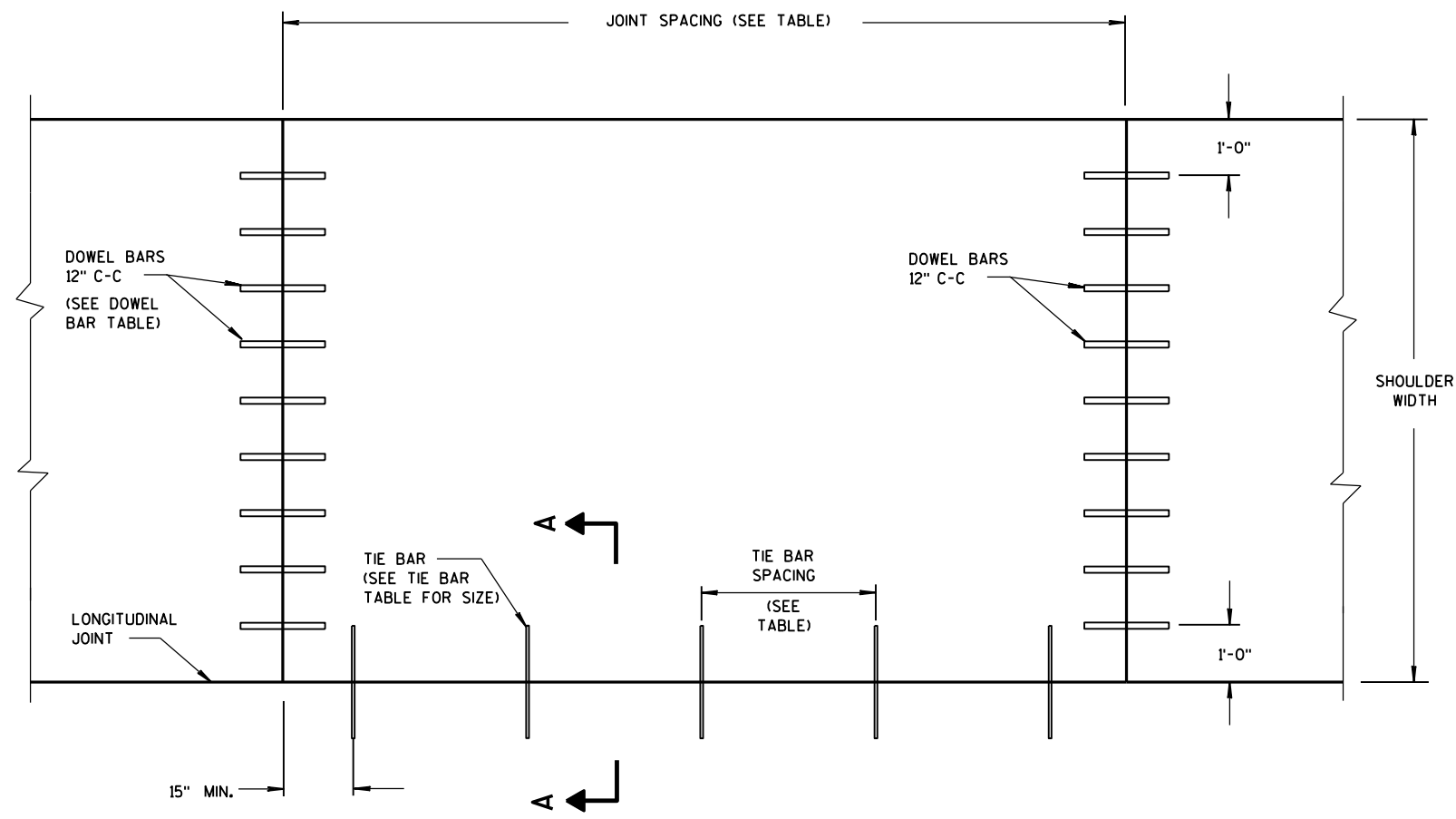


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

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



PLAN VIEW  
CONCRETE PAVEMENT SHOULDER

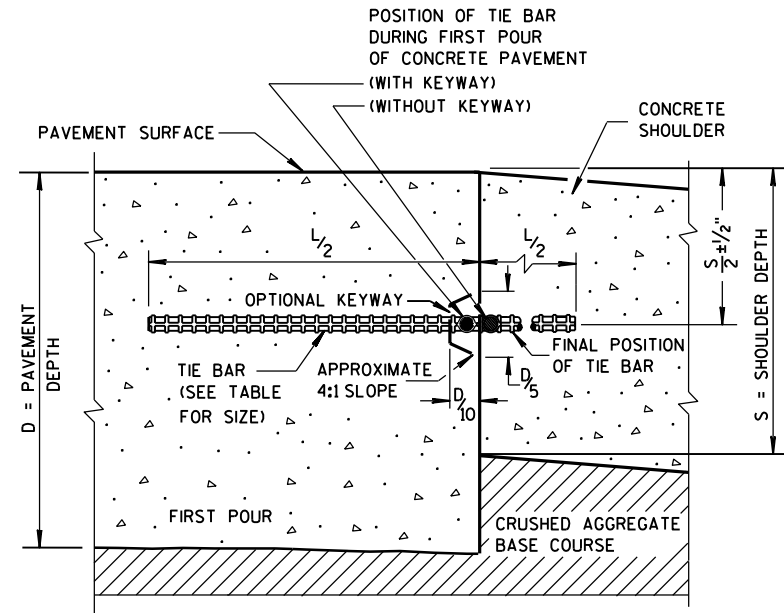
**GENERAL NOTES**

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT

**TIE BAR TABLE**

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

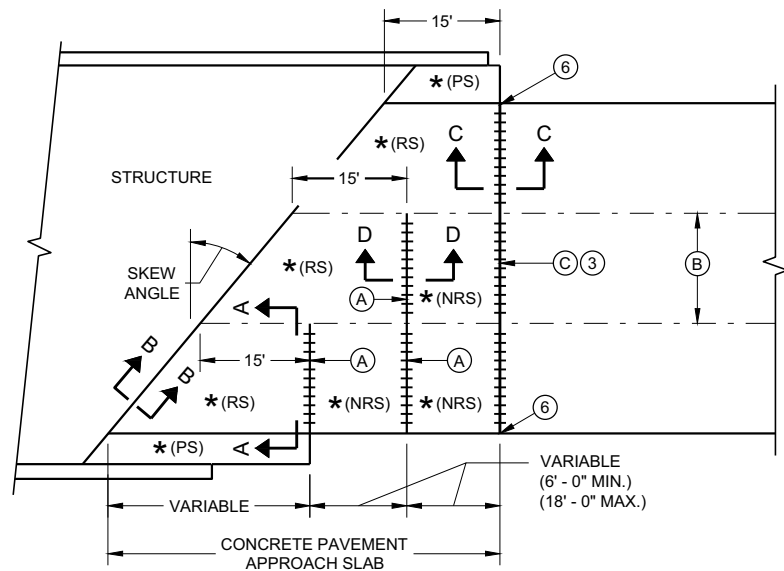
\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

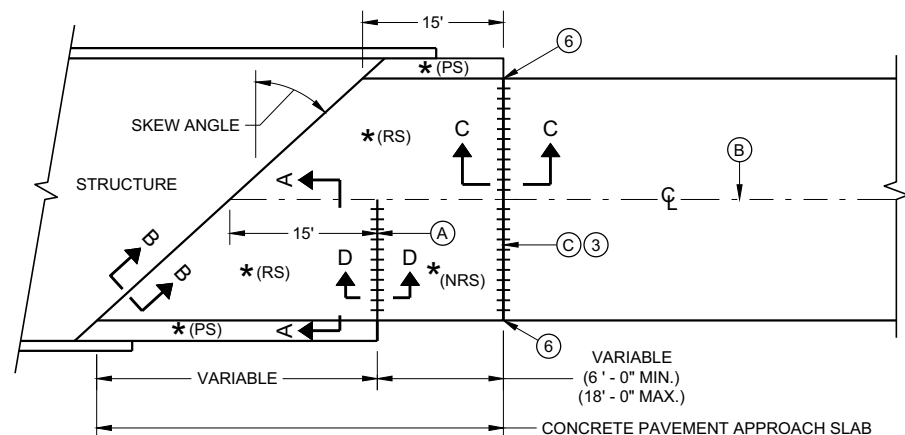
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

\*\*\* FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

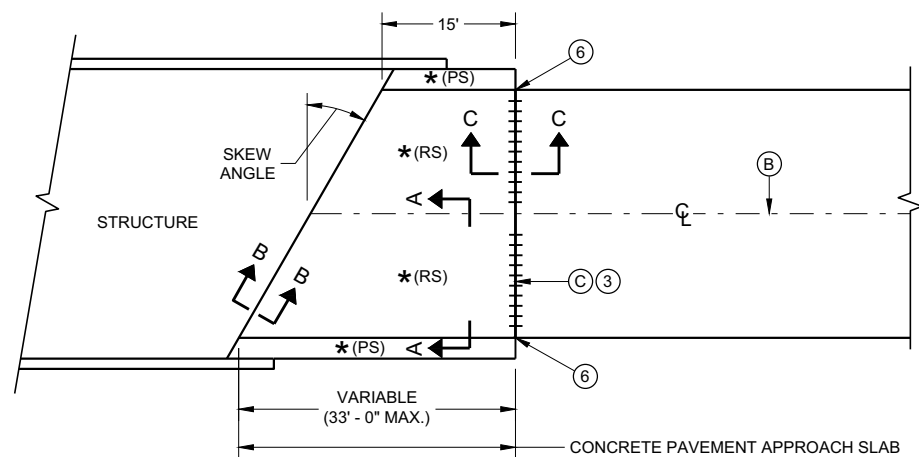
<b>CONCRETE PAVEMENT SHOULDERS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June, 2015 DATE	/S/ Peter Kemp, P.E. PAVEMENT SUPERVISOR
FHWA	



**SKewed Approach  
(Pavement more than two lanes)**

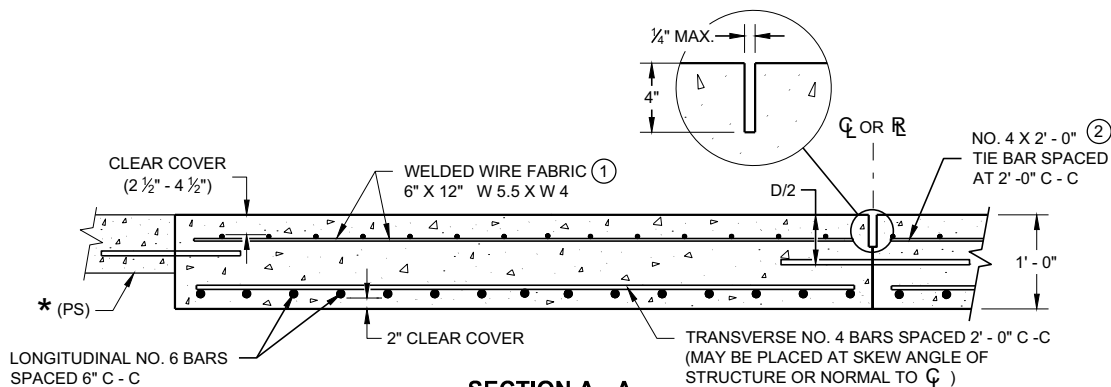


**SKews > 20°  
(Pavement width ≤ 30')**

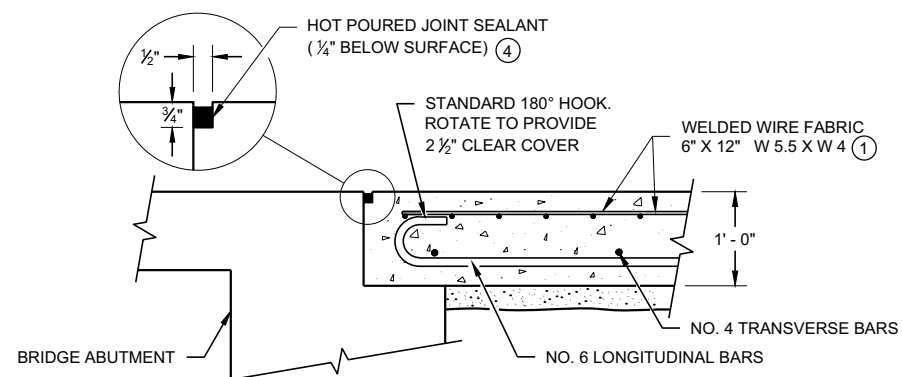


**SKews ≤ 20°  
(Pavement width ≤ 30')**  
**Approach Slab and Adjacent Pavement**

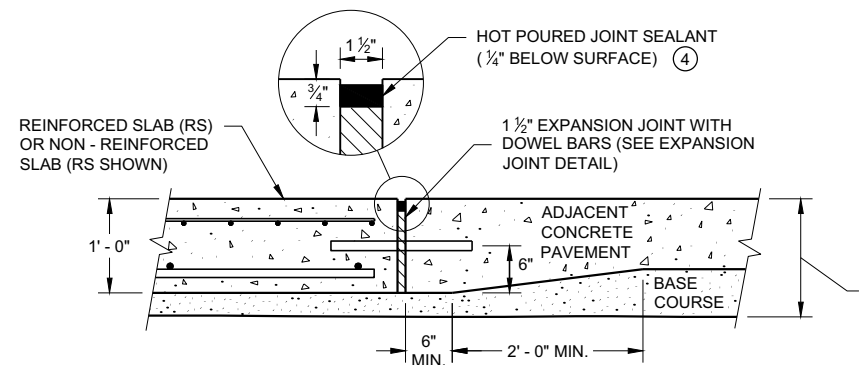
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



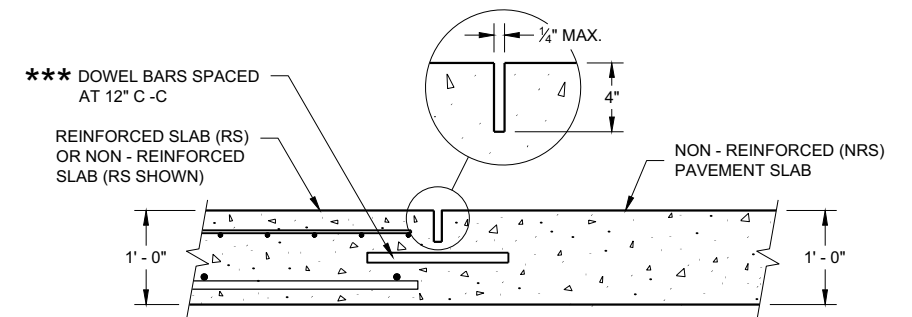
**SECTION B - B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



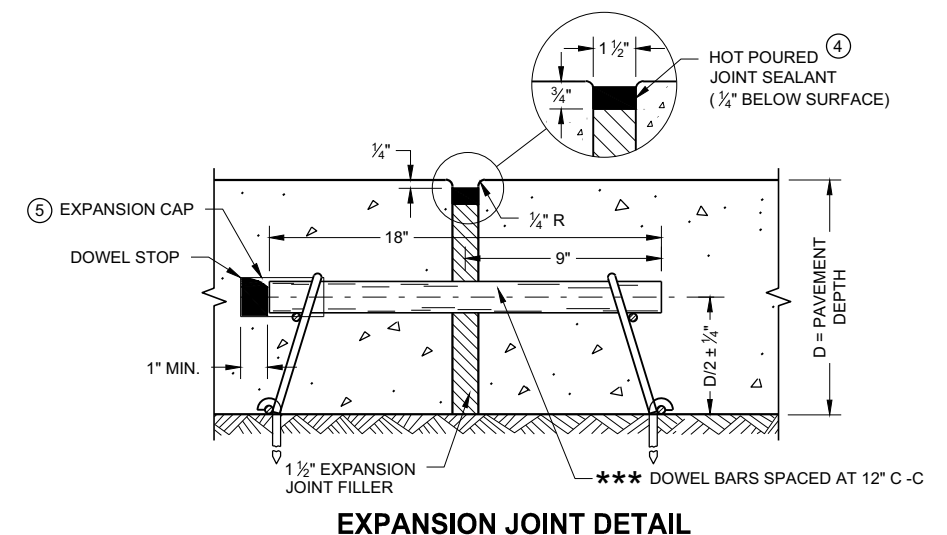
**SECTION C - C  
TRANSITION DETAIL  
Approach Slab to Adjacent Pavement**

**GENERAL NOTES**

- THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.
- TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.
- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
  - ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
  - ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
  - ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
  - ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
  - ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
  - (A) STANDARD CONTRACTION JOINT NORMAL TO  $\bar{C}$  OR  $\bar{R}$ .
  - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
  - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\bar{C}$  OR  $\bar{R}$ .



**SECTION D - D  
CONTRACTION JOINT**



**EXPANSION JOINT DETAIL**

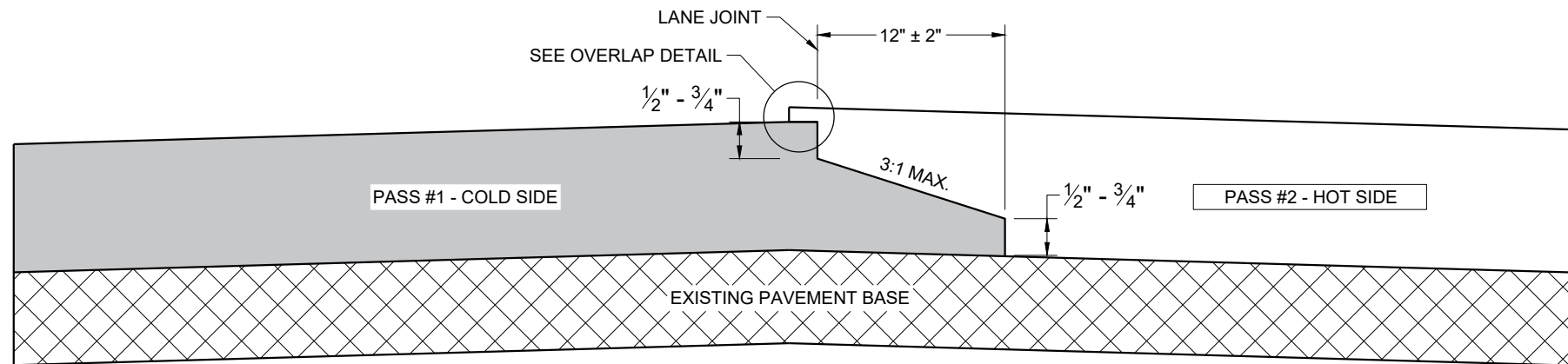
**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

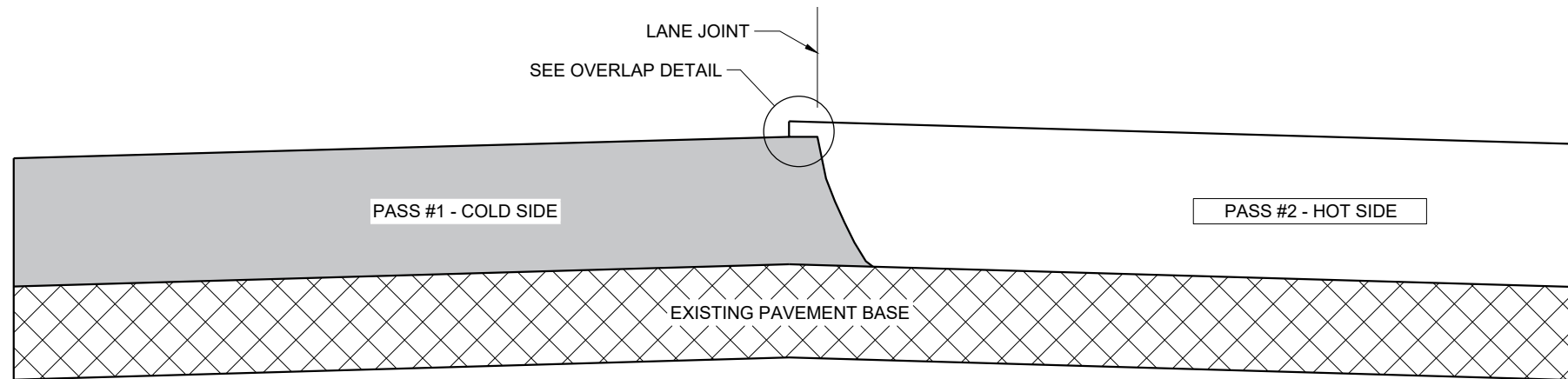
APPROVED  
November 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR

FHWA

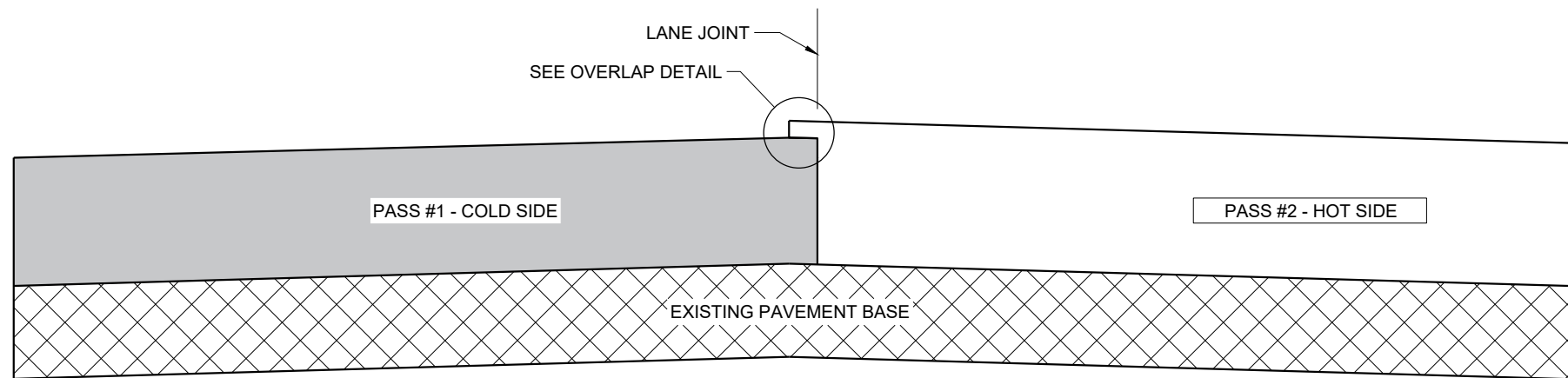




**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)**

**GENERAL NOTES**

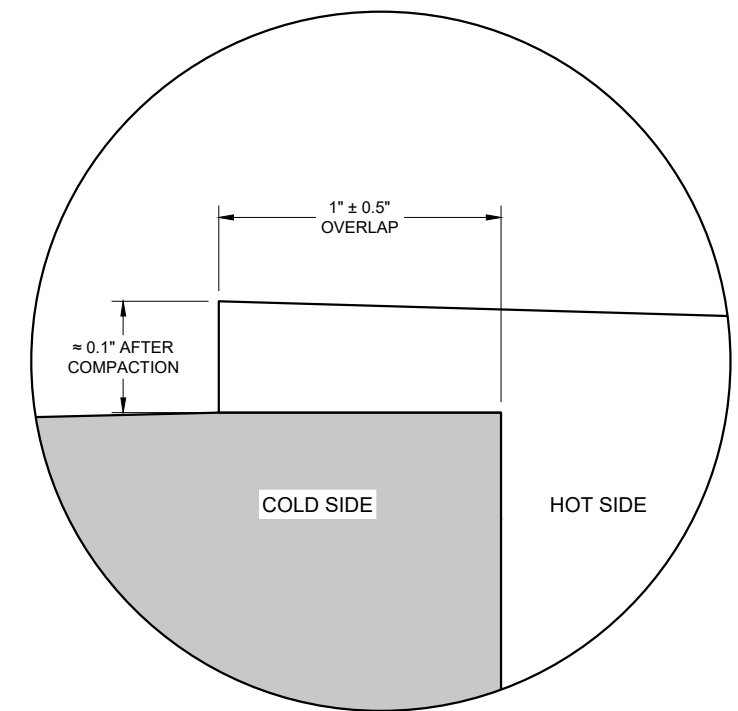
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY  $1" \pm 0.5"$  AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY  $0.1"$  AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO  $2"$  FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



**OVERLAP DETAIL (TYPICAL)**

6

6

SDD 13C19 - 03

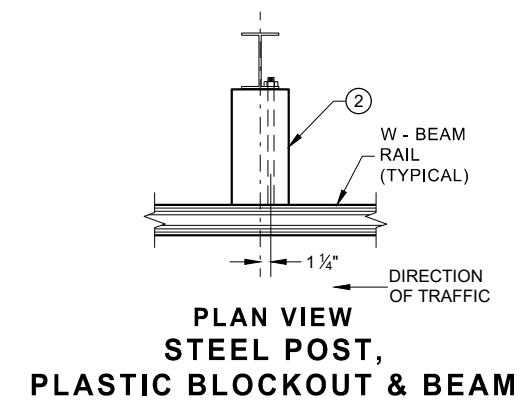
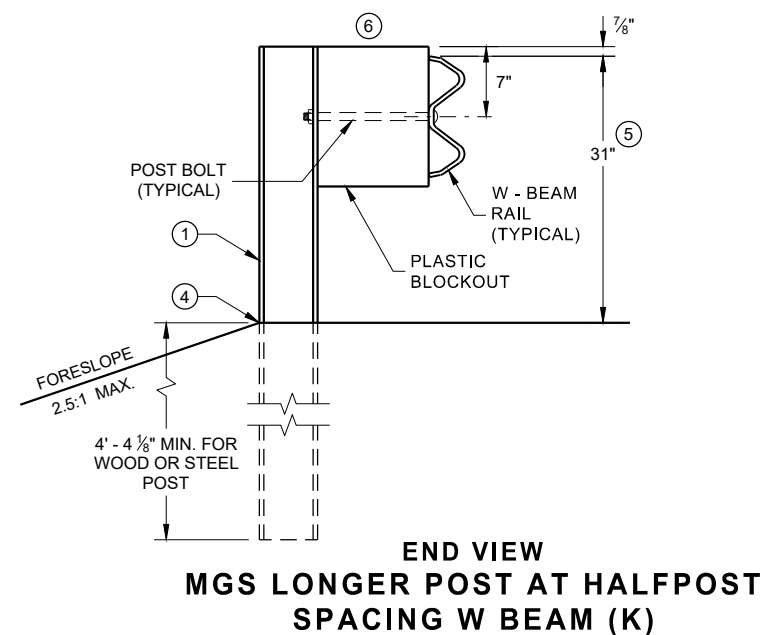
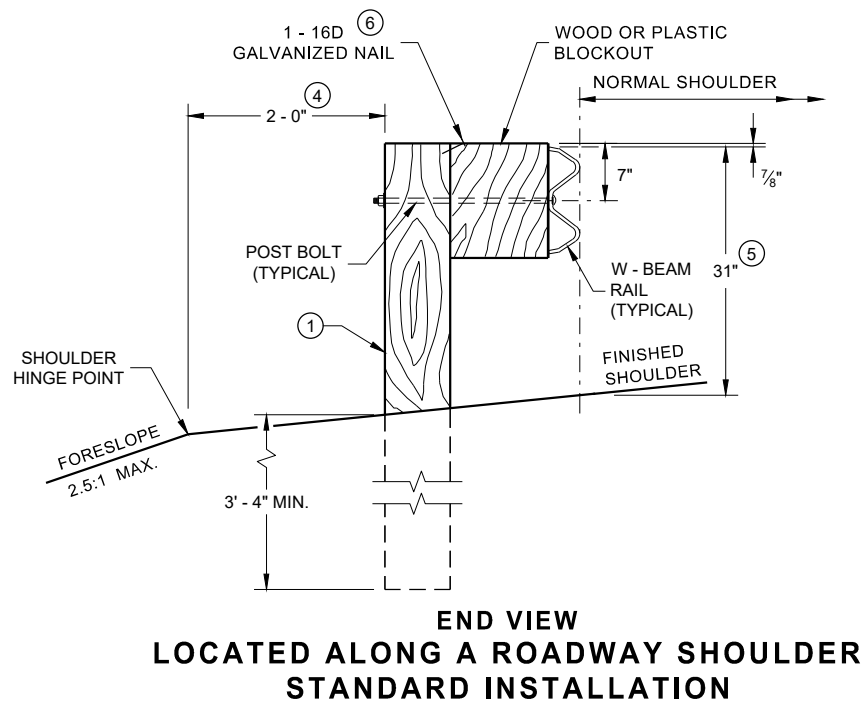
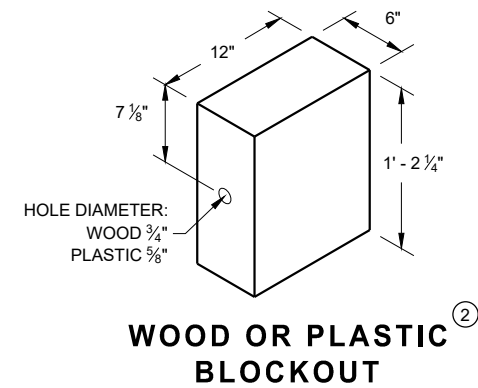
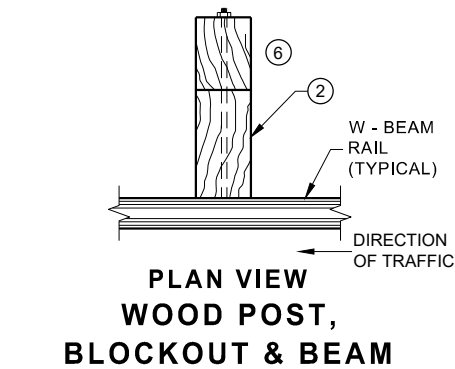
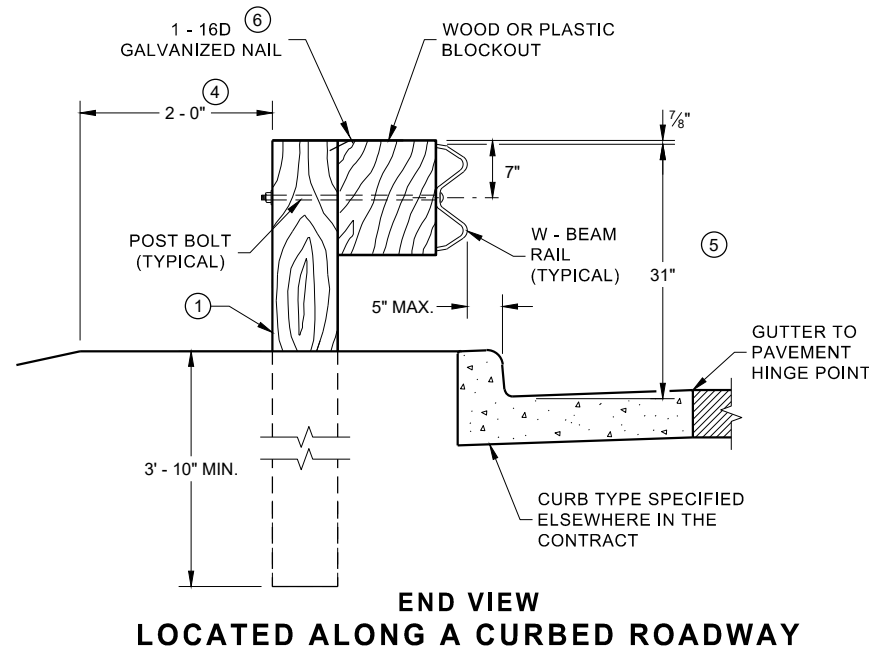
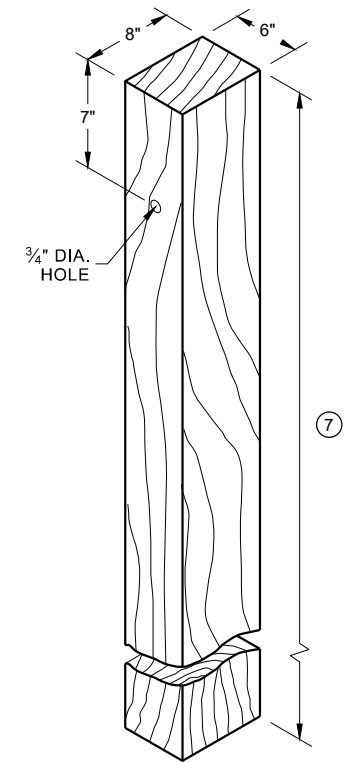
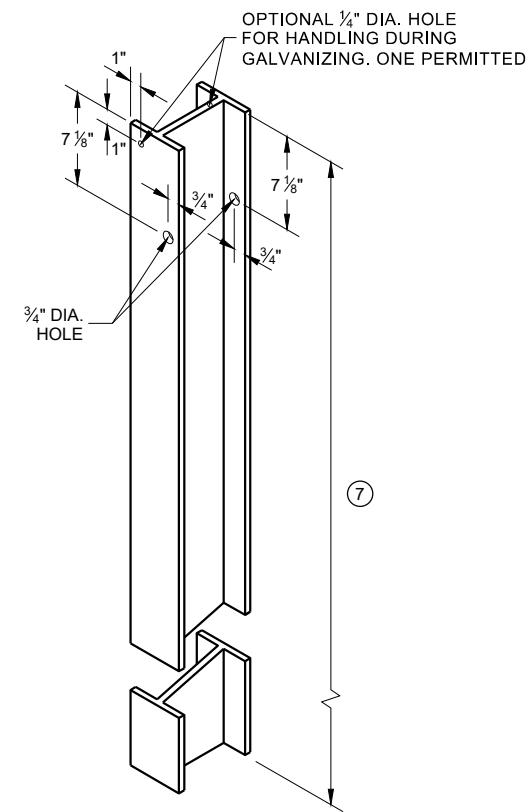
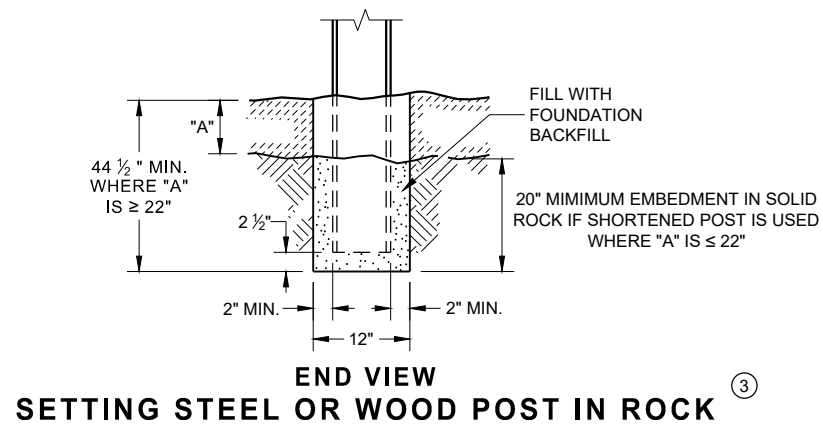
SDD 13C19 - 03

**HMA LONGITUDINAL JOINTS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

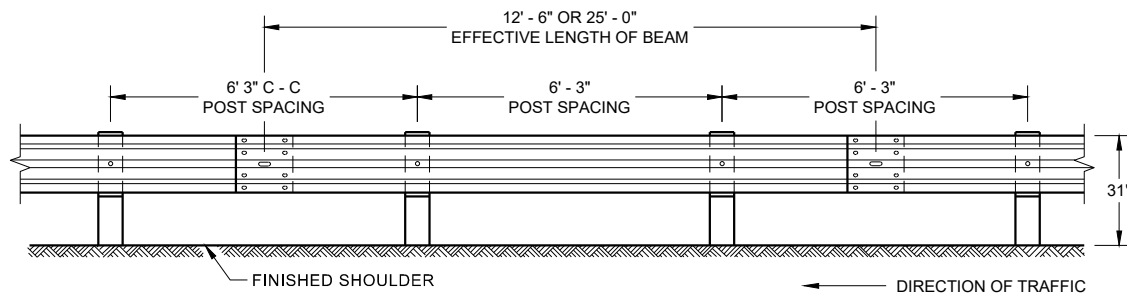
APPROVED  
November 2020 DATE /S/ Steven Hefel  
HMA PAVEMENT ENGINEER  
FHWA

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

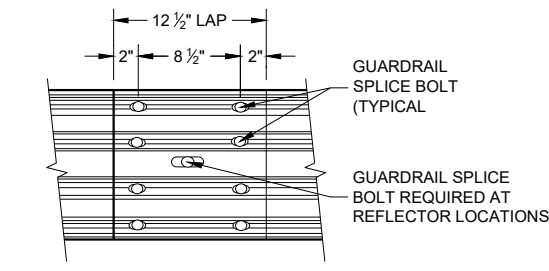


**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



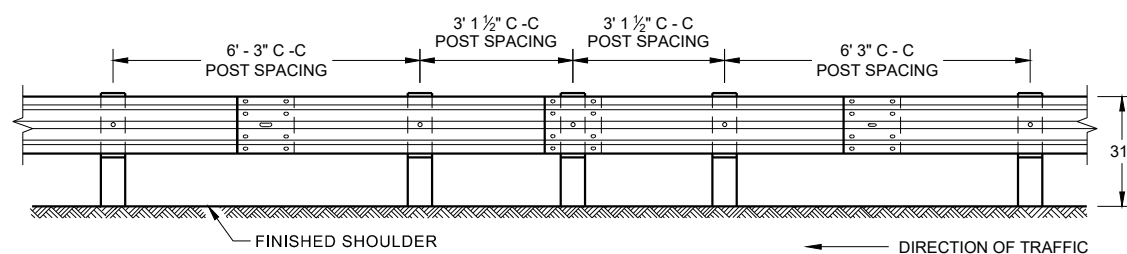
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



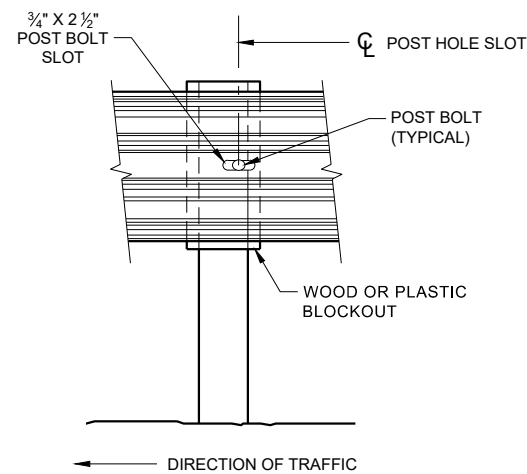
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

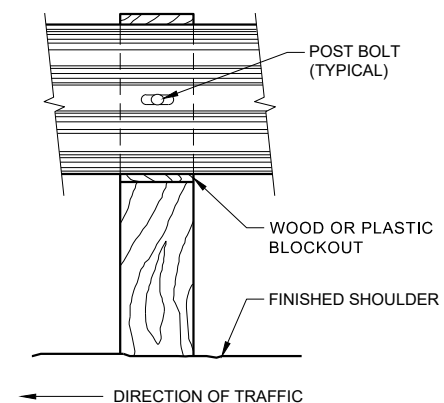
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



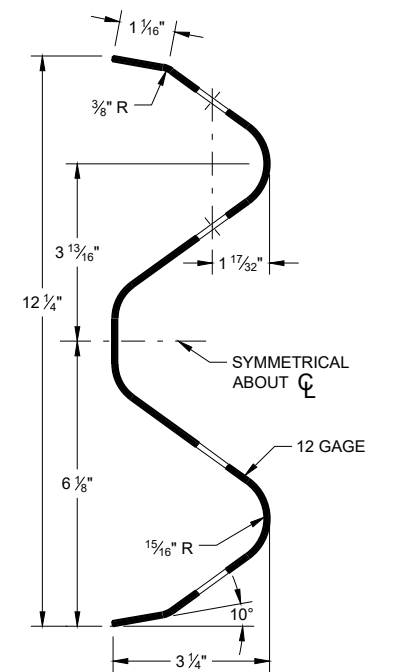
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



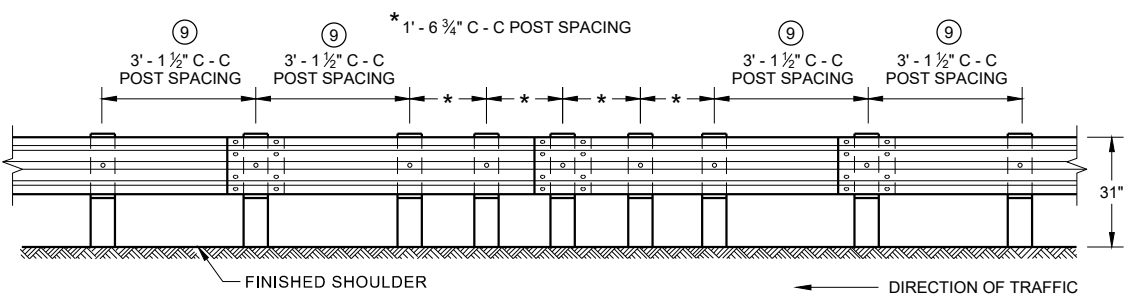
**FRONT VIEW AT STEEL POST**



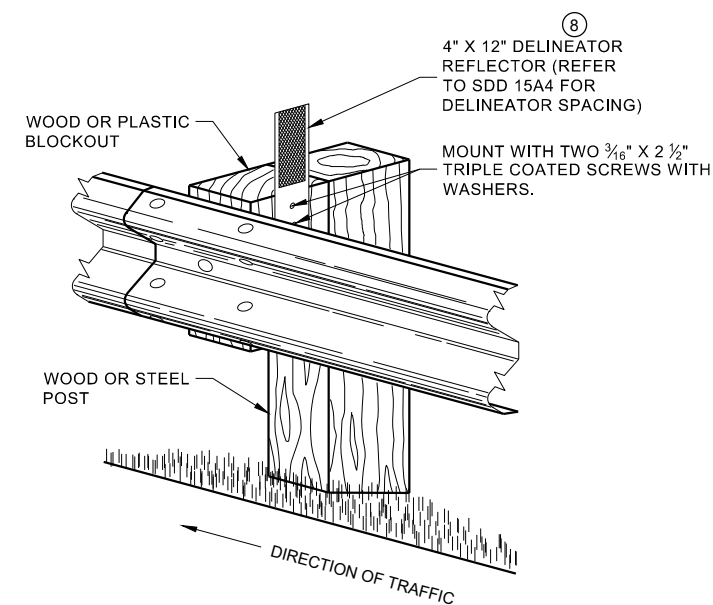
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

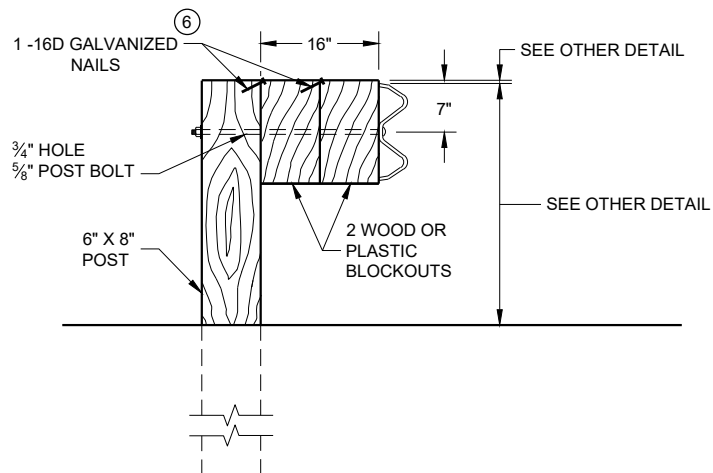
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

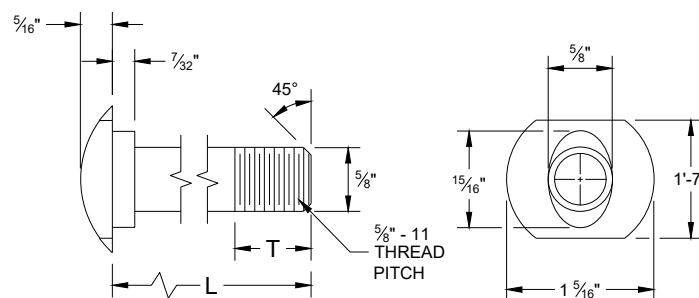


**DETAIL FOR 16" BLOCKOUT DEPTH**

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

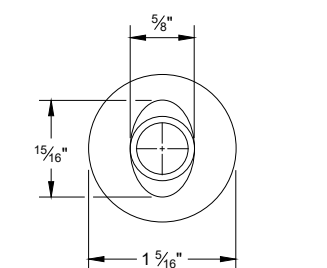
**NOTE:**

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

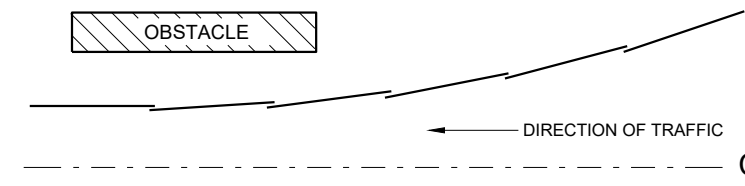


**POST BOLT TABLE**

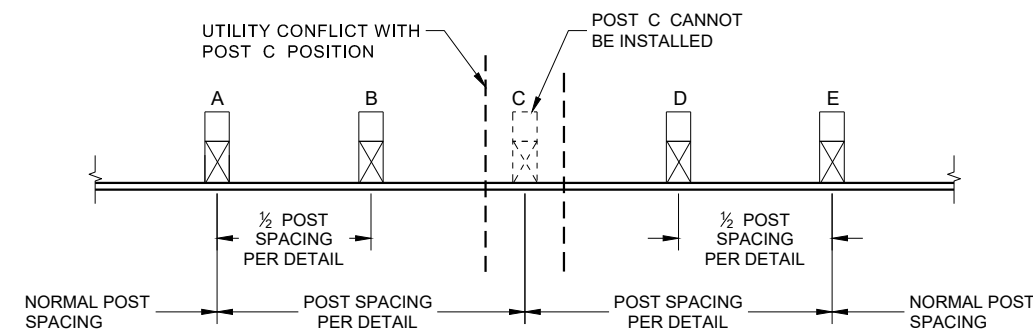
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



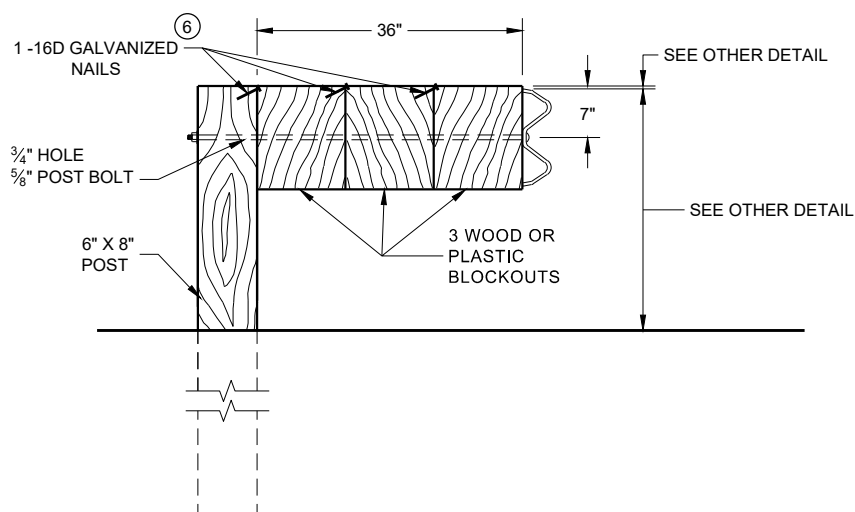
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

