NEL MAR 2016

PROJECT ID: 9267-03-71
WITH: 9268-09-71

COUNTY: BROWN

123

ORDER OF SHEETS

TOTAL SHEETS = 78

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

V SUAMICO, ST PATS RD

SUAMICO RIVER BRIDGE B-05-0420

LOCAL STREET
BROWN COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9267-03-71	WISC 2016065	1

STATE PROJECT NUMBER
9267-03-71

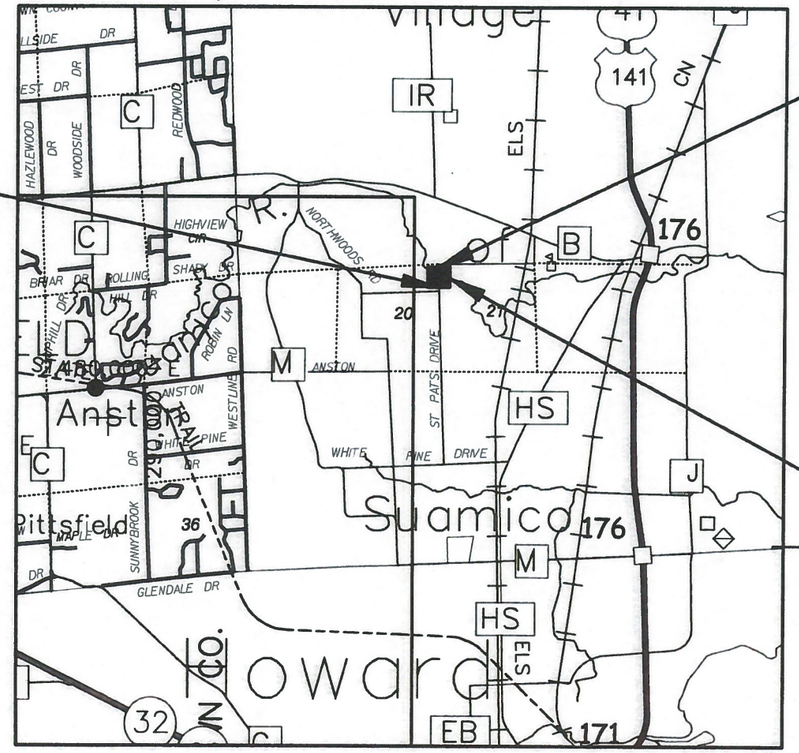
PROJECT LOCATION

N

BEGIN PROJECT 9267-03-71
STA. 8+05.00
Y = 610068.810
X = 80177.813

END PROJECT 9267-03-71
STA. 11+00.00

STRUCTURE B-05-0420



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.056 MI.

DESIGN DESIGNATION

A.A.D.T.	2016	= 410
A.A.D.T.	2036	= 520
D.H.V.	2036	= 29
D.D.		= 59/41
T		= 2.9%
DESIGN SPEED		= 40 MPH
ESALS		= 29,200

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE	PL + SPL	ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	LABEL
EXISTING RIGHT OF WAY		GRADE ELEVATION	955.36
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE		ELECTRIC	E
EXISTING CULVERT		FIBER OPTIC	FO
PROPOSED CULVERT (Box or Pipe)		GAS	G
COMBUSTIBLE FLUIDS	CAUTION	SANITARY SEWER	SAN
		STORM SEWER	SS
		TELEPHONE	T
MARSH AREA		WATER	W
		UTILITY PEDESTAL	
WOODED OR SHRUB AREA		POWER POLE	
		TELEPHONE POLE	

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, BROWN COUNTY, NAD83 (2007). IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ACCEPTED FOR
BROWN COUNTY

10/22/15
DATE

COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES

WISCONSIN
ANDREW C. DANA
34472
OCONTO, WI
PROFESSIONAL ENGINEER

10/22/15
(Date)

(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES
Designer	AYRES ASSOCIATES
Management Consultant	SEH
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 10/26/15

(Management Consultant Signature)

E

FILE NAME : N:\C3D\45037800\SHEETSPLAN\010101_TI.DWG

PLOT DATE :

PLOT BY :

PLOT NAME : ----------

WISDOT/CADDS SHEET 15

GENERAL NOTES

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

FILL EXPANSION FACTOR IS 30%.

CONSTRUCT 4-INCH HMA PAVEMENT WITH A 1 3/4" UPPER LAYER AND A 2 1/4" LOWER LAYER.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

BEARING SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

PLACE EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE FERTILIZED, SEEDED, AND EROSION MAT AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS AT THE CENTERLINE OF THE ROADWAY.

ALL ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD 88 (2012).

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD

SAW CUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD. THE LINE OF SUCH SAW CUTS WILL BE NEATLY DELINEATED THROUGH THE ASPHALT WITHOUT ANY DAMAGE TO THE REMAINING PORTION OF THE EXISTING PAVEMENT.

ENTRANCES TO BE REPLACED IN KIND.

UTILITIES

*WISCONSIN PUBLIC SERVICE - ELECTRIC TELEPHONE 920-617-5151

2850 S. ASHLAND AVE.
PO BOX 19001
GREEN BAY, WISCONSIN 543-9001
ATTENTION: SCOTT J. GAUGER
E-MAIL: SJGauger@wisconsinpublicservice.com

*-MEMBER OF DIGGERS HOTLINE

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

RUNOFF COEFFICIENT TABLE

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

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.80 ACRES
SOIL GROUP C

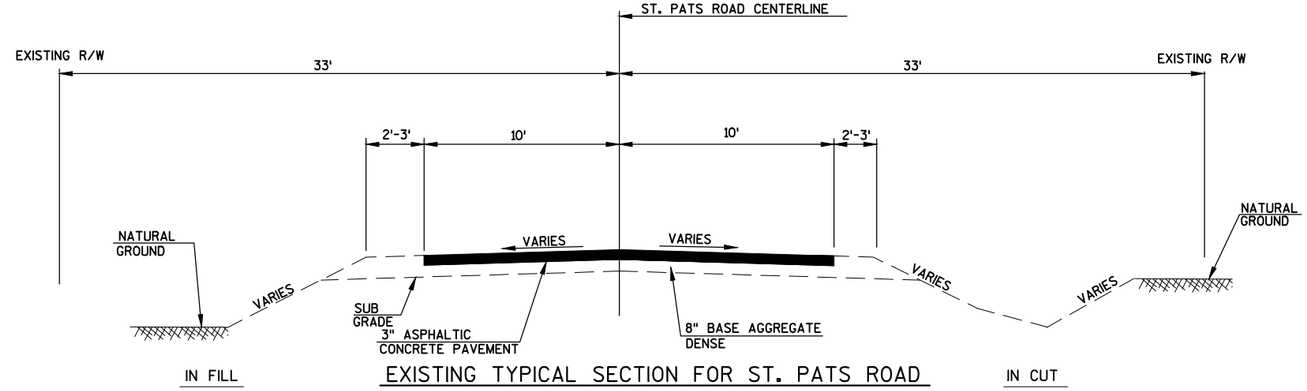
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AC	ASPHALT CEMENT	PT	POINT OF TANGENCY
AGG	AGGREGATE	PC	POINT OF CURVATURE
ASPH	ASPHALT	PI	POINT OF INTERSECTION
BM	BENCH MARK	PE	PRIVATE ENTRANCE
C/L	CENTERLINE	R	RADIUS
CONC	CONCRETE	REM	REMOVE
CMP	CORRUGATED METAL PIPE	R/L OR RL	REFERENCE LINE
CR.	CREEK	RCCP	REINFORCED CONCRETE CULVERT PIPE
D	DEGREE OF CURVE	RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
DHV	DESIGN HOUR VOLUME	R.O.	RUNOUT
ESALS	EQUIVALENT SINGLE AXIS LOADS	R/W	RIGHT-OF-WAY
EXIST	EXISTING	STA	STATION
FE	FIELD ENTRANCE	SE	SUPER ELEVATION
HYD	HYDRANT	SS	STORM SEWER
IP	IRON PIPE OR PIN	T	TANGENT
L	LENGTH OF CURVE	TEL	TELEPHONE
LC	LONG CHORD OF CURVE	TLE	TEMPORARY LIMITED EASEMENT
LR	LENGTH OF RUNOFF	T	TRUCKS
MH	MANHOLE	VC	VERTICAL CURVE
		W	WELL

DEPARTMENT OF NATURAL RESOURCES

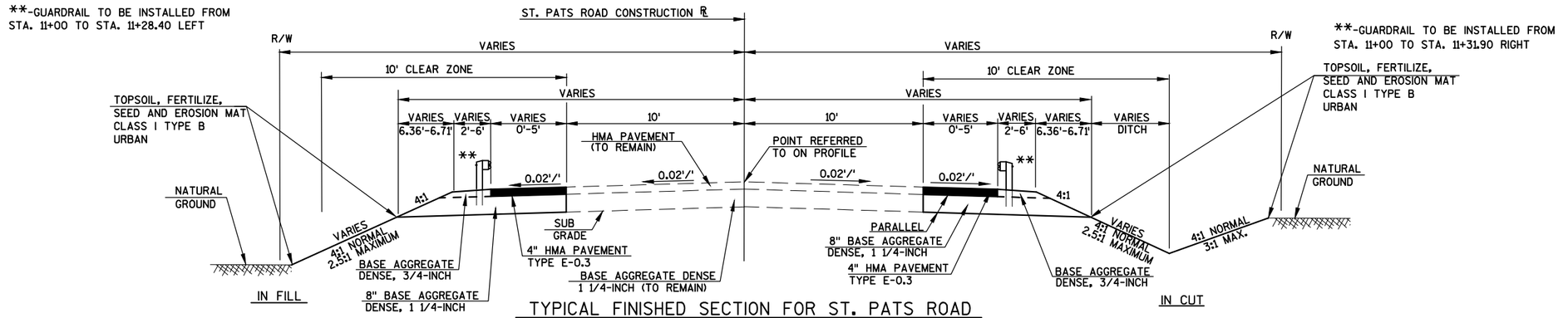
WDNR TELEPHONE 920-662-5472

P.O. BOX 10448
GREEN BAY, WISCONSIN 54307
ATTENTION: JIM DOPERALSKI
E-MAIL: JAMES.DOPERALSKI@WISCONSIN.GOV



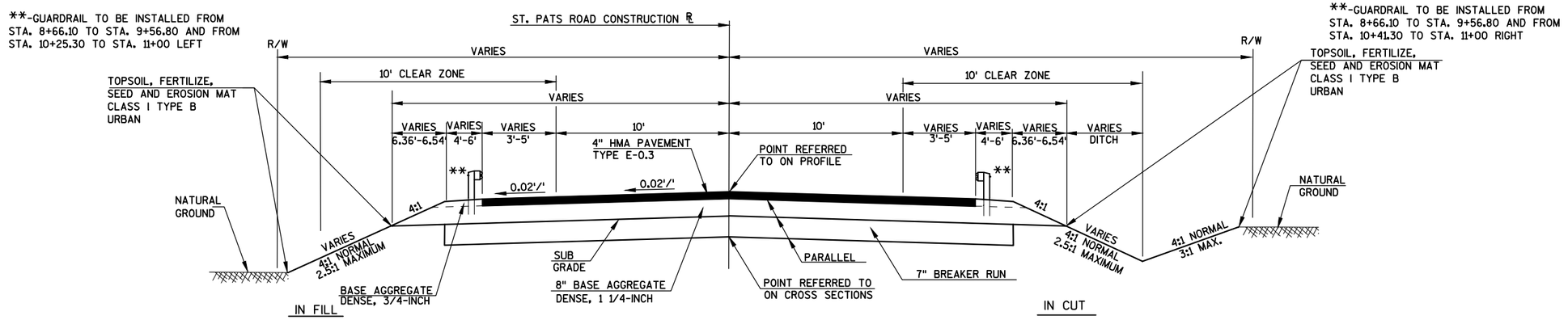
EXISTING TYPICAL SECTION FOR ST. PATS ROAD

STA. 7+39.30 - STA. 8+05
STA. 11+00 - STA. 12+48.30



TYPICAL FINISHED SECTION FOR ST. PATS ROAD

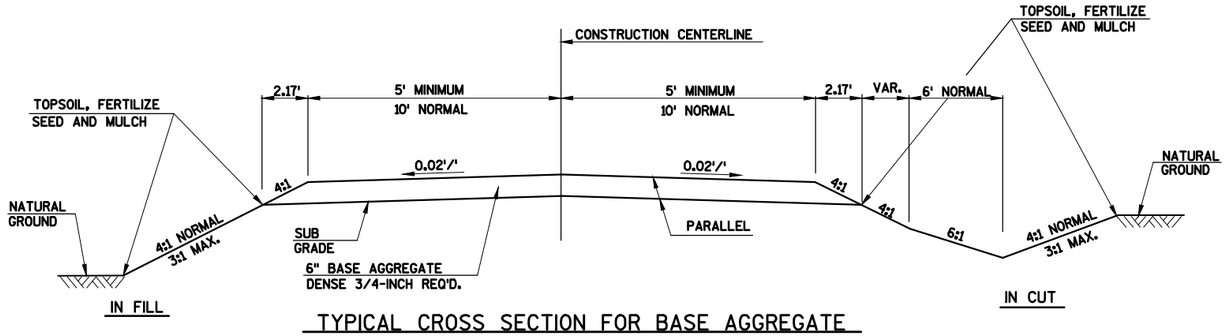
STA. 7+39.30 - STA. 8+05
STA. 11+00 - STA. 12+48.30



TYPICAL FINISHED SECTION FOR ST. PATS ROAD

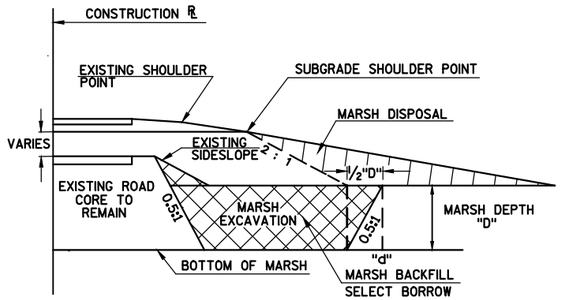
STA. 8+05 - STA. 9+56.80
STA. 10+25.25 - STA. 11+00

PROJECT NO: 9267-03-71	HWY: ST. PATS ROAD	COUNTY: BROWN	TYPICAL SECTIONS	SHEET 3	E



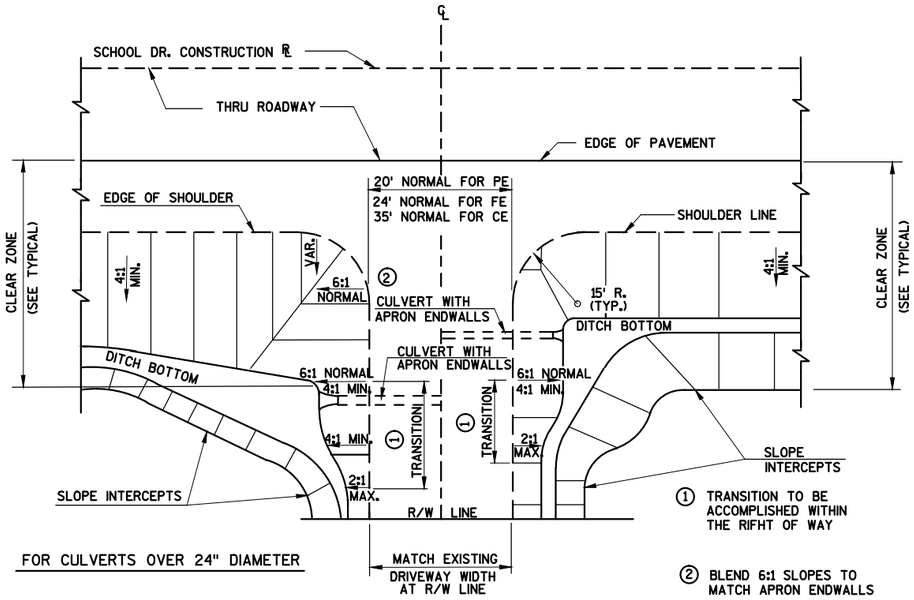
TYPICAL CROSS SECTION FOR BASE AGGREGATE DENSE PRIVATE ENTRANCES AND FIELD ENTRANCES

(REPLACE IN KIND)



NOTE: BACKFILL QUANTITIES COMPUTED FROM POINT "d" TO COMPENSATE FOR PROBABLE DISPLACED MARSH AREA.

TYPICAL SECTION-MARSH EXCAVATION



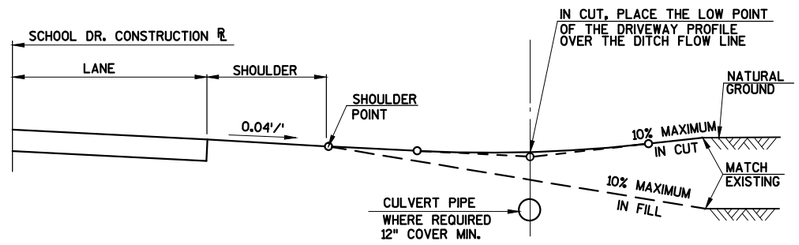
FOR CULVERTS OVER 24" DIAMETER

PLAN VIEW

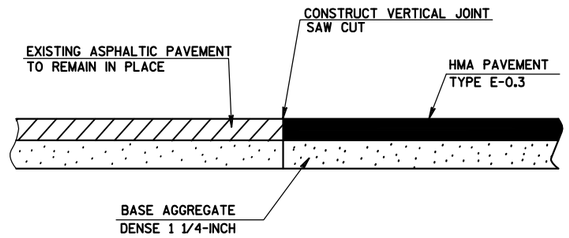
FOR CULVERTS 24" DIAMETER OR LESS

PRIVATE ENTRANCE GRADING DETAIL

STA. 7+00 LT.
STA. 7+00 RT.

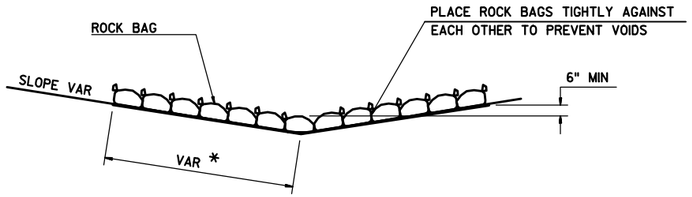


TYPICAL DRIVEWAY PROFILES

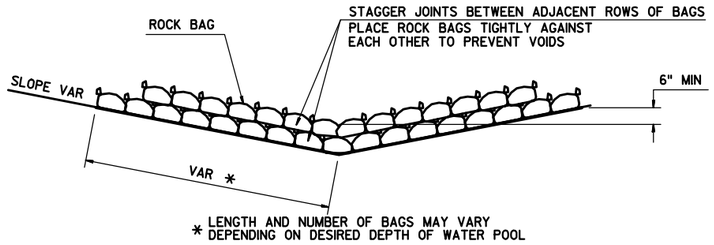


SAW CUT DETAIL

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 4	E



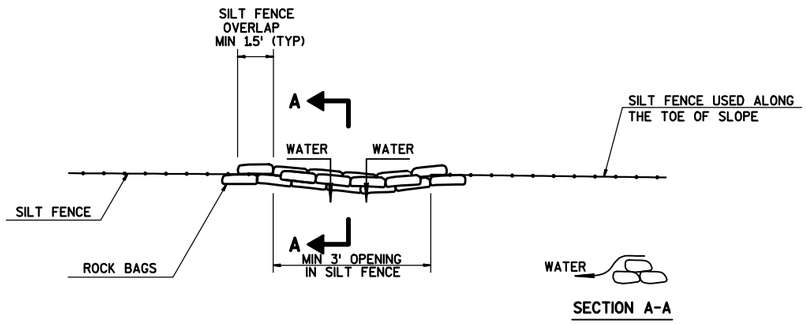
SIDE VIEW (SINGLE LAYER)



SIDE VIEW (MULTIPLE LAYER)

ROCK BAGS DITCH CHECK

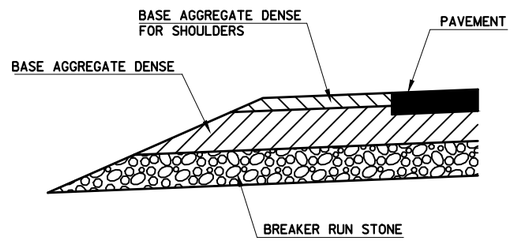
PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



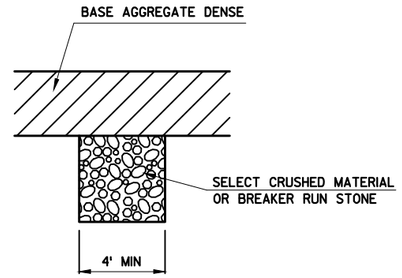
TOP VIEW

ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

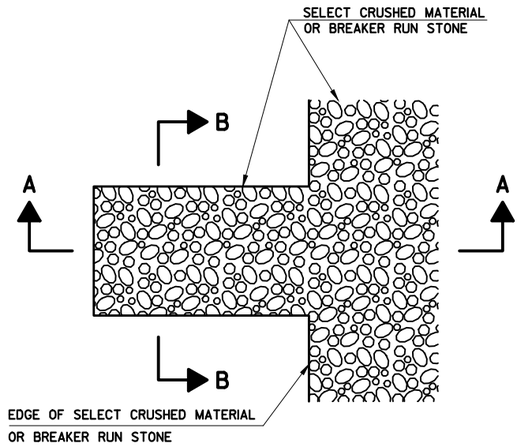
PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



SECTION A-A



SECTION B-B

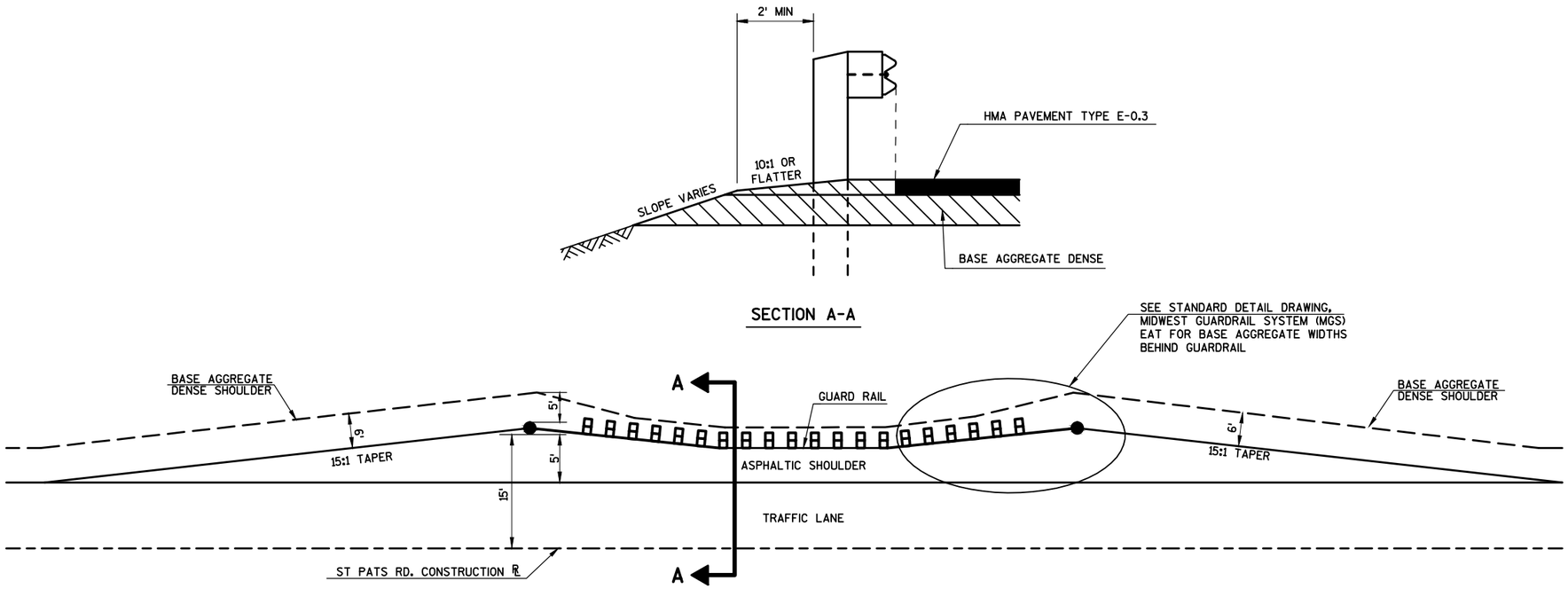


DETAIL FOR FRENCH DRAINS

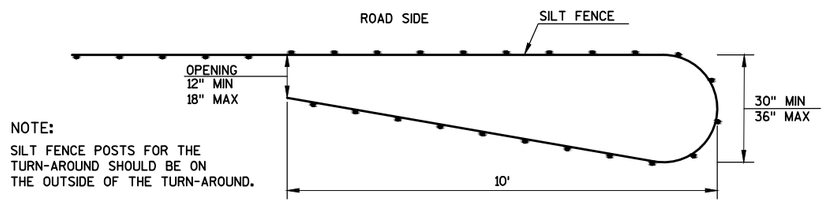
DRAINS ARE TO BE CONSTRUCTED AT LEAST EVERY 250'
AND AT EACH SAG VERTICAL CURVE IN THE PROFILE.

LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL
BE CONSIDERED INCIDENTAL TO THE ITEM BREAKER RUN STONE.



DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL



PLAN VIEW

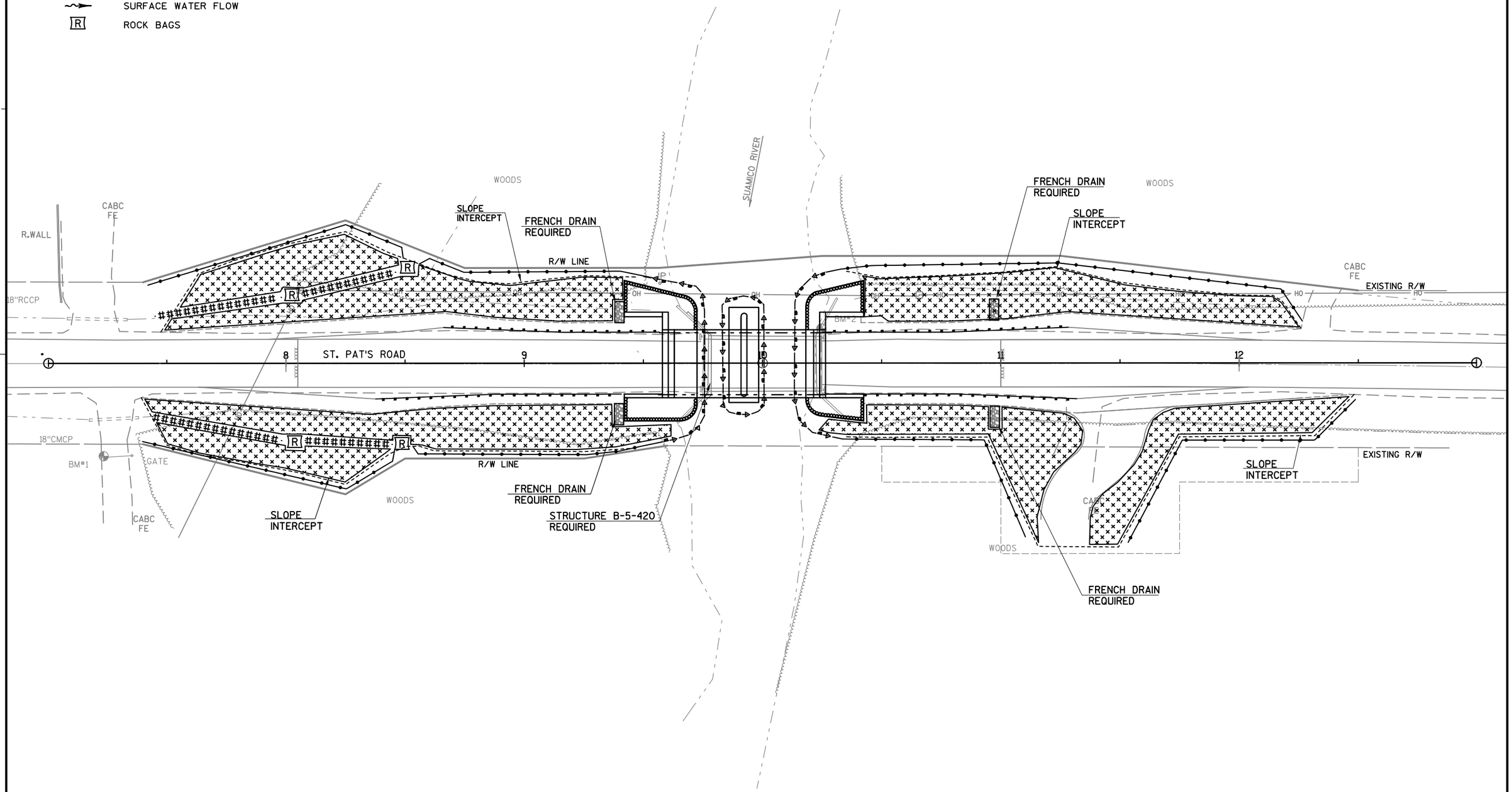
SILT FENCE TURN-AROUND DETAIL

PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 6	E

LEGEND

- ###### EROSION MAT CLASS II, TYPE C
- EROSION MAT CLASS I, TYPE B URBAN
- SILT FENCE
- SLOPE INTERCEPT
- TURBIDITY BARRIER
- SURFACE WATER FLOW
- [R] ROCK BAGS

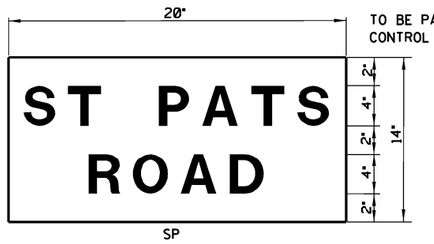
N



PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	EROSION CONTROL PLAN	SHEET 7	E

FILE NAME : N:\C3D\45037800\SHEETSPLAN\022001_EC.DWG PLOT DATE : 8/31/2015 9:56 AM PLOT BY : SOUFAL, KEVIN PLOT NAME : 1:40_XREF

WISDOT/CADDS SHEET 42



TO BE PAID UNDER TRAFFIC CONTROL SIGNS FIXED MESSAGE.

SPECIAL SIGN NOTES

1) SIGNS ON THIS SHEET TO BE PAID UNDER THE ITEM "TRAFFIC CONTROL DETOUR SIGNS", WITH THE EXCEPTION TO ABOVE DETAIL.

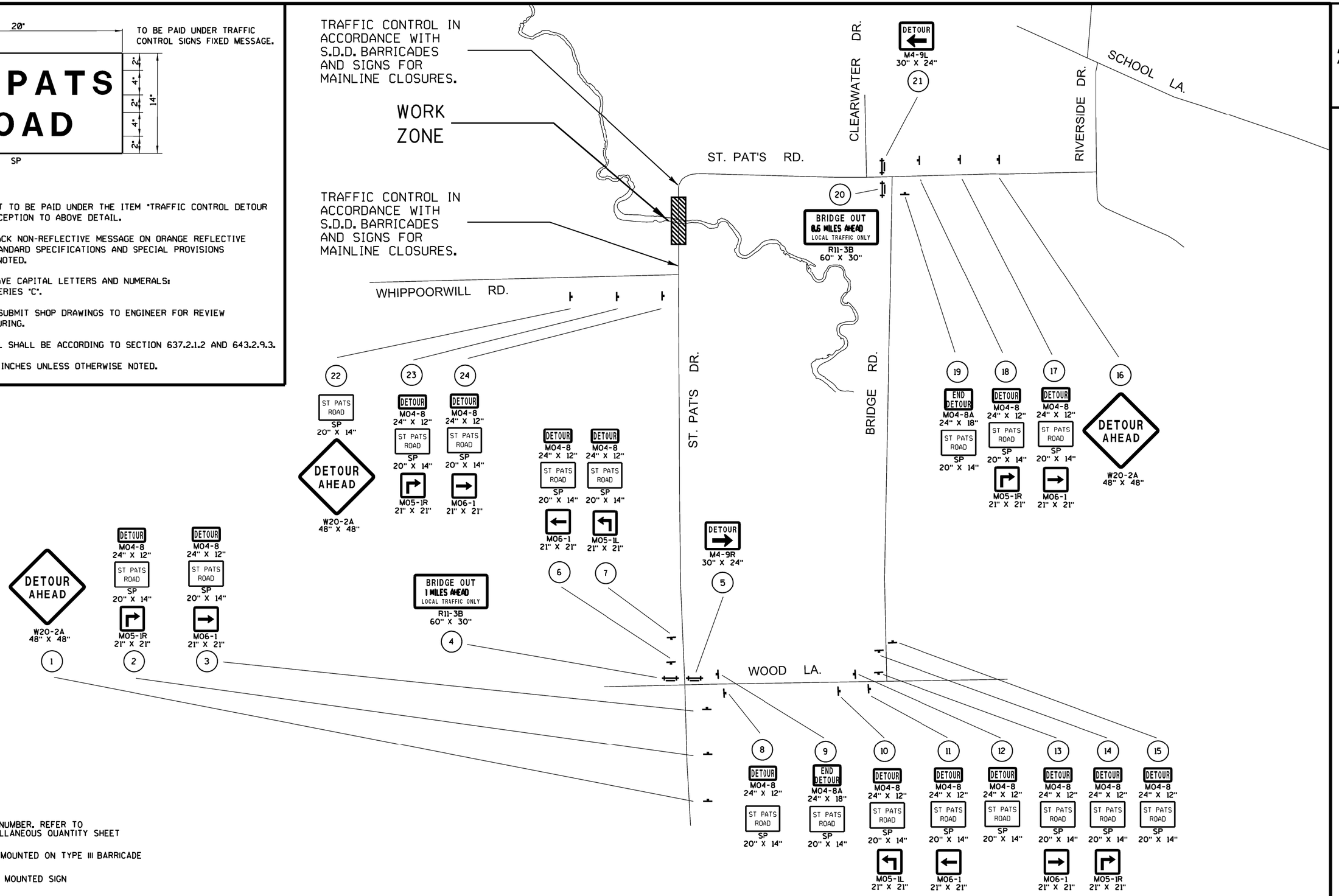
2) SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE REFLECTIVE BACKGROUND PER STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS UNLESS OTHERWISE NOTED.

3) ALL SIGNS SHALL HAVE CAPITAL LETTERS AND NUMERALS: 4" CAPS SHALL BE SERIES "C".

4) CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW PRIOR TO MANUFACTURING.

5) SIGN BASE MATERIAL SHALL BE ACCORDING TO SECTION 637.2.1.2 AND 643.2.9.3.

6) DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.



LEGEND

(X) SIGN NUMBER. REFER TO MISCELLANEOUS QUANTITY SHEET

SIGN MOUNTED ON TYPE III BARRICADE

POST MOUNTED SIGN

PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	DETOUR SIGNING DETAIL	SHEET	E

FILE NAME : N:\C3D\45037800\SheetsOther\St Pats Detour\027001_dt.dgn PLOT DATE : 8/24/2015 PLOT BY : vervillep PLOT NAME : PLOT SCALE : 1:200
WISDOT/CADDS SHEET 42

DATE 11JAN16 — E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	9267-03-71 QUANTITY
0010	201.0205	Grubbing	STA	6.000	6.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 9+99	LS	1.000	1.000
0050	205.0100	Excavation Common **P**	CY	660.000	660.000
0060	205.0400	Excavation Marsh	CY	326.000	326.000
0070	206.1000	Excavation for Structures Bridges (structure) 01. B-5-420	LS	1.000	1.000
0090	206.5000	Cofferdams (structure) 01. B-5-420	LS	1.000	1.000
0100	208.0100	Borrow	CY	165.000	165.000
0110	208.1100	Select Borrow	CY	490.000	490.000
0120	210.0100	Backfill Structure	CY	420.000	420.000
0130	213.0100	Finishing Roadway (project) 01. 9267-03-71	EACH	1.000	1.000
0150	305.0110	Base Aggregate Dense 3/4-Inch	TON	175.000	175.000
0160	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	800.000	800.000
0170	311.0110	Breaker Run	TON	346.000	346.000
0180	455.0105	Asphaltic Material PG58-28	TON	9.400	9.400
0190	455.0605	Tack Coat	GAL	44.000	44.000
0200	460.1100	HMA Pavement Type E-0.3	TON	170.000	170.000
0210	460.2000	Incentive Density HMA Pavement	DOL	120.000	120.000
0220	502.0100	Concrete Masonry Bridges	CY	412.000	412.000
0230	502.3200	Protective Surface Treatment	SY	255.000	255.000
0250	505.0400	Bar Steel Reinforcement HS Structures	LB	21,680.000	21,680.000
0260	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	25,040.000	25,040.000
0270	513.4061	Railing Tubular Type M (structure) 01. B-5-420	LF	172.000	172.000
0290	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0320	550.0020	Pre-Boring Rock or Consolidated Materials	LF	110.000	110.000
0330	550.0500	Pile Points	EACH	22.000	22.000
0340	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	390.000	390.000
0350	606.0300	Riprap Heavy	CY	210.000	210.000
0360	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0370	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	190.000	190.000
0380	614.2300	MGS Guardrail 3	LF	25.000	25.000
0390	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0400	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0410	616.0204	Fence Chain Link 4-FT	LF	48.000	48.000
0430	619.1000	Mobilization	EACH	0.600	0.600
0440	624.0100	Water	MGAL	13.000	13.000
0450	625.0100	Topsoil	SY	2,400.000	2,400.000
0460	628.1504	Silt Fence	LF	1,100.000	1,100.000
0470	628.1520	Silt Fence Maintenance	LF	2,200.000	2,200.000
0480	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0490	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0500	628.2008	Erosion Mat Urban Class I Type B	SY	2,000.000	2,000.000
0510	628.2027	Erosion Mat Class II Type C	SY	200.000	200.000
0520	628.6005	Turbidity Barriers	SY	330.000	330.000
0540	628.7570	Rock Bags	EACH	80.000	80.000
0550	629.0210	Fertilizer Type B	CWT	1.500	1.500
0560	630.0120	Seeding Mixture No. 20	LB	65.000	65.000
0570	630.0200	Seeding Temporary	LB	35.000	35.000
0580	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0600	637.2230	Signs Type II Reflective F	SF	12.000	12.000

3

DATE 11JAN16 — E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	9267-03-71 QUANTITY
0610	638.2602	Removing Signs Type II	EACH	4.000	4.000
0620	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0630	642.5001	Field Office Type B	EACH	0.500	0.500
0640	643.0100	Traffic Control (project) 01. 9267-03-71	EACH	1.000	1.000
0660	643.0420	Traffic Control Barricades Type III	DAY	1,170.000	1,170.000
0670	643.0705	Traffic Control Warning Lights Type A	DAY	1,820.000	1,820.000
0680	643.0900	Traffic Control Signs	DAY	715.000	715.000
0690	643.1000	Traffic Control Signs Fixed Message 01. 9267-03-71	SF	36.000	36.000
0700	643.2000	Traffic Control Detour (project) 01 9267-03-71	EACH	1.000	1.000
0710	643.3000	Traffic Control Detour Signs	DAY	2,210.000	2,210.000
0720	645.0120	Geotextile Fabric Type HR	SY	340.000	340.000
0730	650.4500	Construction Staking Subgrade	LF	441.000	441.000
0740	650.5000	Construction Staking Base	LF	441.000	441.000
0750	650.6500	Construction Staking Structure Layout (structure) 01. B-5-420	LS	1.000	1.000
0770	650.9910	Construction Staking Supplemental Control (project) 01. 9267-03-71	LS	1.000	1.000
0790	650.9920	Construction Staking Slope Stakes	LF	441.000	441.000
0800	690.0150	Sawing Asphalt	LF	430.000	430.000
0810	715.0502	Incentive Strength Concrete Structures	DOL	2,472.000	2,472.000
0820	ASP.1T0A	On-the-Job Training Apprentice at $5. 00/HR	HRS	300.000	300.000
0830	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	600.000	600.000
0840	SPV.0105	Special 01. Preservation of Existing Monuments	LS	1.000	1.000
0850	SPV.0105	Special 02. Verify and Restoring of Existing Monuments	LS	1.000	1.000
0860	SPV.0105	Special 03. Removing Trees Project 9267-03-71	LS	1.000	1.000

3

3

3

GRUBBING AND REMOVING TREES

STATION	TO	STATION	LOCATION	201.0205 GRUBBING STA	SPV.0105.03 REMOVING TREES PROJECT 9267-03-71 LS
7+00	-	13+00	ST. PATS ROAD	6	1
TOTALS				6	1

BASE AGGREGATE DENSE AND WATER

STATION	TO	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	311.0110 BREAKER RUN TON	624.0100 WATER MGAL	REMARKS
7+39.30	-	9+56.75	ST PATS ROAD	60	440	235	7	
10+24	-	12+48	ST PATS ROAD	60	360	105	5	
11+15	-	11+75	ST PATS ROAD, RT	55	-	-	1	FE
	9+40		ST PATS ROAD, LT & RT	-	-	3	-	FRENCH DRAINS
	10+98		ST PATS ROAD, LT & RT	-	-	3	-	FRENCH DRAINS
TOTALS				175	800	346	13	

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (item #205.0100) Cut (2)	Unusable Pavement Material (4)	Available Material (5)	Excavation Marsh (6) (item #205.0400)	Expanded Marsh Backfill (10) Factor 1.50	Unexpanded Fill	Expanded Fill (13) Factor 1.30	Mass Ordinate +/- (14)	Borrow (item #208.0100)	Comment:
1	7+39 - 8+05	ST PATS RD (SE SHOULDER)	53	0	53	0	0	13	16	37	0	
	7+39 - 8+05	ST PATS RD (SW SHOULDER)	114	0	114	0	0	8	11	103	0	
	8+05 - 11+00	ST PATS RD	449	42	407	210	316	409	529	-124	0	
	11+00 - 12+48	ST PATS RD (NE SHOULDER)	29	0	29	49	74	56	73	-43	27	
	11+00 - 12+85	ST PATS RD (NW SHOULDER)	15	0	15	67	100	14	18	-138	138	
Division 1 Total			660	42	618	326	490	500	647	-165	165	

2) Unsuable Pavement Material is included in Cut
4) Unusable Pavement Material = Existing Asphaltic Pavement
5) Available Material = Cut - Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Item Number 208.1100
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item Number 208.1100.
13) Expanded Fill. Factor = 1.3 Expanded Fill = (Unexpanded Fill - Reduced EBS) * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

HMA PAVEMENT

STATION	TO	STATION	LOCATION	455.0110 ASPHALTIC MATERIAL PG58-34 (5.5%) TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON
7+39.30	-	9+56.75	ST PATS ROAD	5.8	27	105
10+24.00	-	12+48.30	ST PATS ROAD	3.6	17	65
TOTALS				9.4	44	170

MGS GUARDRAIL

STATION	TO	STATION	LOCATION	614.0397 GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SY	614.2300 MGS 3 LF	614.2500 THRIE BEAM TRANSITION LF	614.2610 TERMINAL EAT EACH
8+66.1	-	9+56.8	ST PATS ROAD, LT	45	-	39.5	1
8+37.6	-	9+40.8	ST PATS ROAD, RT	50	12.5	39.5	1
10+25.3	-	11+28.4	ST PATS ROAD, LT	50	12.5	39.5	1
10+41.3	-	11+31.9	ST PATS ROAD, RT	45	-	39.5	1
TOTALS				190	25	158	4

3

TOPSOIL, FERTILIZER, AND SEED

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB
7+39	-	9+67	ST PATS ROAD, RT	515	0.3	14	7
7+47	-	9+61	ST PATS ROAD, LT	530	0.3	14	7
10+15	-	12+48	ST PATS ROAD, RT	600	0.4	16	8
10+20	-	12+26	ST PATS ROAD, LT	375	0.2	10	5
UNDISTRIBUTED			ENTIRE PROJECT	380	0.3	11	8
TOTALS				2,400	1.5	65	35

*NOTE: - FERTILIZER NOT TO BE PLACED WITHIN 20' OF THE SUAMICO RIVER.

EROSION MAT

STATION	TO	STATION	LOCATION	URBAN CLASS I TYPE B 628.2008 SY	CLASS II TYPE C 628.2037 SY
7+39	-	9+67	ST PATS ROAD, RT	420	95
7+47	-	9+61	ST PATS ROAD, LT	425	90
10+15	-	12+48	ST PATS ROAD, RT	430	-
10+20	-	12+26	ST PATS ROAD, LT	375	-
UNDISTRIBUTED				350	15
TOTAL				2,000	200

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 MAINTENANCE LF
7+35	-	9+50	ST PATS ROAD, RT	220	440
7+40	-	9+50	ST PATS ROAD, LT	215	430
11+30	-	12+50	ST PATS ROAD, RT	240	480
11+30	-	12+25	ST PATS ROAD, LT	205	410
			UNDISTRIBUTED	220	440
TOTALS				1,100	2,200

TURBIDITY BARRIERS

STATION	LOCATION	628.6005 SY
SOUTH ABUTMENT	ST PATS ROAD	105
NORTH ABUTMENT	ST PATS ROAD	90
PIER	ST PATS ROAD	135
TOTAL		330

ROCK BAGS

STATION	LOCATION	628.7570 EACH
8+00	ST PATS ROAD, LT & RT	30
8+50	ST PATS ROAD, LT & RT	30
	UNDISTRIBUTED	20
TOTAL		80

SIGNS REFLECTIVE TYPE II AND WOOD POSTS

STATION	LOCATION	634.0612 WOOD POSTS 4"x6"x12' EACH	637.2230 SIGNS W5-52L SF	637.2230 SIGNS W5-52R SF
NE QUADRANT	ST PATS ROAD	1	3	-
NW QUADRANT	ST PATS ROAD	1	-	3
SE QUADRANT	ST PATS ROAD	1	3	-
SW QUADRANT	ST PATS ROAD	1	-	3
SUBTOTALS		4	6	6
TOTALS		4	12	

REMOVING SIGNS & SUPPORTS

STATION	LOCATION	638.2602 SIGNS TYPE II EACH	638.3000 SMALL SIGN SUPPORTS EACH
9+75	ST PATS ROAD, LT & RT	2	2
10+25	ST PATS ROAD, LT & RT	2	2
TOTALS		4	4

TRAFFIC CONTROL SUMMARY

SIGN NUMBER	LOCATION	APPROXIMATE SERVICE DAYS	643.0420 BARRICADES TYPE III NO. IN SERVICE	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO. IN SERVICE	643.0705 WARNING LIGHTS TYPE A DAYS	643.0900 SIGNS NO. IN SERVICE	643.0900 SIGNS DAYS	643.3000 SIGNS FIXED MESSAGE SF	643.3000 DETOUR SIGNS NO. IN SERVICE	643.3000 DETOUR SIGNS DAYS	
	200 FT BEFORE NORTH WORK ZONE LIMITS	65	-	-	-	-	3	195	-	-	-	ADVANCED CLOSURE SIGNING - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B
	200 FT BEFORE NORTH WORK ZONE LIMITS	65	2	130	4	260	1	65	-	-	-	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL E
	NORTH WORK ZONE LIMITS	65	5	325	6	390	1	65	-	-	-	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
	SOUTH WORK ZONE LIMITS	65	5	325	6	390	1	65	-	-	-	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
	ST PATS RD / WHIPPOOLWILL RD	65	2	130	4	260	1	65	-	-	-	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL E
	ST PATS RD / WHIPPOOLWILL RD	65	-	-	-	-	3	195	-	-	-	ADVANCED CLOSURE SIGNING - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B
1	ST PATS DR/WOOD LN	65	-	-	-	-	-	-	-	1	65	
2	ST PATS DR/WOOD LN	65	-	-	-	-	-	-	2	2	130	
3	ST PATS DR/WOOD LN	65	-	-	-	-	-	-	2	2	130	
4	ST PATS DR/WOOD LN	65	1	65	2	130	1	65	-	-	-	
5	ST PATS DR/WOOD LN	65	1	65	2	130	-	-	-	1	65	
6	ST PATS DR/WOOD LN	65	-	-	-	-	-	-	2	2	130	
7	ST PATS DR/WOOD LN	65	-	-	-	-	-	-	2	2	130	
8	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	1	65	
9	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	1	65	
10	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	2	130	
11	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	2	130	
12	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	1	65	
13	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	2	130	
14	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	2	130	
15	WOOD LN/BRIDGE RD	65	-	-	-	-	-	-	2	1	65	
16	BRIDGE RD/ST PATS RD	65	-	-	-	-	-	-		1	65	
17	BRIDGE RD/ST PATS RD	65	-	-	-	-	-	-	2	2	130	
18	BRIDGE RD/ST PATS RD	65	-	-	-	-	-	-	2	2	130	
19	BRIDGE RD/ST PATS RD	65	-	-	-	-	-	-	2	1	65	
20	BRIDGE RD/ST PATS RD	65	1	65	2	130	1					
21	BRIDGE RD/ST PATS RD	65	1	65	2	130	-	-		1	65	
22	ST PATS DR/WHIPPOORWILL RD	65	-	-	-	-	-	-	2	1	65	
23	ST PATS DR/WHIPPOORWILL RD	65	-	-	-	-	-	-	2	2	130	
24	ST PATS DR/WHIPPOORWILL RD	65	-	-	-	-	-	-	2	2	130	
	TOTALS			1,170		1,820		715	36		2,210	

3

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF	GROUP CODE
7+39	-	9+57	ST PATS ROAD	218	218	-	1	218	0010
10+25	-	12+48	ST PATS ROAD	223	223	-	-	223	0010
SUBTOTALS				441	441	0	1	441	0010
10+00			ST PATS ROAD	-	-	1	-	-	0020
SUBTOTALS				0	0	1	0	0	0020
TOTALS				441	441	1	1	441	

SAWING ASPHALT

STATION	TO	STATION	LOCATION	690.0150 LF
7+39	-	8+05	ST PATS ROAD	295
11+00	-	12+48	ST PATS ROAD	135
TOTAL				430

MONUMENTS

LOCATION	SPV.0105.01 PRESERVATION OF EXISTING MONUMENTS QUANTITY LS	SPV.0105.02 VERIFY AND RESTORING OF EXISTING MONUMENTS QUANTITY EACH
ENTIRE PROJECT	1	1
TOTALS	1	1

SCHEDULE OF LANDS AND INTERESTS REQUIRED

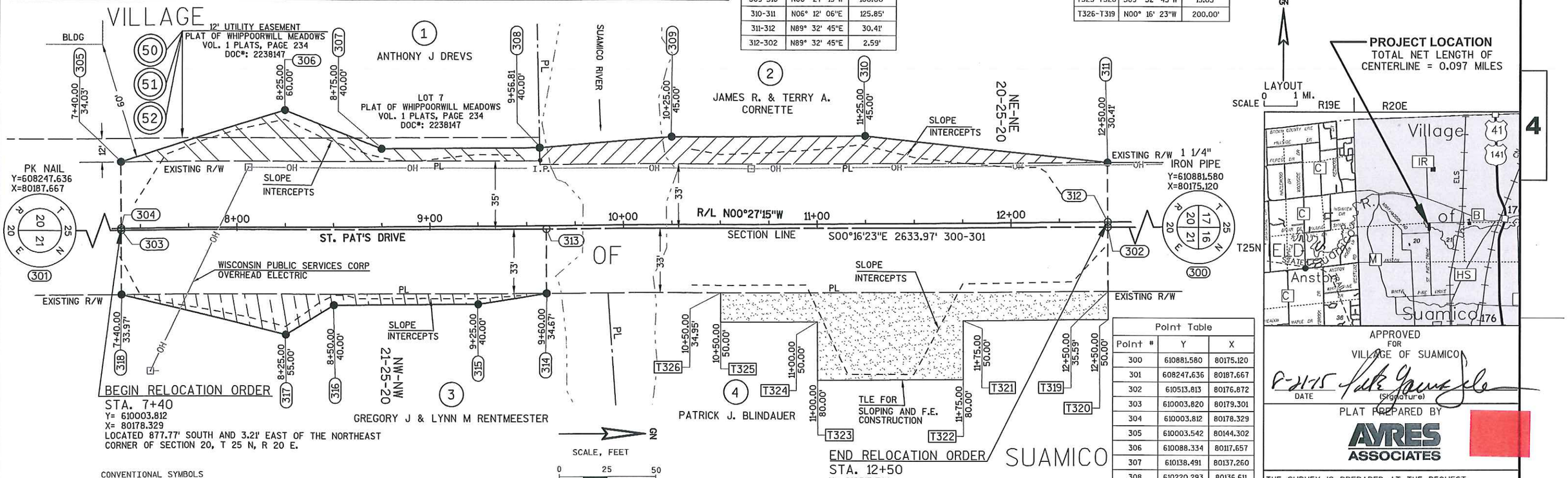
OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE VILLAGE.

PARCEL NO.	OWNERSHIP	INTEREST REQUIRED	TOTAL ACRES	R/W (ACRES) NEW	EXISTING	TOTAL	TOTAL ACRES REMAINING	TLE ACRES
1	ANTHONY J DREVS	FEE	1.50	0.05	---	0.05	1.45	---
2	JAMES R & TERRY A CORNETTE	FEE	9.73	0.07	---	0.07	9.66	---
3	GREGORY J & LYNN M RENTMEESTER	FEE	16.44	0.04	---	0.04	16.40	---
4	PATRICK J BLINDAUER	TLE	---	---	---	---	---	0.12
50	AT&T DISTRIBUTION	RELEASE OF RIGHTS						
51	WISCONSIN PUBLIC SERVICE CORP.	RELEASE OF RIGHTS						
52	TIME WARNER ENTERTAINMENT CO.	RELEASE OF RIGHTS						

PARCEL 1 & 2 FEE		
COURSE	BEARING	DISTANCE
300-302	S00° 16' 23"E	367.77'
302-303	S00° 16' 23"E	510.00'
303-304	S89° 32' 45"W	0.97'
304-305	S89° 32' 45"W	34.03'
305-306	N17° 26' 43"W	88.88'
306-307	N21° 20' 50"E	53.85'
307-308	N00° 27' 15"W	81.80'
308-309	N04° 38' 52"W	68.37'
309-310	N00° 27' 15"W	100.00'
310-311	N06° 12' 06"E	125.85'
311-312	N89° 32' 45"E	30.41'
312-302	N89° 32' 45"E	2.59'

PARCEL 3 FEE		
COURSE	BEARING	DISTANCE
300-313	S00° 16' 23"E	657.77'
313-314	N89° 32' 45"E	33.00'
314-315	S09° 06' 53"E	35.40'
315-316	S00° 27' 15"E	75.00'
316-317	S31° 25' 05"E	29.15'
317-318	S13° 26' 26"W	87.56'
318-303	S89° 32' 45"W	33.00'
303-313	N00° 16' 23"W	220.00'

PARCEL 4 TLE		
COURSE	BEARING	DISTANCE
300-302	S00° 16' 23"E	367.77'
302-T319	N89° 32' 45"E	33.00'
T319-T320	N89° 32' 45"E	14.41'
T320-T321	S00° 27' 15"E	75.00'
T321-T322	N89° 32' 45"E	30.00'
T322-T323	S00° 27' 15"E	75.00'
T323-T324	S89° 32' 45"W	30.00'
T324-T325	S00° 27' 15"E	50.00'
T325-T326	S89° 32' 45"W	15.05'
T326-T319	N00° 16' 23"W	200.00'



CONVENTIONAL SYMBOLS

- FOUND IRON PIPE/PIN (1" UNLESS NOTED) I.P.
- R/W MONUMENT ° •(SET)
- R/W STANDARD △ ▲(SET)
- SIGN ISIGN
- SECTION CORNER MONUMENT
- SECTION CORNER SYMBOL
- FEE (HATCH VARIES)
- TEMPORARY LIMITED EASEMENT
- PERMANENT LIMITED EASEMENT
- R/W BOUNDARY POINT RNB20
- PARCEL NUMBER 102
- UTILITY PARCEL NUMBER 92
- SIGN NUMBER (OFF PREMISE) 21-2
- BUILDING

- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- NEW REFERENCE LINE
- NEW R/W LINE
- EXISTING R/W LINE
- PROPERTY LINE P.L.
- LOT & TIE
- CORPORATE LIMITS (NAME)
- TEMPORARY LIMITED EASEMENT
- FENCE
- SLOPE INTERCEPTS
- PERMANENT LIMITED EASEMENT
- NO ACCESS (BY STATUTORY AUTHORITY)
- NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)
- NO ACCESS (BY ACQUISITION)

CONVENTIONAL UTILITY SYMBOLS

WATER	—W—	SANITARY SEWER	—SAN—
GAS	—G—	STORM SEWER	—SS—
TELEPHONE	—T—		NON COMPENSABLE / COMPENSABLE
OVERHEAD	—OH—		
TRANSMISSION LINES		POWER POLE	■
ELECTRIC	—E—	TELEPHONE POLE	●
CABLE TELEVISION	—TV—	TELEPHONE PEDESTAL	●
FIBER OPTIC	—FO—	ELECTRIC TOWER	⊠

CONVENTIONAL ABBREVIATIONS

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

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, BROWN COUNTY ZONE, NAD83(1991), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, OR FROM CENTERLINE OF EXISTING PAVEMENTS.

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

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

PARCEL IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE SCHEDULE OF LANDS & INTERESTS REQUIRED.

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

EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON PLAT OF WHIPOORWILL MEADOWS, HIGHWAY CONVEYANCE RECORDED IN VOLUME 89, PAGE 453 AS DOCUMENT NUMBER 517119 AND HIGHWAY CONVEYANCE RECORDED IN VOLUME 89, PAGE 448 AS DOCUMENT NUMBER 517116.

Point Table		
Point #	Y	X
300	610881.580	80175.120
301	608247.636	80187.667
302	610513.813	80176.872
303	610003.820	80179.301
304	610003.812	80178.329
305	610003.542	80144.302
306	610088.334	80117.657
307	610138.491	80137.260
308	610220.293	80136.611
309	610288.442	80131.071
310	610388.439	80130.278
311	610513.551	80143.873
312	610513.792	80174.285
313	610223.814	80178.253
314	610224.076	80211.252
315	610189.119	80216.861
316	610114.126	80217.455
317	610089.245	80232.653
318	610004.081	80212.300
T319	610514.074	80209.871
T320	610514.188	80224.284
T321	610439.191	80224.878
T322	610439.429	80254.877
T323	610364.431	80255.472
T324	610364.193	80225.473
T325	610314.195	80225.869
T326	610314.075	80210.824

REVISION DATE

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
9267-03-00	4.01	1
FEDERAL PROJECT NUMBER ----------		

PLAT OF RIGHT-OF-WAY REQUIRED FOR

V SUAMICO, ST PATS RD
SUAMICO RIVER BRIDGE 9-05-0072

LOC STR — BROWN COUNTY

CONSTRUCTION PROJECT NUMBER
9267-03-71

GN

PROJECT LOCATION
TOTAL NET LENGTH OF CENTERLINE = 0.097 MILES

LAYOUT SCALE 0 1 MI.

APPROVED FOR VILLAGE OF SUAMICO

P-2175 DATE (Signature)

PLAT PREPARED BY

AYRES ASSOCIATES

THE SURVEY IS PREPARED AT THE REQUEST OF THE VILLAGE OF SUAMICO. THE TOPOGRAPHY AND UTILITY SURVEY WAS PERFORMED IN AUGUST, 2013. THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

WISCONSIN James R. Cappeart S-3044 Green Bay Wis. LAND SURVEYOR

AUG 20 15

08/20/2015

JAMES R. CAPPEART, P.L.S. S-3044 — DATE

15

FILE NAME : V:\PROJECTS C3D\GB\45037800\RW\92670300RWPL.DWG
APPRAISAL PLAT DATE : 7/07/2015

PLOT DATE : 08/20/2015

PLOT BY : AYRES ASSOCIATES

PLOT NAME : ----------

9267-03-71 / ST PATS RD 9267-03-00

VICKY M. AERTS

ANTHONY J. DREWS

JAMES R. AND TERRY A. CORNETTE

GARY L. HERLICK

GREGORY AND LYNN RENTMEESTER

PATRICK J. BLINDAUER

1" IP WITH CAP
Y=609645.012
X=80161.926

BP: 7+00.35
Y=609964.159
X=80178.643

BEGIN PAVED SHOULDER
STA. 7+13 RIGHT AND
STA. 7+42 LEFT

END PAVED SHOULDER
STA. 12+04 RIGHT AND
STA. 12+10 LEFT

EP: 12+99.65
Y=610563.441
X=80173.892

1" IP WITH CAP
Y=610766.684
X=80179.722

SUAMICO RIVER

EXISTING R/W

ST. PATS ROAD

N0° 05' 54"W

(TO REMAIN) 18"RCCP

(TO REMAIN) 18"CMCP

R/W LINE

SAW CUT REQUIRED

SLOPE INTERCEPT

FRENCH DRAIN REQUIRED

CABC FE

WOODS

R.WALL

OH

CONSTRUCTION LIMITS
STA. 7+39.3

CONSTRUCTION LIMITS
STA. 12+48.3

STRUCTURE B-5-420
REQUIRED

TLE FOR SLOPING
AND FE CONSTRUCTION

STA. 11+50 CONSTRUCT
FE-24' WIDE

BM#1
GATE

BM#2

BM#3

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	7+24	CONC BASE OF GATE-38.5' RT.	622.60
2	10+24	CHIS BOX TOP NW WING-14' LT.	612.58
3		RR SPK IN PP*2520-16L11	617.71

BEGIN PROJECT
STA. 8+05.00
Y=610068.810
X=80177.868

END PROJECT
STA. 11+00.00
Y=610363.801
X=80175.475

VCL = 220.00
K = 64.06

STA 8+05.00
EL 619.37

STA 11+00.00
EL 613.09

HIGH WATER 100 EL.=611.3

FINISHED GRADE

EXISTING PROFILE

-3.53%

-0.09%

VPC STA 8+70.00
VPC EL 617.08

VPI STA 9+80.00
VPI EL 613.20

VPT STA 10+90.00
VPT EL 613.10

STA. 10+00.00
REMOVE STRUCTURE P-05-72
SINGLE SPAN CONCRETE FLAT SLAB
47.5' LONG
20.2' CLEAR ROADWAY

STA. 9+91
STRUCTURE B-5-420 REQUIRED
2 SPAN CONCRETE FLAT SLAB
26' CLEAR ROADWAY
68.5' OVERALL LENGTH

HIGH WATER 2 EL.=604.9

WATER EL.=603.2 (08-08-2013)

625 620 615 610 605 600 595 590

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

621.65 619.58 617.57 617.78 615.64 616.09 613.91 614.76 600.46 613.81 613.09 613.26 613.09 613.09 612.99 612.95 612.87

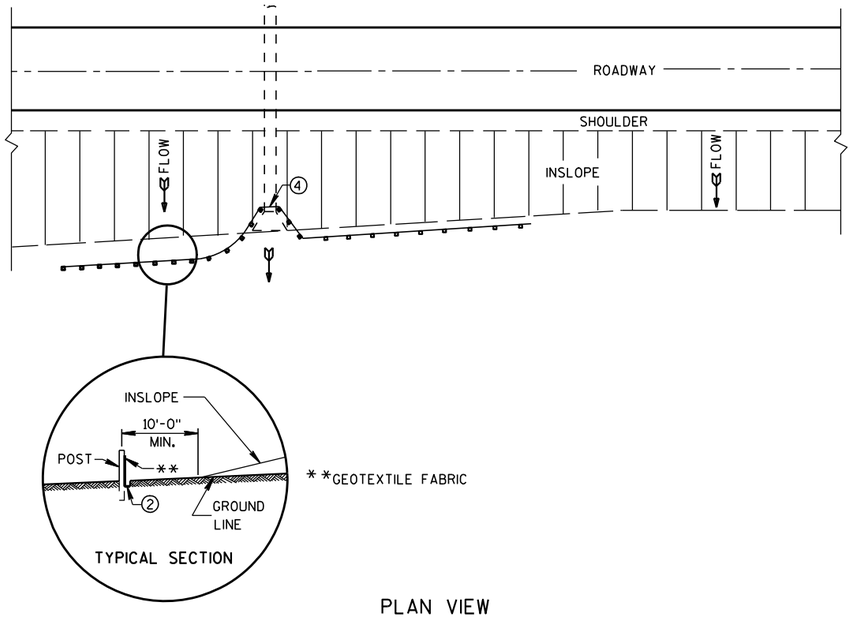
PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	PLAN AND PROFILE:	SHEET E

FILE NAME : N:\C3D\45037800\SHEETSPLAN\050101_PP.DWG PLOT DATE : 8/31/2015 9:56 AM PLOT BY : AYRES ASSOCIATES PLOT NAME :050101_pp PLOT SCALE : 1:100_XREF

WISDOT/CADDS SHEET 44

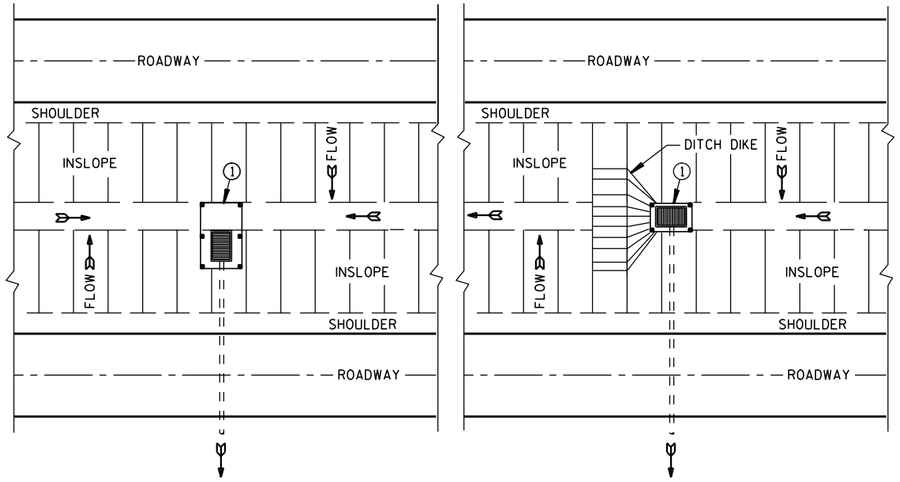
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B28-03	GUARDRAIL MOW STRIP
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



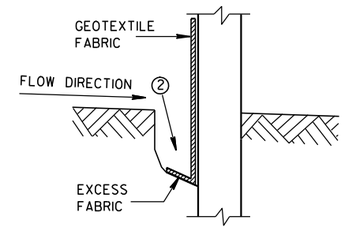
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

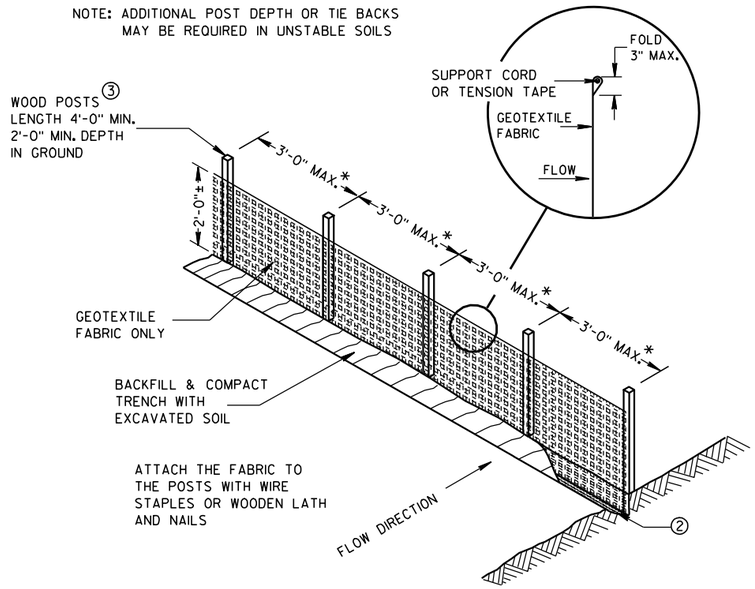
GENERAL NOTES

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

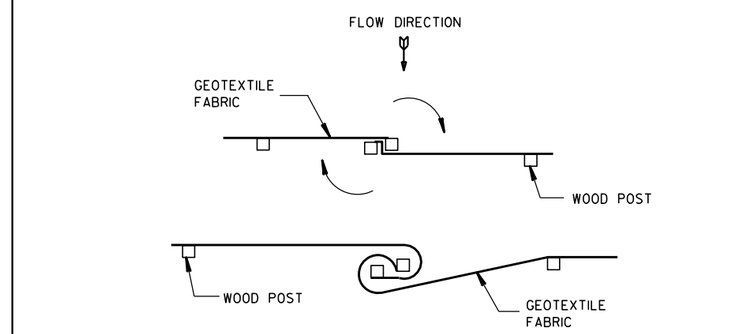
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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.



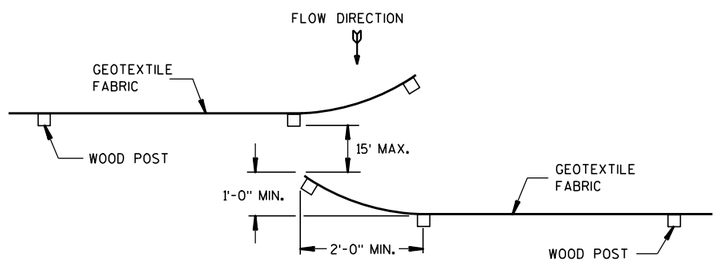
TRENCH DETAIL



SILT FENCE

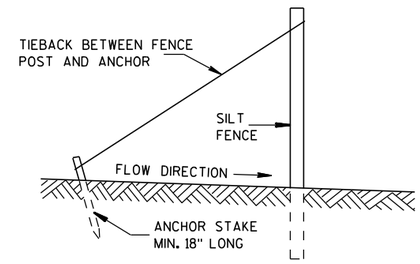


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

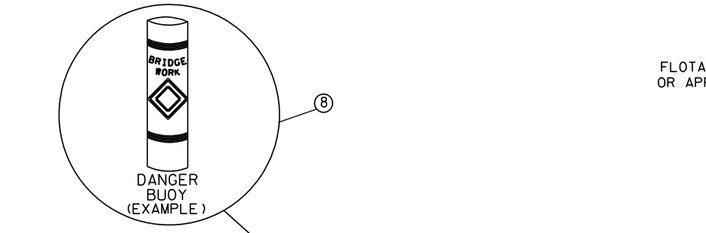
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

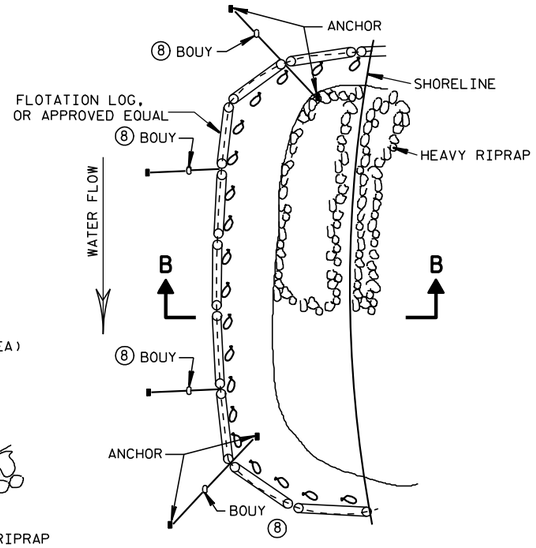
S.D.D. 8 E 9-6

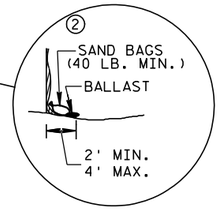
6

S.D.D. 8 E 9-6

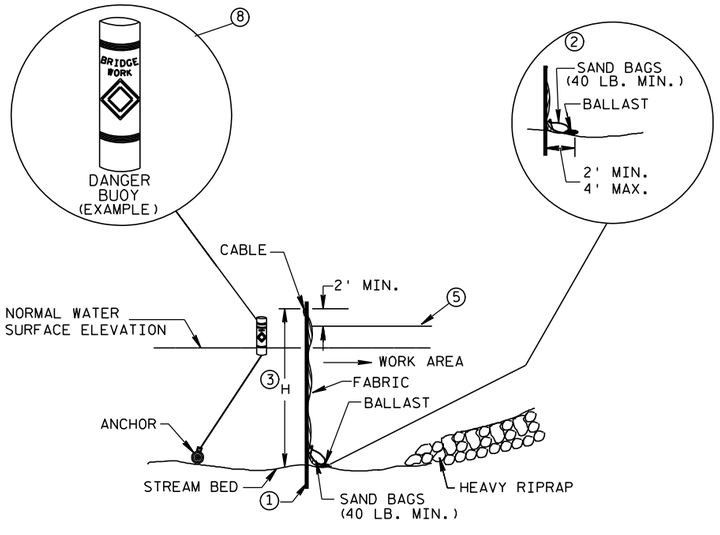


SECTION B-B

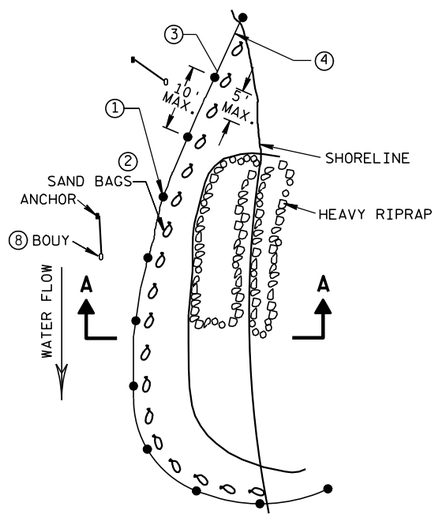




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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.

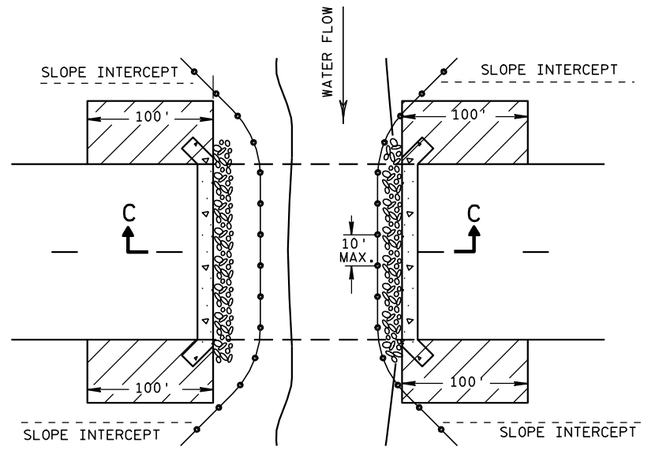
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

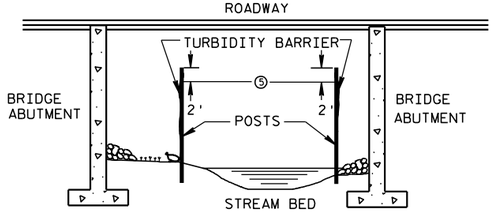
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

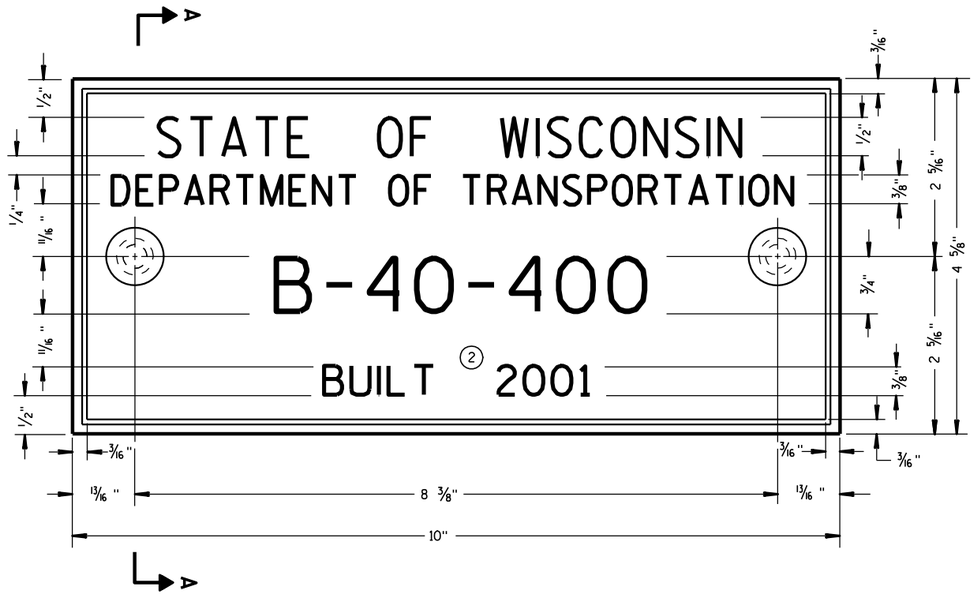
APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

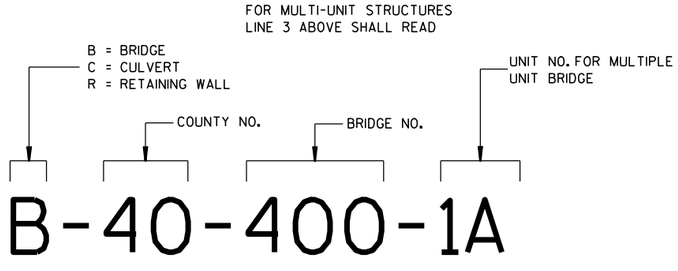
S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2



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



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

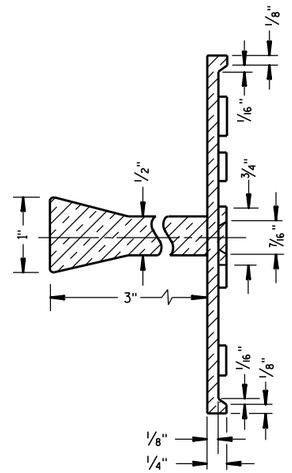
GENERAL NOTES

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.

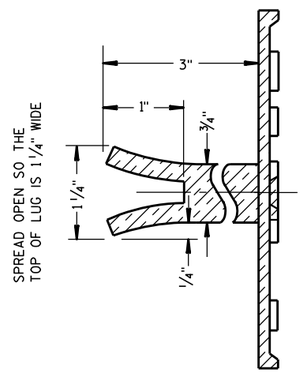
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

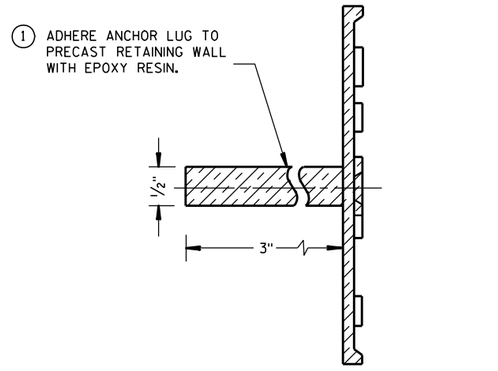
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

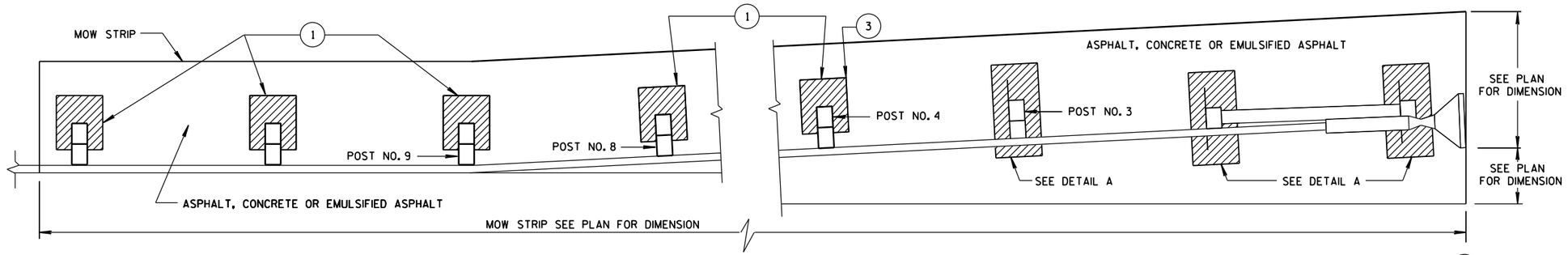
APPROVED

3/26/10 — DATE

/S/ Scot Beck — CHIEF STRUCTURAL DEVELOPMENT ENGINEER

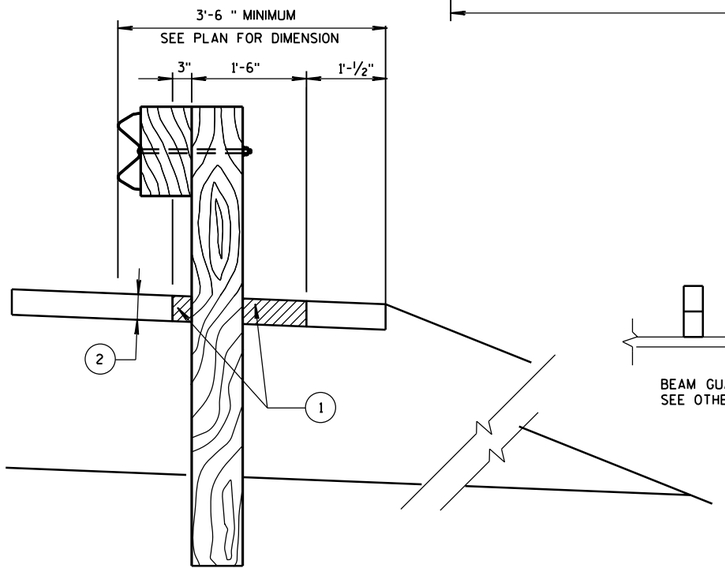
FHWA

6
S.D.D. 12 A 3-10

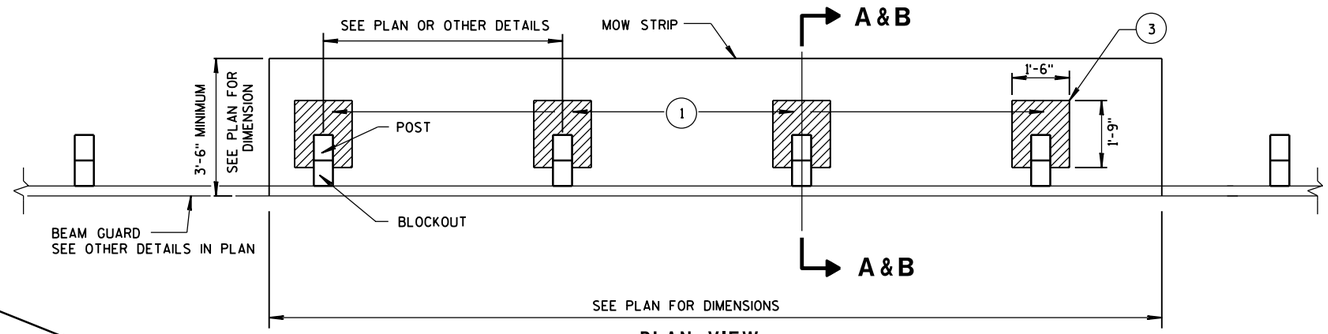


PLAN VIEW

MOW STRIP LAYOUT FOR ENERGY ABORBING TERMINAL

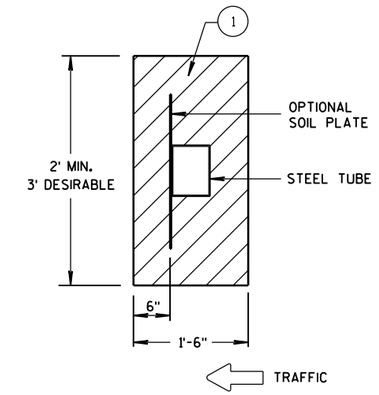


SECTION A-A

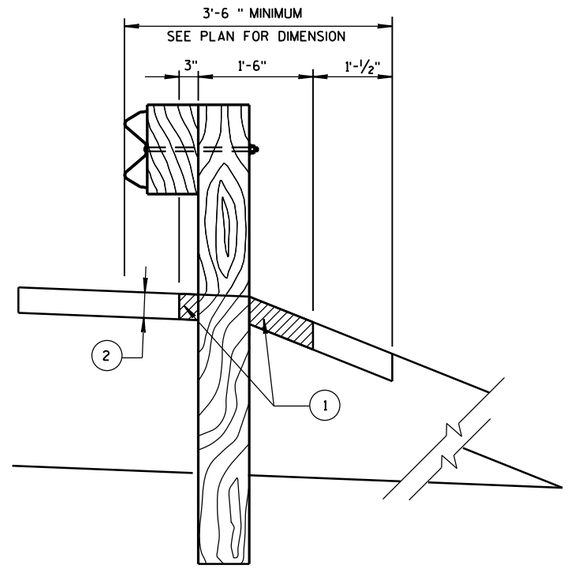


PLAN VIEW

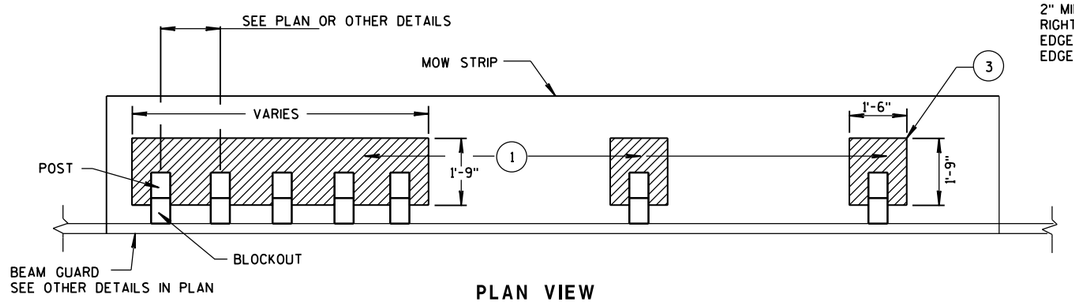
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



DETAIL A

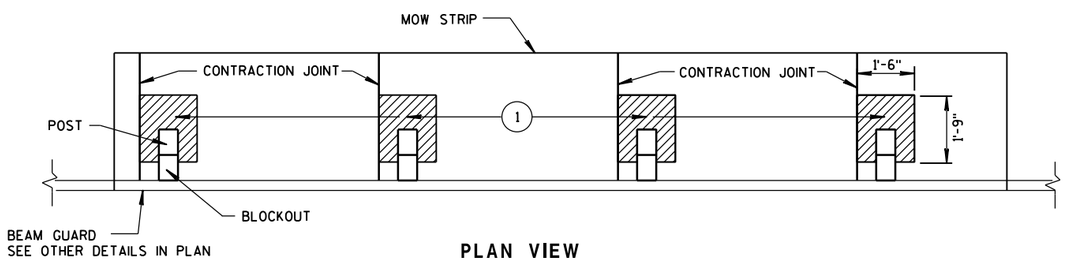


SECTION B-B



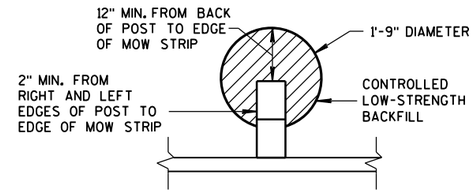
PLAN VIEW

MOW STRIP FOR TIGHT SPACING LAYOUT



PLAN VIEW

JOINT PLACEMENT FOR CONCRETE MOW STRIP



ALTERNATIVE HMA
MOW STRIP DESIGN

(1) CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.

