

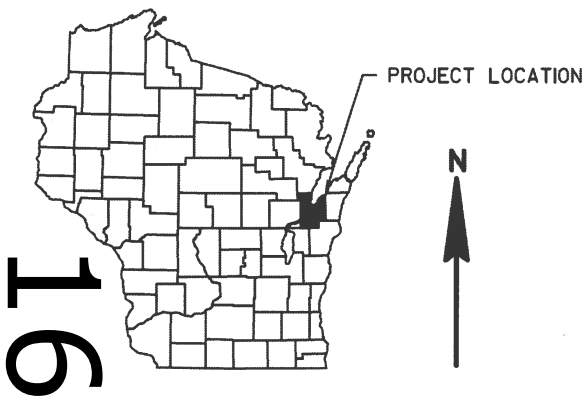
GRE

JANUARY 2018

ORDER OF SHEETS

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

TOTAL SHEETS = 60



DESIGN DESIGNATION

A.A.D.T.	2018	=	2,150
A.A.D.T.	2038	=	2,900
D.H.V.		=	310
D.D.		=	60/40
T.		=	6.0%
DESIGN SPEED		=	60 MPH
ESALS		=	340,000

CONVENTIONAL SYMBOLS

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

BROWN COUNTY, CTH ZZ

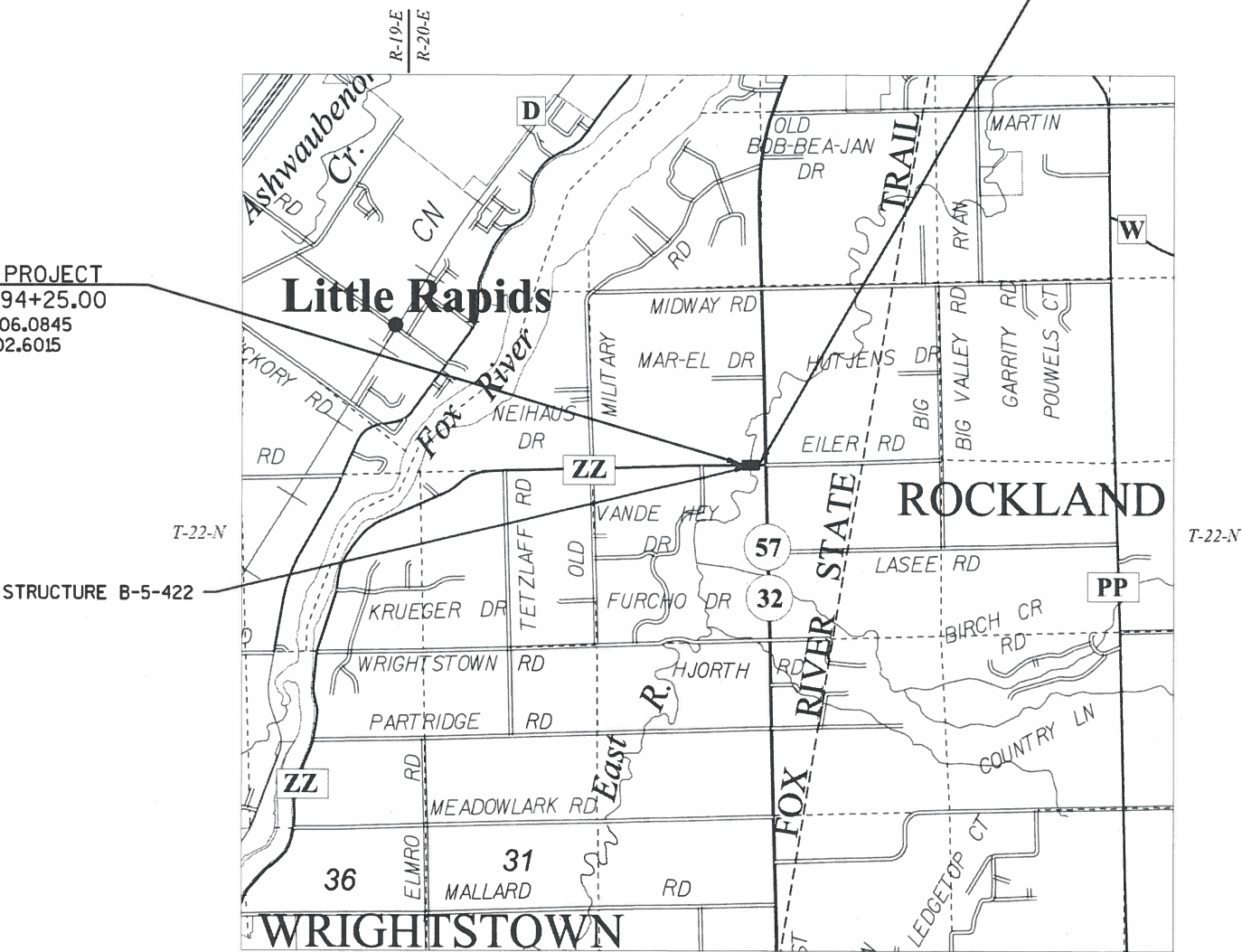
EAST RIVER BRIDGE & APPROACHES

CTH ZZ  
BROWN COUNTY

STATE PROJECT NUMBER
4616-02-71

END PROJECT  
STA 496+10.00

BEGIN PROJECT  
STA 494+25.00  
Y= 515206.0845  
X= 79502.6015



LAYOUT  
SCALE 0 1 MILE  
TOTAL NET LENGTH OF CENTERLINE = 0.035 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATE SYSTEM, BROWN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. VERTICAL DATUM IS NAVD 88.

STATE PROJECT

4616-02-71

FEDERAL PROJECT

PROJECT

WISC 2018048

CONTRACT

1

ACCEPTED FOR  
BROWN COUNTY

DATE: 7/13/17  
(Signature)

Eng. Manager  
TITLE

ORIGINAL PLANS PREPARED BY

OMNI  
ASSOCIATES

WISCONSIN  
JUDITH ANN  
WILSON  
E-22940  
NEENAH,  
WI  
PROFESSIONAL ENGINEER  
7/12/2017

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor OMNI ASSOCIATES

Designer OMNI ASSOCIATES

Management Consultant: SHORT ELLIOTT HENDRICKSON INC.

APPROVED FOR THE DEPARTMENT

DATE: 7/21/17

MANAGEMENT CONSULTANT SIGNATURE

1

E

## UTILITIES

## CONTACTS

ELECTRIC & GAS WISCONSIN PUBLIC SERVICE CORPORATION  
700 NORTH ADAMS STREET, PO BOX 19001  
GREEN BAY, WI 54307-9001  
ATTN: LORI BUTRY  
TELEPHONE: (920) 433-1703  
EMAIL: LAButry@integrysgroup.com

BROWN COUNTY      NICK UITENBROEK  
2198 GLENDALE AVENUE  
GREEN BAY, WI 54303  
TELEPHONE: (920) 662-2152  
EMAIL: uitenbroek\_ns@co.brown.wi.us

DNR LIAISON                    JIM DOPERALSKI  
DEPARTMENT OF NATURAL RESOURCES  
2984 SHAWANO AVENUE  
GREEN BAY, WI 54307-0448  
TELEPHONE: (920) 662-5119  
EMAIL: james.doperalski@wisconsin.gov

LOCAL CONTACT (ELECTRIC): RANDY STEIER  
TELEPHONE: (920) 617-5167  
EMAIL: RDSteier@wisconsinpublicservice.com

LOCAL CONTACT (GAS): DAVID CZARNECKI  
TELEPHONE: (920) 617-5132  
EMAIL: DFCzarnecki@wisconsinpublicservice.com

COMMUNICATIONS AT&T  
205 S. JEFFERSON STREET  
GREEN BAY, WI 54301  
ATTN: JOE KASSAB  
OFFICE: (920) 433-4200  
CELL PHONE: (920)202-4002  
EMAIL: jk572k@att.com

COMMUNICATIONS      NETLEC, LLC  
1700 INDUSTRIAL DRIVE  
GREEN BAY, WI 54302  
ATTN: DENNIS LAFAVE  
TELEPHONE: 920-619-9774  
EMAIL: dlafave@mi-tech.us

COMMUNICATIONS CHARTER COMMUNICATIONS  
3520 DESTINATION DRIVE  
APPLETON, WI 54915  
ATTN: VINCE ALBIN  
OFFICE: (920) 831-9249  
CELL PHONE: (920) 378-0444  
EMAIL: vince.albin@charter.com

WETLAND AREAS ARE SHOWN ON THE PLANS. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO WORK WITHIN THE SLOPE INTERCEPTS IN WETLAND AREAS.

FERTILIZER SHALL NOT BE USED WITHIN 10 FEET OF NAVIGABLE WATERWAYS AND WETLANDS.

## EROSION CONTROL NOTES

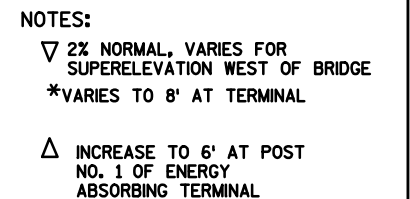
**DIGGERS  HOTLINE**

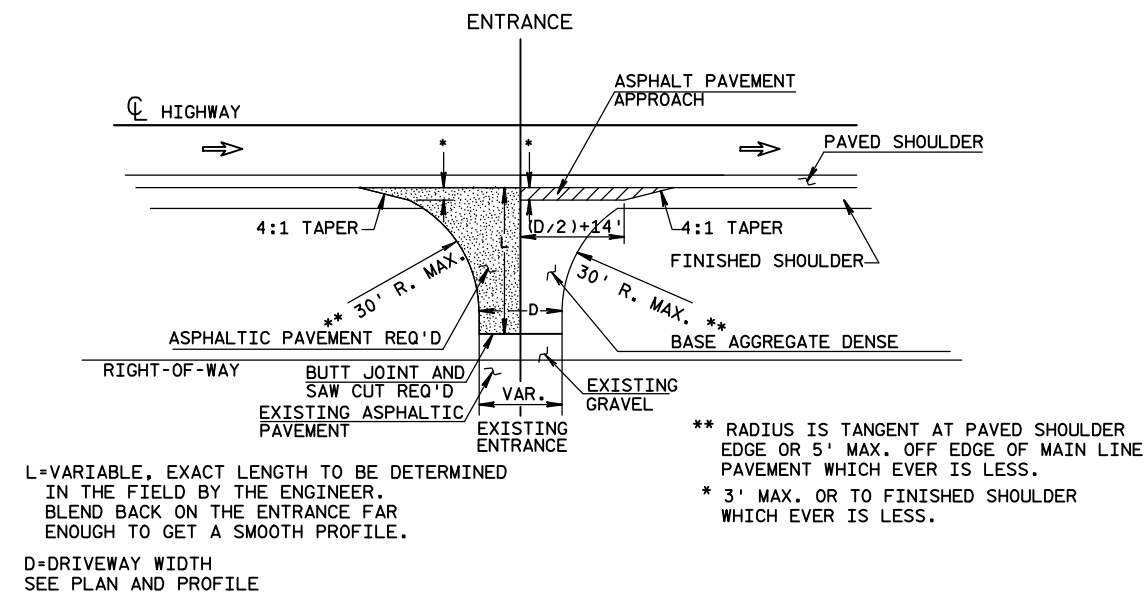
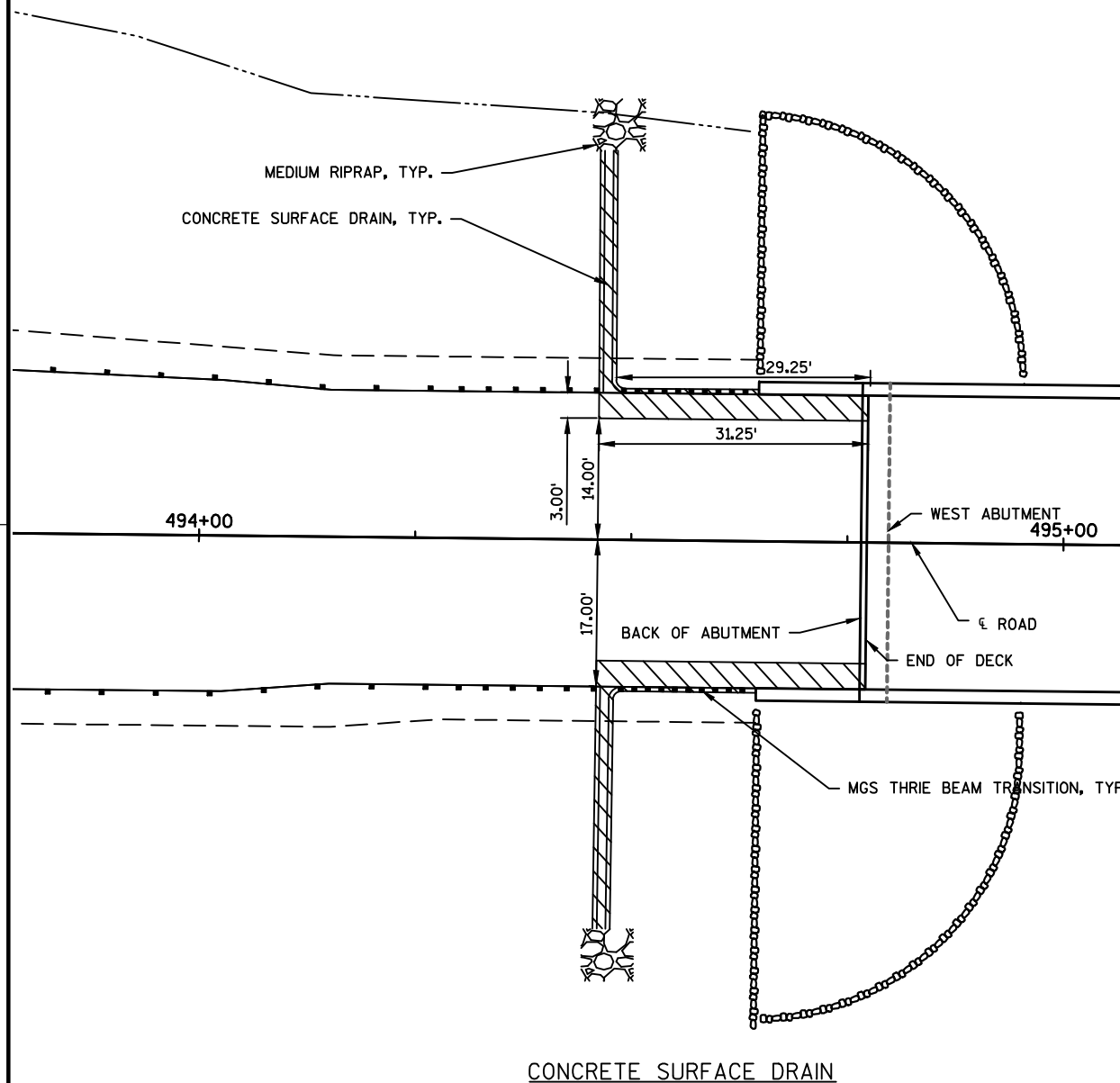
Dial **811** or (800)242-8511

[www.DiggersHotline.com](http://www.DiggersHotline.com)

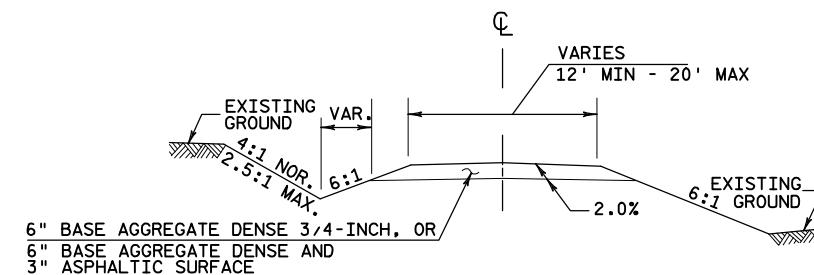
\*\* DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

2

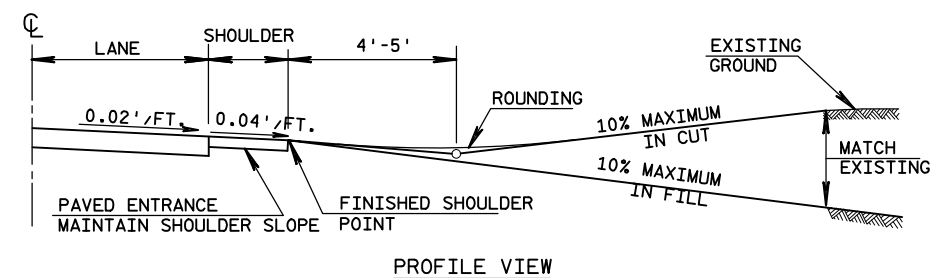




PLAN VIEW  
ONLY THE BASE AGGREGATE DENSE DRIVEWAY USED IN THIS CONTRACT



TYPICAL CROSS SECTION

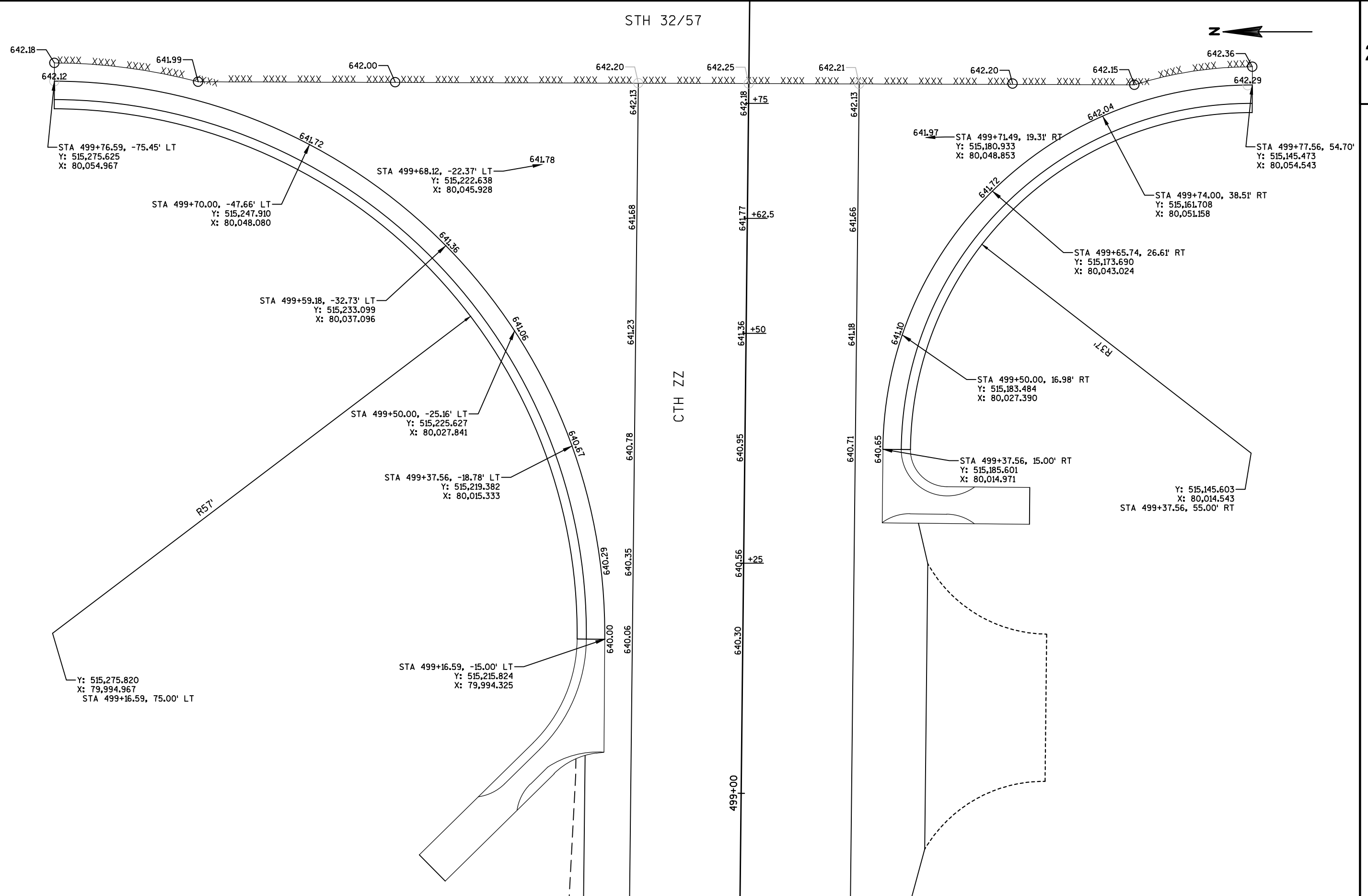


PROFILE VIEW

RURAL DRIVEWAY INTERSECTION DETAIL

2

2



PROJECT NO: 4616-02-71	HWY: CTH ZZ	COUNTY: BROWN	INTERSECTION DETAIL	SHEET 5	<b>E</b>
------------------------	-------------	---------------	---------------------	---------	----------

FILE NAME : F:\TR\JOBS\E2166A15\CIVIL 3D 2014\SHEETSPLAN\4616-02-71\46160271-021101-ID.DWG	PLOT DATE : 6/1/2017 10:49 AM	PLOT BY : MATT BERG	PLOT NAME :	PLOT SCALE : 1 IN:10 FT	WISDOT/CADDs SHEET 42
LAYOUT NAME - 46160271-021101-ID	46160271-021101-id				