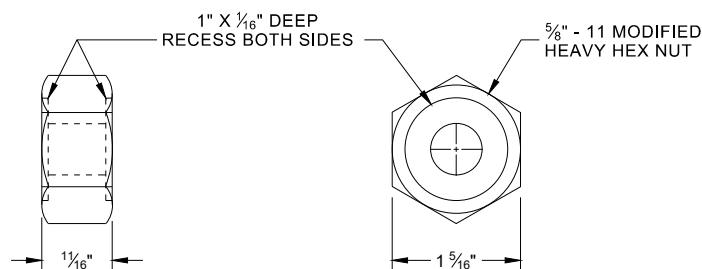


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

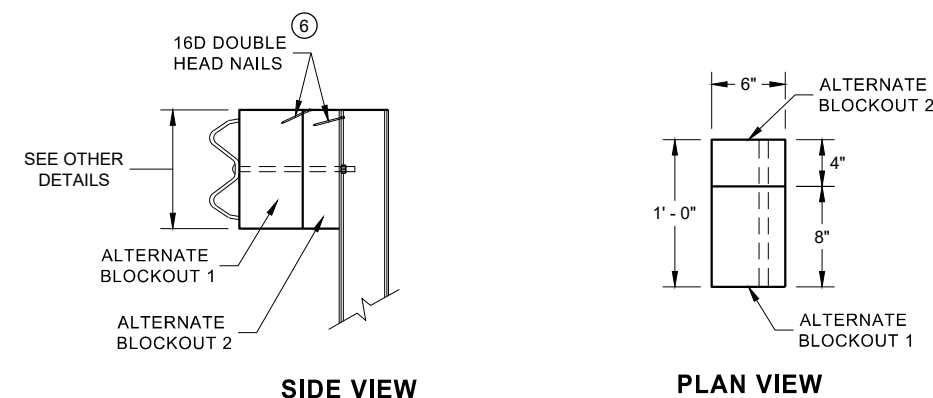


**DETAIL FOR 36" BLOCKOUT DEPTH**

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



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

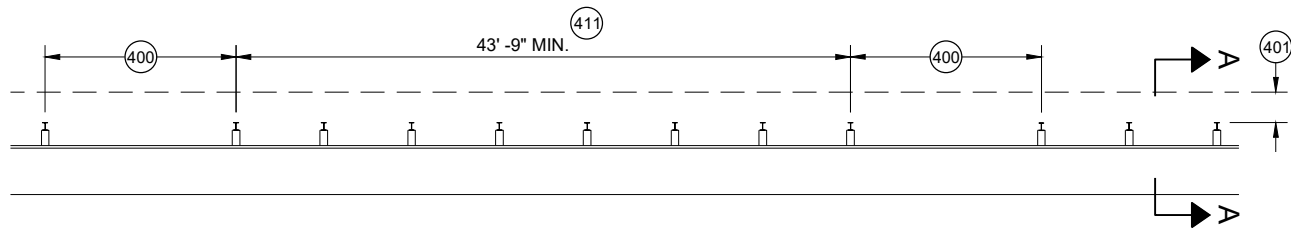


**ALTERNATE WOOD  
BLOCKOUT DETAIL**

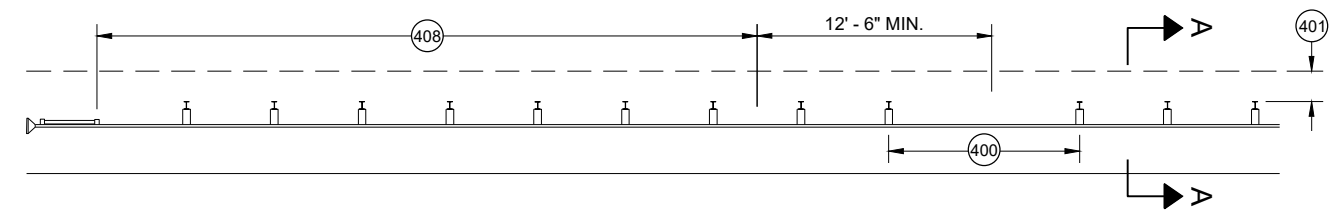
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

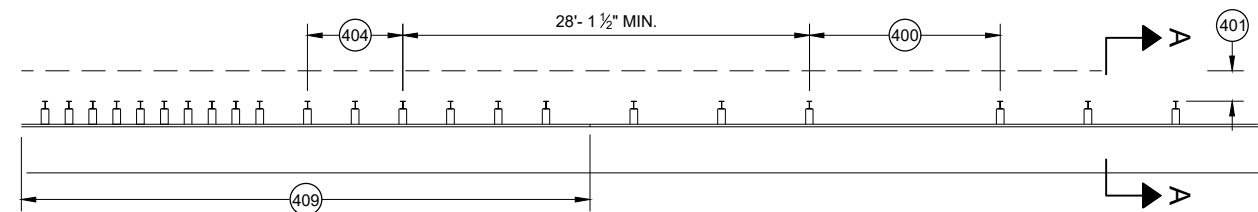
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



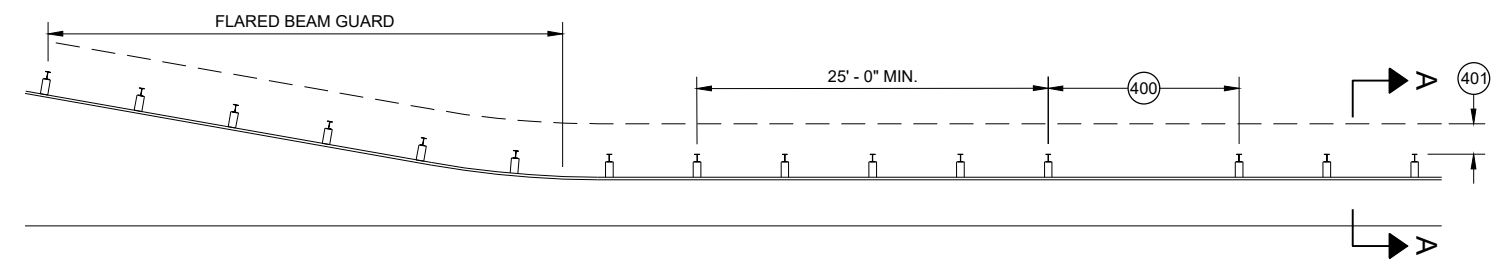
**MISSING POST IN MGS GUARDRAIL**



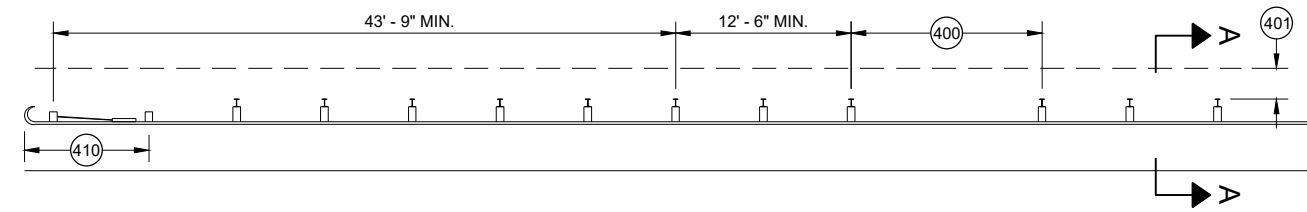
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



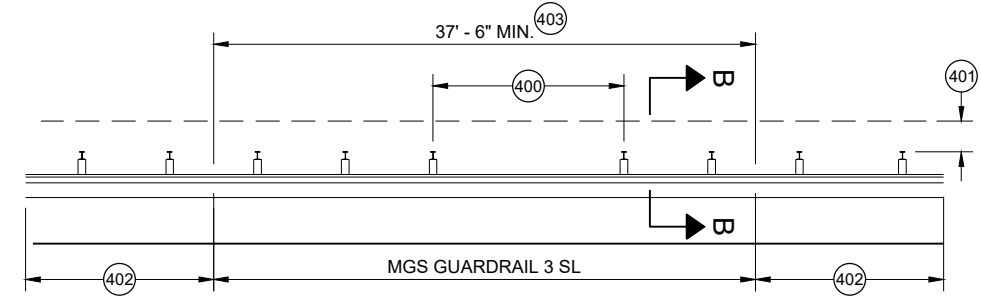
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

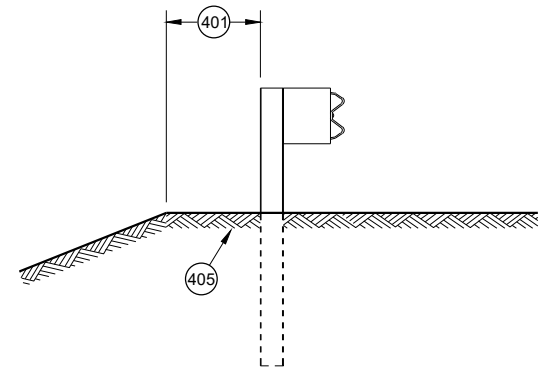


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

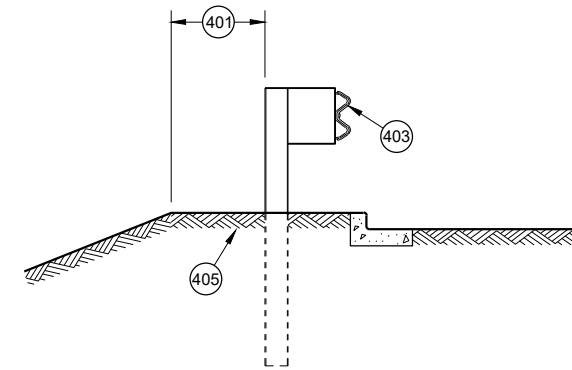


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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



**SECTION A - A**



**SECTION B - B**

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

**GENERAL NOTES**

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
  - (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
  - (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
  - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
  - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

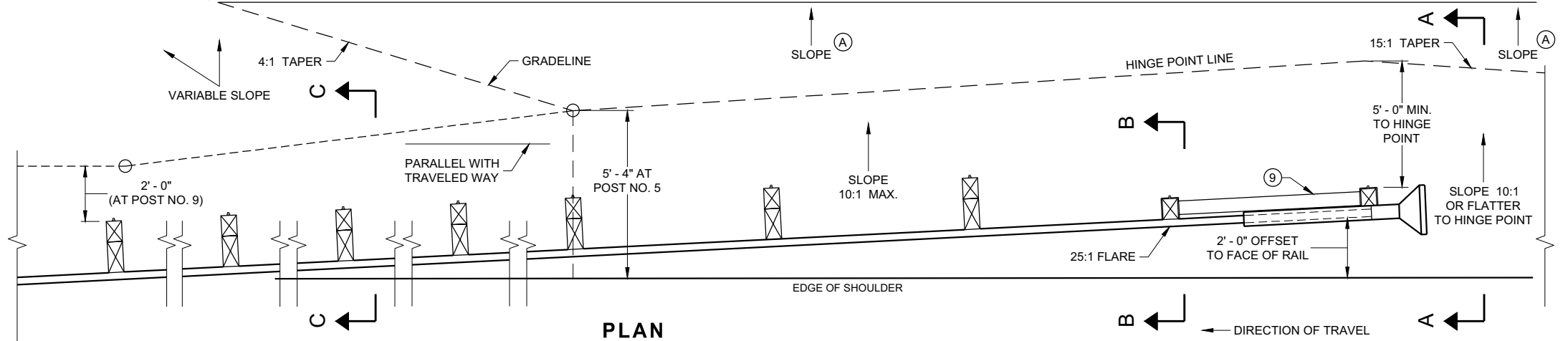
\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

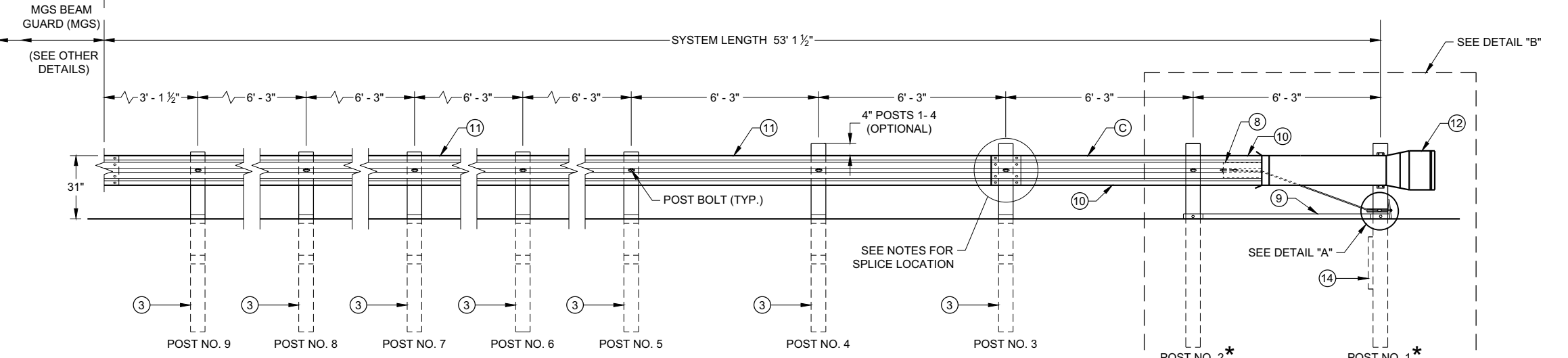
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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

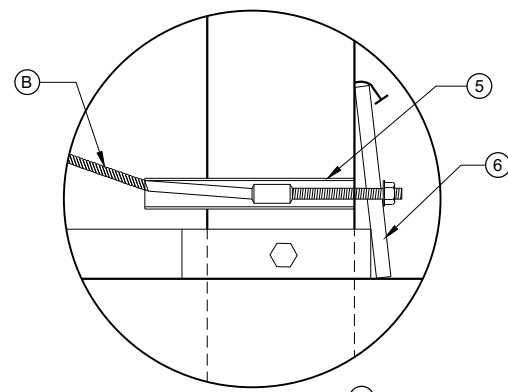
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



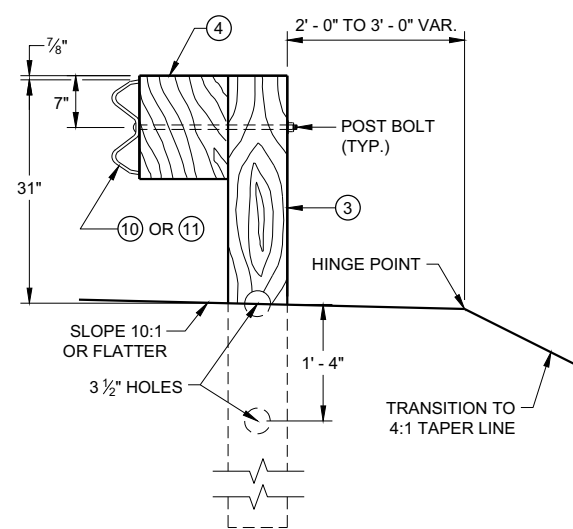
**PLAN**



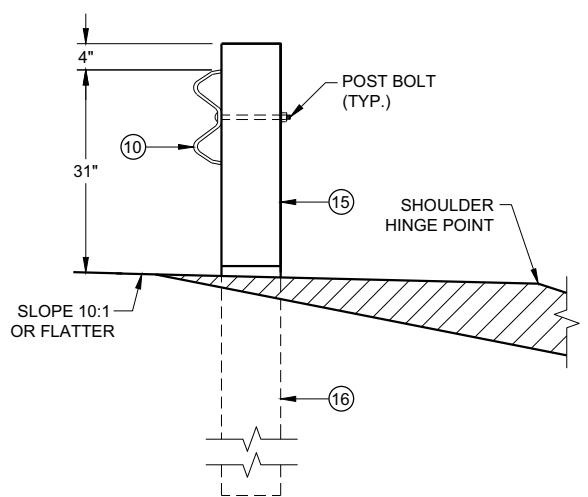
**ELEVATION**



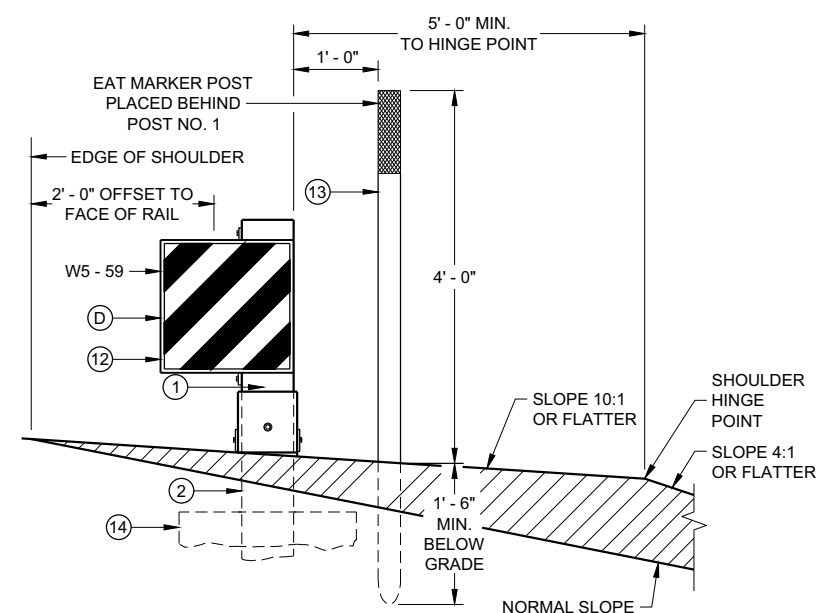
**DETAIL "A"**



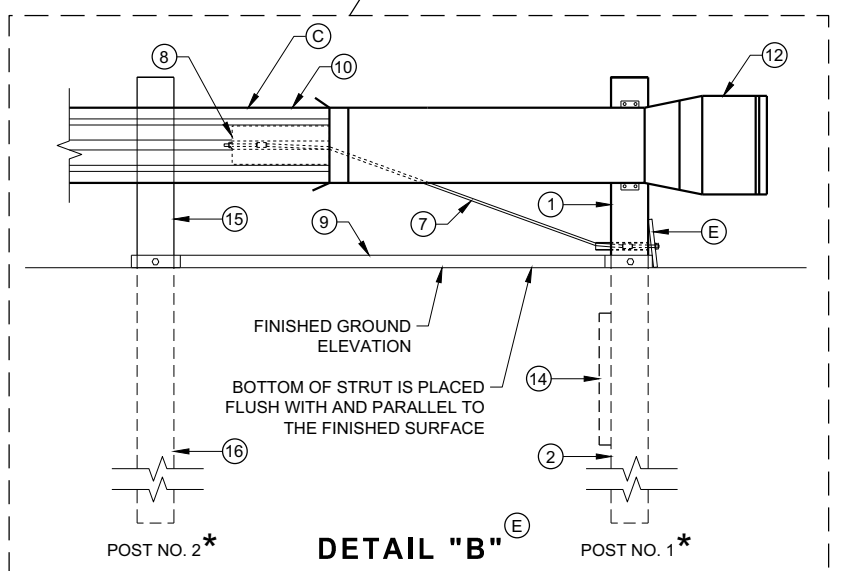
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



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



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



**DETAIL "B"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

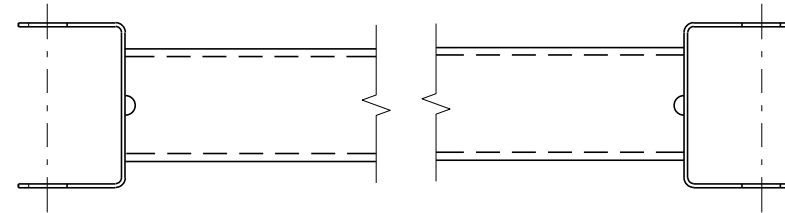
6

SDD 14B44 - 04a

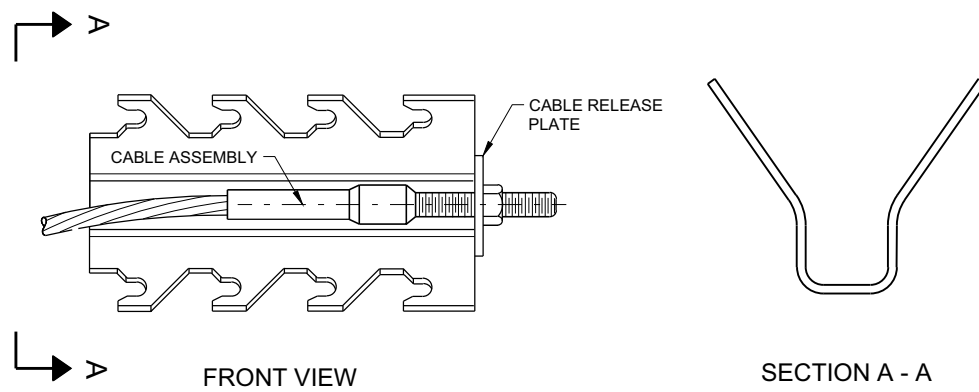
SDD 14B44 - 04a

**BILL OF MATERIALS**

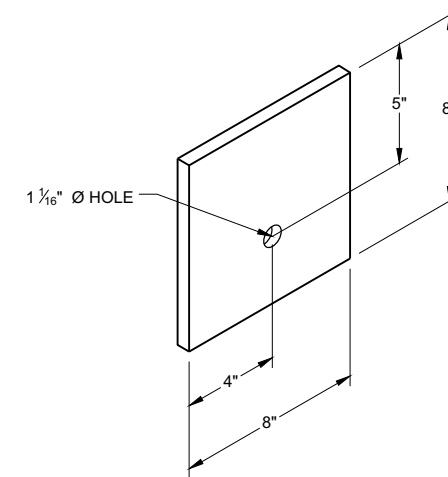
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

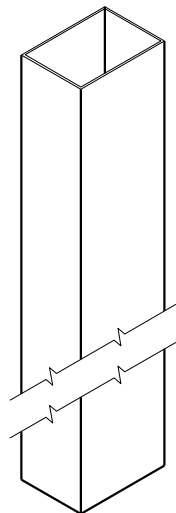
6

SDD 14B44 - 04b

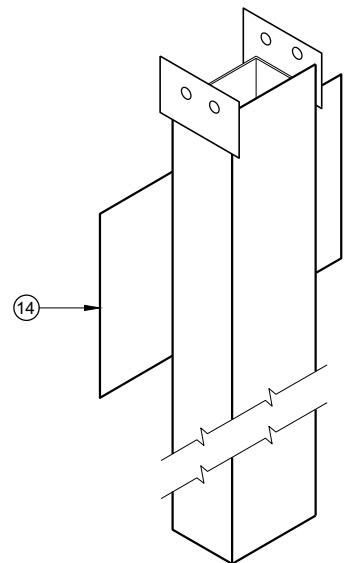
SDD 14B44 - 04b

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

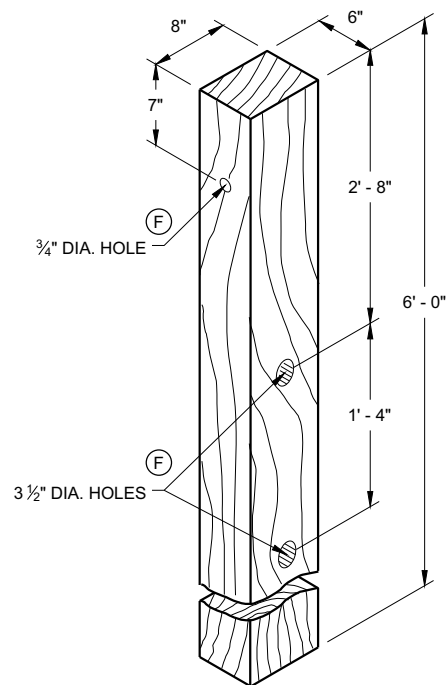
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



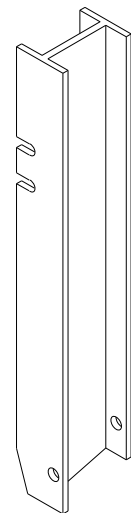
UPPER POST NO. 1 <sup>(1)</sup> (E)



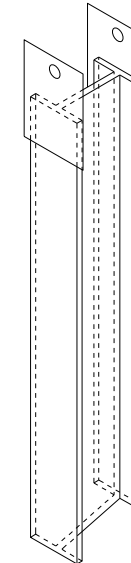
LOWER POST NO. 1 <sup>(2)</sup> (E)



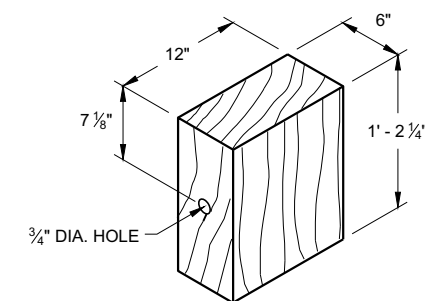
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



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

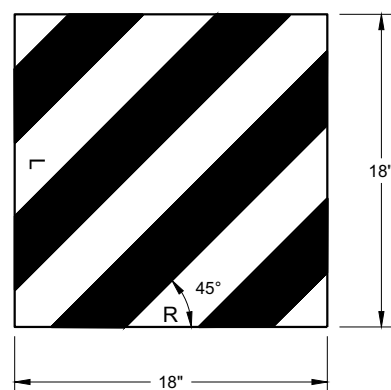


LOWER POST NO. 2 <sup>(16)</sup> (E)

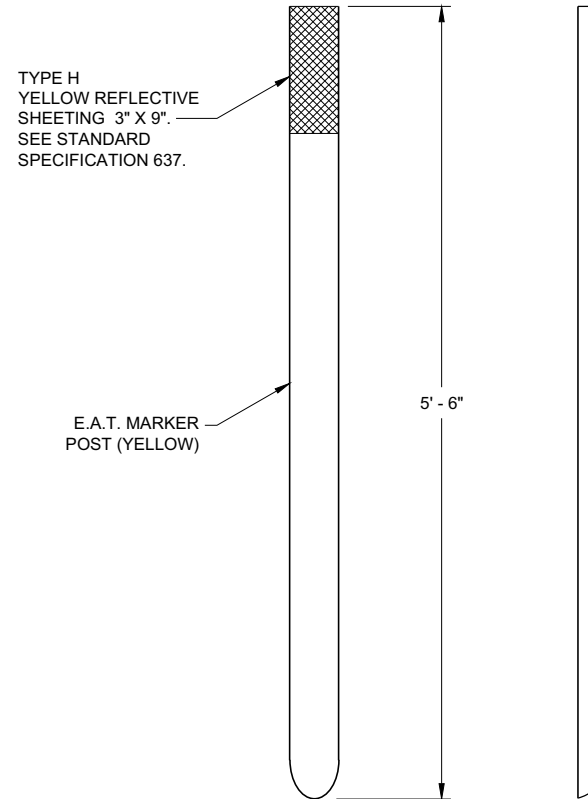


WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

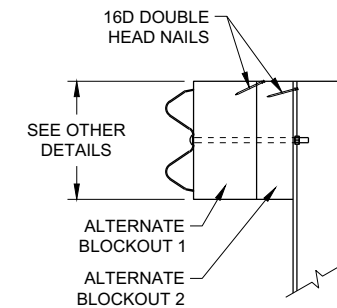
6



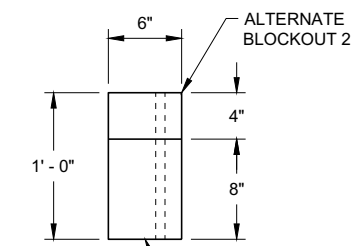
W5 - 59  
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>



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



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

SDD 14B44 - 04c

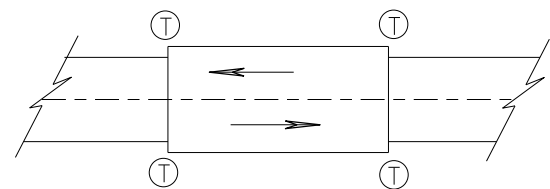
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

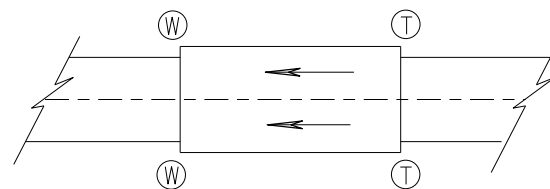
APPROVED  
7/2018 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

FHWA





**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

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

TRANSITION USES STEEL POSTS ONLY.

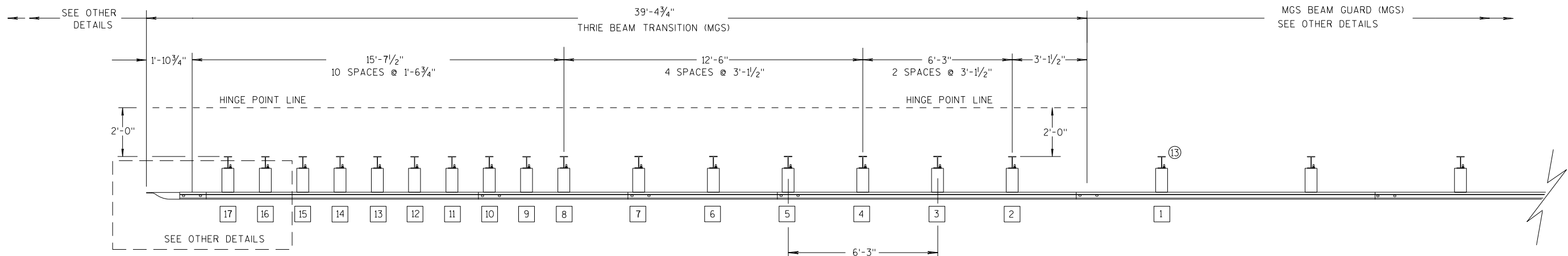
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

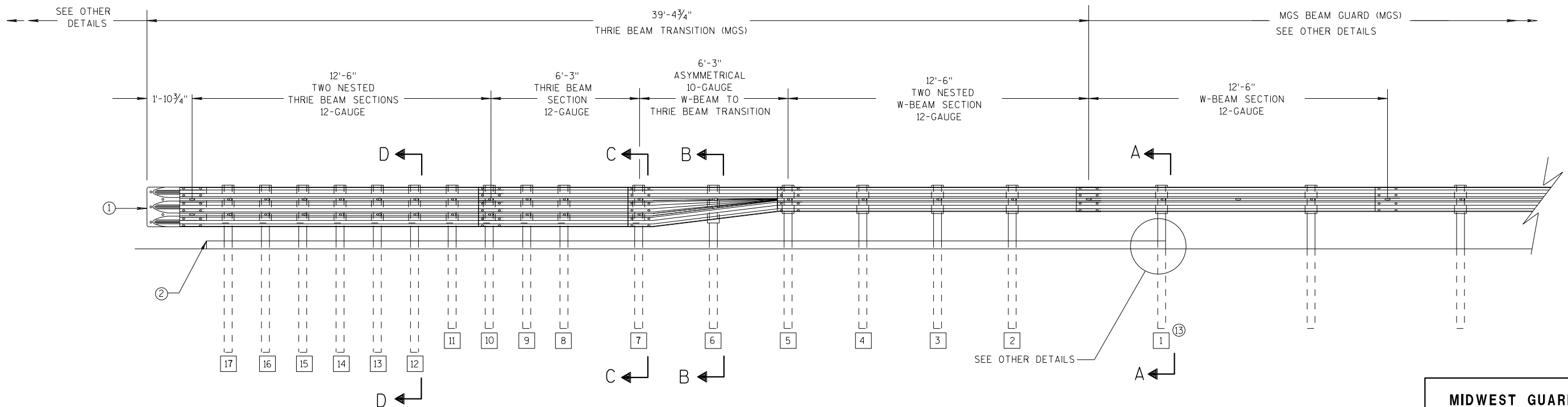
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

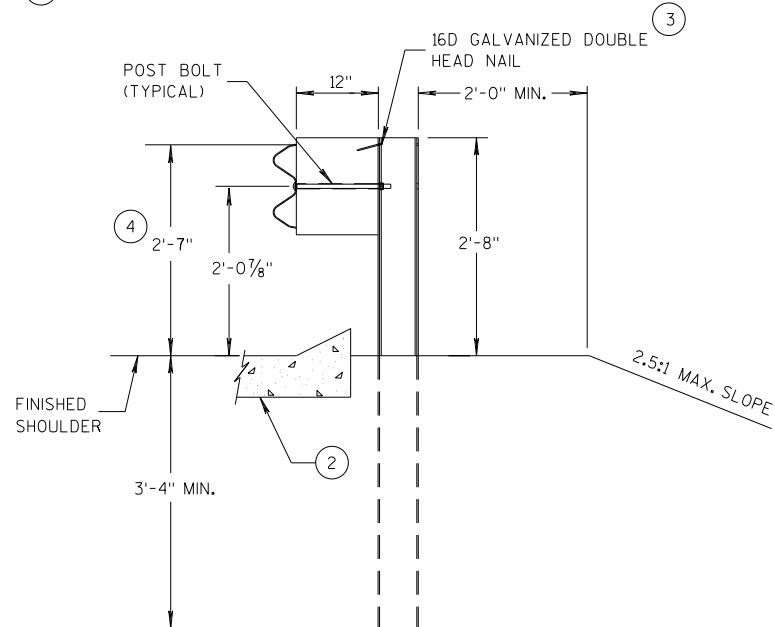
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

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

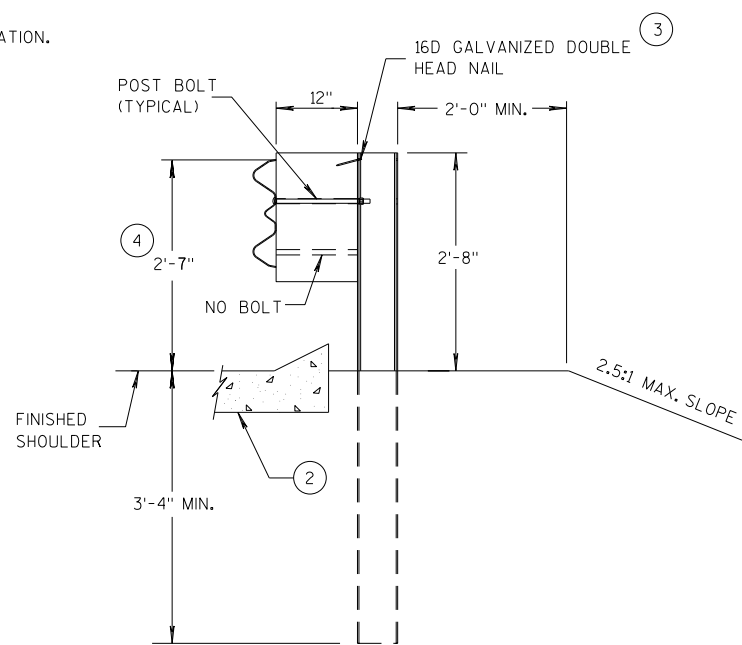
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

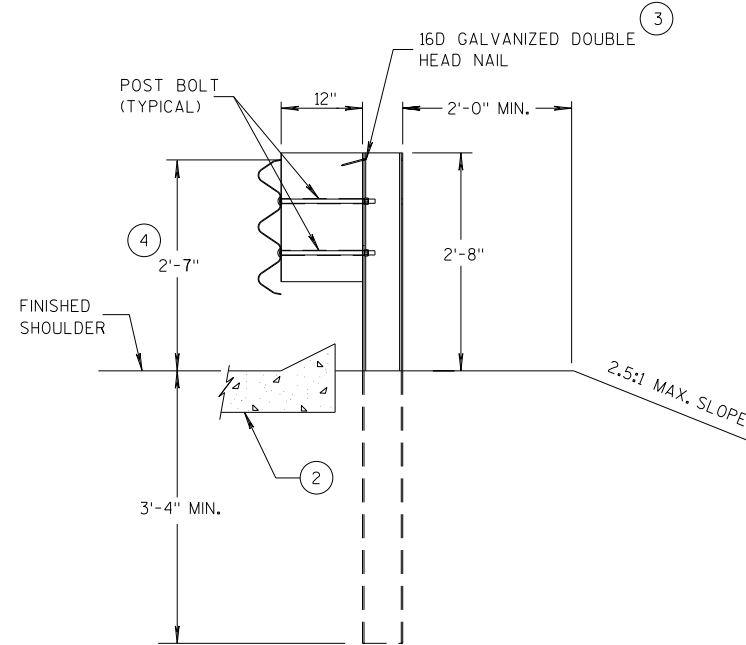
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



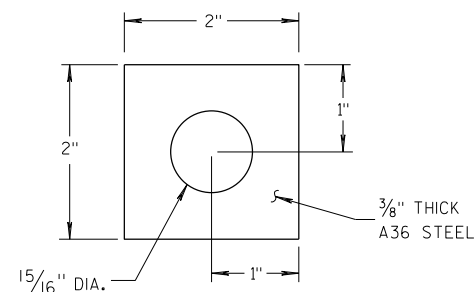
**SECTION A-A  
POSTS 1-5**



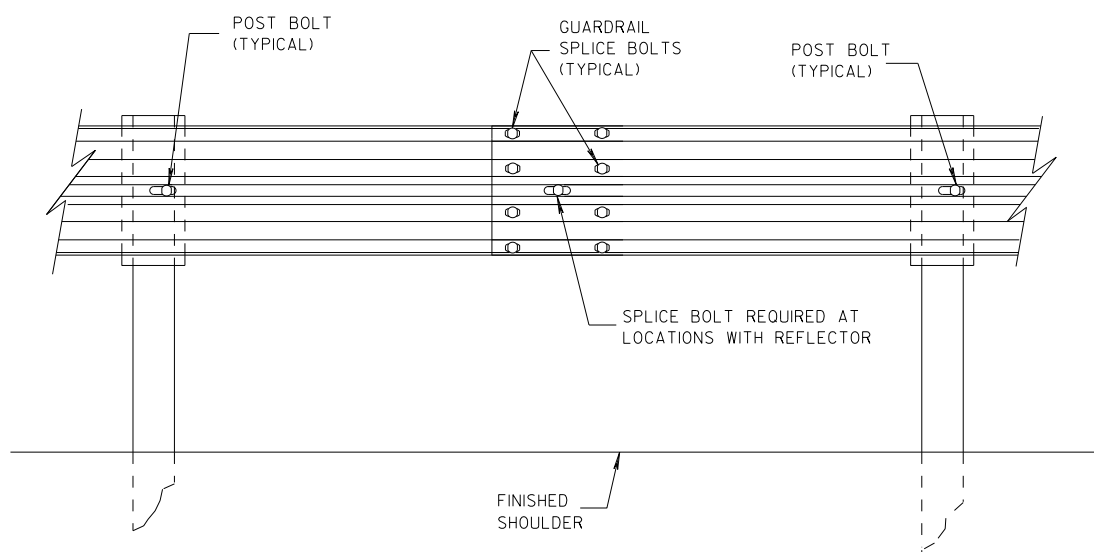
**SECTION B-B  
POST 6**



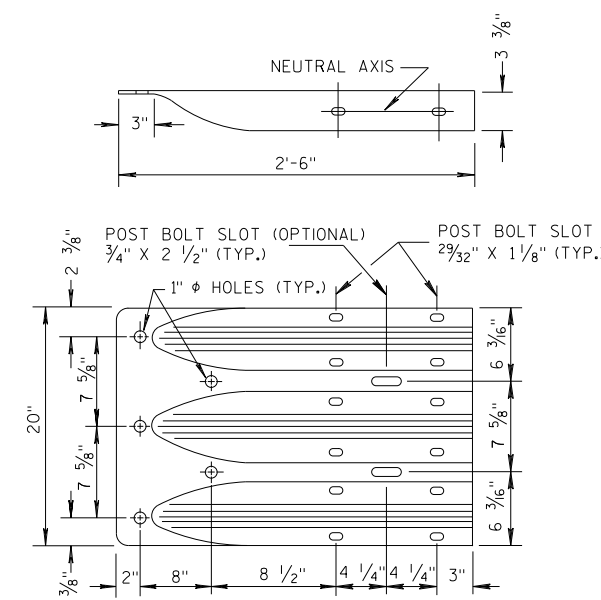
**SECTION C-C  
POSTS 7-11**



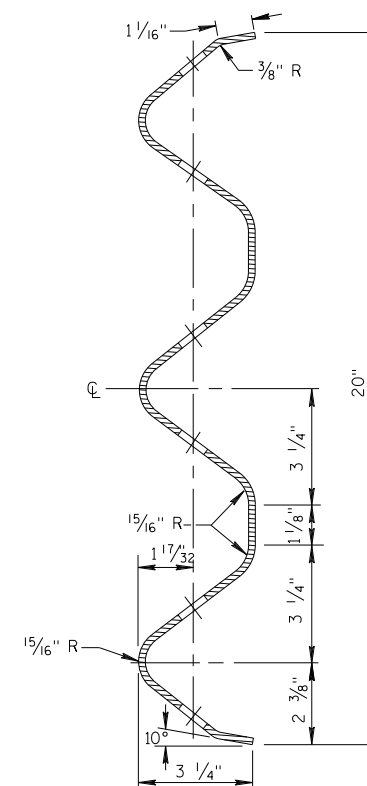
**PLATE WASHER DETAIL**



**SPLICE DETAIL**



**THRIE BEAM  
TERMINAL CONNECTOR**

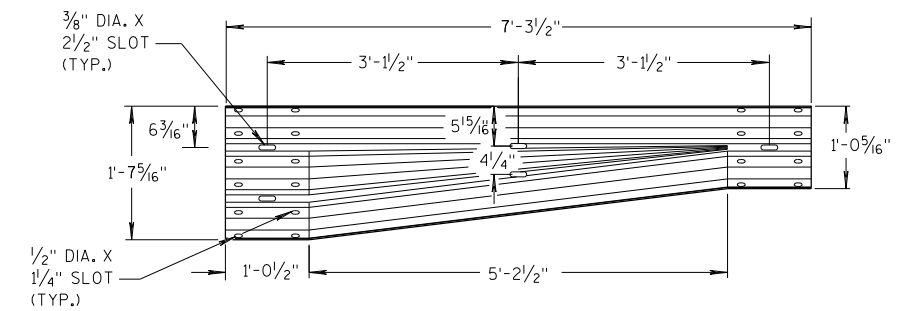


**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

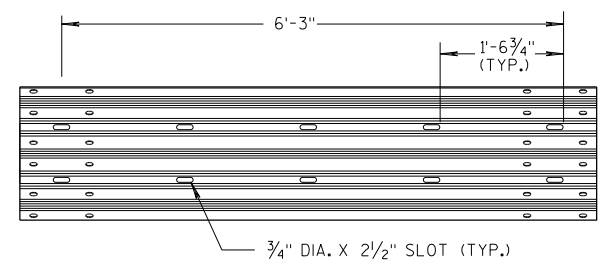
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

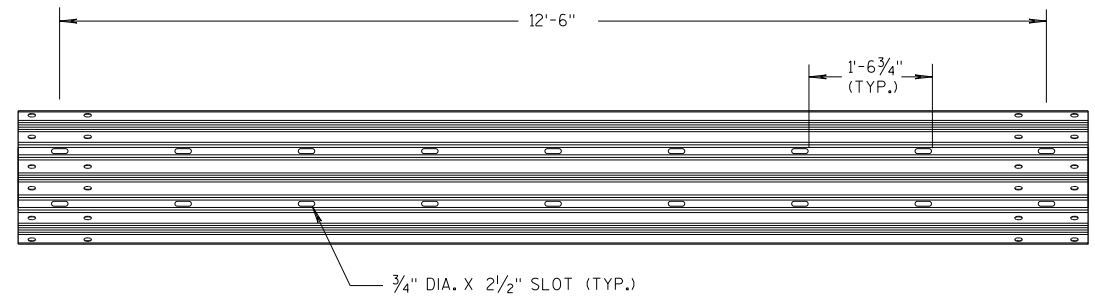
**SECTION D-D  
POSTS 12-17**



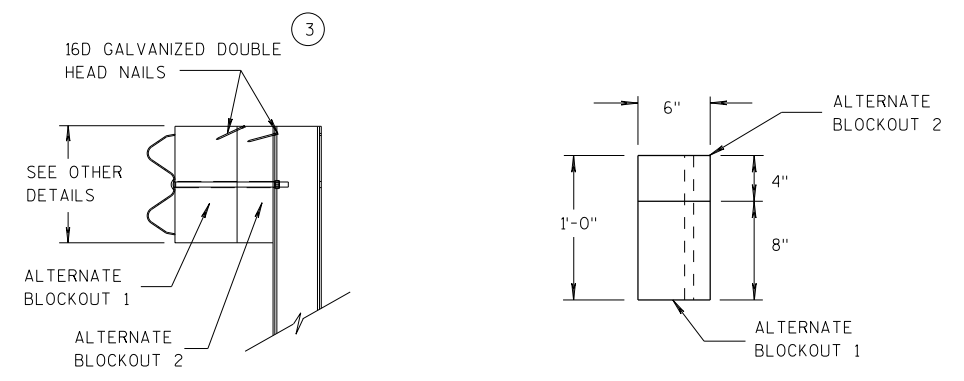
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



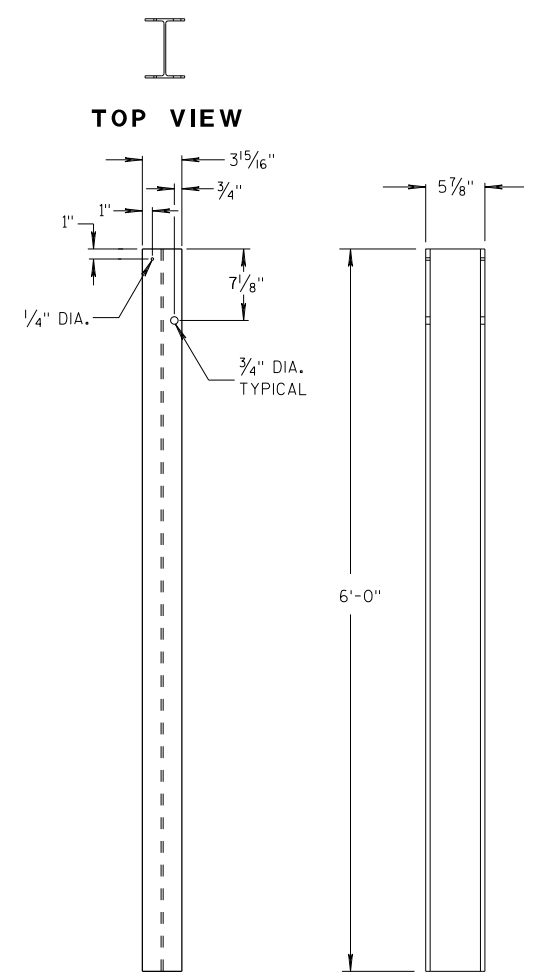
**6'-3\"/>**



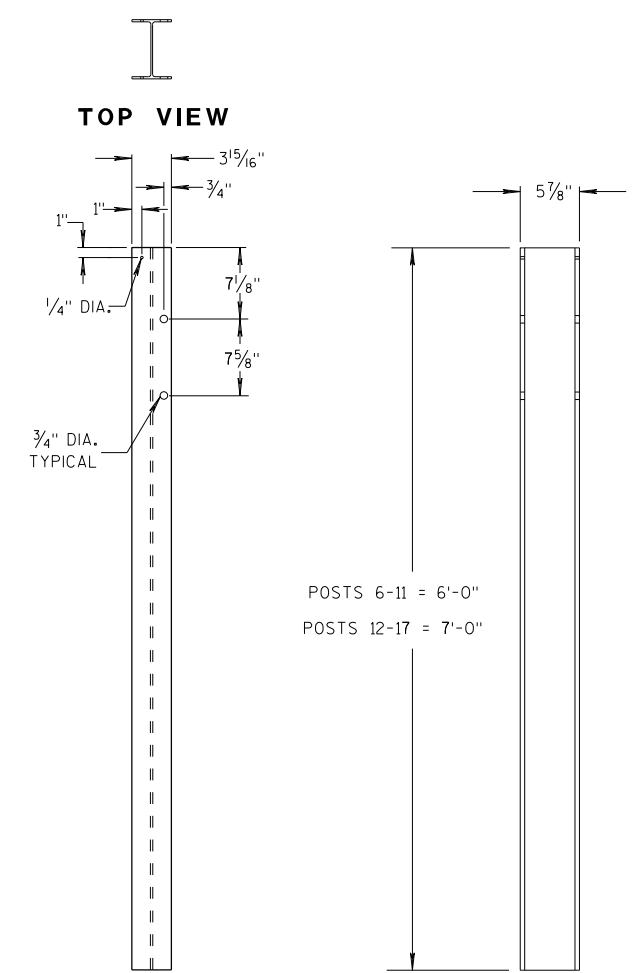
**12'-6\"/>**



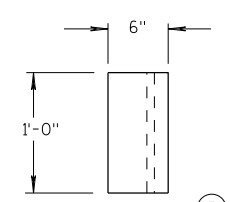
**ALTERNATE WOOD BLOCKOUT DETAIL**



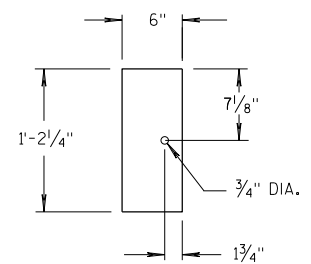
**STEEL POSTS 1-5**



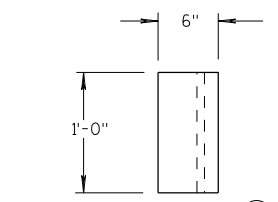
**STEEL POSTS 6-17**



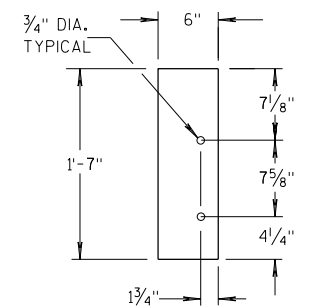
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**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)**

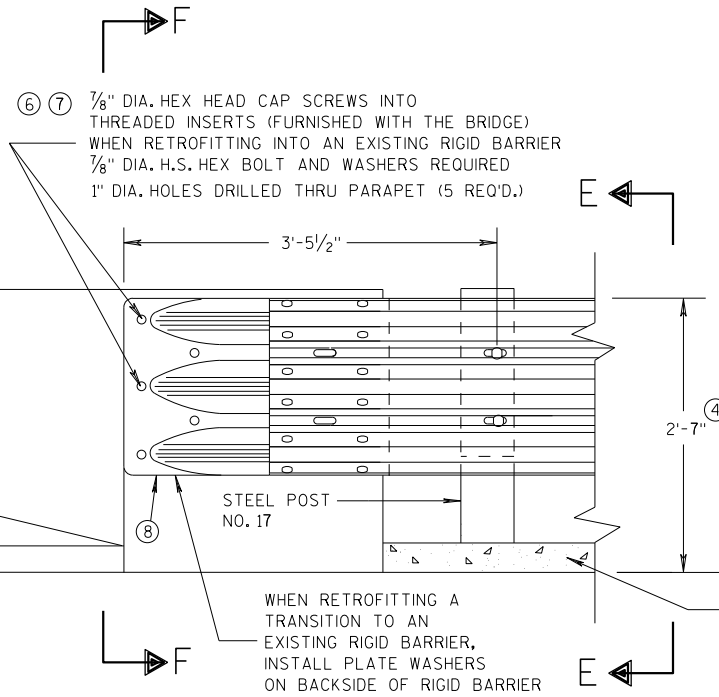
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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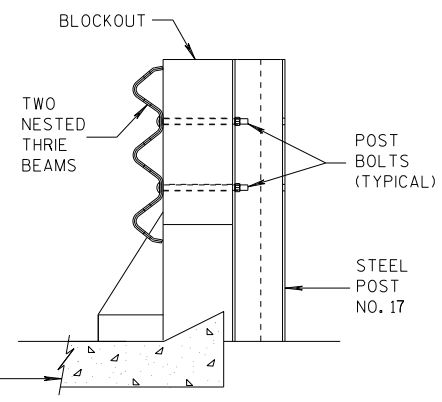
S.D.D. 14 B 45-5c