(2) DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS

(3) FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

NT

6

S.D.D. 14 B 28-3

6

S.D.D. 14 B 28-3

GENERAL NOTES

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

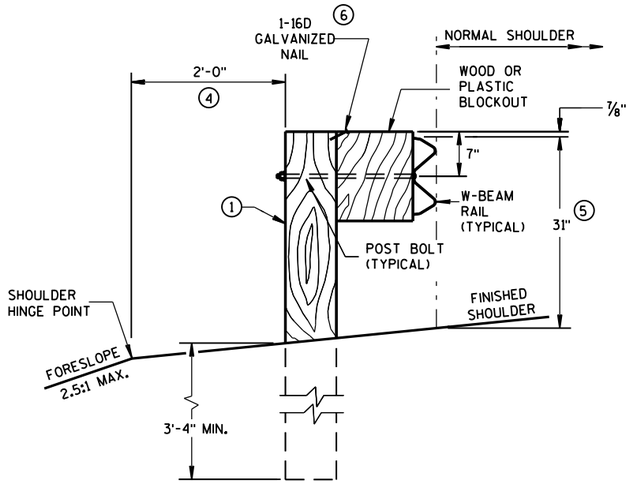
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

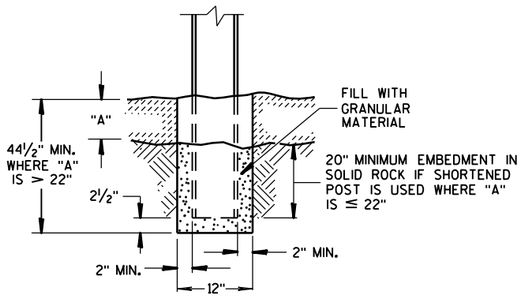
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



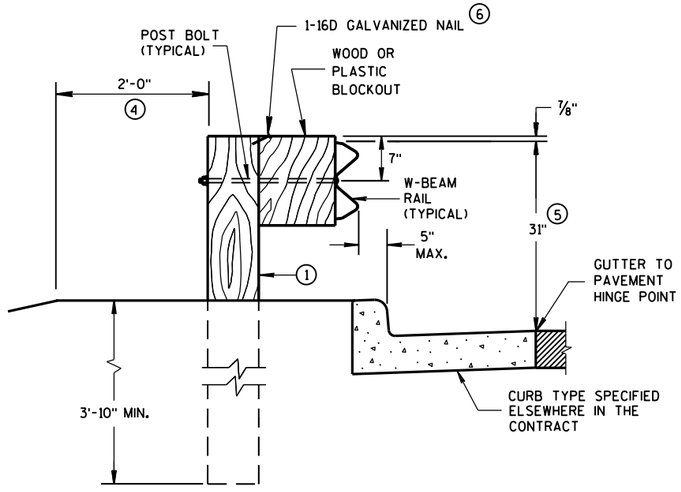
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



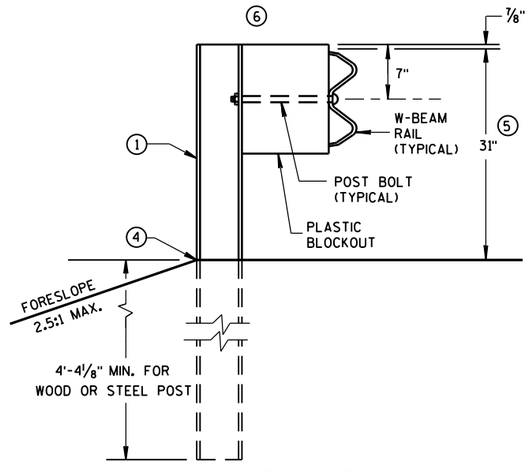
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



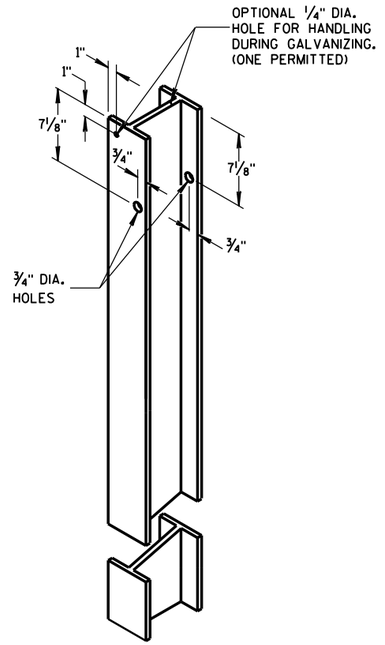
END VIEW

LOCATED ALONG A CURBED ROADWAY

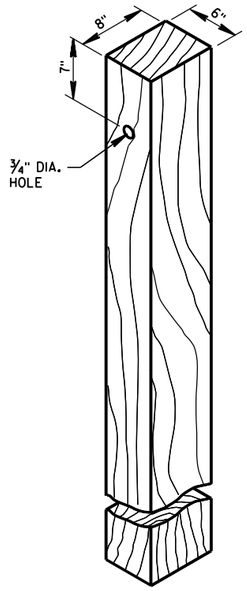


END VIEW

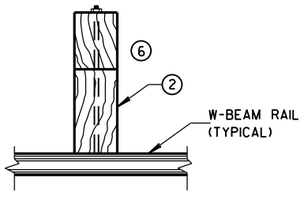
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



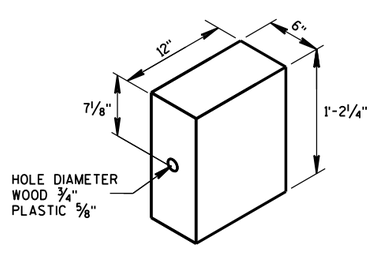
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



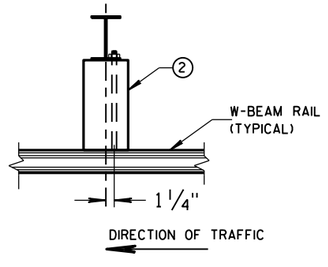
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

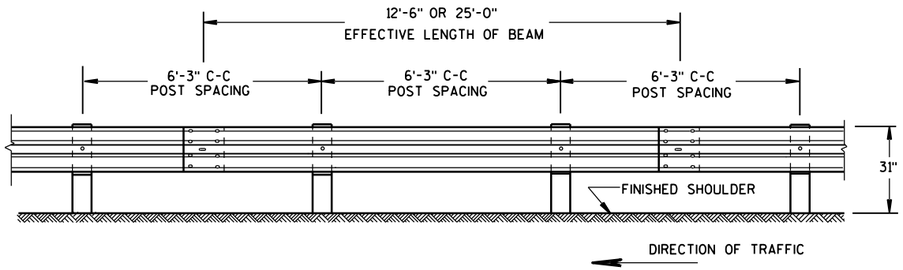


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

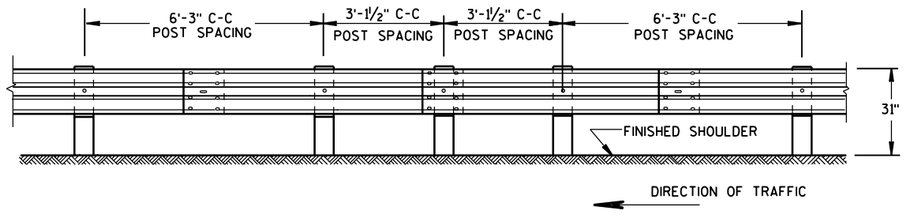
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 42-3a



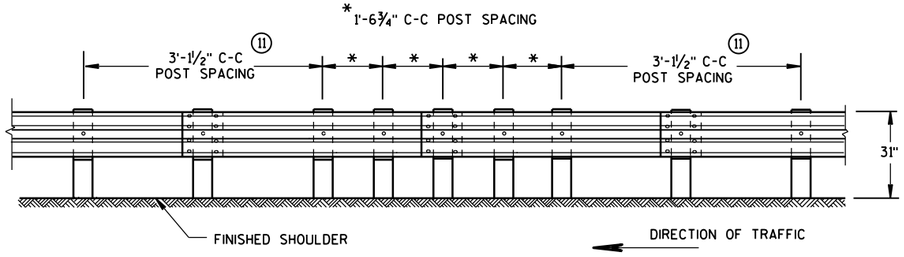
FRONT VIEW

POST SPACING STANDARD INSTALLATION



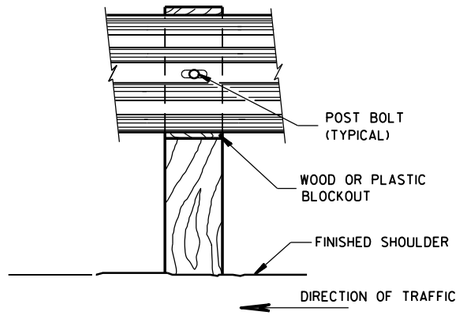
FRONT VIEW

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

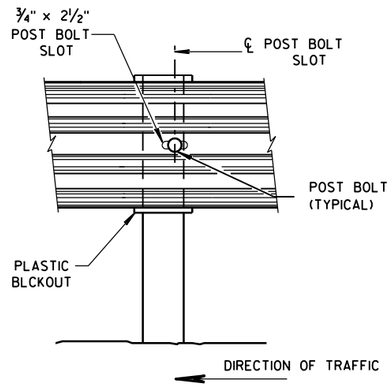


FRONT VIEW

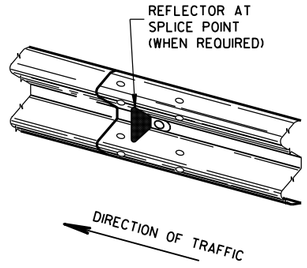
QUARTER POST SPACING (QS)

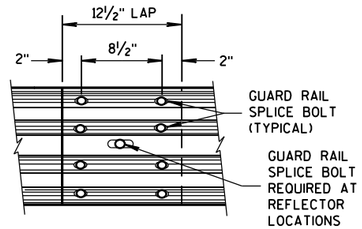


FRONT VIEW AT WOOD POST

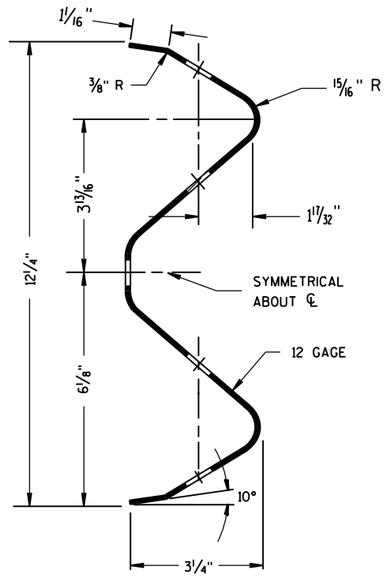


FRONT VIEW AT STEEL POST

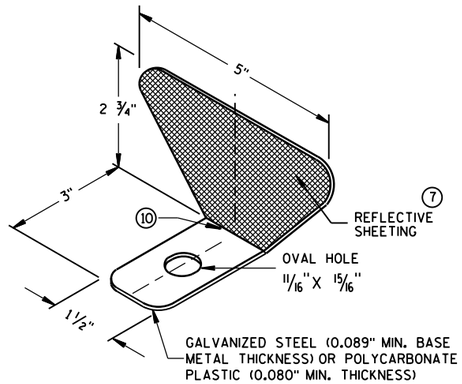




FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

⑩ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ⑧

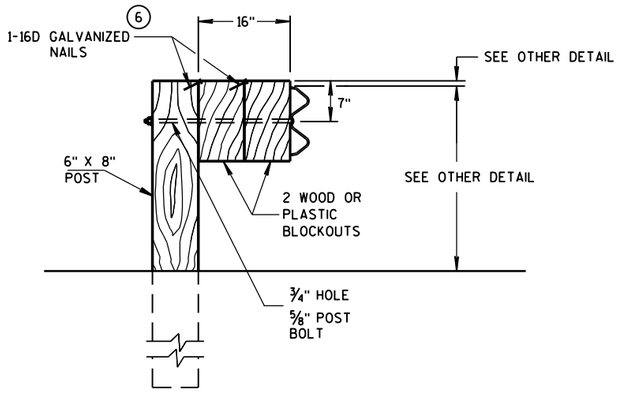
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ⑨ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⑩	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

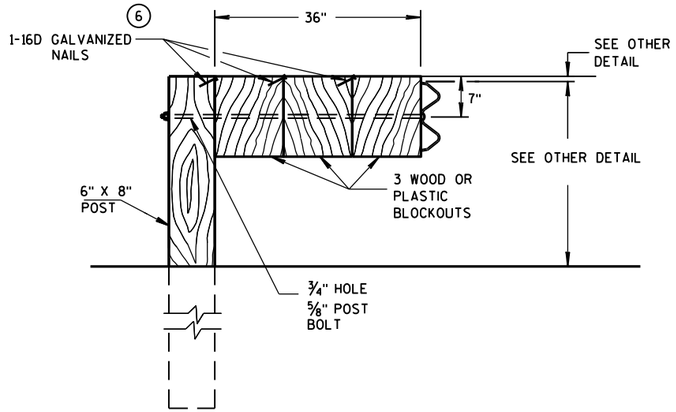
6

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



DETAIL FOR 16" BLOCKOUT DEPTH

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

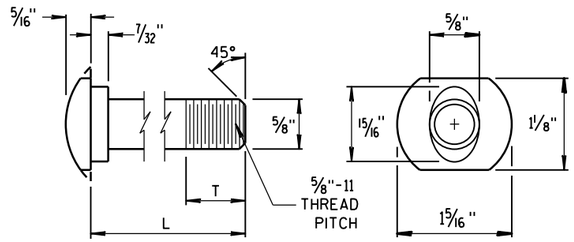


DETAIL FOR 36" BLOCKOUT DEPTH

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

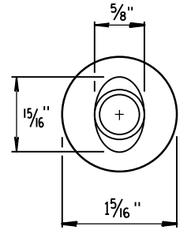
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

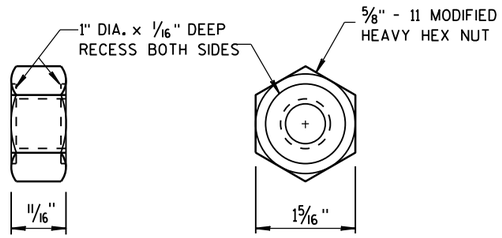


POST BOLT TABLE

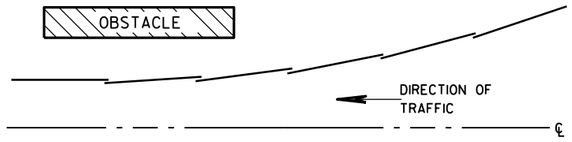
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

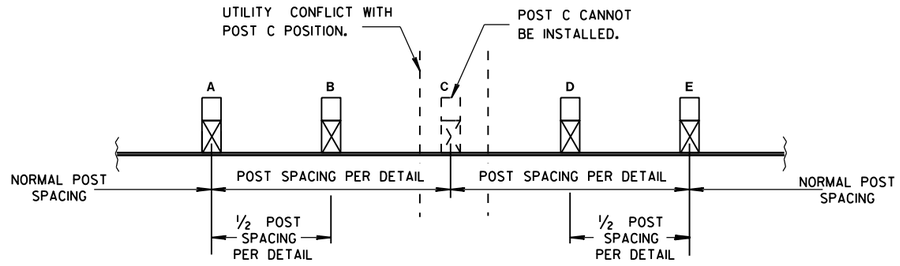


POST BOLT AND RECESS NUT

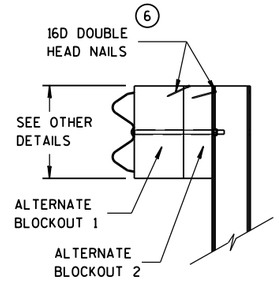


PLAN VIEW

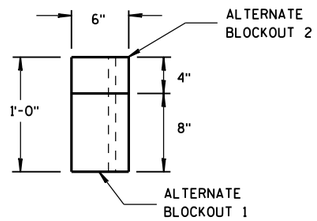
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

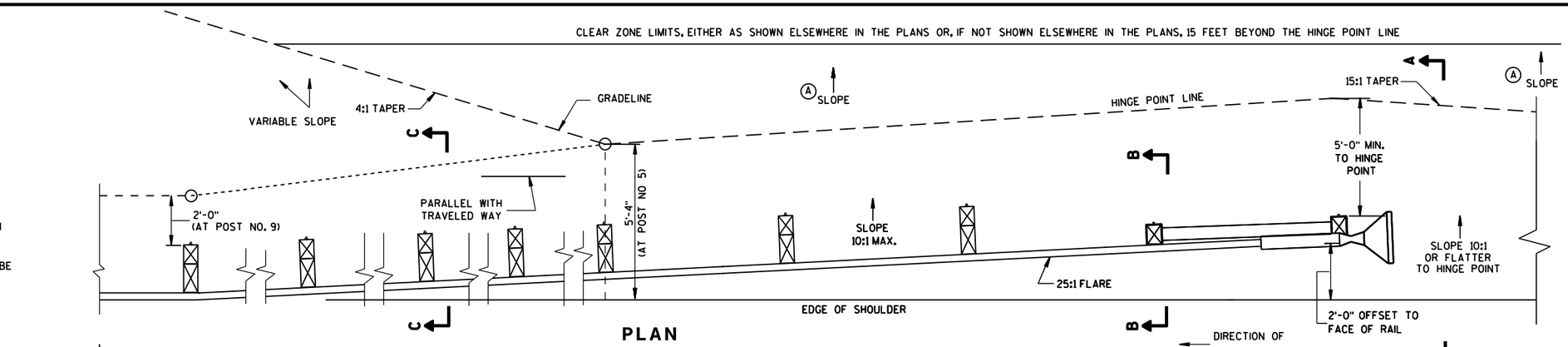
SEE SDD 14B42 FOR MORE INFORMATION.

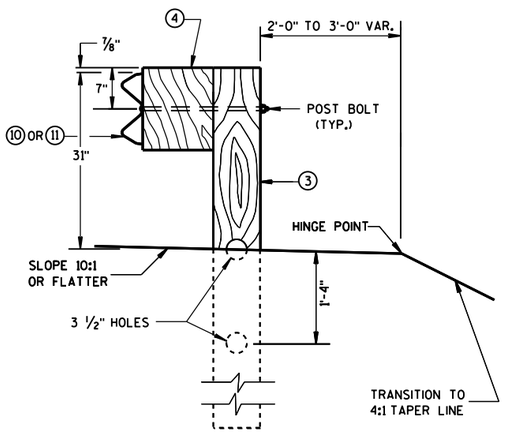
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

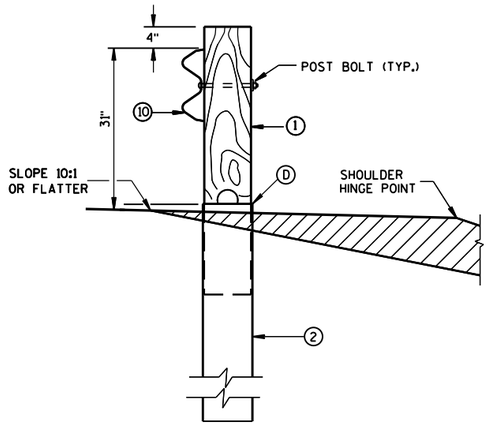
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

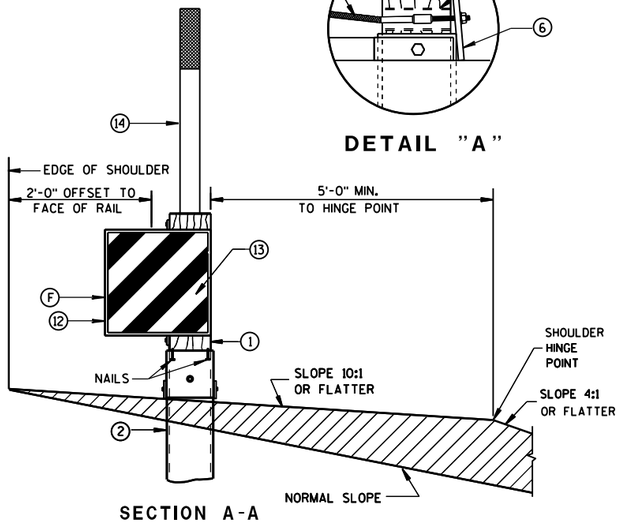




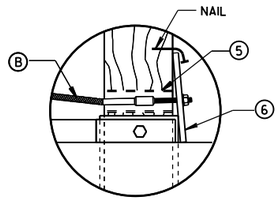
SECTION C-C
TYPICAL AT POST NOS. 3-9



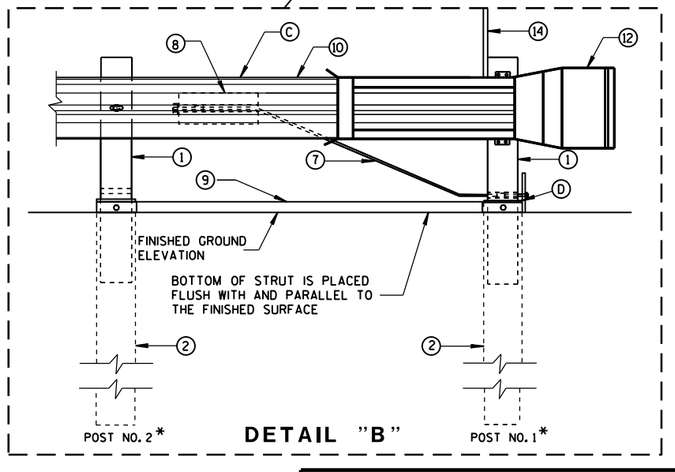
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



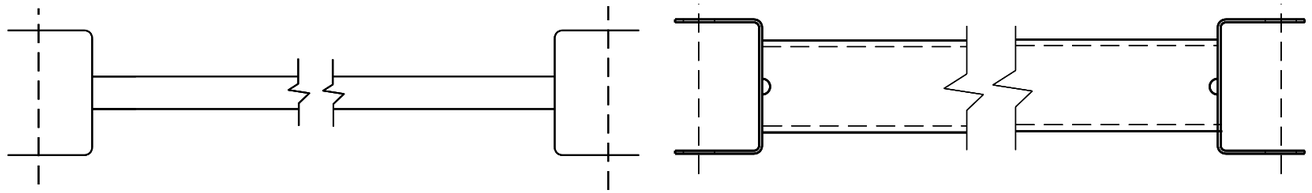
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

S.D.D. 14 B 44-2a

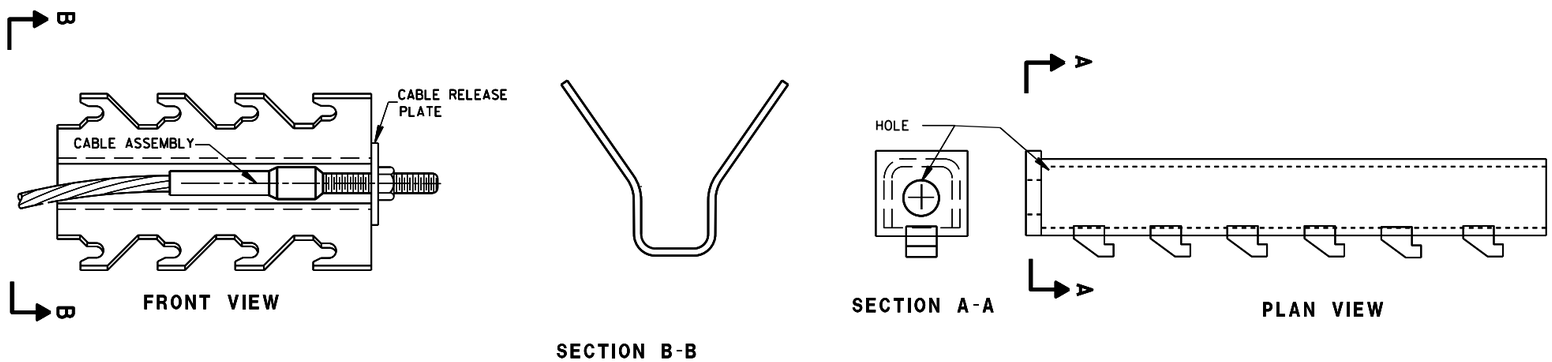
S.D.D. 14 B 44-2a



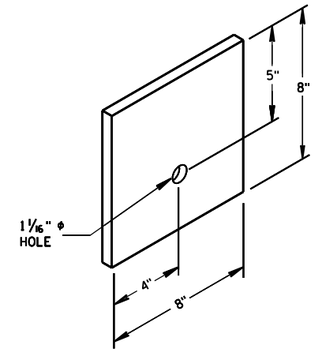
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



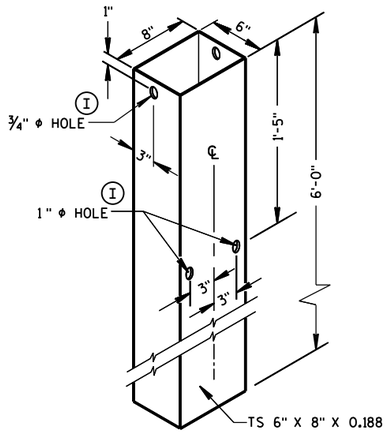
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

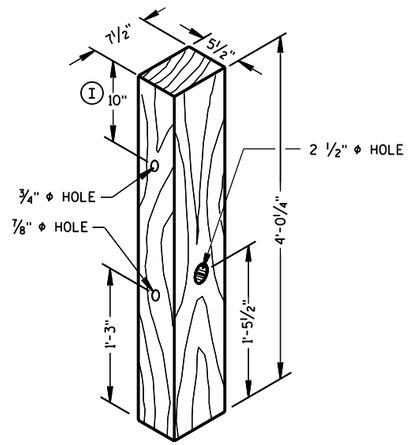
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

S.D.D. 14 B 44-2b

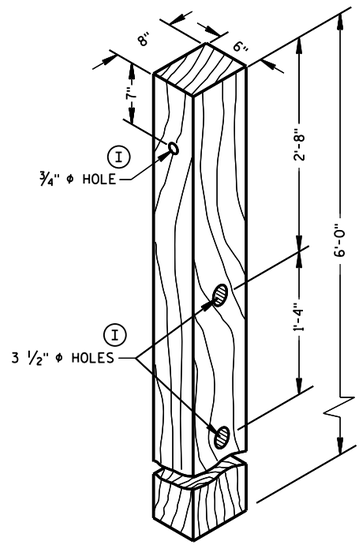


FOUNDATION TUBE (2)



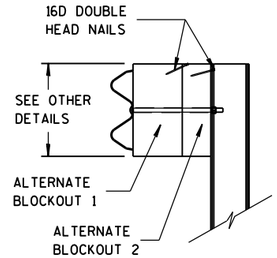
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

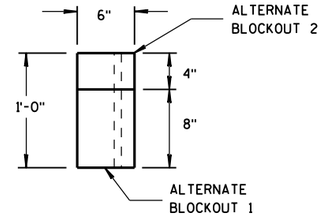


POSTS NUMBER 3-9

WOOD CRT POST (3)

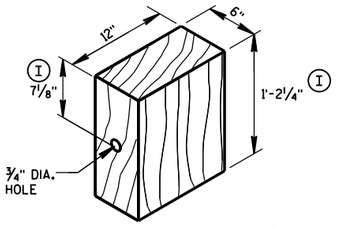


SIDE VIEW



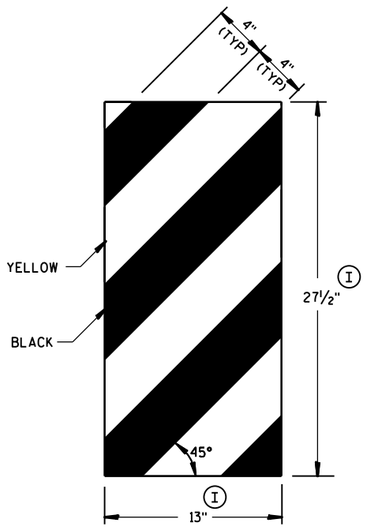
TOP VIEW

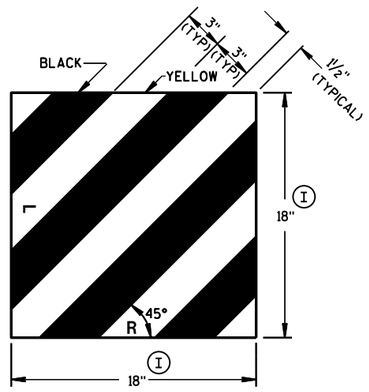
ALTERNATE WOOD BLOCKOUT DETAIL



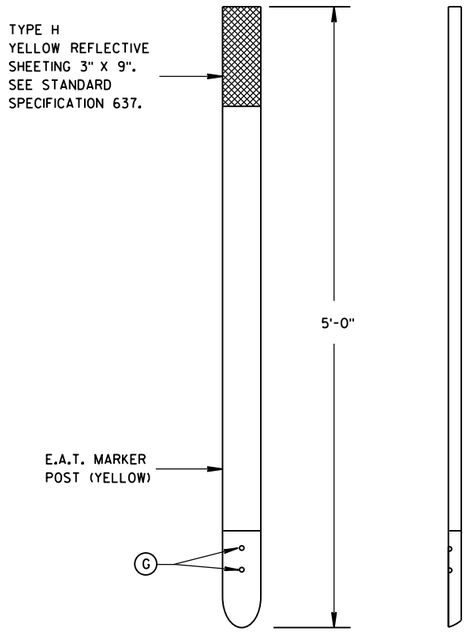
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





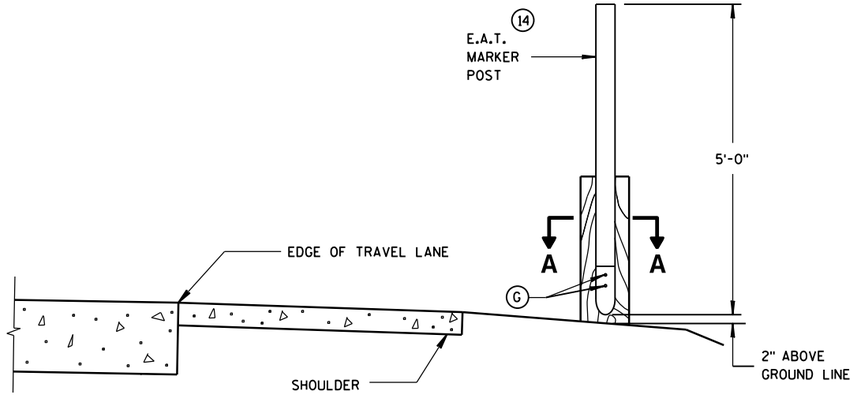
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

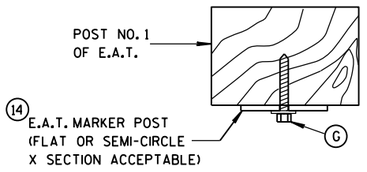
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

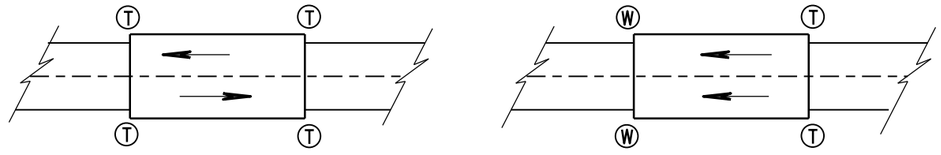
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

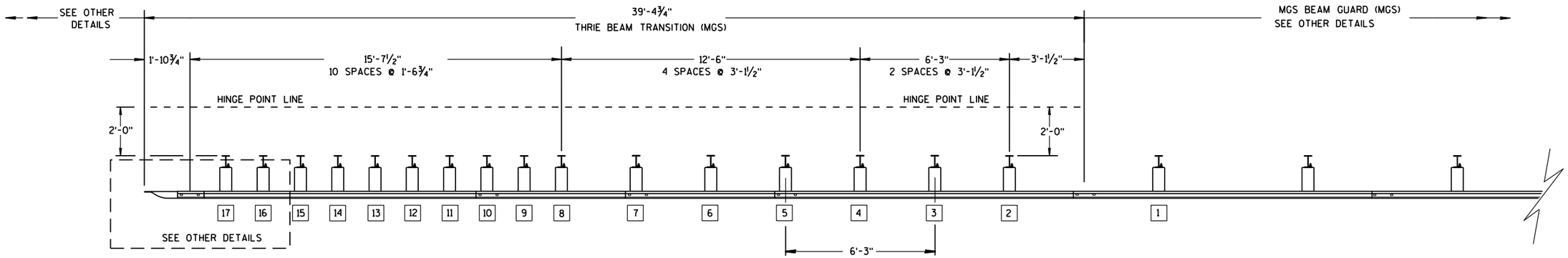
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

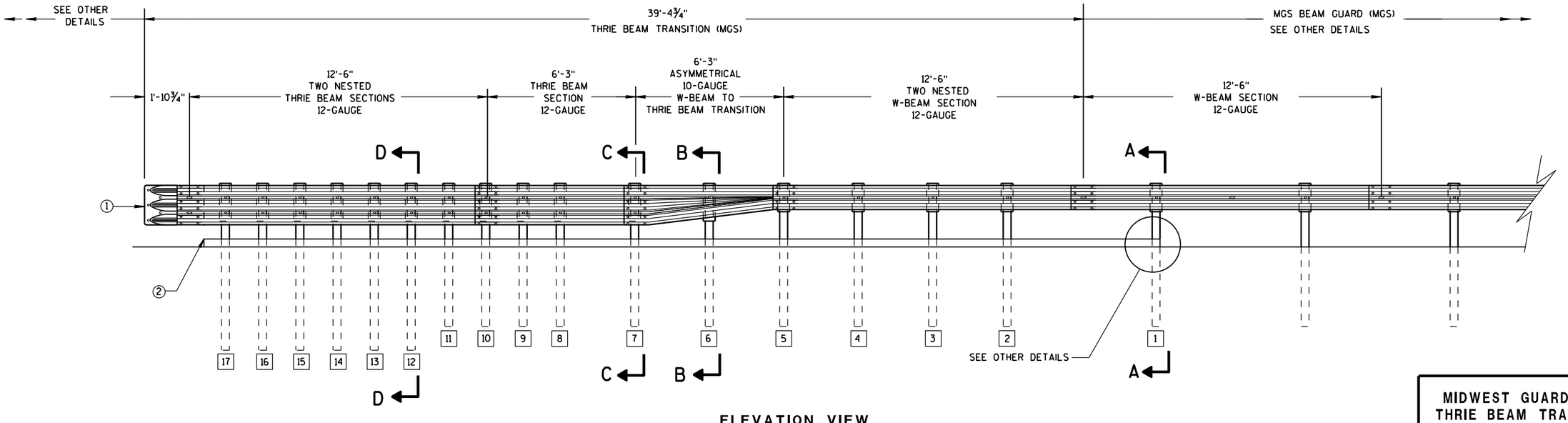
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 45-4a

6

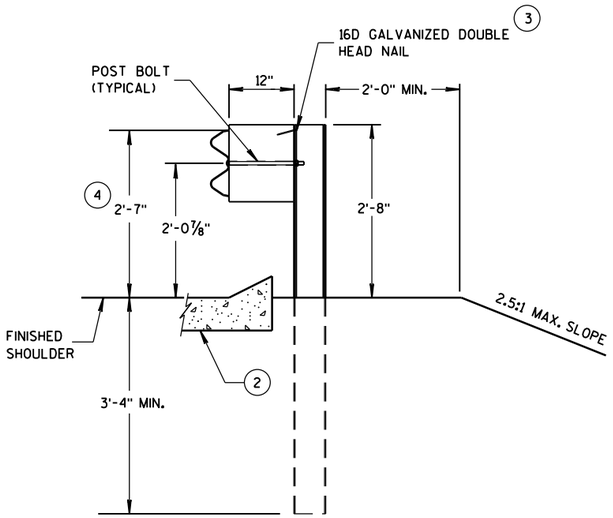
S.D.D. 14 B 45-4a

GENERAL NOTES

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

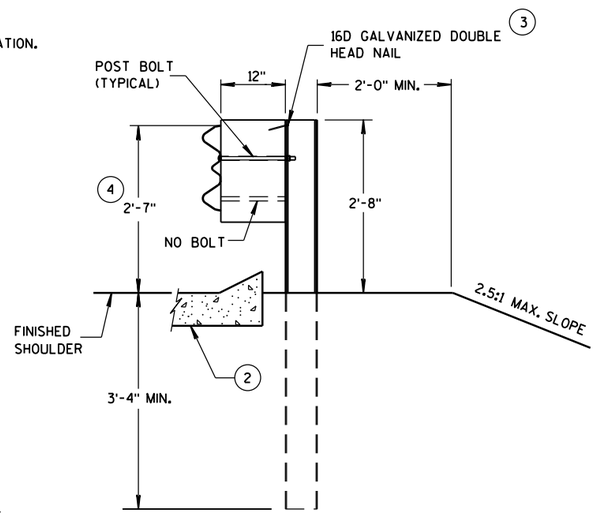
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



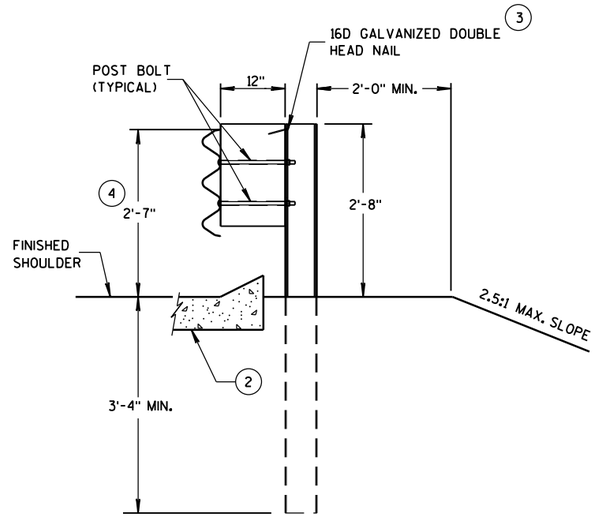
SECTION A-A

POSTS 1-5



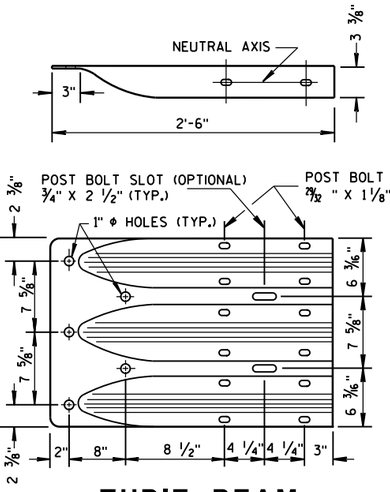
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

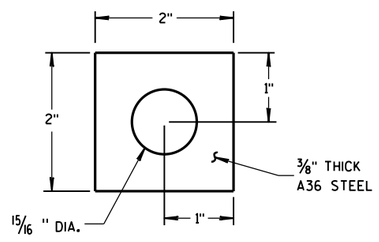
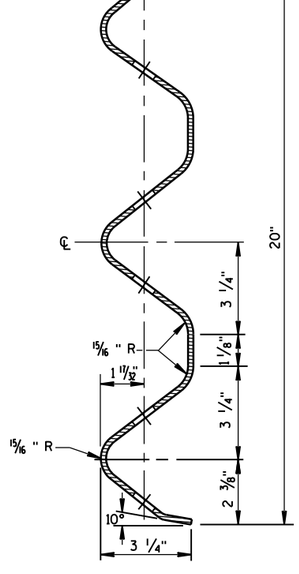
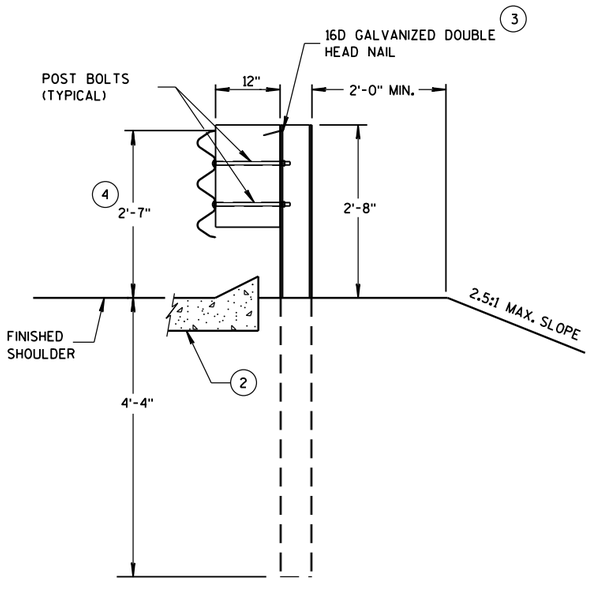


PLATE WASHER DETAIL

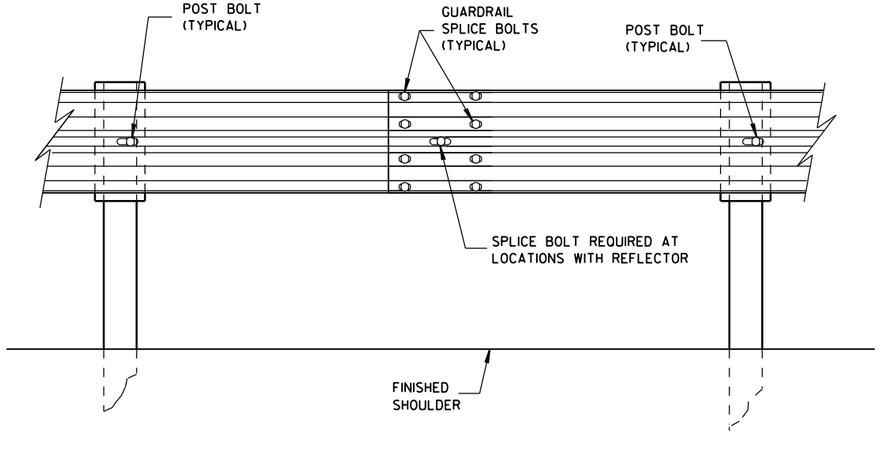


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



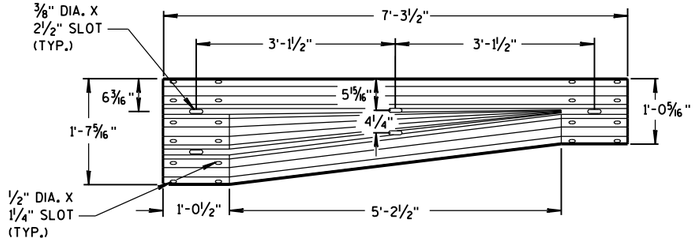
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

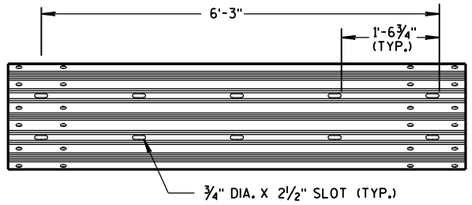
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

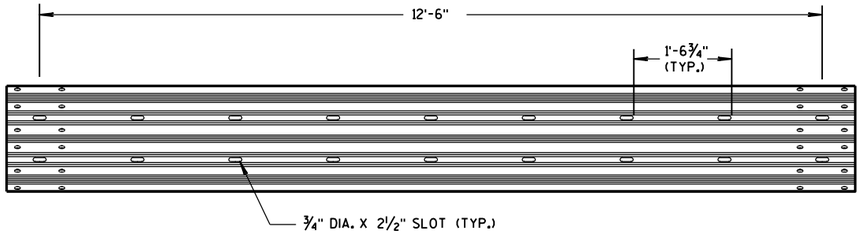
S.D.D. 14 B 45-4b



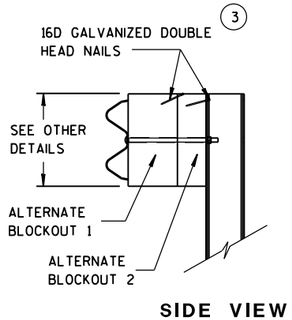
W-BEAM TO THRIE BEAM TRANSITION SECTION



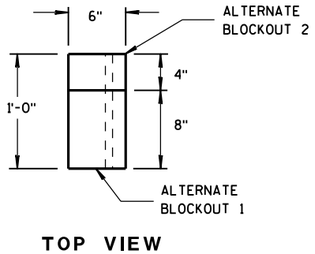
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

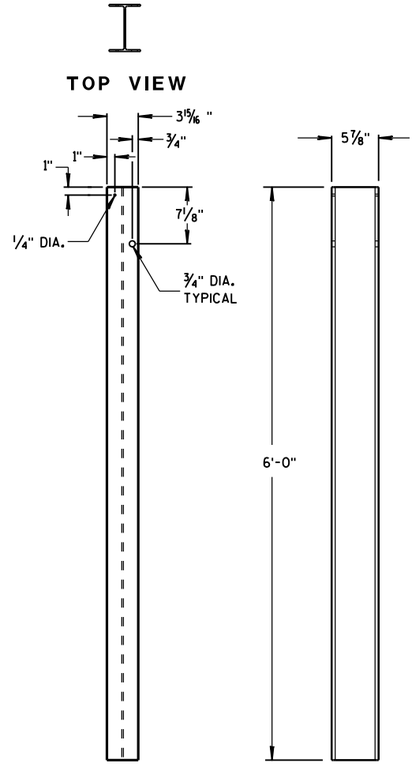


SIDE VIEW



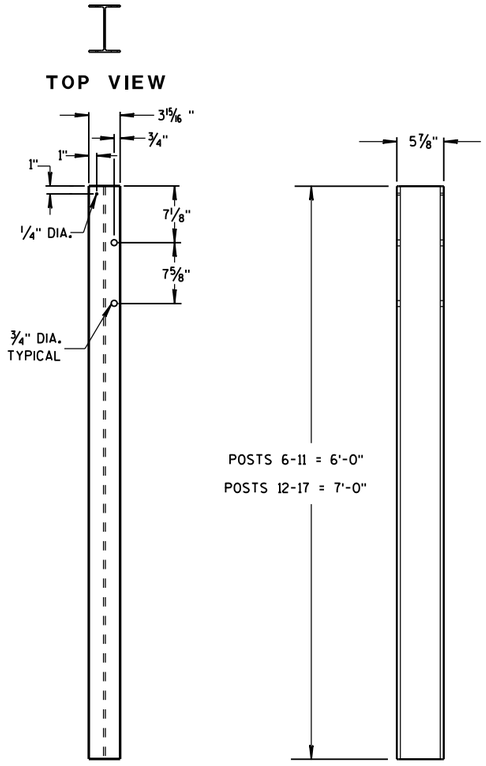
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



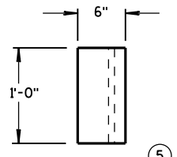
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

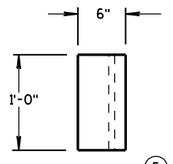


FRONT VIEW SIDE VIEW

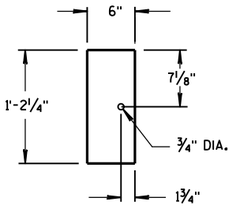
STEEL POSTS 6-17



TOP VIEW (5)

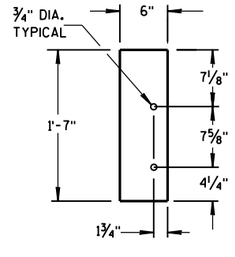


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

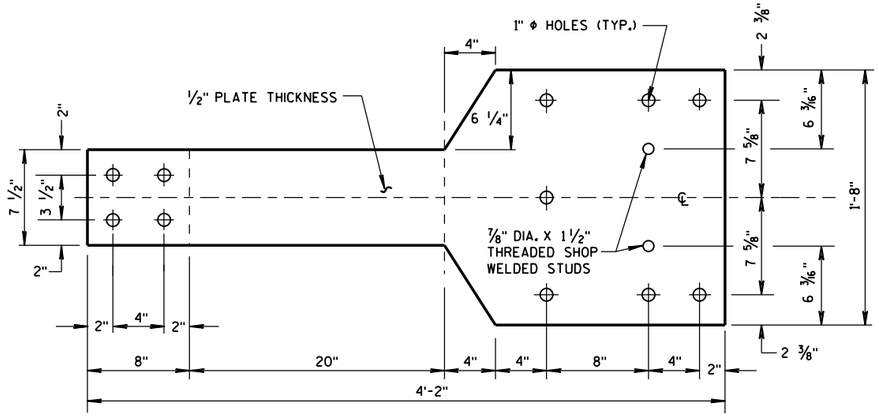
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

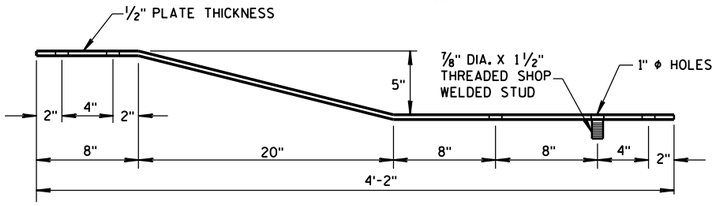
S.D.D. 14 B 45-4c

GENERAL NOTES

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

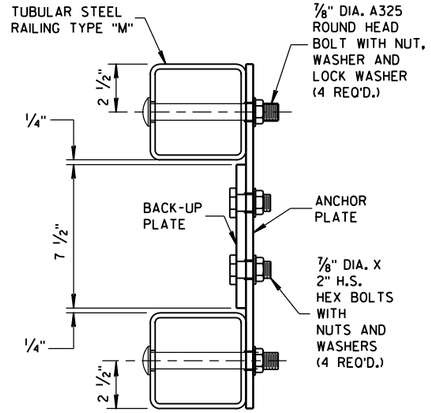


FRONT VIEW

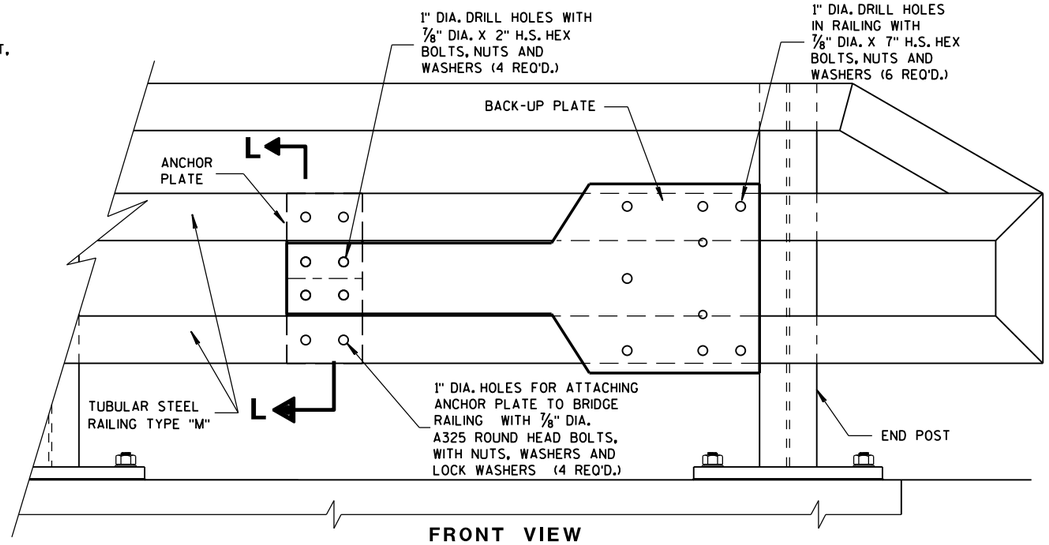


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"



SECTION L-L

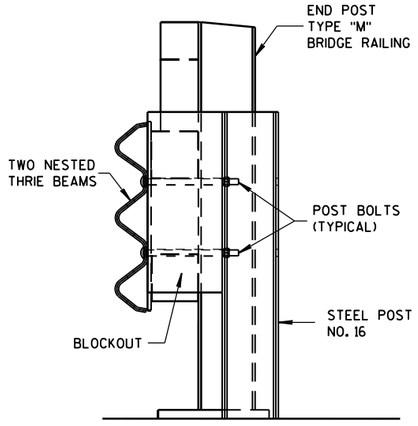


FRONT VIEW

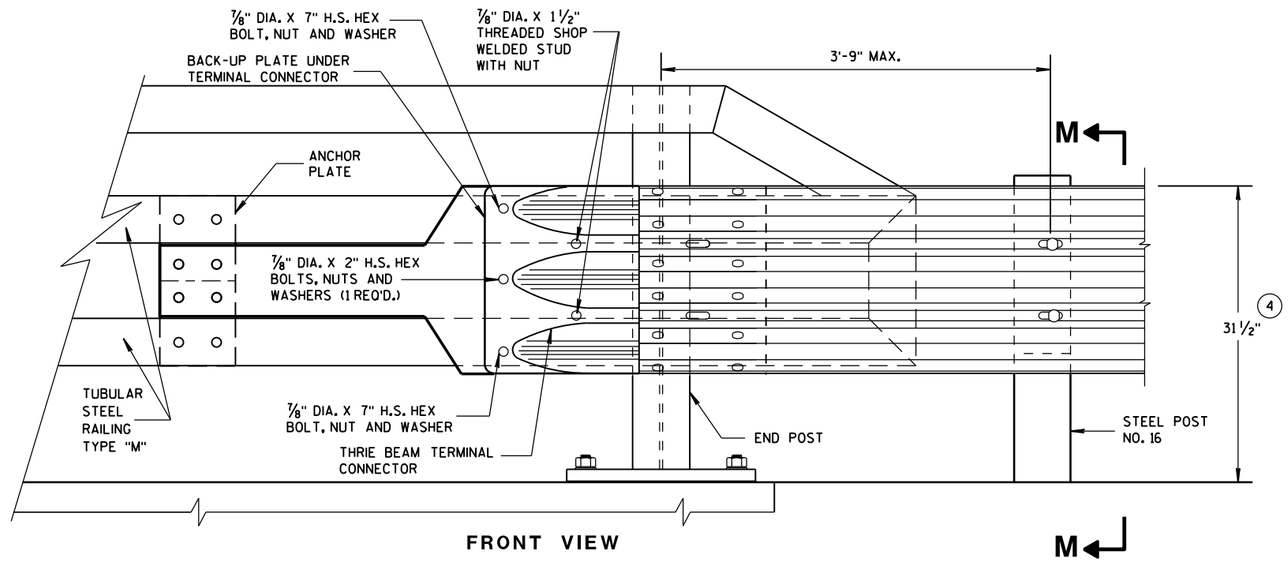
ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"

FRONT VIEW

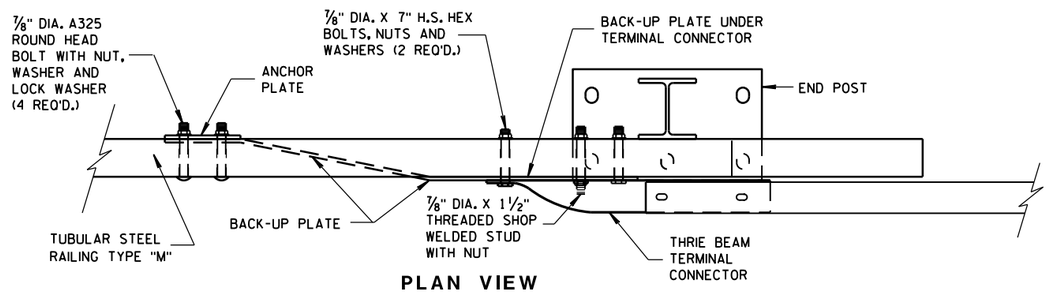
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

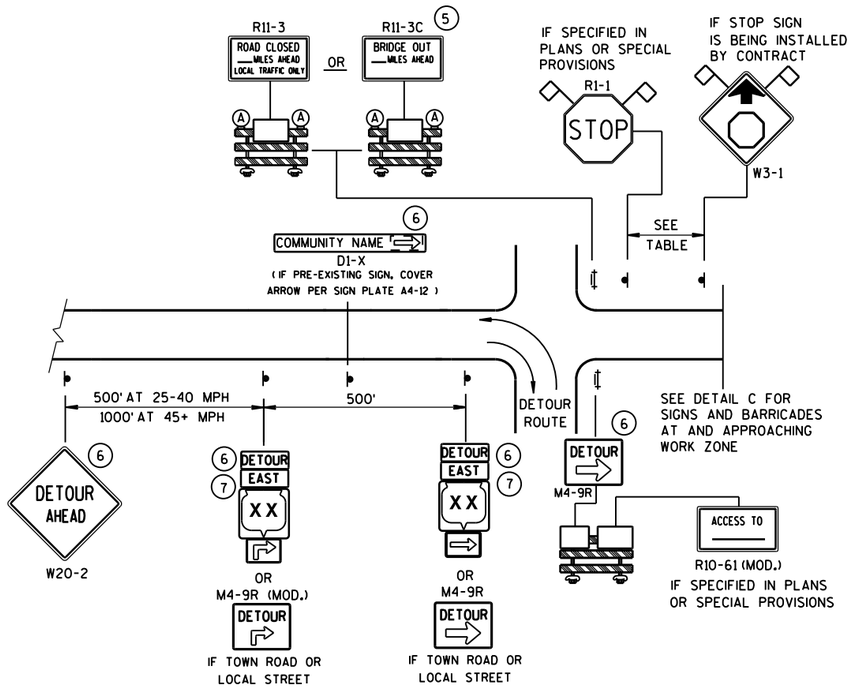
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June, 2015	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

6

S.D.D. 14 B 45-4h

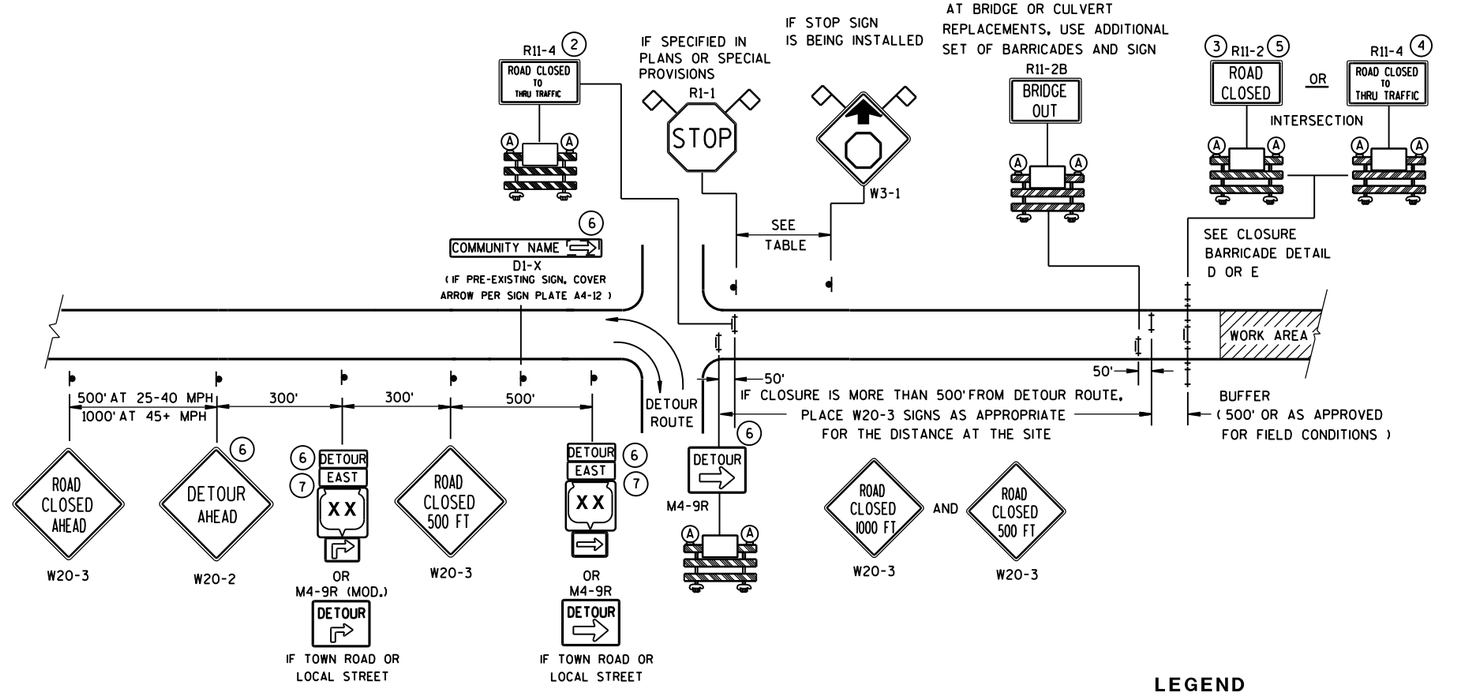
6

S.D.D. 14 B 45-4h



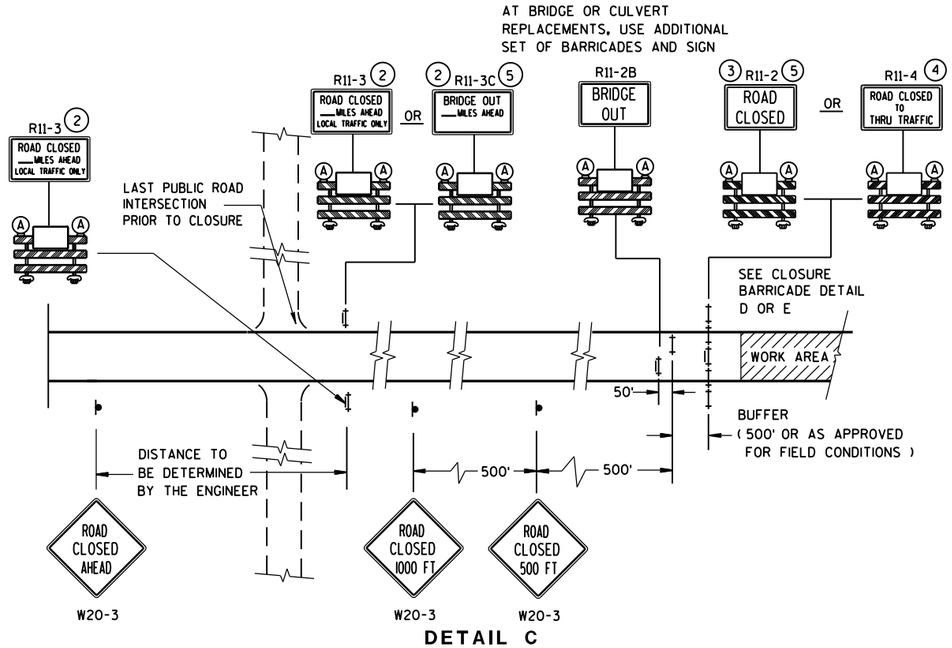
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

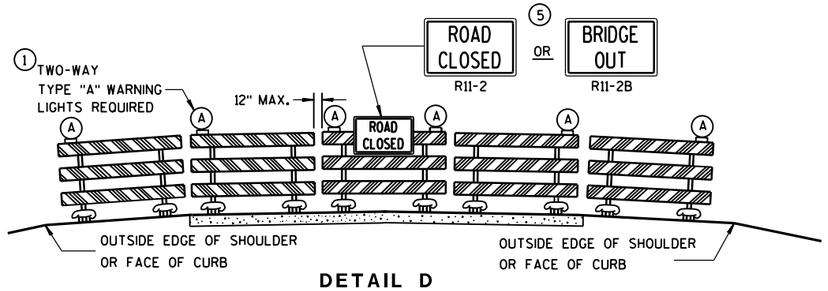
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

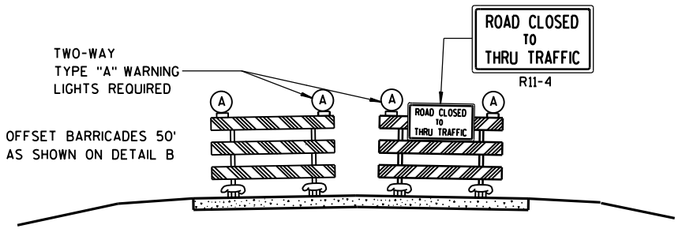
S.D.D. 15 C 2-5a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 2-5b

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

GENERAL NOTES

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

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

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

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

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

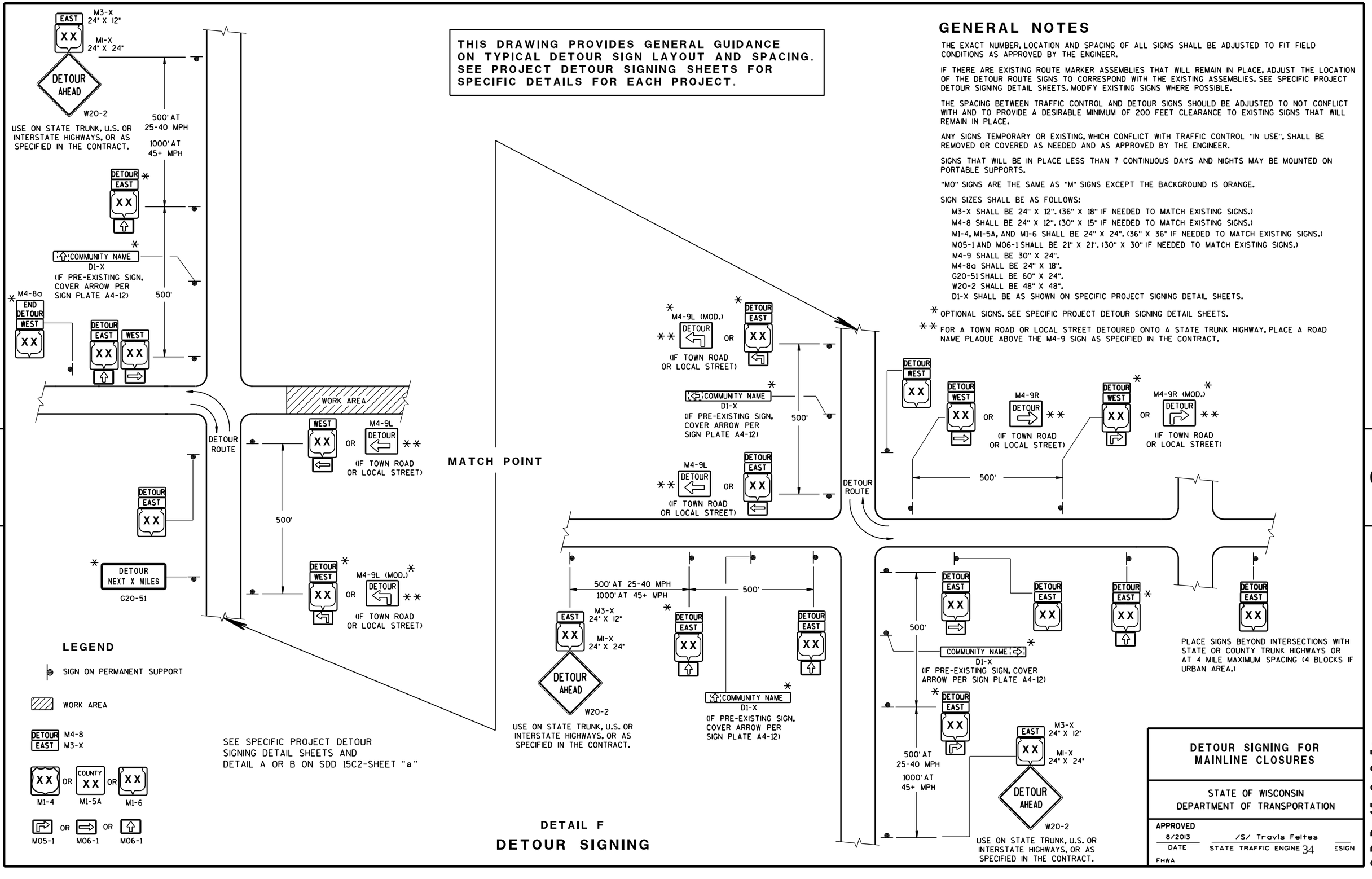
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

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



DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

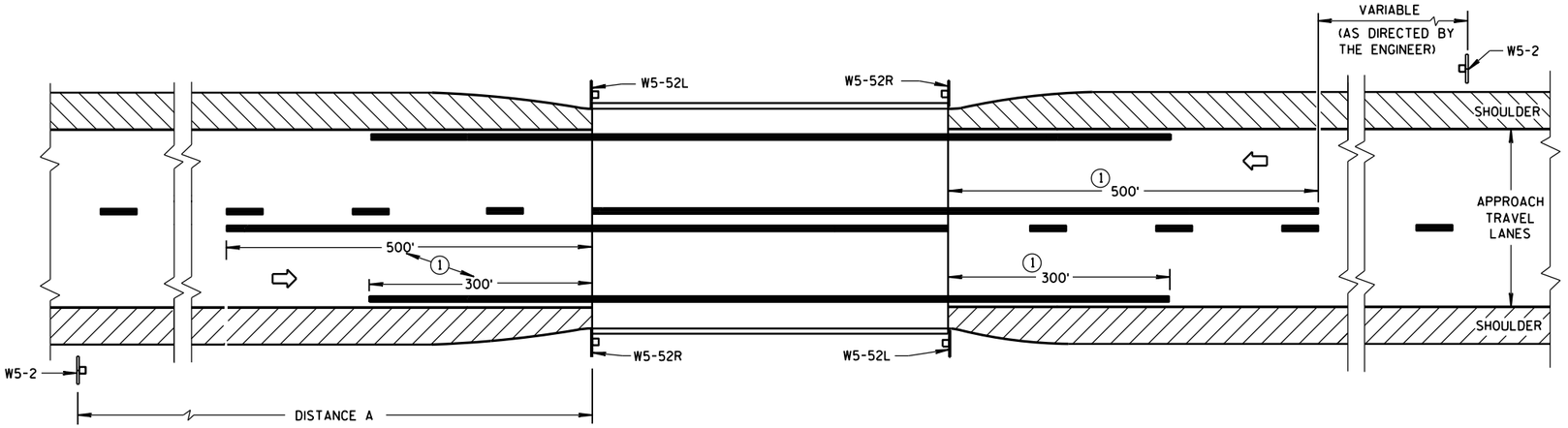
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 DATE
/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

S.D.D. 15 C 2-5c

S.D.D. 15 C 2-5c



GENERAL NOTES

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

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

(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(2) FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.

(3) LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

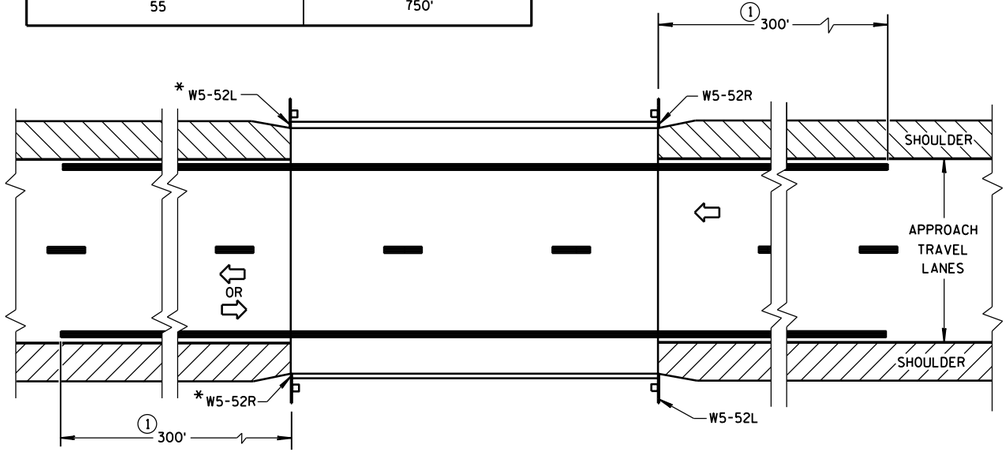
DISTANCE TABLE

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

SITUATION 1

WARRANTING CRITERIA:

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

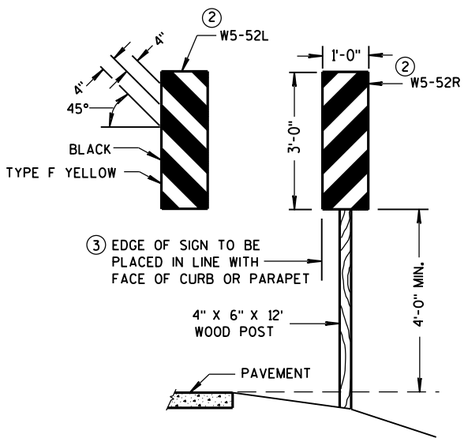


*OMIT ON ONE-WAY TRAVELLED WAYS

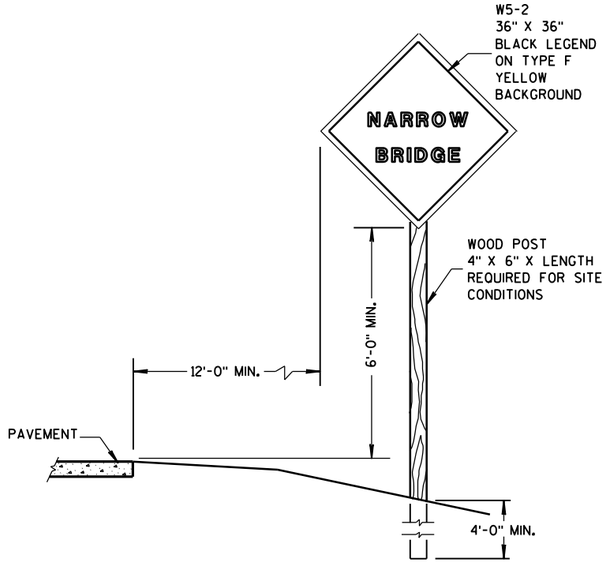
SITUATION 2

WARRANTING CRITERIA:

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

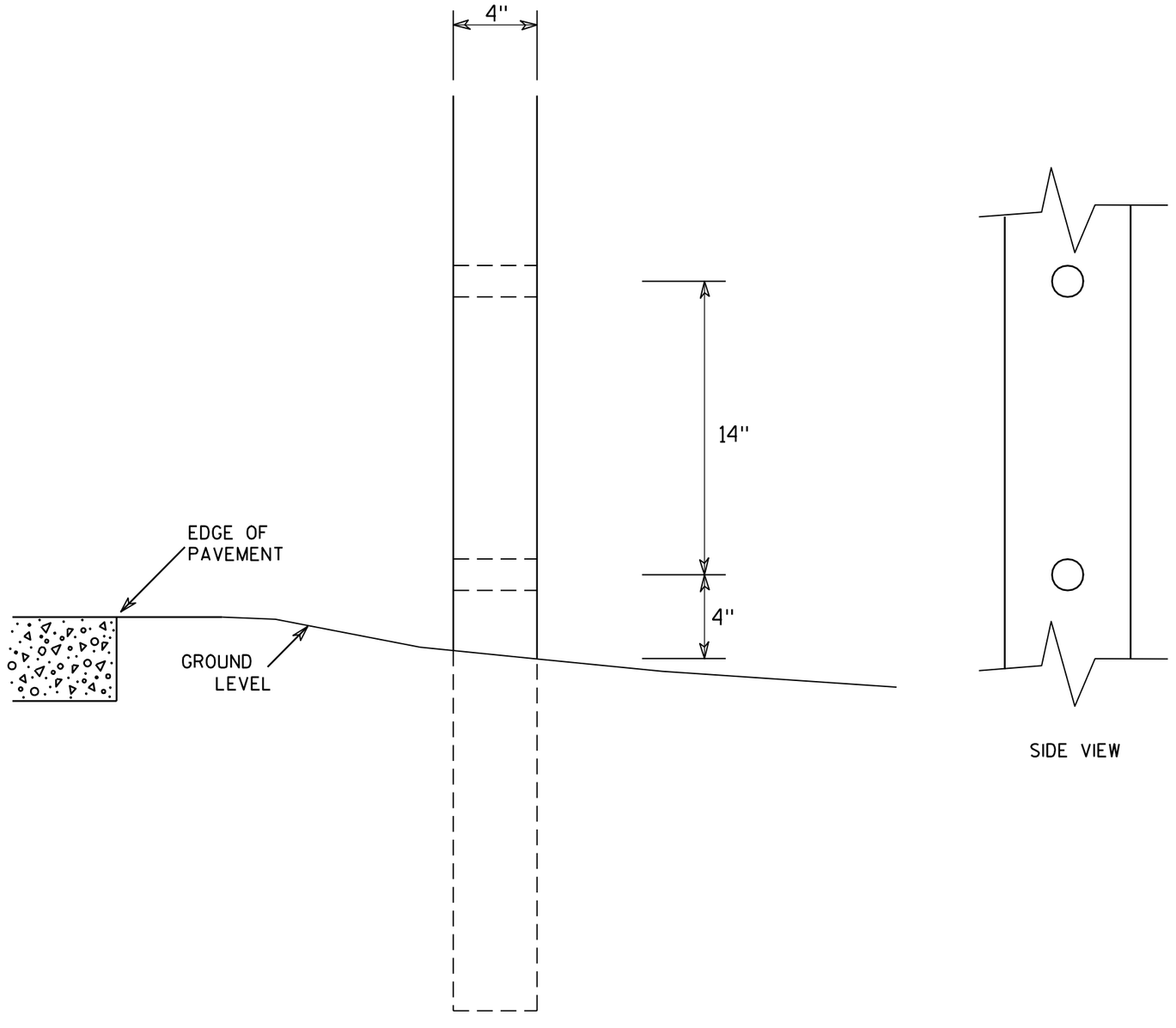
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 6-7



SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

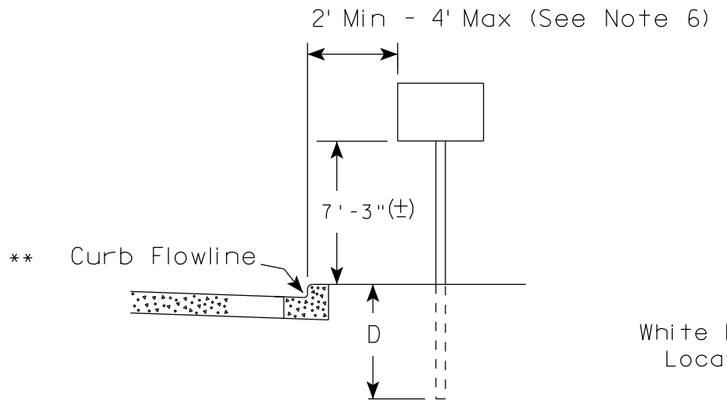
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang
for State Traffic Engineer

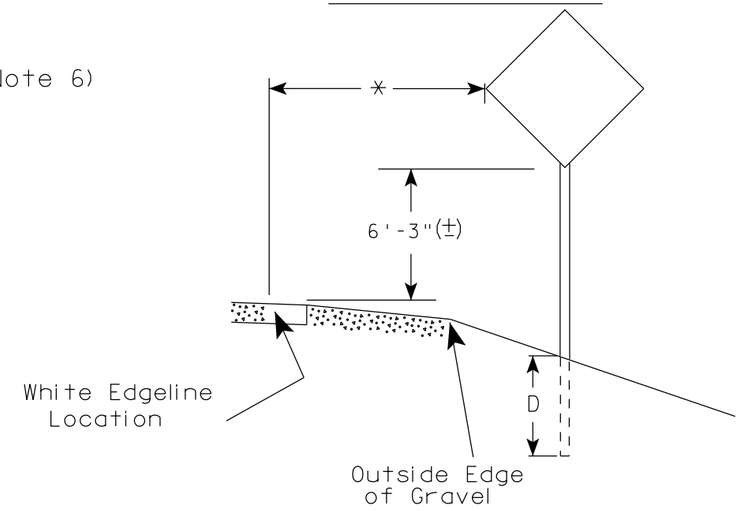
DATE 3/27/97 PLATE NO. A4-11.2

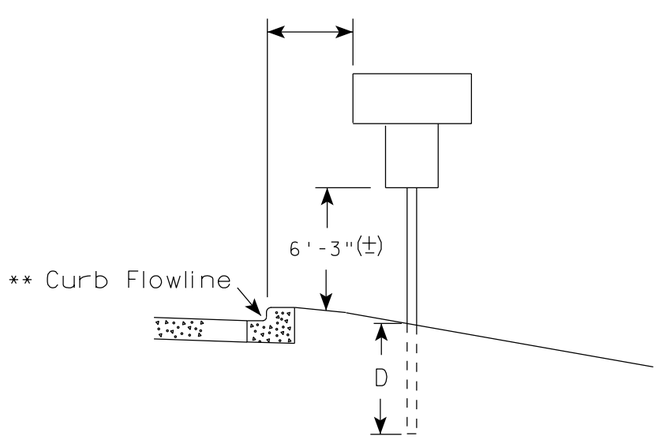
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 36	E

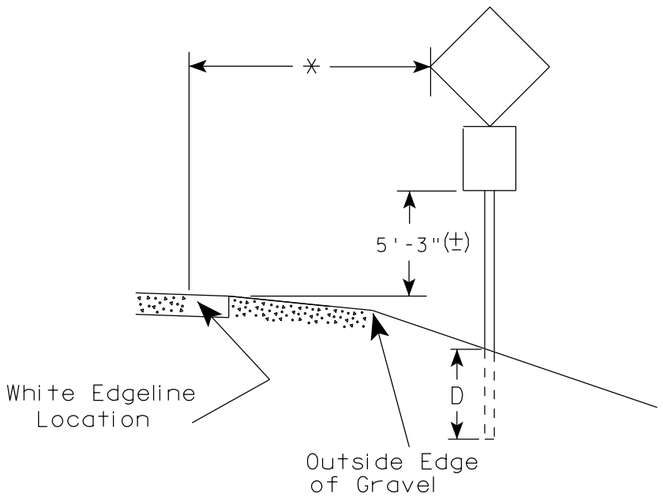
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

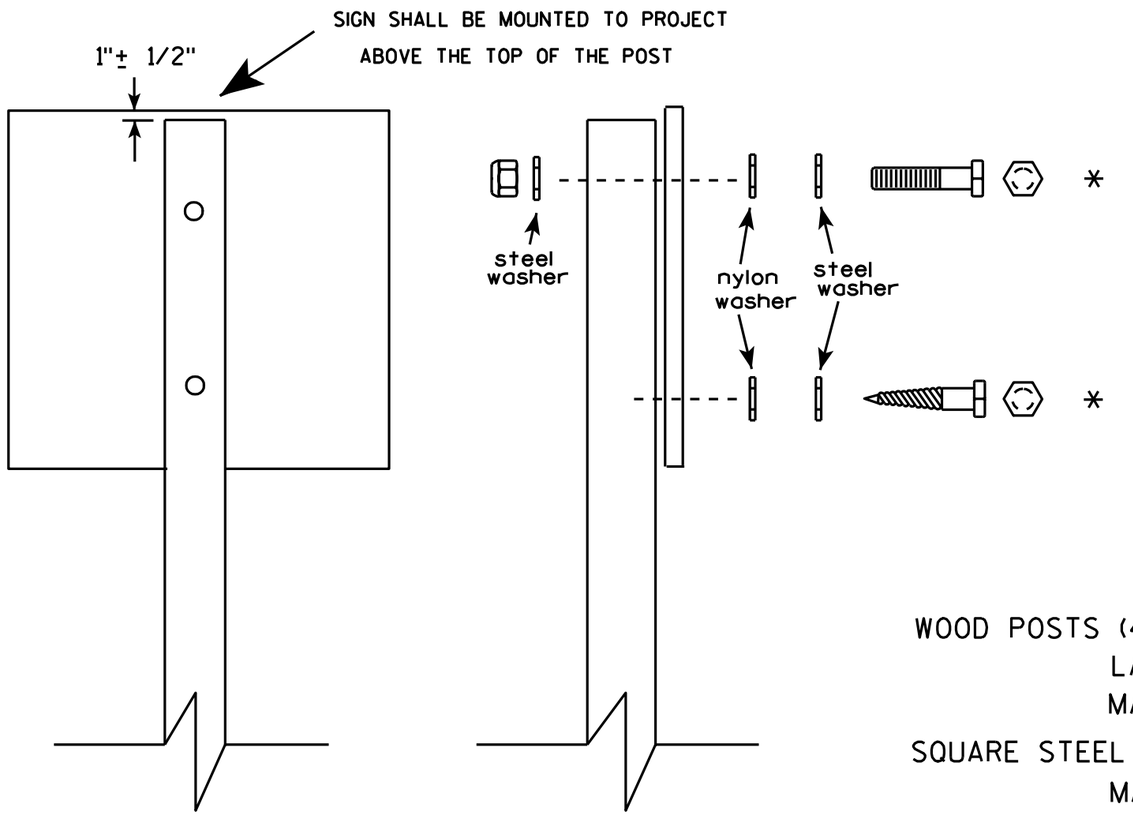
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

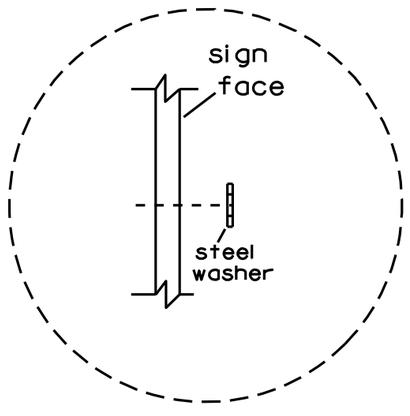
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

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

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

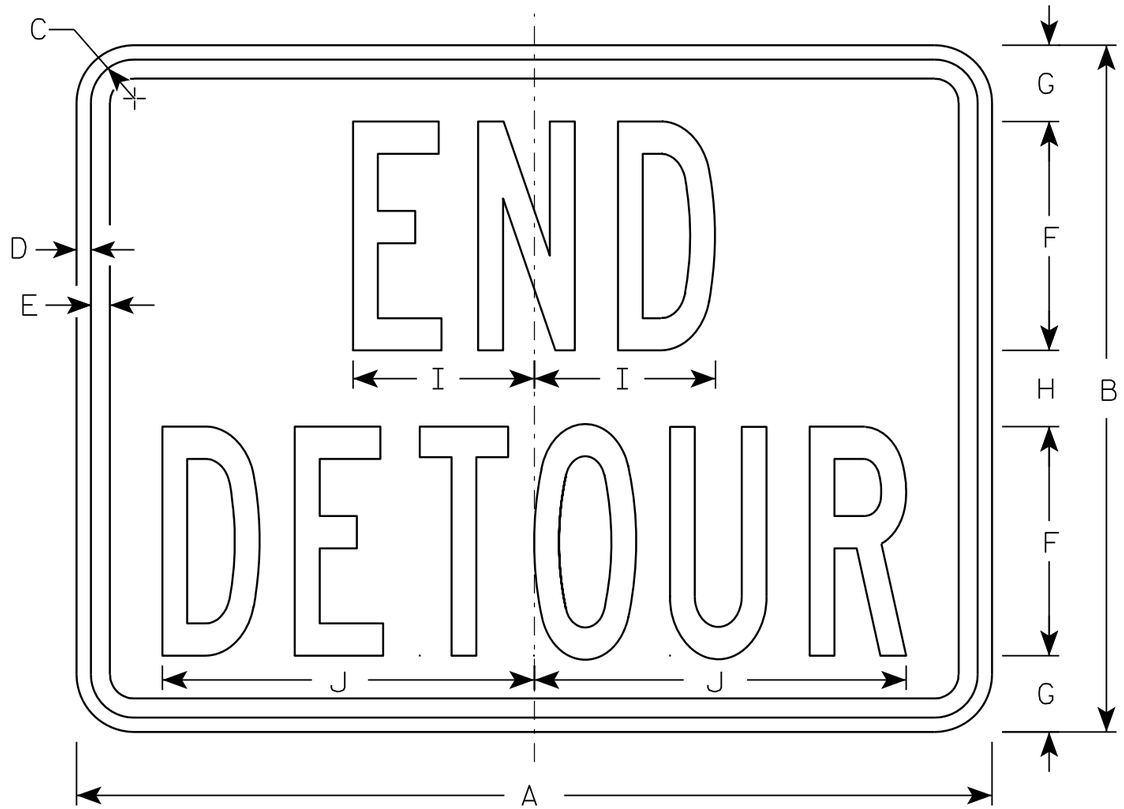
DATE 3/23/10 PLATE NO. A4-8.7

7

7

PROJECT NO:

SHEET NO: 38 E



M4-8A

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

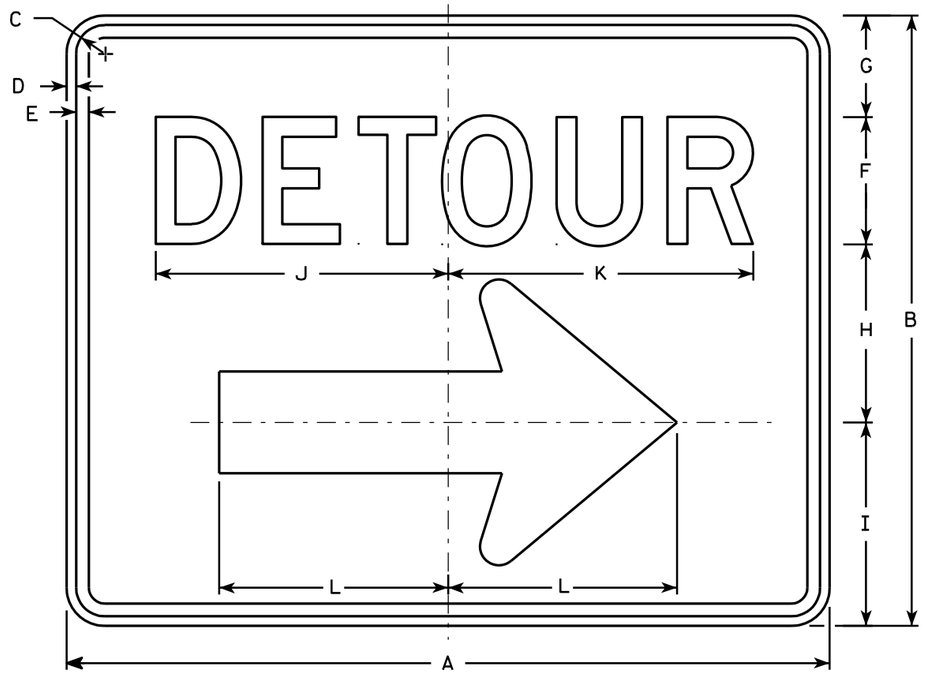
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

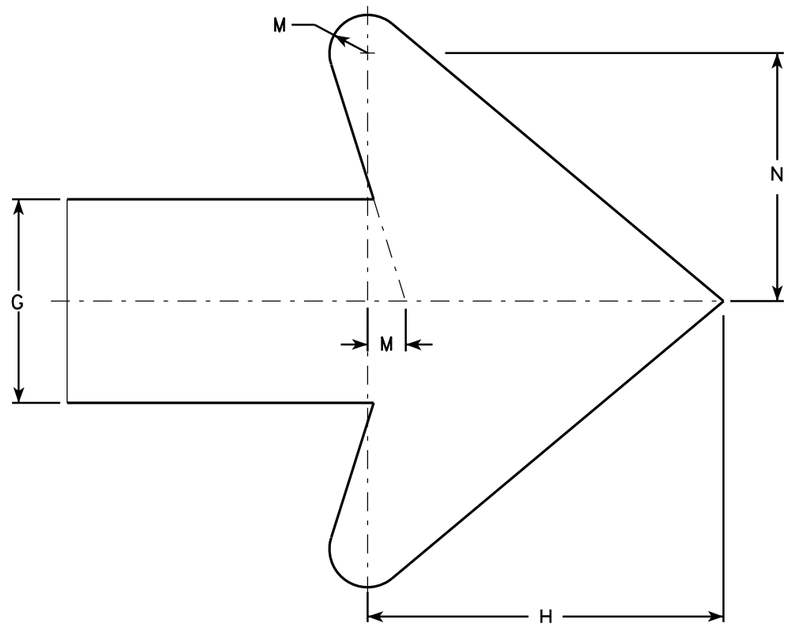
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 39	E



M4-9R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

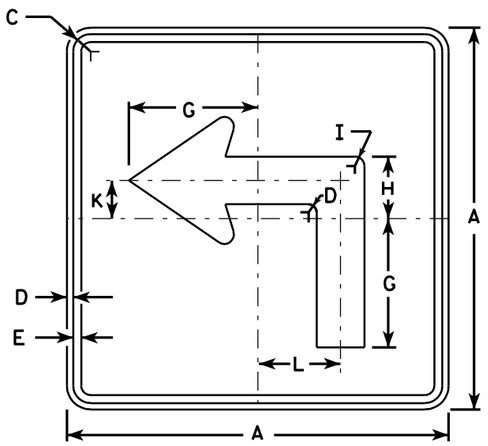
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

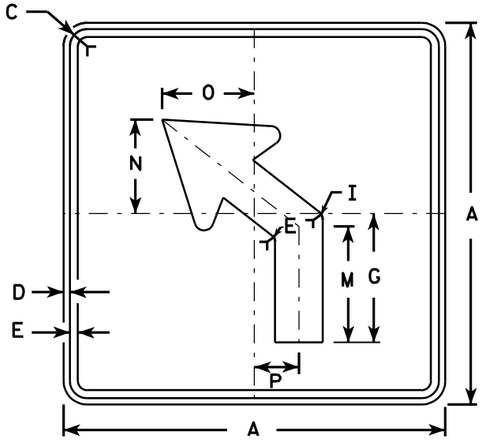
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

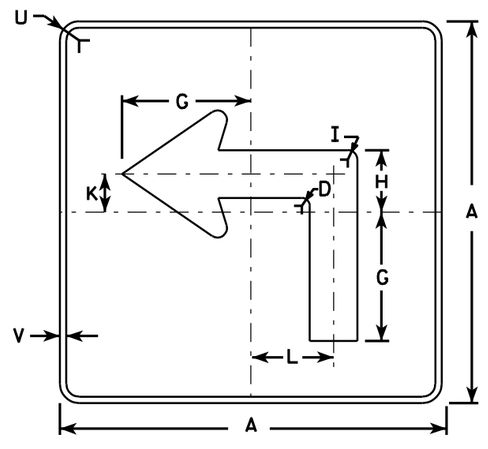
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 40	E



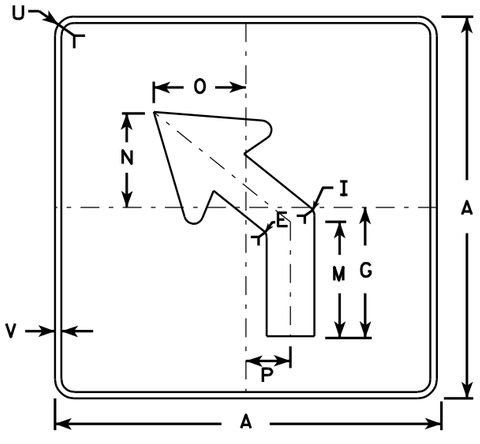
M5-1L
MK5-1L
MM5-1L
MO5-1L
MP5-1L
MR5-1L



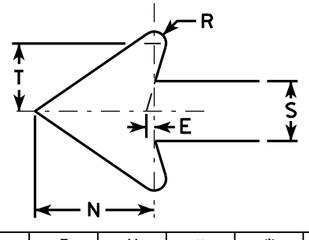
M5-2L
MK5-2L
MM5-2L
MO5-2L
MP5-2L
MR5-2L



MB5-1L
MG5-1L
MN5-1L



MB5-2L
MG5-2L
MN5-2L



NOTES

1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M5-1 and M5-2 Background - White - Type H Reflective
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White - Type H Reflective
   MG5-1 and MG5-2 Background - Green
   Message - White - Type H Reflective
   MK5-1 and MK5-2 Background - Green
   Message - White Type H Reflective
   MM5-1 and MM5-2 Background - White - Type H Reflective
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White - Type H Reflective
   MO5-1 and MO5-2 Background - Orange - Type F Reflective
   Message - Black
   MP5-1 and MP5-2 Background - White - Type H Reflective
   Message - Blue
   MR5-1 and MR5-2 Background - Brown
   Message - Yellow - Type H Reflective
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 1/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 1/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 1/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

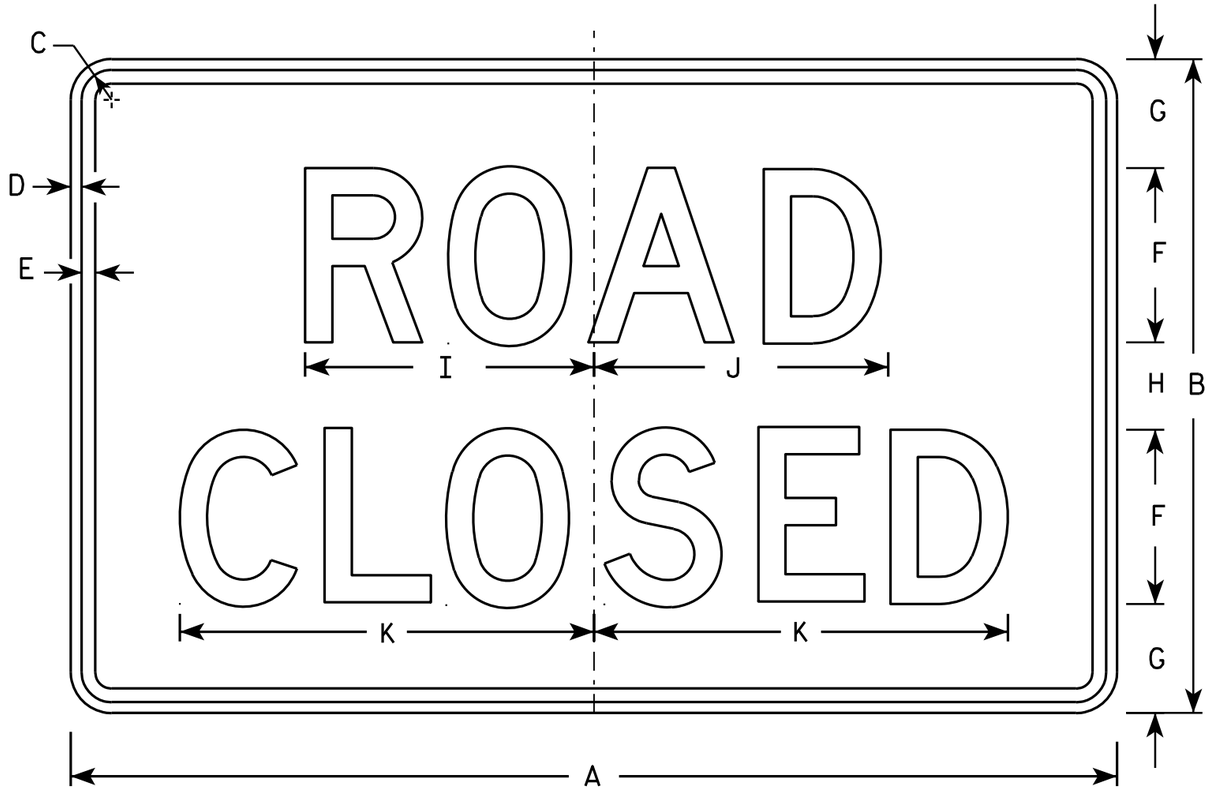
STANDARD SIGN
M5-1 & M5-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/29/13 PLATE NO. M5-1.12

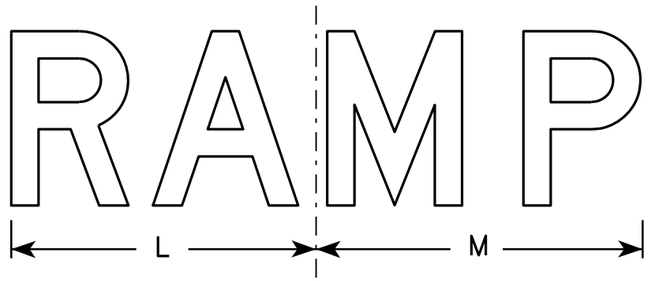
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 41	E



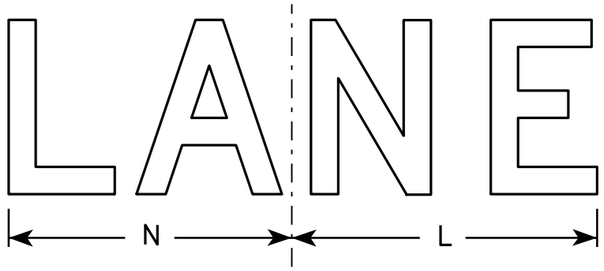
R11-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.