## 2



2

2



MATCH LINE STA 497+55

**LEGEND**

· ###	MULCH
~~~~~	EROSION MAT CLASS I TYPE A
———▶	TURBIDITY BARRIER
———●	SILT FENCE
△△△	TEMPORARY DITCH CHECKS
———▶	FLOW DIRECTION



Estimate Of Quantities

4616-02-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	2.000	2.000
0004	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. P-5-127	LS	1.000	1.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 495+17	LS	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	90.000	90.000
0010	205.0100	Excavation Common **P**	CY	90.000	90.000
0012	206.1000	Excavation for Structures Bridges (structure) 01. B-5-422	LS	1.000	1.000
0014	208.0100	Borrow **P**	CY	450.000	450.000
0016	210.1500	Backfill Structure Type A	TON	380.000	380.000
0018	213.0100	Finishing Roadway (project) 01. 4616-02-71	EACH	1.000	1.000
0020	416.1010	Concrete Surface Drains	CY	6.000	6.000
0022	502.0100	Concrete Masonry Bridges	CY	225.000	225.000
0024	502.3200	Protective Surface Treatment	SY	310.000	310.000
0026	502.3210	Pigmented Surface Sealer	SY	90.000	90.000
0028	503.0137	Prestressed Girder Type I 36W-Inch	LF	312.000	312.000
0030	505.0400	Bar Steel Reinforcement HS Structures	LB	4,460.000	4,460.000
0032	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	25,710.000	25,710.000
0034	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0036	506.4000	Steel Diaphragms (structure) 01. B-5-422	EACH	3.000	3.000
0038	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0040	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	490.000	490.000
0042	606.0200	Riprap Medium	CY	4.000	4.000
0044	606.0300	Riprap Heavy	CY	340.000	340.000
0046	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	160.000	160.000
0048	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0050	614.2300	MGS Guardrail 3	LF	225.000	225.000
0052	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0054	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0056	619.1000	Mobilization	EACH	1.000	1.000
0058	625.0100	Topsoil	SY	690.000	690.000
0060	628.1504	Silt Fence	LF	370.000	370.000
0062	628.1520	Silt Fence Maintenance	LF	370.000	370.000
0064	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0066	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0068	628.2002	Erosion Mat Class I Type A	SY	690.000	690.000
0070	628.6005	Turbidity Barriers	SY	280.000	280.000
0072	628.7504	Temporary Ditch Checks	LF	80.000	80.000
0074	629.0210	Fertilizer Type B	CWT	0.400	0.400



Estimate Of Quantities

4616-02-71					
Line	Item	Item Description	Unit	Total	Qty
0076	630.0120	Seeding Mixture No. 20	LB	18.000	18.000
0078	630.0160	Seeding Mixture No. 60	LB	10.000	10.000
0080	630.0200	Seeding Temporary	LB	10.000	10.000
0082	642.5001	Field Office Type B	EACH	1.000	1.000
0084	643.0420	Traffic Control Barricades Type III	DAY	1,120.000	1,120.000
0086	643.0705	Traffic Control Warning Lights Type A	DAY	1,600.000	1,600.000
0088	643.0900	Traffic Control Signs	DAY	1,120.000	1,120.000
0090	643.5000	Traffic Control	EACH	1.000	1.000
0092	645.0111	Geotextile Type DF Schedule A	SY	100.000	100.000
0094	645.0120	Geotextile Type HR	SY	511.000	511.000
0096	650.4500	Construction Staking Subgrade	LF	104.000	104.000
0098	650.6500	Construction Staking Structure Layout (structure) 01. B-5-422	LS	1.000	1.000
0100	650.9910	Construction Staking Supplemental Control (project) 01. 4616-02-71	LS	1.000	1.000
0102	650.9920	Construction Staking Slope Stakes	LF	104.000	104.000
0104	715.0502	Incentive Strength Concrete Structures	DOL	1,350.000	1,350.000
0106	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	150.000	150.000
0108	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000

EARTHWORK

Division	From/To Station	Location	205.0100		Available Material (5)	Unexpanded Fill	Expanded Fill	Mass Ordinate +/- (14)	Waste	208.0100 Borrow	Comment:
			Common Excavation	Salvaged/Unusable Pavement Material (2)							
CATEGORY 0010							Factor 1.25				
	494+25/494+76.59	CTH ZZ	80	22	58	217	271	-213	0	213	
	495+57.43/496+10	CTH ZZ	11	12	0	187	234	-234	0	234	
CATEGORY 0010 TOTAL			90	33	58	404	506	-447	0	450	

2) Salvaged/Unsuable Pavement Material is included in Cut.  
5) Available Material = Cut - Salvaged/Unusuable Pavement Material

GRUBBING

STATION	LOCATION	201.0205 GRUBBING STATION
CATEGORY 0010		
494+00 - 496+00	CTH ZZ	2
TOTALS		2

REMOVING ASPHALTIC SURFACE

STATION TO STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY
CATEGORY 0010		
495+75 - 496+10	CTH ZZ	90
TOTALS		90

CONCRETE SURFACE DRAINS

STATION	DIR	LOCATION	416.1010 CONCRETE SURFACE DRAINS CY
CATEGORY 0010			
494+48	RT	CTH ZZ	3
494+48	LT	CTH ZZ	3
TOTALS			6

LANDSCAPING

STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	628.2002 EROSION MAT CLASS I TYPE A SY	630.0120 SEEDING NO 20 LB	630.0160 SEEDING NO 60 LB	630.0200 SEEDING TEMPORARY LB	629.0210 FERTILIZER TYPE B CWT
CATEGORY 0010							
494+25 TO STRUCTURE, LT	CTH ZZ	170	170	5	-	2	0.10
494+25 TO STRUCTURE, RT	CTH ZZ	160	160	4	-	2	0.10
STRUCTURE TO 496+10, LT	CTH ZZ	90	90	2	-	1	0.05
STRUCTURE TO 496+10, RT	CTH ZZ	130	130	3	-	2	0.08
UNDISTRIBUTED		140	140	4	10	3	0.07
TOTALS		690	690	18	10	10	0.40

TURBIDITY BARRIER

STATION	LOCATION	628.6005 SY
CATEGORY 0010		
495+10	CTH ZZ	160
495+35	CTH ZZ	120
TOTAL		280

EROSION CONTROL ITEMS

STATION TO STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.7504 TEMPORARY DITCH CHECKS LF
CATEGORY 0010						
494+25 TO STRUCTURE, LT	CTH ZZ	65	65	---	---	16
494+25 TO STRUCTURE, RT	CTH ZZ	75	75	---	---	16
STRUCTURE TO 496+10, LT	CTH ZZ	70	70	---	---	16
STRUCTURE TO 496+10, RT	CTH ZZ	85	85	---	---	16
UNDISTRIBUTED	CTH ZZ	75	75	4	2	16
TOTALS		370	370	4	2	80

RIPRAP

STATION	DIR	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
CATEGORY 0010				
494+48	LT	CTH ZZ	2	3
494+48	RT	CTH ZZ	2	3
TOTALS			4	6

TRAFFIC CONTROL ROAD CLOSURE

LOCATION	APROX. SERVICE PERIOD	643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH		643.0900 TRAFFIC CONTROL SIGNS EACH	
CATEGORY 0010		NO.	DAYS	NO.	DAYS	NO.	DAYS
WEST OF PROJECT	80	7	560	10	800	7	560
EAST OF PROJECT	80	7	560	10	800	7	560
TOTALS			1,120		1,600		1,120

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.6500 STRUCTURE LAYOUT B-5-422 LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF
CATEGORY 0010							
494+25	-	494+76	CTH ZZ	51	---	---	51
494+76	-	495+57	CTH ZZ	---	1	---	---
495+57	-	496+10	CTH ZZ	53	---	---	53
UNDISTRIBUTED				---	---	1	---
TOTALS				104	1	1	104

BEAM GUARD

STATION TO STATION	DIR	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
CATEGORY 0010					
492+87 - 494+67	RT	CTH ZZ	87.5	39.4	1
493+50 - 494+67	LT	CTH ZZ	25	39.4	1
495+67 - 496+84	RT	CTH ZZ	25	39.4	1
495+67 - 497+47	LT	CTH ZZ	87.5	39.4	1
TOTALS			225.0	157.6	4

EARTHWORK - WORK BY OTHERS

ALL ITEMS THIS SHEET ARE BY OTHERS

Division	From/To Station	Location	205.0100	Unexpanded Fill	Expanded Fill	Mass Ordinate +/- (14)	Waste	208.0100	Comment:
			Common Excavation					Borrow	