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



FRONT VIEW

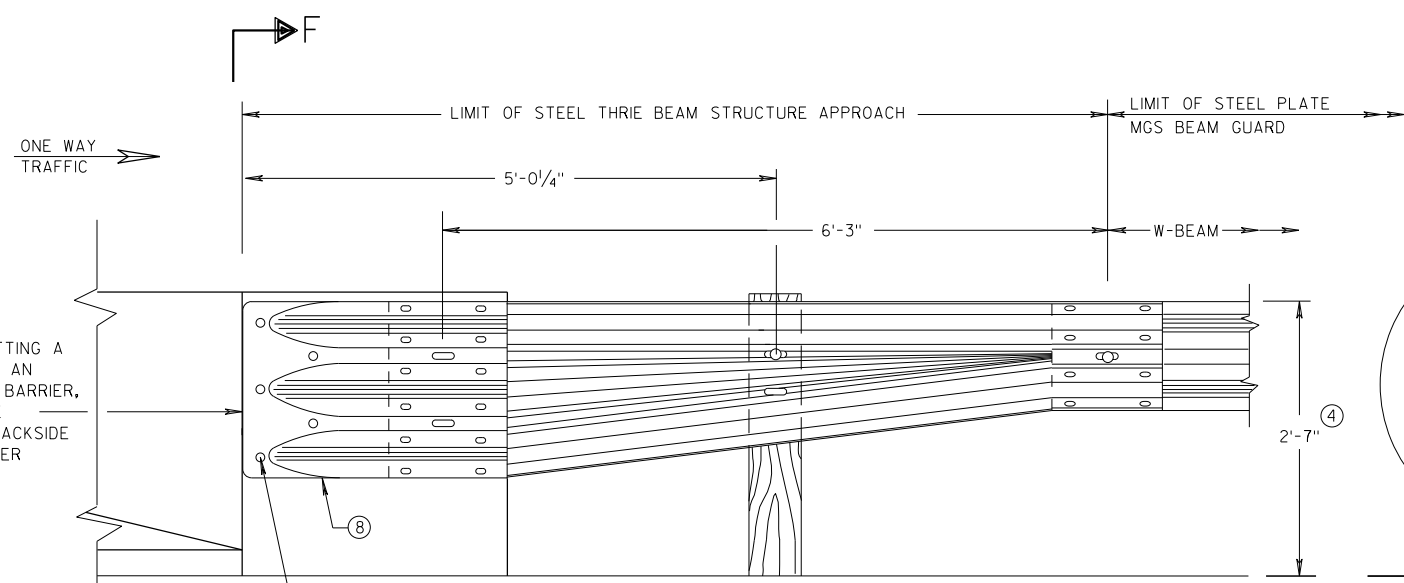
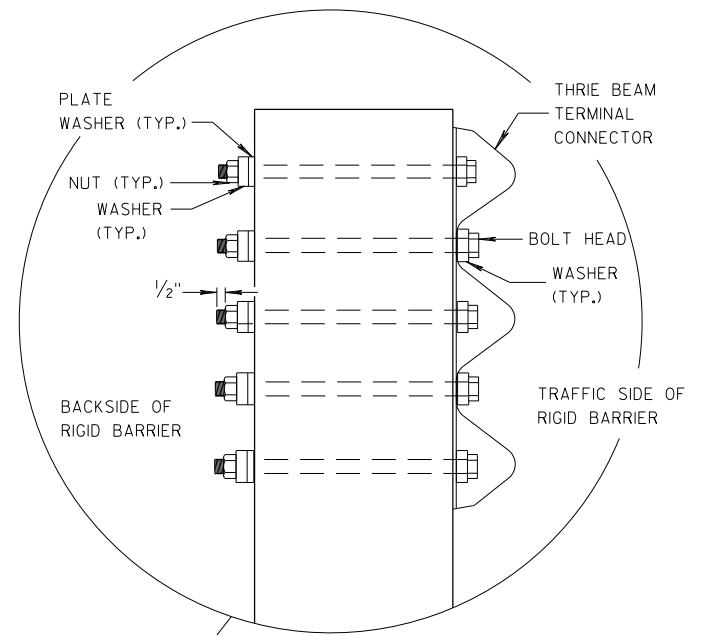
**THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS**



SECTION E-E

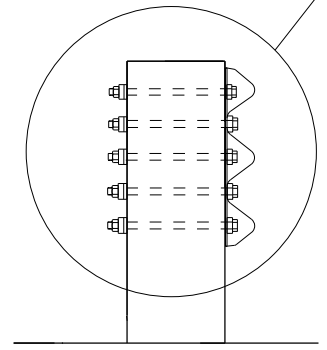
**GENERAL NOTES**

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (4) TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

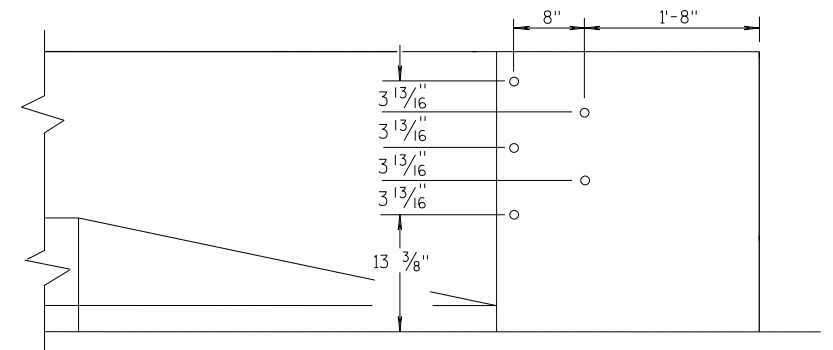


FRONT VIEW

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



SECTION F-F



DRILL HOLE LOCATION

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

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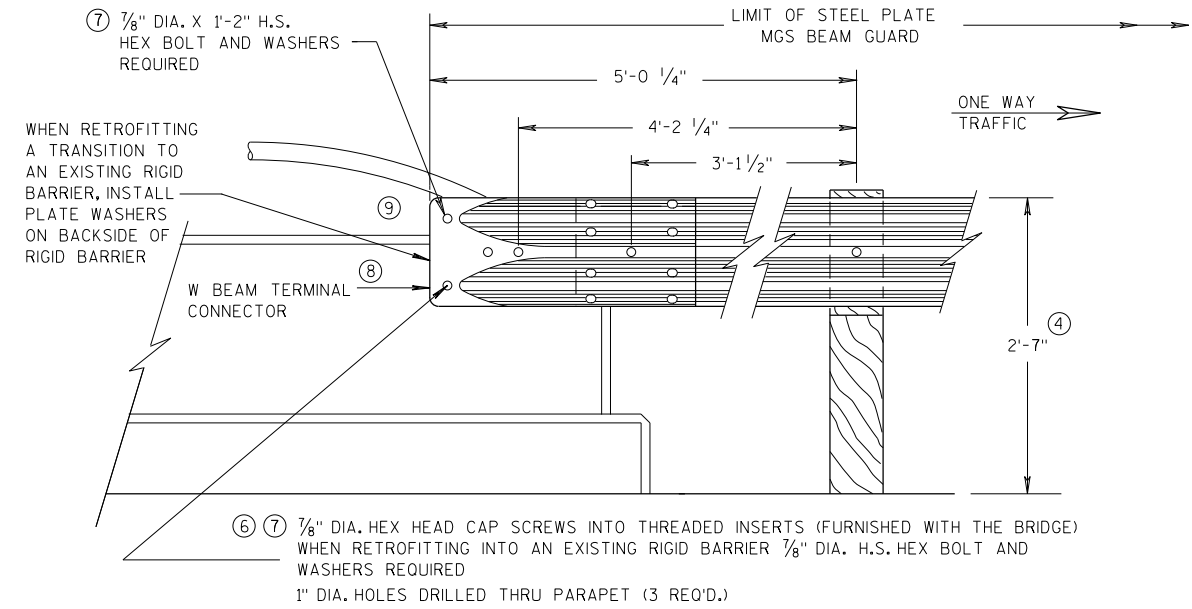
S.D.D. 14 B 45-5d

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

## GENERAL NOTES

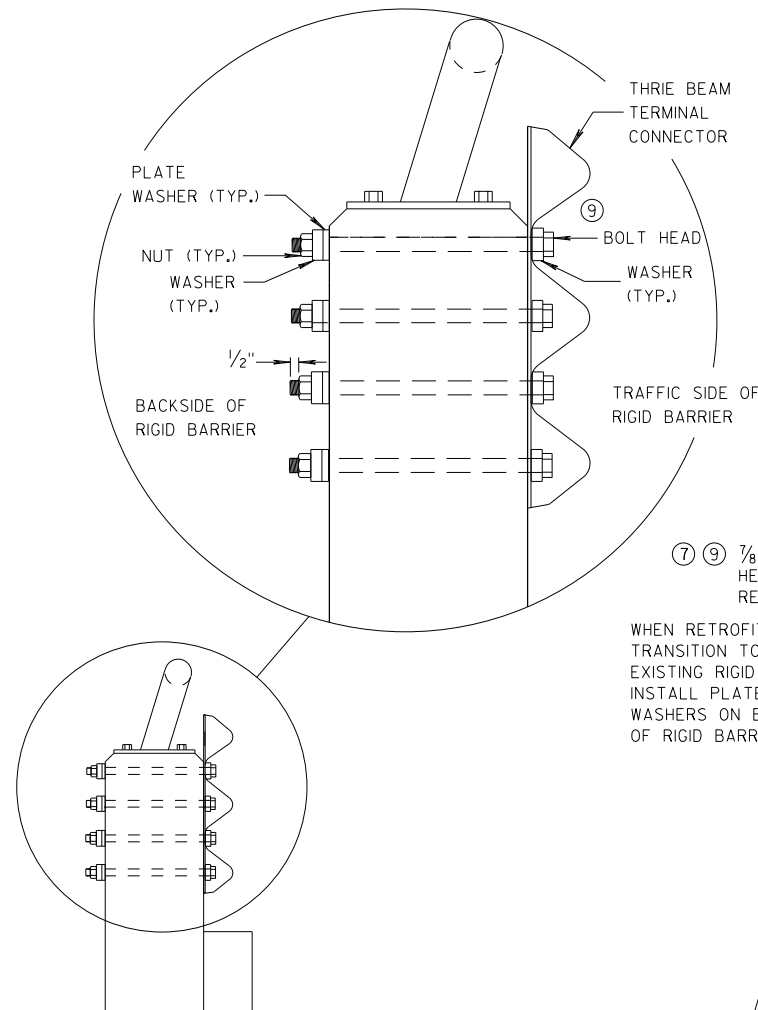
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

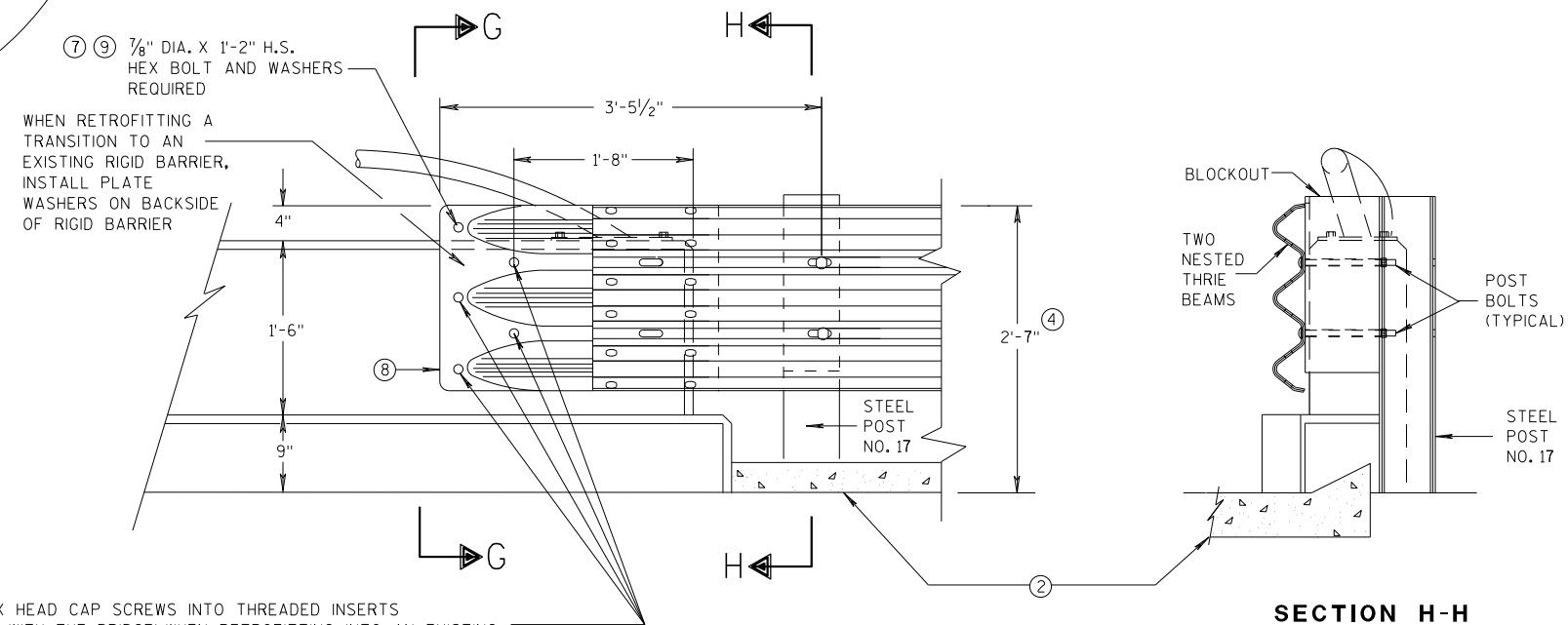


### FRONT VIEW

## W BEAM CONNECTION TO VERTICAL FACE PARAPET (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



### SECTION G-G



### FRONT VIEW

## THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

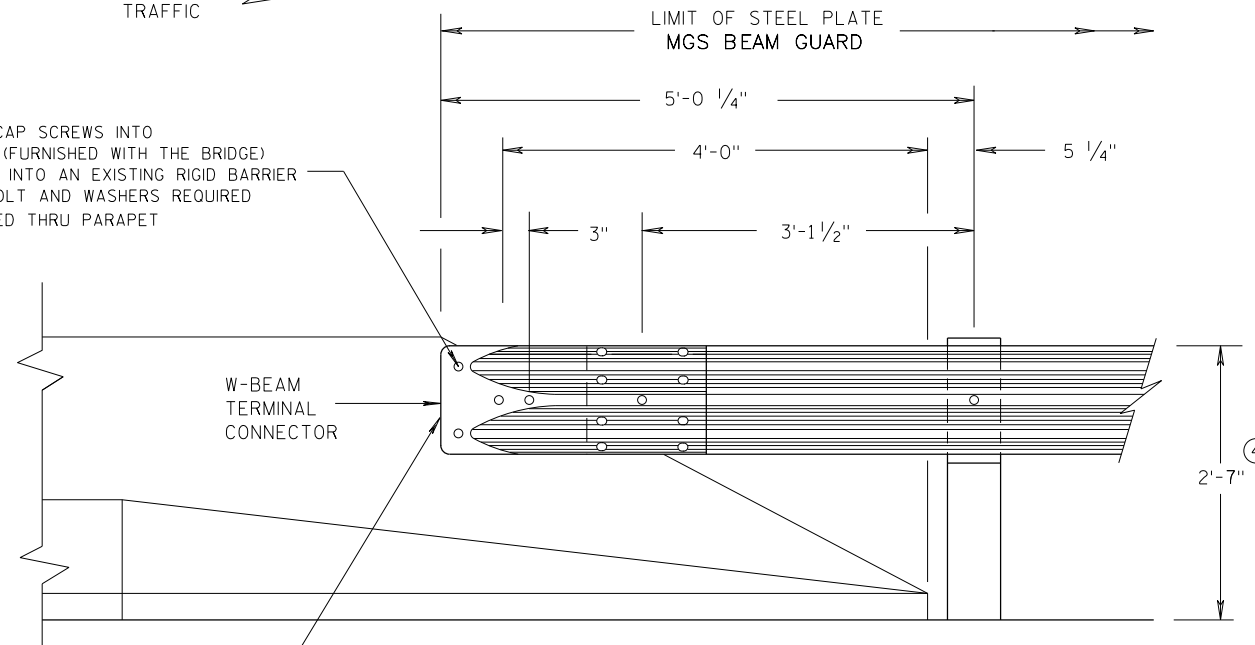
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

ONE WAY  
TRAFFIC

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)



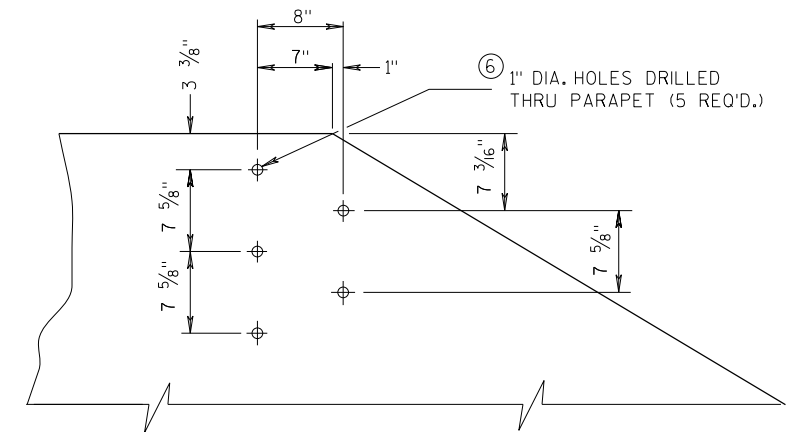
FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

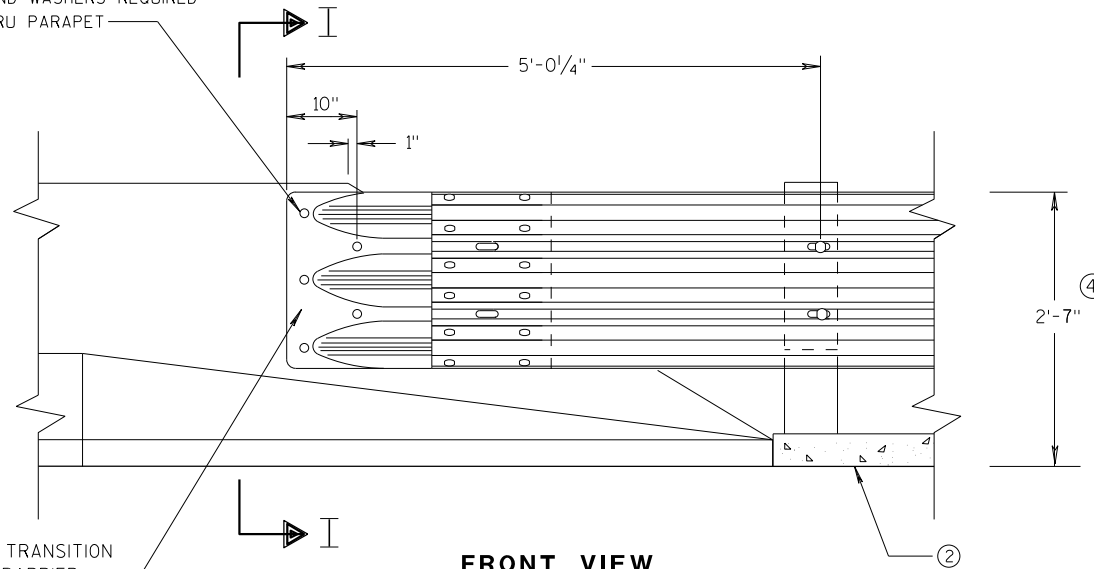
**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



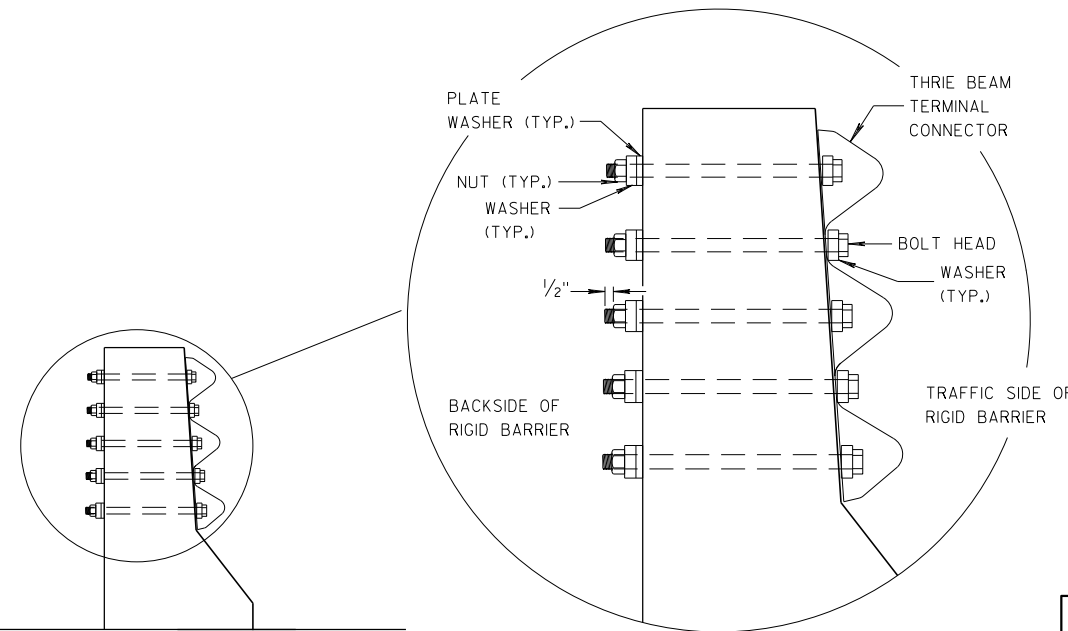
**DRILL HOLE LOCATION AND PATTERN  
FOR THRIE BEAM CONNECTION**

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**



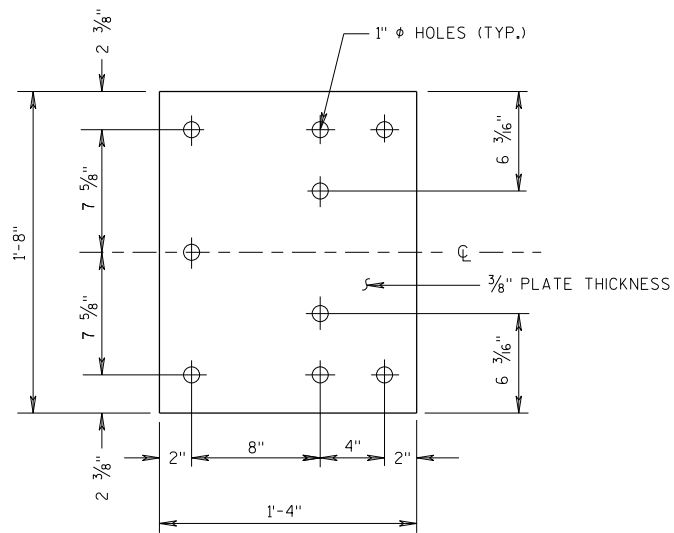
SECTION I-I

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

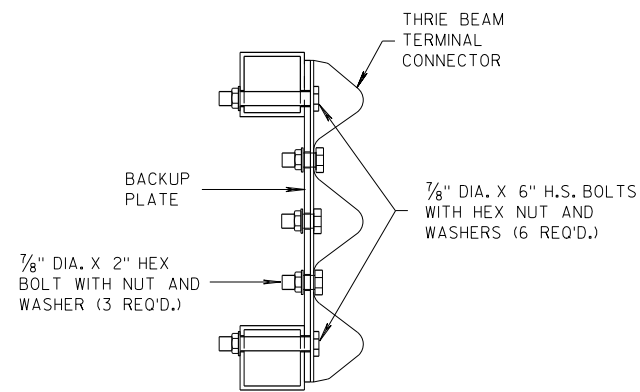
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

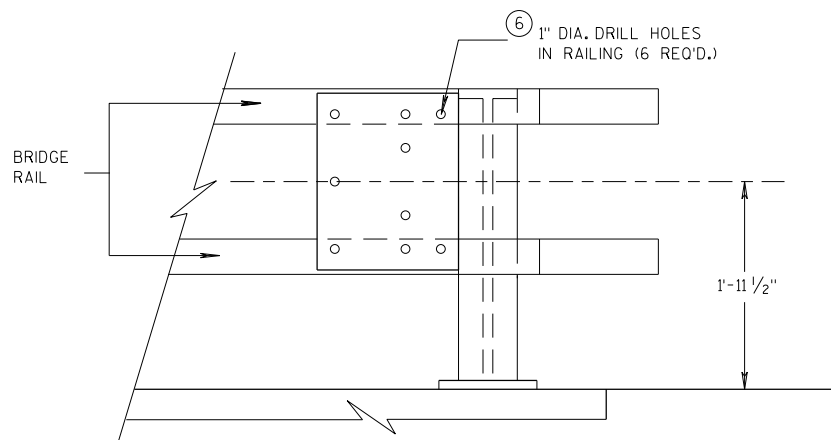
APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**BACK-UP PLATE DETAIL**



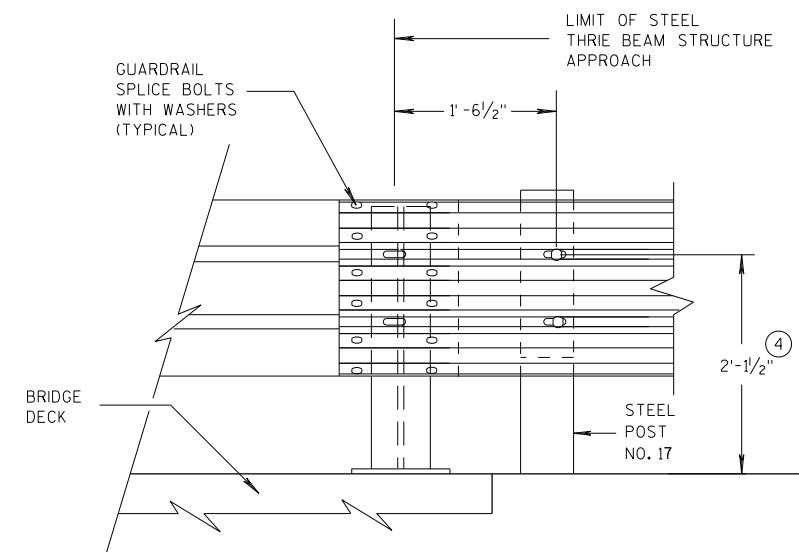
**SECTION J-J**



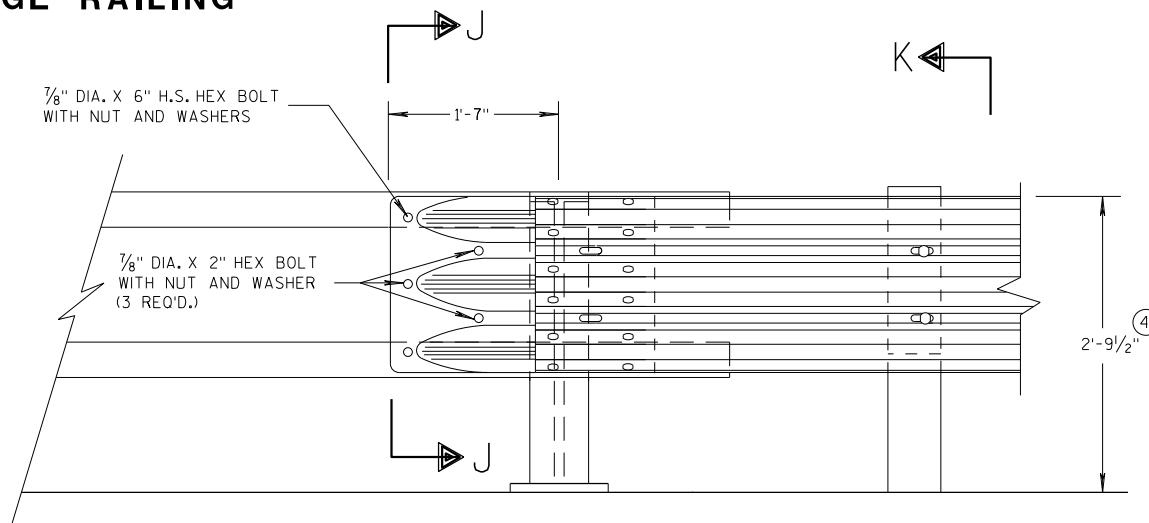
**BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING**

**GENERAL NOTES**

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

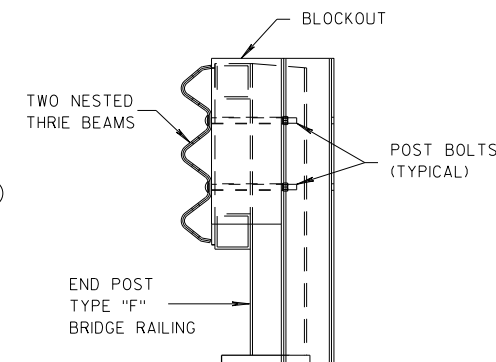


**FRONT VIEW  
THRIE BEAM CONNECTION TO  
STEEL RAILING TYPE "W"**



**FRONT VIEW**

**THRIE BEAM CONNECTION TO  
TUBULAR RAILING TYPE "F"**



**SECTION K-K**

<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

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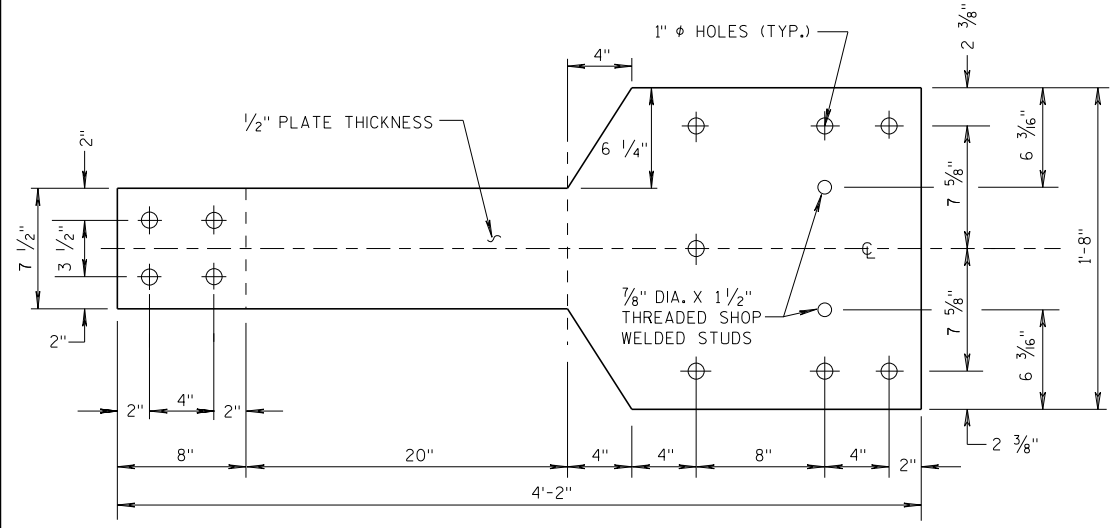
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S.D.D. 14 B 45-59

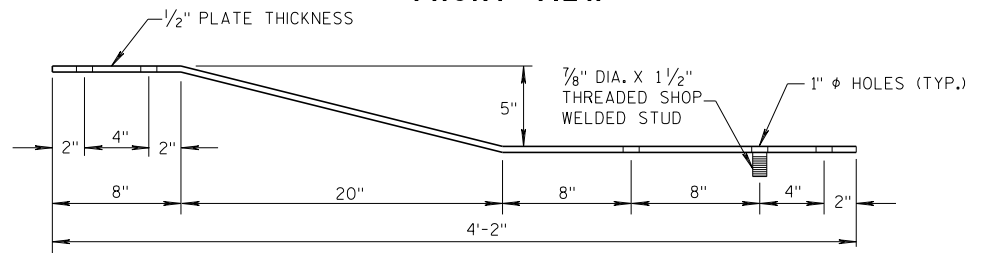
S.D.D. 14 B 45-59

**GENERAL NOTES**

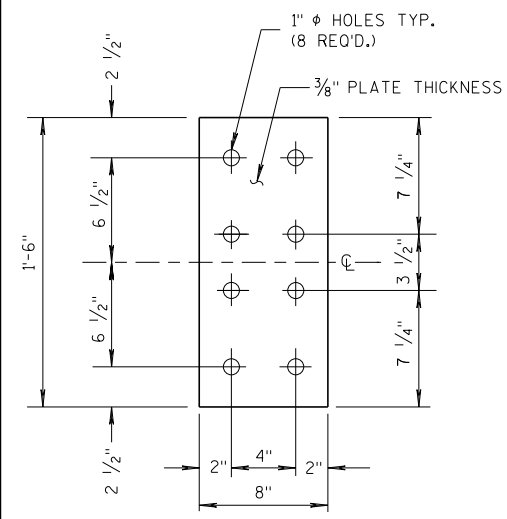
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



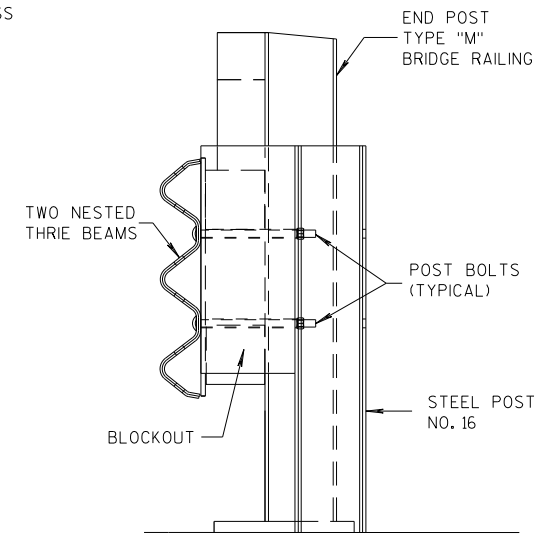
**FRONT VIEW**



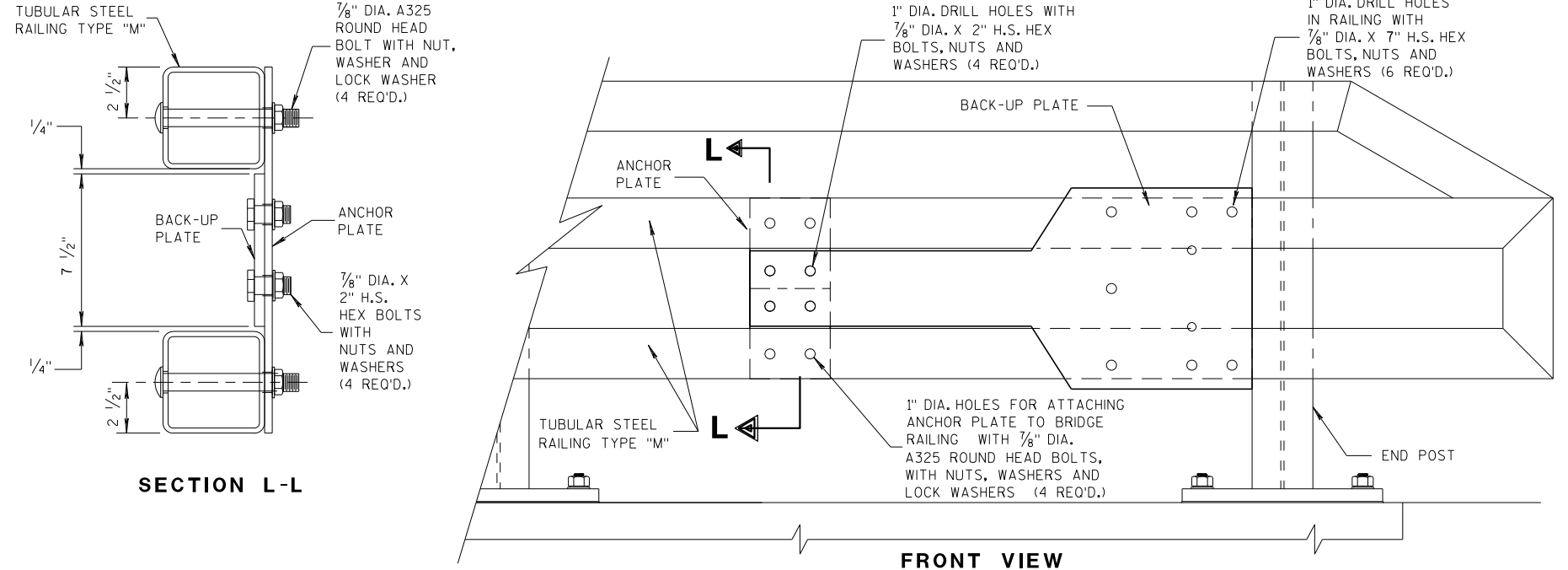
**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**



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



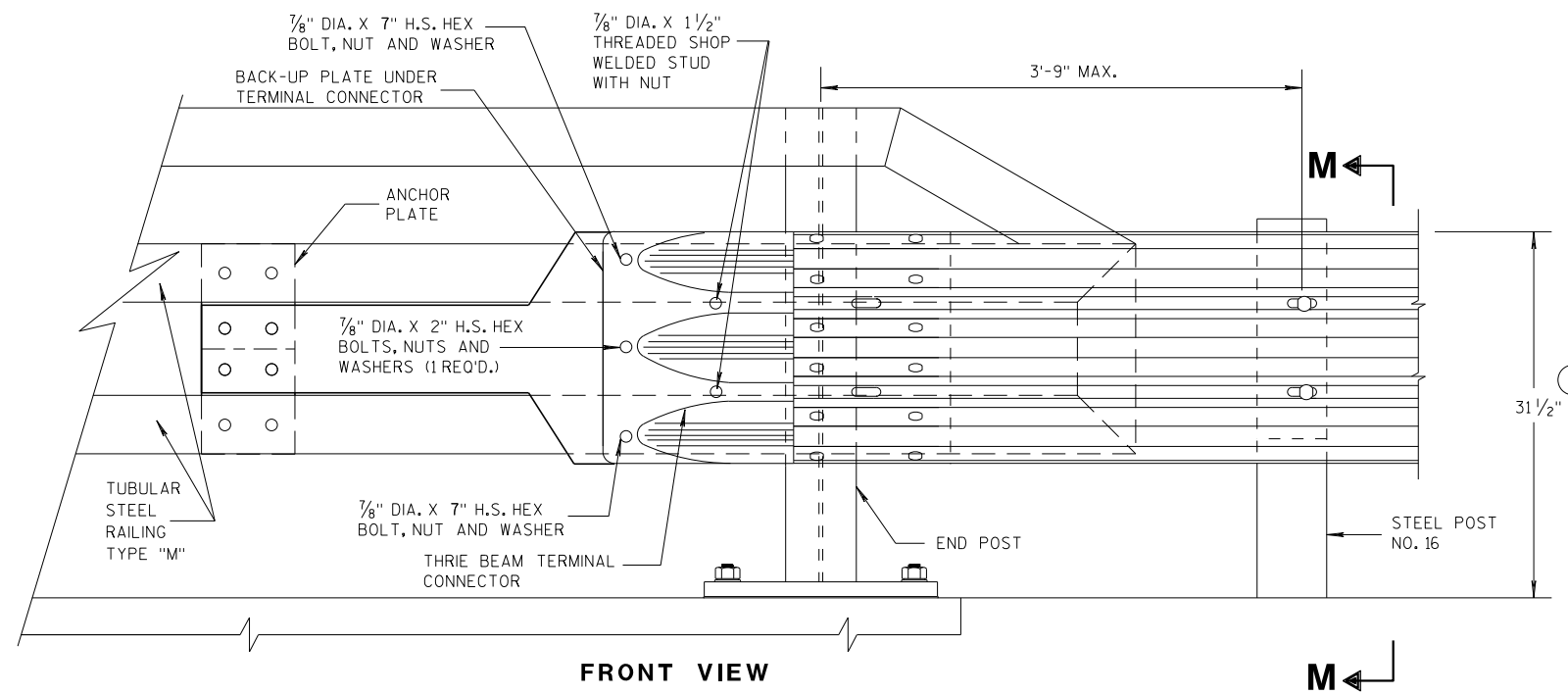
**SECTION M-M**



**SECTION L-L**

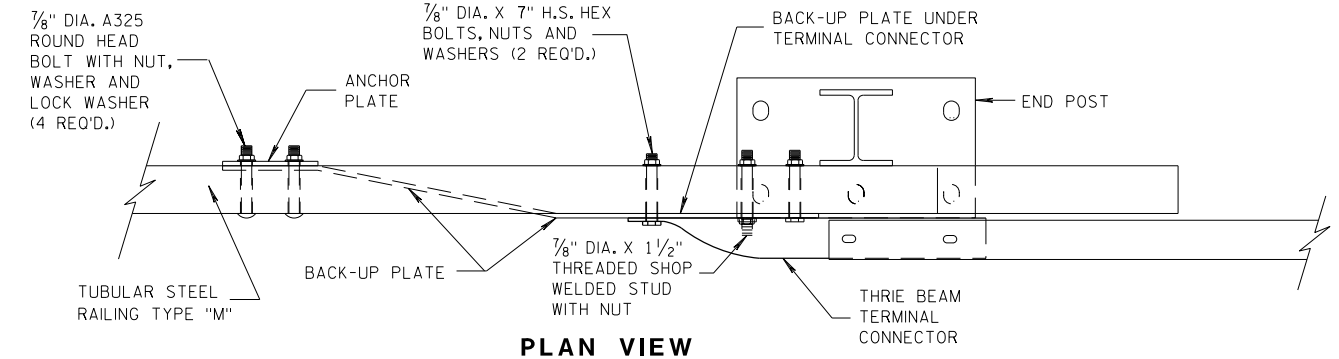
**FRONT VIEW**

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



**FRONT VIEW**

**M**



**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

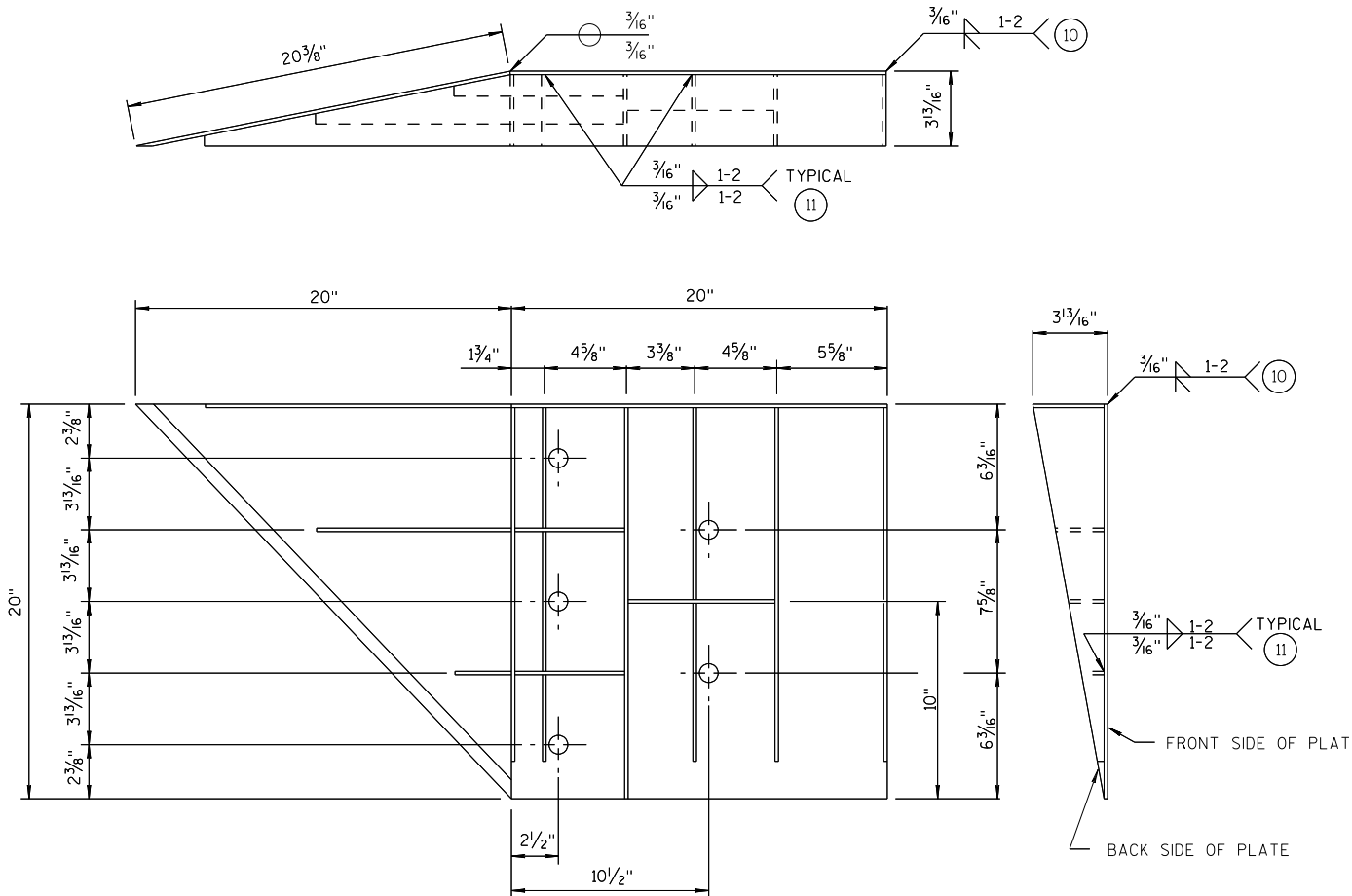
APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



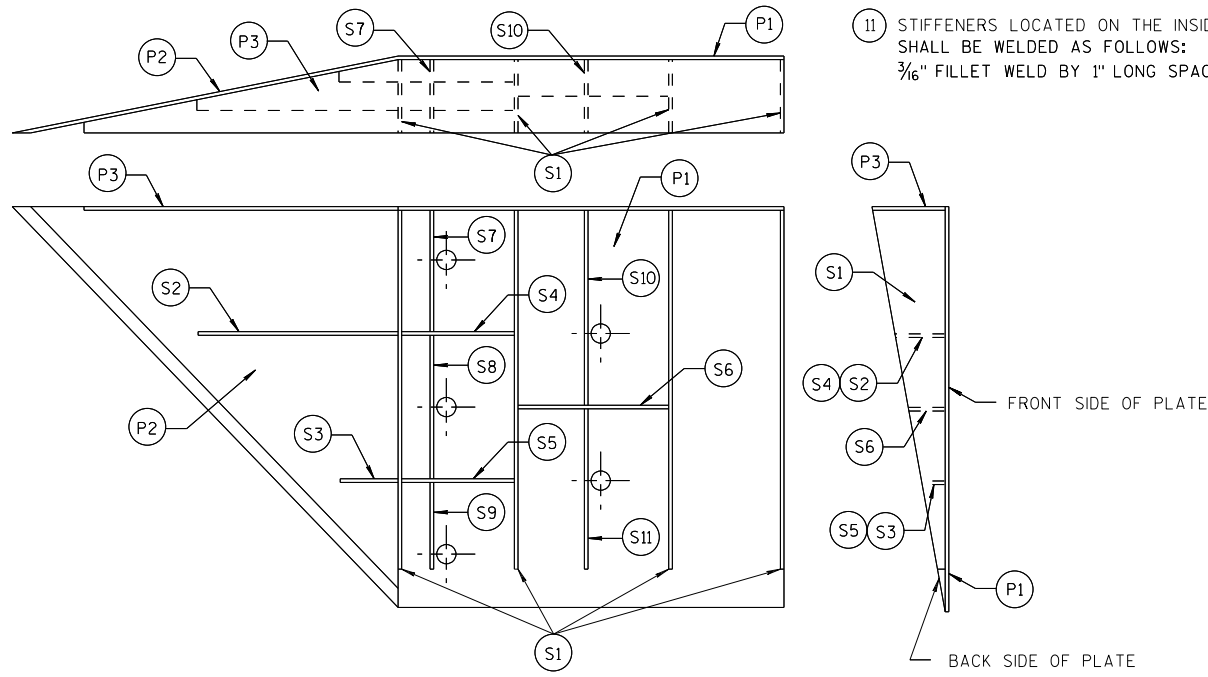
**GENERAL NOTES**

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



**PLATE AND STIFFENER IDENTIFICATION**  
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 3/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