R11-2R



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0

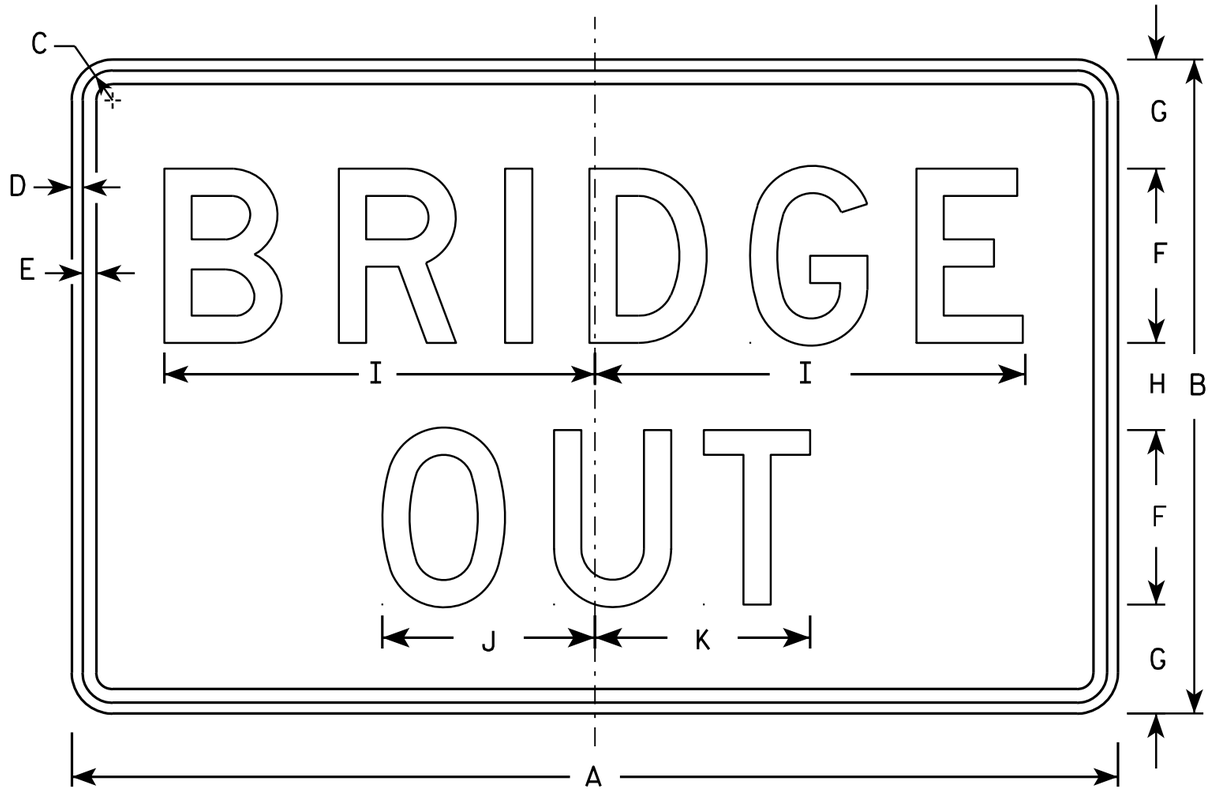
STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 42	E



R11-2B

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

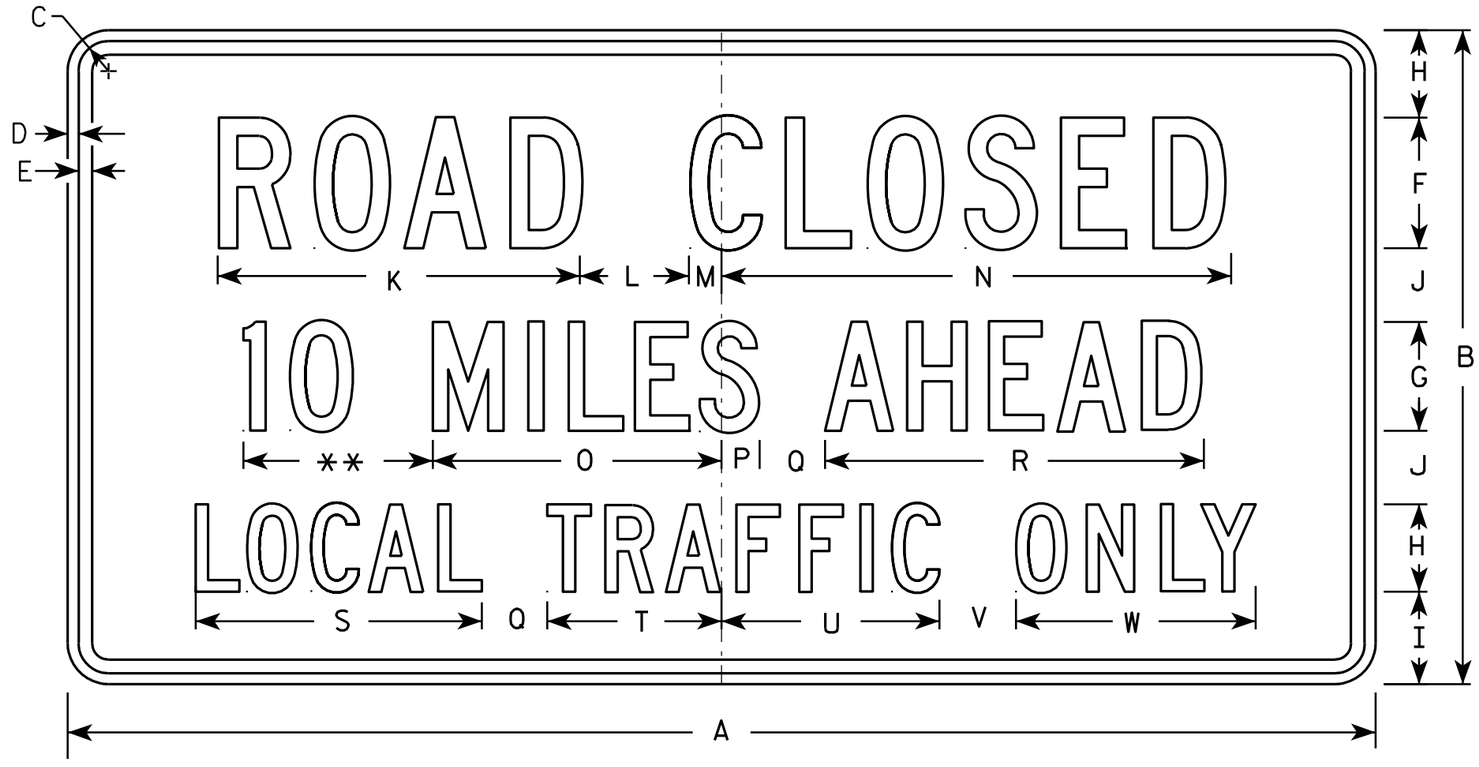
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO:

SHEET NO: 43 E



R11-3

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	11 1/8	3	1 1/8	15 1/4	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

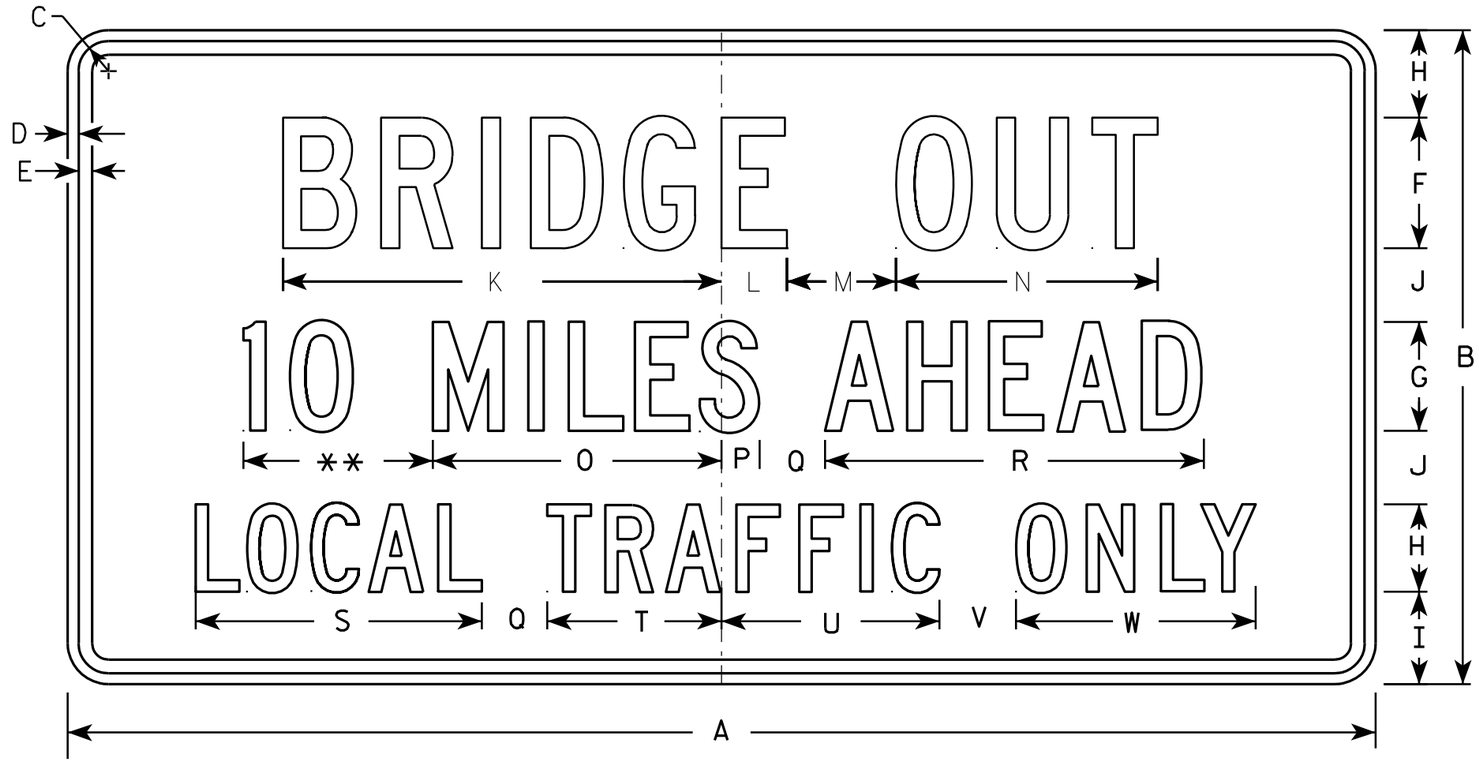
STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3.6

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 44 | E



R11-3B

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

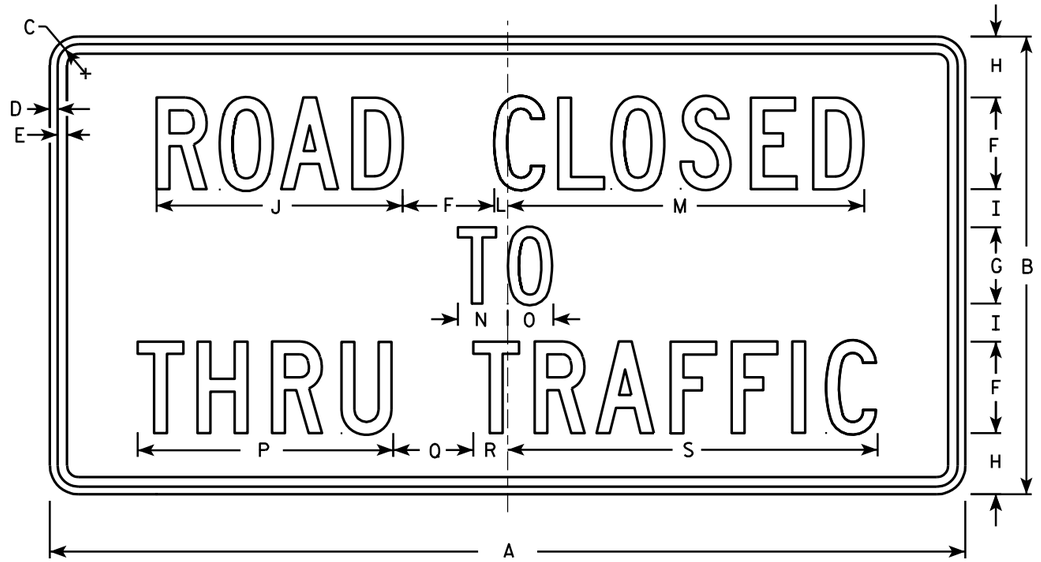
STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3B.2

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 45 | E



R11-4

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

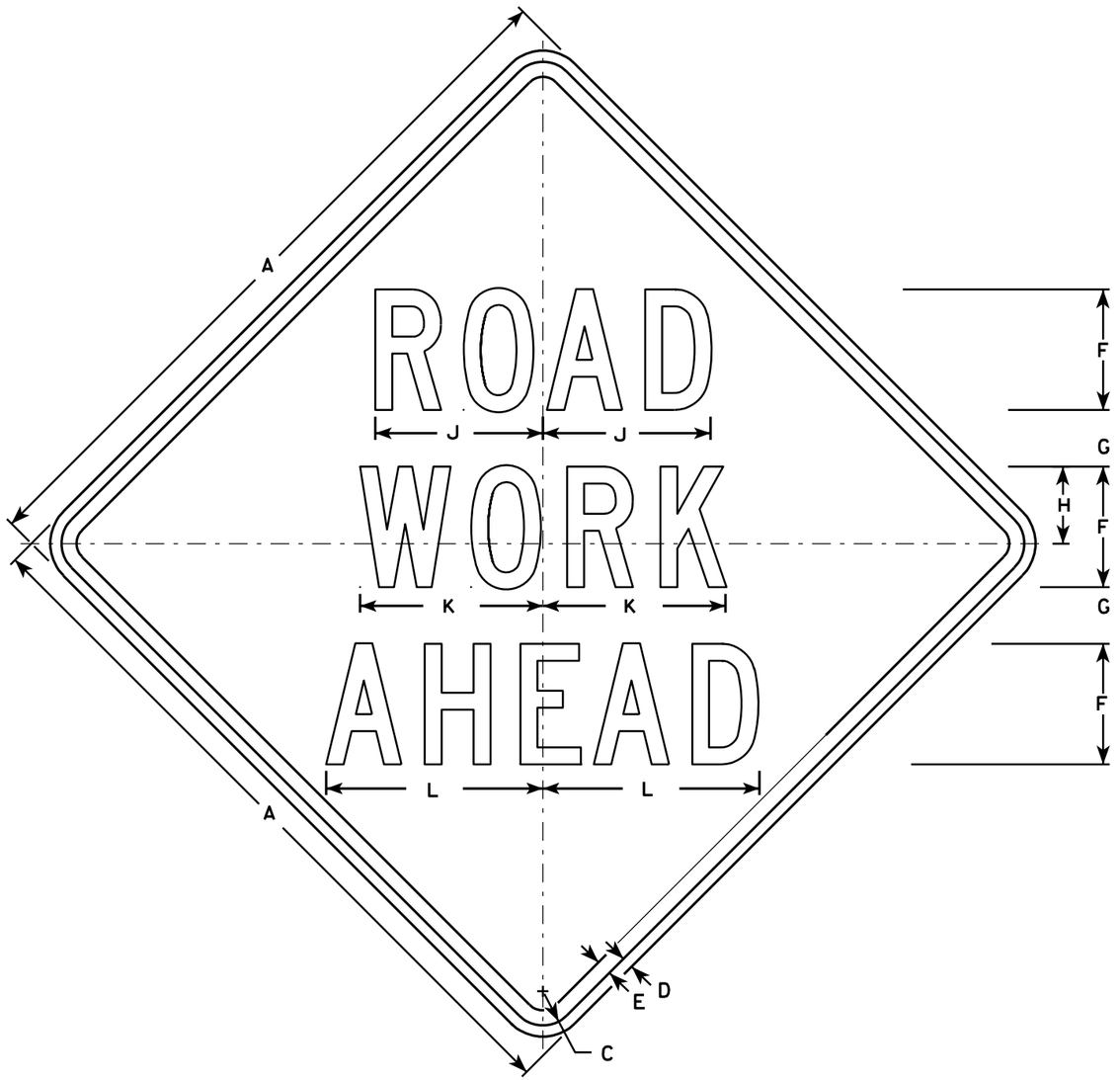
STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

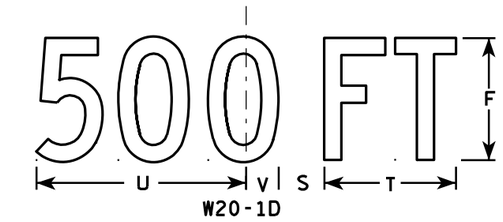
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

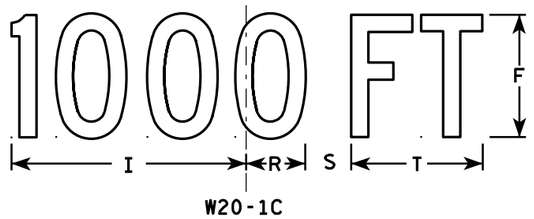
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 46 | E



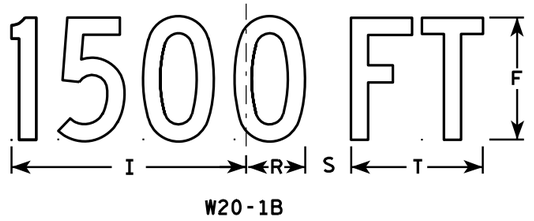
W20-1A



W20-1D

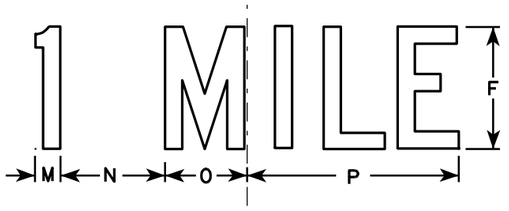


W20-1C



W20-1B

W20-1G



W20-1F

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-1.9

PROJECT NO:

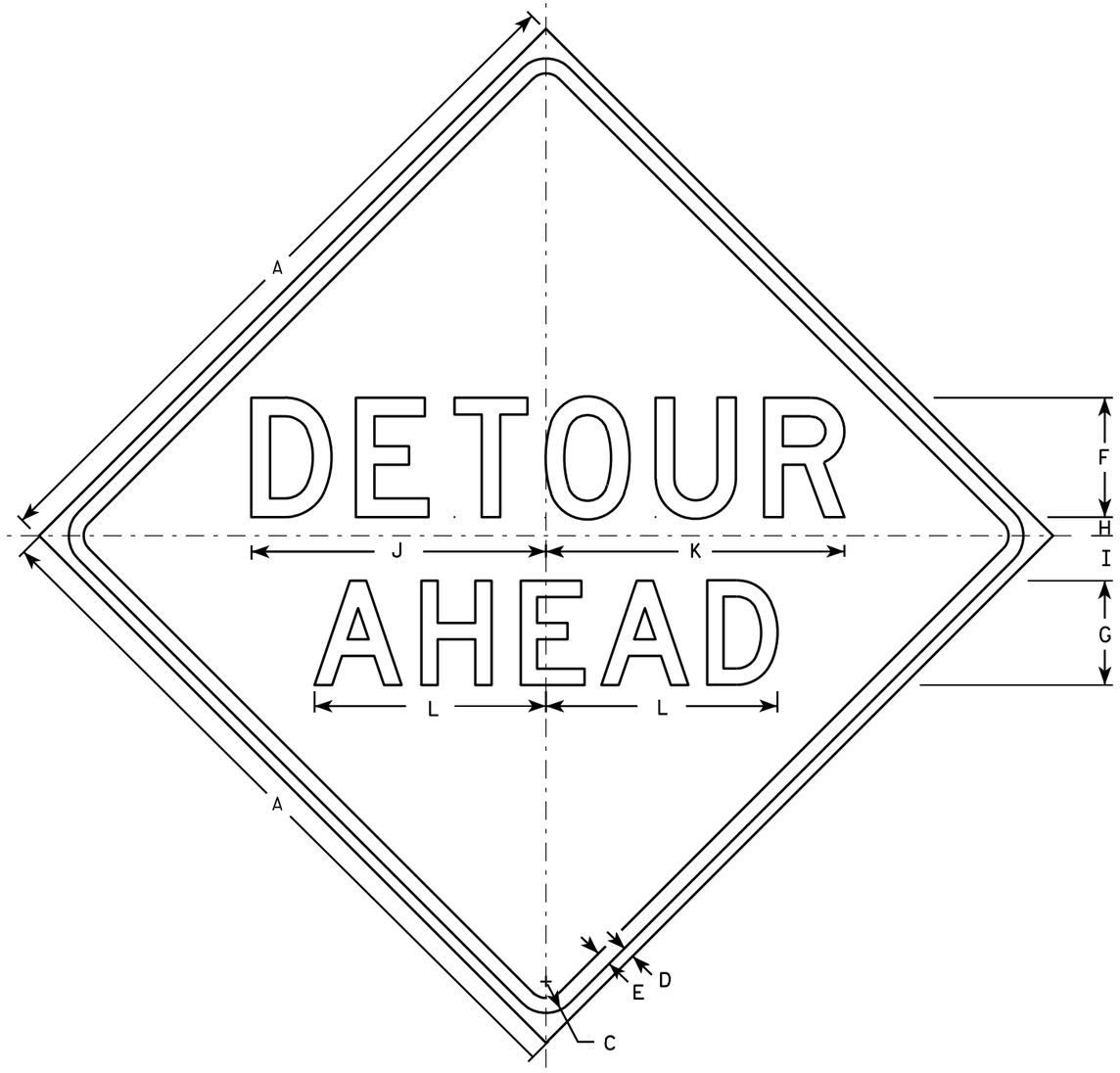
SHEET NO: 47 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W201.DGN PLOT DATE : 18-MAR-2011 09:56 PLOT BY : mscj9h

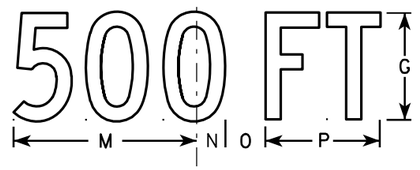
WISDOT/CADDS SHEET 42

7

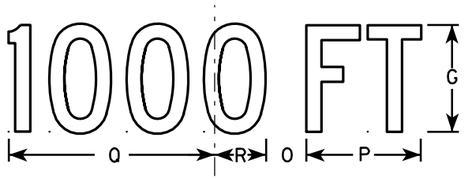
7



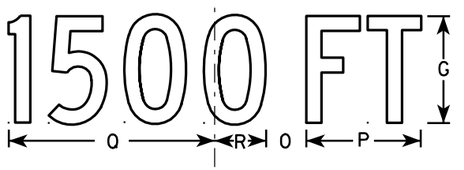
W20-2A



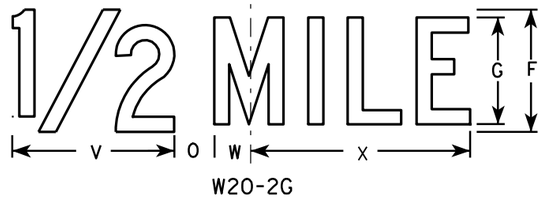
W20-2D



W20-2C



W20-2B



W20-2G

W20-2F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
   Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

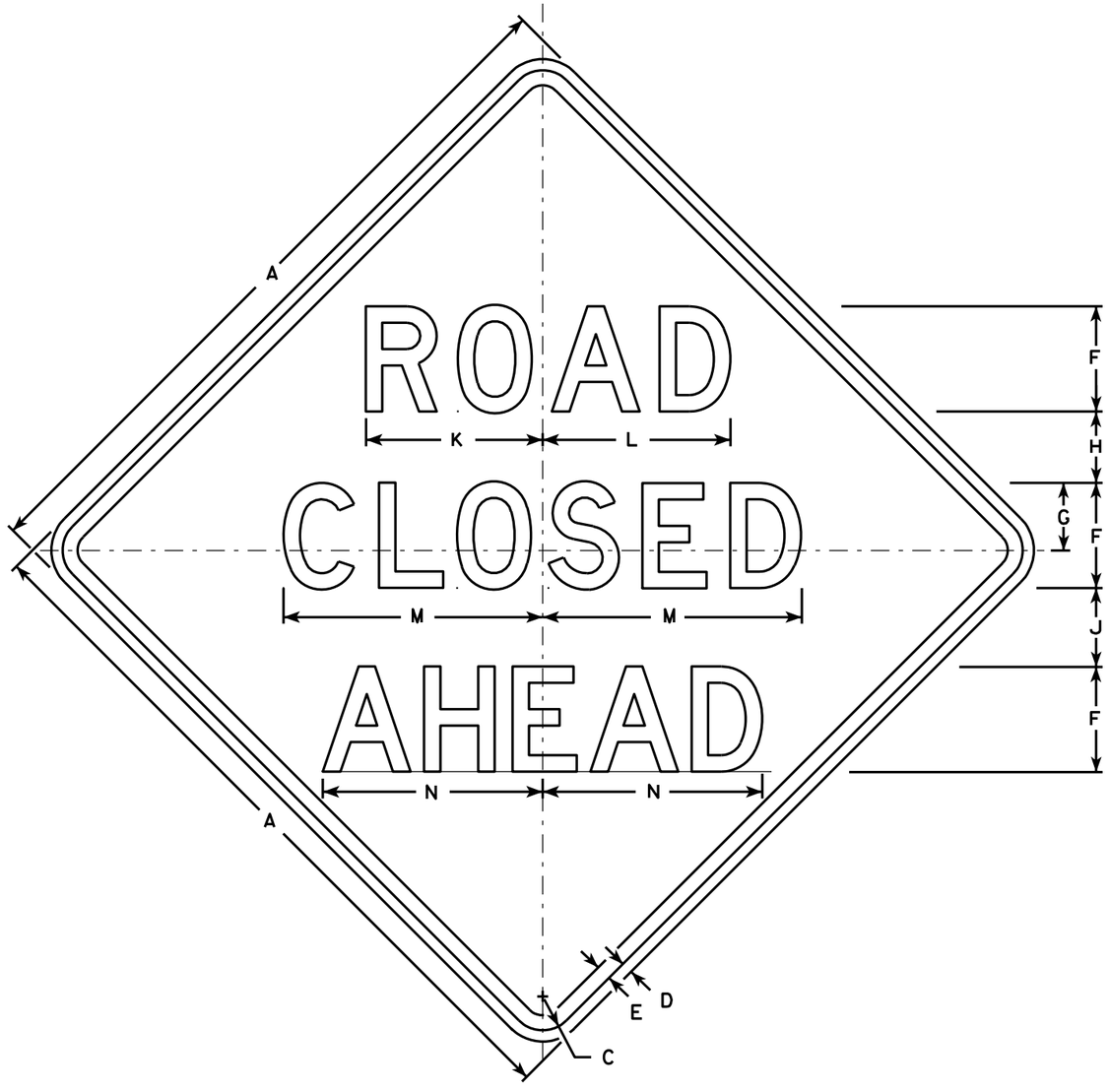
STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

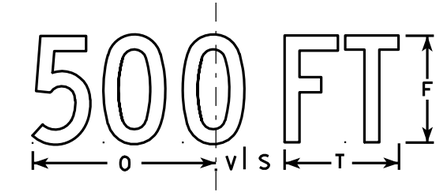
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

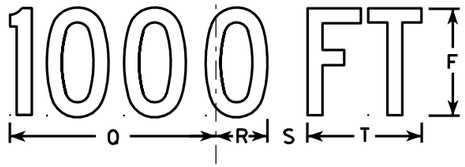
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 48	E



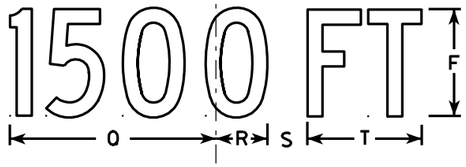
W20-3A



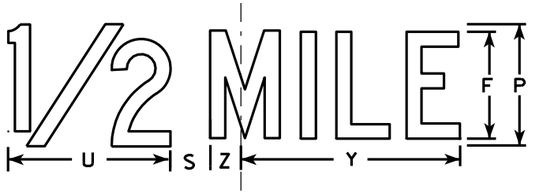
W20-3D



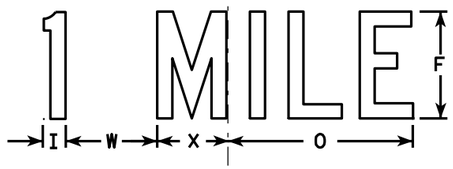
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
   Line 3 is Series D for AHEAD and Series C for all other distances.

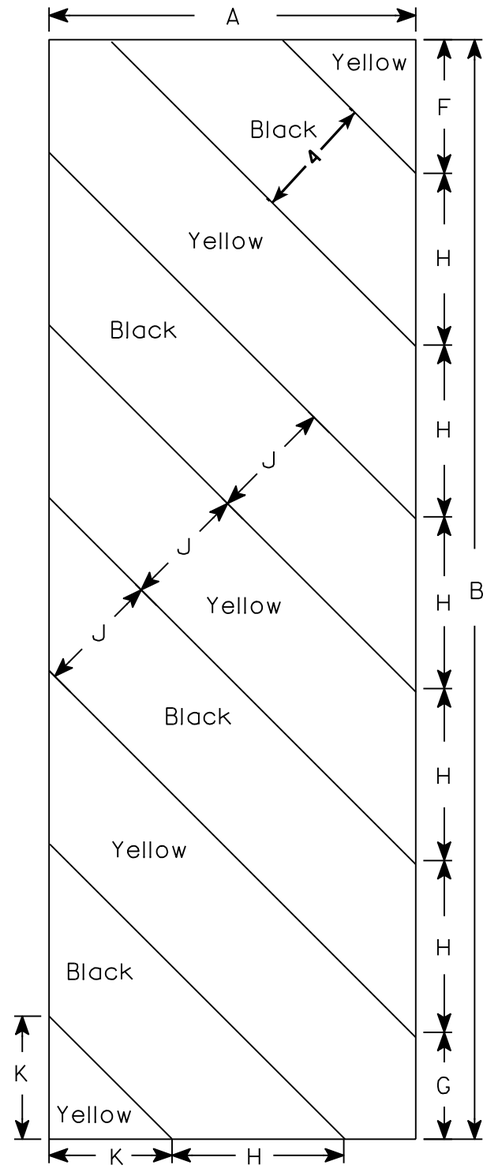
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

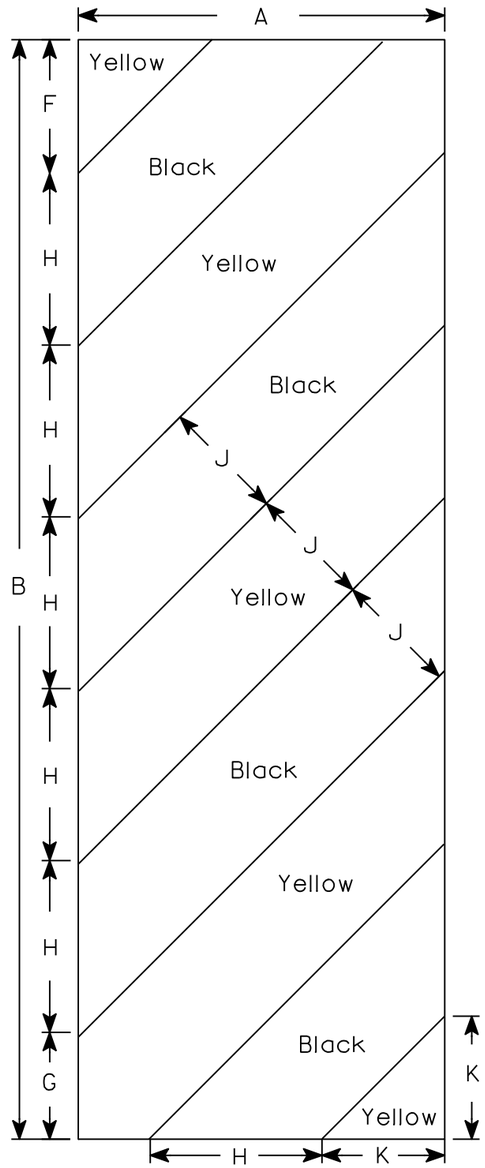
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 49 | E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

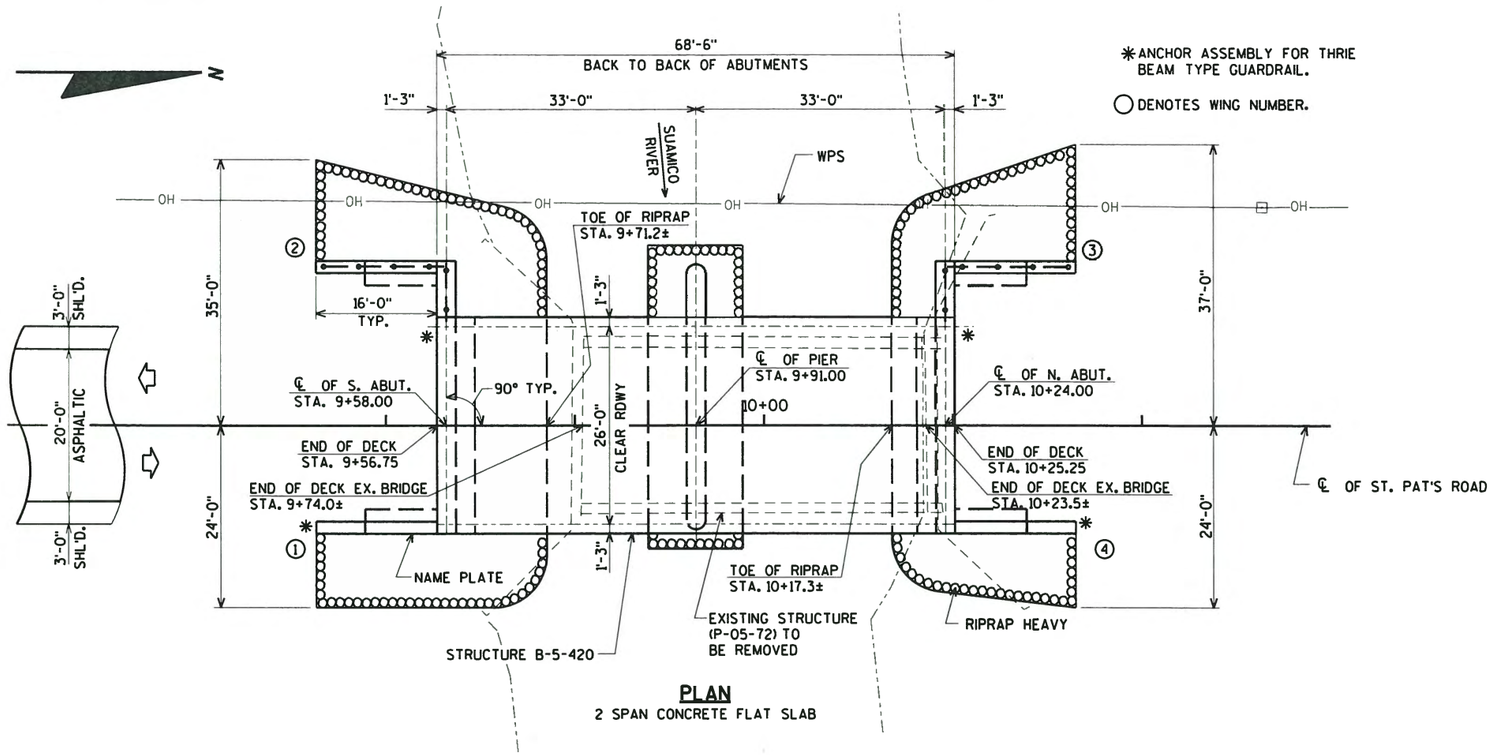
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 50 | E

$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378 gp FINAL.dgn
DATE: 10/27/15
DATE:
DATE:
CHECKED BY: JCK
BACK CHECKED BY:
CORRECTED BY:

STATE PROJECT NUMBER

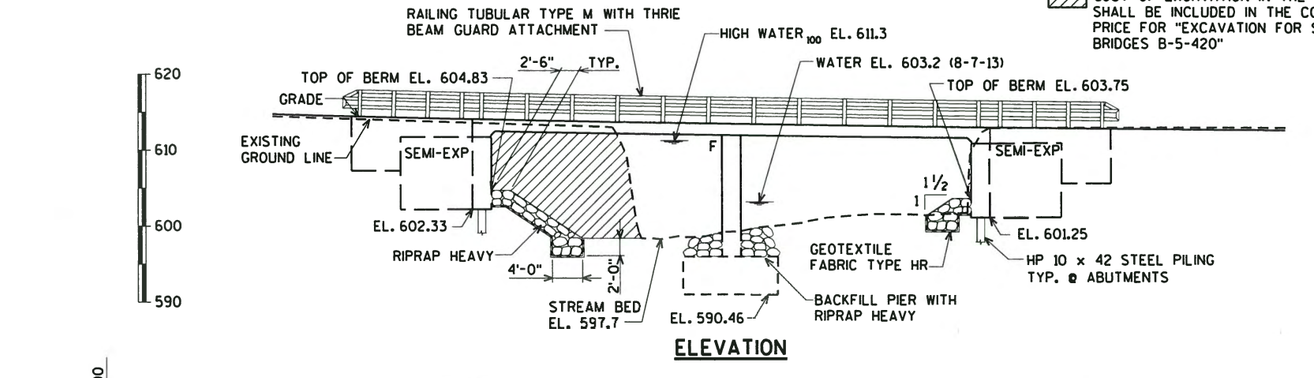
9267-03-71



PLAN
2 SPAN CONCRETE FLAT SLAB

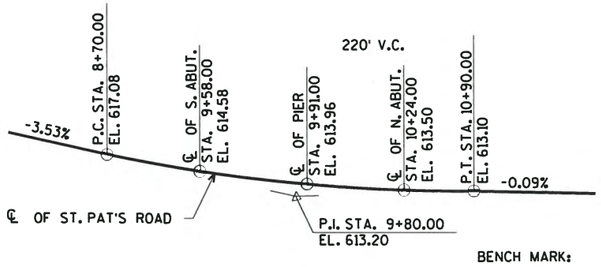
✱ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

◯ DENOTES WING NUMBER.



ELEVATION

▨ COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES, BRIDGES B-5-420"



PROFILE GRADE LINE
ST. PAT'S ROAD

BENCH MARK:
CHISLED SQUARE IN TOP OF NW WING WALL
STA. 10+23, 15' LT.
EL. 612.58

LIST OF DRAWINGS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.16
OPERATING RATING FACTOR: 1.50
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 220 KIPS

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

MATERIAL PROPERTIES:

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

HYDRAULIC DATA:

100 YEAR FLOOD
DRAINAGE AREA = 56.1 sq. mi.
WATERWAY AREA = 557 sq. ft.
V = 6.6 f.p.s.
Q_{100} = 3,650 c.f.s.
HIGH $WATER_{100}$ EL. 611.3
HIGH $WATER_2$ EL. 604.8
RDWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 5

FOUNDATION DATA:

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ‡ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 18'-0". PREBORE PILING A MINIMUM OF 10'-0".

PIER TO BE SUPPORTED ON A SPREAD FOOTING ON SOUND MATERIAL WITH REQUIRED FACTORED BEARING RESISTANCE OF 25 TONS PER SQUARE FOOT.

NORTH ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ‡ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 20'-0".

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

TRAFFIC DATA:

A.D.T. = 393 (2016)
A.D.T. = 479 (2036)
R.D.S. = 40 M.P.H.

FOR TYPICAL SECTION AND NOTES SEE SHEET 2

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER
10/27/15

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 11/04/15
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-5-420

ST. PAT'S ROAD OVER SUAMICO RIVER

COUNTY: BROWN
~~TOWN/CITY~~/VILLAGE: SUAMICO

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
AEB	JWZ	CLS	CBM

GENERAL PLAN

SHE 51 F 16

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

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

8

8

STATE PROJECT NUMBER

9267-03-71

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	PIER	N. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 9+99	LS	-----	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-5-420	LS	-----	-----	-----	-----	1
206.5000	COFFERDAMS B-5-420	LS	-----	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	210	-----	210	-----	420
502.0100	CONCRETE MASONRY BRIDGES	CY	64	171	63	114	412
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	-----	255	255
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3,220	15,240	3,220	-----	21,680
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,910	-----	1,910	21,220	25,040
513.4061	RAILING TUBULAR TYPE M B-5-420	LF	17	-----	17	138	172
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	-----	10	-----	20
550.0020	PRE-BORING ROCK	LF	110	-----	-----	-----	110
550.0500	PILE POINTS	EACH	11	-----	11	-----	22
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	184	-----	206	-----	390
606.0300	RIPRAP HEAVY	CY	90	30	90	-----	210
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	70	-----	70	-----	140
616.0204	FENCE CHAIN LINK 4-FT	LF	24	-----	24	-----	48
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	170	-----	170	-----	340
	NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	-----	½" & ¾"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

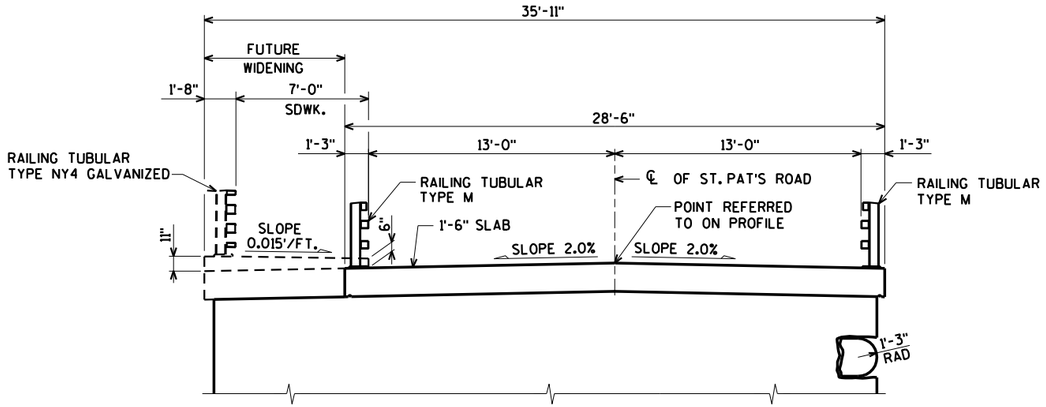
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

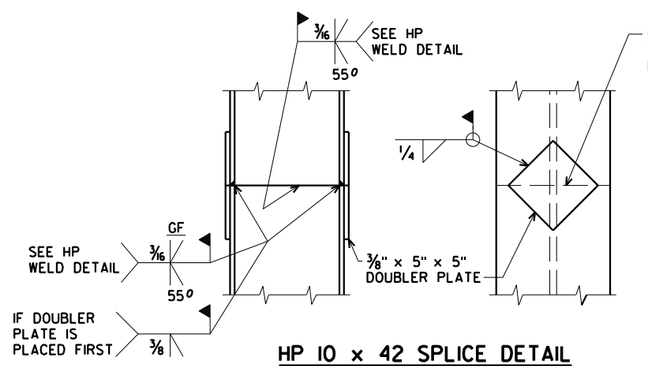
THE EXISTING STRUCTURE, P-5-72, TO BE REMOVED, IS A SINGLE SPAN CONCRETE FLAT SLAB BRIDGE, 47.5 FT. LONG WITH A 20.2 FT. CLEAR ROADWAY WIDTH.

AT BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

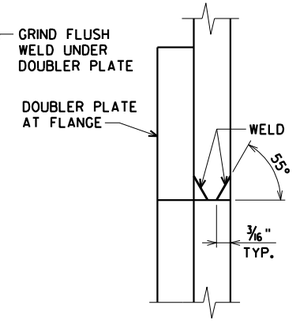
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.



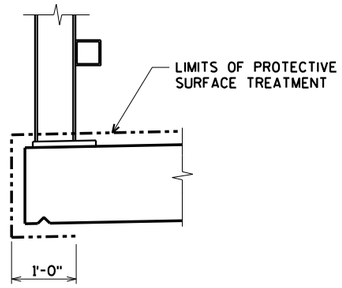
CROSS SECTION THRU ROADWAY
(LOOKING NORTH)



HP 10 x 42 SPLICE DETAIL



HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR



PROTECTIVE SURFACE TREATMENT DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

QUANTTIES AND NOTES

SHEET 2 OF 16
52

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

$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378 gp FINAL.dgn

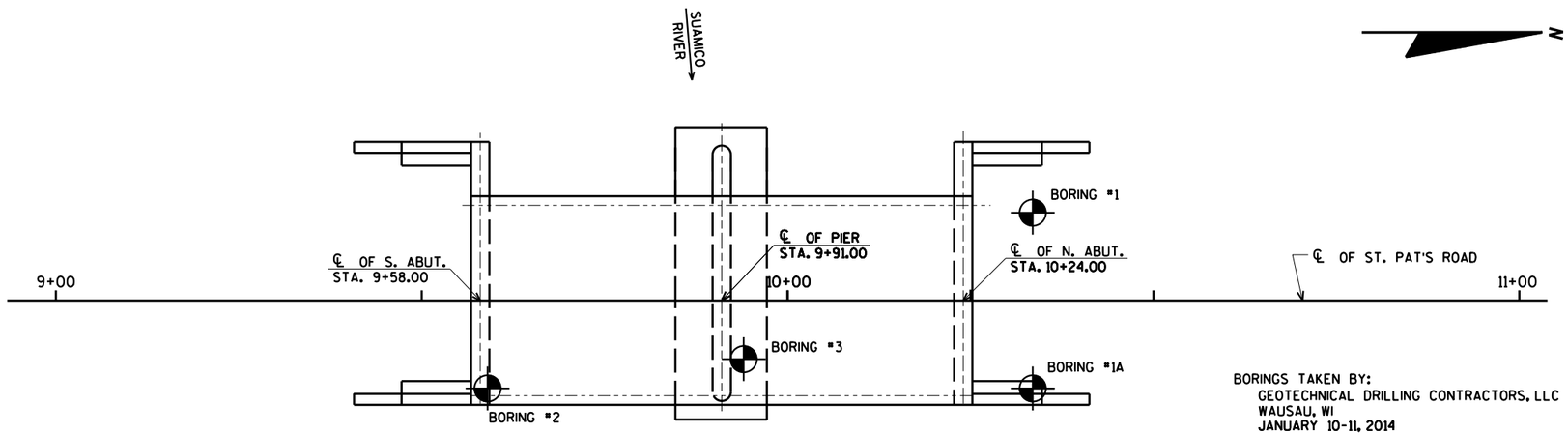
8

8

11/2/2015

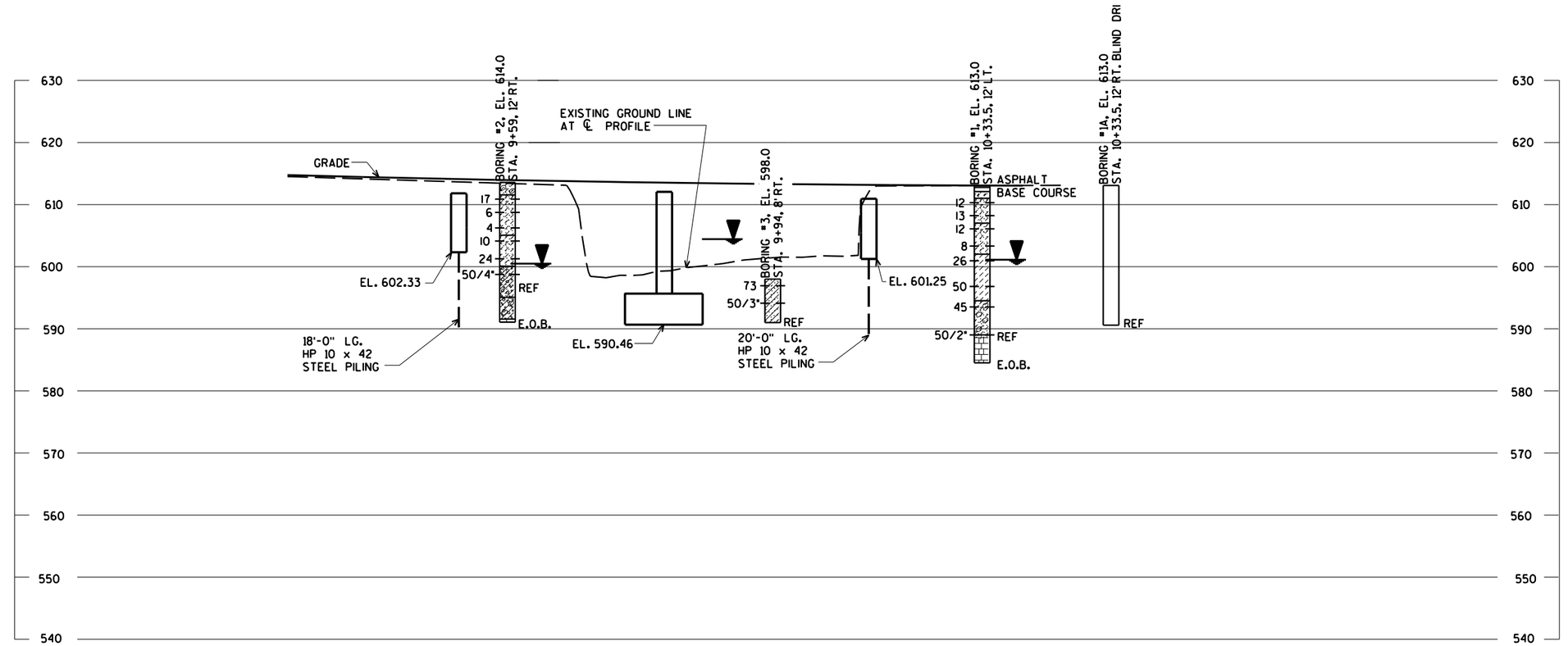
PENTABLE:BReau_shd_util.tbl

$PRFNAME$
U:\45-0378.00 - Brown County, St.Pat's Road over Suamico River\BRIDGE\450378 soils.dgn



BORINGS TAKEN BY:
GEOTECHNICAL DRILLING CONTRACTORS, LLC
WAUSAU, WI
JANUARY 10-11, 2014

GEOTECHNICAL REPORT BY:
RIVER VALLEY TESTING, INC.
NEENAH, WI
JANUARY 31, 2014



STATE PROJECT NUMBER

9267-03-71

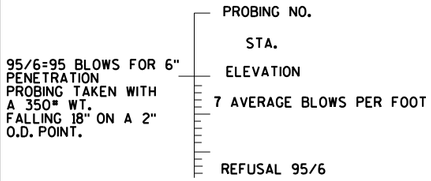
ABBREVIATIONS

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

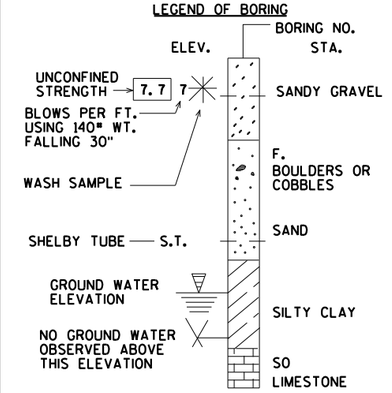
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY CJM | PLANS CK'D. AEB

SUBSURFACE EXPLORATION

SHEET 3 OF 16
53

8

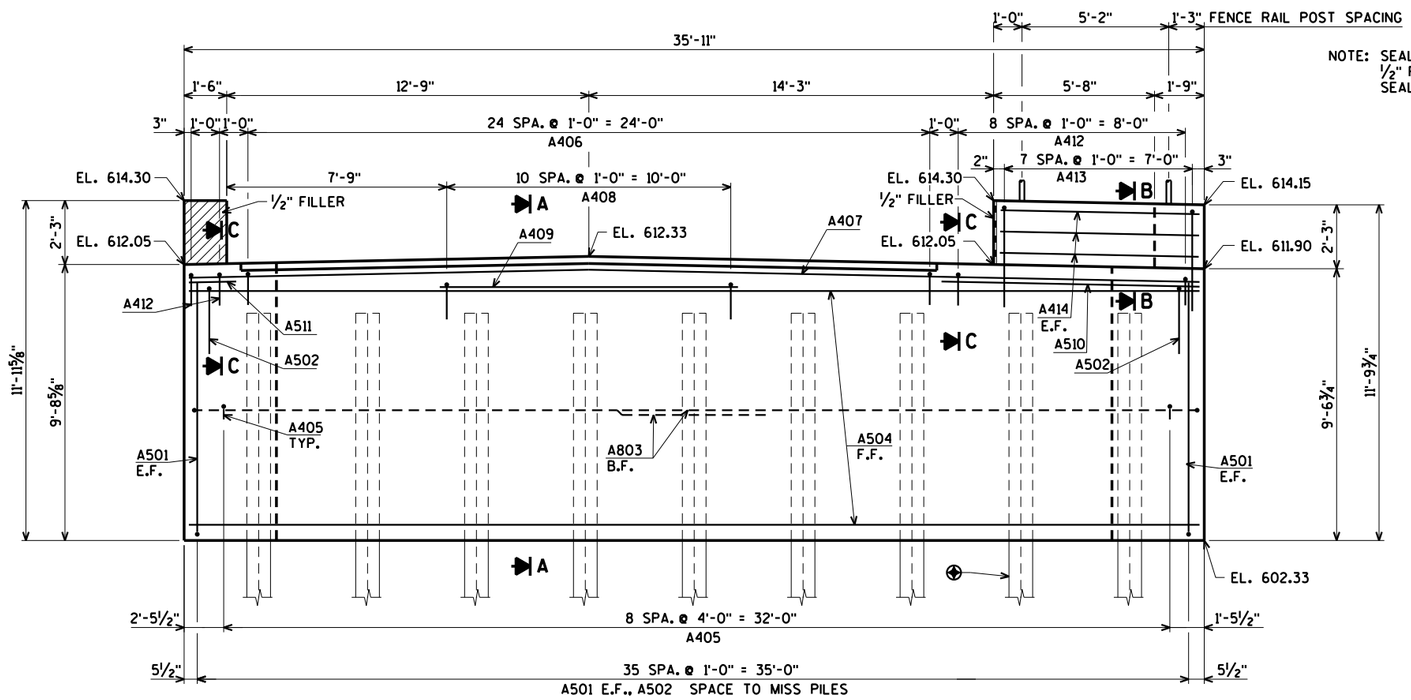
8

$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_sabut.dgn

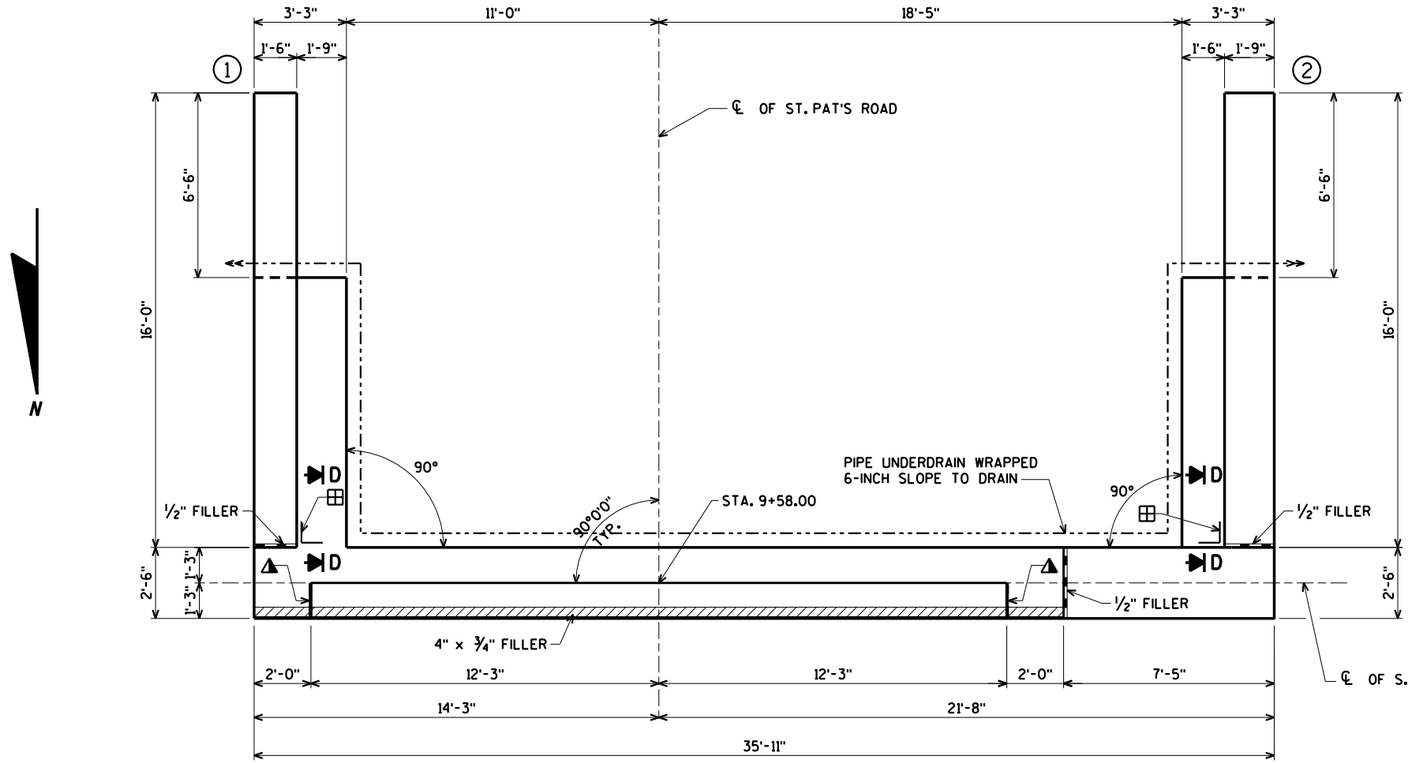
STATE PROJECT NUMBER

9267-03-71

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)



ELEVATION
(LOOKING SOUTH)



PLAN

N

FOR SECTIONS A, B, & C SEE SHEET 6

⊕ ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 170 TONS PER PILE. ESTIMATED LENGTH 18'-0" WITH 10'-0" PREBORING

▲ ¾" CORK FILLER ON VERTICAL FACE ONLY.

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

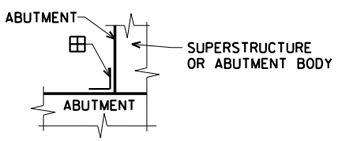
FOR PILE SPLICE DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

WING PILING NOT SHOWN IN ELEVATION VIEW. SEE PILE LAYOUT ON SHEET 6



SECTION D

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

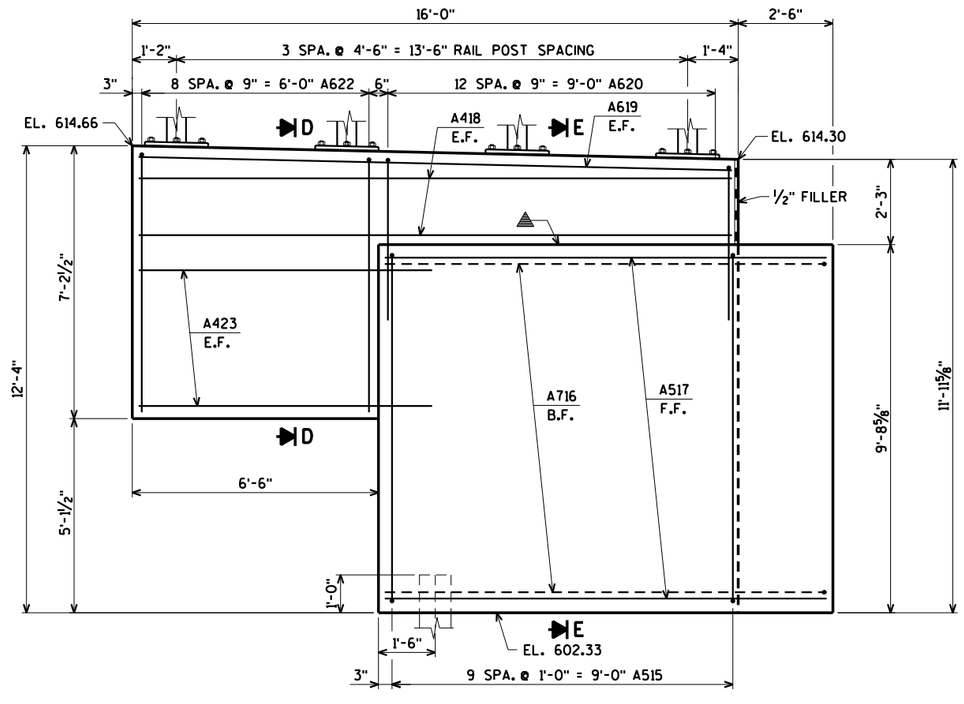
DRAWN BY JCK | PLANS CK'D. AEB

SOUTH ABUTMENT

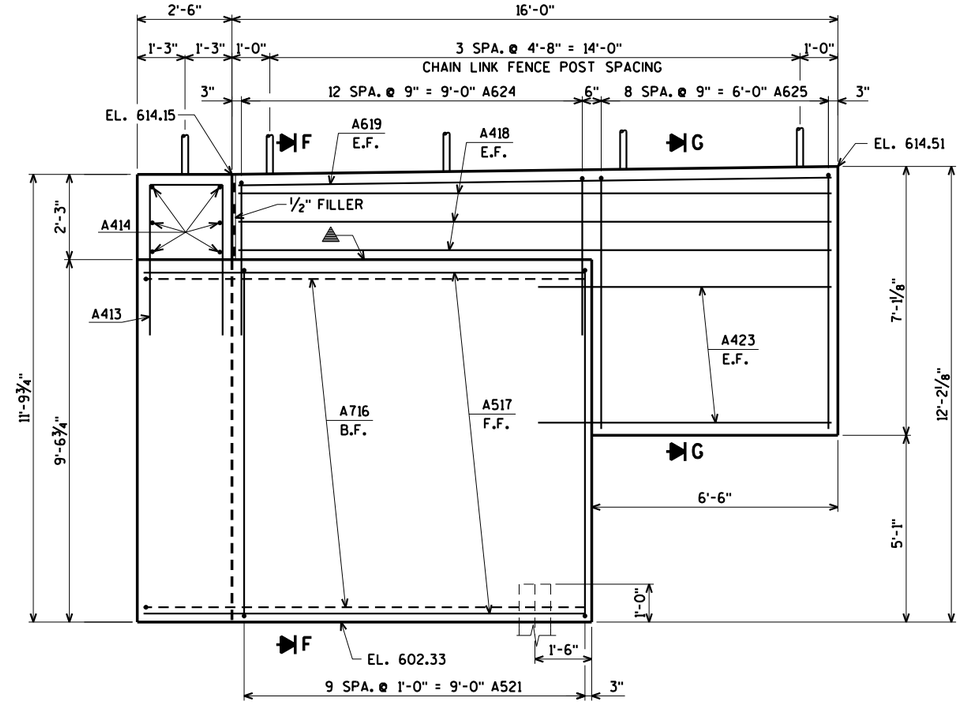
SHEET 4 OF 16
54

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

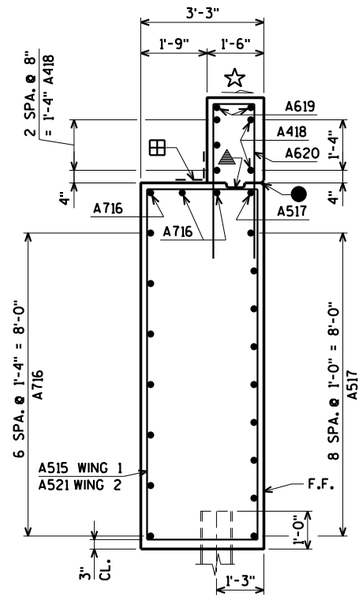
$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_sabut.dgn



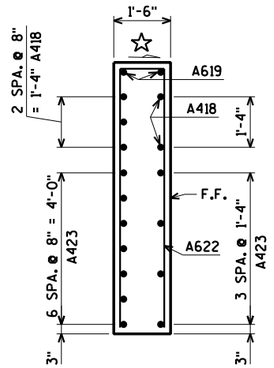
ELEVATION - WING 1



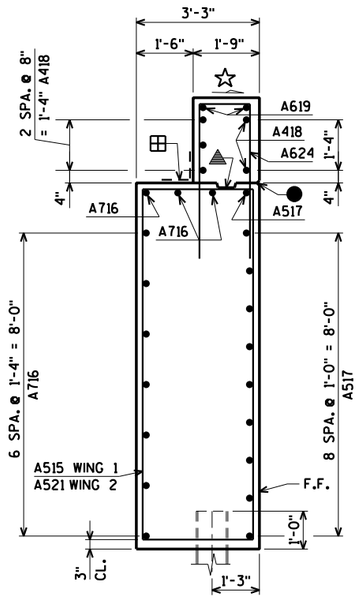
ELEVATION - WING 2



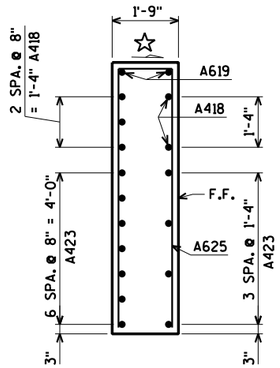
SECTION E



SECTION D



SECTION F



SECTION G

☆ SLOPE SAME AS SUPERSTRUCTURE

● ¾" 'V' GROOVE ON F.F. OF WING WALL

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING.

▲ OPT. CONST. JOINT FORMED BY BEVELED 2" X 6"

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

SOUTH ABUTMENT WING DETAILS

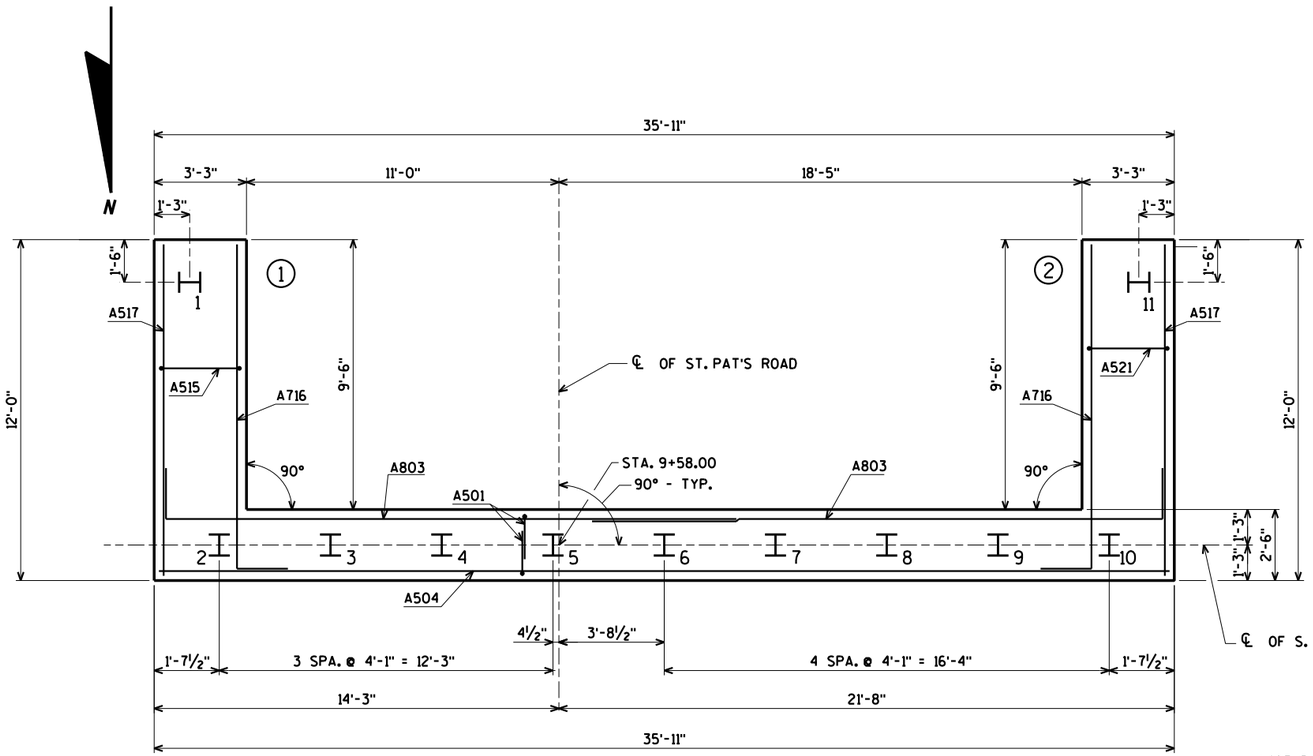
SHEET 5 OF 16
55

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

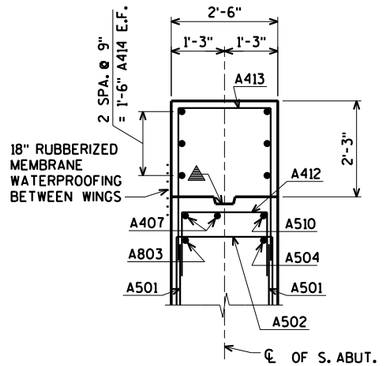
$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_sabut.dgn

STATE PROJECT NUMBER

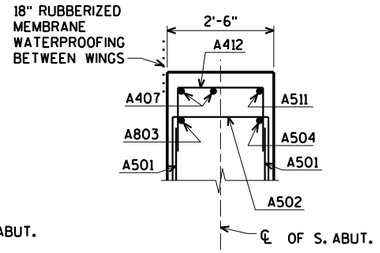
9267-03-71



PILE LAYOUT



SECTION B



SECTION C

A405 BAR SPACING
SPACE TO MISS PILES

BILL OF BARS

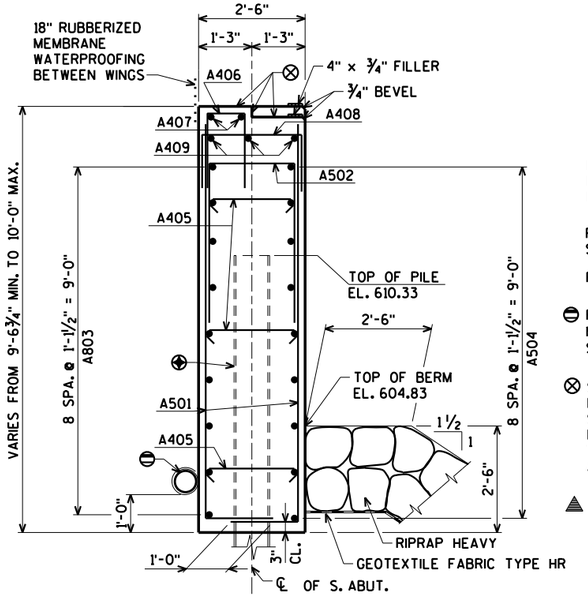
BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	3,220# UNCOATED 1,910# COATED LOCATION
A501		72	10-7	X		BODY VERT. E.F.
A502		36	9-11	X		BODY VERT. TOP
A803		18	21-6	X		BODY HORIZ. B.F.
A504		9	35-7			BODY HORIZ. F.F.
A405		27	2-11	X		BODY TIES
A406		25	3-7	X		BODY VERT. TOP
A407		2	35-7			BODY HORIZ. TOP
A408		11	5-0	X		BODY VERT. TOP
A409		3	10-6			BODY HORIZ. TOP
A510		1	9-1			BODY HORIZ. TOP
A511		1	1-8			BODY HORIZ. TOP
A412		9	5-0	X		BODY VERT. TOP
A413	X	8	10-4	X		BODY VERT. TOP
A414	X	6	7-0			BODY HORIZ. TOP
A415		10	24-9	X		WING 1 VERT.
A716	X	20	12-7	X		WINGS HORIZ. B.F.
A517	X	20	11-7			WINGS HORIZ. F.F.
A418	X	10	15-8			WINGS HORIZ. TOP
A619	X	4	15-8			WINGS HORIZ. TOP
A620	X	13	9-2	X		WING 1 VERT. TOP
A521		10	24-5	X		WING 2 VERT. E.F.
A622	X	9	14-4	X		WING 1 VERT.
A423	X	22	7-9			WINGS HORIZ. E.F.
A624	X	13	9-5	X		WING 2 VERT. TOP
A625	X	9	14-7	X		WING 2 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.



SECTION A

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

FOR LOCATIONS OF SECTIONS A, B, & C SEE SHEET 4.

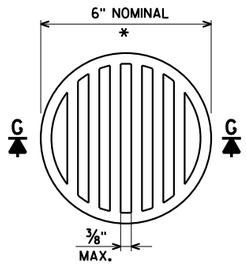
FOR PILE SPLICE DETAIL, SEE SHEET 2.