			Cut						
WORK BY OTHERS					Factor 1.25				
	492+25/494+25	CTH ZZ	176	1,574	1,967	-1,792	0	1,792	
	496+10/499+77	CTH ZZ	404	2,655	3,319	-2,914	0	2,914	
TOTALS			580	4,229	5,286	-4,706	0	4,700	

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage

CLEARING & GRUBBING - WORK BY OTHERS

STATION TO STATION	LOCATION	201.0105 CLEARING STATION	201.0205 GRUBBING STATION
494+00 - 496+00	CTH ZZ	2	---
496+00 - 499+00	CTH ZZ	3	3
TOTALS		5	3

REMOVING ASPHALTIC SURFACE - WORK BY OTHERS

STATION TO STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY
492+25 - 493+50	CTH ZZ	310
TOTALS		310

CONCRETE SURFACE DRAINS - WORK BY OTHERS

STATION	DIR	LOCATION	416.1010 CONCRETE SURFACE DRAINS CY	645.0130 GEOTEXTILE TYPE R SY
499+10	LT	CTH ZZ	2	20
499+30	RT	CTH ZZ	2	10
TOTALS			4	30

REMOVING CURB & GUTTER - WORK BY OTHERS

STATION TO STATION	LOCATION	204.0150 REMOVING CURB & GUTTER LF
499+17 - 499+75, LT	CTH ZZ	90
499+38 - 499+75, RT	CTH ZZ	60
TOTALS		150

BASE AGGREGATE DENSE AND WATER - WORK BY OTHERS

STATION TO STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	311.0110 BREAKER RUN TON	624.0100 WATER MGAL
492+25 - STRUCTURE	CTH ZZ	160	470	1010	10
STRUCTURE - 499+77	CTH ZZ	230	770	1650	20
UNDISTRIBUTED **	CTH ZZ	---	---	200	---
TOTALS		390	1,240	2,860	30

\*\* USE TO FILL VOIDS FROM ASPHALTIC SURFACE REMOVED BELOW SUBGRADE

ASPHALTIC ITEMS - WORK BY OTHERS

STATION TO STATION	LOCATION	455.0605 TACK COAT GAL	460.5223 HMA PAVEMENT 3 LT 58-28 S TON	460.5224 HMA PAVEMENT 4 LT 58-28 S TON
492+25 - STRUCTURE	CTH ZZ	70	145	115
STRUCTURE - 499+77	CTH ZZ	120	250	200
TOTALS		190	395	315

SALVAGED RAIL - WORK BY OTHERS

STATION TO STATION	DIR	LOCATION	614.0920 SALVAGED RAIL LF
494+29 - 495+52	LT	CTH ZZ	50
494+29 - 495+52	RT	CTH ZZ	50
495+52 - 496+03	LT	CTH ZZ	50
495+52 - 496+03	RT	CTH ZZ	50
TOTALS			200

CONCRETE CURB & GUTTER - WORK BY OTHERS

			601.0557 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D
STATION TO STATION	DIR	LOCATION	LF
499+16 - 499+77	RT	CTH ZZ	92
499+37 - 499+77	LT	CTH ZZ	60
TOTALS			152

PAVEMENT MARKING EPOXY - WORK BY OTHERS

				646.0106		
				4-INCH DASHED YELLOW LF	4-INCH SOLID YELLOW LF	4-INCH WHITE LF
STATION	TO	STATION	LOCATION			
492+25	-	499+77	CTH ZZ	190	---	1,500
494+50	-	499+77	CTH ZZ EB	---	525	---
TOTAL				2,215		

LANDSCAPING - WORK BY OTHERS

			625.0100 TOPSOIL	627.0200 MULCHING	628.2002 EROSION MAT CLASS I TYPE A	630.0120 SEEDING NO 20	630.0160 SEEDING NO 60	630.0200 SEEDING TEMPORARY	629.0210 FERTILIZER TYPE B
STATION TO STATION	DIR	LOCATION	SY	SY	SY	LB	LB	LB	CWT
492+25 - 494+25	LT	CTH ZZ	1050	850	110	25	-	15	0.60
492+25 - 494+25	RT	CTH ZZ	900	530	280	20	-	10	0.50
496+10 - 499+77	LT	CTH ZZ	1550	550	540	30	-	15	0.70
496+10 - 499+77	RT	CTH ZZ	1350	1090	60	30	-	15	0.75
UNDISTRIBUTED			1000	750	250	25	10	15	0.45
TOTALS			5,850	3,770	1,240	130	10	70	3.00

CONSTRUCTION STAKING - WORK BY OTHERS

				650.4500	650.5000	651.5500	650.9920
				SUBGRADE	BASE	CURB & GUTTER	SLOPE
STATION	TO	STATION	LOCATION	LF	LF	LF	STAKES
492+25	-	494+25	CTH ZZ	200	200	---	200
496+10	-	499+77	CTH ZZ	367	367	150	367
TOTALS				567	567	150	567

EROSION CONTROL ITEMS - WORK BY OTHERS

		628.1504	628.1520	628.1905	628.1910	628.7504
		SILT FENCE	SILT FENCE	MOBILIZATIONS	MOBILIZATIONS	TEMPORARY
		MAINTENANCE	MAINTENANCE	EROSION CONTROL	EROSION CONTROL	DITCH
STATION TO STATION	LOCATION	LF	LF	EACH	EACH	CHECKS
492+25 - 494+25	CTH ZZ	55	55	---	---	16
492+25 - 494+25	CTH ZZ	135	135	---	---	16
496+10 - 499+77	CTH ZZ	380	380	---	---	-
496+10 - 499+77	CTH ZZ	40	40	---	---	-
UNDISTRIBUTED	CTH ZZ	150	150	2	2	16
TOTALS		760	760	2	2	48

SAWING ASPHALT - WORK BY OTHERS

		690.0150
		SAWING
		ASPHALT
STATION	LOCATION	LF
499+77	CTH ZZ	130
TOTAL		130

3

3

ALL ITEMS THIS SHEET ARE BY OTHERS

SIGNS REFLECTIVE TYPE II & POSTS WOOD - WORK BY OTHERS

STATION	DIR	LOCATION	CODE	SIGN SIZE HORIZ X VERT IN X IN	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	637.2230 SIGNS TYPE II RELFECTIVE F SF
494+63	RT	CTH ZZ	W5-52R	12 X 36	1	3
494+63	LT	CTH ZZ	W5-52L	12 X 36	1	3
495+71	RT	CTH ZZ	W5-52L	12 X 36	1	3
495+71	LT	CTH ZZ	W5-52R	12 X 36	1	3
				TOTALS	4	12

REMOVING SIGNS TYPE II AND REMOVING SMALL SIGN SUPPORTS - WORK BY OTHERS

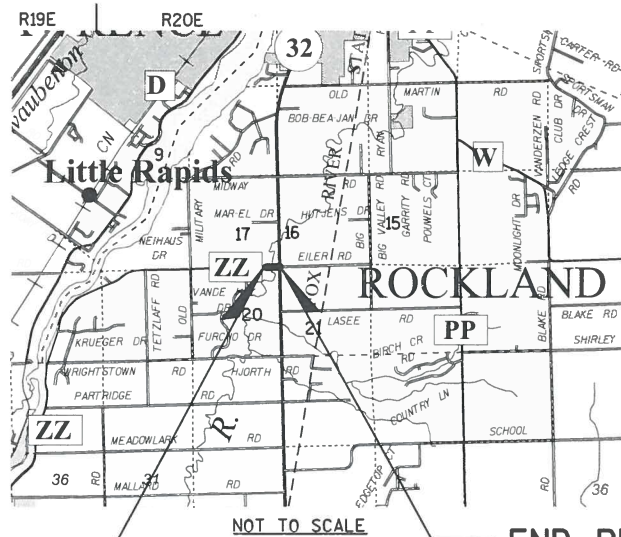
STATION	DIR	LOCATION	DESCRIPTION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
494+25	LT	CTH ZZ	OBJECT MARKER	1	1
494+25	RT	CTH ZZ	OBJECT MARKER	1	1
496+00	LT	CTH ZZ	OBJECT MARKER	1	1
496+00	RT	CTH ZZ	OBJECT MARKER	1	1
498+80	LT	CTH ZZ	NARROW BRIDGE	1	1
				TOTALS	5

MOVING SIGNS - WORK BY OTHERS

FROM STATION		LOCATION	TO STATION		FACE DIR.	DESCRIPTION	638.2102 MOVING SIGNS TYPE II EACH	634.0616 POSTS WOOD 4X6-INCH X 16-FT EACH
494+45	RT	CTH ZZ	494+45	RT	WEST	EAST RIVER SIGN	1	1
495+70	LT	CTH ZZ	495+70	LT	EAST	EAST RIVER SIGN	1	1
499+40	LT	CTH ZZ	499+40	LT	WEST	STOP SIGN	1	1
499+40	RT	CTH ZZ	499+40	RT	WEST	STOP SIGN	1	1
499+40	RT	CTH ZZ	499+40	RT	WEST	STH 32/57 SIGN	1	1
							TOTALS	5

## Conventional Signs and Abbreviations

	SECTION LINE	AC	ACRES	R	RADIUS
	QUARTER LINE	Δ	CENTRAL ANGLE	R.	RANGE
	TOWNSHIP AND RANGE LINE	C/L	CENTERLINE	R/L	REFERENCE LINE
	PROPOSED OR NEW CENTERLINE	COR.	CORNER	R/W	RIGHT OF WAY
	PROPOSED OR NEW R/W LINE	CTH	COUNTY TRUNK HIGHWAY	1/4 LINE	QUARTER LINE
	EXISTING R/W LINE	D	DEGREE OF CURVE	1/16 LINE	SIXTEENTH LINE
	LOT LINE	E.	EAST	S.	SOUTH
	PROPERTY LINE	L	LENGTH OF CURVE	SEC	SECTION
	COUNTY LIMITS LINE	LC	LONG CHORD	SEC LINE	SECTION LINE
	SLOPE INTERCEPT	LCB	LONG CHORD BEARING	STH	STATE TRUNK HIGHWAY
	EXISTING MONUMENTATION	MI	MILE	SF	SQUARE FEET
	FENCE	N.	NORTH	STA	STATION
	SECTION OR QUARTER CORNER	N.T.S.	NOT TO SCALE	T.	TOWN
	TELEPHONE	PC	POINT OF CURVATURE	T	TANGENT LENGTH OF CURVE
	GAS	PI	POINT OF INTERSECTION	TLE	TEMPORARY LIMITED EASEMENT
	WATER	PT	POINT OF TANGENCY	USH	UNITED STATES HIGHWAY
	ELECTRIC	PLE	PERMANENT LIMITED EASEMENT	W.	WEST
	FIBER OPTIC	P/L	PROPERTY LINE		
	SANITARY	PC LINE	PRIVATE CLAIM LINE		
	STORM SEWER				
	NO ACCESS (BY ACQUISITION)				
	NO ACCESS (BY STATUTORY AUTHORITY)				
	NO ACCESS (BY PREVIOUS PROJECT)				
	TEMPORARY LIMITED EASEMENT				
	PERMANENT LIMITED EASEMENT				
	FEE TITLE				
	RIGHT-OF-WAY MONUMENTS SET AT NEWLY ACQUIRED R/W ANGLE POINTS				
	PARCEL NUMBER				
	UTILITY PARCEL NUMBER				
	R/W POINT NUMBER				
	COMPENSABLE NON-COMPENSABLE				
	POWER POLE				
	TELEPHONE POLE				
	TELEPHONE PEDESTAL				



R/W COORDINATE TABLE		
POINT#	Y	X
272	515173.202	79302.800
273	515127.144	79303.062
274	515126.816	79433.768
276	515145.635	80011.635
278	515288.754	79720.842
279	515287.067	79878.490
282	515241.394	79961.340

REVISIONS	R/W PROJECT NUMBER 4616-02-00	SHEET NUMBER	TOTAL SHEETS
	FEDERAL PROJECT NUMBER	4.01	1
	PLAT OF RIGHT-OF-WAY REQUIRED FOR  BROWN COUNTY, CTH ZZ EAST RIVER BRIDGE		
TOWN OF ROCKLAND		BROWN COUNTY	
CONSTRUCTION PROJECT NUMBER 4616-02-71			

## SCHEDULE OF LANDS AND INTERESTS

PARCEL NUMBER	OWNER	INTEREST REQUIRED	AREA ACRES REQUIRED			TLE AREA