**SINGLE SLOPE CONNECTION PLATE**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
7/2018  
DATE

/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

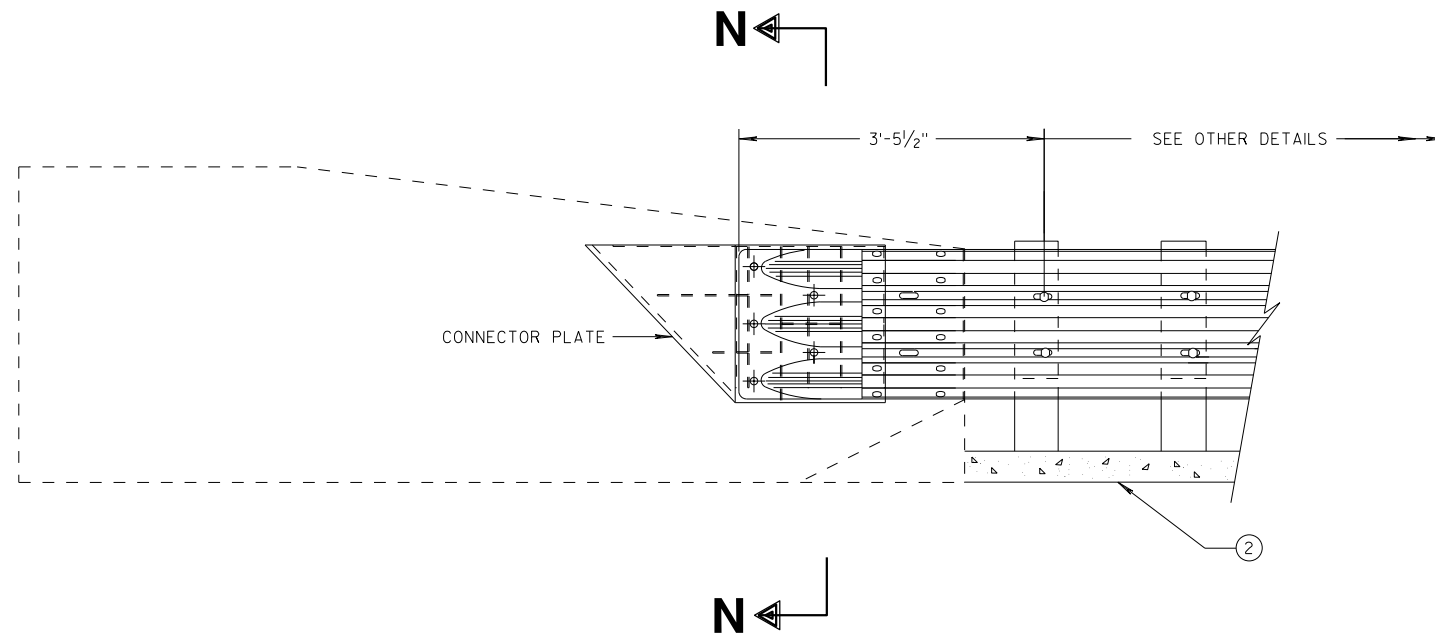
FHWA

**GENERAL NOTES**

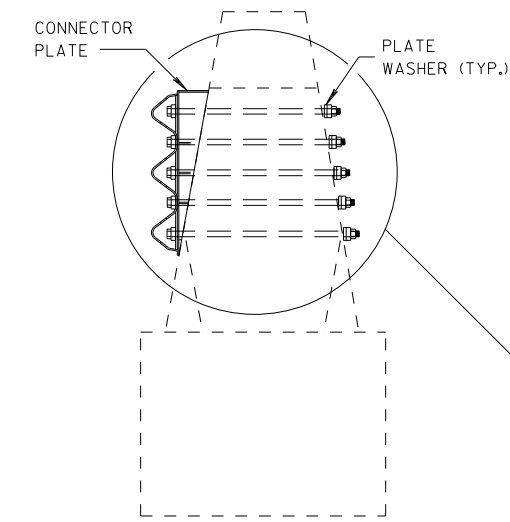
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

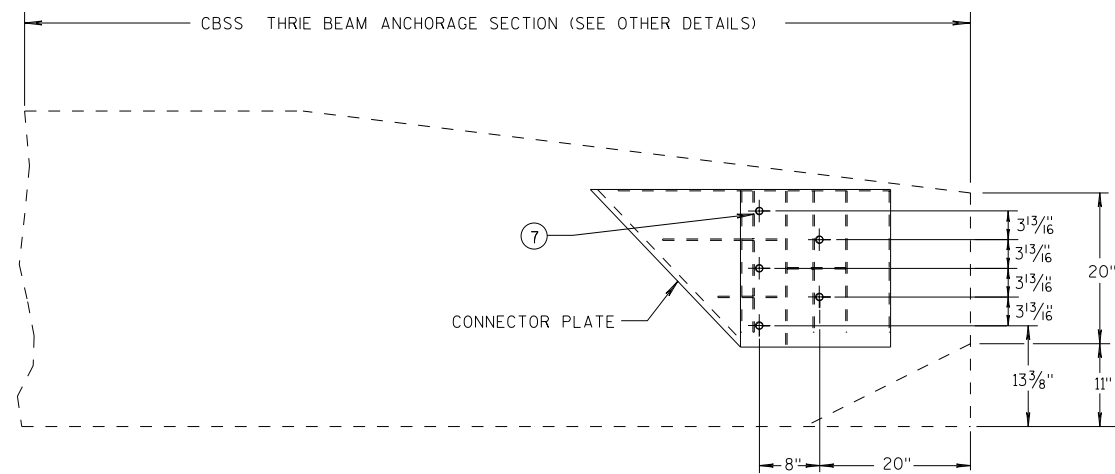
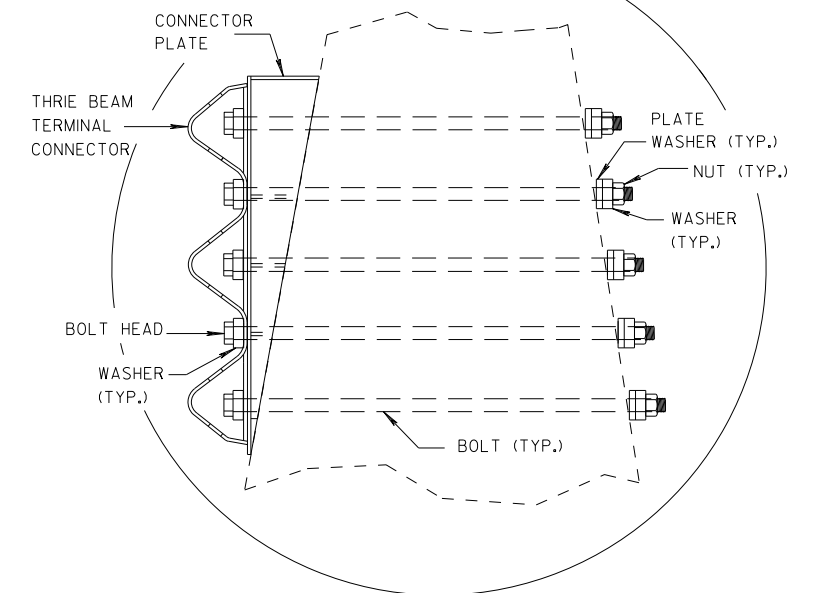
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**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**



**SECTION N-N**

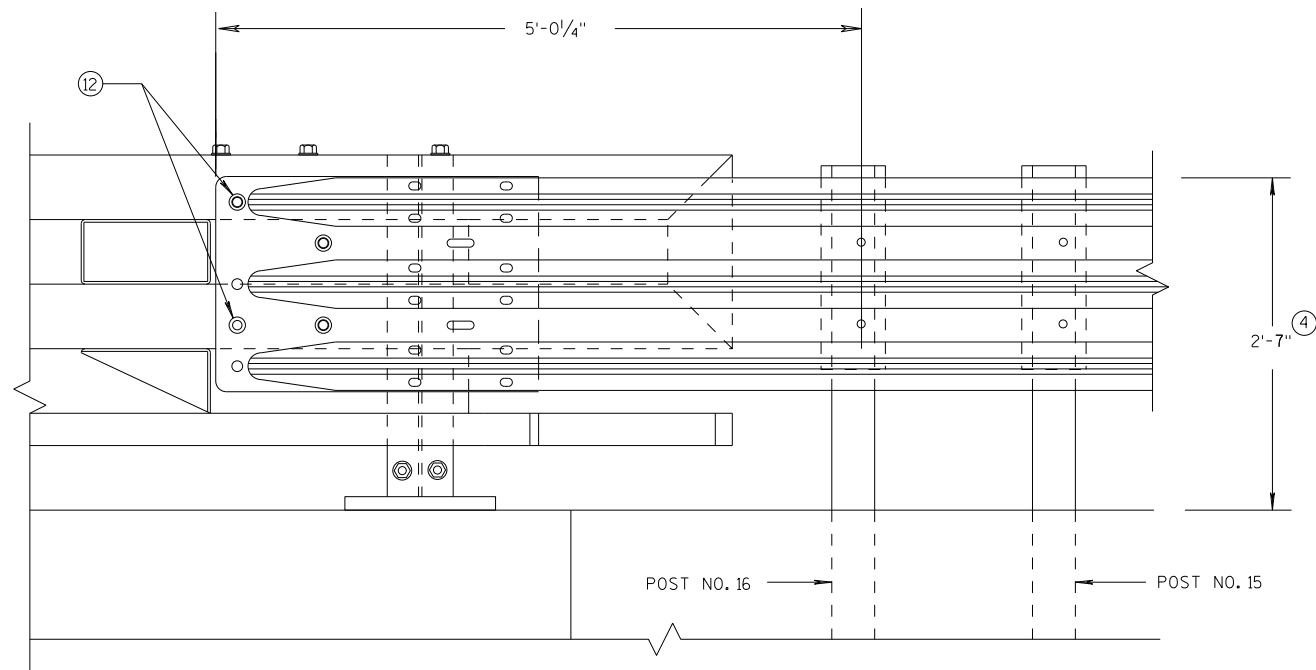


**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

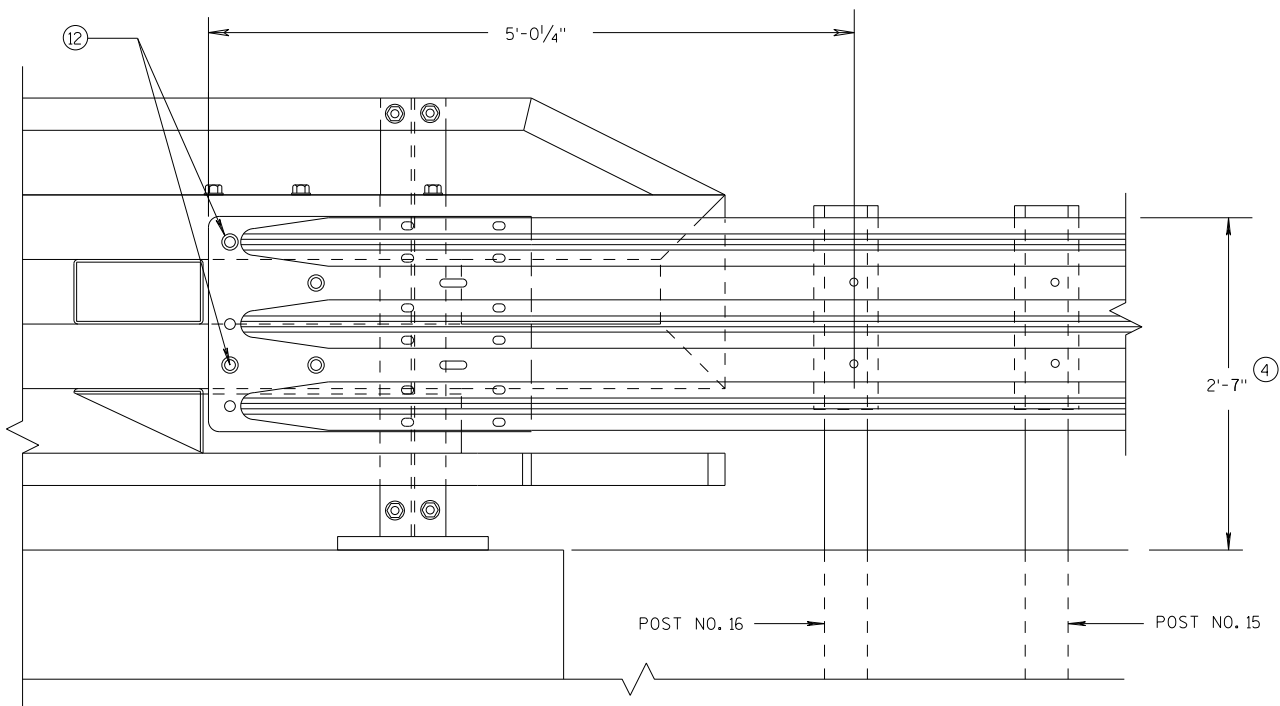
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**ELEVATION OF DETAIL AT NY3 END POST  
THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST  
THRIE BEAM RAIL ATTACHMENT**

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

6

6

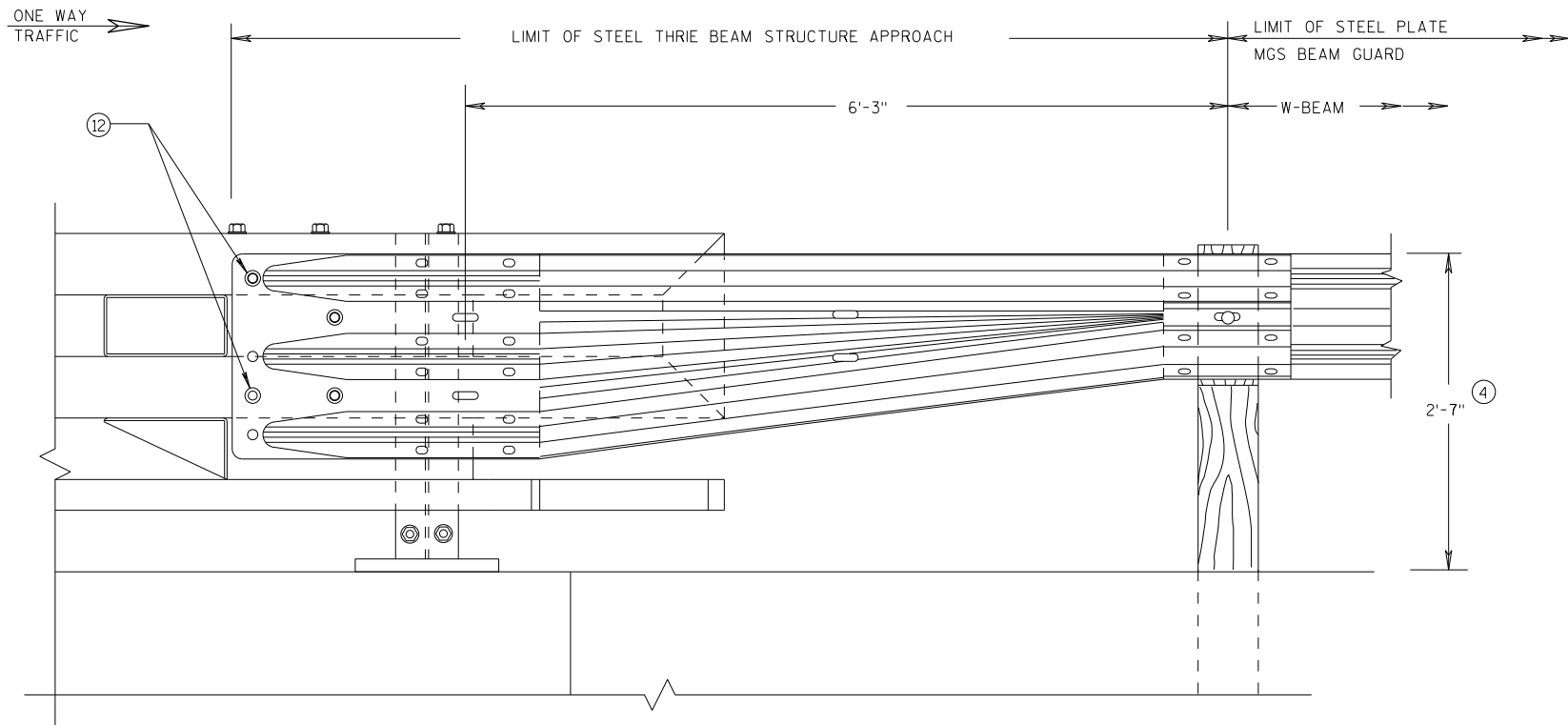
S.D.D. 14 B 45-5k

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

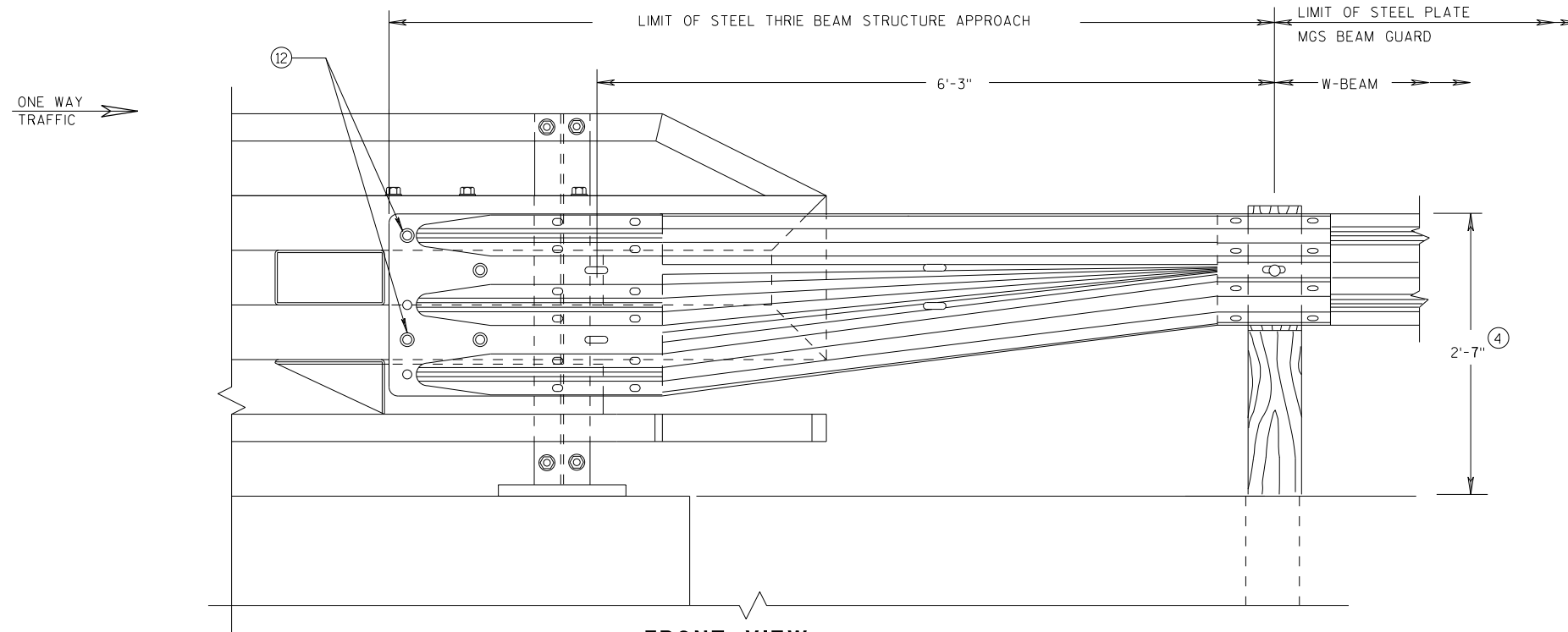
APPROVED  
DATE 7/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA



**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY3"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND  $\frac{1}{2}$ -INCH BEYOND NUT.

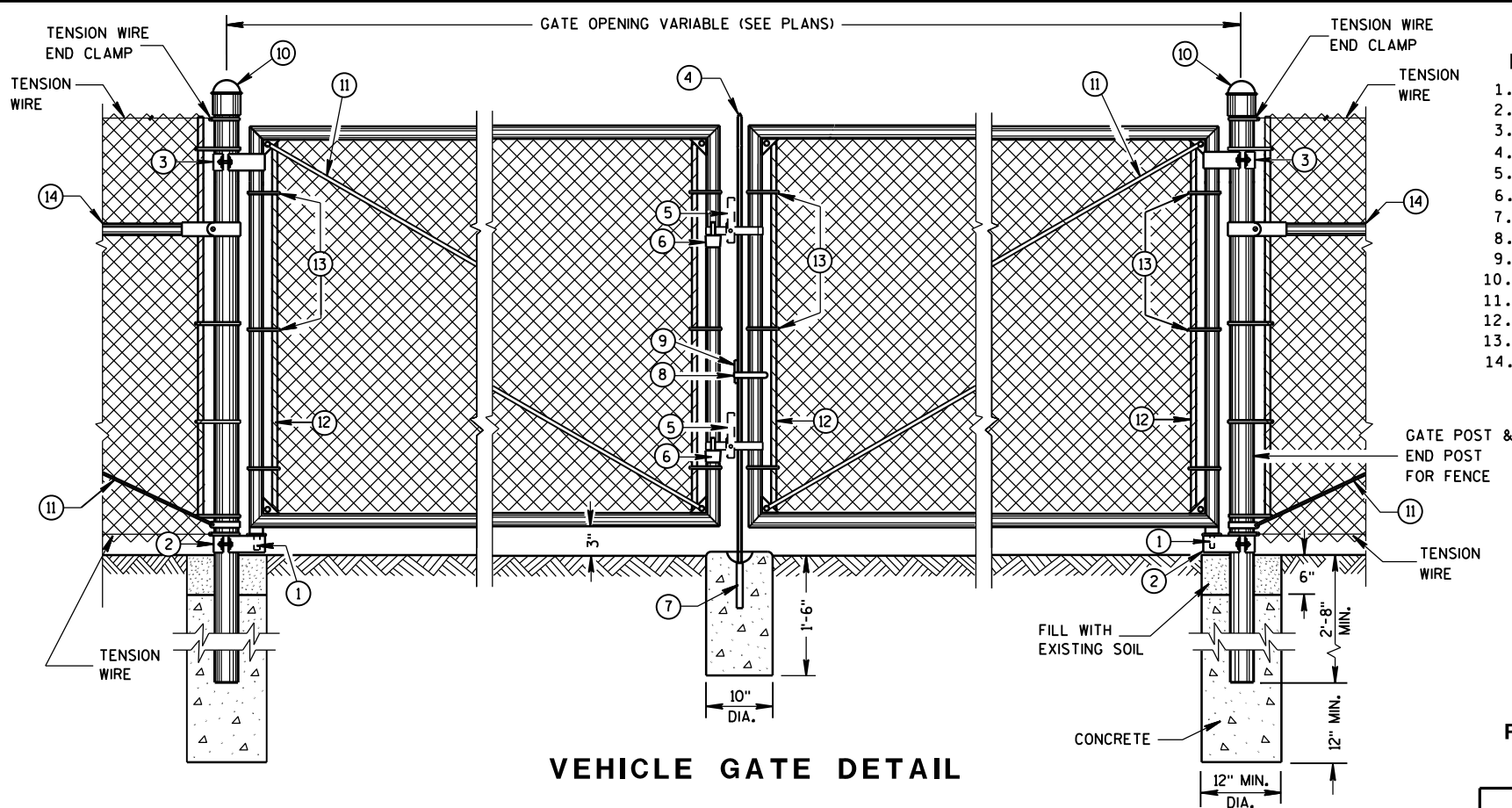


**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY4"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

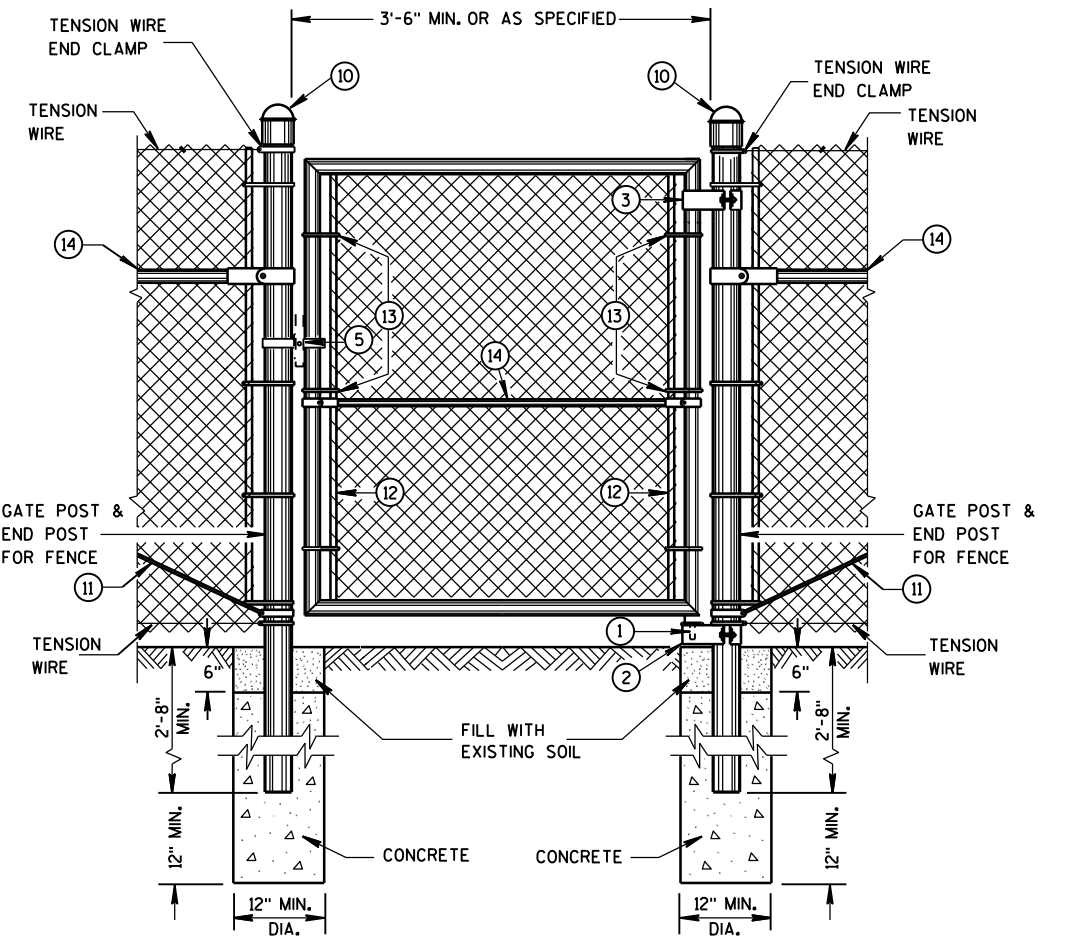
**MIDWEST GUARDRAIL SYSTEM**  
**THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

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



**VEHICLE GATE DETAIL**



**PEDESTRIAN GATE DETAIL**

- LEGEND**
1. STRAIGHT PLUG
  2. BOTTOM HINGE
  3. TOP HINGE
  4. PLUNGER ROD
  5. FULCRUM LATCH
  6. FORK CATCH \*
  7. PLUNGER ROD CATCH
  8. LOCK KEEPER GUIDE
  9. LOCK KEEPER
  10. DOME TOPS
  11. TRUSS RODS
  12. TENSION BAR
  13. TENSION BANDS
  14. BRACE RAIL
- \*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

**GENERAL NOTES**

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

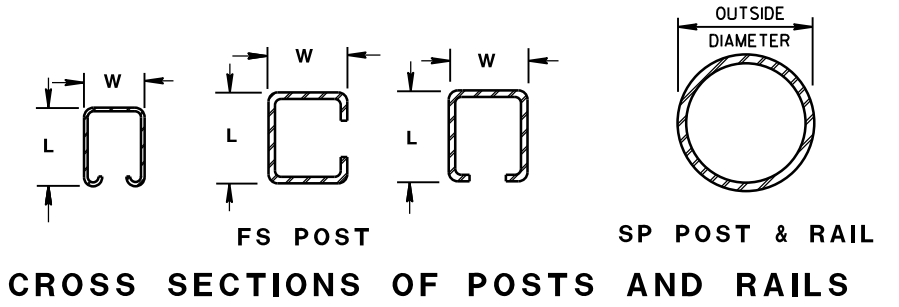
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



**ROLLED-FORMED STEEL FENCE POST (2.0 OZ./SQ. FT. COATING)**

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2†	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

**ROUND STEEL FENCE POST (1.8 OZ./SQ. FT. COATING)**

POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

**REQUIRED FENCE POST SIZES**

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2†
	GREATER THAN OR EQUAL TO 8 FT.	FS3

**REQUIRED POST SIZE FOR GATES**

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

**BRACE RAIL TYPES**

USE	TYPE
BRACE RAIL	SP1 OR FS1

\*\* INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

**FENCE CHAIN LINK**

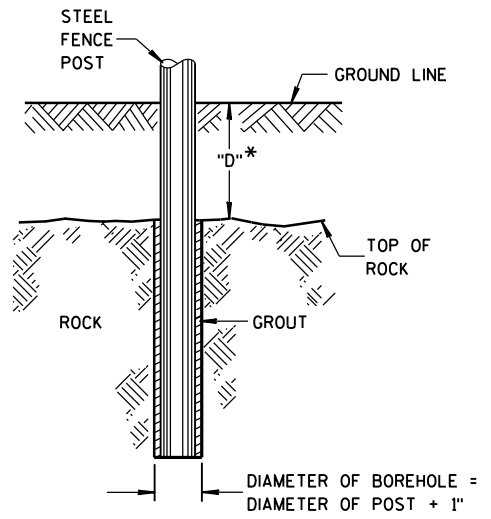
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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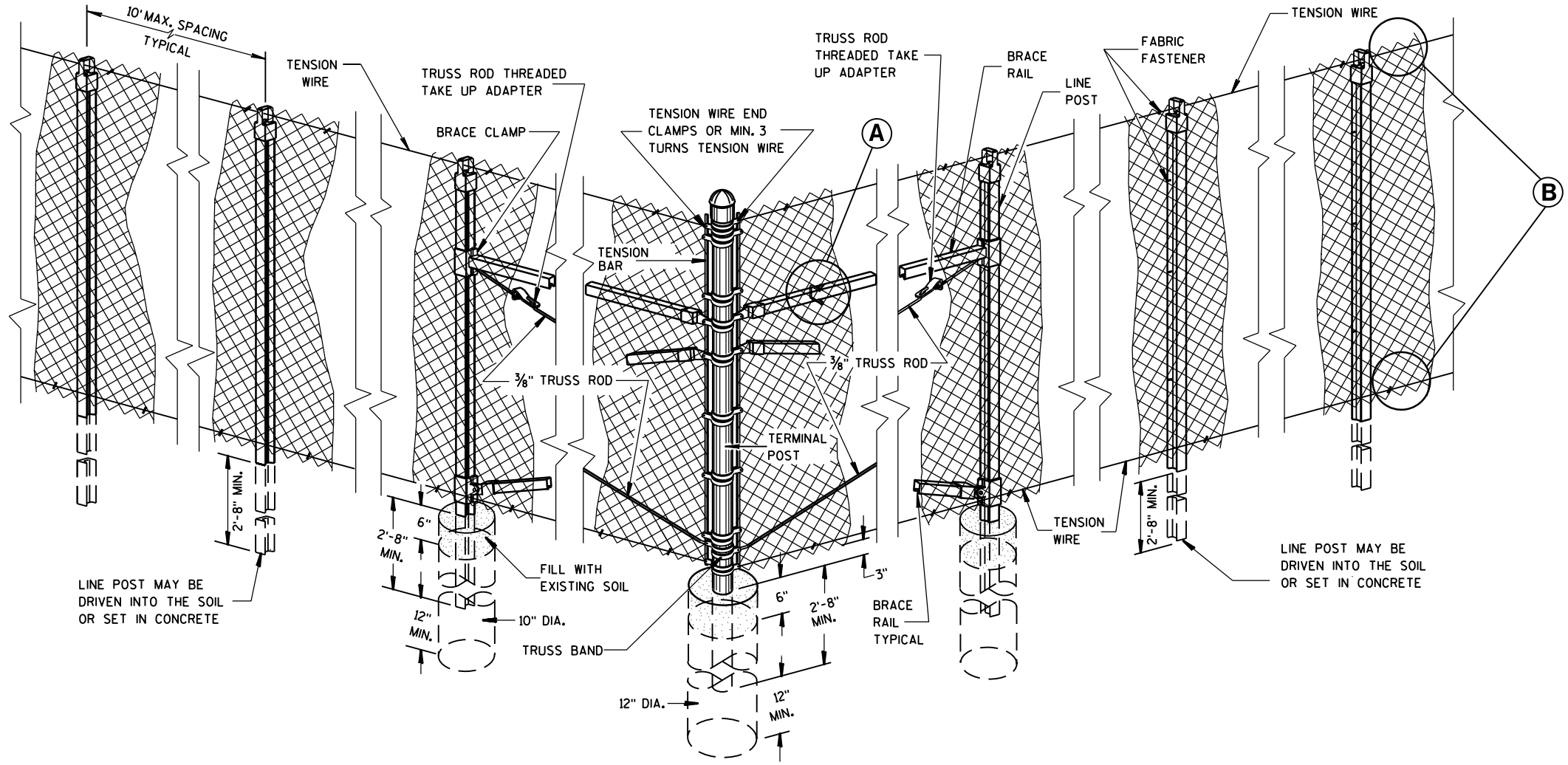
S.D.D. 15 B 3-15a

S.D.D. 15 B 3-15a

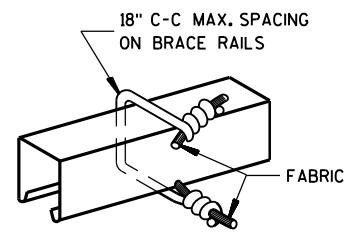


\* IF "D" IS LESS THAN 2'-6",  
DRILL ROCK AND INSTALL GROUT

### ROCK INSTALLATION OF LINE POST

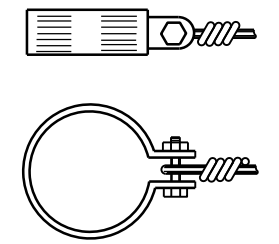


### END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS

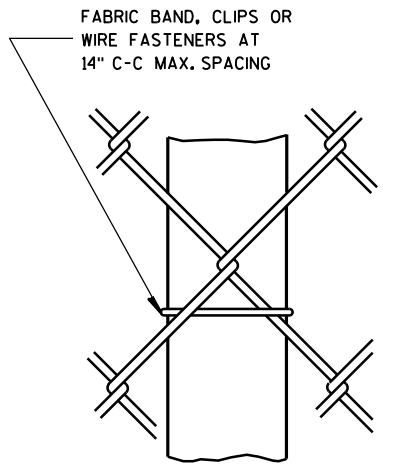


BRACE RAIL FABRIC FASTENER

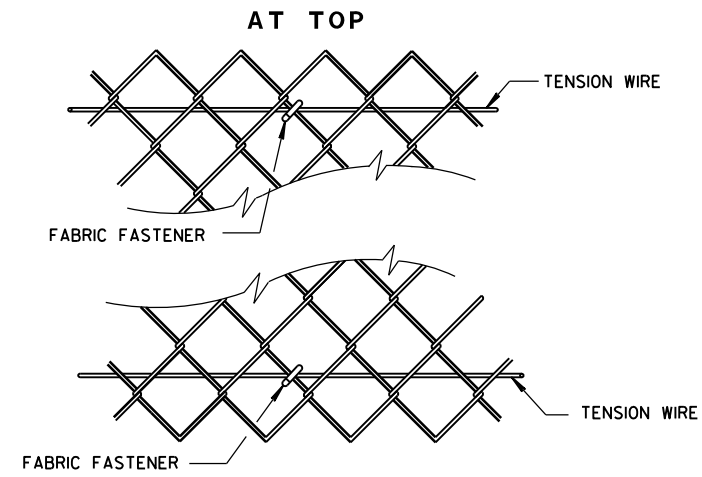
(A)



TENSION WIRE END CLAMP

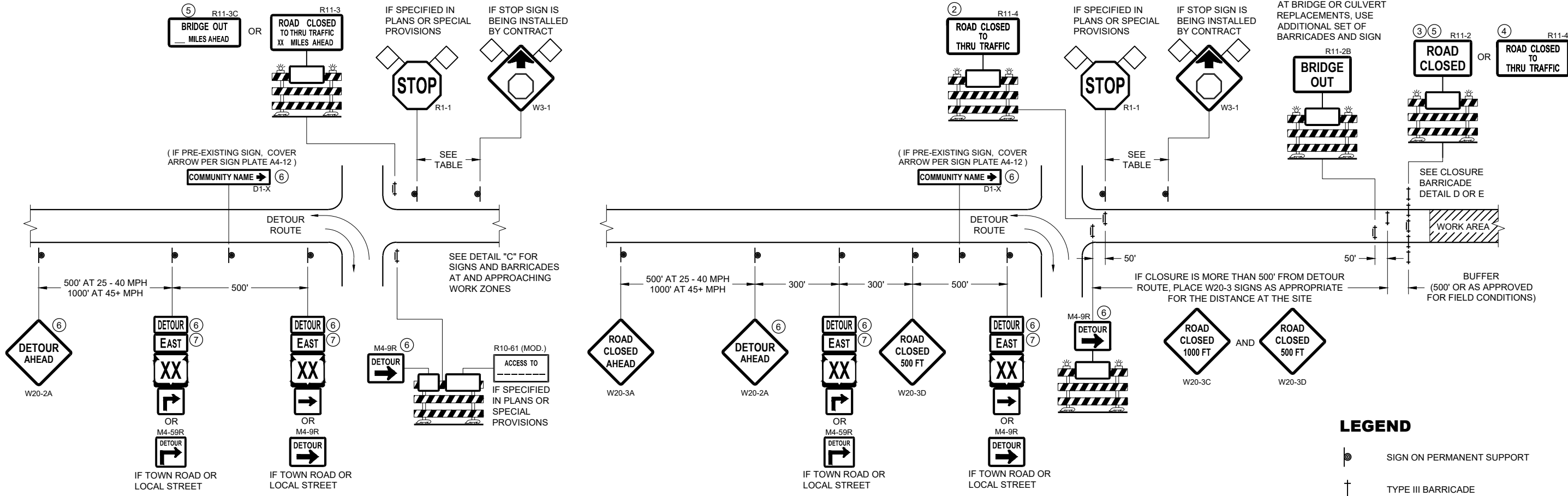


LINE POST FABRIC FASTENER



(B)

<b>FENCE CHAIN LINK</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/s/ Jerry H. Zogg
FEB. 2015 DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

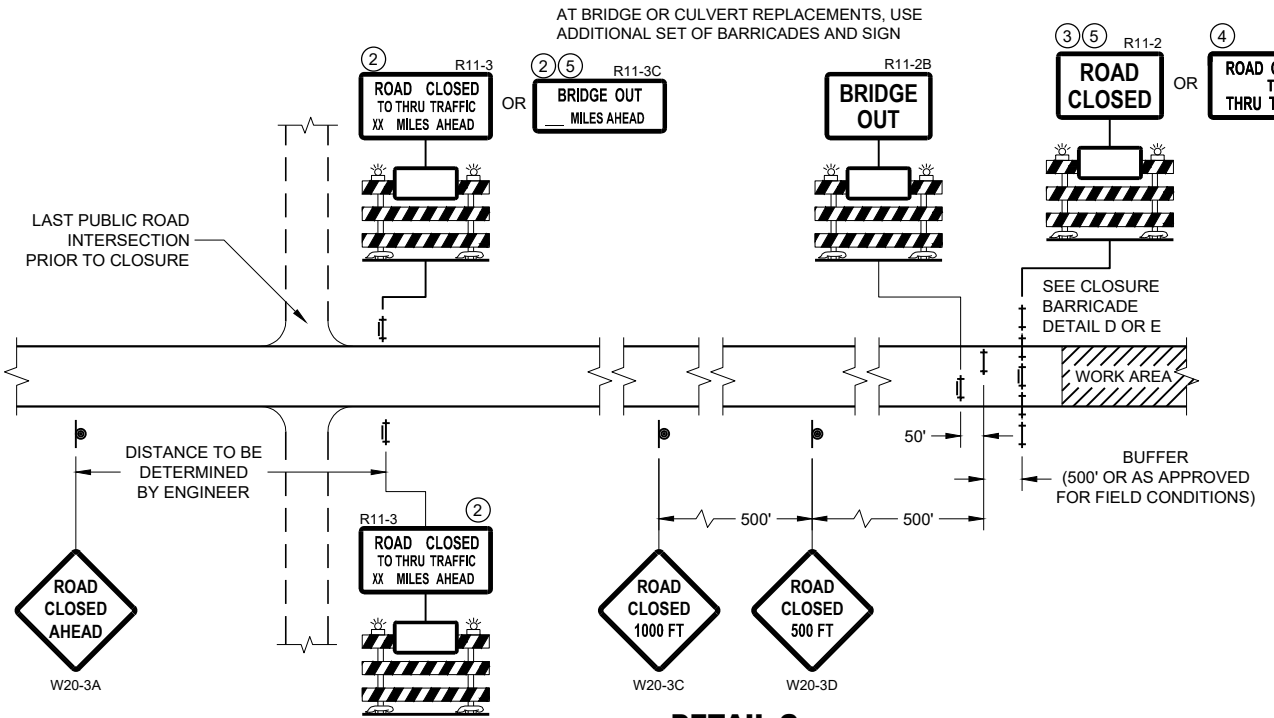
WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

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

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



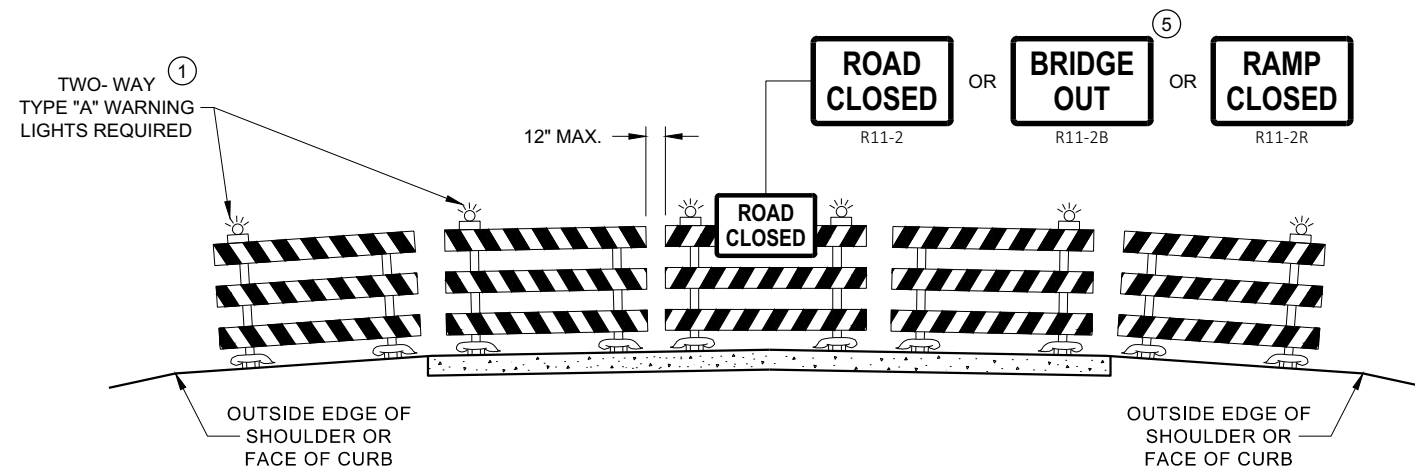
**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

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

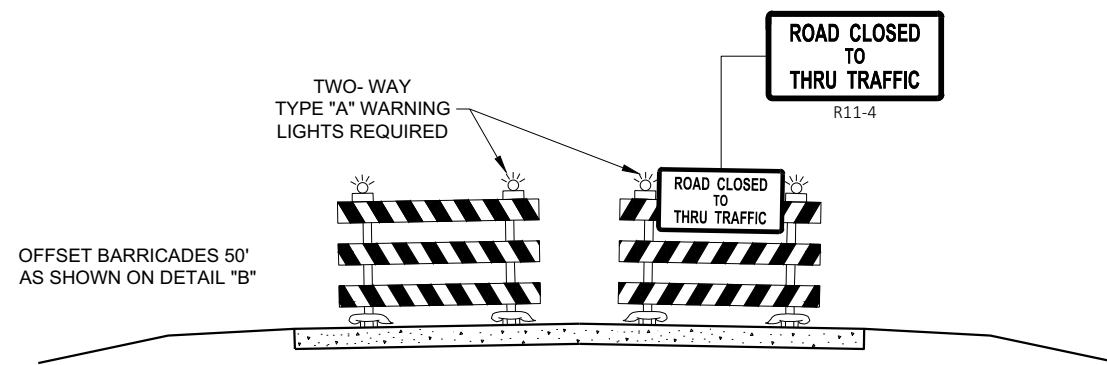
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW**



**DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**GENERAL NOTES**

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

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

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

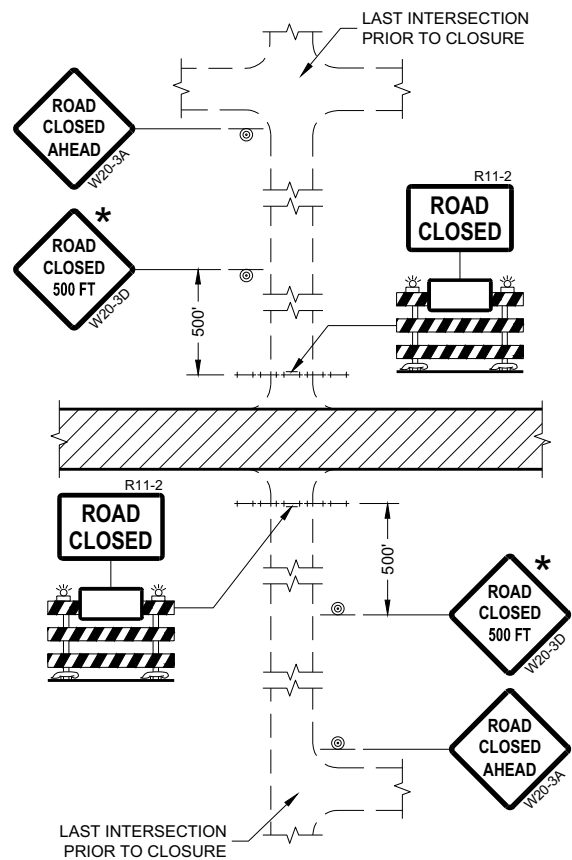
**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

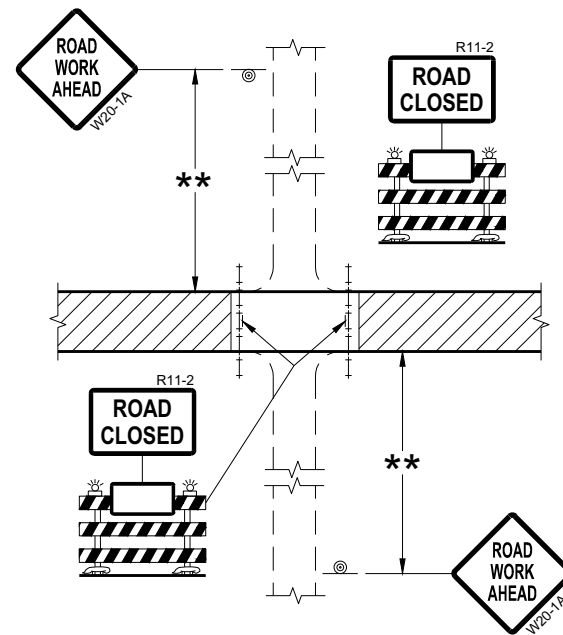
APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

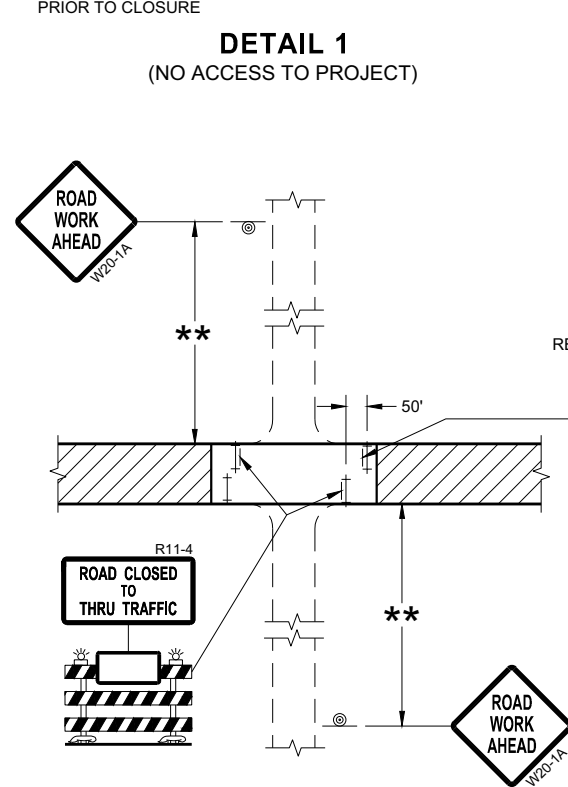




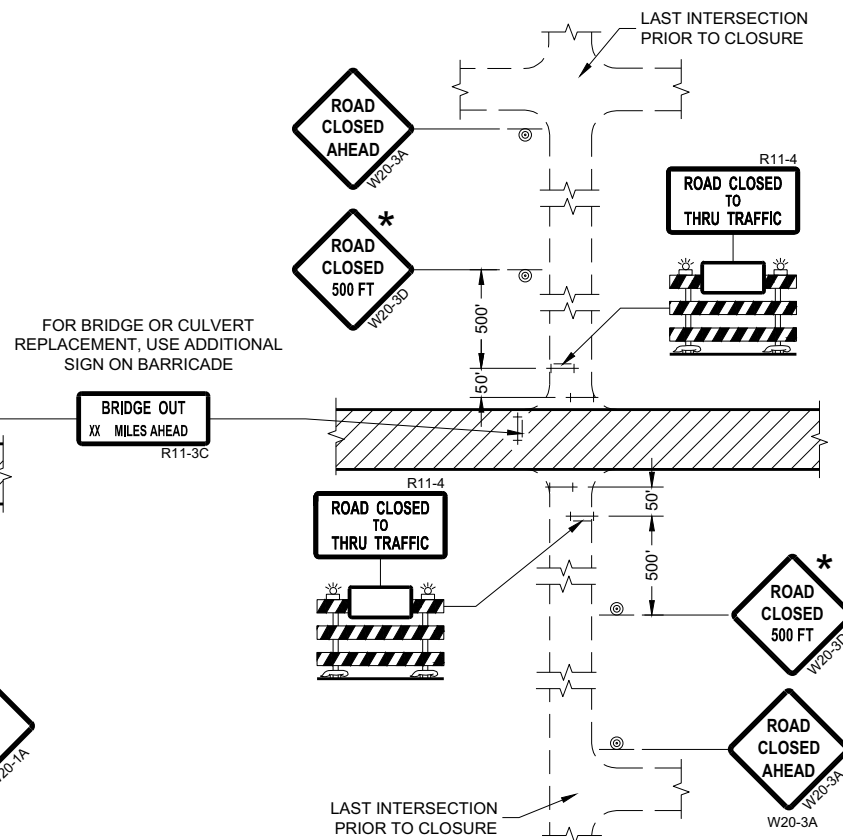
**DETAIL 1**  
(NO ACCESS TO PROJECT)



**DETAIL 2**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
NO ACCESS TO PROJECT)



**DETAIL 3**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)



**DETAIL 4**  
(CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)

**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 (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN 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, AND R11-4 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.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:  
R11-2 SHALL BE 48" X 30".  
R11-4 AND R11-3 SHALL BE 60" X 30".

\* OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.

\*\* 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

**LEGEND**

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

**BARRICADES AND SIGNS  
FOR  
SIDEROAD CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
July 2018 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

**GENERAL NOTES**

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.




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

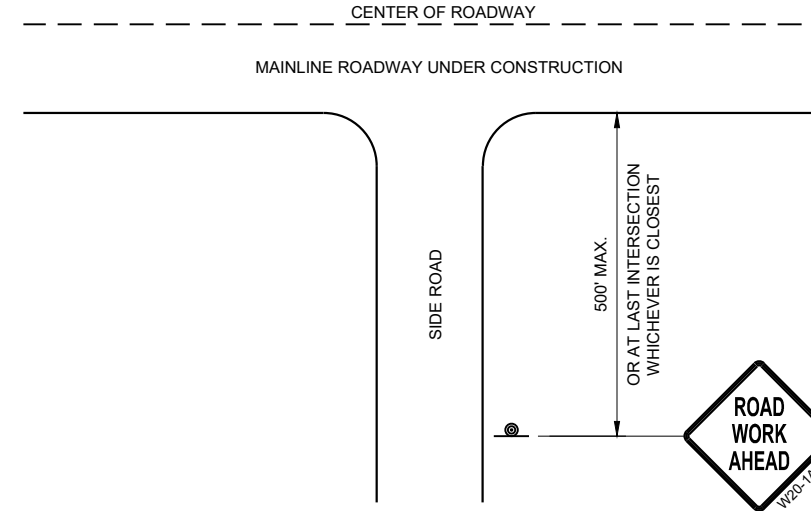
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

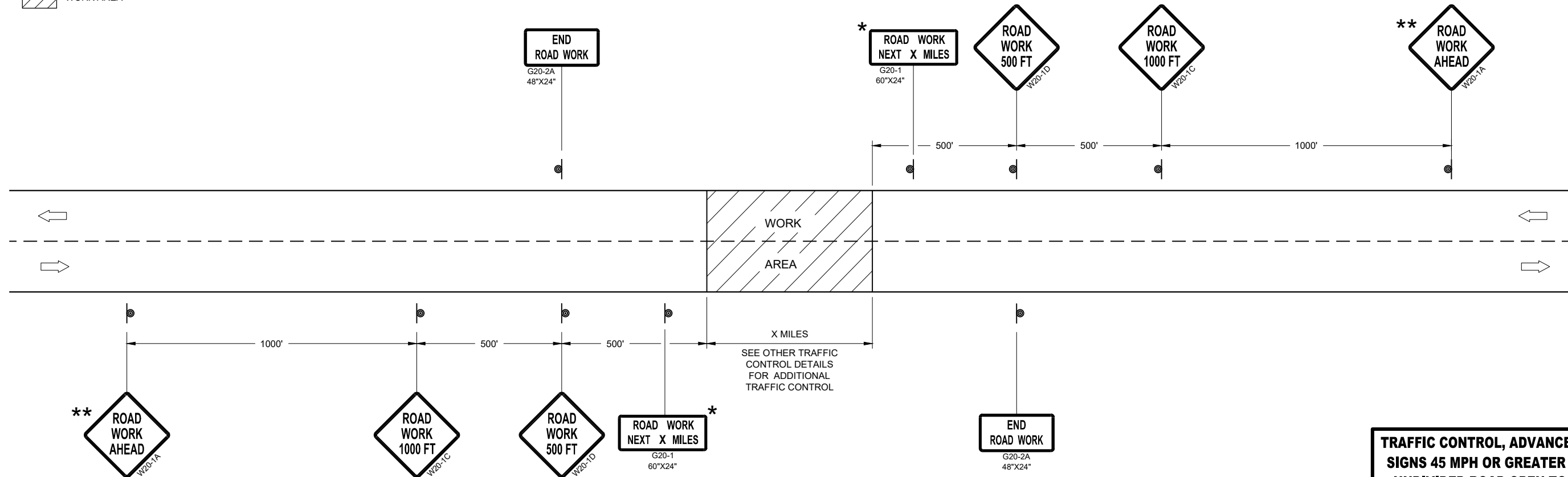
- \* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- \*\* PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



**TYPICAL SIDE ROAD APPROACH  
WARNING SIGN DETAIL**



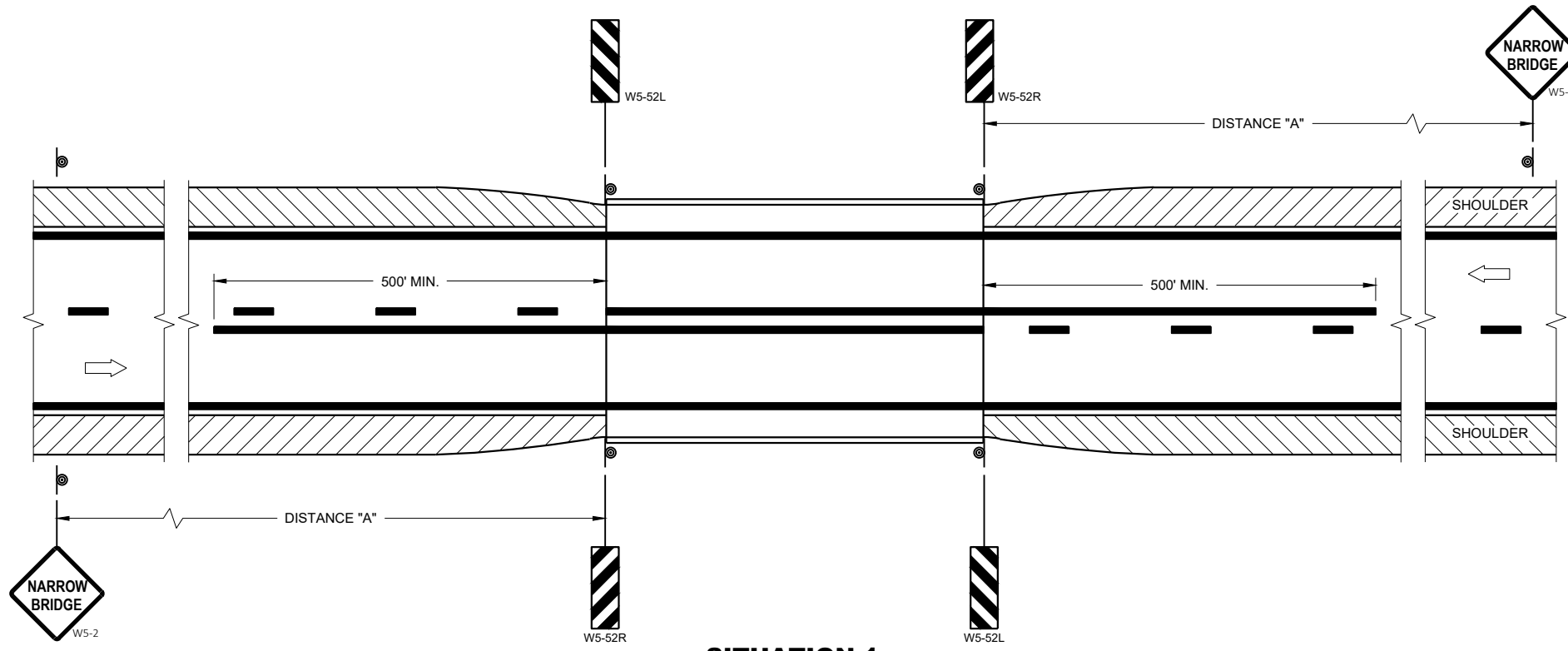
**TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER**

**TRAFFIC CONTROL, ADVANCE WARNING  
SIGNS 45 MPH OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC**

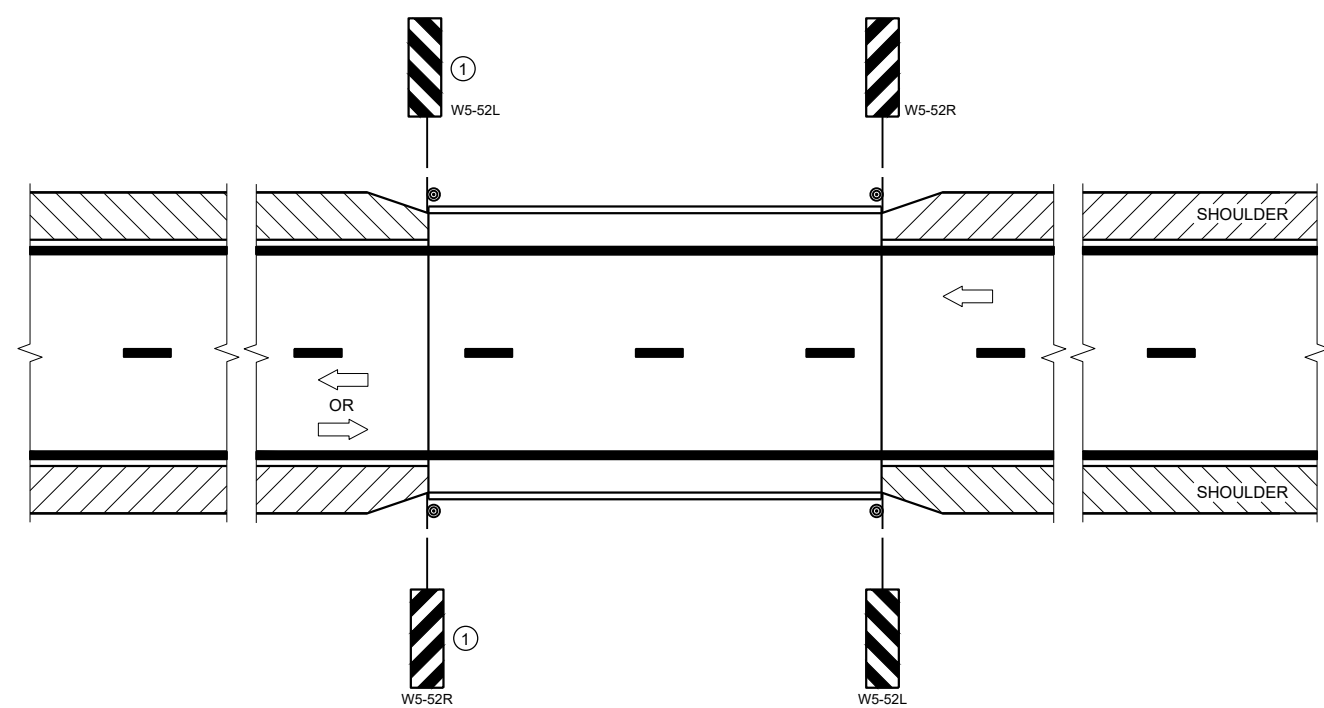
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED \_\_\_\_\_ /S/ Andrew Heidtke  
DATE July 2018 WORK ZONE ENGINEER

FHWA



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



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

**GENERAL NOTES**

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC

**DISTANCE TABLE**

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

**SIGNING AND MARKING FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION




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

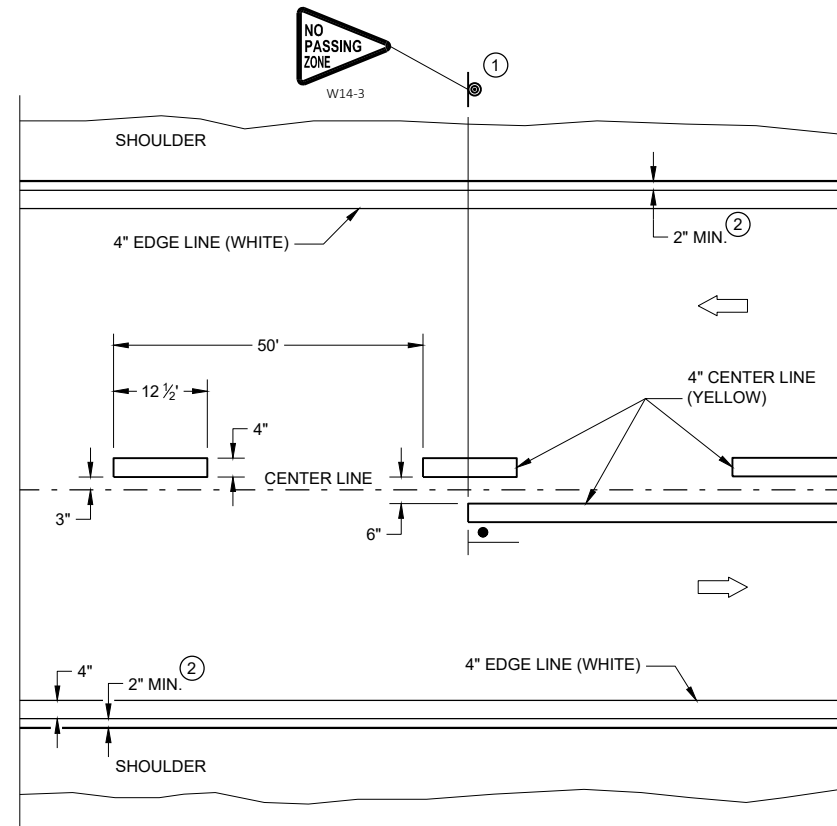
**GENERAL NOTES**

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

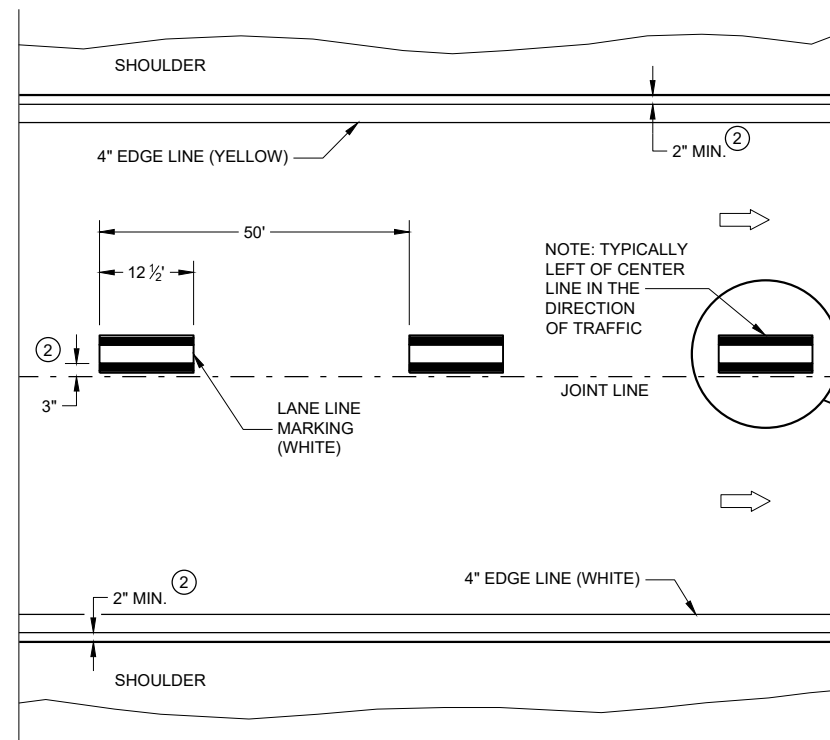
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

**LEGEND**

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

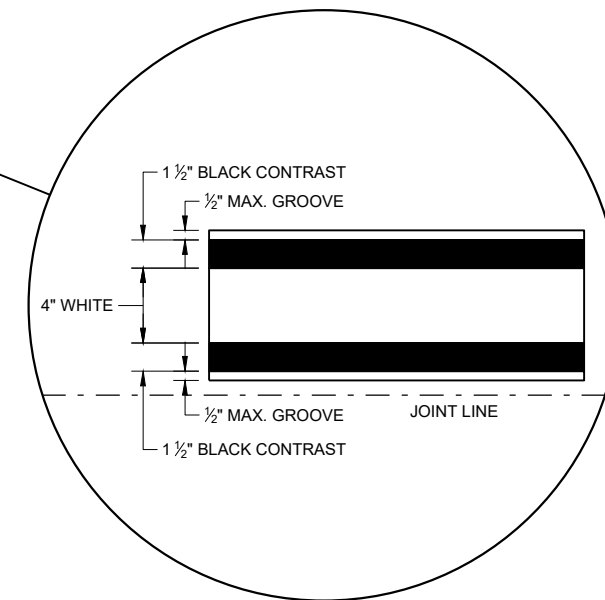


**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

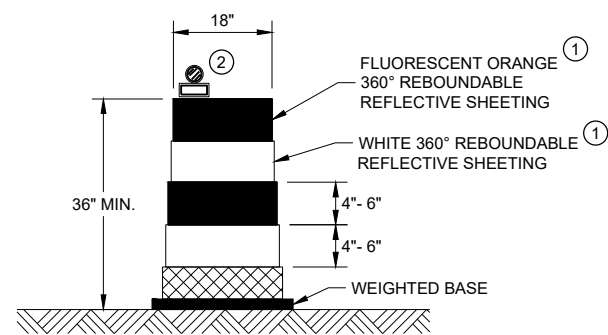
**PERMANENT PAVEMENT MARKING**



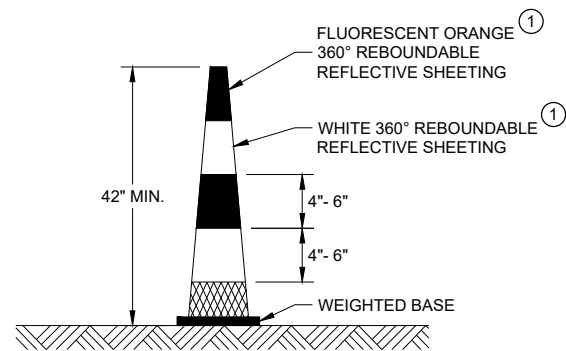
**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**DRUM**

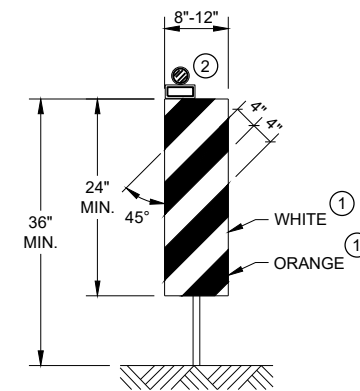


**42" CONE**

DO NOT USE IN TAPERS  
1/2 SPACING OF DRUMS

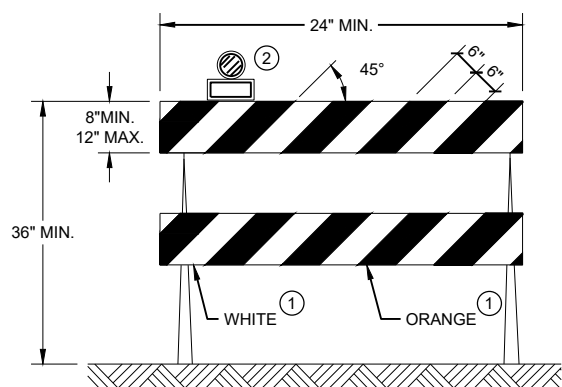
**GENERAL NOTES**

- 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.



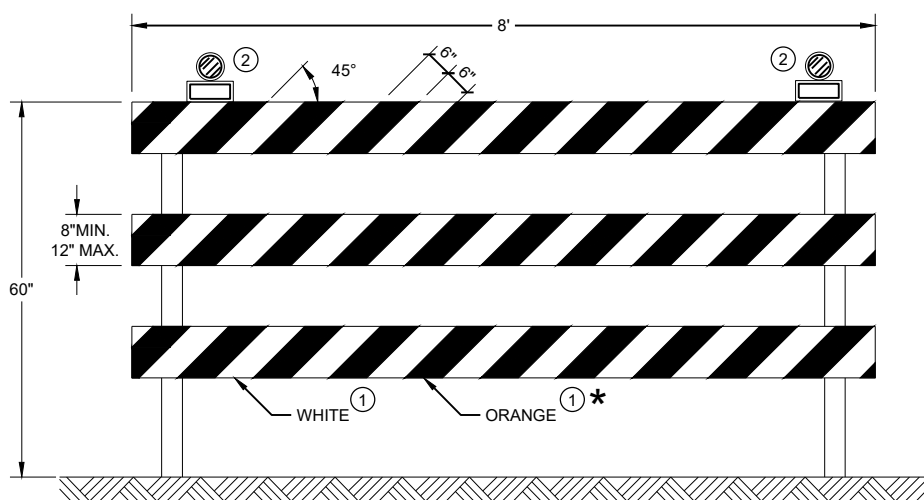
**VERTICAL PANEL**

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



**TYPE II BARRICADE**

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



**TYPE III BARRICADE**

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

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





**CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2021 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

**LEGEND**

- V1 LEAD VEHICLE
- V2 MARKING VEHICLE
- V3 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (CAUTION)

**GENERAL NOTES**

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

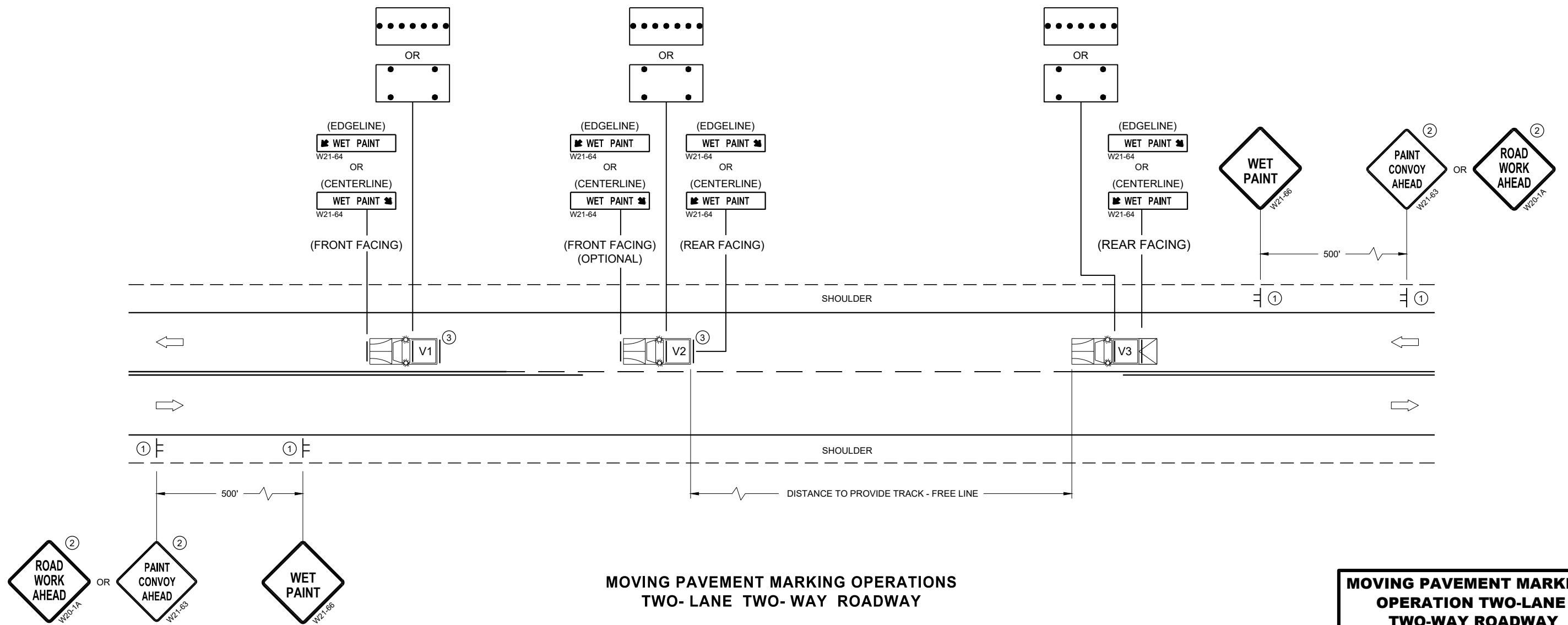
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.

6

6



**MOVING PAVEMENT MARKING OPERATIONS  
TWO-LANE TWO-WAY ROADWAY**

**MOVING PAVEMENT MARKING  
OPERATION TWO-LANE  
TWO-WAY ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

SDD 15C19 - 07a

SDD 15C19 - 07a

## GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

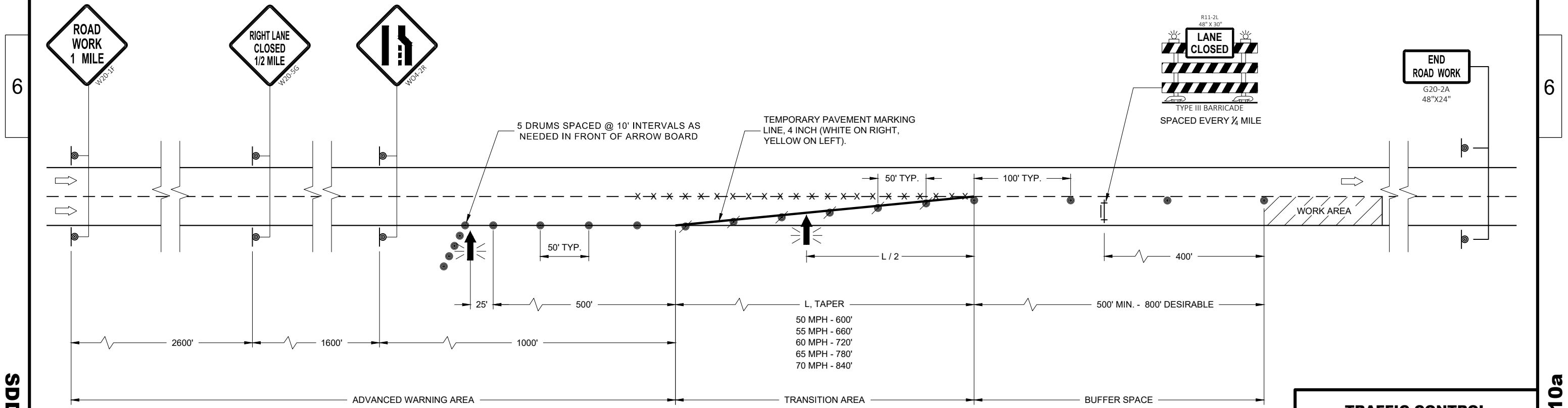
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

## LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD



<b>TRAFFIC CONTROL LANE CLOSURE</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

SDD 15D12 - 10a

SDD 15D12 - 10a

### GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

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

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

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.

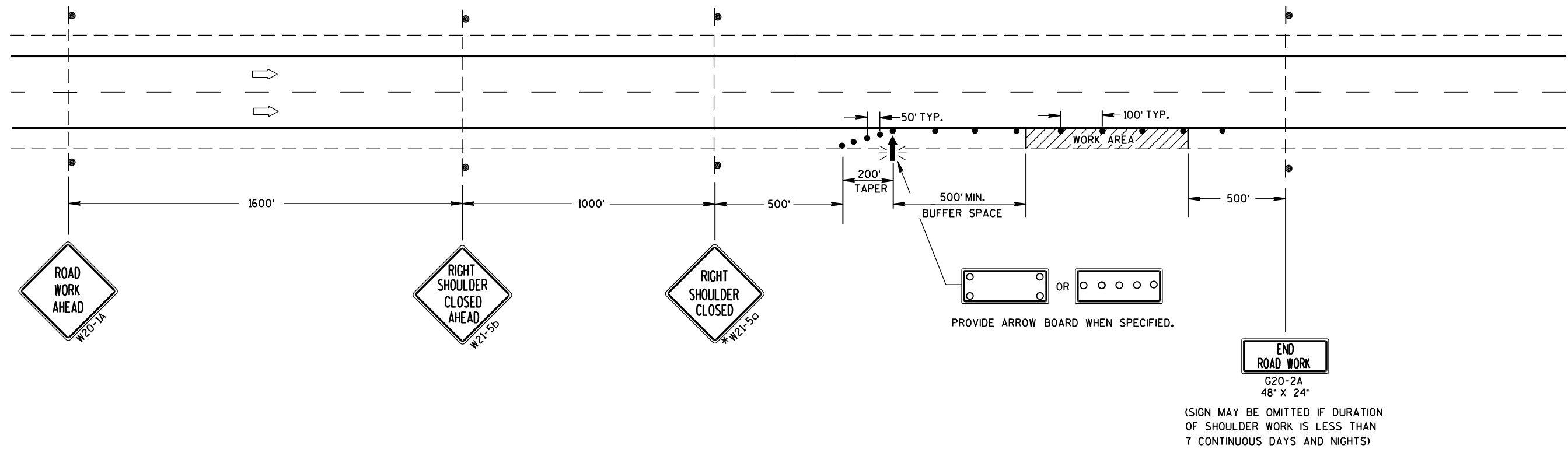
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

\*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-50 SIGN MAY BE OMITTED.

### LEGEND

- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA



(SIGN MAY BE OMITTED IF DURATION OF SHOULDER WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS)

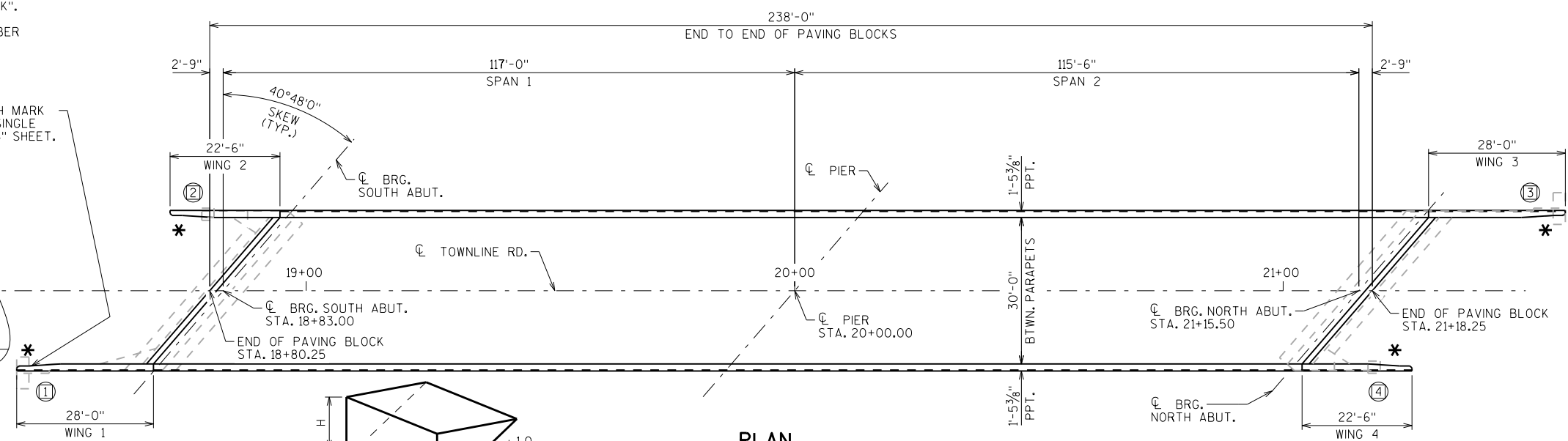
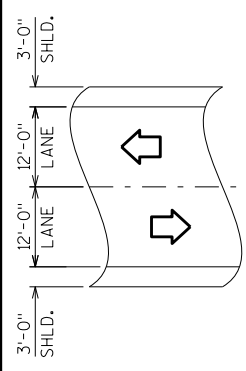
<b>TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/s/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	



\* PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT, AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

① INDICATES WING NUMBER

NAME PLATE & BENCH MARK FOR LOCATION SEE "SINGLE SLOPE PARAPET 42SS" SHEET.

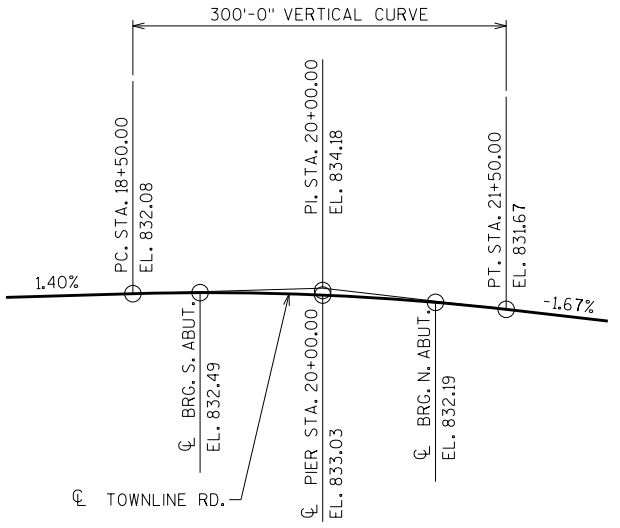
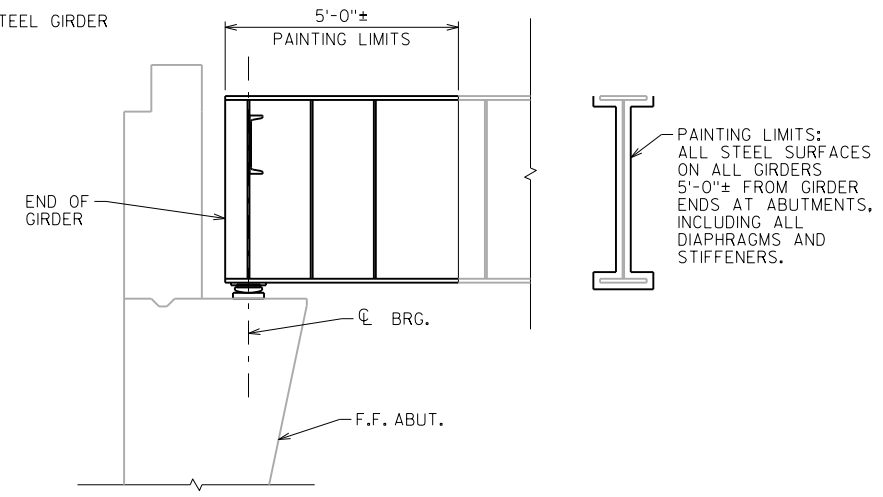


**ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY**

L = LENGTH ALONG ABUTMENT IN BETWEEN WINGS FOR STRIP SEAL REPLACEMENT, WING LENGTH FOR TOP OF WING REPLACEMENT, (FT)  
H = AVERAGE FILL HEIGHT (FT). AN ESTIMATED HEIGHT OF 1.5' WAS USED ALONG ABUTMENT. AN ESTIMATED HEIGHT OF 5.5' WAS USED ALONG THE WINGS.  
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)  
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$   
 $V_{CY} = V_{CF} (EF) / 2.7$   
 $V_{TON} = V_{CY} (2.0)$

**GENERAL NOTES**

- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.
- PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPERTS, INCLUDING PARAPETS ON WINGS.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR 1973.
- ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1 INCH DEEP SAW CUT.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN.
- IF EXISTING SALVAGED BAR STEEL REINFORCEMENT IS SEVERELY CORRODED OR DAMAGED DURING CONCRETE REMOVAL, REPLACE WITH EPOXY ANCHORED BARS OF THE SAME SIZE. EMBED 1'-6" INTO EXISTING CONCRETE. WORK TO BE PAID UNDER ITEM "REMOVING STRUCTURE B-20-60".
- BRIDGE STATIONING MAY VARY BASED ON EXACT LOCATION OF THE BRIDGE ALONG THE ALIGNMENTS. CONTRACTOR TO VERIFY. VARIATIONS TO THE NEW GRADE LINE OVER 1/2" MUST BE SUBMITTED FOR REVIEW BY THE BUREAU OF STRUCTURES.
- SEAL ALL EXPOSED HORIZONTAL AND VERTICAL JOINTS ON BACKFACE OF WINGS WITH "RUBBERIZED MEMBRANE WATERPROOFING".
- CONCRETE SURFACE REPAIR IS REQUIRED AT THE PIER AND ABUTMENTS. QUANTITY IS AN ESTIMATE. EXACT AREAS OF CONCRETE SURFACE REPAIR TO BE DETERMINED BY THE ENGINEER.
- PAINT ENDS OF GIRDERS AS SHOWN ON THE PLANS AND ACCORDING TO THE STANDARD SPEC. COLOR TO BE AMS STANDARD COLOR #26622.
- CLEAN AND PAINT ALL ABUTMENT BEARINGS UNDER "STRUCTURE OVERCOATING CLEANING AND PRIMING B-20-60" BID ITEM. COLOR TO BE AMS STANDARD COLOR #26622.
- GIRDER HAUNCHES ARE EXPECTED TO BE LESS THAN 1.25" IN SOME AREAS, TRADITIONAL DECK FORMING SYSTEMS MAY NOT BE SUITABLE.



**DESIGN DATA**

**LIVE LOAD:**  
INVENTORY RATING: HS-20  
OPERATING RATING: HS-33  
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 220 (KIPS)  
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

**MATERIAL PROPERTIES:**  
CONCRETE MASONRY: \_\_\_\_\_ f'c = 4,000 P.S.I.  
SUPERSTRUCTURE \_\_\_\_\_ f'c = 3,500 P.S.I.  
ALL OTHER \_\_\_\_\_ f'c = 3,500 P.S.I.  
BAR STEEL REINFORCEMENT: \_\_\_\_\_ fy = 60,000 P.S.I.  
GRADE 60 \_\_\_\_\_ fy = 60,000 P.S.I.

**TRAFFIC VOLUME**

**TOWNLINE ROAD**  
ADT = 200 (2019)  
R.D.S. = 60 M.P.H.

**IH 41**  
ADT = 42,970 (2023)  
R.D.S. = 80 M.P.H.

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0211.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-20-60	EACH	1
203.0220	REMOVING STRUCTURE B-20-60	EACH	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-20-60	LS	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	330
502.0100	CONCRETE MASONRY BRIDGES	CY	327
502.3101	EXPANSION DEVICE B-20-60	LF	80
502.3200	PROTECTIVE SURFACE TREATMENT	SY	808
502.3210	PIGMENTED SURFACE SEALER	SY	281
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	6
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	172
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	69,490
509.1500	CONCRETE SURFACE REPAIR	SF	10
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20
517.0901.S	PREPARATION AND COATING OF TOP FLANGES B-20-60	EACH	1
517.3001.S	STRUCTURE OVERCOATING CLEANING AND PRIMING B-20-60	EACH	1
517.4001.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-20-60	EACH	1
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4
	NON-BID ITEMS		
	FILLER	SIZE	1/2"

**LIST OF DRAWINGS**

1. GENERAL PLAN
2. CONCRETE REMOVAL 1
3. CONCRETE REMOVAL 2
4. WING DETAILS 1
5. WING DETAILS 2
6. SUPERSTRUCTURE 1
7. SUPERSTRUCTURE 2
8. SUPERSTRUCTURE DETAILS
9. EXPANSION DEVICE
10. COVER PLATE DETAILS
11. SINGLE SLOPE PARAPET 42SS

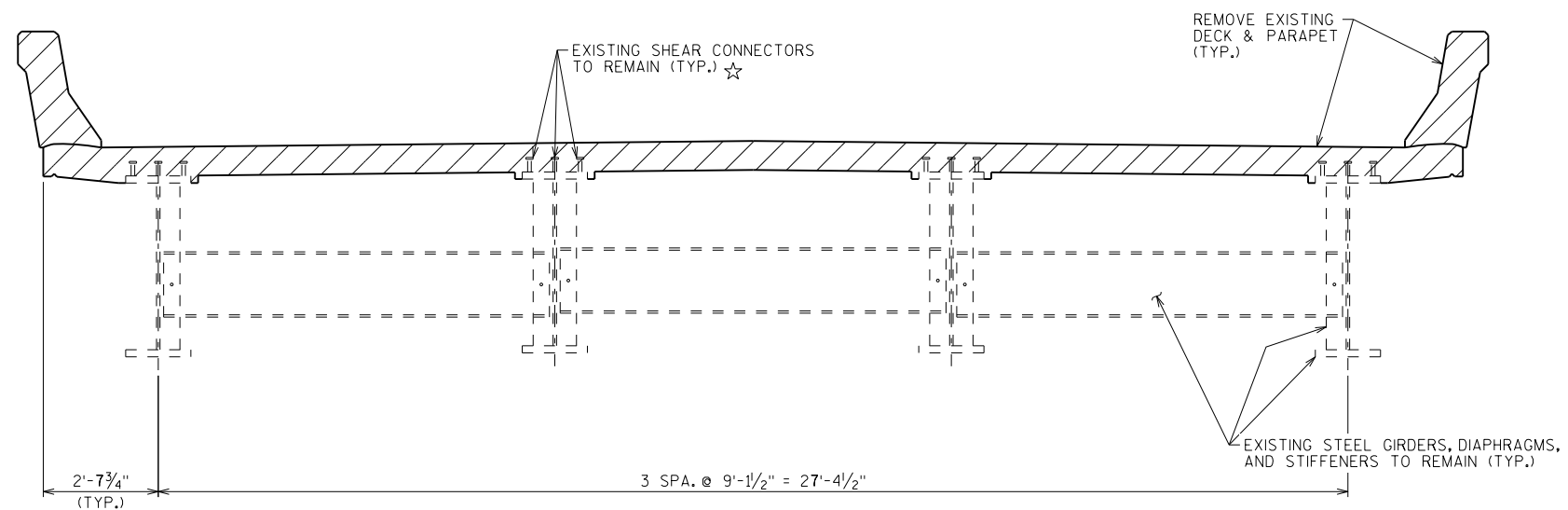
**STRUCTURE DESIGN CONTACTS:**  
JONATHON RESHESKE (608) 266-8491  
LAURA SHADEWALD (608) 267-9592

NO.	DATE	REVISION	BY
 <b>BUREAU OF STRUCTURES</b> ACCEPTED: <i>[Signature]</i> 11/10/22 CHIEF STRUCTURES DESIGN ENGINEER DATE			
<b>STRUCTURE B-20-60</b>			
TOWNLINE ROAD OVER IH 41			
COUNTY	FOND DU LAC	TOWN	FRIENDSHIP
DESIGN SPEC.	REHABILITATION N/A	DESIGNED BY	JLR
DESIGNED BY	JLR	DRAWN BY	WAH
<b>GENERAL PLAN</b>			SHEET 1 OF 11

8

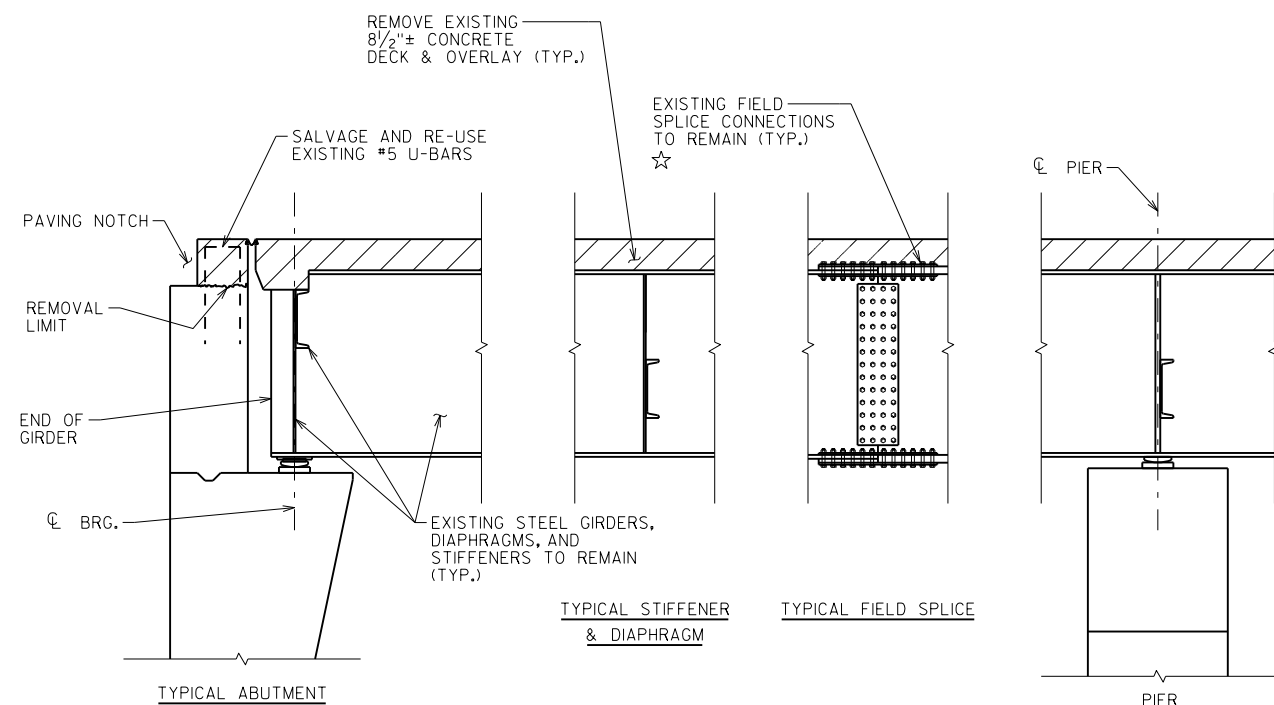
8

SCALE = 1/4"=1'-0"



**EXISTING CROSS SECTION THRU BRIDGE**

☆ CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE SHEAR CONNECTORS, FIELD SPLICE CONNECTIONS, AND TOP GIRDER FLANGE. ENGINEER WILL INSPECT GIRDERS PRIOR TO PLACING NEW DECK.