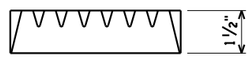
⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

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

▲ KEYED CONST. JOINT FORMED BY BEVELED 2" X 6"

⊕ ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 170 TONS PER PILE. ESTIMATED LENGTH 18'-0" WITH 10'-0" PREBORING





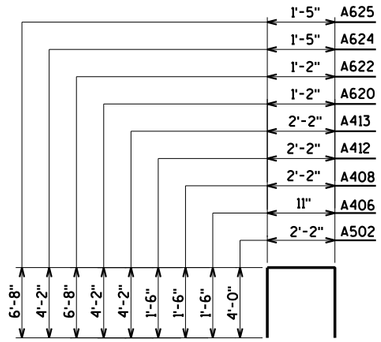
SECTION G-G

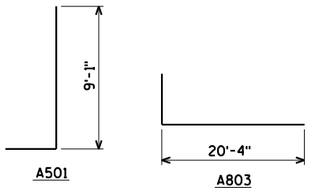
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

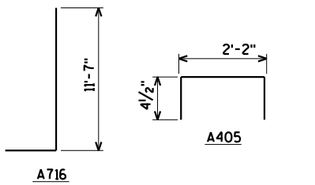
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

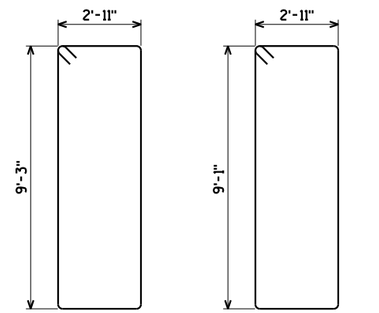
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x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

RODENT SHIELD DETAIL









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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

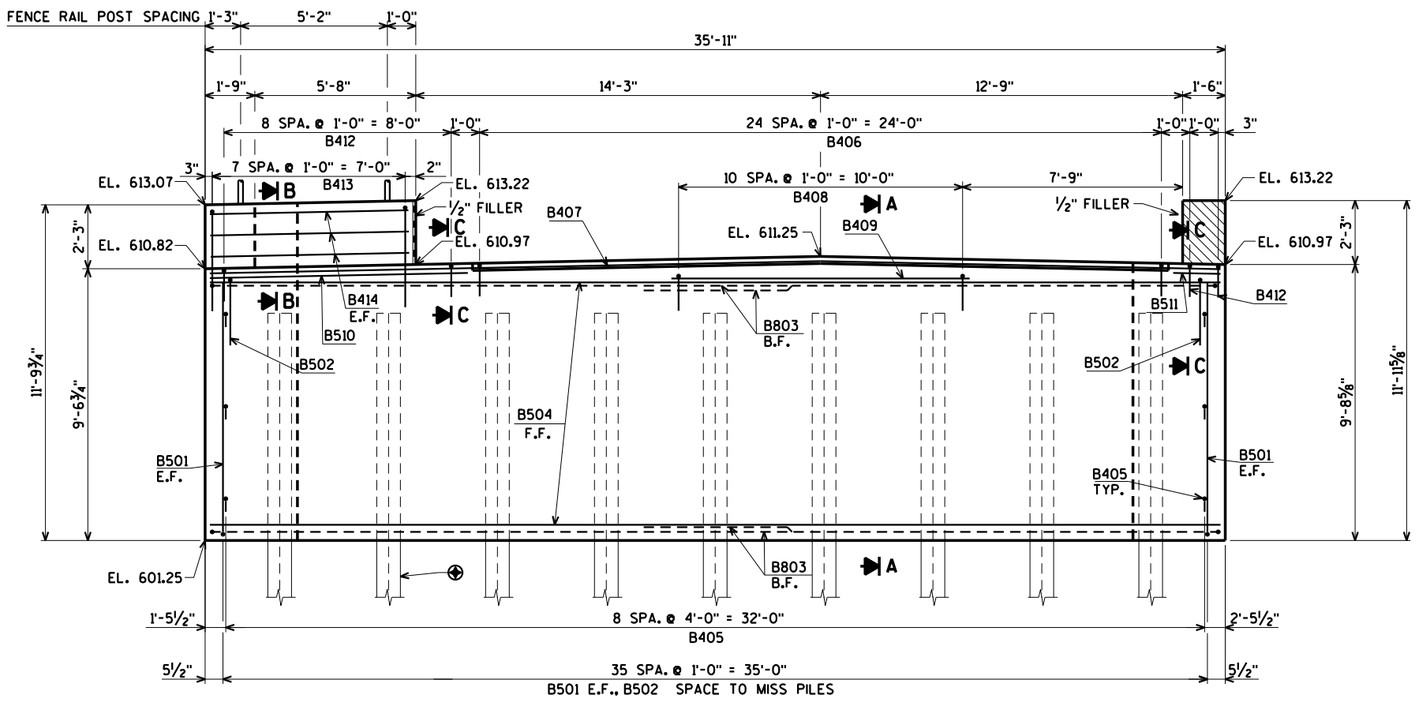
DRAWN BY JCK | PLANS CK'D. AEB

SOUTH ABUTMENT PILE LAYOUT & BILL OF BARS

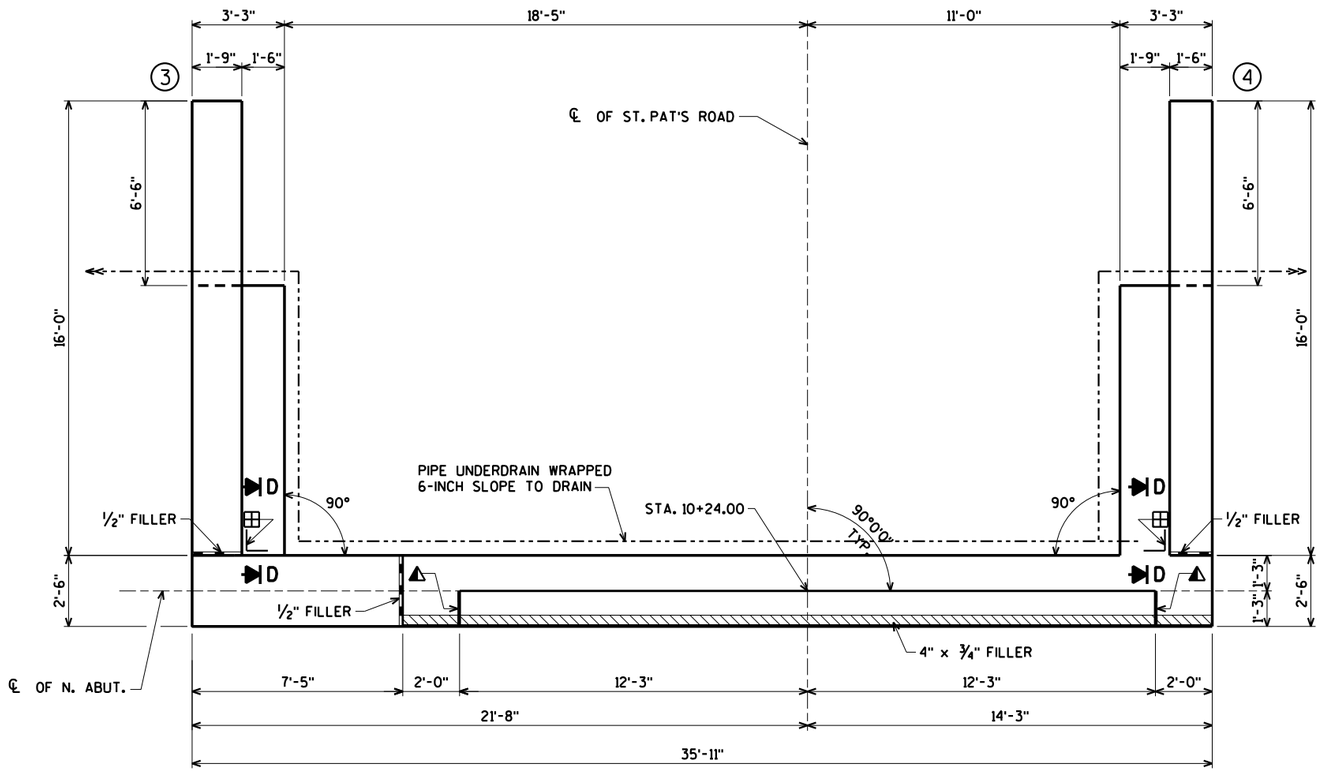
SHEET 6 OF 16
56

8

8

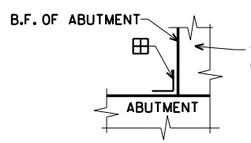


ELEVATION
(LOOKING NORTH)



PLAN

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)



SECTION D

FOR SECTIONS A, B, & C SEE SHEET 9

⊕ ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 170 TONS PER PILE. ESTIMATED LENGTH 20'-0"

▲ ¾" CORK FILLER ON VERTICAL FACE ONLY.

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

FOR PILE SPLICE DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

WING PILING NOT SHOWN IN ELEVATION VIEW. SEE PILE LAYOUT ON SHEET 9

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

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

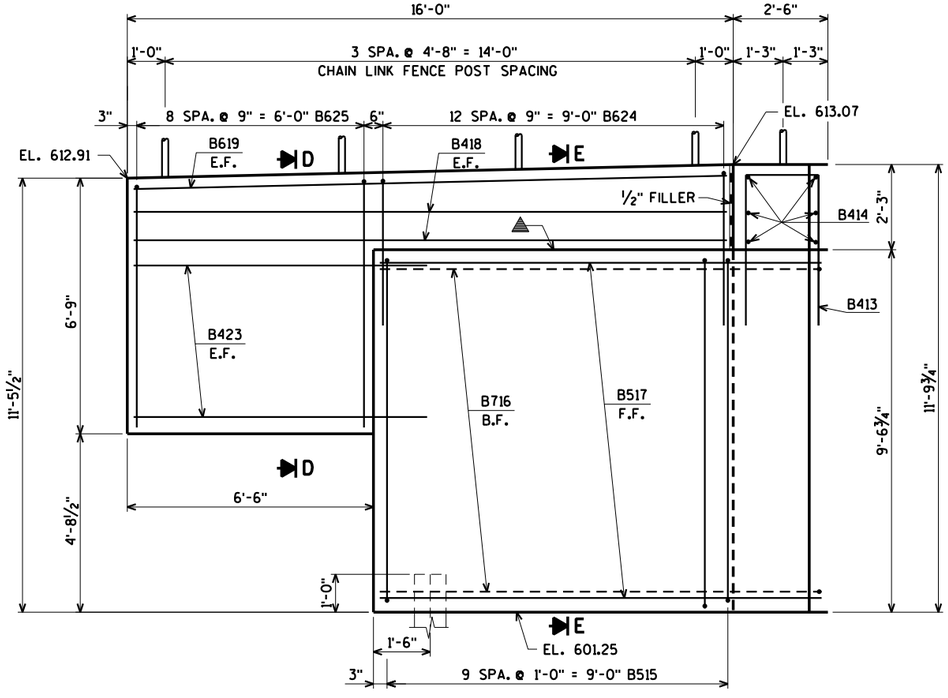
NORTH ABUTMENT

SHEET 7 OF 16
57

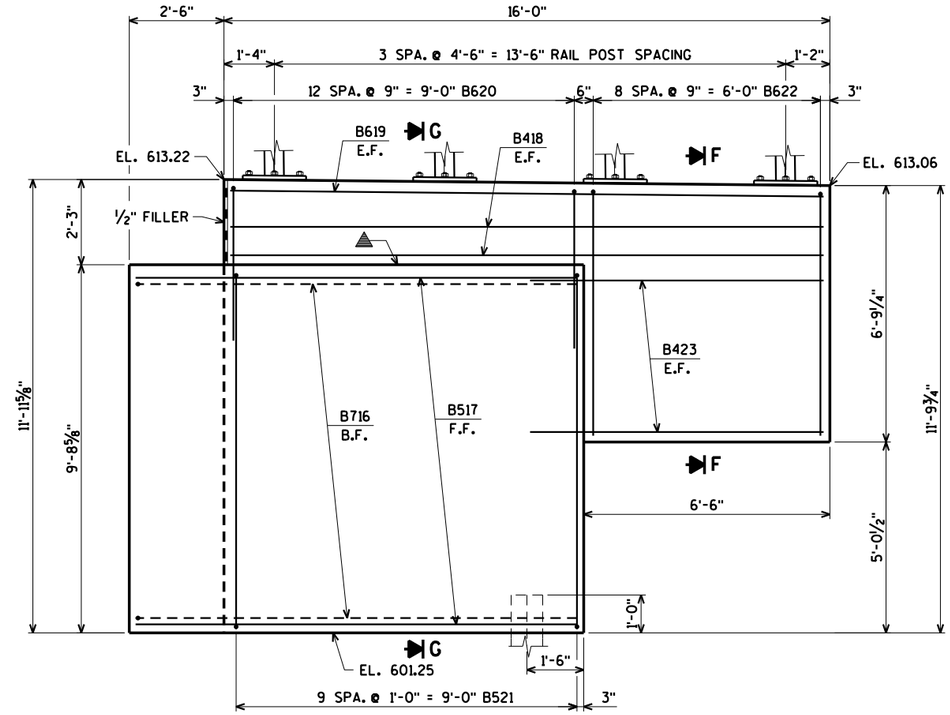
8

8

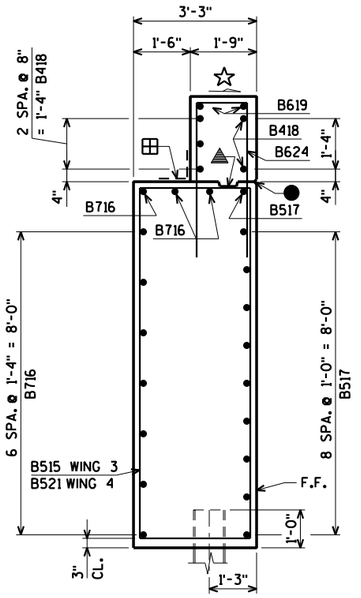
$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_nabut.dgn



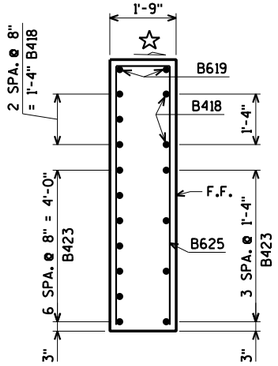
ELEVATION - WING 3



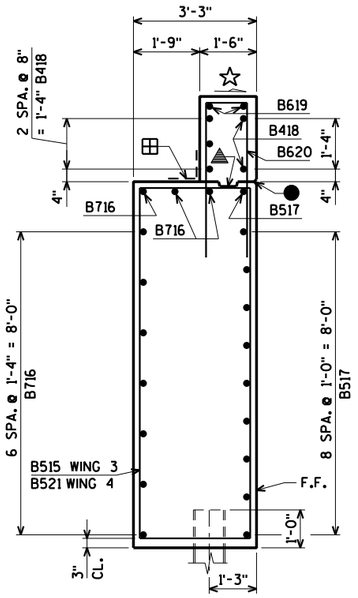
ELEVATION - WING 4



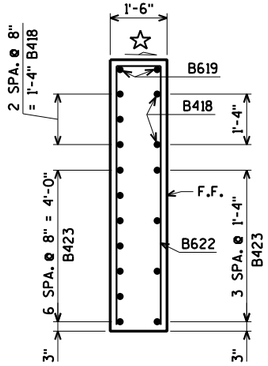
SECTION E



SECTION D



SECTION G



SECTION F

☆ SLOPE SAME AS SUPERSTRUCTURE

● ¾" 'V' GROOVE ON F.F. OF WING WALL

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING.

▲ OPT. CONST. JOINT FORMED BY BEVELED 2" X 6"

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

NORTH ABUTMENT WING DETAILS

SHEET 8 OF 16
58

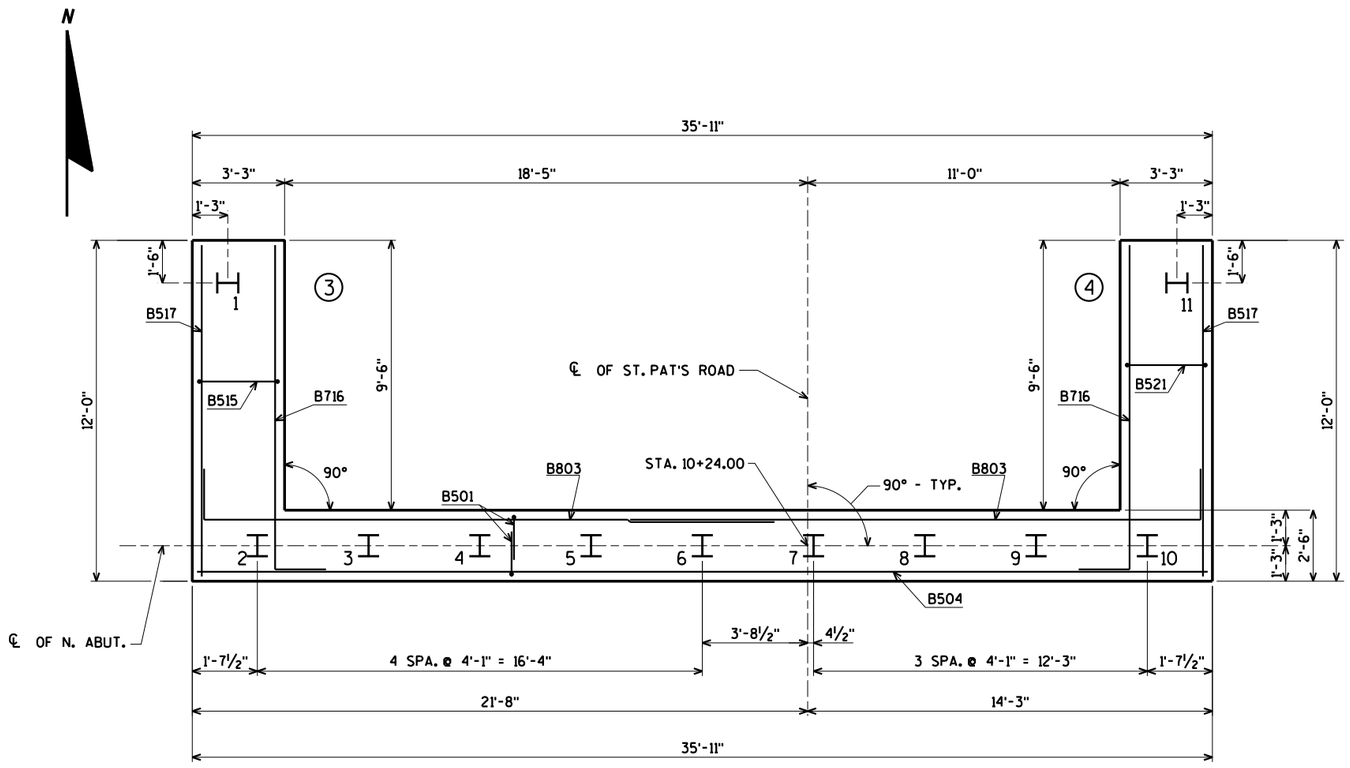
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:\45-0378.00 - Brown County, St. Pat's Road over Suamico River\BRIDGE\450378_nabut.dgn

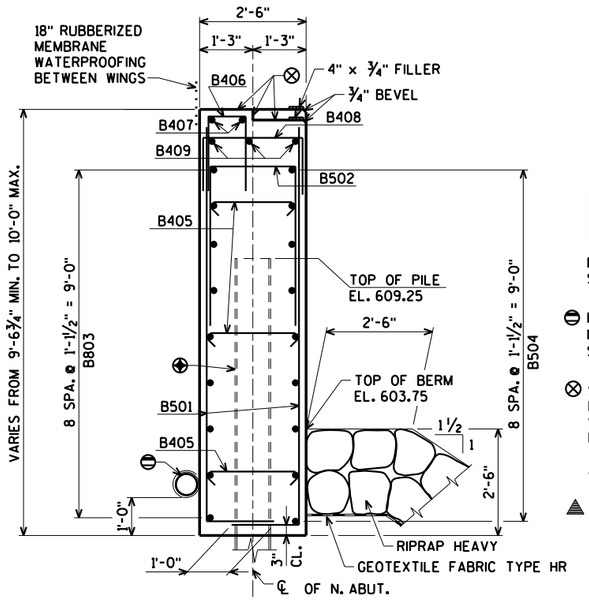
$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_nabut.dgn

STATE PROJECT NUMBER

9267-03-71



PILE LAYOUT



SECTION A

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

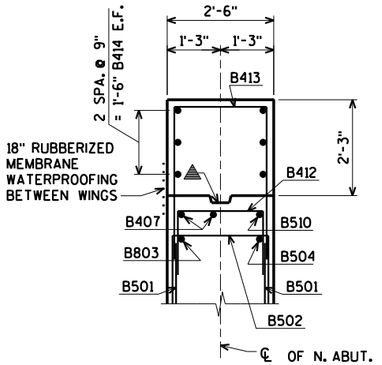
FOR LOCATIONS OF SECTIONS A, B, & C SEE SHEET 7.

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

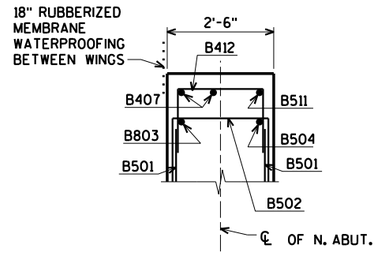
⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHELENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

▲ KEYED CONST. JOINT FORMED BY BEVELED 2" X 6"

⊕ ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 170 TONS PER PILE. ESTIMATED LENGTH 20'-0"



SECTION B



SECTION C

BILL OF BARS

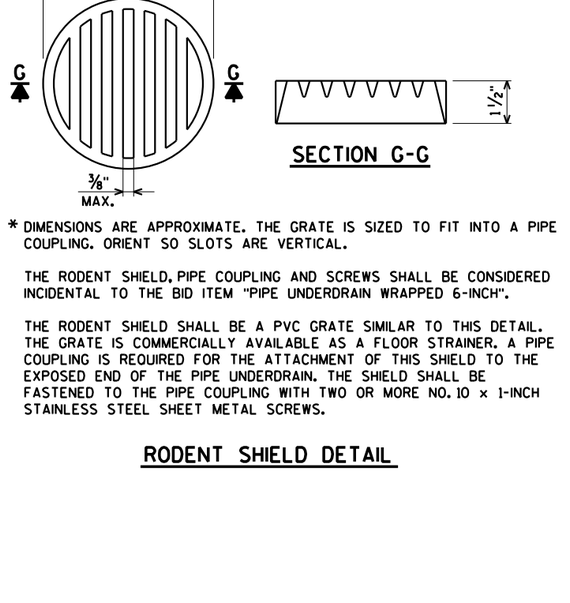
BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	3,220# UNCOATED 1,910# COATED LOCATION
B501		72	10-7	X		BODY VERT. E.F.
B502		36	9-11	X		BODY VERT. TOP
B803		18	21-6	X		BODY HORIZ. B.F.
B504		9	35-7			BODY HORIZ. F.F.
B405		27	2-11	X		BODY TIES
B406		25	3-7	X		BODY VERT. TOP
B407		2	35-7			BODY HORIZ. TOP
B408		11	5-0	X		BODY VERT. TOP
B409		3	10-6			BODY HORIZ. TOP
B510		1	9-1			BODY HORIZ. TOP
B511		1	1-8			BODY HORIZ. TOP
B412		9	5-0	X		BODY VERT. TOP
B413	X	8	10-4	X		BODY VERT. TOP
B414	X	6	7-0			BODY HORIZ. TOP
B415		10	24-5	X		WING 3 VERT.
B716	X	20	12-7	X		WINGS HORIZ. B.F.
B517	X	20	11-7			WINGS HORIZ. F.F.
B418	X	10	15-8			WINGS HORIZ. TOP
B619	X	4	15-8			WINGS HORIZ. TOP
B620	X	13	9-2	X		WING 4 VERT. TOP
B521		10	24-9	X		WING 4 VERT. E.F.
B622	X	9	14-4	X		WING 4 VERT.
B423	X	22	7-9			WINGS HORIZ. E.F.
B624	X	13	9-5	X		WING 3 VERT. TOP
B625	X	9	14-7	X		WING 3 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.



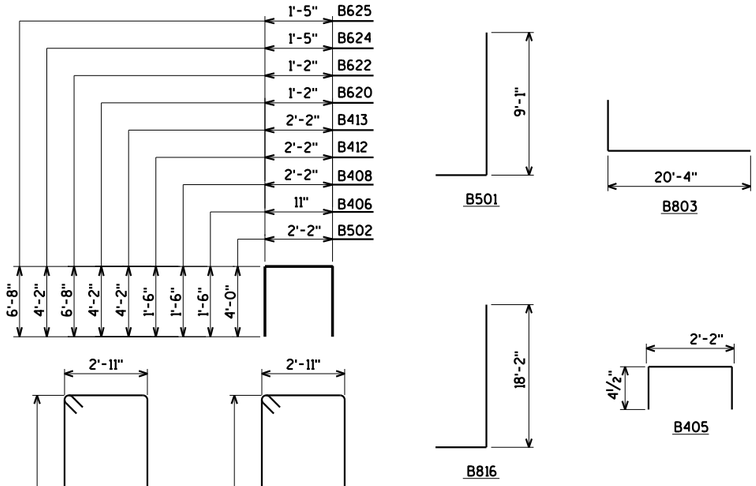
SECTION G-G

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

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

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

RODENT SHIELD DETAIL



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

NORTH ABUTMENT PILE LAYOUT & BILL OF BARS

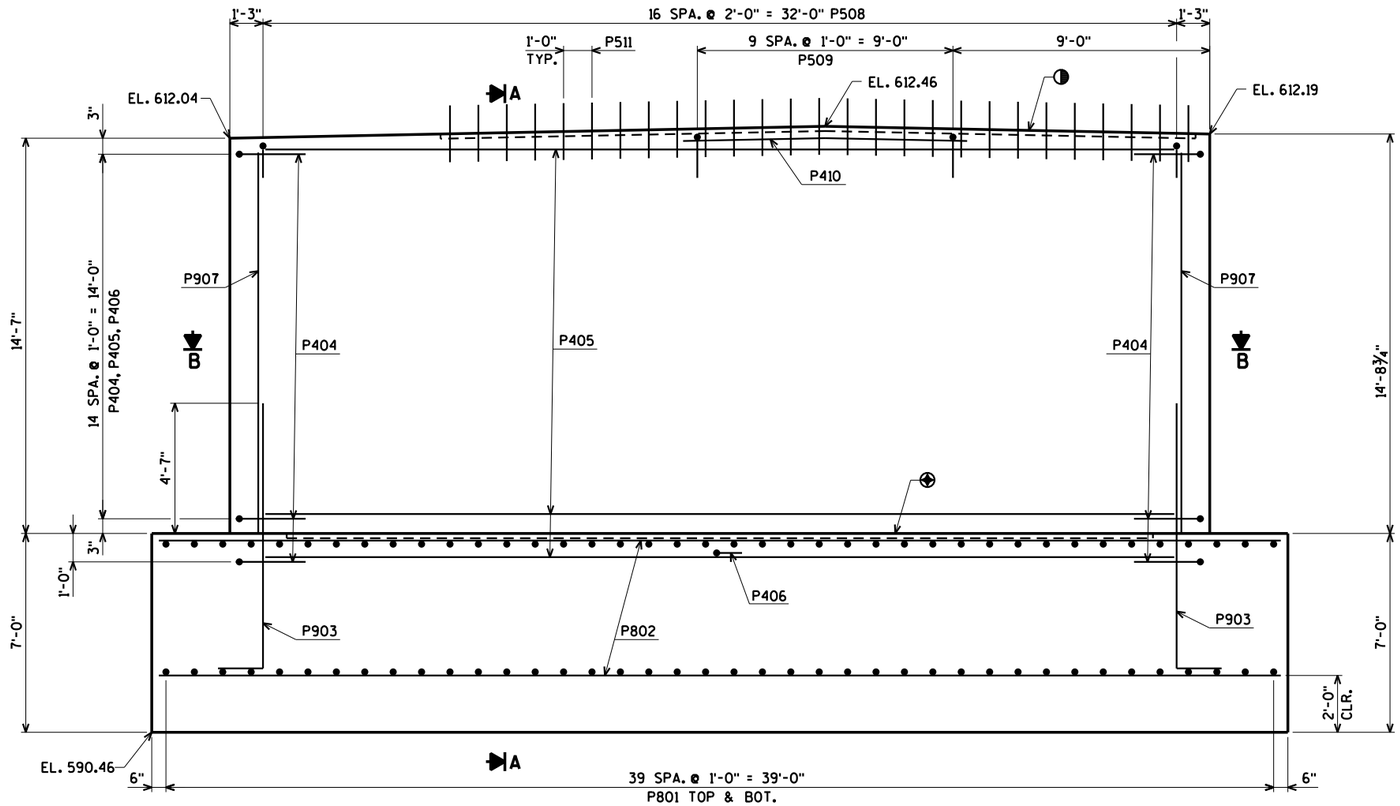
SHEET 9 OF 16
59

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

$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_pier.dgn

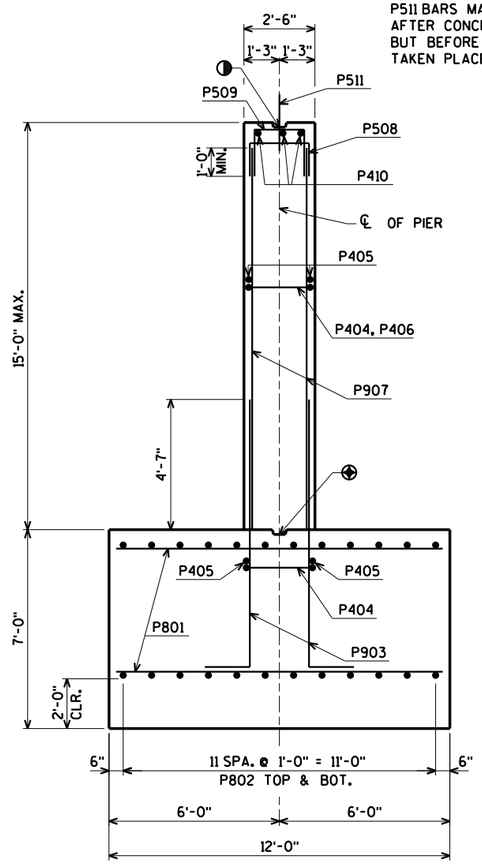
STATE PROJECT NUMBER

9267-03-71



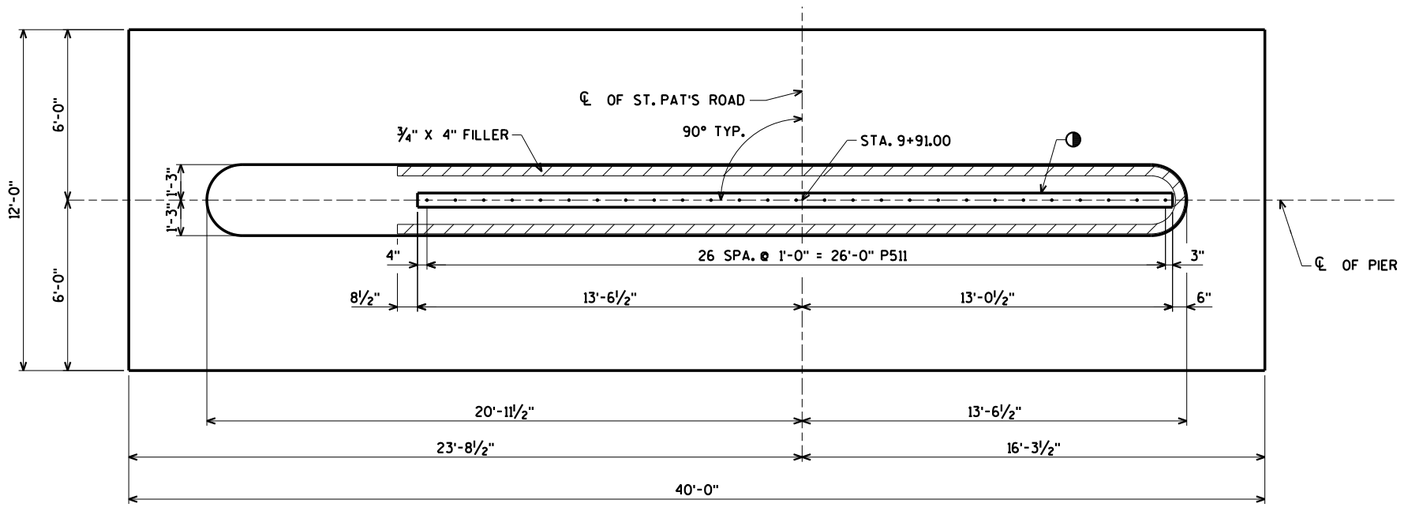
ELEVATION
(LOOKING NORTH)

FOR SECTION B,
SEE SHEET 11.



SECTION A

P511 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.



PLAN

N

FOOTING TO BE PLACED ON SOUND MATERIAL WITH REQUIRED FACTORED BEARING RESISTANCE OF 25 TONS PER SQUARE FOOT.

⊕ KEYED CONST. JOINT - FORMED BY BEVELED KEYWAY 4" X 10" X 30'-6"

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

PIER

SHEET 10 OF 16
60

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

8

8

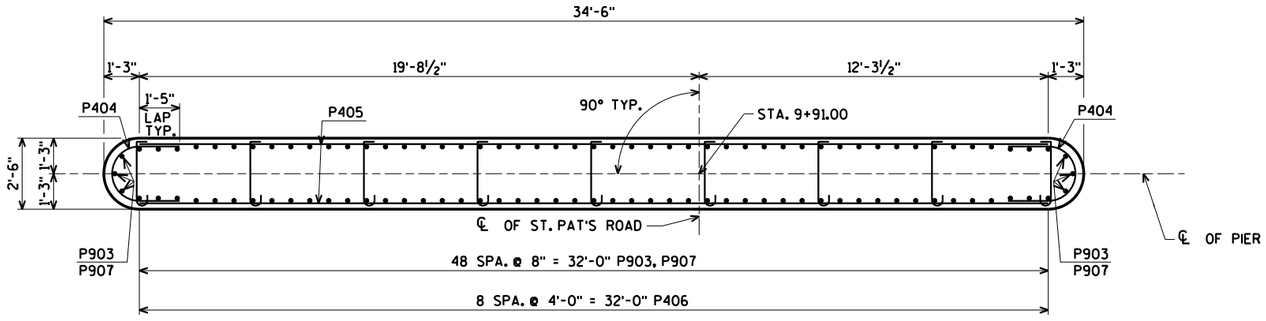
$PRFNAME$
U:\45-0378.00 - Brown County, St. Pat's Road over Suamico River\BRIDGE\450378_pier.dgn

STATE PROJECT NUMBER
9267-03-71

BILL OF BARS

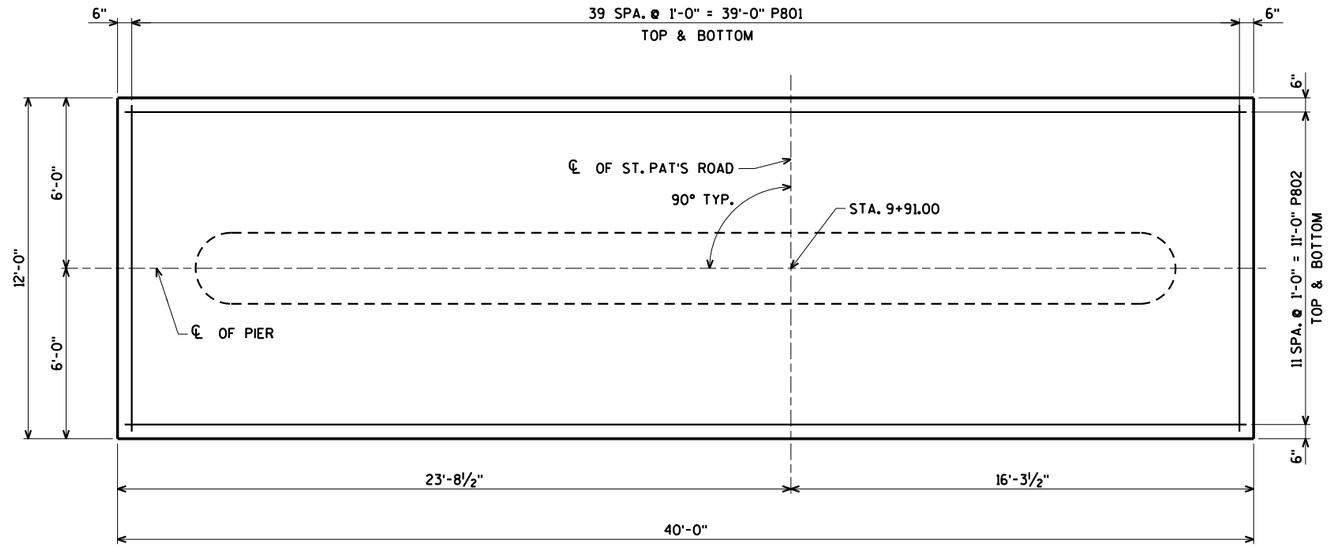
BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	15.240" UNCOATED LOCATION
P801		80	11-6			FOOTING LONG. TOP & BOTTOM
P802		24	39-6			FOOTING TRANS. TOP & BOTTOM
P903		104	10-11	X		FOOTING DOWELS
P404		32	6-6	X		FOOTING & COLUMN HORIZ.
P405		32	32-0			FOOTING & COLUMN HORIZ.
P406		144	3-2	X		FOOTING & COLUMN HORIZ.
P907		104	14-4			COLUMN VERT.
P508		17	4-0	X		COLUMN TOP
P509		10	4-4	X		COLUMN TOP
P410		3	10-0			COLUMN TOP HORIZ.
P511		27	2-0			COLUMN DOWELS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

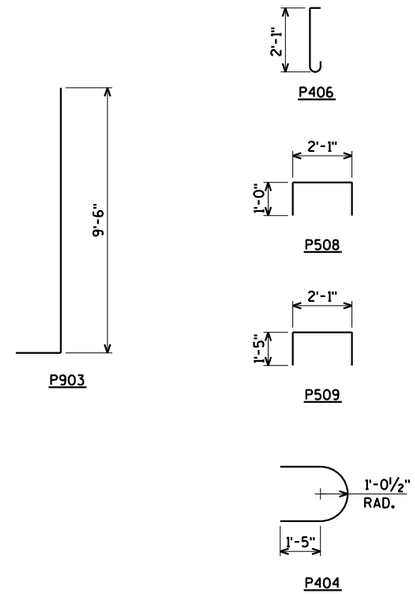


SECTION B

FOR LOCATION OF SECTION B,
SEE SHEET 10



FOOTING LAYOUT



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

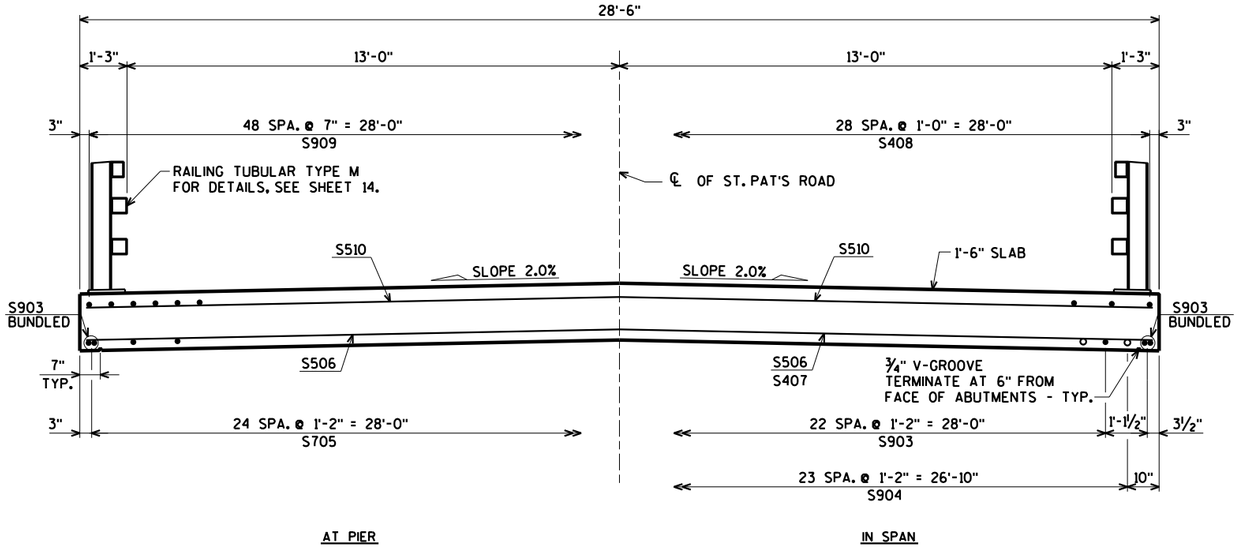
PIER DETAILS

SHEET 11 OF 16
61

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

8

8



CROSS SECTION THRU ROADWAY
(LOOKING NORTH)

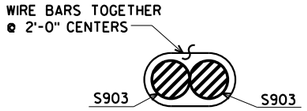
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

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

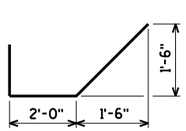
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	21,220# COATED LOCATION
S501	X	58	5-4	X		SLAB @ ABUT.
S502	X	58	3-3	X		SLAB @ ABUT.
S903	X	54	31-6		X	SLAB LONG. BOT.
S904	X	48	22-0			SLAB LONG. BOT.
S705	X	25	12-10			SLAB LONG. BOT. @ PIER
S506	X	53	28-2			SLAB TRANS. BOT.
S407	X	20	28-2			SLAB TRANS. BOT.
S408	X	58	18-4			SLAB LONG. TOP
S909	X	49	24-7			SLAB LONG. TOP @ PIER
S510	X	69	28-2			SLAB TRANS. TOP
S611	X	16	6-0	X		SLAB @ END RAIL POSTS
S612	X	80	6-0			SLAB @ INT. RAIL POSTS
S613	X	48	12-0	X		SLAB @ RAIL POSTS
S414	X	50	3-3	X		SLAB @ ABUT. NOTCH
S415	X	4	24-2			SLAB @ ABUT. NOTCH

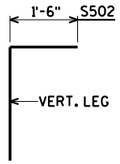
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

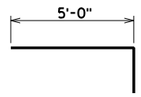


BUNDLING DETAIL

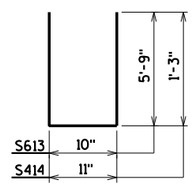


S501





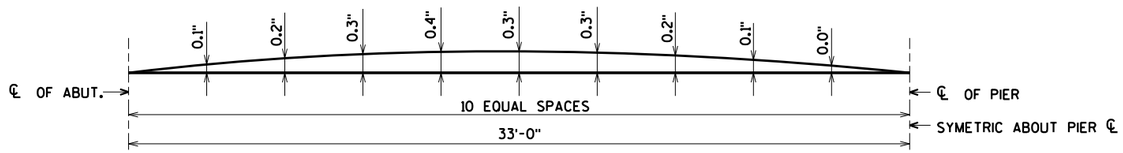
S611



TOP OF DECK ELEVATIONS

LOCATION	℄ OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF PIER	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF N. ABUT.
W. EDGE OF SLAB	614.30	614.23	614.16	614.09	614.03	613.96	613.90	613.84	613.78	613.73	613.67	613.62	613.57	613.52	613.47	613.42	613.38	613.33	613.29	613.25	613.22
℄ OF ROAD	614.58	614.51	614.44	614.38	614.31	614.25	614.19	614.13	614.07	614.01	613.96	613.90	613.85	613.80	613.75	613.71	613.66	613.62	613.58	613.54	613.50
E. EDGE OF SLAB	614.30	614.23	614.16	614.09	614.03	613.96	613.90	613.84	613.78	613.73	613.67	613.62	613.57	613.52	613.47	613.42	613.38	613.33	613.29	613.25	613.22

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



CAMBER DIAGRAM

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

SUPERSTRUCTURE

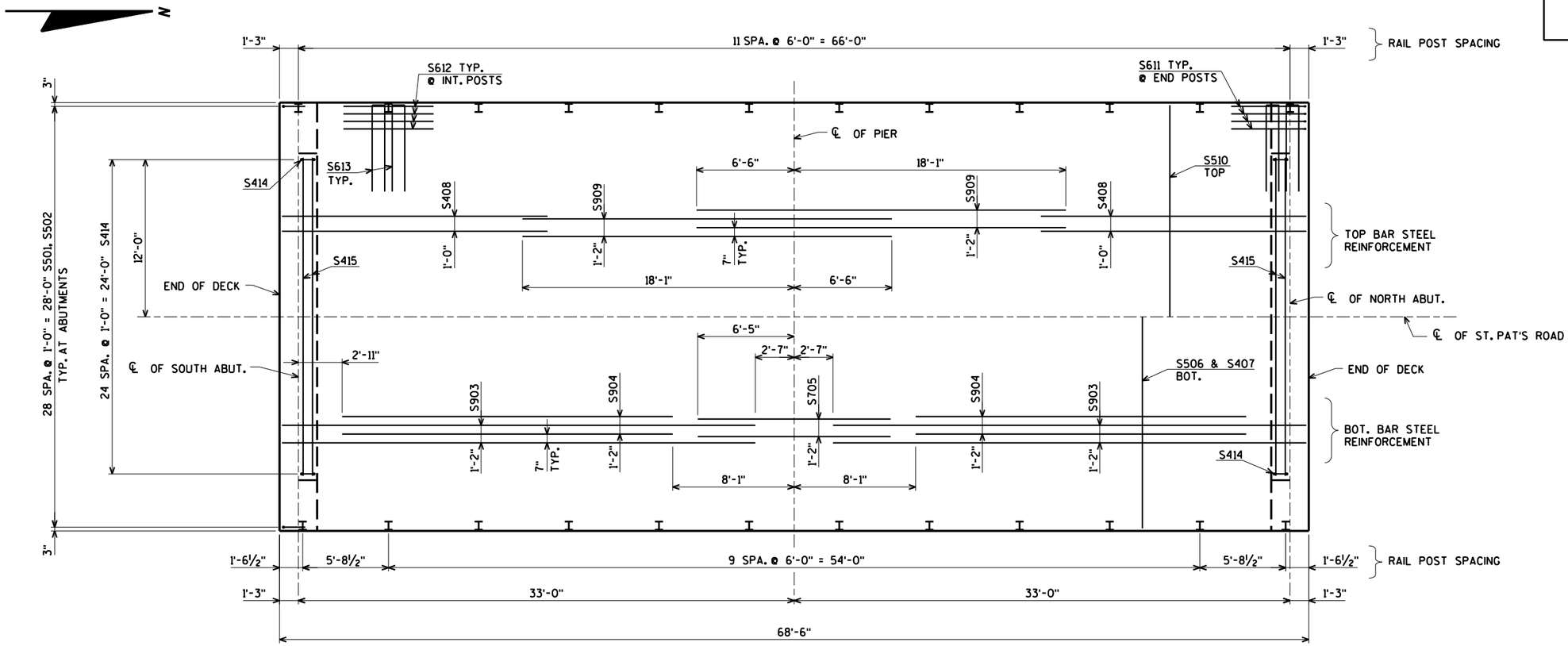
SHEET 12 OF 16
62

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

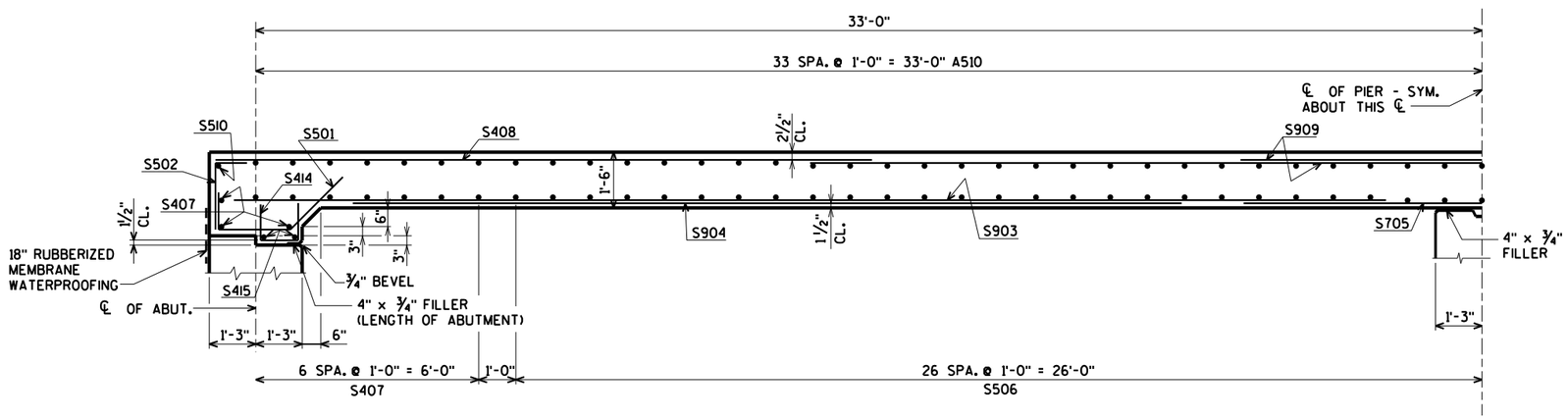
$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_sup.dgn

STATE PROJECT NUMBER

9267-03-71



PLAN



PART LONGITUDINAL SECTION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

SUPERSTRUCTURE DETAILS

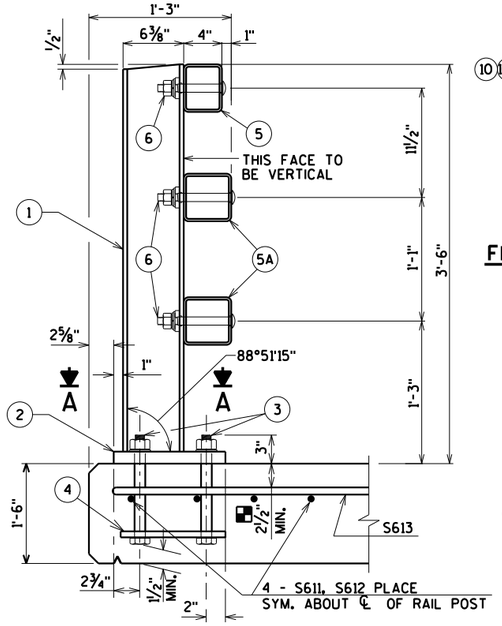
SHEET 13 OF 16
63

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

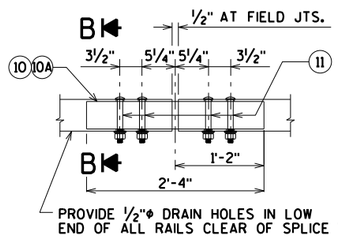
$PRFNAME$
U:±45-0378.00 - Brown County, St. Pat's Road over Suamico River±BRIDGE±450378_sup.dgn
10/27/2015
PENTABLE:BReau_shd_util.tbl

8

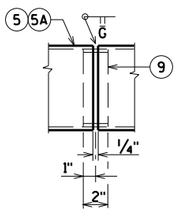
8



SECTION THRU RAILING ON DECK

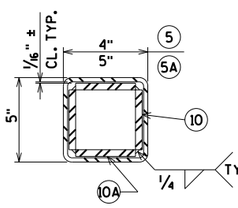


FIELD ERECTION JOINT DETAIL

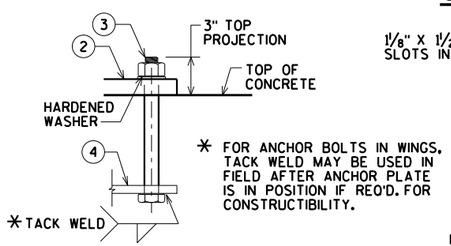


SHOP RAIL SPLICE DETAIL

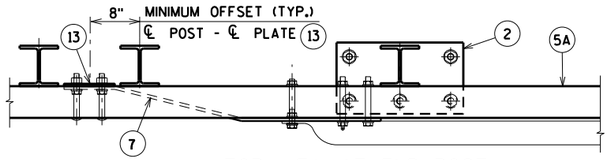
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



SECTION B

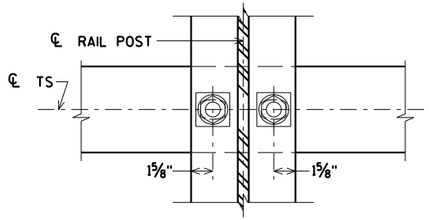


ANCHOR BOLTS

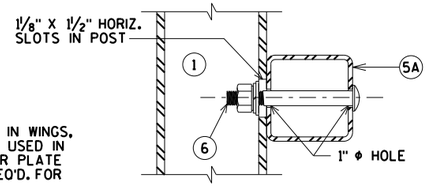


TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)



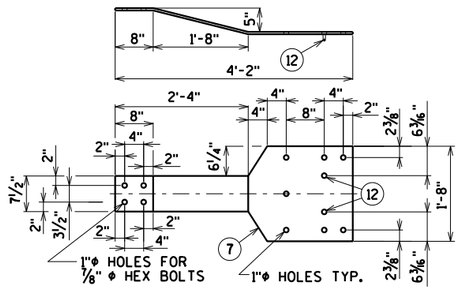
SECTION THRU POST WEB



SECTION THRU RAIL

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

TYPICAL RAIL TO POST CONNECTIONS



BACK-UP PLATE DETAIL

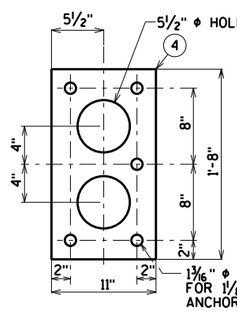
(AT BEAM GUARD ATTACHMENT)

LEGEND

1. W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1¼" x 11¾" x 1'-8" WITH 1⅝" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
3. ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. ~~USE 10¾" LONG AT ALL OTHER LOCATIONS.~~ (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)
4. ⅝" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1³⁄₁₆" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".
10. ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
11. ⅞" Φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1⅝" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 1⅝" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS~~ IN PLATE NO. 10A.
12. ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" Φ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

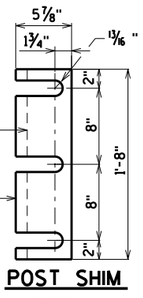
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-5-420" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. ~~WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.~~
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

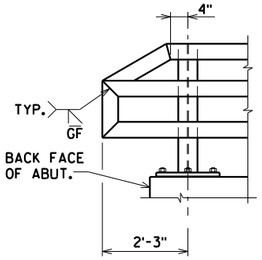


ANCHOR PLATE

(AT RAIL TO DECK CONNECTION)

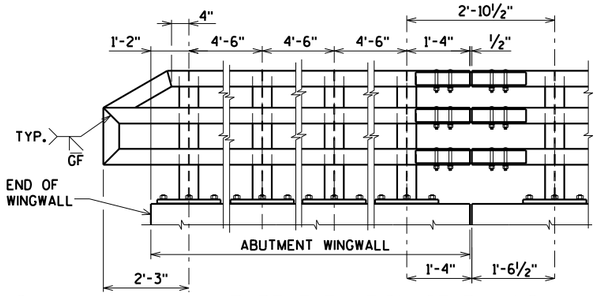


POST SHIM DETAIL



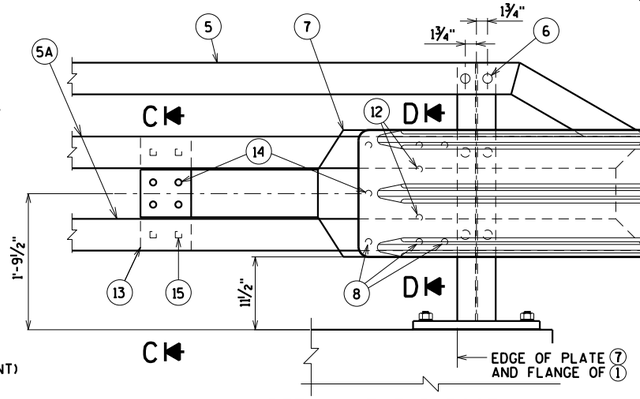
PART ELEVATION OF RAILING

(AT WING 2 & WING 3)

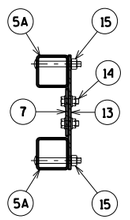


PART ELEVATION OF RAILING

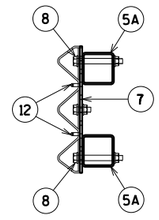
(AT WING 1 & WING 4)



DETAIL AT END POST



SECTION C



SECTION D

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

RAILING TUBULAR TYPE M

SHEET 14 OF 16
64

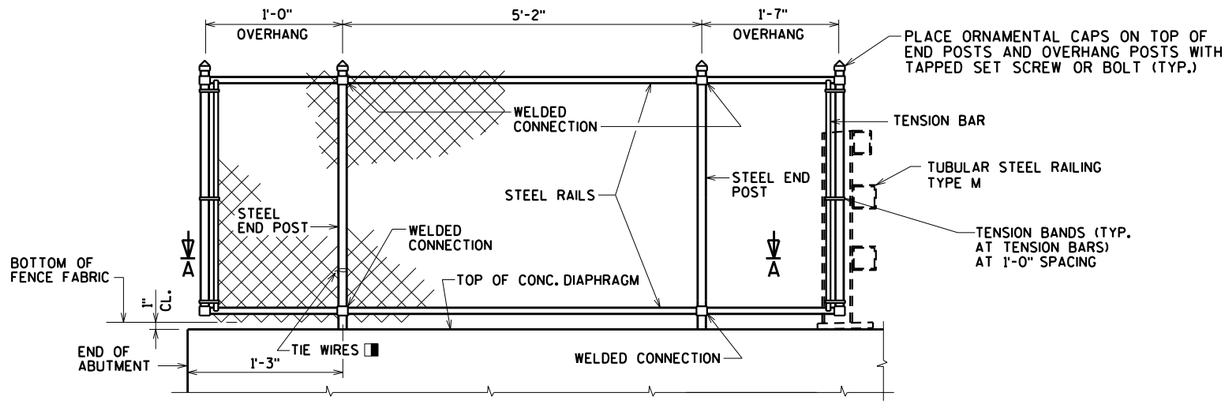
$PRFNAME$
U:\45-0378.00 - Brown County, St. Pat's Road over Suamico River\BRIDGE\450378 Mrail.dgn

10/27/2015

PENTABLE:BReau_shd_util.tbl

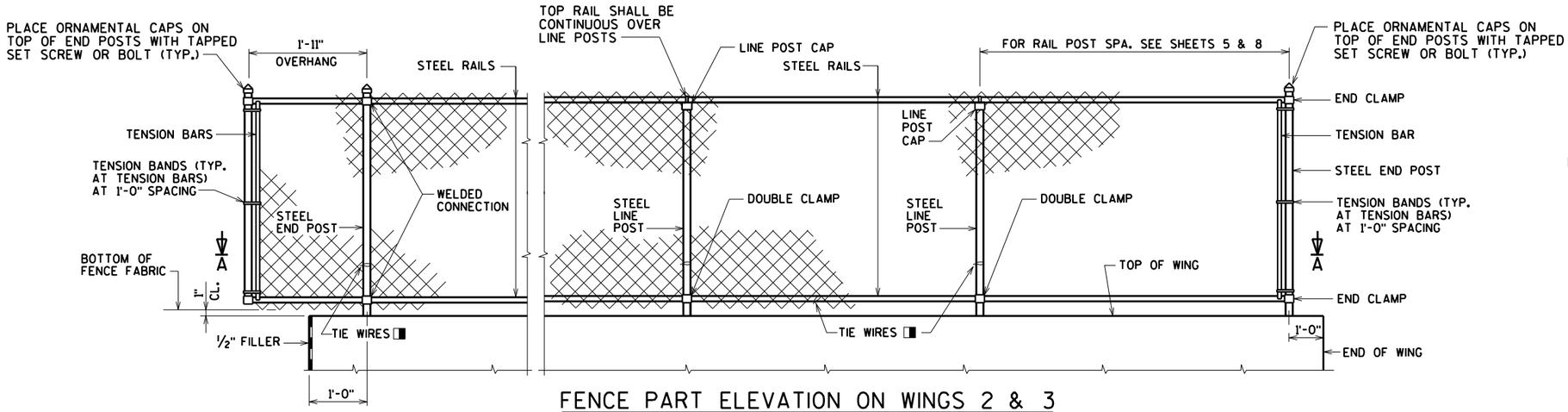
STATE PROJECT NUMBER

9267-03-71



FENCE PART ELEVATION ON ABUTMENT

VIEWING NON FABRIC SIDE
(WING 3 SHOWN, WING 2)



FENCE PART ELEVATION ON WINGS 2 & 3

VIEWING FABRIC SIDE
(WING 2 SHOWN, WING 3 SIMILAR)

FOR SECTION A, SEE SHEET 16.

◨ ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

CHAIN LINK FENCE ELEVATION

SHEET 15 OF 16
65

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

8

8

$PRFNAME$
U:\45-0378.00 - Brown County, St. Pat's Road over Suamico River\BRIDGE\450378_fence.dgn

10/27/2015

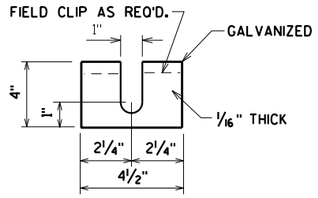
PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

9267-03-71

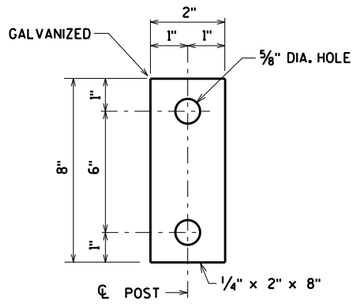
FENCE MEMBER SIZE & WEIGHT

STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.875	5.80
OVERHANG POST	2.875	5.80
LINE POST	2.375	3.65
POST SLEEVE	4.000	9.12

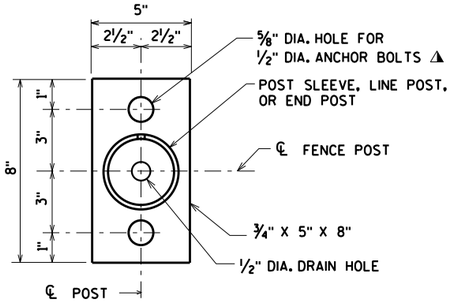


POST SHIM DETAILS

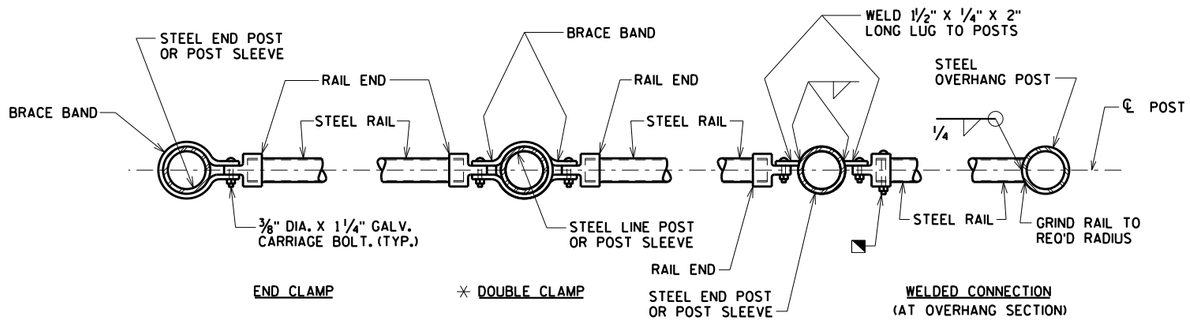
SHIMS REQUIRED ONLY WHEN END POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.



ANCHOR PLATE

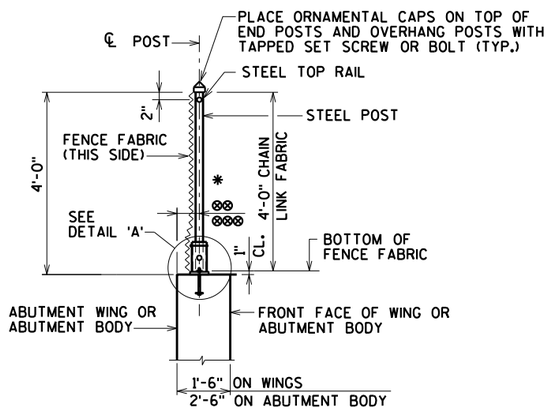


BASE PLATE

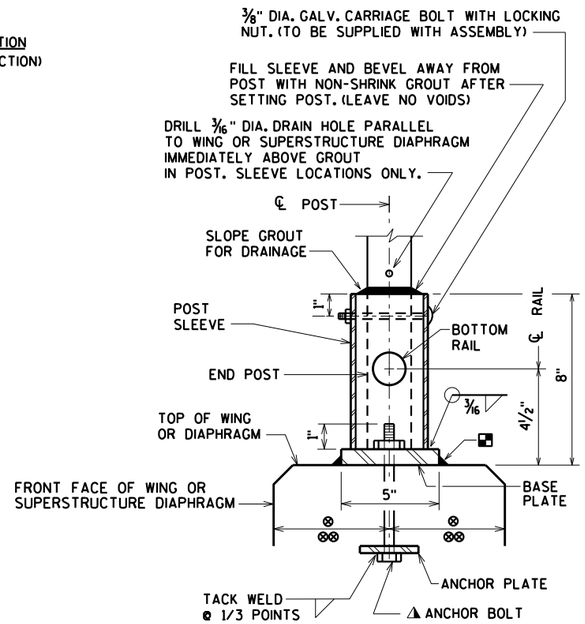


SECTION A-A

NOTE: PLACE ALL BOLT HEADS ON SIDE OF FENCE ADJACENT TO PEDESTRIANS



SECTION THRU FENCE



DETAIL 'A'

UNIT SHALL BE GALVANIZED AFTER FABRICATION

NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.

GENERAL NOTES

POSTS ARE TO BE SET VERTICAL.

ALL FENCE COMPONENTS SHALL BE GALVANIZED STEEL, EXCEPT THE FENCE FABRIC WHICH MAY BE ALUMINUM-COATED STEEL OR GALVANIZED STEEL.

FABRIC SHALL CONFORM TO ASTM A491 OR A392, CLASS 2. STEEL RAILS, POSTS AND POST SLEEVES SHALL CONFORM TO ASTM F1083, STANDARD WEIGHT PIPE (SCHEDULE 40). FITTINGS SHALL CONFORM TO ASTM F626.

COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.

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

BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.

THE BID ITEM SHALL BE "FENCE CHAIN LINK 4-FT", LF.

◪ CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

△ ½" DIA. X 6⅞" LONG GALVANIZED HEX BOLT WITH NUT & WASHER. TYPE "S". ½" DIA. CONCRETE MASONRY ANCHORS MAY BE SUBSTITUTED FOR ½" DIA. BOLTS. ANCHOR PLATE NOT REQUIRED WHEN TYPE "S" ANCHORS ARE USED. SEE ☆

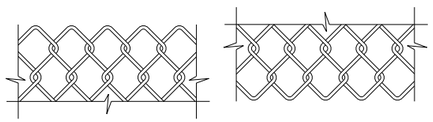
☆ MASONRY ANCHOR, TYPE "S", ½-INCH. EMBED 6" IN CONCRETE. ANCHOR, WASHER, AND NUT SHALL BE GALVANIZED.

◨ ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".

◥ BOLT RAIL TO RAIL END TO SECURE OVERHANG SECTION. ALTERNATE IS TO WELD RAIL DIRECTLY TO END POST.

✳ ALTERNATE TO DOUBLE CLAMP: USE LINE RAIL CLAMP (BOULEVARD) OR 180° BRACE BAND, WHICH MAY BE USED WHEN THE POSTS ARE EITHER BOLTED TO THE POST SLEEVES OR DIRECTLY WELDED TO THE BASE PLATE.

⊗ 9" ON WINGS
⊗⊗ 1'-3" ON ABUTMENT BODY



TOP DETAIL BOTTOM DETAIL

FENCE FABRIC

FENCE FABRIC WOVEN OF 9-GAGE WIRE IN 2" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-420

DRAWN BY JCK | PLANS CK'D. AEB

CHAIN LINK FENCE DETAILS

SHEET 16 OF 16
66

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

8

8

$PRFNAME$
U:\45-0378.00 - Brown County, St. Pat's Road over Suamico River\BRIDGE\450378_fence.dgn

EARTHWORK - ST PATS ROAD (SE SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.3	Expanded Marsh Backfill 1.50	Mass Ordinate
					Note 1	Note 2	Note 3		Note 1		Note 4	Note 7
7+39.30	0.0	0.0	0.0	0.0								
7+50.00	2.3	0.0	3.8	0.0	0	0	1	0	0	1	0	-1
8+00.00	45.1	0.0	7.7	0.0	44	0	11	0	44	15	0	30
8+05.00	51.6	5.0	4.7	0.0	9	0	1	0	53	16	0	37
		TOTALS:			53	0	13	0				

EARTHWORK - ST PATS ROAD (SW SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.30	Expanded Marsh Backfill 1.50	Mass Ordinate
					Note 1	Note 2	Note 3		Note 1		Note 4	Note 7
7+39.30	0.0	0.0	0.0	0.0								
7+50.00	25.5	0.0	0.6	0.0	5	0	0	0	5	0	0	5
8+00.00	76.4	0.0	7.2	0.0	94	0	7	0	99	10	0	90
8+05.00	84.6	5.0	4.1	0.0	15	0	1	0	114	11	0	103
		TOTALS:			114	0	8	0				

EARTHWORK - ST PATS ROAD

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.30	Expanded Marsh Backfill 1.50	Mass Ordinate
					Note 1	Note 2	Note 3		Note 1		Note 4	Note 7
8+05.00	174.6	5.0	10.2	0.0								
8+37.60	125.5	5.0	29.8	37.8	181	6	24	23	181	31	34	144
8+50.00	53.6	5.0	40.8	35.9	41	2	16	17	222	52	60	162
8+62.00	35.6	5.0	55.8	35.8	20	2	21	16	242	80	84	151
8+66.10	34.6	5.0	57.5	35.8	5	1	9	5	247	92	92	145
8+87.60	30.2	5.0	54.9	36.7	26	4	45	29	273	150	135	108
8+91.10	30.0	5.0	55.8	31.8	4	1	7	4	277	159	142	102
9+00.00	27.1	5.0	58.9	34.9	9	2	19	11	287	184	158	85
9+16.00	23.0	5.0	67.9	25.8	15	3	38	18	301	232	185	48
9+56.75	23.0	5.0	67.8	25.2	35	8	102	38	336	366	243	-58
10+00.00												
10+25.25	38.1	5.0	47.7	14.0								
10+50.00	38.1	5.0	47.7	14.1	35	5	44	13	371	422	262	-84
10+78.40	45.0	5.0	41.9	18.2	44	5	47	17	415	484	288	-107
10+81.90	45.0	5.0	43.6	16.3	6	1	6	2	421	491	291	-109
11+00.00	41.1	5.0	48.5	32.9	29	3	31	16	449	531	316	-124
		TOTALS:			449	42	409	210				

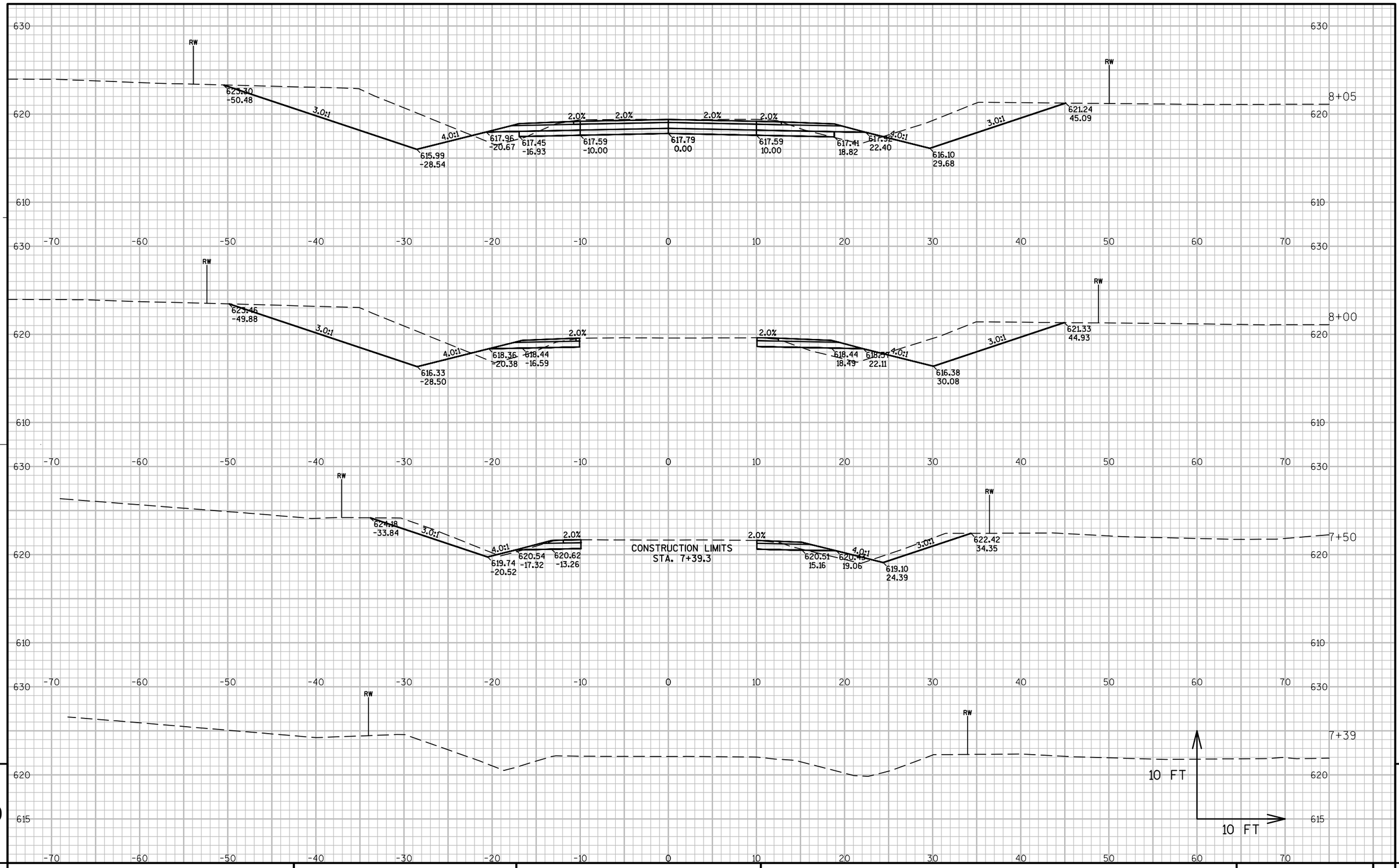
EARTHWORK - ST PATS ROAD (NE SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
					Note 1	Note 2	Note 3		1.00 Note 1	1.30	1.50 Note 4	Note 7
11+00.00	6.2	0.0	16.7	15.2								
11+03.40	3.6	0.0	13.4	13.4	1	0	2	2	1	2	3	-2
11+06.90	3.7	0.0	10.7	16.5	0	0	2	2	1	4	6	-3
11+28.40	5.0	0.0	1.3	0.0	3	0	5	7	5	11	15	-6
11+31.90	28.3	0.0	1.7	0.0	2	0	0	0	7	11	15	-4
11+50.00	3.9	0.0	12.1	16.3	11	0	5	5	17	17	24	1
12+00.00	3.5	0.0	14.7	12.1	7	0	25	26	24	49	63	-25
12+32.00	3.4	0.0	10.6	0.0	4	0	15	7	28	69	74	-40
12+48.30	0.0	0.0	0.0	0.0	1	0	3	0	29	73	74	-43
		TOTALS:			29	0	56	49				

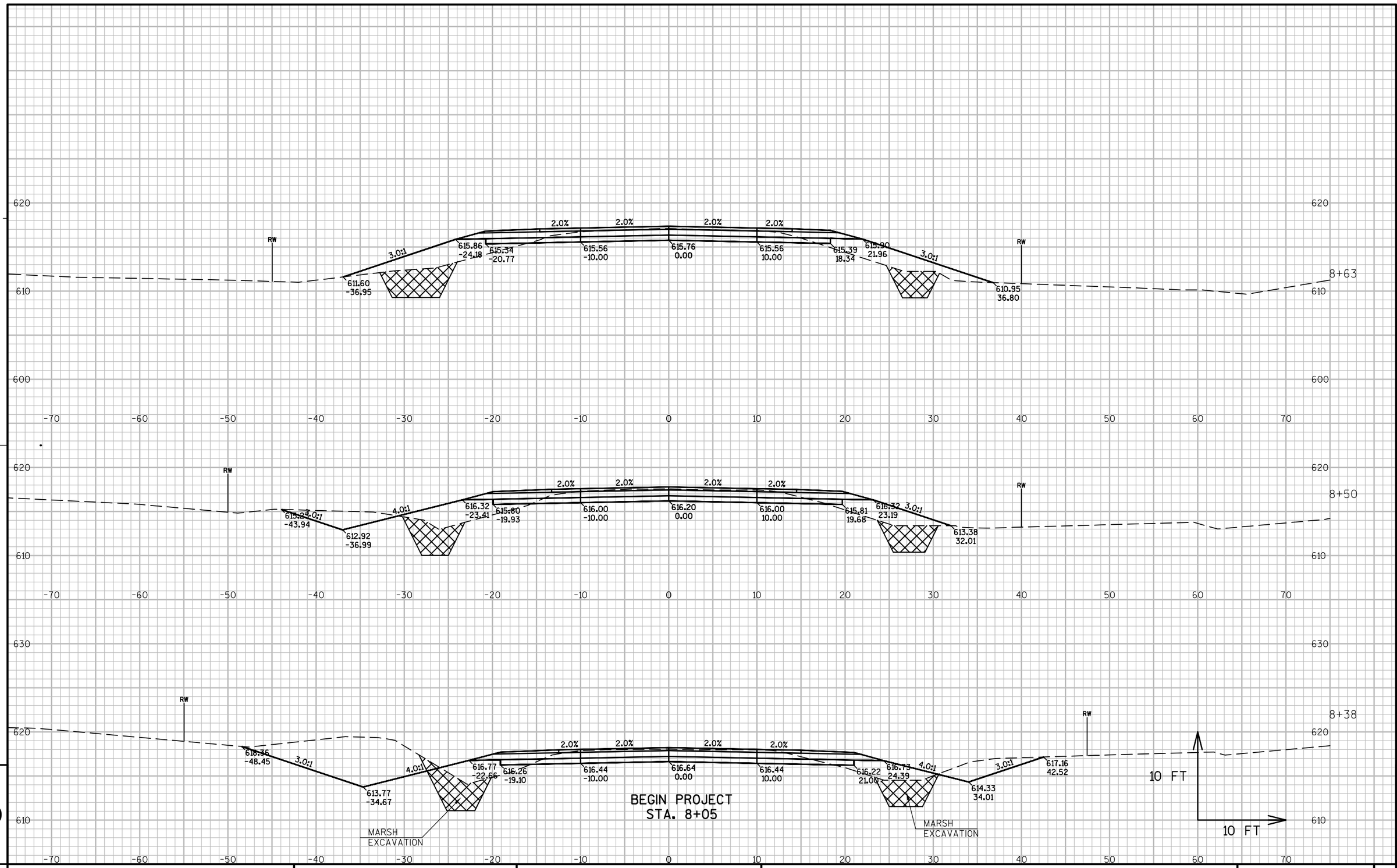
EARTHWORK - ST PATS ROAD (NW SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
					Note 1	Note 2	Note 3		1.00 Note 1	1.30	1.50 Note 4	Note 7
11+00.00	7.2	0.0	32.6	17.6								
11+03.40	3.8	0.0	33.1	14.6	1	0	4	2	1	5	3	-5
11+06.90	3.7	0.0	35.8	13.9	0	0	4	2	1	11	6	-10
11+28.40	3.4	0.0	43.3	20.0	3	0	31	13	4	52	26	-48
11+31.90	3.4	0.0	39.8	18.2	0	0	5	2	4	59	30	-55
11+50.00	3.3	0.0	29.6	15.2	2	0	23	11	7	89	47	-83
12+00.00	3.3	0.0	14.2	14.3	6	0	41	27	13	142	88	-129
12+32.00	0.0	0.0	0.0	0.0	2	0	8	8	15	153	100	-138
		TOTALS:			15	0	118	66.83				

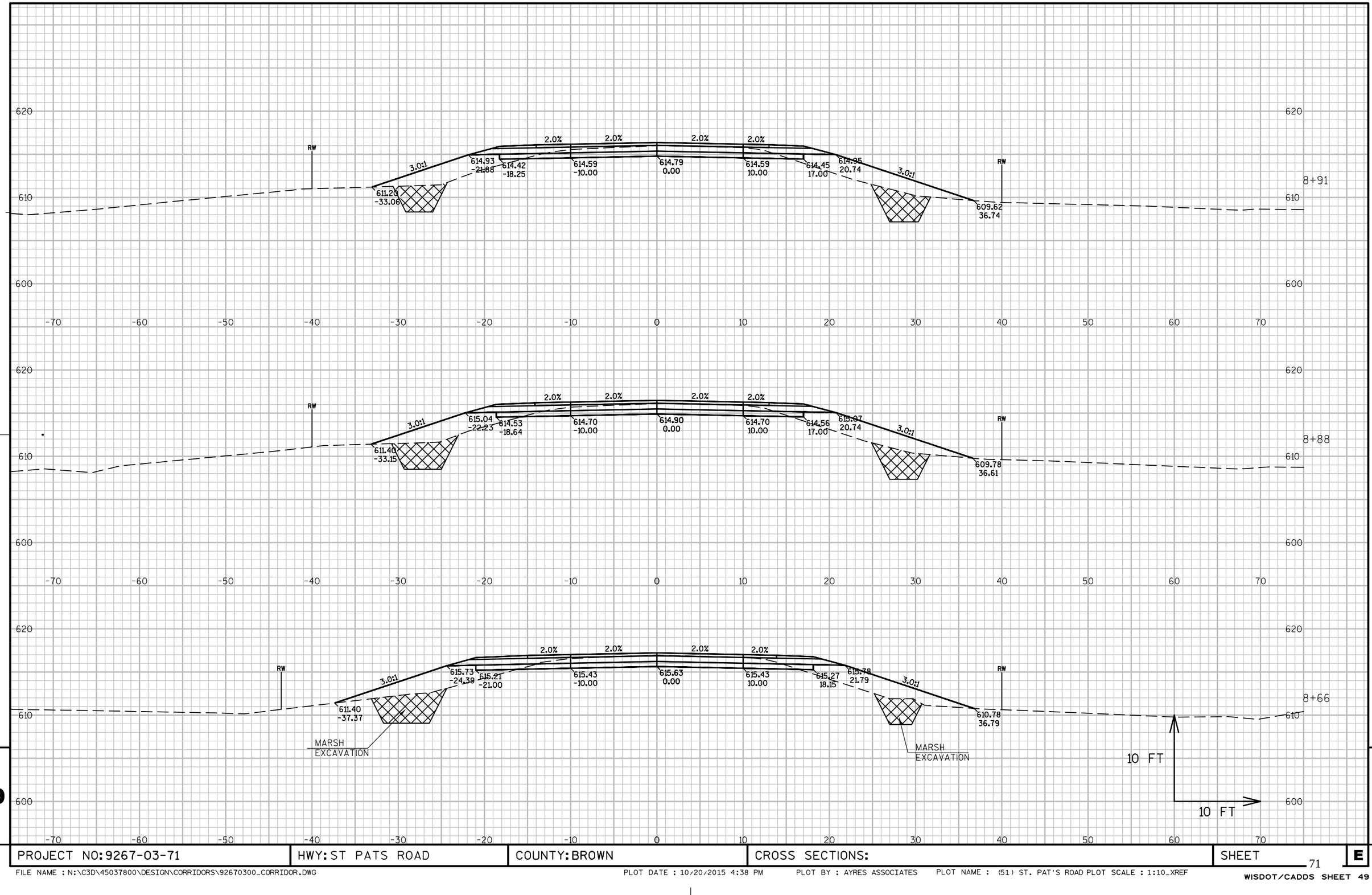
Notes:	
1 - Cut	Cut includes existing asphalt and base material.
2 - Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Material volume
4 - Expanded Marsh Backfill	Will be backfilled with Select Borrow
7 - Mass Ordinate	Cut - (Unusable Pavement Material)-(Fill * Fill Factor)
7 - Mass Ordinate	Mass Ordinate does not include Marsh Excavation



PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET 69	E

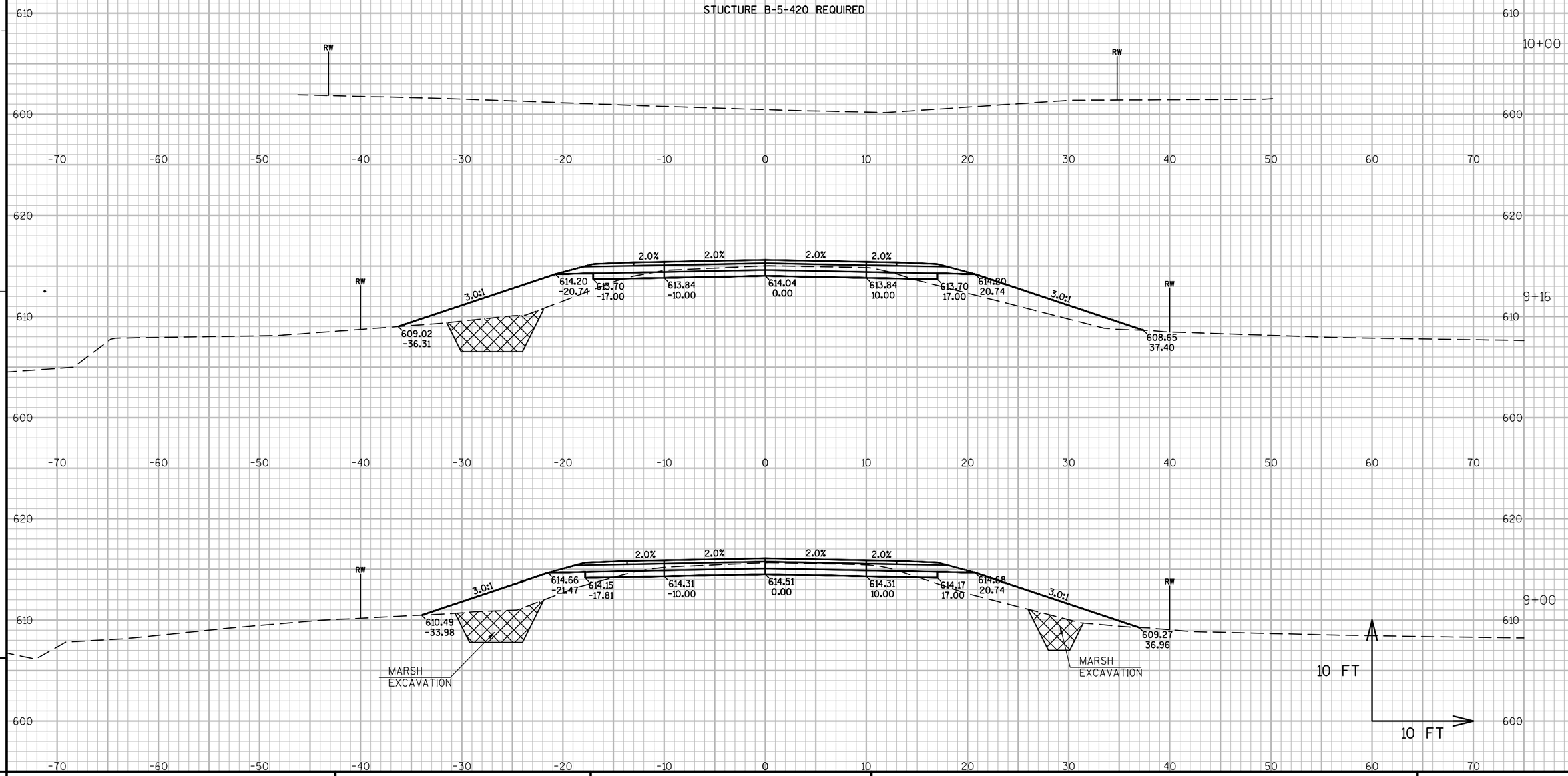


PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET 70	E



PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET 71 E

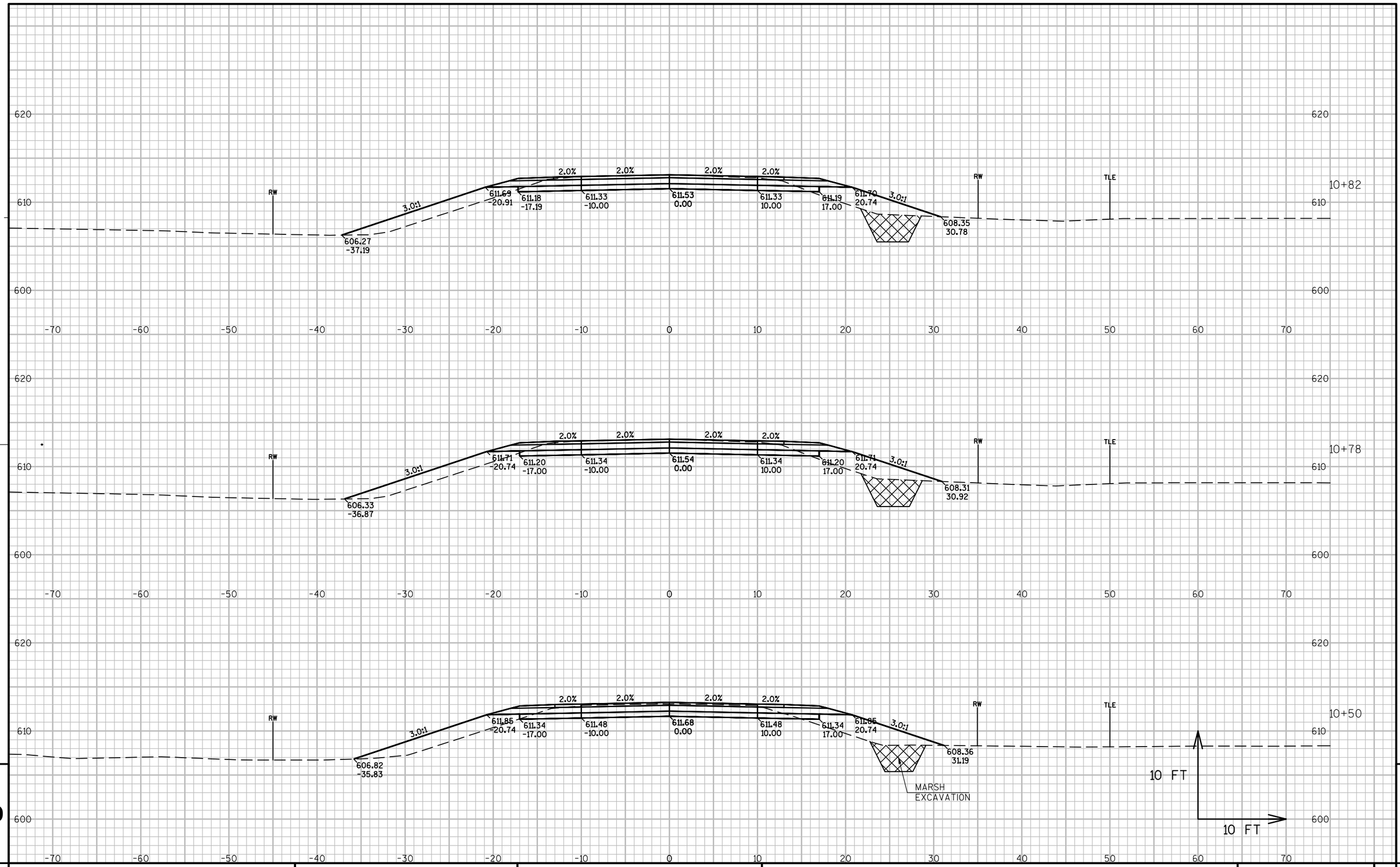
STUCTURE B-5-420 REQUIRED



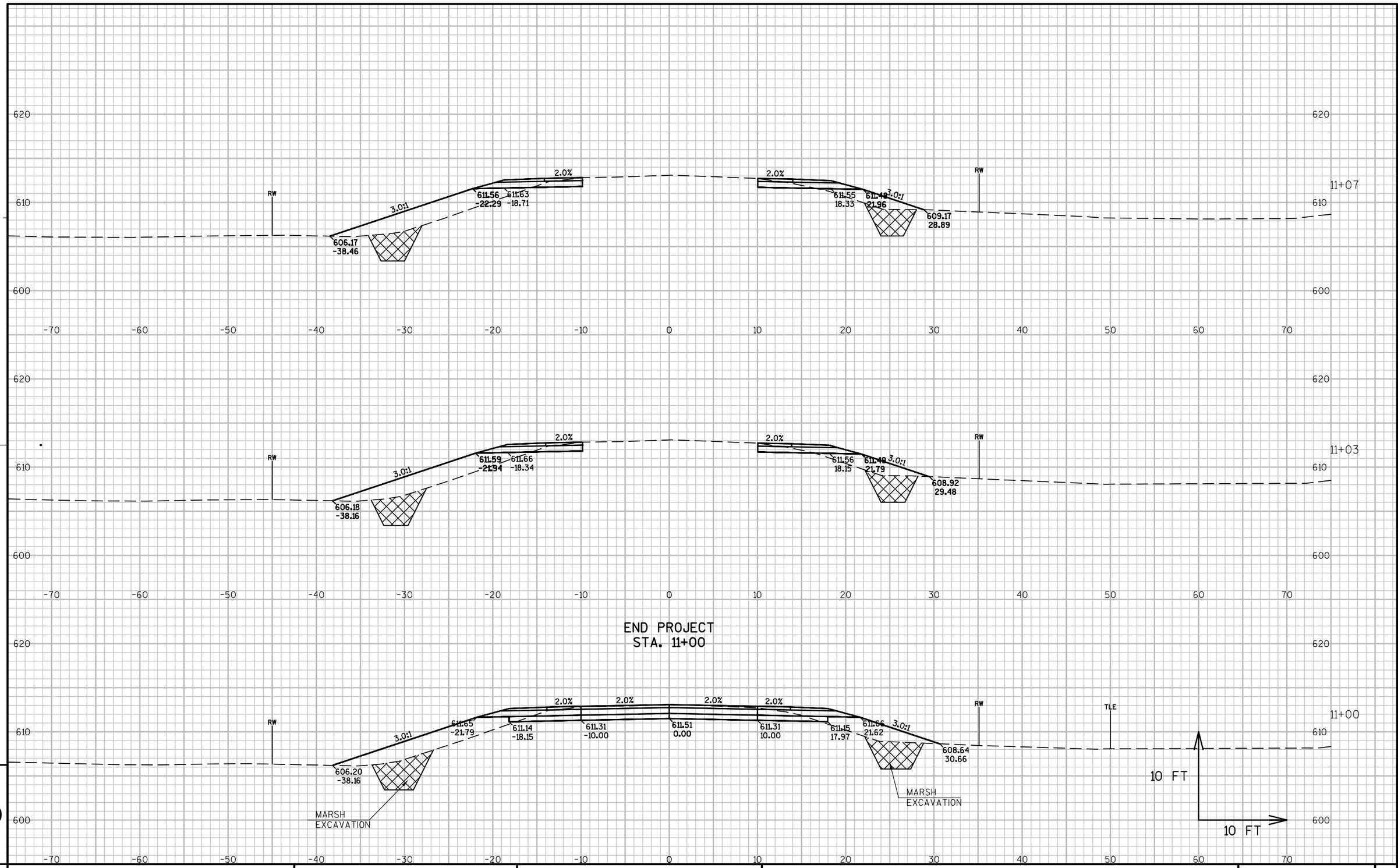
PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET 72	E

FILE NAME : N:\C3D\45037800\DESIGN\CORRIDORS\92670300_CORRIDOR.DWG PLOT DATE : 10/20/2015 4:38 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : (52) ST. PAT'S ROAD PLOT SCALE : 1:10_XREF

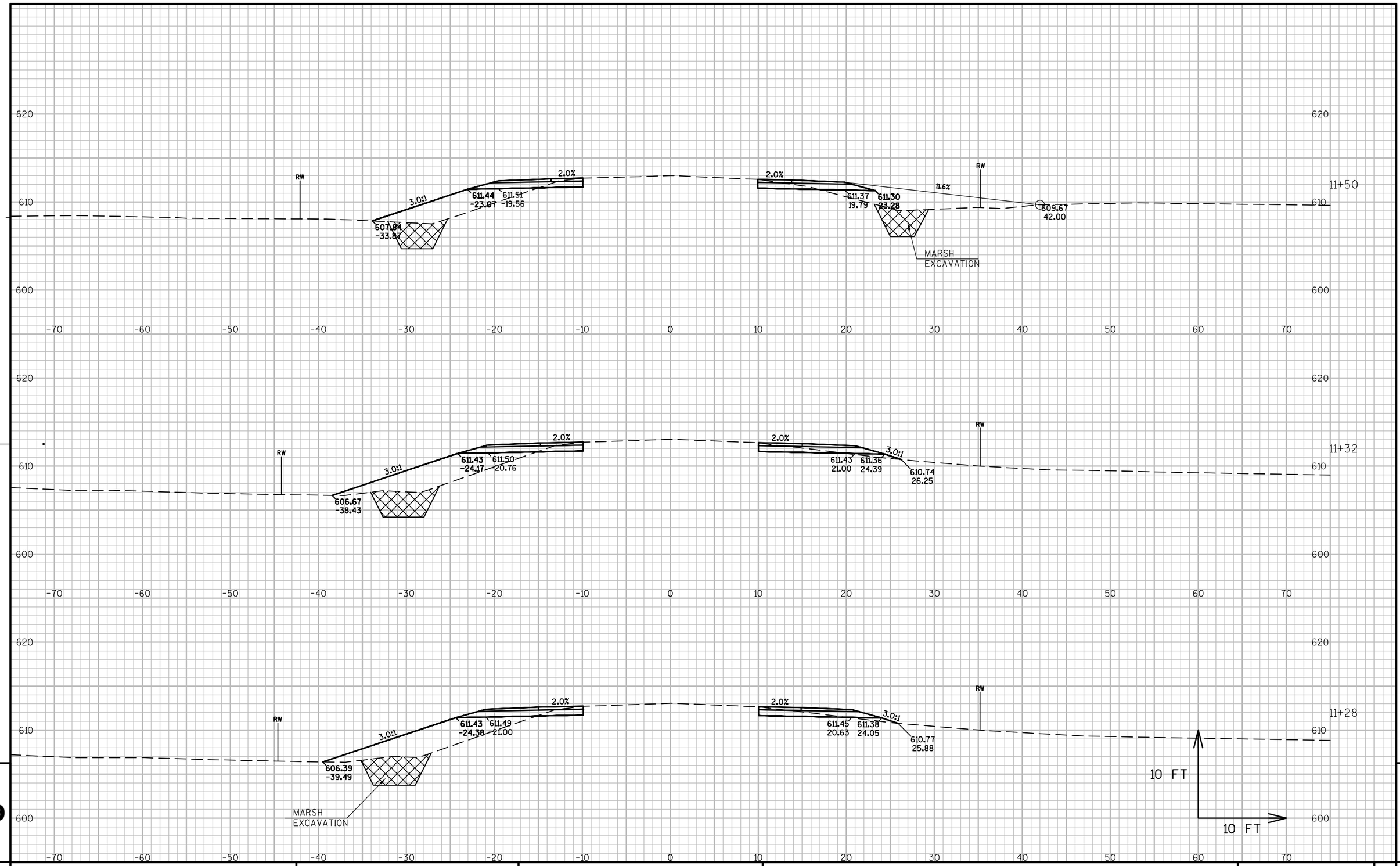
WISDOT/CADDS SHEET 49



PROJECT NO: 9267-03-71	HWY:	COUNTY: BROWN	CROSS SECTIONS:	SHEET 73	E



PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET 74	E

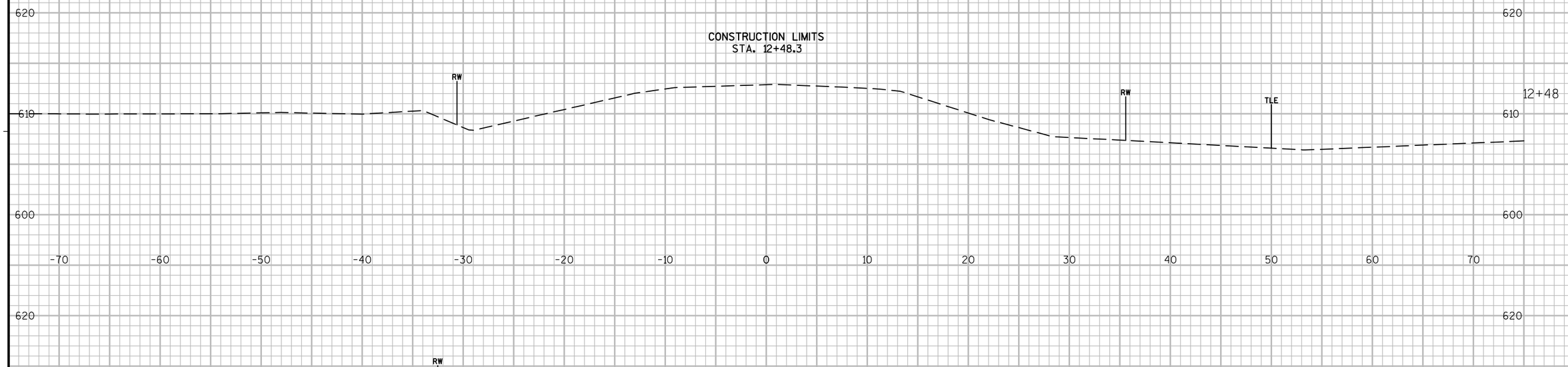


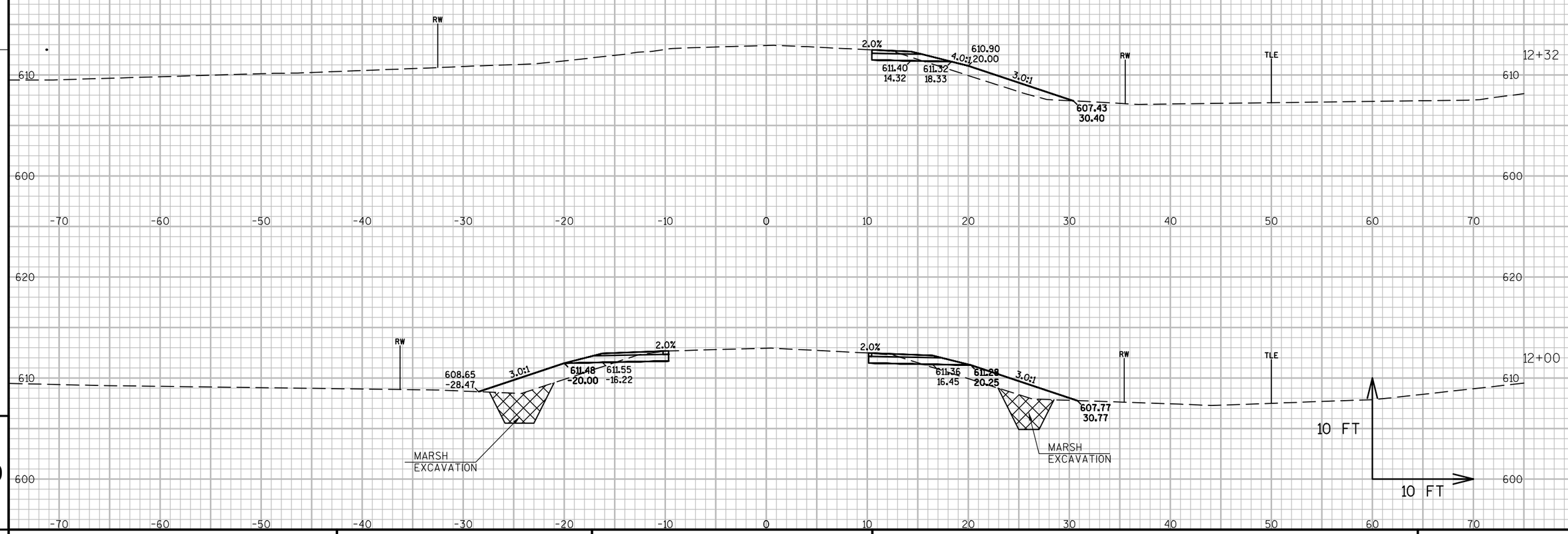
9

9

PROJECT NO: 9267-03-71	HWY: STA PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET 75	E

CONSTRUCTION LIMITS
STA. 12+48.3





9

9

PROJECT NO: 9267-03-71	HWY: ST PATS ROAD	COUNTY: BROWN	CROSS SECTIONS:	SHEET	E

FILE NAME : N:\C3D\45037800\DESIGN\CORRIDORS\92670300_CORRIDOR.DWG PLOT DATE : 10/20/2015 4:39 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : (56) ST. PAT'S ROAD PLOT SCALE : 1:10_XREF

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov

NEL MAR 2016

PROJECT ID: 9268-09-71
WITH: 9267-03-71

COUNTY: BROWN

ORDER OF SHEETS

TOTAL SHEETS = 70

PROJECT LOCATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T PITTSFIELD, SCHOOL DR

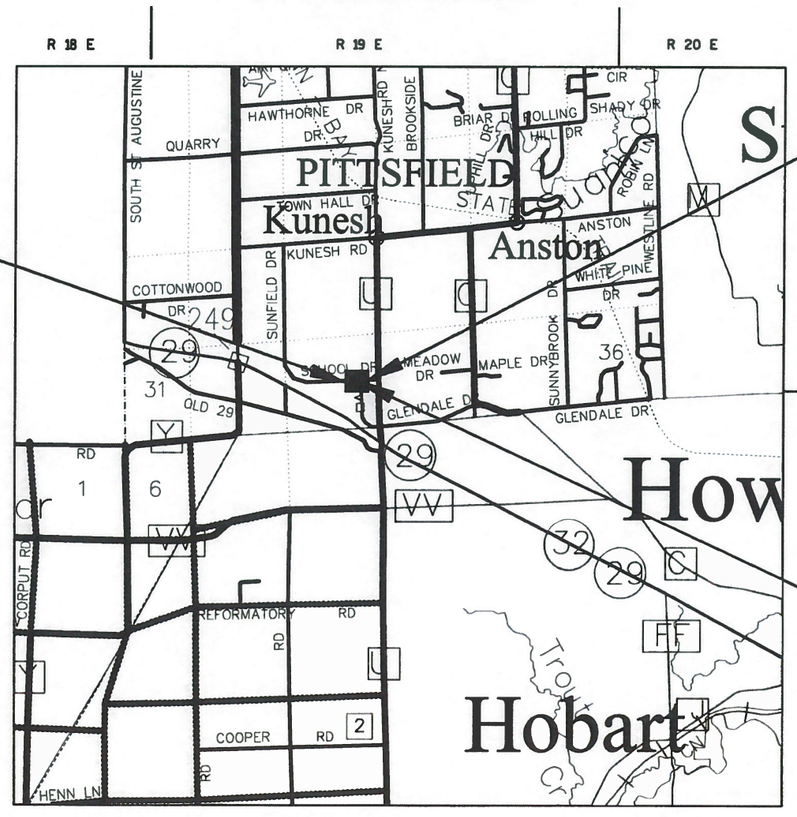
SUAMICO RIVER BRIDGE B-05-0421

TWN RD

BROWN COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9268-09-71	WISC 2016066	1

STATE PROJECT NUMBER
9268-09-71



BEGIN PROJECT 9268-09-71
STA. 9+00.00
Y = 596142.869
X = 52792.227

END PROJECT 9268-09-71
STA. 11+00.00

STRUCTURE B-05-0421

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.038 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, 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.

DESIGN DESIGNATION

A.A.D.T.	2015	= 80
A.A.D.T.	2036	= 110
D.H.V.	2036	= 60
D.D.		= 60/40
T		= 8.5%
DESIGN SPEED		= 55 MPH
ESALS		= 13,400

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE (PL + 58.1)
- 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 (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (395.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC — E
- FIBER OPTIC — FO
- GAS — G
- SANITARY SEWER — SAN
- STORM SEWER — SS
- TELEPHONE — T
- WATER — W
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

ACCEPTED FOR
BROWN COUNTY

10/22/15 (DATE)
COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES

WISCONSIN
ANDREW C. DANA
34172
OCONTO, WI
PROFESSIONAL ENGINEER

10/22/15 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: AYRES ASSOCIATES
Designer: AYRES ASSOCIATES
Management Consultant: SEH
C.O. Examiner:

APPROVED FOR THE DEPARTMENT
DATE: 10/26/15
(Management Consultant Signature)

E

FILE NAME : N:\C3D\45037900\SHEETSPLAN\010101_TI.DWG
PLOT DATE : 9/3/2008 9:10 AM
PLOT BY : SOUFAL, KEVIN
PLOT NAME : ----------

WISDOT/CADDS SHEET 15

GENERAL NOTES

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

FILL EXPANSION FACTOR IS 30%.

CONSTRUCT 4-INCH HMA PAVEMENT WITH A 1 3/4" UPPER LAYER AND A 2 1/4" LOWER LAYER.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

BEARING SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

PLACE EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE FERTILIZED, SEEDED, AND EROSION MAT AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS AT THE CENTERLINE OF THE ROADWAY.

ALL ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD 88 (2012).

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD

SAW CUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD. THE LINE OF SUCH SAW CUTS WILL BE NEATLY DELINEATED THROUGH THE ASPHALT WITHOUT ANY DAMAGE TO THE REMAINING PORTION OF THE EXISTING PAVEMENT.

ENTRANCES ARE TO BE REPLACED IN KIND.

THE EXACT LOCATION AND LENGTHS OF CULVERT PIPES WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

PRIOR TO ORDERING DRAINAGE PIPES, THE CONTRACTOR WILL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER IN THE FIELD

UTILITIES

*WISCONSIN PUBLIC SERVICE - ELECTRIC — TELEPHONE 920-617-5151
MOBILE 920-660-0430

2850 S. ASHLAND AVE.
PO BOX 19001
GREEN BAY, WISCONSIN 54307-9001
ATTENTION: SCOTT J. GAUGER
E-MAIL: SJGauger@wisconsinpublicservice.com

*NSIGHT-NORTHEAST TELEPHONE CO. — TELEPHONE 920-865-3162

5475 GLENDALE AVE.
GREEN BAY, WISCONSIN 54313
ATTENTION: DENNIS BAER
E-MAIL: dennis.baer@nsight.com

*-MEMBER OF DIGGERS HOTLINE

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

RUNOFF COEFFICIENT TABLE

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

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.90 ACRES
SOIL GROUP C

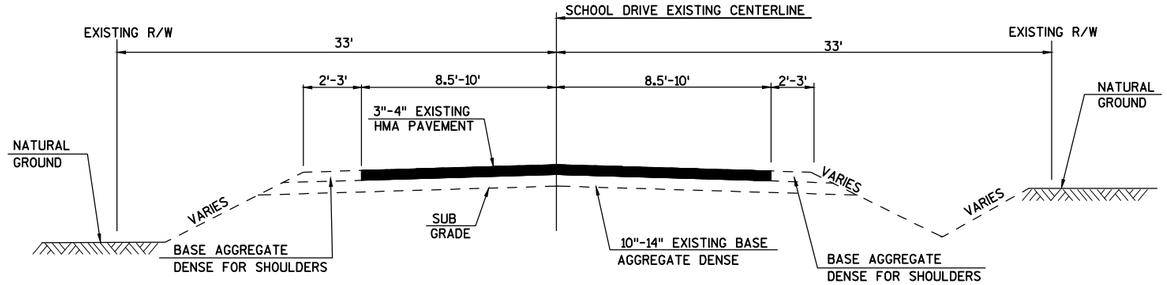
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AC	ASPHALT CEMENT	PT	POINT OF TANGENCY
AGG	AGGREGATE	PC	POINT OF CURVATURE
ASPH	ASPHALT	PI	POINT OF INTERSECTION
BM	BENCH MARK	PE	PRIVATE ENTRANCE
C/L	CENTERLINE	R	RADIUS
CONC	CONCRETE	REM	REMOVE
CMP	CORRUGATED METAL PIPE	R/L OR RL	REFERENCE LINE
CR.	CREEK	RCCP	REINFORCED CONCRETE CULVERT PIPE
D	DEGREE OF CURVE	RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
DHV	DESIGN HOUR VOLUME	R.O.	RUNOUT
ESALS	EQUIVALENT SINGLE AXIS LOADS	R/W	RIGHT-OF-WAY
EXIST	EXISTING	STA	STATION
FE	FIELD ENTRANCE	SE	SUPER ELEVATION
HYD	HYDRANT	SS	STORM SEWER
IP	IRON PIPE OR PIN	T	TANGENT
L	LENGTH OF CURVE	TEL	TELEPHONE
LC	LONG CHORD OF CURVE	TLE	TEMPORARY LIMITED EASEMENT
LR	LENGTH OF RUNOFF	T	TRUCKS
MH	MANHOLE	VC	VERTICAL CURVE
		W	WELL

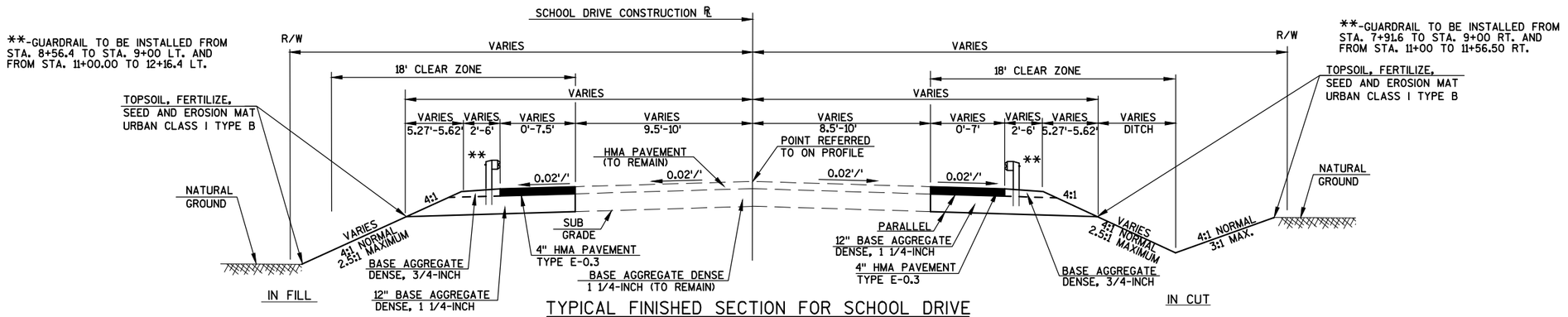
DEPARTMENT OF NATURAL RESOURCES

WDNR — TELEPHONE 920-662-5472

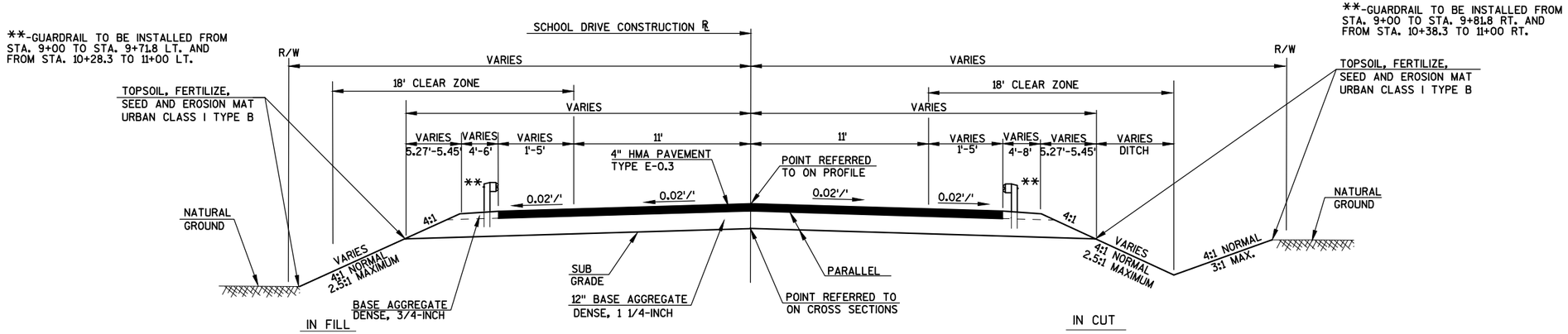
P.O. BOX 10448
GREEN BAY, WISCONSIN 54307
ATTENTION: JIM DOPERALSKI
E-MAIL: JAMES.DOPERALSKI@WISCONSIN.GOV



EXISTING TYPICAL SECTION FOR SCHOOL DRIVE
STA. 6+71.0 - STA. 13+36.4

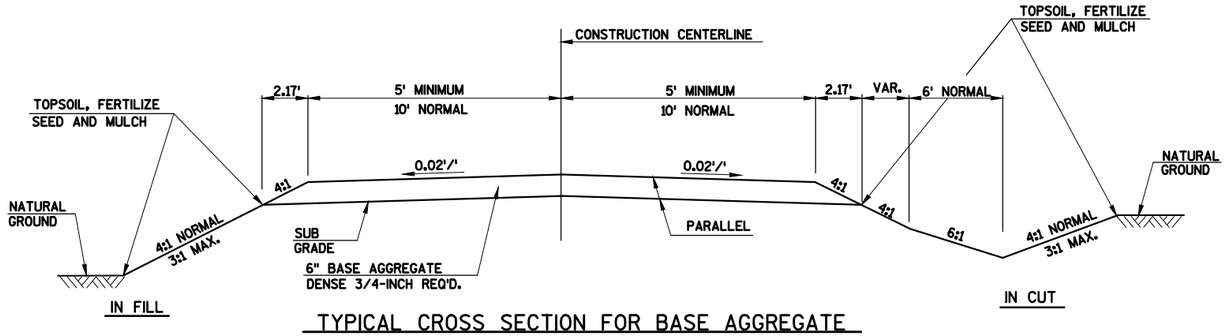


TYPICAL FINISHED SECTION FOR SCHOOL DRIVE
STA. 6+71.0 - STA. 9+00
STA. 11+00 - STA. 13+36.4



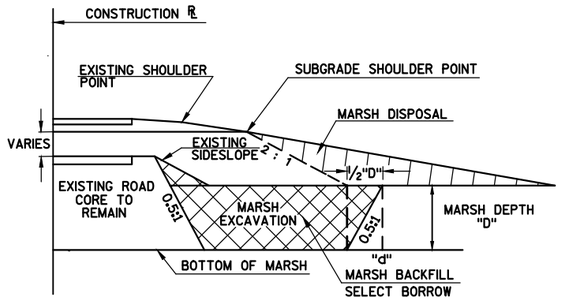
TYPICAL FINISHED SECTION FOR SCHOOL DRIVE
STA. 9+00 - STA. 9+81.8
STA. 10+28.3 - STA. 11+00

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	TYPICAL SECTIONS	SHEET 3	E



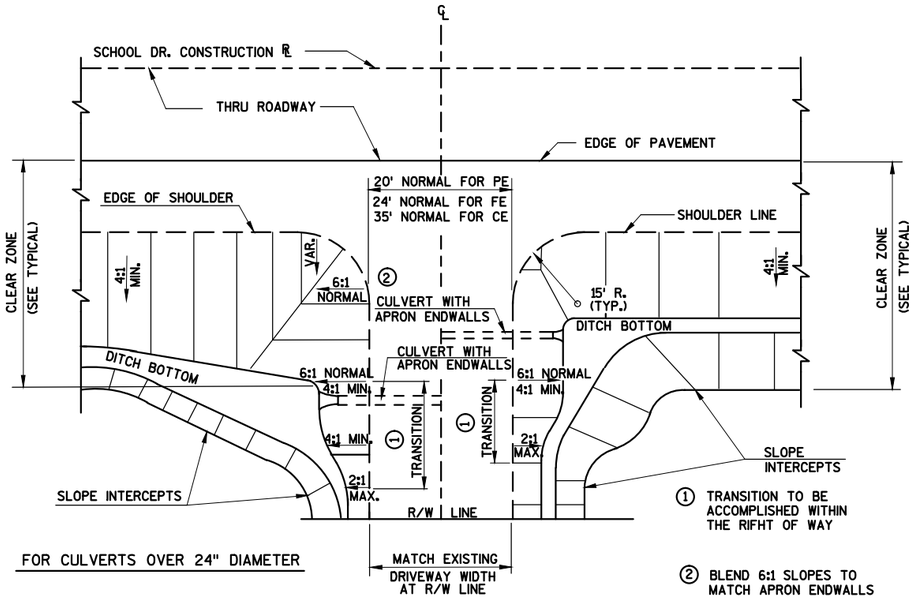
TYPICAL CROSS SECTION FOR BASE AGGREGATE DENSE PRIVATE ENTRANCES AND FIELD ENTRANCES

(REPLACE IN KIND)



NOTE: BACKFILL QUANTITIES COMPUTED FROM POINT "d" TO COMPENSATE FOR PROBABLE DISPLACED MARSH AREA.

TYPICAL SECTION-MARSH EXCAVATION



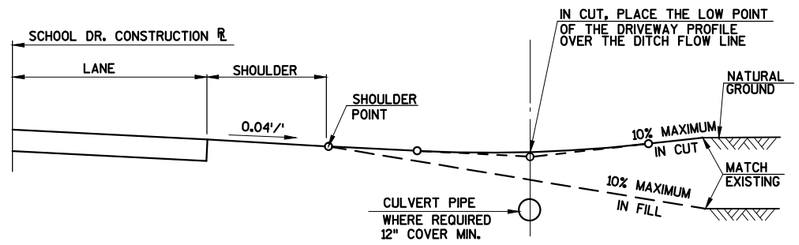
FOR CULVERTS OVER 24" DIAMETER

PLAN VIEW

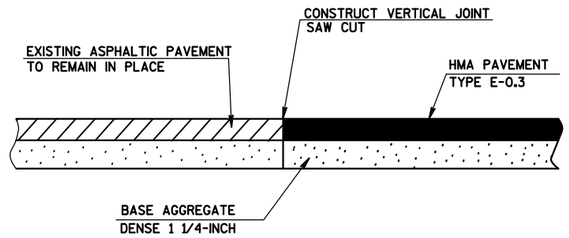
FOR CULVERTS 24" DIAMETER OR LESS

PRIVATE ENTRANCE GRADING DETAIL

STA. 7+00 LT.
STA. 7+00 RT.

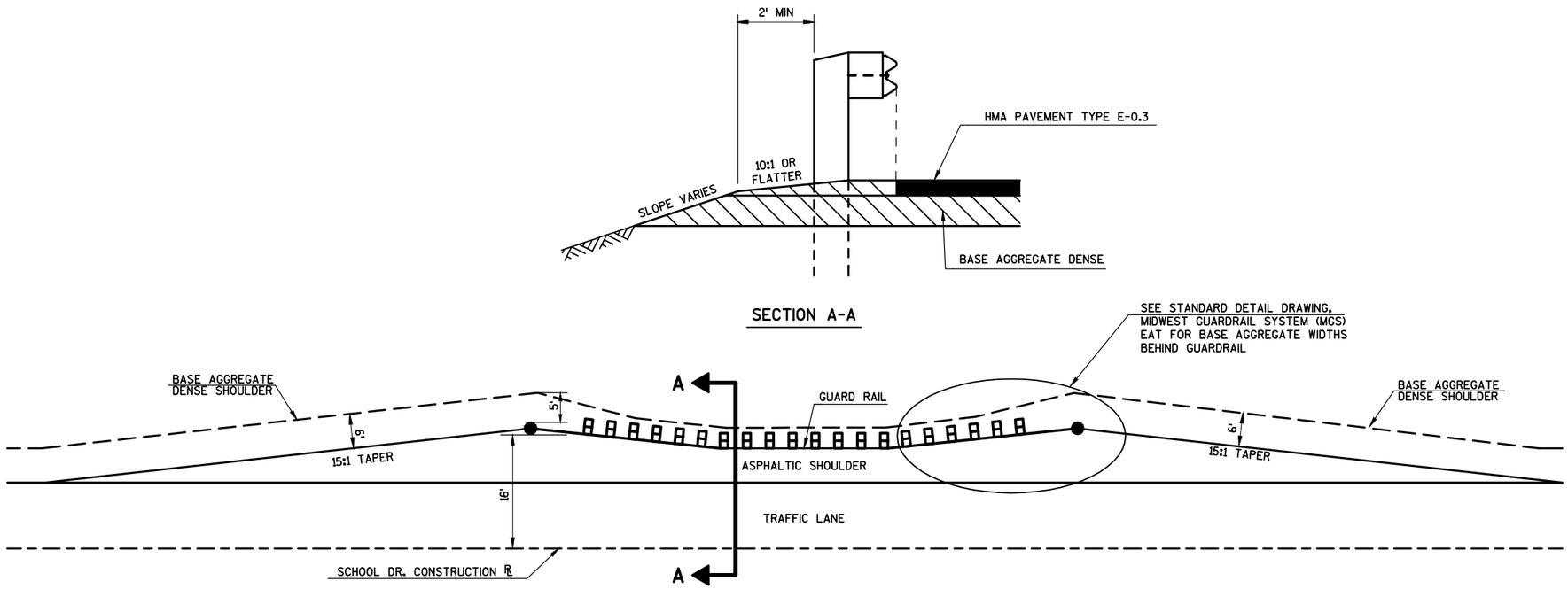


TYPICAL DRIVEWAY PROFILES

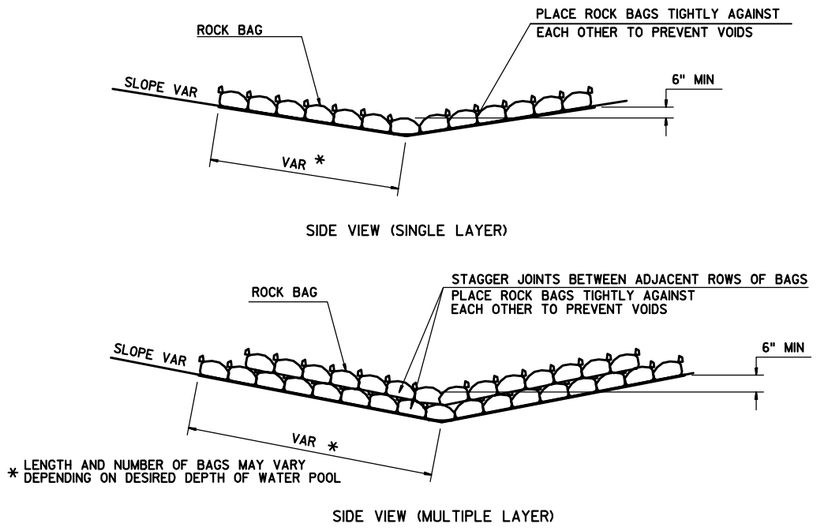


SAW CUT DETAIL

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 4	E



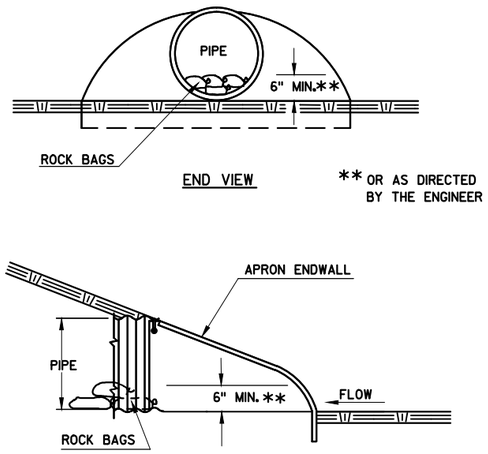
DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL



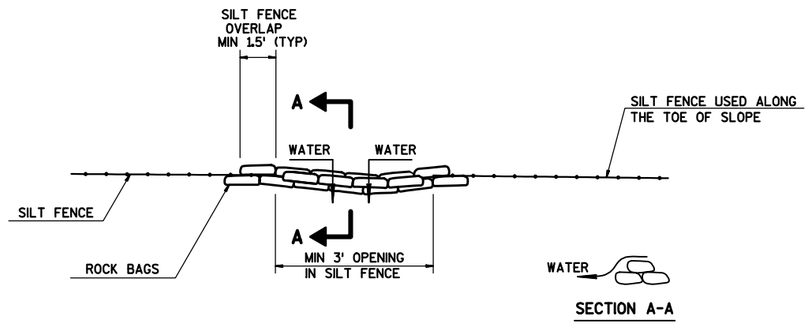
ROCK BAGS DITCH CHECK

PAID AS ROCK BAGS

(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



CULVERT PIPE DITCH CHECK



ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS

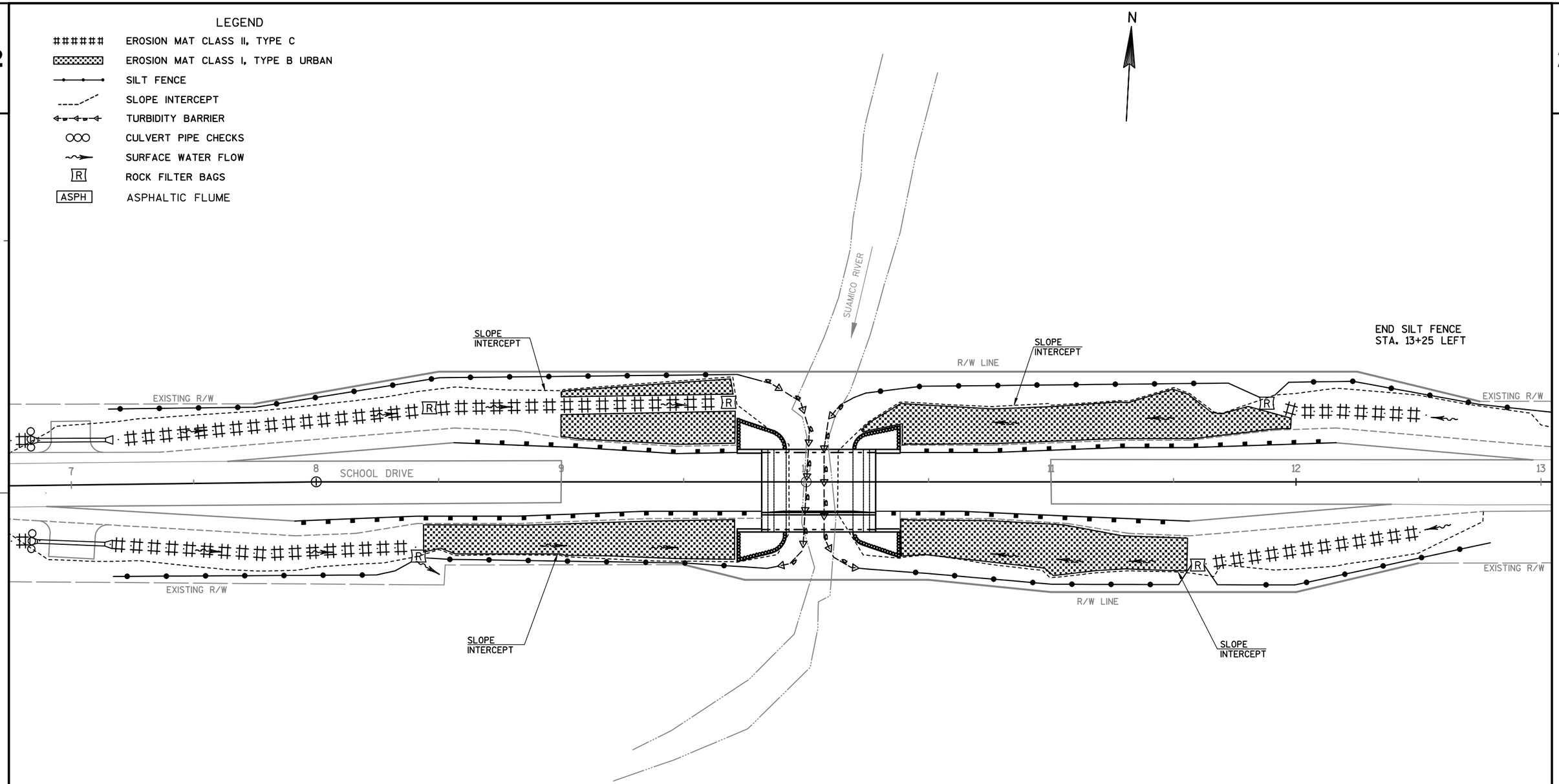
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 5	E

2

LEGEND

- ###### EROSION MAT CLASS II, TYPE C
- EROSION MAT CLASS I, TYPE B URBAN
- SILT FENCE
- SLOPE INTERCEPT
- TURBIDITY BARRIER
- CULVERT PIPE CHECKS
- SURFACE WATER FLOW
- [R] ROCK FILTER BAGS
- [ASPH] ASPHALTIC FLUME



PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	EROSION CONTROL PLAN	SHEET 6	E

FILE NAME : N:\C3D\45037900\SHEETSPLAN\022001_EC.DWG PLOT DATE : 12/31/2015 8:29 AM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1:40_XREF

WISDOT/CADDS SHEET 42

DATE 25JAN16 — E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	9268-09-71 QUANTITY
0010	201.0205	Grubbing	STA	6.000	6.000
0020	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0030	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. P-05-077	LS	1.000	1.000
0050	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 02. 10+00	LS	1.000	1.000
0060	205.0100	Excavation Common **P**	CY	530.000	530.000
0070	205.0400	Excavation Marsh	CY	647.000	647.000
0090	206.1000	Excavation for Structures Bridges (structure) 02. B-5-421	LS	1.000	1.000
0110	208.0100	Borrow	CY	280.000	280.000
0120	208.1100	Select Borrow	CY	970.000	970.000
0130	210.0100	Backfill Structure	CY	170.000	170.000
0150	213.0100	Finishing Roadway (project) 02. 9268-09-71	EACH	1.000	1.000
0160	305.0110	Base Aggregate Dense 3/4-Inch	TON	190.000	190.000
0170	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,350.000	1,350.000
0190	455.0105	Asphaltic Material PG58-28	TON	10.000	10.000
0200	455.0605	Tack Coat	GAL	46.000	46.000
0210	460.1100	HMA Pavement Type E-0.3	TON	180.000	180.000
0220	460.2000	Incentive Density HMA Pavement	DOL	130.000	130.000
0230	502.0100	Concrete Masonry Bridges	CY	189.000	189.000
0240	502.3200	Protective Surface Treatment	SY	195.000	195.000
0250	502.3210	Pigmented Surface Sealer	SY	35.000	35.000
0260	505.0400	Bar Steel Reinforcement HS Structures	LB	4,100.000	4,100.000
0270	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	24,600.000	24,600.000
0290	513.4061	Railing Tubular Type M (structure) 02. B-5-421	LF	69.000	69.000
0300	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0310	521.0721	Pipe Arch Corrugated Steel 21x15-Inch	LF	48.000	48.000
0320	521.1221	Apron Endwalls for Pipe Arch Steel 21x15-Inch	EACH	4.000	4.000
0340	550.0500	Pile Points	EACH	10.000	10.000
0350	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	500.000	500.000
0360	606.0300	Riprap Heavy	CY	105.000	105.000
0370	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0380	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	260.000	260.000
0390	614.2300	MGS Guardrail 3	LF	250.000	250.000
0400	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0410	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0430	616.0205	Fence Chain Link 5-FT	LF	130.000	130.000
0440	619.1000	Mobilization	EACH	0.400	0.400
0450	624.0100	Water	MGAL	15.000	15.000
0460	625.0100	Topsoil	SY	1,500.000	1,500.000
0470	628.1504	Silt Fence	LF	1,325.000	1,325.000
0480	628.1520	Silt Fence Maintenance	LF	2,650.000	2,650.000
0490	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0500	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0510	628.2008	Erosion Mat Urban Class I Type B	SY	800.000	800.000
0520	628.2027	Erosion Mat Class II Type C	SY	750.000	750.000
0530	628.6005	Turbidity Barriers	SY	105.000	105.000
0540	628.7555	Culvert Pipe Checks	EACH	6.000	6.000
0550	628.7570	Rock Bags	EACH	75.000	75.000
0560	629.0210	Fertilizer Type B	CWT	1.000	1.000

3

DATE 25JAN16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	9268-09-71 QUANTITY
0570	630.0120	Seeding Mixture No. 20	LB	40.000	40.000
0580	630.0200	Seeding Temporary	LB	20.000	20.000
0590	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0600	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	1.000	1.000
0610	637.2230	Signs Type II Reflective F	SF	20.000	20.000
0620	638.2602	Removing Signs Type II	EACH	8.000	8.000
0630	638.3000	Removing Small Sign Supports	EACH	7.000	7.000
0640	642.5001	Field Office Type B	EACH	0.500	0.500
0660	643.0100	Traffic Control (project) 02. 9268-09-71	EACH	1.000	1.000
0670	643.0420	Traffic Control Barricades Type III	DAY	960.000	960.000
0680	643.0705	Traffic Control Warning Lights Type A	DAY	1,200.000	1,200.000
0690	643.0900	Traffic Control Signs	DAY	720.000	720.000
0730	645.0120	Geotextile Fabric Type HR	SY	215.000	215.000
0740	650.4500	Construction Staking Subgrade	LF	619.000	619.000
0750	650.5000	Construction Staking Base	LF	619.000	619.000
0770	650.6500	Construction Staking Structure Layout (structure) 02. B-5-421	LS	1.000	1.000
0790	650.9910	Construction Staking Supplemental Control (project) 02. 9268-09-71	LS	1.000	1.000
0800	650.9920	Construction Staking Slope Stakes	LF	619.000	619.000
0810	690.0150	Sawing Asphalt	LF	730.000	730.000
0820	715.0502	Incentive Strength Concrete Structures	DOL	1,134.000	1,134.000
0830	ASP.1T0A	On-the-Job Training Apprentice at $5. 00/HR	HRS	150.000	150.000
0840	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000
0880	SPV.0105	Special 04. Removing Trees Project 9268-09-71	LS	1.000	1.000

3

GRUBBING AND REMOVING TREES

STATION	TO	STATION	LOCATION	201.0205 GRUBBING STA	SPV.0105.04 REMOVING TREES PROJECT 9268-09-71 LS
7+00	-	13+00	SCHOOL DR	6	1
TOTALS				6	1

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	203.0100 EACH	REMARKS
7+00	SCHOOL DR, RT	1	15" X 27' - RCCP
		1	

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (item #205.0100) Cut (2)	Unusable Pavement Material (4)	Available Material (5)	Excavation Marsh (6) (item #205.0400)	Expanded Marsh Backfill (10) Factor 1.50	Unexpanded Fill	Expanded Fill (13) Factor 1.30	Mass Ordinate +/- (14)	Borrow (item #208.0100)	Comment:
1	7+39 - 9+00	SCHOOL DR (SW SHOULDER)	99	0	99	85	127	35	46	53	0	
	7+39 - 9+00	SCHOOL DR (NW SHOULDER)	103	0	103	0	0	30	39	64	0	
	9+00 - 11+00	SCHOOL DR	214	38	176	166	249	259	337	-160	43	
	11+00 - 12+48	SCHOOL DR (SE SHOULDER)	62	0	62	168	252	138	179	-116	116	
	11+00 - 12+85	SCHOOL DR (NE SHOULDER)	52	0	52	228	342	130	176	-121	121	
Division 1 Total			530	38	492	647	970	592	777	-280	280	

2) Unsuable Pavement Material is included in Cut
4) Unusable Pavement Material = Existing Asphaltic Pavement
5) Available Material = Cut - Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Item Number 208.1100
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item Number 208.1100.
13) Expanded Fill. Factor = 1.3 Expanded Fill = (Unexpanded Fill - Reduced EBS) * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

BASE AGGREGATE DENSE AND WATER

STATION	TO	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	624.0100 WATER MGAL	REMARKS
6+71	-	9+82	SCHOOL DR	80	690	8	
10+28	-	13+36	SCHOOL DR	80	660	7	
	7+00		SCHOOL DR, LT & RT	30	0	0	FE
TOTALS				190	1,350	15	

HMA PAVEMENT

STATION	TO	STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 (5.5%) TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON
6+91	-	9+82	SCHOOL DR	5.2	24	95
10+28	-	12+97	SCHOOL DR	4.8	22	85
TOTALS				10	46	180

3

3

CULVERT PIPE & ENDWALLS

STATION	LOCATION	521.0721 PIPE ARCH CORRUGATED STEEL 21x15-INCH LF	521.1221 APRON ENDWALLS FOR PIPE ARCH STEEL 21x15-INCH EACH	THICKNESS STEEL INCH
	SCHOOL DR, LT	22	2	0.064
	SCHOOL DR, RT	26	2	0.064
TOTALS		48	4	

TOPSOIL, FERTILIZER, AND SEED

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB
6+71	-	9+81.75	SCHOOL DR, RT	270	0.2	7	3.5
6+71	-	9+81.75	SCHOOL DR, LT	355	0.2	10	5
10+28.25	-	12+76	SCHOOL DR, RT	290	0.2	8	4
10+28.25	-	13+36	SCHOOL DR, LT	320	0.2	9	4.5
			UNDISTRIBUTED	265	0.2	6	3
TOTALS				1,500	1.0	40	20

*NOTE: - FERTILIZER NOT TO BE PLACED WITHIN 20' OF THE SUAMICO RIVER.

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 MAINTENANCE LF
7+10	-	9+85	SCHOOL DR, RT	275	550
7+10	-	9+85	SCHOOL DR, LT	275	550
10+25	-	12+75	SCHOOL DR, RT	250	500
10+20	-	13+25	SCHOOL DR, LT	305	610
			UNDISTRIBUTED	220	440
TOTALS				1,325	2,650

EROSION MAT

STATION	TO	STATION	LOCATION	URBAN CLASS I TYPE B 628.2008 SY	CLASS II TYPE C 628.2027 SY	REMARKS
6+71	-	8+40	SCHOOL DR, RT	-	130	DITCH PROTECTION
8+40	-	9+81.75	SCHOOL DR, RT	140	-	SLOPES
6+70	-	9+81.75	SCHOOL DR, LT	-	250	DITCH PROTECTION
9+00	-	9+81.75	SCHOOL DR, LT	150	-	SLOPES
10+28.25	-	11+00	SCHOOL DR, RT	155	-	SLOPES
11+00	-	12+76	SCHOOL DR, RT	-	155	DITCH PROTECTION
10+28.25	-	12+00	SCHOOL DR, LT	195	-	SLOPES
12+00	-	12+75	SCHOOL DR, LT	-	65	DITCH PROTECTION
UNDISTRIBUTED				160	150	
TOTAL				800	750	

TURBIDITY BARRIERS

STATION	LOCATION	628.6005 SY
WEST ABUTMENT	SCHOOL DR	55
EAST ABUTMENT	SCHOOL DR	50
TOTAL		105

CULVERT PIPE CHECKS

STATION	LOCATION	628.7555 EACH
6+75	SCHOOL DR, LT & RT	6
TOTAL		6

ROCK BAGS

STATION	LOCATION	628.7570 EACH
8+40	SCHOOL DR, RT	15
9+75	SCHOOL DR, LT	15
11+50	SCHOOL DR, RT	15
11+90	SCHOOL DR, LT	15
	UNDISTRIBUTED	15
TOTAL		75

3

MGS GUARDRAIL

STATION	TO	STATION	LOCATION	614.0397 GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SY	614.2300 MGS 3 LF	614.2500 THRIE BEAM TRANSITION LF	614.2610 TERMINAL EAT EACH
7+91.6	-	9+81.8	SCHOOL DR, RT	80	100	39.5	1
8+56.4	-	9+71.8	SCHOOL DR, LT	50	25.0	39.5	1
10+28.3	-	11+56.5	SCHOOL DR, RT	50	37.5	39.5	1
10+38.3	-	12+16.4	SCHOOL DR, LT	80	87.5	39.5	1
TOTALS				260	250	158	4

REMOVING SIGNS & SUPPORTS

STATION	LOCATION	638.2602 SIGNS TYPE II EACH	638.3000 SMALL SIGN SUPPORTS EACH
9+72	SCHOOL DR, RT	1	1
9+83	SCHOOL DR, LT & RT	2	2
10+18	SCHOOL DR, LT & RT	2	2
10+24	SCHOOL DR, RT	2	1
10+29	SCHOOL DR, LT	1	1
TOTALS		8	7

SAWING ASPHALT

STATION	TO	STATION	LOCATION	690.0150 LF
6+71	-	9+00	SCHOOL DR	365
11+00	-	13+36	SCHOOL DR	365
TOTAL				730

3

TRAFFIC CONTROL SUMMARY

LOCATION	APPROXIMATE SERVICE DAYS	643.0420 BARRICADES TYPE III NO. IN SERVICE	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO. IN SERVICE	643.0705 WARNING LIGHTS TYPE A DAYS	643.0900 SIGNS NO. IN SERVICE	643.0900 SIGNS DAYS	
SCHOOL DR / KUNESH RD	60	1	60	2	120	1	60	BRIDGE OUT 2 MILES AHEAD LOCAL TRAFFIC ONLY
WEST WORK ZONE LIMITS	60	2	120	2	120	4	240	BRIDGE OUT STAGGER - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
WEST WORK ZONE LIMITS	60	5	300	6	360	1	60	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST WORK ZONE LIMITS	60	5	300	6	360	1	60	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST WORK ZONE LIMITS	60	2	120	2	120	4	240	BRIDGE OUT STAGGER - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
SCHOOL DR / CTH U	60	1	60	2	120	1	60	BRIDGE OUT 1/2 MILES AHEAD LOCAL TRAFFIC ONLY
TOTALS			960		1,200		720	

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF	GROUP CODE
6+71	-	9+82	SCHOOL DR	311	311	-	1	311	0010
10+28	-	13+36	SCHOOL DR	308	308	-	-	308	0010
SUBTOTALS				619	619	0	1	619	0010
10+00			SCHOOL DR	-	-	1	-	-	0020
SUBTOTALS				0	0	1	0	0	0020
TOTALS				619	619	1	1	619	

SIGNS REFLECTIVE TYPE II AND WOOD POSTS

STATION	LOCATION	634.0612 WOOD POSTS 4"x6"x12' EACH	634.0616 WOOD POSTS 4"x6"x16' EACH	637.2230 SIGNS W5-52L SF	SIGN CODE
NE QUADRANT	SCHOOL DR	1	-	3	W5-52L
NW QUADRANT	SCHOOL DR	1	-	3	W5-52R
SE QUADRANT	SCHOOL DR	1	-	3	W5-52L
SW QUADRANT	SCHOOL DR	1	-	3	W5-52R
10+50	SCHOOL DR, RT	-	1	8	S4-51
TOTALS		4	1	20	

SCHEDULE OF LANDS AND INTERESTS REQUIRED

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

PARCEL NO.	OWNERSHIP	INTEREST REQUIRED	TOTAL ACRES	R/W (ACRES) NEW	R/W (ACRES) EXISTING	R/W (ACRES) TOTAL	TOTAL ACRES REMAINING
1	KARL M. STENDER	FEE/TLE	66.16	0.13	---	0.13	66.03*
2	JOINT SCHOOL DISTRICT 5, PULASKI, WISCONSIN	FEE	34.57	0.06	---	0.06	34.51
50	NSIGHT TELESERVICES	RELEASE OF RIGHTS					

*Tax ID PI-587 = 28.78 Acres Remaining
Tax ID PI-588 = 37.25 Acres Remaining

POINT TABLE		
POINT #	Y	X
314	596205.988	53114.538
315	596196.478	53165.104
317	596145.509	52667.088
318	596167.948	53166.597

POINT TABLE		
POINT #	Y	X
310	596146.675	52842.266
311	596153.363	52841.916
312	596169.376	52665.838
313	596186.387	52740.051

POINT TABLE		
POINT #	Y	X
300	596207.600	54049.250
301	595973.080	48828.790
302	596166.826	53141.622
303	596162.356	53141.856
304	596129.213	53143.591
305	596114.804	53094.277
306	596109.577	52994.414
307	596111.957	52944.221
308	596108.037	52869.323
309	596112.952	52844.031

PARCEL 2 - COURSE TABLE		
COURSE	BEARING	DISTANCE
301-311	N87°25'40"E	4017.17'
311-302	N87°25'40"E	300.01'
302-303	S02°59'46"E	4.48'
303-304	S02°59'46"E	33.19'
304-305	S73°42'46"W	51.38'
305-306	S87°00'14"W	100.00'
306-307	N87°17'08"W	50.25'
307-308	S87°00'14"W	75.00'
308-309	N79°00'05"W	25.77'
309-310	N02°59'46"W	33.77'
310-311	N02°59'46"W	6.70'

PARCEL 1 - COURSE TABLE		
COURSE	BEARING	DISTANCE
301-317	N87°25'40"E	3842.17'
317-312	N02°59'46"W	23.90'
312-313	N77°05'23"E	76.14'
313-314	N87°00'14"E	375.00'
314-315	S79°20'54"E	51.45'
315-318	S02°59'46"E	28.57'
318-317	N87°25'40"E	500.01'

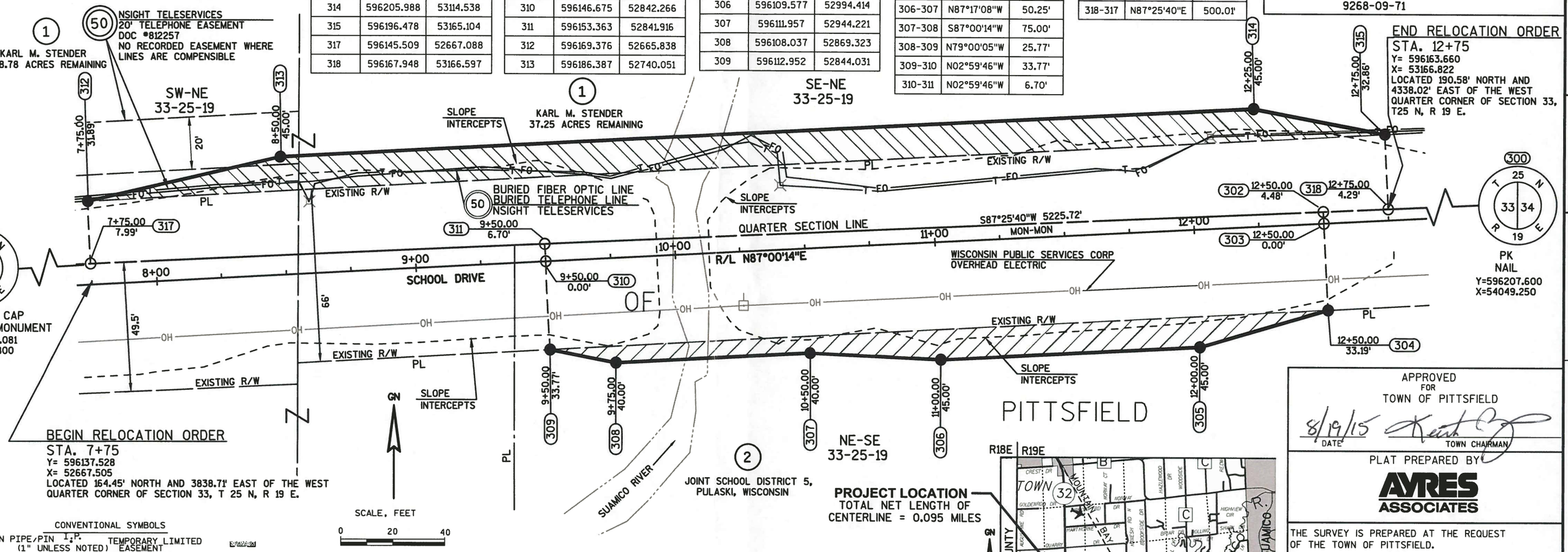
R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
9268-09-00	4.01	1
FEDERAL PROJECT NUMBER ----------		

PLAT OF RIGHT-OF-WAY REQUIRED FOR

T PITTSFIELD, SCHOOL DR
SUAMICO RIVER BRIDGE P-05-0077

TOWN ROAD — BROWN COUNTY

CONSTRUCTION PROJECT NUMBER
9268-09-71



CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN (1" UNLESS NOTED)	I.P.	TEMPORARY LIMITED EASEMENT	
R/W MONUMENT	● (SET)	PERMANENT LIMITED EASEMENT	
R/W STANDARD	▲ (SET)	R/W BOUNDARY POINT	RWB20
SIGN	SIGN	PARCEL NUMBER	102
SECTION CORNER MONUMENT	⊡	UTILITY PARCEL NUMBER	92
SECTION CORNER SYMBOL		SIGN NUMBER (OFF PREMISE)	21-
FEE (HATCH VARIES)		BUILDING	

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W LINE
PROPERTY LINE
LOT & TIE
CORPORATE LIMITS
TEMPORARY LIMITED EASEMENT
FENCE
SLOPE INTERCEPTS
PERMANENT LIMITED EASEMENT
NO ACCESS (BY STATUTORY AUTHORITY)
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)
NO ACCESS (BY ACQUISITION)

CONVENTIONAL UTILITY SYMBOLS

WATER	W	SANITARY SEWER	SAN
GAS	G	STORM SEWER	SS
TELEPHONE	T		NON COMPENSABLE / COMPENSABLE
OVERHEAD	OH		
TRANSMISSION LINES		POWER POLE	■
ELECTRIC	E	TELEPHONE POLE	●
CABLE TELEVISION	TV	TELEPHONE PEDESTAL	♦
FIBER OPTIC	FO	ELECTRIC TOWER	⊠

CONVENTIONAL ABBREVIATIONS

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

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, BROWN COUNTY ZONE, NAD83(1991), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, OR FROM CENTERLINE OF EXISTING PAVEMENTS.

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

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

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

PARCEL IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE SCHEDULE OF LANDS & INTERESTS REQUIRED.

EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN WAS DETERMINED BY BEST FIT FROM EXISTING CENTERLINE OF THE ROAD. WIDTH WAS PRESUMED TO BE 66' WIDE BASED ON STATE STATUTE 82.31(2) AND FROM DOCUMENT #581910.

REVISION DATE

APPROVED
FOR
TOWN OF PITTSFIELD

8/19/15 DATE — TOWN CHAIRMAN

PLAT PREPARED BY:

AYRES ASSOCIATES

THE SURVEY IS PREPARED AT THE REQUEST OF THE TOWN OF PITTSFIELD.

THE TOPOGRAPHY AND UTILITY SURVEY WAS PERFORMED IN AUGUST, 2013.

THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

WISCONSIN
James R. Cappeart
S-3044
Green Bay Wis.
LAND SURVEYOR

07/22/2015
JAMES R. CAPPEART, P.L.S. — DATE
S-3044

12

E

KARL M. STENDER

KARL M. STENDER

N

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
1	7+21	RR SPK IN PP-21'RT	751.09
2	10+19	NAIL IN N SIDE WW POST-17'LT	749.09
3	11+81	NAIL IN PED POST-28'LT	748.10

P.L.

BP: 6+50.00
Y=596127.932
X=52542.678

STA. 7+00
CONSTRUCT FIELD
ENTRANCE
16' WIDE

PI: 8+00.00
Y=596137.642
X=52692.363

EP: 13+50.00
Y=596166.391
X=53241.611

STRUCTURE B-5-421
REQUIRED

BURIED FIBER OPTIC
(APPROXIMATE LOCATION)

BURIED TELEPHONE CABLE
(APPROXIMATE LOCATION)

SUAMICO RIVER

SLOPE
INTERCEPT

(REMOVE)
CABC
FE

SAW CUT
REQUIRED

(REMOVE)
12"PCP

WOODS

R/W LINE

BM#2

CP#1
1"IP WITH CAP
Y=596139.740
X=52522.783

CP#2
1"IP WITH CAP
Y=596178.555
X=53259.523

EXISTING R/W

27.99'

24.92'

28.27'

32.52'

15.71'

SCHOOL DRIVE

N86°17'19"E

N87°00'14"E

20.89'

(REMOVE)15"RCCP

BM#1

EXISTING R/W

BEGIN PAVED SHOULDER
STA. 6+90 RT.
STA. 7+64 LT.

CONSTRUCTION LIMITS
STA. 6+71

STA. 7+00
CONSTRUCT FIELD
ENTRANCE-20' WIDE

CABC
FE

WOODS

SLOPE
INTERCEPT

R/W LINE

EXISTING R/W

END PAVED SHOULDER
STA. 12+39 RT.
STA. 12+97 LT.

SLOPE
INTERCEPT

CONSTRUCTION LIMITS
STA. 13+36.4

BEGIN PROJECT
STA. 9+00.00
Y=596142.829
X=52792.228

END PROJECT
STA. 11+00.00

FRANCIS C. AND
JOHN M. BURKEL

JOINT SCHOOL DISTRICT
5 PULASKI LANNOYE SCHOOL

765
760
755
750
745
740
735
730

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

VPC STA 9+17.50
VPC EL 750.54

VPI STA 10+00.00
VPI EL 750.85

VPT STA 10+82.50
VPT EL 749.99

EXISTING
PROFILE

FINISHED
GRADE

-0.38%

1.04%

HIGH WATER 2 ELEV. =744.4

HIGH WATER 100 ELEV. =747.1

STA 9+00.00
EL 750.47

STA 11+00.00
EL 749.81

WATER EL. 741.7 (8-8-13)

VCL = 165.00

K = 116.20

STA. 10+00
REMOVE STRUCTURE P-5-77
SINGLE SPAN STEEL DECK GIRDER BRIDGE
30 FOOT LONG

STA. 10+05
STRUTURE B-5-421 REQUIRED
SINGLE SPAN CONCRETE FLAT SLAB
26' CLEAR ROADWAY
46.5' OVERALL LENGTH

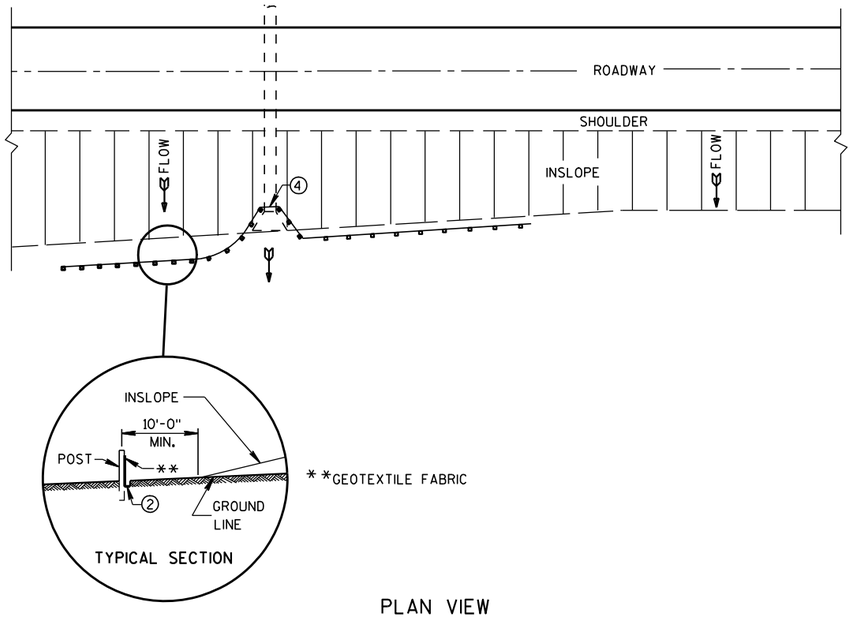
751.85 751.57 751.08 750.66 750.47 750.48 741.55 750.27 749.81 749.58 749.42 749.27 749.10

750.47 750.61 750.56 750.28 749.81

PROJECT NO: 9268-09-71 | HWY: SCHOOL DRIVE | COUNTY: BROWN | PLAN AND PROFILE: | SHEET 13 | E

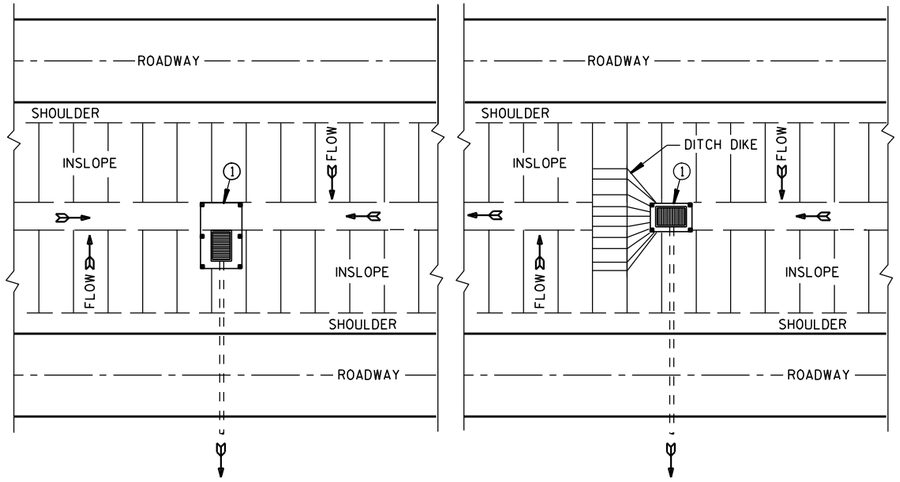
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B28-03	GUARDRAIL MOW STRIP
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



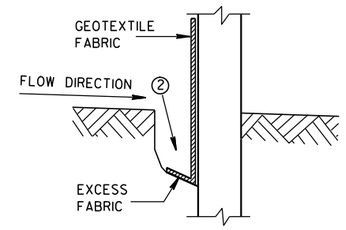
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

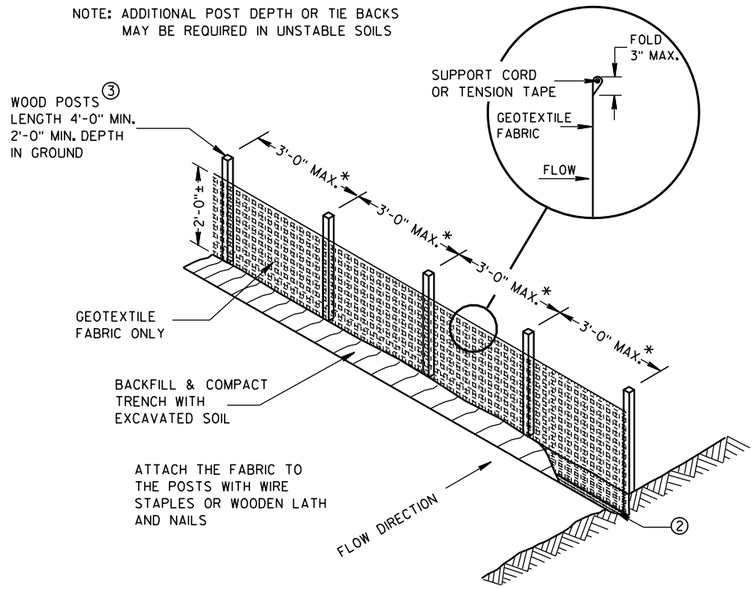
GENERAL NOTES

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

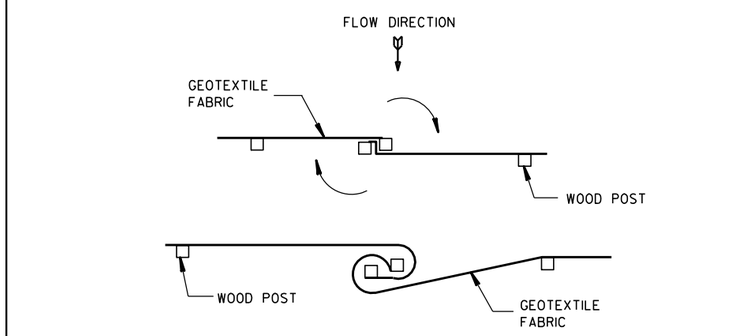
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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.



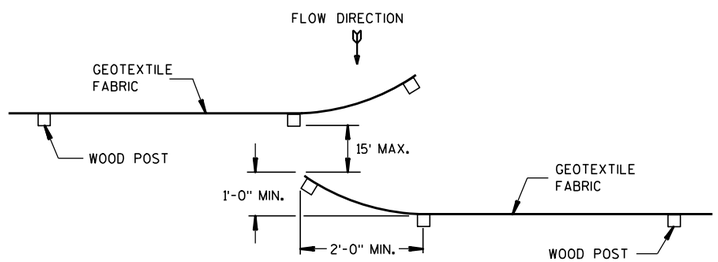
TRENCH DETAIL



SILT FENCE

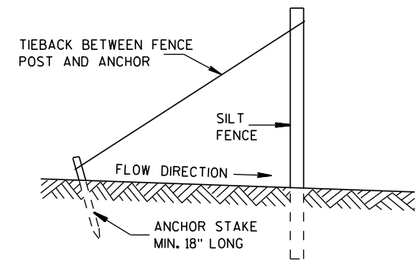


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

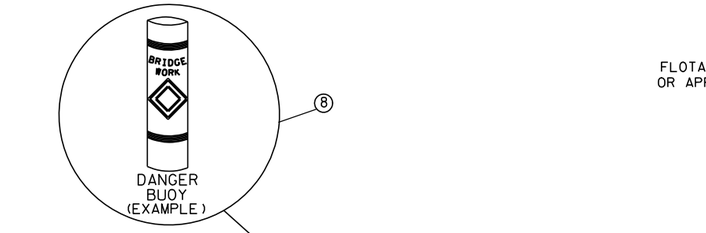
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

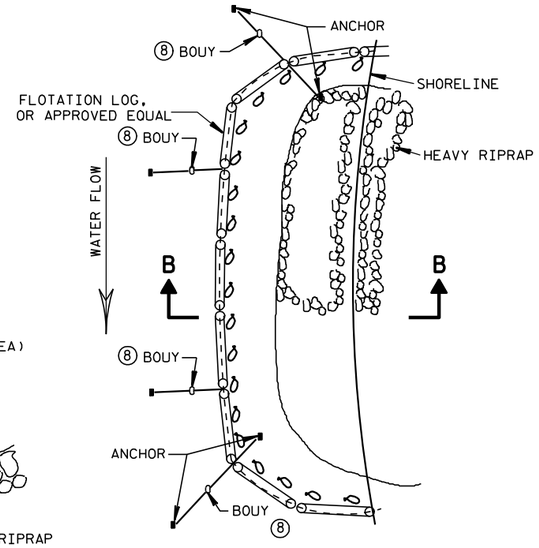
S.D.D. 8 E 9-6

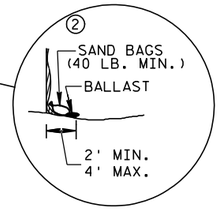
6

S.D.D. 8 E 9-6

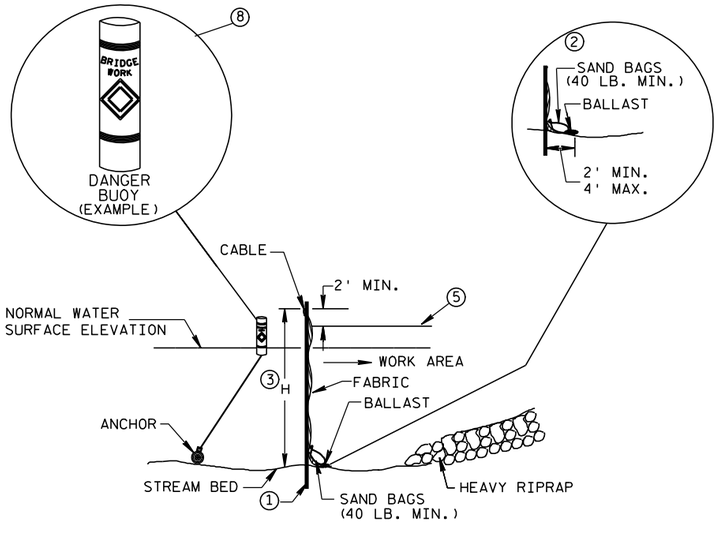


SECTION B-B

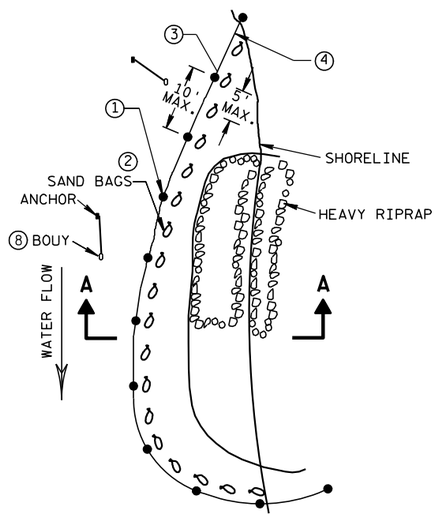




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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.

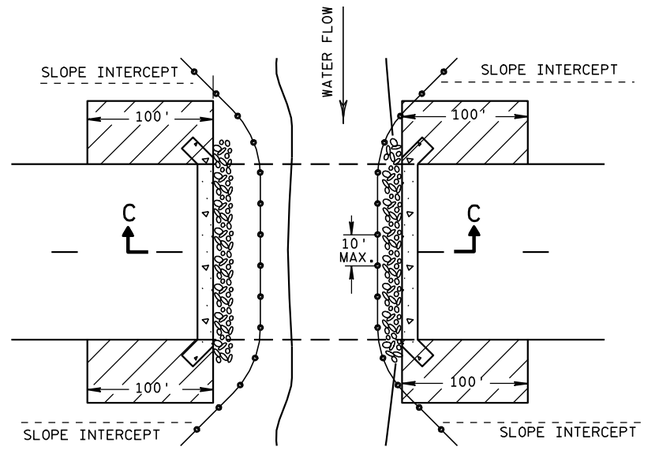
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

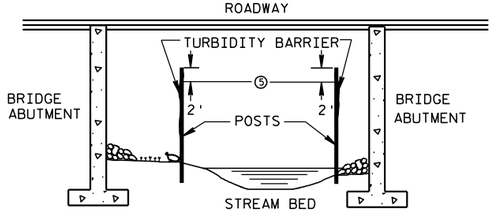
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

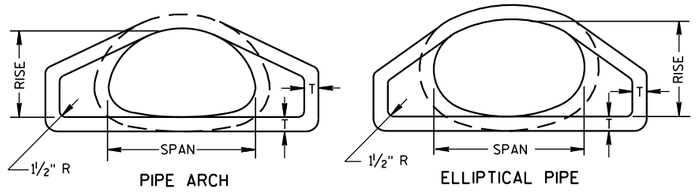
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

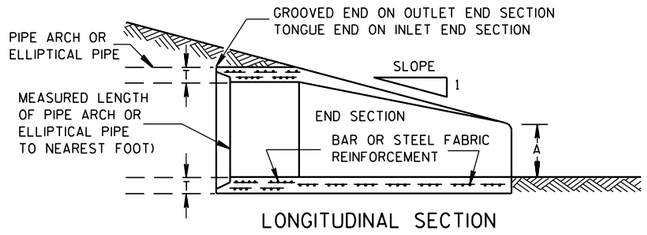
APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

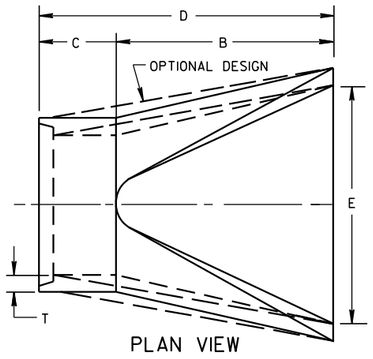
S.D.D. 8 E 11-2



END VIEW

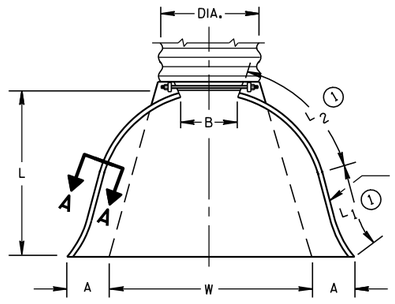


LONGITUDINAL SECTION

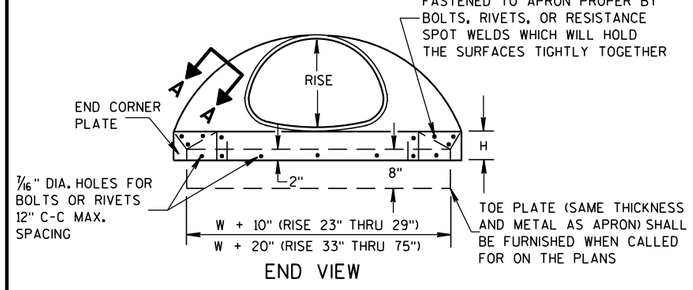


PLAN VIEW

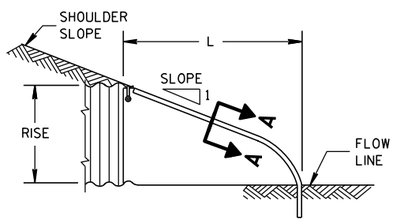
CONCRETE ENDWALLS



PLAN VIEW

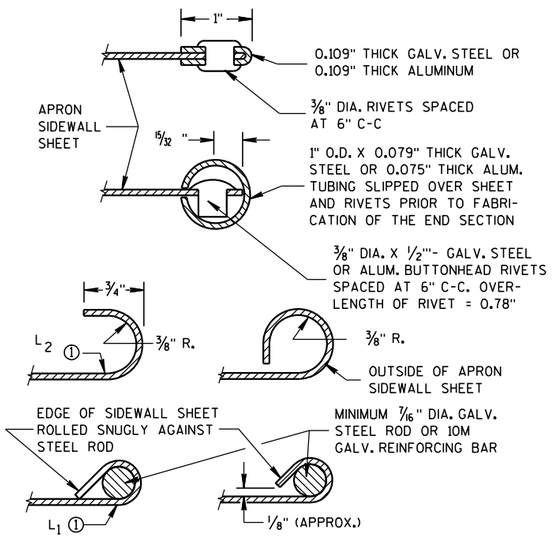


END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

2- 2/3" X 1/2" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19⅜	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37⅝	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45⅜	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

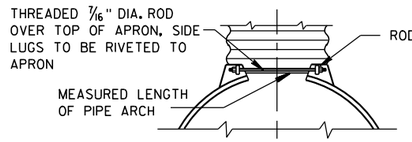
REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅛	60	36	96	72	3 to 1
42	51	31	4½	15 13/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

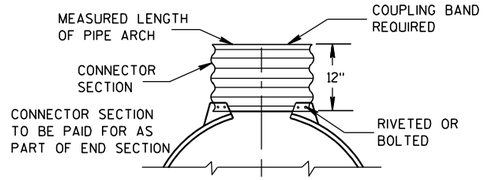
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE



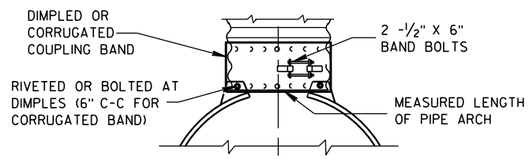
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

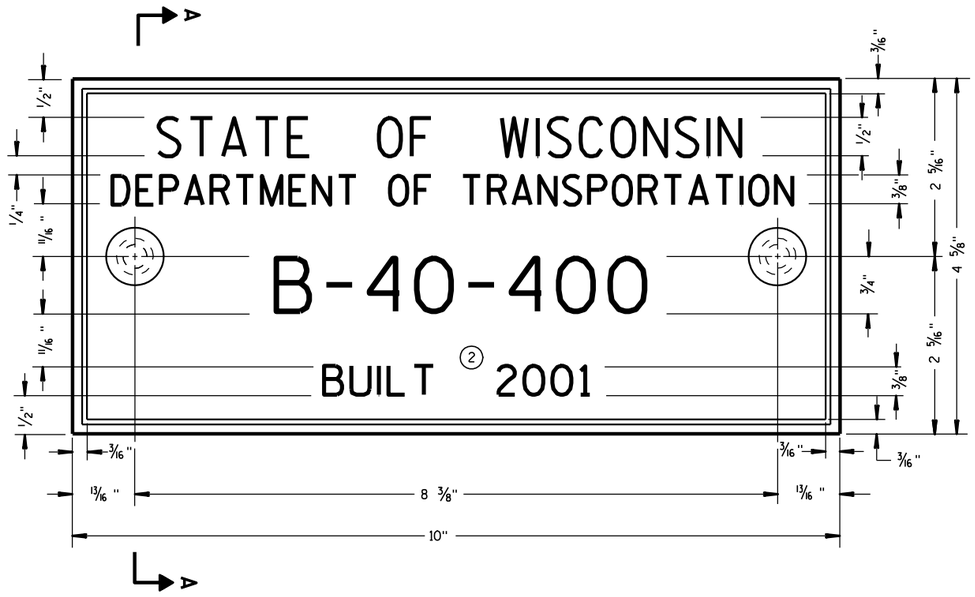
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94 — DATE

/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



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

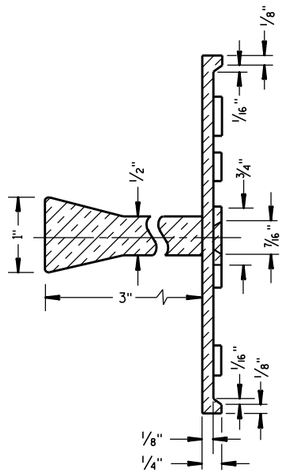
GENERAL NOTES

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.