			NEW	EXISTING	TOTAL	
1	DENNIS J. CASHMAN & DOROTHY M. CASHMAN	FEE TLE	0.08 AC	-----	0.08 AC	0.02 AC
2	PATRICIA K. BLOM & BRUCE W. BLOM	FEE	0.59 AC	-----	0.59 AC	-----

"OWNERS" NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO BROWN COUNTY

## UTILITY INTEREST REQUIRED

PARCEL NUMBER	OWNER	INTEREST REQUIRED
90	AT&T	RELEASE OF RIGHTS
91	WISCONSIN PUBLIC SERVICE	RELEASE OF RIGHTS

## TOWN

BEGIN RELOCATION ORDER  
STA 490+75.00

2.48' SOUTH OF AND 924.06' WEST OF THE  
SOUTHEAST CORNER OF SECTION 17, T22N,  
R20E, TOWN OF ROCKLAND, BROWN COUNTY,  
WISCONSIN  
Y: 515205.073  
X: 79152.623

END RELOCATION ORDER  
STA 500+00.00

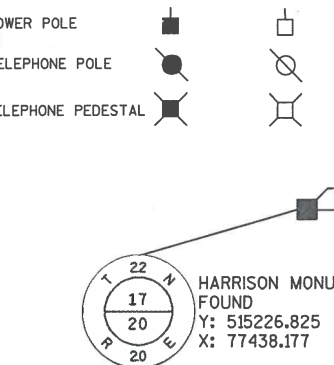
7.62' SOUTH OF AND 0.89' EAST OF  
SOUTHEAST CORNER, SEC 17, T22N,  
R20E, TOWN OF ROCKLAND, BROWN  
COUNTY, WISCONSIN  
Y: 515199.932  
X: 80077.569

SE-SE  
SECTION 17

OF

NE-NE  
SECTION 20

ROCKLAND



## Notes:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISGRS), BROWN COUNTY, NAD 83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT OF WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 1" I.D. X 24" PIPE) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

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

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED OF MAPS AND DOCUMENTS OF PUBLIC RECORD AND/ OR EXISTING OCCUPATION LINES. EXCLUDING RIGHT-OF-WAY BOUNDARIES, THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

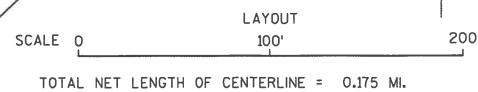
A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLEs EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY ARE MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINE. EXISTING CTH ZZ RIGHT-OF-WAY WAS DEFINED FROM BROWN COUNTY PROJECTS T02-4(5), E0-0(11)

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N89°34'53"W	115.58'
L2	N00°25'07"E	33.00'
L3	S61°07'59"E	94.61'
L6	S00°02'29"W	61.96'
L7	N89°57'31"W	65.00'
L8	N00°19'32"W	46.06'
L9	S00°02'29"W	22.39'

CURVE 1  
R=7980.00  
L=130.71  
LC=130.71  
LCB=N89°51'22"W

CURVE A  
PI 492+42.75  
Y: 515208.035  
X: 79320.343  
Δ = 01°37'29"  
R = 8060.00'  
L = 228.56'  
LC = 228.55'  
LCB = N89°48'02"E



ACCEPTED FOR  
BROWN COUNTY

4/14/17  
(Date)  
Public Works Director  
(Signature & Title of Official)

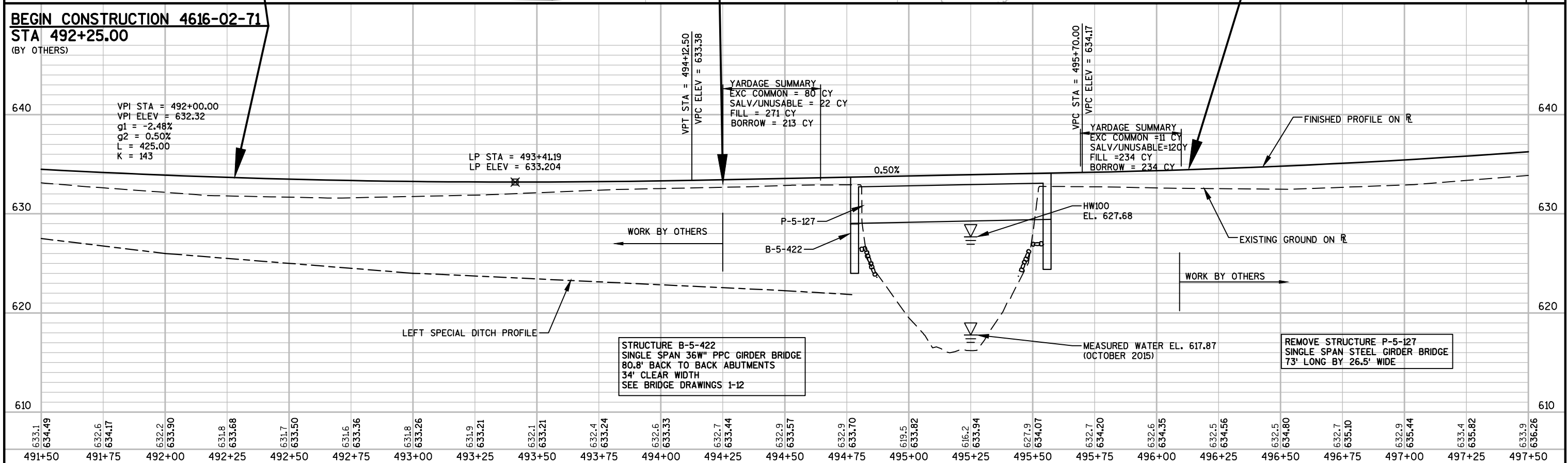
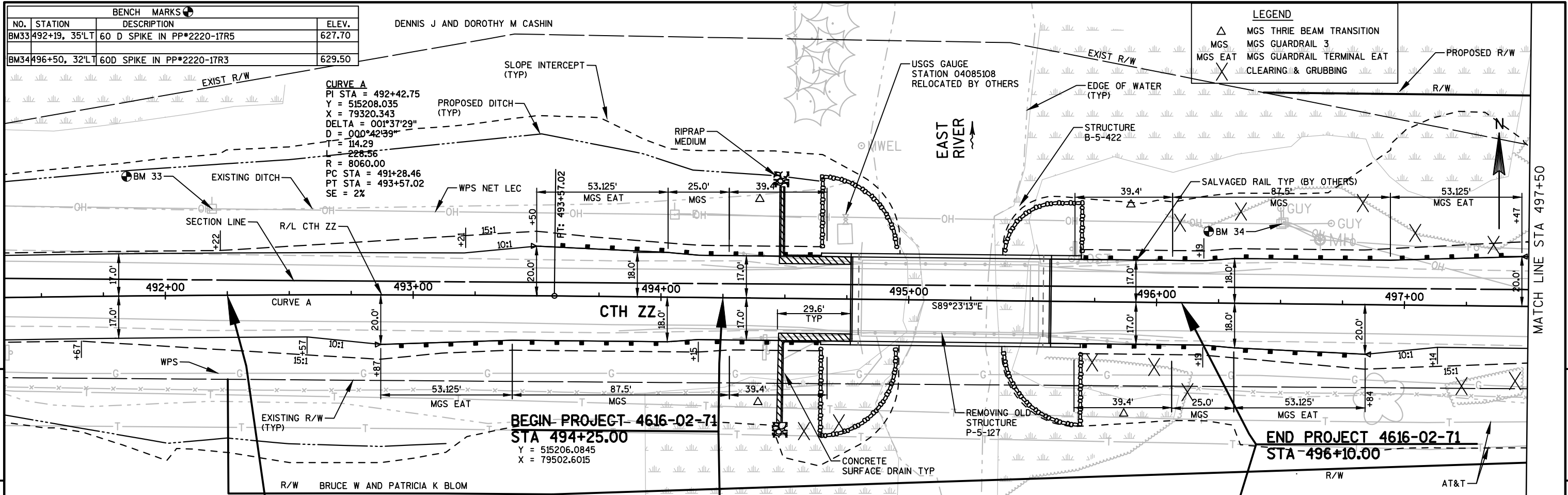
ORIGINAL PLANS PREPARED BY

OMNI  
ASSOCIATES  
APPLETON, WISCONSIN

WISCONSIN  
DAVID A. YURK  
S-2648  
OSHKOSH, WI  
PROFESSIONAL LAND SURVEYOR

4-14-2017  
(Date)  
David A. Yurk  
(Signature) 13

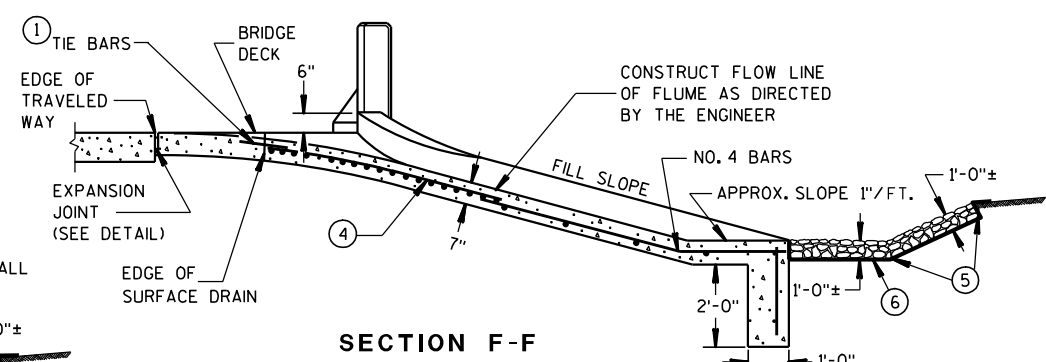




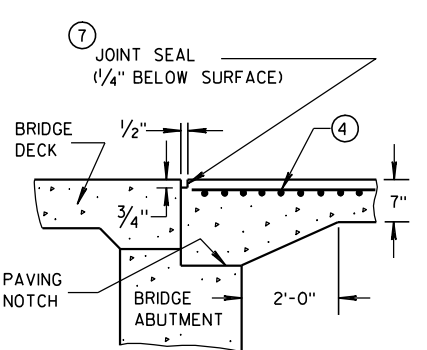


Standard Detail Drawing List

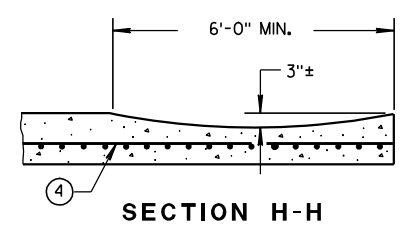
08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES



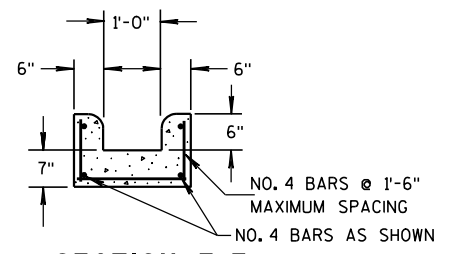
**SECTION F-F**



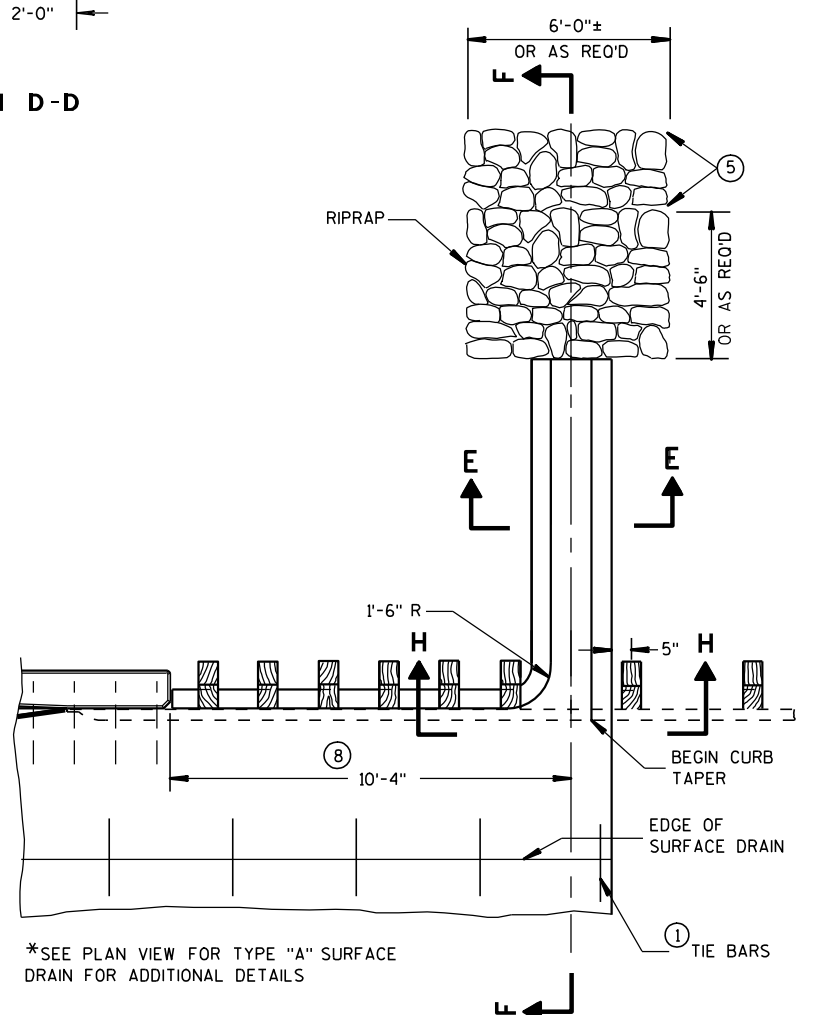
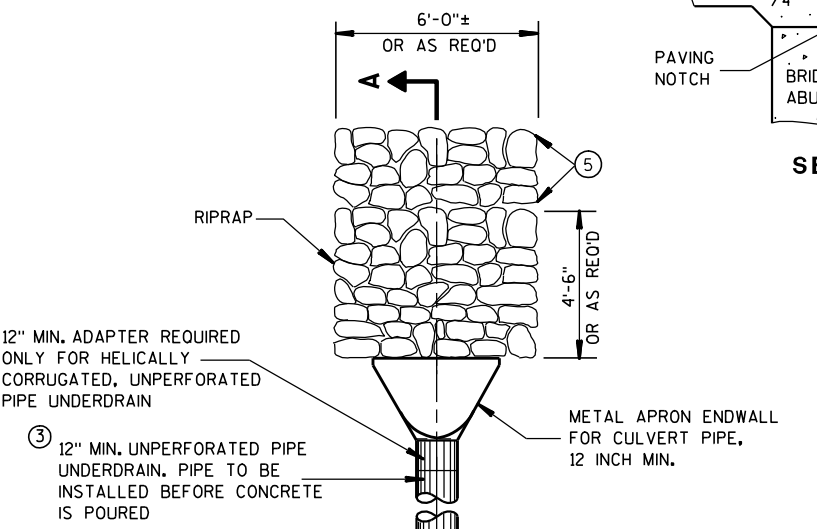
**SECTION D-D**



## SECTION H-H

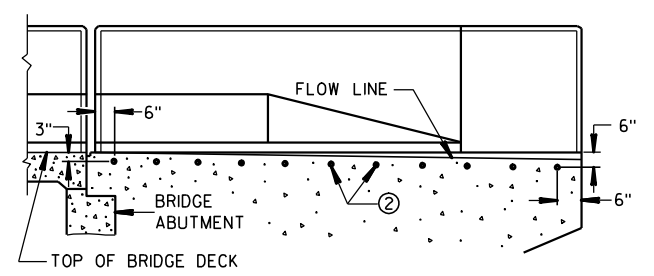


**SECTION E-E**



\* PARTIAL PLAN VIEW  
SURFACE DRAIN WITHOUT PIPE  
TYPE "B"

⑧ THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1 1/2".



### LOCATION OF TIE BARS IN WINGWALL

APPROVED	
9/4/08	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT
	ENGINEER
FHWA	

## 6



PLAN VIEW  
FLUME AT CURB END

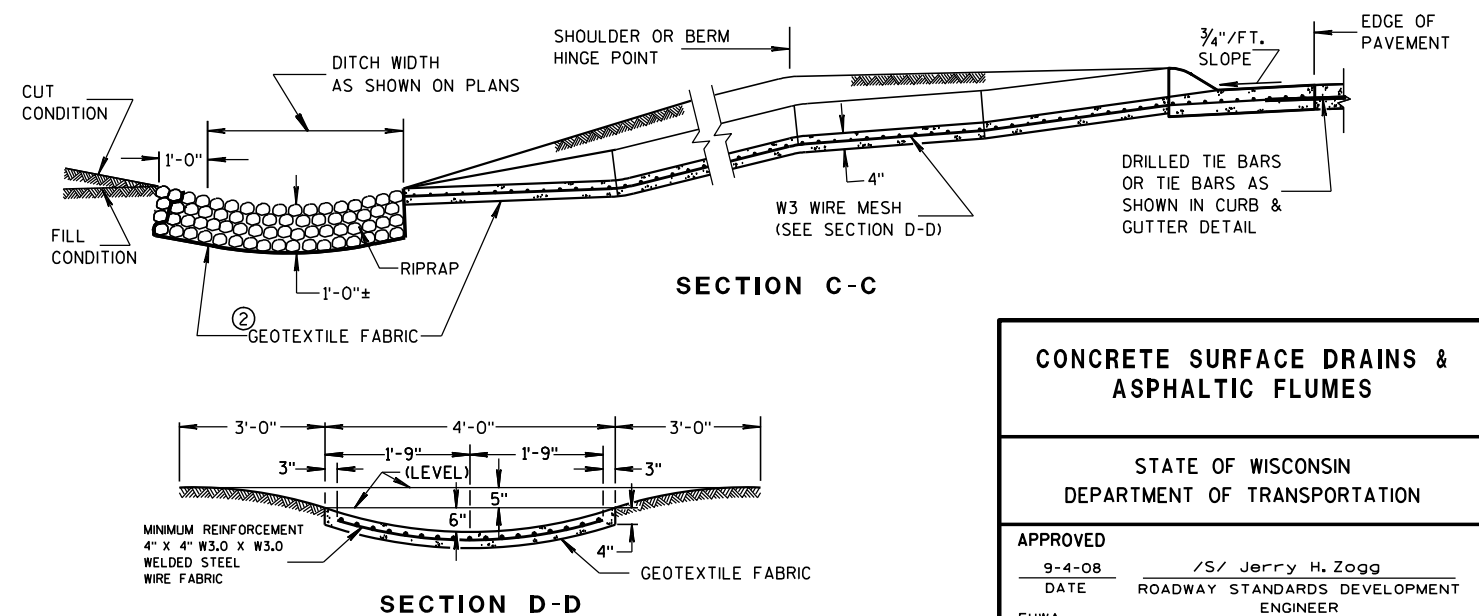


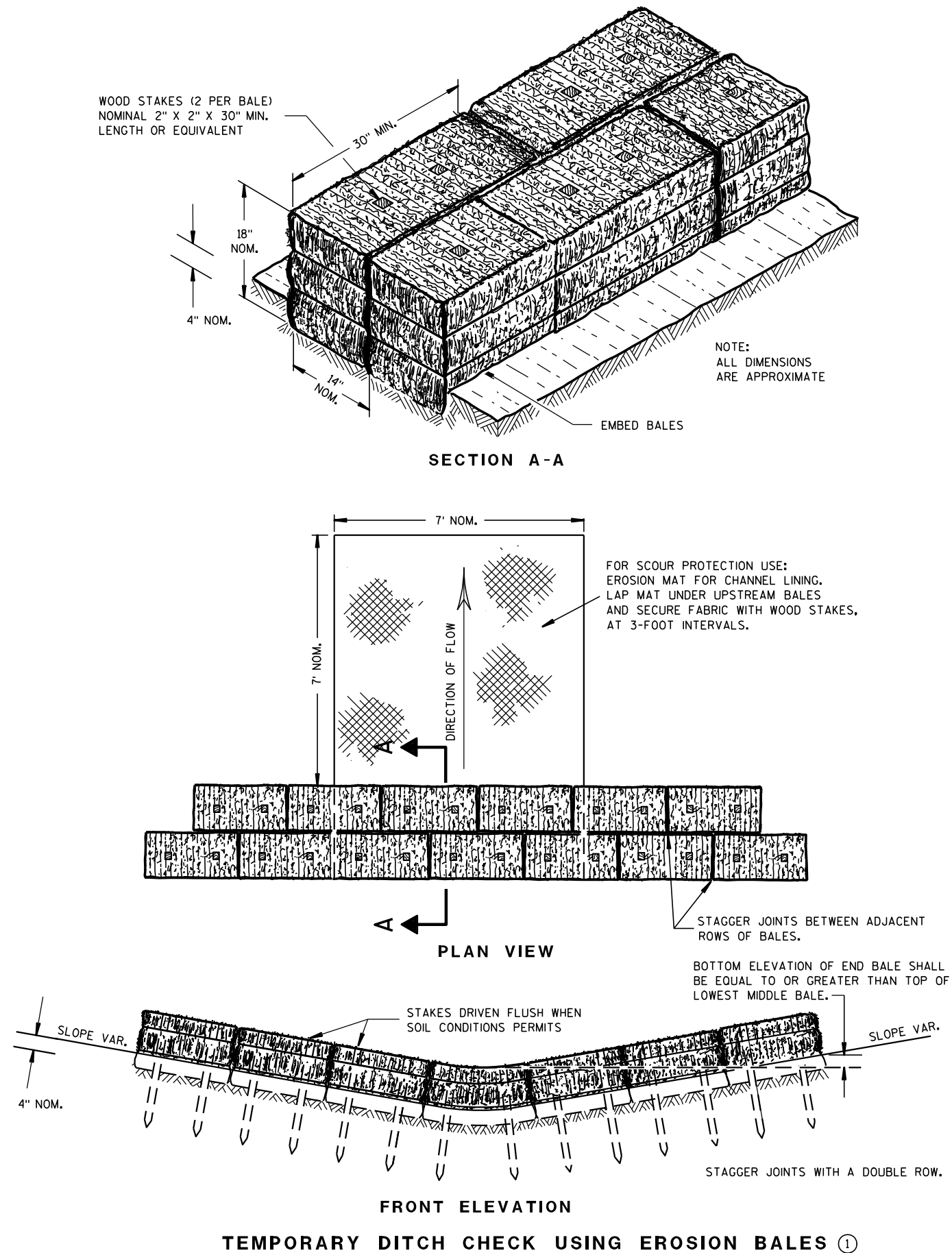
## 6

S.D.D. 8 D 4-5

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

**SECTION C-C**

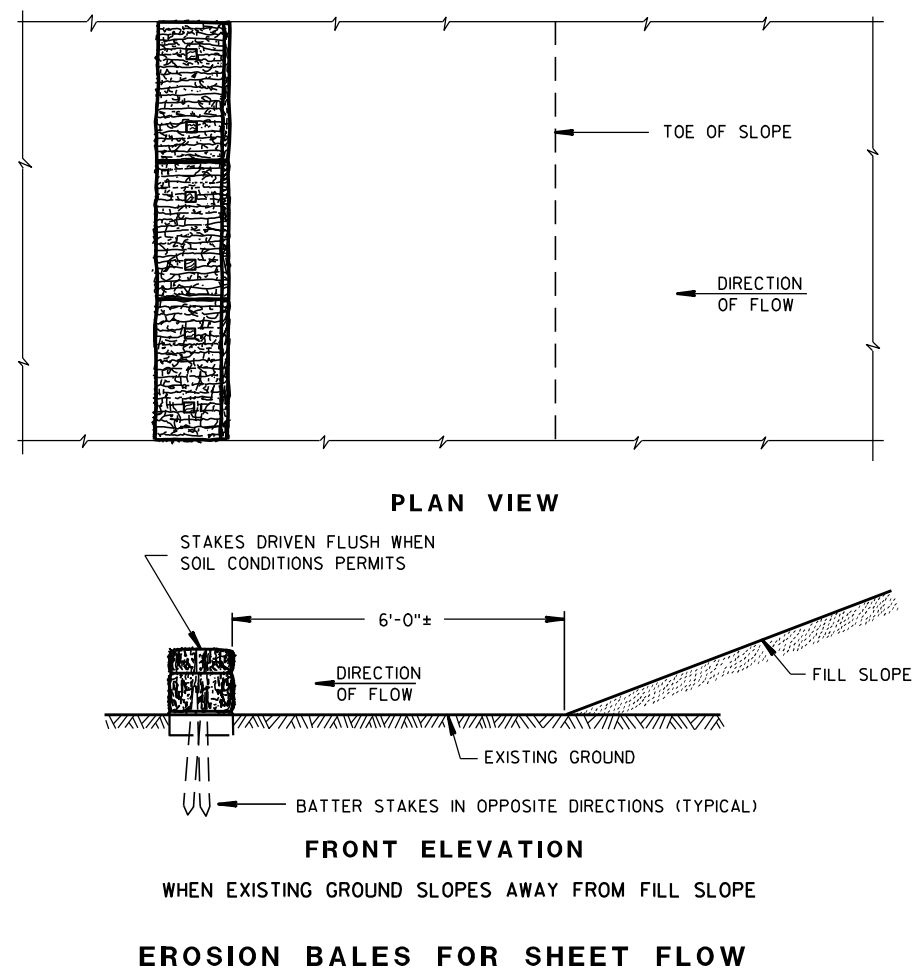
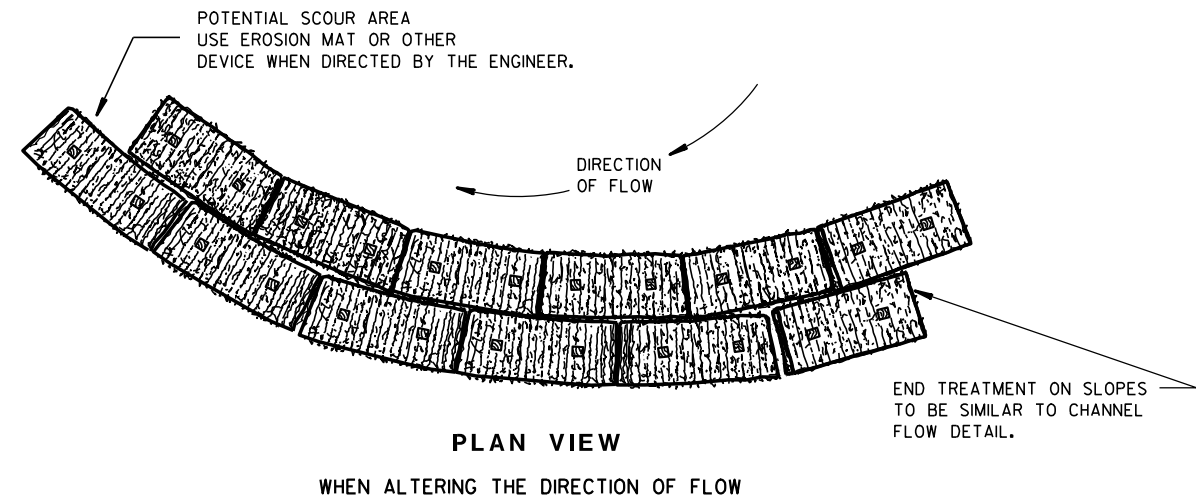




## GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

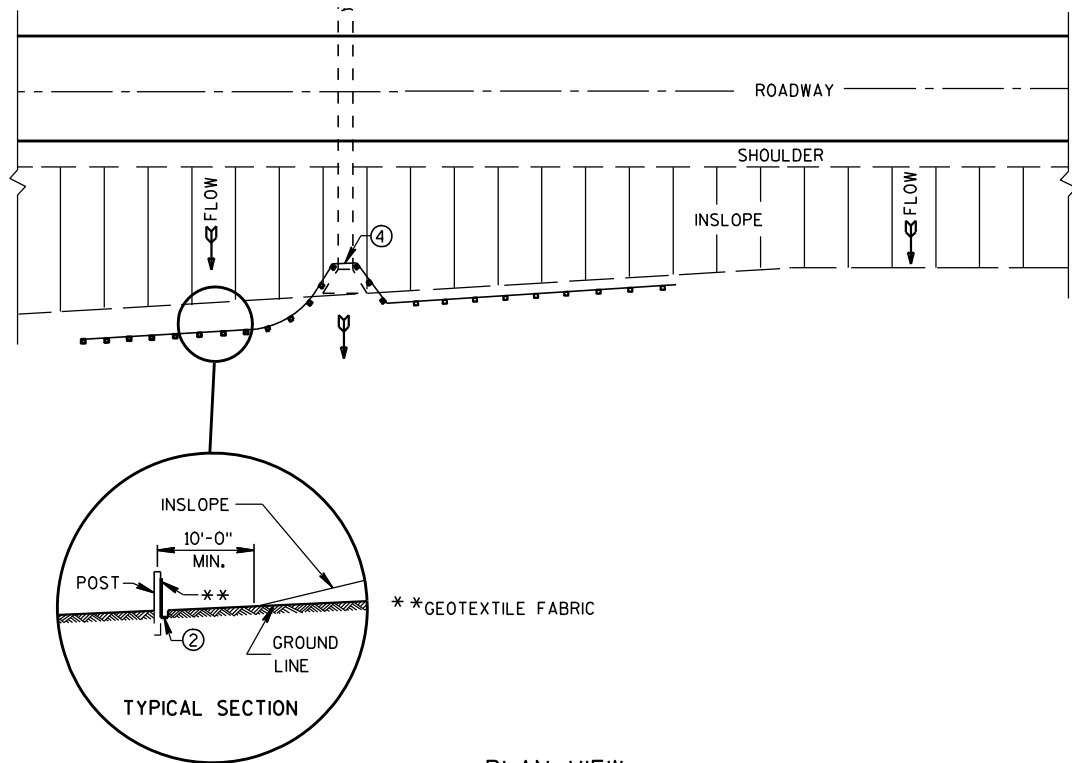
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

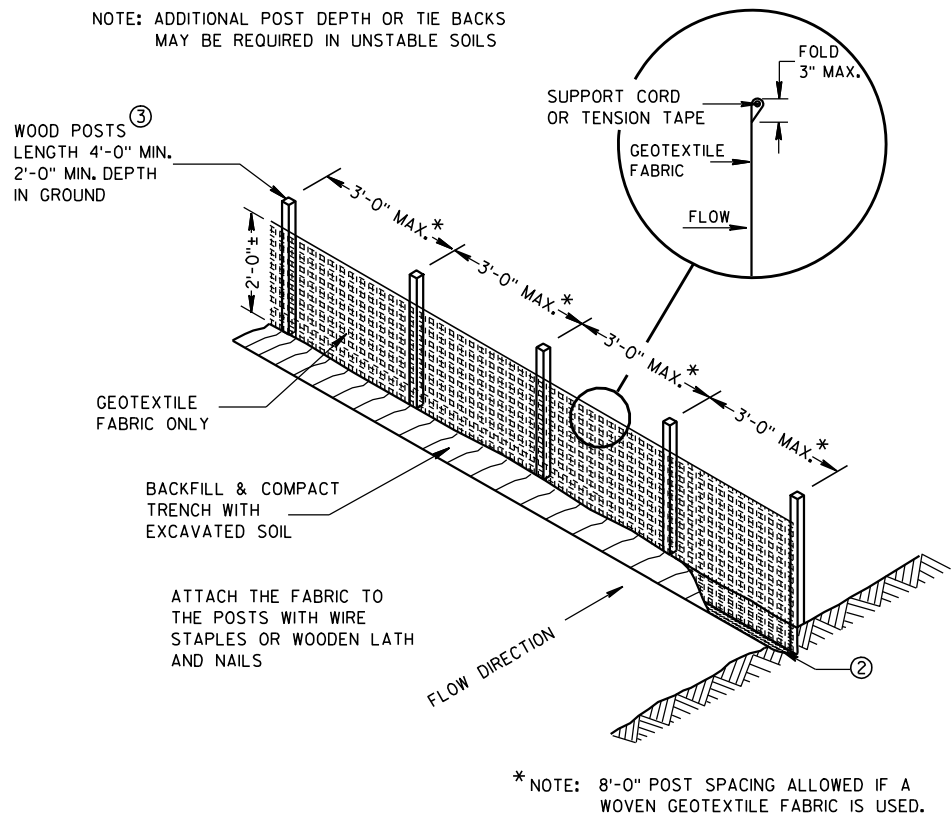
6/04/02  
DATE

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

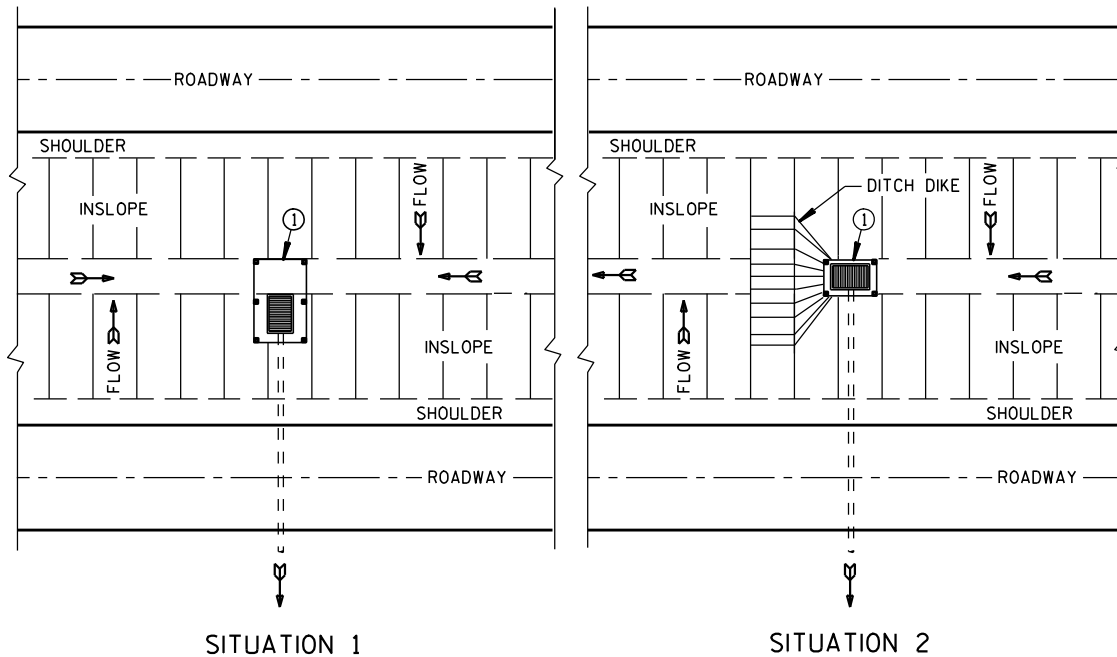
FHWA



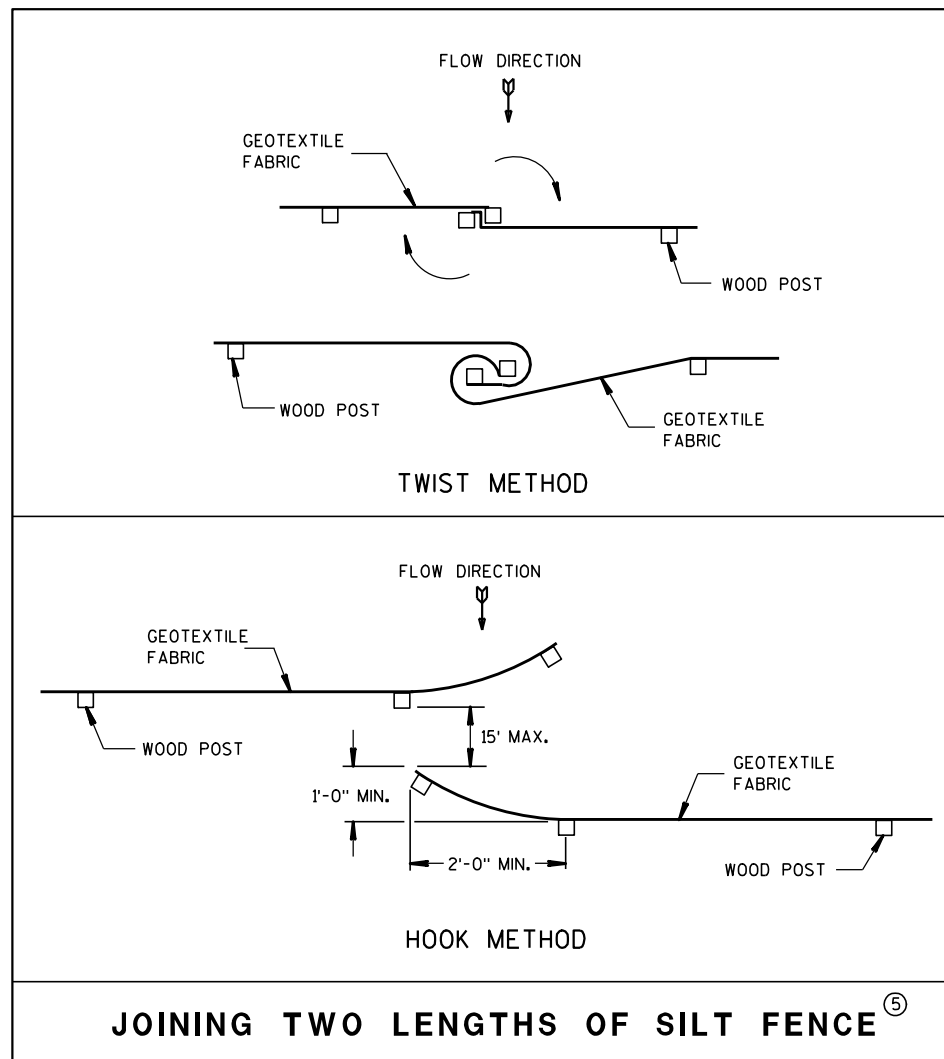
PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

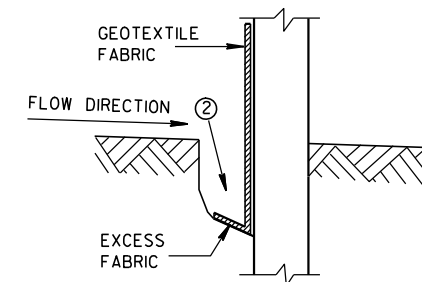


JOINING TWO LENGTHS OF SILT FENCE (5)

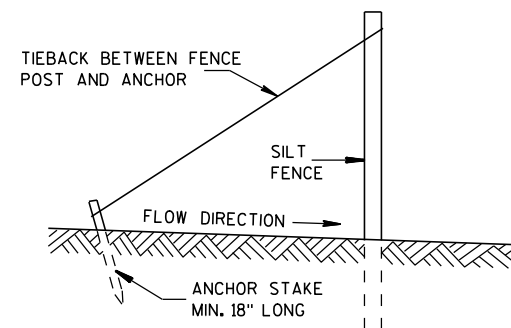
GENERAL NOTES

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

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



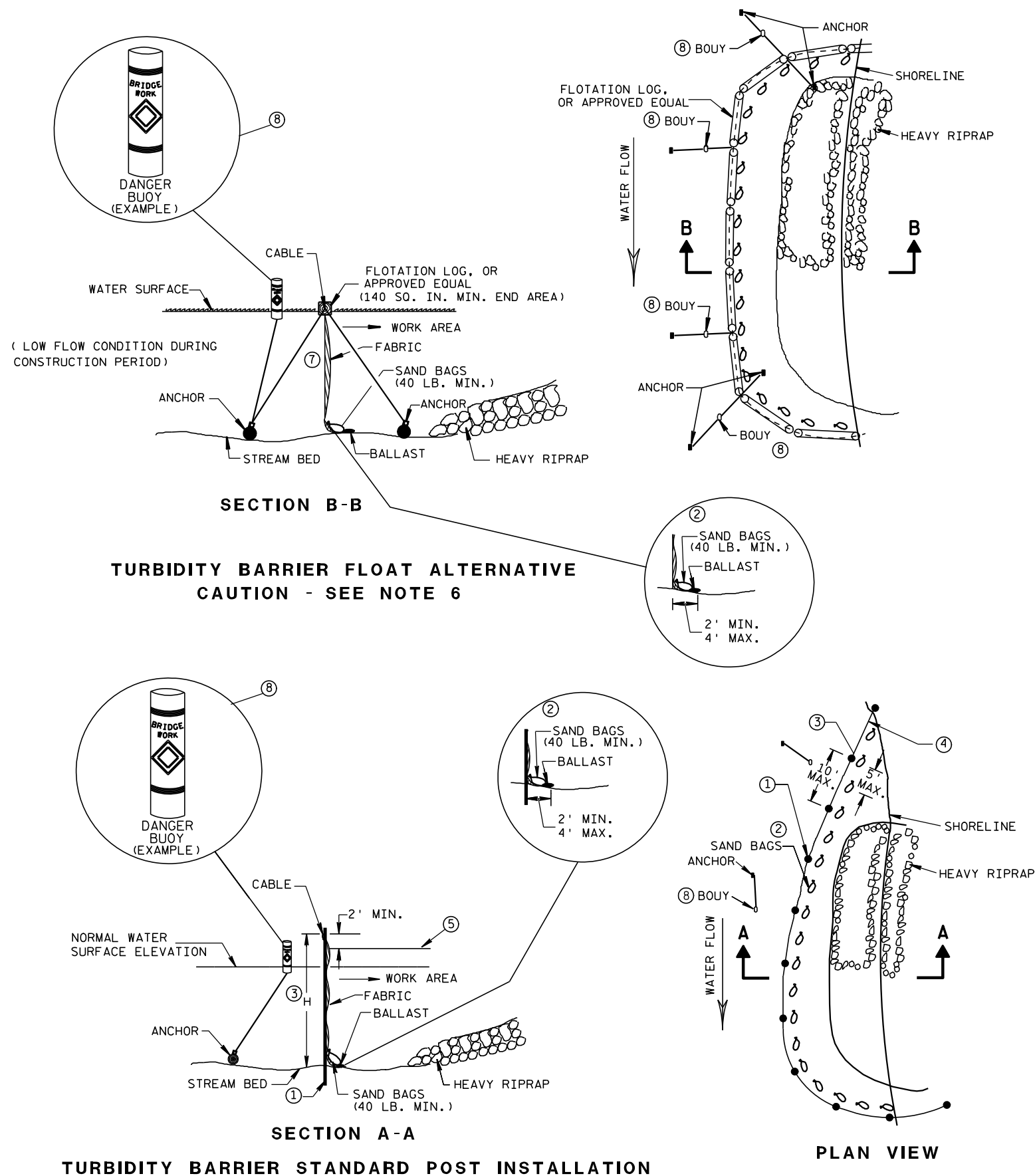
TRENCH DETAIL



SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

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



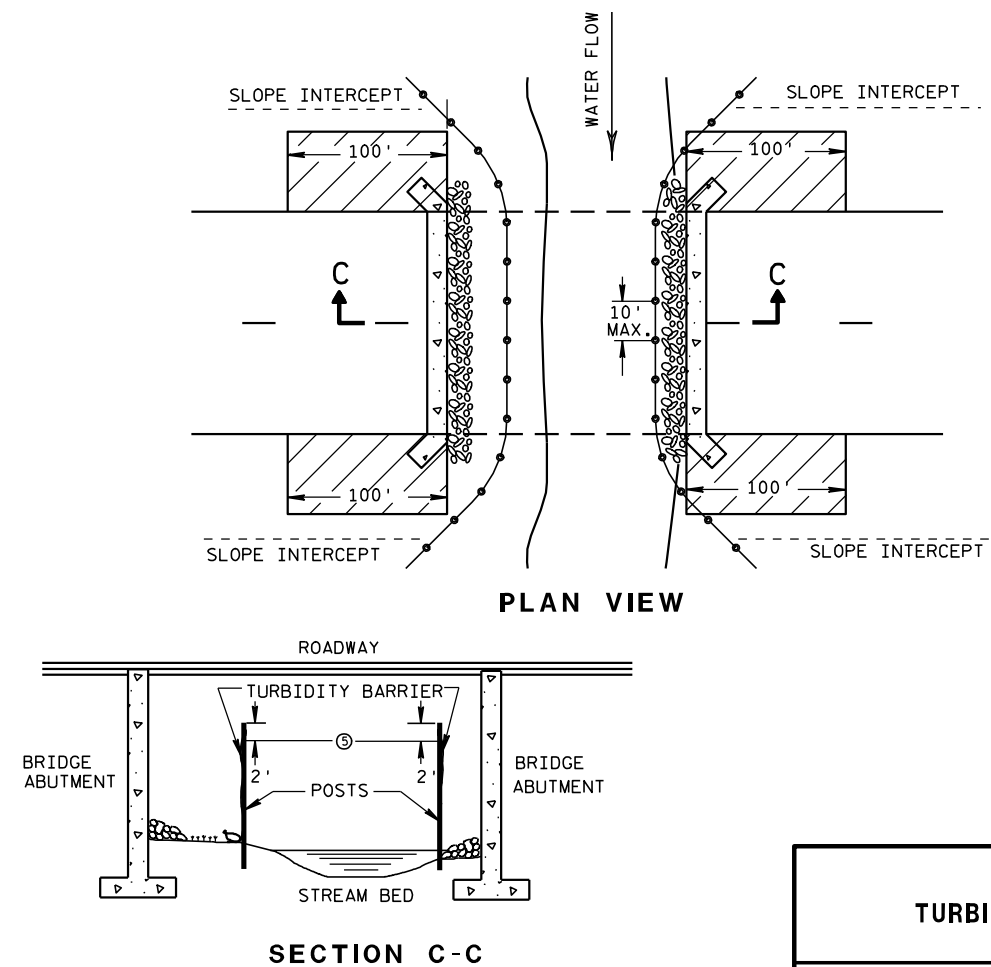


## GENERAL NOTES

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

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

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



## TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

### TURBIDITY BARRIER

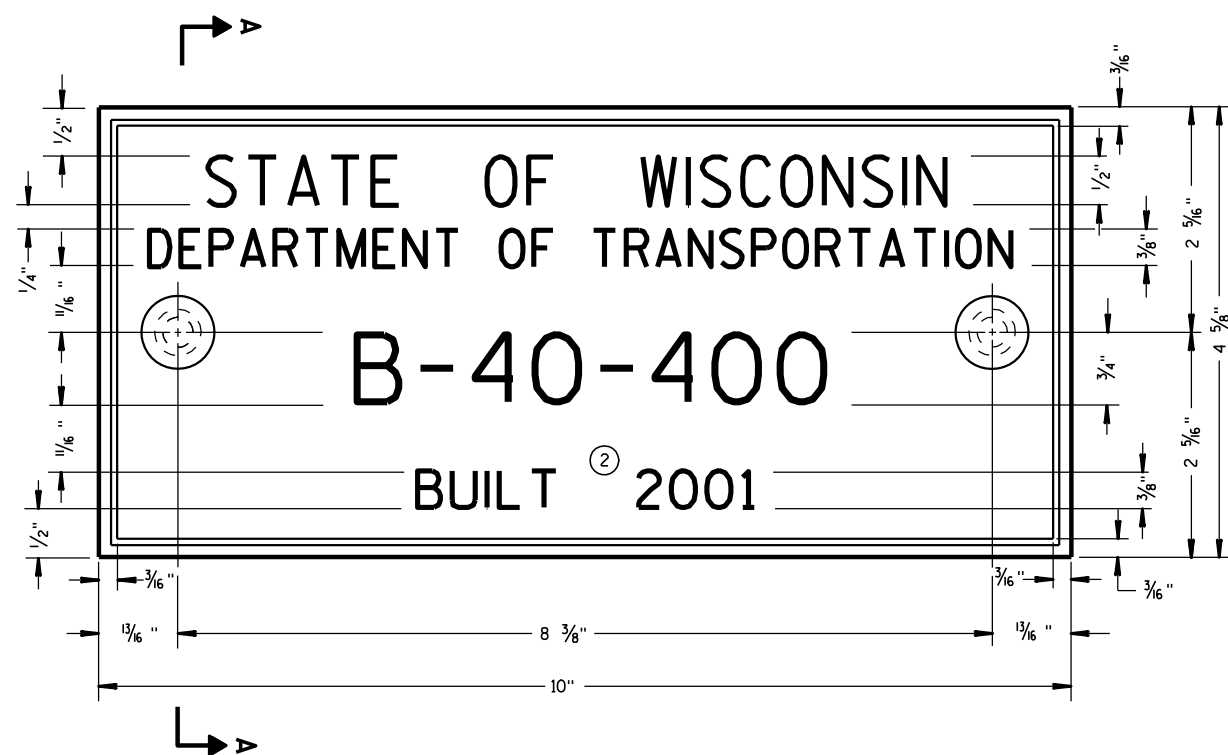
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02  
DATE

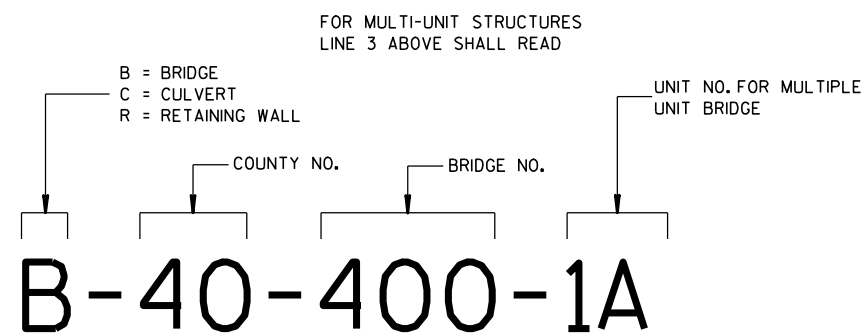
FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER



## TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



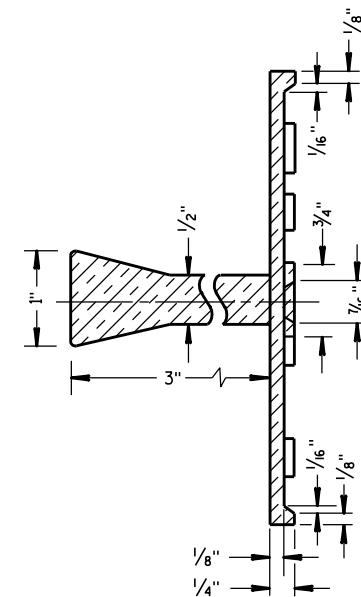
**NUMBERING DESIGNATION**  
**MULTI-UNIT STRUCTURES**

## GENERAL NOTES

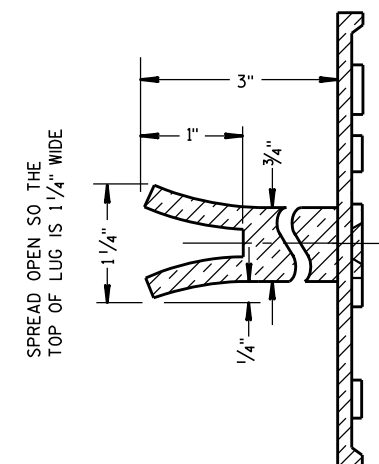
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

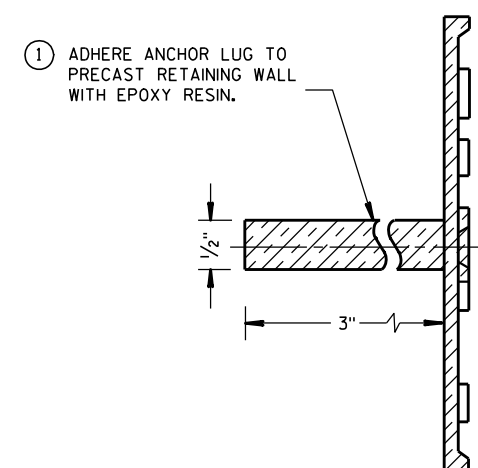
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



**SECTION A-A**



**ALTERNATE LUG**



### ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE  
(STRUCTURES)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

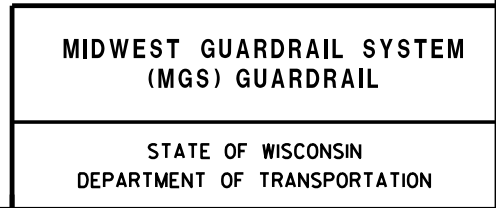
APPROVED

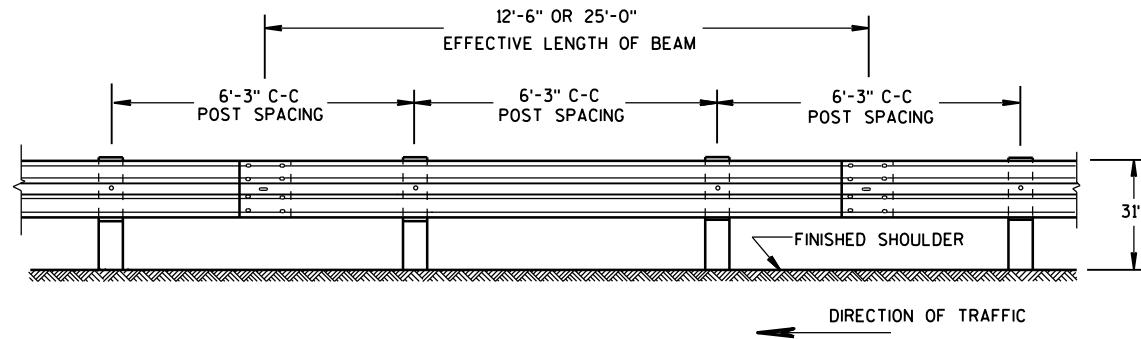
3/26/10  
DATE

FHWA

/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

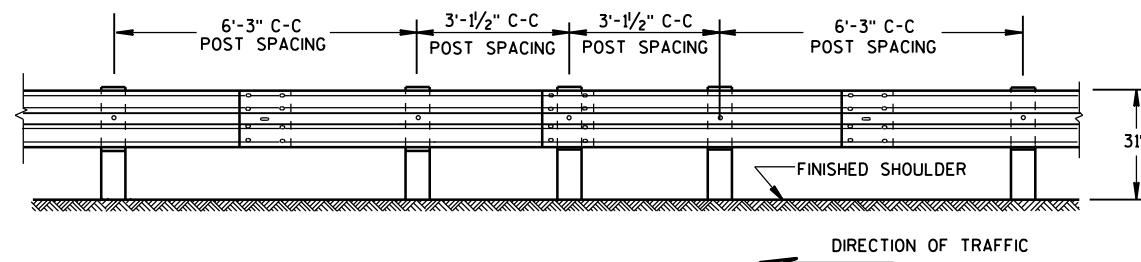
- S.D.D. 14 B 42-5a**





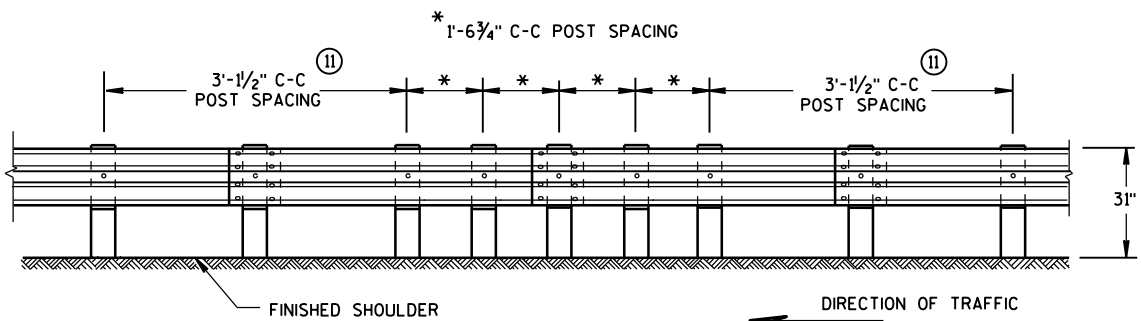
FRONT VIEW

## POST SPACING STANDARD INSTALLATION



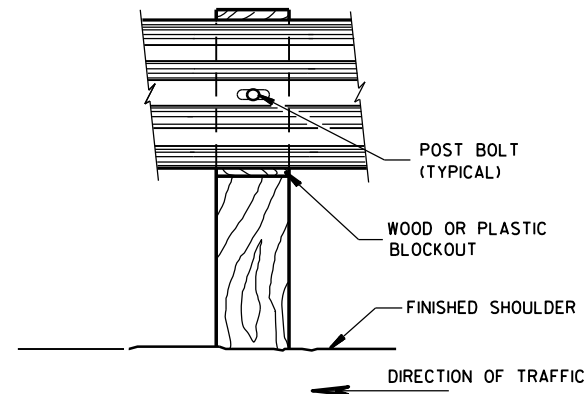
FRONT VIEW

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

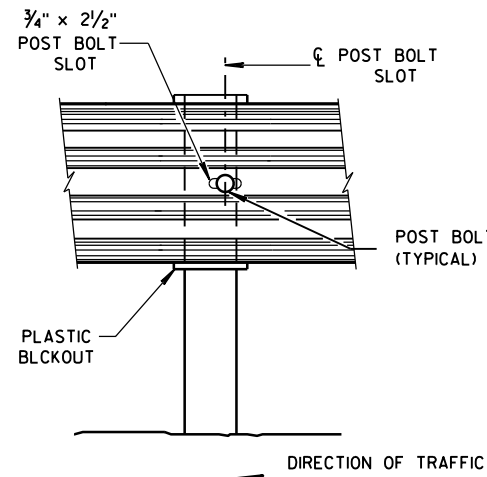


FRONT VIEW

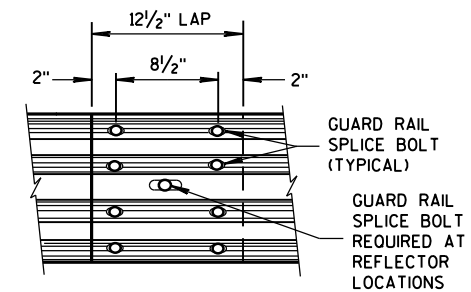
## QUARTER POST SPACING (QS)



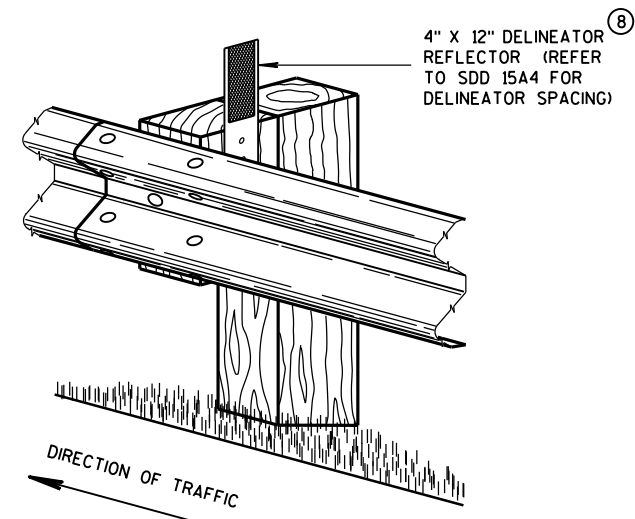
FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



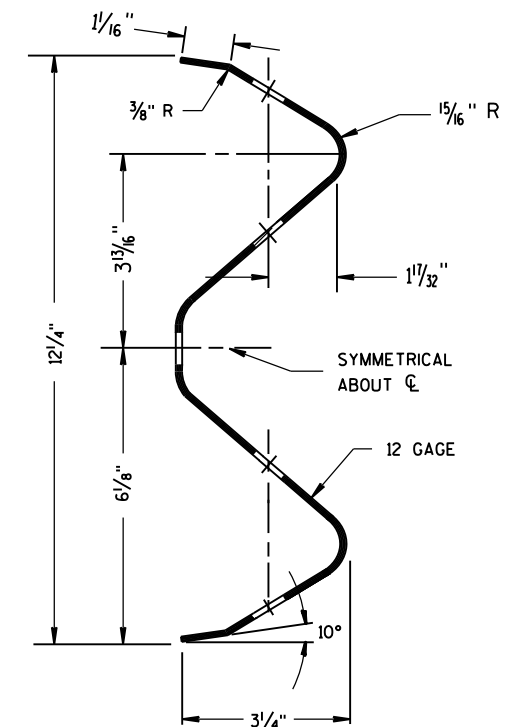
FRONT VIEW  
MID-SPAN BEAM SPLICE



## ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

## GENERAL NOTES

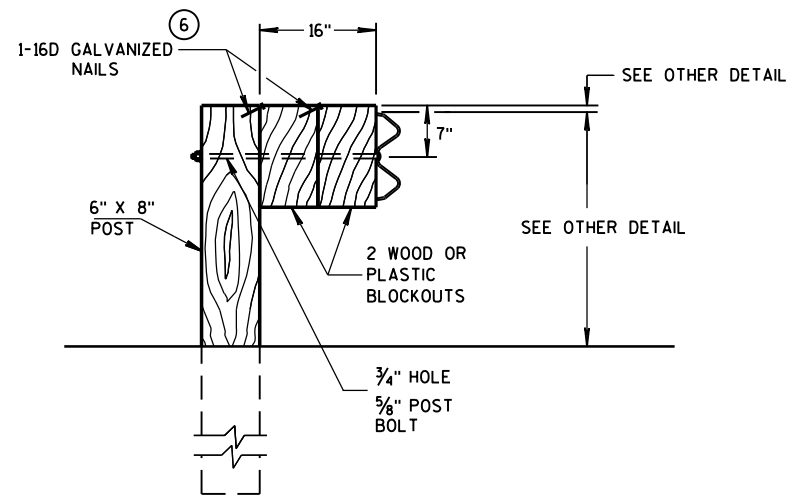
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
  - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8"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



SECTION THRU W-BEAM RAIL

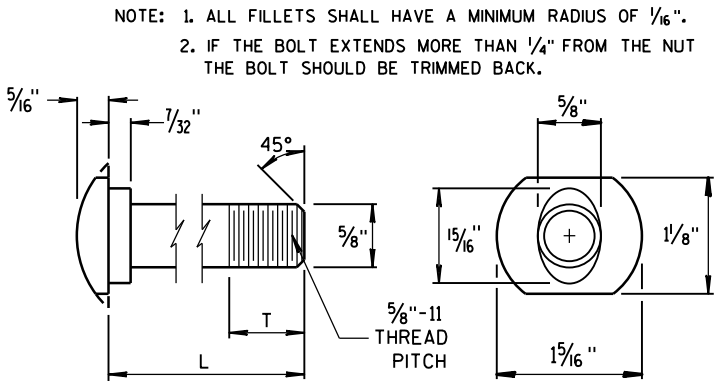
MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

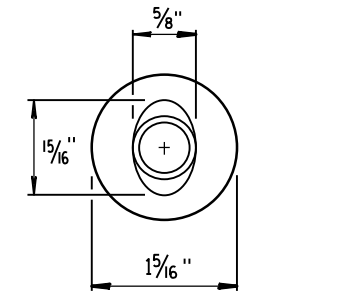


### DETAIL FOR 16" BLOCKOUT DEPTH

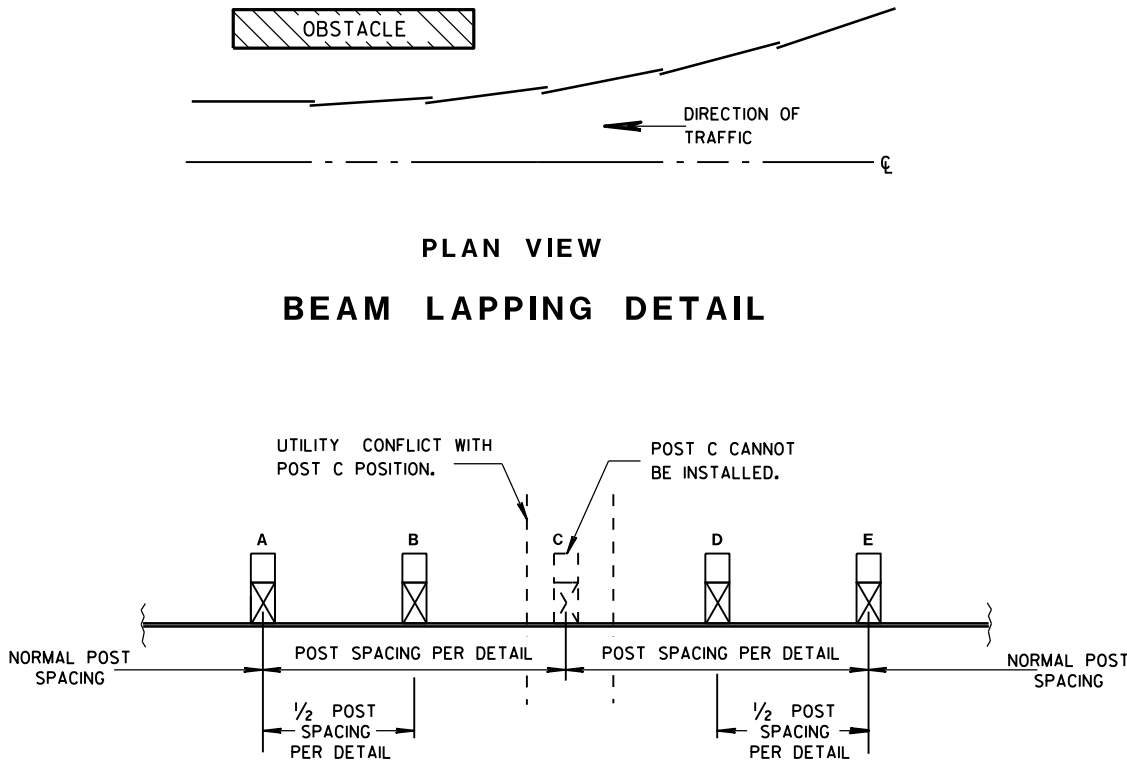
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



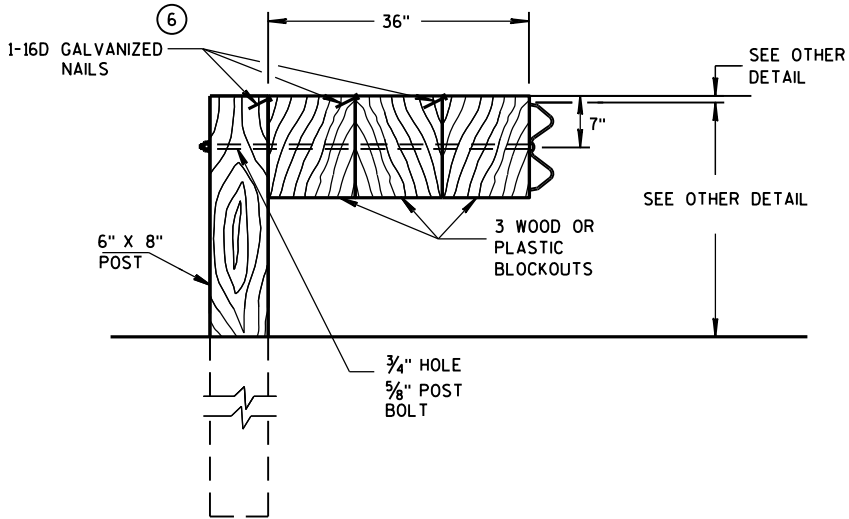
POST BOLT TABLE



ALTERNATE BOLT HEAD



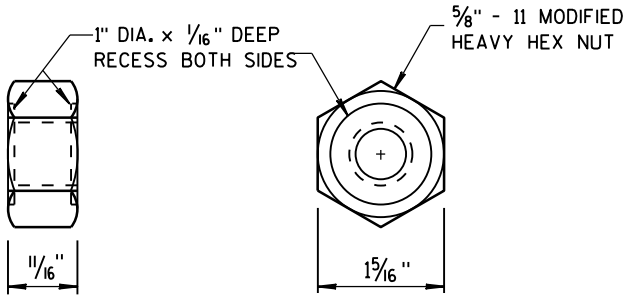
### POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



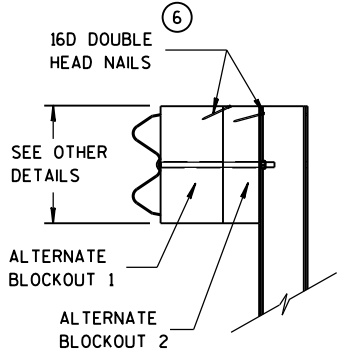
### DETAIL FOR 36" BLOCKOUT DEPTH

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

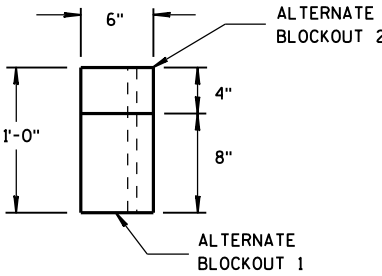
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



### POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

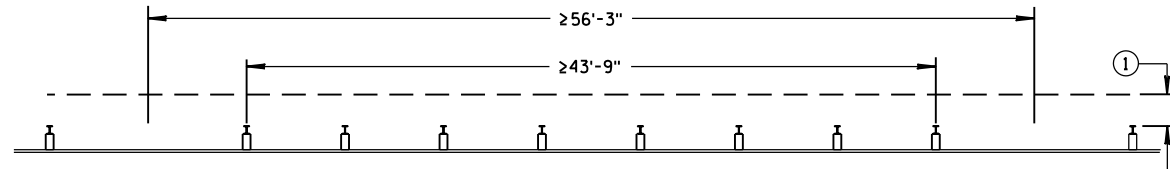


TOP VIEW

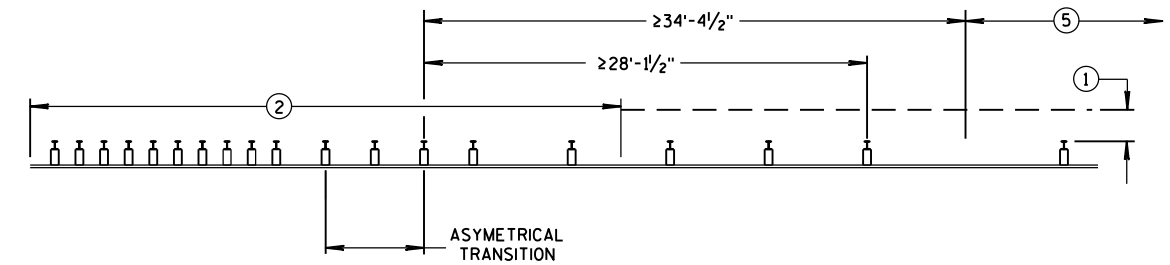
### ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

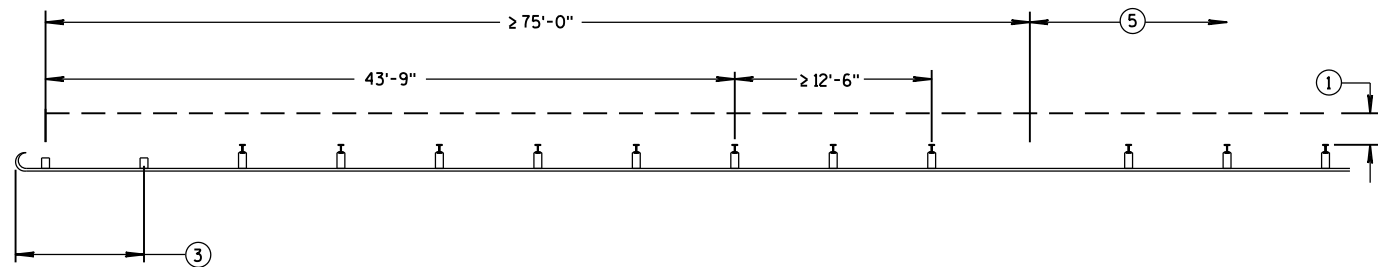
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



MISSING POST IN NORMAL BEAM GUARD RUN

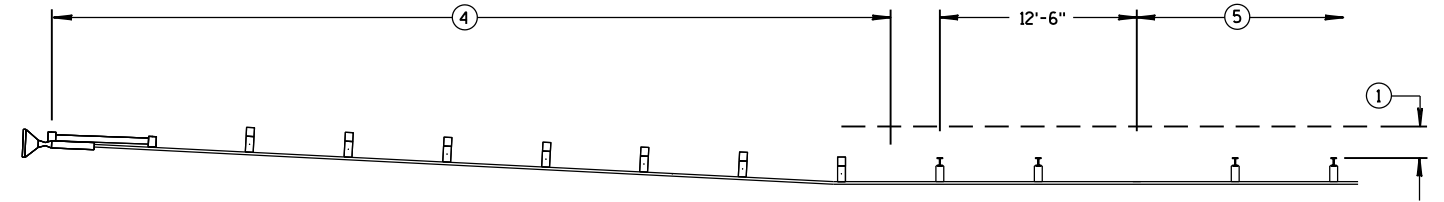


MISSING POST NEAR APPROACH THRIE BEAM TRANSITION

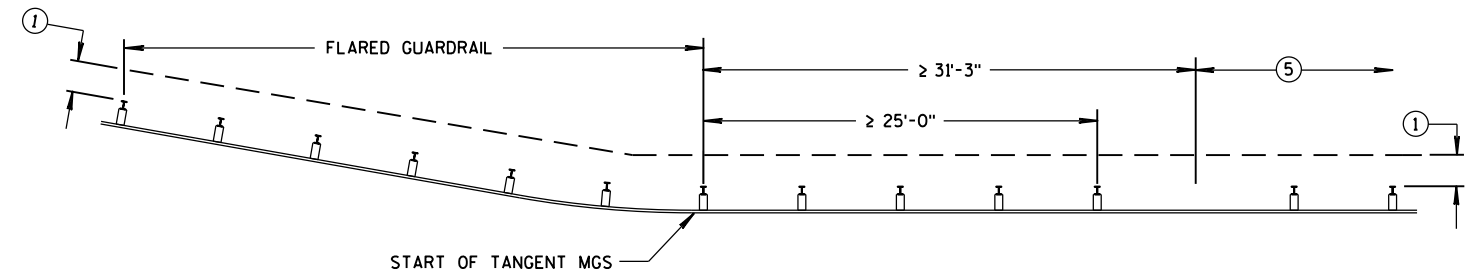


MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR TYPE 2 TERMINAL

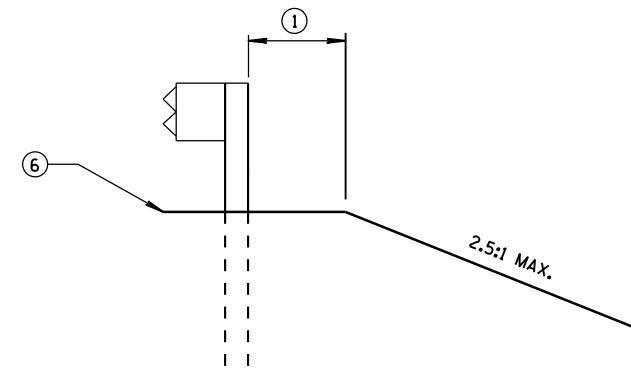
- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN  
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

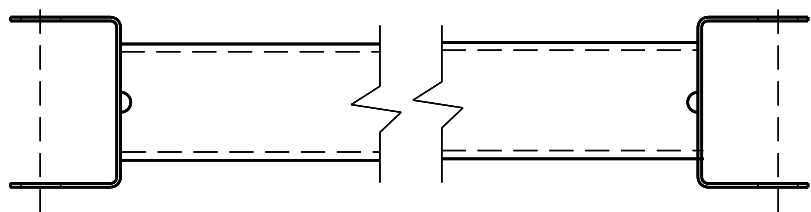
APPROVED  
June 2017  
DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

6

- S.D.D. 14 B 44-3a**

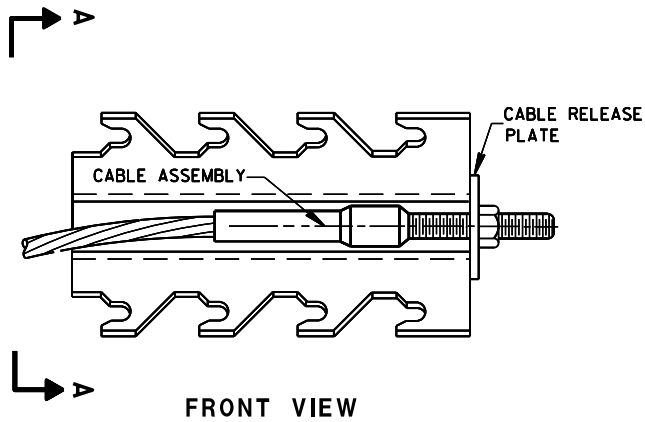
<b>MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)</b>
<b>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</b>





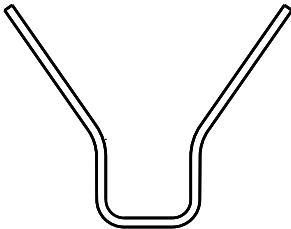
GENERIC GROUND STRUT

9 H

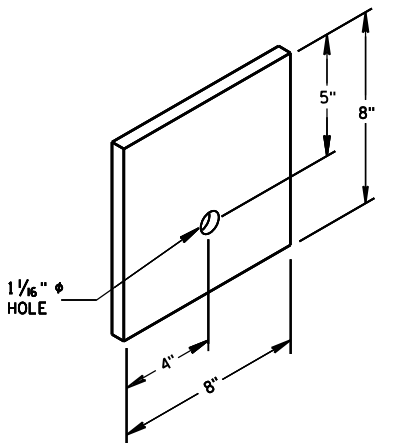


GENERIC ANCHOR CABLE BOX

8 H



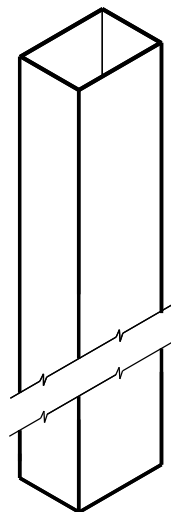
SECTION A-A



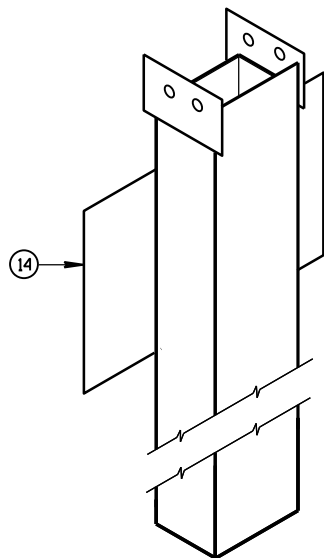
BEARING PLATE

6

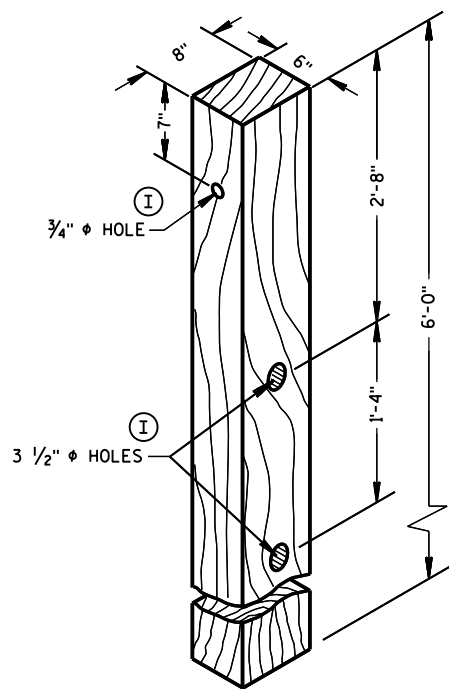
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	UPPER POST NO.1 6" X 6" TUBE
②	LOWER POST NO.1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



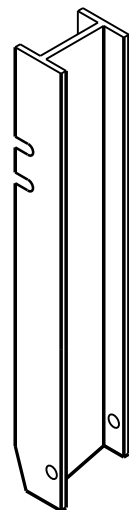
UPPER POST NO. 1<sup>(1)</sup>



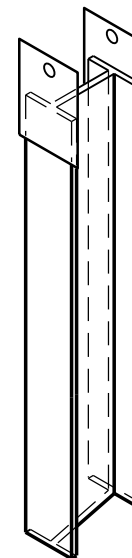
LOWER POST NO. 1<sup>(2)</sup>



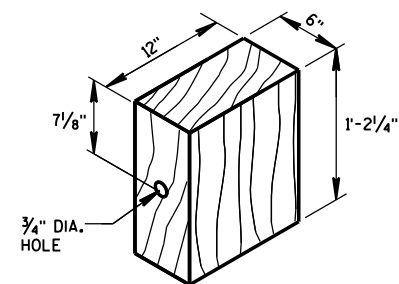
POSTS NUMBER 3-9  
WOOD CRT POST<sup>(3)</sup>



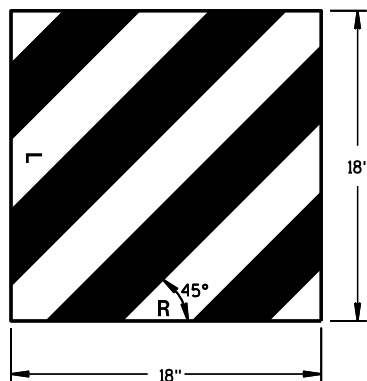
UPPER POST NO. 2<sup>(15)</sup>



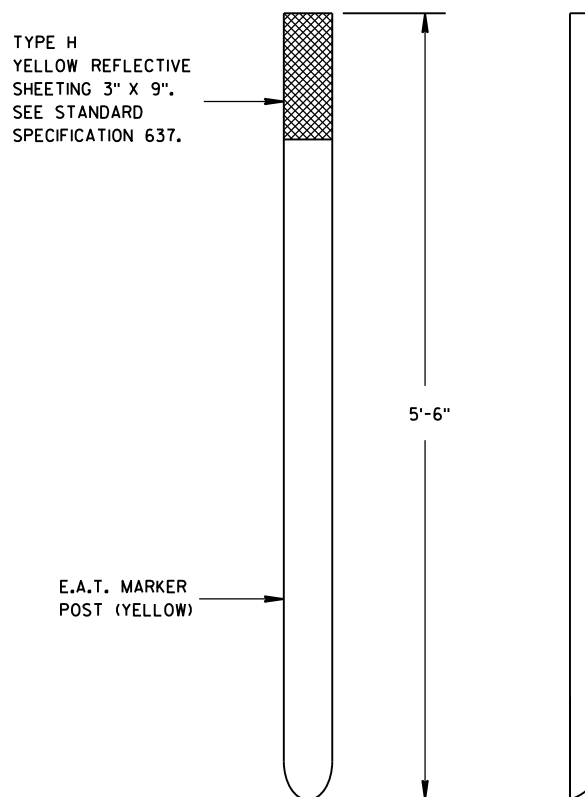
LOWER POST NO. 2<sup>(16)</sup>



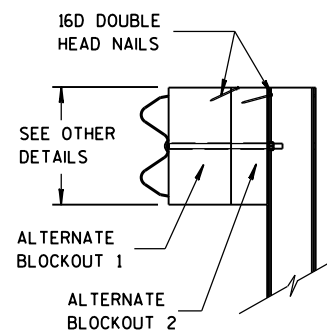
WOOD BLOCKOUT<sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



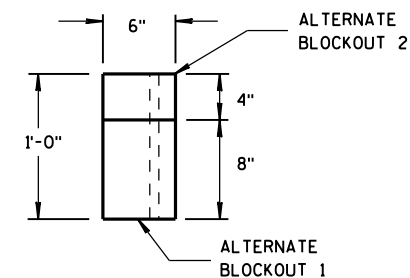
REFLECTIVE SHEETING DETAIL<sup>(H)</sup>



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



SIDE VIEW



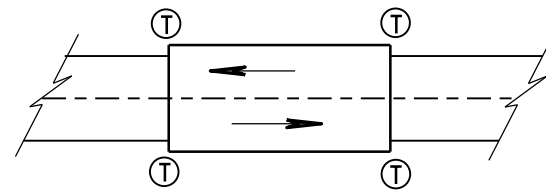
TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

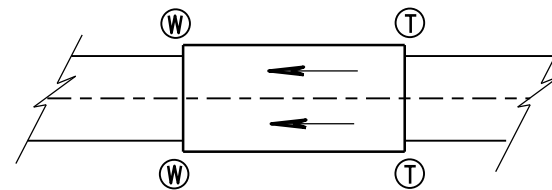
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

## GENERAL NOTES

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

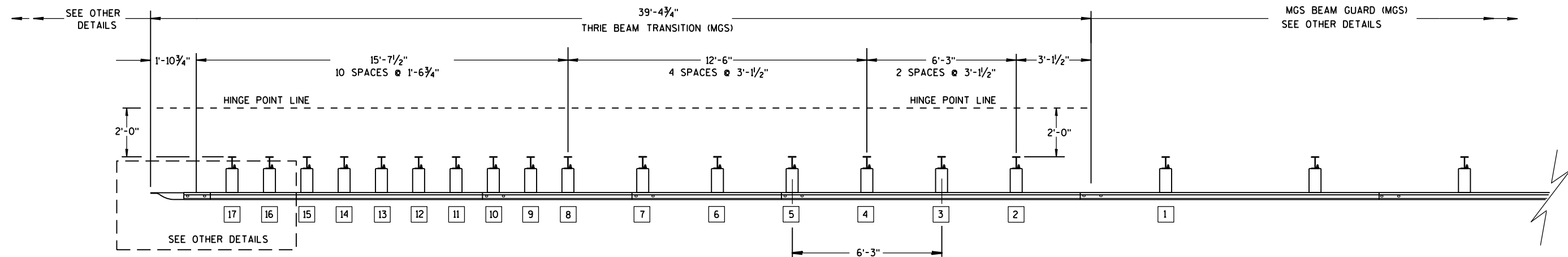
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

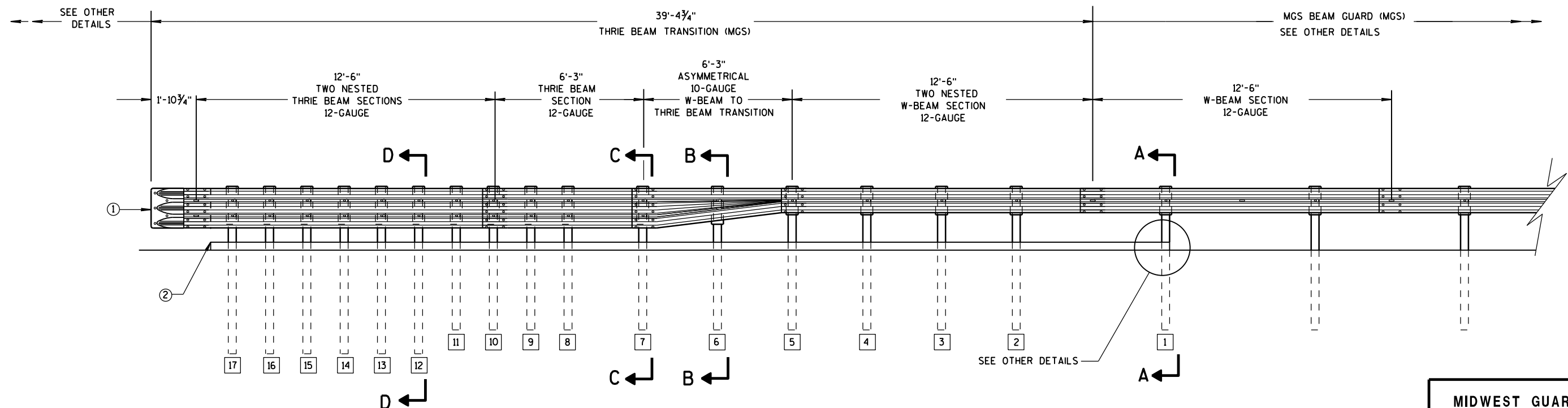
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

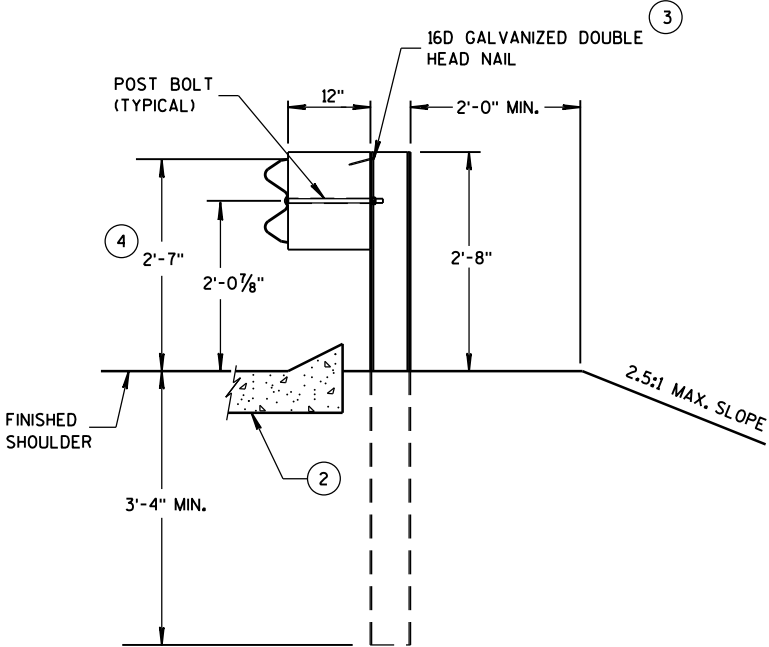
## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

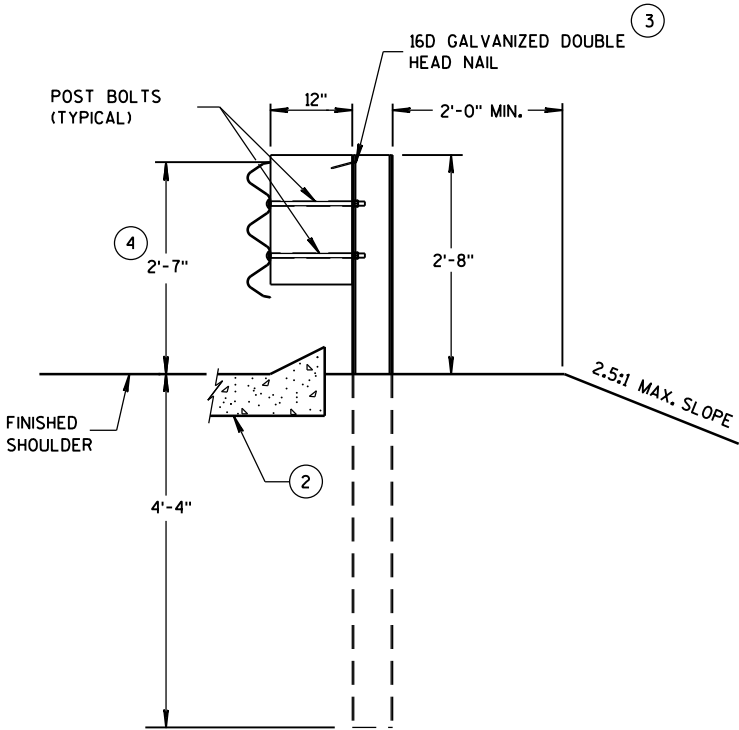
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

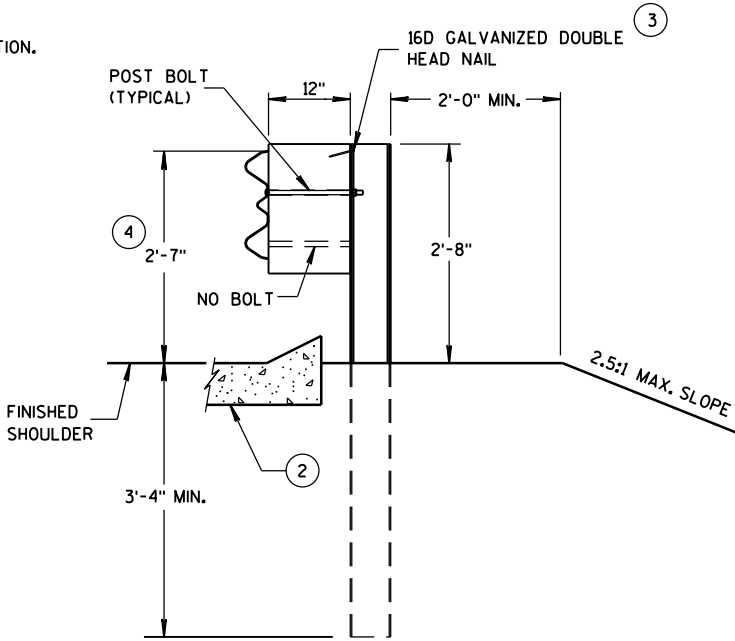
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



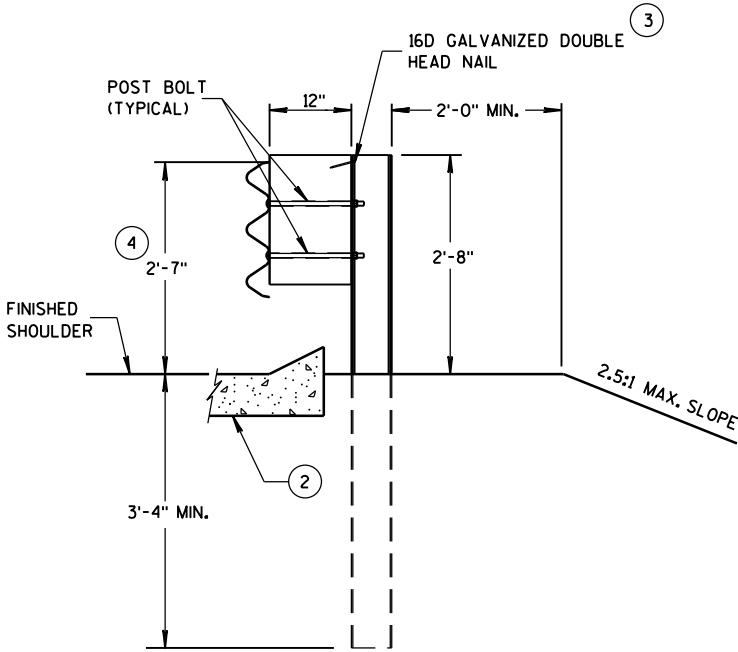
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

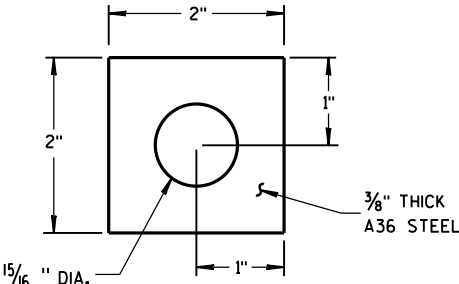
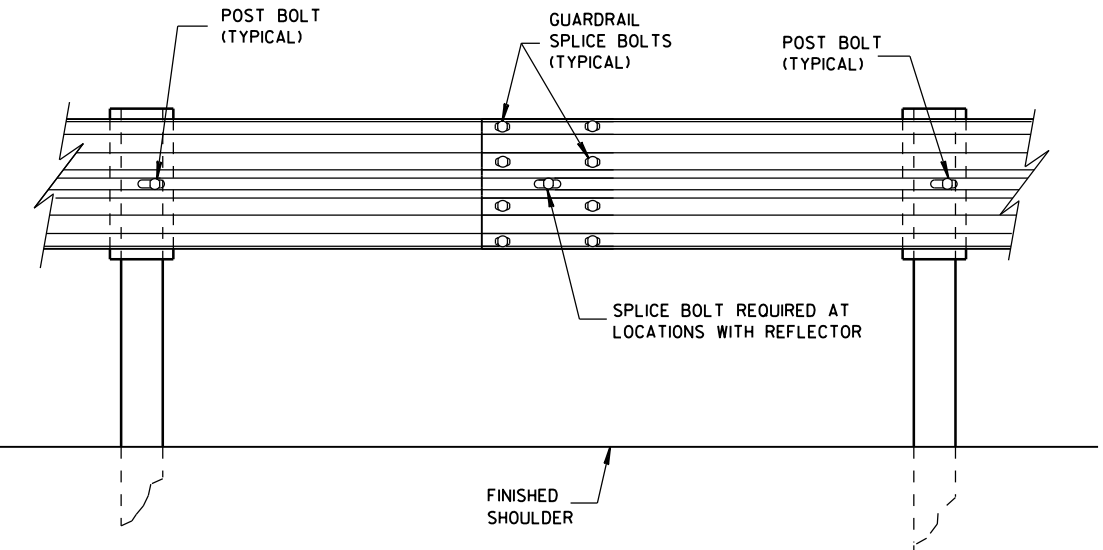
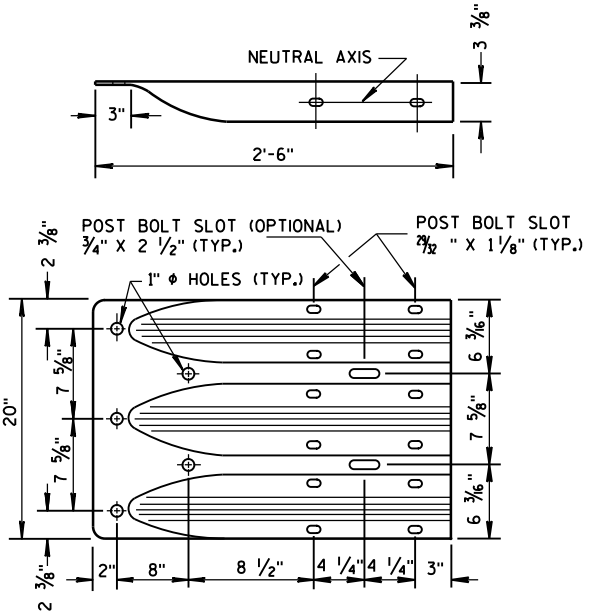


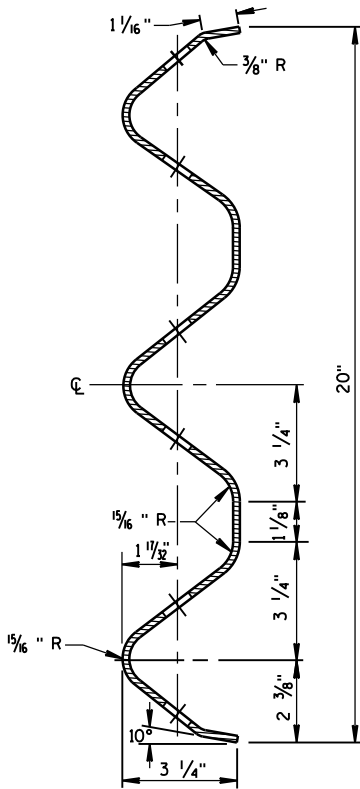
PLATE WASHER DETAIL



SPlice DETAIL



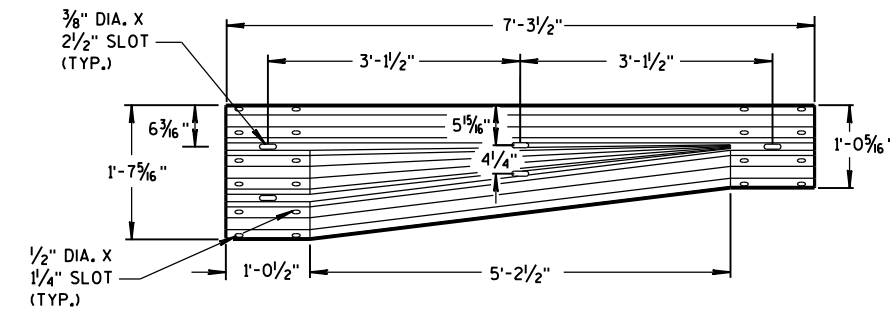
THRIE BEAM  
TERMINAL CONNECTOR



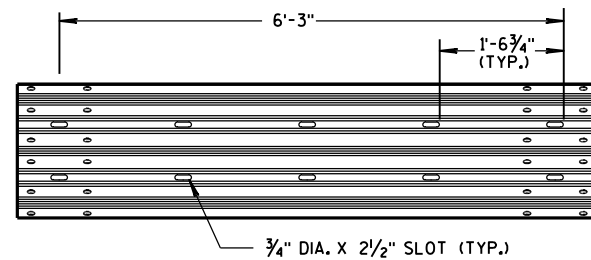
SECTION THRU THRIE  
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

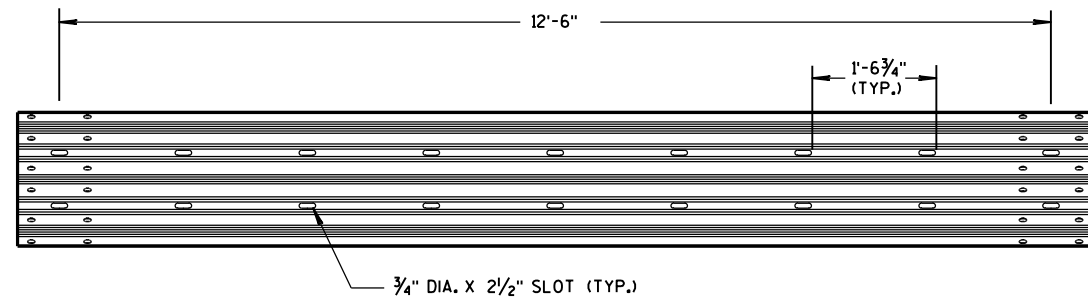
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



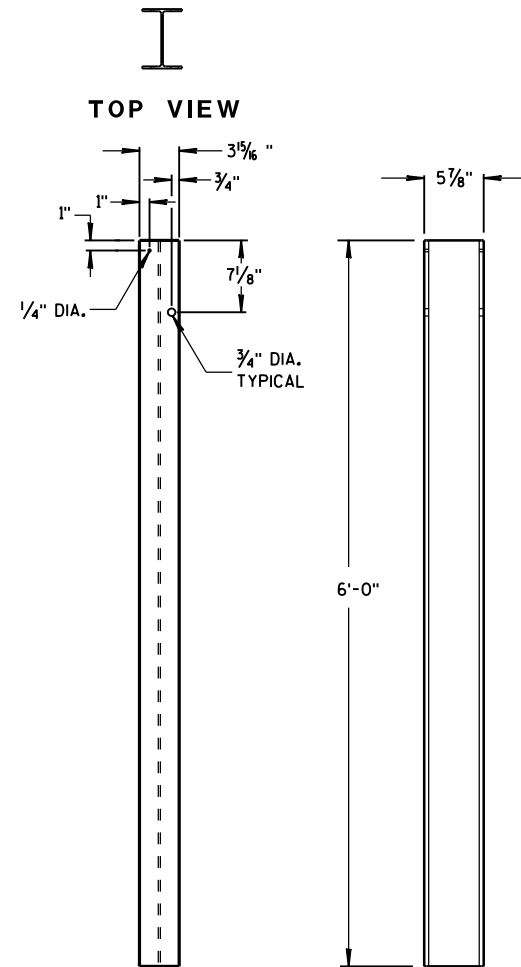
W-BEAM TO THRIE BEAM TRANSITION SECTION



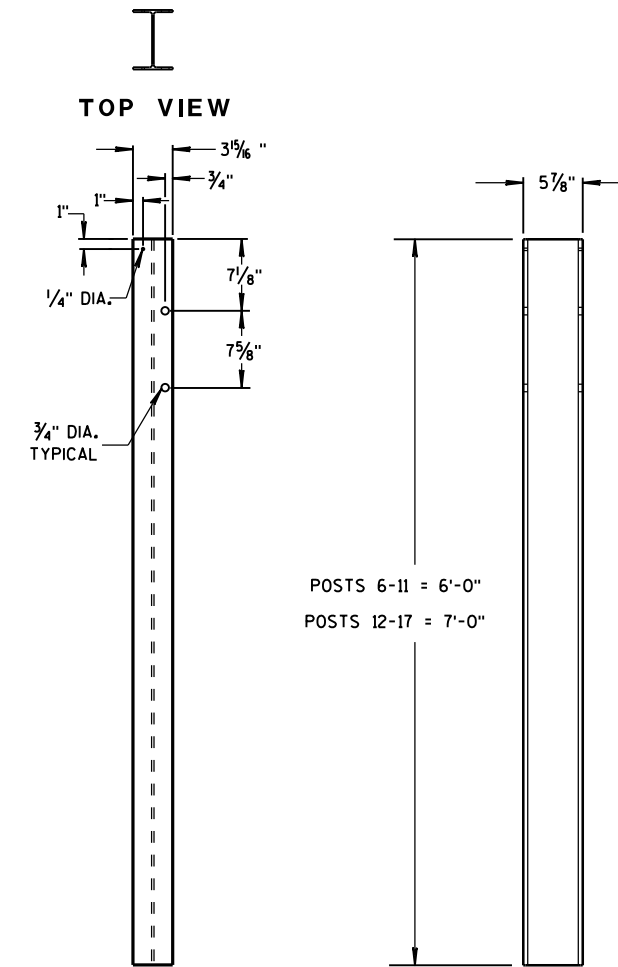
6'-3" THRIE BEAM SECTION



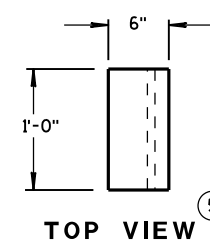
12'-6" THRIE BEAM SECTION



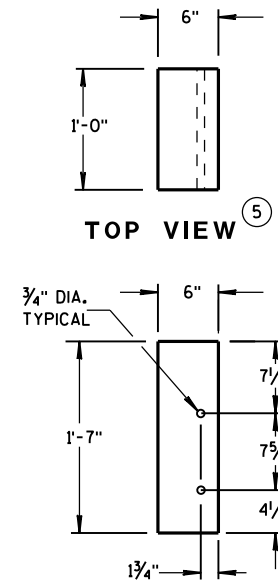
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

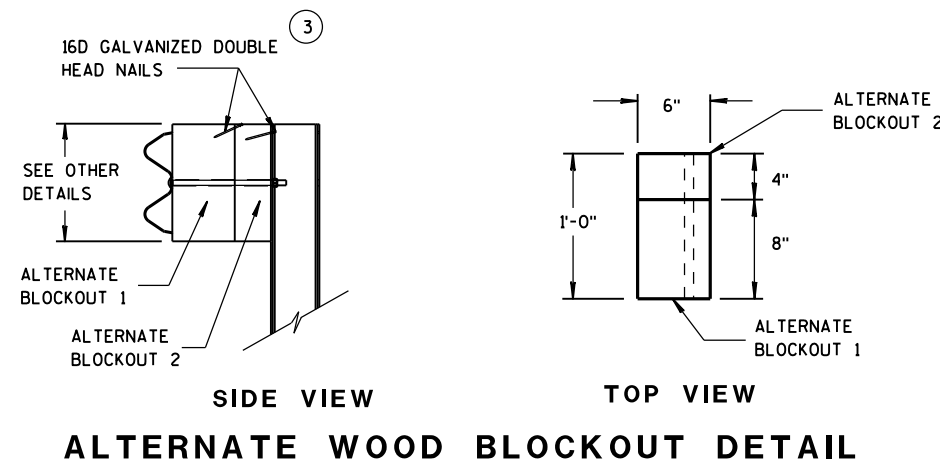
### GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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



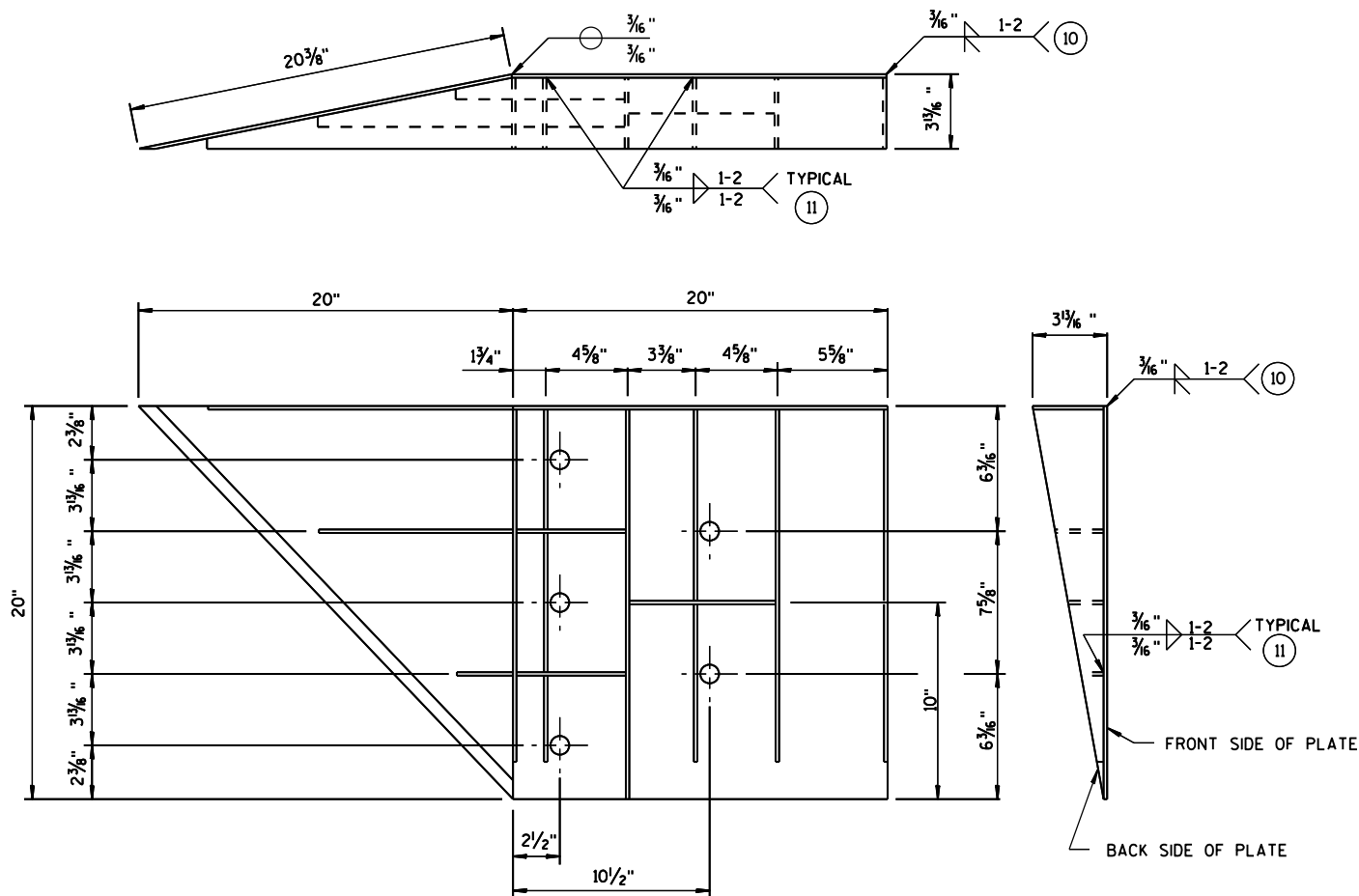
SIDE VIEW

TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

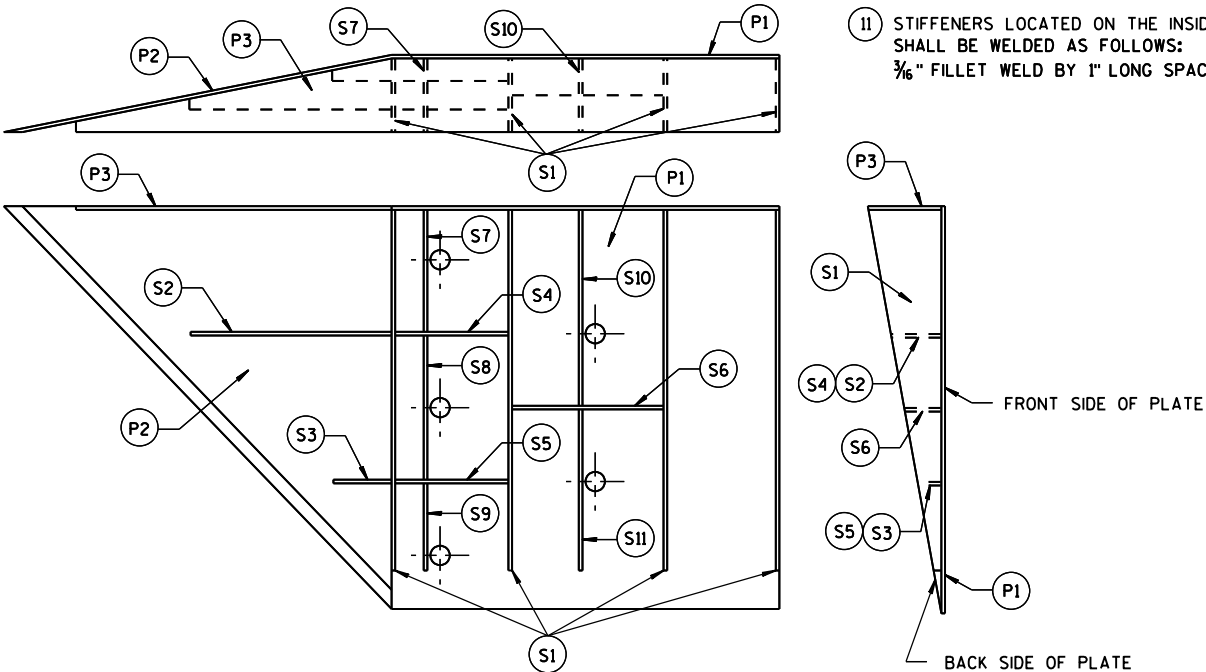


**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)

**SINGLE SLOPE CONNECTION 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 9/16"	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 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	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 9/16" x 6" x 3 5/8" x 5 1/8"	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 7/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 1/16"	1/4"

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



**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.

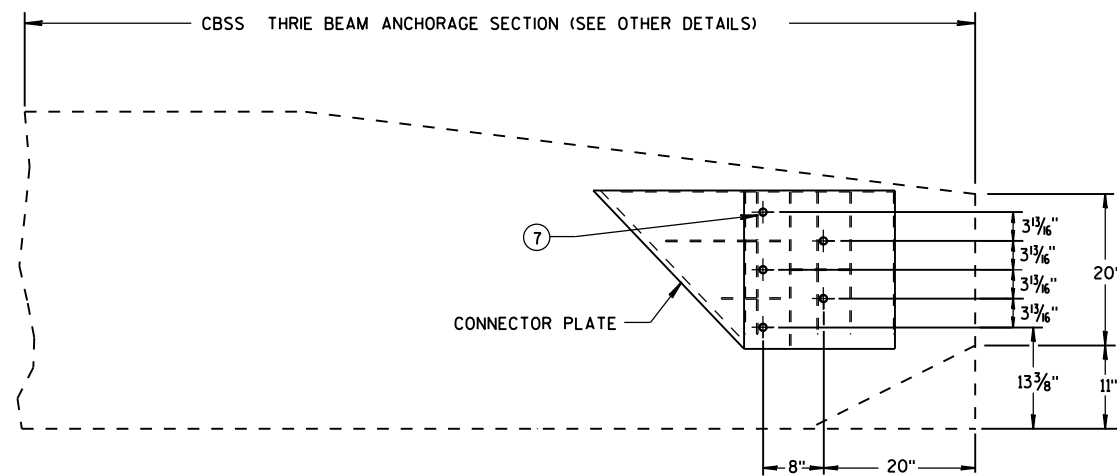
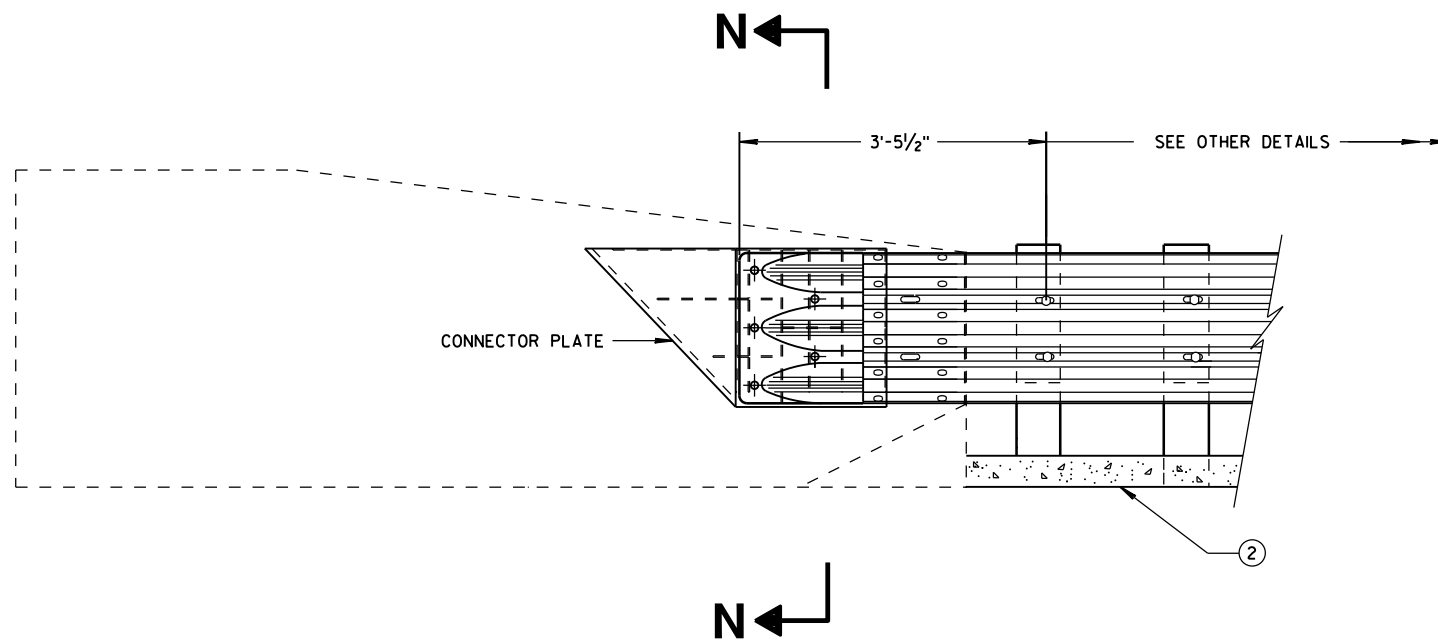
- 10 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 11 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
3/16" FILLET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

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

# THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



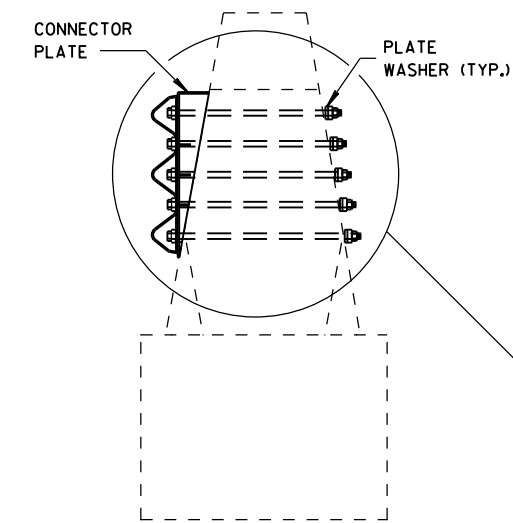
## SINGLE SLOPE CONNECTION PLATE PLACEMENT

## GENERAL NOTES

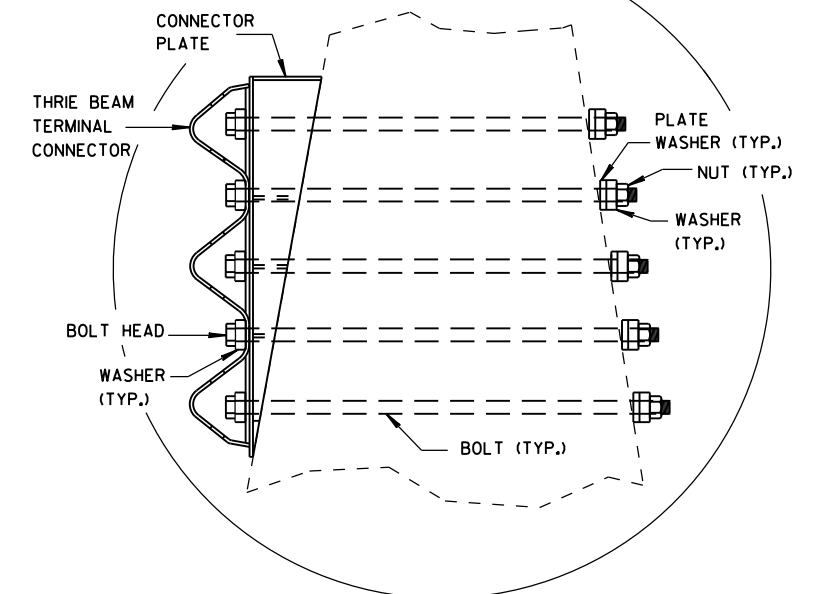
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015

DATE

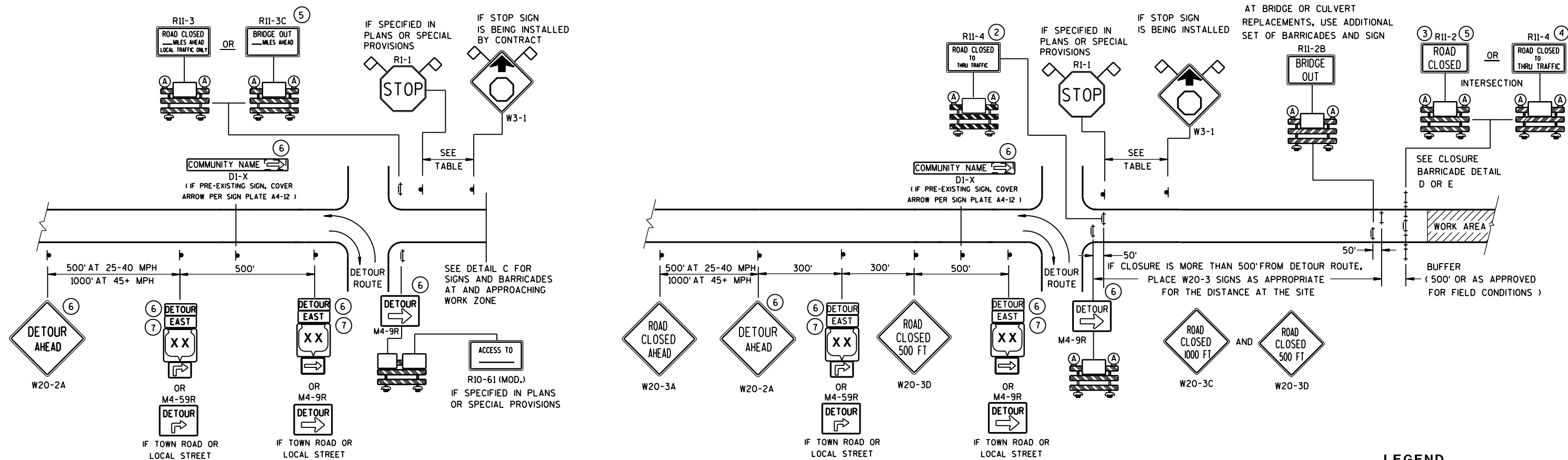
FHWA

/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER

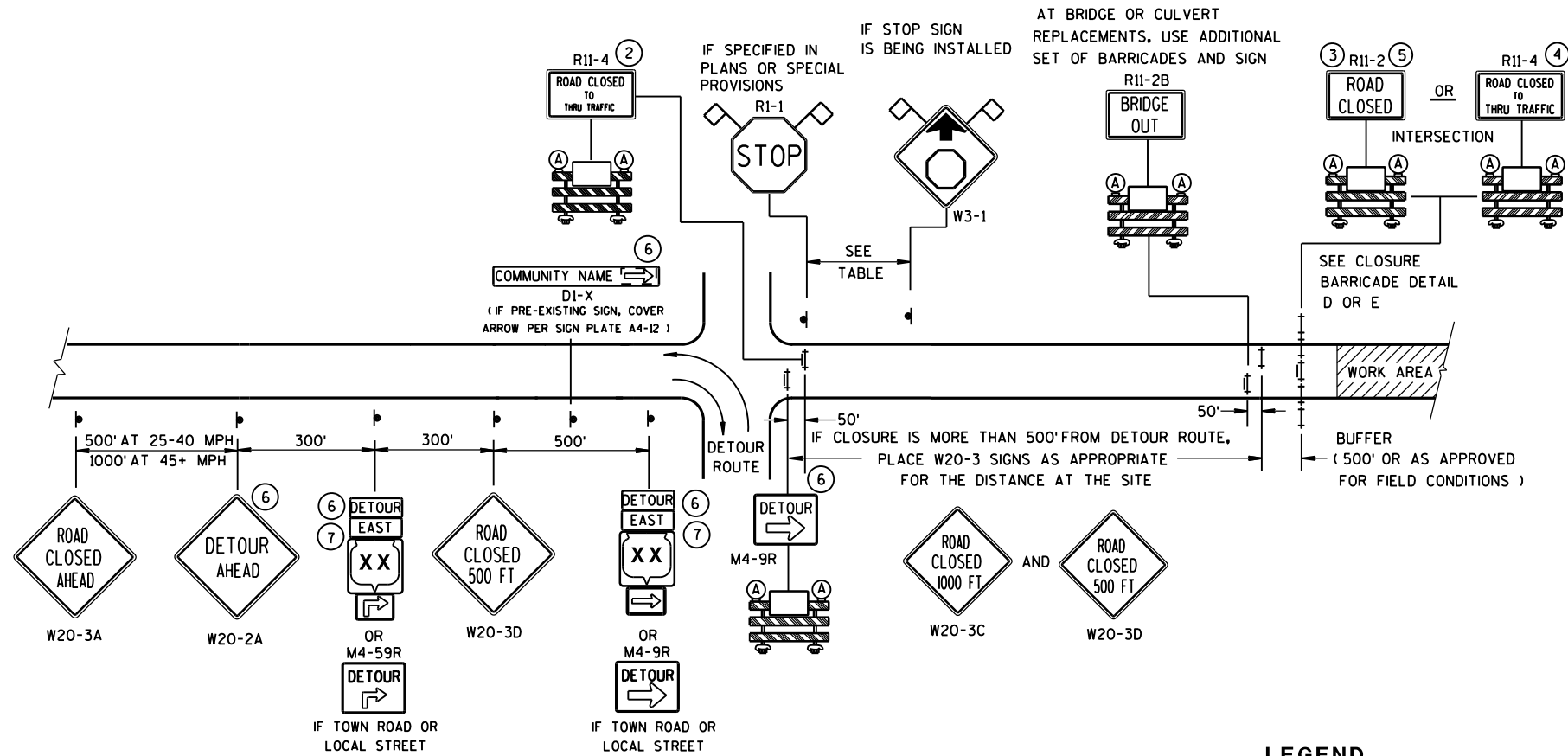




DETAIL A

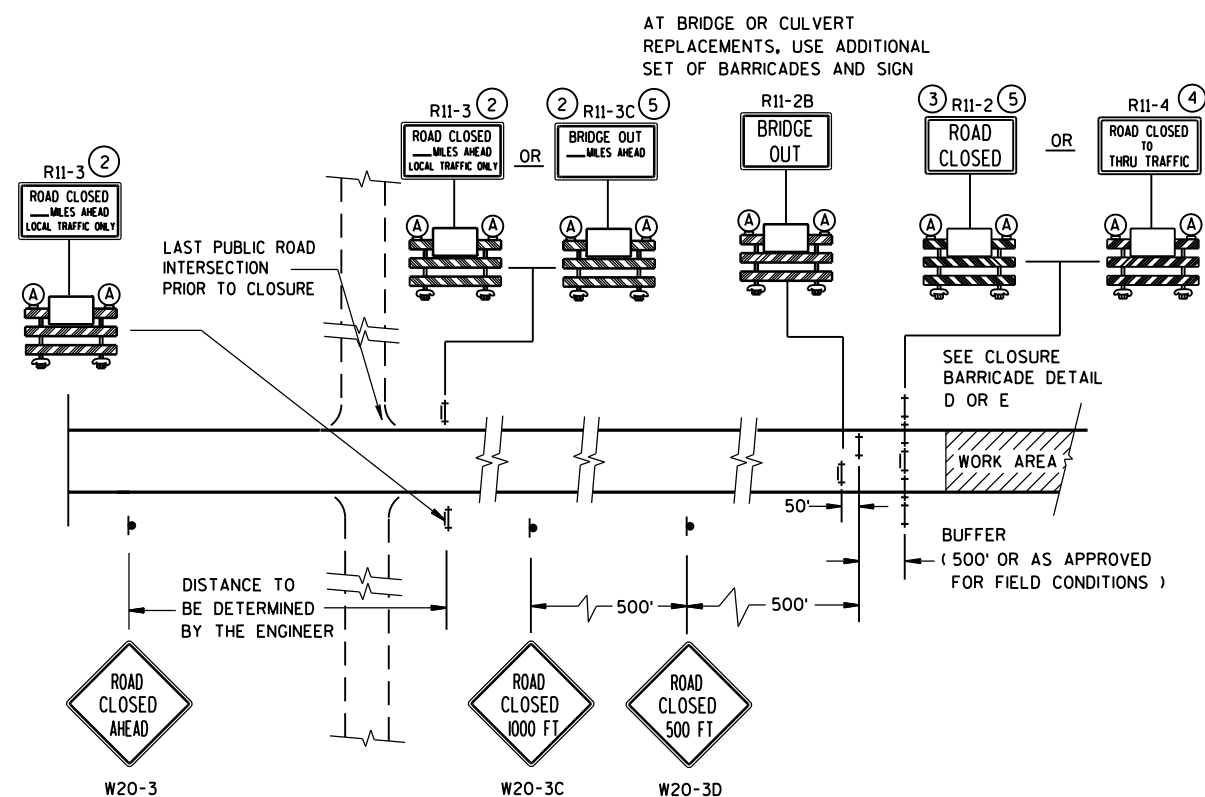
**MAINLINE CLOSURE WITH POSTED DETOUR**

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



**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**

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















DETAIL C

**MAINLINE CLOSURE, NO POSTED DETOUR**

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

- ### LEGEND

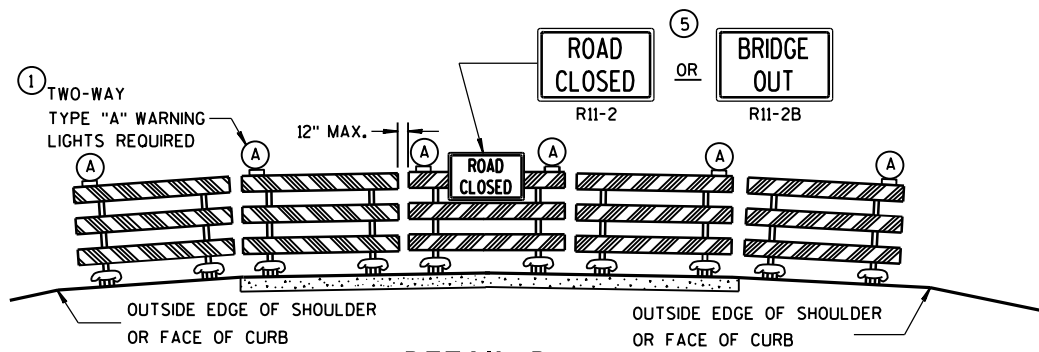
-  SIGN ON PERMANENT SUPPORT  
 TYPE III BARRICADE  
 TYPE III BARRICADE WITH ATTACHED SIGN  
 TYPE "A" WARNING LIGHT (FLASHING)  
 WORK AREA  
 M4-8  
 M3-X  
 M1-4  
 M1-5A  
 M1-6  
 M05-1  
 M06-1  
 FLAGS, 16" X 16" MIN., (ORANGE)

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

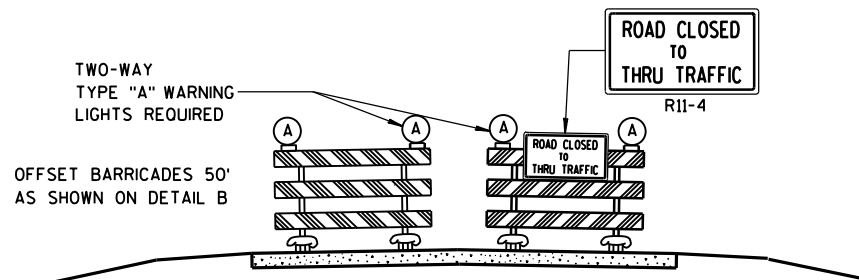
## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW



DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

## GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".

M4-9 SHALL BE 30" X 24".

M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

R1-1 SHALL BE 36" X 36".

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

## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

## TRAFFIC DATA

AADT = 2,150 (2018)  
2,900 (2038)  
RDS = 60 M.P.H.

## DESIGN DATA

STRUCTURE IS DESIGNED FOR FUTURE WEARING  
SURFACE OF 20"/SQ. FT.

## LIVE LOAD:

DESIGN LOADING \_\_\_\_\_ HL-93  
INVENTORY RATING FACTOR \_\_\_\_\_ RF = 1.29  
OPERATING RATING FACTOR \_\_\_\_\_ RF = 1.70  
WISCONSIN STANDARD PERMIT  
VEHICLE (Wis-SPV) \_\_\_\_\_ 250 KIPS

## MATERIAL PROPERTIES:

CONCRETE MASONRY  
SUPERSTRUCTURE \_\_\_\_\_  $f'_c$  = 4,000 PSI  
ALL OTHER \_\_\_\_\_  $f'_c$  = 3,500 PSI  
HIGH STRENGTH BAR STEEL  
REINFORCEMENT, GRADE 60 \_\_\_\_\_  $f_y$  = 60,000 PSI  
36W" PRESTRESSED GIRDERS  
CONCRETE MASONRY \_\_\_\_\_  $f'_c$  = 8,000 PSI  
STRANDS, 0.6"  $\phi$  ULTIMATE  
TENSILE STRENGTH \_\_\_\_\_  $f_y$  = 270,000 PSI

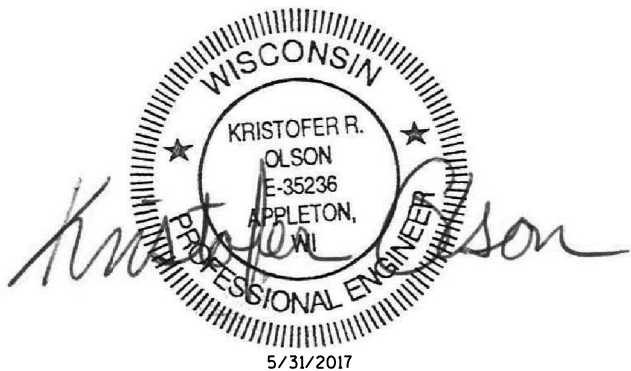
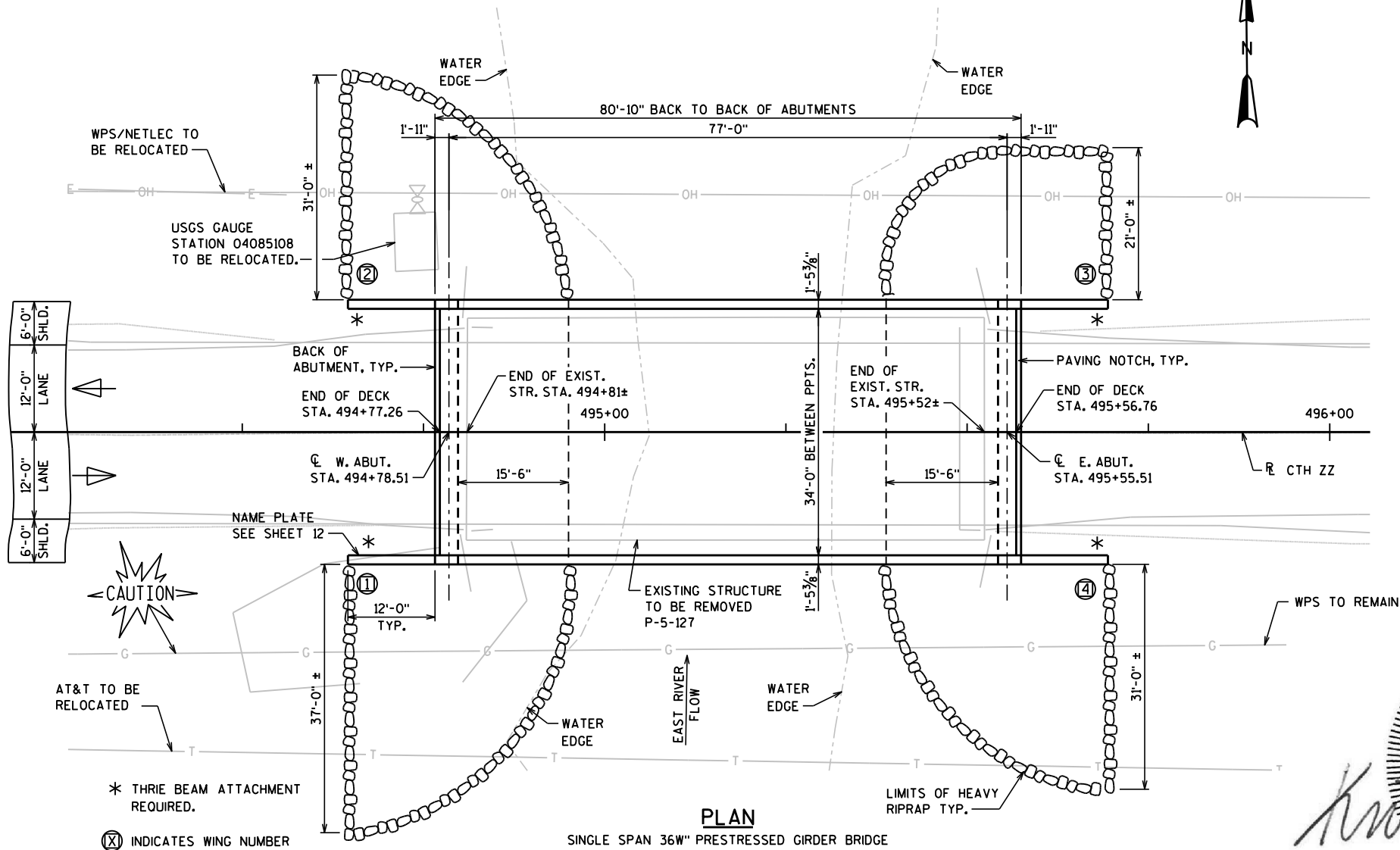
## HYDRAULIC DATA

$Q_{100}$  \_\_\_\_\_ 3,150 C.F.S.  
VELOCITY \_\_\_\_\_ 5.56 F.P.S.  
HIGH WATER \_\_\_\_\_ EL. 627.68 (100 YEAR)  
HIGH WATER \_\_\_\_\_ EL. 623.38 (2 YEAR)  
WATERWAY AREA \_\_\_\_\_ 566 S.F.  
DRAINAGE AREA \_\_\_\_\_ 47.8 SQ. MILES  
OVERTOPPING FREQUENCY = N/A  
SCOUR CRITICAL CODE = 8

## FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING  
DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS \*\*  
PER PILE DETERMINED BY THE MODIFIED GATES DYNAMIC  
EQUATION. ESTIMATED LENGTH = 35' AT EACH ABUTMENT.

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



5/31/2017

## LIST OF DRAWINGS

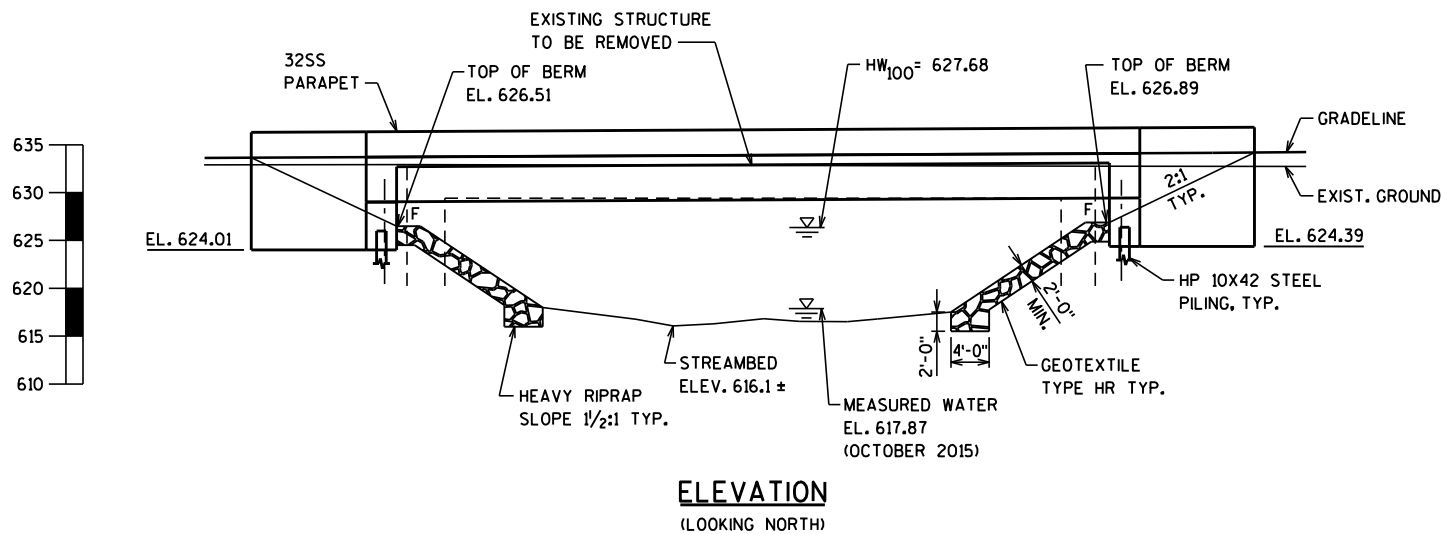
1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT DETAILS
8. 36W" PRESTRESSED GIRDER DETAILS
9. STEEL DIAPHRAGMS
10. SUPERSTRUCTURE
11. SUPERSTRUCTURE DETAILS
12. SINGLE SLOPE 32SS PARAPET

## CONSULTANT CONTACT

KRISTOFER OLSON  
OMNI ASSOCIATES, INC.  
(920) 735-6900

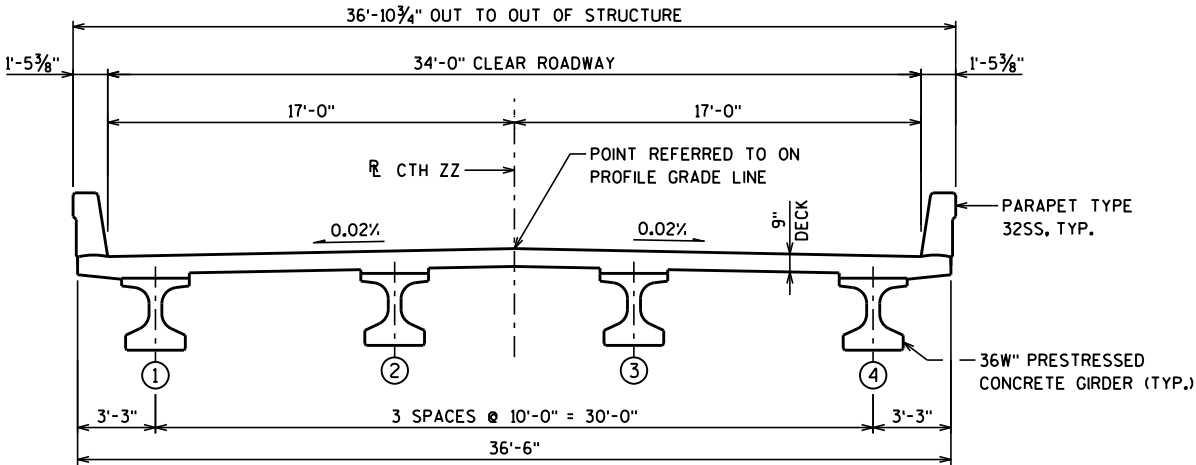
## BRIDGE OFFICE CONTACT

WILLIAM DREHER  
(608) 266-8489



GENERAL NOTES:

- DRAWING 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.
- AT THE BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
- THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION.
- THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAIL SHEET, WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.
- THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.
- PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP OF SLAB AND PAVING NOTCH. PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE FRONT FACES AND TOPS OF PARAPETS.
- THIS BRIDGE WILL REPLACE THE EXISTING STEEL GIRDER BRIDGE SUPPORTED ON TIMBER PILE ABUTMENTS. THE STRUCTURE WAS BUILT IN 1951.
- TEMPORARY BARRIER ON EXISTING STRUCTURE WILL BE REMOVED BY BROWN COUNTY AFTER ROAD IS CLOSED FOR CONSTRUCTION AND PRIOR TO BRIDGE REMOVAL.



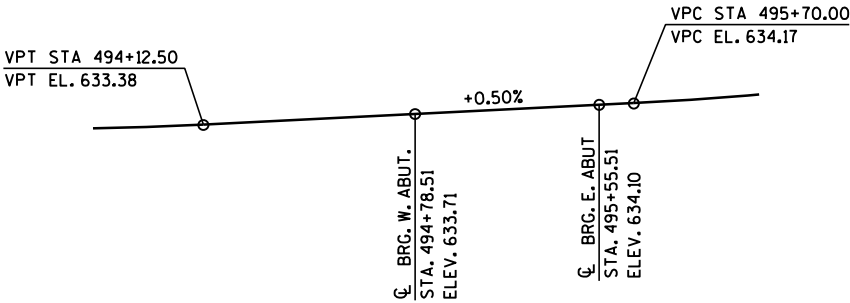
CROSS SECTION THRU ROADWAY

BENCH MARKS (NAVD 88)

NO.	STATION	DESCRIPTION	ELEV.
33	STA 492+19, 35' LT	60D SPIKE IN PP# 2220-17R5 NORTHSIDE CTH ZZ +/-200' WEST OF BRIDGE	627.70
34	STA 496+50, 32' LT	60D SPIKE IN PP# 2220-17R3 NE QUAD OF BRIDGE OVER EAST RIVER & CTH ZZ	629.50
35	STA 499+37, 41' RT	60D SPIKE IN PP# 2220-20E3 SW QUAD CTH ZZ & STH 32-57	640.89

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	TOTALS
203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL P-5-127	LS	-----	-----	-----	1
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA 495+17	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-5-422	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-----	190	190	380
502.0100	CONCRETE MASONRY BRIDGES	CY	133	46	46	225
502.3200	PROTECTIVE SURFACE TREATMENT	SY	310	-----	-----	310
502.3210	PIGMENTED SURFACE SEALER	SY	90	-----	-----	90
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	312	-----	-----	312
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-----	2,230	2,230	4,460
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	21,010	2,350	2,350	25,710
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8	-----	-----	8
506.4000	STEEL DIAPHRAGMS B-5-422	EACH	3	-----	-----	3
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-----	10	10	20
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	-----	245	245	490
606.0300	RIPRAP HEAVY	CY	-----	180	160	340
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-----	80	80	160
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-----	2	2	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-----	50	50	100
645.0120	GEOTEXTILE TYPE HR	SY	-----	265	240	505
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

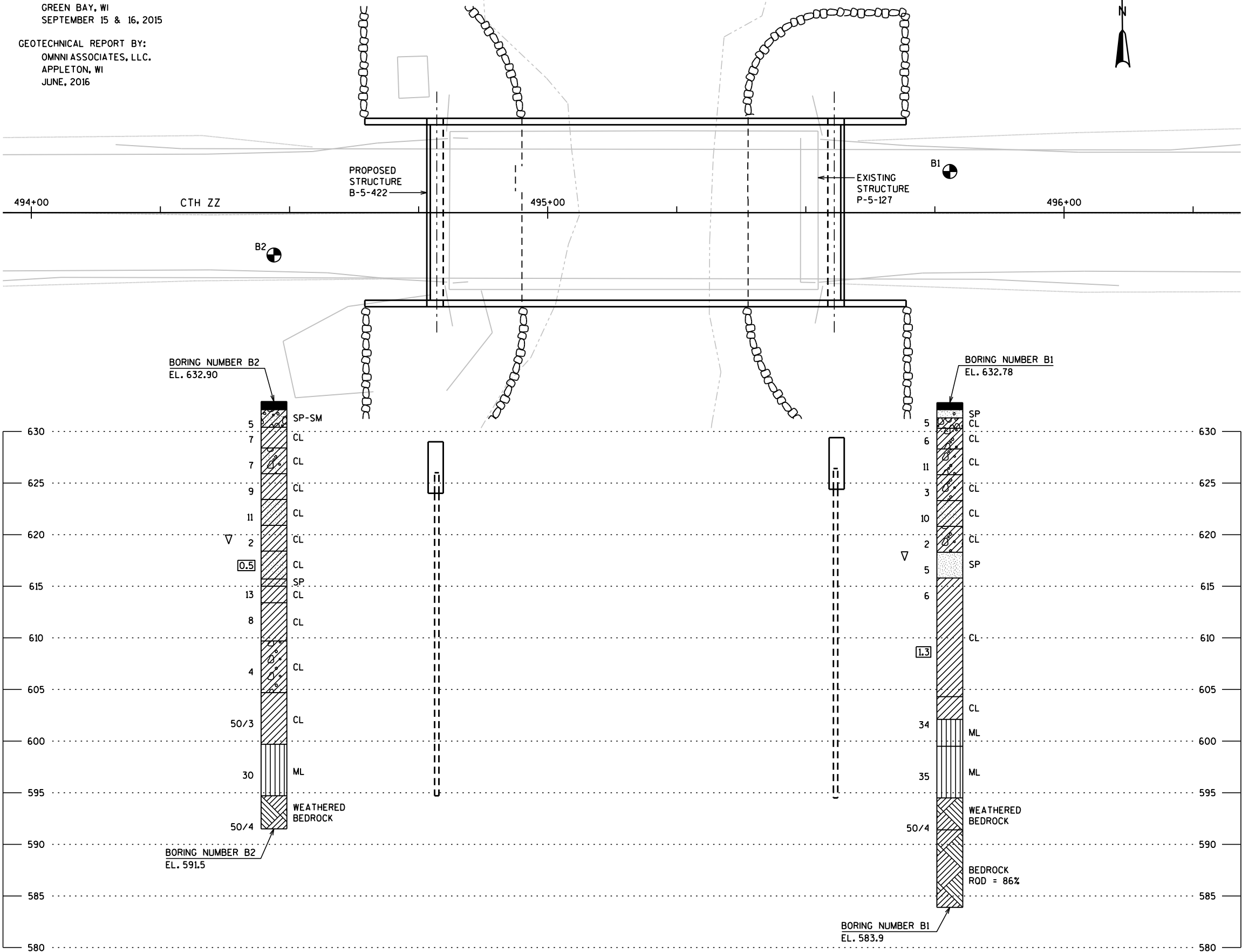


PROFILE GRADE LINE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CK'D. KRO
CROSS SECTION & QUANTITIES		SHEET 2 OF 12	

BORINGS TAKEN BY:  
SUBSURFACE EXPLORATION SERVICES, LLC.  
GREEN BAY, WI  
SEPTEMBER 15 & 16, 2015

GEOTECHNICAL REPORT BY:  
OMNI ASSOCIATES, LLC.  
APPLETON, WI  
JUNE, 2016



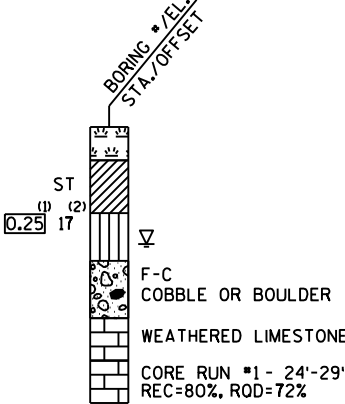
STATE PROJECT NUMBER

4616-02-71

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

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

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

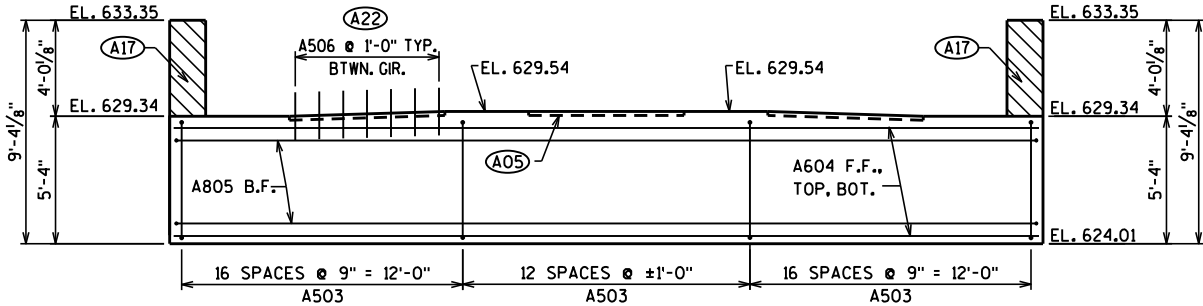
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CK'D. KRO
SUBSURFACE EXPLORATION		SHEET 3 OF 12	

LEGEND

- (A05) CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.
- (A06) WEST ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING. ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO EAST SLOPE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN (SEE SHEET 5 FOR DETAILS).
- (A17) 1/2" FILLER INCLUDED IN WING LENGTH, SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.) EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- (A22) A506 BARS SPACED @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

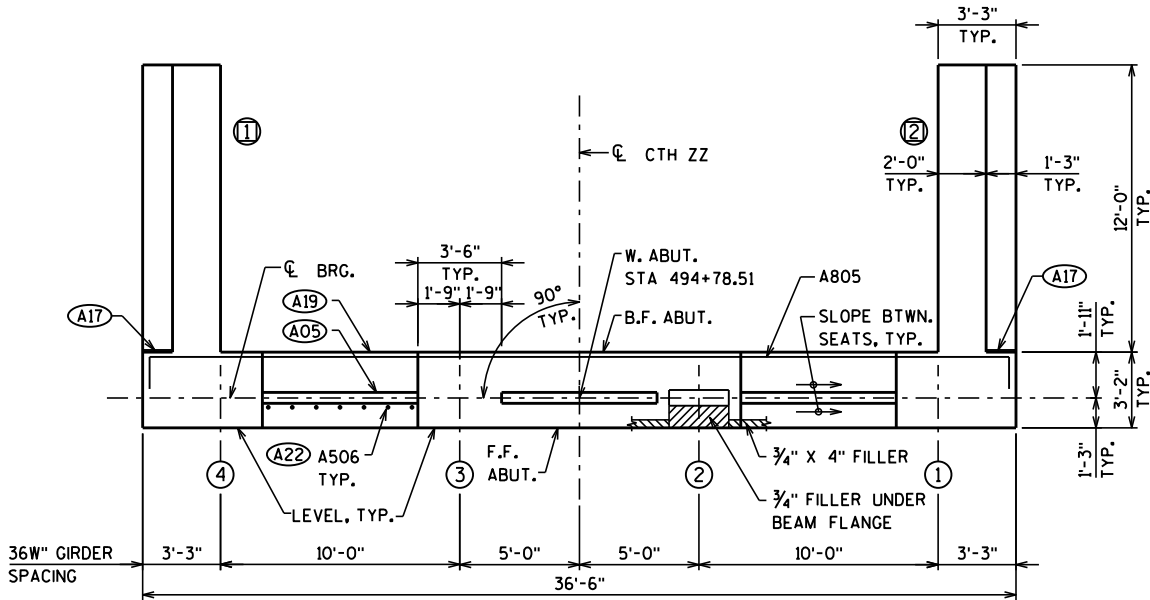
(X) DENOTES WING NUMBER

SEE SHEET 5 FOR WINGWALL DETAILS, BILL OF BARS, AND BAR BENDING DIAGRAMS.

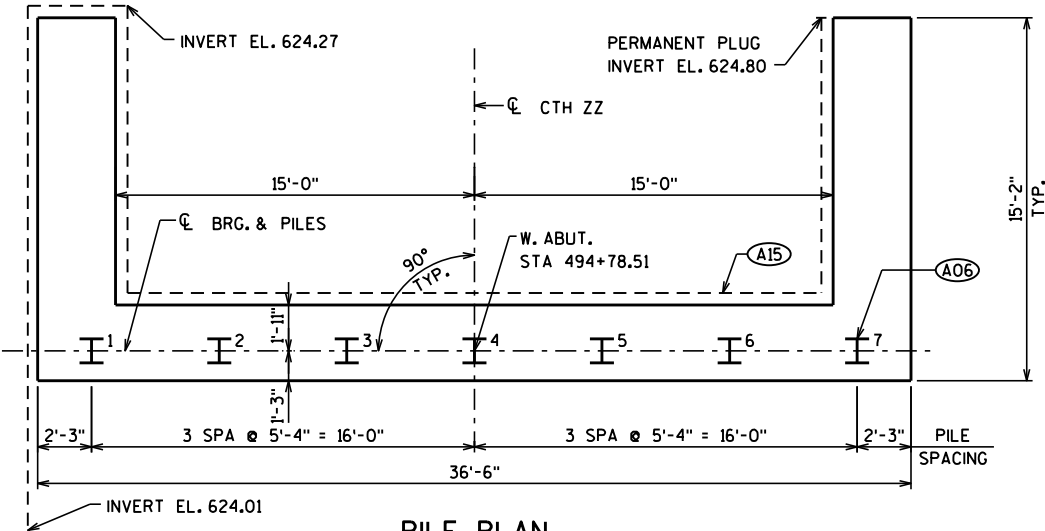


NOTE: SPACE A503 TO MISS PILING

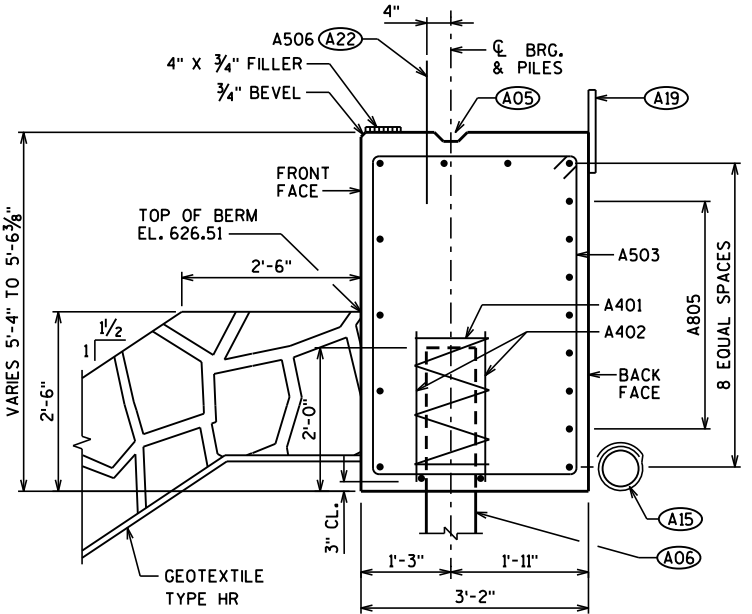
ELEVATION  
(LOOKING WEST)



PLAN



PILE PLAN



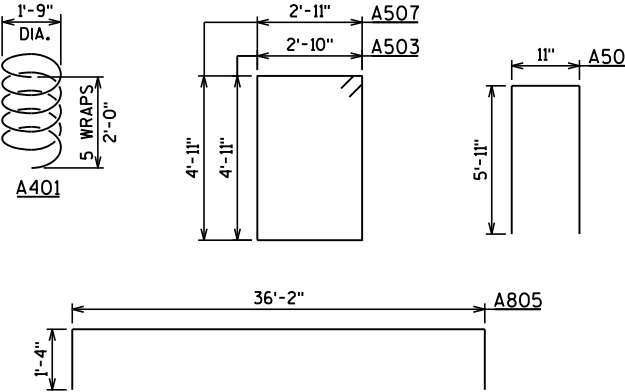
SECTION THRU BODY

HORIZ. BARS NOT OTHERWISE IDENTIFIED ARE A604 BARS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		MRW	PLANS CK'D. BRE
WEST ABUTMENT		SHEET 4 OF 12	

BILL OF BARS

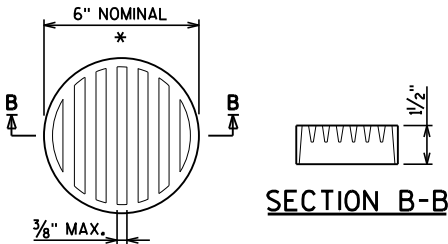
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
A401		7	28'-0"	X	BODY - ONE PER PILE
A402		14	2'-3"		BODY - TWO PER PILE
A503		45	16'-2"	X	BODY - STIRRUPS
A604		11	36'-2"		BODY - HORIZONTAL
A805		7	38'-5"	X	BODY - HORIZONTAL B.F.
A506	X	21	2'-0"		BODY - VERTICAL, DOWEL
A507	X	26	16'-4"	X	WINGS - STIRRUPS
A508	X	34	12'-6"	X	WINGS - VERTICAL
A509	X	12	14'-10"		WINGS - HORIZONTAL, F.F.
A610	X	18	13'-11"		WINGS - HORIZONTAL, B.F. & TOP
A411	X	18	11'-8"		WINGS - HORIZONTAL
A612	X	4	11'-8"		WINGS - HORIZONTAL, TOP



BAR BENDING DIAGRAMS

LEGEND

- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" X 6". (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED.)
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER, (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

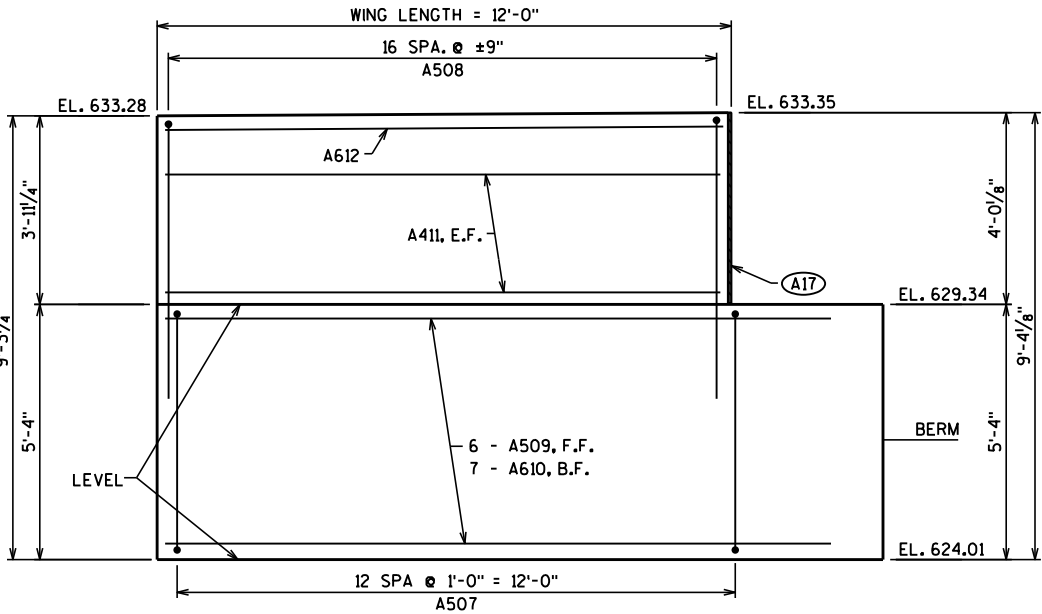


RODENT SCREEN DETAIL

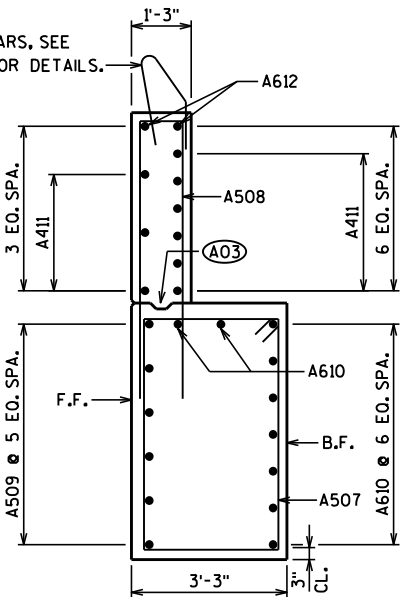
\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

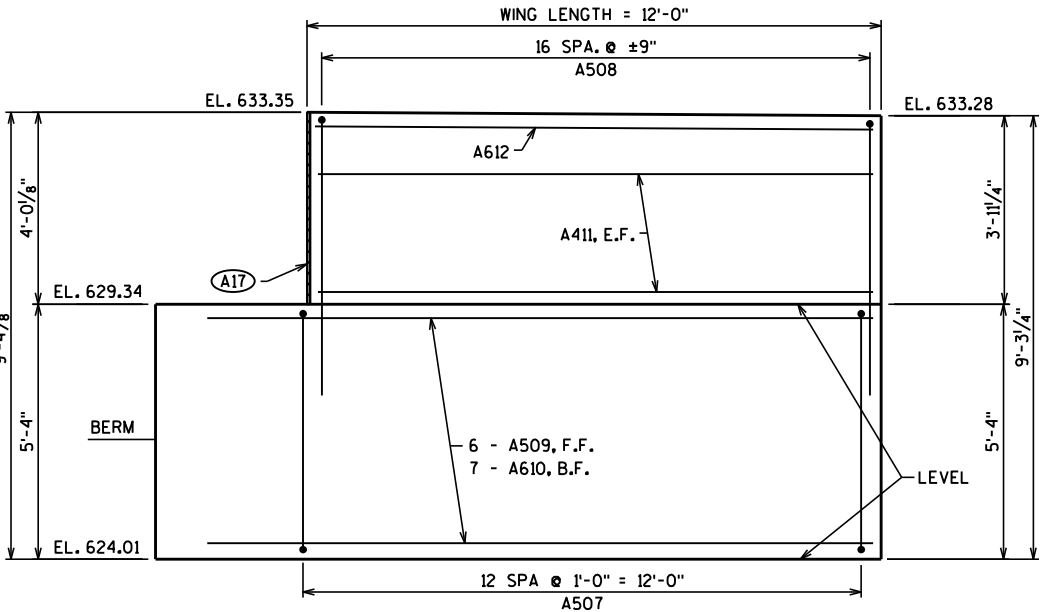
THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



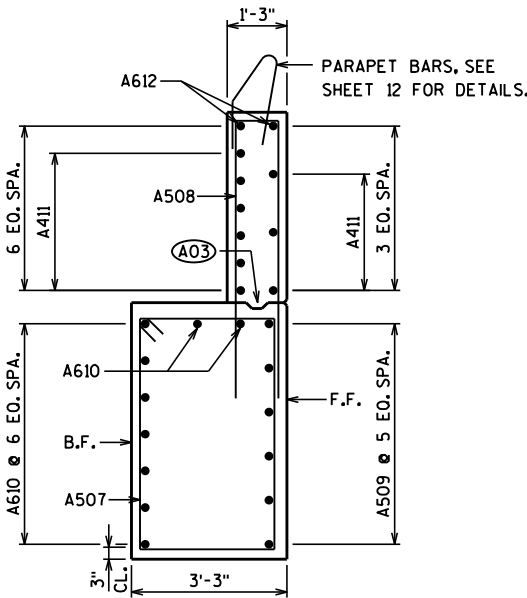
WING 1 ELEVATION



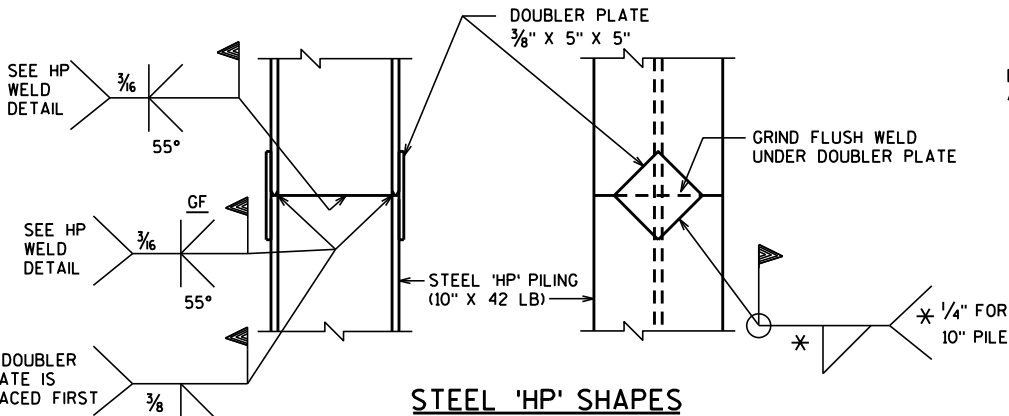
WING 1 SECTION



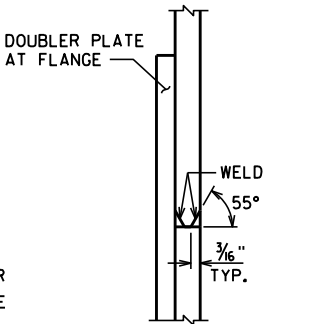
WING 2 ELEVATION



WING 2 SECTION



STEEL 'HP' SHAPES



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

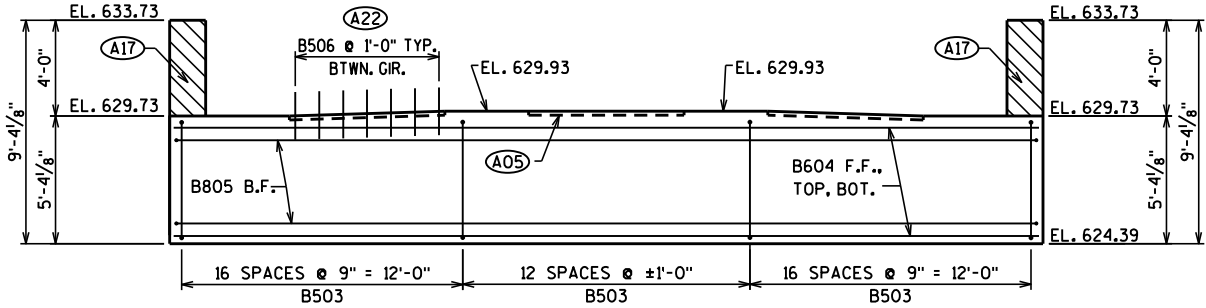
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		MRW	PLANS CK'D. BRE
WEST ABUTMENT DETAILS		SHEET 5 OF 12	

LEGEND

- (A05) CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.
- (A06) EAST ABUTMENT TO BE SUPPORTED ON HP 10 X 42 STEEL PILING. ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO WEST SLOPE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN (SEE SHEET 5 FOR DETAILS).
- (A17) 1/2" FILLER INCLUDED IN WING LENGTH, SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.) EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- (A22) B506 BARS SPACED @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

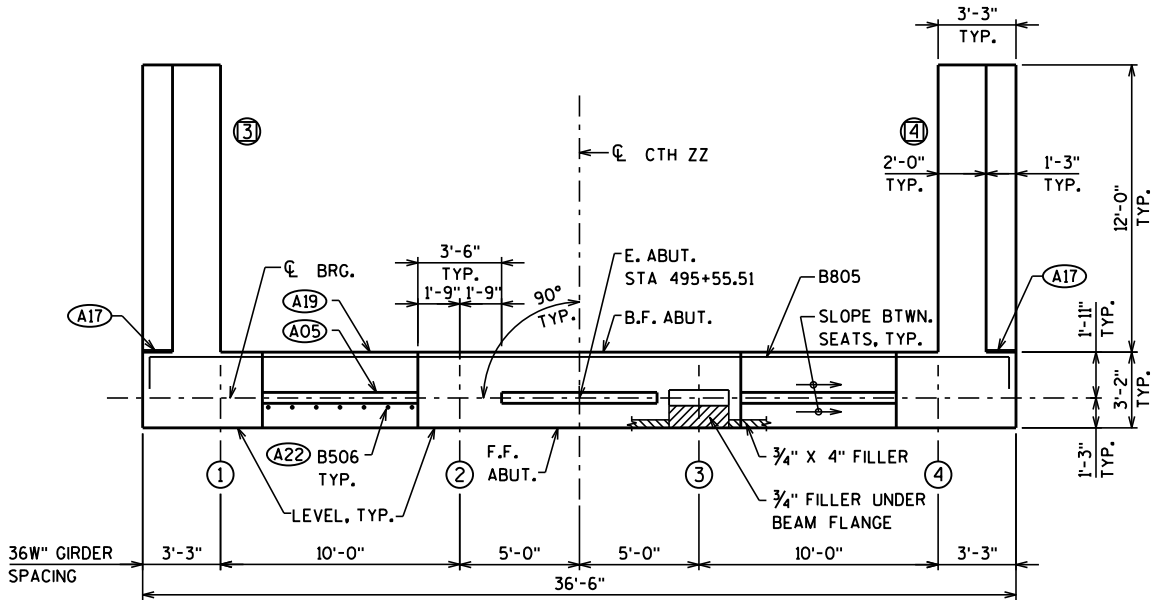
(X) DENOTES WING NUMBER

SEE SHEET 7 FOR WINGWALL DETAILS, BILL OF BARS, AND BAR BENDING DIAGRAMS.

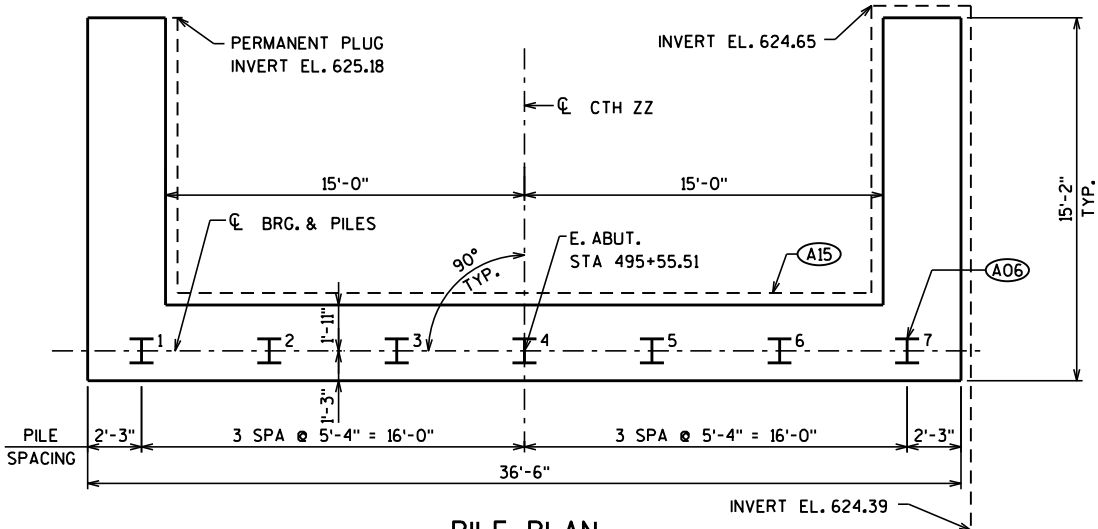
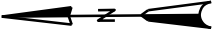


NOTE: SPACE B503 TO MISS PILING

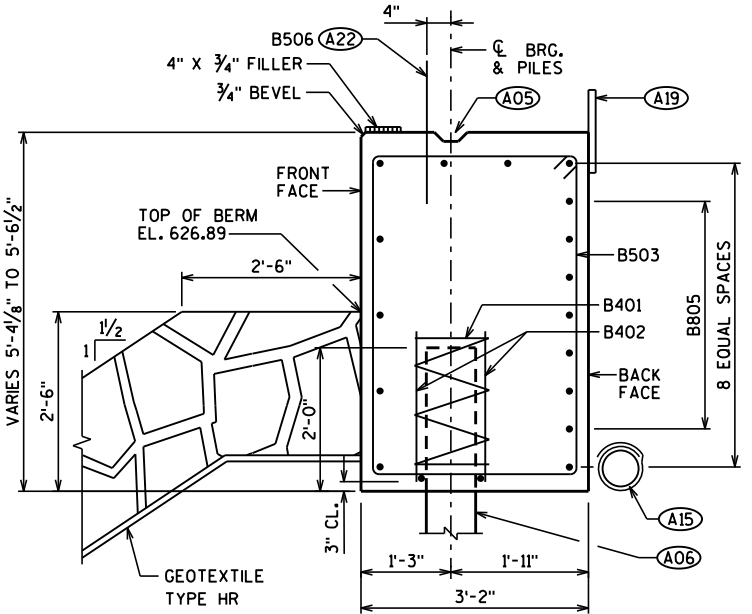
ELEVATION  
(LOOKING EAST)



PLAN



PILE PLAN

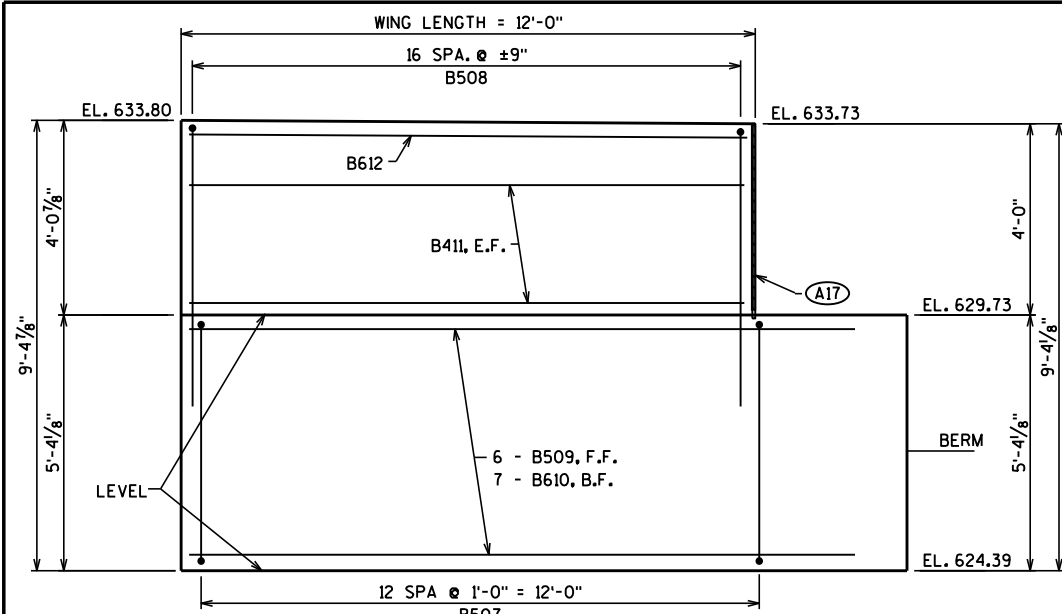


SECTION THRU BODY

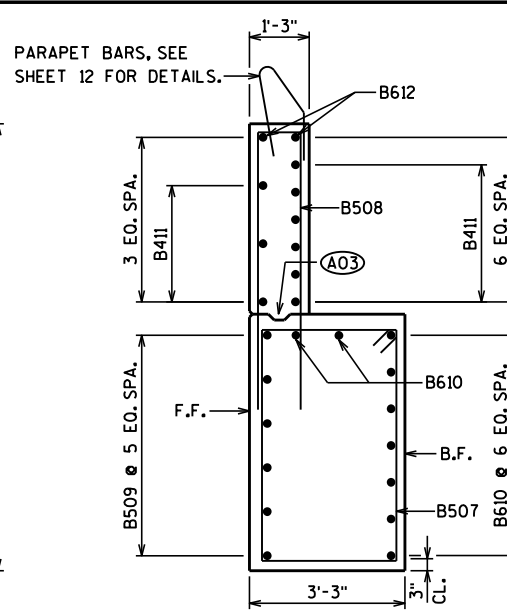
HORIZ. BARS NOT OTHERWISE IDENTIFIED ARE B604 BARS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		MRW	PLANS CK'D. BRE
EAST ABUTMENT		SHEET 6 OF 12	

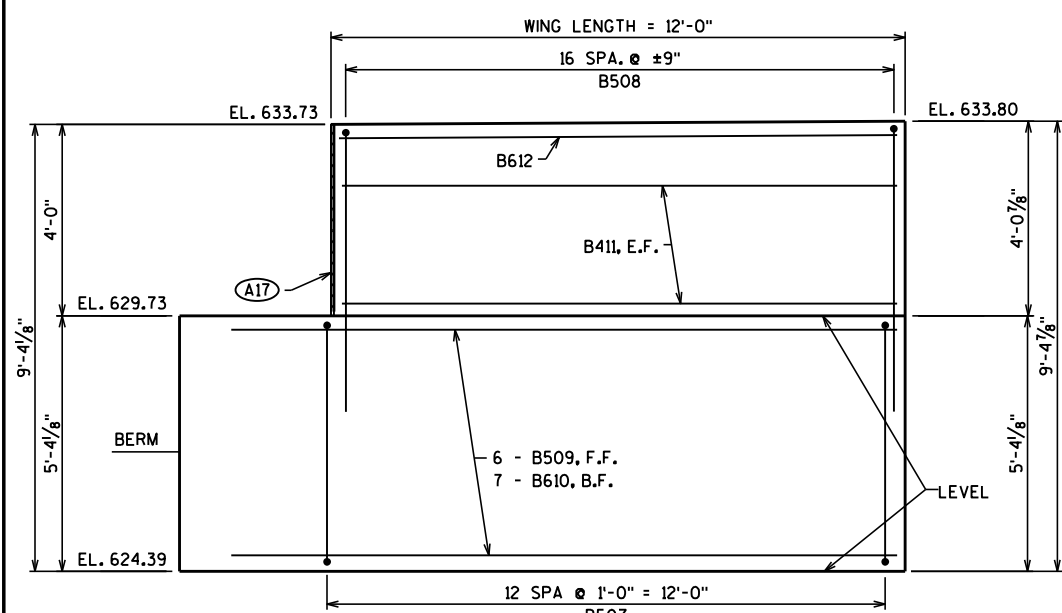




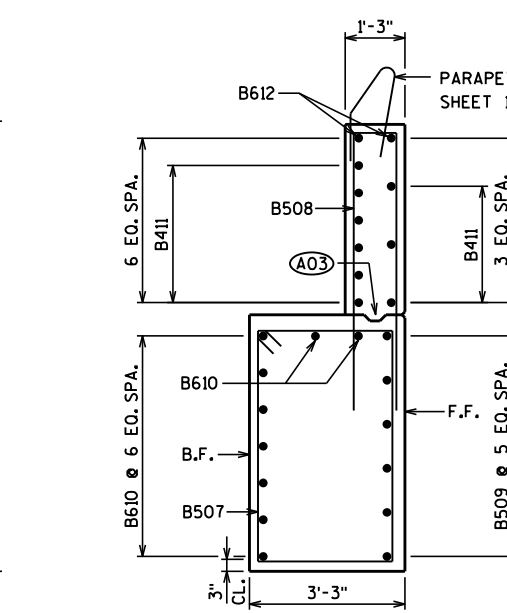
WING 3 ELEVATION



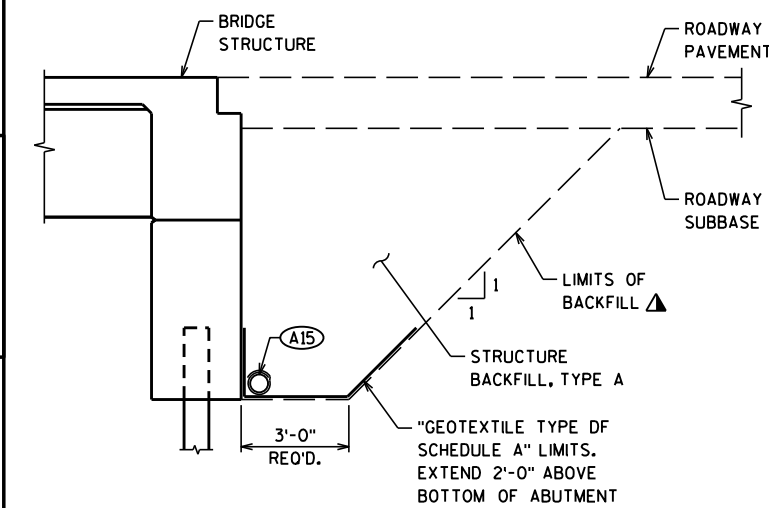
WING 3 SECTION



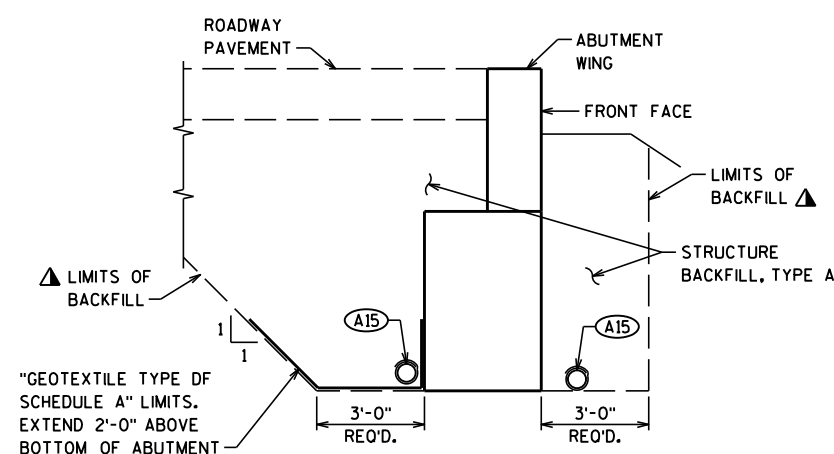
WING 4 ELEVATION



WING 4 SECTION



TYPICAL SECTION THRU ABUTMENT

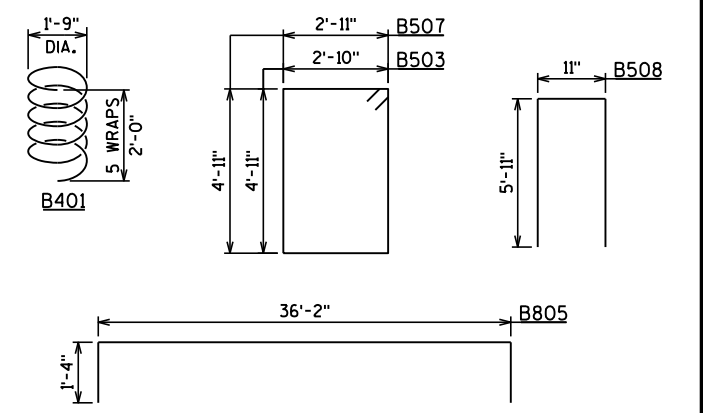


TYPICAL SECTION THRU WING

STATE PROJECT NUMBER				
4616-02-71				

BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
B401		7	28'-0"	X	BODY - ONE PER PILE
B402		14	2'-3"		BODY - TWO PER PILE
B503		45	16'-2"	X	BODY - STIRRUPS
B604		11	36'-2"		BODY - HORIZONTAL
B805		7	38'-5"	X	BODY - HORIZONTAL B.F.
B506	X	21	2'-0"		BODY - VERTICAL, DOWEL
B507	X	26	16'-4"	X	WINGS - STIRRUPS
B508	X	34	12'-6"	X	WINGS - VERTICAL
B509	X	12	14'-10"		WINGS - HORIZONTAL, F.F.
B610	X	18	13'-11"		WINGS - HORIZONTAL, B.F. & TOP
B411	X	18	11'-8"		WINGS - HORIZONTAL
B612	X	4	11'-8"		WINGS - HORIZONTAL, TOP



BAR BENDING DIAGRAMS

LEGEND

- AO3 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" X 6". (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED.)
- AO15 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO WEST SLOPES. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- AO17 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		MRW	PLANS CK'D. BRE
EAST ABUTMENT DETAILS		SHEET 7 OF 12	

**GIRDER NOTES**

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

DO NOT APPLY CONCRETE SEALER TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

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

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

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

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

**SIDE VIEW & TYP. SECTION IN SPAN**

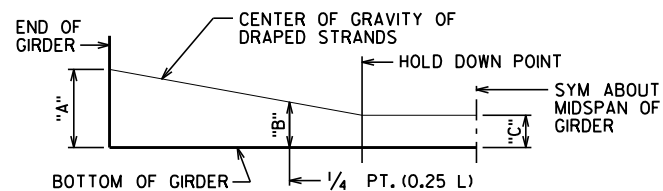
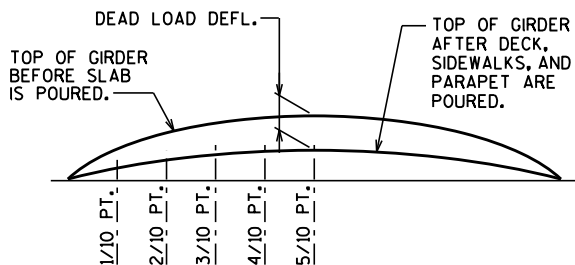
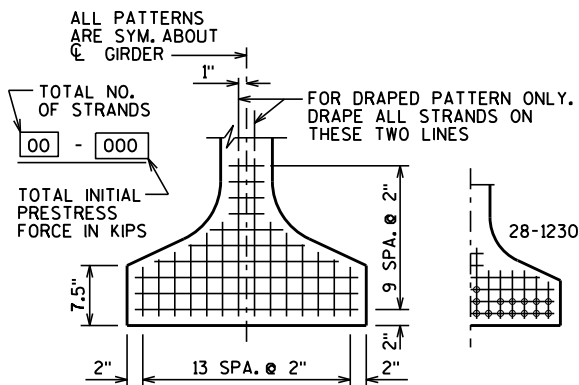
(A) DETAIL TYP. AT EACH END

(B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

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

SPAN	CAMBER (IN.) *
1	2.66

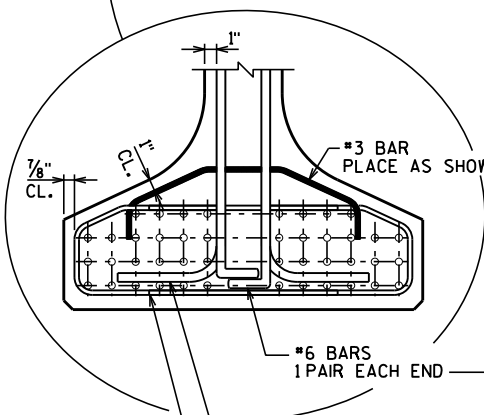
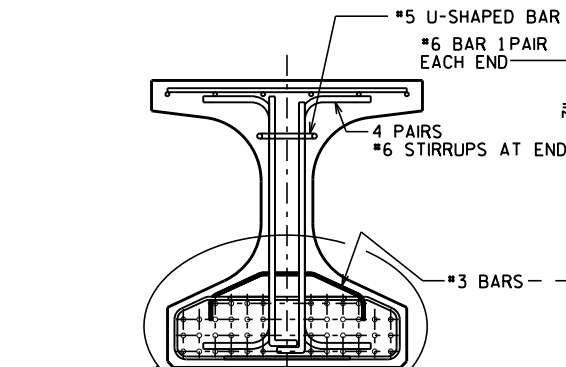
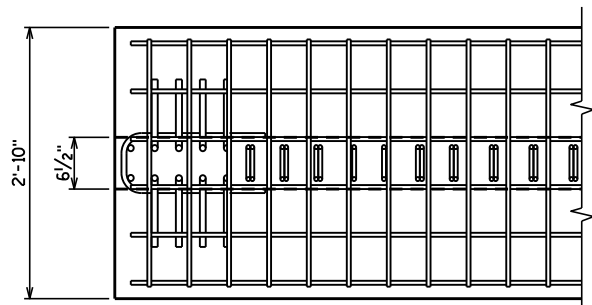
THESE VALUES ARE NOT TO BE USED IN DETERMINING 'I'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

**DRAPED STRAND PROFILE****DEAD LOAD DEFLECTION DIAGRAM****BOTTOM FLANGE****TYP. STRAND PATTERN**

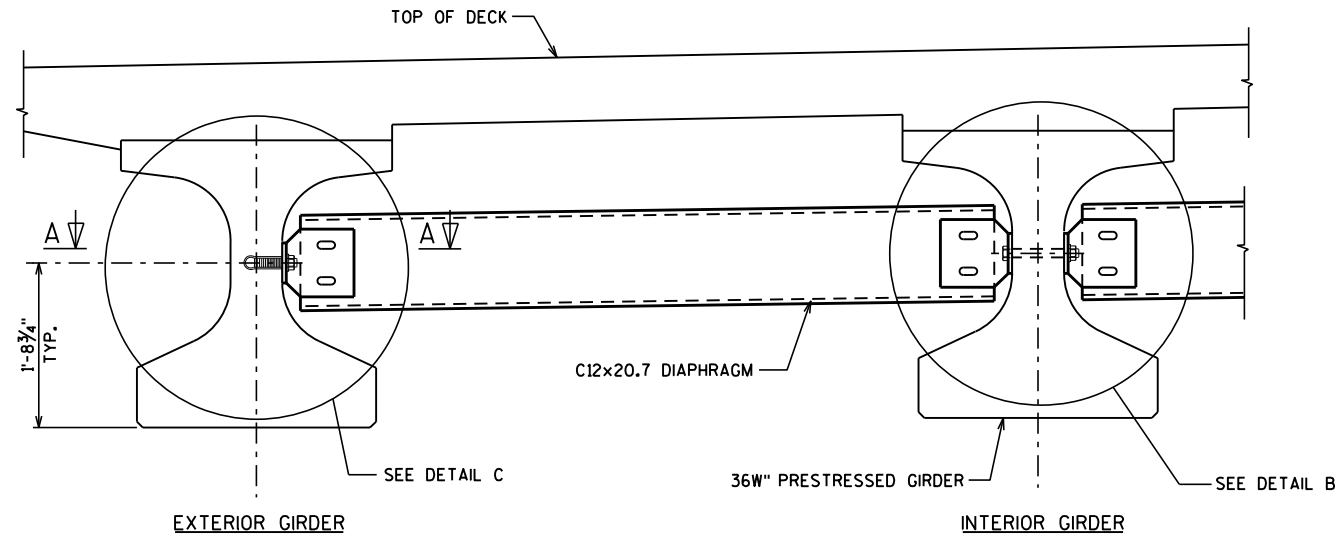
\* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

**GIRDER DATA**

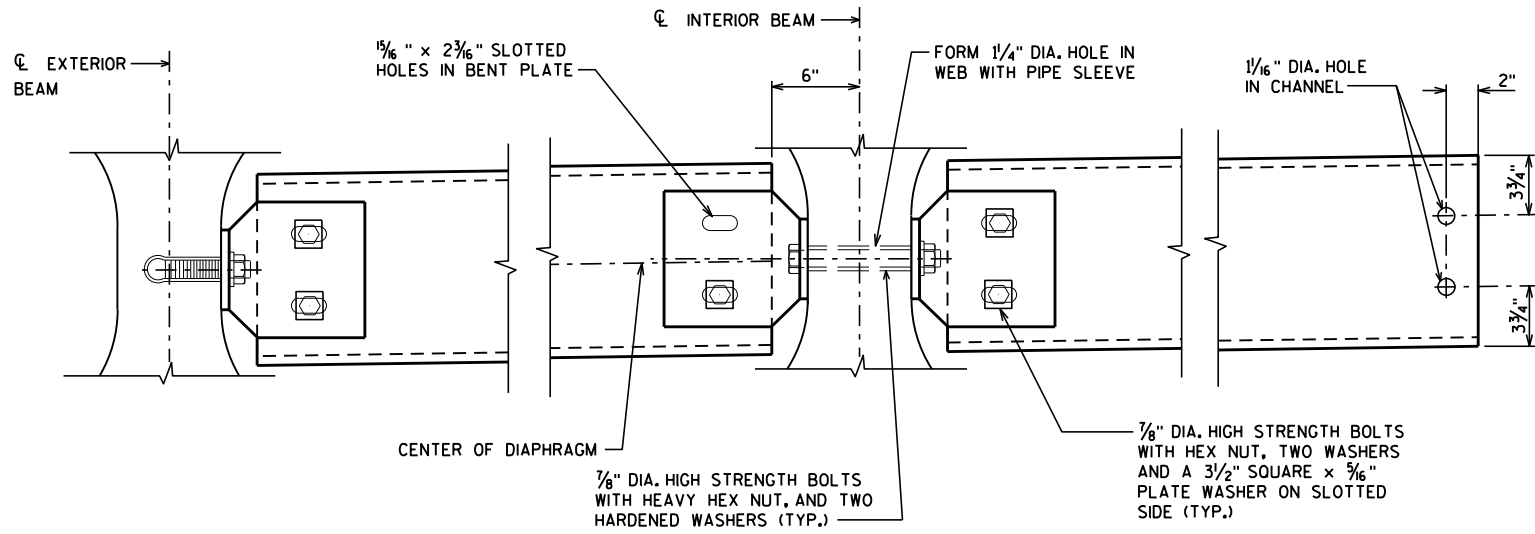
GIRDER DATA																								
SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (p.s.i.)	"P" 1ST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN					UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	TOTAL NO. OF STRANDS						f'ci (P.S.I.) *	(IN.)				TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
																		"A"	"B" MIN.	"B" MAX.	"C"			
1	ALL	78.0'	0.48	0.93	1.29	1.52	1.60	1.52	1.29	0.93	0.48	8,000	7"	7"	7"	0.6	28	6,800	32"	10 3/4"	13 3/4"	4"	---	---

**SECTION A-A****TOP FLANGE**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CKD. KRO
36W" PRESTRESSED GIRDER DETAILS		SHEET 8 OF 12	

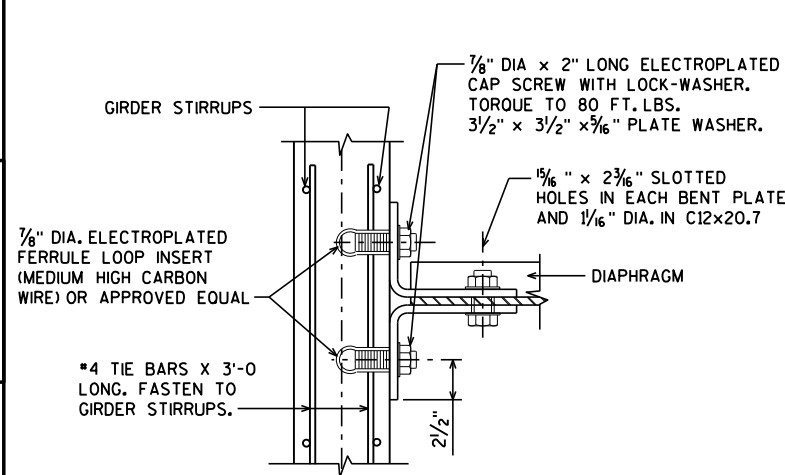


PART TRANSVERSE SECTION AT DIAPHRAGM

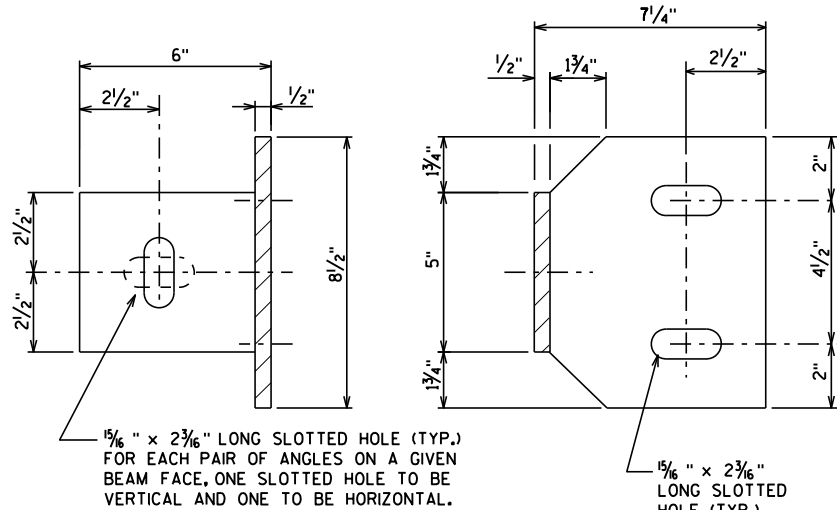


DETAIL C

DETAIL B

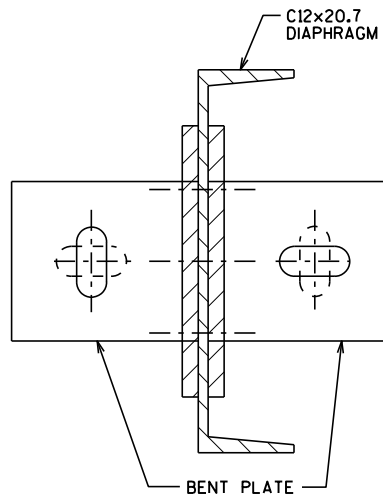


SECTION A-A  
(FOR EXTERIOR ATTACHMENT)

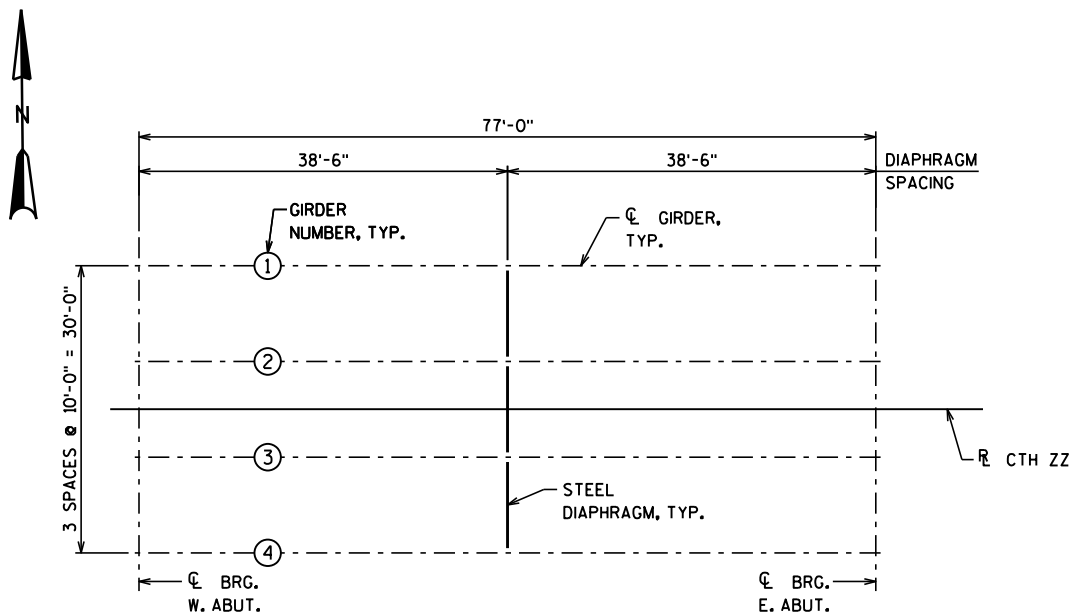


BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL



FRAMING PLAN

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-5-422", EACH.

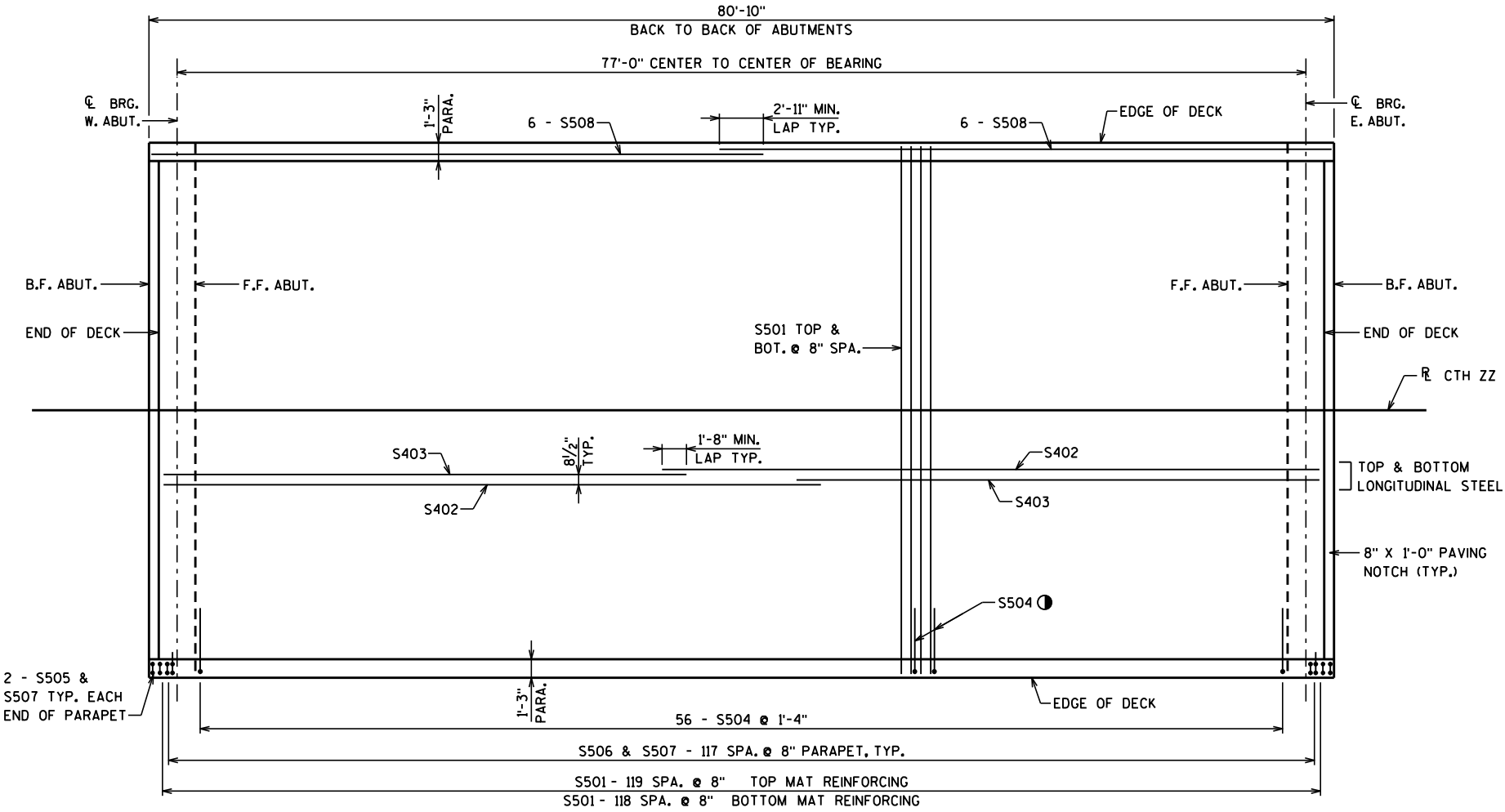
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

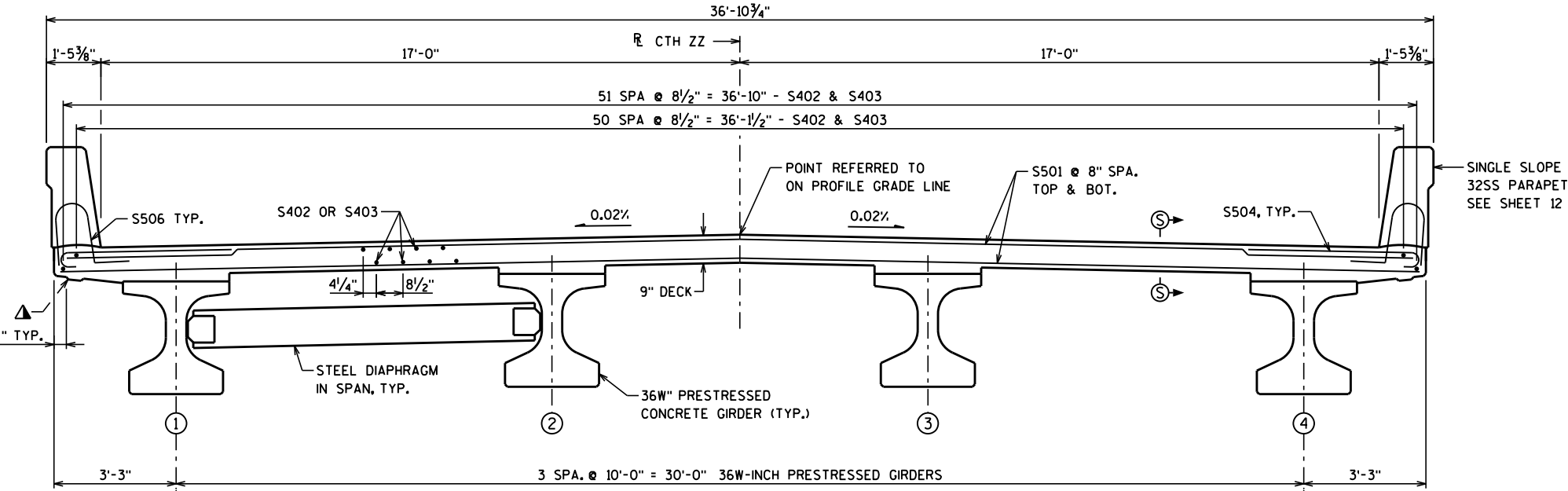
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CK'D. KRO
STEEL DIAPHRAGMS		SHEET 9 OF 12	



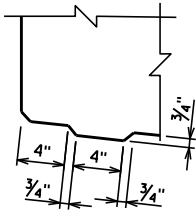
SUPERSTRUCTURE PLAN



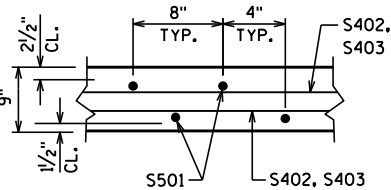
CROSS SECTION THRU ROADWAY

NOTES:

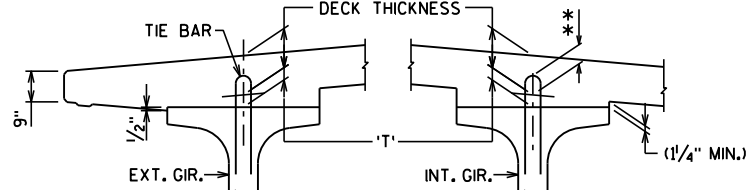
- ① LAP S504 ONTO EVERY OTHER TRANSVERSE BAR IN THE TOP MAT AS SHOWN
- ▲ 3/4" DRIP-EDGE. EXTEND DRIP-EDGE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.



DRIP EDGE DETAIL



SECTION S-S



DECK HAUNCH DETAIL

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

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

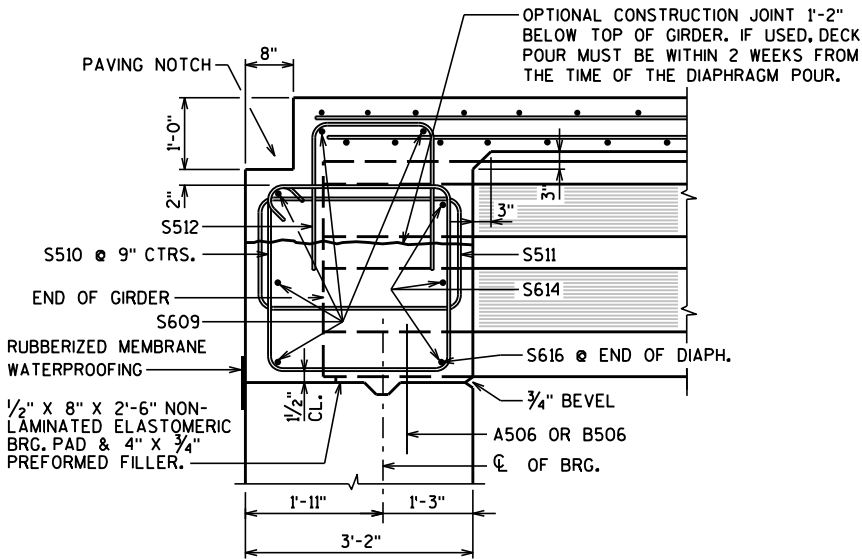
- TOP OF DECK ELEV. AT FINAL GRADE  
- TOP OF GIRDER ELEVATION  
+ DEAD LOAD DEFLECTION  
- DECK THICKNESS  
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2 5/8" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

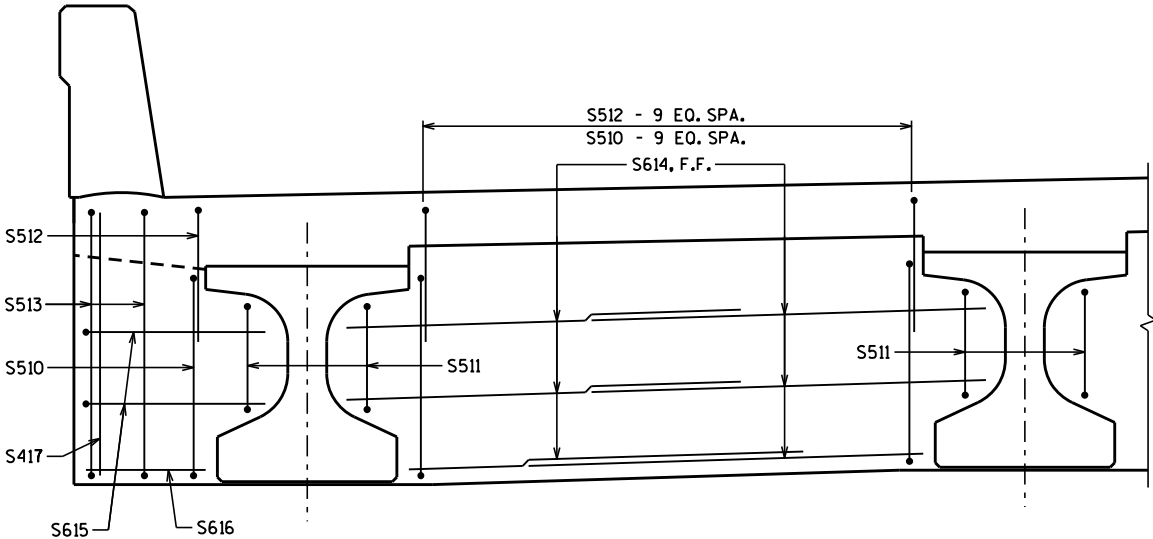
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE		SHEET 10 OF 12	

BILL OF BARS

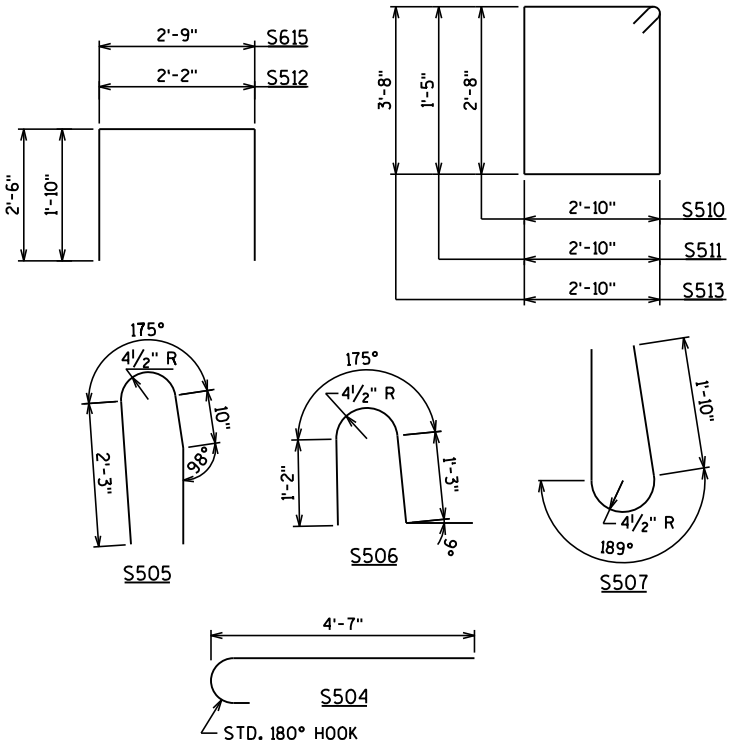
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	X	239	36'-2"		TRANS. TOP & BOT.
S402	X	103	45'-0"		LONG. TOP & BOT.
S403	X	103	35'-10"		LONG. TOP & BOT.
S504	X	112	5'-2"	X	TRANS. OVERHANG
S505	X	8	5'-10"	X	PARAPET VERTICAL
S506	X	236	4'-5"	X	PARAPET VERTICAL
S507	X	244	5'-0"	X	PARAPET VERTICAL
S508	X	24	41'-9"		PARAPET HORIZONTAL
S609	X	10	36'-2"		DIAPH. HORIZONTAL B.F.
S510	X	64	11'-8"	X	DIAPH. VERTICAL
S511	X	16	9'-2"	X	DIAPH. VERTICAL
S512	X	64	5'-7"	X	DIAPH. VERTICAL, TOP
S513	X	8	13'-8"	X	DIAPH. VERTICAL
S614	X	36	5'-6"		DIAPH. HORIZONTAL F.F.
S615	X	8	7'-6"	X	DIAPH. ENDS, HORIZ.
S616	X	4	1'-8"		DIAPH. ENDS, HORIZ.
S417	X	8	3'-8"		DIAPH. ENDS, VERT.



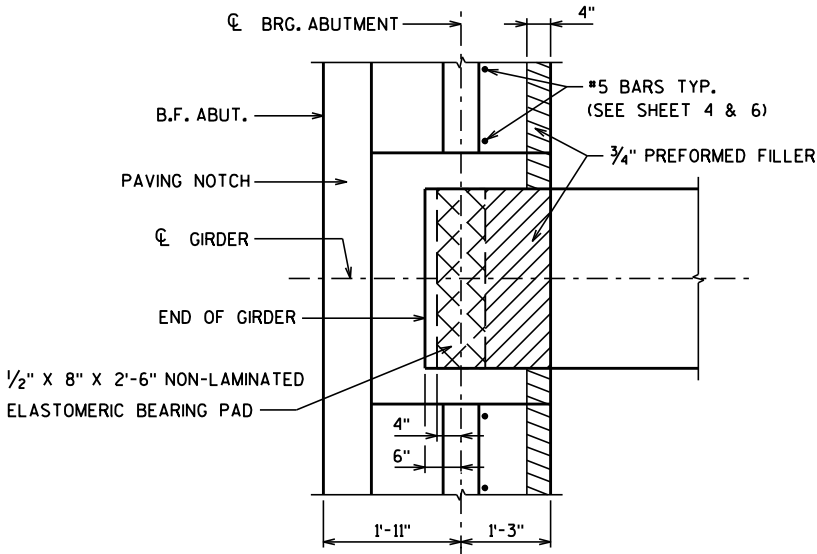
PART LONGIT. SECTION



DIAPHRAGM DETAILS AT ABUTMENT



BAR BEND DIAGRAMS



BEARING PAD DETAIL

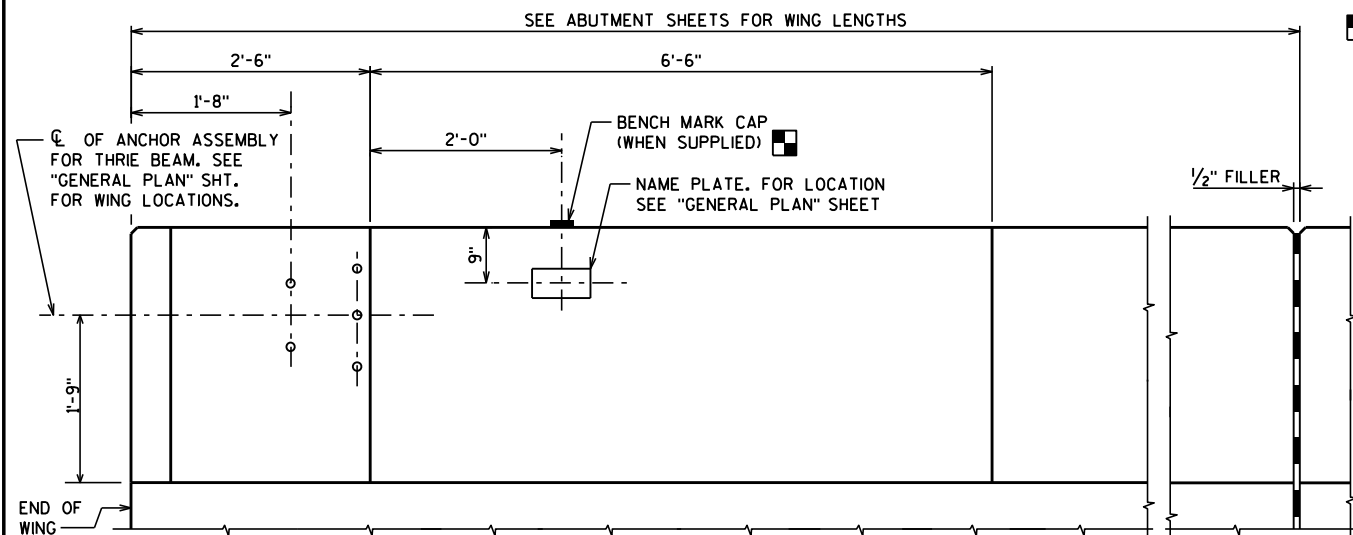
TOP OF DECK ELEVATIONS

LOCATION	W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	E. ABUT.
N. EDGE	633.35	633.39	633.42	633.46	633.50	633.54	633.58	633.62	633.66	633.69	633.73
GIRDER 1	633.41	633.45	633.49	633.53	633.57	633.61	633.64	633.68	633.72	633.76	633.80
GIRDER 2	633.61	633.65	633.69	633.73	633.77	633.81	633.84	633.88	633.92	633.96	634.00
GIRDER 3	633.61	633.65	633.69	633.73	633.77	633.81	633.84	633.88	633.92	633.96	634.00
GIRDER 4	633.41	633.45	633.49	633.53	633.57	633.61	633.64	633.68	633.72	633.76	633.80
S. EDGE	633.35	633.39	633.42	633.46	633.50	633.54	633.58	633.62	633.66	633.69	633.73

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE DETAILS		SHEET 11 OF 12	

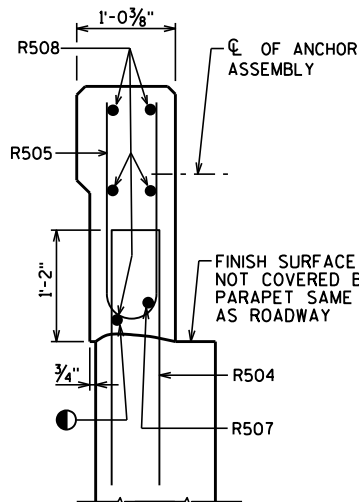
## BILL OF BARS

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	LOCATION
R501	X	12	12	5'-10"	X	PARAPET VERTICAL
R502	X	12	12	5'-0"	X	PARAPET VERTICAL
R503	X	24	24	3'-0"	X	PARAPET VERTICAL
R504	X	34	34	5'-7"	X	PARAPET VERTICAL
R505	X	22	22	4'-9"	X	PARAPET VERTICAL
R506	X	12	12	4'-10"	X	PARAPET VERTICAL
R507	X	1	1	11'-5"	X	PARAPET HORIZONTAL
R508	X	5	5	11'-5"		PARAPET HORIZONTAL

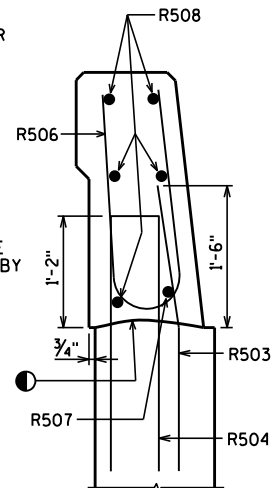


INSIDE ELEVATION

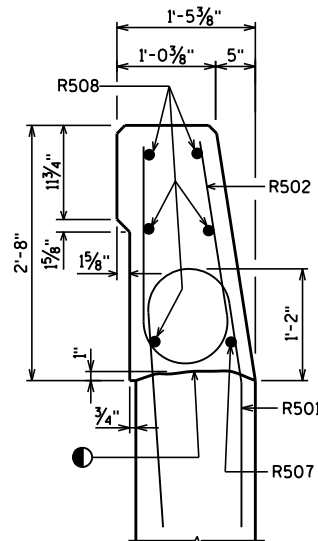
■ BENCH MARK CAP (WHEN SUPPLIED).  
AVOID PLACING A BENCH MARK CAP BELOW  
A RAIL OR FENCE SYSTEM THAT IS ATTACHED  
TO THE TOP OF THE PARAPET.



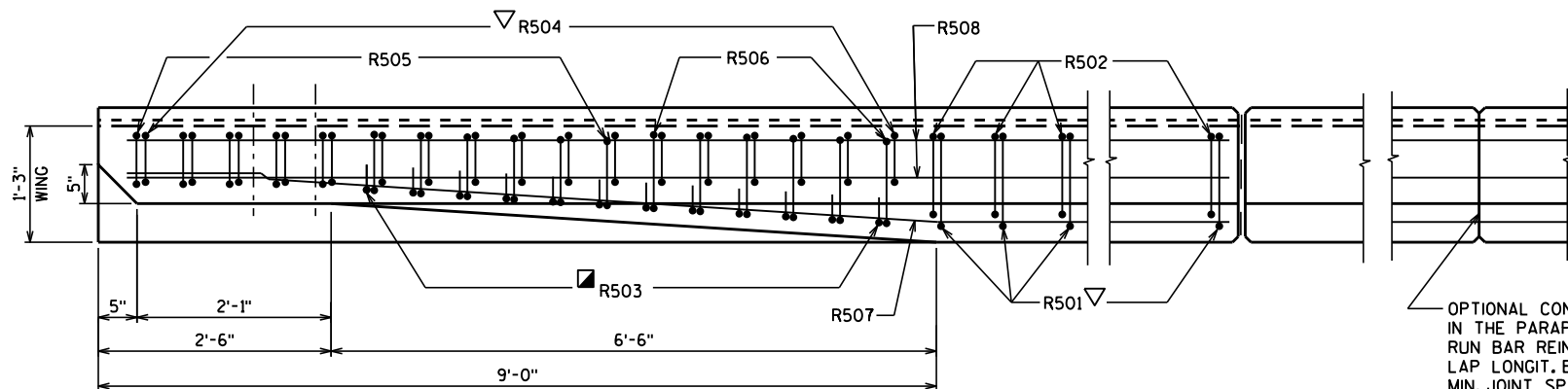
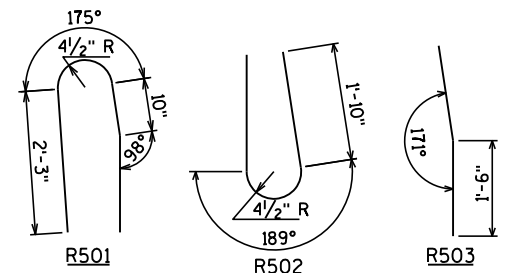
SECTION A



SECTION B

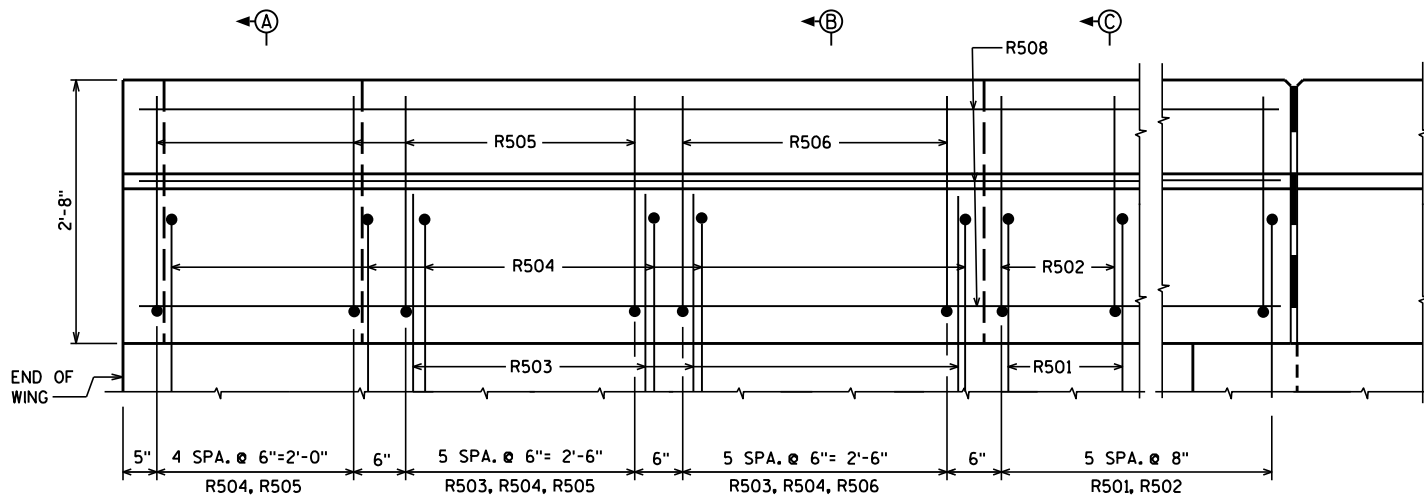


SECTION C

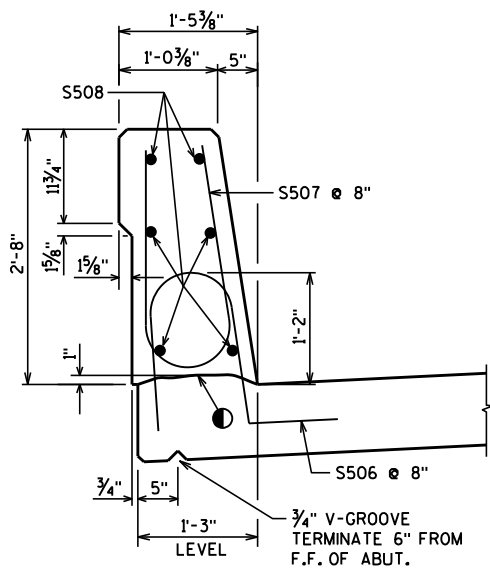


PLAN

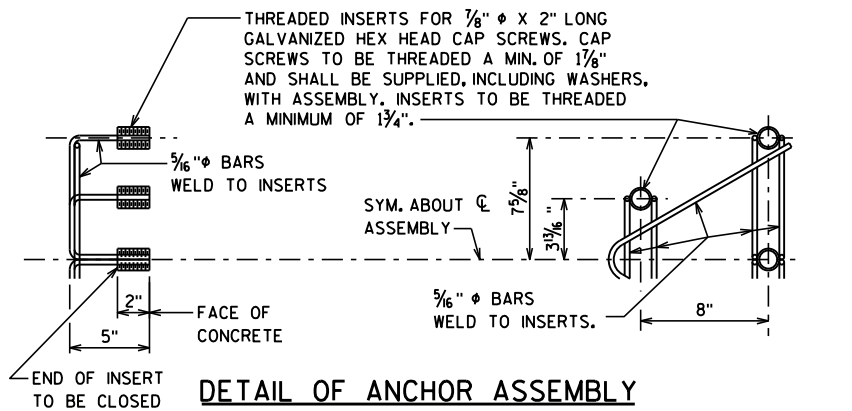
OPTIONAL CONSTRUCTION JOINTS  
IN THE PARAPETS MAY BE USED.  
RUN BAR REINF. THRU THE JOINT.  
LAP LONGIT. BARS A MIN. OF 1'-9".  
MIN. JOINT SPACING OF 80'-0".  
DEFINE CONST. JOINT WITH A 3/4" -  
'V' GROOVE.



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



## 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.

## LEGEND

- CONST. JOINT - STRIKE OFF AS SHOWN.
- R503 BARS MAY BE PLACED AFTER  
CONCRETE IS POURED BUT BEFORE  
INITIAL SET HAS TAKEN PLACE. USE  
CARE TO PLACE R503 OR S503 BARS  
CORRECTLY ALONG TRANSITION OF  
PARAPET.
- ▽ R501 AND R504 BARS TO BE TIED TO  
WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-422			
DRAWN BY		BRE	PLANS CK'D. KRO
SINGLE SLOPE 32SS PARAPET			SHEET 12 OF 12

EARTHWORK - WEST OF BRIDGE

STATION	AREA (SF)			Incremental vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Fill	Cut 1.00	Expanded Fill 1.25	
494+25	46.80	14.70	139.90	0	0	0	0	0	0.00
494+50	56.67	14.70	146.50	48	14	133	48	166	-131.45
494+64.59	61.60	14.70	166.14	32	8	84	80	271	-213.05

EARTHWORK - EAST OF BRIDGE

STATION	AREA (SF)			Incremental vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Fill	Cut 1.00	Expanded Fill 1.25	
495+69.43	14.03	14.70	115.68	0	0	0	0	0	0.00
496+00	4.31	4.31	130.79	10	11	140	10	174	-174.80
496+10	1.26	0.00	127.45	1	1	48	11	234	-234.35

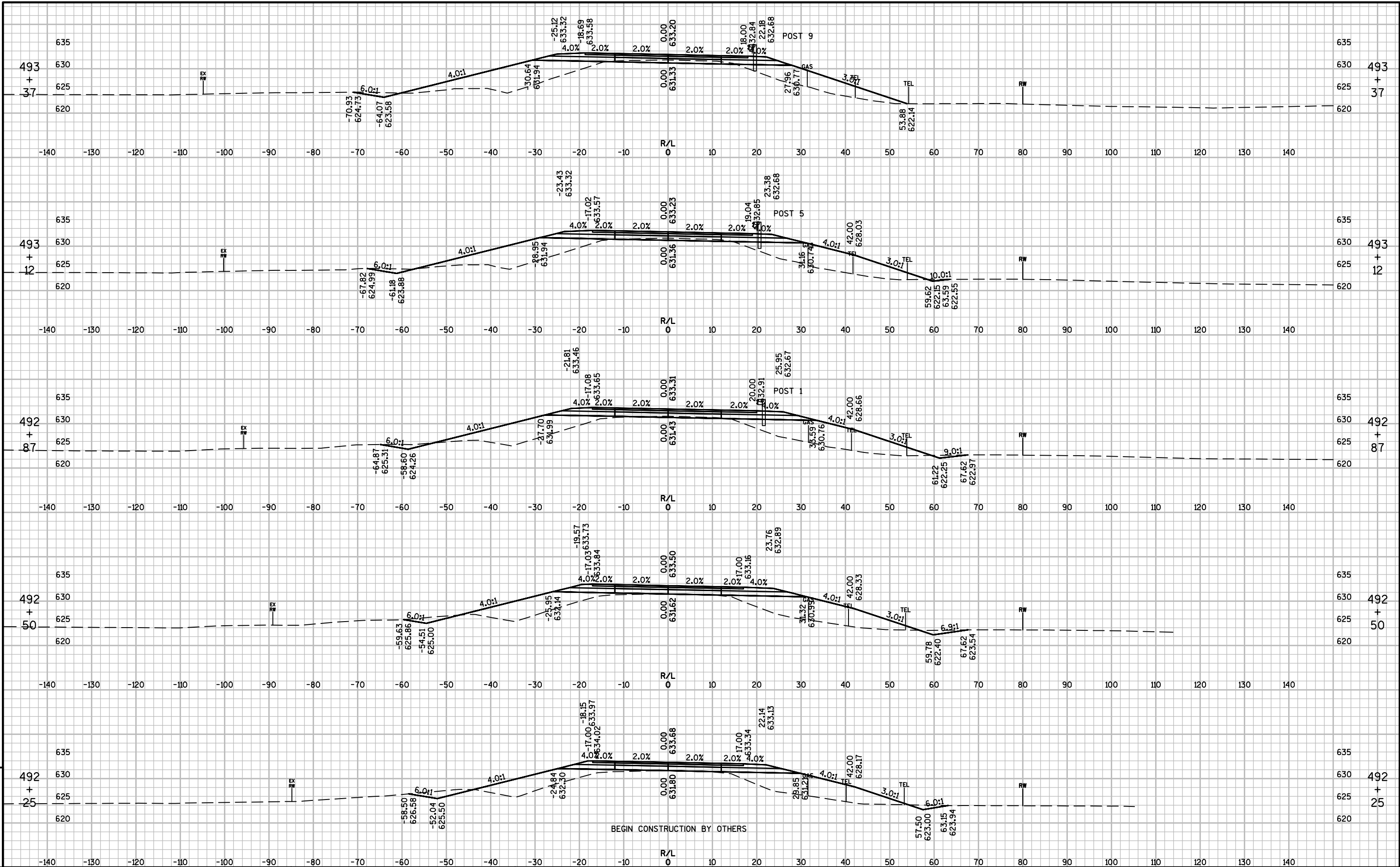
EARTHWORK - WEST OF BRIDGE - WORK BY OTHERS

STATION	AREA (SF)			Incremental vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Fill	Cut 1.00	Expanded Fill 1.25	
492+25	17.65	0.00	202.75	0	0	0	0	0	0.00
492+50	14.34	0.00	227.53	15	0	199	15	249	-234.19
492+86.95	12.16	0.00	258.16	18	0	332	33	664	-631.48
493+12.00	14.77	0.00	255.03	12	0	238	45	962	-916.57
493+37.04	19.52	0.00	229.66	16	0	225	61	1,243	-1,181.61
493+49.63	24.41	0.00	220.66	10	0	105	72	1,374	-1,302.60
493+74.58	33.61	0.00	191.62	27	0	190	98	1,612	-1,513.91
493+99.56	42.79	0.00	138.81	35	0	153	134	1,803	-1,669.63
494+25.00	46.80	0.00	139.90	42	0	131	176	1,967	-1,791.56

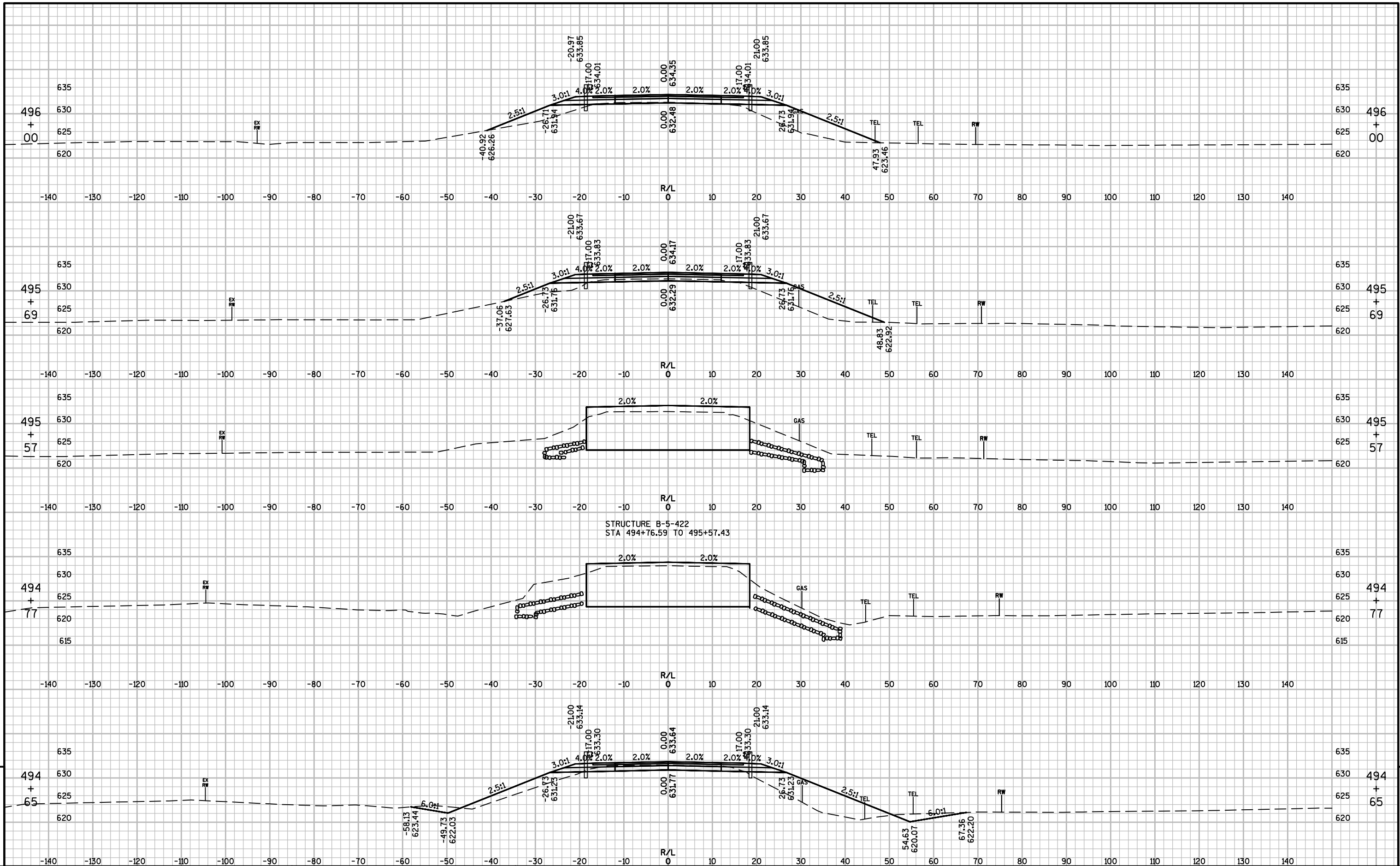
EARTHWORK - EAST OF BRIDGE - WORK BY OTHERS

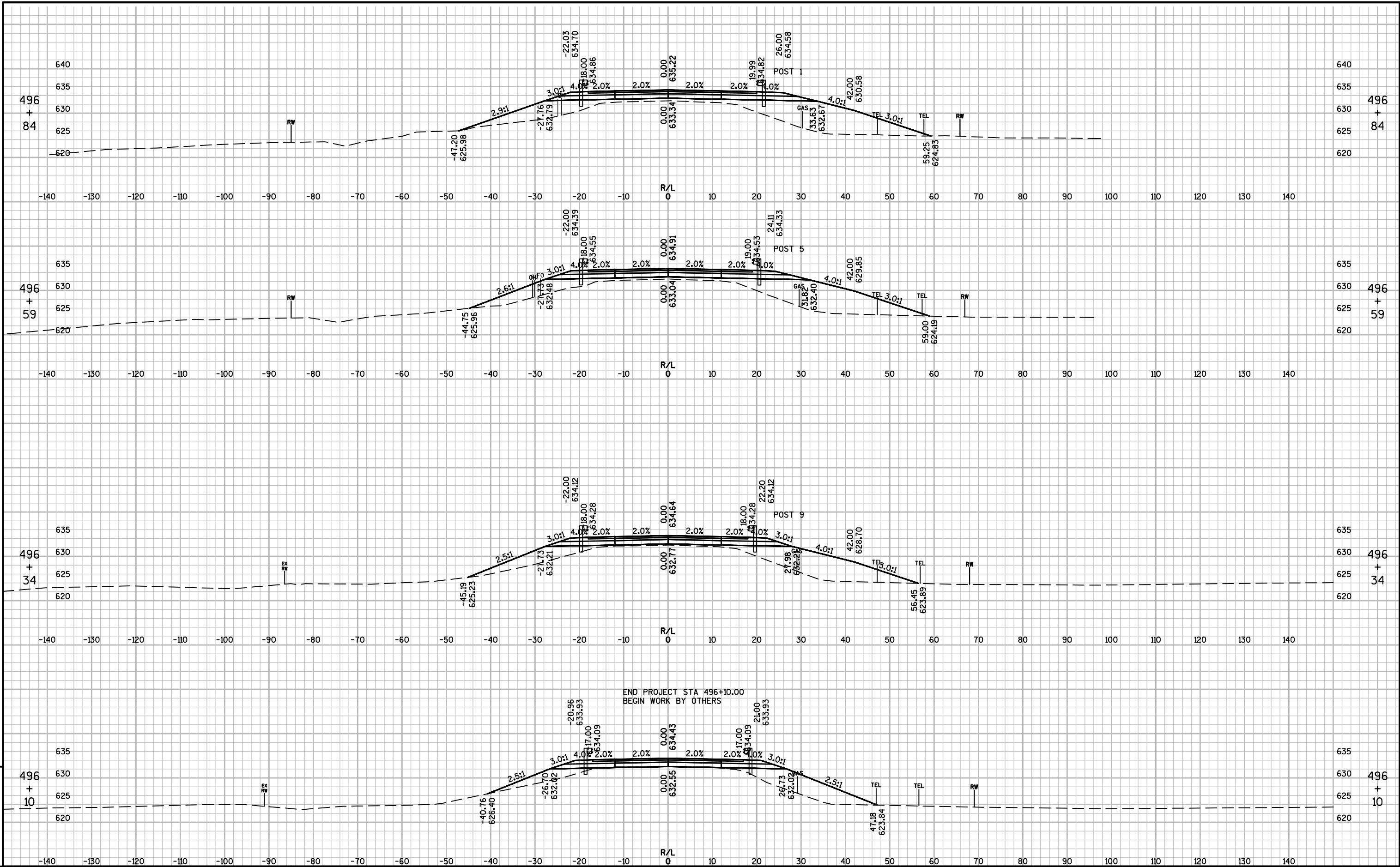
STATION	AREA (SF)			Incremental vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Fill	Cut 1.00	Expanded Fill 1.25	
496+10	1.26	0.00	127.45	0	0	0	0	0	0.00
496+34.45	0.00	0.00	211.39	1	0	153	1	192	-191.24
496+59.44	0.00	0.00	251.12	0	0	214	1	459	-458.70
496+84.41	0.00	0.00	267.48	0	0	240	1	759	-758.56
496+97.27	0.00	0.00	366.91	0	0	151	1	948	-947.36
497+22.25	0.00	0.00	448.33	0	0	377	1	1,419	-1,418.81
497+47.24	0.00	0.00	336.11	0	0	363	1	1,873	-1,872.45
497+70.00	0.00	0.00	424.67	0	0	321	1	2,274	-2,273.33
498+00.00	0.00	0.00	258.91	0	0	380	1	2,749	-2,748.04
498+50.00	18.56	0.00	103.89	17	0	336	18	3,169	-3,150.76
499+00.00	81.98	0.00	1.89	93	0	98	111	3,291	-3,180.10
499+09.65	82.22	0.00	16.45	29	0	3	140	3,295	-3,154.85
499+50.00	102.14	0.00	5.16	138	0	16	278	3,315	-3,037.28
499+77.50	146.13	0.00	0.00	126	0	3	404	3,319	-2,914.13











497  
+  
70  
DWW  
LT

640  
635  
630  
625  
620

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620  
615

497  
+  
47

640  
635  
630  
625  
620  
615

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620  
615

497  
+  
22

640  
635  
630  
625  
620  
615

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620  
615

496  
+  
97

640  
635  
630  
625  
620

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620

497  
+  
70  
DWW  
LT

640  
635  
630  
625  
620

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620  
615

497  
+  
47

640  
635  
630  
625  
620  
615

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620  
615

497  
+  
22

640  
635  
630  
625  
620  
615

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620  
615

496  
+  
97

640  
635  
630  
625  
620

-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

640  
635  
630  
625  
620

PROJECT NO: 4616-02-71

HWY: CTH ZZ

COUNTY: BROWN

CROSS SECTIONS: CTH ZZ

SHEET

34

E

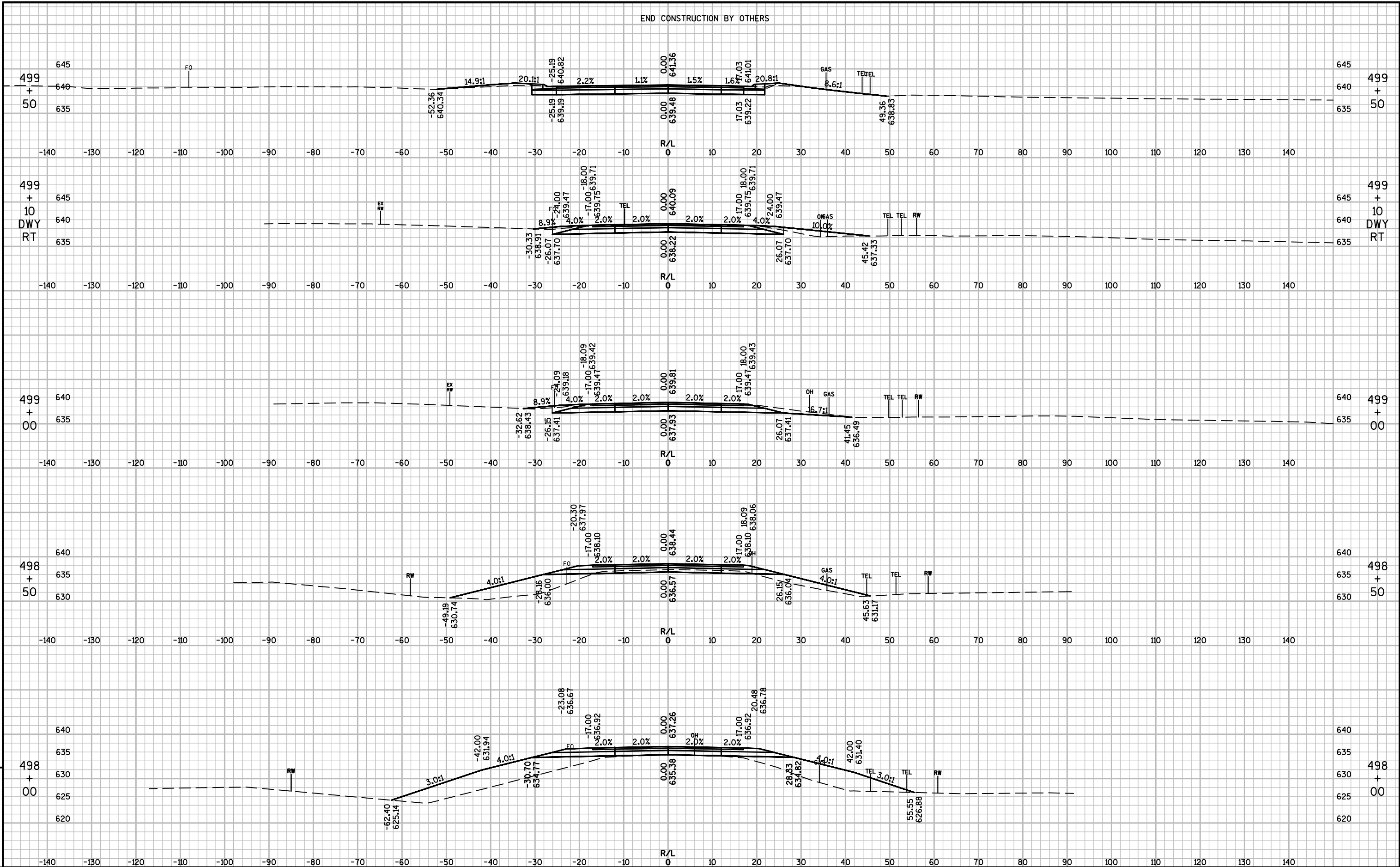
FILE NAME : F:\TR\JOBS\E2166A15\CIVIL 3D 2014\SHEETS\PLAN\4616-02-71\46160271-090200-XS.DWG  
LAYOUT NAME - \*\*\*\*\*

PLOT DATE : 5/31/2017 9:23 AM

PLOT BY : OMNNI ASSOCIATES - MATT TOMSOVIC

PLOT SCALE : \*\*\*\*\*

WISDOT/CADDS SHEET 49



## Notes



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

Dedicated people creating transportation solutions  
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>