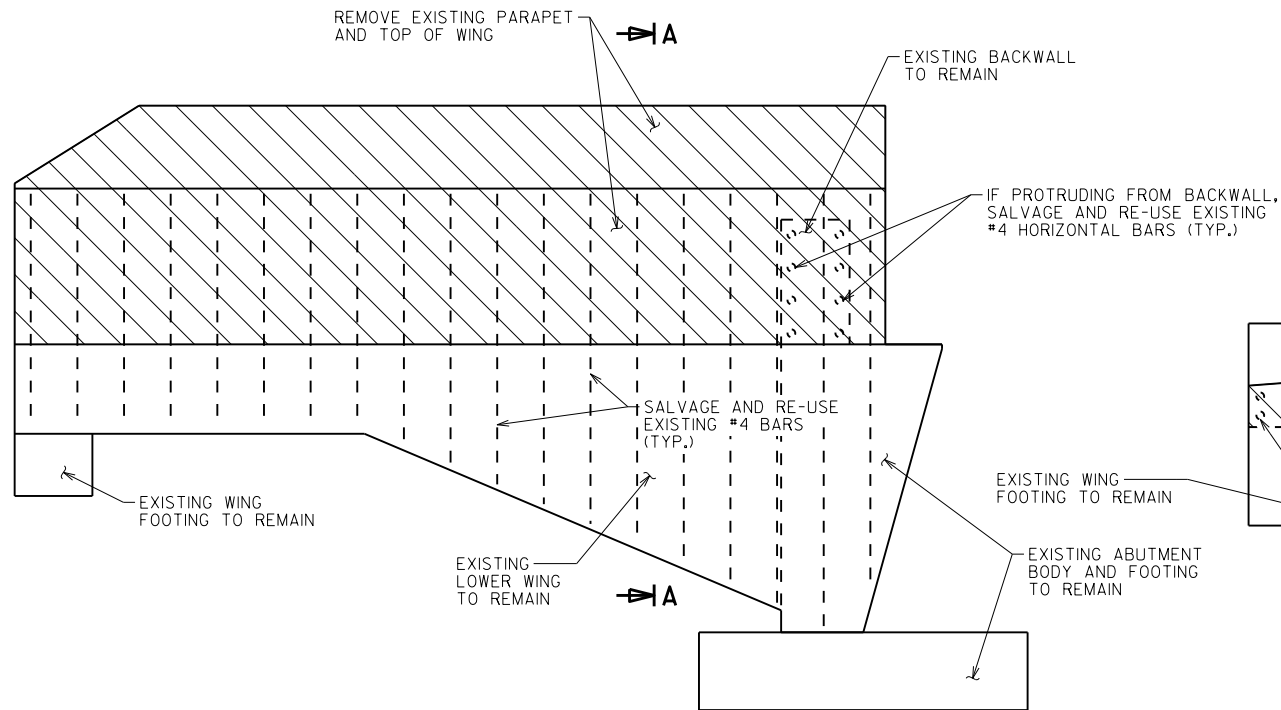
**DECK REMOVAL ELEVATION**

BOTH SPANS SIMILAR

8

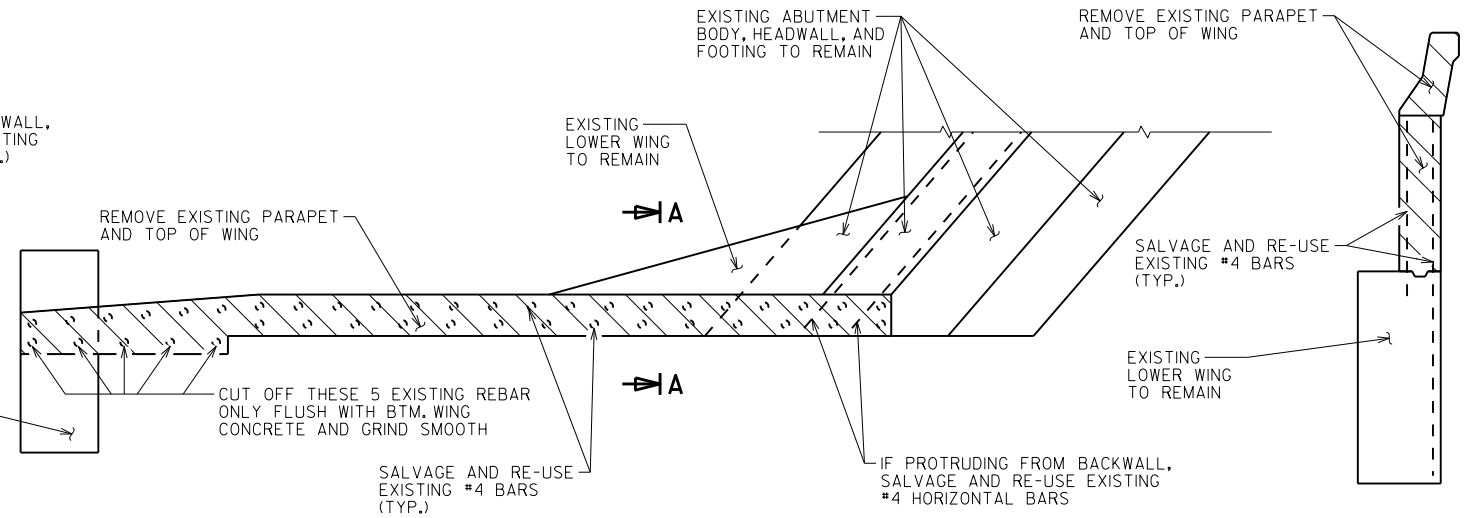
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY		JLR	PLANS CKD. WAH
<b>CONCRETE REMOVAL 1</b>			SHEET 2



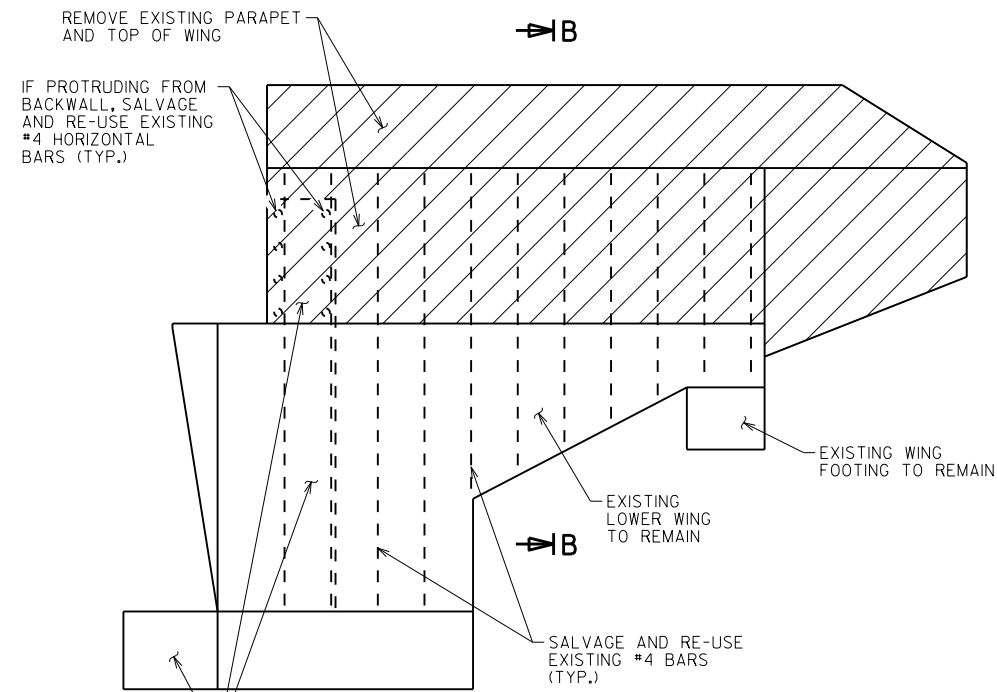
**WINGS 1 & 3 TYPICAL  
REMOVAL ELEVATION**

LOOKING AT FRONT FACE



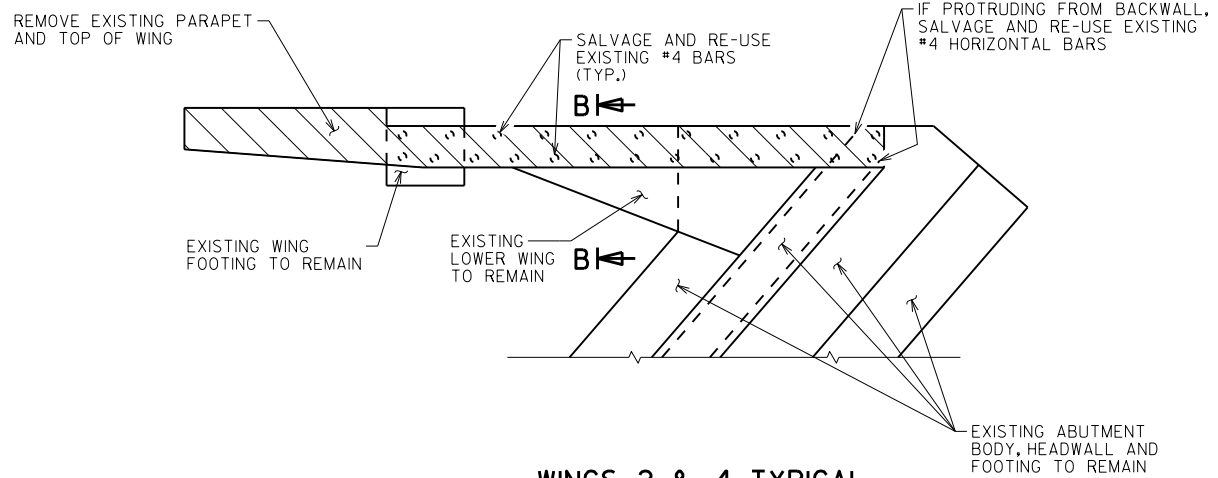
**WINGS 1 & 3 TYPICAL  
REMOVAL PLAN**

**SECTION A-A**

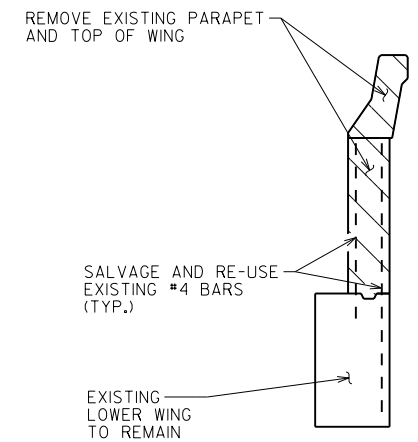


**WINGS 2 & 4 TYPICAL  
REMOVAL ELEVATION**

LOOKING AT FRONT FACE



**WINGS 2 & 4 TYPICAL  
REMOVAL PLAN**



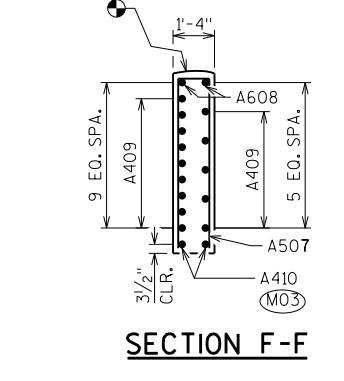
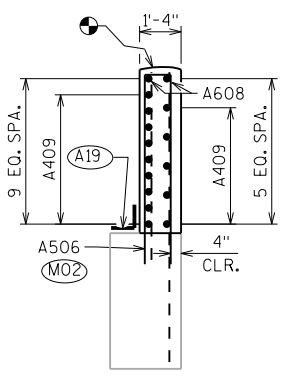
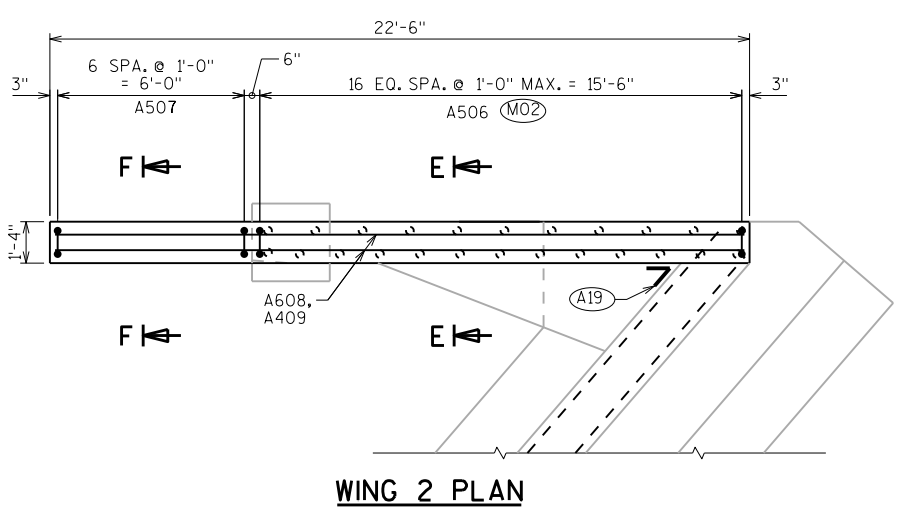
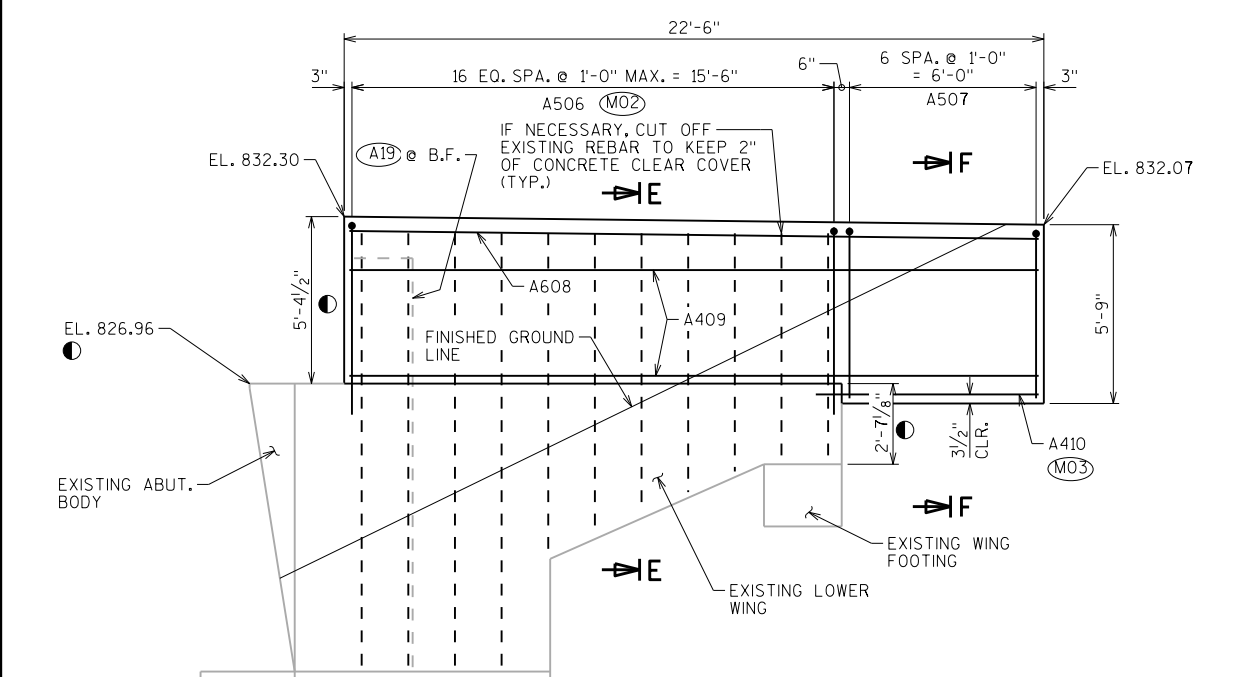
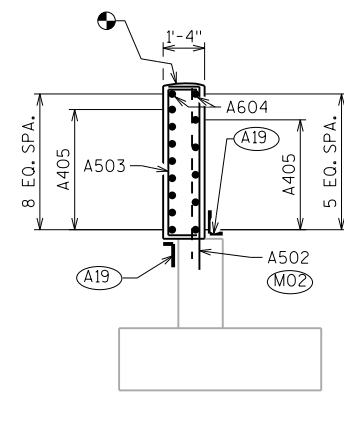
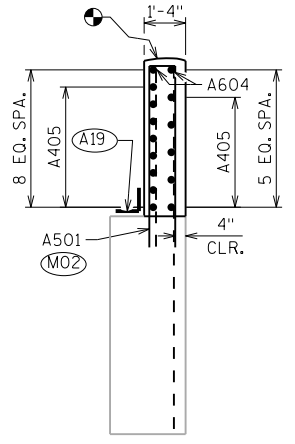
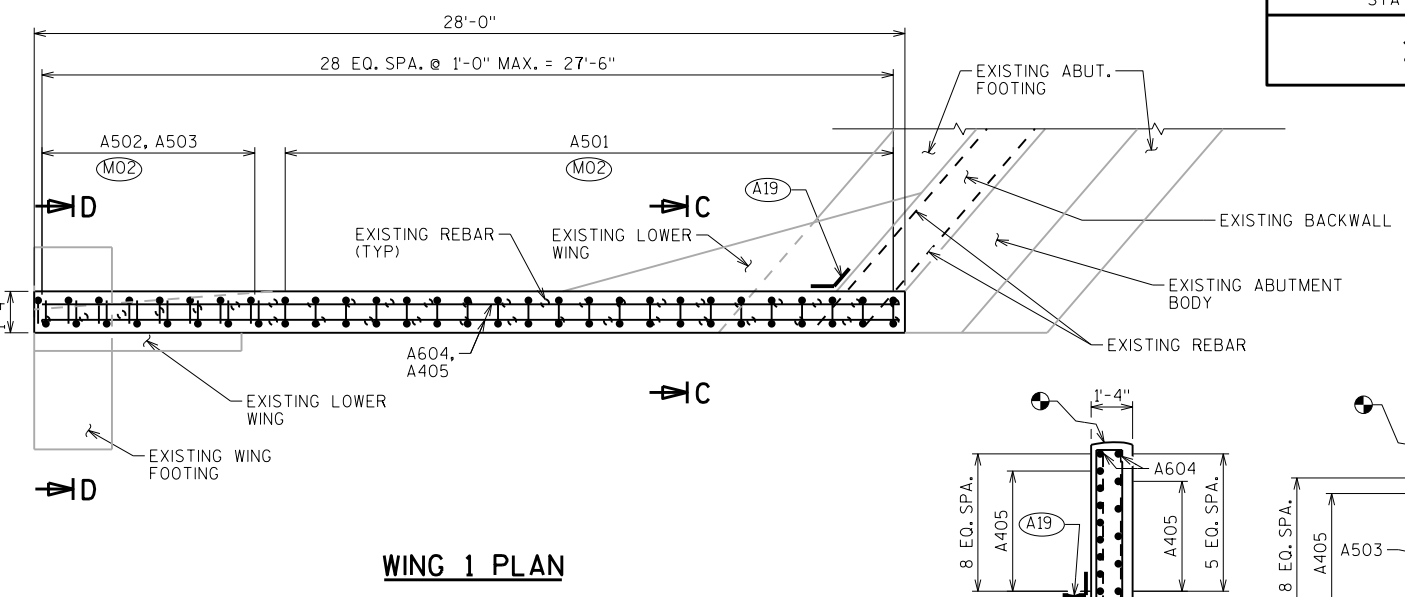
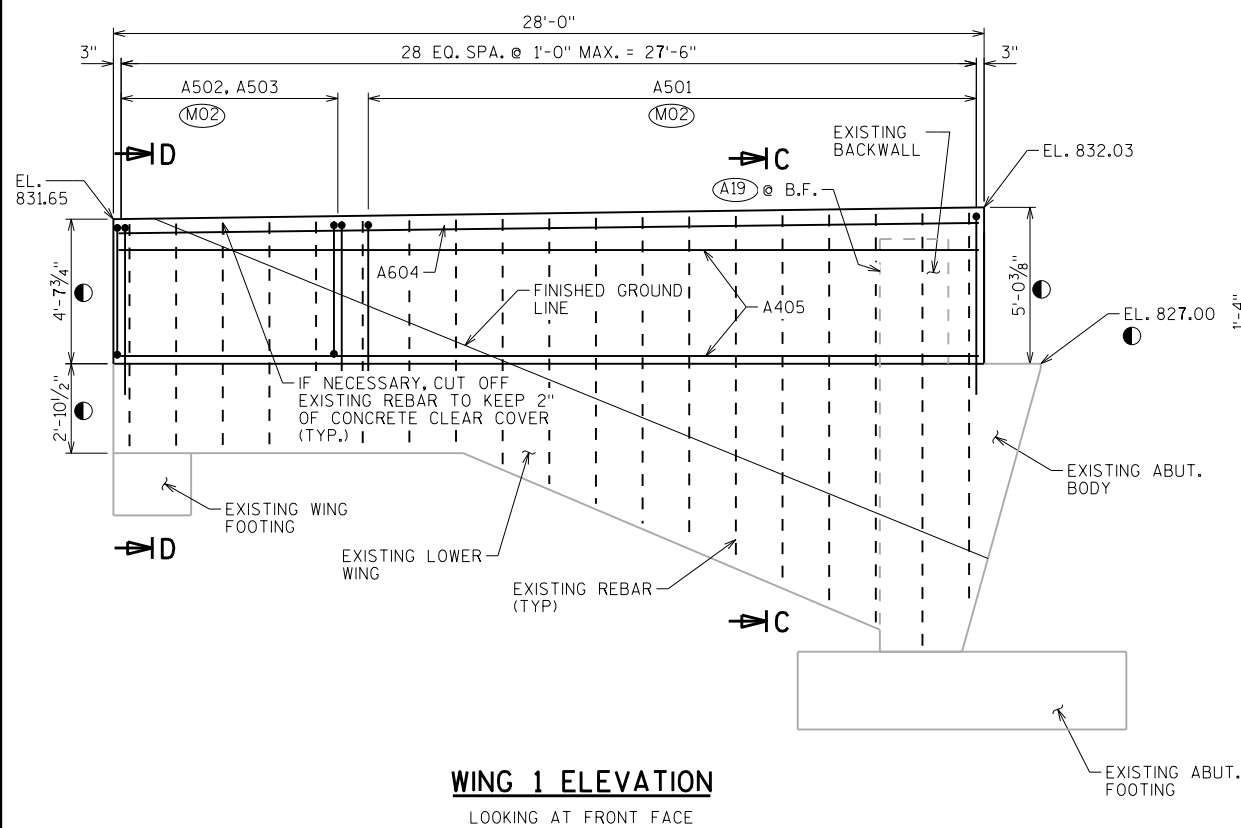
**SECTION B-B**

8

8

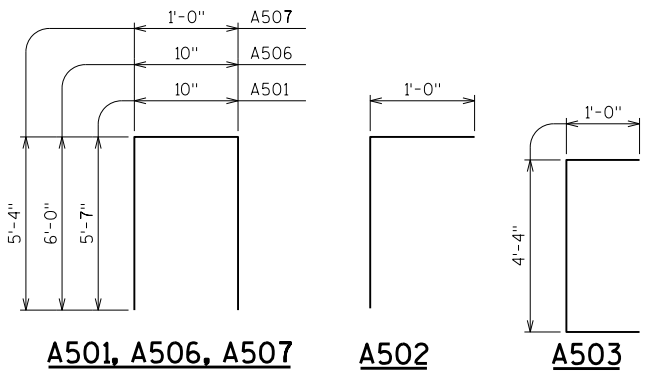
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY JLR		PLANS CK'D. WAH	
<b>CONCRETE REMOVAL 2</b>			SHEET 3

SCALE = 3.00



**BILL OF BARS** NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501	X	21	11'-9"	X		WING 1 - VERTICAL
A502	X	8	6'-5"	X		WING 1 - VERTICAL
A503	X	8	6'-1"	X		WING 1 - VERTICAL
A604	X	2	27'-8"			WING 1 - HORIZONTAL
A405	X	13	27'-8"			WING 1 - HORIZONTAL
A506	X	17	12'-7"	X		WING 2 - VERTICAL
A507	X	7	11'-5"	X		WING 2 - VERTICAL
A608	X	2	22'-2"			WING 2 - HORIZONTAL
A409	X	14	22'-2"			WING 2 - HORIZONTAL
A410	X	2	7'-2"			WING 2 - HORIZONTAL



- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE
- (M02) A501, A502, A506 ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-0" MAX. IN CONCRETE. PLACE BARS @ 1'-0" MAX. SPACING.
- (M03) A410 ADHESIVE ANCHORS NO. 4 BAR, EMBED 10" IN CONCRETE. PLACE BARS AS SHOWN.
- CONST. JOINT - STRIKE OFF AS SHOWN
- ELEVATIONS AND DIMENSIONS ARE BASED ON SURVEY DATA AND EXISTING PLANS. CONTRACTOR TO VERIFY.

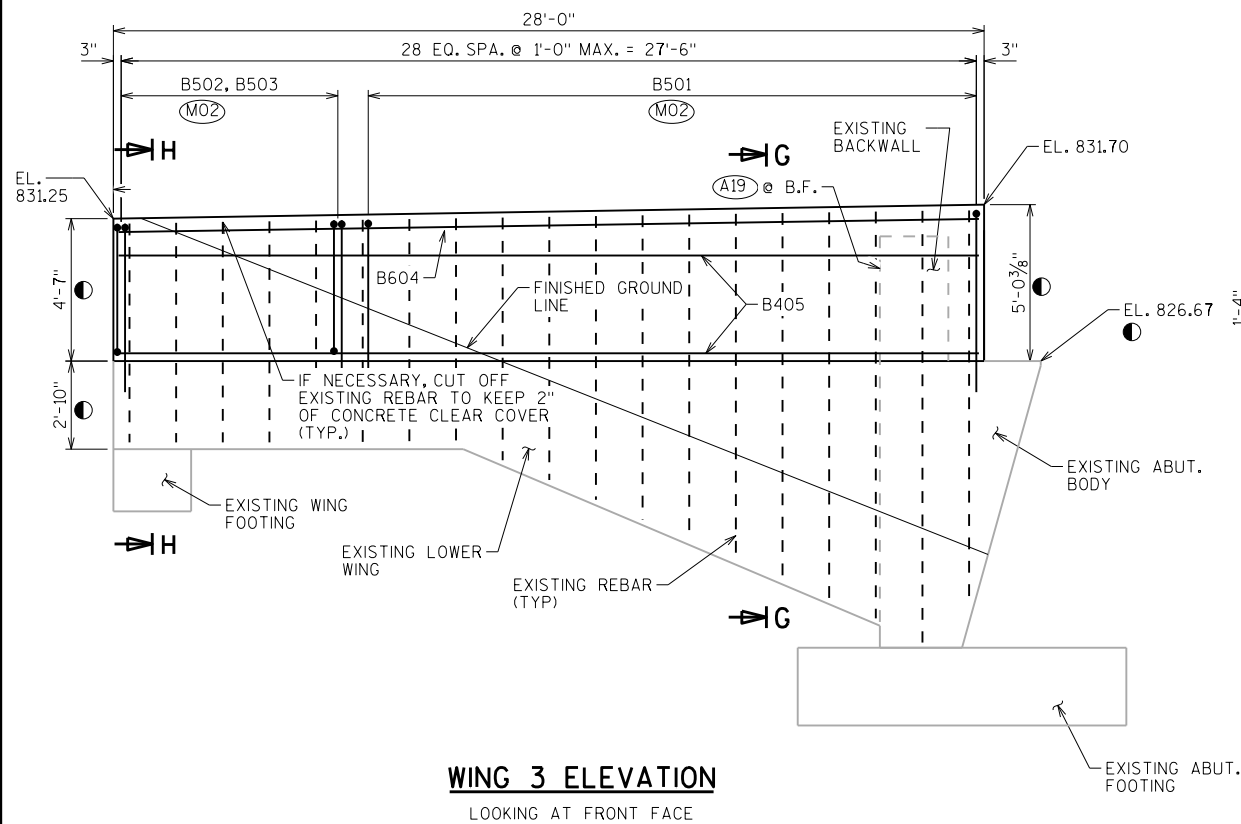
NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
STRUCTURES DESIGN SECTION

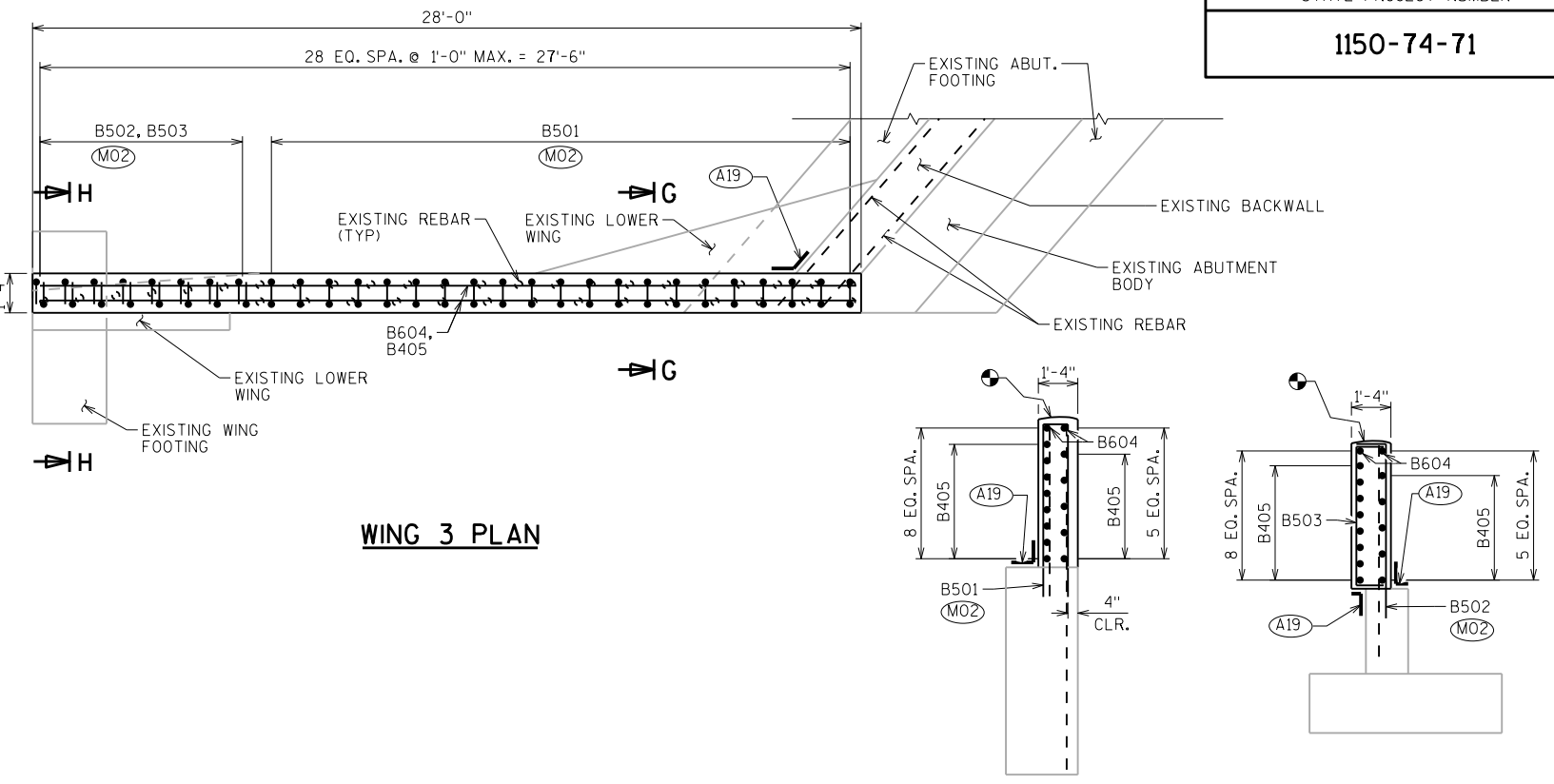
**STRUCTURE B-20-60**

DRAWN BY: JLR      PLANS CK'D: WAH

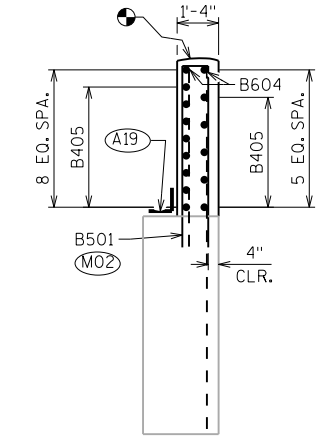
**WING DETAILS 1**      SHEET 4



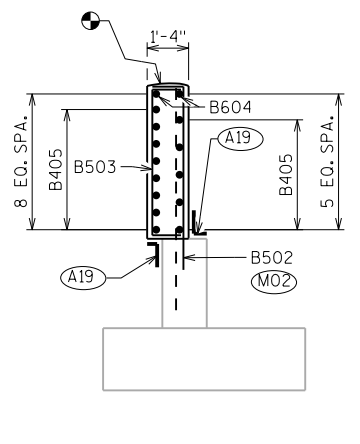
**WING 3 ELEVATION**  
LOOKING AT FRONT FACE



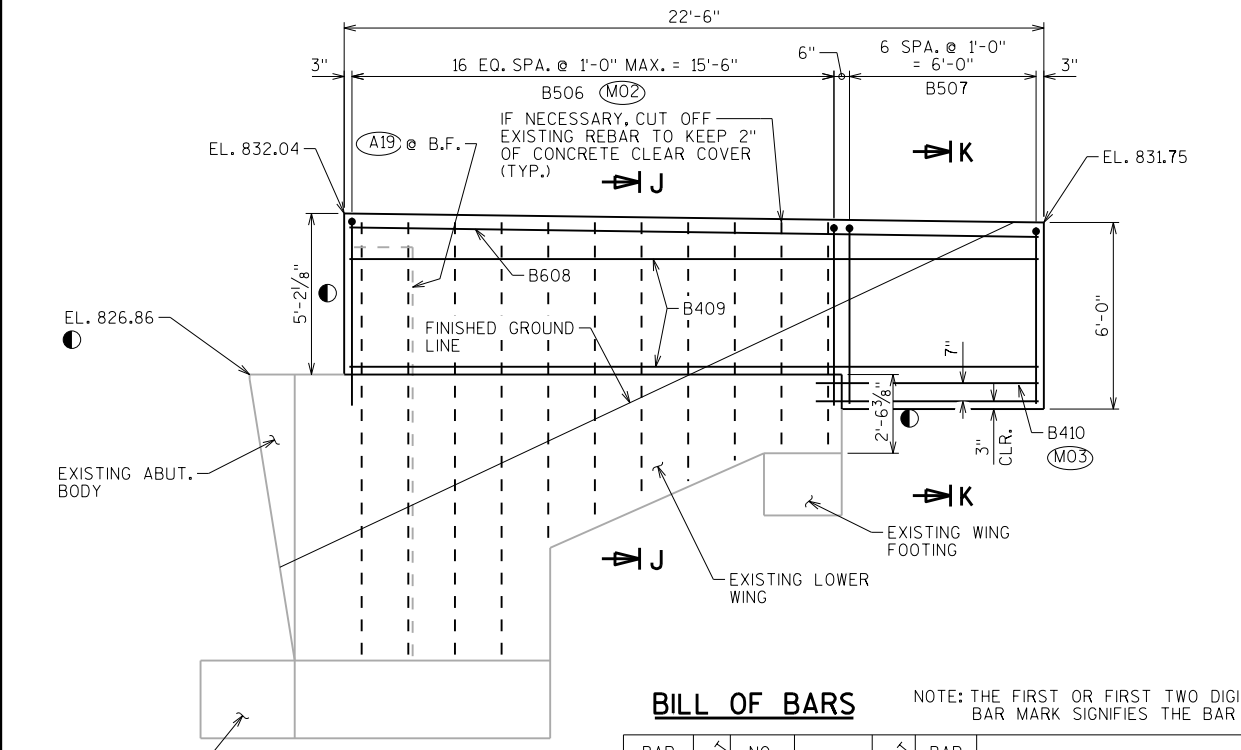
**WING 3 PLAN**



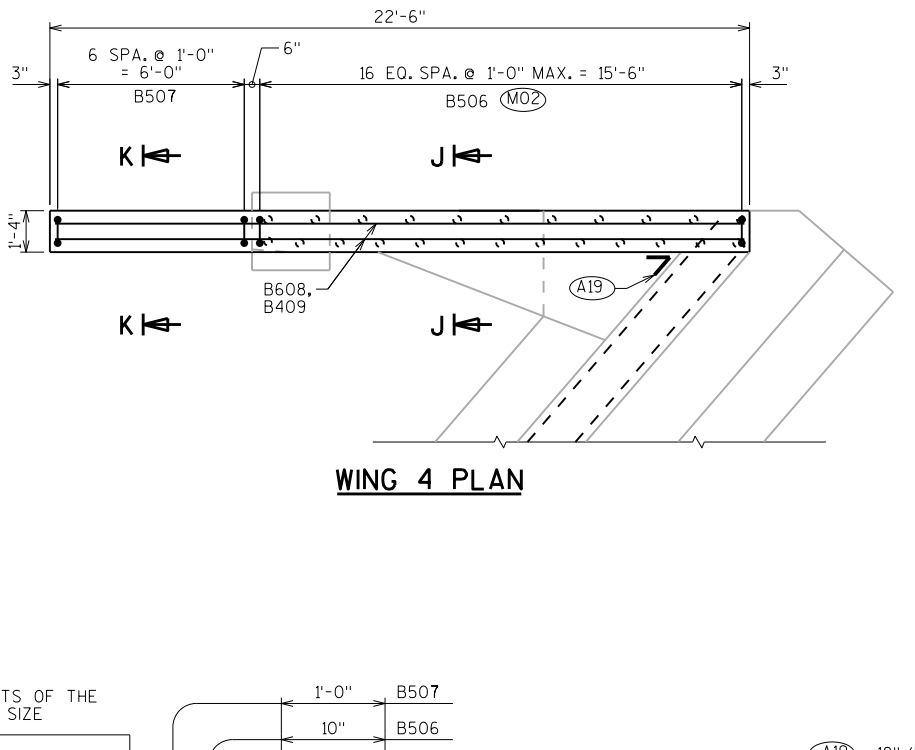
**SECTION G-G**



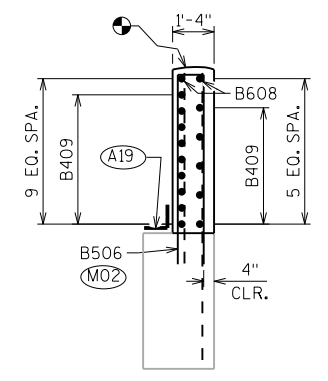
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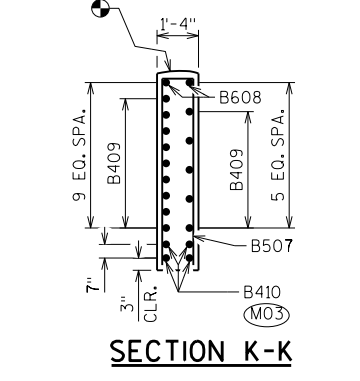
**WING 4 ELEVATION**  
LOOKING AT FRONT FACE



**WING 4 PLAN**



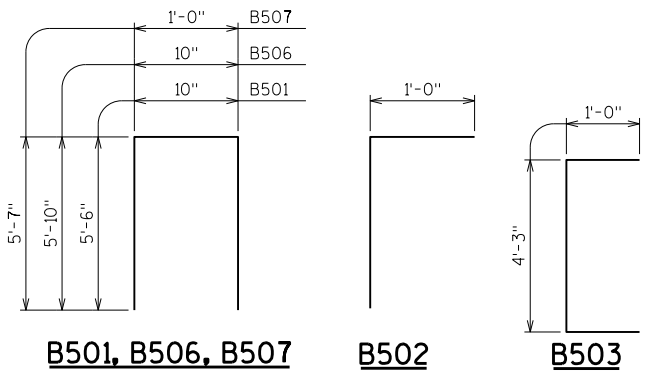
**SECTION J-J**



**SECTION K-K**

**BILL OF BARS** NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
(M02) B501	X	21	11'-7"	X		WING 3 - VERTICAL
(M02) B502	X	8	6'-4"	X		WING 3 - VERTICAL
B503	X	8	6'-0"	X		WING 3 - VERTICAL
B604	X	2	27'-8"			WING 3 - HORIZONTAL
(M02) B405	X	13	27'-8"			WING 3 - HORIZONTAL
(M02) B506	X	17	12'-3"	X		WING 4 - VERTICAL
B507	X	7	11'-11"	X		WING 4 - VERTICAL
B608	X	2	22'-2"			WING 4 - HORIZONTAL
B409	X	14	22'-2"			WING 4 - HORIZONTAL
(M03) B410	X	4	7'-2"			WING 4 - HORIZONTAL



**B501, B506, B507**    **B502**    **B503**

- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE
- (M02) B501, B502, B506 ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-0" MAX. IN CONCRETE. PLACE BARS @ 1'-0" MAX. SPACING.
- (M03) B410 ADHESIVE ANCHORS NO. 4 BAR, EMBED 10" IN CONCRETE. PLACE BARS AS SHOWN.
- CONST. JOINT - STRIKE OFF AS SHOWN
- ELEVATIONS AND DIMENSIONS ARE BASED ON SURVEY DATA AND EXISTING PLANS. CONTRACTOR TO VERIFY.

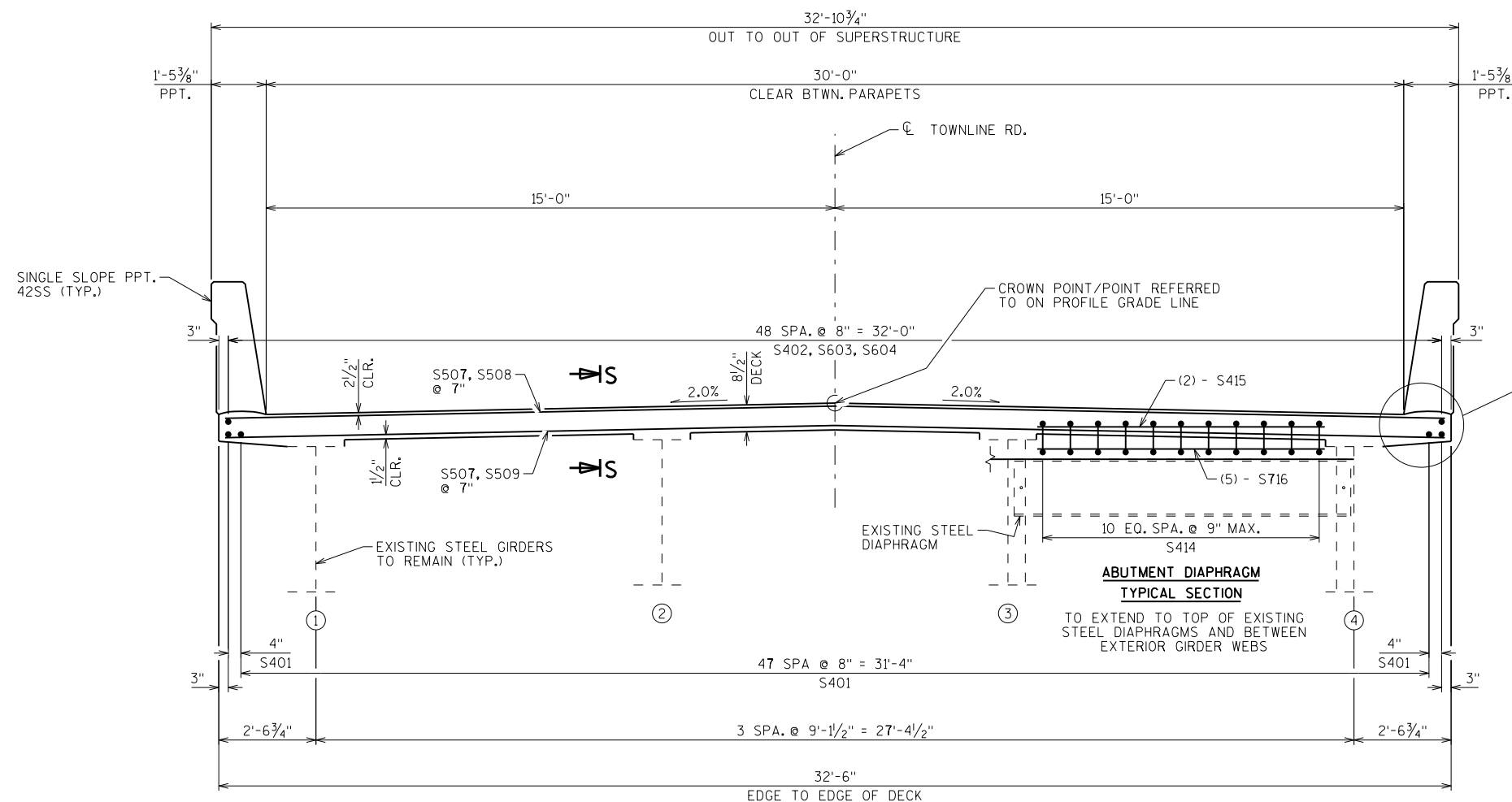
NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
STRUCTURES DESIGN SECTION

**STRUCTURE B-20-60**

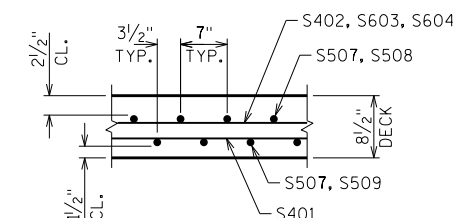
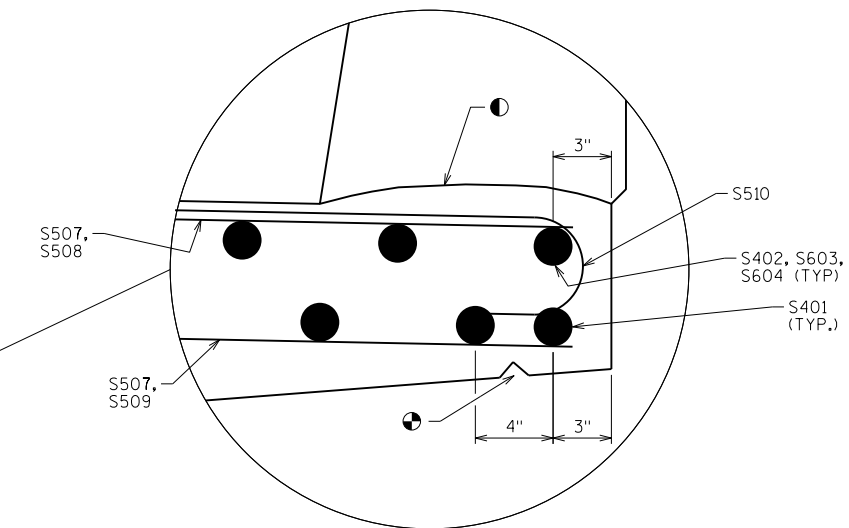
DRAWN BY: JLR    PLANS CK'D.: WAH

**WING DETAILS 2**    SHEET 5

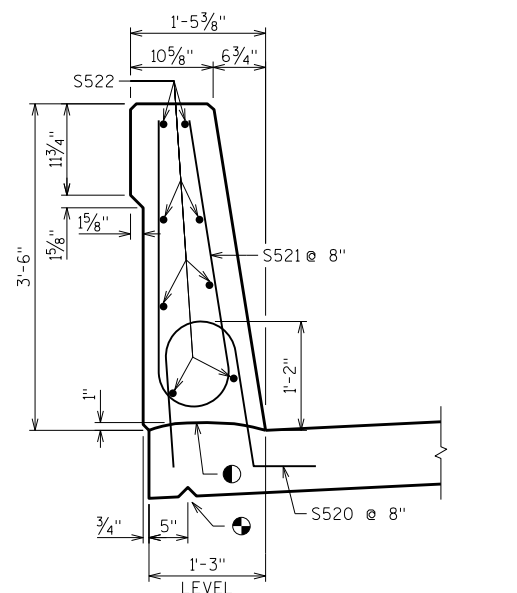


CROSS SECTION THRU ROADWAY

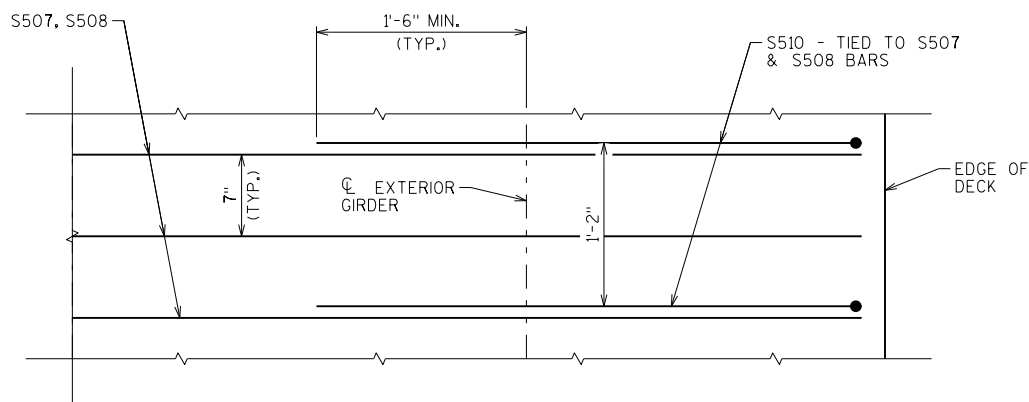
LOOKING UPSTATION



SECTION S-S



SECTION THRU PARAPET ON DECK

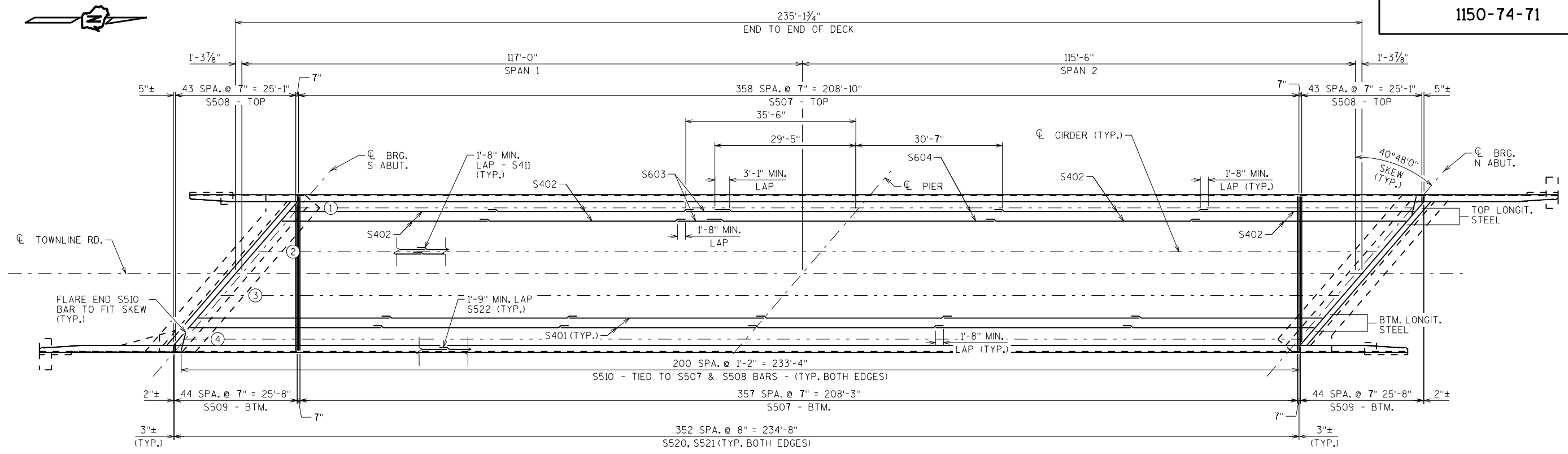


EDGE REINFORCEMENT PLAN DETAIL

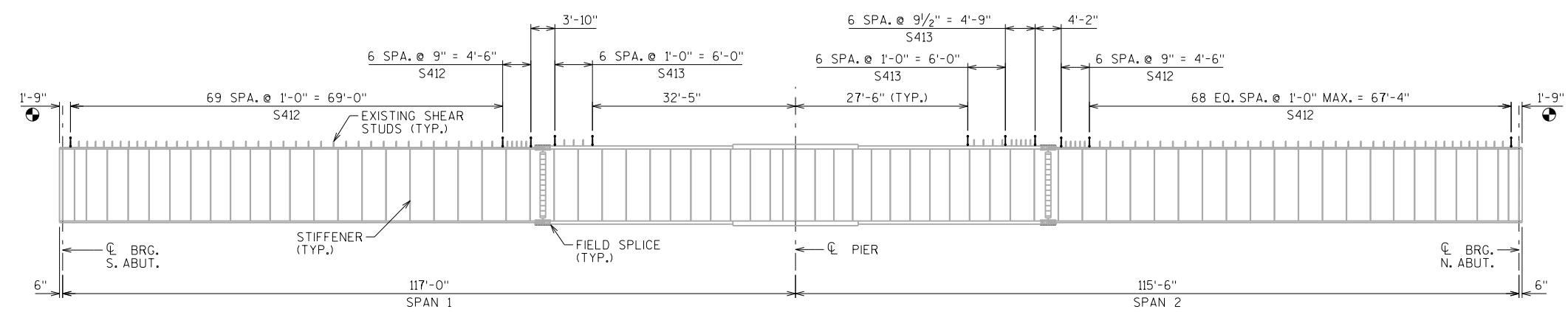
TYPICAL BOTH EDGES OF DECK

- ① GIRDER NUMBER
- CONSTRUCTION JOINT - STRIKE OFF AS SHOWN.
- ⊕ 3/4" V-GROOVE. TERMINATE 2'-0" FROM F.F. OF ABUTS. V-GROOVES ARE REQUIRED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY JLR		PLANS CK'D. WAH	
SUPERSTRUCTURE 1		SHEET 6	