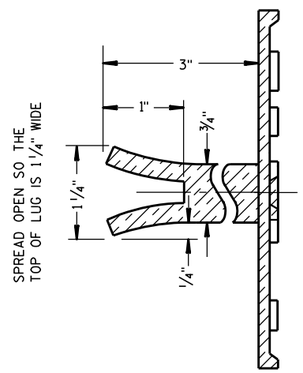
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

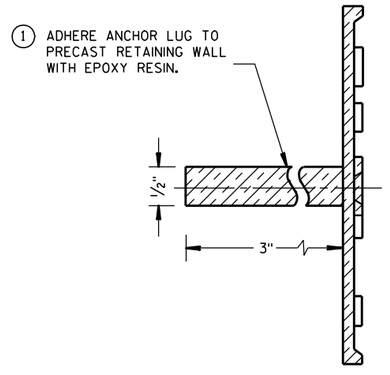
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

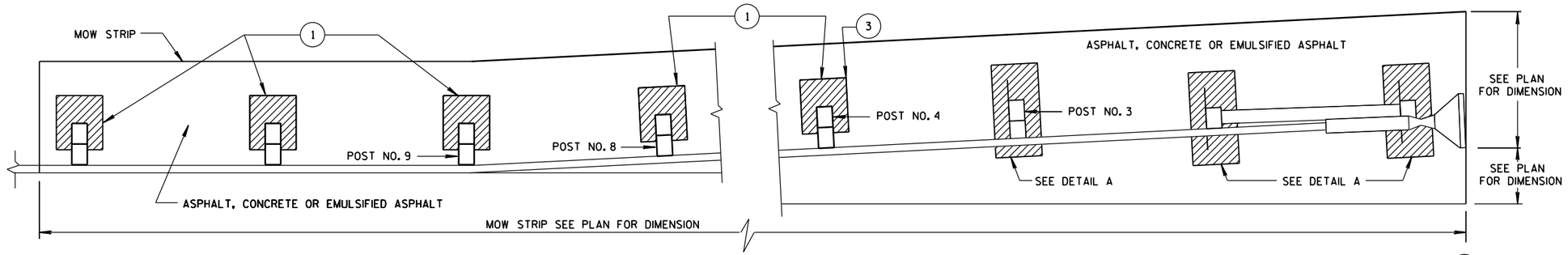
FHWA

6

S.D.D. 12 A 3-10

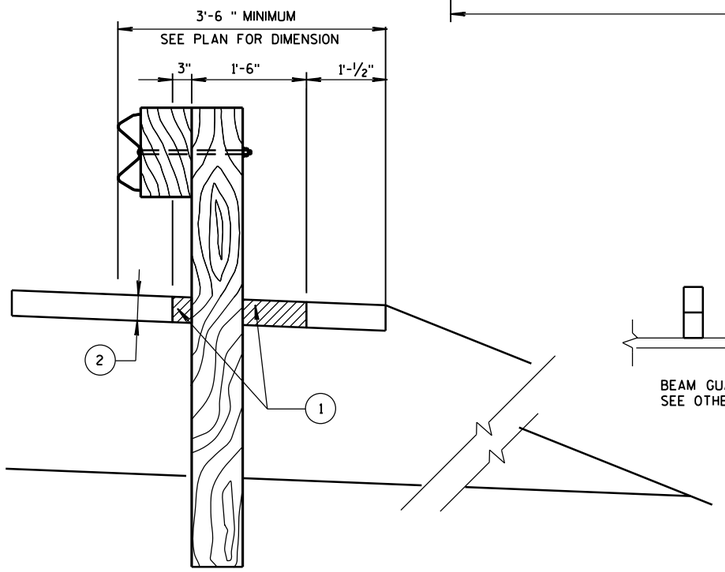
6

S.D.D. 12 A 3-10

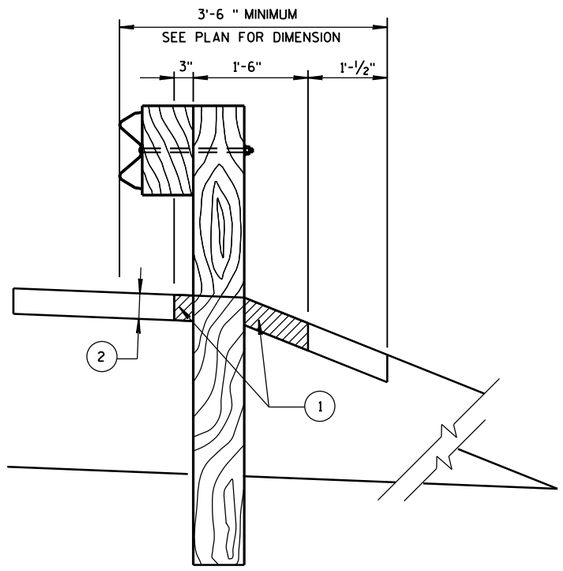


PLAN VIEW

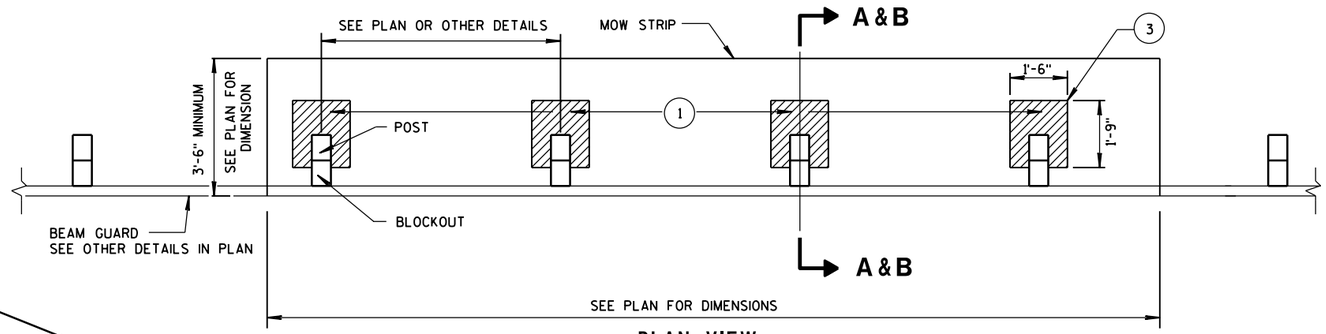
MOW STRIP LAYOUT FOR ENERGY ABORBING TERMINAL



SECTION A-A

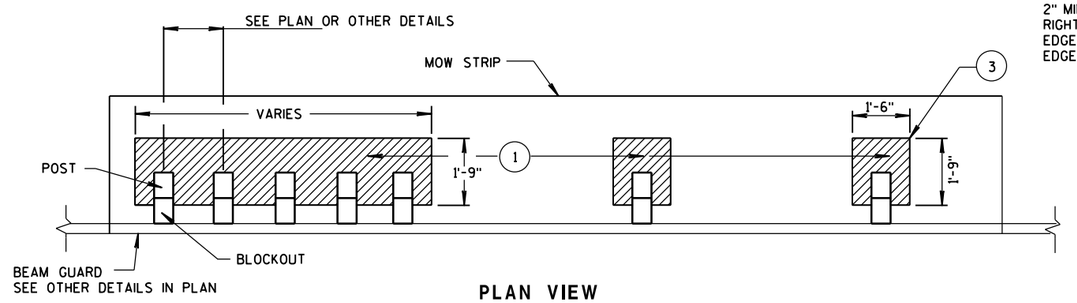


SECTION B-B



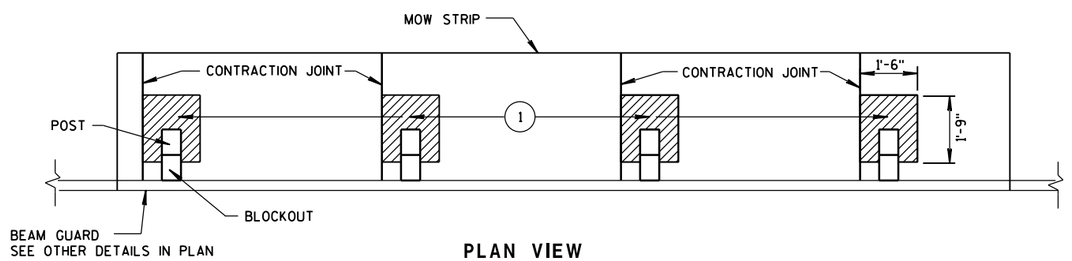
PLAN VIEW

MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



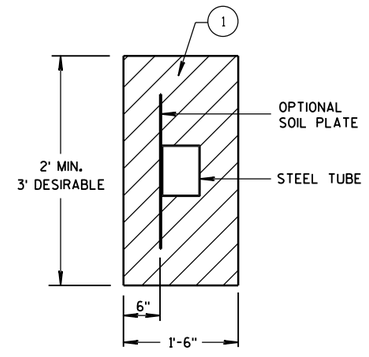
PLAN VIEW

MOW STRIP FOR TIGHT SPACING LAYOUT

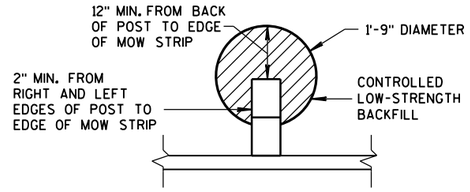


PLAN VIEW

JOINT PLACEMENT FOR CONCRETE MOW STRIP



DETAIL A



ALTERNATIVE HMA
MOW STRIP DESIGN

1. CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
2. DEPTH OF MOW STRIP:
   ASPHALT - 4"
   CONCRETE - 4"
   EMULSIFIED ASPHALT - 1" OR LESS
3. FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 14 B 28-3

6

S.D.D. 14 B 28-3

GENERAL NOTES

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

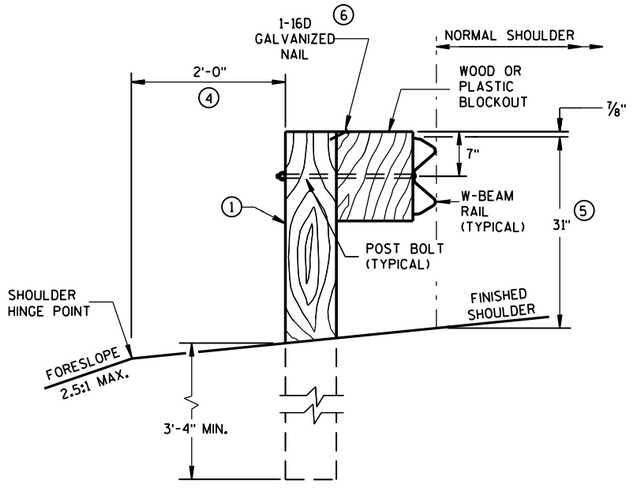
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

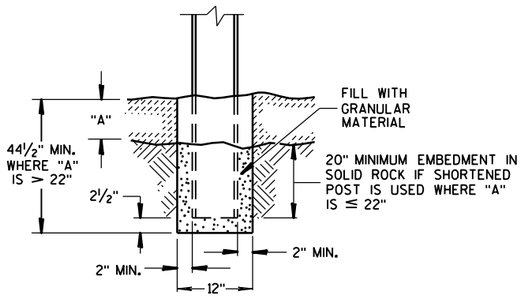
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



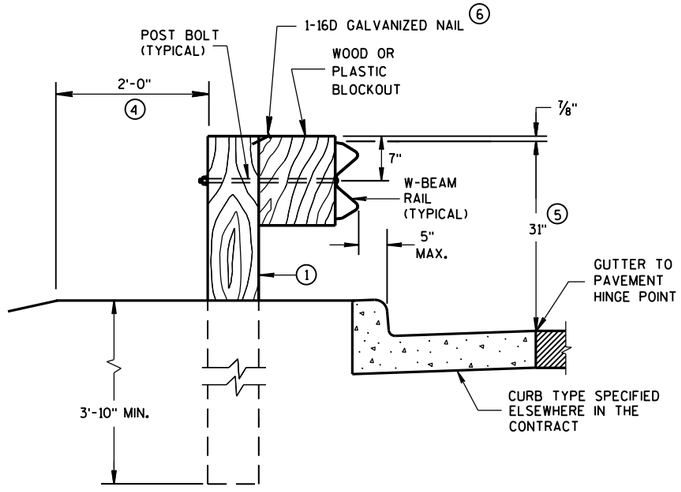
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



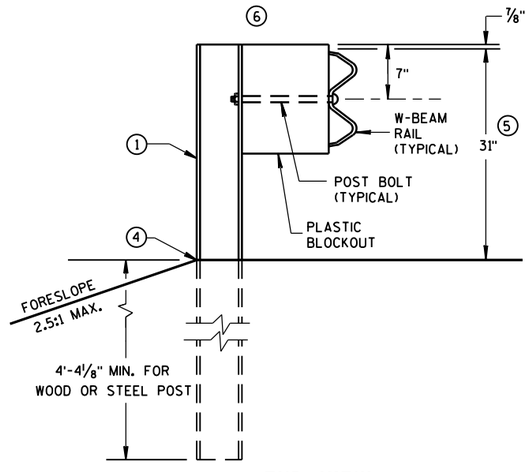
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



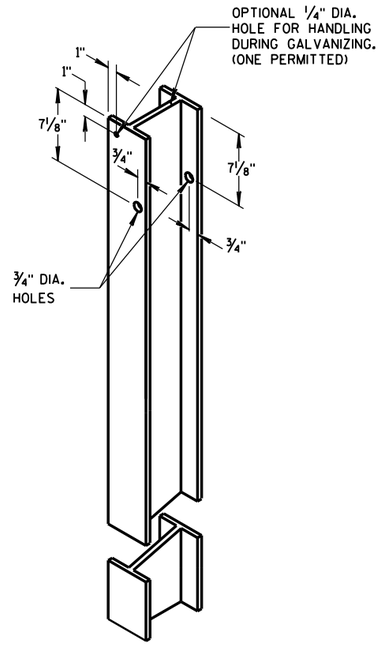
END VIEW

LOCATED ALONG A CURBED ROADWAY

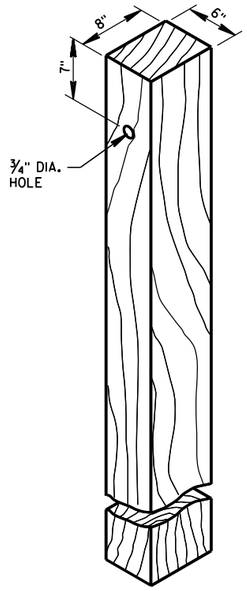


END VIEW

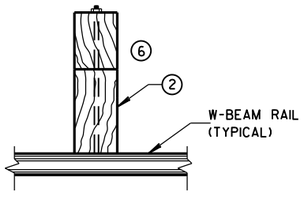
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



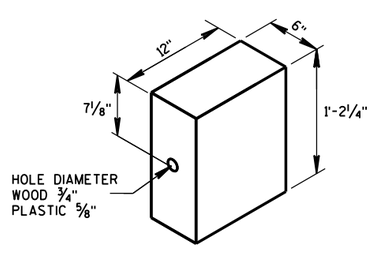
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



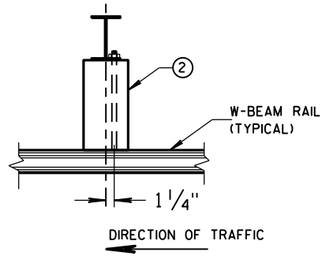
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

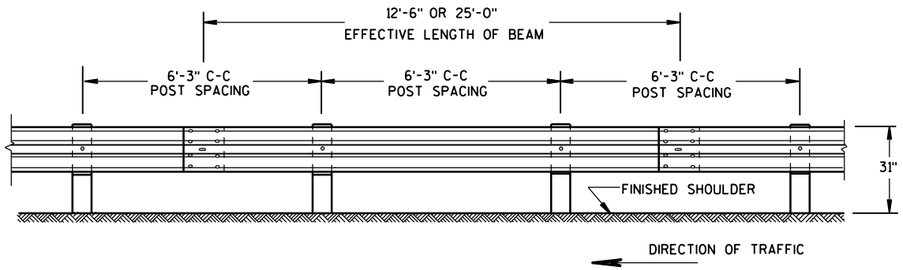


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

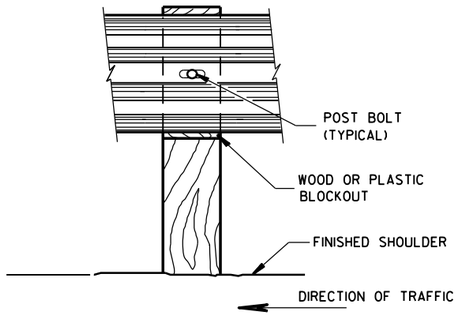
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 42-3a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

GENERAL NOTES

(7) PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

(8) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

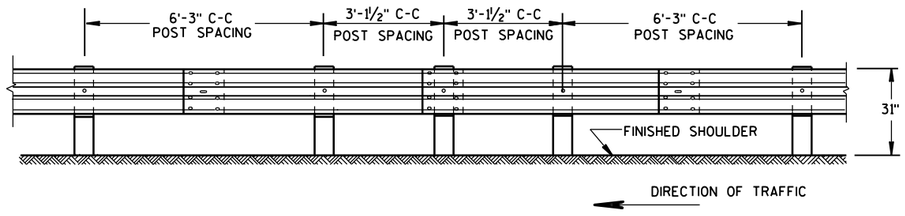
(9) REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

(10) PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

(11) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

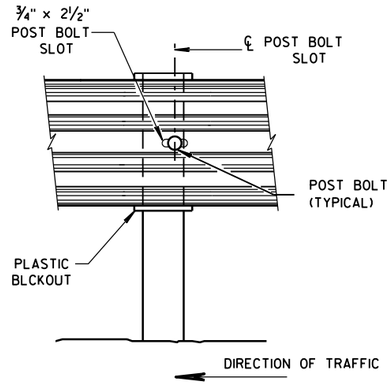
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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.

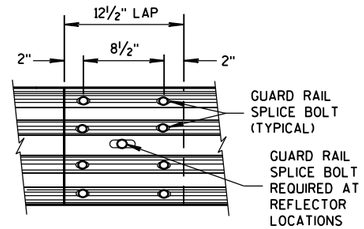


FRONT VIEW

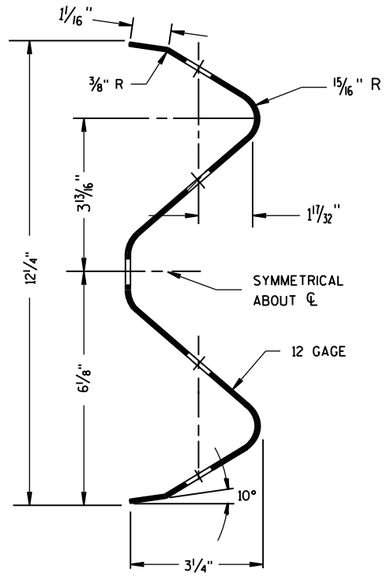
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



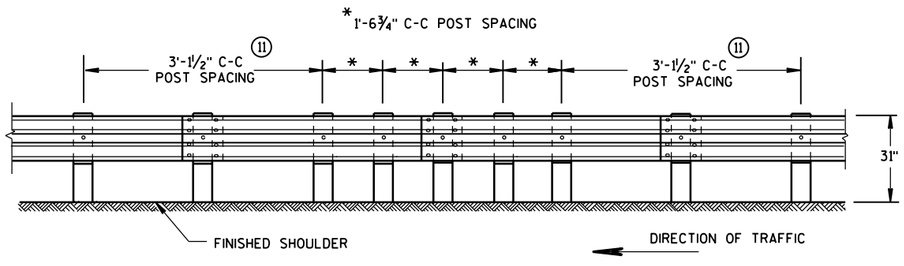
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

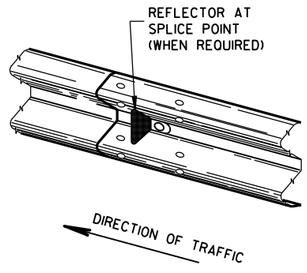


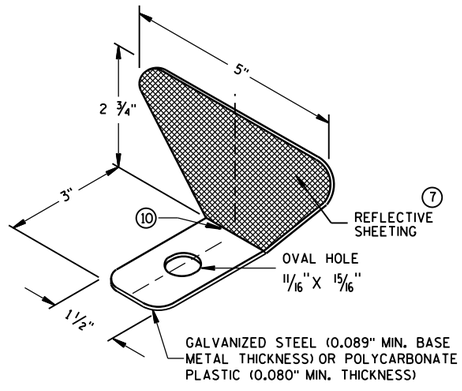
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

REFLECTOR SPACING (8)

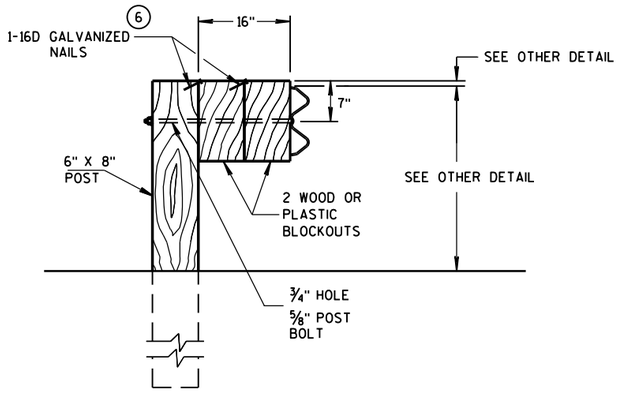
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 (9)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (10)	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

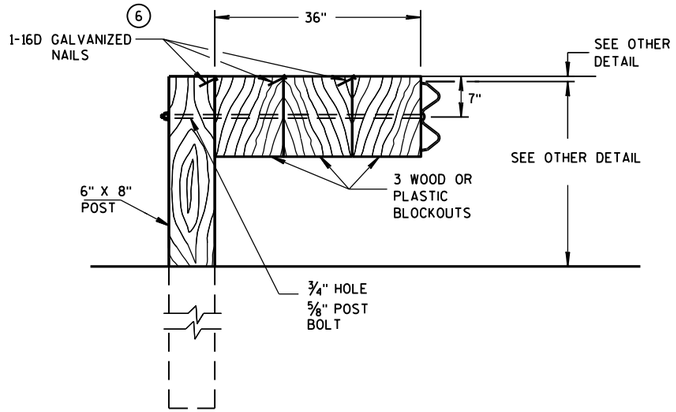
6

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



DETAIL FOR 16" BLOCKOUT DEPTH

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

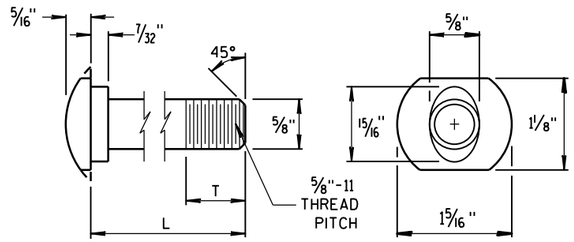


DETAIL FOR 36" BLOCKOUT DEPTH

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

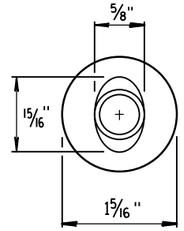
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

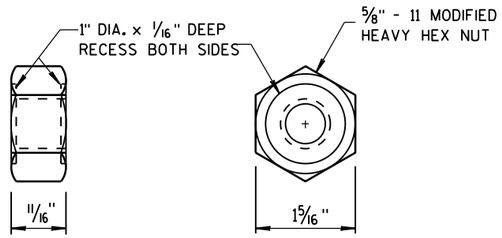


POST BOLT TABLE

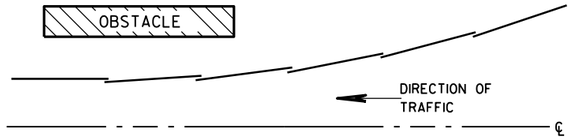
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

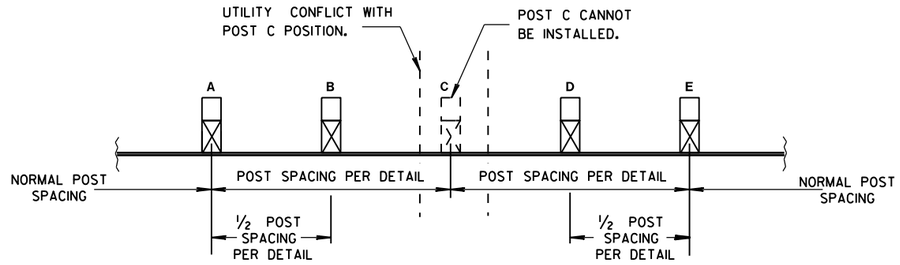


POST BOLT AND RECESS NUT

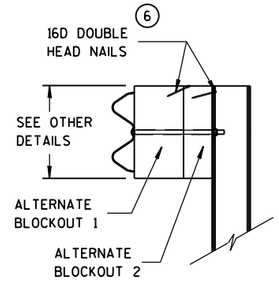


PLAN VIEW

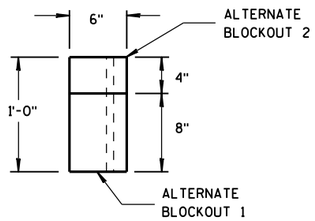
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

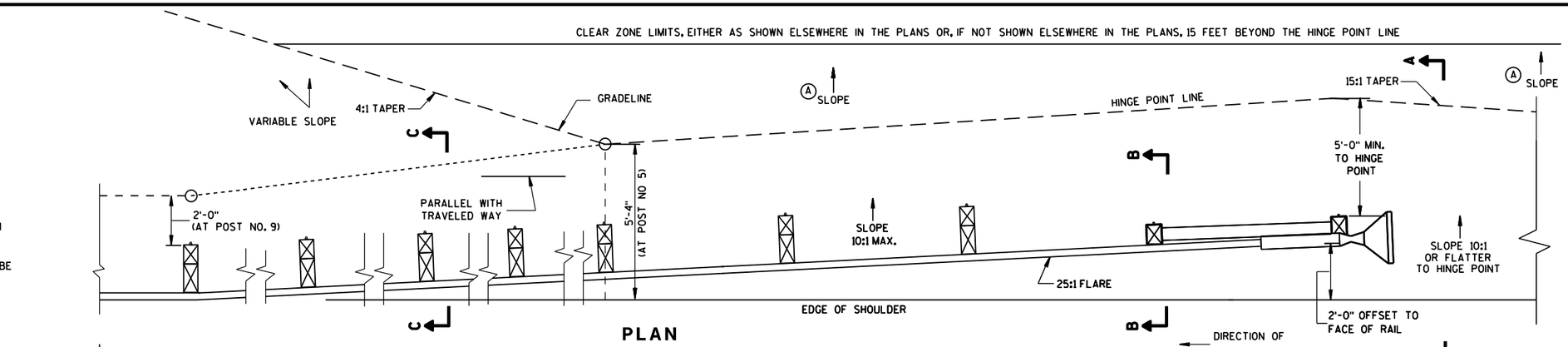
SEE SDD 14B42 FOR MORE INFORMATION.

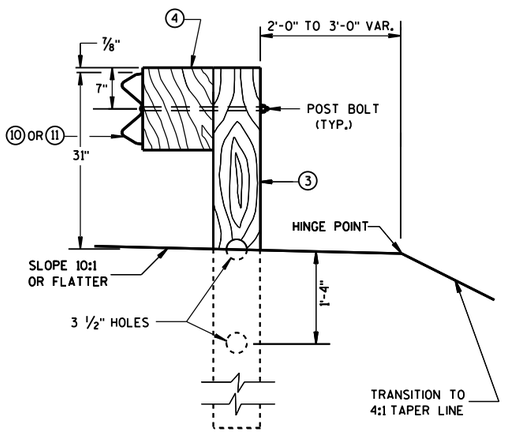
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

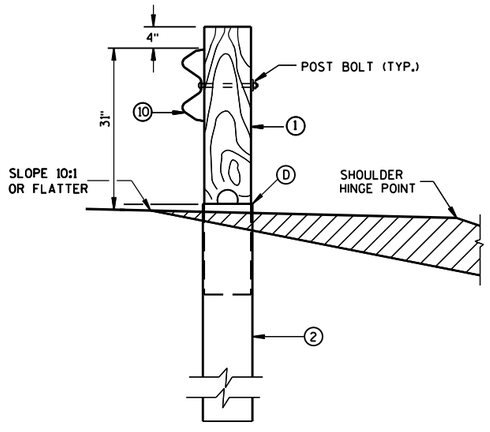
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

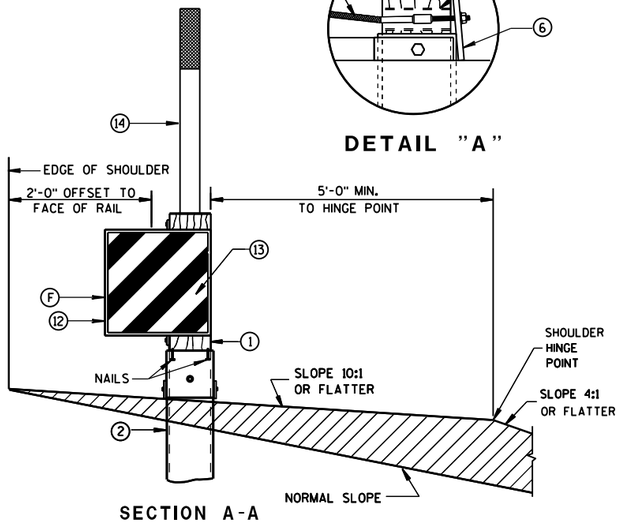




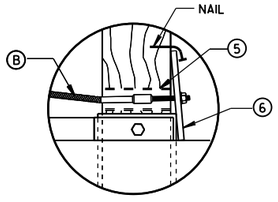
SECTION C-C
TYPICAL AT POST NOS. 3-9



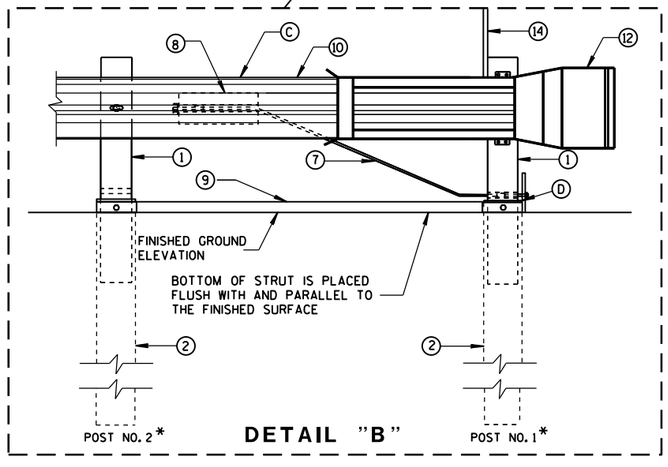
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"

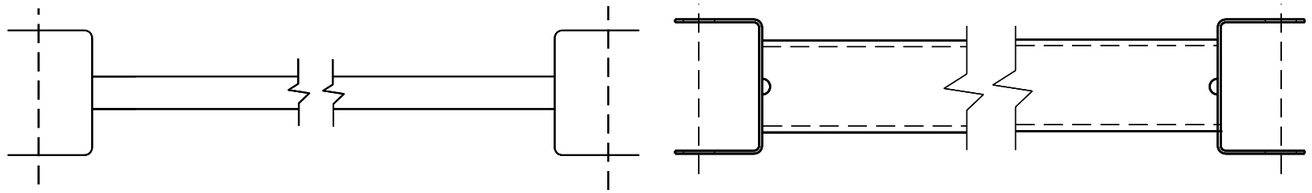


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

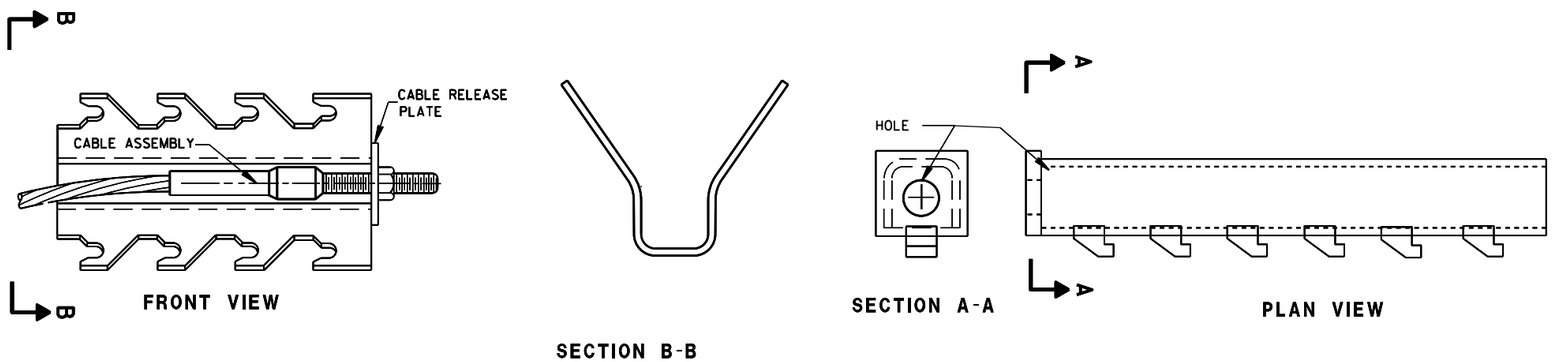
S.D.D. 14 B 44-2a



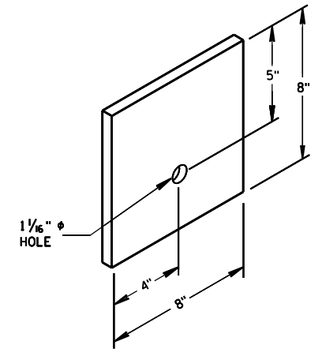
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



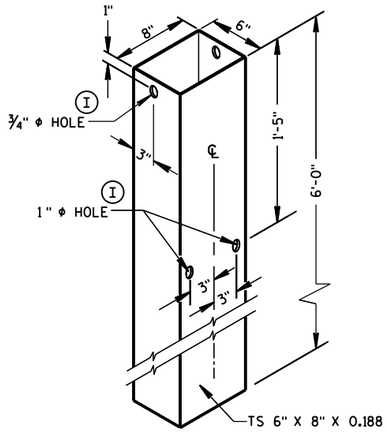
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

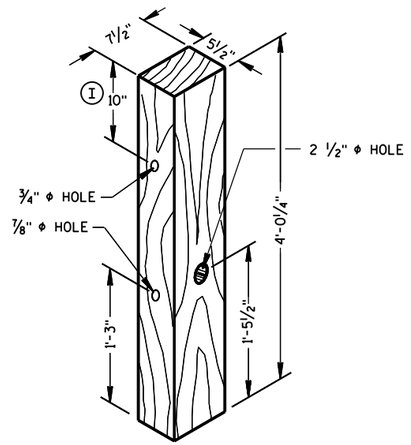
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

S.D.D. 14 B 44-2b

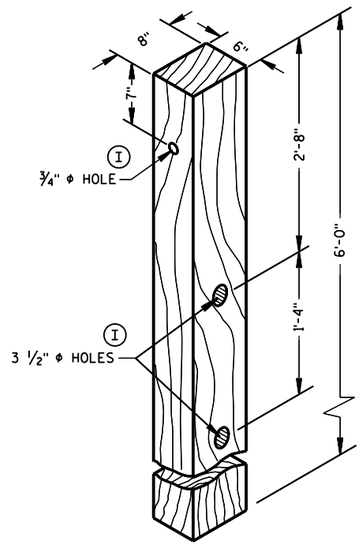


FOUNDATION TUBE (2)



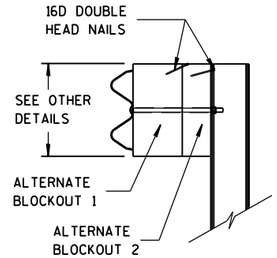
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

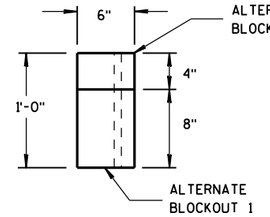


POSTS NUMBER 3-9

WOOD CRT POST (3)

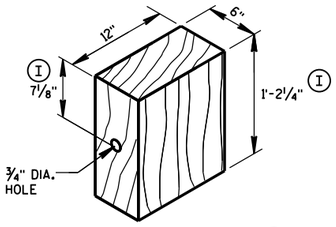


SIDE VIEW



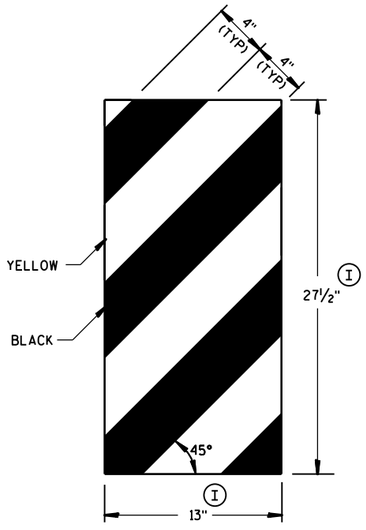
TOP VIEW

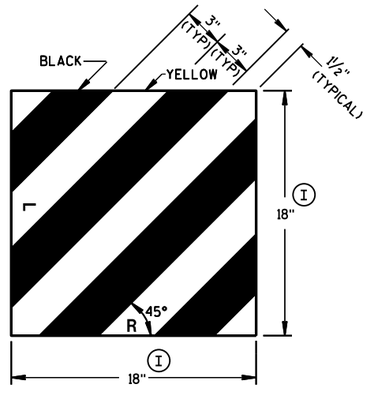
ALTERNATE WOOD BLOCKOUT DETAIL



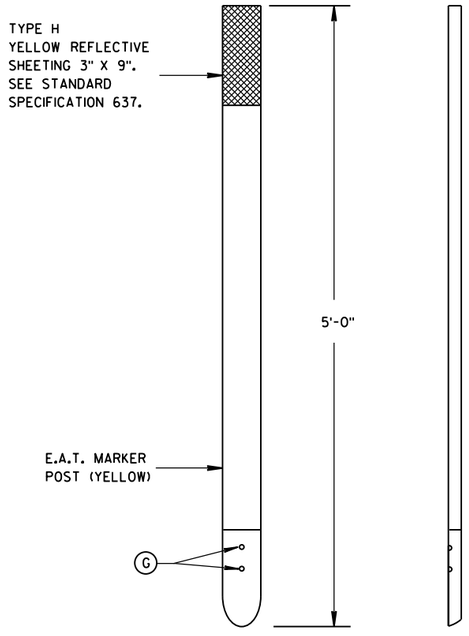
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





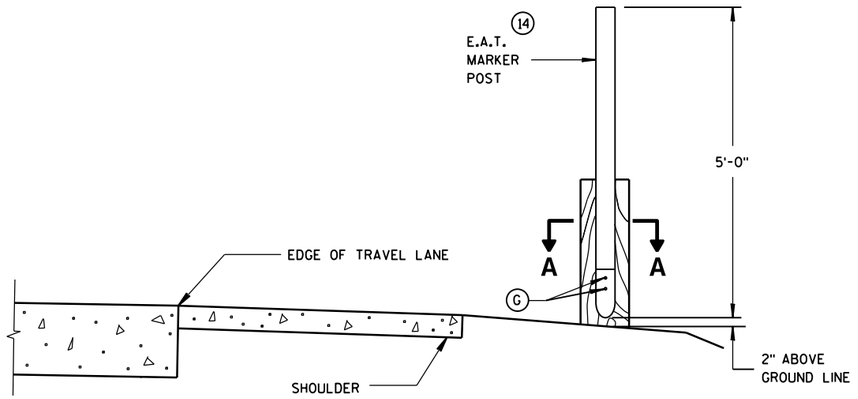
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

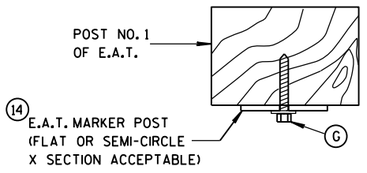
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

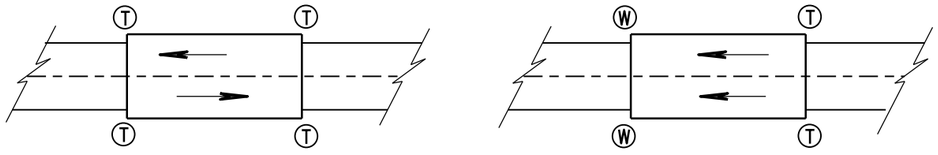
APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-2c

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

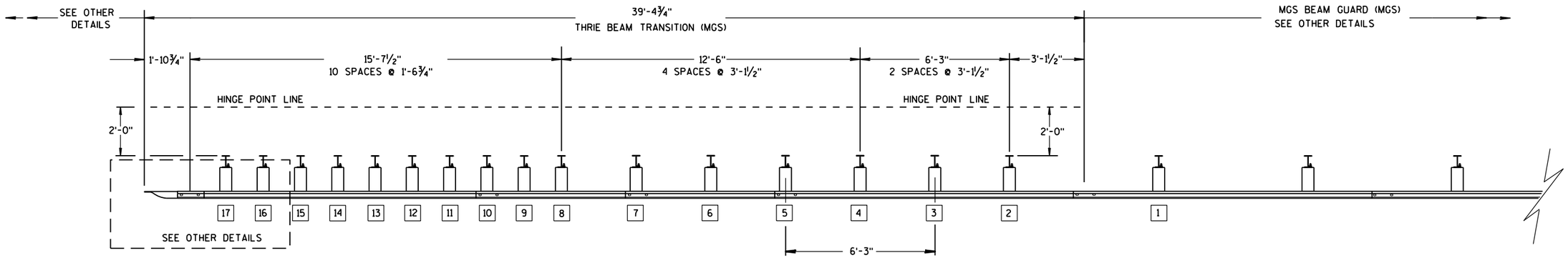
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

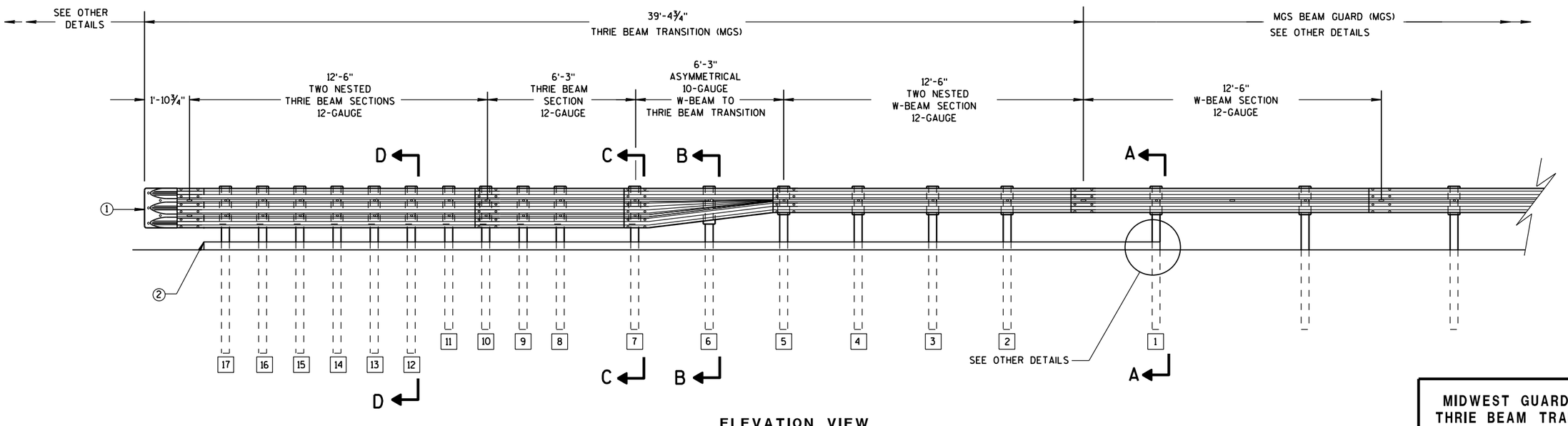
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

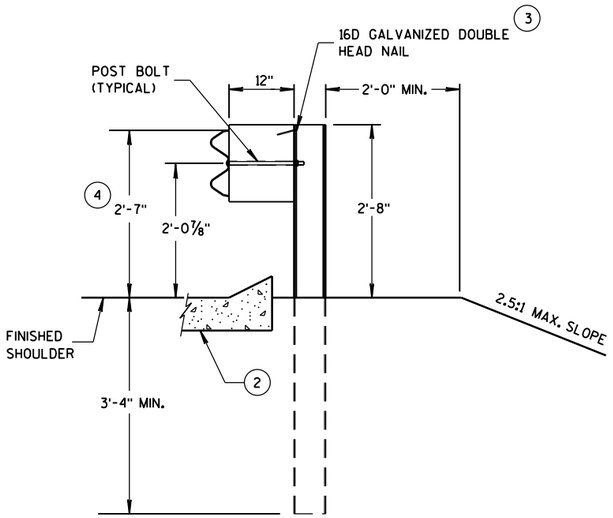
S.D.D. 14 B 45-4a

GENERAL NOTES

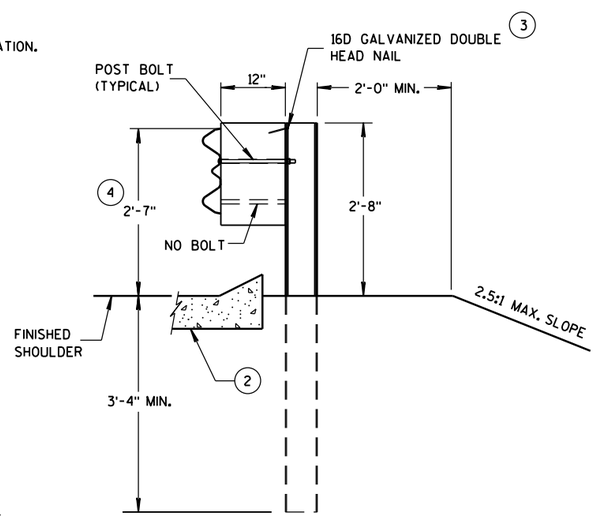
(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

(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.

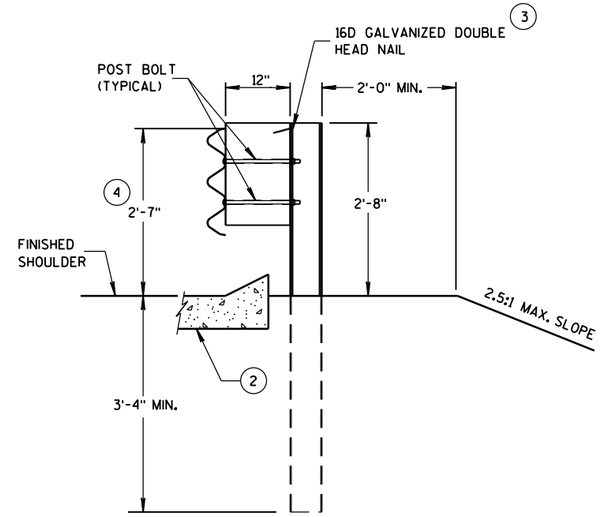
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



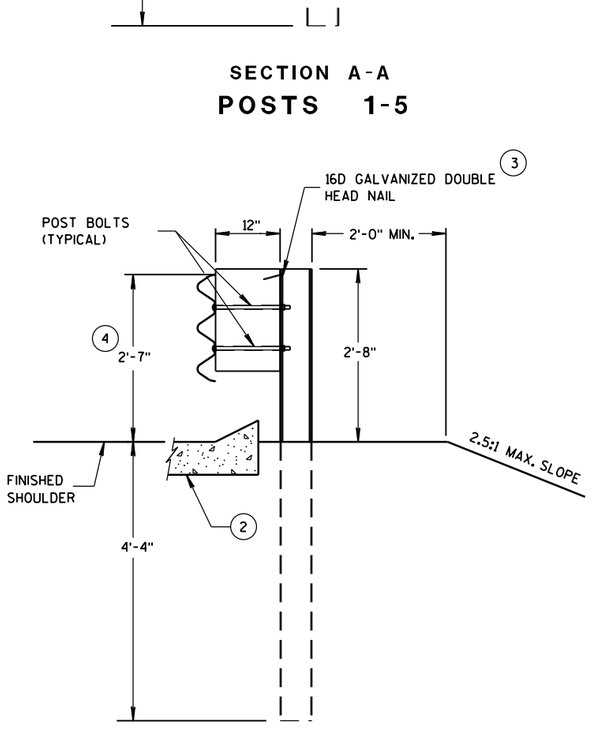
SECTION A-A
POSTS 1-5



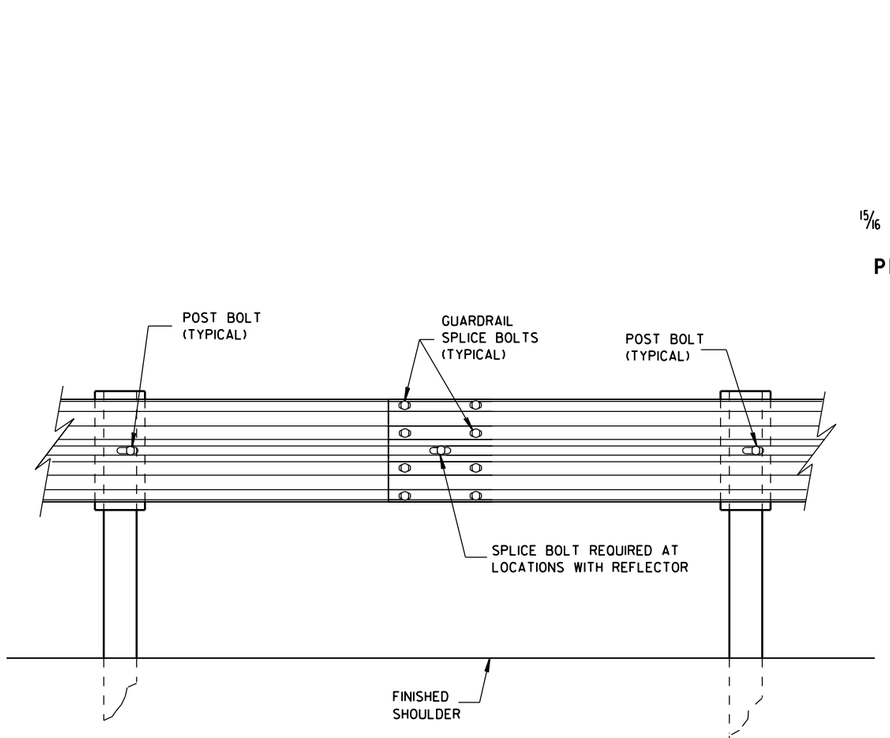
SECTION B-B
POST 6



SECTION C-C
POSTS 7-11



SECTION D-D
POSTS 12-17



SPLICE DETAIL

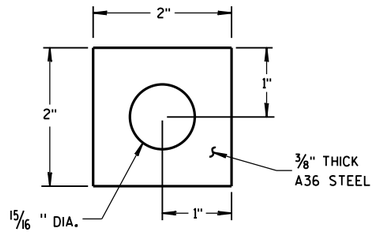
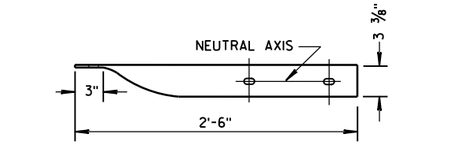
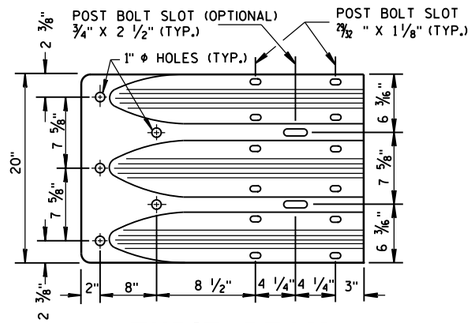
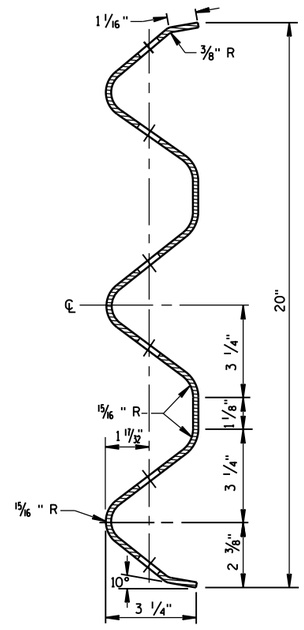


PLATE WASHER DETAIL





THRIE BEAM TERMINAL CONNECTOR



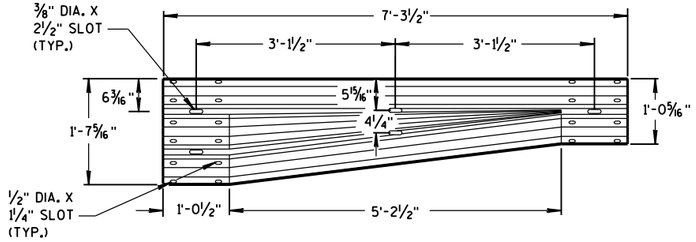
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

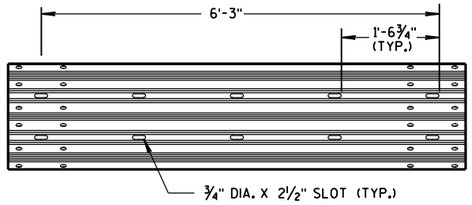
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

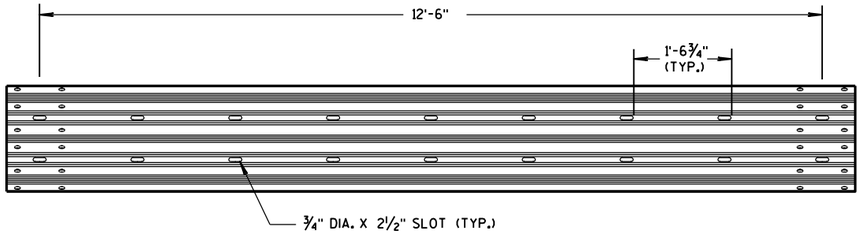
S.D.D. 14 B 45-4b



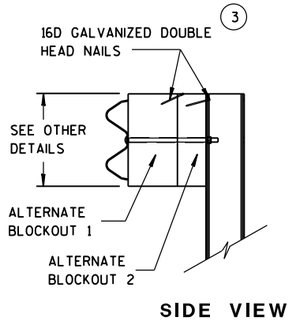
W-BEAM TO THRIE BEAM TRANSITION SECTION



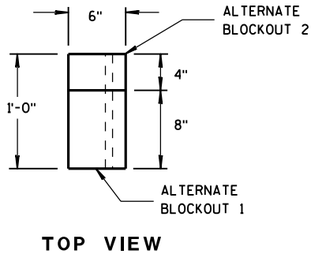
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

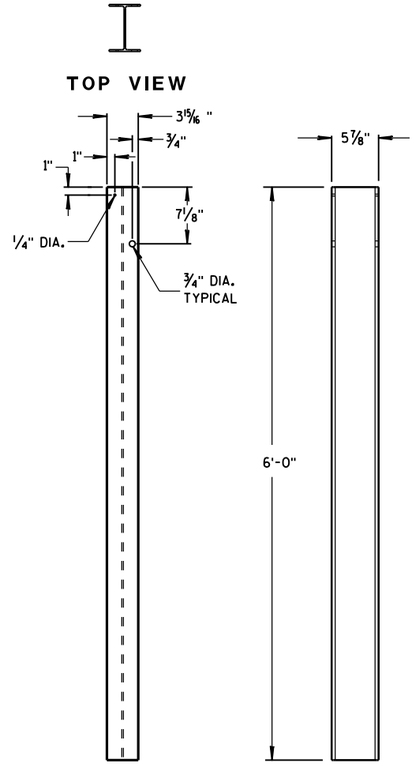


SIDE VIEW



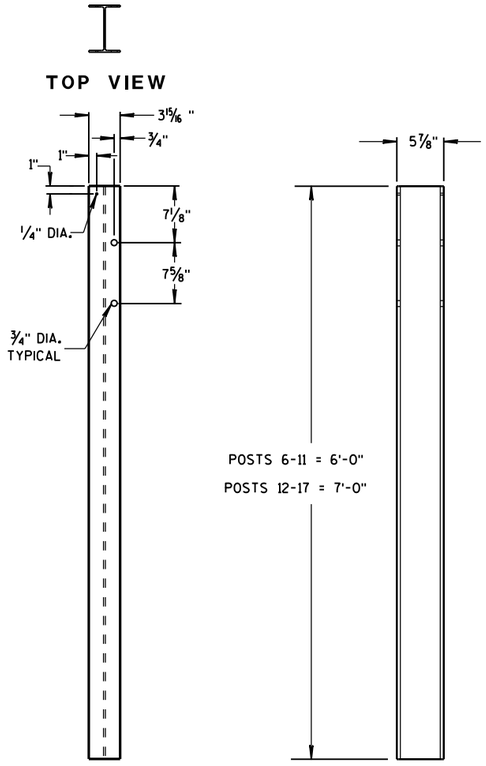
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



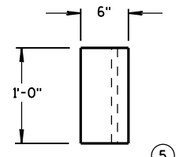
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

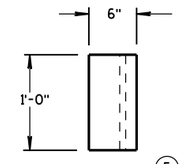


FRONT VIEW SIDE VIEW

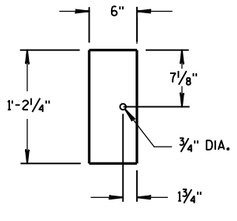
STEEL POSTS 6-17



TOP VIEW (5)

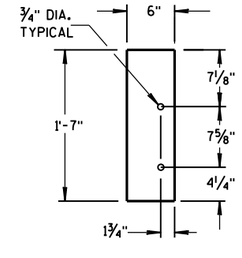


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

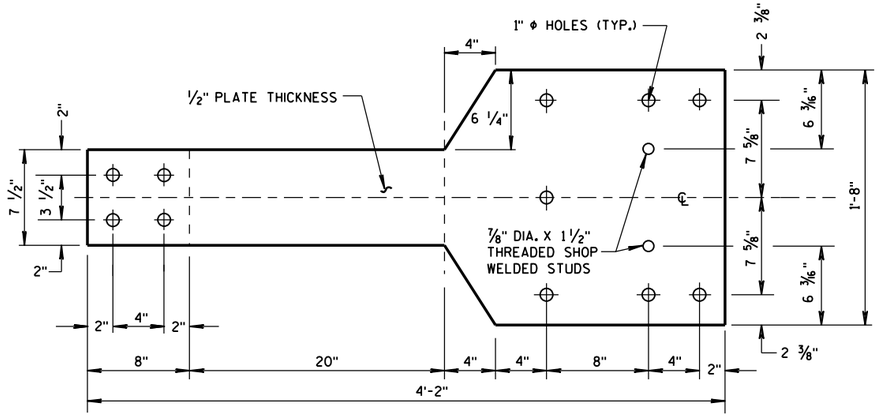
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

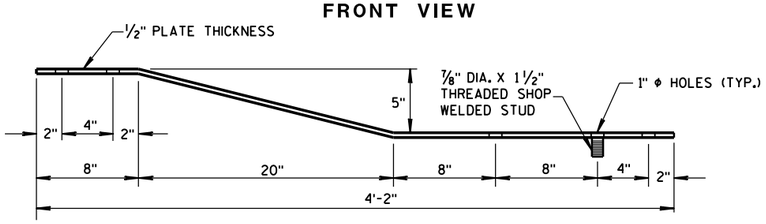
S.D.D. 14 B 45-4c

GENERAL NOTES

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

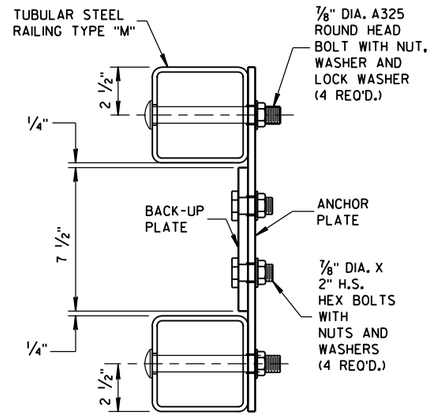


FRONT VIEW

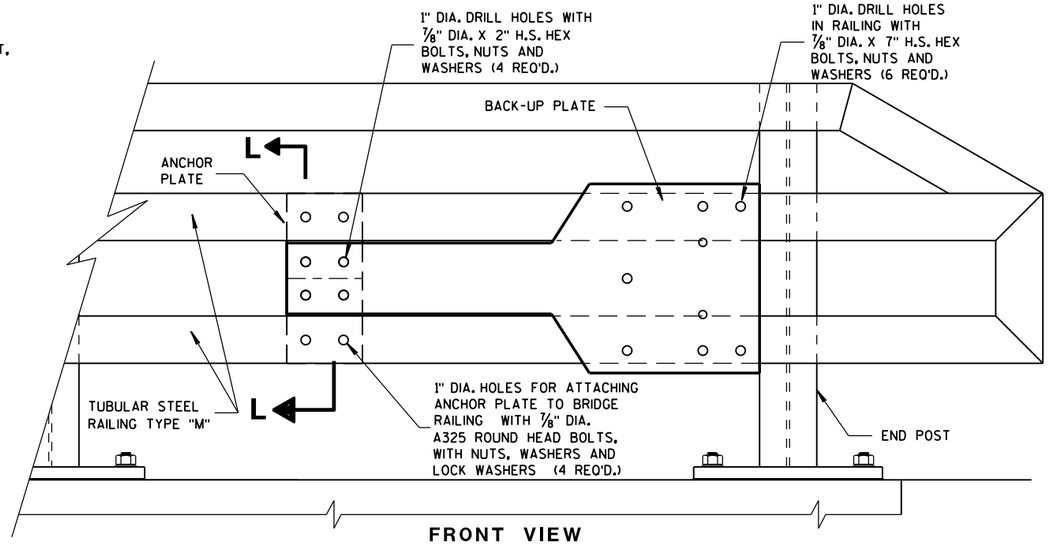


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

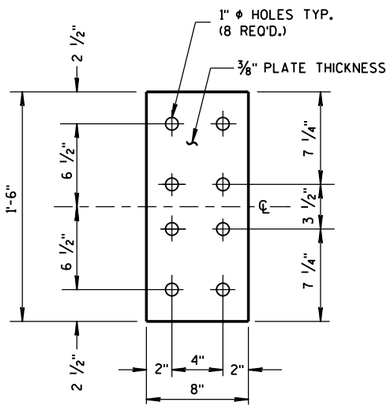


SECTION L-L



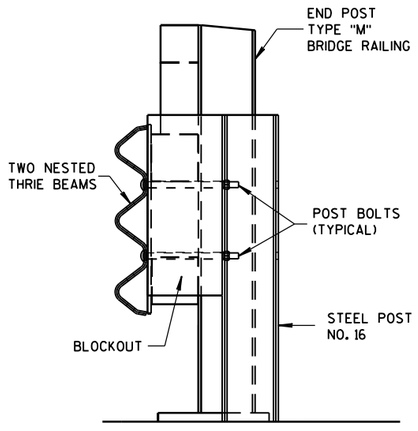
FRONT VIEW

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

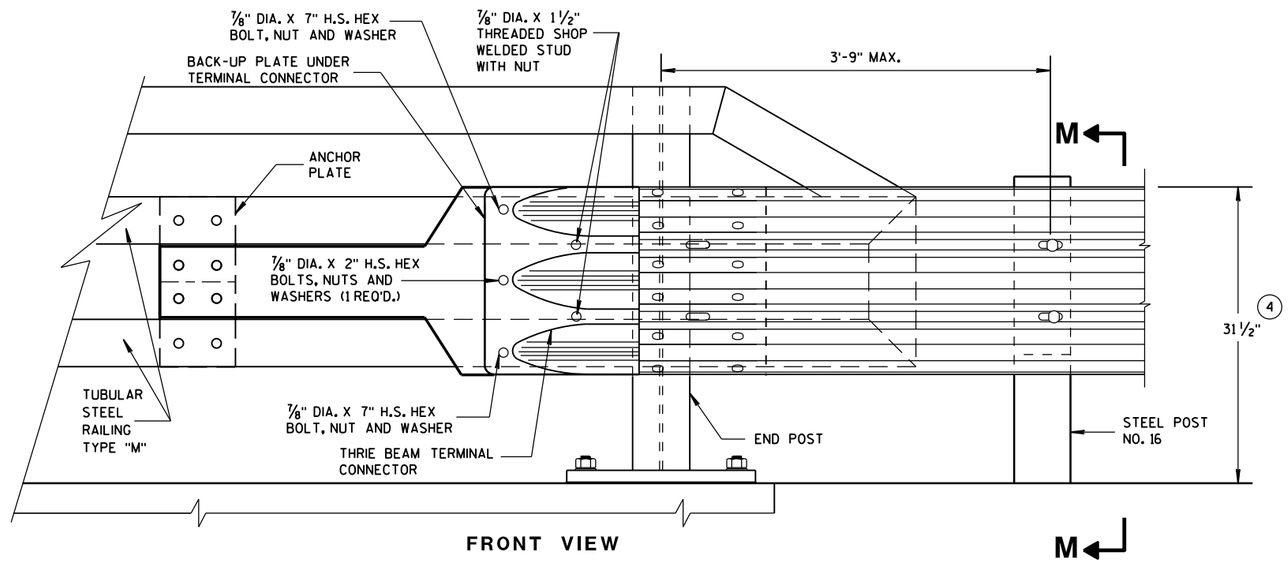


FRONT VIEW

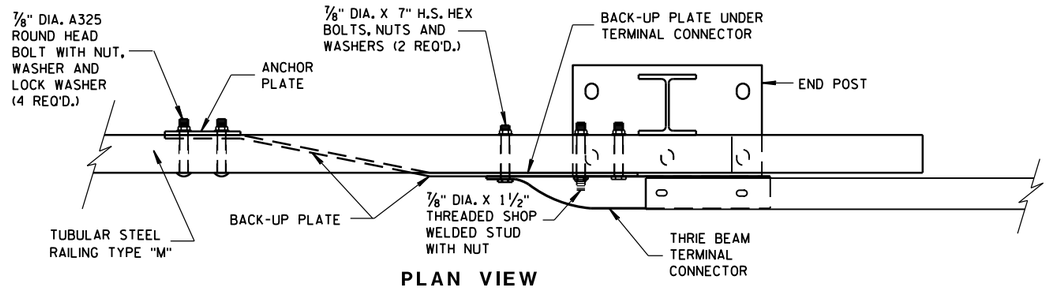
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

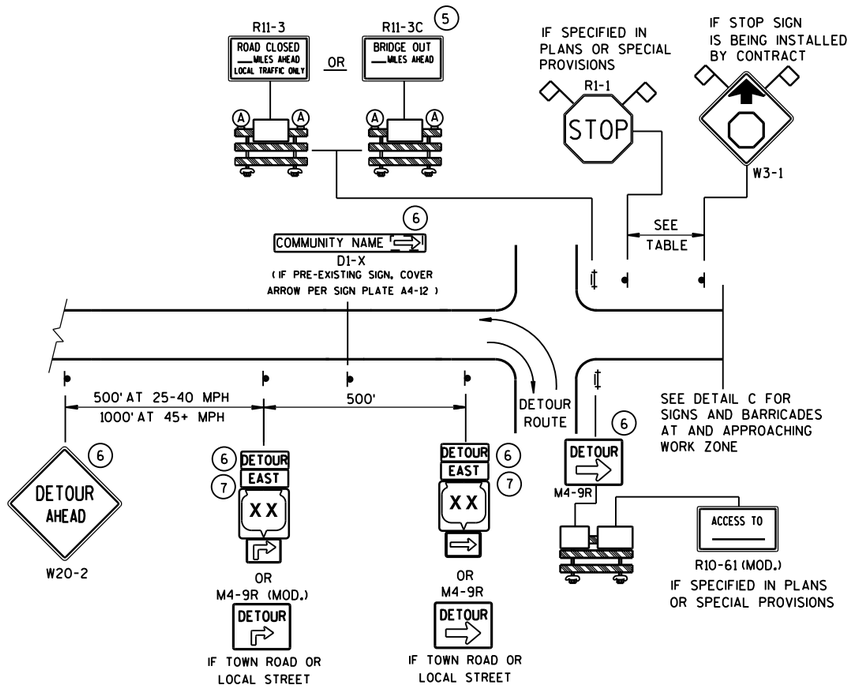
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 45-4h

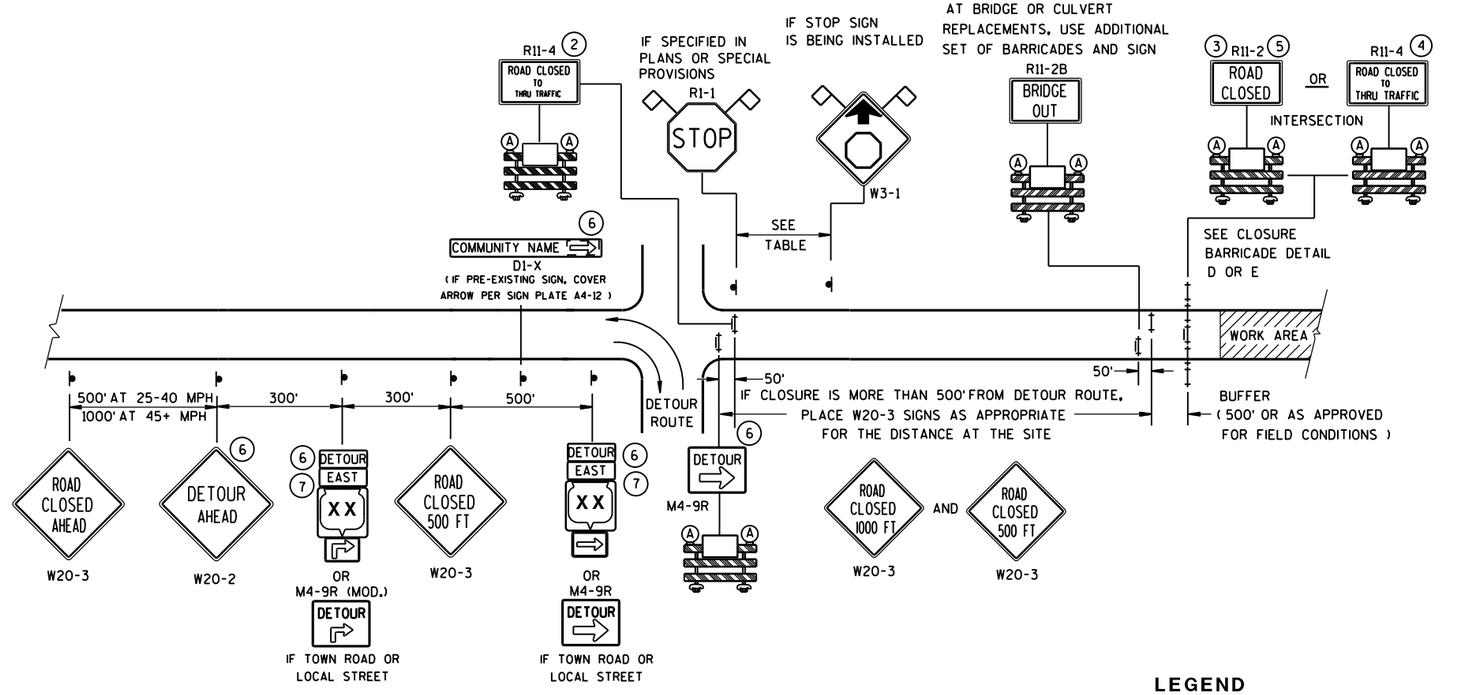
6

S.D.D. 14 B 45-4h



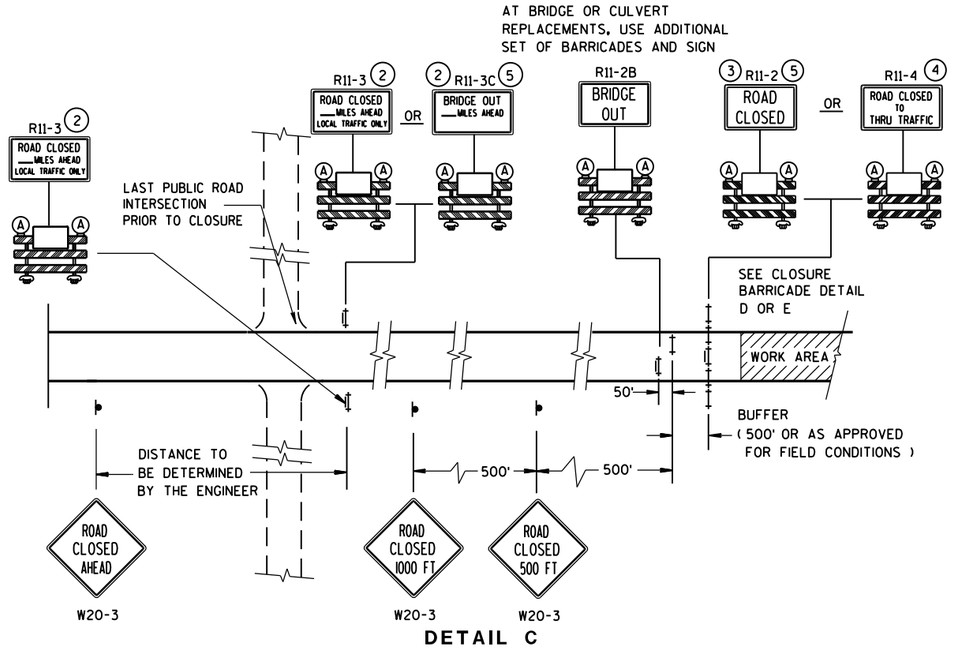
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

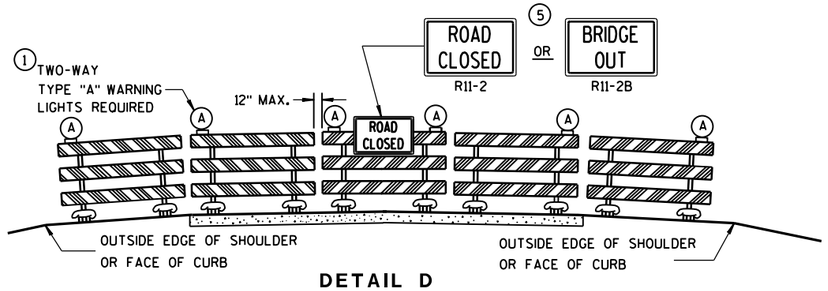
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

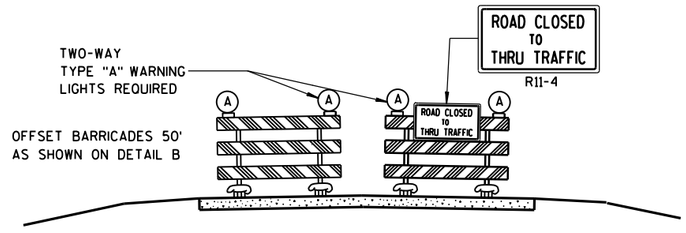
S.D.D. 15 C 2-5a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

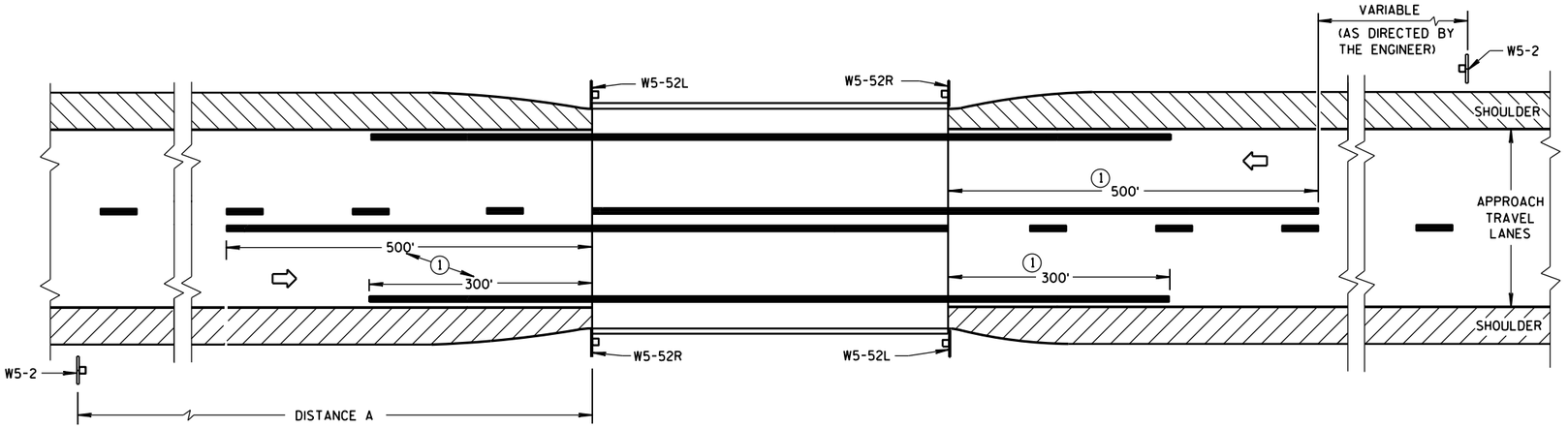
8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 2-5b



GENERAL NOTES

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

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

(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(2) FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.

(3) LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

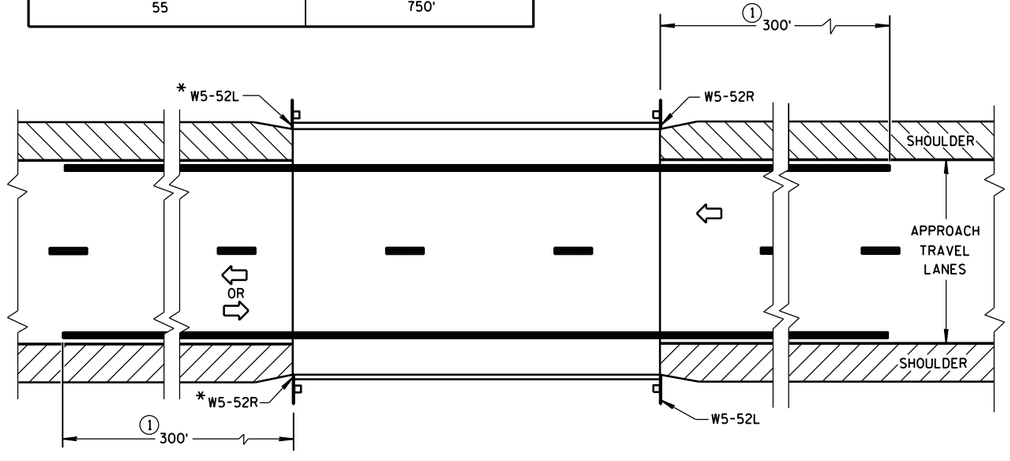
DISTANCE TABLE

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

SITUATION 1

WARRANTING CRITERIA:

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

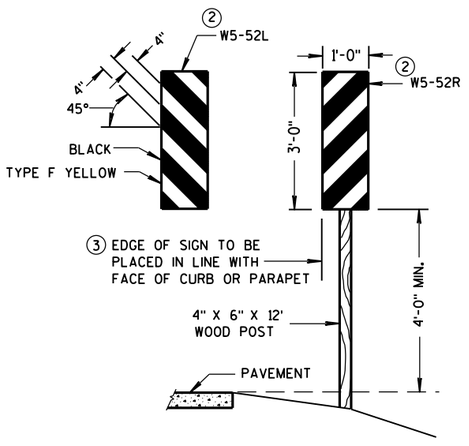


*OMIT ON ONE-WAY TRAVELLED WAYS

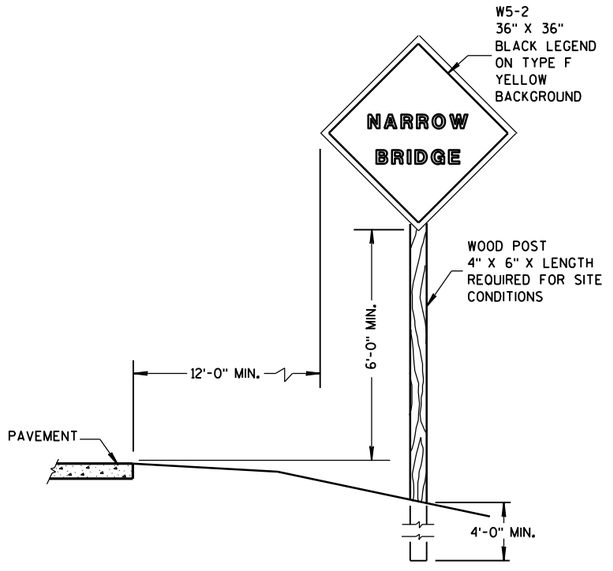
SITUATION 2

WARRANTING CRITERIA:

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

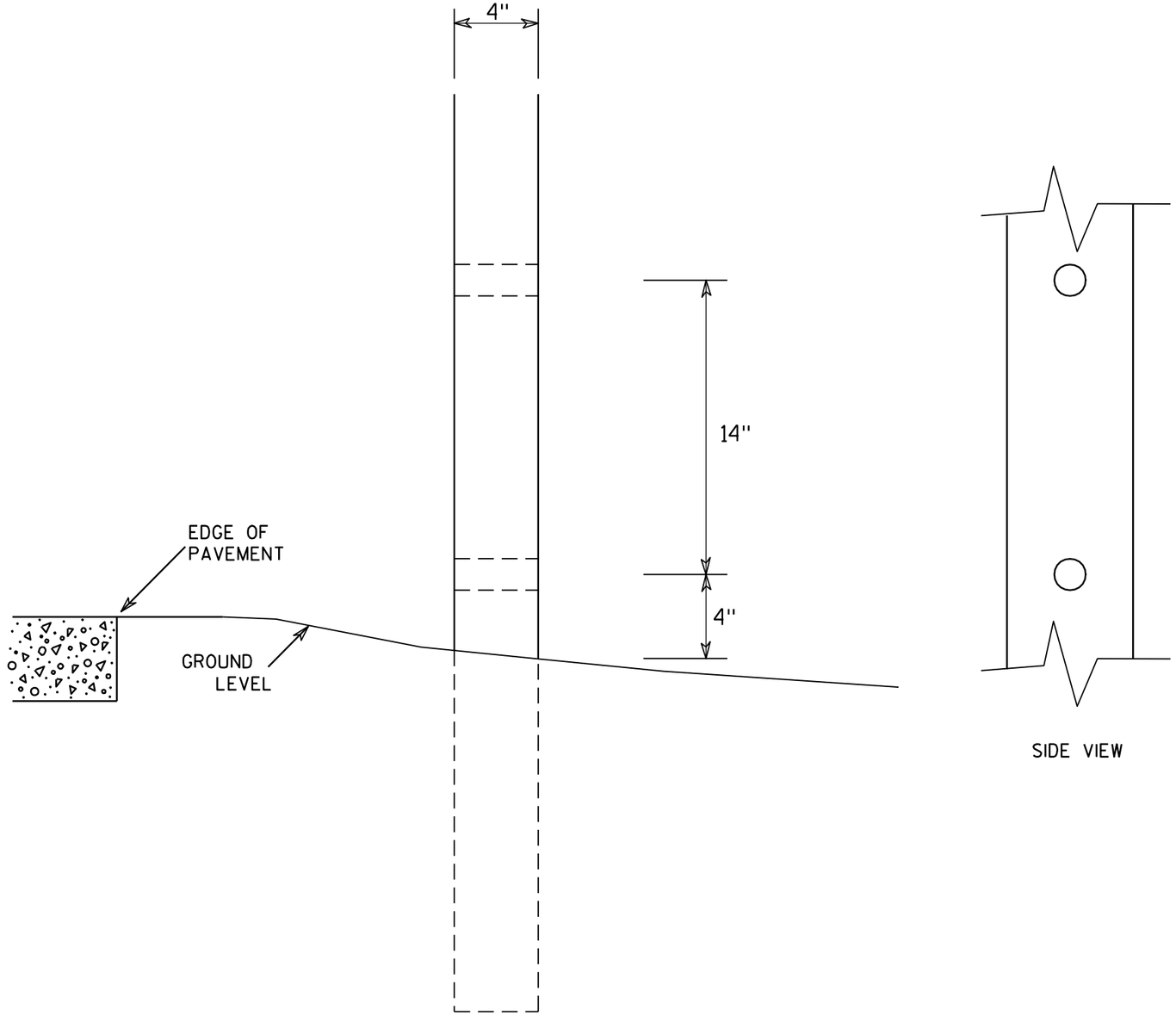
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 6-7



SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

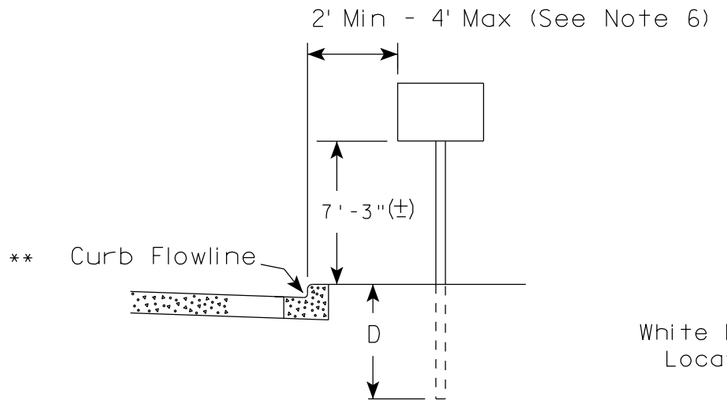
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

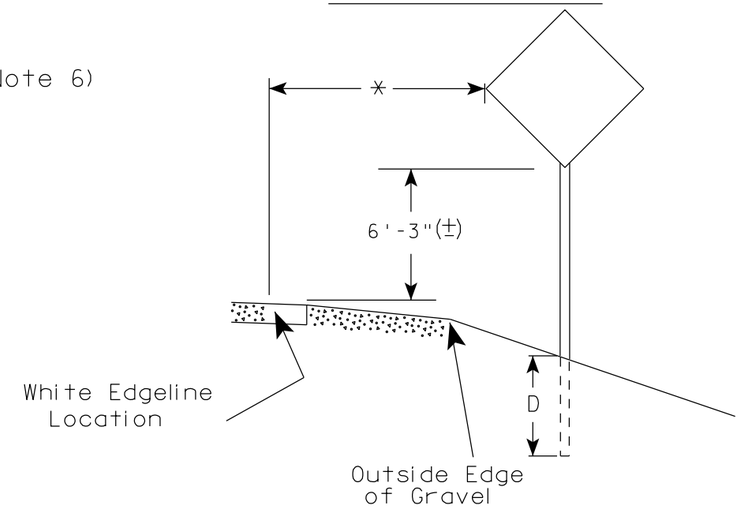
DATE 3/27/97 PLATE NO. A4-11.2

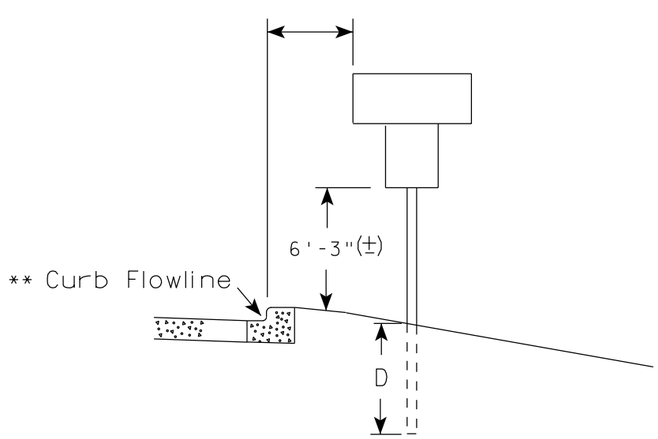
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 33	E

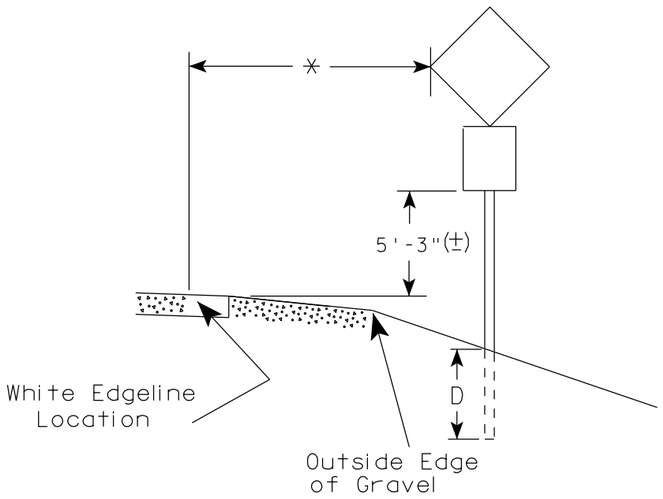
URBAN AREA



RURAL AREA (See Note 2)







GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

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

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

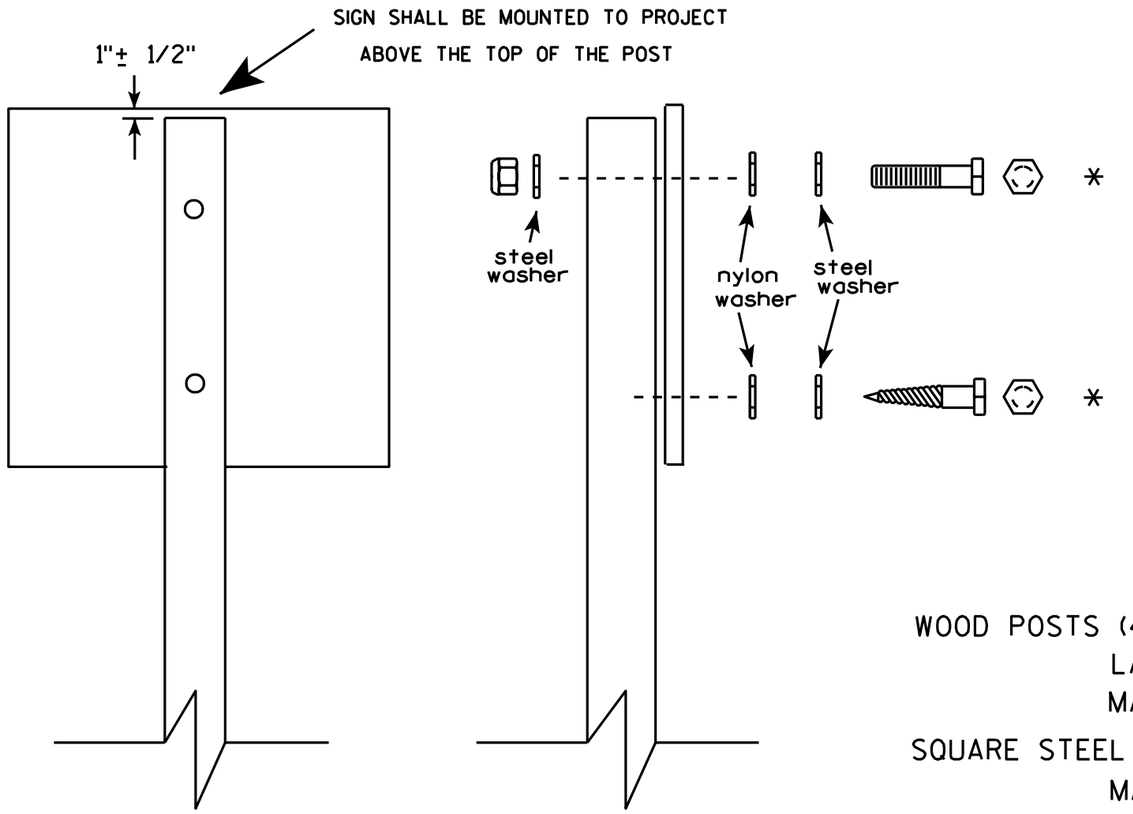
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

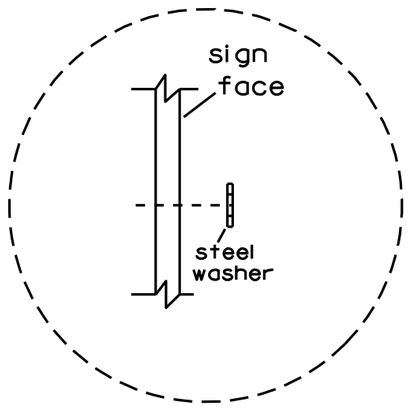
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

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

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

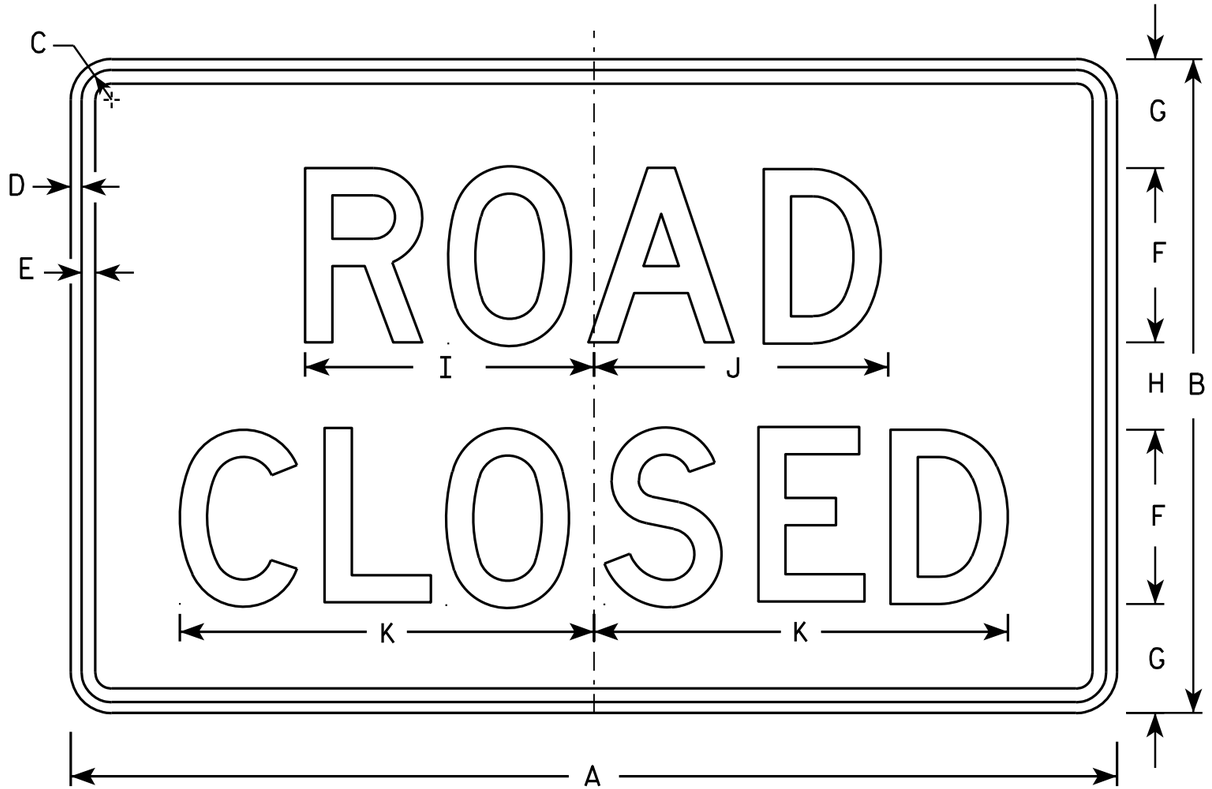
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

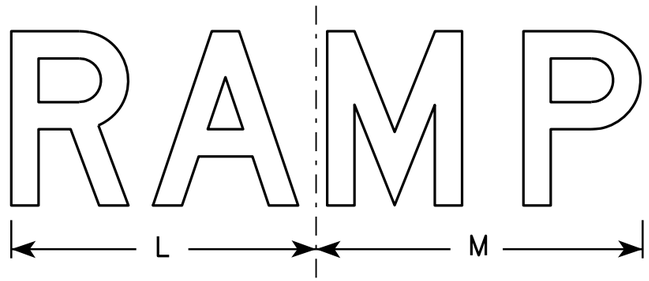
DATE 3/23/10 PLATE NO. A4-8.7



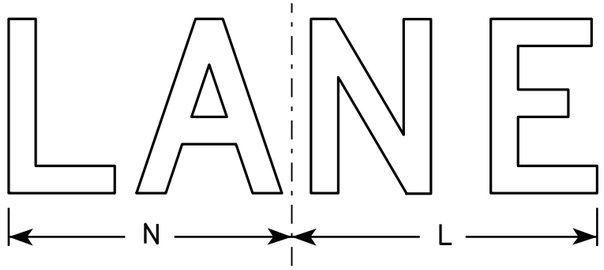
R11-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.



R11-2R



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0

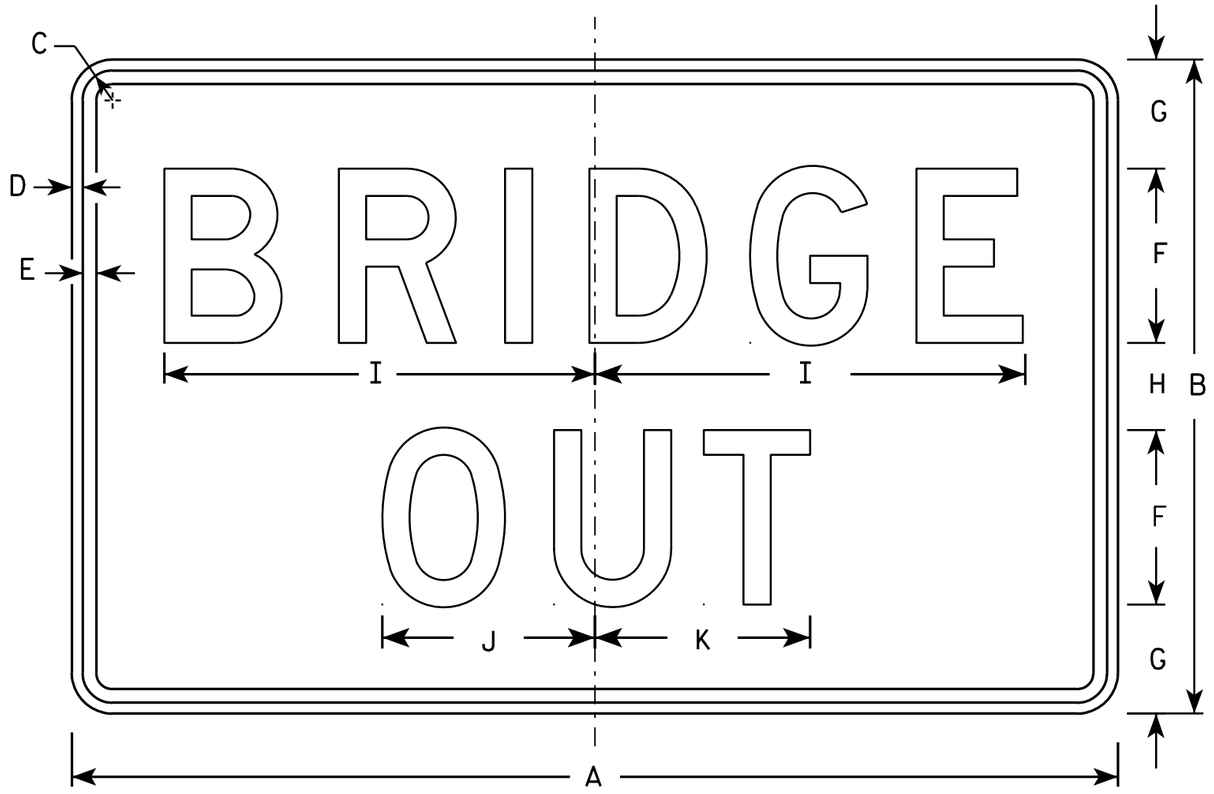
STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 36	E



R11-2B

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

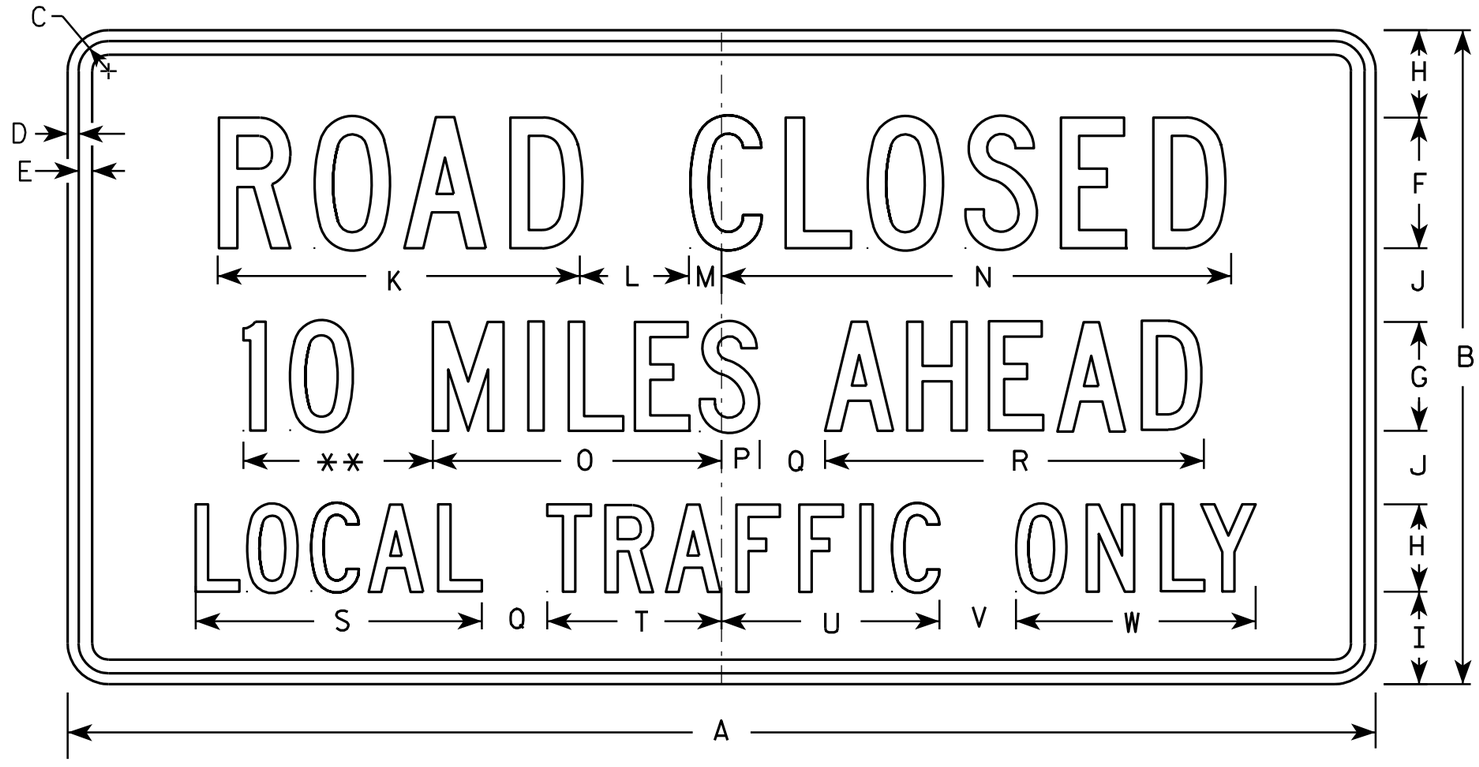
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO:

SHEET NO: 37 E



R11-3

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	11 1/8	3	1 1/8	15 1/4	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

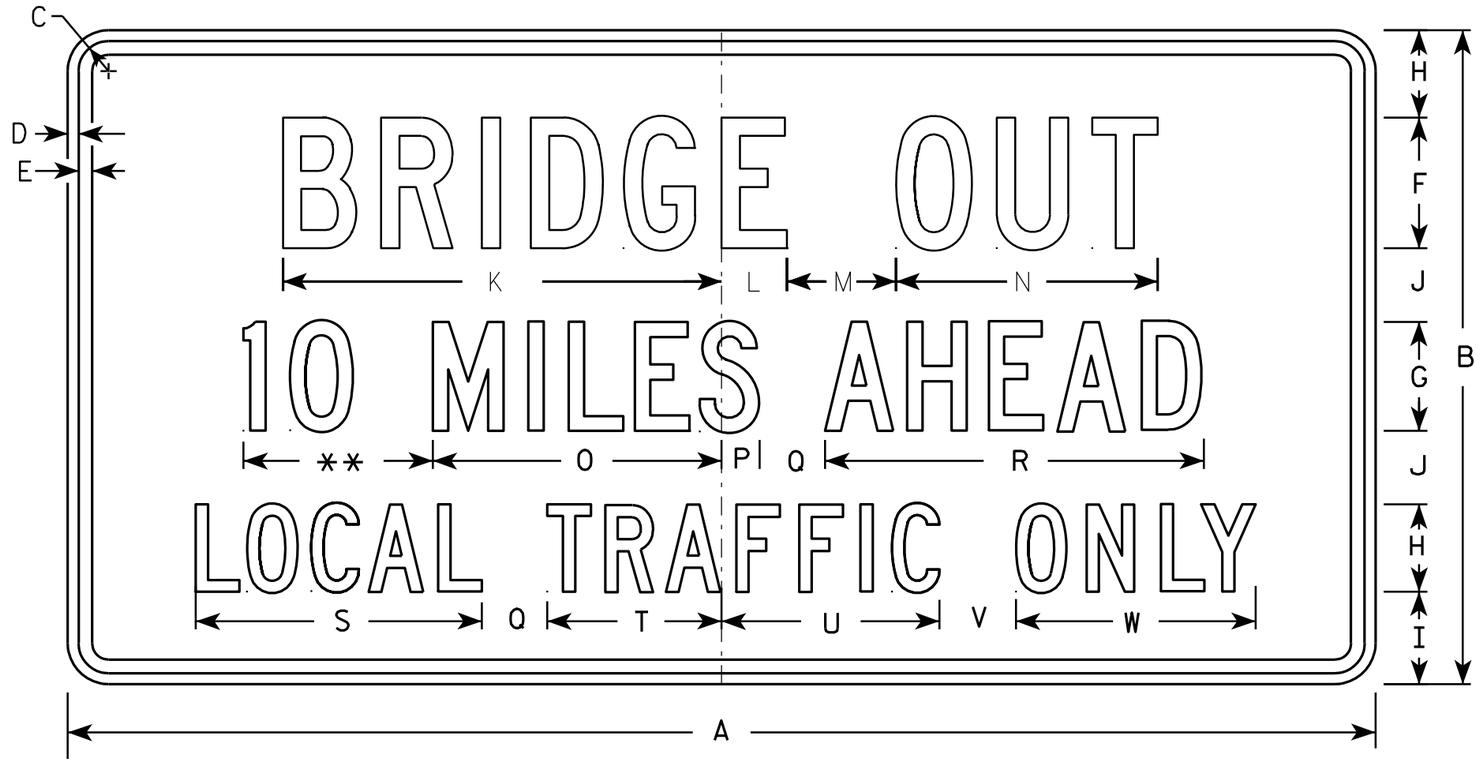
STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3.6

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 38 | E



R11-3B

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

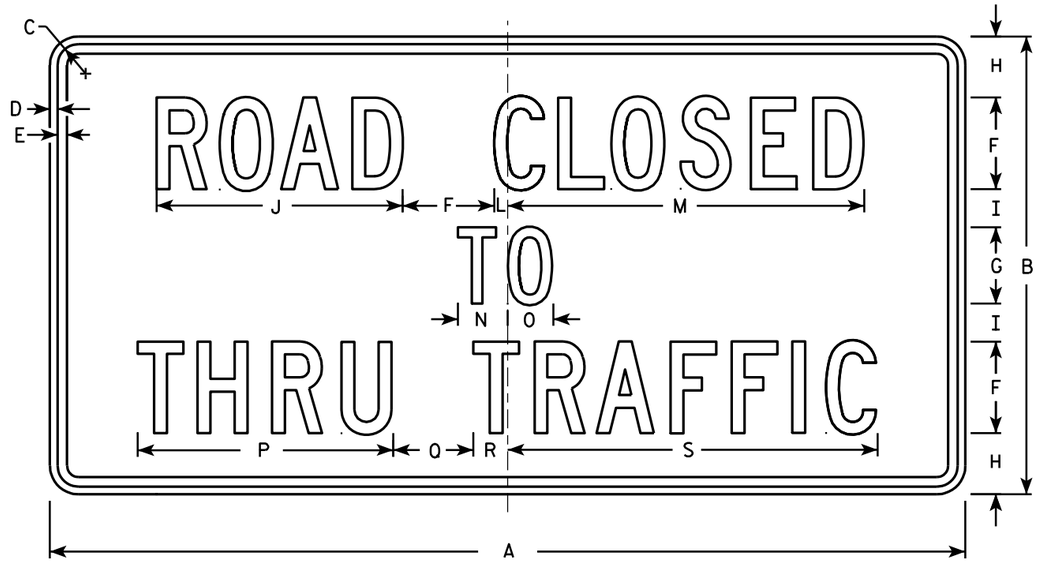
STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3B.2

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 39 | E



R11-4

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

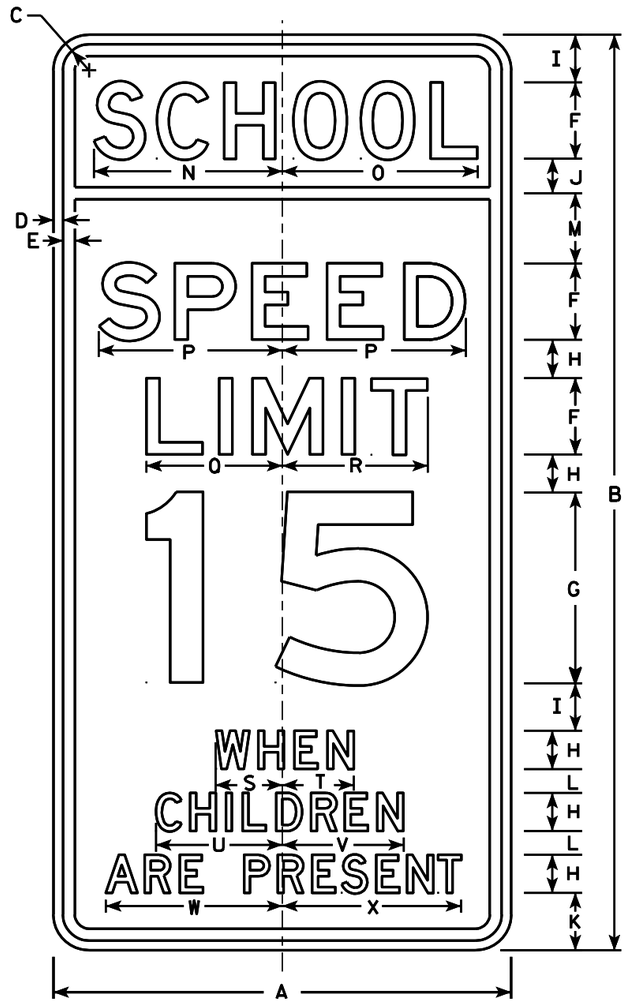
STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 40	E



S4-51

NOTES

1. Sign is Type II - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. (See note 5).
2. Color:
   Background - See note 5
   Message - Black
3. Message Series - See note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Top panel (SCHOOL) background - Yellow Green -Type F Reflective.
   Lower panel background - White -Type H Reflective.
6. From top to bottom:
   Lines 1, 5, 6 & 7 are series D
   Lines 2, 3 & 4 are series E
7. Line 4 substitute appropriate numerals and adjust spacing to achieve proper balance.

Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 1200 mm
3	900 mm X 1800 mm
4	
5	

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24	48	1 3/8	1/2	5/8	4	10	2	2 1/2	1 3/4	3	1 1/4	3 3/4	9 7/8	10 1/4	9 5/8	7 1/8	7 5/8	3 1/2	3 3/8	6 5/8	6 3/8	9 1/4	9 3/8			8.00	0.72
3	36	72	2 1/4	3/4	1	6	15	3	3 3/4	2 3/4	4 1/2	1 7/8	5 1/2	15	15 1/4	14 1/2	11 1/4	11 1/2	5 1/2	5 3/4	10	9 3/4	14	14 1/8			18.00	1.62
4																												
5																												

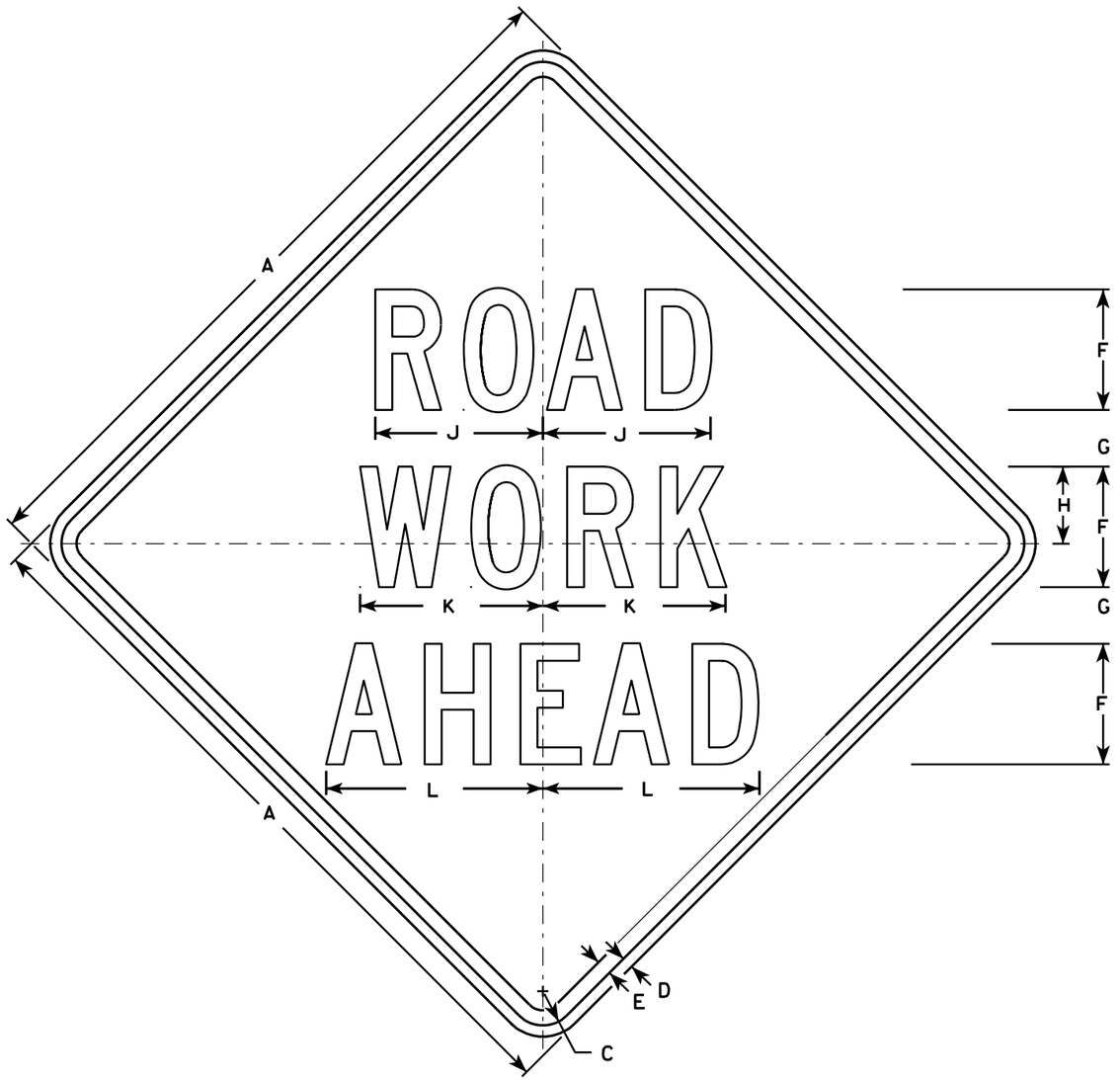
STANDARD SIGN
S4-51

WISCONSIN DEPT OF TRANSPORTATION

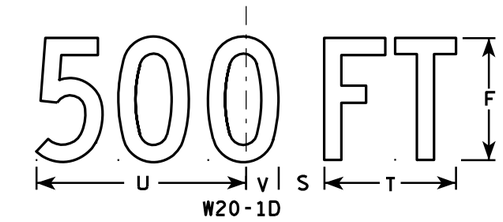
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/26/10 PLATE NO. S4-51.9

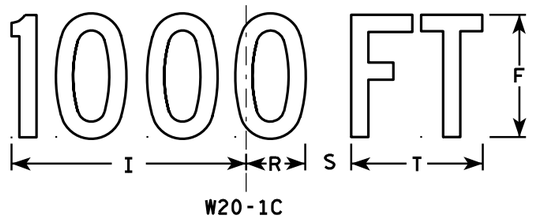
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 41 | E



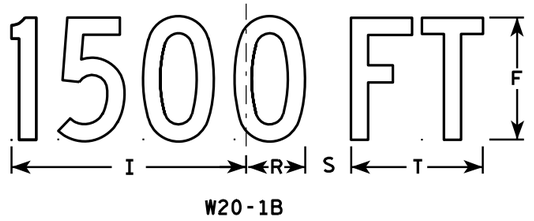
W20-1A



W20-1D

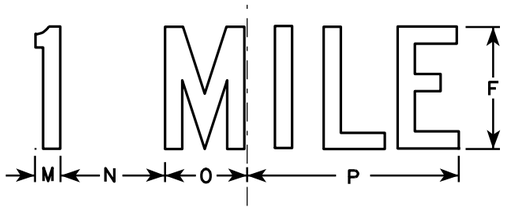


W20-1C



W20-1B

W20-1G



W20-1F

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-1.9

PROJECT NO:

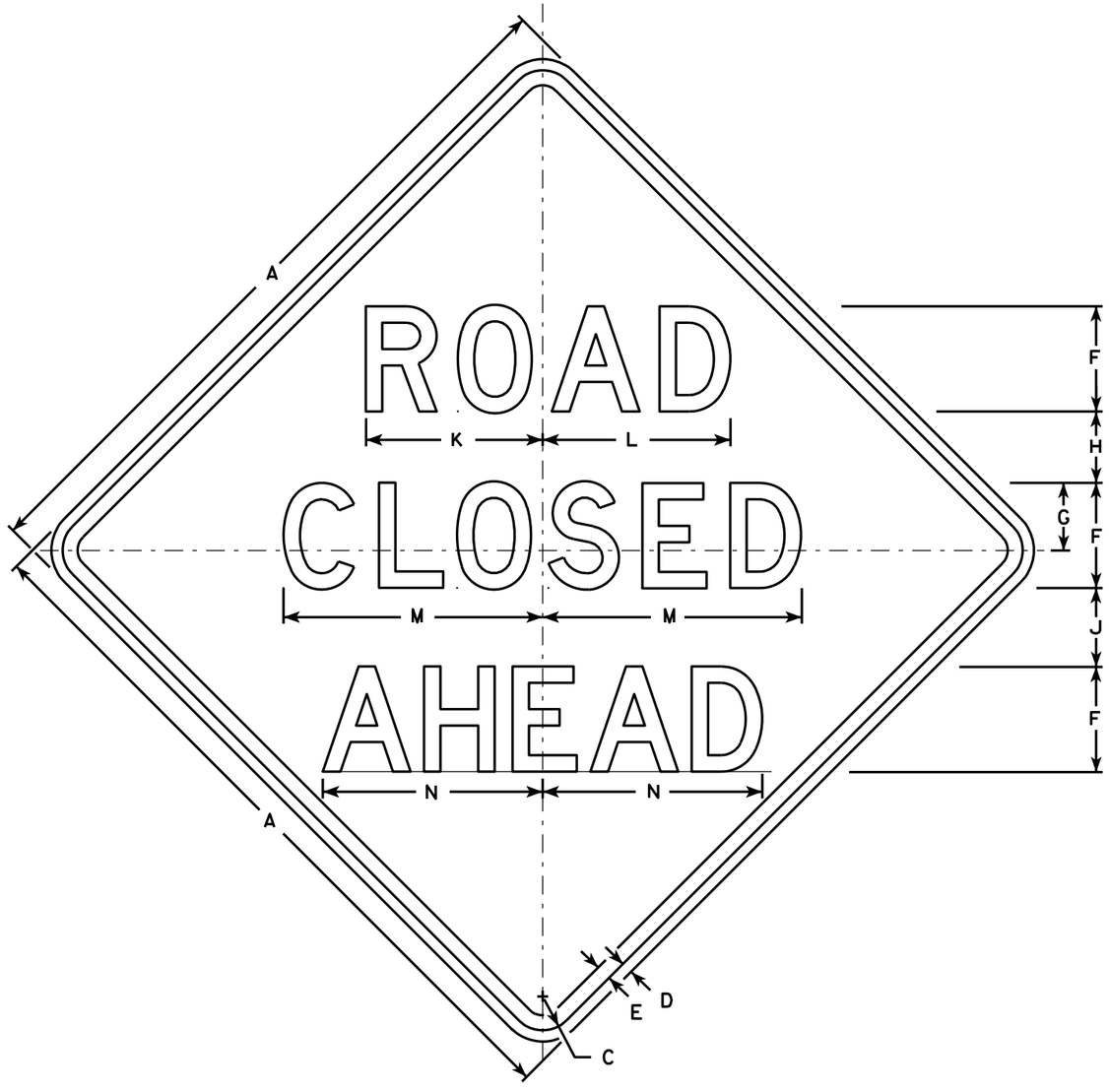
SHEET NO: 42 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\W201.DGN PLOT DATE : 18-MAR-2011 09:56 PLOT BY : mscj9h

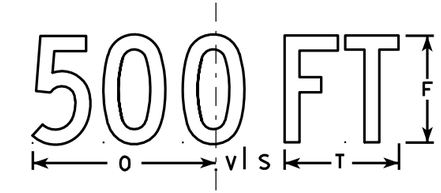
WISDOT/CADDS SHEET 42

7

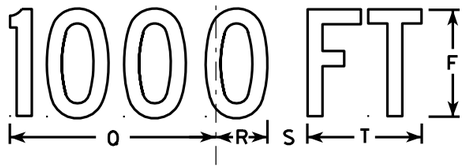
7



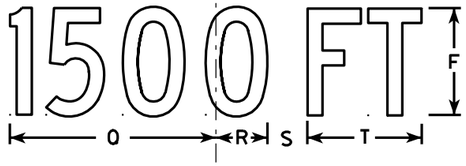
W20-3A



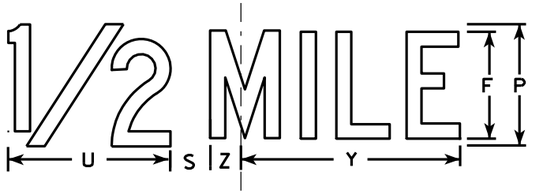
W20-3D



W20-3C



W20-3B



W20-3G

W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
   Line 3 is Series D for AHEAD and Series C for all other distances.

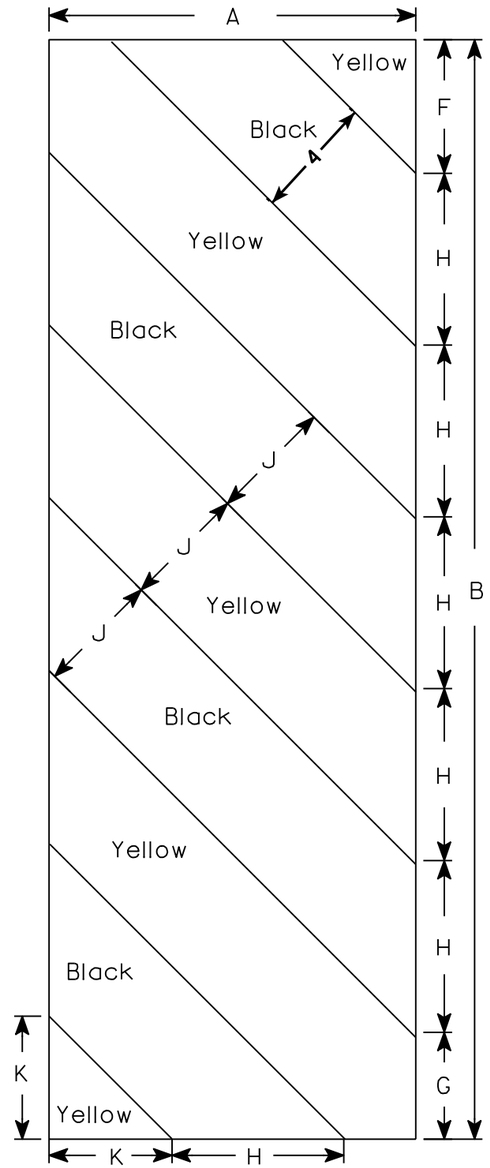
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

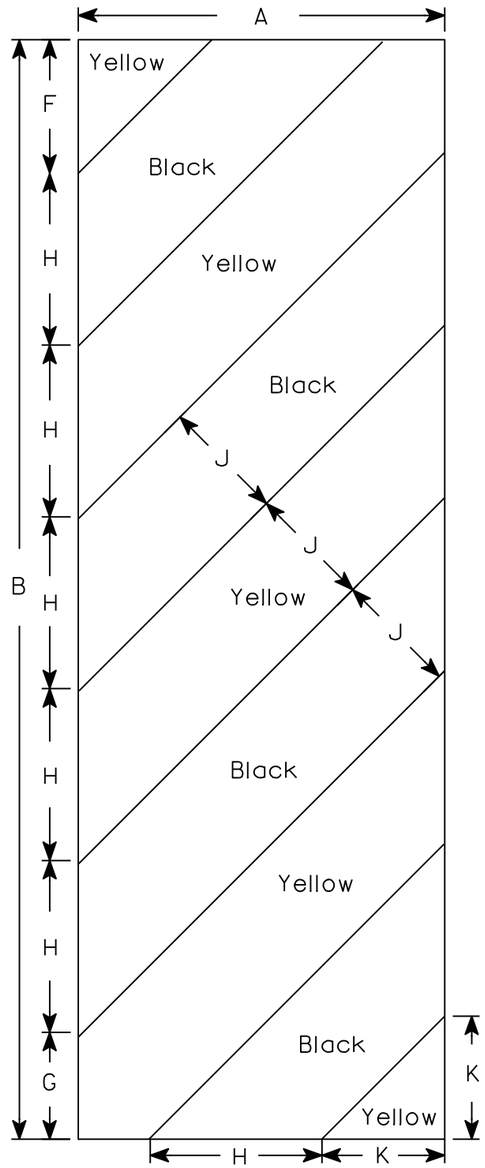
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 43 | E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

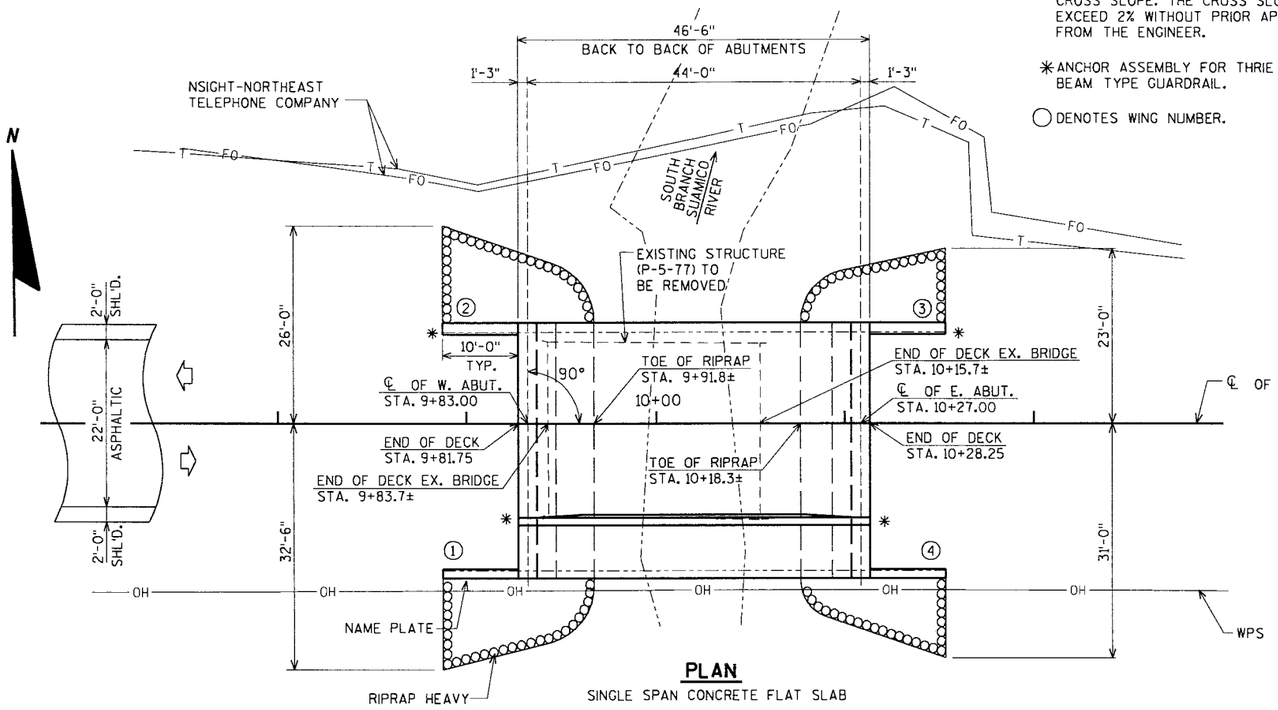
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 44 | E

$PRFNAME$
U:\45-0379.00 - Brown County, SchoolDrive over Suamico River\BRIDGE\450379 gp.dgn
DATE: 2-19-14
DATE:
DATE:
CHECKED BY: CBM
BACK CHECKED BY:
CORRECTED BY:

STATE PROJECT NUMBER

9268-09-71



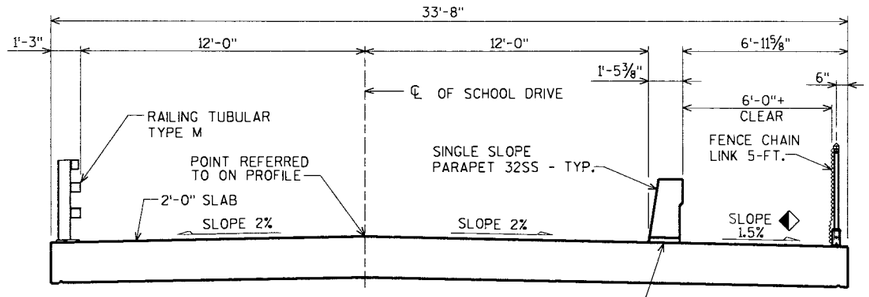
PLAN

SINGLE SPAN CONCRETE FLAT SLAB

◆ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

✱ ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

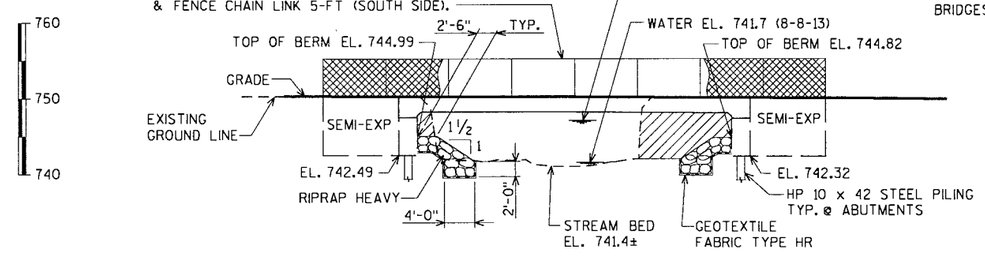
◯ DENOTES WING NUMBER.



CROSS SECTION THRU ROADWAY

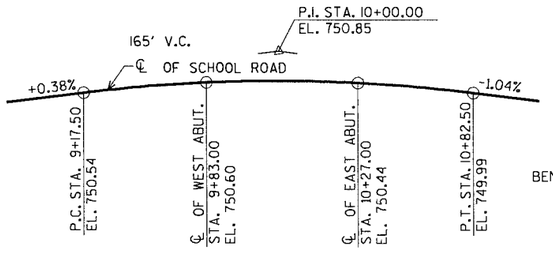
(LOOKING EAST)

RAILING TUBULAR TYPE M WITH THRIE BEAM GUARD ATTACHMENT (NORTH SIDE), SINGLE SLOPE PARAPET 32SS WITH THRIE BEAM GUARD ATTACHMENT (INSIDE), & FENCE CHAIN LINK 5-FT (SOUTH SIDE).



ELEVATION

▨ COST OF EXCAVATION AND FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-5-421".



PROFILE GRADE LINE

(SCHOOL ROAD)

BENCH MARK:

100D NAIL IN NORTH SIDE OF CENTER POST ON NW WINGWALL OF STRUCTURE STA. 10+18, 15' LT.
EL. 749.11

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.36
OPERATING RATING FACTOR: 1.76
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

MATERIAL PROPERTIES:

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

HYDRAULIC DATA:

100 YEAR FLOOD
DRAINAGE AREA = 11.8 sq. mi.
WATERWAY AREA = 163 sq. ft.
V = 4.5 f.p.s.
Q_{100} = 740 c.f.s.
HIGH WATER$_{100}$ EL. 747.1
HIGH WATER$_{2}$ EL. 744.4
ROWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 8

FOUNDATION DATA:

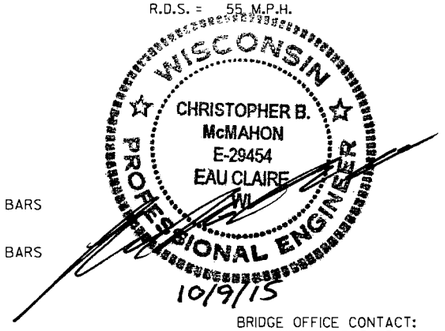
ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 170 TONS ‡ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 50'-0".

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

TRAFFIC DATA:

A.D.T. = <100 (2016)
A.D.T. = <100 (2036)
R.D.S. = 55 M.P.H.

LIST OF DRAWINGS



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

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

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 11/04/15
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-5-421

SCHOOL DRIVE OVER S. BRANCH SUAMICO RIVER

COUNTY	TOWN/~~CITY/VILLAGE~~
BROWN	PITTSFIELD

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JCK	JWZ	JWZ	CBM

GENERAL PLAN

SHEET 1 OF 14
45

8

STATE PROJECT NUMBER

9268-09-71

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-5-421	LS	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	85	85	-----	170
502.0100	CONCRETE MASONRY BRIDGES	CY	31	31	127	189
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	195	195
502.3210	PIGMENTED SURFACE SEALER	SY	-----	-----	35	35
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,050	2,050	-----	4,100
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,320	1,320	21,960	24,600
513.4061	RAILING TUBULAR TYPE M B-5-421	LF	-----	-----	-----	69
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20
550.0500	PILE POINTS	EACH	5	5	-----	10
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	250	250	-----	500
606.0300	RIPRAP HEAVY	CY	55	50	-----	105
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	75	75	-----	150
616.0205	FENCE CHAIN LINK 5-FT	LF	65	65	-----	130
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	115	100	-----	215
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

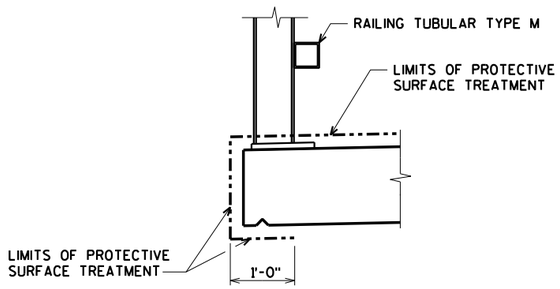
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

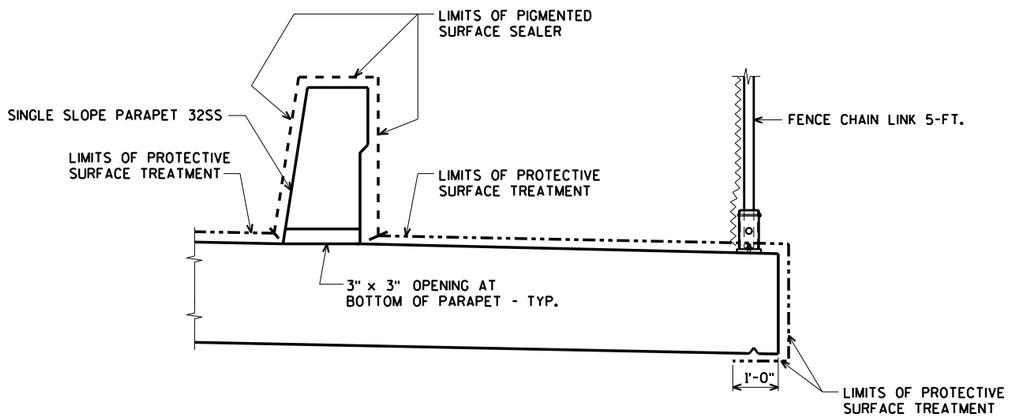
THE EXISTING STRUCTURE, P-5-77, TO BE REMOVED, IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE, 30.0 FT. LONG WITH A 21.0 FT. CLEAR ROADWAY WIDTH.

AT BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

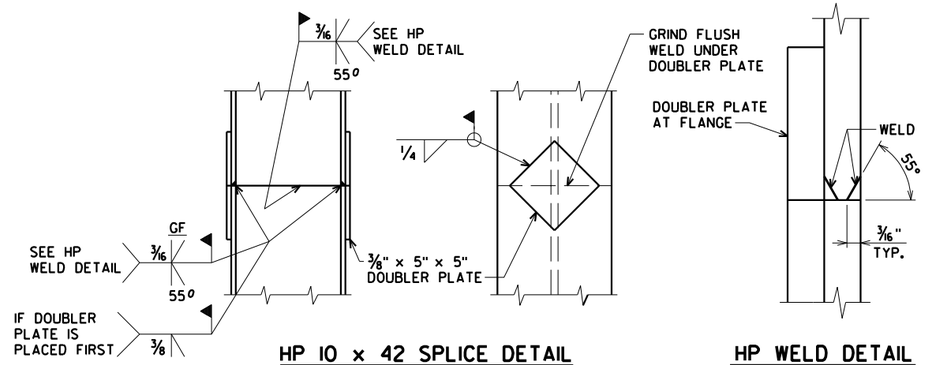
PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER ARE TO BE APPLIED AS SHOWN IN DETAILS ON THIS SHEET.



PROTECTIVE SURFACE TREATMENT DETAIL



PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL



HP 10 x 42 SPLICE DETAIL

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

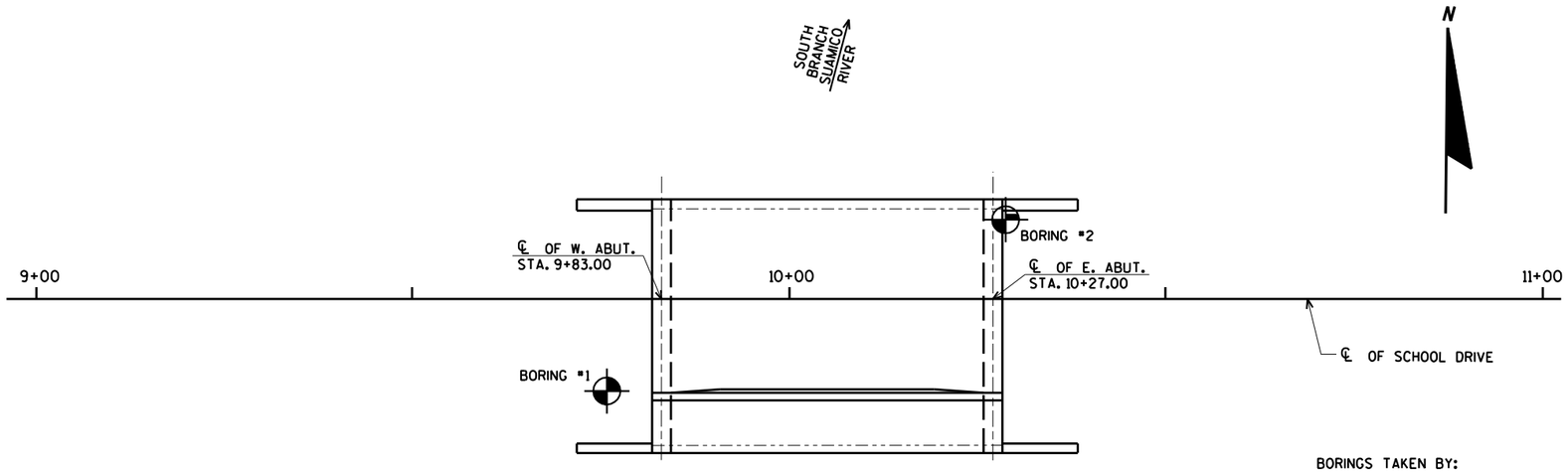
QUANTITIES AND NOTES

SHEET 2 OF 14
46

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

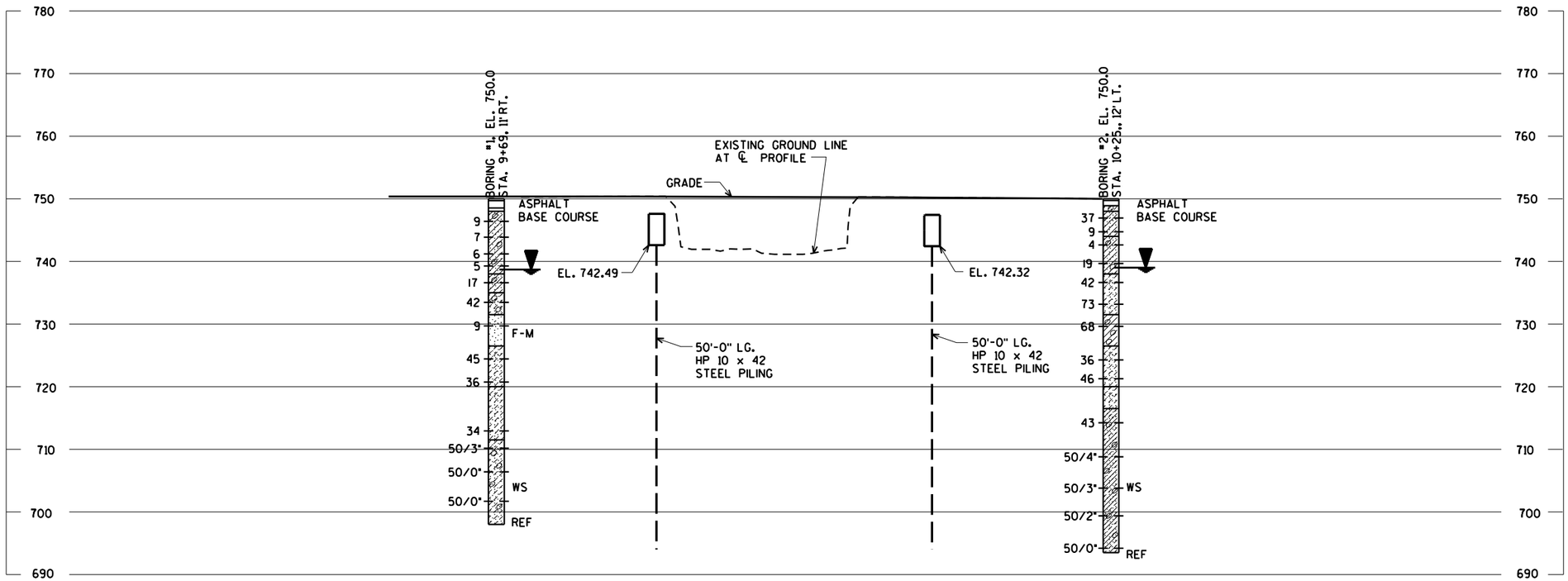
$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 gp.dgn

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 soils.dgn



BORINGS TAKEN BY:
GEOTECHNICAL DRILLING CONTRACTORS, LLC
WAUSAU, WI
JANUARY 3-4, 2014

GEOTECHNICAL REPORT BY:
RIVER VALLEY TESTING, INC.
NEENAH, WI
JANUARY 29, 2014



STATE PROJECT NUMBER

9268-09-71

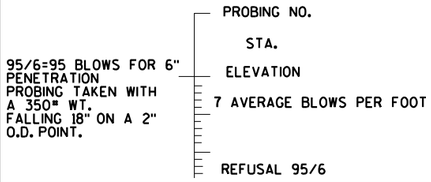
ABBREVIATIONS

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

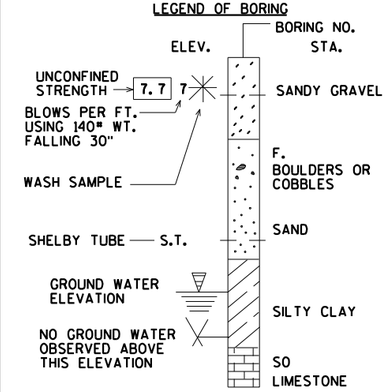
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY CJM | PLANS CK'D. CBM

SUBSURFACE EXPLORATION

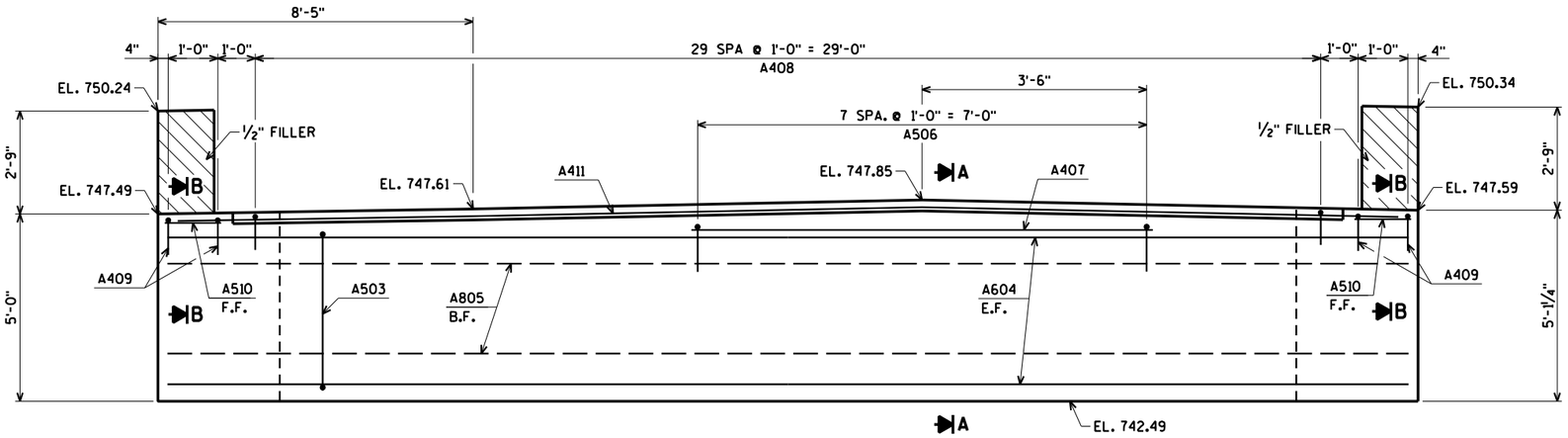
SHEET 3 OF 14
47

8

8

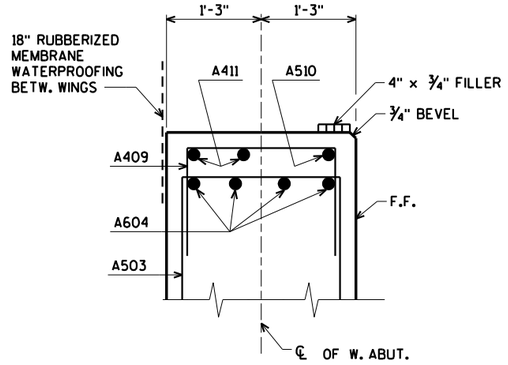
NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

STATE PROJECT NUMBER
9268-09-71

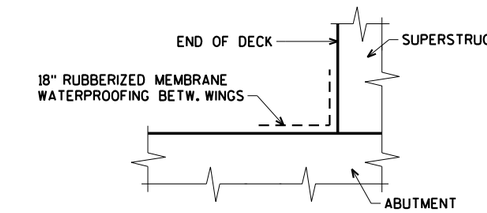


ELEVATION
(LOOKING WEST)

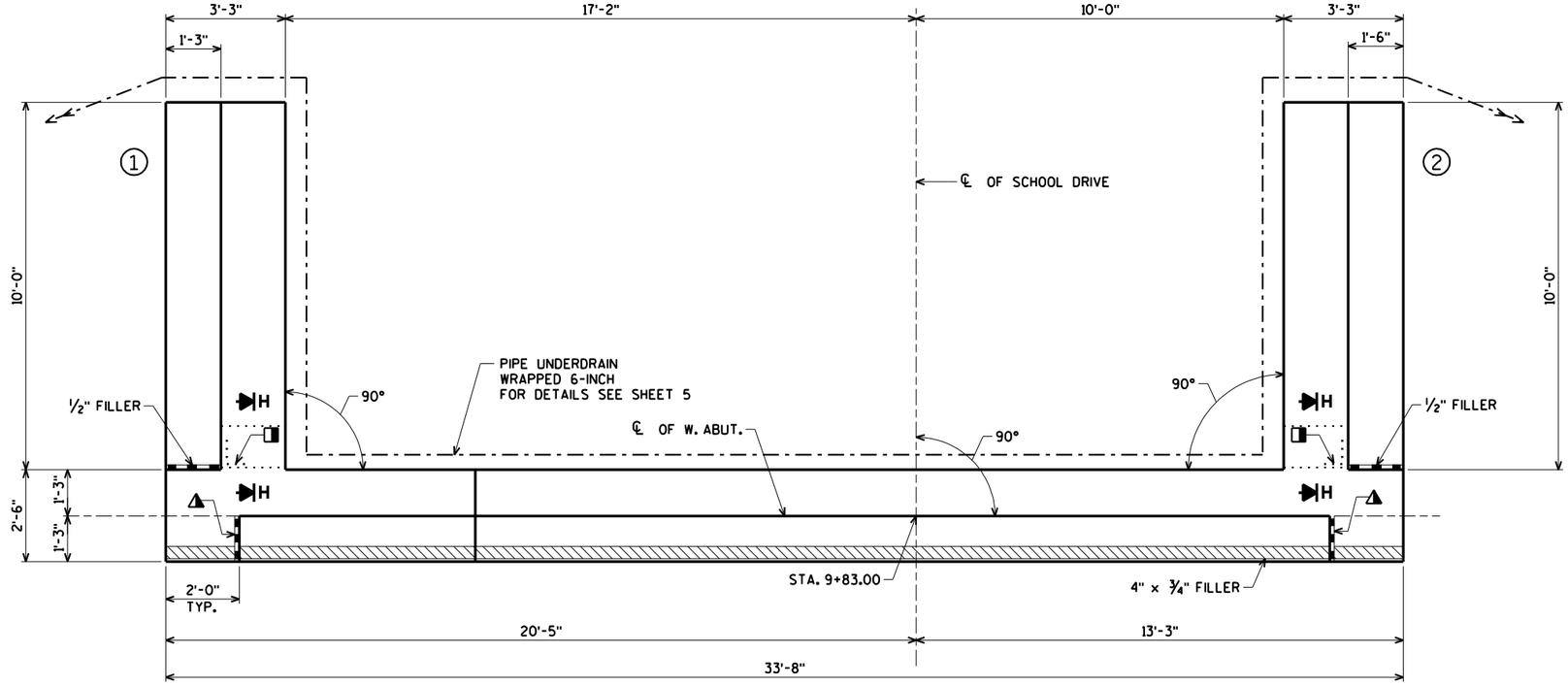
FOR SECTION A, SEE SHEET 5.



SECTION B



SECTION H



PLAN

⚠ ¾" CORK FILLER ON VERTICAL FACE ONLY.

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

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

WEST ABUTMENT

SHEET 4 OF 14
48

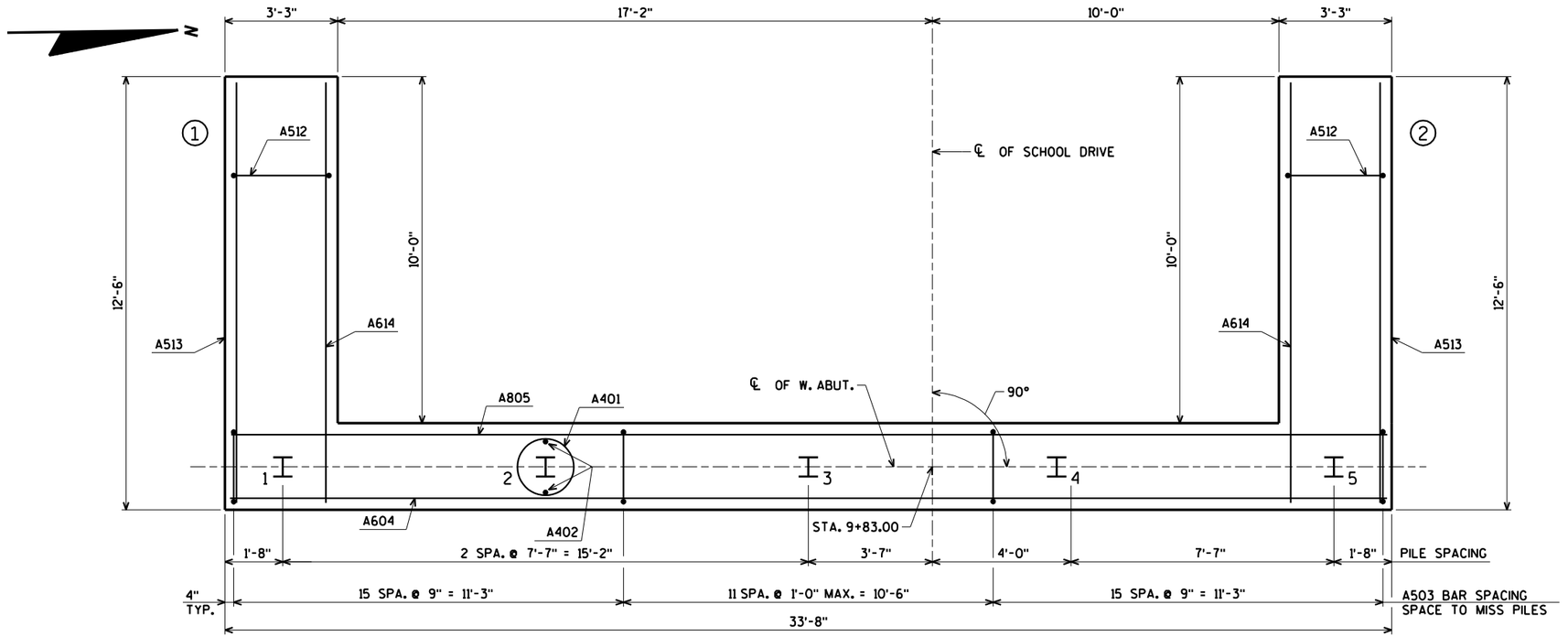
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

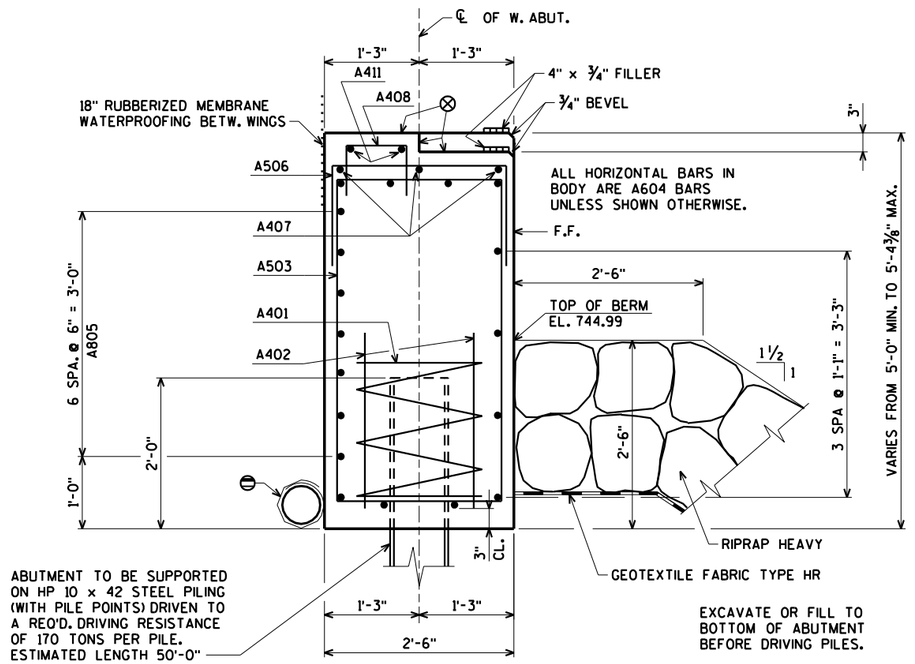
8

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 wa.dgn

$PRFNAME$
U:±45-0379.00 - Brown County, School Drive over Suamico River±BRIDGE±450379 wa.dgn



PILE LAYOUT



SECTION A

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

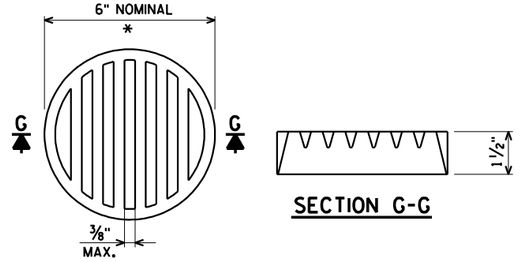
FOR LOCATION OF SECTION A SEE SHEET 4.

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

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

FOR PILE SPLICE DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE



SECTION G-G

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

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

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

RODENT SHIELD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

WEST ABUTMENT DETAILS

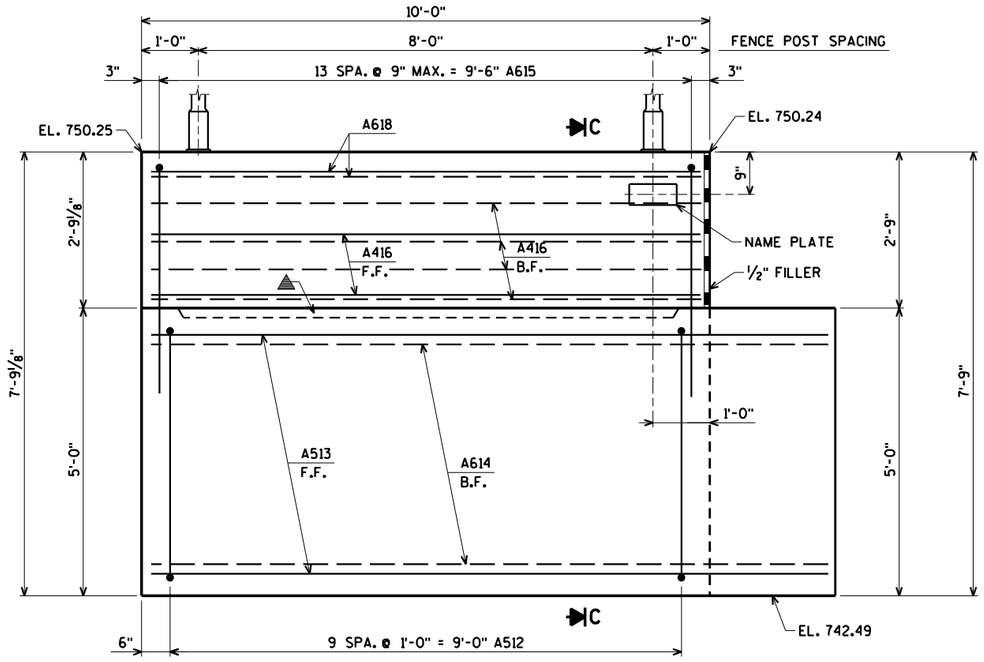
SHEET 5 OF 14
49

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

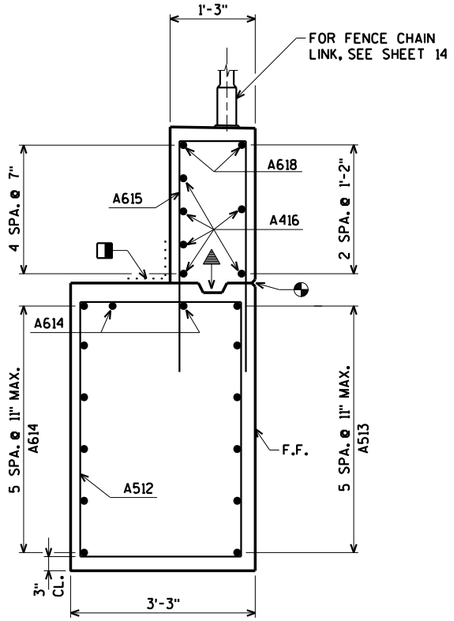
$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 wa.dgn

STATE PROJECT NUMBER

9268-09-71



ELEVATION - WING 1

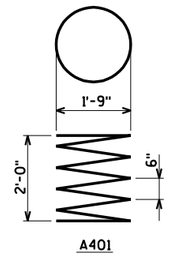


SECTION C

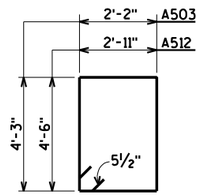
BILL OF BARS

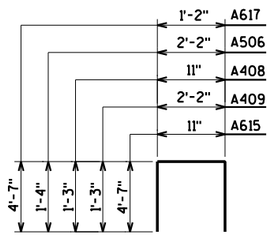
BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,050# UNCOATED 1,320# COATED LOCATION
A401		5	28-0	X		BODY @ PILES
A402		10	2-3			BODY @ PILES
A503		42	13-8	X		BODY VERTS.
A604		11	33-2			BODY HORIZ. E.F.
A805		7	33-2			BODY HORIZ. B.F.
A506		8	4-8	X		BODY VERT. TOP
A407		3	7-6			BODY HORIZ. TOP
A408		30	3-3	X		BODY VERT. TOP
A409		4	4-6	X		BODY VERT. TOP @ WINGS
A510		2	1-8			BODY HORIZ. TOP F.F. @ WINGS
A411		2	33-2			BODY HORIZ. TOP
A512	X	20	15-6	X		WINGS 1 & 2 VERT.
A513	X	12	12-2			WINGS 1 & 2 HORIZ. F.F.
A614	X	16	12-2			WINGS 1 & 2 HORIZ. B.F. AND TOP
A615	X	14	9-11	X		WING 1 VERT.
A416	X	12	9-7			WINGS 1 & 2 HORIZ. E.F.
A617	X	14	10-2	X		WING 2 VERT.
A618	X	4	9-7			WINGS 1 & 2 HORIZ. TOP

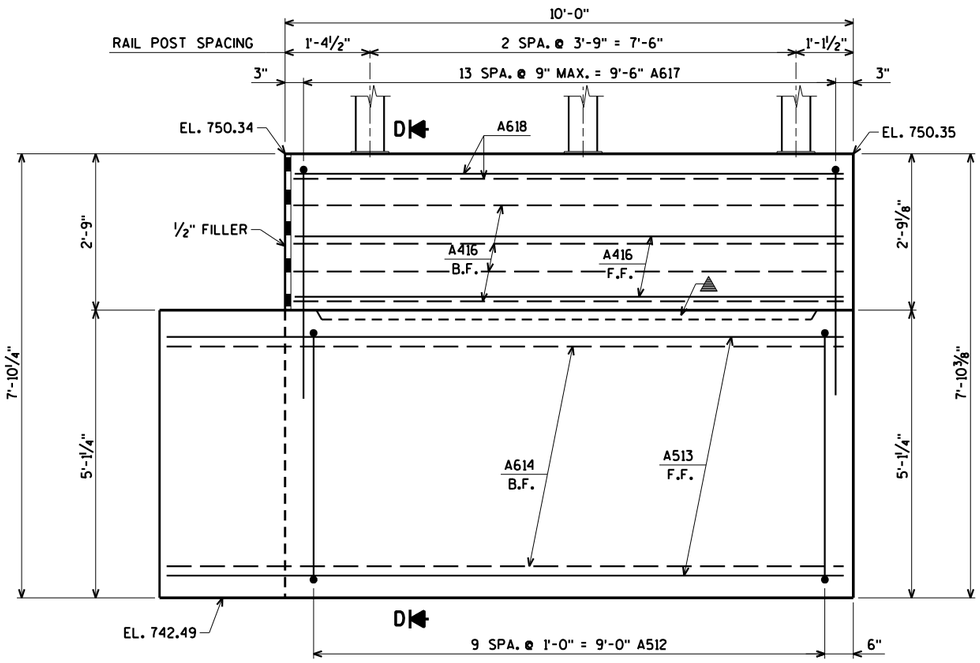
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



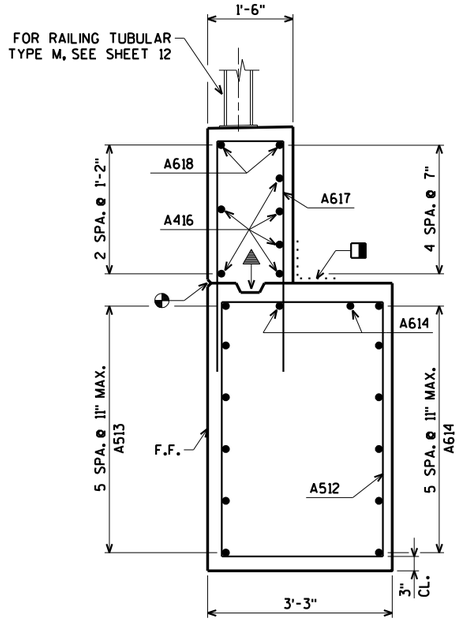
A401







ELEVATION - WING 2



SECTION D

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

OPT. CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY.

¾" V-GROOVE ON FRONT FACE ONLY.

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

WEST ABUTMENT DETAILS AND BILL OF BARS

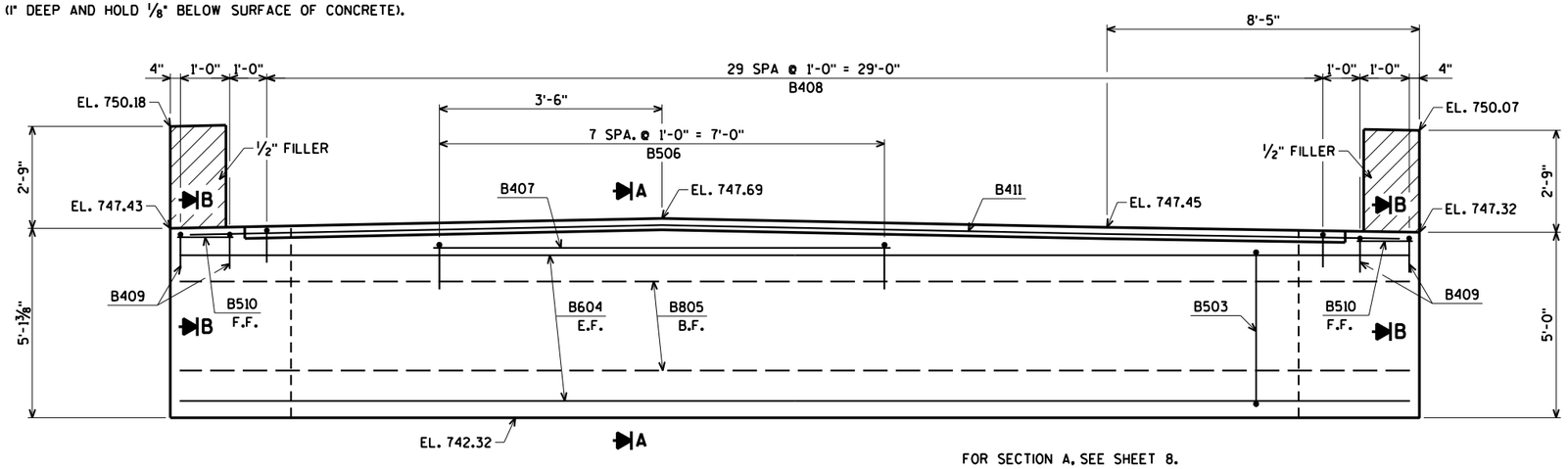
SHEET 6 OF 14
50

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

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 ea.dgn

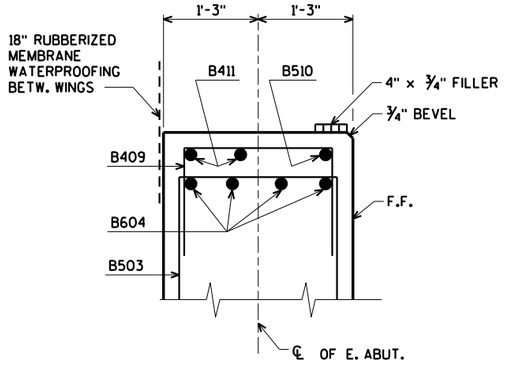
NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

STATE PROJECT NUMBER
9268-09-71

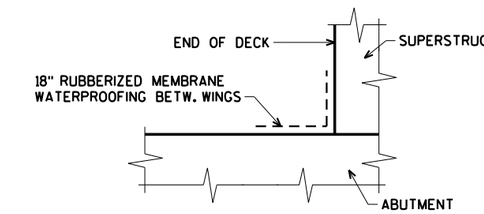


FOR SECTION A, SEE SHEET 8.

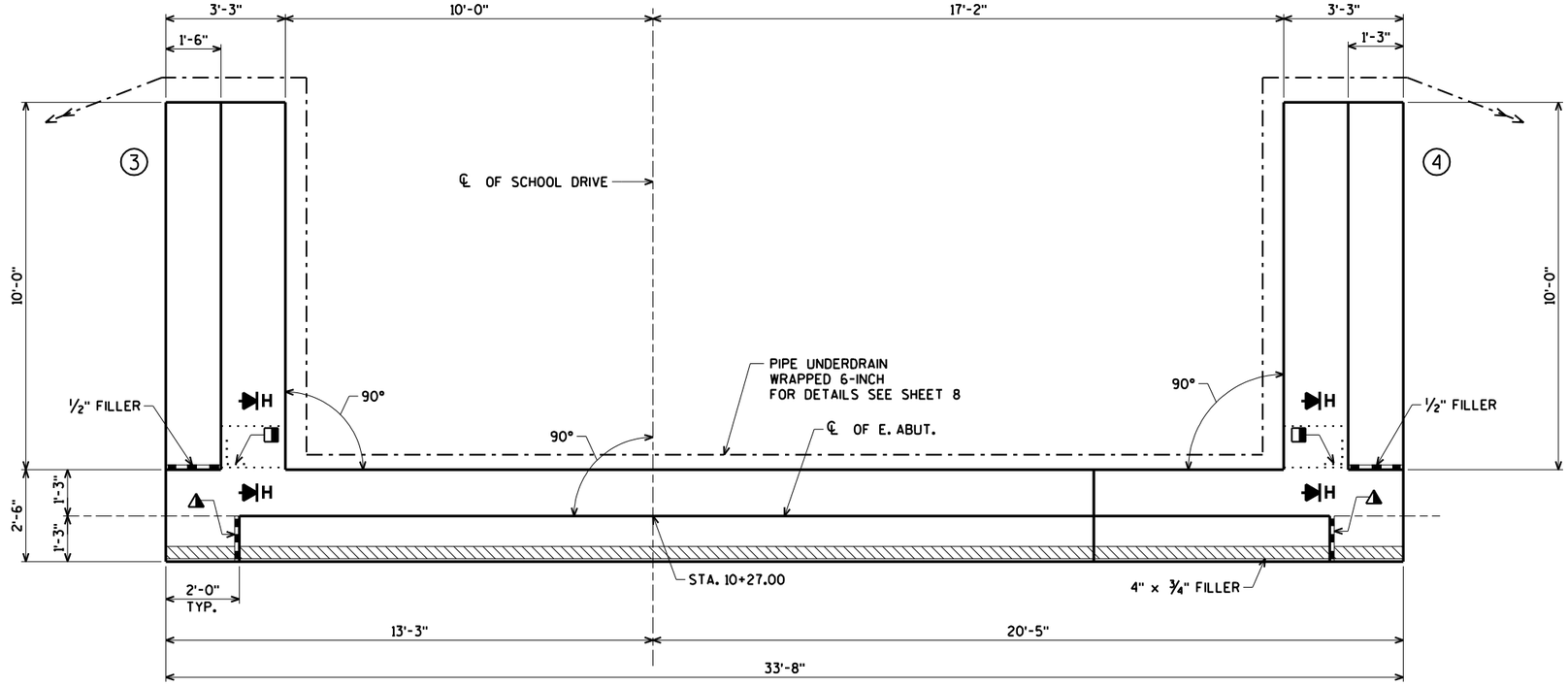
ELEVATION
(LOOKING EAST)



SECTION B



SECTION H



PLAN

⚠ ¾" CORK FILLER ON VERTICAL FACE ONLY.