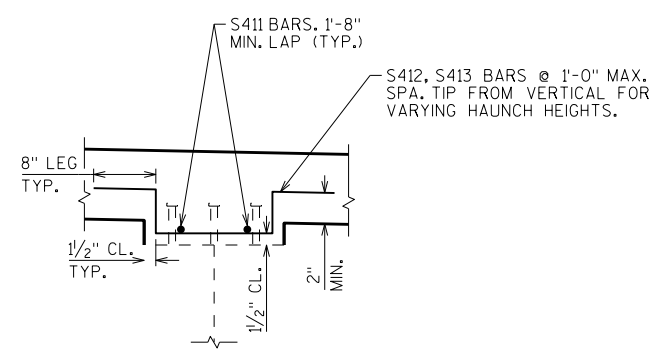
PLAN



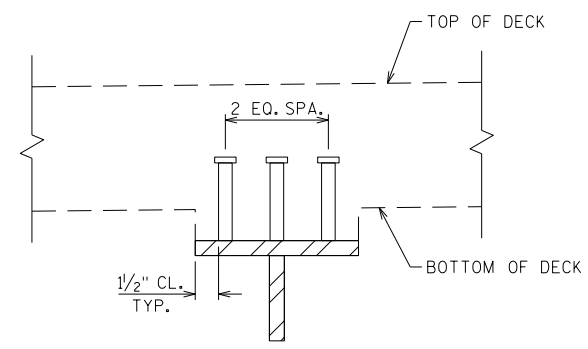
ELEVATION SHOWING HAT BAR REINFORCING

TYPICAL ALL GIRDERS

⊙ DIMENSION IS FROM END OF GIRDER



GIRDER HAUNCH DETAIL



SHEAR CONN. DETAILS

EXISTING SHEAR LUGS, IF DAMAGED, SHALL BE REMOVED AND REPLACED WITH FIELD WELDED 7/8" DIA. X 4" LONG STUDS EQUALLY SPACED WITH A MIN. OF 1/2" CL. FROM THE FLANGE EDGE. REPLACEMENT OF DAMAGED SHEAR CONNECTORS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "REMOVING STRUCTURE B-20-60".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY JLR		PLANS CKD. WAH	
SUPERSTRUCTURE 2			SHEET 7

8

8

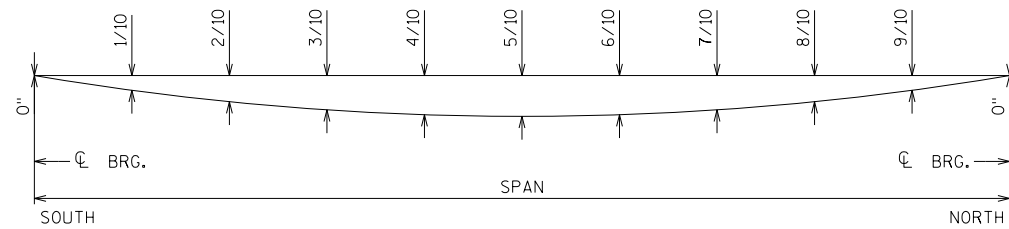
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**TOP OF DECK ELEVATIONS**

STATE PROJECT NUMBER

**1150-74-71**

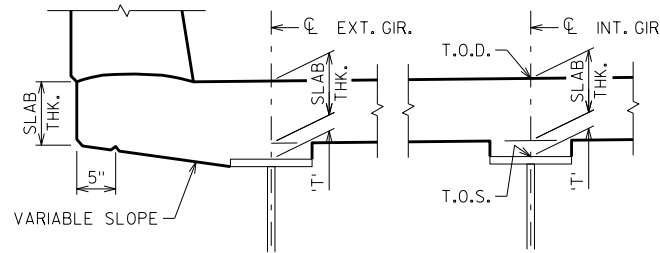
	CL BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	CL SPLICE	7/10 PT.	8/10 PT.	9/10 PT.	CL PIER	1/10 PT.	2/10 PT.	3/10 PT.	CL SPLICE	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. N. ABUT.
W. EOD	832.33	832.43	832.52	832.59	832.65	832.69	832.72	--	832.74	832.74	832.73	832.70	832.67	832.61	832.55	--	832.47	832.37	832.27	832.14	832.01	831.86	831.70
GIRDER 1	832.34	832.44	832.53	832.60	832.66	832.71	832.74	832.76	832.76	832.77	832.76	832.74	832.70	832.65	832.59	832.55	832.51	832.42	832.31	832.20	832.06	831.92	831.76
GIRDER 2	832.44	832.55	832.65	832.74	832.81	832.86	832.91	832.92	832.93	832.95	832.95	832.94	832.91	832.87	832.81	832.78	832.75	832.66	832.57	832.46	832.34	832.20	832.05
CL TOWNLIN RD/CROWN	832.49	832.61	832.71	832.80	832.88	832.94	832.98	--	833.02	833.04	833.04	833.03	833.01	832.97	832.93	--	832.86	832.78	832.69	832.59	832.47	832.34	832.19
GIRDER 3	832.36	832.48	832.59	832.68	832.76	832.83	832.88	832.90	832.92	832.94	832.95	832.95	832.93	832.90	832.85	832.82	832.79	832.72	832.64	832.54	832.42	832.30	832.15
GIRDER 4	832.08	832.22	832.33	832.44	832.53	832.60	832.66	832.69	832.71	832.74	832.76	832.77	832.76	832.74	832.70	832.68	832.65	832.59	832.51	832.42	832.32	832.20	832.07
E. EOD	832.03	832.17	832.29	832.39	832.48	832.56	832.63	--	832.68	832.71	832.73	832.74	832.74	832.72	832.68	--	832.64	832.58	832.50	832.41	832.31	832.20	832.07



**DEFLECTION DIAGRAM**

SPAN			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10
1	EXT. GIR.	TOTAL DEFL.	1.0	1.7	2.2	2.3	2.1	1.7	1.1	0.6	0.2
	INT. GIR.	TOTAL DEFL.	1.2	2.1	2.7	2.9	2.6	2.0	1.3	0.7	0.2
2	EXT. GIR.	TOTAL DEFL.	0.1	0.4	0.9	1.4	1.9	2.1	2.0	1.6	0.9
	INT. GIR.	TOTAL DEFL.	0.1	0.5	1.1	1.8	2.3	2.6	2.5	1.9	1.1

SHOWING CONCRETE ONLY DEADLOAD DEFLECTION. DEFLECTIONS ARE GIVEN TO NEAREST 0.1 INCH. NEGATIVE VALUE INDICATES UPWARD DEFLECTION. 1/10 POINTS ARE ALONG CL OF THE GIRDER.

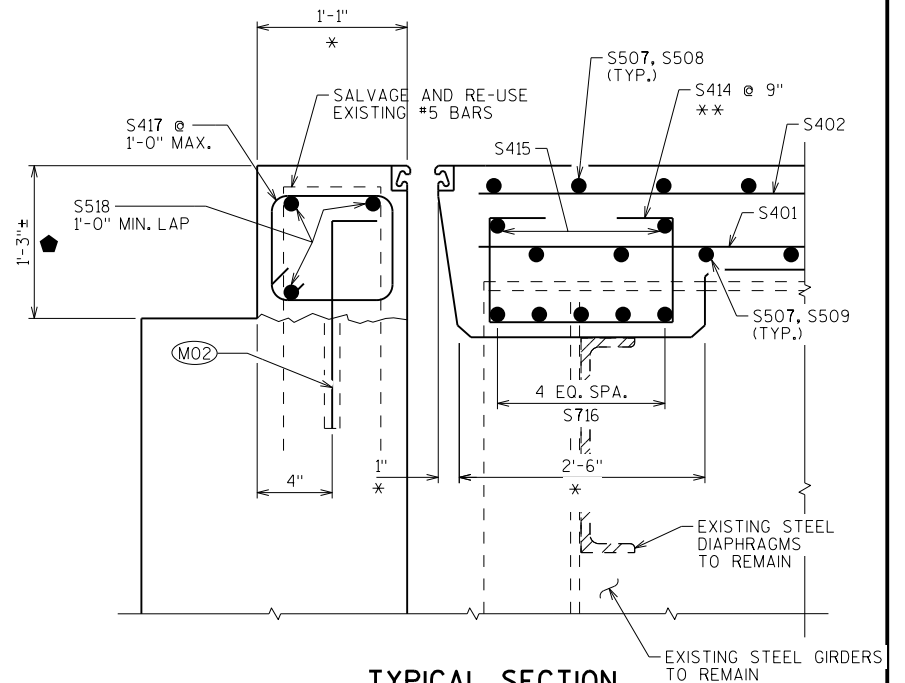


**CONCRETE HAUNCH DETAILS**

TO DETERMINE 'T': AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES, TOP OF SPLICE PLATES, OR TOP OF COVER PLATES, WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS, CENTERLINE OF FIELD SPLICES, AND AT 0.1 POINTS.

GIRDER HAUNCHES ARE EXPECTED TO BE LESS THAN 1.25" IN SOME AREAS. TRADITIONAL DECK FORMING SYSTEMS MAY NOT BE SUITABLE.

- TOP OF DECK ELEVATION AT FINAL GRADE
- TOP OF STEEL ELEVATION AFTER EXISTING DECK HAS BEEN REMOVED
- + CONC. ONLY DEFLECTION; DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED
- SLAB THICKNESS (8 1/2")
- = 'T' VALUE FOR SETTING HAUNCH



**TYPICAL SECTION THRU ABUTMENT DIAPHRAM**

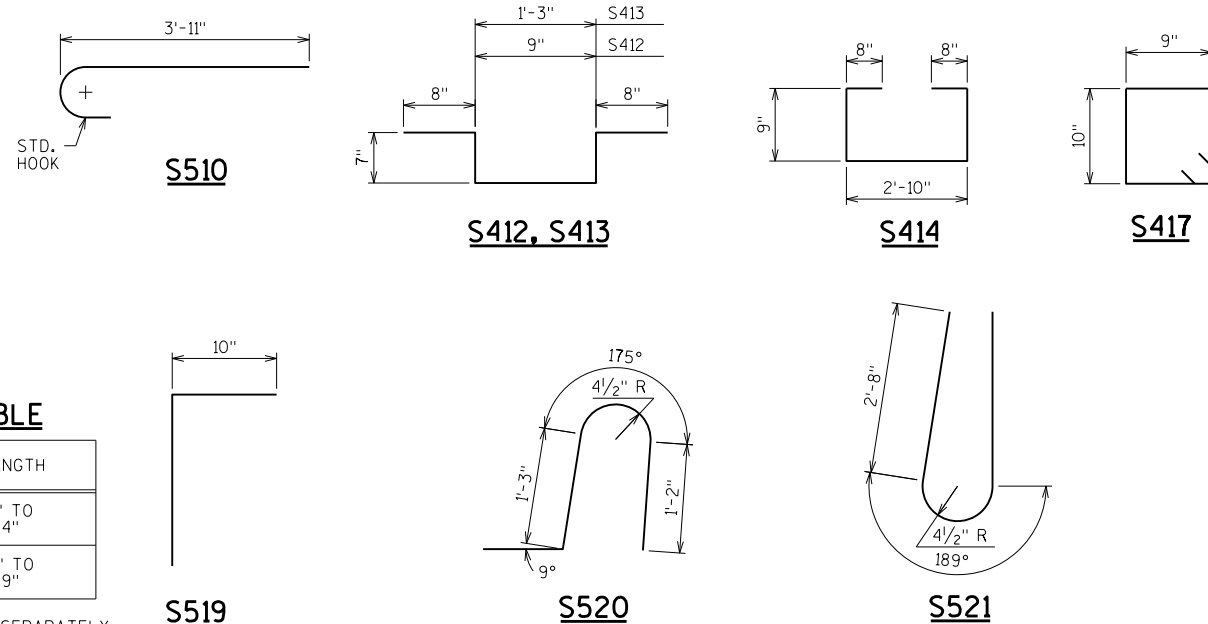
- \* DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE
- \*\* BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.
- (MO2) S519 ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.
- TOP OF PAVING BLOCK TO MATCH END OF DECK ELEVATION.

**BILL OF BARS**

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	300	40'-10"			DECK - LONGITUDINAL - BOTTOM
S402	X	196	44'-9"			DECK - LONGITUDINAL - TOP
S603	X	49	9'-2"			DECK - LONGITUDINAL - TOP
S604	X	49	60'-0"			DECK - LONGITUDINAL - TOP
S507	X	717	32'-2"			DECK - TRANSVERSE - TOP & BOTTOM
S508	X	88	15'-10"	▲		DECK - TRANSVERSE - TOP
S509	X	90	15'-11"	▲		DECK - TRANSVERSE - BOTTOM
S510	X	402	4'-6"	X		DECK - TRANSVERSE - TOP - EDGE
S411	X	16	45'-1"			GIRDER - LONGITUDINAL - HAUNCH
S412	X	604	2'-11"	X		GIRDER - HAT BARS
S413	X	80	3'-5"	X		GIRDER - HAT BARS
S414	X	66	5'-4"	X		ABUTMENT DIAPHRAGMS - VERTICAL
S415	X	12	10'-4"			ABUTMENT DIAPHRAGMS - HORIZONTAL
S716	X	30	10'-4"			ABUTMENT DIAPHRAGMS - HORIZONTAL
S417	X	80	3'-8"	X		PAVING BLOCK - VERTICAL
S518	X	36	7'-8"			PAVING BLOCK - HORIZONTAL
(MO2) S519	X	80	2'-7"	X		PAVING BLOCK - VERTICAL
S520	X	706	4'-5"	X		DECK/PARAPET - VERTICAL
S521	X	706	6'-8"	X		PARAPET - VERTICAL
S522	X	80	48'-7"			PARAPET - HORIZONTAL
S423	X	12	11'-6"			STRIP SEAL - HORIZONTAL

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



**BAR SERIES TABLE**

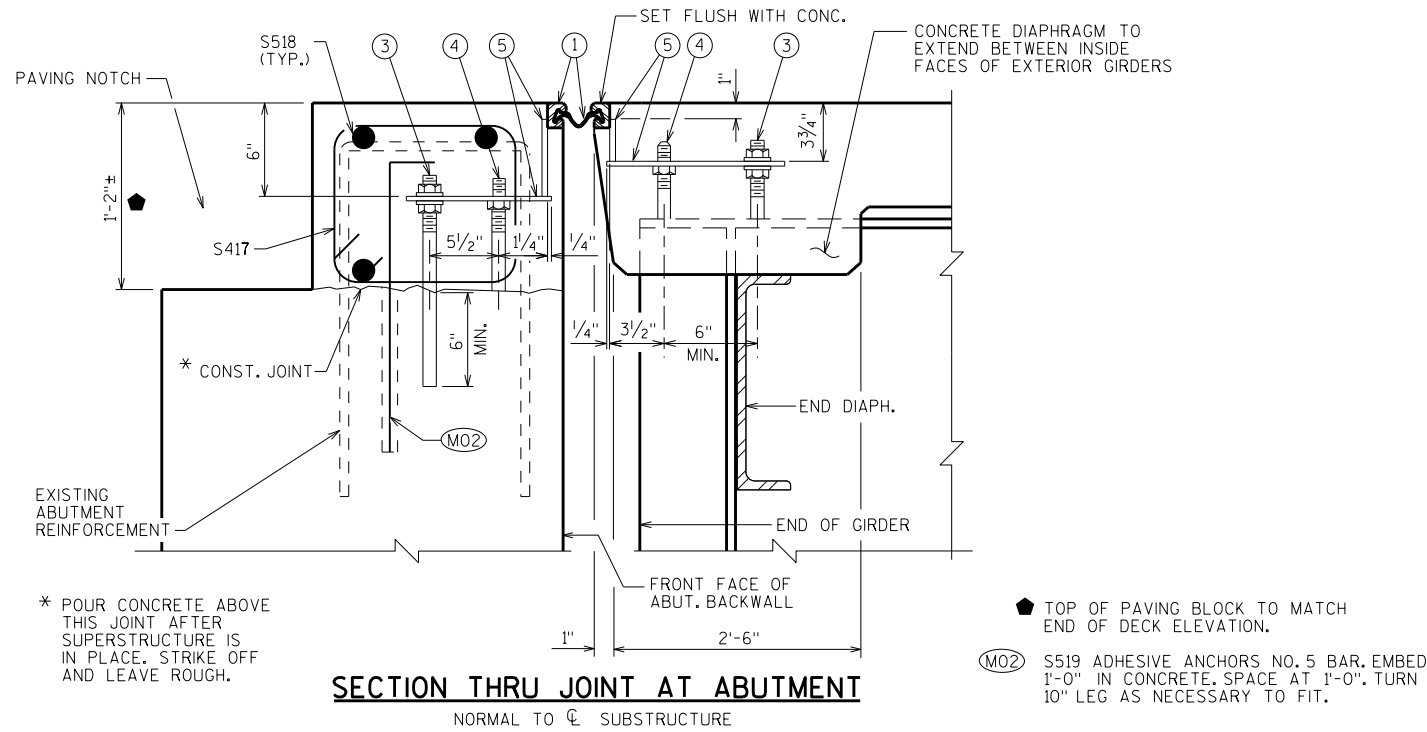
BAR MARK	NO. REQ'D.	LENGTH
S508	2 SERIES OF 44	1'-3" TO 30'-4"
S509	2 SERIES OF 45	1'-0" TO 30'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY		JLR	PLANS CK'D. WAH
<b>SUPERSTRUCTURE DETAILS</b>		SHEET 8	

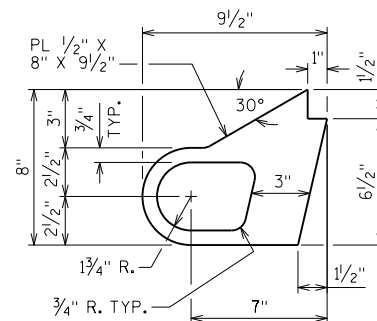
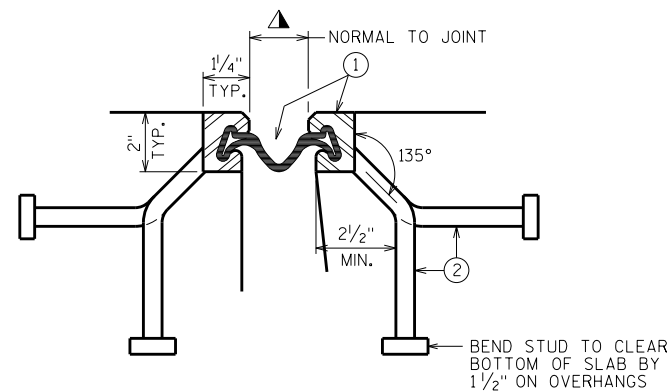
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**LEGEND**

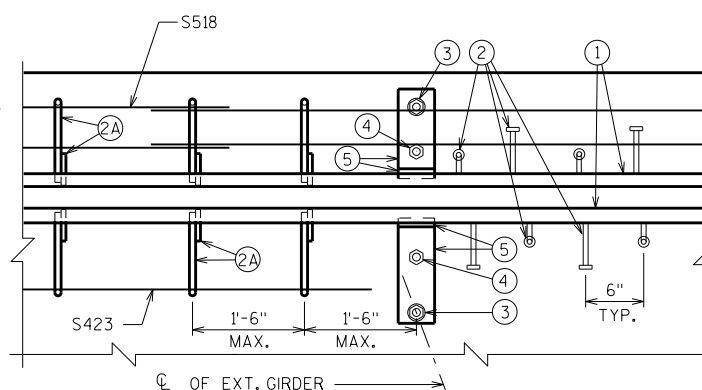
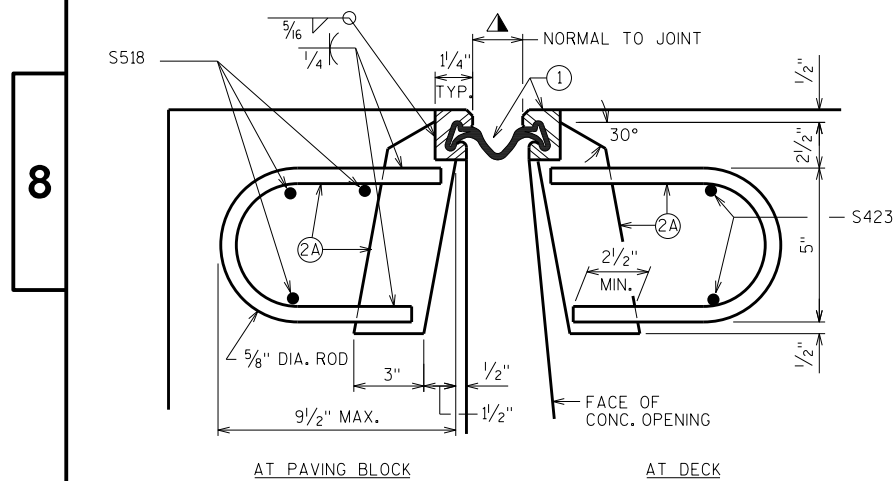
- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- ② STUDS  $\frac{5}{8}$ " DIA. X  $6\frac{3}{8}$ " LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A  $\frac{1}{2}$ " THICK ANCHOR PLATE WITH  $\frac{5}{8}$ " DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③  $\frac{3}{4}$ "  $\phi$  THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④  $\frac{3}{4}$ " DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X  $\frac{1}{2}$ " BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE  $1\frac{1}{2}$ " DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE  $\frac{3}{8}$ " X 10" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦  $\frac{3}{4}$ " DIA. X  $1\frac{1}{2}$ " STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS  $\frac{1}{16}$ " BELOW PLATE SURFACE.
- ⑧  $\frac{3}{4}$ " DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨  $\frac{3}{4}$ " DIA. X  $2\frac{1}{4}$ " GALVANIZED THREADED COUPLING.
- ⑩ VACANT
- ⑪ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.



**TEMPERATURE TABLE**

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/2"
75°	1 5/8"
65°	1 3/4"
55°	1 7/8"
45°	2"
35°	2 1/8"
25°	2 1/4"
15°	2 3/8"
5°	2 1/2"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.



**NOTES**

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPLICE. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

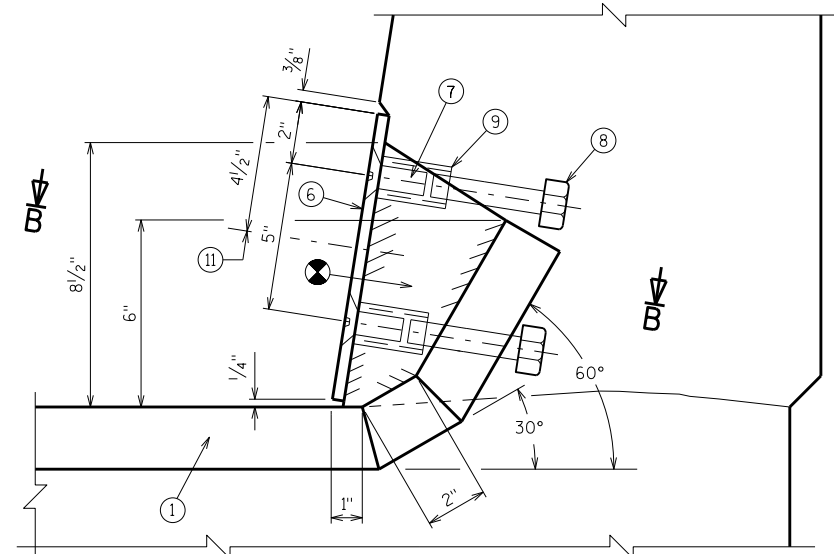
FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

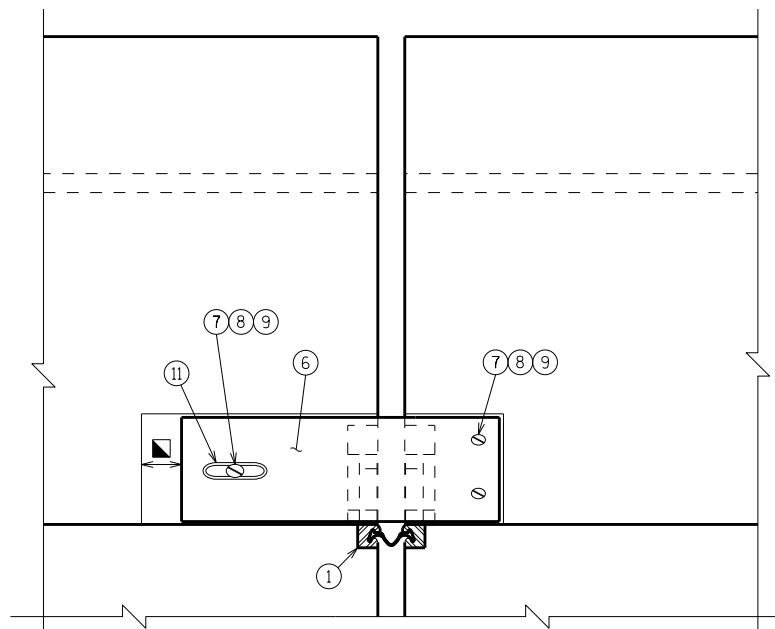
ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-20-60", LF.

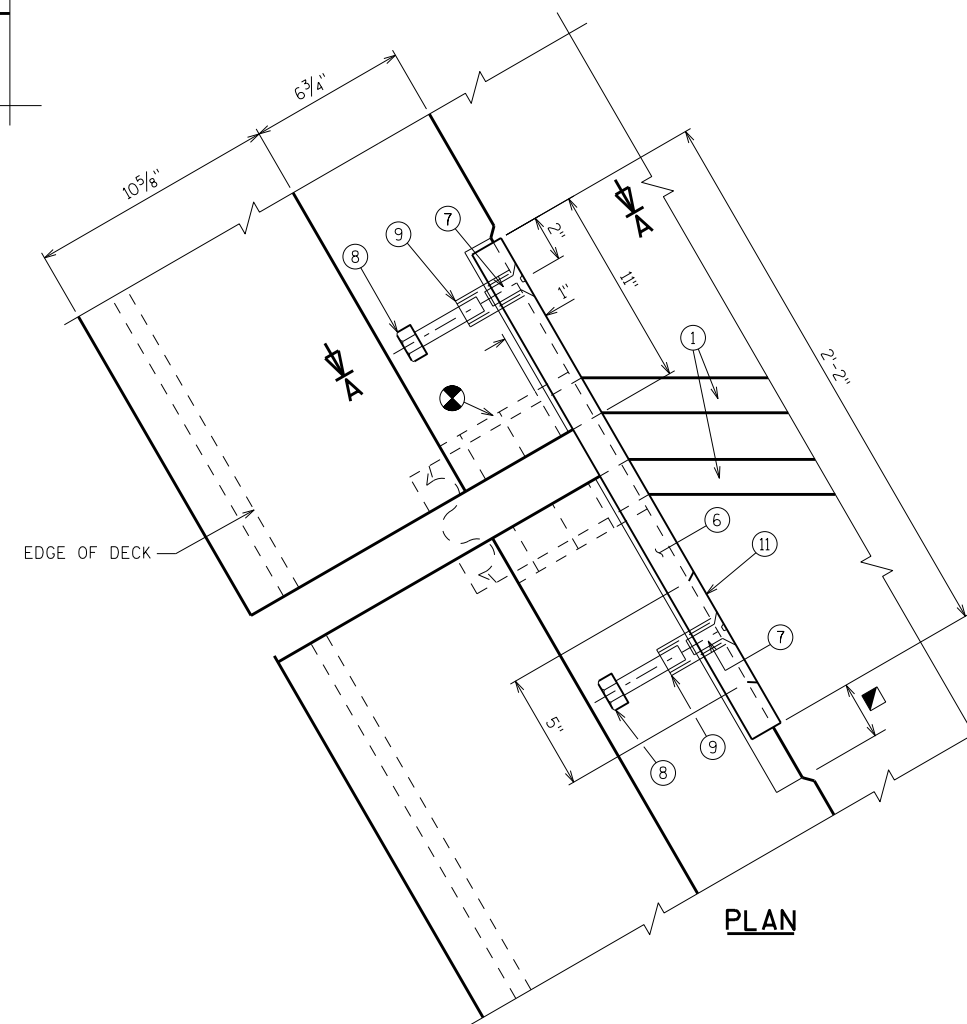
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY		JLR	PLANS CK'D. WAH
<b>EXPANSION DEVICE</b>		SHEET 9	



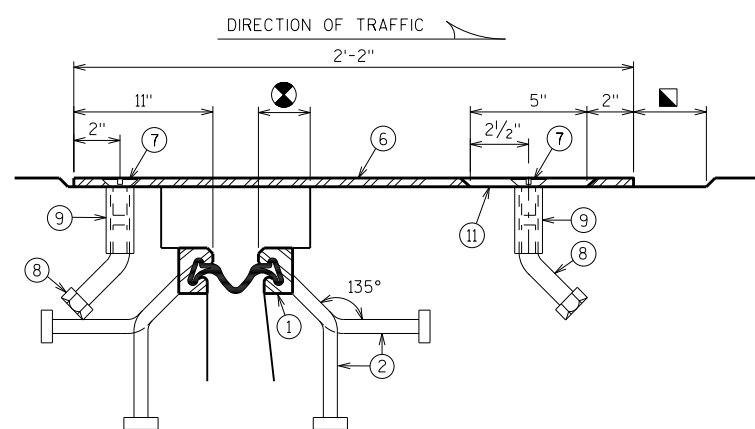
SECTION A-A



VIEW OF PARAPET PLATE FROM ROADWAY



PLAN



SECTION B-B

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-20-60</b>			
DRAWN BY JLR		PLANS CK'D. WAH	
<b>COVER PLATE DETAILS</b>		SHEET 10	

**BILL OF BARS**

FOR ABUTMENT PARAPETS

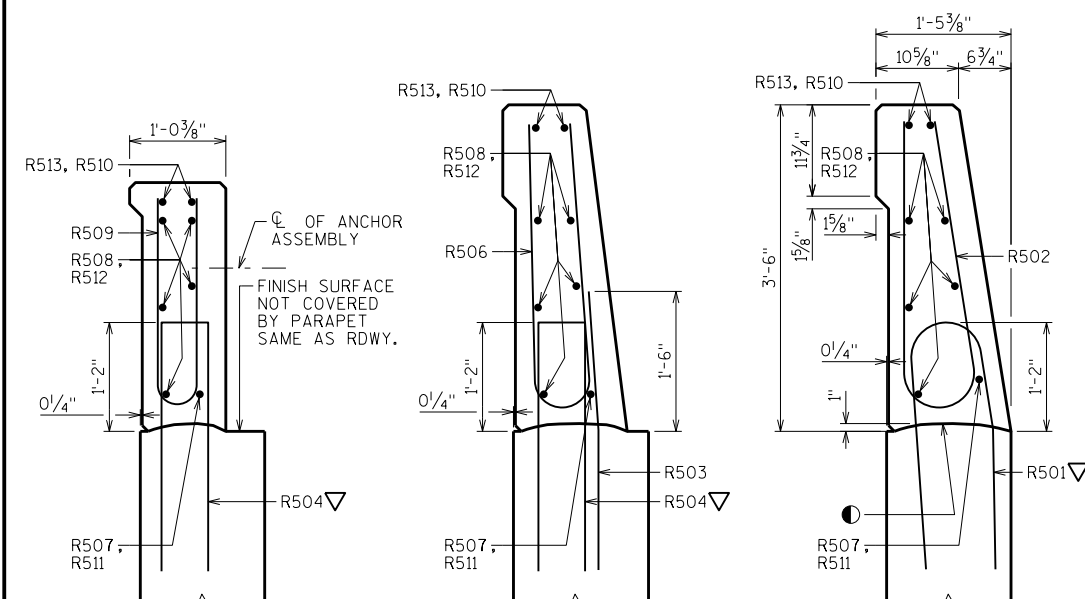
BAR MARK	COAT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	50	50	5'-10"	X		PARAPET - VERTICAL
R502	X	50	50	6'-8"	X		PARAPET - VERTICAL
R503	X	24	24	3'-0"	X		PARAPET - VERTICAL
R504	X	34	34	5'-7"	X		PARAPET - VERTICAL
R505	X	10	10	6'-5"	X		PARAPET - VERTICAL
R506	X	12	12	6'-6"	X		PARAPET - VERTICAL
R507	X	1	1	27'-8"	X		PARAPET - HORIZONTAL - WINGS 1 & 3
R508	X	5	5	27'-8"			PARAPET - HORIZONTAL - WINGS 1 & 3
R509	X	12	12	5'-5"	X	▲	PARAPET - VERTICAL
R510	X	2	2	27'-8"	X		PARAPET - HORIZONTAL - WINGS 1 & 3
R511	X	1	1	22'-2"	X		PARAPET - HORIZONTAL - WINGS 2 & 4
R512	X	5	5	22'-2"			PARAPET - HORIZONTAL - WINGS 2 & 4
R513	X	2	2	22'-2"	X		PARAPET - HORIZONTAL - WINGS 2 & 4

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

**BAR SERIES TABLE**

BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

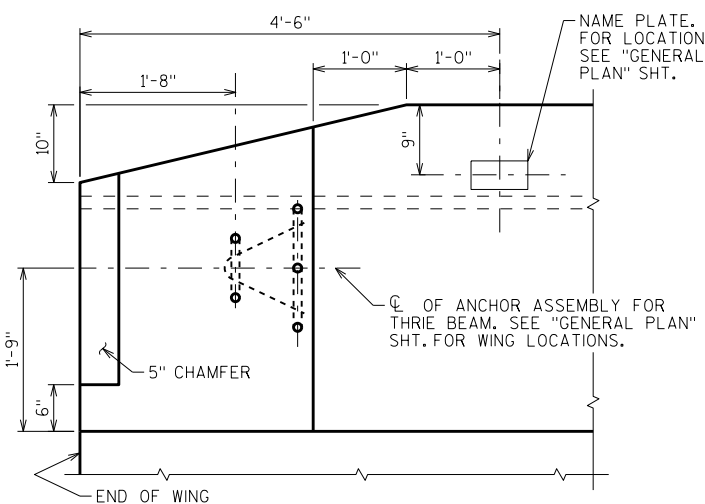
BUNDLE AND TAG EACH SERIES SEPARATELY.



SECTION A-A

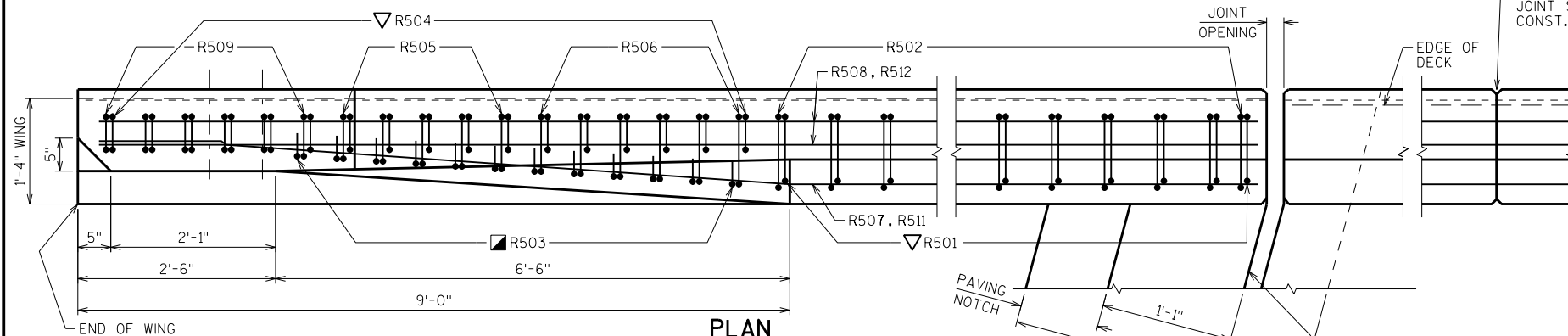
SECTION B-B

SECTION C-C



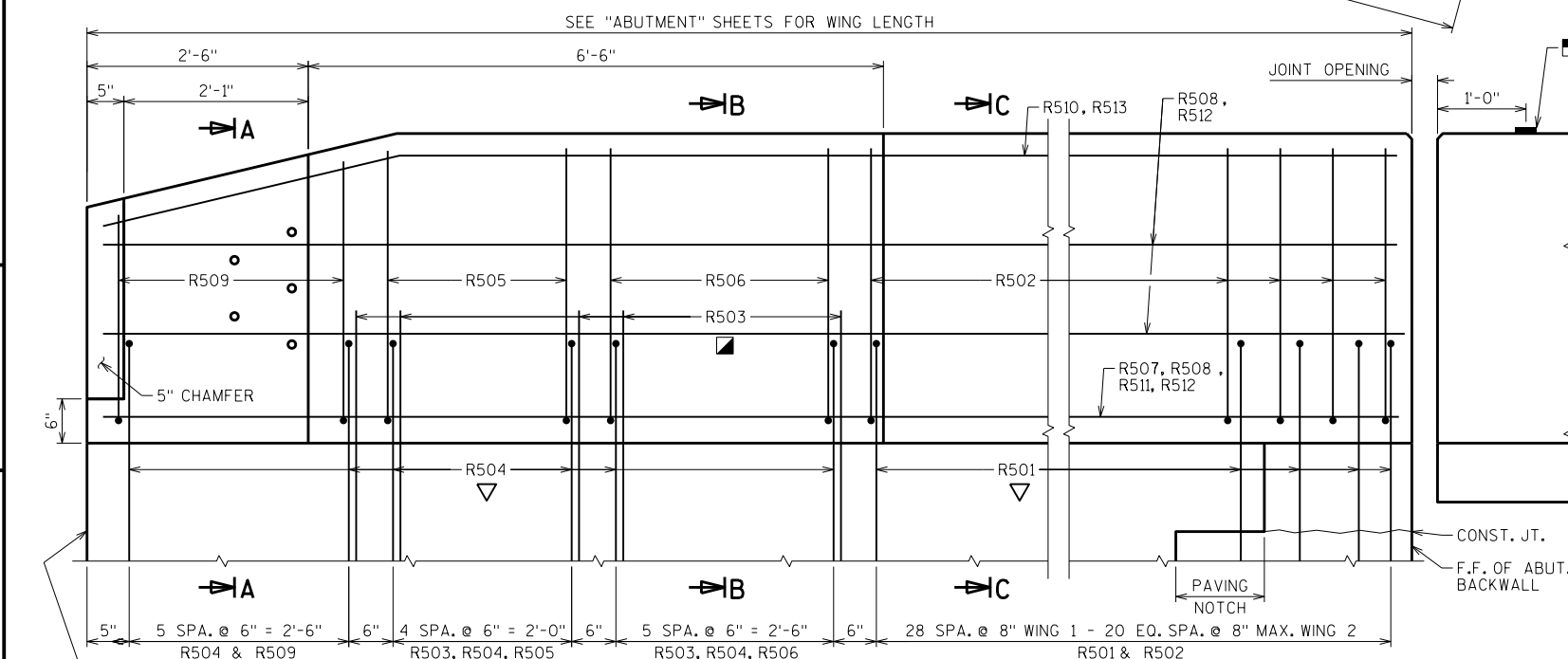
PARAPET END TREATMENT DETAIL

LOOKING AT INSIDE FACE OF PARAPET



PLAN

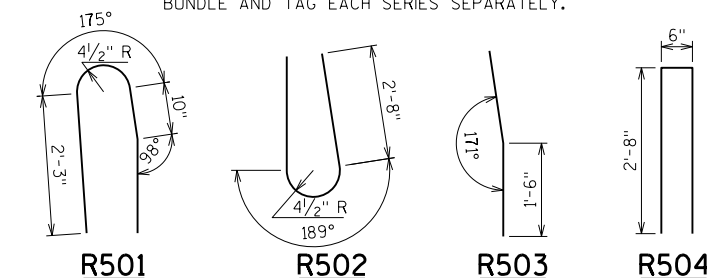
WING 2 SHOWN, OTHERS SIMILAR



INSIDE ELEVATION

WING 2 SHOWN, OTHERS SIMILAR

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED, RUN BAR REINF. THRU THE JOINT, LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.

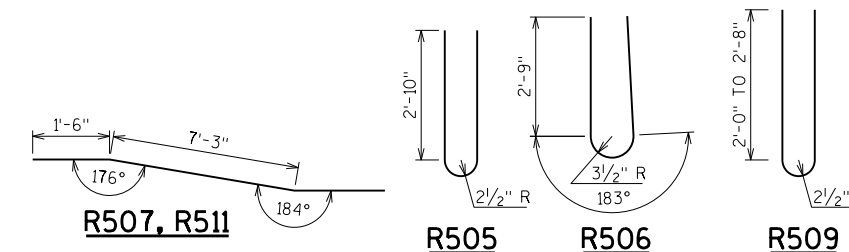


R501

R502

R503

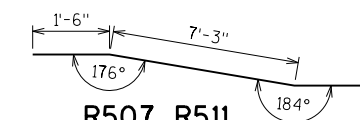
R504



R505

R506

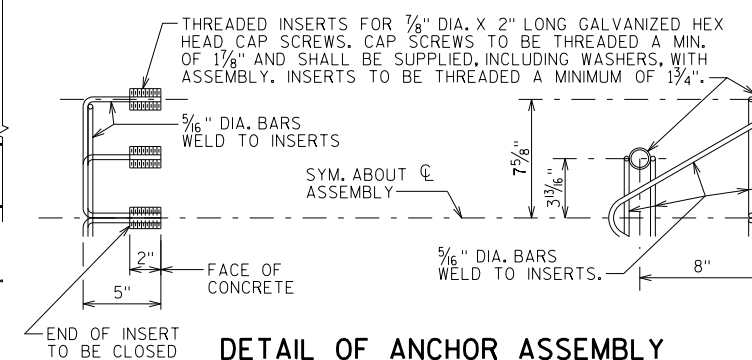
R509



R507, R511

R510, R513

■ BENCH MARK CAP. (WHEN SUPPLIED) AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



DETAIL OF ANCHOR ASSEMBLY

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

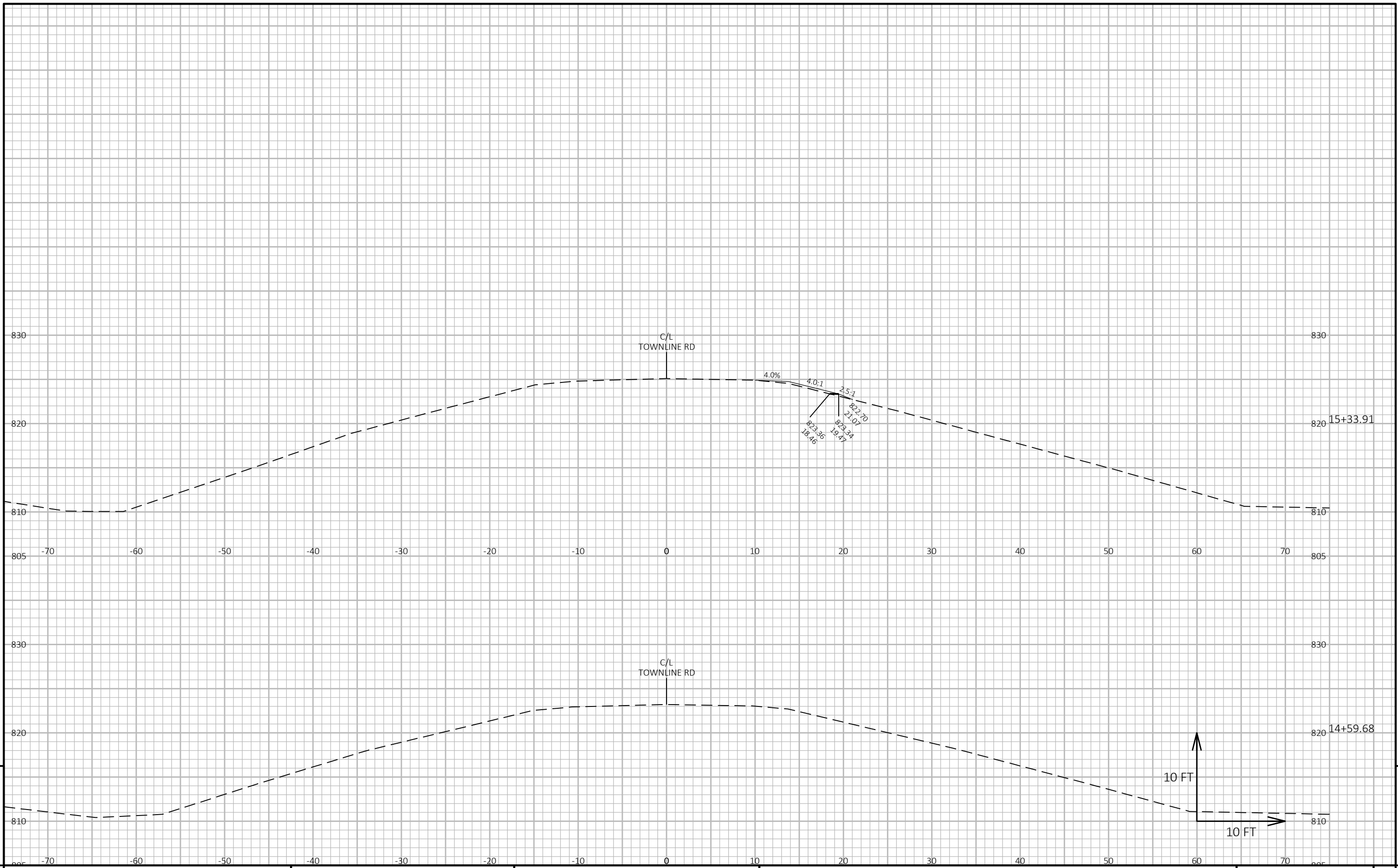
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-20-60			
DRAWN BY JLR		PLANS CK'D. WAH	
SINGLE SLOPE PARAPET 42SS		SHEET 11	

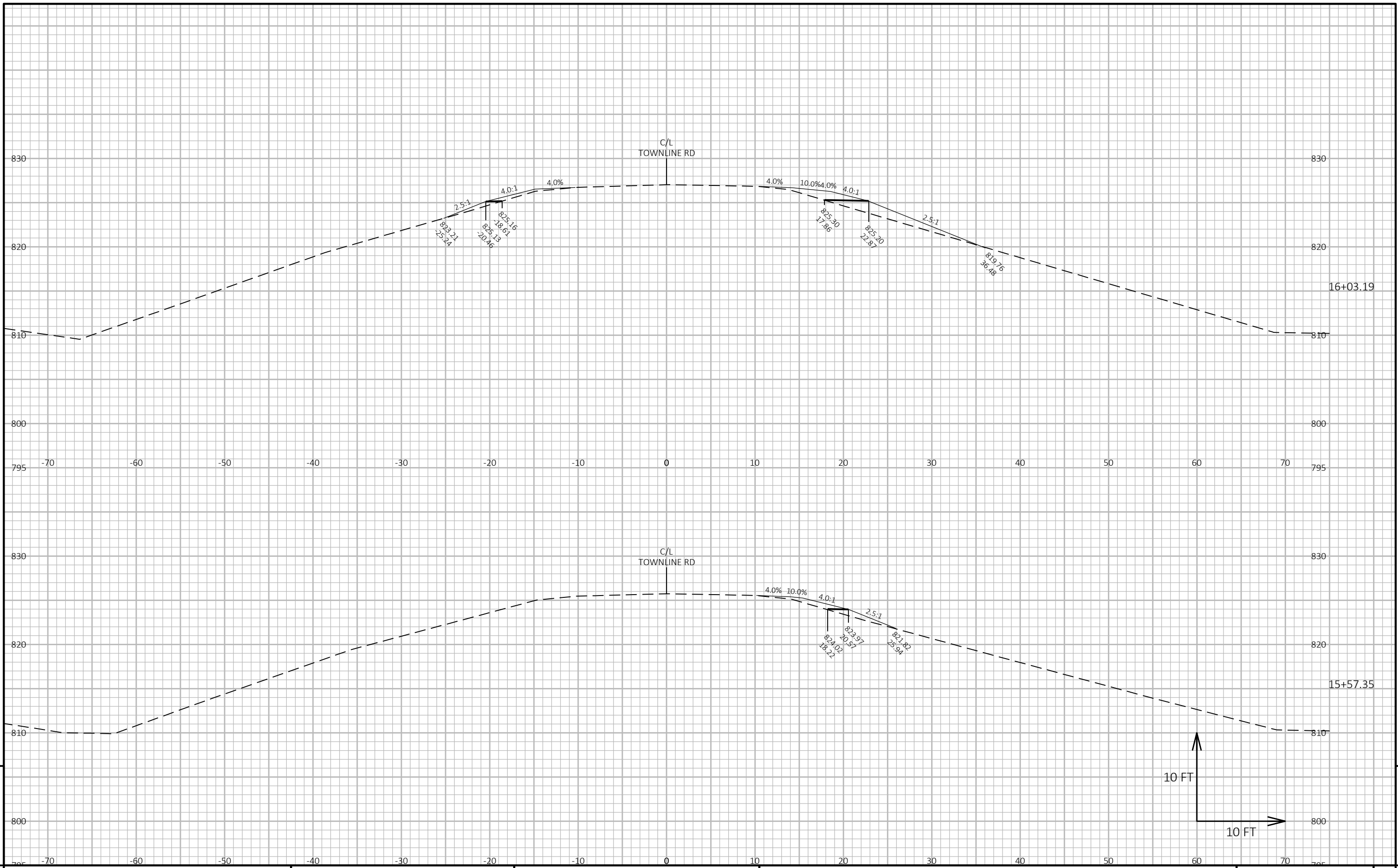
DIVISION 1 - TOWNLINE ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)
			CUT	FILL	CUT NOTE 1	FILL NOTE 3	CUT 1.00 NOTE 1
15+50	1550.00	0.00	0.00	4.47	0	0	0
15+75	1575.00	25.00	0.00	9.52	0	6	0
16+00	1600.00	25.00	0.00	16.85	0	12	0
16+25	1625.00	25.00	0.02	40.73	0	27	0
16+50	1650.00	25.00	0.00	74.62	0	53	0
16+75	1675.00	25.00	0.15	72.97	0	68	0
17+00	1700.00	25.00	0.10	84.35	0	73	0
17+25	1725.00	25.00	0.00	81.76	0	77	0
17+50	1750.00	25.00	0.00	37.63	0	55	0
17+75	1775.00	25.00	0.00	15.00	0	24	0
18+00	1800.00	25.00	0.00	0.00	0	7	0
18+25	1825.00	25.00	0.00	0.00	0	0	0
18+50	1850.00	25.00	0.00	0.00	0	0	0
18+75	1875.00	25.00	0.00	0.00	0	0	0
19+00	1900.00	25.00	0.00	0.00	0	0	0
19+25	1925.00	25.00	0.00	0.00	0	0	0
19+50	1950.00	25.00	0.00	0.00	0	0	0
19+75	1975.00	25.00	0.00	0.00	0	0	0
20+00	2000.00	25.00	0.00	0.00	0	0	0
20+25	2025.00	25.00	0.00	0.00	0	0	0
20+50	2050.00	25.00	0.00	0.00	0	0	0
20+75	2075.00	25.00	0.00	0.00	0	0	0
21+00	2100.00	25.00	0.00	0.00	0	0	0
21+25	2125.00	25.00	0.00	0.00	0	0	0
21+50	2150.00	25.00	0.00	0.00	0	0	0
21+75	2175.00	25.00	0.00	0.00	0	0	0
22+00	2200.00	25.00	0.00	0.00	0	0	0
22+25	2225.00	25.00	0.00	8.09	0	4	0
22+50	2250.00	25.00	0.00	27.43	0	16	0
22+75	2275.00	25.00	0.00	53.52	0	37	0
23+00	2300.00	25.00	0.18	49.12	0	48	0
23+25	2325.00	25.00	0.19	88.71	0	64	0
23+50	2350.00	25.00	1.18	101.54	1	88	1
23+75	2375.00	25.00	1.20	80.55	1	84	2
24+00	2400.00	25.00	0.33	36.25	1	54	3
24+25	2425.00	25.00	0.18	15.79	0	24	3
24+50	2450.00	25.00	0.39	4.94	0	10	3

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME



PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	<b>9</b>
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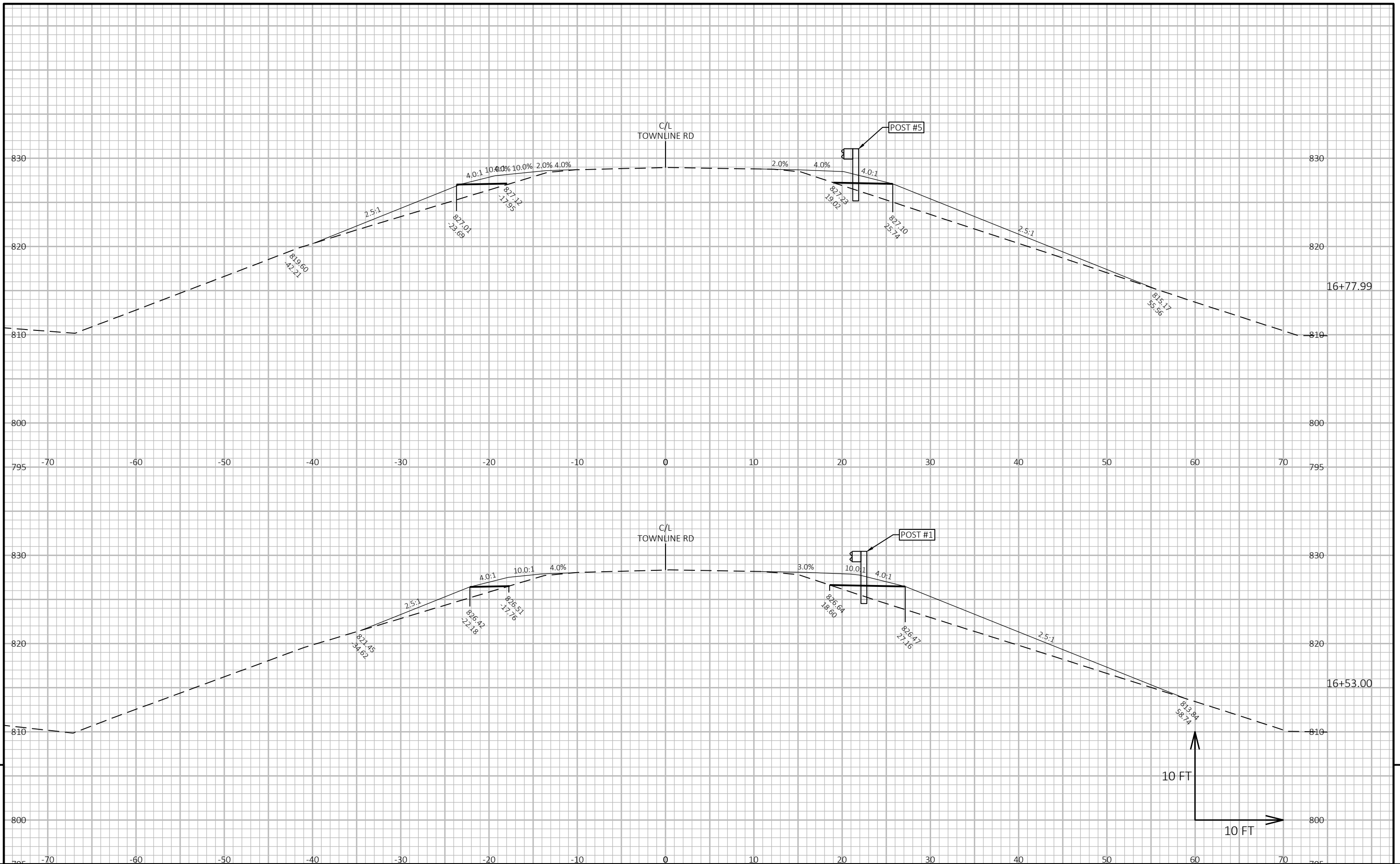
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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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FILE NAME : N:\PDS\C3D\11507400\SHEETSPLAN\090201-XS.DWG      PLOT DATE : 6/2/2022 9:05 AM      PLOT BY : SCHWAB, JILLIAN P      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

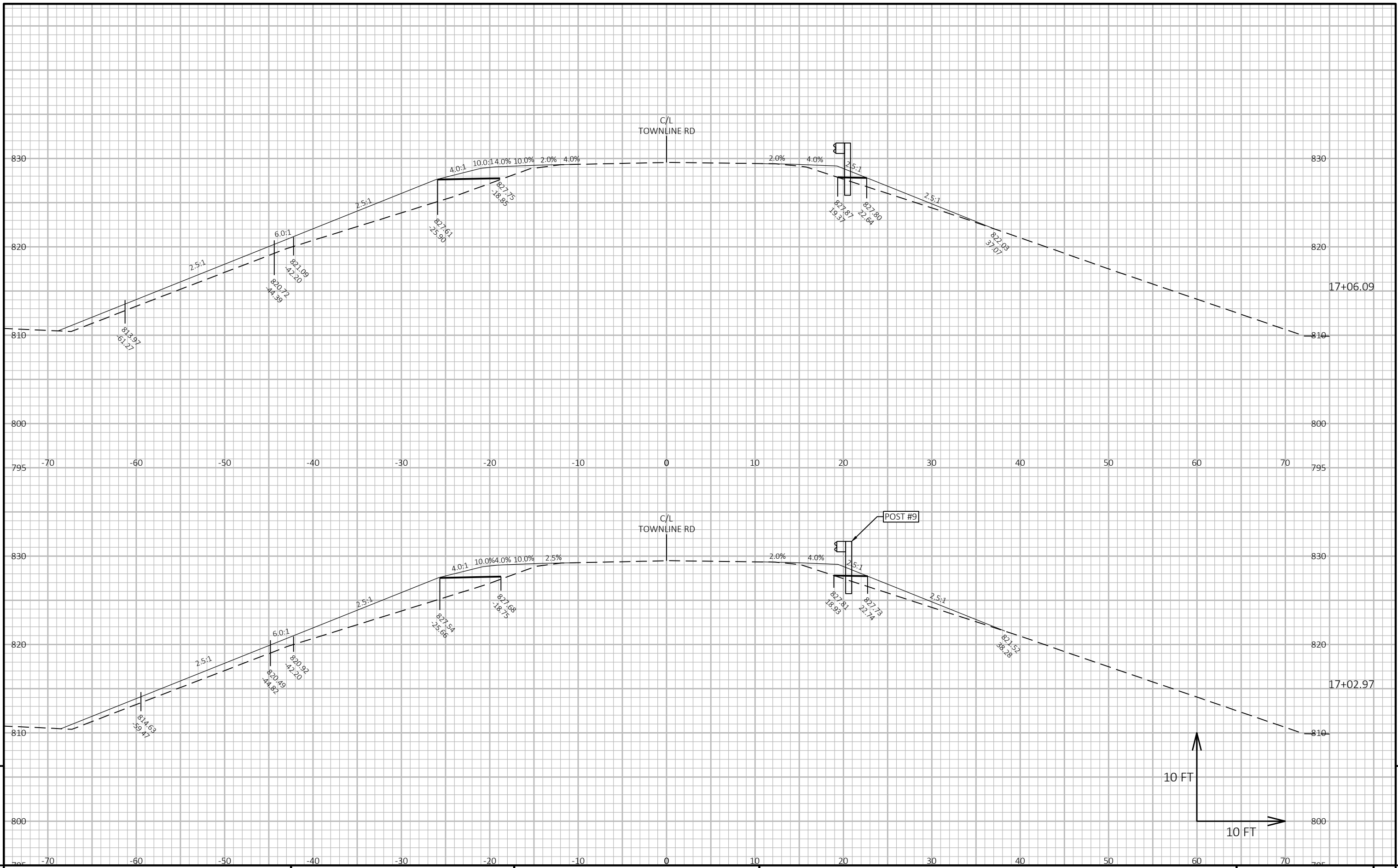
LAYOUT NAME - 090202-xs



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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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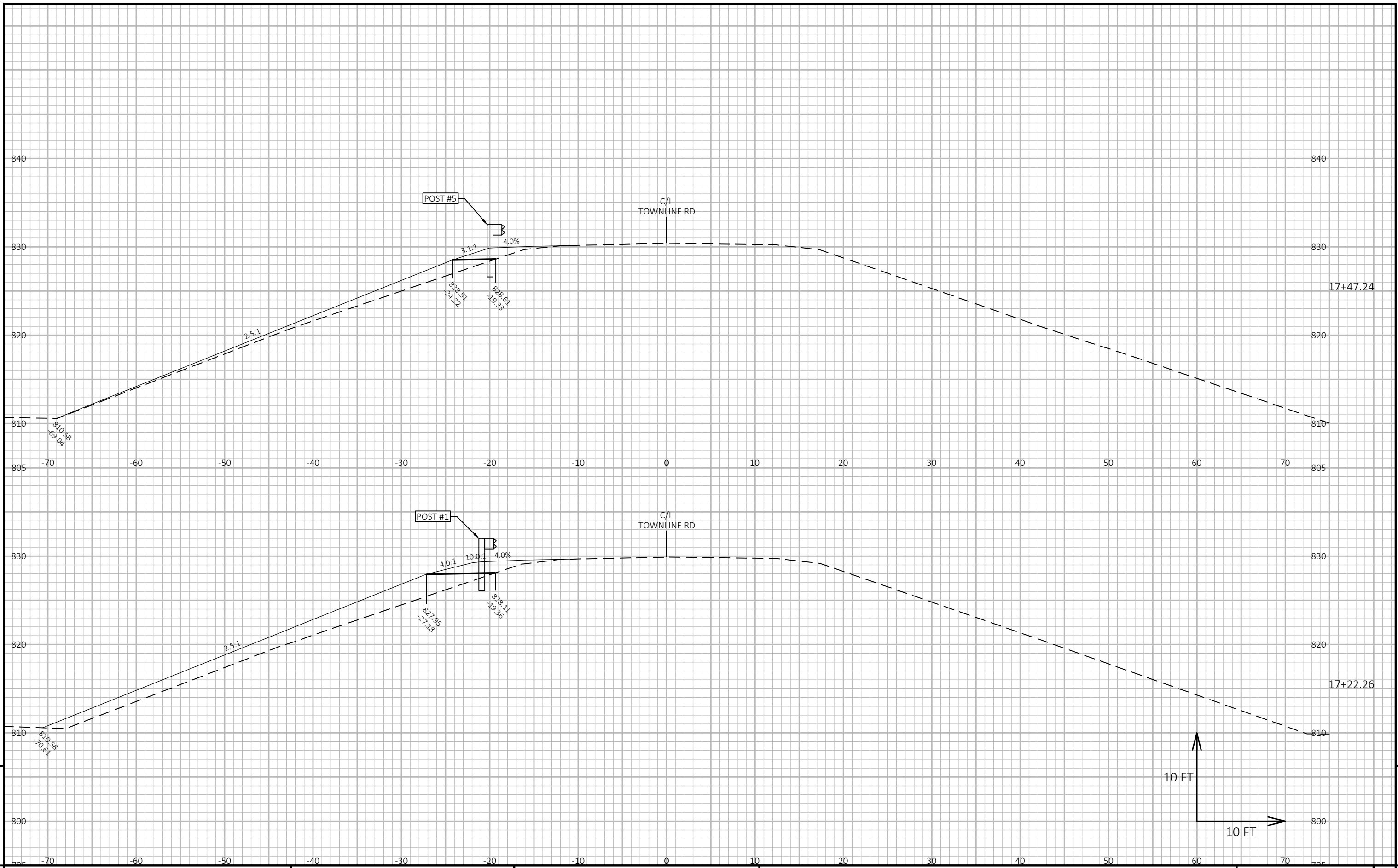


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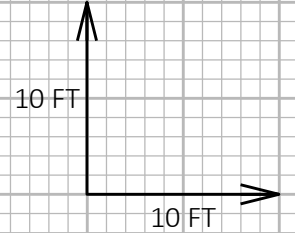
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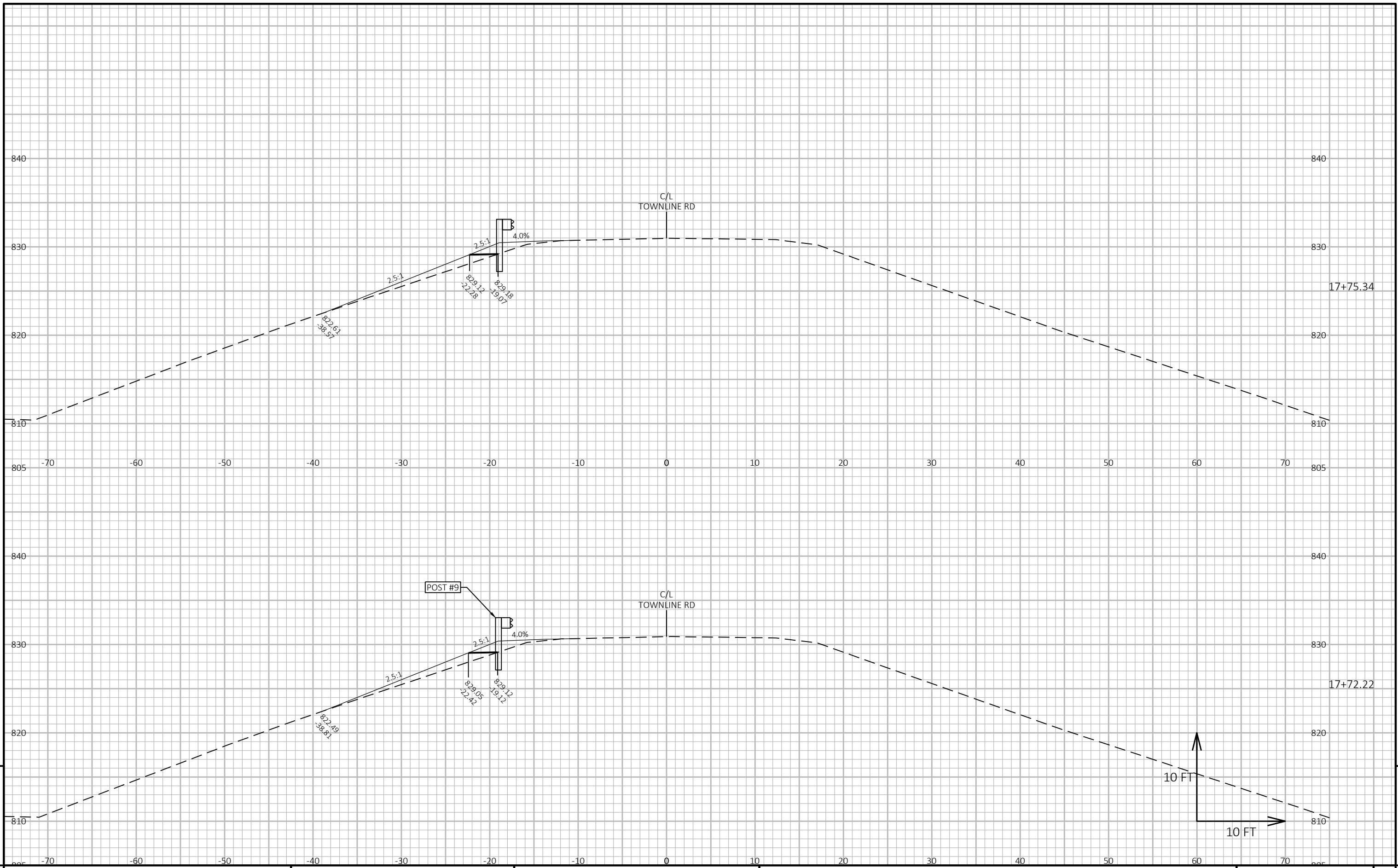


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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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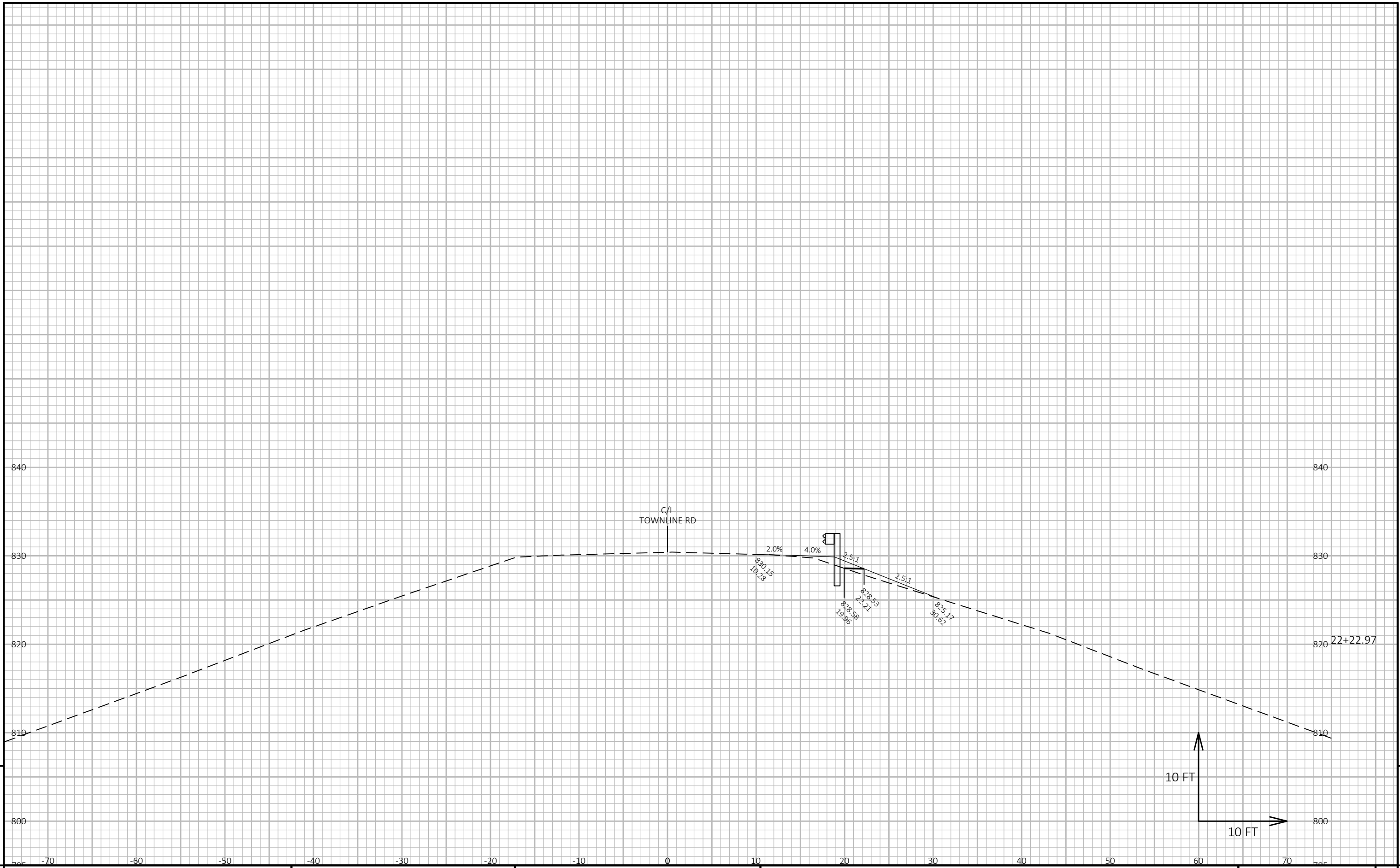


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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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FILE NAME : N:\PDS\C3D\11507400\SHEETSPLAN\090201-XS.DWG PLOT DATE : 6/2/2022 9:05 AM PLOT BY : SCHWAB, JILLIAN P PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

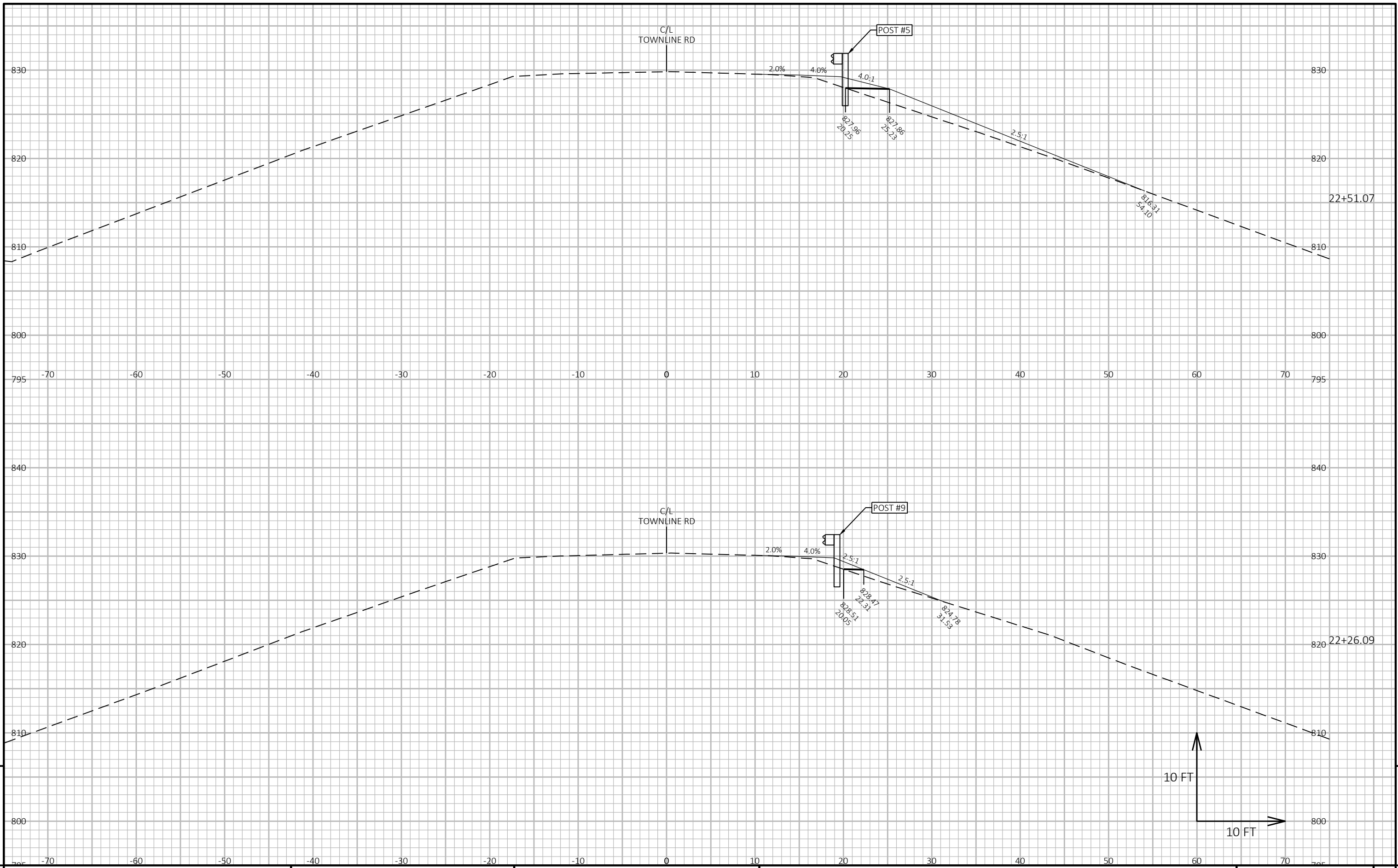


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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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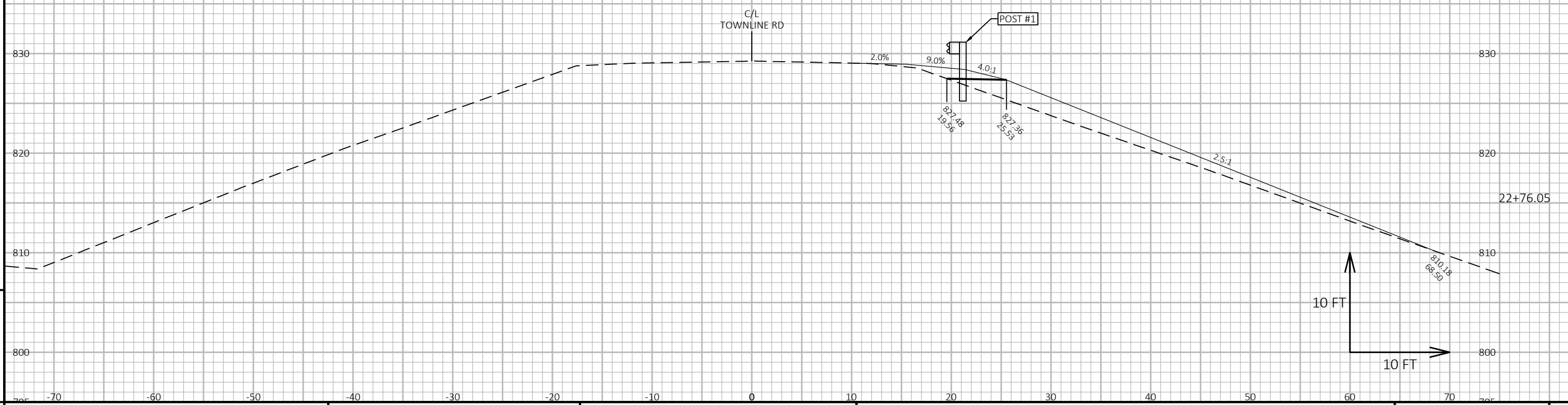
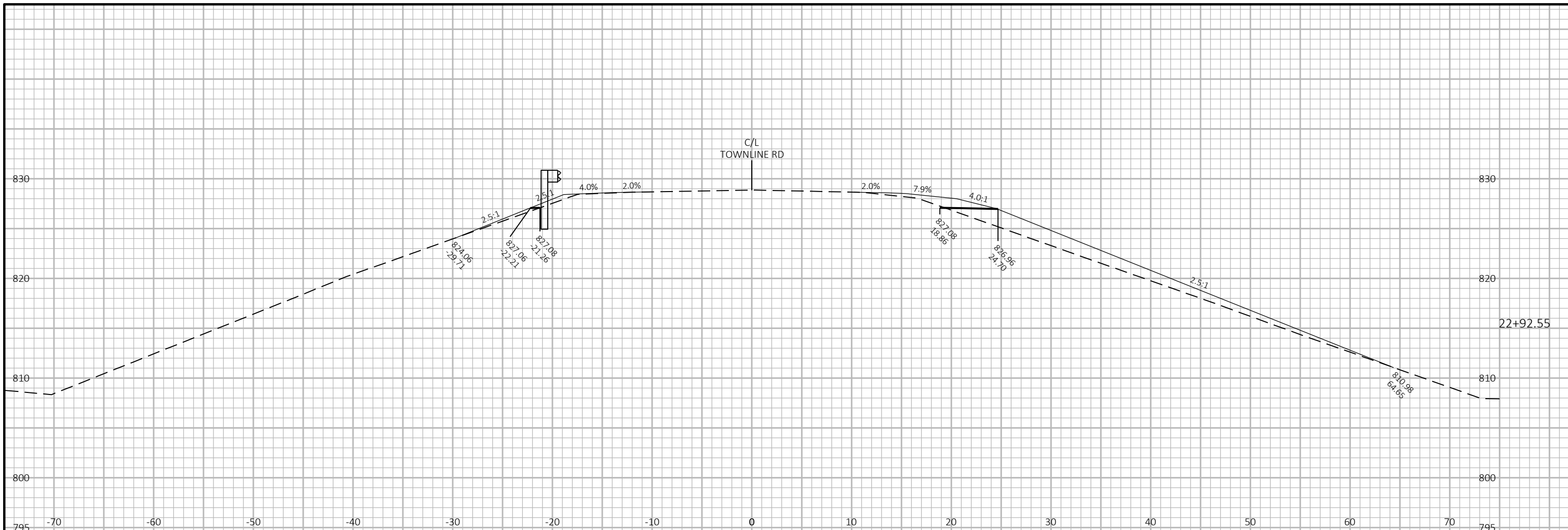
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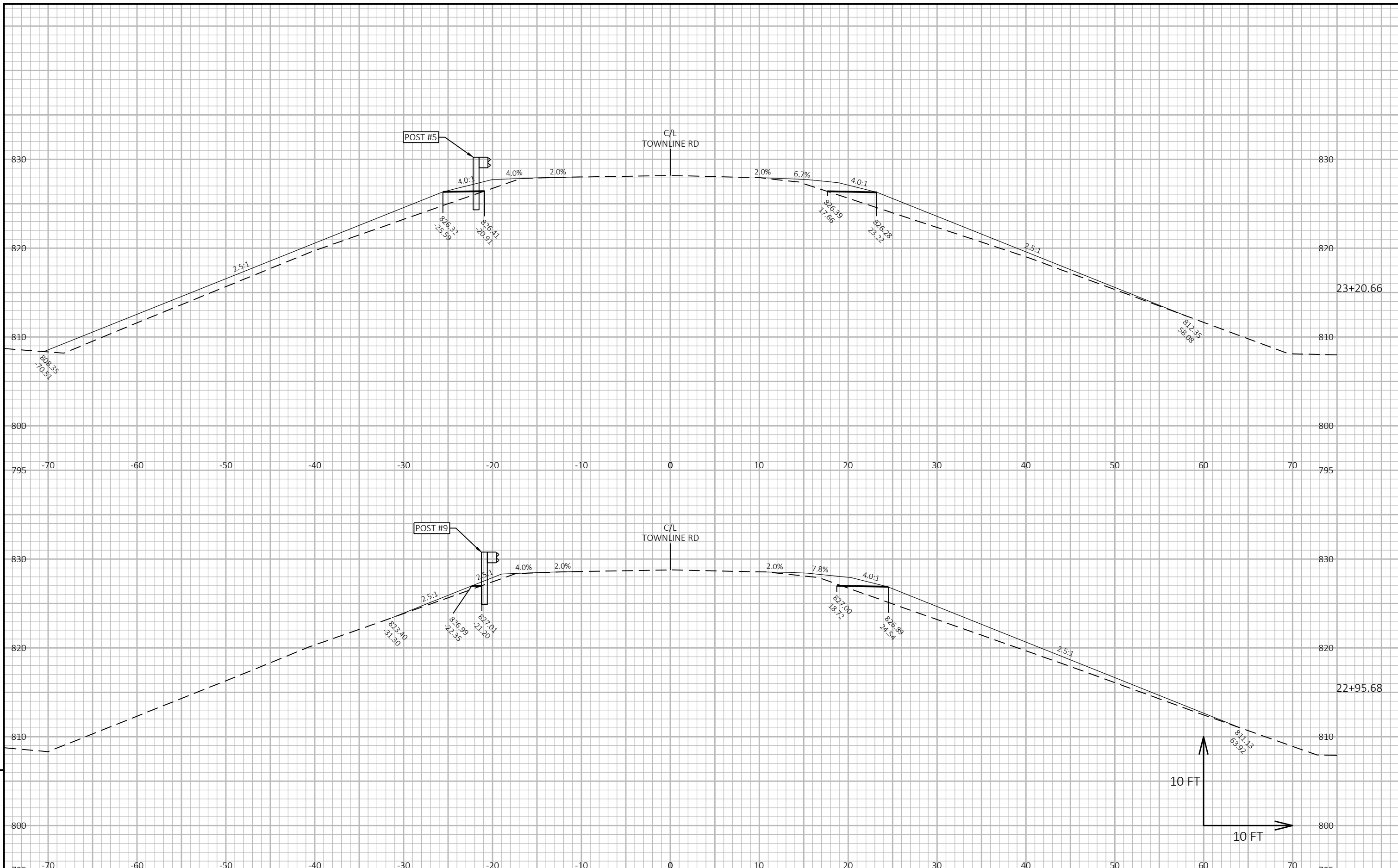
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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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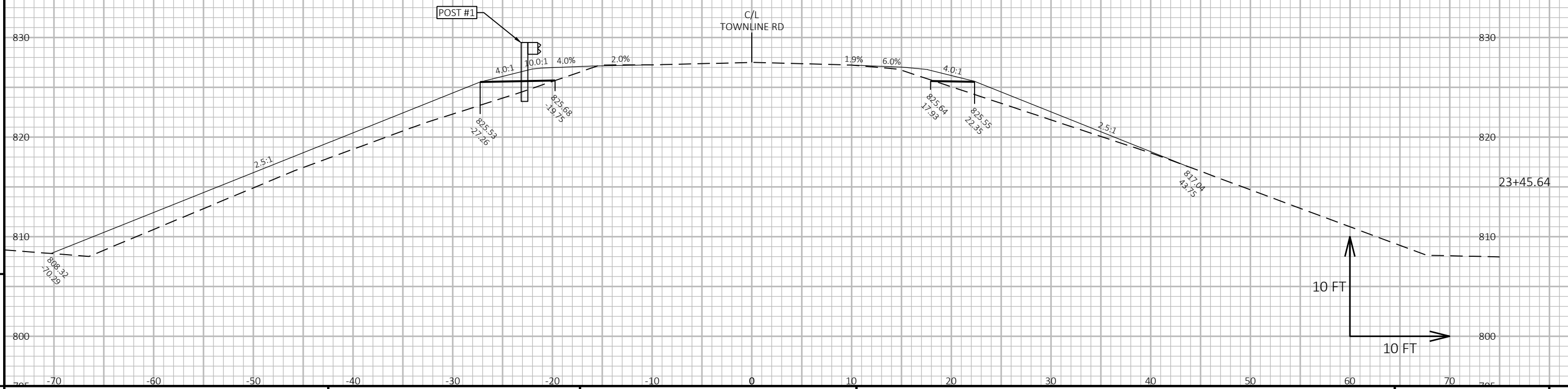
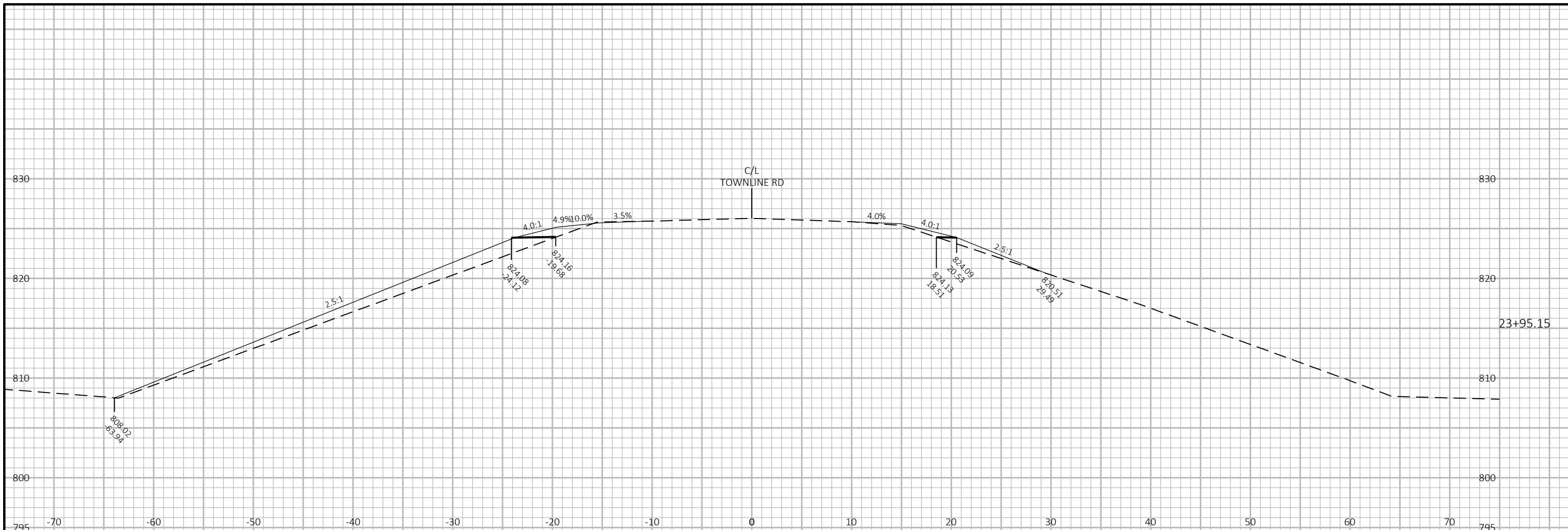
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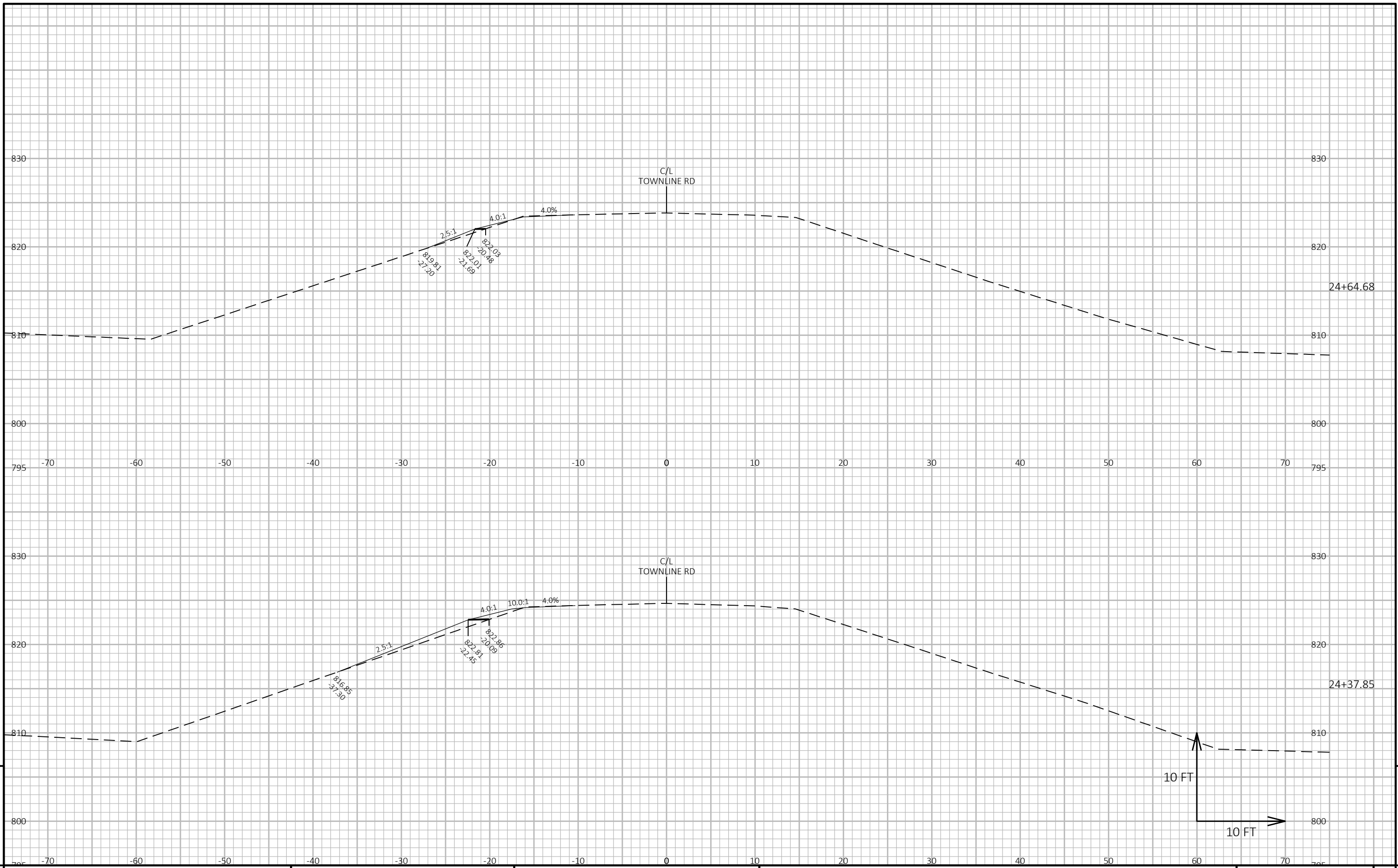
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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	<b>9</b>
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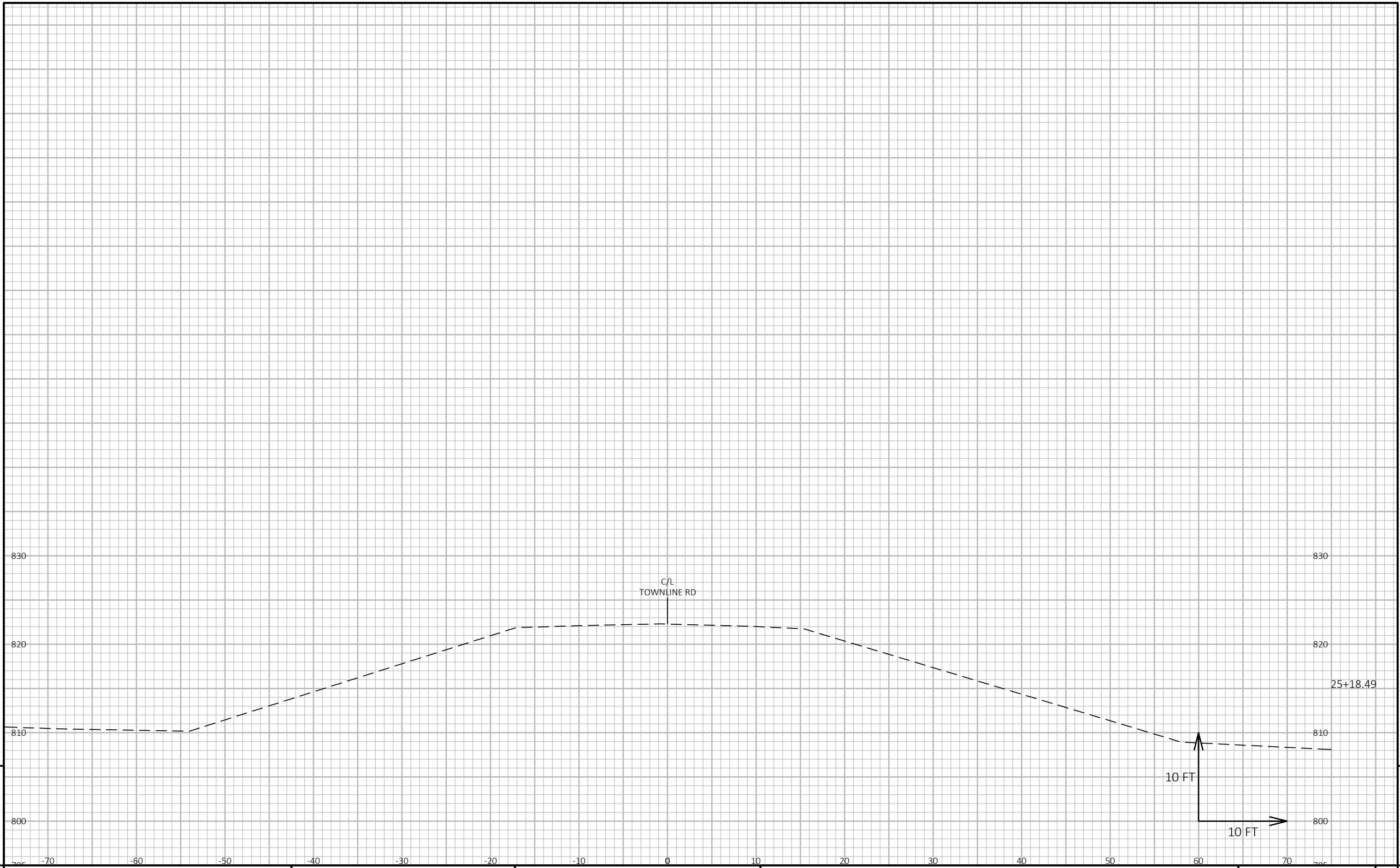


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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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PROJECT NO: 1150-74-71	HWY: IH 41	COUNTY: FOND DU LAC	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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LAYOUT NAME - 090213-xs

PLOT DATE : 6/2/2022 9:06 AM

PLOT BY : SCHWAB, JILLIAN P

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADD SHEET 49



## ***Wisconsin Department of Transportation***

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