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

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

EAST ABUTMENT

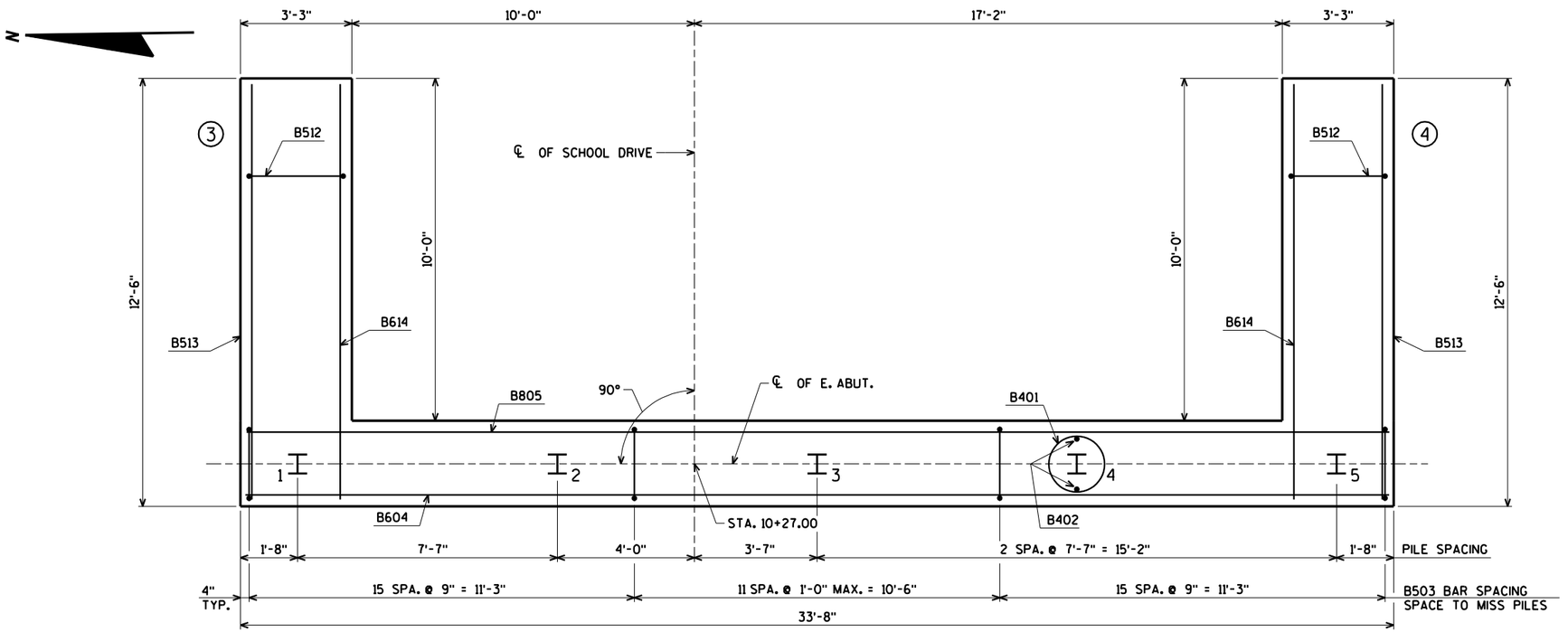
SHEET 7 OF 14
51

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

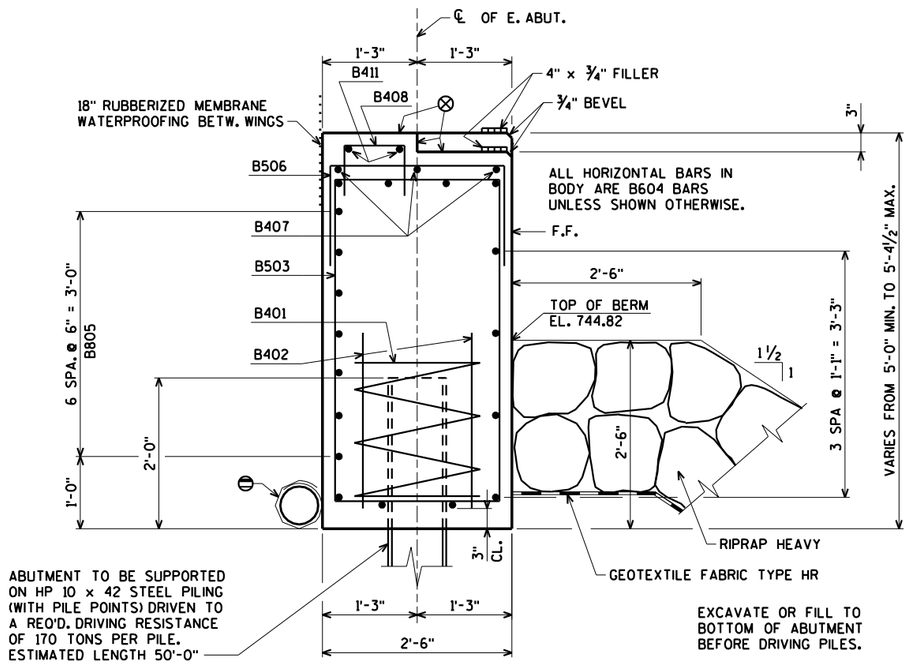
8

8

$PRFNAME$
U:±45-0379.00 - Brown County, School Drive over Suamico River±BRIDGE±450379 ea.dgn



PILE LAYOUT



SECTION A

EXCAVATE OR FILL TO BOTTOM OF ABUTMENT BEFORE DRIVING PILES.

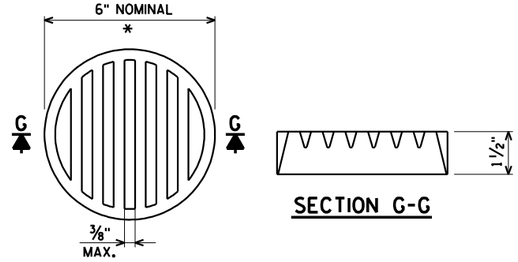
FOR LOCATION OF SECTION A SEE SHEET 7 .

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

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

FOR PILE SPLICE DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE



SECTION G-G

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

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

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

RODENT SHIELD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

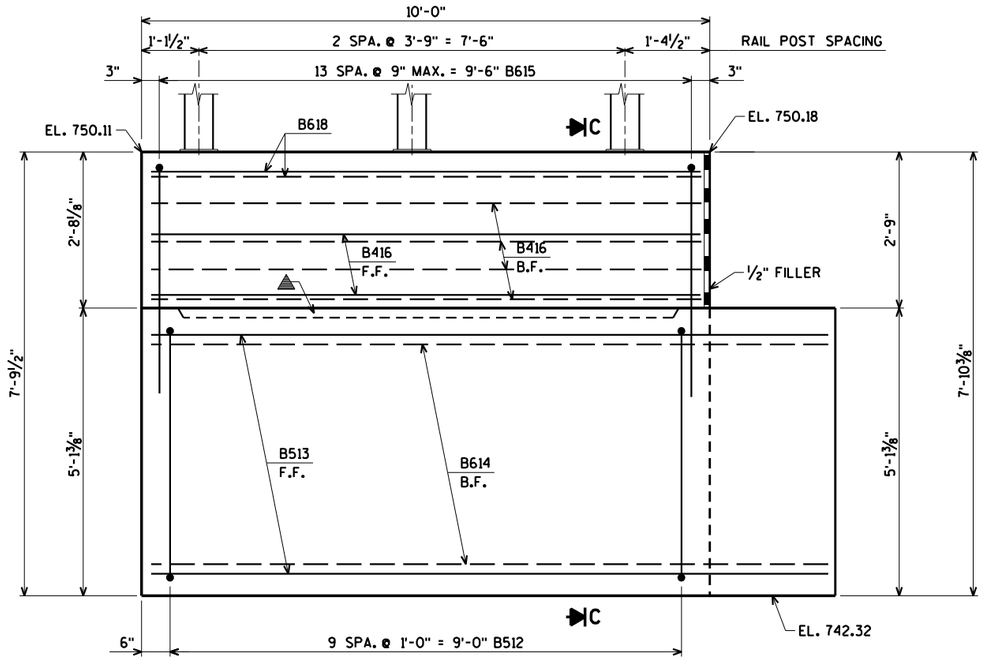
STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

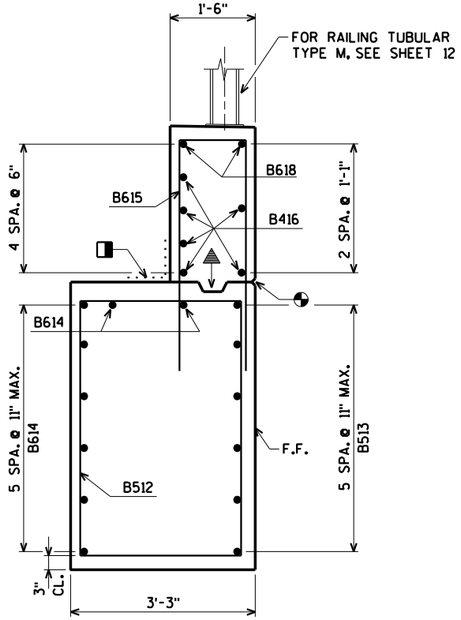
EAST ABUTMENT DETAILS

SHEET 8 OF 14
52

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



ELEVATION - WING 3

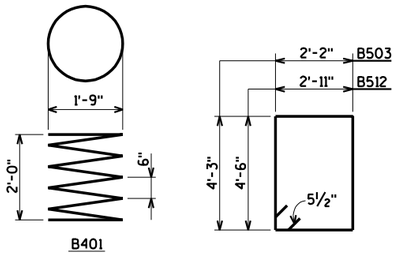


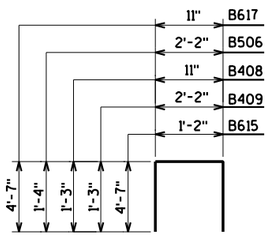
SECTION C

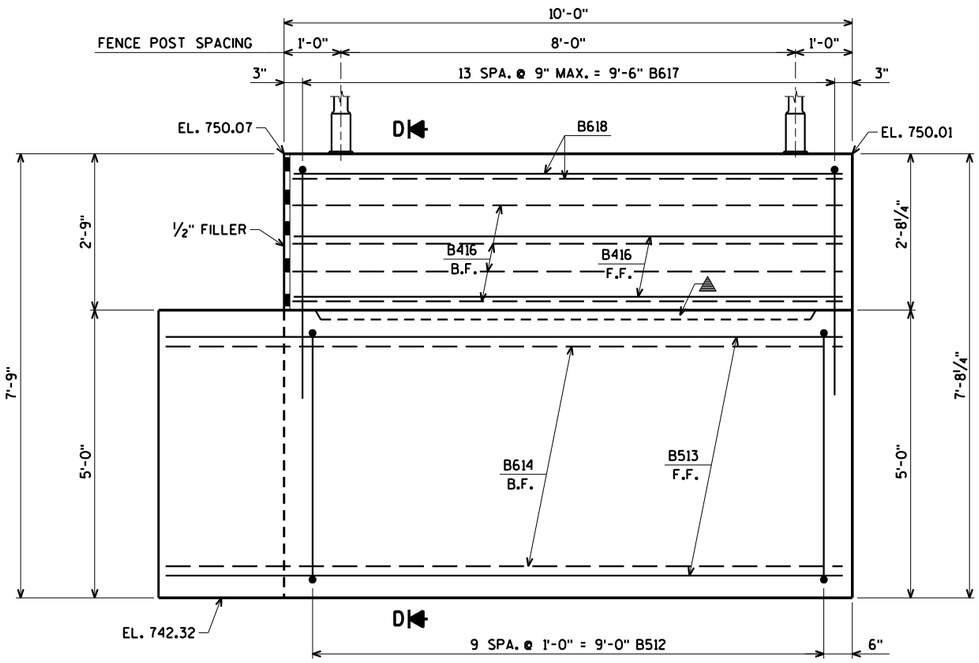
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,050# UNCOATED 1,320# COATED LOCATION
B401		5	28-0	X		BODY @ PILES
B402		10	2-3			BODY @ PILES
B503		42	13-8	X		BODY VERTS.
B604		11	33-2			BODY HORIZ. E.F.
B805		7	33-2			BODY HORIZ. B.F.
B506		8	4-8	X		BODY VERT. TOP
B407		3	7-6			BODY HORIZ. TOP
B408		30	3-3	X		BODY VERT. TOP
B409		4	4-6	X		BODY VERT. TOP @ WINGS
B510		2	1-8			BODY HORIZ. TOP F.F. @ WINGS
B411		2	33-2			BODY HORIZ. TOP
B512	X	20	15-6	X		WINGS 3 & 4 VERT.
B513	X	12	12-2			WINGS 3 & 4 HORIZ. F.F.
B614	X	16	12-2			WINGS 3 & 4 HORIZ. B.F. AND TOP
B615	X	14	10-2	X		WING 3 VERT.
B416	X	12	9-7			WINGS 3 & 4 HORIZ. E.F.
B617	X	14	9-11	X		WING 4 VERT.
B618	X	4	9-7			WINGS 3 & 4 HORIZ. TOP

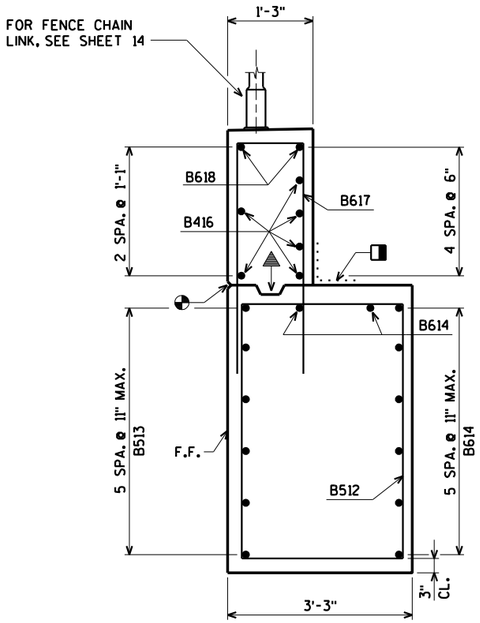
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.







ELEVATION - WING 4



SECTION D

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

OPT. CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY.

¾" V-GROOVE ON FRONT FACE ONLY.

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

STATE PROJECT NUMBER

9268-09-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

EAST ABUTMENT DETAILS AND BILL OF BARS

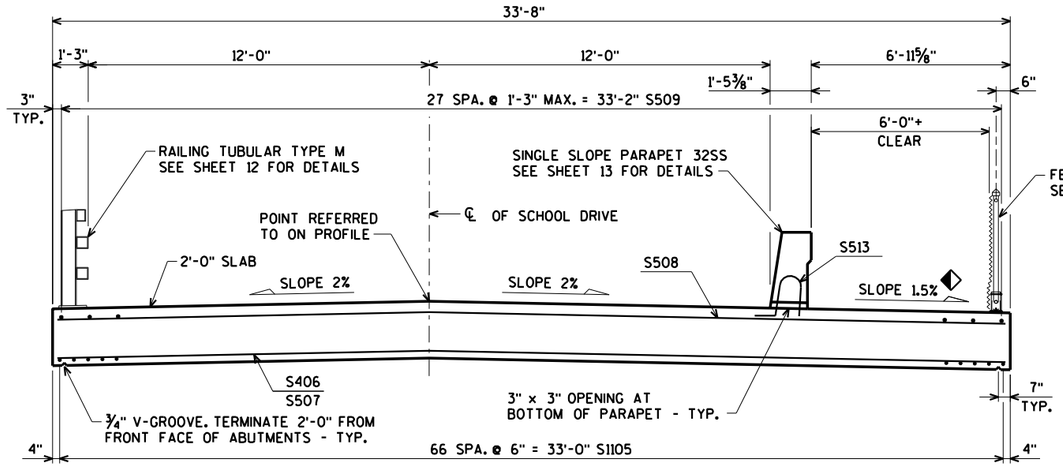
SHEET 9 OF 14
53

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

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 ea.dgn

STATE PROJECT NUMBER

9268-09-71



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

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

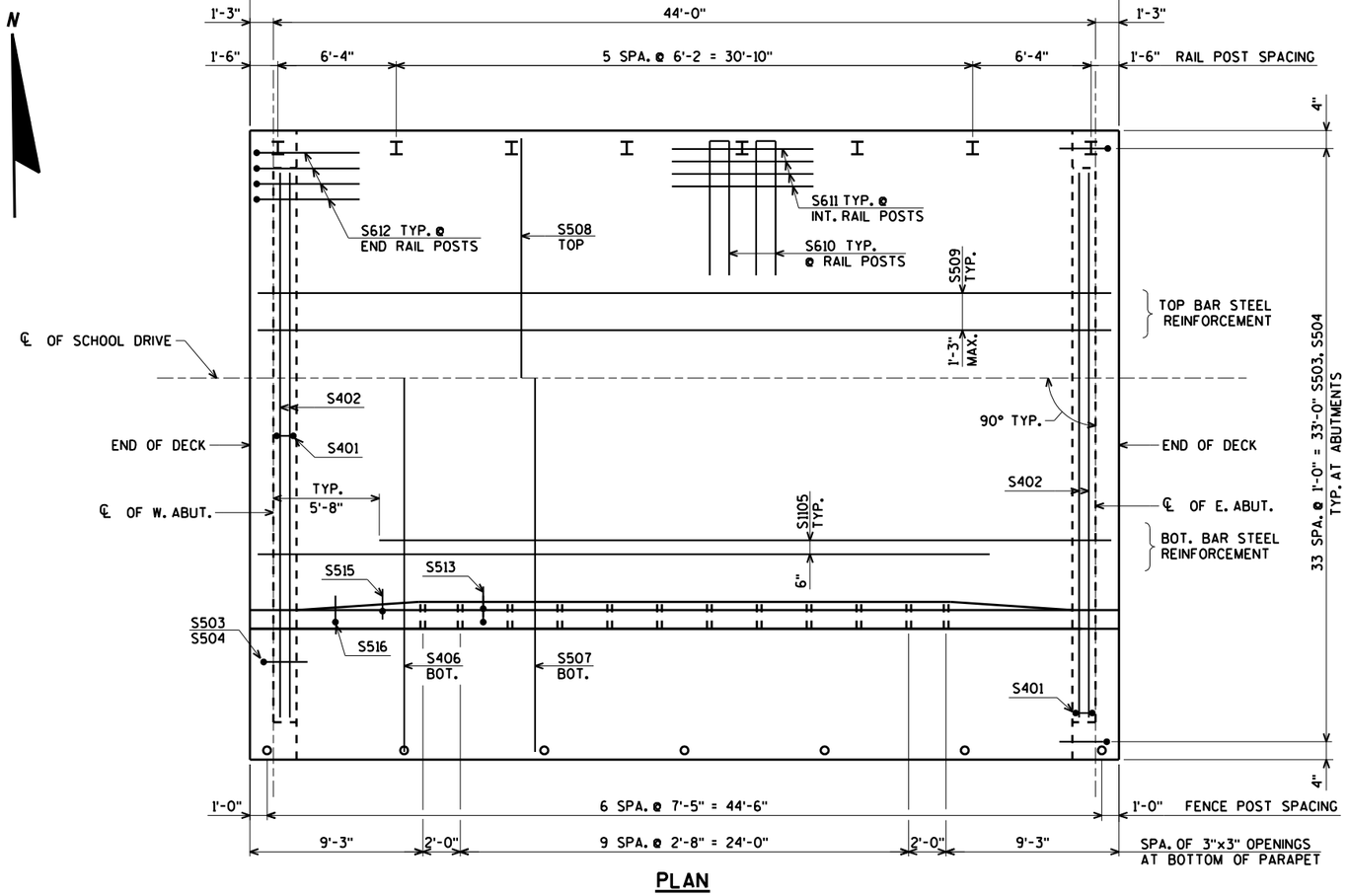
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

◆ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

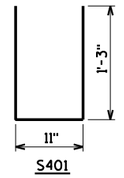
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	21,960# COATED LOCATION
S401	X	60	3-3	X		SLAB @ ABUT. NOTCH
S402	X	4	29-3			SLAB @ ABUT. NOTCH
S503	X	68	5-5	X		SLAB @ ABUT.
S504	X	68	3-8	X		SLAB @ ABUT.
S1105	X	67	39-5			SLAB LONG. BOT.
S406	X	36	33-4			SLAB TRANS. BOT.
S507	X	46	33-4			SLAB TRANS. BOT.
S508	X	47	33-4			SLAB TRANS. TOP
S509	X	28	46-2			SLAB LONG. TOP
S610	X	16	12-0	X		SLAB @ RAIL POSTS
S611	X	24	6-0			SLAB @ INT. RAIL POSTS
S612	X	8	6-0	X		SLAB @ EXT. RAIL POSTS
S513	X	44	4-5	X		PARAPET VERT. @ SLAB
S514	X	44	5-0	X		PARAPET VERT.
S515	X	24	2-9	X		PARAPET VERT. @ SLAB
S516	X	34	4-4	X		PARAPET VERT. @ SLAB
S517	X	22	4-9	X		PARAPET VERT.
S518	X	12	4-10	X		PARAPET VERT.
S519	X	2	10-3	X		PARAPET HORIZ.
S520	X	5	45-10			PARAPET HORIZ.
S521	X	1	28-6			PARAPET HORIZ.

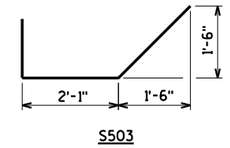
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



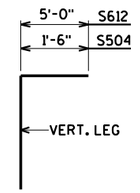
PLAN

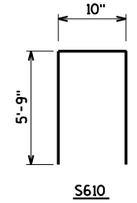


S401

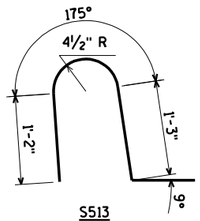


S503

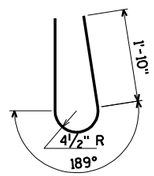




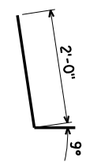
S610



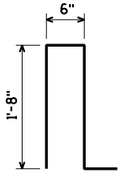
S513



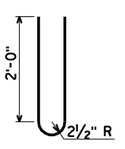
S514



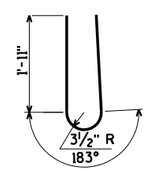
S515



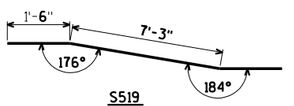
S516



S517



S518



S519

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

SUPERSTRUCTURE

SHEET 10 OF 14
54

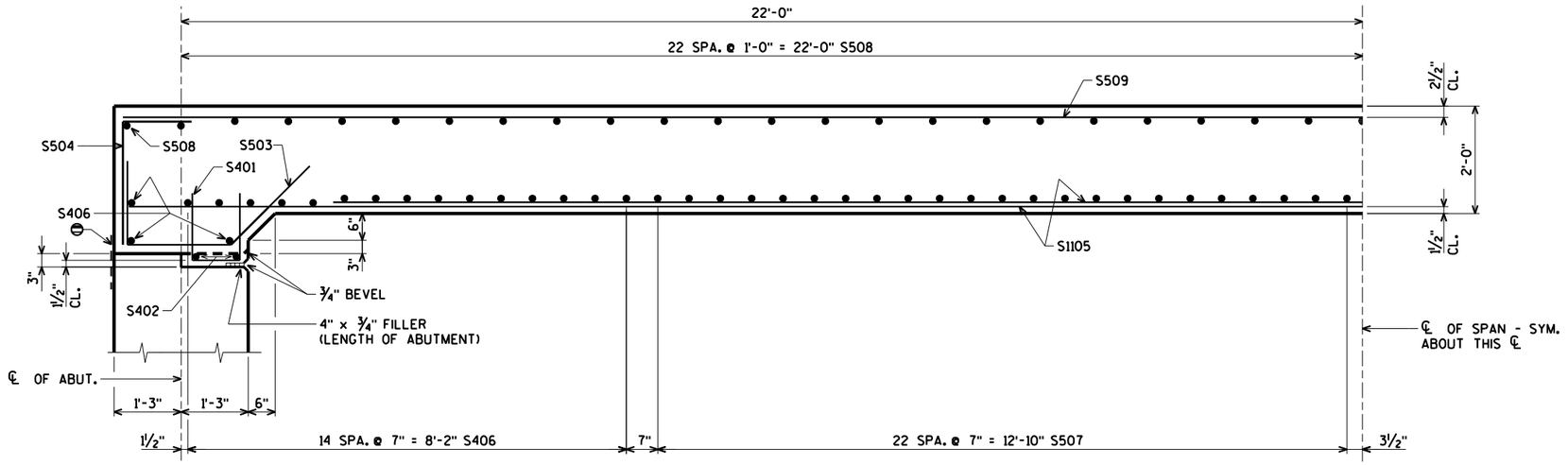
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 sup.dgn

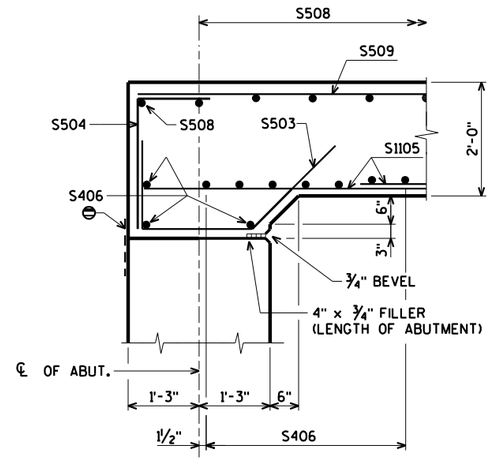
8

8

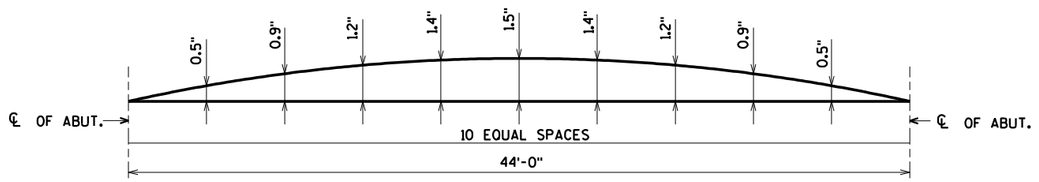
PENTABLE:BReau_shd_util.tbl



PART LONGITUDINAL SECTION



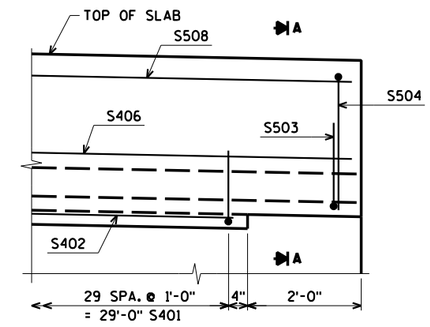
SECTION A



CAMBER DIAGRAM

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

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS AND 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℄.



PART SECTION AT ABUTMENT

TOP OF DECK ELEVATIONS

LOCATION	℄ OF W. ABUT.	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	℄ OF E. ABUT.
N. EDGE OF SLAB	750.34	750.33	750.32	750.31	750.29	750.28	750.26	750.24	750.22	750.20	750.18
℄ OF SCHOOL DRIVE	750.60	750.60	750.58	750.57	750.56	750.54	750.53	750.51	750.49	750.46	750.44
12'-0" RT	750.36	750.36	750.34	750.33	750.32	750.30	750.29	750.27	750.25	750.22	750.20
S. EDGE OF SLAB	750.24	750.23	750.22	750.21	750.19	750.18	750.16	750.14	750.12	750.10	750.07

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

⊖ 18" RUBBERIZED MEMBRANE WATERPROOFING BETWEEN WINGS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

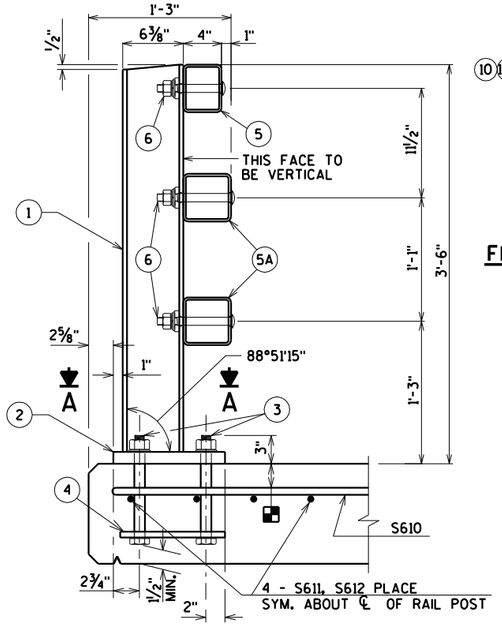
SUPERSTRUCTURE DETAILS

SHEET 11 OF 14
55

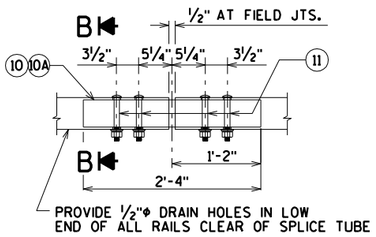
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 sup.dgn

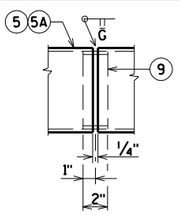
STATE PROJECT NUMBER
9268-09-71



SECTION THRU RAILING ON DECK

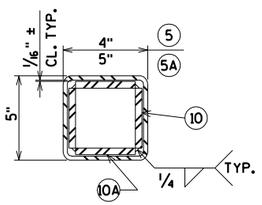


FIELD ERECTION JOINT DETAIL

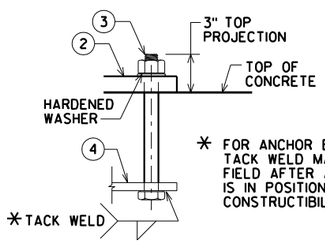


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)

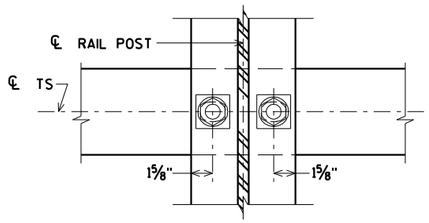


SECTION B

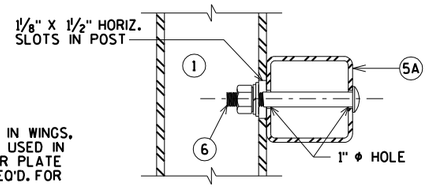


✳ FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.

ANCHOR BOLTS



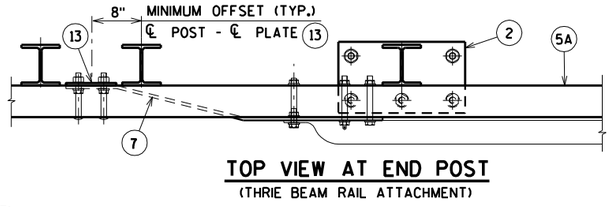
SECTION THRU POST WEB



SECTION THRU RAIL

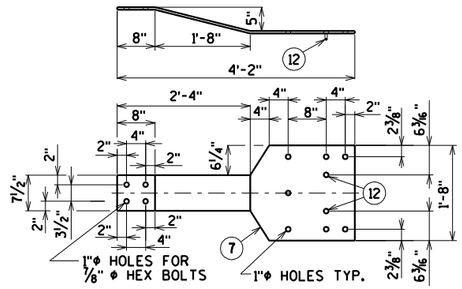
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



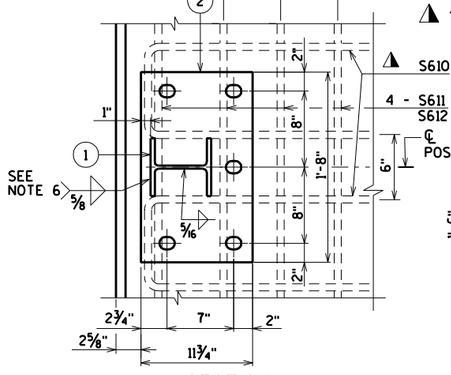
TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)

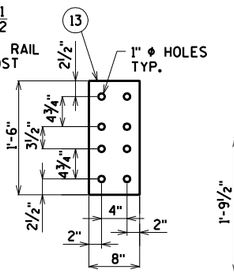


BACK-UP PLATE DETAIL

(AT BEAM GUARD ATTACHMENT)

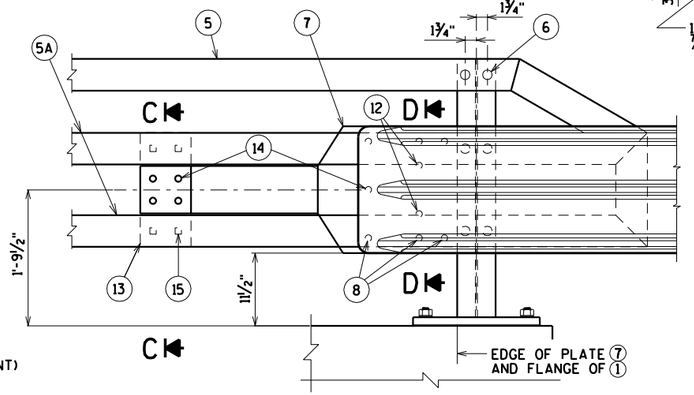


SECTION A



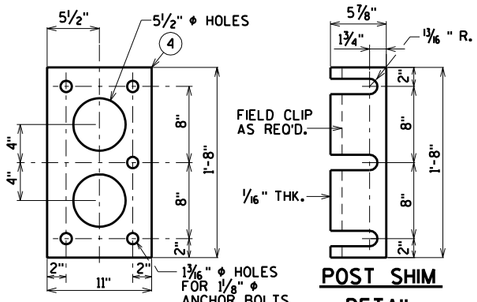
ANCHOR PLATE

(AT BEAM GUARD ATTACHMENT)



DETAIL AT END POST

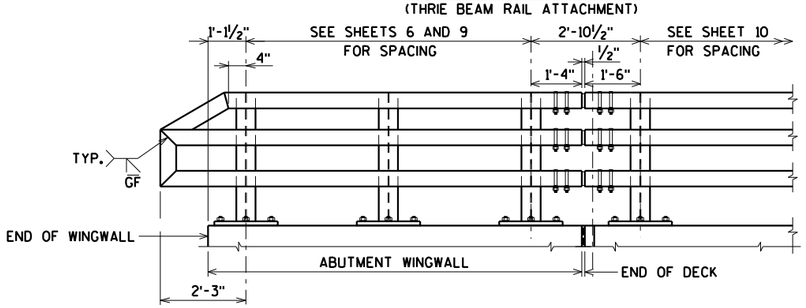
(THRIE BEAM RAIL ATTACHMENT)



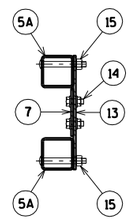
ANCHOR PLATE

(AT RAIL TO DECK CONNECTION)

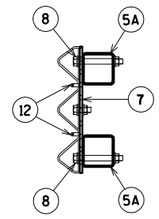
POST SHIM DETAIL



PART ELEVATION OF RAILING



SECTION C



SECTION D

LEGEND

① W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" x 11¾" x 1'-8" WITH 1⅝" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. ~~USE 10¾" LONG AT ALL OTHER LOCATIONS.~~ (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

④ ⅝" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1³⁄₁₆" DIA. HOLES FOR ANCHOR BOLTS NO. 3

⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑥ ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

⑦ ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

⑨ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

⑩ ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ ⅞" ϕ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15⁄16 " X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 15⁄16 " X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS~~ IN PLATE NO. 10A.

⑫ ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

⑬ ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

⑮ 1" ϕ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-5-421" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. ~~RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.~~
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. ~~WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.~~
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

PLACE BELOW TOP MAT SLAB REINFORCEMENT.

⚠ TIE TO TOP MAT OF STEEL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

RAILING TUBULAR TYPE M

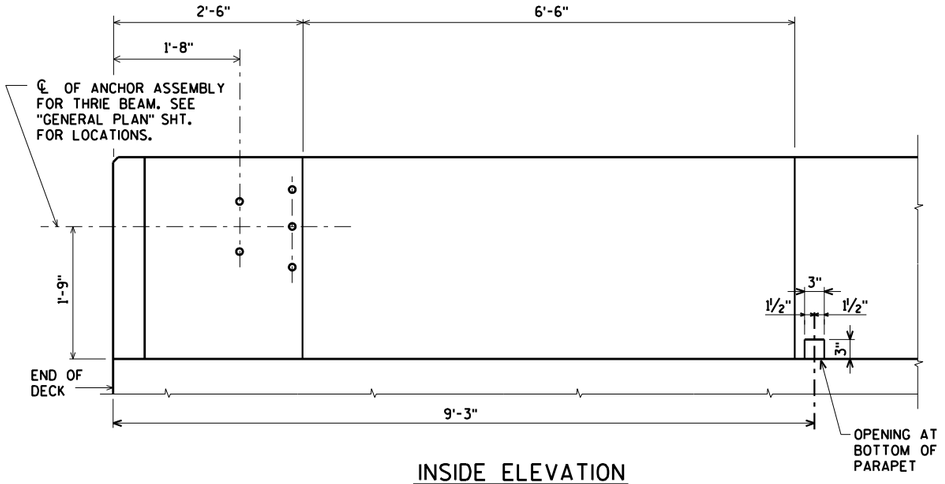
SHEET 12 OF 14
56

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

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 rail.dgn
10/6/2015
PENTABLE:BReau_shd_util.tbl

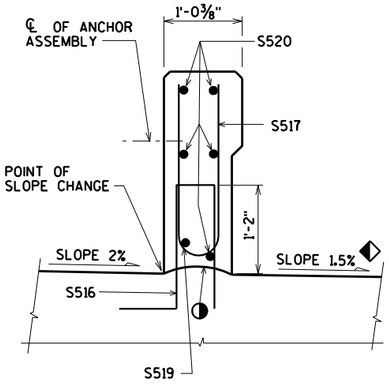
STATE PROJECT NUMBER

9268-09-71

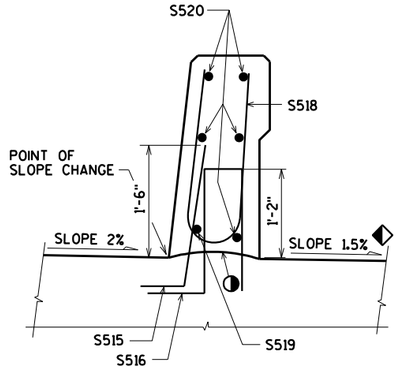


INSIDE ELEVATION

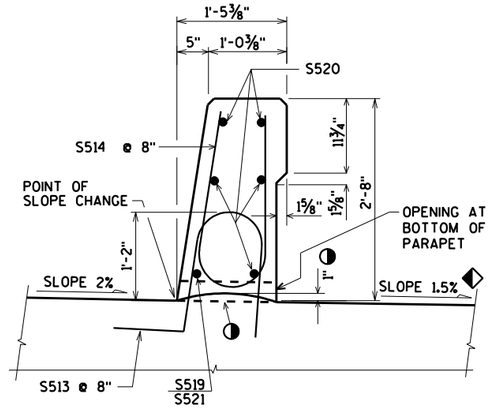
(E. ABUT. SHOWN, W. ABUT. SIMILAR)



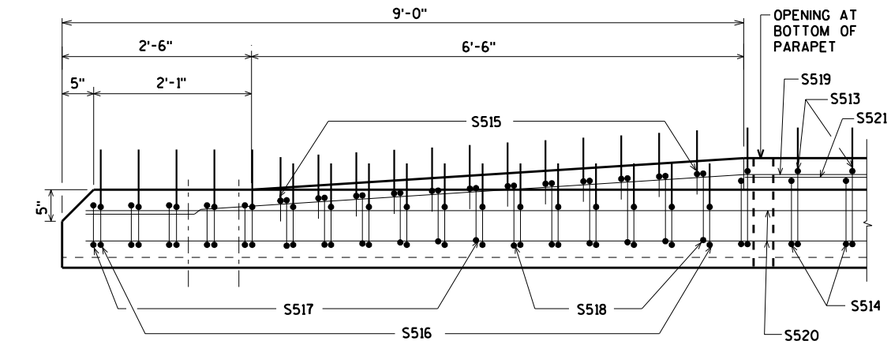
SECTION A



SECTION B

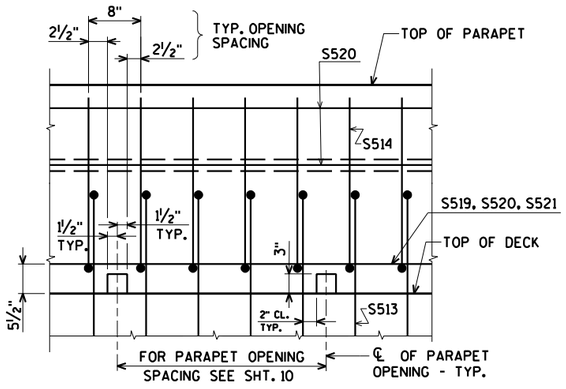


SECTION C



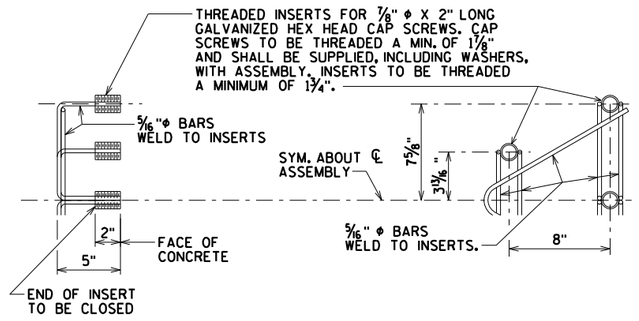
PLAN

(W. ABUT. SHOWN, E. ABUT. SIMILAR)



PART ELEVATION OF PARAPET

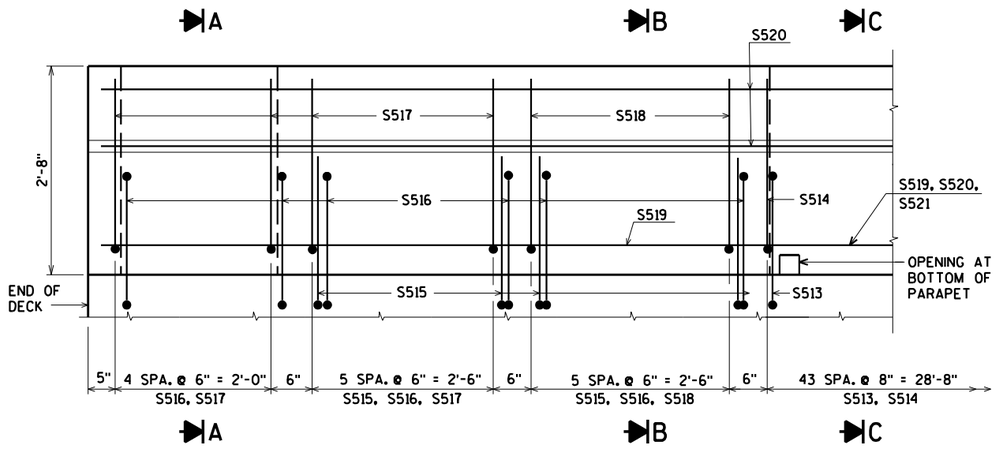
(INSIDE FACE)



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.



OUTSIDE ELEVATION

(W. ABUT. SHOWN, E. ABUT. SIMILAR)

◐ CONST. JOINT - STRIKE OFF AS SHOWN, EXCEPT IN AREAS WITH PARAPET OPENINGS. BOTTOM OF PARAPET OPENINGS TO BE LEVEL WITH TOP OF DECK

◆ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

SINGLE SLOPE PARAPET 32SS

SHEET 13 OF 14
57

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

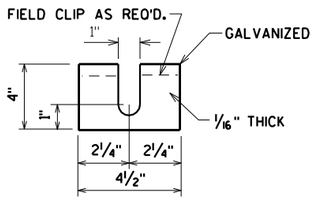
$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 rail.dgn

STATE PROJECT NUMBER

9268-09-71

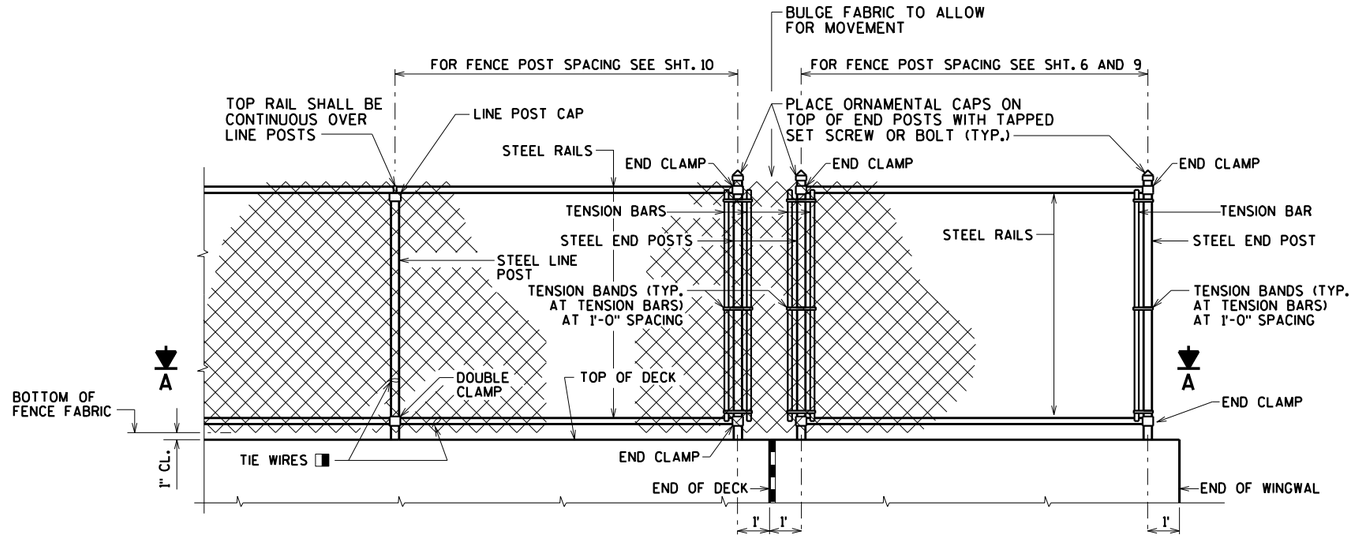
FENCE MEMBER SIZE & WEIGHT

STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.875	5.80
OVERHANG POST	2.875	5.80
LINE POST	2.375	3.65
POST SLEEVE	4.000	9.12



POST SHIM DETAILS

SHIMS REQUIRED ONLY WHEN END POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.



FENCE PART ELEVATION

VIEWING FABRIC SIDE

(WING 1 SHOWN, WING 4 SIMILAR)

GENERAL NOTES

POSTS ARE TO BE SET VERTICAL.

ALL FENCE COMPONENTS SHALL BE GALVANIZED STEEL, EXCEPT THE FENCE FABRIC WHICH MAY BE ALUMINUM-COATED STEEL OR GALVANIZED STEEL.

FABRIC SHALL CONFORM TO ASTM A491 OR A392, CLASS 2. STEEL RAILS, POSTS AND POST SLEEVES SHALL CONFORM TO ASTM F1083, STANDARD WEIGHT PIPE (SCHEDULE 40). FITTINGS SHALL CONFORM TO ASTM F626.

COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.

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

BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.

THE BID ITEM SHALL BE "FENCE CHAIN LINK 5-FT", LF.

◪ CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

✳ ALTERNATE TO DOUBLE CLAMP: USE LINE RAIL CLAMP (BOULEVARD) OR 180° BRACE BAND, WHICH MAY BE USED WHEN THE POSTS ARE EITHER BOLTED TO THE POST SLEEVES OR DIRECTLY WELDED TO THE BASE PLATE.

▲ 1/2" DIA. X 6 7/8" LONG GALVANIZED HEX BOLT WITH NUT & WASHER. TYPE "S", 1/2" DIA. CONCRETE MASONRY ANCHORS MAY BE SUBSTITUTED FOR 1/2" DIA. BOLTS. ANCHOR PLATE NOT REQUIRED WHEN TYPE "S" ANCHORS ARE USED. SEE ☆

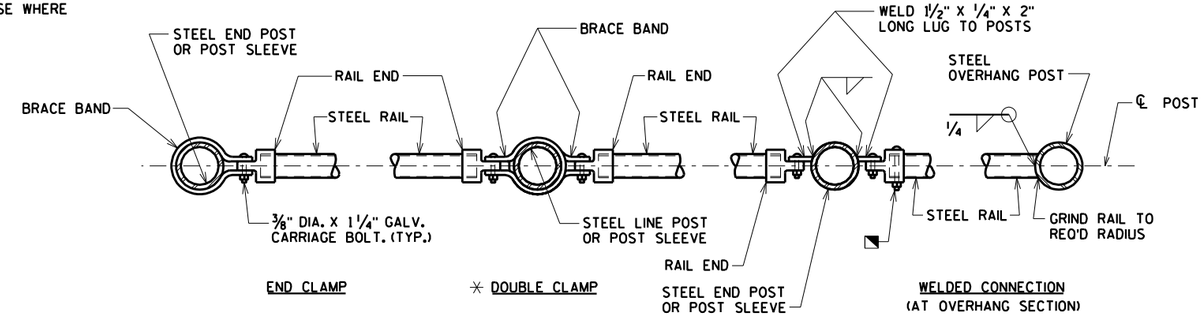
☆ MASONRY ANCHOR TYPE S 1/2-INCH. EMBED 6" IN CONCRETE. ANCHOR, WASHER, AND NUT SHALL BE GALVANIZED.

◨ ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".

◥ BOLT RAIL TO RAIL END TO SECURE OVERHANG SECTION. ALTERNATE IS TO WELD RAIL DIRECTLY TO END POST.

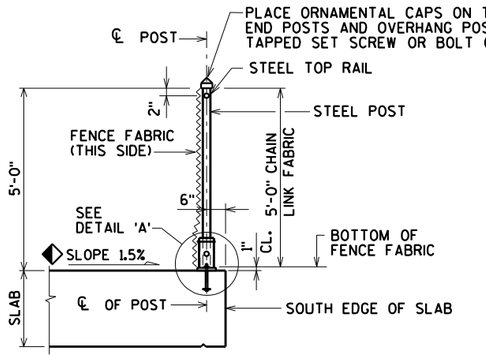
MINIMUM LENGTH OF TOP RAIL BETWEEN SPLICES SHALL BE 20'-0". LOCATE SPLICES NEAR 1/4 POINT OF POST SPACING.

◆ 0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



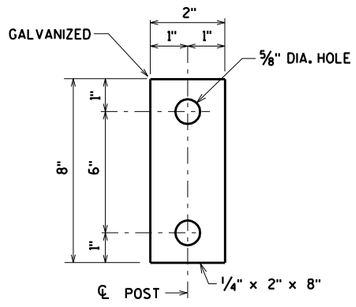
SECTION A-A

NOTE: PLACE ALL BOLT HEADS ON SIDE OF FENCE ADJACENT TO PEDESTRIANS

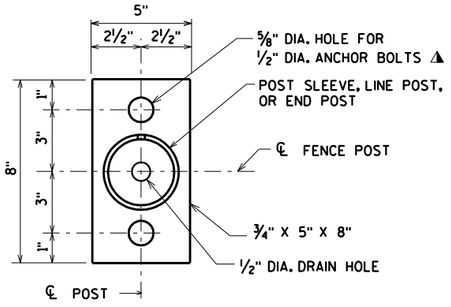


SECTION THRU FENCE ON BRIDGE

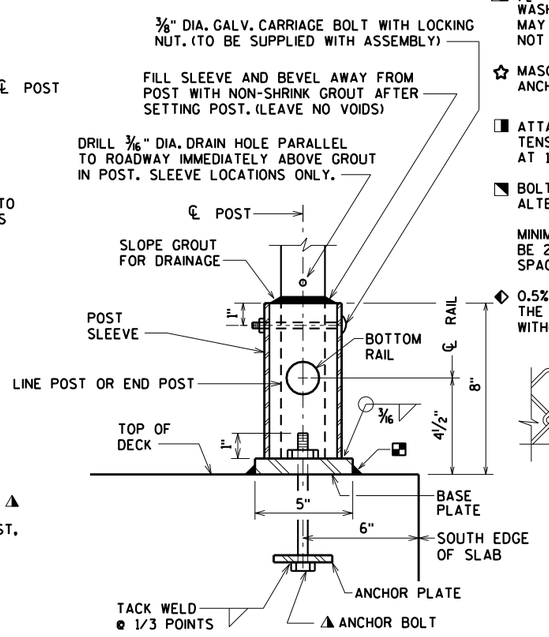
(SECTION THRU WINGS SIMILAR)



ANCHOR PLATE



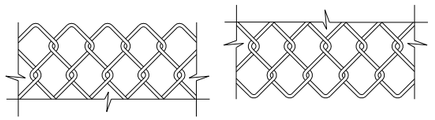
BASE PLATE



DETAIL 'A'

UNIT SHALL BE GALVANIZED AFTER FABRICATION

NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.



TOP DETAIL BOTTOM DETAIL

FENCE FABRIC

FENCE FABRIC WOVEN OF 9-GAGE WIRE IN 2" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-5-421

DRAWN BY JWZ | PLANS CK'D. CBM

FENCE CHAIN LINK

SHEET 14 OF 14
58

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

$PRFNAME$
U:\45-0379.00 - Brown County, School Drive over Suamico River\BRIDGE\450379 rail.dgn
10/6/2015
PENTABLE:BReau_shd_util.tbl

8

8

EARTHWORK - SCHOOL DR (SW SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
					Note 1	Note 2	Note 3		1.00 Note 1	1.30	1.50 Note 4	Note 7
6+71.00	0.0	0.0	0.0	0.0								
7+00.00	22.1	0.0	0.0	0.0	12	0	0	0	12	0	0	12
7+50.00	13.8	0.0	1.4	0.0	33	0	1	0	45	2	0	44
7+91.59	11.6	0.0	3.1	0.0	20	0	3	0	65	6	0	59
8+00.00	11.7	0.0	3.1	35.2	4	0	1	5	68	7	8	61
8+16.47	12.2	0.0	2.7	26.2	7	0	2	19	76	10	36	66
8+41.31	7.8	0.0	6.8	20.0	9	0	4	21	85	15	68	70
8+50.00	7.3	0.0	7.9	19.5	2	0	2	6	87	18	78	69
8+56.28	7.2	0.0	8.5	19.1	2	0	2	4	89	21	84	68
8+80.93	6.2	0.0	12.2	16.9	6	0	9	16	95	33	109	62
9+00.00	4.7	0.0	16.0	17.5	4	0	10	12	99	46	127	53
		TOTALS:			99	0	35	85				

EARTHWORK - SCHOOL DR (NW SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
					Note 1	Note 2	Note 3		1.00 Note 1	1.30	1.50 Note 4	Note 7
7+00.00	0.0	0.0	9.9	0.0								
7+50.00	10.0	0.0	2.3	0.0	9	0	11	0	9	15	0	-5
7+91.59	11.1	0.0	2.8	0.0	16	0	4	0	26	20	0	6
8+00.00	11.7	0.0	3.0	0.0	4	0	1	0	29	21	0	8
8+16.47	13.2	0.0	3.5	0.0	8	0	2	0	37	24	0	13
8+41.31	17.0	0.0	3.7	0.0	14	0	3	0	51	28	0	23
8+50.00	18.7	0.0	3.8	0.0	6	0	1	0	56	29	0	27
8+56.28	19.8	0.0	3.9	0.0	4	0	1	0	61	31	0	30
8+80.93	33.8	0.0	0.0	0.0	24	0	2	0	85	33	0	52
9+00.00	16.6	0.0	13.2	0.0	18	0	5	0	103	39	0	64
		TOTALS:			103	0	30	0				

EARTHWORK - SCHOOL DR

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
					Note 1	Note 2	Note 3		1.00 Note 1	1.30	1.50 Note 4	Note 7
9+00.00	44.3	6.6	29.2	17.5								
9+06.32	40.3	6.6	35.1	20.7	10	2	8	4	10	10	7	-1
9+50.00	45.1	6.6	46.0	20.5	69	11	66	33	79	95	57	-28
9+81.75	45.1	6.6	46.0	20.5	53	8	54	24	132	165	93	-53
10+00.00		6.6										
10+28.25	30.8	6.6	41.1	33.7								
10+50.00	30.8	6.6	41.1	33.7	25	5	33	27	157	209	134	-77
11+00.00	31.5	6.6	65.6	49.1	58	12	99	77	214	337	249	-160
		TOTALS:			214	38	259	166				

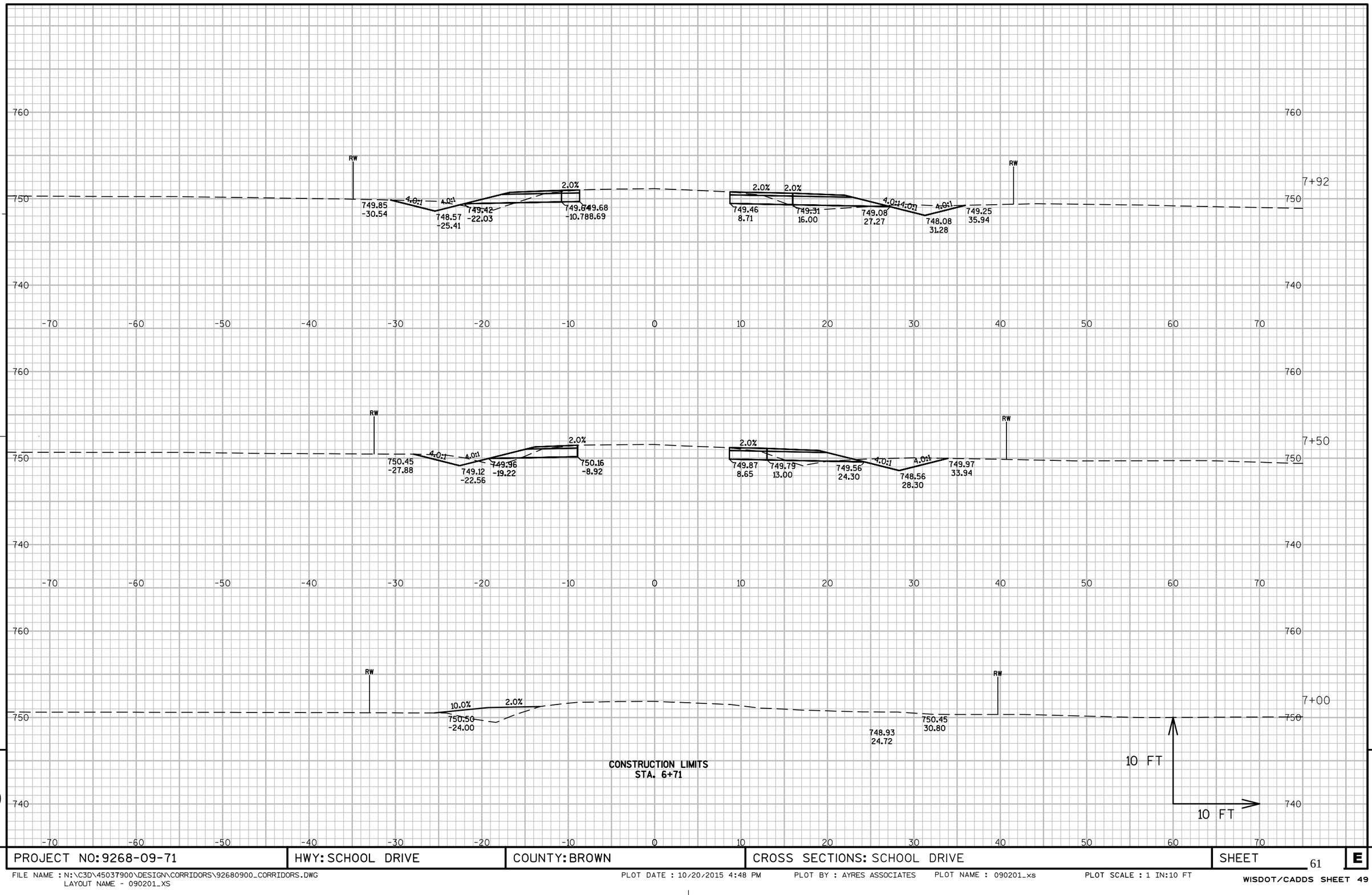
EARTHWORK - SCHOOL DR (SE SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.30	Expanded Marsh Backfill 1.50	Mass Ordinate
					Note 1	Note 2	Note 3		Note 1		Note 4	Note 7
11+00.00	3.8	0.0	42.3	30.6								
11+06.62	11.2	0.0	47.2	33.3	2	0	11	8	2	14	12	-12
11+31.49	11.4	0.0	40.8	38.8	10	0	41	33	12	67	62	-55
11+50.00	3.7	0.0	37.3	43.2	5	0	27	28	17	102	104	-84
11+56.50	11.7	0.0	36.1	28.0	2	0	9	9	19	113	117	-94
11+66.44	5.0	0.0	18.1	28.0	3	0	10	10	22	126	132	-104
11+91.40	9.9	0.0	11.3	39.5	7	0	14	31	29	144	179	-115
12+00.00	10.2	0.0	10.0	35.0	3	0	3	12	32	148	197	-116
12+16.44	10.8	0.0	8.3	28.5	6	0	6	19	39	155	226	-117
12+50.00	10.8	0.0	8.3	0.0	13	0	10	18	52	169	252	-117
13+00.00	0.0	0.0	0.0	0.0	10	0	8	0	62	179	252	-116
		TOTALS:			62	0	138	168				

EARTHWORK - SCHOOL DR (NE SHOULDER WIDENING)

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.30	Expanded Marsh Backfill 1.50	Mass Ordinate
					Note 1	Note 2	Note 3		Note 1		Note 4	Note 7
11+00.00	3.6	0.0	23.3	18.5								
11+06.62	3.7	0.0	24.3	20.7	1	0	6	5	1	8	7	-7
11+31.49	3.7	0.0	28.7	25.0	3	0	24	21	4	39	39	-35
11+50.00	3.9	0.0	32.5	27.6	3	0	21	18	7	67	66	-60
11+56.50	4.0	0.0	30.6	28.0	1	0	8	7	8	76	76	-69
11+66.44	3.9	0.0	19.9	28.0	1	0	9	10	9	89	91	-79
11+91.40	9.5	0.0	15.7	36.3	6	0	16	30	15	110	136	-94
12+00.00	8.7	0.0	14.3	38.0	3	0	5	12	18	116	154	-98
12+16.44	11.0	0.0	11.9	43.9	6	0	8	25	24	126	191	-102
12+50.00	10.7	0.0	11.5	31.9	14	0	15	47	38	145	262	-107
13+00.00	4.3	0.0	8.0	15.0	14	0	18	43	52	169	327	-117
13+36.40	0.0	0.0	0.0	0.0	3	0	5	10	55	176	342	-121
		TOTALS:			52	0	130	228				

Notes:	
1 - Cut	Cut includes existing asphalt and base material.
2 - Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement Material volume
4 - Expanded Marsh Backfill	Will be backfilled with Select Borrow
7 - Mass Ordinate	Cut - (Unusable Pavement Material)-(Fill * Fill Factor)
7 - Mass Ordinate	Mass Ordinate does not include Marsh Excavation

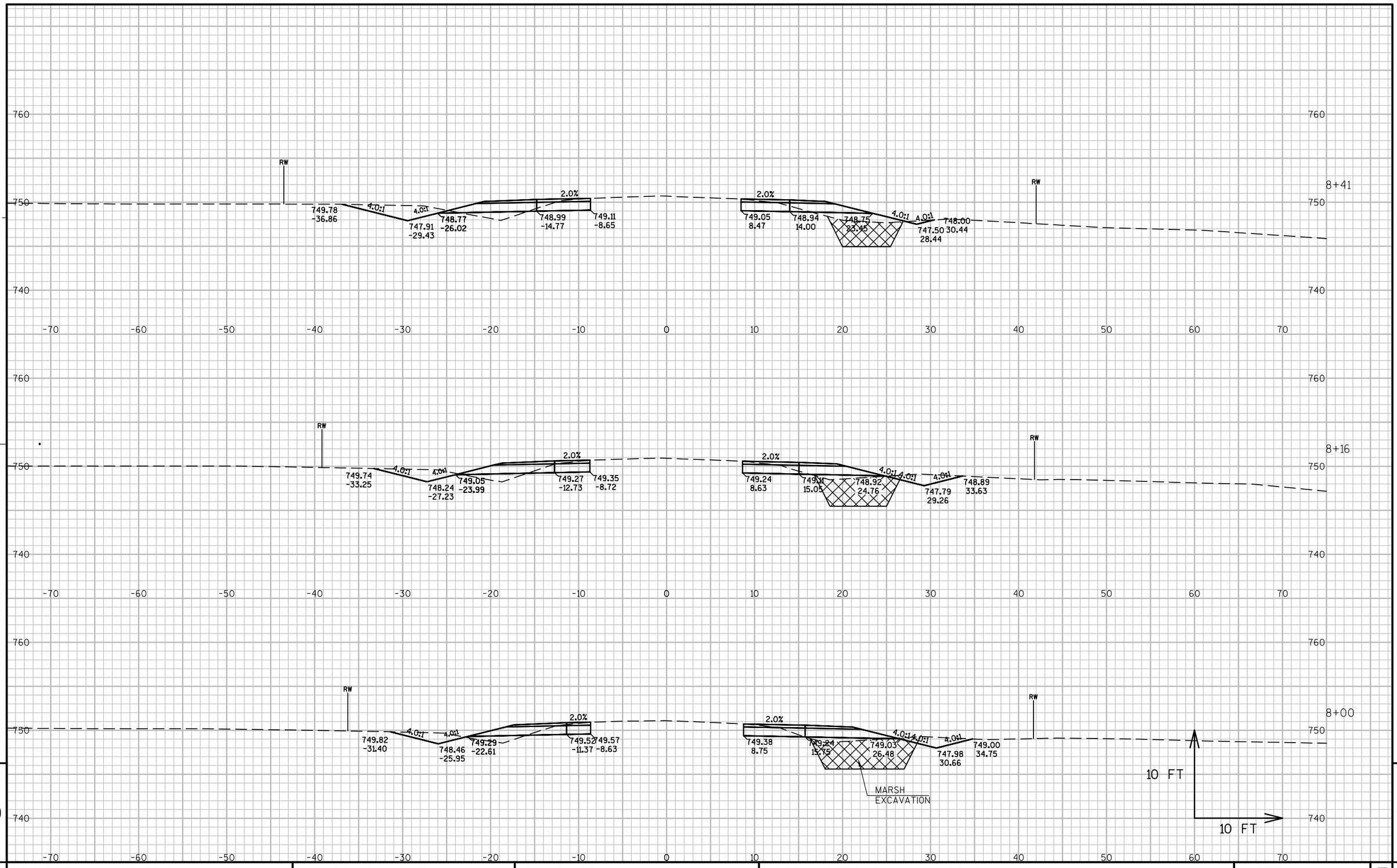


PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 61	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090201_XS

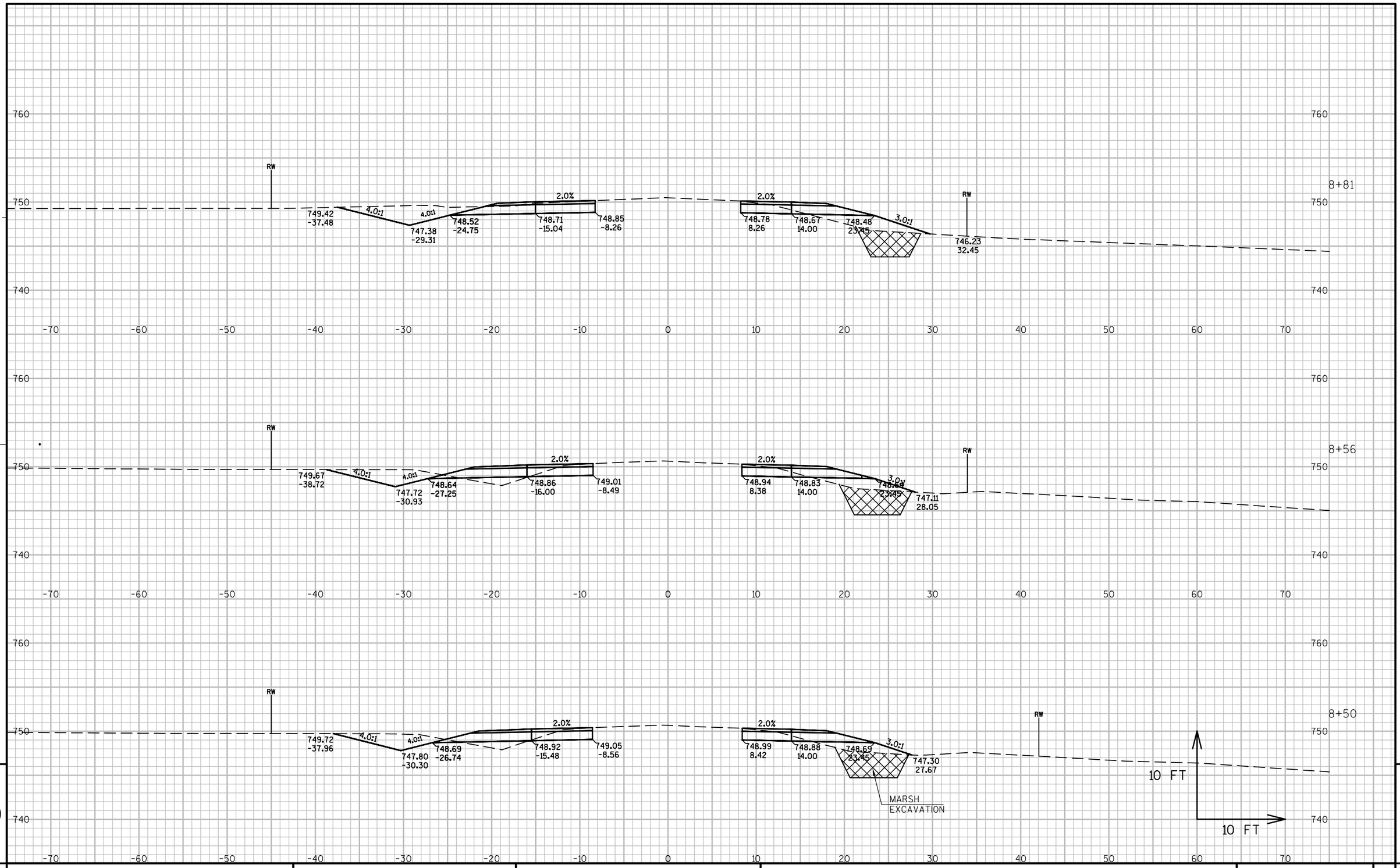
PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090201_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 62	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090202_XS
PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090202_xs PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



9

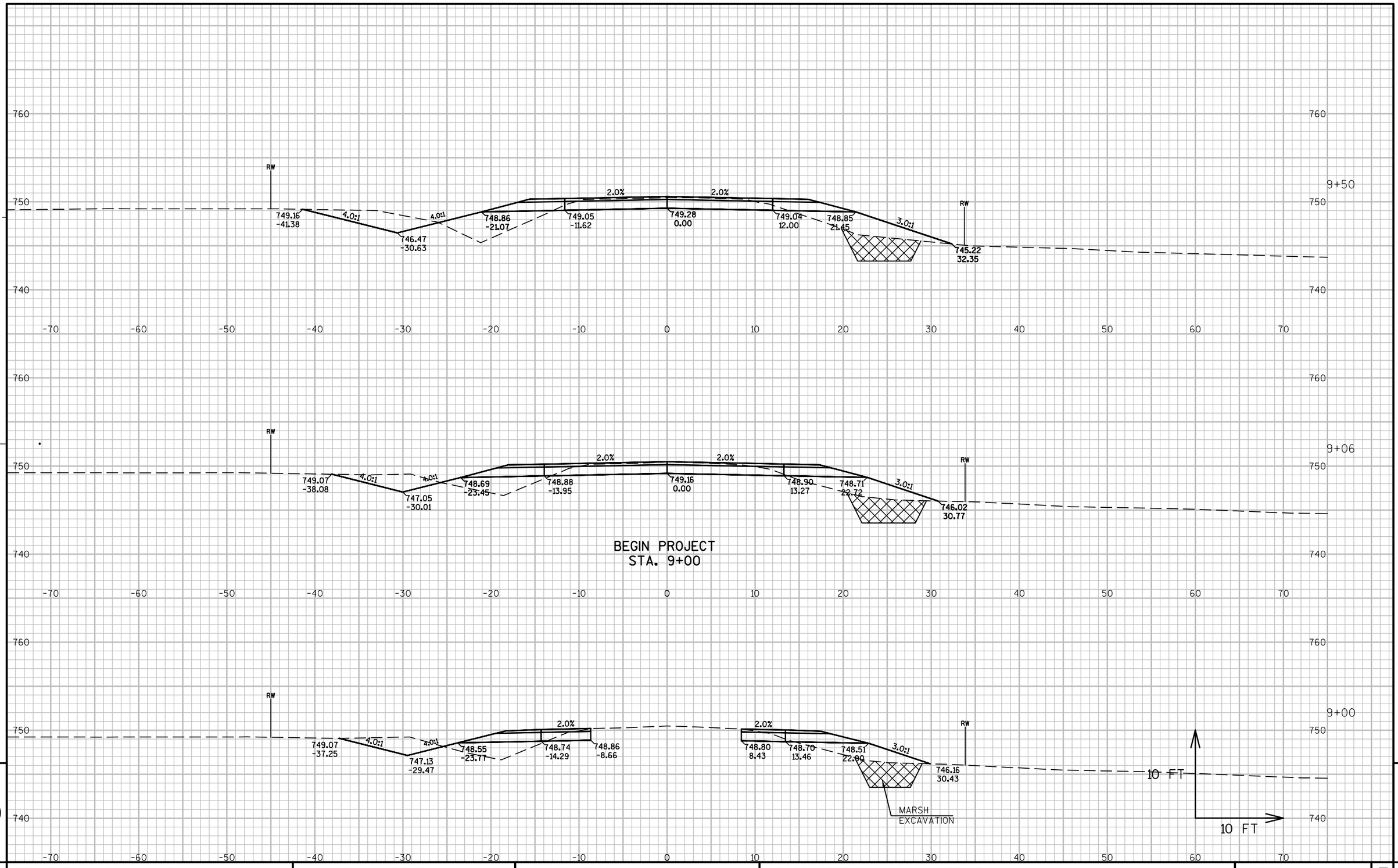
9

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 63	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090203_XS

PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090203_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

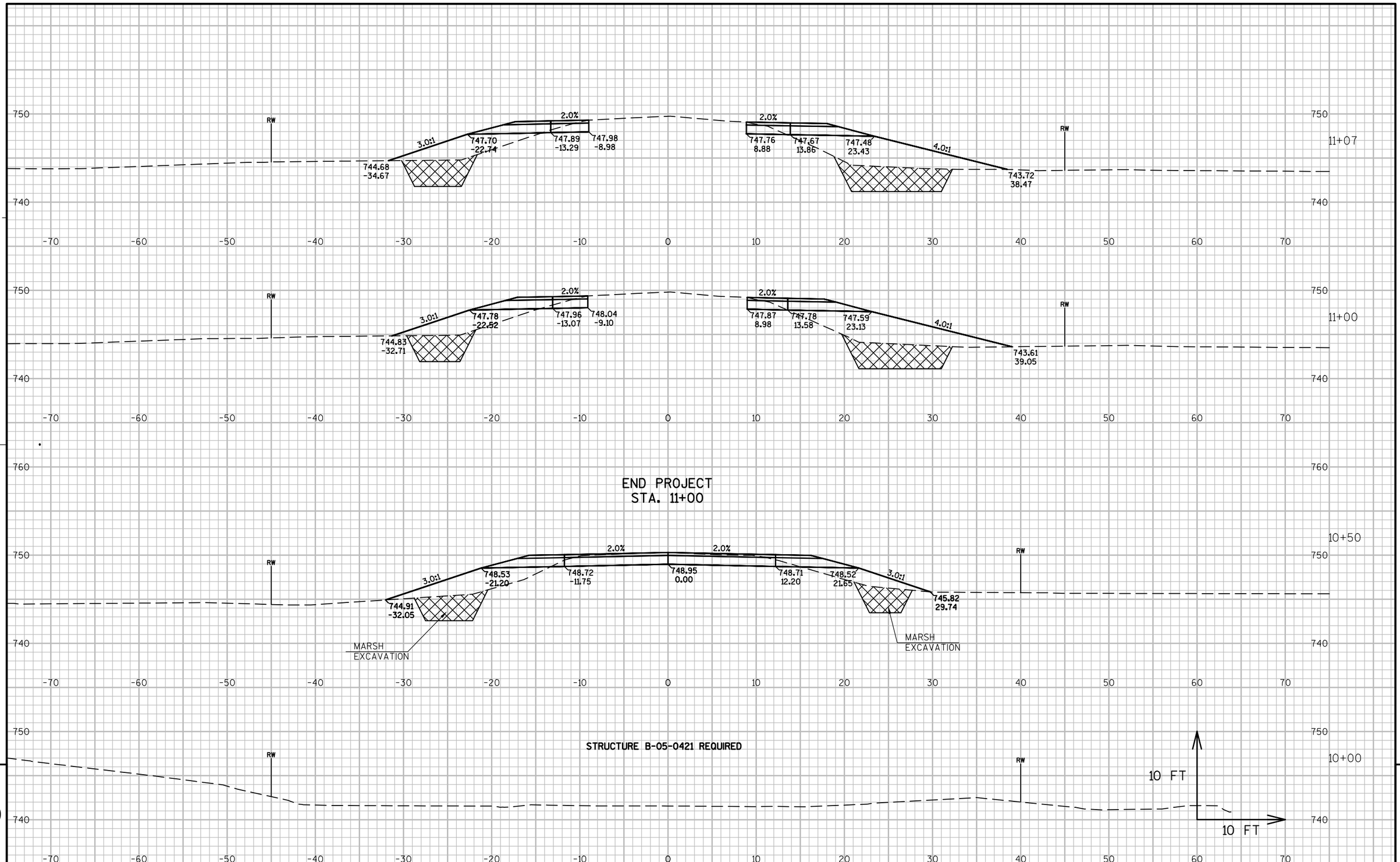


PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 64	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090204_XS

PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090204_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



9

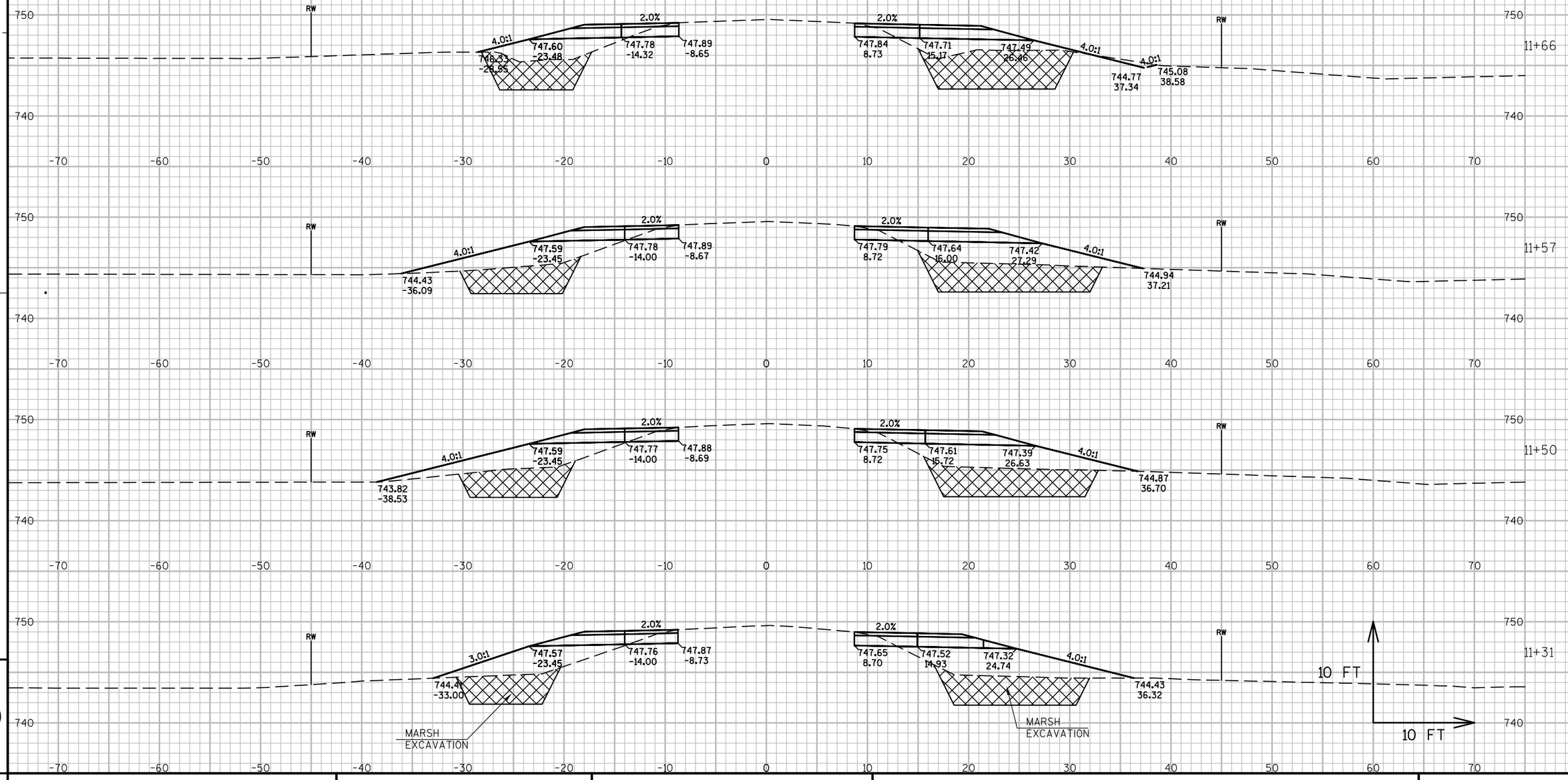
9

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 65	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090205_XS

PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090205_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

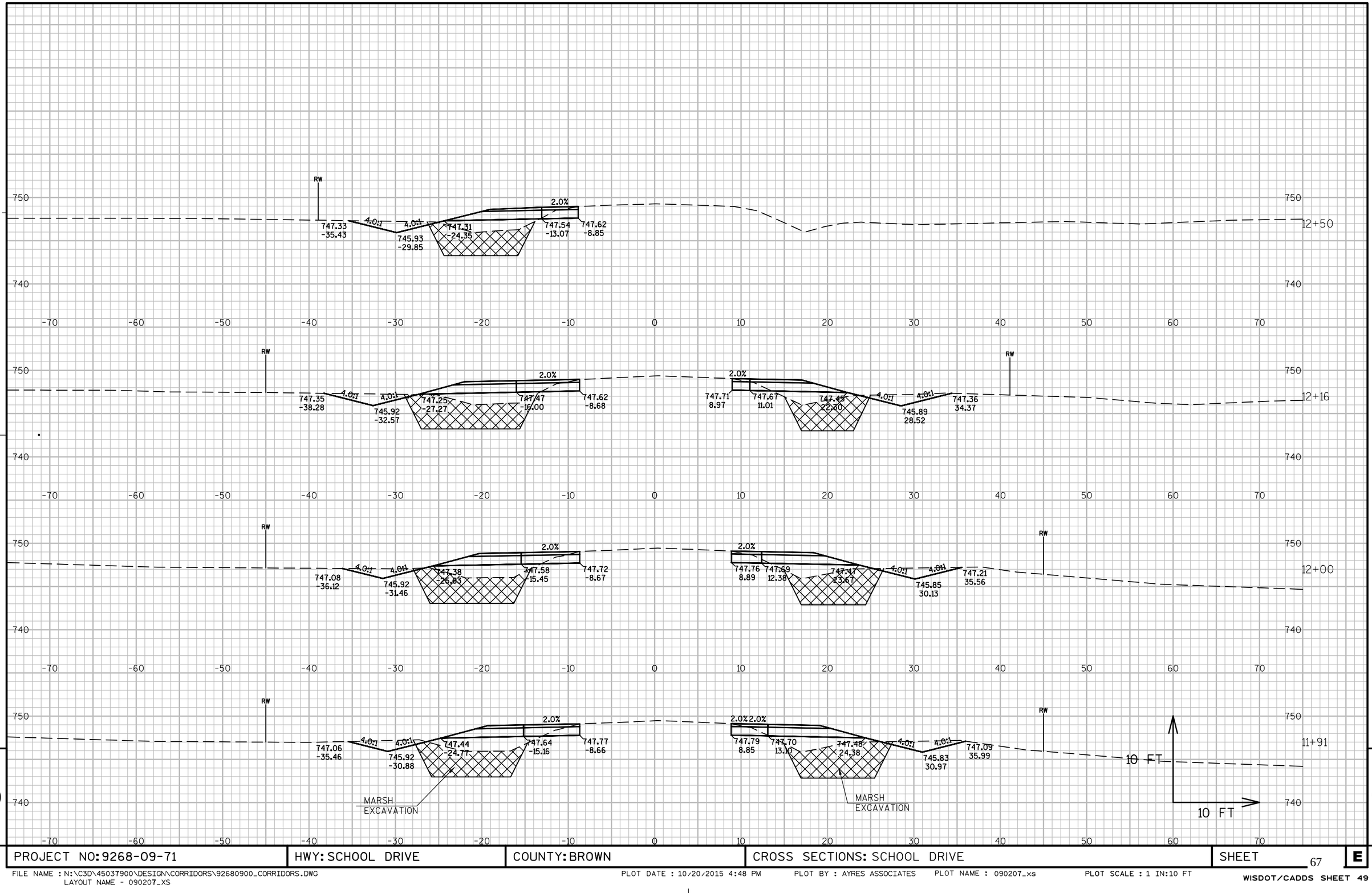


PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 66	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090206_XS

PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090206_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

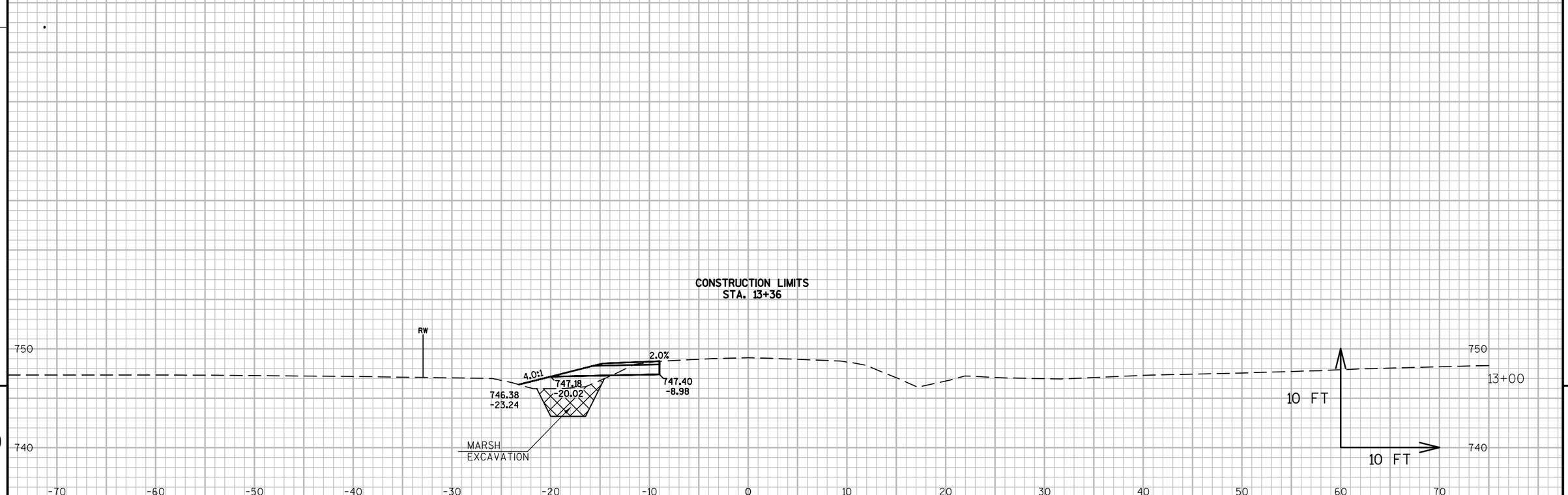


PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 67	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090207_XS

PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090207_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 9268-09-71	HWY: SCHOOL DRIVE	COUNTY: BROWN	CROSS SECTIONS: SCHOOL DRIVE	SHEET 68	E

FILE NAME : N:\C3D\45037900\DESIGN\CORRIDORS\92680900_CORRIDORS.DWG
LAYOUT NAME - 090208_XS

PLOT DATE : 10/20/2015 4:48 PM PLOT BY : AYRES ASSOCIATES PLOT NAME : 090208_xs PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov