NWL

MAY 2014

PROJECT ID: 8787-00-70

WITH: N/A

COUNTY: RUSK

ORDER OF SHEETS

TOTAL SHEETS = 74

50

N

DESIGN DESIGNATION

A.A.D.T.	(2014)	=	720
A.A.D.T.	(2034)	=	1,100
D.H.V.		=	144
D.D.		=	62/38
T.		=	7.3%
DESIGN SPEED		=	55
ESALS		=	160,600

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (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 (95.36)
- 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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 40 - STH 27

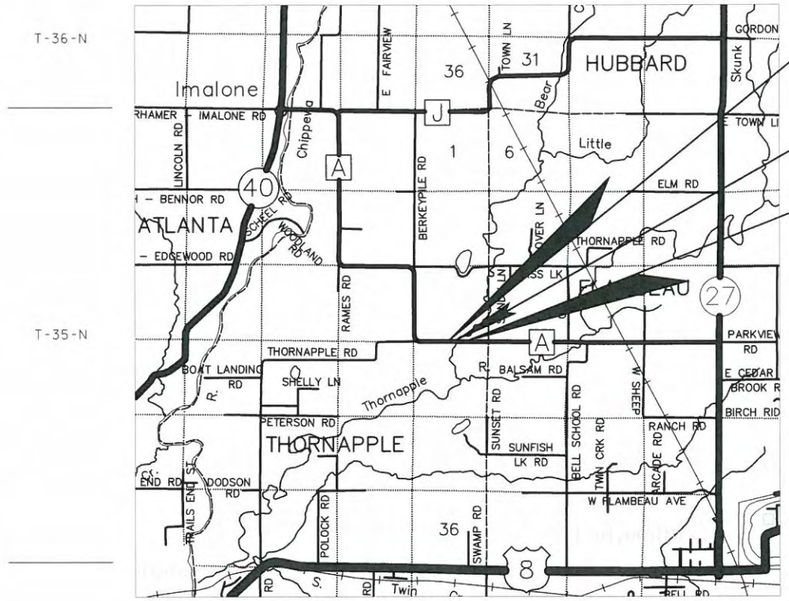
THORNAPPLE RIVER BRIDGE B-54-0114

CTH A

RUSK COUNTY

STATE PROJECT NUMBER
8787-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8787-00-70	WISC 2014213	1



BEGIN PROJECT 8787-00-70
STA. 7+00.00
Y = 579,314.937
X = 791,755.439

STRUCTURE B-54-0114
STA. 10+00.00

END PROJECT 8787-00-70
STA. 13+00.00
Y = 579,322.454
X = 792,355.932

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.100 MI

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

ACCEPTED FOR

COUNTY of RUSK

DATE: 12-18-13 Phillip McDevitt
(Signature & Title of Official)
Highway Commissioner

ORIGINAL PLANS PREPARED BY

Mead & Hunt

WISCONSIN JAY P. WHEATON E-30720 LA CROSSE, WI PROFESSIONAL ENGINEER

DATE: 1/10/14 (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MEAD & HUNT
Designer	MEAD & HUNT
Management Consultant	KNIGHT E/A, INC.
C.O. Examiner	N/A

APPROVED FOR THE DEPARTMENT

DATE: 1/28/14 Ryan B McKane
(Management Consultant Signature)

E

GENERAL NOTES

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

WHEN THE QUANTITY OF BASE AGGREGATE OR HMA PAVEMENT TYPE E-0.3 IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

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

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

THE EXACT LOCATION OF THE EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE 4-INCH SALVAGED TOPSOILED, FERTILIZED, SEEDED AND MULCHED.

BEARINGS SHOWN ON THE PLANS ARE GRID BEARINGS TO THE NEAREST SECOND.

THE LOCATION OF ALL DRIVEWAYS WILL BE DETERMINED BY THE ENGINEER.

A VERTICAL SAWCUT SHALL BE MADE THROUGH EXISTING DRIVEWAYS AND PAVEMENTS AT REMOVAL LIMITS.

4-INCH HMA PAVEMENT E-0.3 SHALL BE CONSTRUCTED WITH A 1 3/4-INCH UPPER LAYER AND A 2 1/4-INCH LOWER LAYER.

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

EXISTING PIPE CULVERT SIZES SHOWN ARE APPROXIMATE AND THE CONTRACTOR SHALL BASE ITS BID ON ACTUAL FIELD CONDITIONS.

SHRINKAGE IS ESTIMATED AT 30%.

NEW PE AT STA. 8+45 LT. MUST BE CONSTRUCTED BEFORE EXISTING PE AT STA. 9+50 IS DISTURBED.

CONSULTANT CONTACT
MEAD & HUNT, INC.
750 NORTH THIRD STREET
LA CROSSE, WI 54601
ATTN: JAY WHEATON, P.E.
TELEPHONE: 608-784-6040
E-MAIL: JAY.WHEATON@MEADHUNT.COM

DNR LIAISON
DEPARTMENT OF NATURAL RESOURCES
DNR NORTHERN REGION HQ
810 WEST MAPLE STREET
SPOONER, WI 54801
ATTN: AMY CRONK
TELEPHONE: 715-635-4229
E-MAIL: AMY.CRONK@WISCONSIN.GOV

RUSK COUNTY
RUSK COUNTY HIGHWAY DEPARTMENT
N4711 HWY 27
LADYSMITH, WI 54848
ATTN: PHIL MONTWILL
TELEPHONE: 715-532-2633
E-MAIL: PMONTWILL@RUSKCOUNTY.WI.US

UTILITY CONTACTS

*JUMP RIVER ELECTRIC
ELECTRIC
ATTN: HANK LEW
P.O. BOX 99
LADYSMITH, WI 54848
TELEPHONE: 715-532-5524
E-MAIL: HLEW@JREC.NET

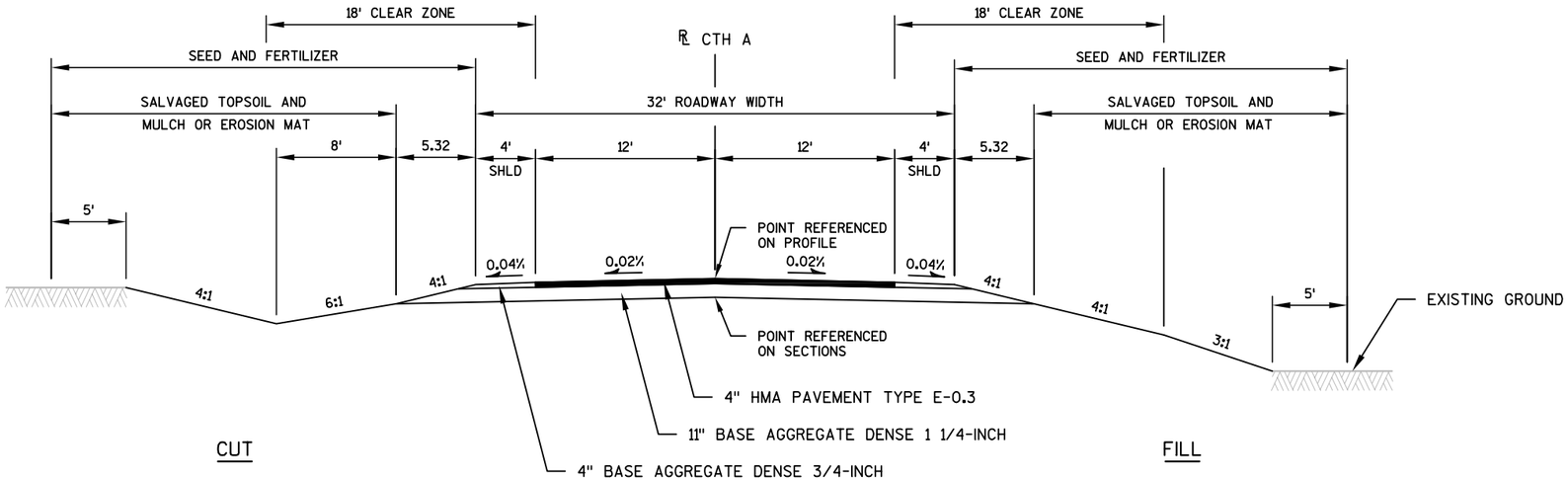
*CENTURYLINK
TELEPHONE
ATTN: JIM ARQUETTE
W5604 MAIN STREET
SHELDON, WI 54766
TELEPHONE: 715-452-5168
E-MAIL: JIM.ARQUETTE@CENTURYLINK.COM

* Denotes Diggers Hotline Member

ORDER OF SECTION 2 SHEETS
TYPICAL SECTIONS
CONSTRUCTION DETAILS
ALIGNMENTS

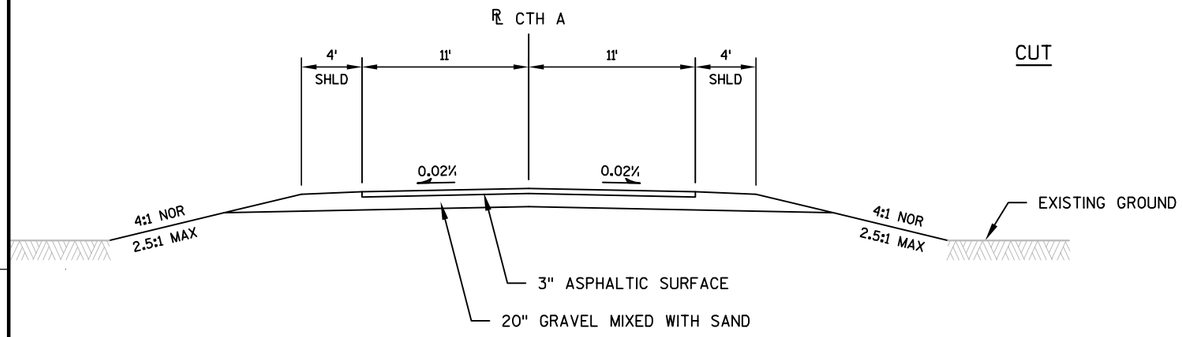
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC
ASPH	ASPHALTIC
BM	BENCH MARK
℄	CENTERLINE
CWT	HUNDREDWEIGHT
CY	CUBIC YARD
DHV	DESIGN HOURLY VOLUME
DWY	DRIVEWAY
EL	ELEVATION
EXC	EXCAVATION
FT	FOOT
FTG	FOOTING
LB	POUND
LF	LINEAR FOOT
LHF	LEFT-HAND FORWARD
LS	LUMP SUM
LT	LEFT
NO	NUMBER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
RHF	RIGHT-HAND FORWARD
RT	RIGHT
R/W	RIGHT-OF-WAY
SF	SQUARE FOOT
SHLDR	SHOULDER
STA	STATION
SY	SQUARE YARD
T	TRUCKS (PERCENT OF)
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY



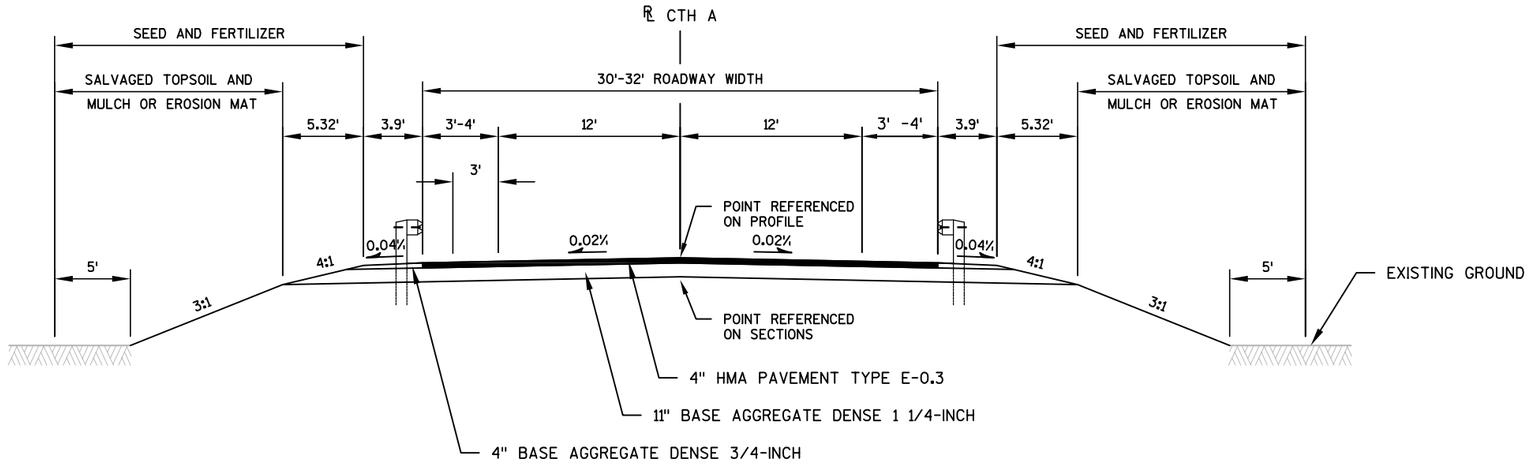
PROPOSED TYPICAL SECTION

STA 7+00.00 TO STA 8+55.25
STA 11+44.75 TO STA 13+00.00



EXISTING TYPICAL SECTION

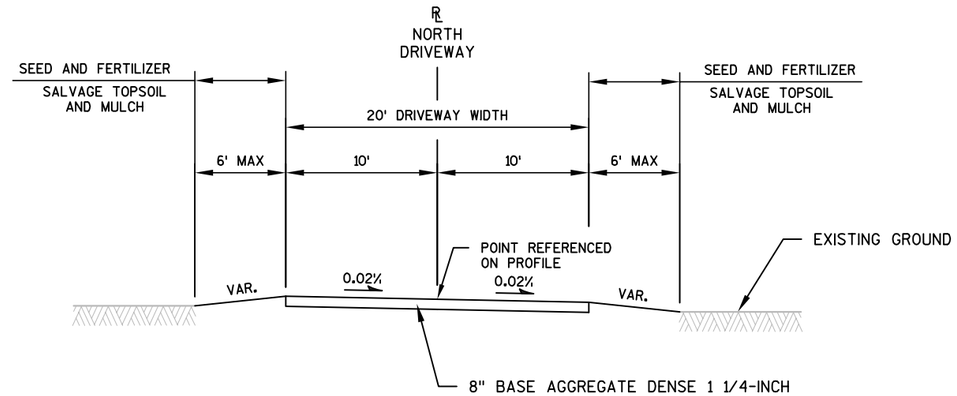
STA 7+00.00 TO STA 9+75.00
STA 10+40.00 TO STA 13+00.00



PROPOSED TYPICAL SECTION BEAM GUARD

STA 8+55.25 TO STA 9+68.75
STA 10+31.25 TO STA 11+44.75

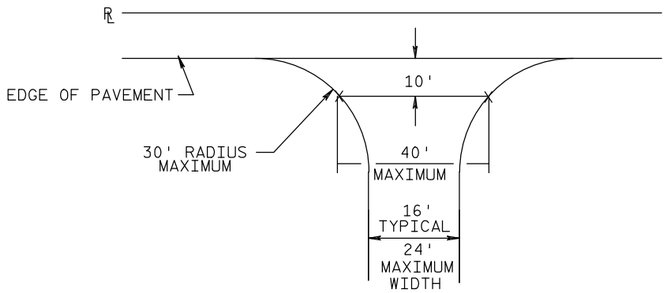
PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	PLAN: TYPICAL SECTIONS	SHEET 3	E



PROPOSED TYPICAL SECTION

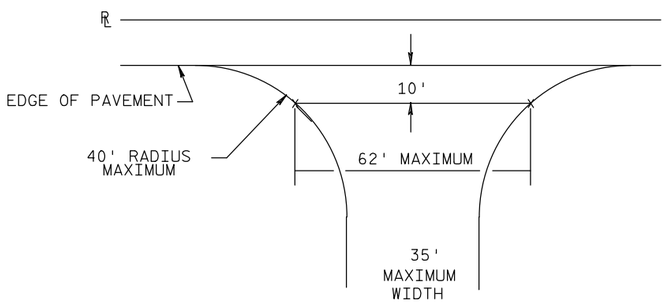
NORTH DRIVEWAY
STA 20+16.00 TO STA 21+93.23

PROJECT NO:8787-00-70	HWY:CTH A	COUNTY:RUSK	PLAN: TYPICAL SECTIONS	SHEET 4	E



TYPICAL DRIVEWAY DETAIL

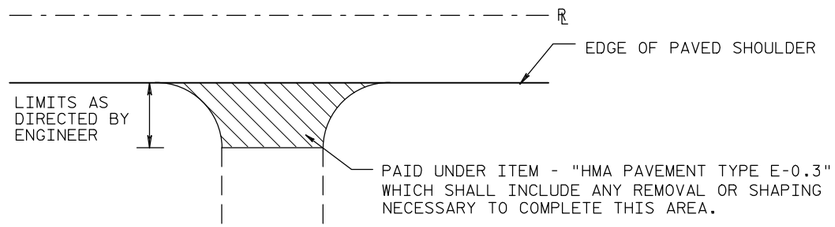
(NON-COMMERCIAL RURAL)



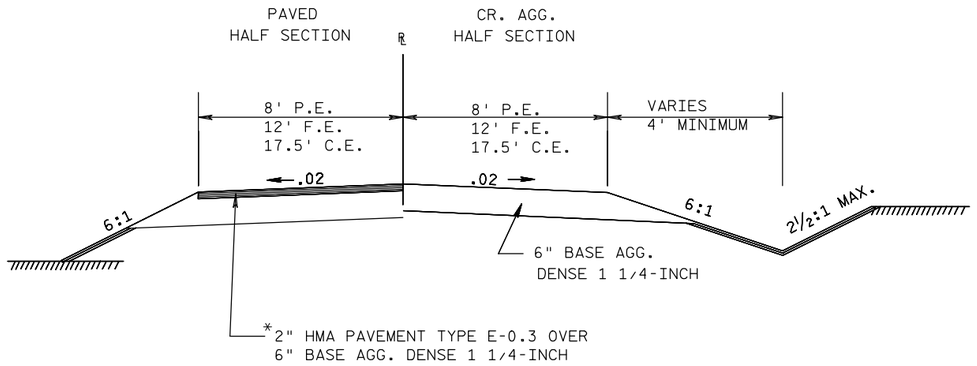
TYPICAL DRIVEWAY DETAIL

(COMMERCIAL RURAL)

RURAL DRIVEWAY DETAIL - ASPHALT



ANY ADDITIONAL BASE AGG. DENSE REQ'D. SHALL BE PAID UNDER ITEM - "BASE AGGREGATE DENSE 1 1/4-INCH"

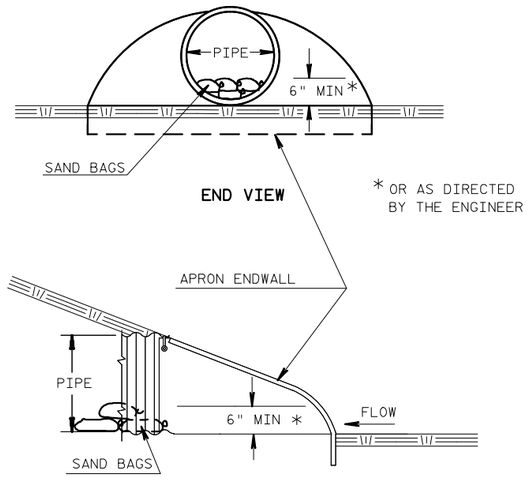


*OR MATCH EXIST.
ASPH. DEPTH

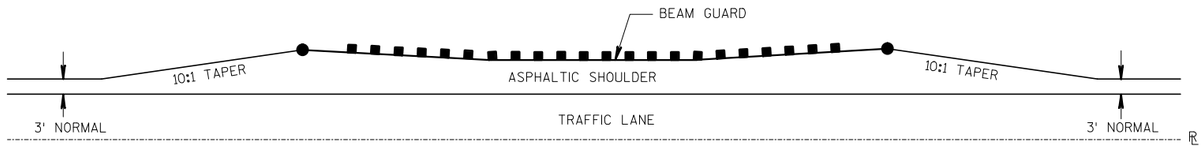
TYPICAL SECTION
FOR PRIVATE ENTRANCES

NOTE:
DRIVEWAY PROFILES NOT EXPECTED TO EXCEED 10%. PLACE LOW POINT OF DRIVEWAY PROFILE OVER DITCH FLOW LINE.

THIS DETAIL SHEET SHALL NOT BE USED FOR DRIVEWAY AT STA. 8+45 LT.

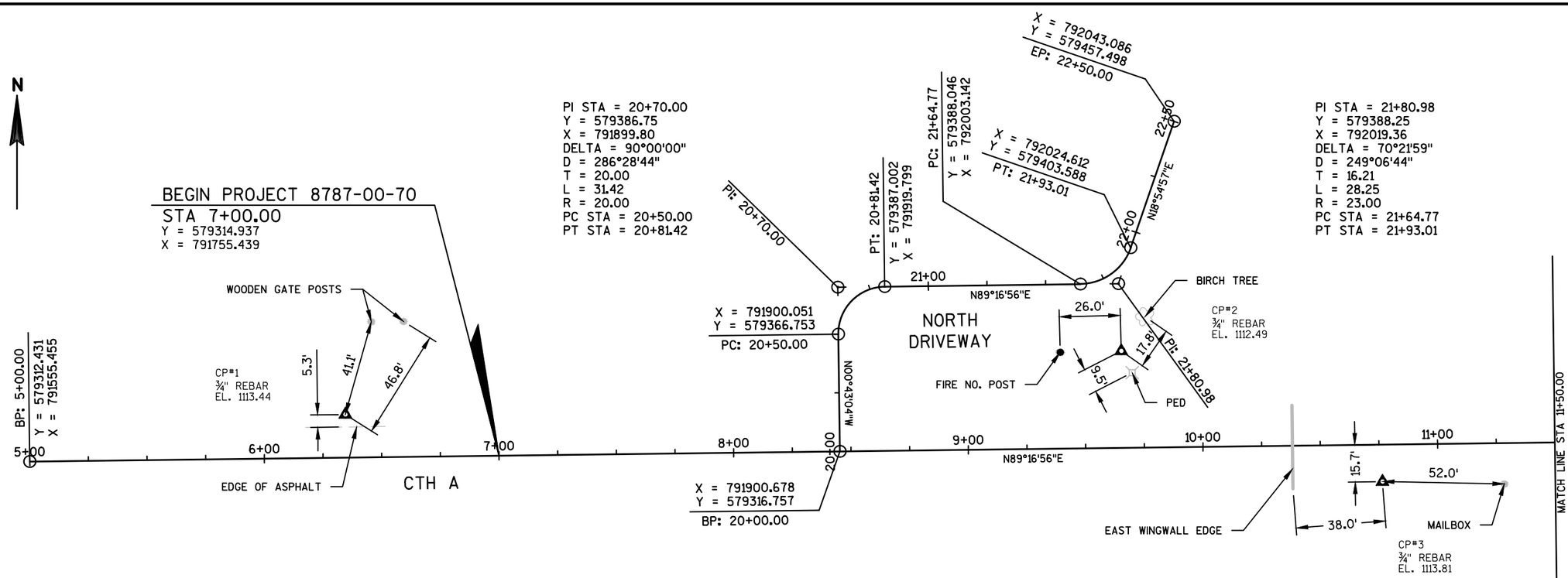


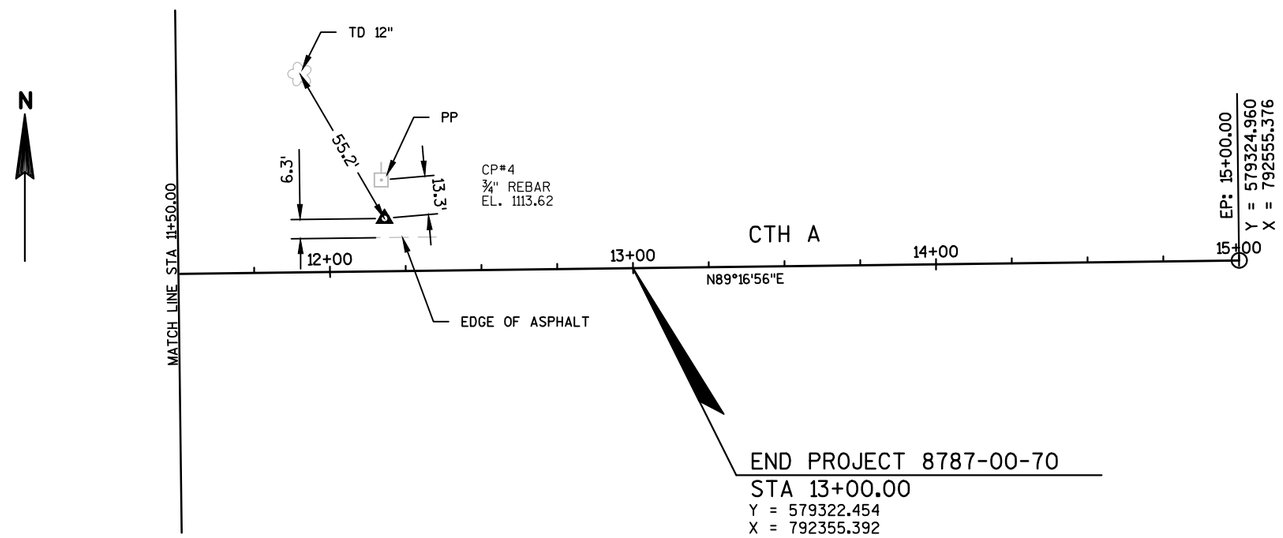
CULVERT PIPE CHECKS



DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CONSTRUCTION DETAILS	SHEET 6	E





BENCH MARKS

NO.	STATION	OUT	DESCRIPTION	ELEV.
100	9+76	RT 11.6'	PAINTED SQUARE ON CONCRETE DECK SW CORNER OF BRIDGE	1114.28

CONTROL POINTS

POINT NUMBER	(Y)	(X)	POINT ELEVATION
1	579332.494	791689.913	1113.44
2	579359.598	792020.563	1112.49
3	579303.913	792131.899	1113.81
4	579338.857	792273.400	1113.62

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	ALIGNMENTS	SHEET 7	E

DATE 01APR14 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	8787-00-70 QUANTITY
0010	201.0105	CLEARING	STA	5.000	5.000
0020	201.0205	GRUBBING	STA	5.000	5.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	1.000	1.000
0040	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 10+00	LS	1.000	1.000
0050	205.0100	EXCAVATION COMMON	CY	1,001.000	1,001.000
0060	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-54-114	LS	1.000	1.000
0070	208.0100	BORROW	CY	100.000	100.000
0080	210.0100	BACKFILL STRUCTURE	CY	140.000	140.000
0090	213.0100	FINISHING ROADWAY (PROJECT) 01. 8787-00-70	EACH	1.000	1.000
0100	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	240.000	240.000
0110	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,900.000	1,900.000
0120	455.0105	ASPHALTIC MATERIAL PG58-28	TON	24.000	24.000
0130	455.0605	TACK COAT	GAL	50.000	50.000
0140	460.1100	HMA PAVEMENT TYPE E-0.3	TON	400.000	400.000
0150	502.0100	CONCRETE MASONRY BRIDGES	CY	228.000	228.000
0160	502.3200	PROTECTIVE SURFACE TREATMENT	SY	303.000	303.000
0170	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	5,150.000	5,150.000
0180	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	32,650.000	32,650.000
0190	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-54-114	LS	1.000	1.000
0200	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20.000	20.000
0210	520.1015	APRON ENDWALLS FOR CULVERT PIPE 15-INCH	EACH	2.000	2.000
0220	520.1024	APRON ENDWALLS FOR CULVERT PIPE 24-INCH	EACH	2.000	2.000
0230	521.0115	CULVERT PIPE CORRUGATED STEEL 15-INCH	LF	42.000	42.000
0240	521.0124	CULVERT PIPE CORRUGATED STEEL 24-INCH	LF	32.000	32.000
0250	550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	49.000	49.000
0260	550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	193.000	193.000
0270	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	701.000	701.000
0280	606.0300	RIPRAP HEAVY	CY	170.000	170.000
0290	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	50.000	50.000
0300	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	92.000	92.000
0310	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	42.000	42.000
0320	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	125.000	125.000
0330	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	75.000	75.000
0340	614.0390	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	EACH	2.000	2.000
0350	614.2300	MGS GUARDRAIL 3	LF	75.000	75.000
0360	614.2500	MGS THRIE BEAM TRANSITION	LF	79.000	79.000
0370	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	2.000	2.000
0380	619.1000	MOBILIZATION	EACH	1.000	1.000
0390	625.0500	SALVAGED TOPSOIL	SY	2,200.000	2,200.000
0400	627.0200	MULCHING	SY	1,550.000	1,550.000
0410	628.1504	SILT FENCE	LF	1,200.000	1,200.000
0420	628.1520	SILT FENCE MAINTENANCE	LF	2,400.000	2,400.000
0430	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	3.000	3.000
0440	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0450	628.2004	EROSION MAT CLASS I TYPE B	SY	650.000	650.000
0460	628.6005	TURBIDITY BARRIERS	SY	240.000	240.000
0470	628.7504	TEMPORARY DITCH CHECKS	LF	40.000	40.000
0480	628.7555	CULVERT PIPE CHECKS	EACH	5.000	5.000

3

DATE 01APR14 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	8787-00-70 QUANTITY
0490	629.0210	FERTILIZER TYPE B	CWT	2.000	2.000
0500	630.0110	SEEDING MIXTURE NO. 10	LB	35.000	35.000
0510	630.0200	SEEDING TEMPORARY	LB	70.000	70.000
0520	633.5100	MARKERS ROW	EACH	19.000	19.000
0530	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	4.000	4.000
0540	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0550	638.2602	REMOVING SIGNS TYPE II	EACH	6.000	6.000
0560	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	4.000	4.000
0570	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0580	643.0100	TRAFFIC CONTROL (PROJECT) 01. 8787-00-70	EACH	1.000	1.000
0590	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,350.000	1,350.000
0600	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	2,100.000	2,100.000
0610	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,050.000	1,050.000
0620	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	340.000	340.000
0630	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	2,400.000	2,400.000
0640	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	728.000	728.000
0650	650.5000	CONSTRUCTION STAKING BASE	LF	528.000	528.000
0660	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-54-114	LS	1.000	1.000
0670	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 8787-00-70	LS	1.000	1.000
0680	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	528.000	528.000
0690	690.0150	SAWING ASPHALT	LF	44.000	44.000
0700	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,368.000	1,368.000
0710	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5. 00/HR	HRS	1,200.000	1,200.000
0720	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	300.000	300.000

3

EARTHWORK SUMMARY

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION CUT (1)	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL (2) (4)	UNEXPANDED FILL	EXPANDED FILL (FACTOR 1.25)	MASS ORDINATE +/- (3)	WASTE	208.0100 BORROW (4)
1	7+00 - 13+00	CUT OFF RD	951	201	750	318	398	+353	353	-
DIVISION 1 SUBTOTAL			**951**	**201**	**750**	**318**	**398**	**+353**	**353**	**-**
2	8+50, LT	DRIVEWAY	50	-	0	80	100	-100	50	100
DIVISION 2 SUBTOTAL			**50**	**-**	**0**	**80**	**100**	**-100**	**50**	**100**
TOTAL COMMON EX			**1,001**				**TOTAL BORROW**			**100**

(1) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED
(2) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
(3) THE MASS ORDINATE + OR - QUANTITY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AS EXCESS OF MATERIAL WITHIN THE DIVISION, MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
(4) DIVISION 2 TO BE CONSTRUCTED PRIOR TO DIVISION 1. CUT UNSUITABLE TO BE USED AS FILL. SHALL BECOME WASTE.

CLEARING AND GRUBBING

STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
8+00	-	13+00	CTH A	5	5
			TOTAL	**5**	**5**

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	203.0100 EACH
11+50	CTH A, RT	1
	TOTAL	**1**

BASE AGGREGATE DENSE

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4 INCH TON	305.0120 BASE AGGREGATE DENSE 1-1/4 INCH TON
7+00	-	9+64	CTH A	120	850
10+36	-	13+00	CTH A	120	850
8+50, LT			DRIVEWAY	-	200
			TOTAL	**240**	**1,900**

NOTE: ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED AS 0020.

ASPHALT SUMMARY

STATION	TO	STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON
7+00	-	9+64	CTH A	12	25	200
10+36	-	13+00	CTH A	12	25	200
			TOTAL	**24**	**50**	**400**

STEEL CULVERT PIPES

STATION	LOCATION	521.0115 CULVERT PIPE CORRUGATED STEEL 15-INCH LF	521.0124 CULVERT PIPE CORRUGATED STEEL 24-INCH LF	520.1015 APRON ENDWALLS FOR CULVERT PIPE STEEL 15-INCH EACH	520.1024 APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH EACH
8+50	CTH A, LT	42	-	2	-
11+50	CTH A, RT	-	32	-	2
	TOTAL	**42**	**32**	**2**	**2**

NOTE: MINIMUM THICKNESS OF 15-INCH CULVERT PIPE CORRUGATED STEEL IS 0.064 INCHES.
MINIMUM THICKNESS OF 24-INCH CULVERT PIPE CORRUGATED STEEL IS 0.064 INCHES.

3

3

BEAMGUARD SUMMARY

STATION	TO	STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+55	-	9+55	CTH A, LT	21	62.5	37.5	1	-	-	-
8+25	-	9+55	CTH A, RT	-	-	-	-	37.5	39.4	1
10+45	-	11+75	CTH A, LT	-	-	-	-	37.5	39.4	1
10+45	-	11+45	CTH A, RT	21	62.5	37.5	1	-	-	-
			TOTAL	**42**	**125**	**75**	**2**	**75**	**79**	**2**

MOBILIZATION

CATEGORY	STATION	TO	STATION	LOCATION	619.1000 MOBILIZATION EACH
0010	PROJECT			CTH A	0.36
0020	PROJECT			CTH A	0.64
				TOTAL	**1.00**

TURBIDITY BARRIER

STATION	LOCATION	628.6005 TURBIDITY BARRIER SY
9+90	CTH A	120
10+10	CTH A	120
	TOTAL	**240**

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
7+00	-	8+00	CTH A, RT	100	200
8+40	-	9+50	CTH A, RT	110	220
10+35	-	11+35	CTH A, LT	100	200
11+75	-	13+00	CTH A, LT	125	250
10+35	-	11+50	CTH A, RT	115	230
11+65	-	13+00	CTH A, RT	135	270
20+25	-	21+75	DWY, LT	150	300
20+50	-	22+00	DWY, RT	150	300
			UNDISTRIBUTED	215	430
			TOTAL	**1,200**	**2,400**

LANDSCAPING ITEMS

STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE NO. 10 LB	630.0200 SEEDING TEMPORARY LB
7+00	-	8+25	CTH A, LT	160	100	60	0.1	2	4
8+50	-	9+64	CTH A, LT	190	125	65	0.1	3	5
7+00	-	9+64	CTH A, RT	300	50	250	0.2	4	8
10+36	-	13+00	CTH A, LT	400	85	315	0.3	5	11
10+36	-	11+40	CTH A, RT	185	100	85	0.1	2	5
11+65	-	13+00	CTH A, RT	225	-	225	0.1	3	6
20+30	-	21+75	DRIVEWAY, LT	150	-	150	0.1	2	4
20+50	-	22+00	DRIVEWAY, RT	130	-	130	0.1	2	4
BORROW & WASTE SITES				460	190	270	0.9	12	23
			TOTAL	**2,200**	**650**	**1,550**	**2.0**	**35**	**70**

NOTE: ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED AS 0020.

EROSION CONTROL SUMMARY

STATION	TO	STATION	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH
7+00	-	9+64	CTH A, LT	-	-	10	1
10+36	-	13+00	CTH A, LT	-	-	10	-
10+36	-	13+00	CTH A, RT	-	-	-	3
UNDISTRIBUTED				3	2	20	1
			TOTAL	**3**	**2**	**40**	**5**

SIGNING

STATION	LOCATION	634.0614 POSTS WOOD 4x6-INCH x 14-FT EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	COMMENTS
9+53	CTH A, LT	1	3	-	-	W5-52L
9+53	CTH A, RT	1	3	-	-	W5-52R
9+77	CTH A, LT	-	-	1	1	
9+77	CTH A, RT	-	-	2	1	
10+37	CTH A, LT	-	-	2	1	
10+37	CTH A, RT	-	-	1	1	
10+47	CTH A, LT	1	3	-	-	W5-52R
10+47	CTH A, RT	1	3	-	-	W5-52L
	TOTAL	**4**	**12**	**6**	**4**	

TRAFFIC CONTROL ITEMS

LOCATION	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	643.0900 TRAFFIC CONTROL SIGNS DAYS
CTH A/CTH J INT.	150	300	150
WEST OF BRIDGE	525	750	375
EAST OF BRIDGE	525	750	375
CTH A/STH 27	150	300	150
TOTAL	**1,350**	**2,100**	**1,050**

NOTE: ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED AS 0020.

SAWING ASPHALT

STATION	LOCATION	690.0150 SAWING ASPHALT LF
7+00	CTH A	22
13+00	CTH A	22
	TOTAL	**44**

MARKERS ROW

NO.	STATION	LOCATION	633.5100 EACH
200	7+00	34.67' LT	1
201	7+00	38.00' LT	1
202	8+00	38.00' LT	1
203	8+25	50.00' LT	1
205	8+75	50.00' LT	1
206	9+00	45.00' LT	1
207	10+09.29	45.00' LT	1
208	12+00	45.00' LT	1
209	13+00	33.87' LT	1
210	13+00	32.13' RT	1
211	12+50	40.00' RT	1
212	12+00	40.00' RT	1
213	11+75	50.00' RT	1
214	11+25	50.00' RT	1
215	11+00	43.00' RT	1
216	9+50	43.00' RT	1
217	9+25	38.00' RT	1
218	7+00	38.00' RT	1
219	7+00	31.33' RT	1
		TOTAL	**19**

PAVEMENT MARKING

STATION	TO	STATION	LOCATION	646.0106 EPOXY 4-INCH LF	REMARKS
6+75	-	13+25	CTH A	1,300	WHITE EDGE LINES
6+75	-	9+64	CTH A	75	YELLOW SKIPS WB
6+75	-	9+64	CTH A	295	SOLID YELLOW EB
9+64	-	13+25	CTH A	730	DOUBLE YELLOW
			TOTAL	**2,400**	

CONSTRUCTION STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT (STRUCTURE) LS	650.9920 SLOPE STAKES LF
0010	7+00	-	9+64	CTH A	264	264	-	264
0020		10+00		STRUCTURE B-54-114	-	-	1	-
0010	10+36	-	13+00	CTH A	264	264	-	264
0010	20+00	-	22+00	DRIVEWAY	200	0	-	0
				TOTAL	**728**	**528**	**1**	**528**

PROJECT ID: 8787-00-70

WITH: PROJECTID2

COUNTY: RUSK

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
8787-00-00		
FEDERAL PROJECT NUMBER	4.01	2

PLAT OF RIGHT-OF-WAY REQUIRED FOR

STH 40 - STH 27

(THORNAPPLE RIVER BRIDGE B54-0114)

CTH A — RUSK COUNTY

CONSTRUCTION PROJECT NUMBER
8787-00-70

CONVENTIONAL ABBREVIATIONS

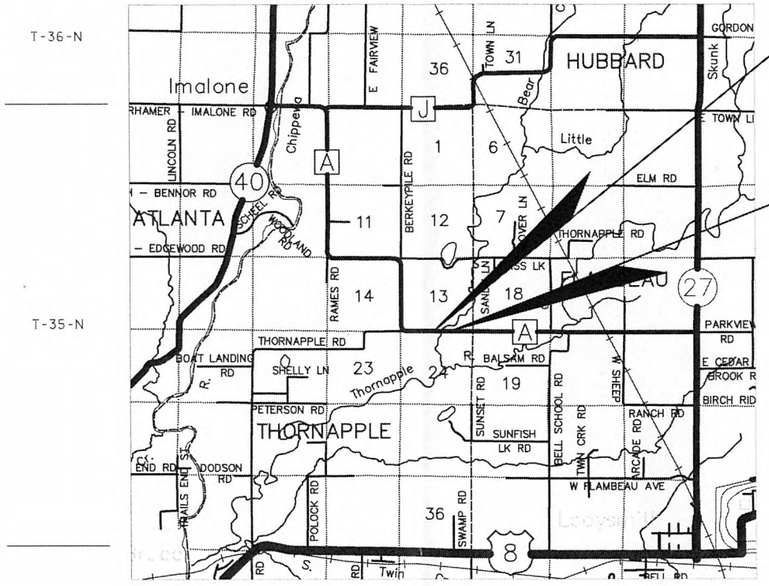
ACCESS POINT/ DRIVEWAY CONNECTION	AP	REFERENCE LINE	R/L
ACCESS RIGHTS	AR	RELEASE OF RIGHTS	ROR
ACRES	AC.	REMAINING	REM.
AND OTHERS	ET.AL.	RIGHT-OF-WAY	R/W
CENTERLINE	C/L	SECTION	SEC.
CERTIFIED SURVEY MAP	CSM	STATION	STA.
CORNER	COR.	TEMPORARY LIMITED EASEMENT	TLE
DOCUMENT	DOC.	VOLUME	V.
EASEMENT	EASE.	**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

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	IP	PROPOSED R/W LINE	
R/W MONUMENT	(SET)	EXISTING H.E. LINE	
R/W POINT NOT MONUMENTED		PROPERTY LINE	
R/W STANDARD	(SET)	LOT & TIE LINES	
SIGN	SIGN	SLOPE INTERCEPTS	
SECTION CORNER MONUMENT		CORPORATE LIMITS	
SECTION CORNER SYMBOL		NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)	
FEE (HATCH VARIES)		NO ACCESS (BY ACQUISTION)	
TEMPORARY LIMITED EASEMENT		NO ACCESS (BY STATUTORY AUTHORITY)	
PERMANENT LIMITED EASEMENT		SECTION LINE	
R/W POINT	43	QUARTER LINE	
PARCEL NUMBER	102	SIXTEENTH LINE	
UTILITY PARCEL NUMBER	92	EXISTING CENTERLINE	
SIGN NUMBER (OFF PREMISE)	21	PROPOSED REFERENCE LINE	
BUILDING		PARALLEL OFFSET	

CONVENTIONAL UTILITY SYMBOLS

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



BEGIN RELOCATION ORDER

PROJECT 8787-00-00
STA 7+00.00
30.30' S AND 2,556.34' W FROM
SE COR SEC 13, T-35-N, R-7-W
Y = 579,314.937
X = 791,755.439

END RELOCATION ORDER

PROJECT 8787-00-00
STA 13+00.00
22.78' S AND 1,955.85' W FROM
SE COR SEC 13, T-35-N, R-7-W
Y = 579,322.454
X = 792,355.932

GN

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.114 MI

NOTES

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, RUSK COUNTY, NAD83 (2011) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE 3/4" X 24" REBAR AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

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

Mead & Hunt

WISCONSIN
SEAN M. WALSH
S-2016
SAUK CITY, WI
LAND SURVEYOR

10/7/2013

SEAN M. WALSH
S-2016

REVISION DATE	
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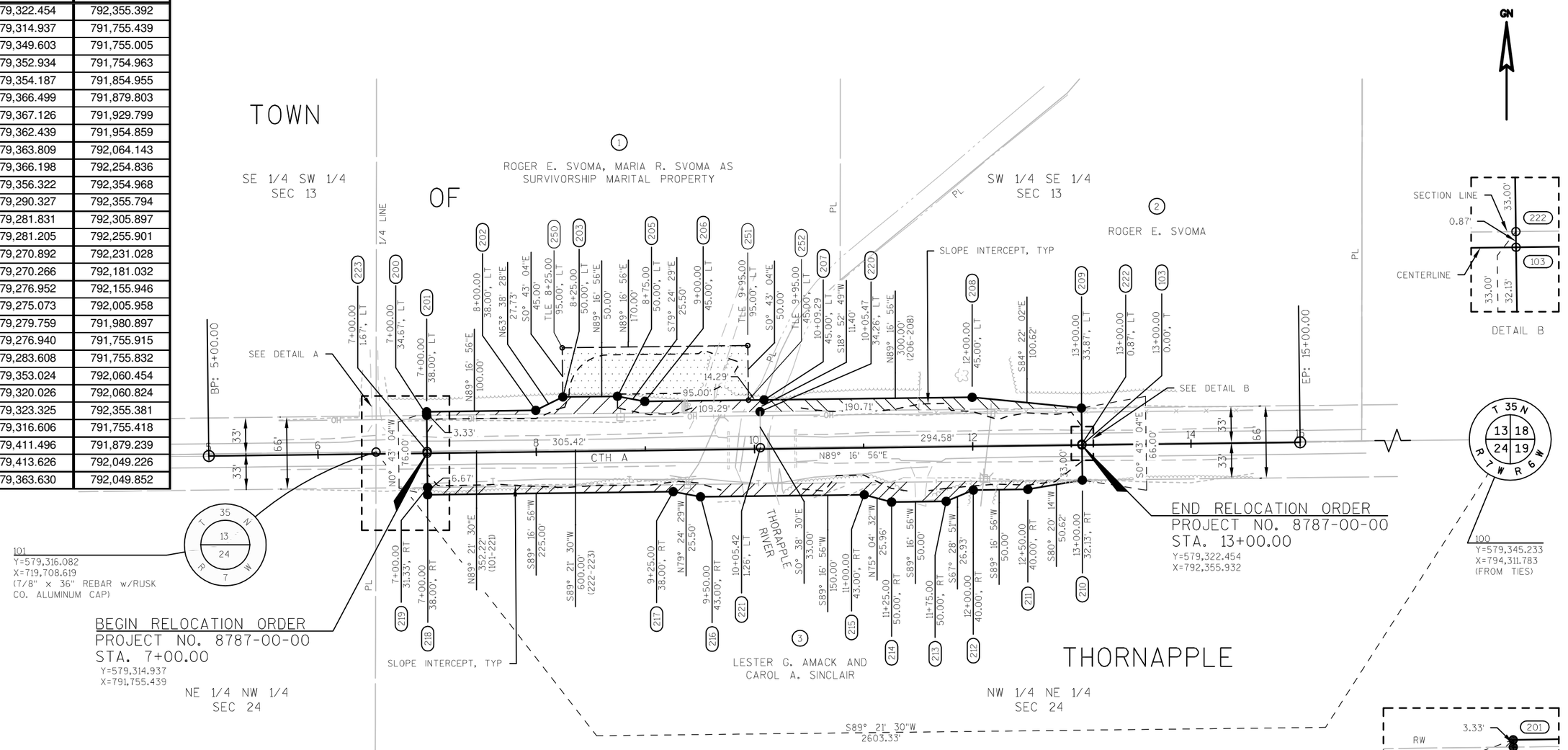
STATE OF WISCONSIN
RUSK COUNTY

APPROVED FOR RUSK COUNTY
DATE: 12-18-13 Pebbie MacDonald (Signature)

E

Point Number	Y	X
103	579,322.454	792,355.392
104	579,314.937	791,755.439
200	579,349.603	791,755.005
201	579,352.934	791,754.963
202	579,354.187	791,854.955
203	579,366.499	791,879.803
205	579,367.126	791,929.799
206	579,362.439	791,954.859
207	579,363.809	792,064.143
208	579,366.198	792,254.836
209	579,356.322	792,354.968
210	579,290.327	792,355.794
211	579,281.831	792,305.897
212	579,281.205	792,255.901
213	579,270.892	792,231.028
214	579,270.266	792,181.032
215	579,276.952	792,155.946
216	579,275.073	792,005.958
217	579,279.759	791,980.897
218	579,276.940	791,755.915
219	579,283.608	791,755.832
220	579,353.024	792,060.454
221	579,320.026	792,060.824
222	579,323.325	792,355.381
223	579,316.606	791,755.418
250	579,411.496	791,879.239
251	579,413.626	792,049.226
252	579,363.630	792,049.852



SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO RUSK COUNTY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	EX R/W ACRES REQUIRED NEW	EXISTING	TOTAL	TLE
01	ROGER E. SVOMA, MARIA R. SVOMA AS SURVIVORSHIP MARITAL PROPERTY	FEE/TLE	0.06	0.24	0.30	0.19
02	ROGER E. SVOMA	FEE	0.06	0.22	0.28	--
03	LESTER G. AMACK AND CAROL A. SINCLAIR	FEE	0.13	0.45	0.58	--

BASIS OF EXISTING R/W
66' EASEMENT PER EXISTING CENTERLINE

REVISION DATE	DATE 10/7/2013	SCALE, FEET 0 50' 100'	HWY: CTH A	STATE R/W PROJECT NUMBER 8787-00-00	PLAT SHEET 4.02	
	GRID FACTOR		COUNTY: RUSK	CONSTRUCTION PROJECT NUMBER 8787-00-70	PS&E SHEET -- 14	E

ROGER E. SVOMA, MARIA R. SVOMA AS SURVIVORSHIP MARITAL PROPERTY

ROGER E. SVOMA

STA. 8+55.25 - STA. 8+83.75, LT.
INSTALL STEEL PLATE BEAM GUARD SHORT RADIUS (16' RADIUS)

STA. 8+55.25, LT.
INSTALL STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STA. 8+83.75 - STA. 9+33.75, LT.
INSTALL STEEL PLATE BEAM GUARD CLASS A, 50 LF

STA. 9+33.75 - STA 9+53.75 LT.
INSTALL STEEL THRIE BEAM GUARD CLASS A

STA. 8+45, LT
CONSTRUCT AGGREGATE FE
1 - 15" CPCS REQUIRED
2 - 15" AECPCS REQUIRED

BENCH MARKS

NO.	STATION	OUT	DESCRIPTION	ELEV.
100	9+76	RT 11.6'	PAINTED SQUARE ON CONCRETE DECK SW CORNER OF BRIDGE	1114.28

STA. 10+46.25 - STA 10+85.25 LT.
INSTALL MGS THRIE BEAM TRANSITION

STA. 10+85.25 - STA. 11+22.75, LT.
INSTALL MGS BEAM GUARDRAIL 3, 37.5 LF

STA. 11+22.75 - STA. 11+75.75, LT.
INSTALL MGS GUARDRAIL TERMINAL EAT

WETLAND IMPACTS (TYP.)
TLE
W5-52L 12" X 36"
22+00
N8° 54' 57"E
SILT FENCE REQUIRED (TYP)
21+00
N89° 16' 56"E
EROSION MAT CLASS 1 TYPE B REQUIRED (TYP)
TEMPORARY DITCH CHECKS REQUIRED (TYP)
R/W
OH
PL
THORNAPPLE RIVER
W5-52R 12" X 36"
W5-52L 12" X 36"
CP#2 ¾" REBAR EL. 1112.49
WETLAND IMPACTS (TYP)
SLOPE INTERCEPT (TYP)
JUMP RIVER ELECTRIC
STA. 11+75.75, 18.00' LT.
WETLAND IMPACTS (TYP.)
CP#4 ¾" REBAR EL. 1113.62
FENCE TO BE REMOVED (BY OTHERS)
43° 09"W
NO°
20.00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
N89° 16' 56"E
CTH A
66'
BM#100
CP#1 ¾" REBAR EL. 1113.44
STA. 8+24.25, 18.00' RT.
CENTURYLINK
SLOPE INTERCEPT (TYP)
STRUCTURE B-54-0114 TO BE CONSTRUCTED
STRUCTURE P-54-919 TO BE REMOVED
TURBIDITY BARRIERS REQUIRED (TYP)
CP#3 ¾" REBAR EL. 1113.81
CULVERT PIPE CHECKS REQUIRED (TYP)
SILT FENCE REQUIRED (TYP)
N

STA. 8+24.25 - STA. 8+77.25, RT.
INSTALL MGS GUARDRAIL TERMINAL EAT

STA. 8+77.25 - STA. 9+14.75, RT.
INSTALL MGS BEAM GUARDRAIL 3, 37.50 LF

STA. 9+14.75 - STA 9+53.75 RT.
INSTALL MGS THRIE BEAM TRANSITION

BEGIN PROJECT 8787-00-70
STA 7+00.00
SAW CUT REQUIRED
MATCH EXISTING
Y = 579314.937
X = 791755.439

0 25 50

LESTER G. AMACK AND CAROL A. SINCLAIR

STA. 10+46.25 - STA 10+66.25 RT.
INSTALL STEEL THRIE BEAM GUARD CLASS A

STA. 10+66.25 - STA. 11+16.25, RT.
INSTALL STEEL PLATE BEAM GUARD CLASS A, 50 LF

STA. 11+16.25 - STA. 11+44.75, RT.
INSTALL STEEL PLATE BEAM GUARD SHORT RADIUS (16' RADIUS)

STA. 11+44.75, RT.
INSTALL STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

END PROJECT 8787-00-70
STA 13+00.00
SAW CUT REQUIRED
MATCH EXISTING
Y = 579322.454
X = 792355.392

STA. 11+50, RT
CONSTRUCT AGGREGATE FE
1 - 24" CPCS REQUIRED
2 - 24" AECPCS REQUIRED

5

STA. 10+00.00
REMOVE EXISTING STRUCTURE P-54-919
63.0' OVERALL LENGTH AND
24.1' CLEAR ROADWAY WIDTH
SINGLE-SPAN STEEL DECK GIRDER BRIDGE

STA. 10+00.00
STRUCTURE B-54-0114 REQ'D
72.5' OVERALL LENGTH AND
30.0' CLEAR ROADWAY WIDTH
TWO-SPAN REINFORCED CONCRETE
FLAT SLAB BRIDGE

VCL = 200.00
K = 155.54

HIGH WATER Q100 EL 1114.39
HIGH WATER Q2 EL 1111.53
OBSERVED WATER MARCH 7, 2013 EL. 1106.87

STA 7+00.00 EL 1114.35
STA 13+00.00 EL 1115.64
0.00%
1.89%
PROPOSED PROFILE
EXISTING PROFILE
VPC STA 11+00.00 VPC EL 1114.35
VPI STA 12+00.00 VPI EL 1114.35
VPT STA 13+00.00 VPT EL 1115.64

EXISTING ℄ ELEVATION
FINISHED ℄ ELEVATION

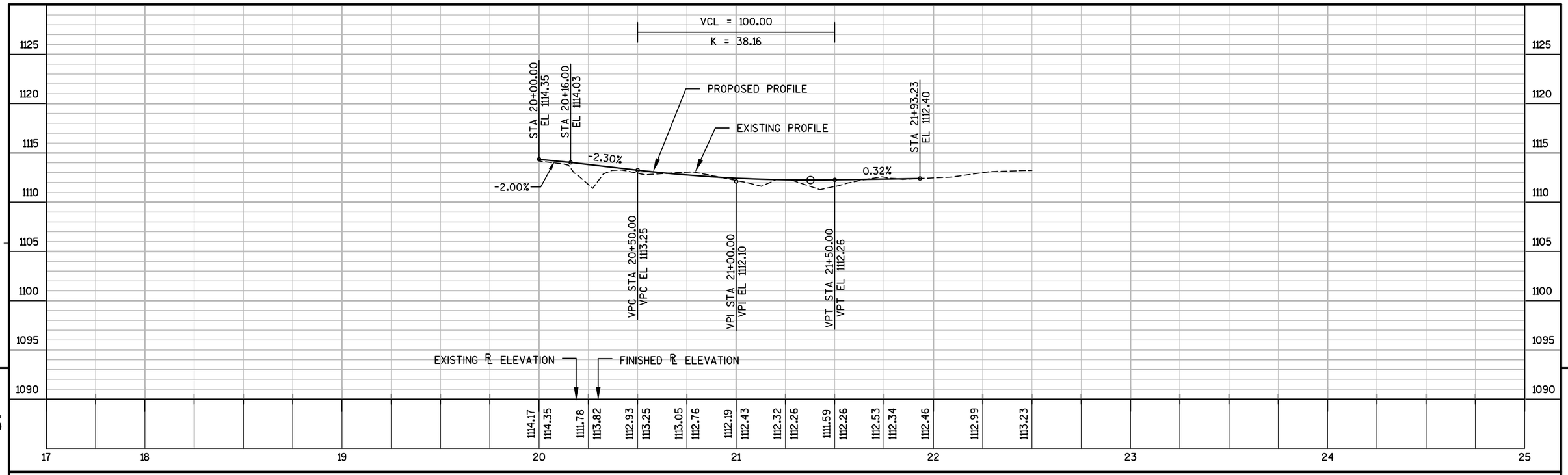
1130 1125 1120 1115 1110 1105 1100 1095

1114.25 1114.31 1114.35 1114.36 1114.35 1114.35 1114.34 1114.35 1114.31 1114.35 1114.28 1114.35 1114.28 1114.35 1114.26 1114.35 1114.15 1114.35 1114.06 1114.35 1114.08 1114.35 1114.11 1114.35 1114.16 1114.35 1114.22 1114.35 1104.86 1114.35 1107.75 1114.35 1114.33 1114.35 1114.41 1114.35 1114.43 1114.35 1114.53 1114.37 1114.64 1114.43 1114.69 1114.53 1114.76 1114.67 1114.88 1114.85 1115.00 1115.07 1115.29 1115.33 1115.62 1115.64 1116.03 1116.50

6 7 8 9 10 11 12 13 13

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	PLAN AND PROFILE: CTH A	SHEET	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\050101_PP.DWG PLOT DATE : 1/20/2014 7:49 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1:50_XREF
WISDOT/CADDS SHEET 44



PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	PROFILE: NORTH DRIVEWAY	SHEET 16	E

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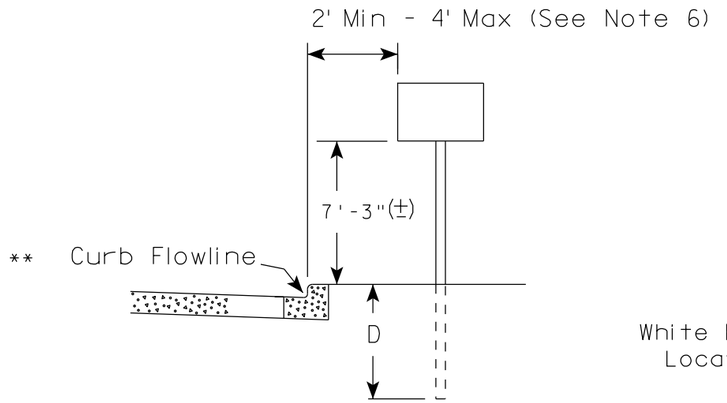
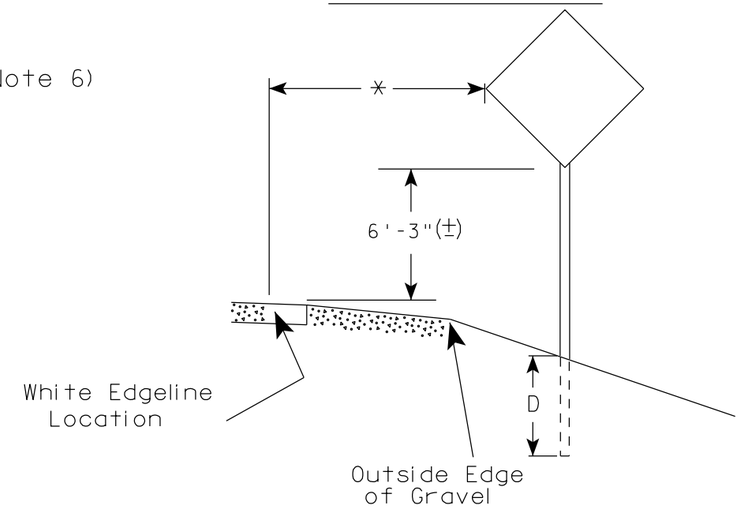
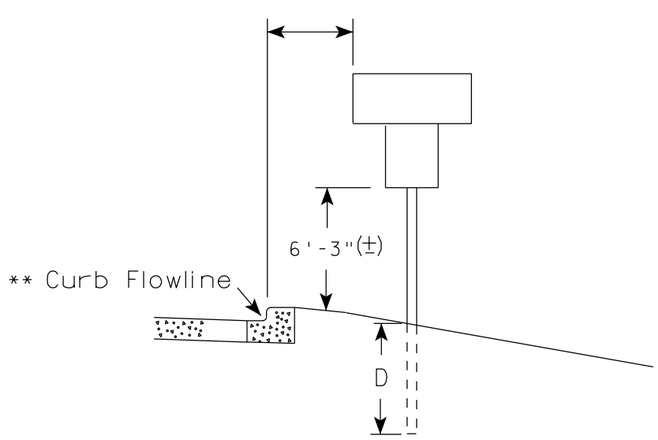
WISDOT/CADDS SHEET 44

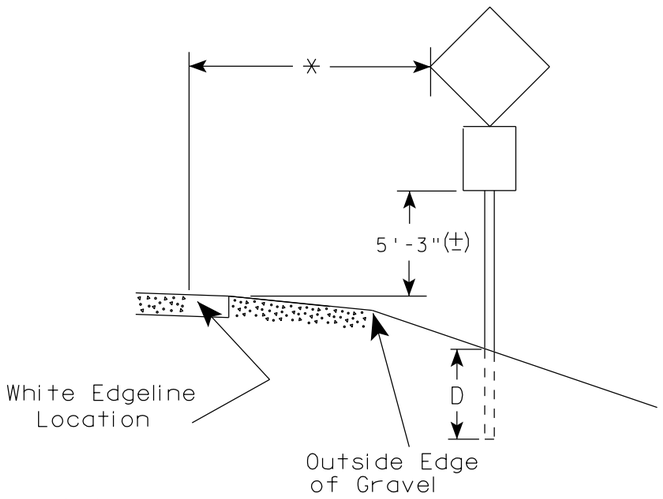
URBAN AREA



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.

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 (A4-5) 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 stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) 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'

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

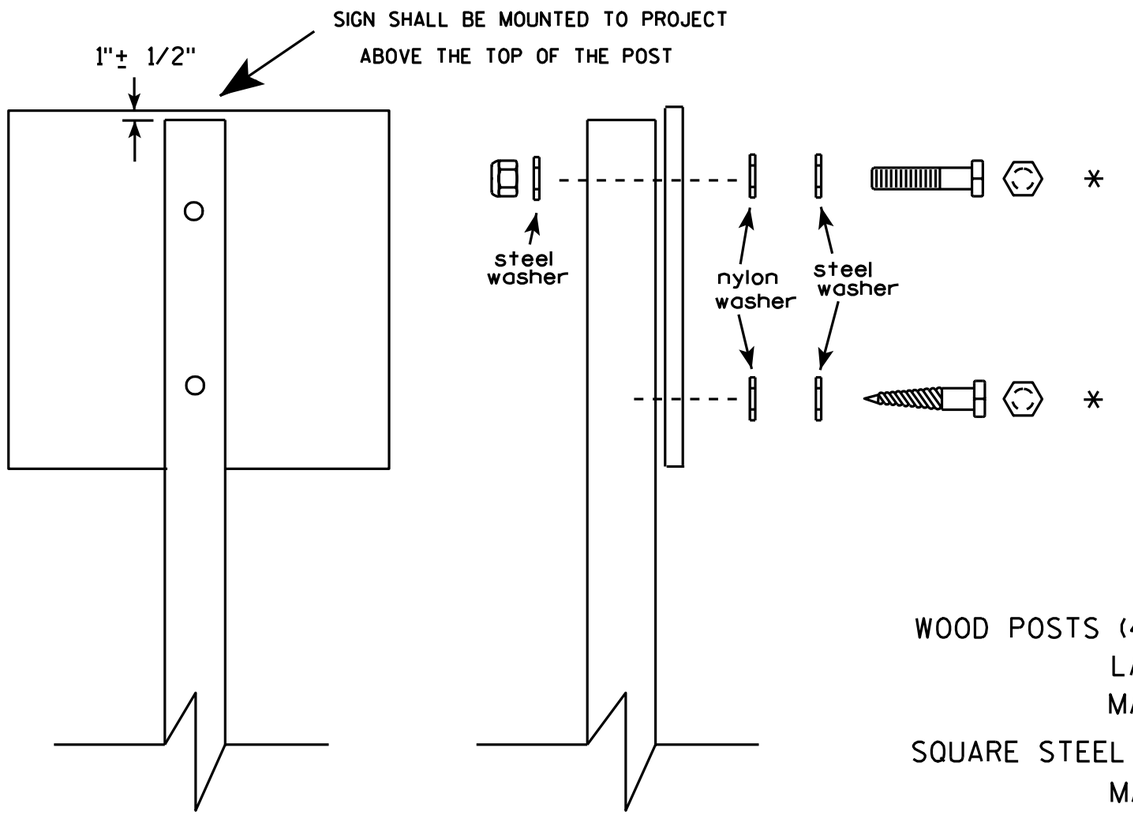
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A43.DGN PLOT DATE : 30-SEP-2013 13:25 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 99.237937:1.000000 WISDOT/CADDS SHEET 42



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

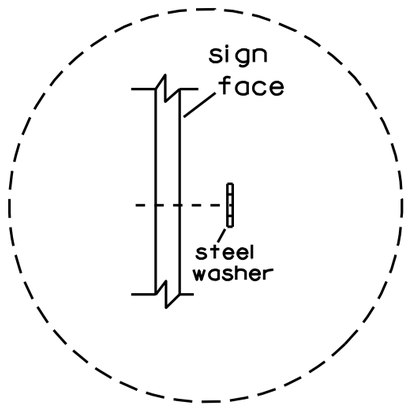
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

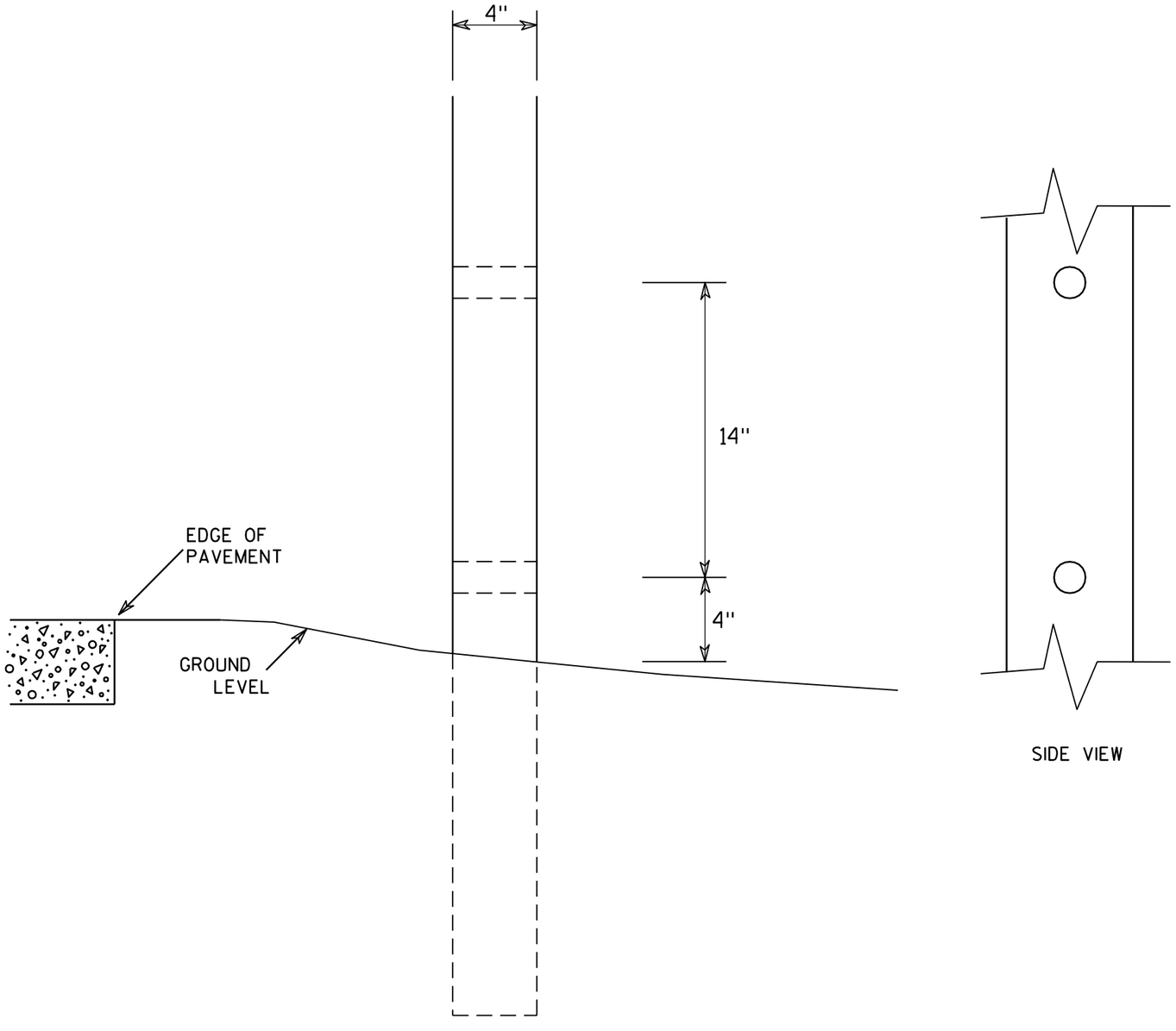
DATE 3/23/10 PLATE NO. A4-8.7

7

7

PROJECT NO:

SHEET NO: 18 E



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

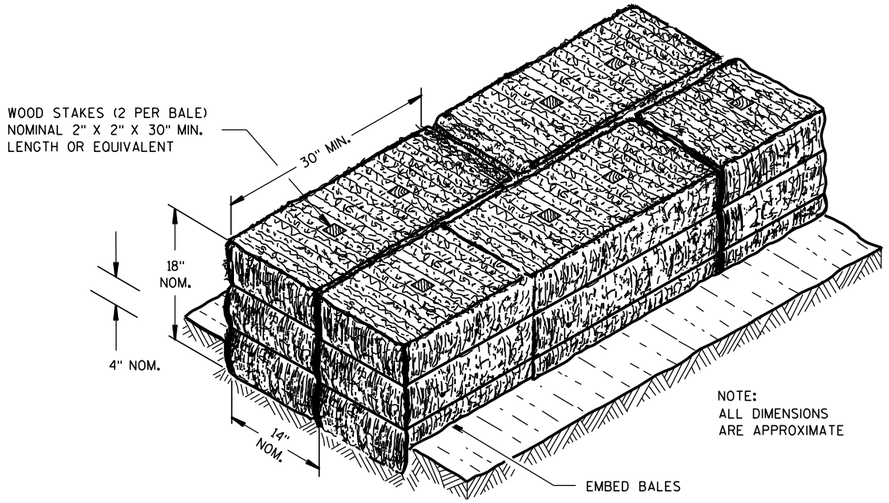
APPROVED Chester J Spang
for State Traffic Engineer

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

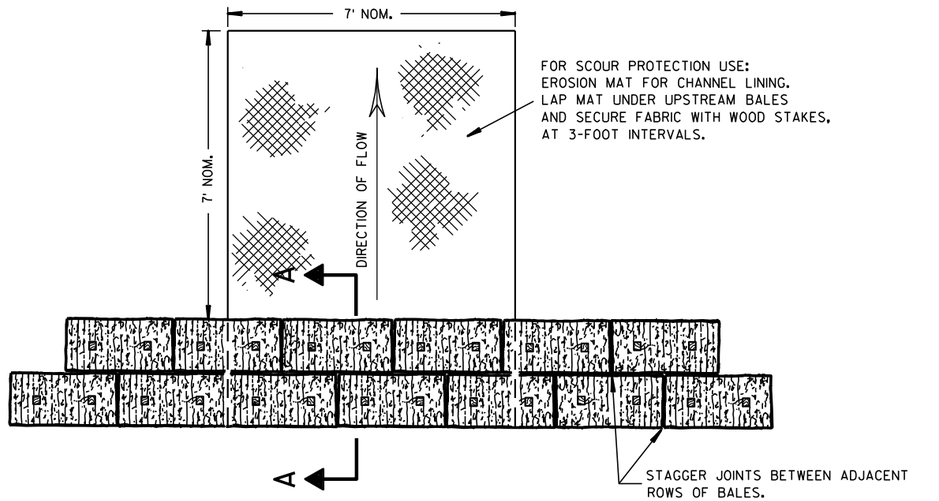
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 19	E

Standard Detail Drawing List

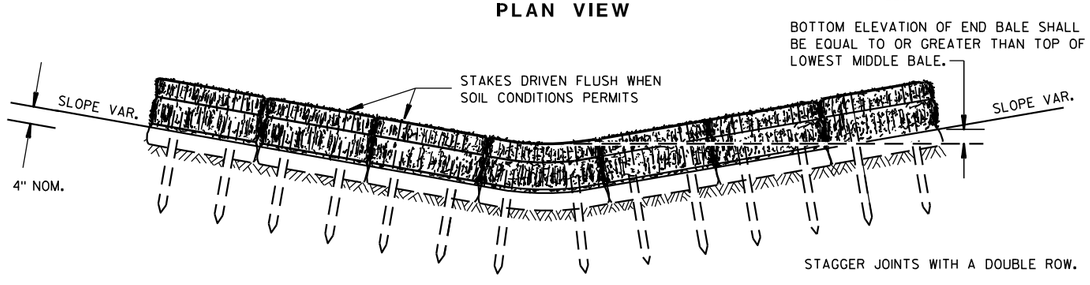
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A01-11	MARKER POST FOR RIGHT-OF-WAY
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-06	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



SECTION A-A



PLAN VIEW



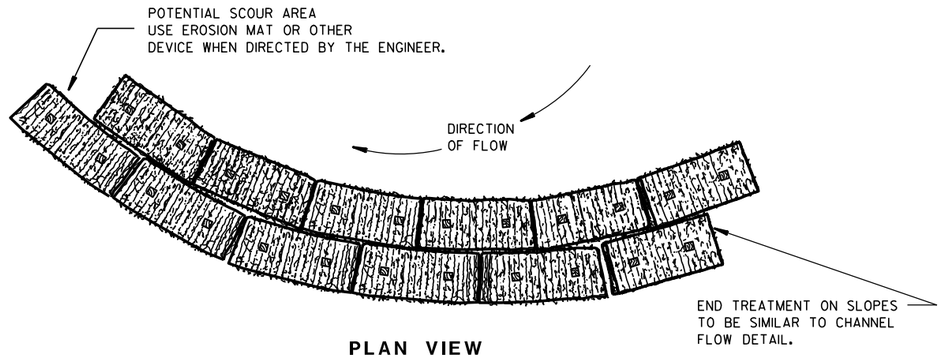
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

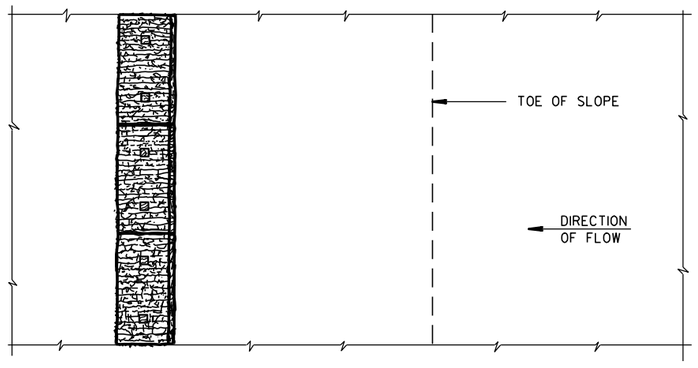
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

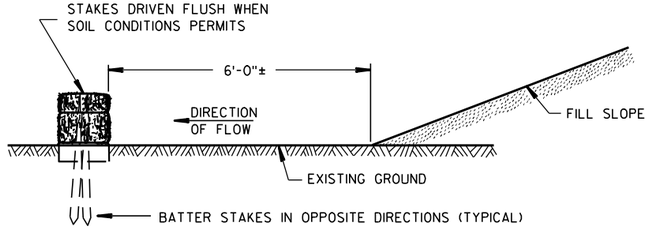


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

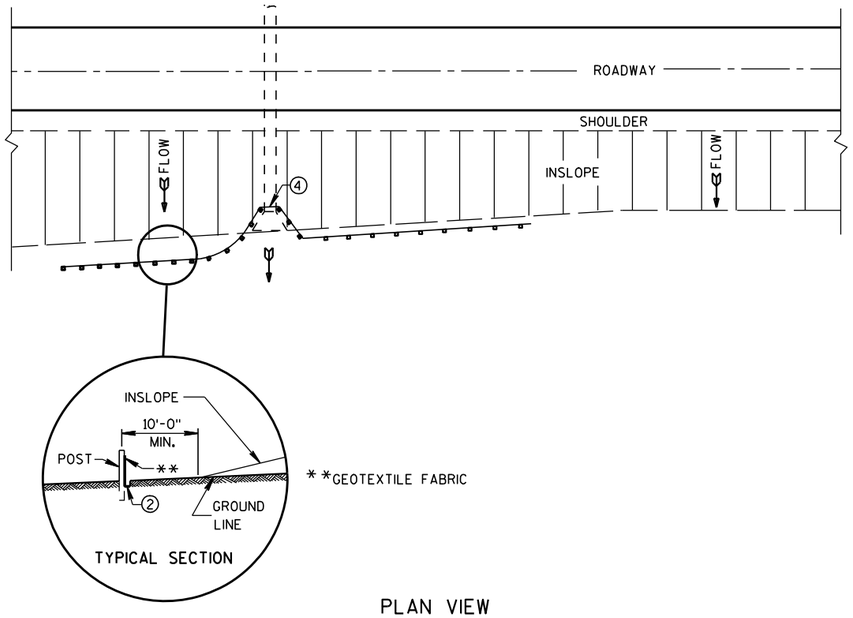
6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

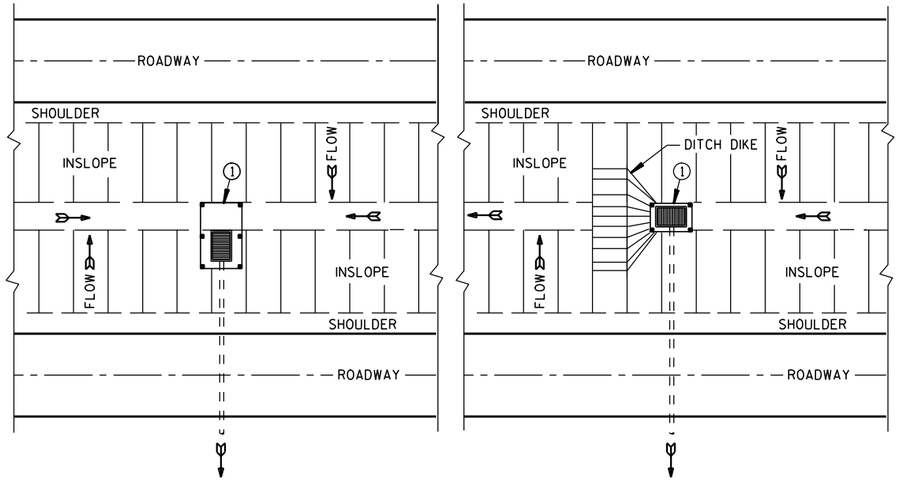
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



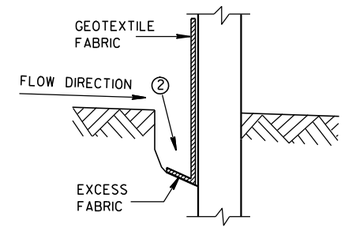
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

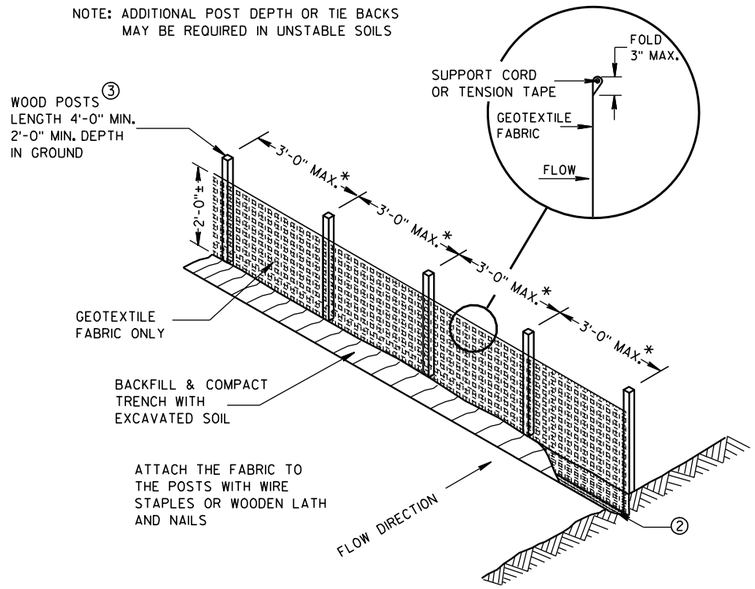
GENERAL NOTES

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

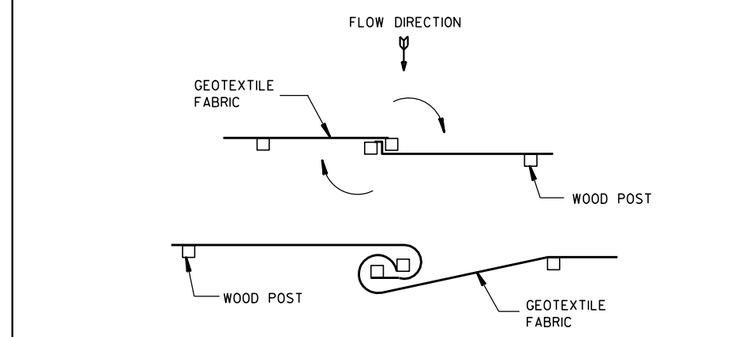
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



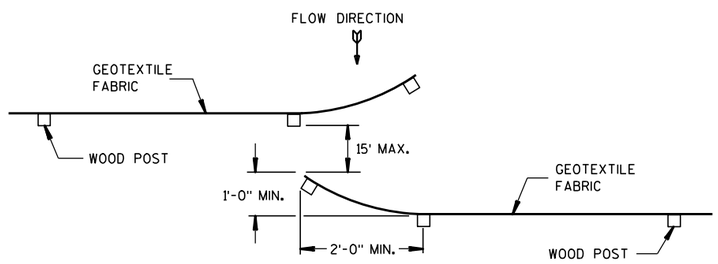
TRENCH DETAIL



SILT FENCE

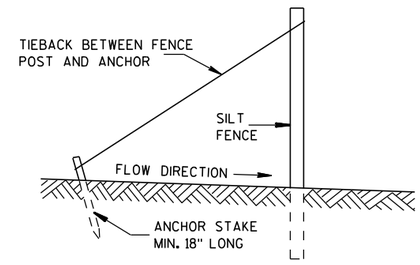


TWIST METHOD



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

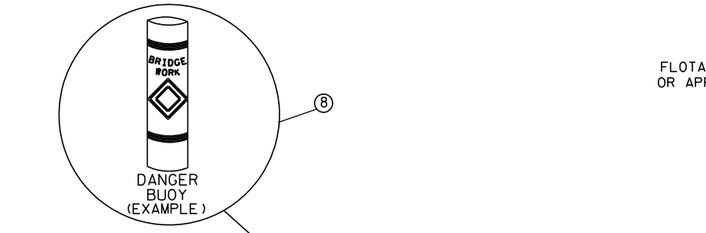
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

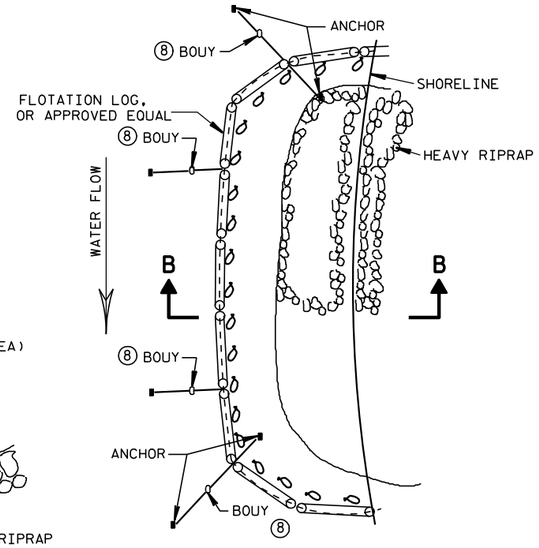
S.D.D. 8 E 9-6

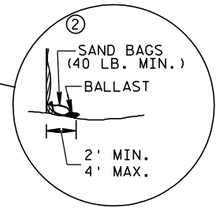
6

S.D.D. 8 E 9-6

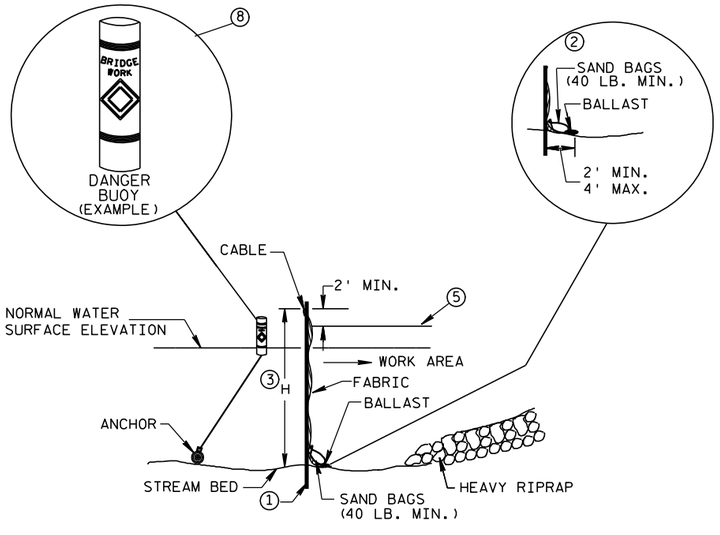


SECTION B-B

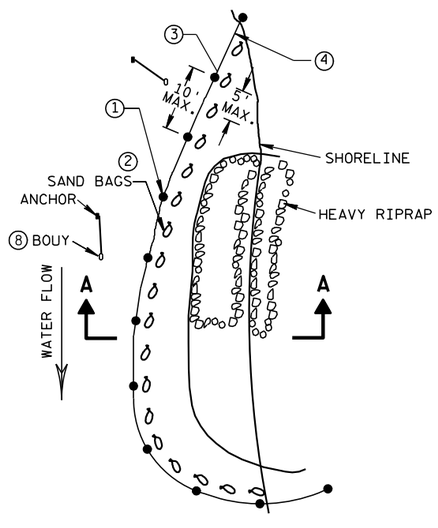




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

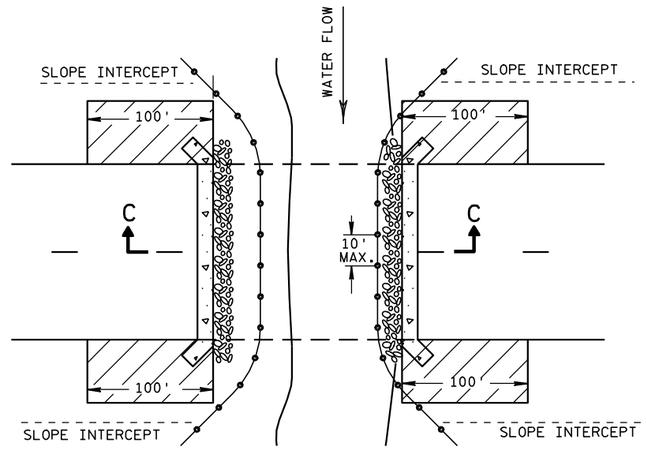
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

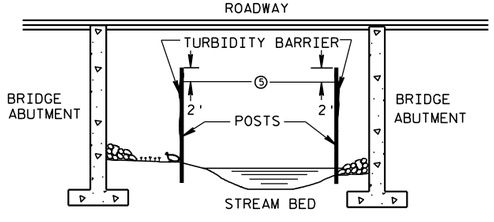
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

METAL APRON ENDWALLS

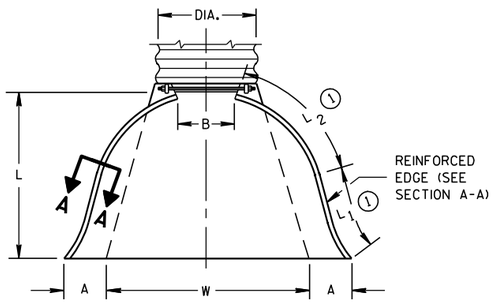
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

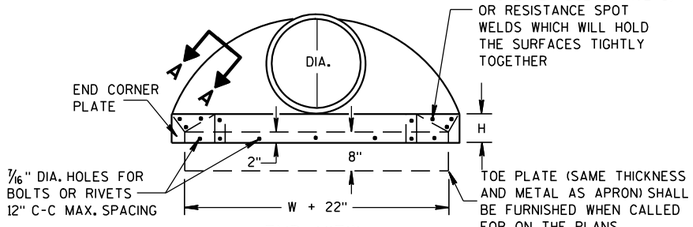
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

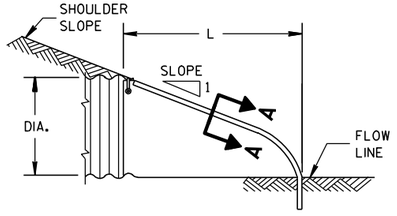
*MINIMUM
**MAXIMUM



PLAN VIEW

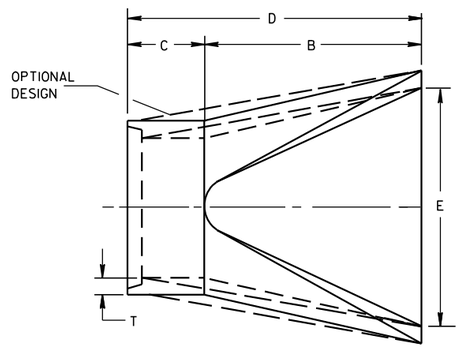


END VIEW

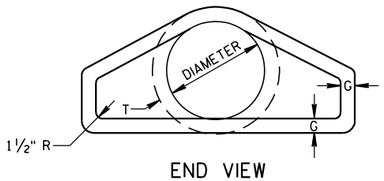


SIDE ELEVATION

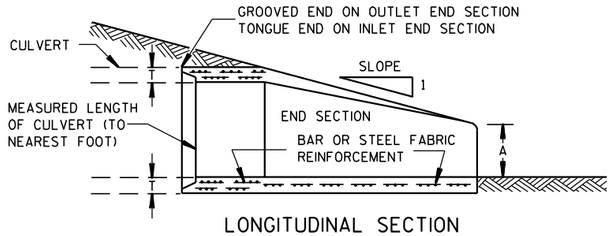
METAL ENDWALLS



PLAN

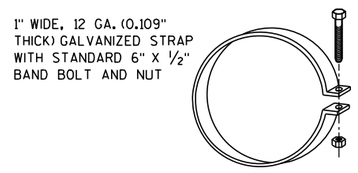


END VIEW



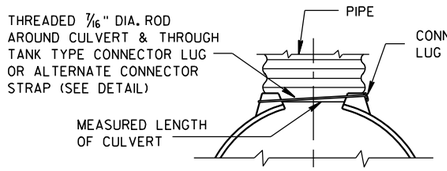
LONGITUDINAL SECTION

CONCRETE ENDWALLS

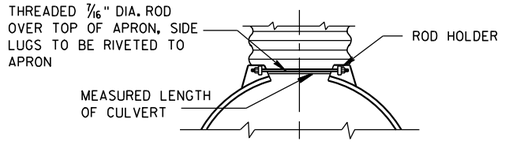


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

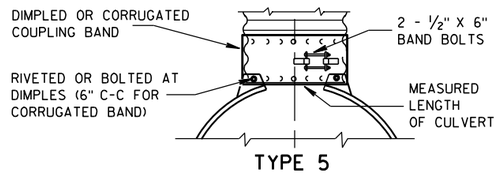


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

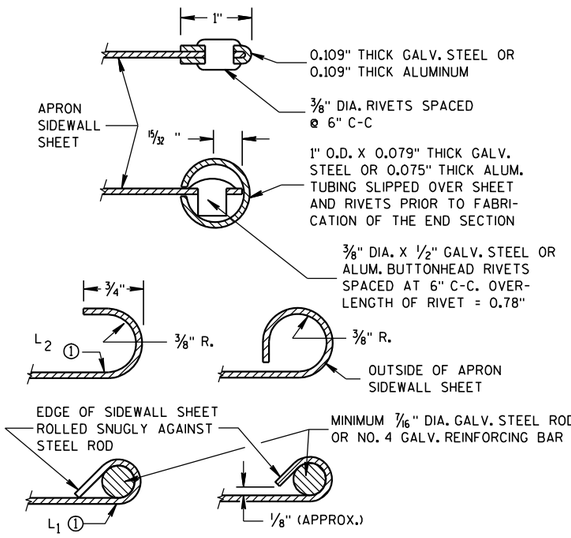
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE 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 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 60" THROUGH 96" DIAMETER 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 SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

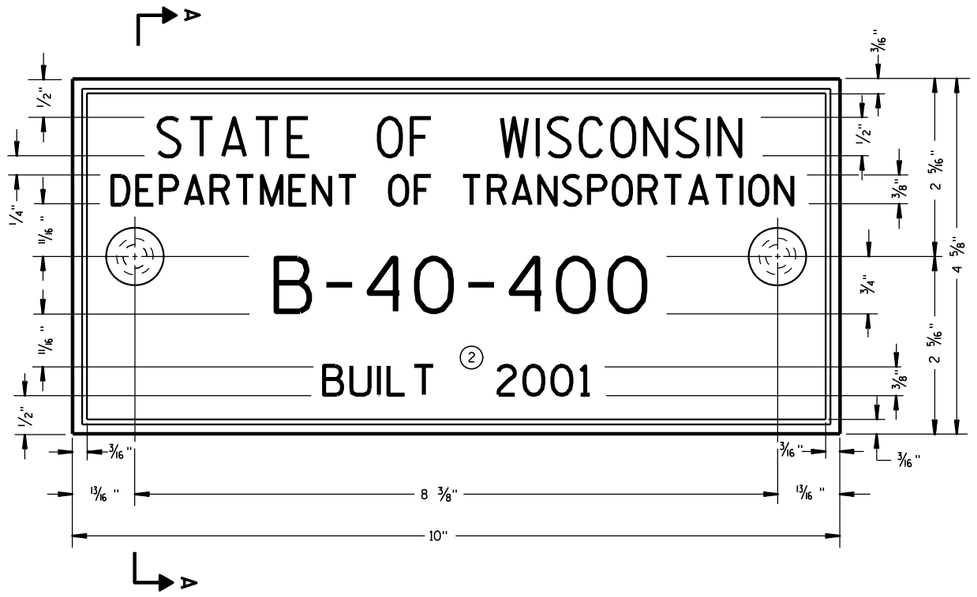
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

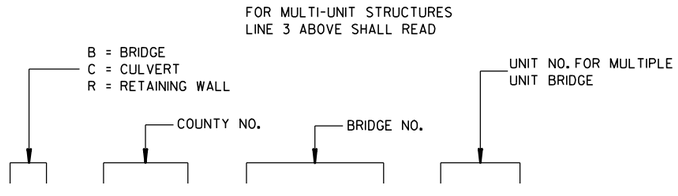
6

S.D.D. 8 F 1-11



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

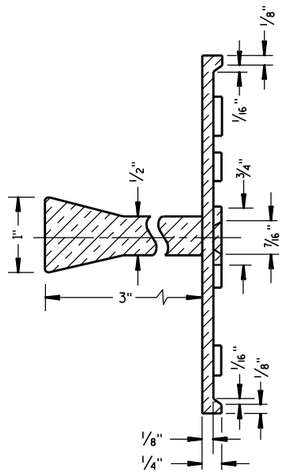
GENERAL NOTES

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.

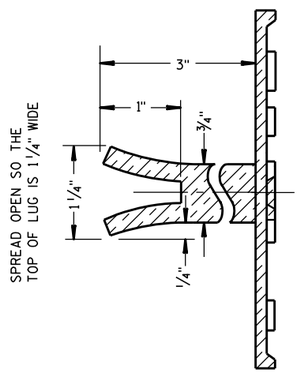
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

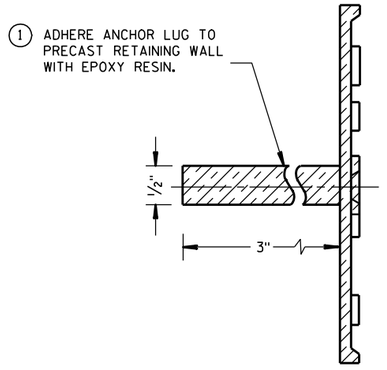
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 DEVELOP ENGINEER
FHWA	

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10

GENERAL NOTES

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

(1) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

(2) USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.

(3) INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

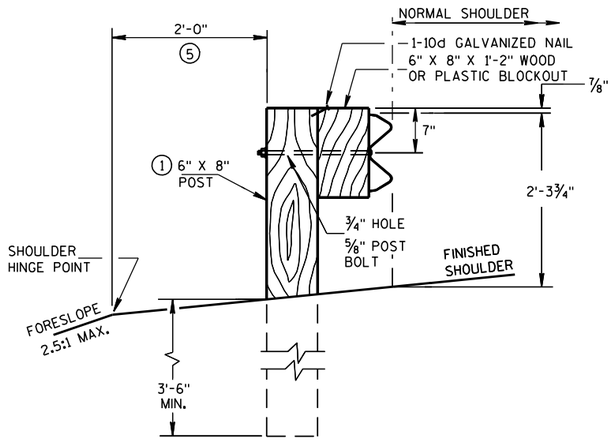
(4) USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

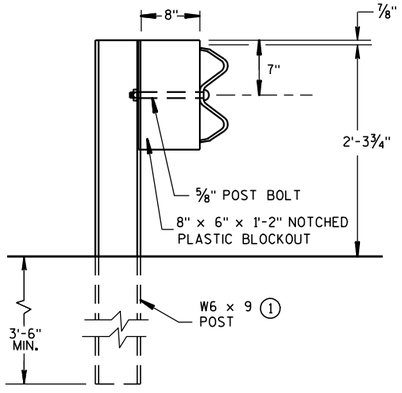
(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

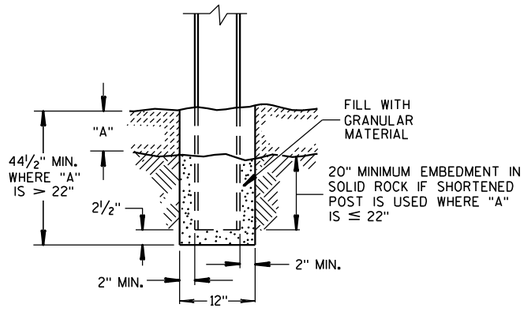
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



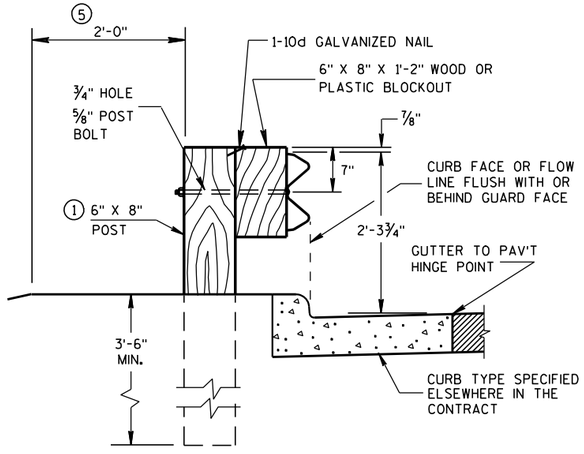
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



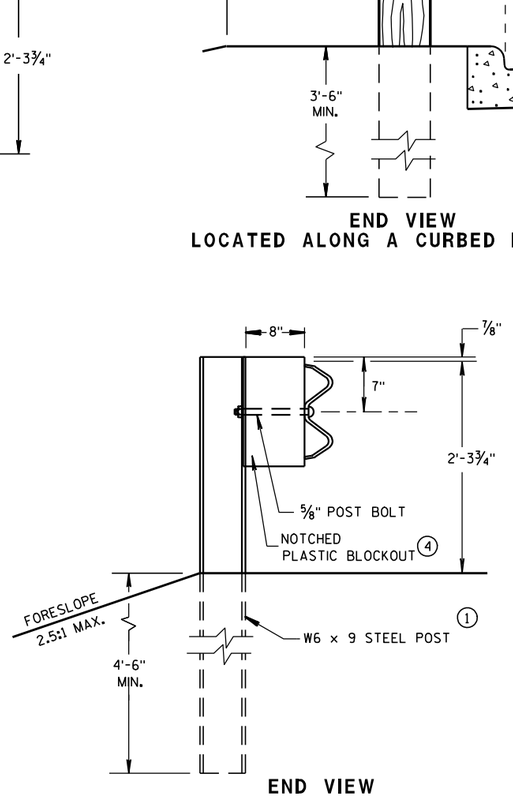
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



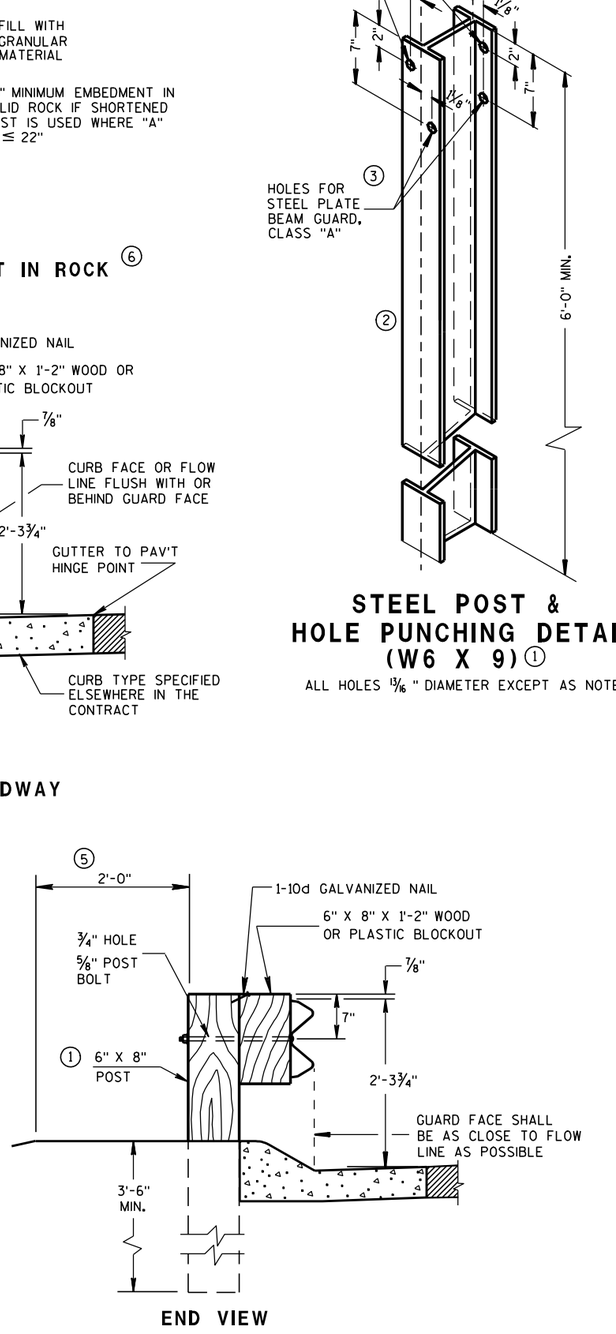
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



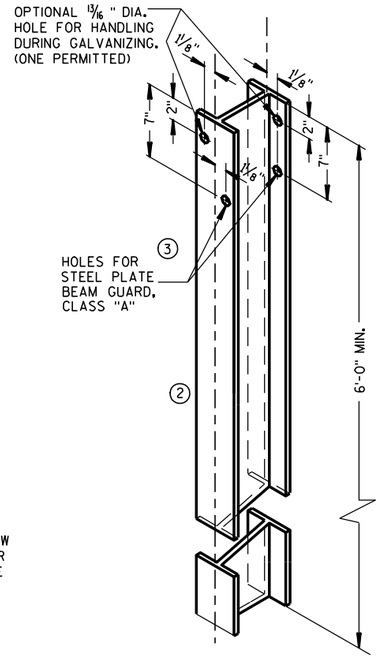
END VIEW
LOCATED ALONG A CURBED ROADWAY



END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)

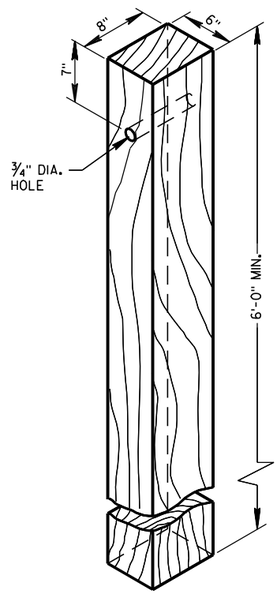


END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

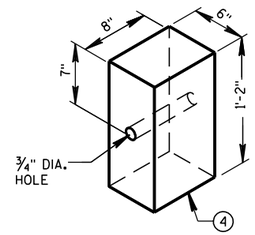


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

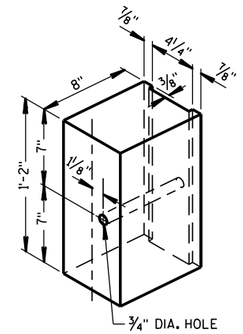
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



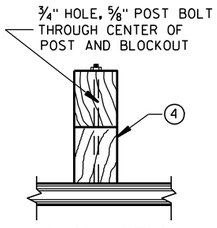
WOOD POST
(6"X8") NOMINAL



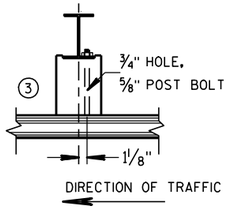
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



TYPICAL NOTCHED (1)
PLASTIC BLOCKOUT
FOR STEEL POSTS



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



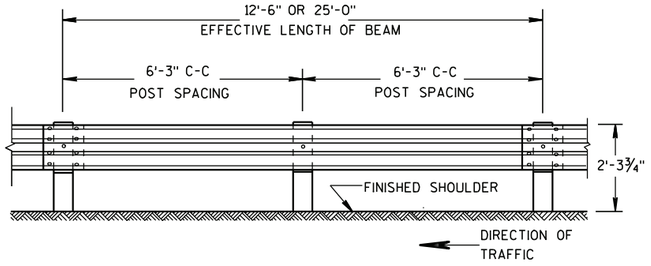
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

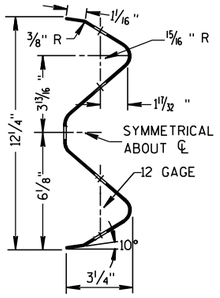
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-7a

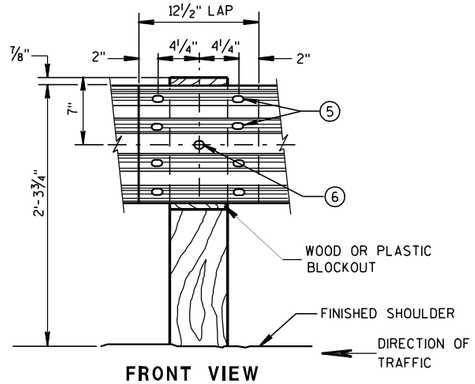


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM

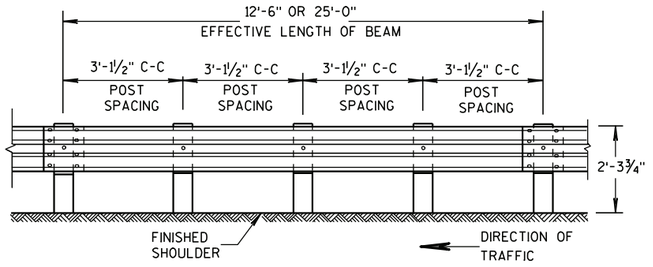


FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

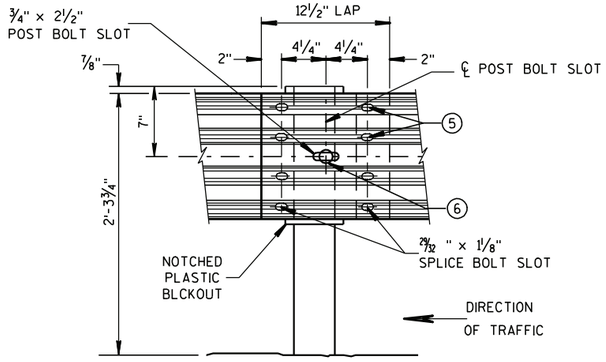
GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 8 - 5/8" ϕ X 2 " BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
6. 5/8" ϕ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.



FRONT VIEW

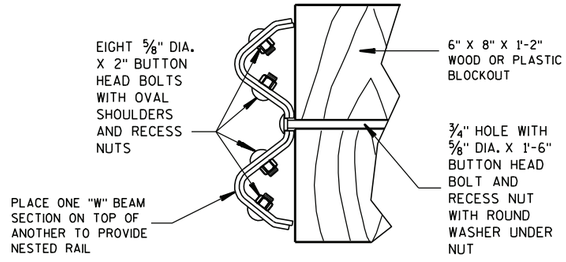
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

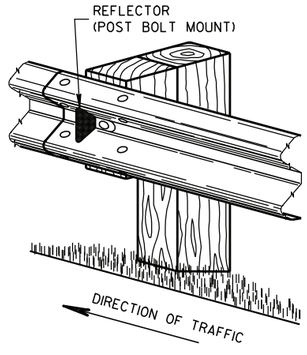


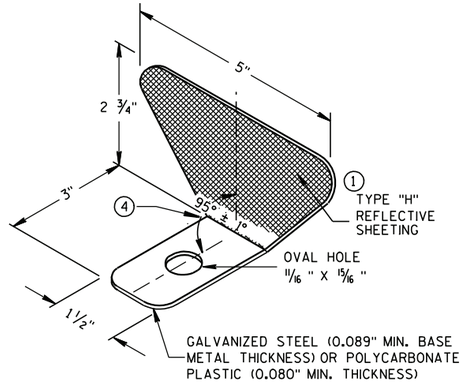
NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING (2)

	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 (3)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (4)	



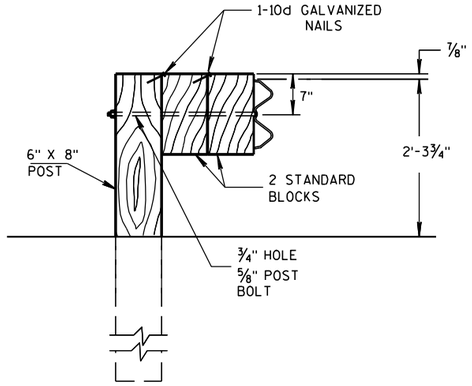


ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (1)

STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

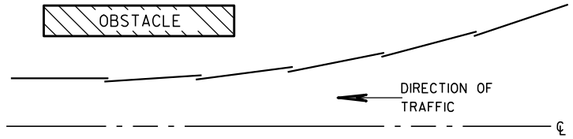
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-7b

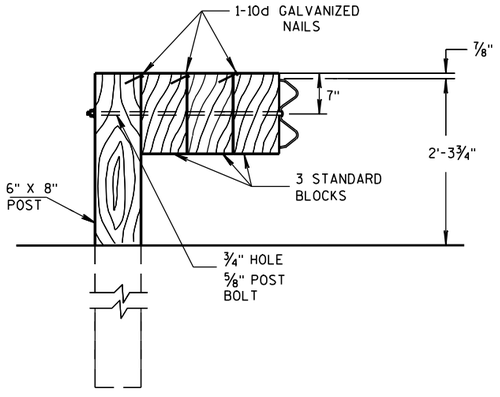


DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED

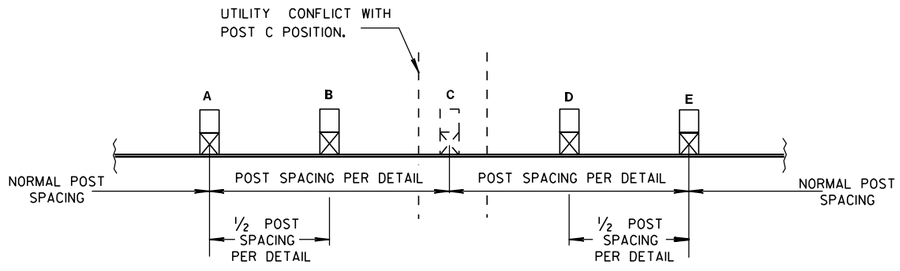


PLAN VIEW
BEAM LAPPING DETAIL



DETAIL FOR TRIPLE BLOCKS

TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA 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.

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/11	/S/ Jerry H. Zogg	
DATE	ROADWAY STANDARDS ENGINEER	ENT

FHWA

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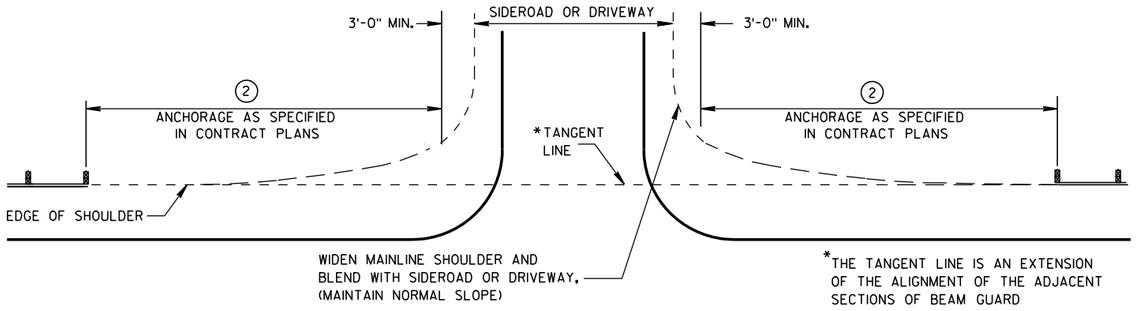
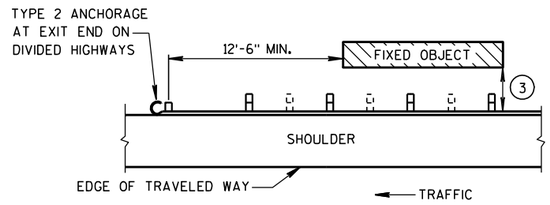
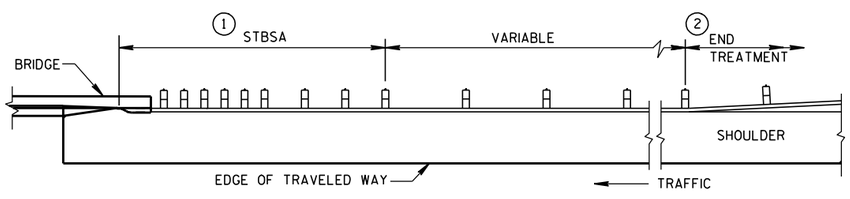
S.D.D. 14 B 15-7c



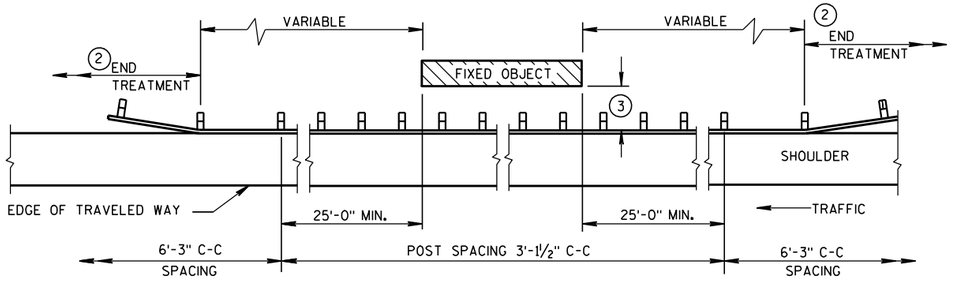
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

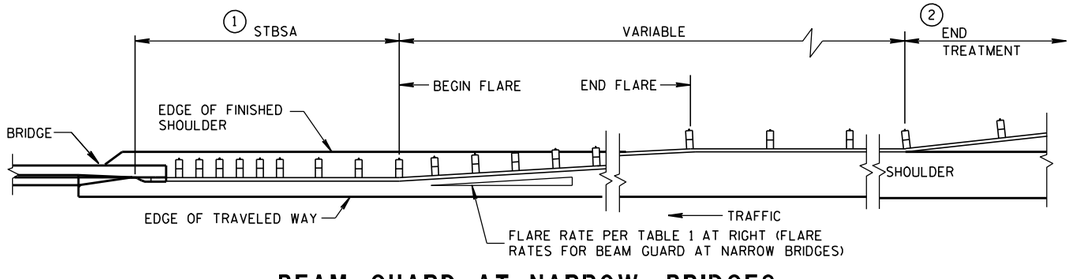


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")



BEAM GUARD AT NARROW BRIDGES

(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

(1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.

(2) USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

(3)

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"

STEEL PLATE BEAM GUARD CLASS "A" AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07 DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

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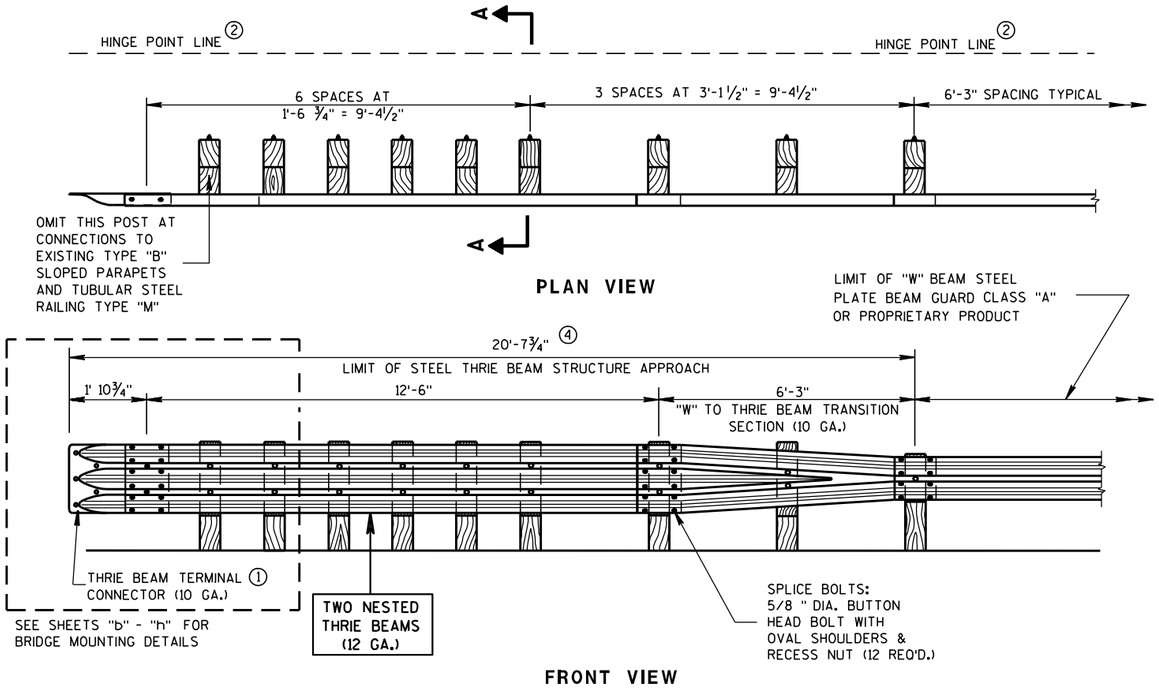
S.D.D. 14 B 18-6a



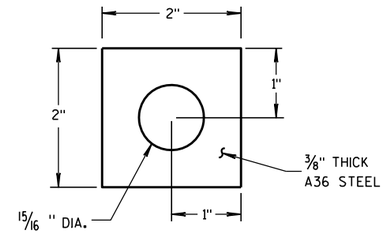


PLATE WASHER DETAIL

GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

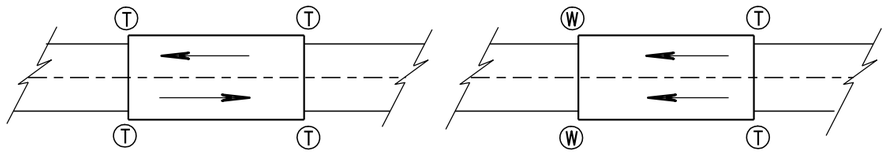
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.

③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.

④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



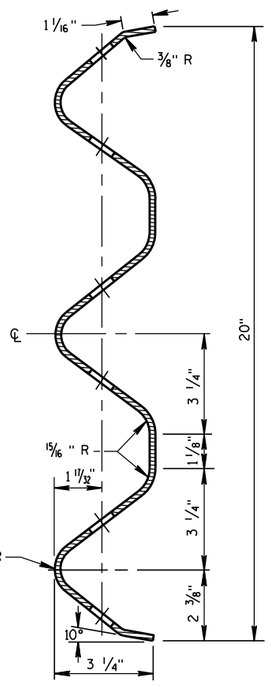
TWO WAY TRAFFIC

ONE WAY TRAFFIC

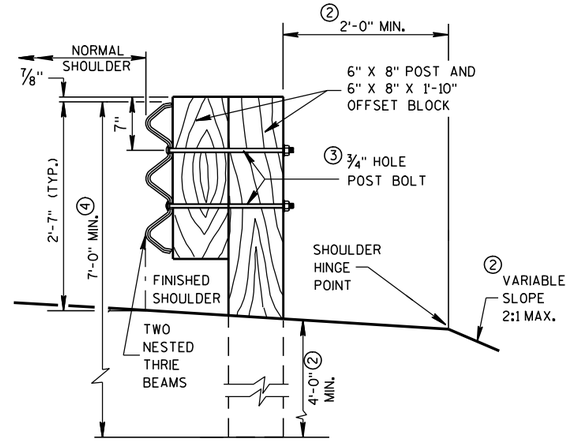
(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

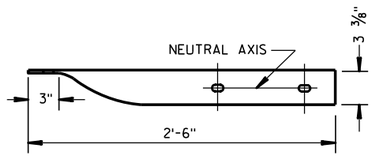
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

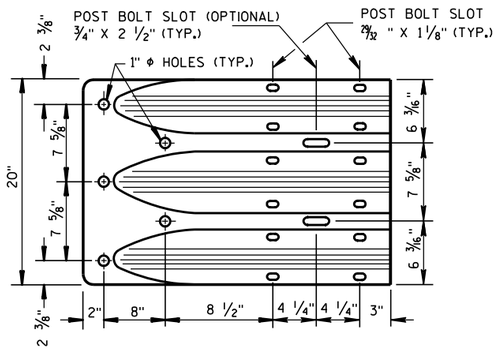


SECTION THRU THRIE BEAM RAIL ELEMENT

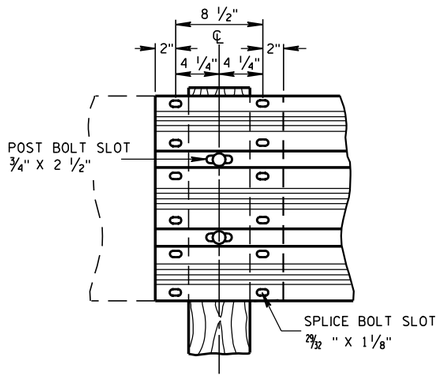


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

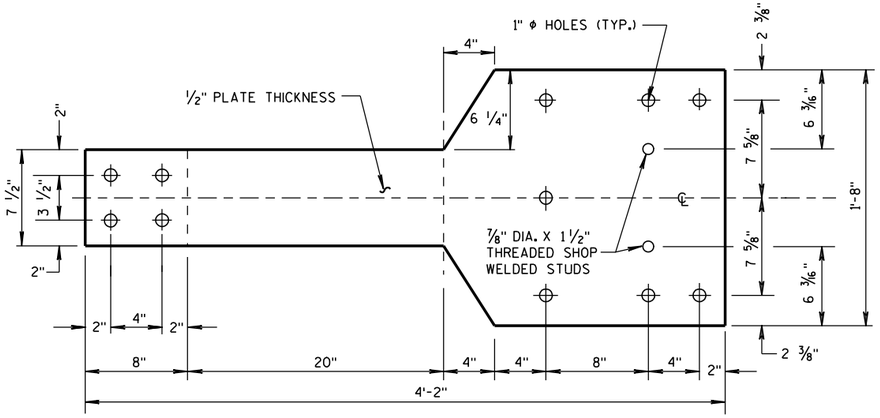
8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

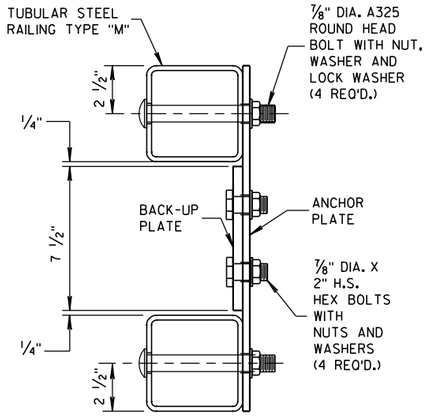
FHWA

GENERAL NOTES

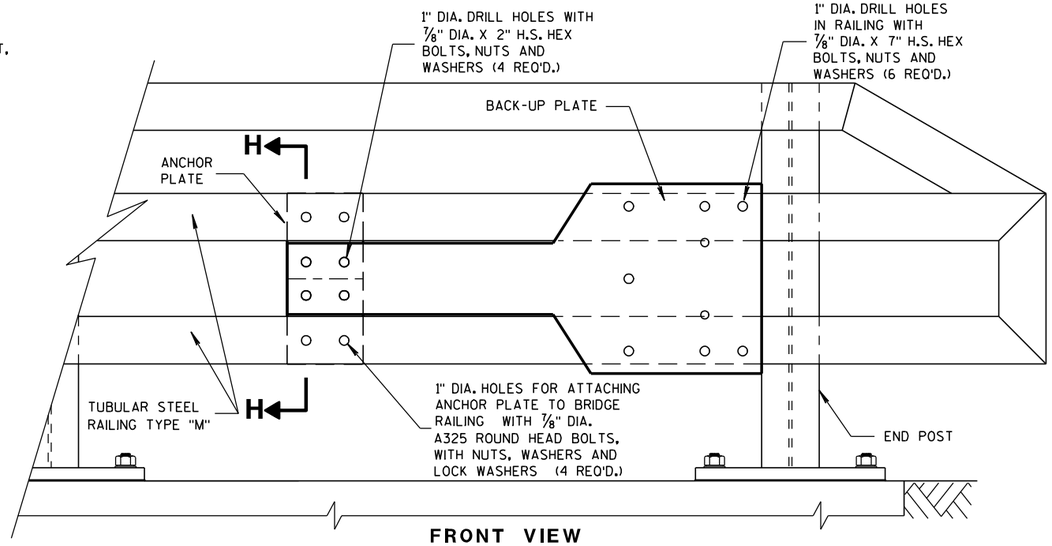
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



FRONT VIEW

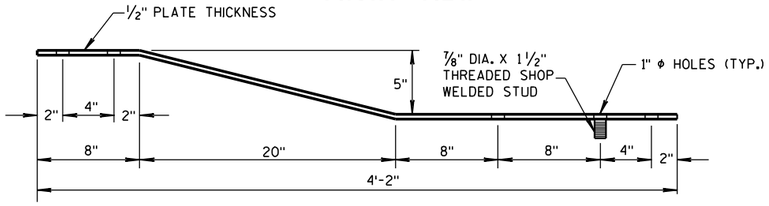


SECTION H-H



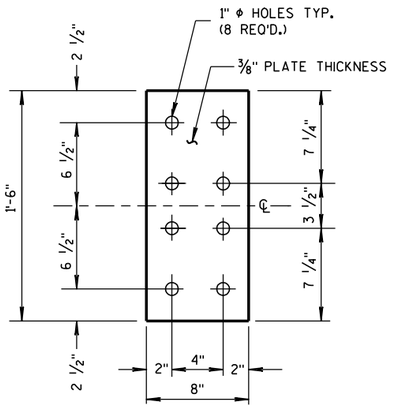
FRONT VIEW

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



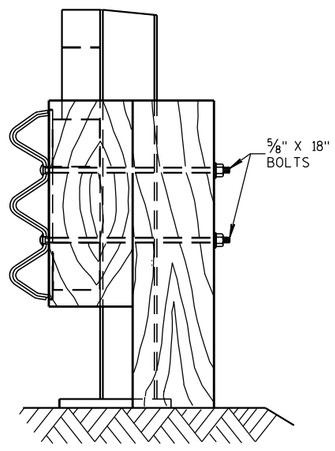
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

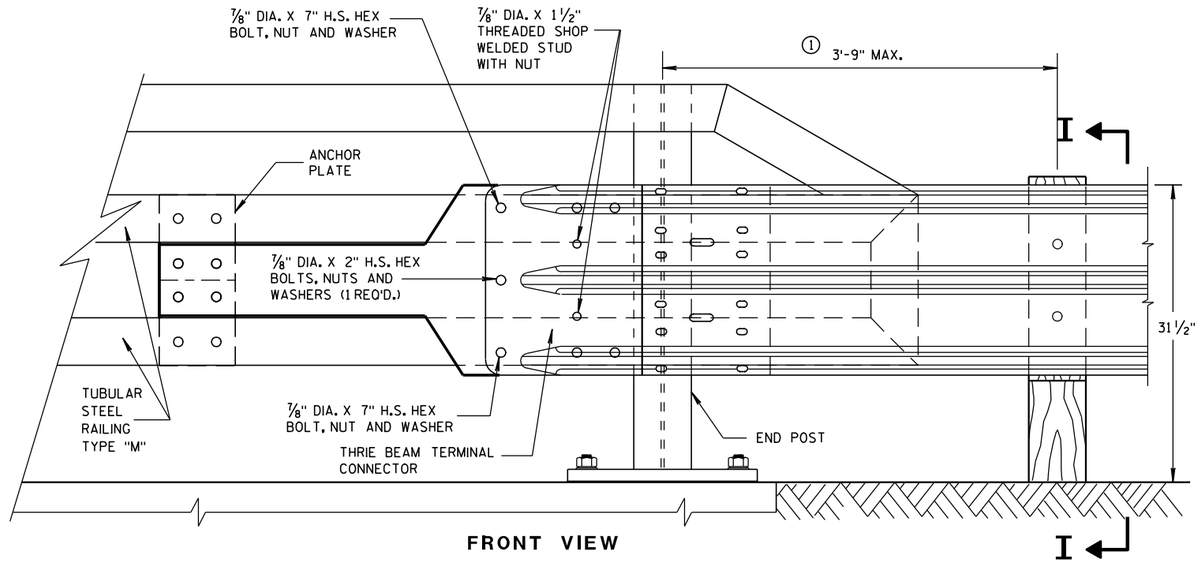


FRONT VIEW

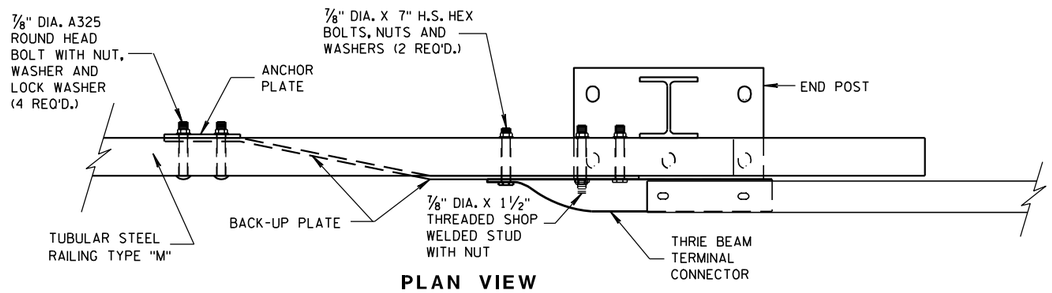
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER
31 — ENT
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S.D.D. 14 B 20-11f

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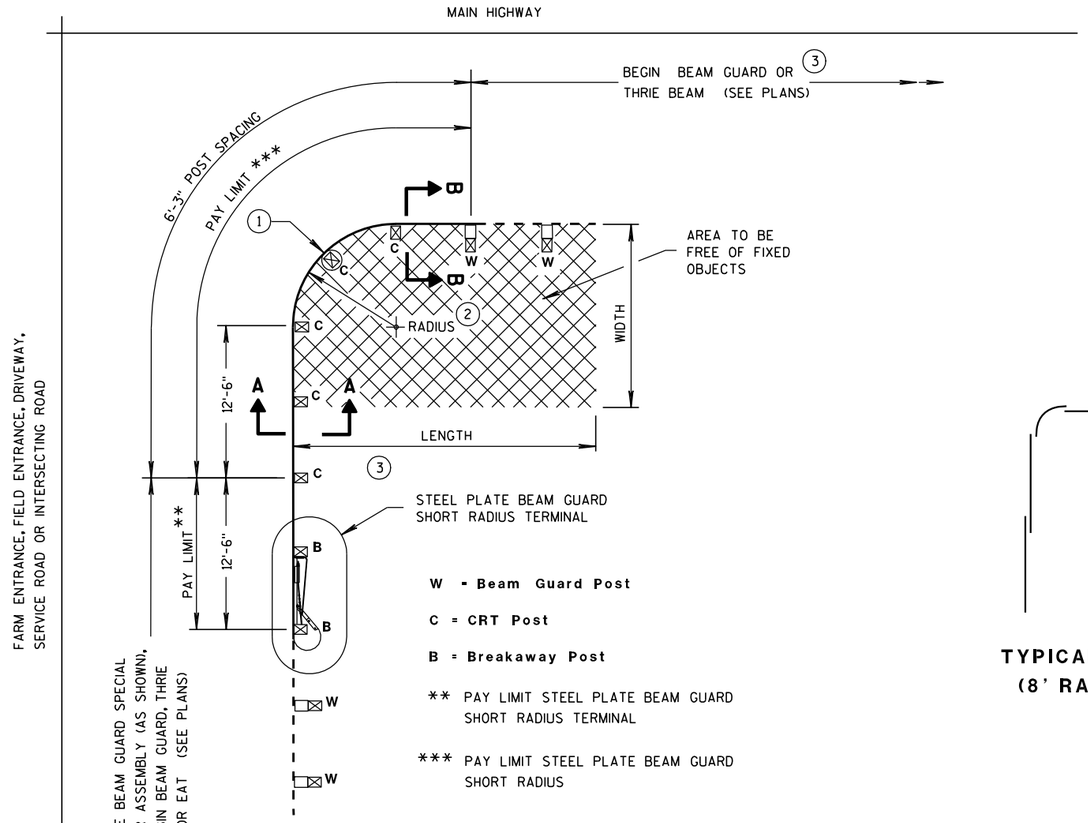
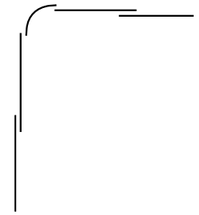
S.D.D. 14 B 20-11f



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

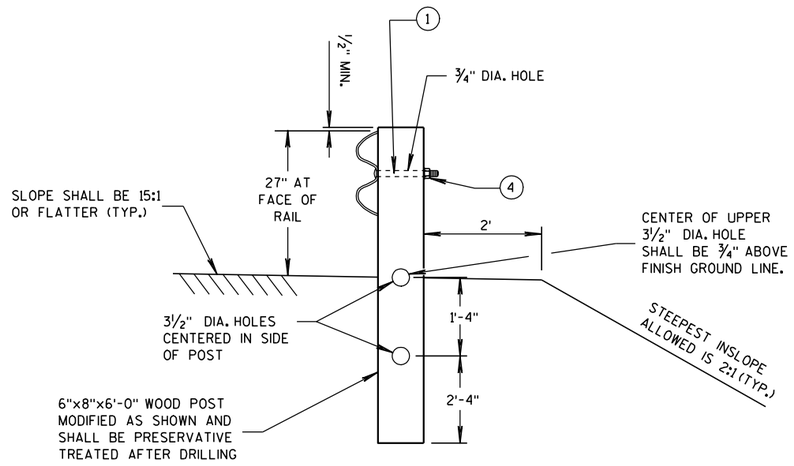
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

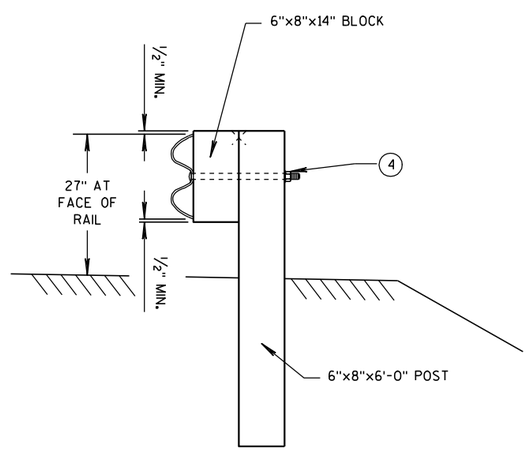
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A
(CRT POST)

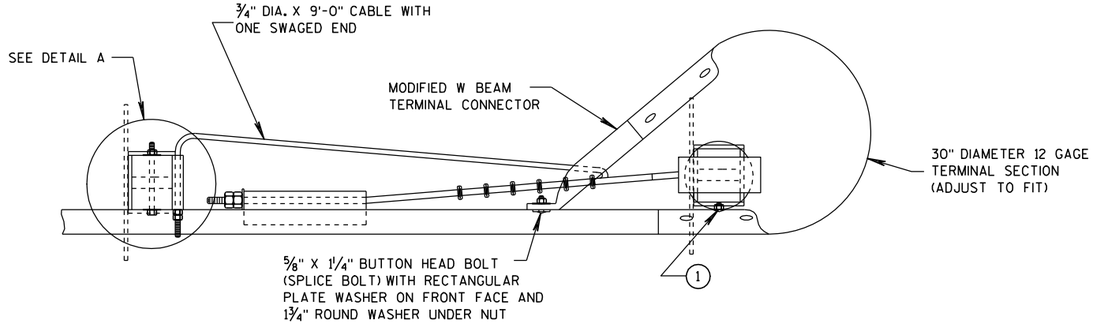


SECTION B-B
(BEAM GUARD POST)

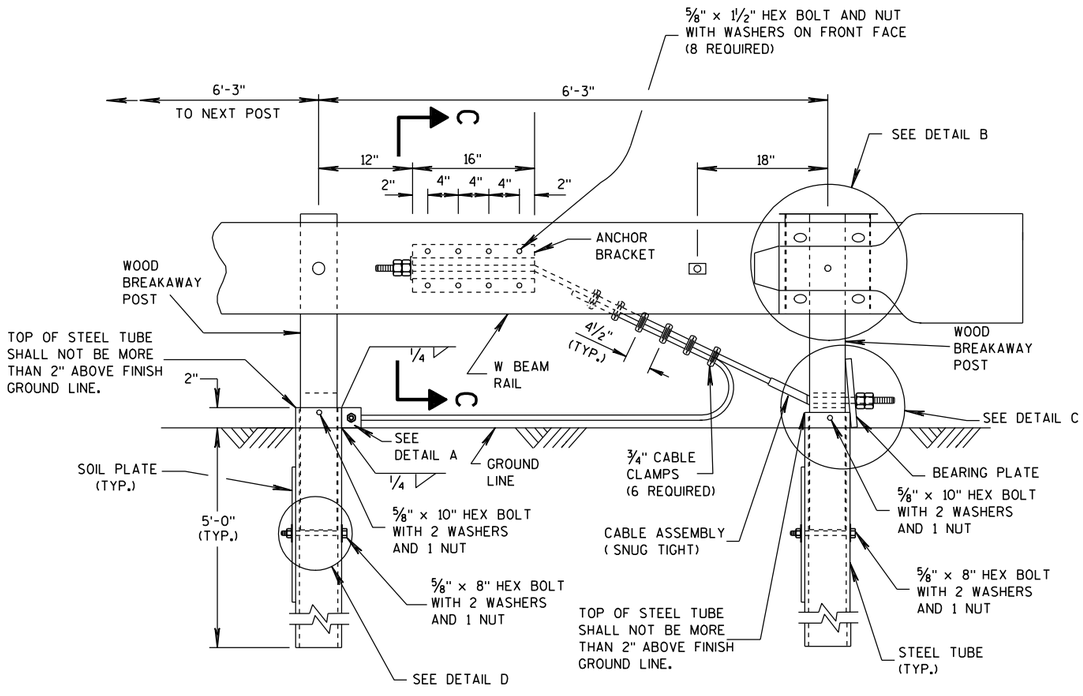
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 27-1a



PLAN VIEW



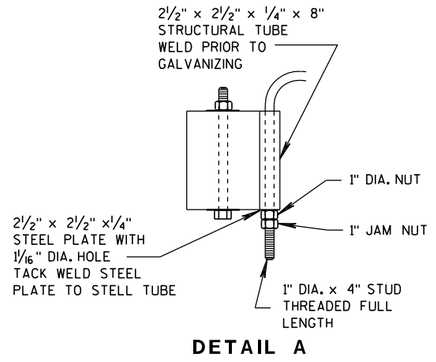
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

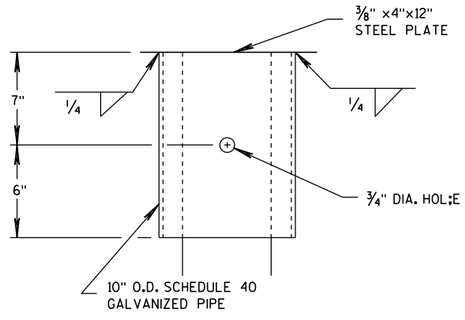
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 27-1b

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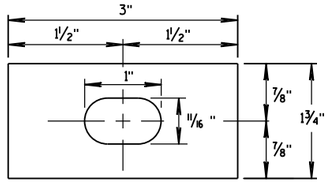
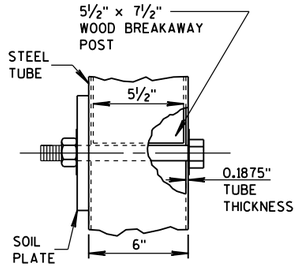
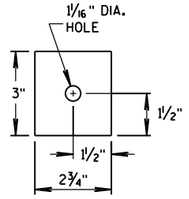
S.D.D. 14 B 27-1b



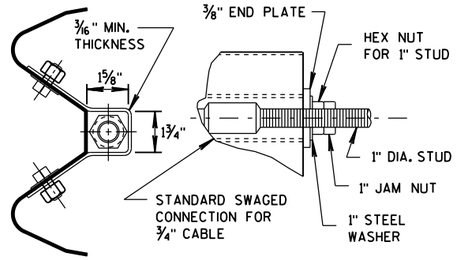
RECTANGULAR PLATE WASHER



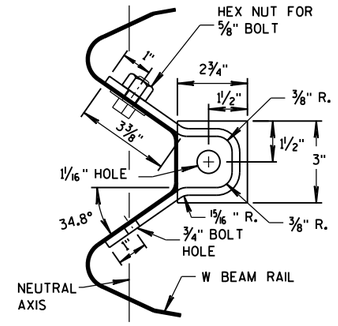
DETAIL D



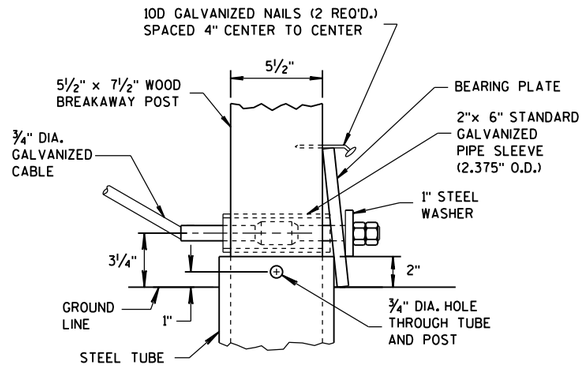
END PLATE



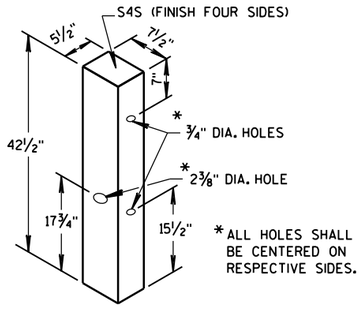
SECTION C-C
(END PLATE REMOVED)



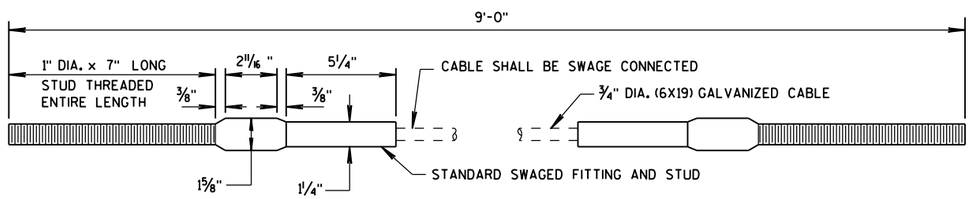
ANCHOR BRACKET



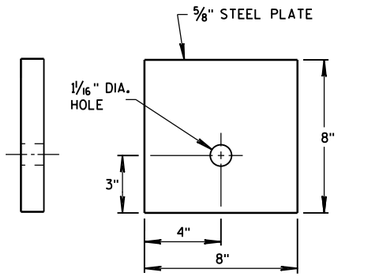
DETAIL C



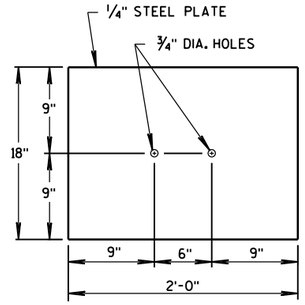
WOOD BREAKAWAY POST



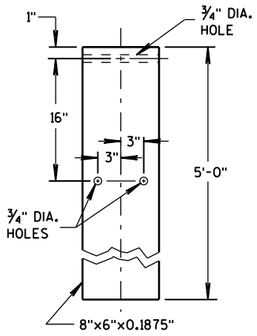
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 27-1c

6

S.D.D. 14 B 27-1c

GENERAL NOTES

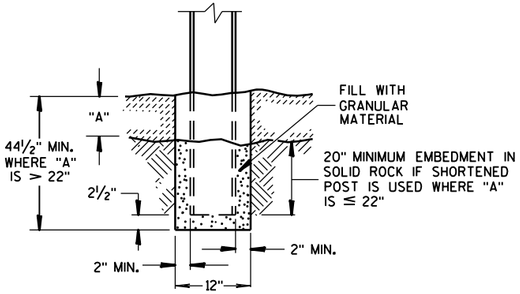
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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.

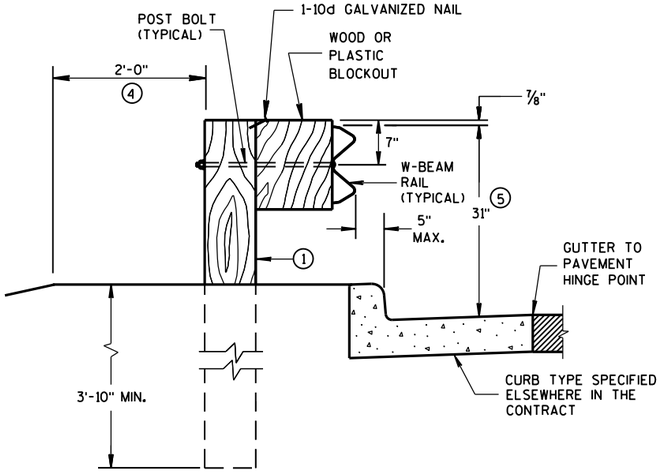
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO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

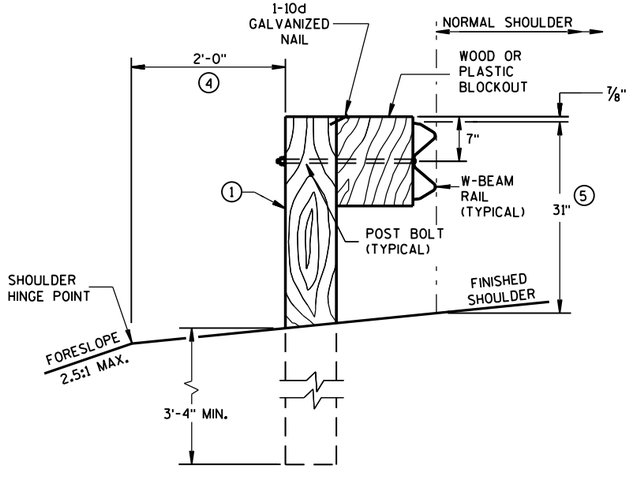
5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".



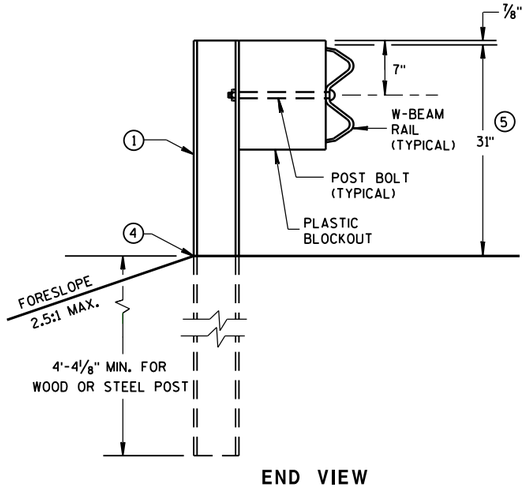
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



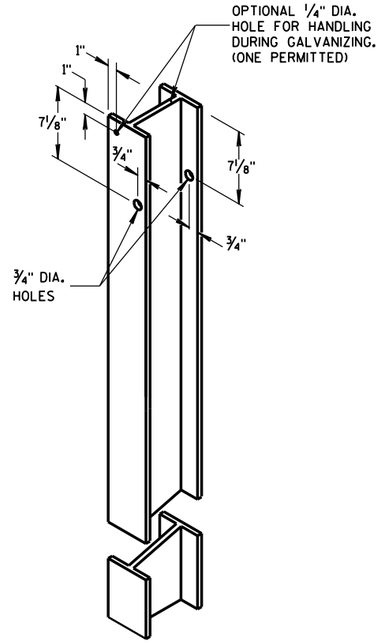
END VIEW
LOCATED ALONG A CURBED ROADWAY



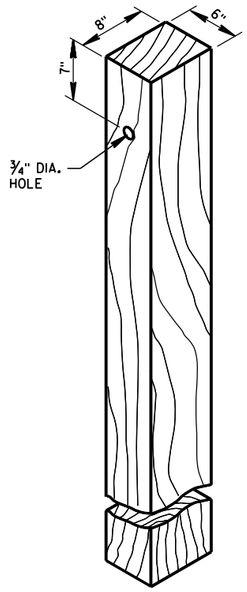
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



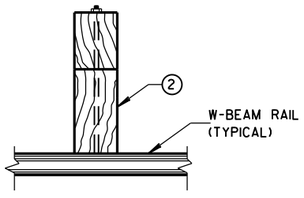
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



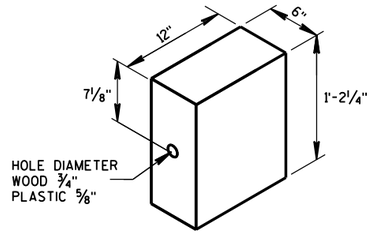
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



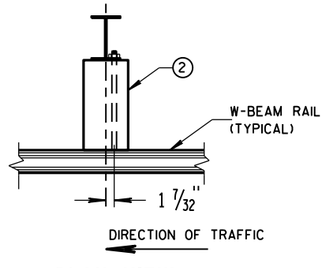
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②

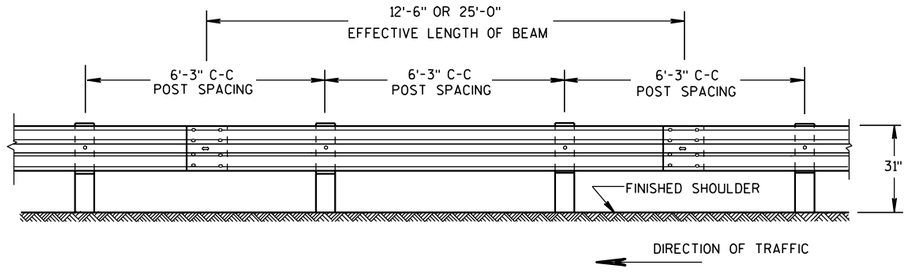


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

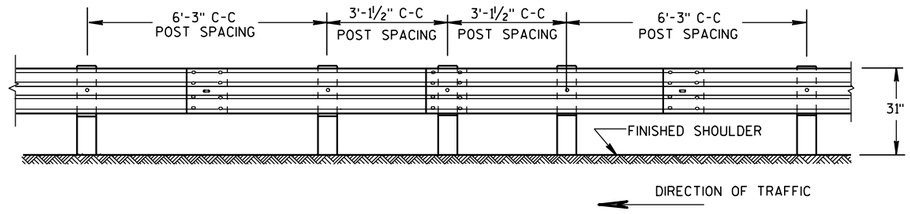
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 42-2a



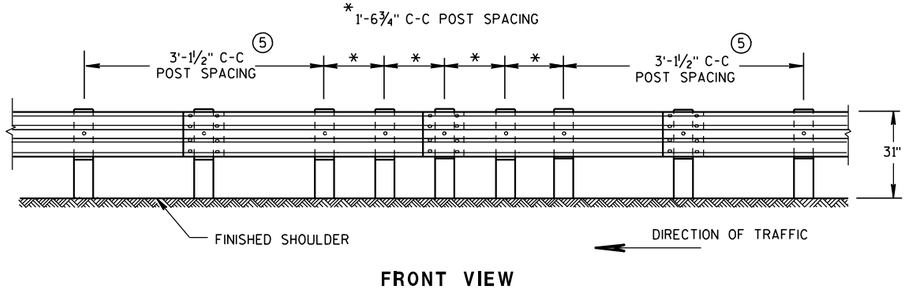
FRONT VIEW

POST SPACING STANDARD INSTALLATION



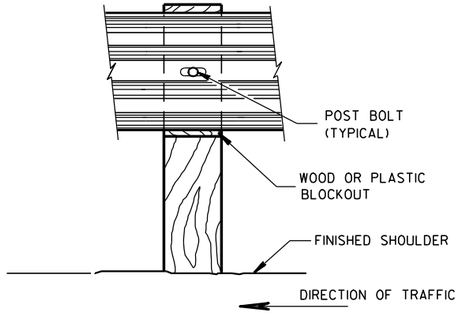
FRONT VIEW

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

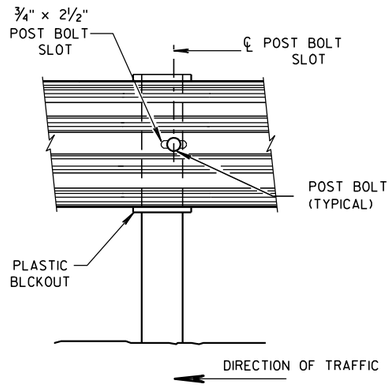


FRONT VIEW

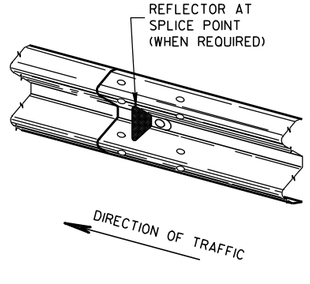
QUARTER POST SPACING (QS)

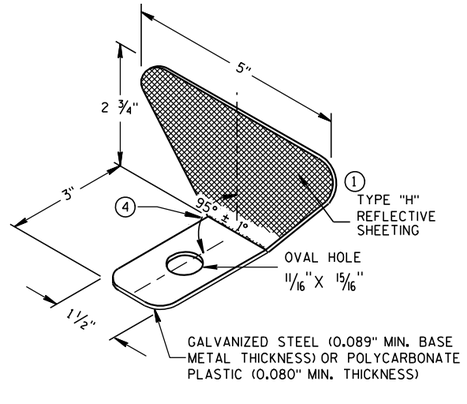


FRONT VIEW AT WOOD POST

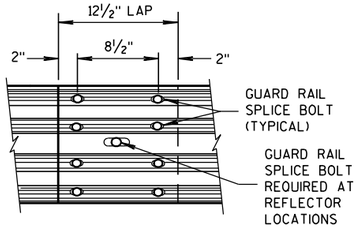


FRONT VIEW AT STEEL POST



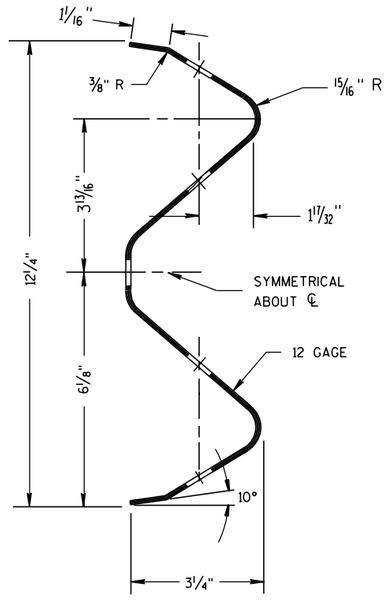


ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①



FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL

REFLECTOR SPACING ②

	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 ③ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 ④ 2	3

GENERAL NOTES

① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.

② 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.

③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

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

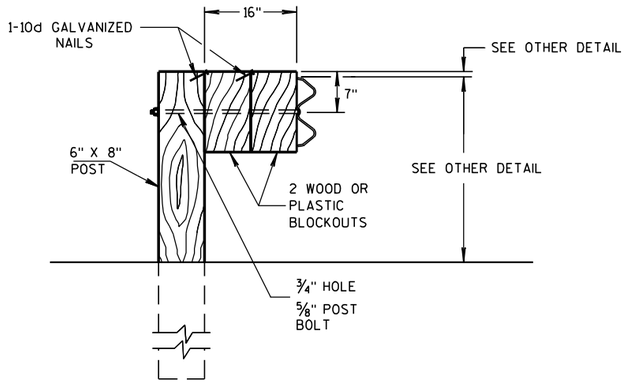
POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

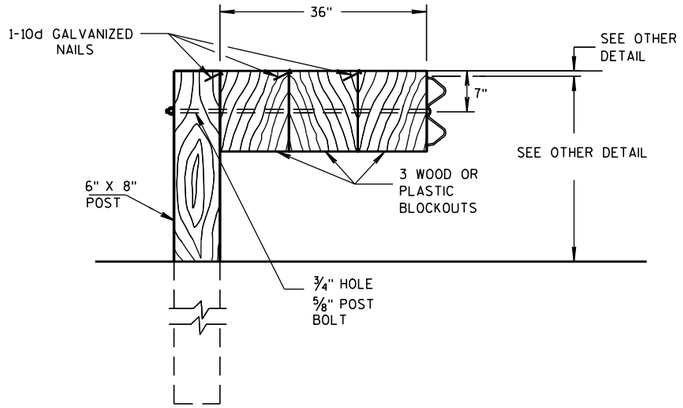
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 42-2b



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.

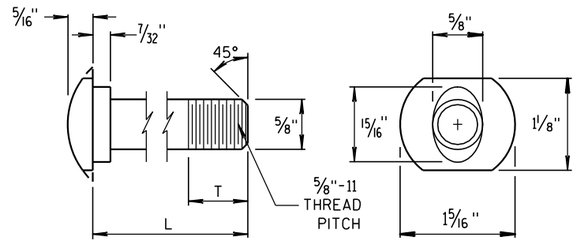


DETAIL FOR 36" BLOCKOUT DEPTH

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.

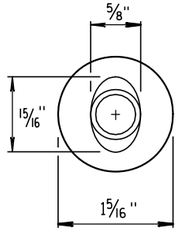
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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.

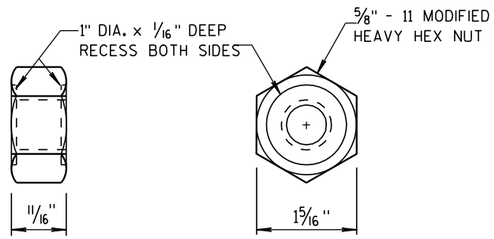


POST BOLT TABLE

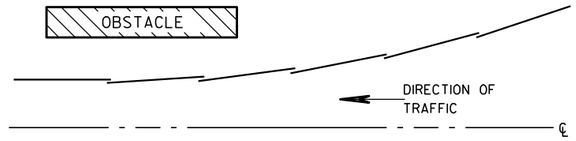
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

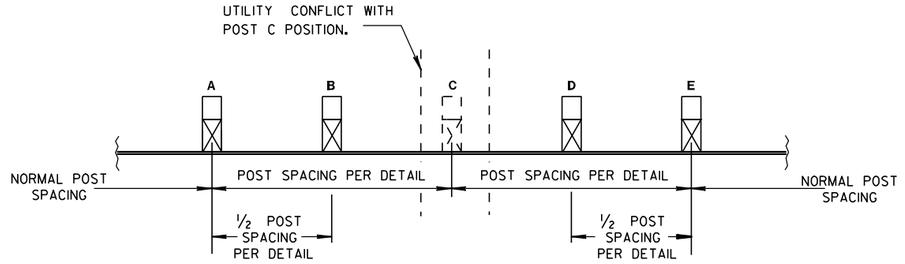


POST BOLT AND RECESS NUT

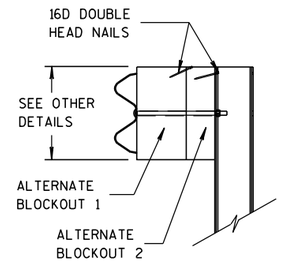


PLAN VIEW

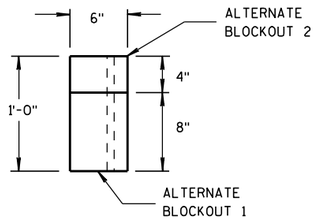
BEAM LAPPING DETAIL



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

11/15/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

FHWA

ENT

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), 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) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

(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.

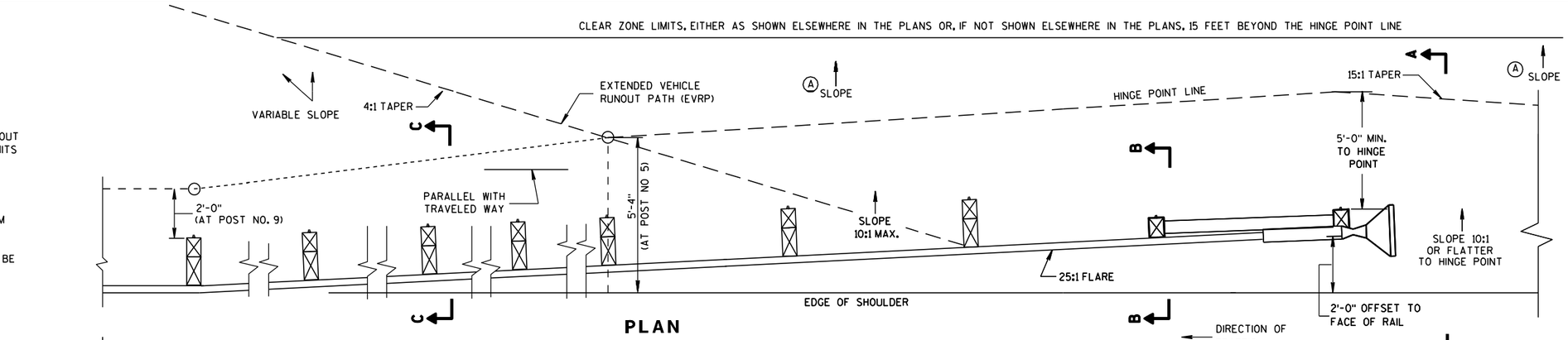
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

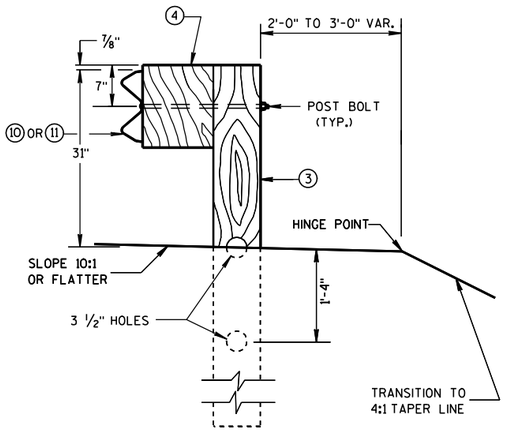
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

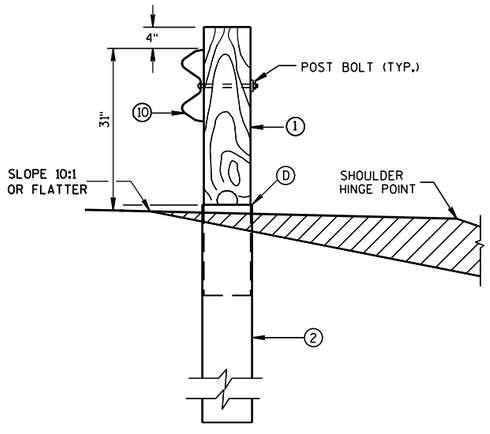
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (± ¾")

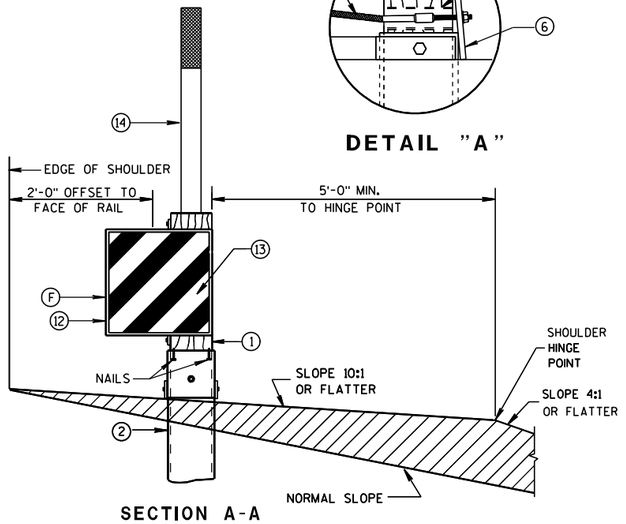




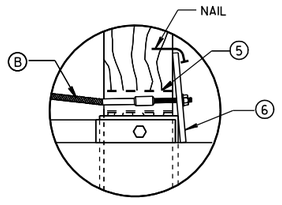
SECTION C-C
TYPICAL AT POST NOS. 3-9



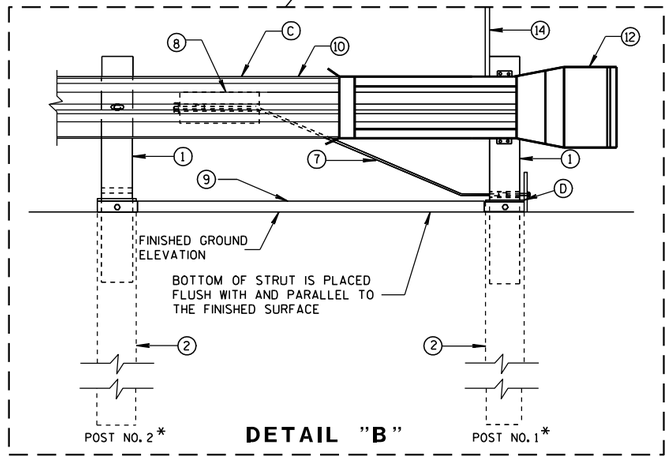
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 14 B 44-1a

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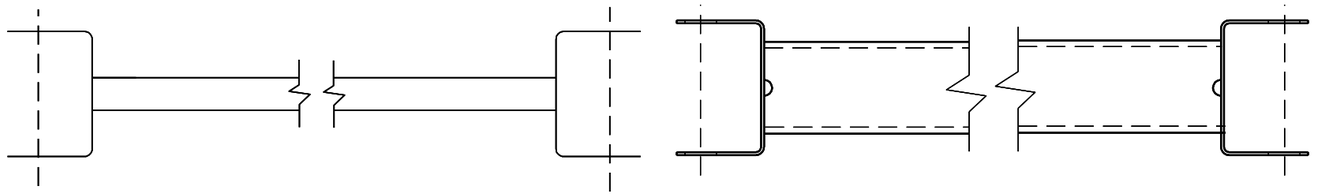
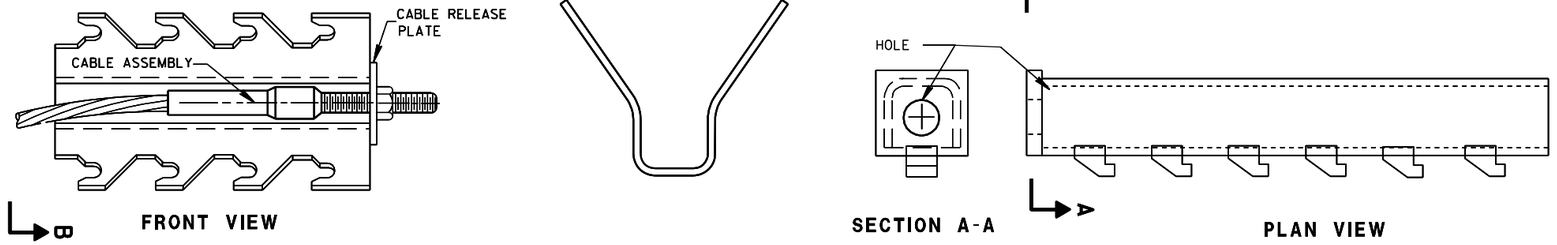


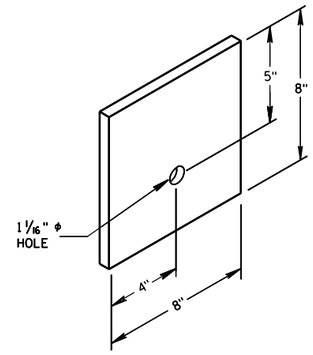
GENERIC GROUND STRUT (9) (H)

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 H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



GENERIC ANCHOR CABLE BOX (8) (H)



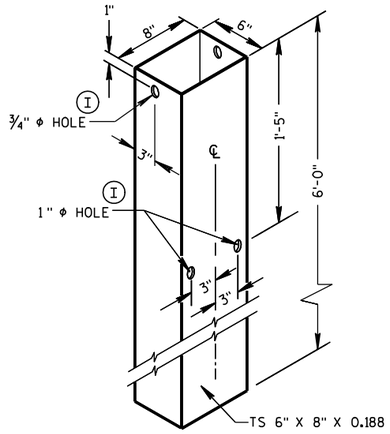
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

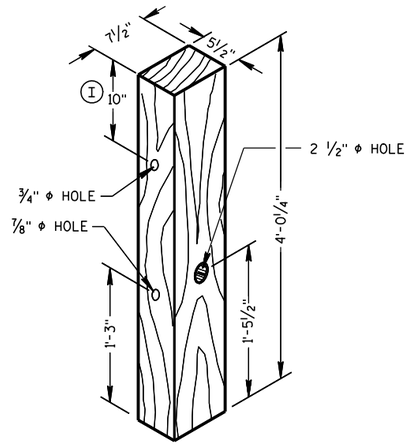
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 44-1b

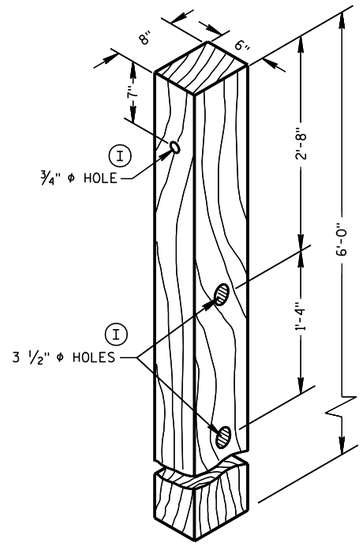


FOUNDATION TUBE (2)



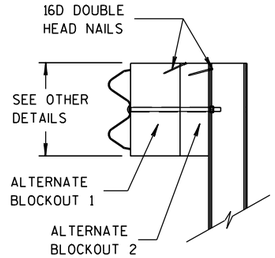
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

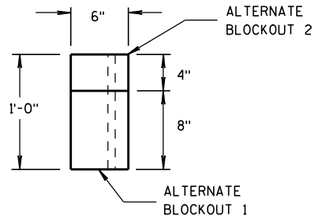


POSTS NUMBER 3-9

WOOD CRT POST (3)

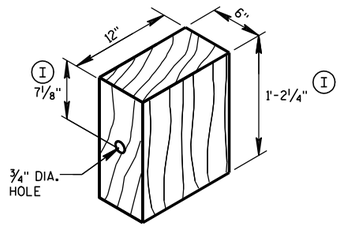


SIDE VIEW



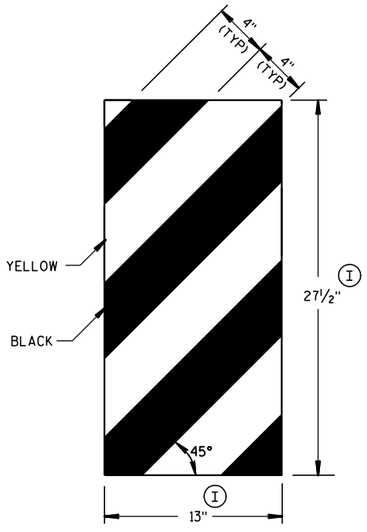
TOP VIEW

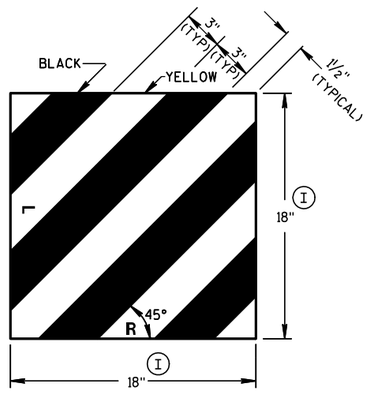
ALTERNATE WOOD BLOCKOUT DETAIL



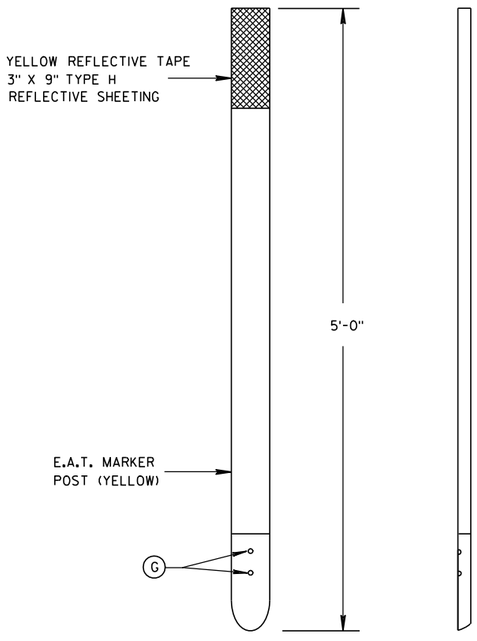
WOOD BLOCKOUT (4)

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





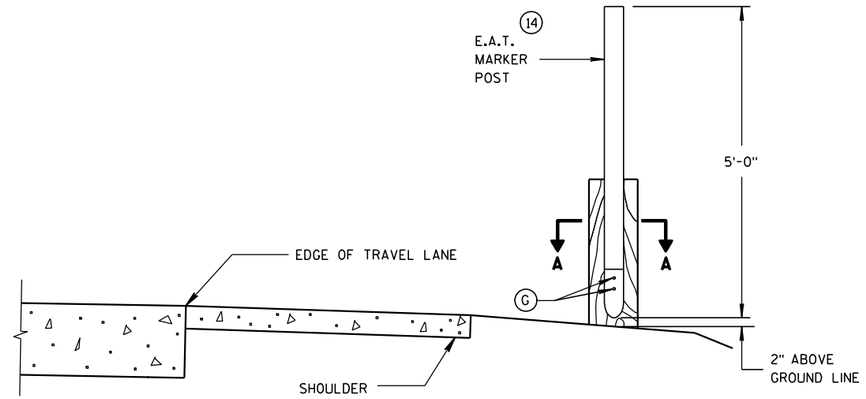
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

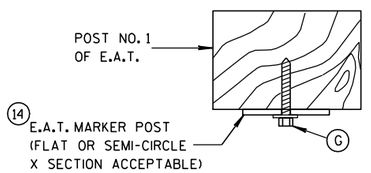
SIDE VIEW

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

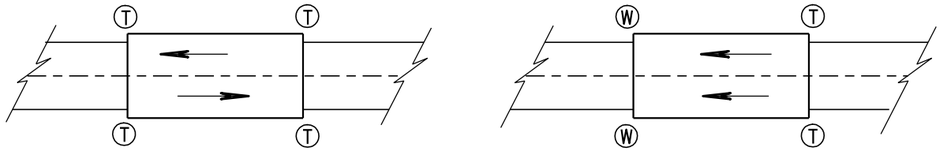
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2011 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-1c



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

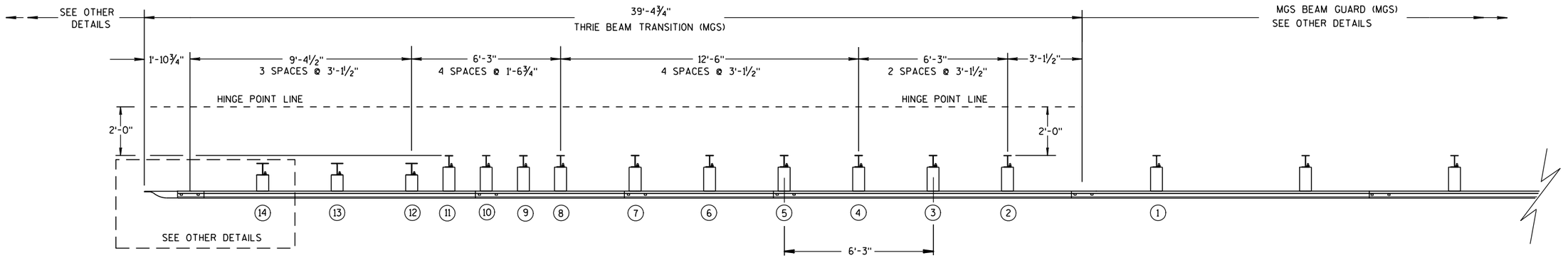
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

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

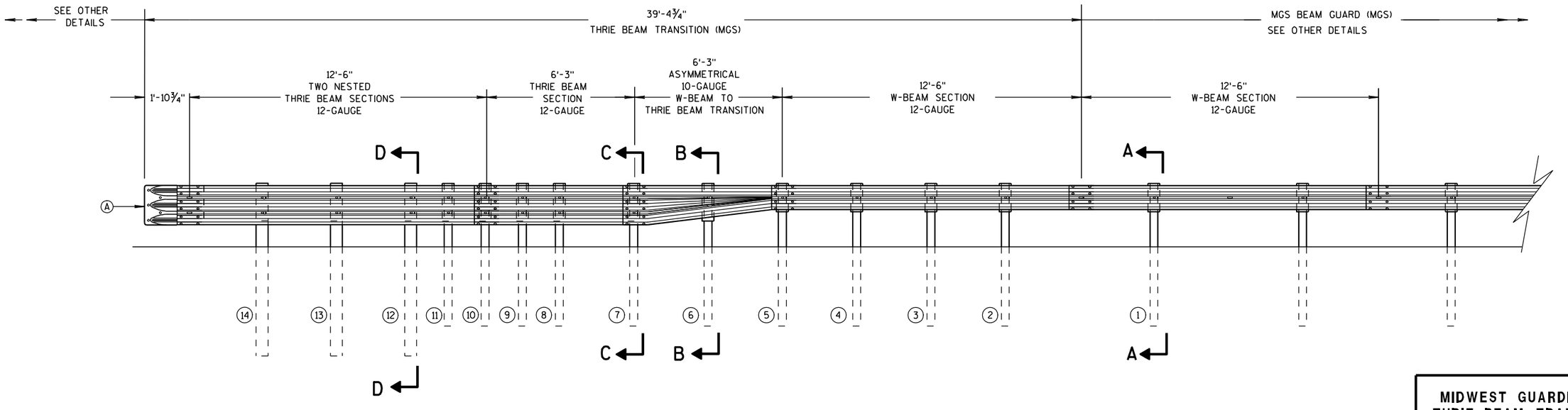
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

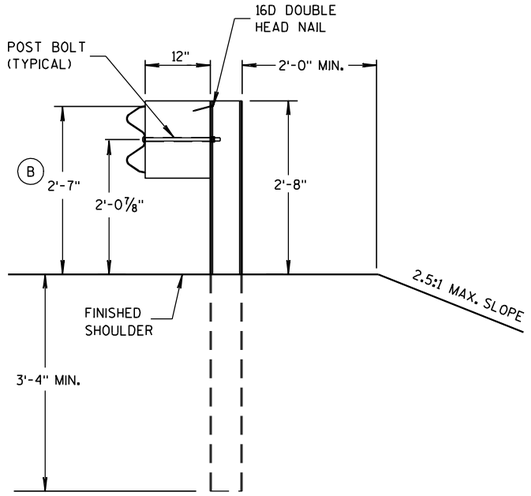
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3a

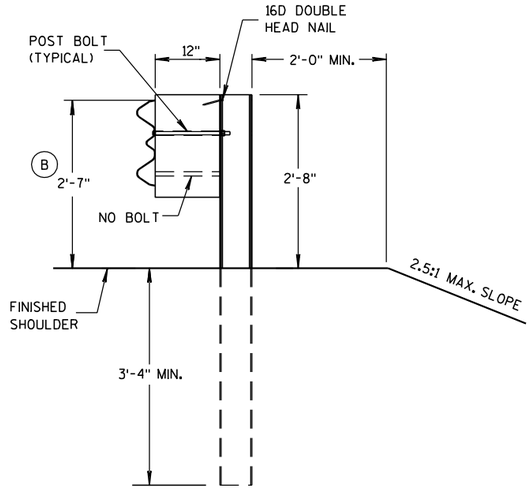
GENERAL NOTES

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



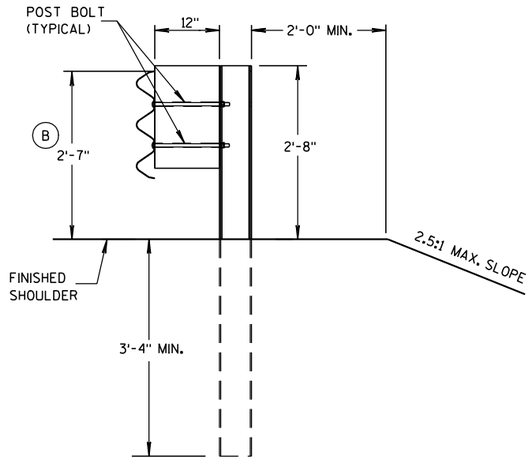
SECTION A-A

POSTS 1-5



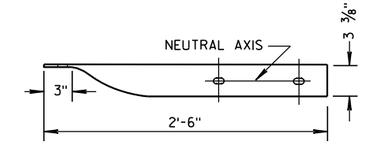
SECTION B-B

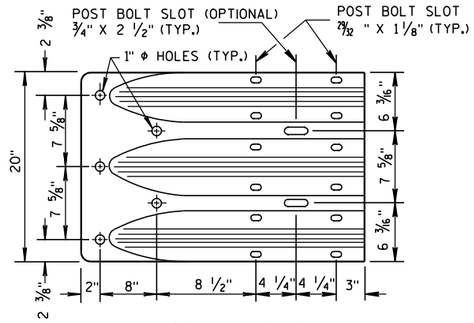
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

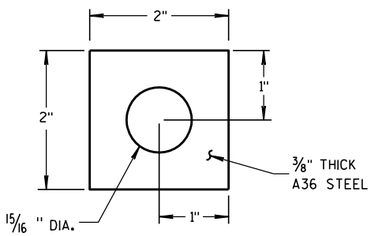
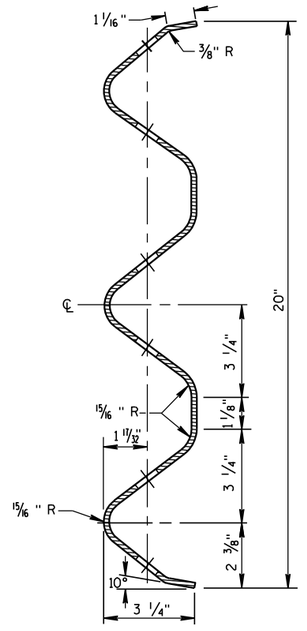
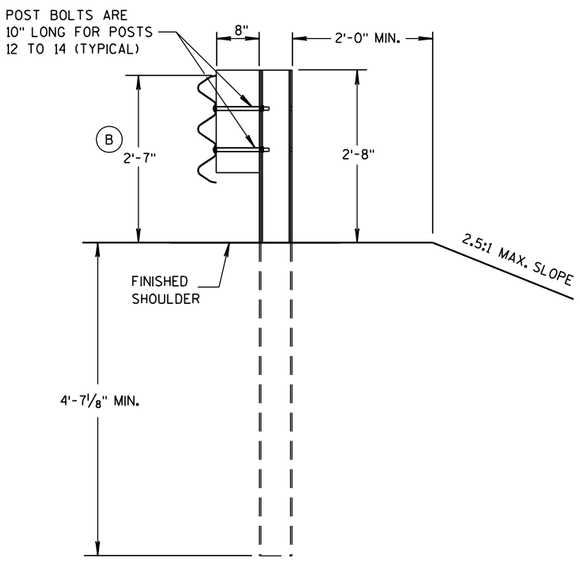


PLATE WASHER DETAIL

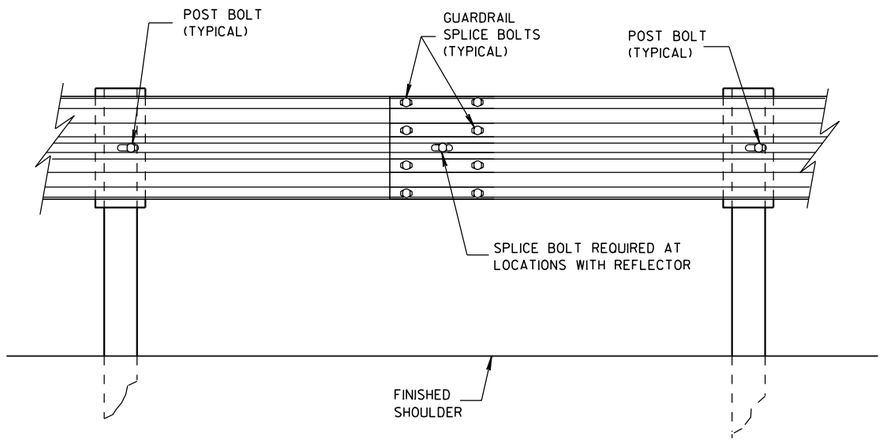


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-14



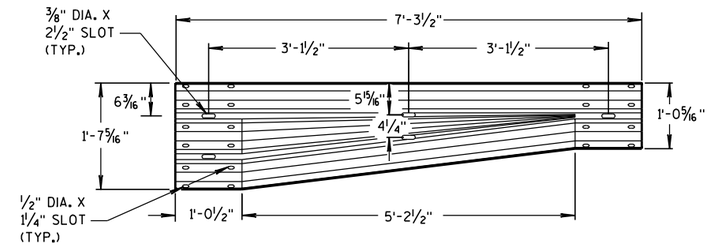
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

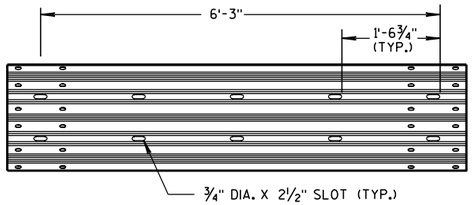
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

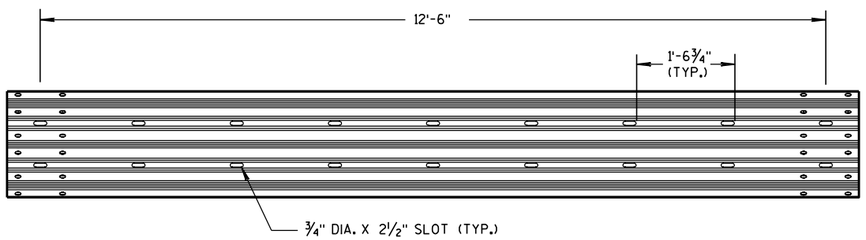
S.D.D. 14 B 45-3b



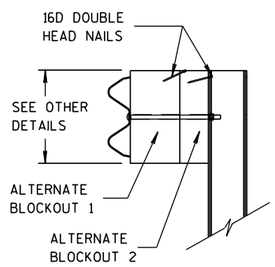
W-BEAM TO THRIE BEAM TRANSITION SECTION



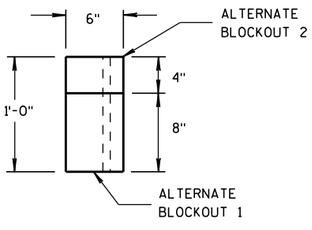
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

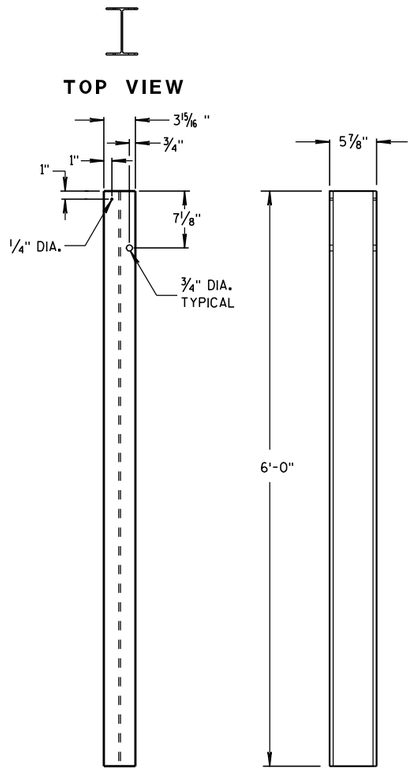


SIDE VIEW



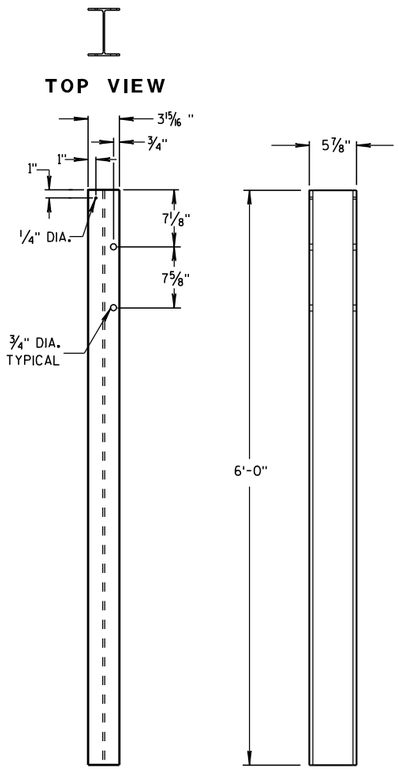
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



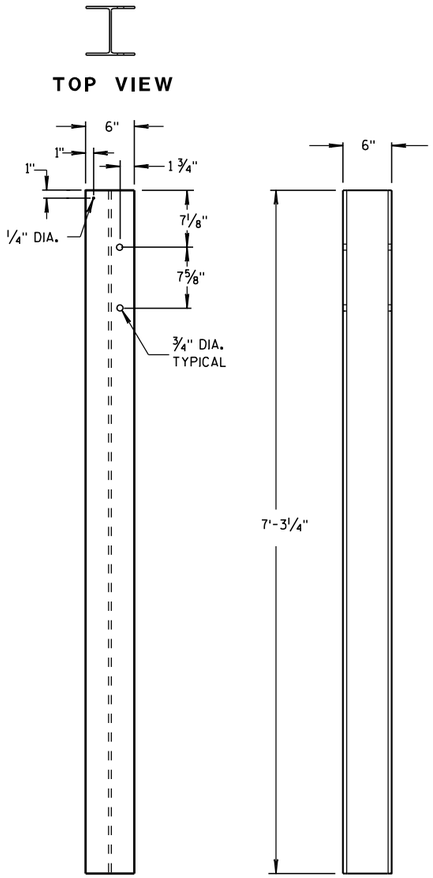
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5



FRONT VIEW SIDE VIEW

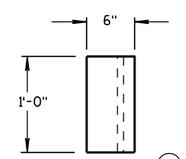
STEEL POSTS 6-11



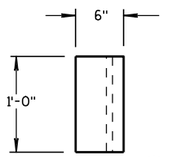
FRONT VIEW SIDE VIEW

STEEL POSTS 12-14

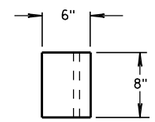
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



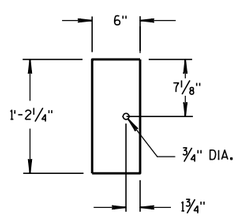
TOP VIEW (1)



TOP VIEW (1)

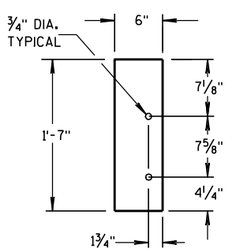


TOP VIEW



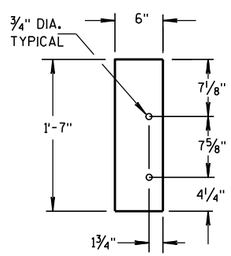
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

BLOCKOUT POSTS 12-14

STEEL POST SIZES

POST NUMBER	SECTION TYPE	LENGTH
(1)	W6x9	72"
(2)	W6x9	72"
(3)	W6x9	72"
(4)	W6x9	72"
(5)	W6x9	72"
(6)	W6x9	72"
(7)	W6x9	72"
(8)	W6x9	72"
(9)	W6x9	72"
(10)	W6x9	72"
(11)	W6x9	72"
(12)	W6x15	87 1/8"
(13)	W6x15	87 1/8"
(14)	W6x15	87 1/8"

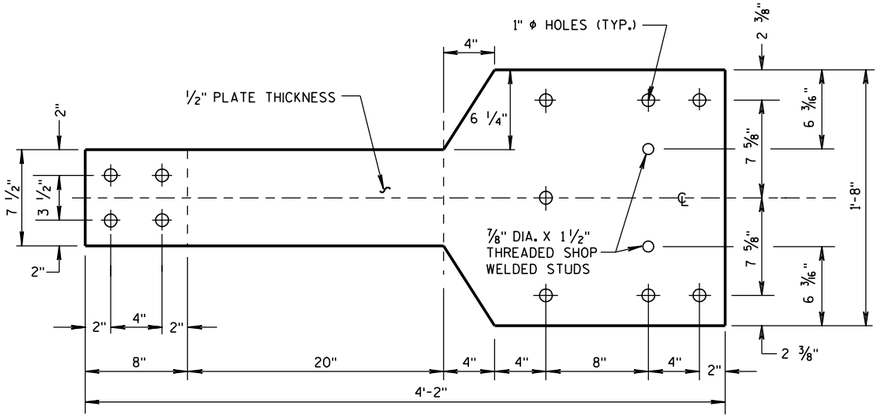
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

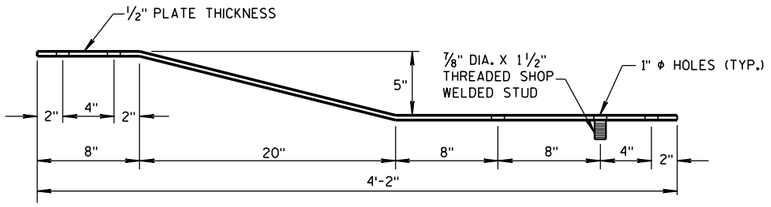
6
S.D.D. 14 B 45-3c

GENERAL NOTES

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

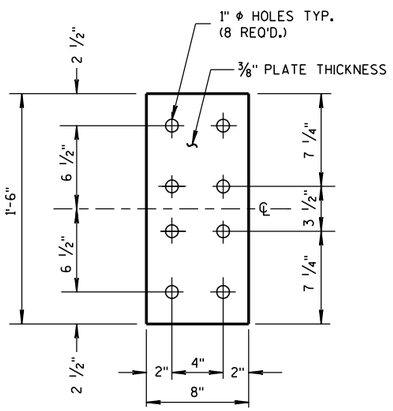


FRONT VIEW



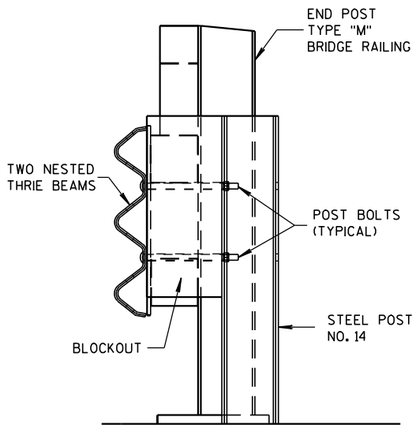
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

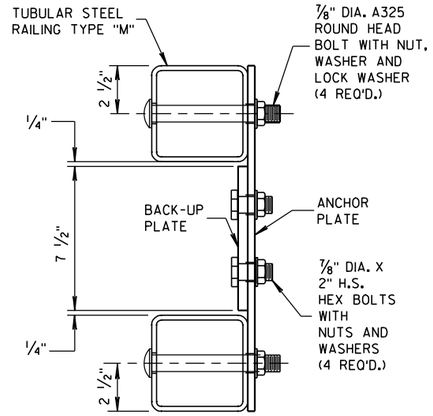


FRONT VIEW

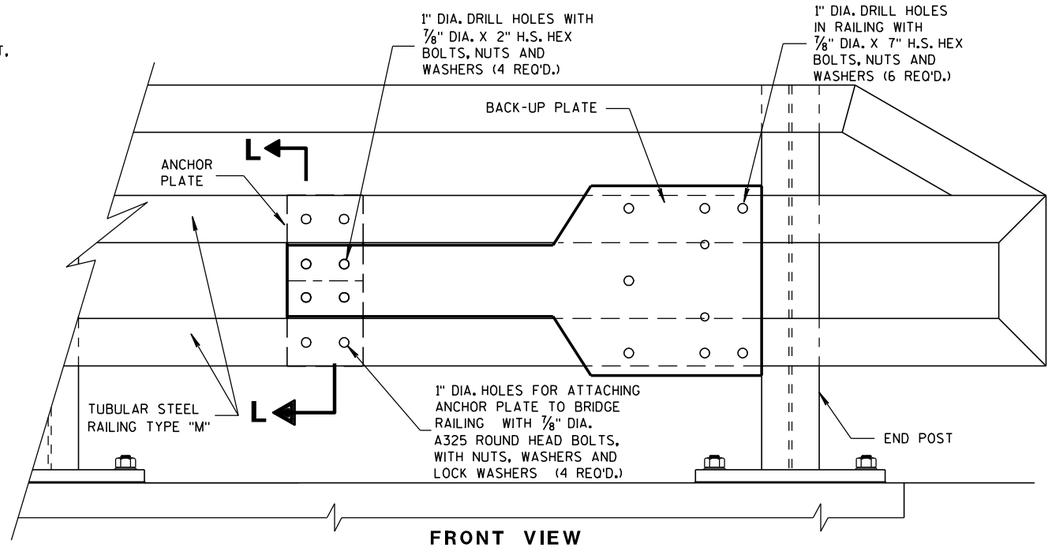
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

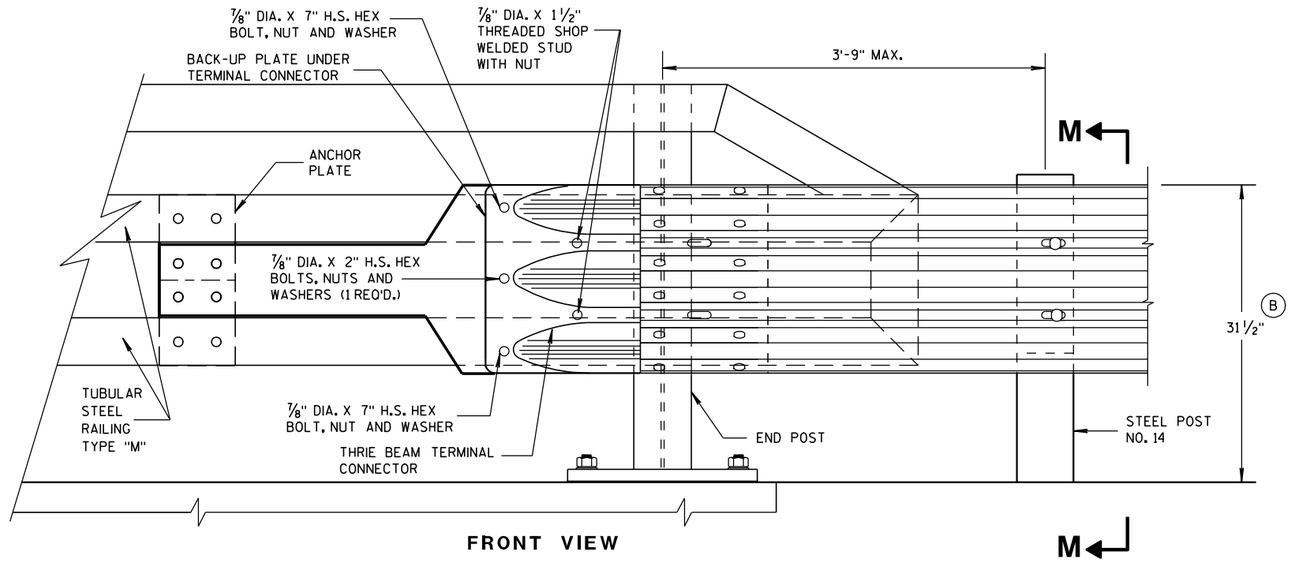


SECTION L-L

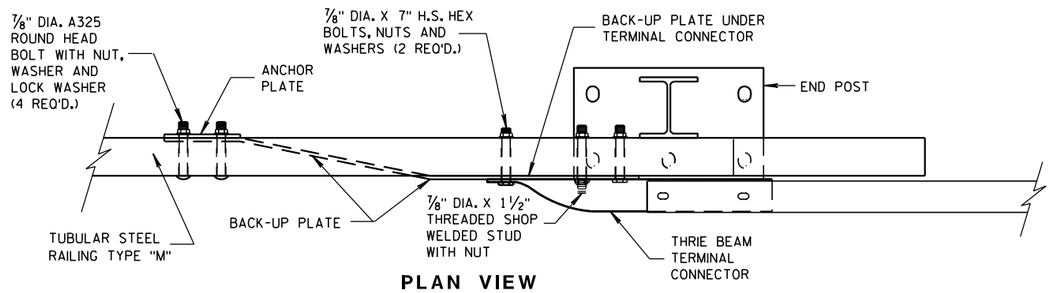


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

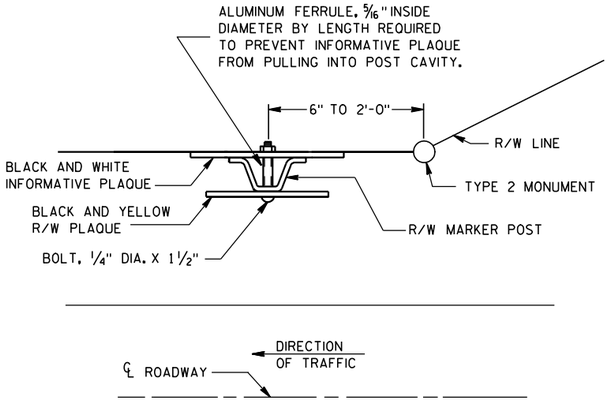
APPROVED
8-31-2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
44 ENT
FHWA

6

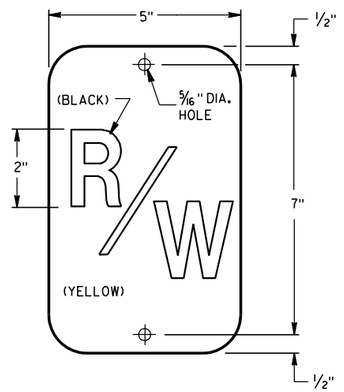
S.D.D. 14 B 45-3h

6

S.D.D. 14 B 45-3h

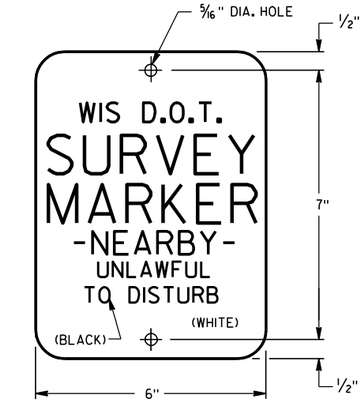


PLAN VIEW



R/W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

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

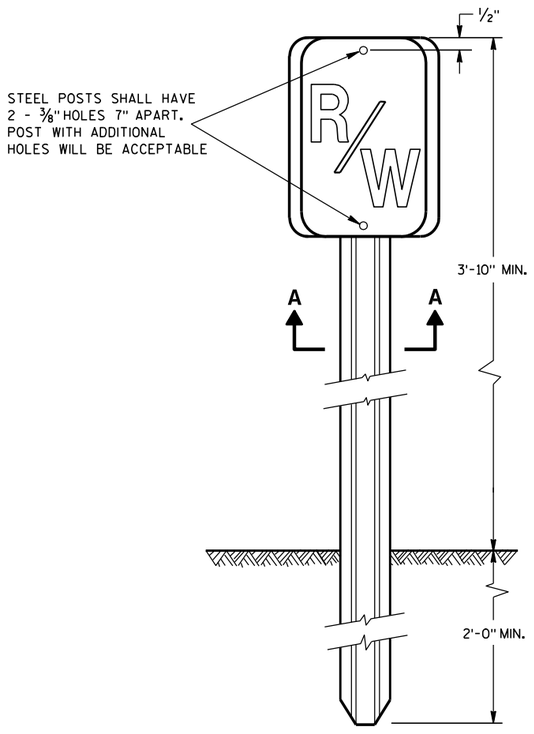
A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

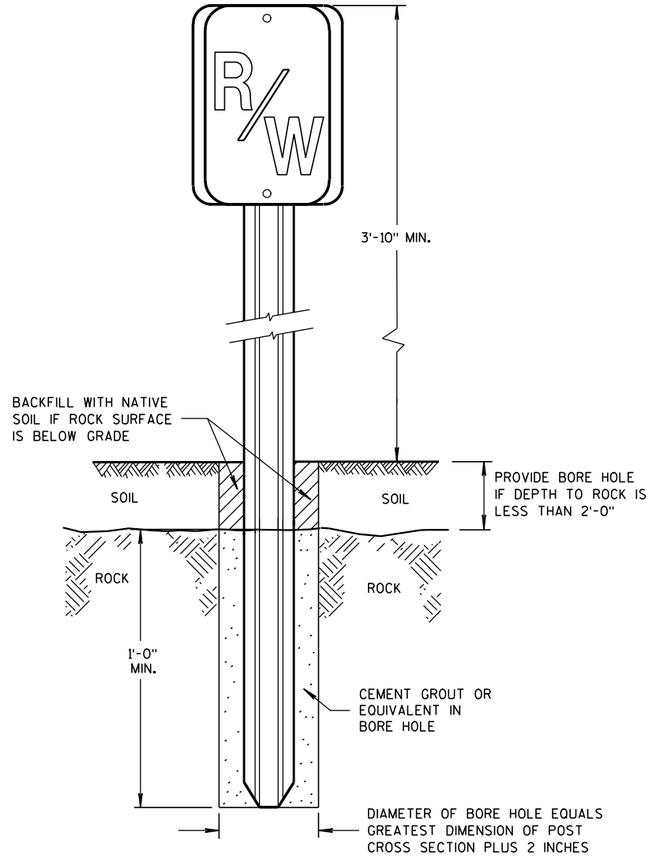
STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

(1) IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR.

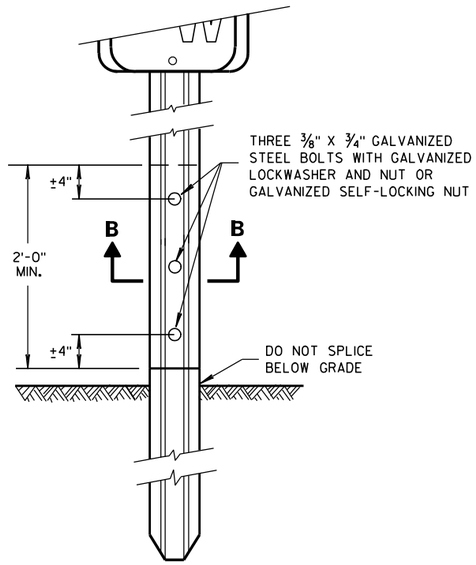
FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



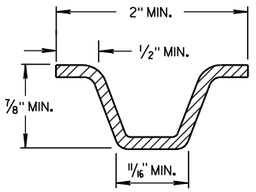
FRONT VIEW
STEEL MARKER POST



FRONT VIEW
ROCK INSTALLATION (1)

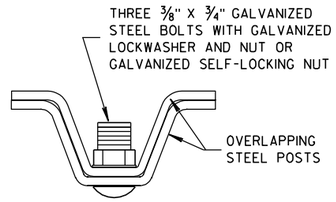


FRONT VIEW
SPLICE DETAIL



MIN. WEIGHT 1.12 LB./FT.

SECTION A-A



SECTION B-B

MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/27/09 — DATE

/S/ Ray Kumapayi — CHIEF SURVEYING AND MAPPING ENGINEER

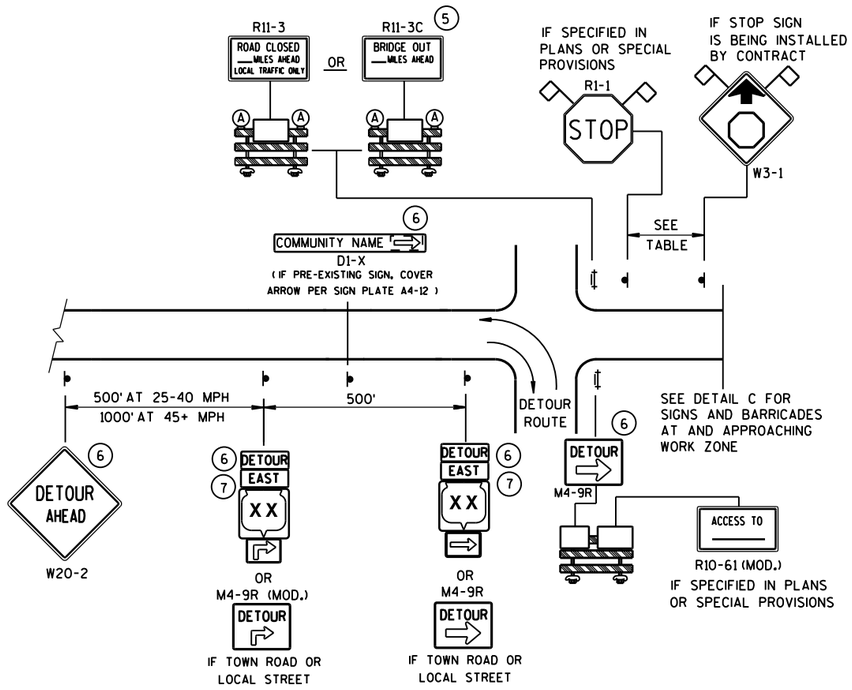
FHWA

6

S.D.D. 15 A 1-11

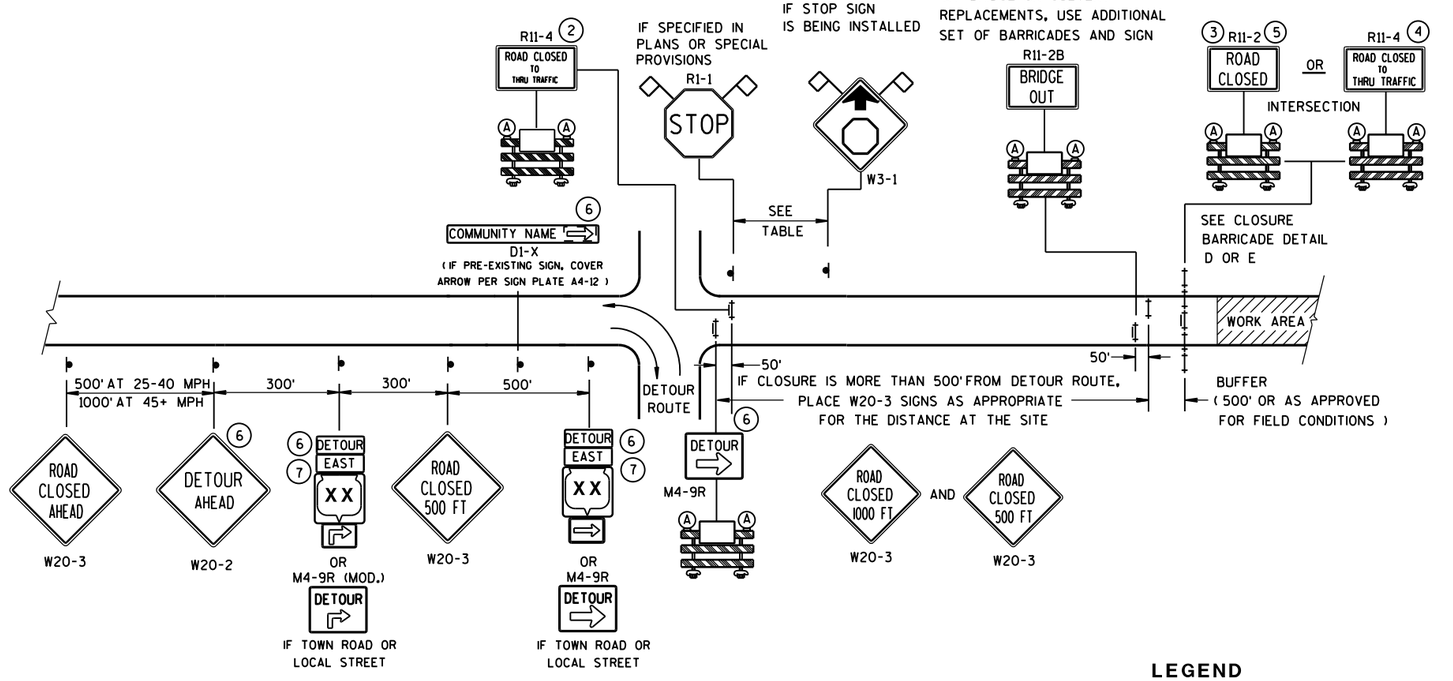
6

S.D.D. 15 A 1-11



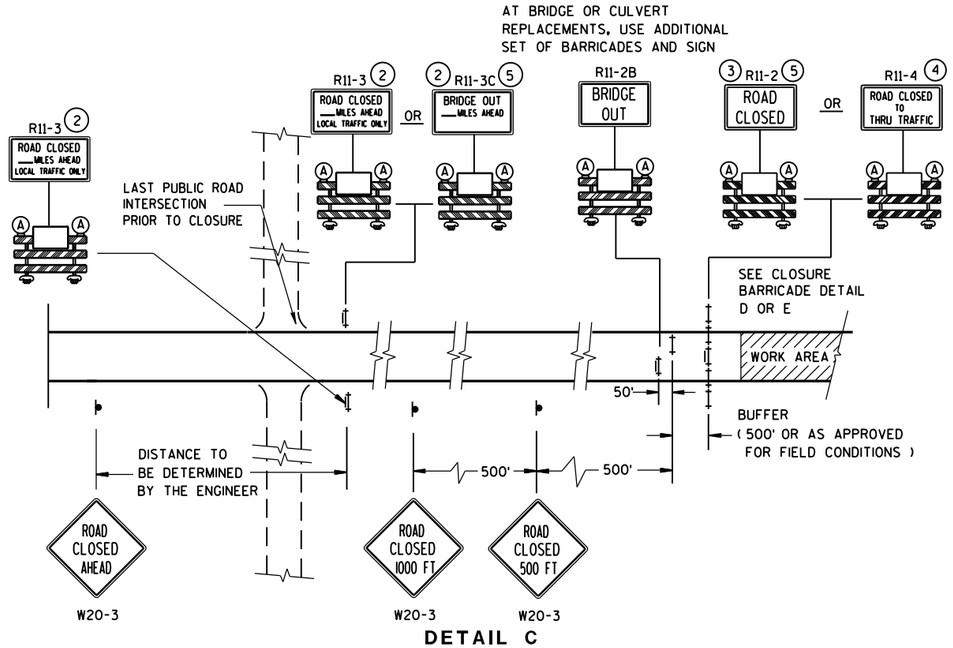
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

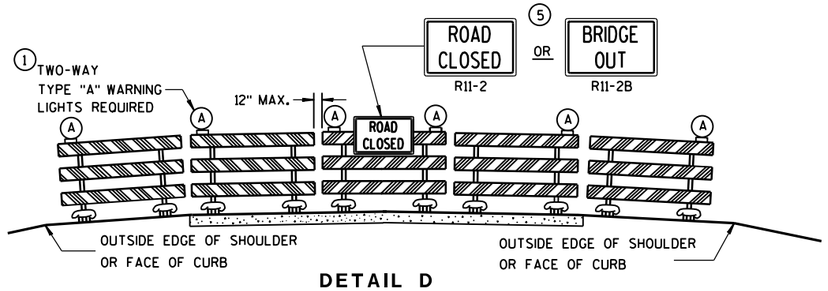
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

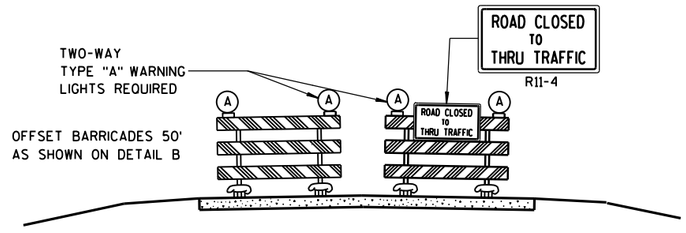
S.D.D. 15 C 2-5a



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.

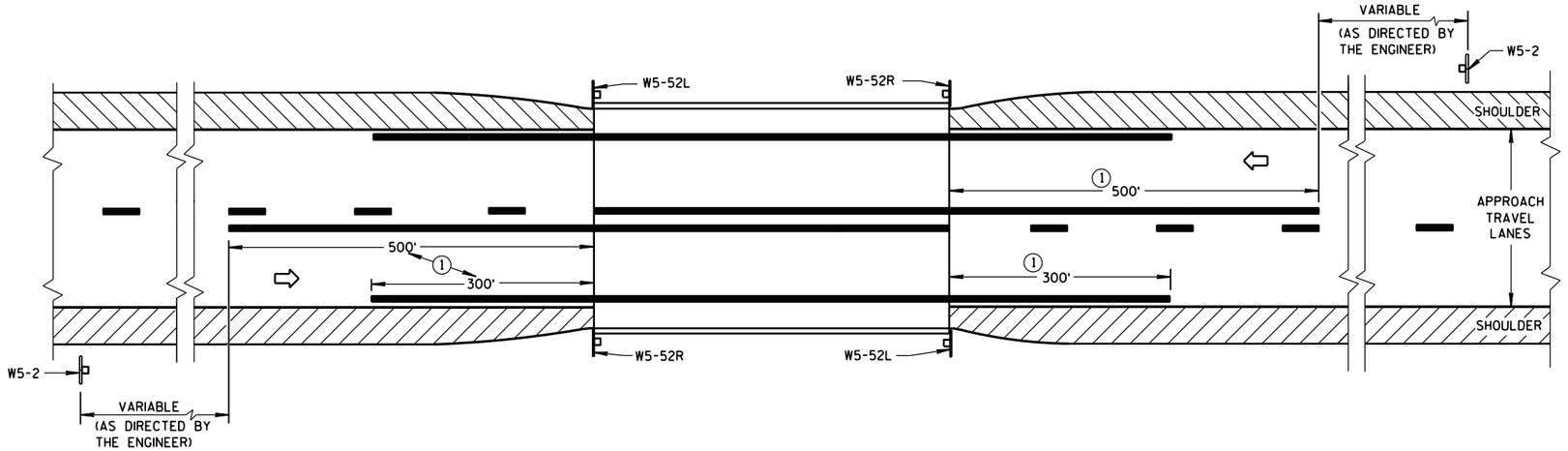
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

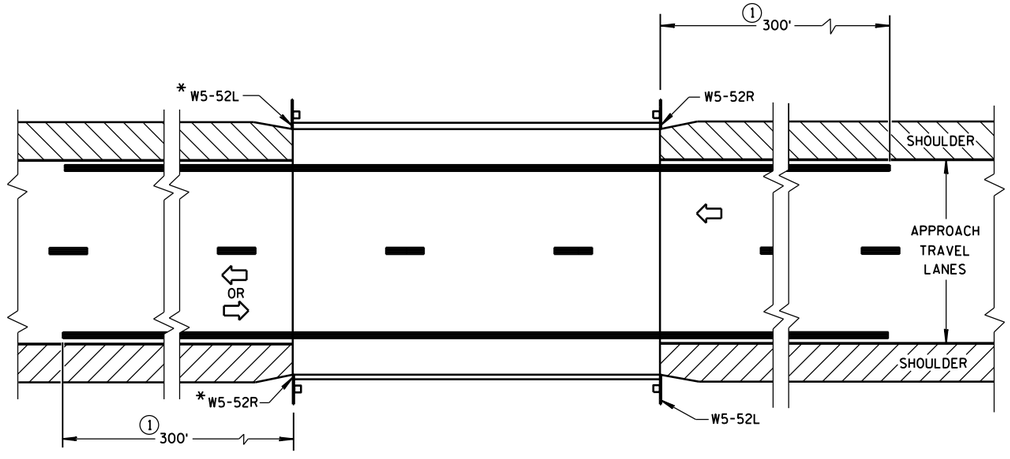
S.D.D. 15 C 2-5b



SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 18 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.

GENERAL NOTES

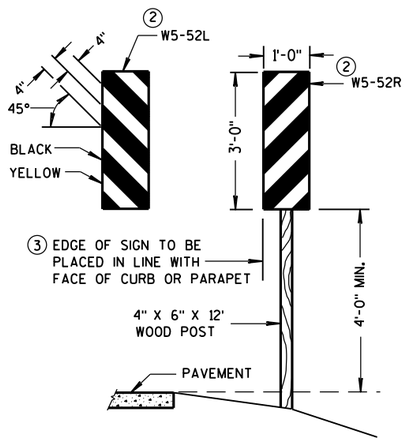
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

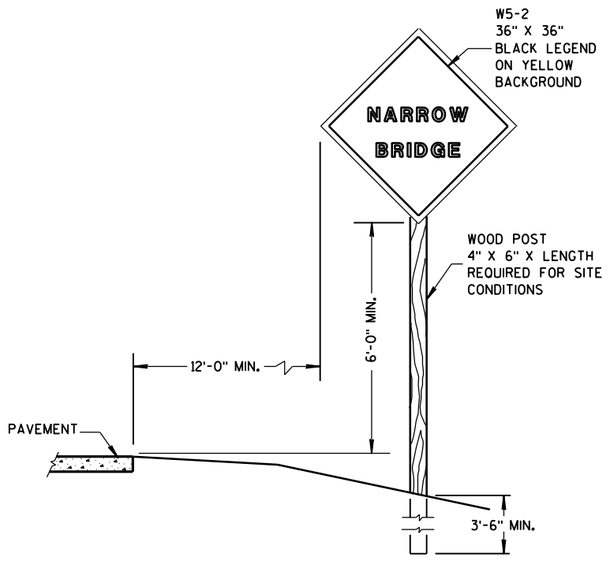
(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(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.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

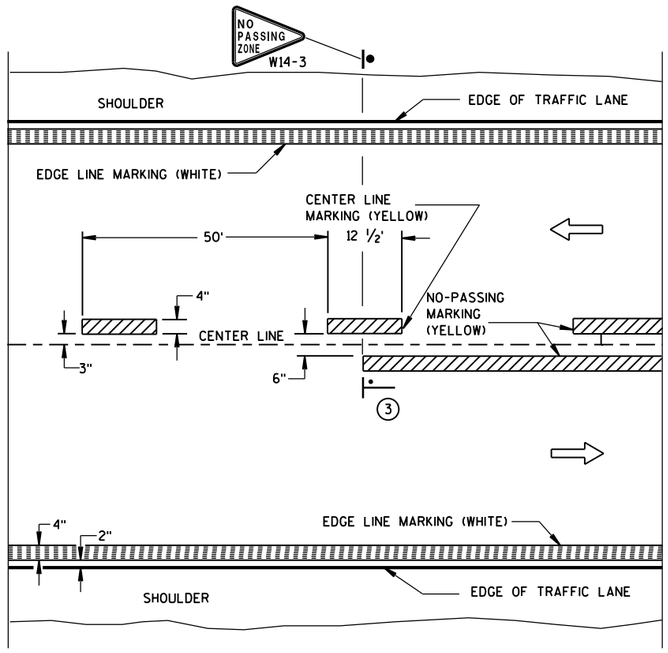
3/4/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

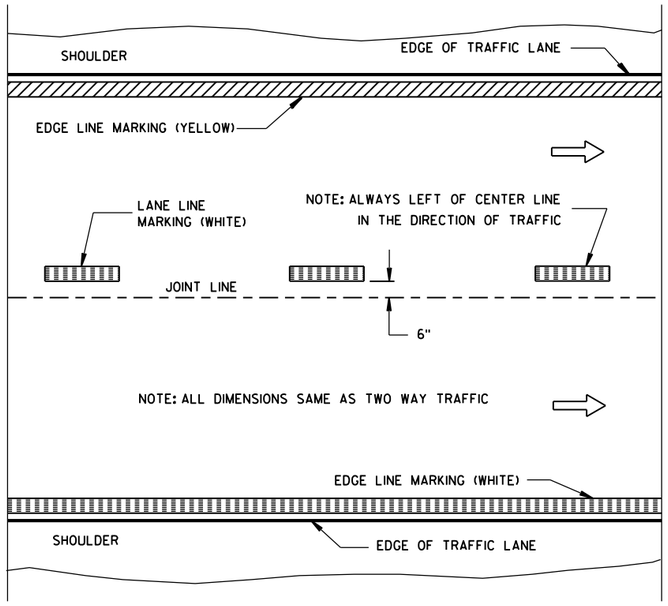
FHWA

6

S.D.D. 15 C 6-6

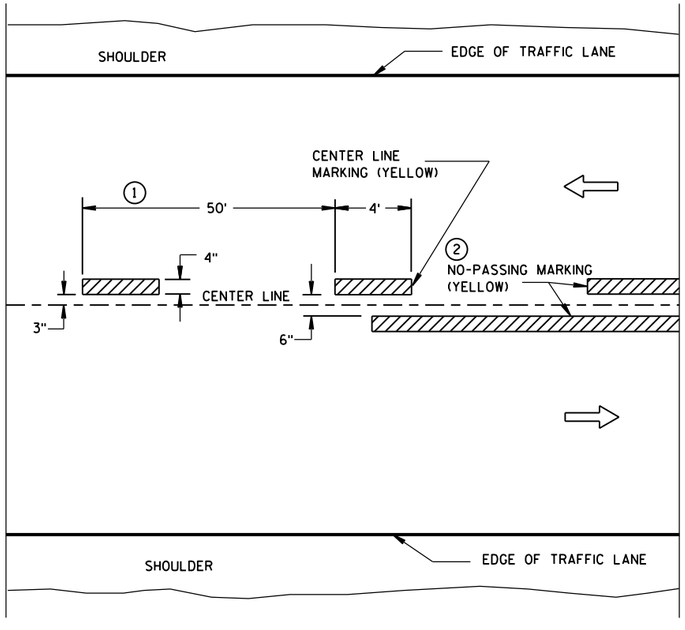


TWO WAY TRAFFIC

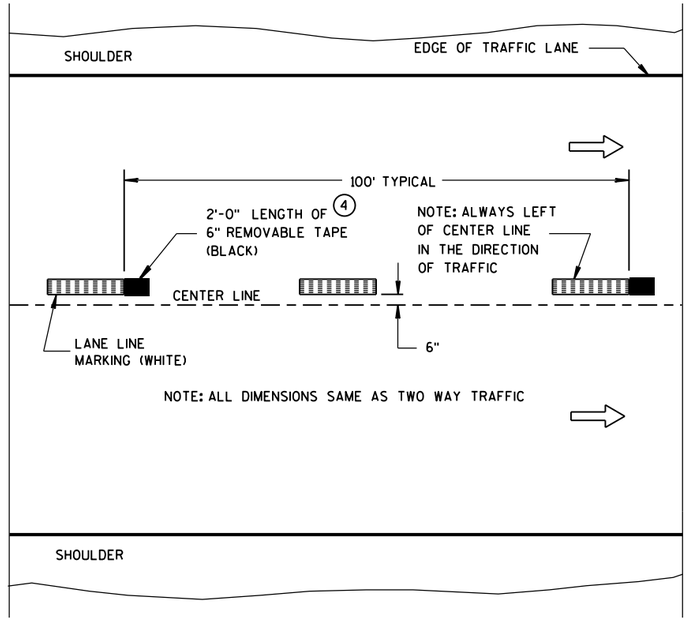


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

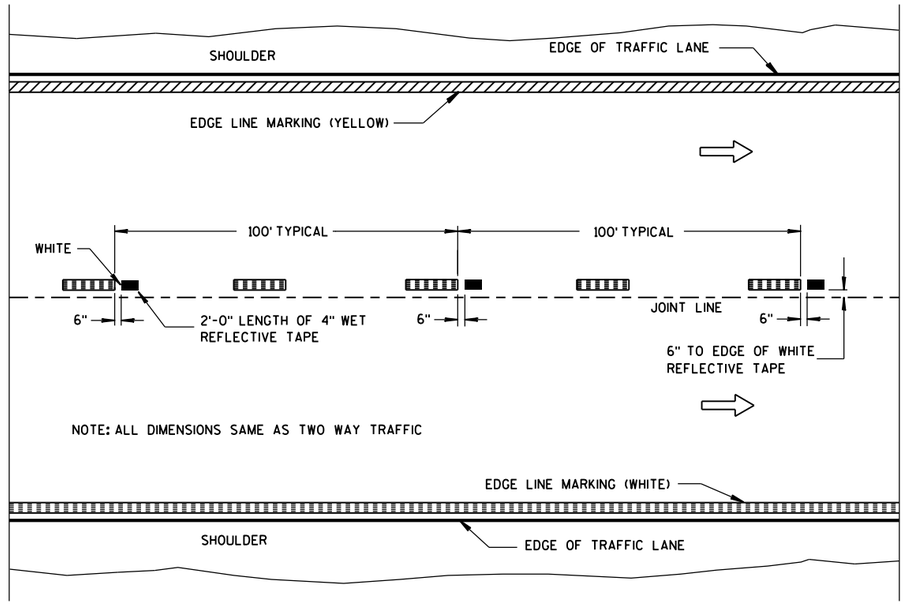
GENERAL NOTES

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

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

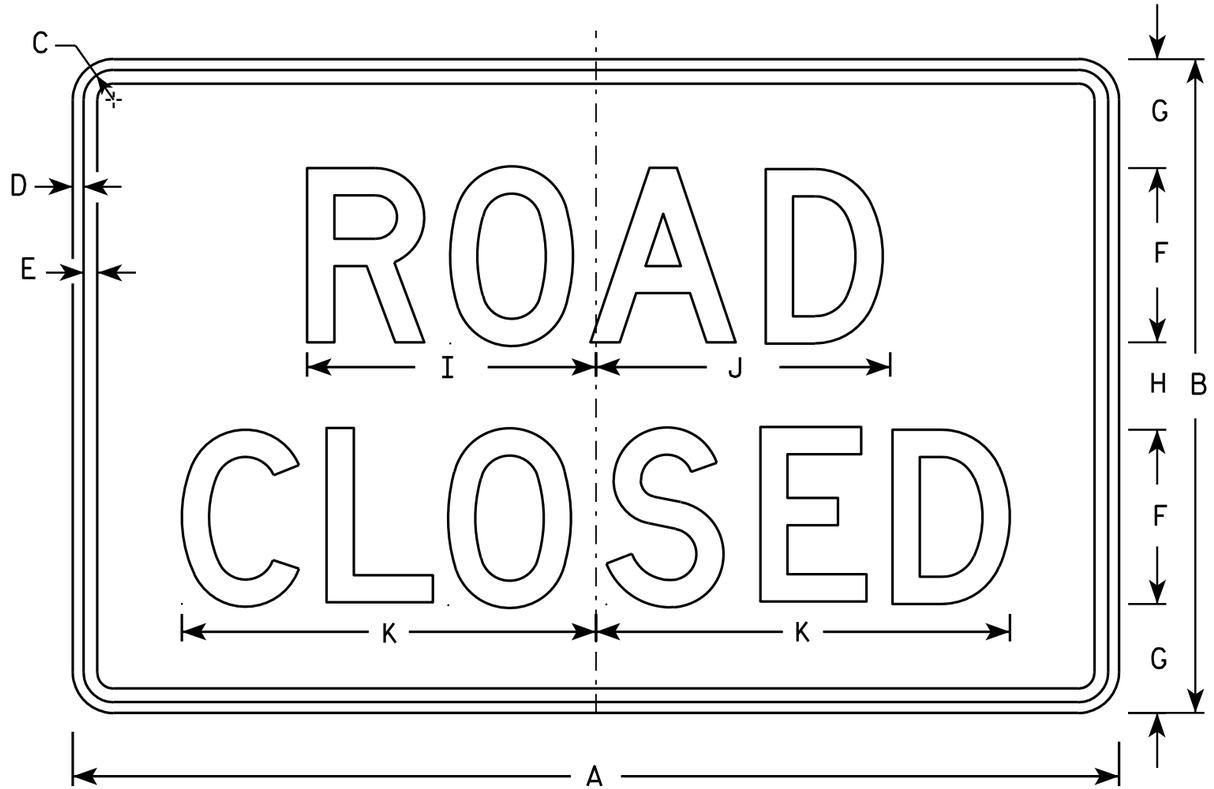
FHWA

6

S.D.D. 15 C 8-16a

6

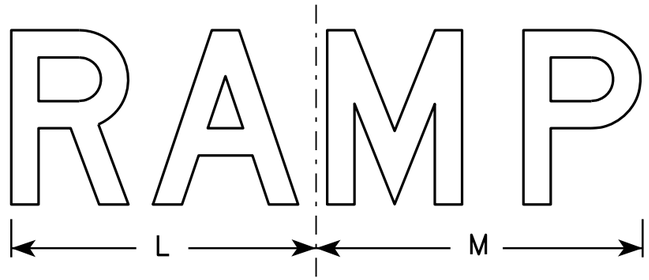
S.D.D. 15 C 8-16a



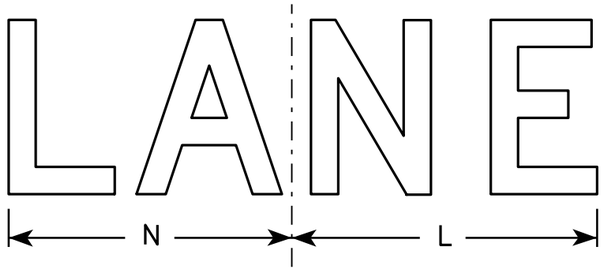
R11-2

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

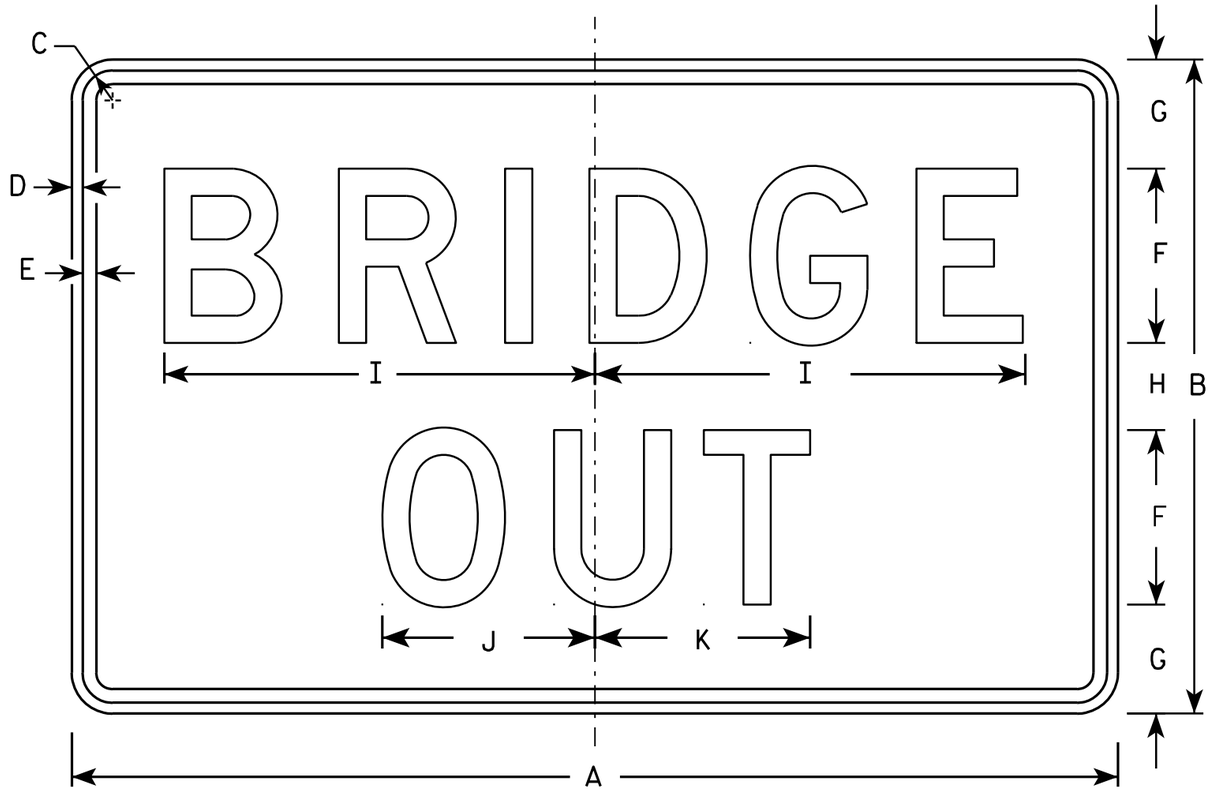
STANDARD SIGN
R11-2

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: 50	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

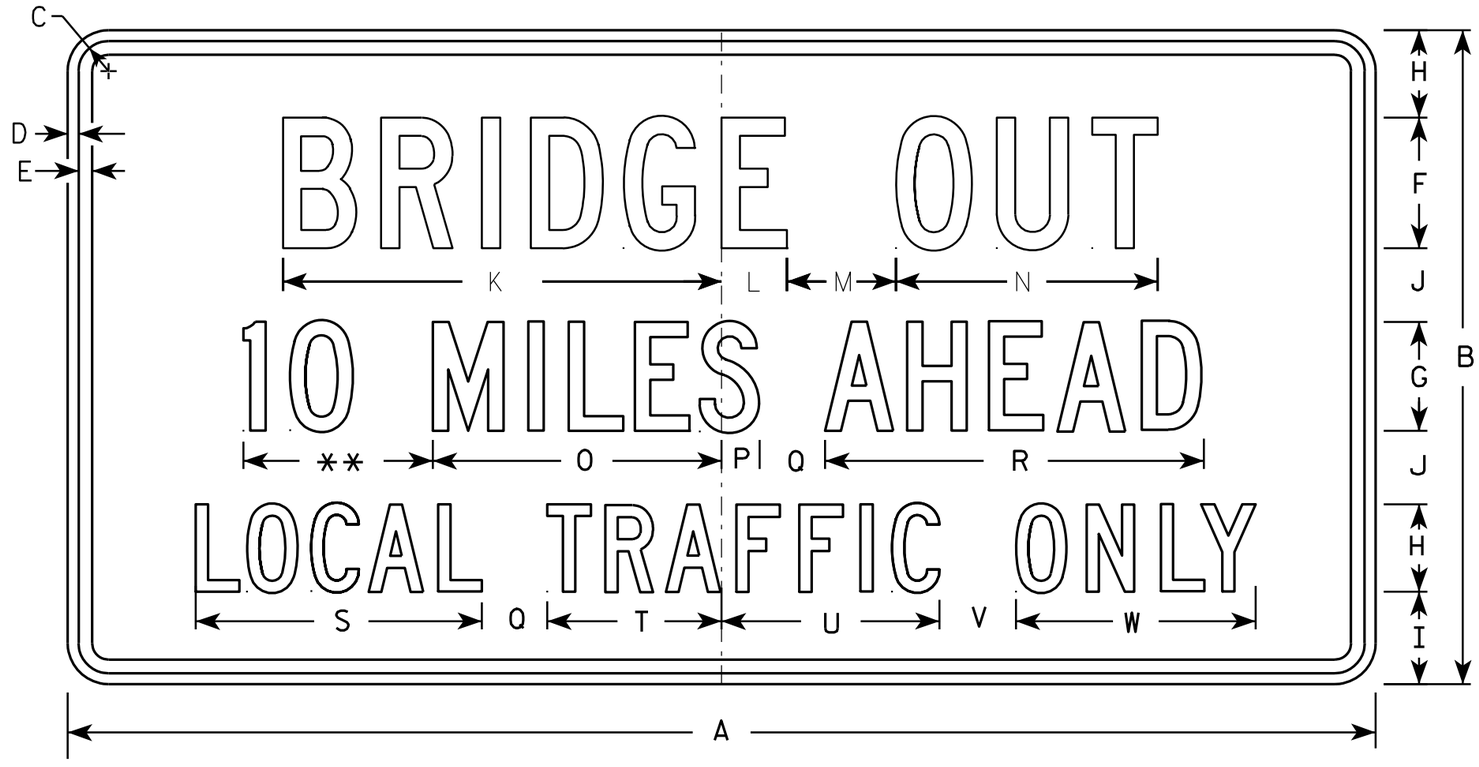
DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO:

SHEET NO: 51 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R112B.DGN PLOT DATE : 01-APR-2011 14:23 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42



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																											

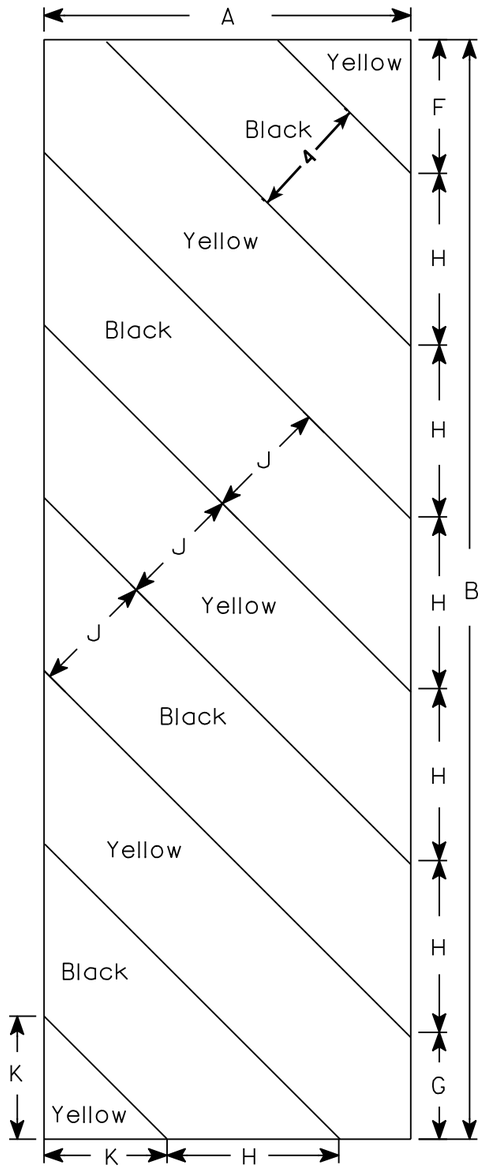
STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

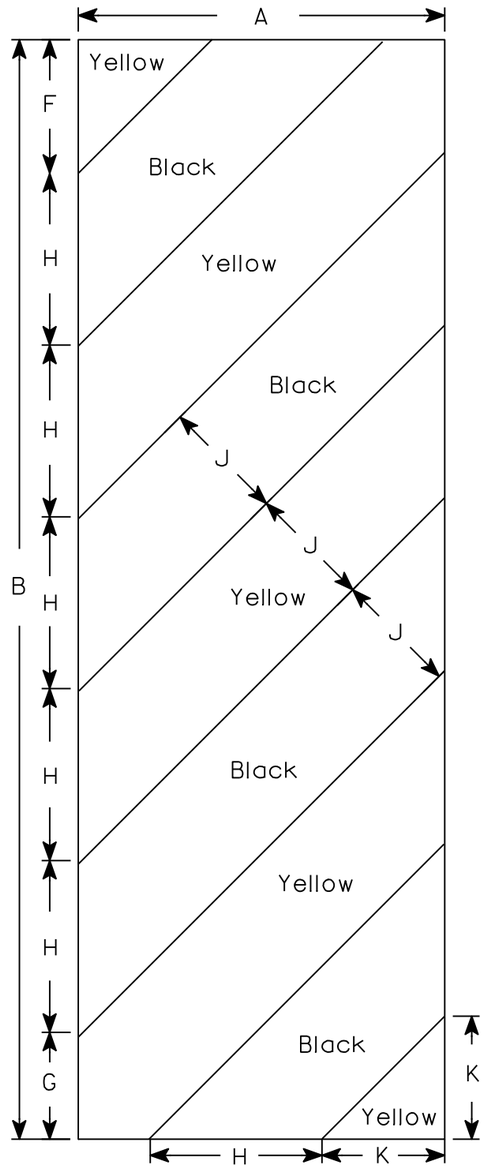
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 52 | 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

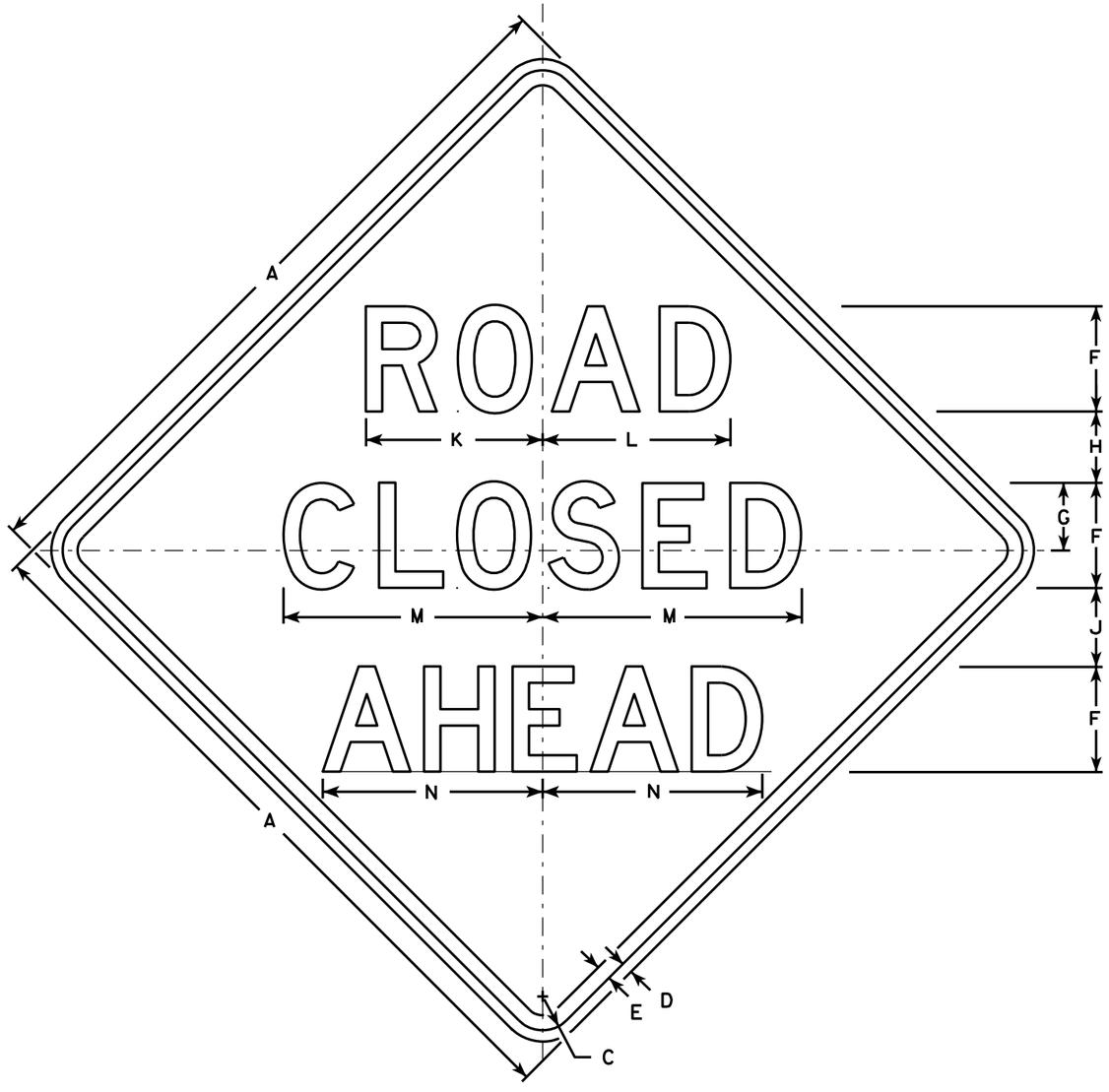
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

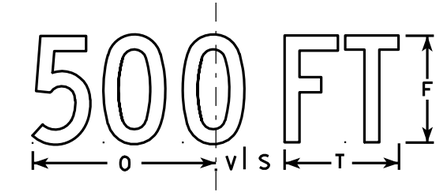
APPROVED Matthew R Rauch
for State Traffic Engineer

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

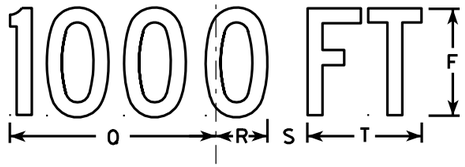
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 53 | E



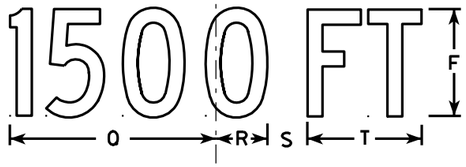
W20-3A



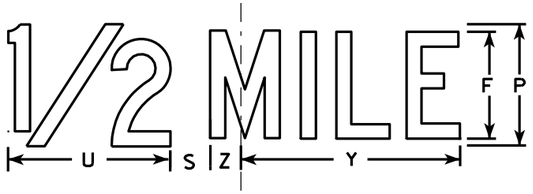
W20-3D



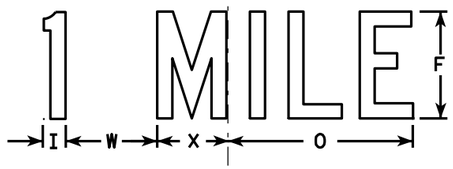
W20-3C



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

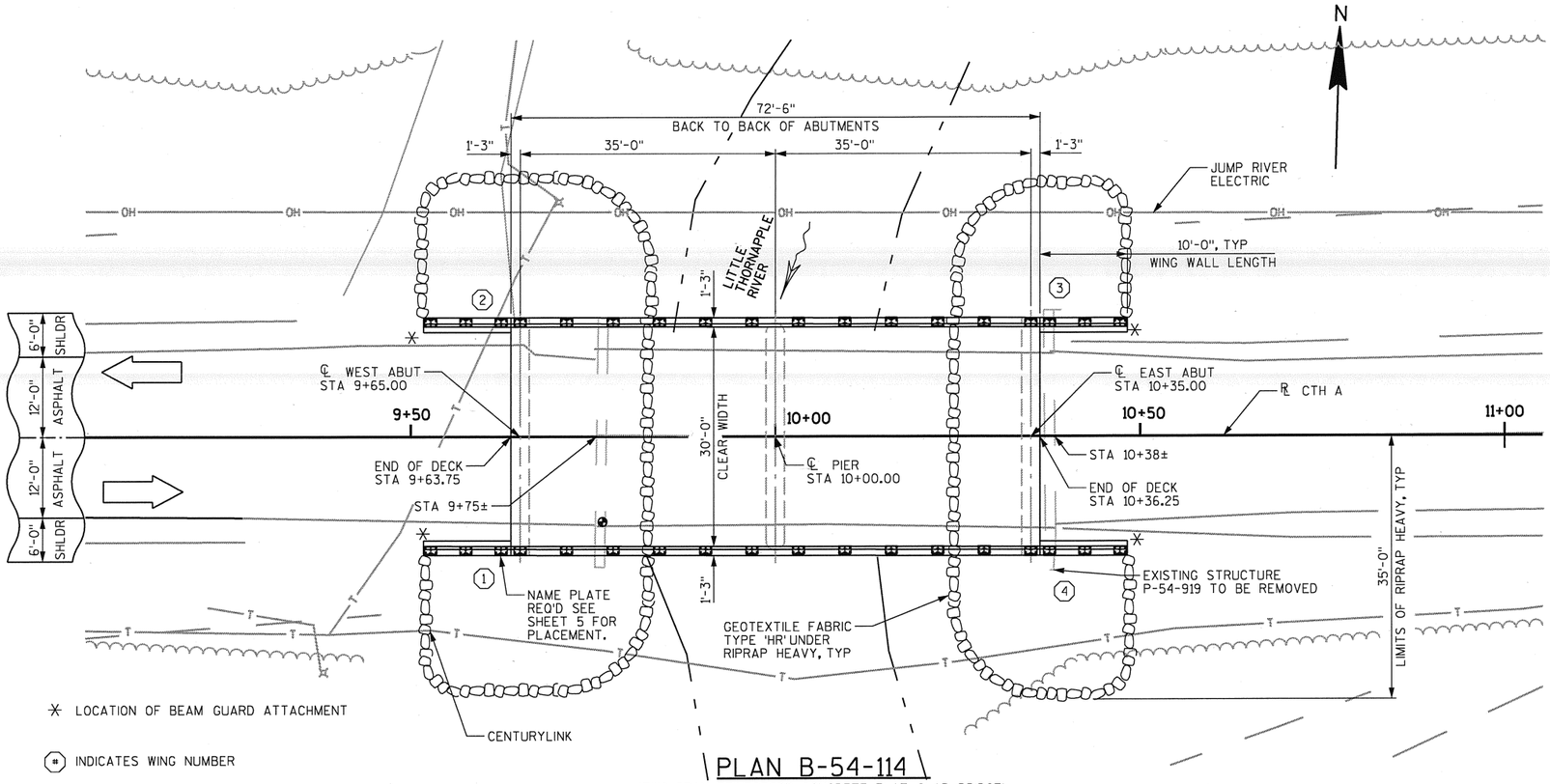
WISCONSIN DEPT OF TRANSPORTATION

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 54 | E

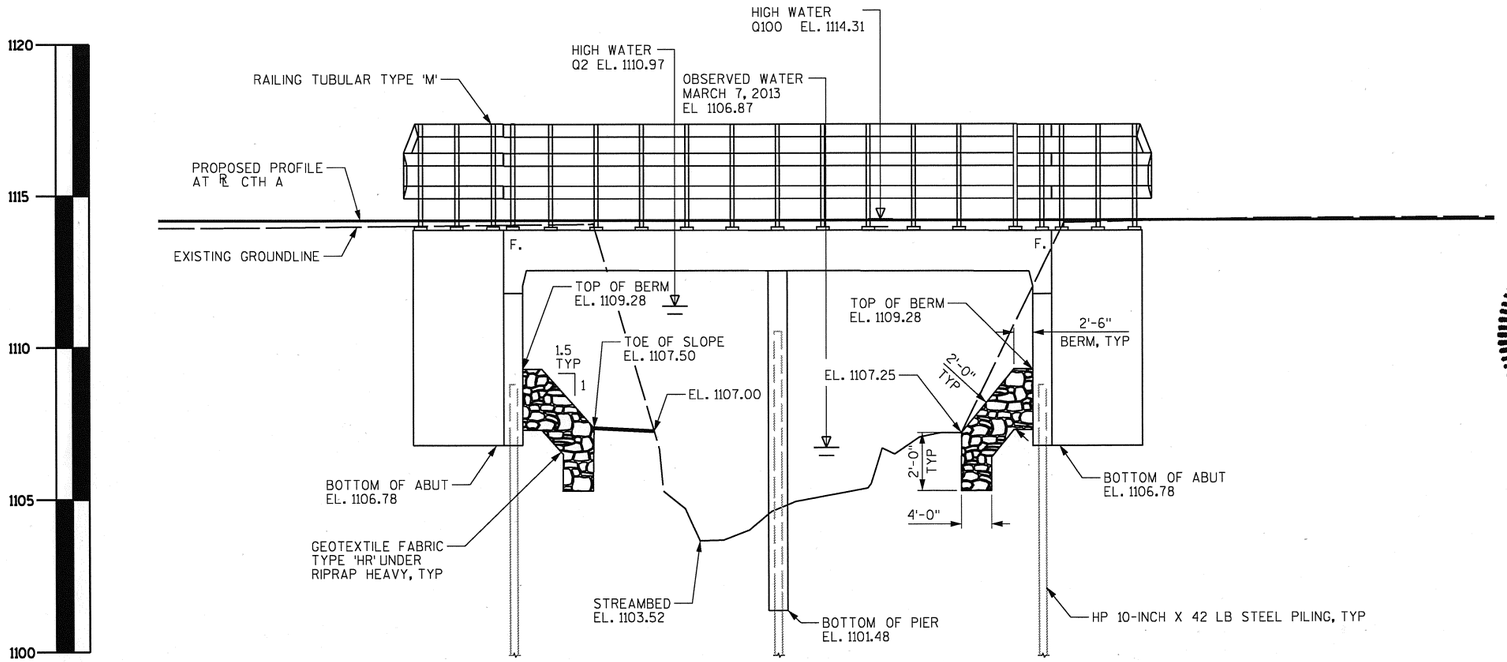
STATE PROJECT NUMBER

8787-00-70



PLAN B-54-114

(TWO-SPAN REINFORCED CONCRETE FLAT SLAB BRIDGE)



ELEVATION

LIVE LOAD:

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	1.25
OPERATING RATING FACTOR	1.62
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY, SLAB	f'c = 4000 psi
ALL OTHER	f'c = 3500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT	fy = 60 ksi

FOUNDATION DATA:

ABUTMENTS AND PIER TO BE SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS * PER PILE AT THE ABUTMENTS AND A REQUIRED DRIVING RESISTANCE OF 170 TONS * PER PILE AT THE PIER AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 40'-0" LONG AT THE ABUTMENTS AND 43'-0" LONG AT THE PIER. PREBORE PIER PILES TO A MINIMUM ELEVATION OF 1067.00.

* 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 DYNAMIC EQUATION TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q_{100}	3440 cfs
Q_{100} BRIDGE	3424 cfs
Q_{100} ROAD	16 cfs
STREAM VELOCITY	8.5 ft/s
HIGH WATER	EL. 1114.31
WATERWAY AREA	403 ft^2
DRAINAGE AREA	32.8 mi^2
SCOUR CRITICAL CODE	5
OVER TOPPING FREQUENCY	75 years

2 YEAR FREQUENCY

Q_2	997 cfs
HIGH WATER	EL. 1110.97

TRAFFIC DATA:

ADT (2014) = 720

ADT (2034) = 1100

DESIGN SPEED = 55 MPH

LIST OF DRAWINGS:

WISCONSIN
MATTHEW J. BUCKLI
E-39849
MADISON
WI
PROFESSIONAL ENGINEER

3/31/14

NO.	DATE	REVISION	BY

Mead & Hunt, Inc.
6501 Watts Road
Madison, WI 53719
608.273.6380
fax: 608.273.6391
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 03/31/14
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-54-114

CTH A OVER LITTLE THORNAPPLE RIVER

COUNTY: RUSK
TOWN/~~CITY/VILLAGE~~: THORNAPPLE

DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	RCP	DESIGN CK'D.	SAL	DRAWN BY	TAV	PLANS CK'D.	GAR

GENERAL PLAN

SHEET 1 OF 11

55

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489

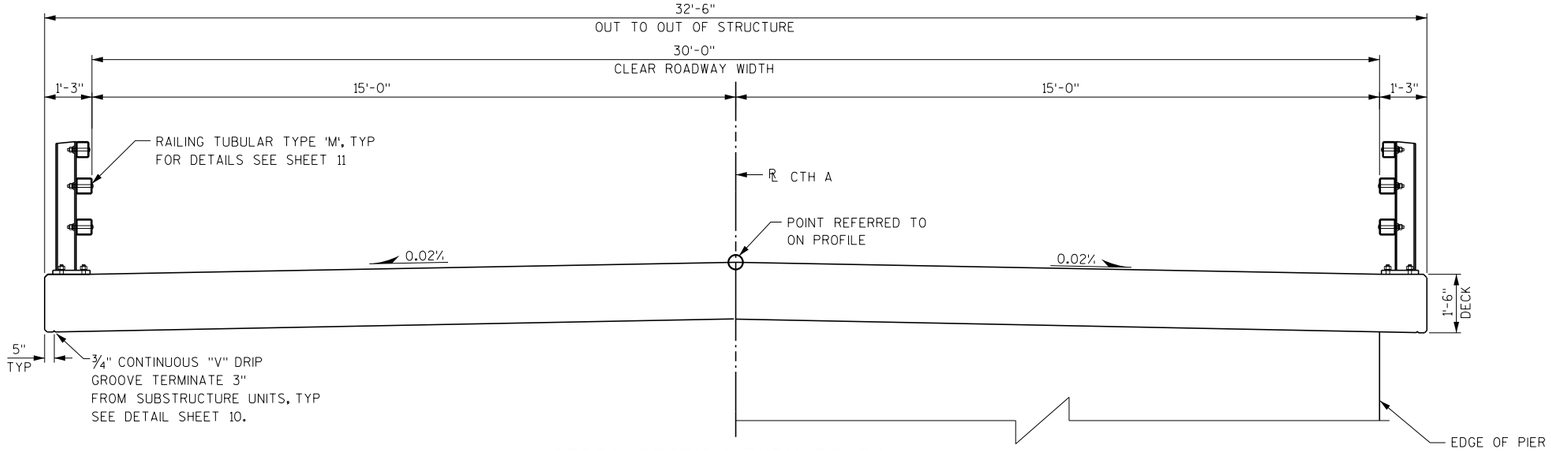
CONSULTANT CONTACT
MATTHEW BUCKLI, P.E.
TELEPHONE: (608) 273-6380

8

8

FILE NAME : X:±2881800±121275.01±TECH±CAD±87870070±Design±structure±080101_gp.dgn PLOT DATE : 3/31/2014

PLOT SCALE : 20.0000 sf / in.

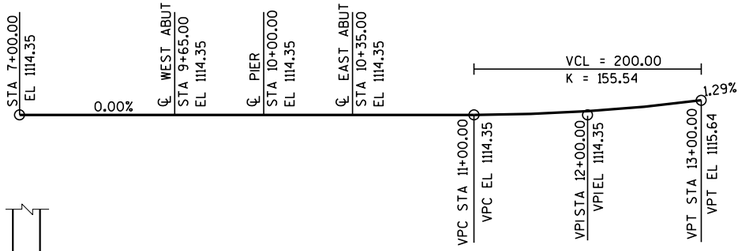


CROSS SECTION THRU ROADWAY

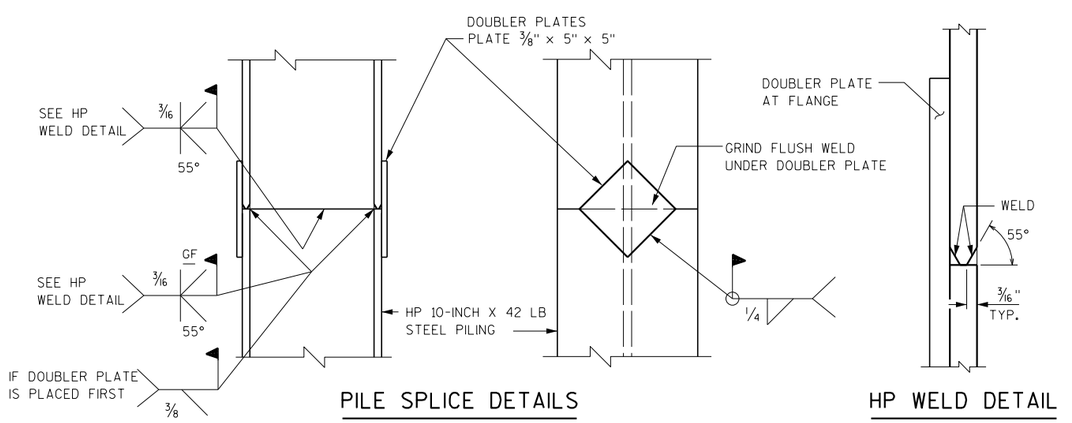
(LOOKING EAST)

★ BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
CP2	9+66	41.3', LT	¾" REBAR	1112.49
CP3	10+76	15.7', RT	¾" REBAR	1113.81
BM100	9+76	11.6', RT	PAINTED SQUARE ON CONCRETE DECK SW CORNER OF BRIDGE	1114.28



PROFILE GRADE LINE, ℄ CTH A



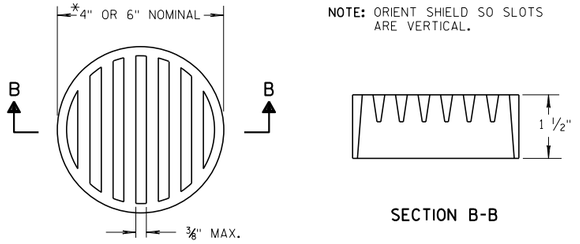
PILE SPLICE DETAILS

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	W ABUT	E ABUT	PIER	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS, STA 10+00	LS	---	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (B-54-114)	LS	---	---	---	---	1
210.0100	BACKFILL STRUCTURE	CY	70	70	---	---	140
502.0100	CONCRETE MASONRY BRIDGES	CY	30	30	32	136	228
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	---	303	303
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	1830	1830	1490	---	5150
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1370	1370	---	29910	32650
513.4060	RAILING TUBULAR TYPE M (B-54-114)	LS	---	---	---	1	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	---	---	20
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	---	---	49	---	49
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	---	---	193	---	193
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	200	200	301	---	701
606.0300	RIPRAP HEAVY	CY	85	85	---	---	170
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	25	25	---	---	50
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	46	46	---	---	92
645.0120	GEOTEXTILE FABRIC TYPE 'HR'	SY	170	170	---	---	340
	NON BID ITEMS						
	FILLER	SIZE					1/2" & 3/4"



SECTION B-B

② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

② 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 OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

GENERAL NOTES

STATE PROJECT NUMBER

8787-00-70

DRAWINGS SHALL NOT BE SCALED.

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

THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC, TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

AT THE BACKFACE OF ABUTMENT ALL EXCAVATED VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE EXISTING STRUCTURE IS A 63.0' LONG BY 24.1' CLEAR ROADWAY WIDTH, SINGLE-SPAN STEEL DECK GIRDER STRUCTURE (P-54-919).

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

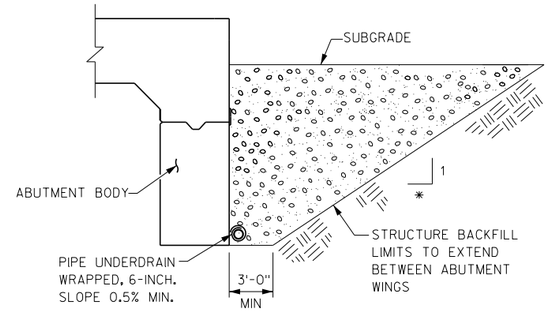
ALL STATIONS AND ELEVATIONS ARE IN FEET.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

★ ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE LIMITS SHOWN IN THE DETAIL ON THIS SHEET 10.



STRUCTURE BACKFILL AND PIPE UNDERDRAIN DETAIL

(TYPICAL AT BOTH ABUTMENTS)

* OSHA MINIMUM REQUIREMENT, A SLOPE OF 1.5:1 WAS USED FOR QUANTITY CALCULATIONS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY TAV | PLANS CK'D. GAR

CROSS SECTION, GENERAL NOTES & QUANTITIES

SHEET 7 OF 11

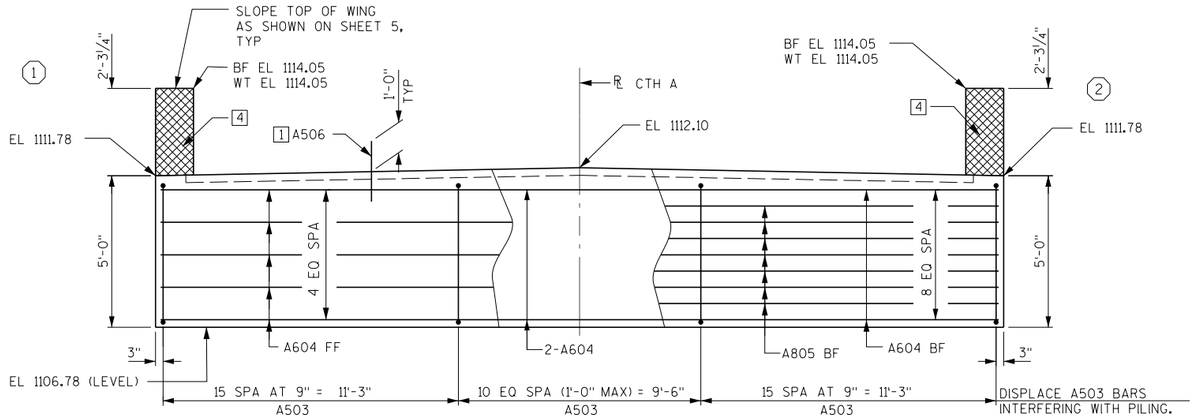
56

8

8

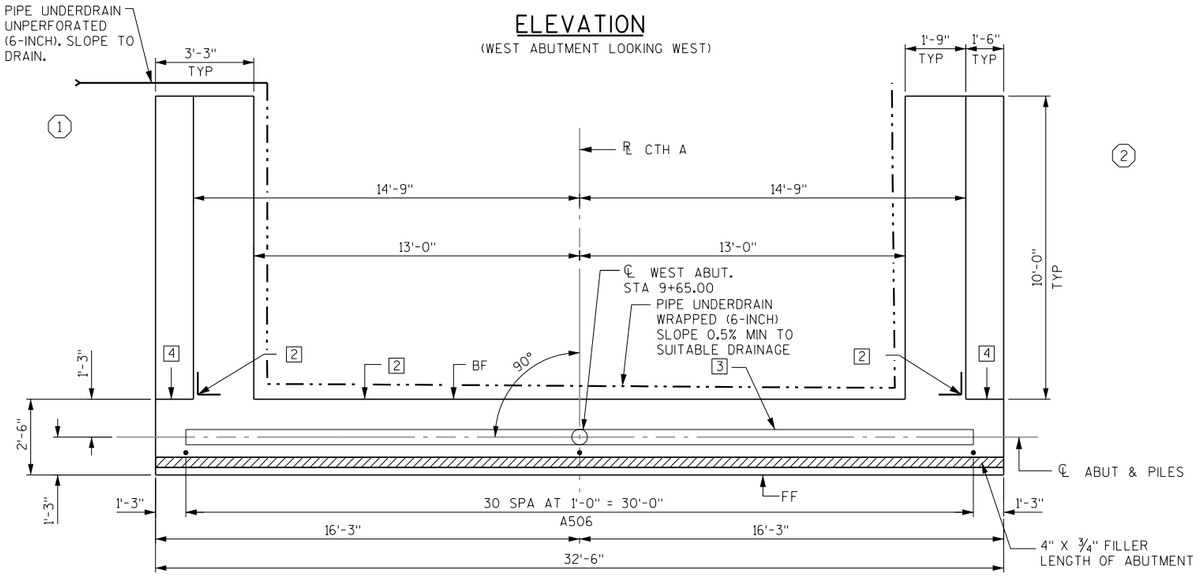
STATE PROJECT NUMBER

8787-00-70

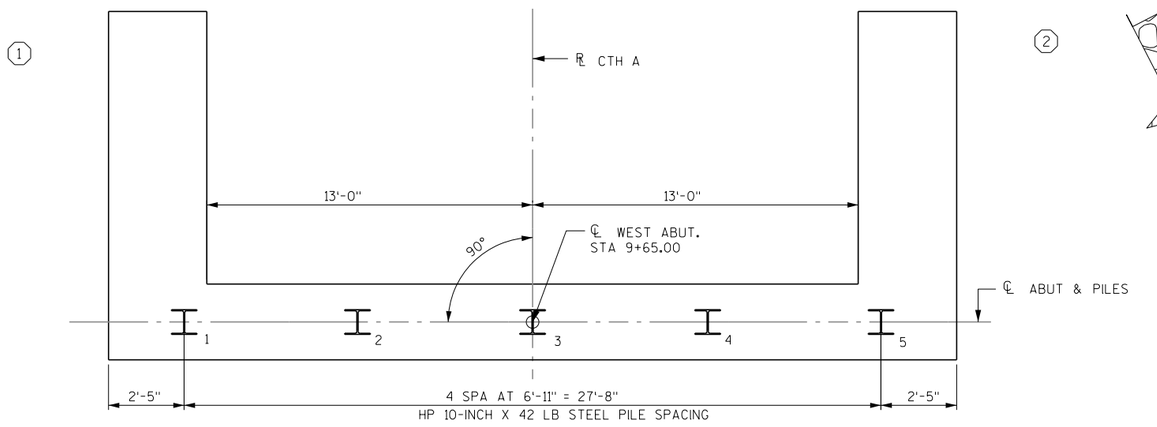


ELEVATION

(WEST ABUTMENT LOOKING WEST)



PLAN



PILE PLAN

NOTES

FOR PILE SPLICE SEE SHEET 2

FILL/EXCAVATE TO BOTTOM OF ABUTMENT EL 1106.78 BEFORE DRIVING PILING.

SEE SHEET 2 FOR STRUCTURE BACKFILL AND PIPE UNDERDRAIN DETAIL.

ABUTMENT SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 40' LONG.

1 A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INTIAL SETTING HAS TAKEN PLACE.

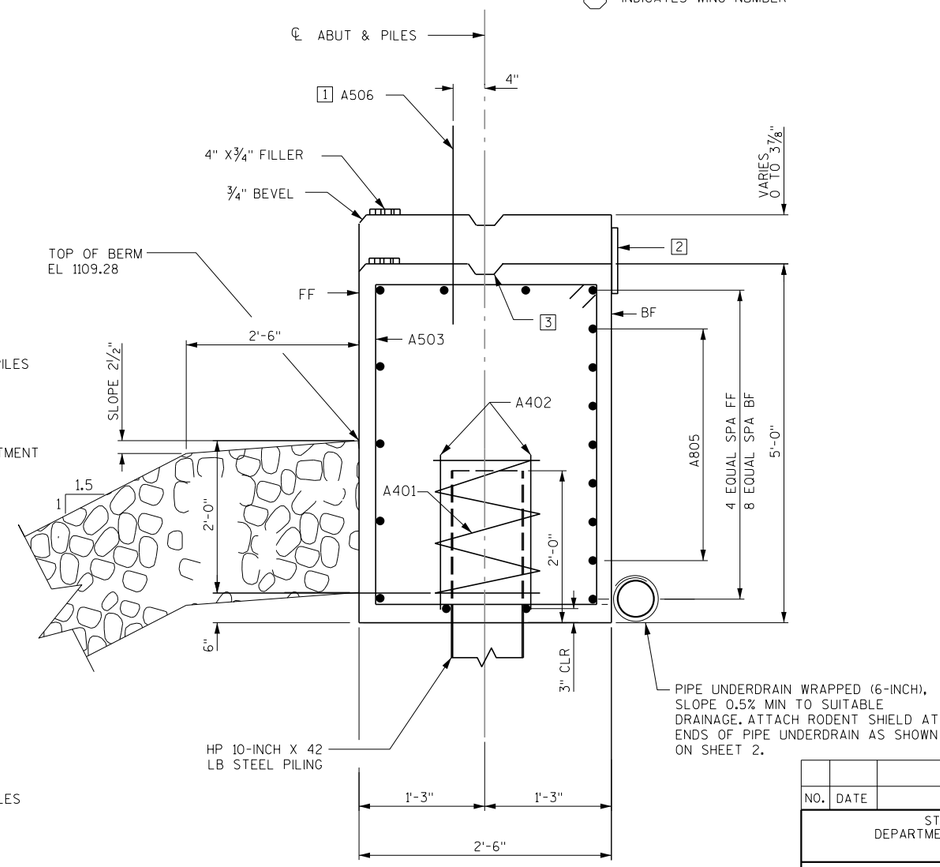
2 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. EXTEND FROM BRIDGE SEAT TO TOP OF WING.

3 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY. TERMINATE 1'-0" FROM ABUTMENT ENDS.

4 ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH. 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

FF - FRONT FACE
BF - BACK FACE
WT - WING TIP

(#) INDICATES WING NUMBER



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE A604 BARS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY TAV | PLANS CK'D. GAR

WEST ABUTMENT

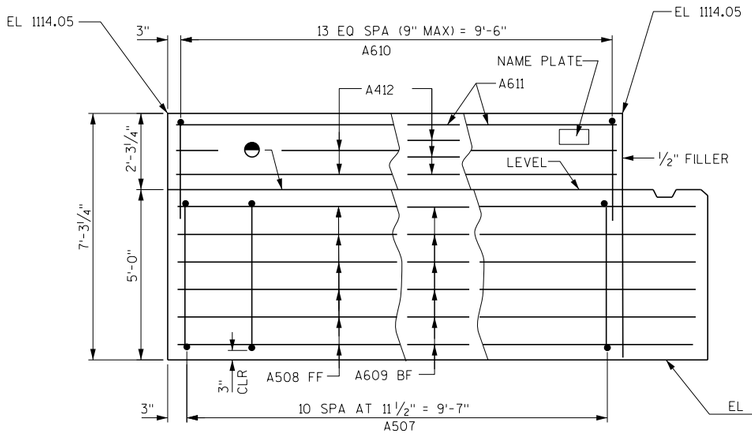
SHEET 4 OF 11
57

8

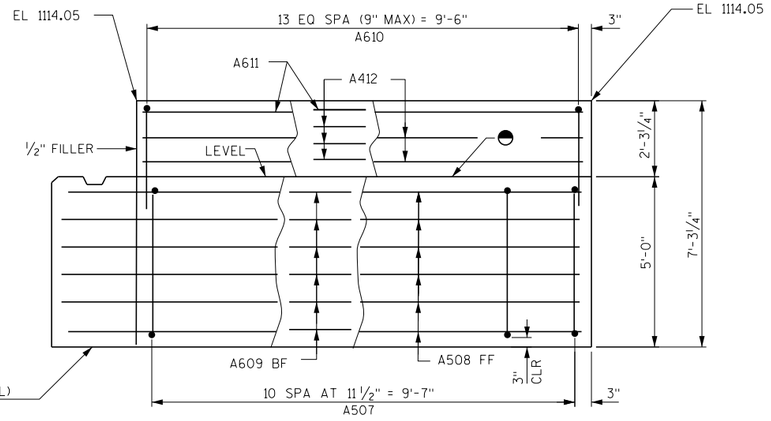
8

STATE PROJECT NUMBER

8787-00-70



WING 1 ELEVATION



WING 2 ELEVATION

BILL OF BARS
WEST ABUTMENT

COATED= 1370 LBS.
UNCOATED= 1830 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT. - IN.	BENT	BAR SERIES	LOCATION	
A 4 01		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
A 4 02		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
A 5 03		41	13 - 7	X		ABUTMENT BODY	VERT
A 6 04		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORI
A 8 05		7	32 - 2			ABUTMENT BODY - BF	HORI
A 5 06	31		2 - 0			ABUTMENT BODY - DOWELS	VERT
A 5 07	22		15 - 3	X		WING WALL - BODY	VERT
A 5 08	12		12 - 2			WING WALL - FF OF BODY	HORI
A 6 09	16		11 - 11			WING WALL - BODY	HORI
A 6 10	28		9 - 2	X		WING WALL - TOP	VERT
A 6 11	4		9 - 7			WING WALL - TOP	HORI
A 4 12	10		9 - 7			WING WALL - TOP	HORI

ALL REINFORCING BARS ARE ENGLISH.

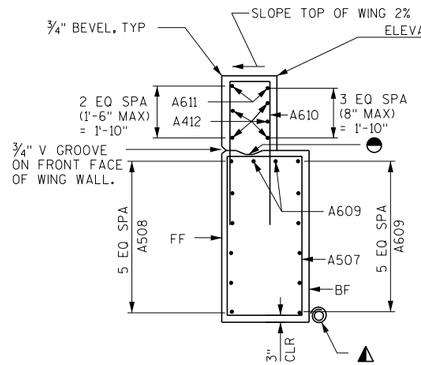
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

FF - FRONT FACE
BF - BACK FACE

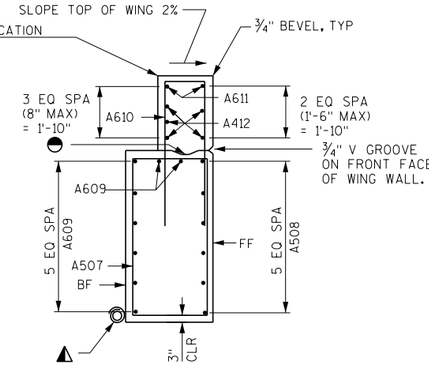
◓ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY, WITH MEMBRANE ON BACKFACE.

⚠ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN TO SUITABLE DRAINAGE.



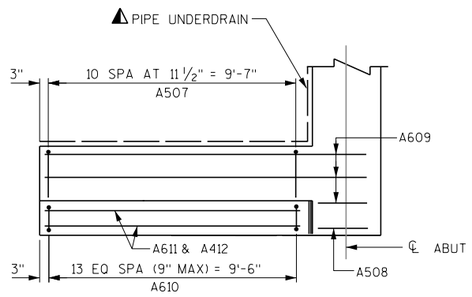
WING 1 SECTION

SEE SHEET 11 FOR RAIL POST ANCHORS.



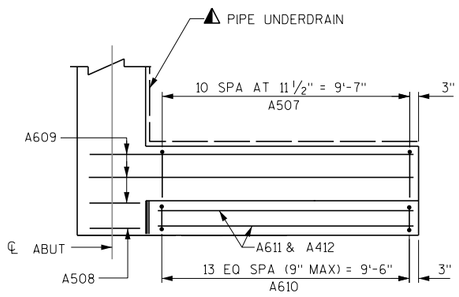
WING 2 SECTION

SEE SHEET 11 FOR RAIL POST ANCHORS.



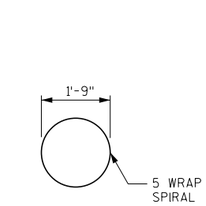
WING 1 PLAN

SPACE A610 TO MISS ANCHORS FOR RAIL POSTS.



WING 2 PLAN

SPACE A610 TO MISS ANCHORS FOR RAIL POSTS.



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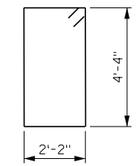

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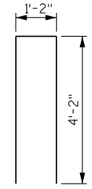

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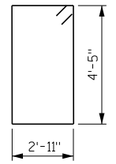

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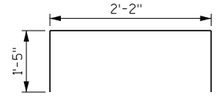

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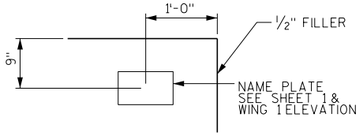

NAME PLATE LOCATION

ON WING 1

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY TAV | PLANS CK'D. GAR

WEST ABUTMENT DETAILS

SHEET 5 OF 11
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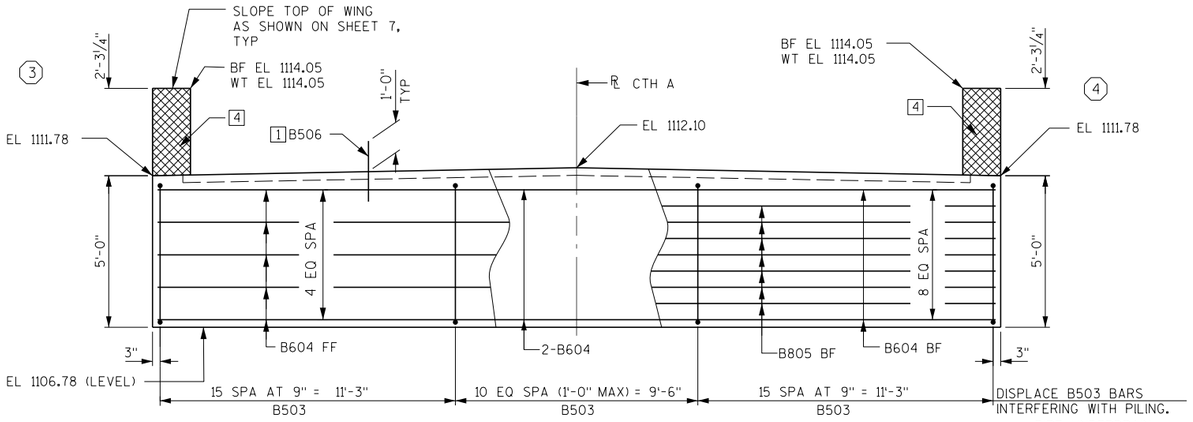
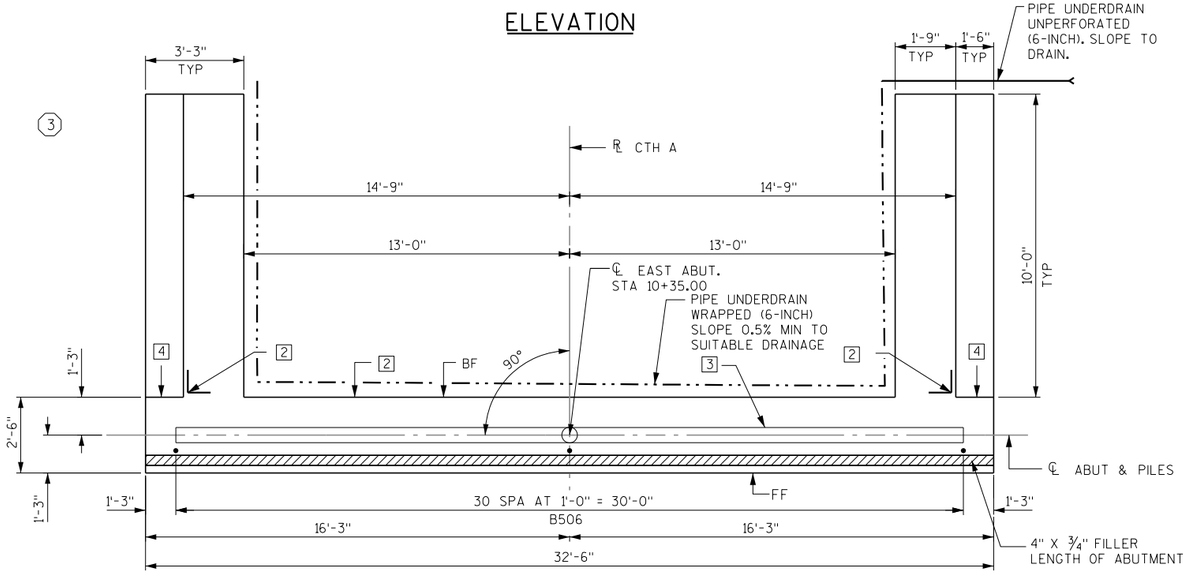
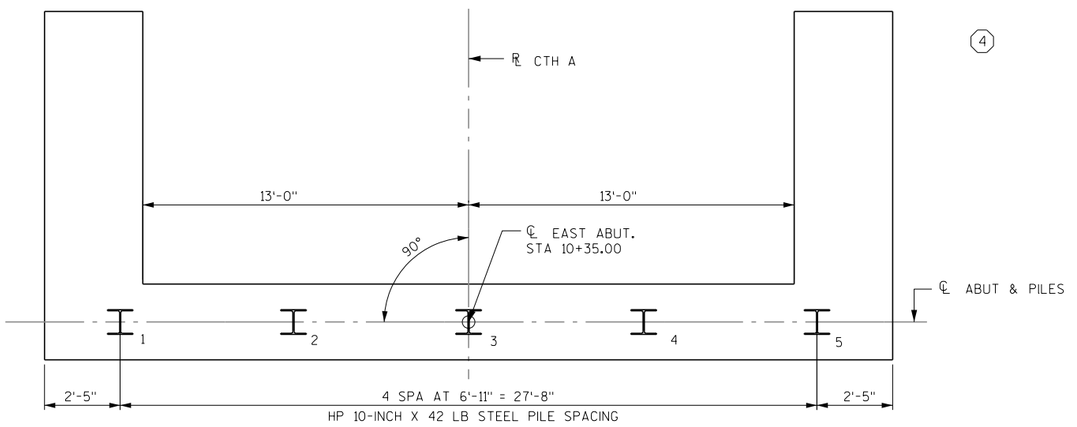


ELEVATION



PLAN



PILE PLAN

NOTES

FOR PILE SPLICE SEE SHEET 2

FILL/EXCAVATE TO BOTTOM OF ABUTMENT EL 1106.78 BEFORE DRIVING PILING.

SEE SHEET 2 FOR STRUCTURE BACKFILL AND PIPE UNDERDRAIN DETAIL.

ABUTMENT SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 40' LONG.

1 B506 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INTIAL SETTING HAS TAKEN PLACE.

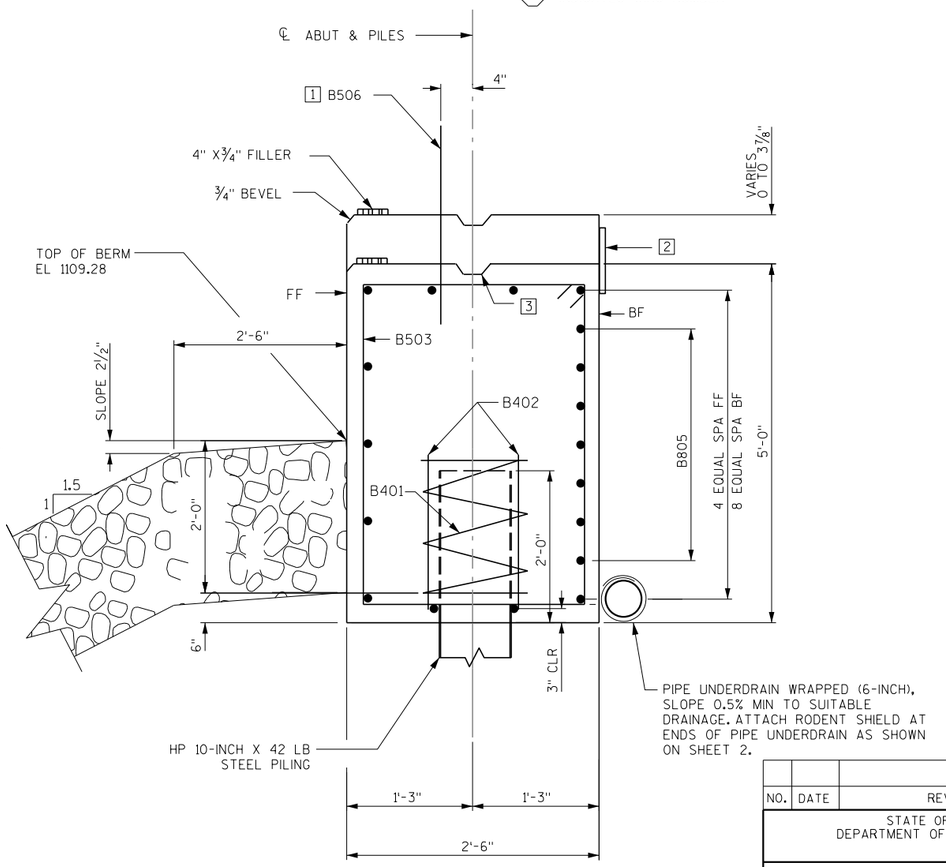
2 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. EXTEND FROM BRIDGE SEAT TO TOP OF WING.

3 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY. TERMINATE 1'-0" FROM ABUTMENT ENDS.

4 1/2" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZONTIAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

FF - FRONT FACE
BF - BACK FACE
WT - WING TIP

(#) INDICATES WING NUMBER



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE B604 BARS.

STATE PROJECT NUMBER

8787-00-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY TAV | PLANS CK'D. GAR

EAST ABUTMENT

SHEET 6 OF 11
59

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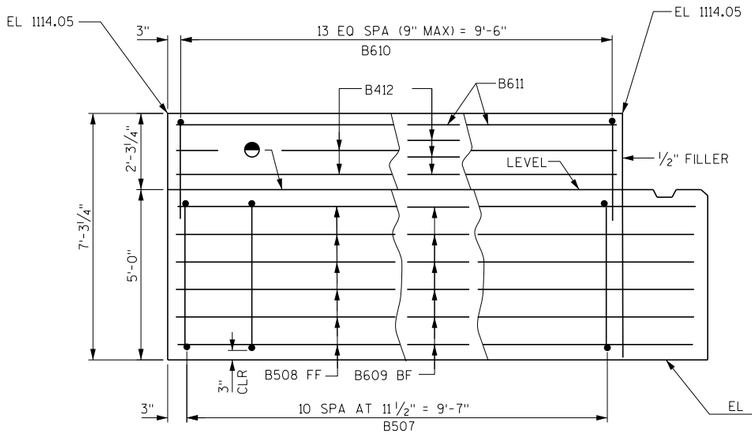
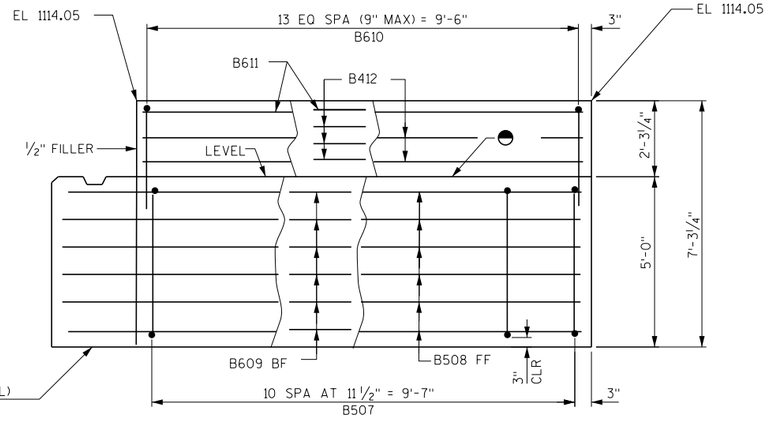
STATE PROJECT NUMBER

8787-00-70



WING 3 ELEVATION



WING 4 ELEVATION

BILL OF BARS
EAST ABUTMENT

COATED= 1370 LBS.
UNCOATED= 1830 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT. - IN.	BENT	BAR SERIES	LOCATION	
B 4 01		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
B 4 02		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
B 5 03		41	13 - 7	X		ABUTMENT BODY	VERT
B 6 04		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORI
B 8 05		7	32 - 2			ABUTMENT BODY - BF	HORI
B 5 06	31		2 - 0			ABUTMENT BODY - DOWELS	VERT
B 5 07	22		15 - 3	X		WING WALL - BODY	VERT
B 5 08	12		12 - 2			WING WALL - FF OF BODY	HORI
B 6 09	16		11 - 11			WING WALL - BODY	HORI
B 6 10	28		9 - 2	X		WING WALL - TOP	VERT
B 6 11	4		9 - 7			WING WALL - TOP	HORI
B 4 12	10		9 - 7			WING WALL - TOP	HORI

ALL REINFORCING BARS ARE ENGLISH.

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

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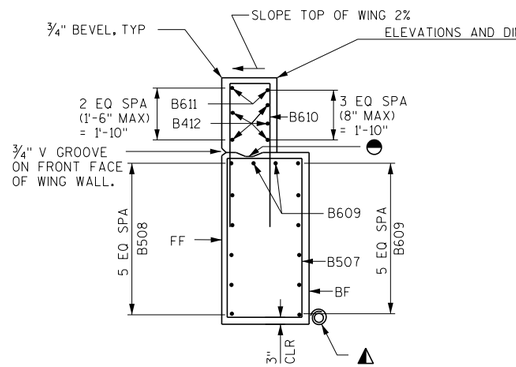
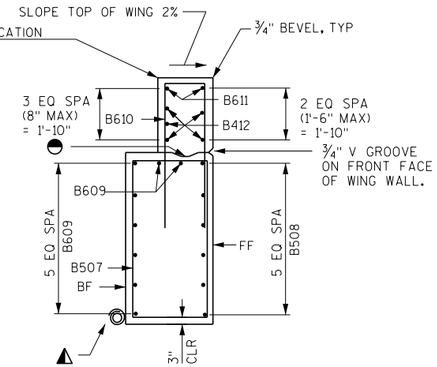
◓ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY, WITH MEMBRANE ON BACKFACE.

⚠ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN TO SUITABLE DRAINAGE.



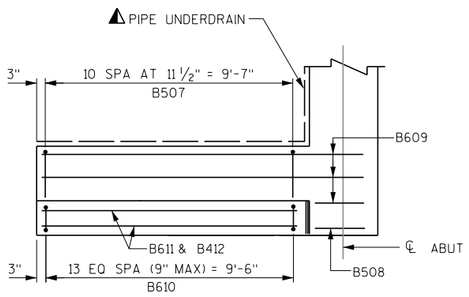
WING 3 SECTION

SEE SHEET 11 FOR RAIL POST ANCHORS.



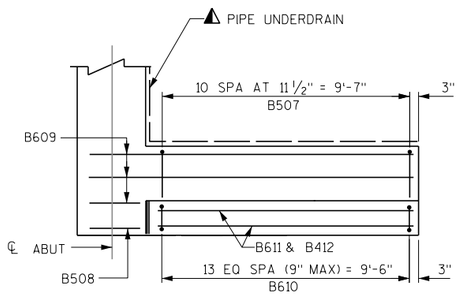
WING 4 SECTION

SEE SHEET 11 FOR RAIL POST ANCHORS.



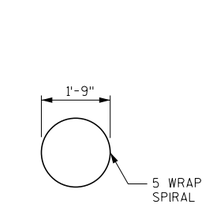
WING 3 PLAN

SPACE B610 TO MISS ANCHORS FOR RAIL POSTS.



WING 4 PLAN

SPACE B610 TO MISS ANCHORS FOR RAIL POSTS.



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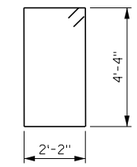

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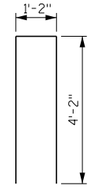

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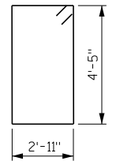

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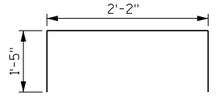

B513

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY TAV | PLANS CK'D. GAR

EAST ABUTMENT DETAILS

SHEET 7 OF 11
60

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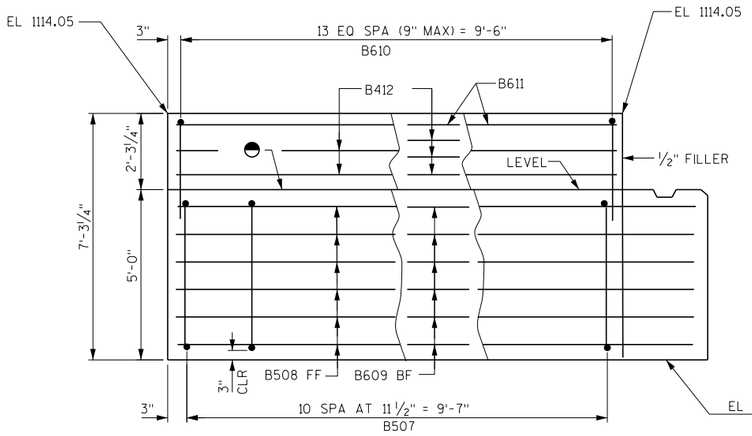
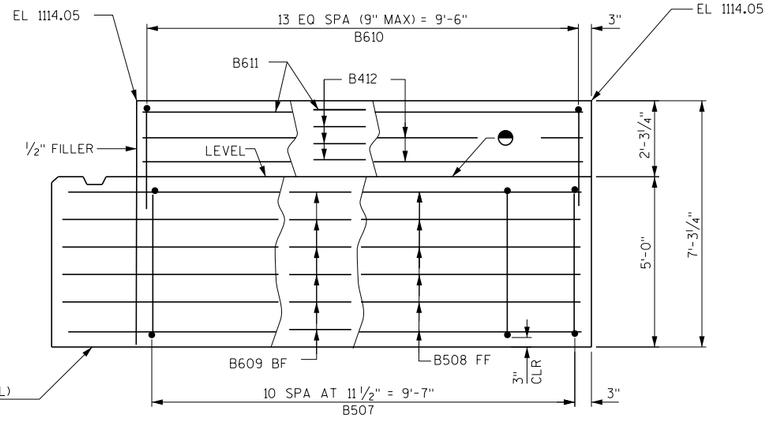
STATE PROJECT NUMBER

8787-00-70



WING 3 ELEVATION



WING 4 ELEVATION

BILL OF BARS
EAST ABUTMENT

COATED= 1350 LBS.
UNCOATED= 1830 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT. - IN.	BENT	BAR SERIES	LOCATION	
B 4 01		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
B 4 02		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
B 5 03		41	13 - 7	X		ABUTMENT BODY	VERT
B 6 04		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORI
B 8 05		7	32 - 2			ABUTMENT BODY - BF	HORI
B 5 06	31		2 - 0			ABUTMENT BODY - DOWELS	VERT
B 5 07	22		15 - 3	X		WING WALL - BODY	VERT
B 5 08	12		12 - 2			WING WALL - FF OF BODY	HORI
B 6 09	16		11 - 11			WING WALL - BODY	HORI
B 6 10	28		8 - 11	X		WING WALL - TOP	VERT
B 6 11	4		9 - 7			WING WALL - TOP	HORI
B 4 12	10		9 - 7			WING WALL - TOP	HORI

ALL REINFORCING BARS ARE ENGLISH.

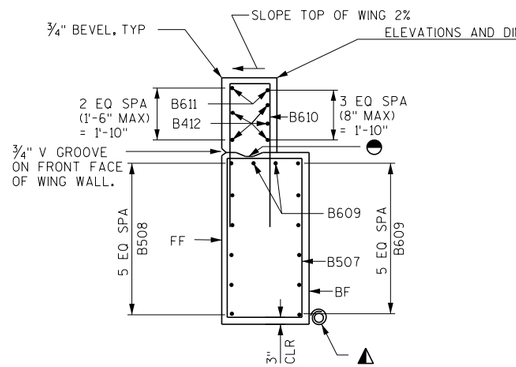
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

FF - FRONT FACE
BF - BACK FACE

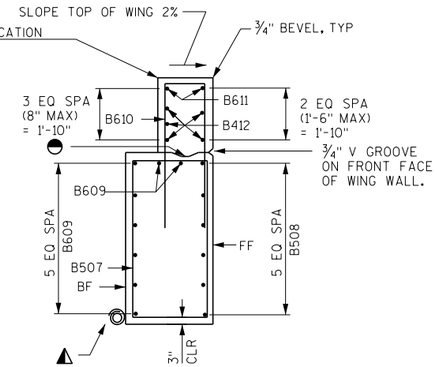
◓ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY, WITH MEMBRANE ON BACKFACE.

⚠ PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN TO SUITABLE DRAINAGE.



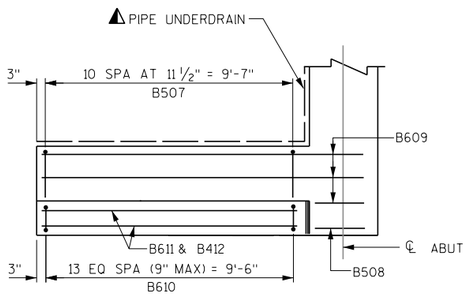
WING 3 SECTION

SEE SHEET 11 FOR RAIL POST ANCHORS.



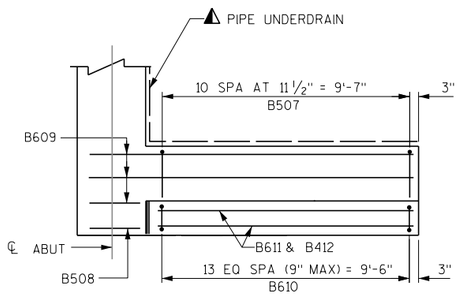
WING 4 SECTION

SEE SHEET 11 FOR RAIL POST ANCHORS.



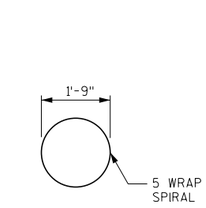
WING 3 PLAN

SPACE B610 TO MISS ANCHORS FOR RAIL POSTS.



WING 4 PLAN

SPACE B610 TO MISS ANCHORS FOR RAIL POSTS.



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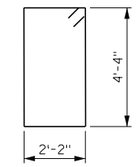

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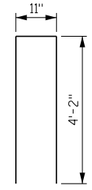

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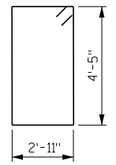

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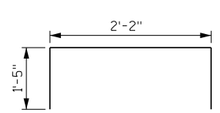

B513

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY TAV | PLANS CK'D. GAR

EAST ABUTMENT DETAILS

SHEET 7 OF 11
61

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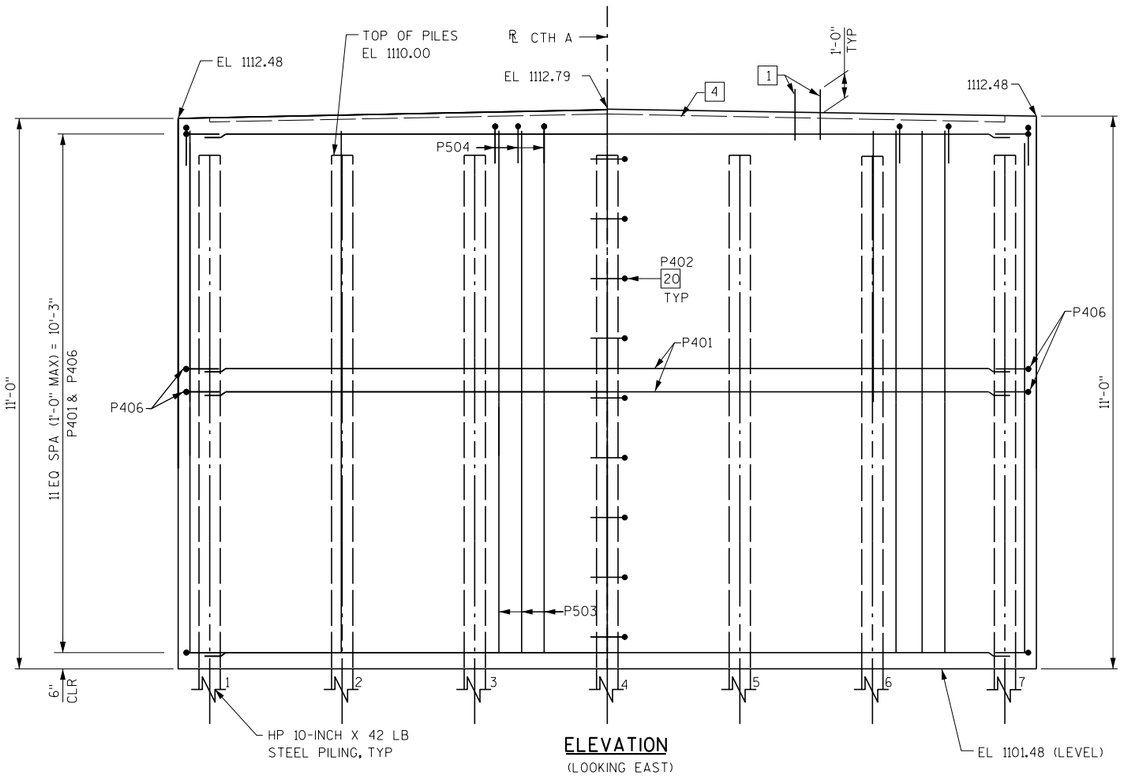
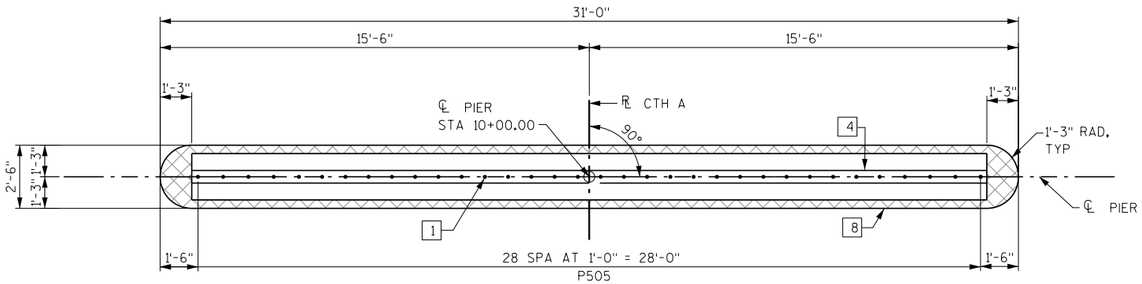
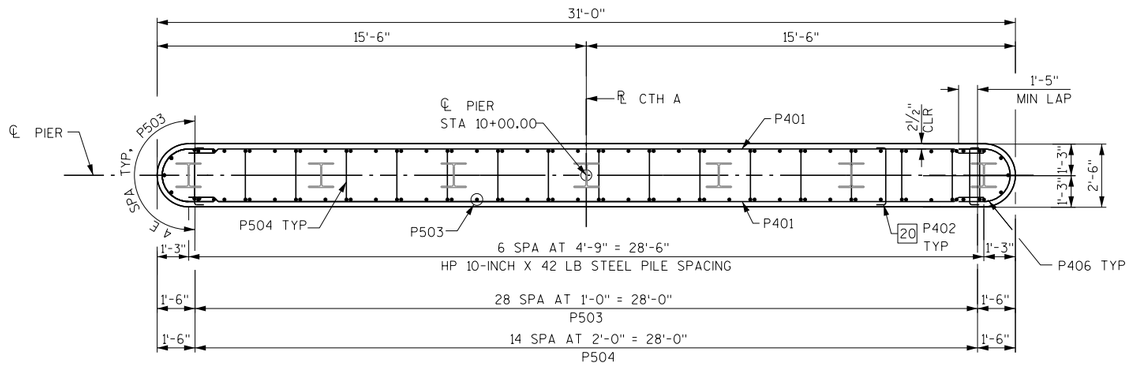
STATE PROJECT NUMBER
8787-00-70



ELEVATION
(LOOKING EAST)



PLAN



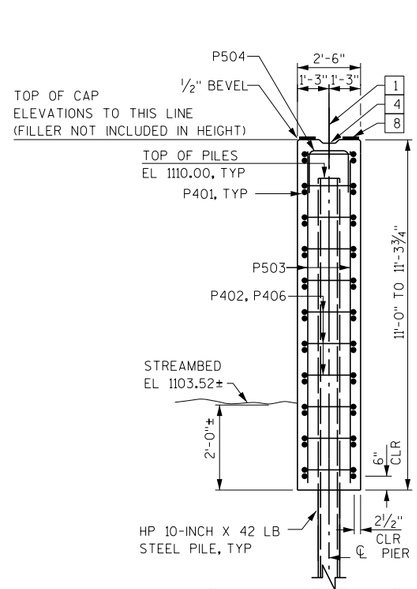
PILE AND REINFORCEMENT PLAN

BILL OF BARS
PIER

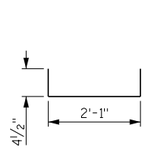
COATED= 0 LBS
UNCOATED= 1490 LBS

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	LOCATION	
P 4 01		24	28 - 6		SHAFT	HORIZ
P 4 02		63	2 - 8	X	SHAFT - TIES	HORIZ
P 5 03		64	10 - 4		SHAFT	VERT
P 5 04		15	4 - 6	X	SHAFT AT TOP	VERT
P 5 05		29	2 - 0		SHAFT DOWELS	VERT
P 4 06		24	6 - 1	X	SHAFT AT ENDS	HORIZ

BAR DIMENSIONS IN BENDING ARE CUT TO OUT OF BARS.
ALL REINFORCING BARS ARE ENGLISH.
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.



TYPICAL SECTION THRU PIER



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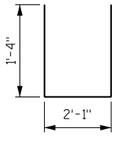

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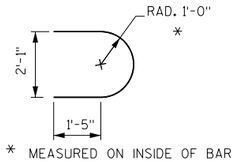

* MEASURED ON INSIDE OF BAR

P406

NOTES

PIER TO BE SUPPORTED ON HP 10-INCH x 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 43'-0" LONG. PREBORING REQUIRED TO EL 1067.00 FOR ALL PILES.

FOR PILE SPLICE DETAILS SEE SHEET 2.

1 P505 BARS MAY BE PLACED AFTER CONCRETE IS PLACED, BUT BEFORE INTIAL SET HAS TAKEN PLACE.

4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6" KEYWAY, TERMINATE 1'-3" FROM PIER ENDS.

8 4" x ¾" FILLER LENGTH OF PIER.

20 P402 PLACED ADJACENT TO EACH PILE AT 1'-0" VERTICAL CENTERS.

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PIER

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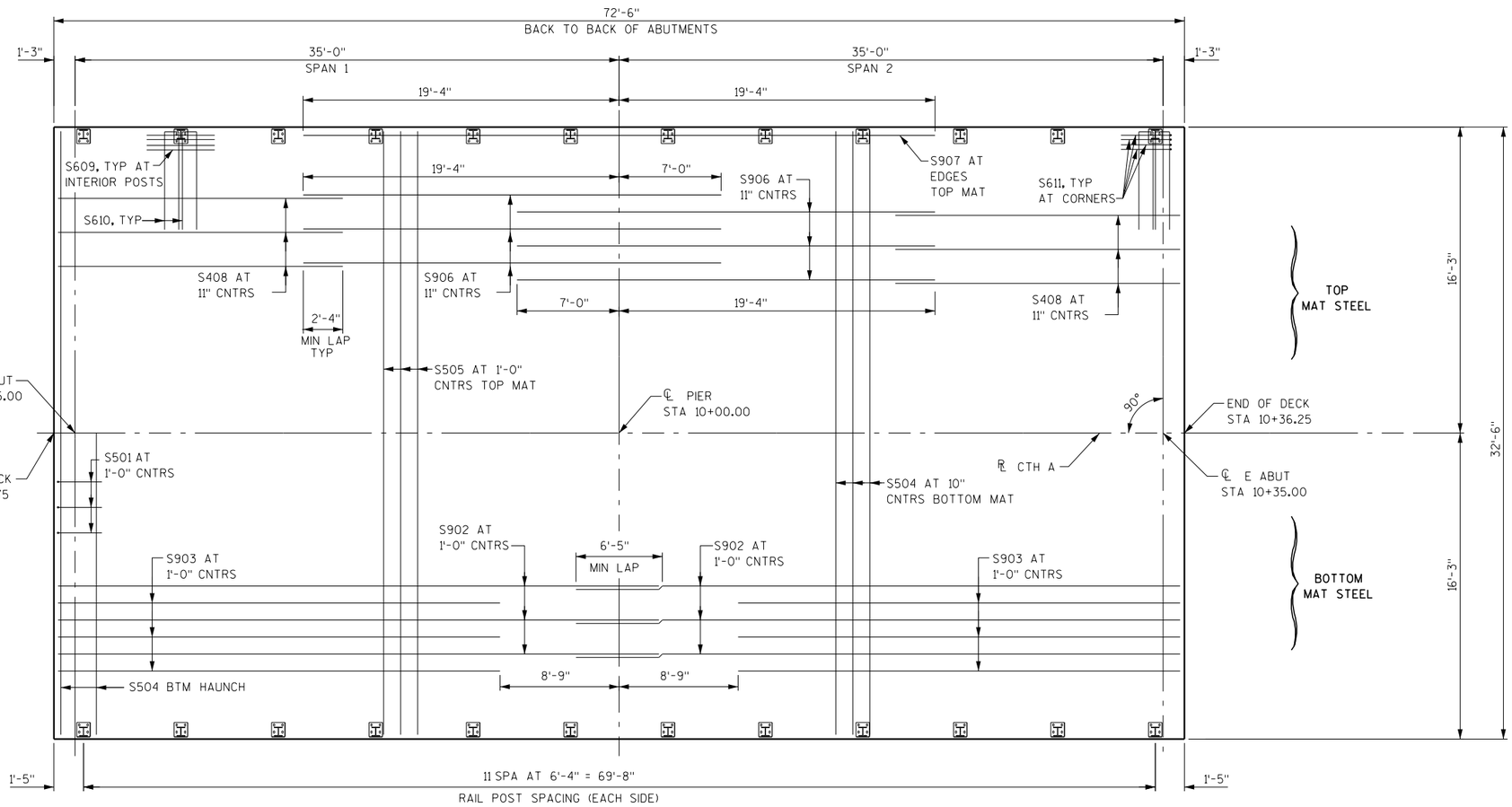
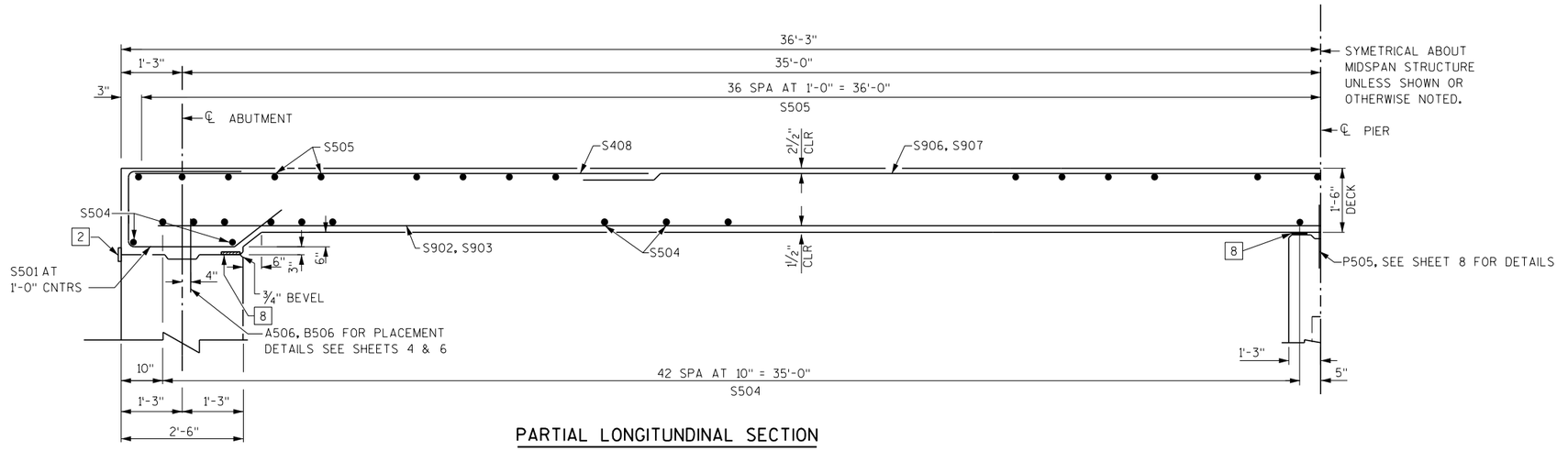


REINFORCEMENT PLAN



PARTIAL LONGITUNDINAL SECTION

NOTES

2 18" RUBBERIZED MEMBRANE WATERPROOFING (RMW) TO EXTEND FROM BRIDGE SEAT TO TOP OF WING AND BETWEEN INSIDE FACES OF WINGS. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.

8 4" × ¾" FILLER LENGTH OF ABUTMENT & PIER.

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SUPERSTRUCTURE

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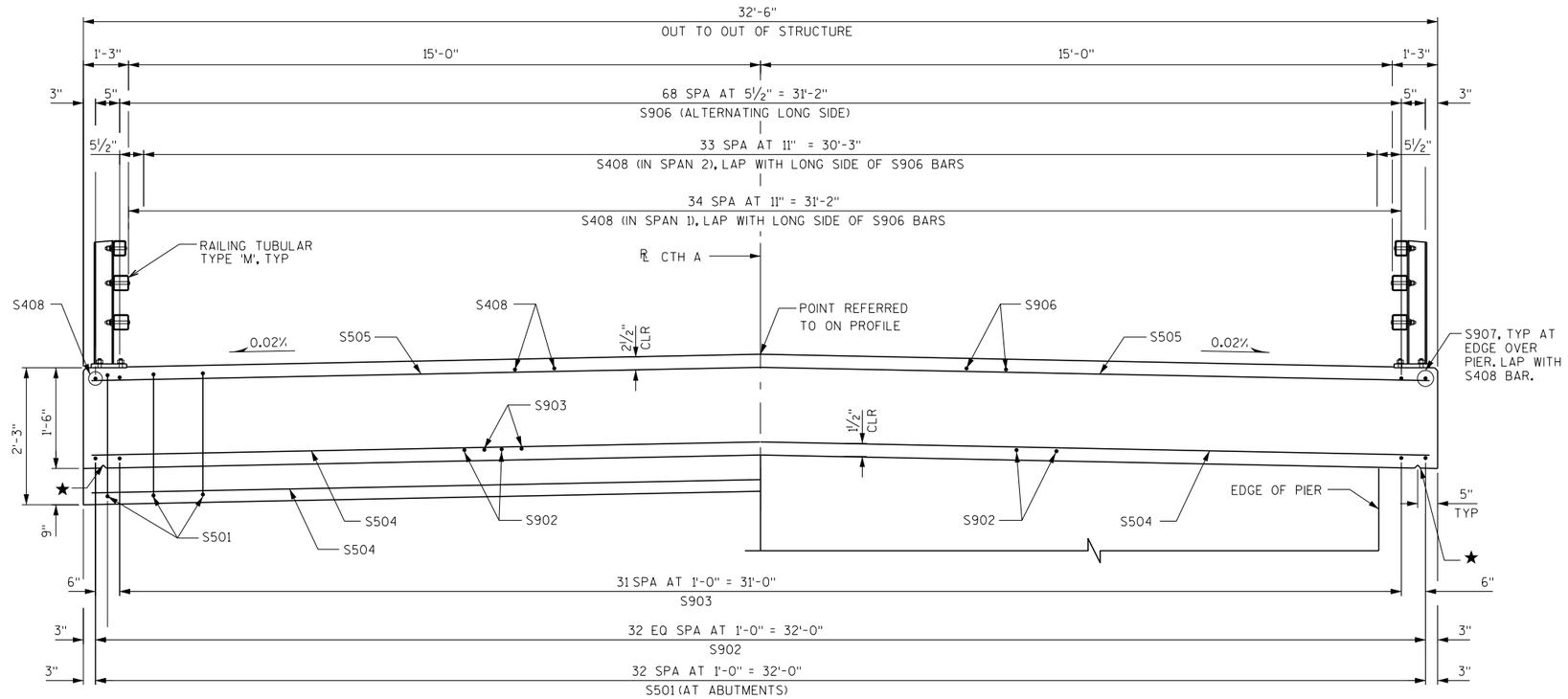
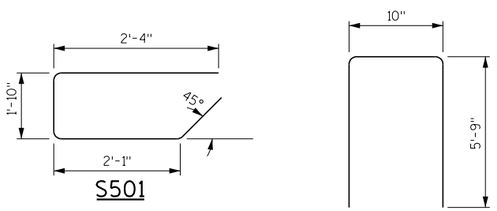
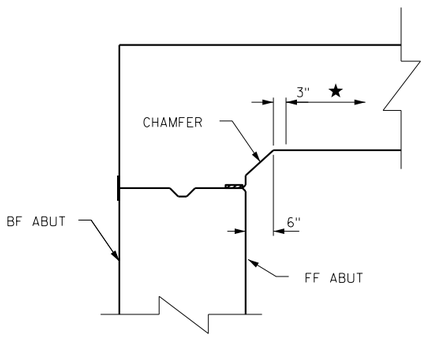


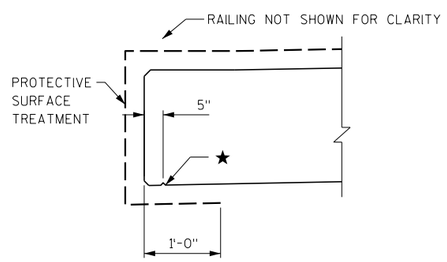
CROSS SECTION THRU ROADWAY

(LOOKING EAST)



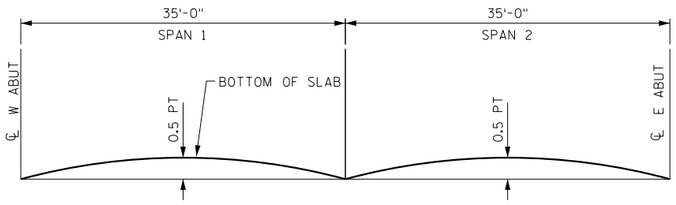


DRIP GROOVE DETAIL AT ABUTMENT



SECTION THRU EDGE OF SLAB

TYPICAL AT BOTH EDGES



CAMBER DIAGRAM

CAMBER SPAN AS SHOWN (USING VALUES IN TABLE) TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

SPAN PT.	CAMBER (IN)
W ABUT	0
0.1	1/4
0.2	3/8
0.3	1/2
0.4	1/2
0.5	1/2
0.6	3/8
0.7	1/4
0.8	1/8
0.9	0
PIER	0
0.1	0
0.2	1/8
0.3	1/4
0.4	3/8
0.5	1/2
0.6	1/2
0.7	1/2
0.8	3/8
0.9	1/4
E ABUT	0

BILL OF BARS **COATED= 29910 LBS.**

SUPERSTRUCTURE **UNCOATED= 0 LBS.**

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT. - IN.	BENT	BAR SERIES	LOCATION	
S 5 01	66		8 - 1	X		SLAB - ABUTMENT TIES	LONGIT
S 9 02	66		39 - 4			SLAB - BOTTOM	LONGIT
S 9 03	64		27 - 4			SLAB - BOTTOM	LONGIT
S 5 04	90		32 - 2			SLAB - BOTTOM	TRANS
S 5 05	73		32 - 2			SLAB - TOP	TRANS
S 9 06	69		26 - 4			SLAB - TOP OVER PIER	LONGIT
S 9 07	2		38 - 8			SLAB - TOP AT EDGES	LONGIT
S 4 08	73		19 - 1			SLAB - TOP AT ABUTMENT	LONGIT
S 6 09	80		6 - 0			RAILING ANCHORS	LONGIT
S 6 10	48		12 - 0	X		RAILING ANCHORS	TRANS
S 6 11	16		6 - 0	X		RAILING ANCHORS	LONGIT

BAR DIMENSIONS IN BENDING ARE OUT TO OUT OF BARS.

ALL REINFORCING BARS ARE ENGLISH.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

SPAN POINT	NORTH EDGE STATION	NORTH EDGE ELEVATION	R/L CTH A STATION	R/L CTH A ELEVATION	SOUTH EDGE STATION	SOUTH EDGE ELEVATION
W ABUT	9+65.00	1114.03	9+65.00	1114.35	9+65.00	1114.03
0.1	9+68.50	1114.03	9+68.50	1114.35	9+68.50	1114.03
0.2	9+72.00	1114.03	9+72.00	1114.35	9+72.00	1114.03
0.3	9+75.50	1114.03	9+75.50	1114.35	9+75.50	1114.03
0.4	9+79.00	1114.03	9+79.00	1114.35	9+79.00	1114.03
0.5	9+82.50	1114.03	9+82.50	1114.35	9+82.50	1114.03
0.6	9+86.00	1114.03	9+86.00	1114.35	9+86.00	1114.03
0.7	9+89.50	1114.03	9+89.50	1114.35	9+89.50	1114.03
0.8	9+93.00	1114.03	9+93.00	1114.35	9+93.00	1114.03
0.9	9+96.50	1114.03	9+96.50	1114.35	9+96.50	1114.03
PIER	10+00.00	1114.03	10+00.00	1114.35	10+00.00	1114.03
0.1	10+03.50	1114.03	10+03.50	1114.35	10+03.50	1114.03
0.2	10+07.00	1114.03	10+07.00	1114.35	10+07.00	1114.03
0.3	10+10.50	1114.03	10+10.50	1114.35	10+10.50	1114.03
0.4	10+14.00	1114.03	10+14.00	1114.35	10+14.00	1114.03
0.5	10+17.50	1114.03	10+17.50	1114.35	10+17.50	1114.03
0.6	10+21.00	1114.03	10+21.00	1114.35	10+21.00	1114.03
0.7	10+24.50	1114.03	10+24.50	1114.35	10+24.50	1114.03
0.8	10+28.00	1114.03	10+28.00	1114.35	10+28.00	1114.03
0.9	10+31.50	1114.03	10+31.50	1114.35	10+31.50	1114.03
E ABUT	10+35.00	1114.03	10+35.00	1114.35	10+35.00	1114.03

NOTES

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

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.

★ ¾" V-GROOVE. TERMINATE 3" CHAMFER AT ABUTMENTS. SEE DETAIL ON THIS SHEET.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF DECK AND AT ℄.

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STRUCTURE B-54-114

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SUPERSTRUCTURE DETAILS

SHEET 10 OF 11
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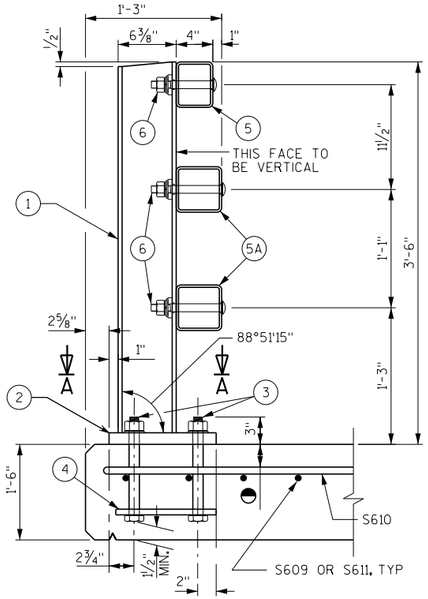
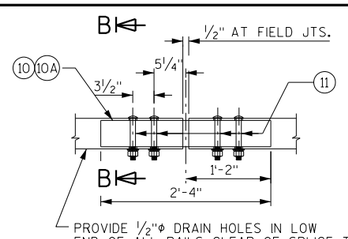
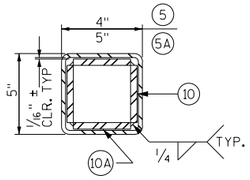


SECTION THRU RAILING ON DECK

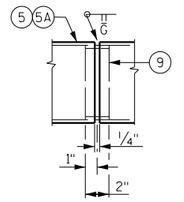
◓ PLACE BELOW TOP MAT OF SLAB REINF.



FIELD ERECTION JOINT DETAIL

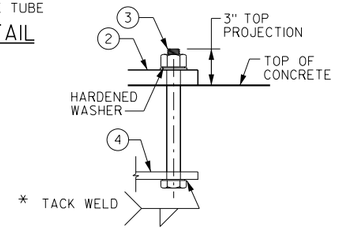


SECTION B-B



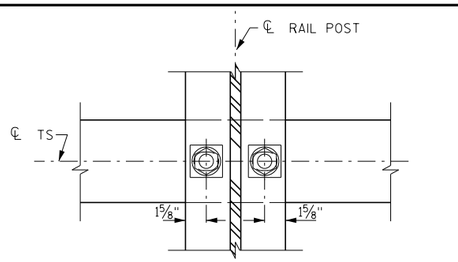
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

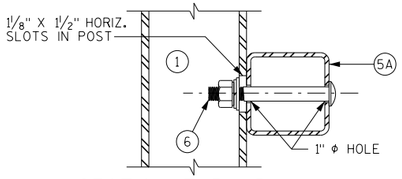


ANCHOR BOLTS

* FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTABILITY.



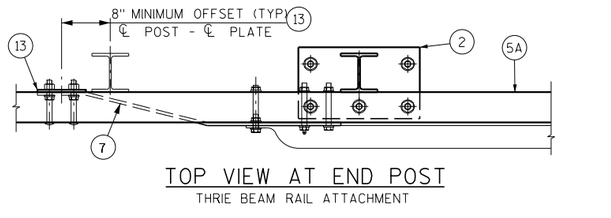
SECTION THRU POST WEB



SECTION THRU RAIL

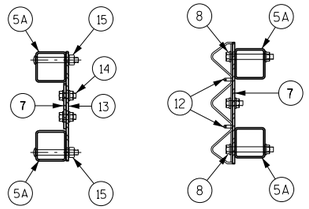
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



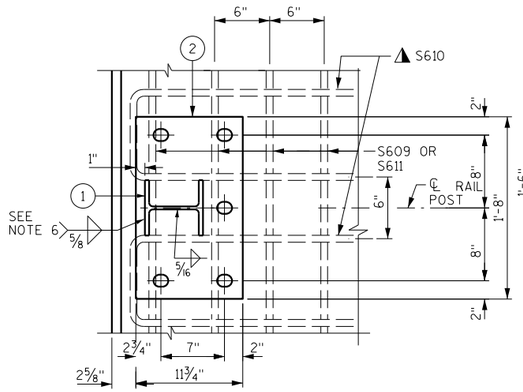
TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



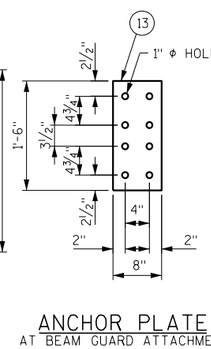
SECTION C-C

SECTION D-D



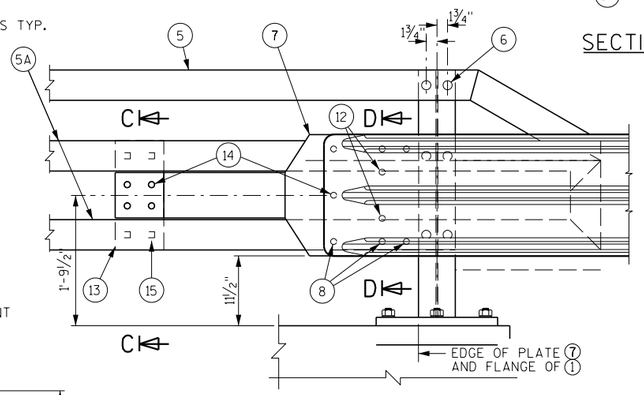
SECTION A-A

▲ TIE TO TOP MAT OF STEEL.



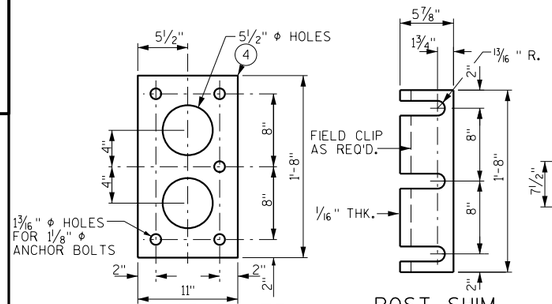
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

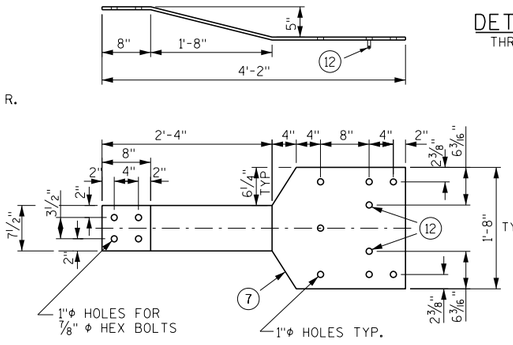
THRIE BEAM RAIL ATTACHMENT



ANCHOR PLATE

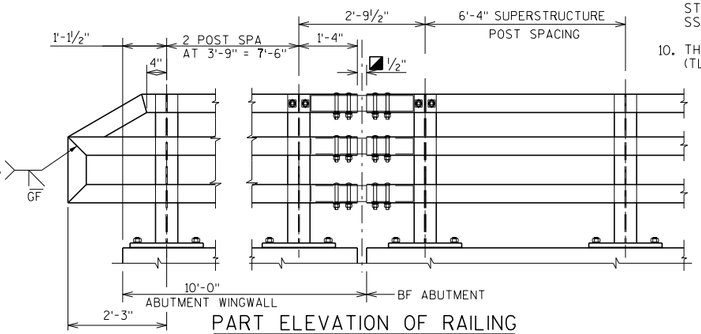
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

◪ ½" JOINT FILLER

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" × 11¾" × 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 WINGS AND 1'-3" LONG IN SLAB. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)

④ ⅝" × 11" × 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1⅜16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

⑤ TS 5 × 4 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑤A TS 5 × 5 × 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 5⁄16" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 5⁄16" 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-54-114)" 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.
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 SSPC SPECIFICATIONS.
10. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

STATE PROJECT NUMBER

8787-00-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-114

DRAWN BY	TAV	PLANS CK'D.	GAR

RAILING TUBULAR TYPE 'M'

SHEET 11 OF 11

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STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut Note 1	Salvaged/Unusable Pavement Material Note 2	Fill Note 3	Cut 1.00 Note 1	Expanded Fill 1.25	
7+00	40	6	0	0	0	0	0	0	0
7+07	40	6	5	10	8	1	10	1	2
7+50	41	6	12	64	8	13	74	18	40
7+64	41	6	14	21	8	7	96	26	45
8+00	41	6	16	54	8	20	150	51	66
8+24	45	6	11	38	9	12	188	66	80
8+50	50	6	10	46	10	10	233	79	102
8+74	51	6	10	45	10	9	278	90	126
9+00	39	6	8	43	8	9	322	100	150
9+50	69	6	12	99	14	18	421	123	213
9+64	52	6	22	31	11	9	452	134	223
9+65	0	0	0	1	0	0	453	135	224
10+35	0	0	0	0	0	0	453	135	224
10+36	5	6	135	0	1	3	453	138	220
10+50	42	6	32	12	8	43	465	192	169
11+00	47	6	14	81	9	42	547	245	189
11+26	50	6	18	46	10	15	593	264	206
11+50	114	6	5	73	23	10	666	277	242
11+76	51	6	32	79	10	18	745	299	289
12+00	48	6	22	44	10	24	789	329	294
12+36	47	6	15	63	9	24	852	359	317
12+50	43	6	18	23	9	8	875	369	321
12+93	40	6	9	66	8	21	941	396	352
13+00	38	6	0	10	8	1	951	397	353
			Column Total	951	201	318			

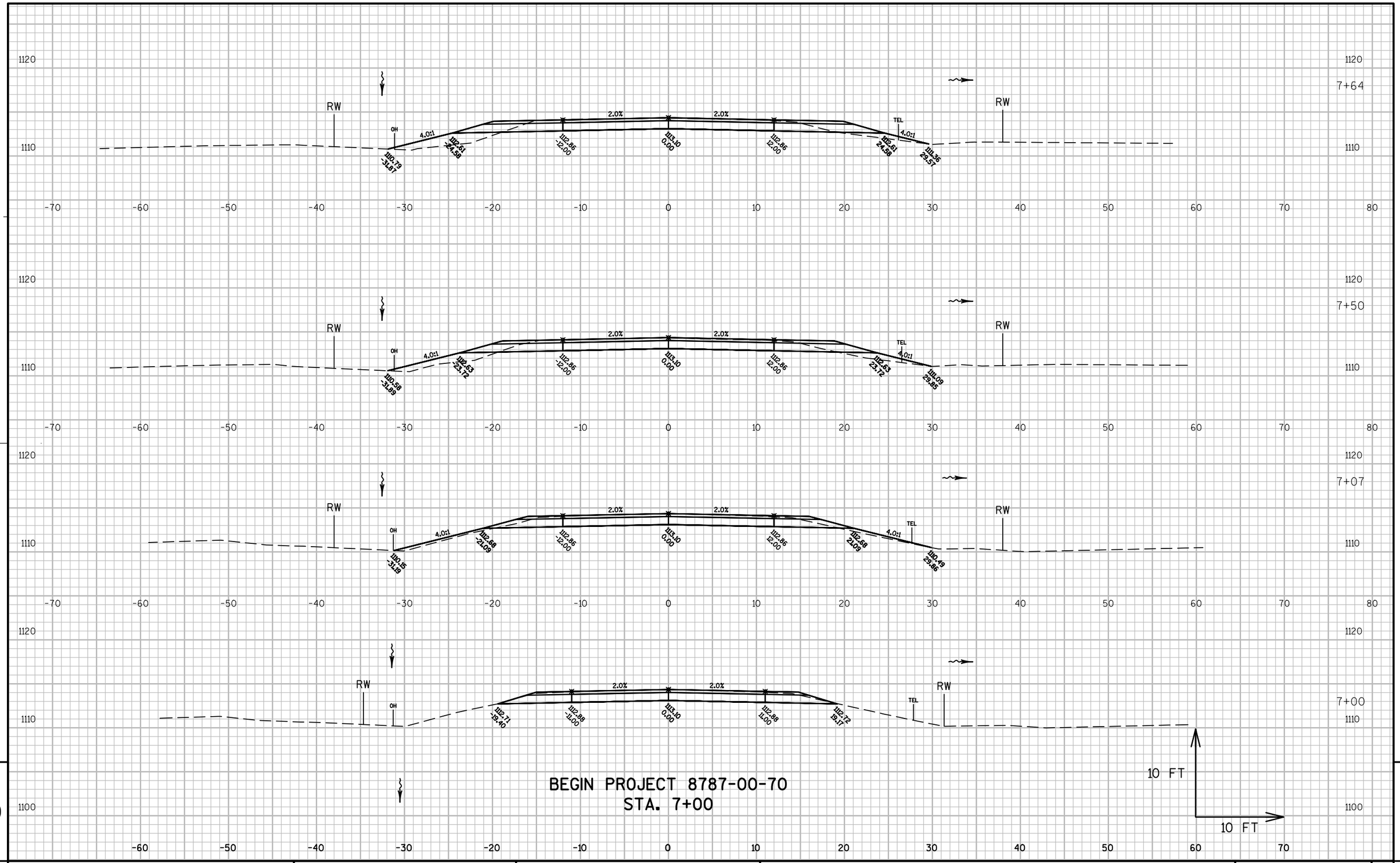
Notes:	
1 - Cut	Cut includes Salvaged/Unusable Pavement Material
2 - Salvaged/Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Does not include Unusable Pavement volume

9

9

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	EARTHWORK SUMMARY	SHEET NO:	E

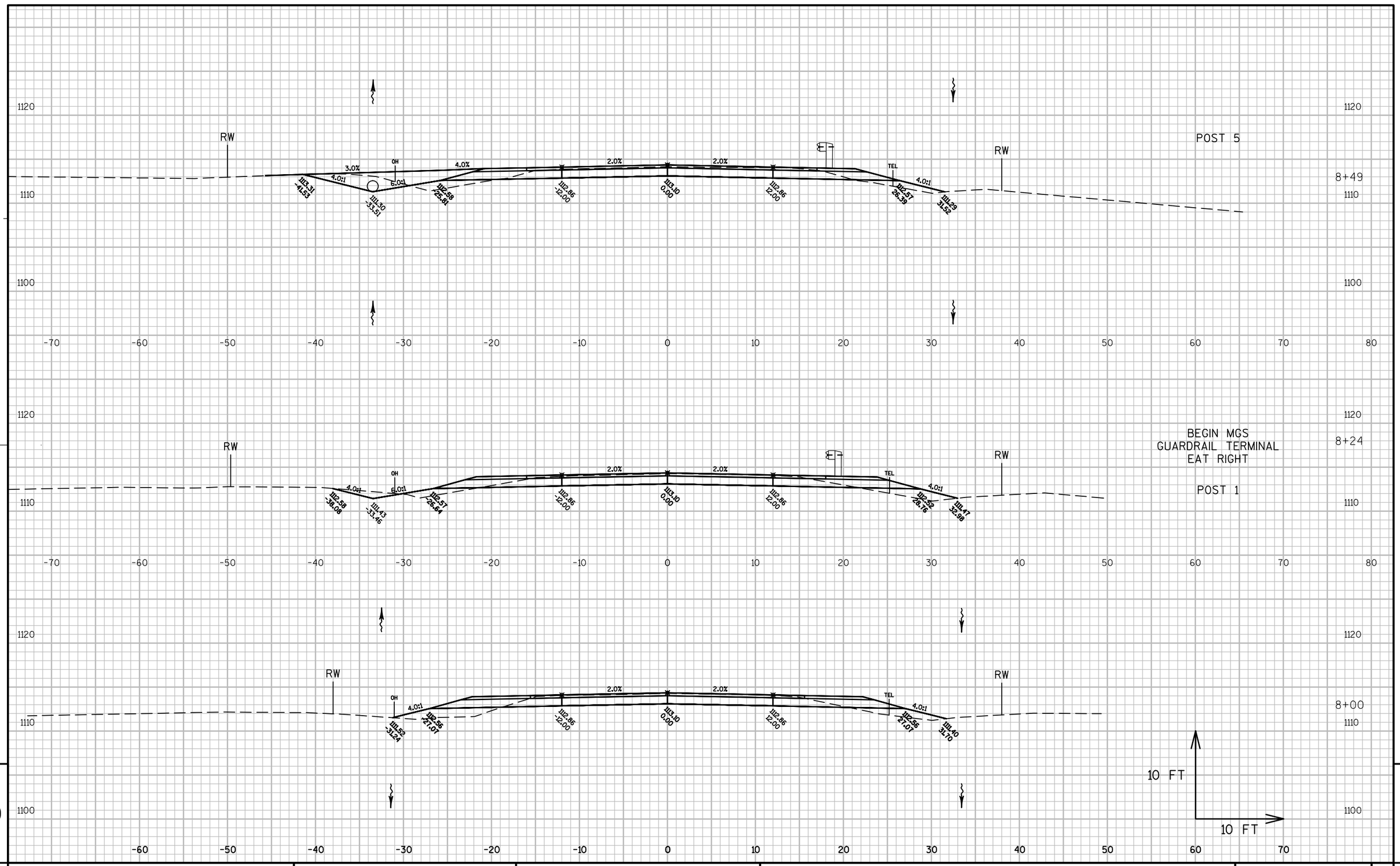
FILE NE : PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ ORG DATE : ORIGINATOR : PLOT SCALE :



PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 67	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\090201_XS.DWG PLOT DATE : 1/20/2014 7:51 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



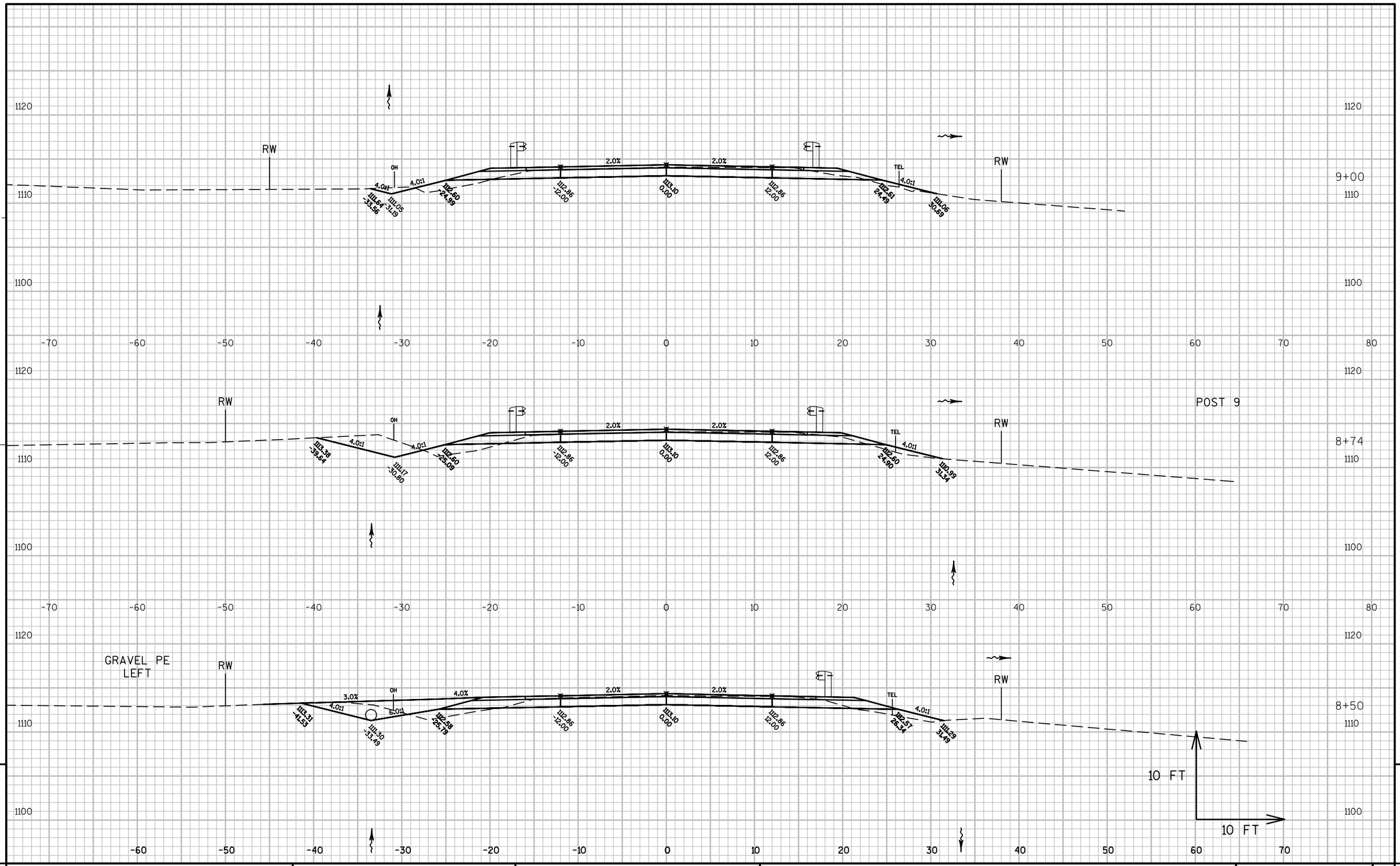
9

9

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 68	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\090201_XS.DWG PLOT DATE : 1/20/2014 7:52 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



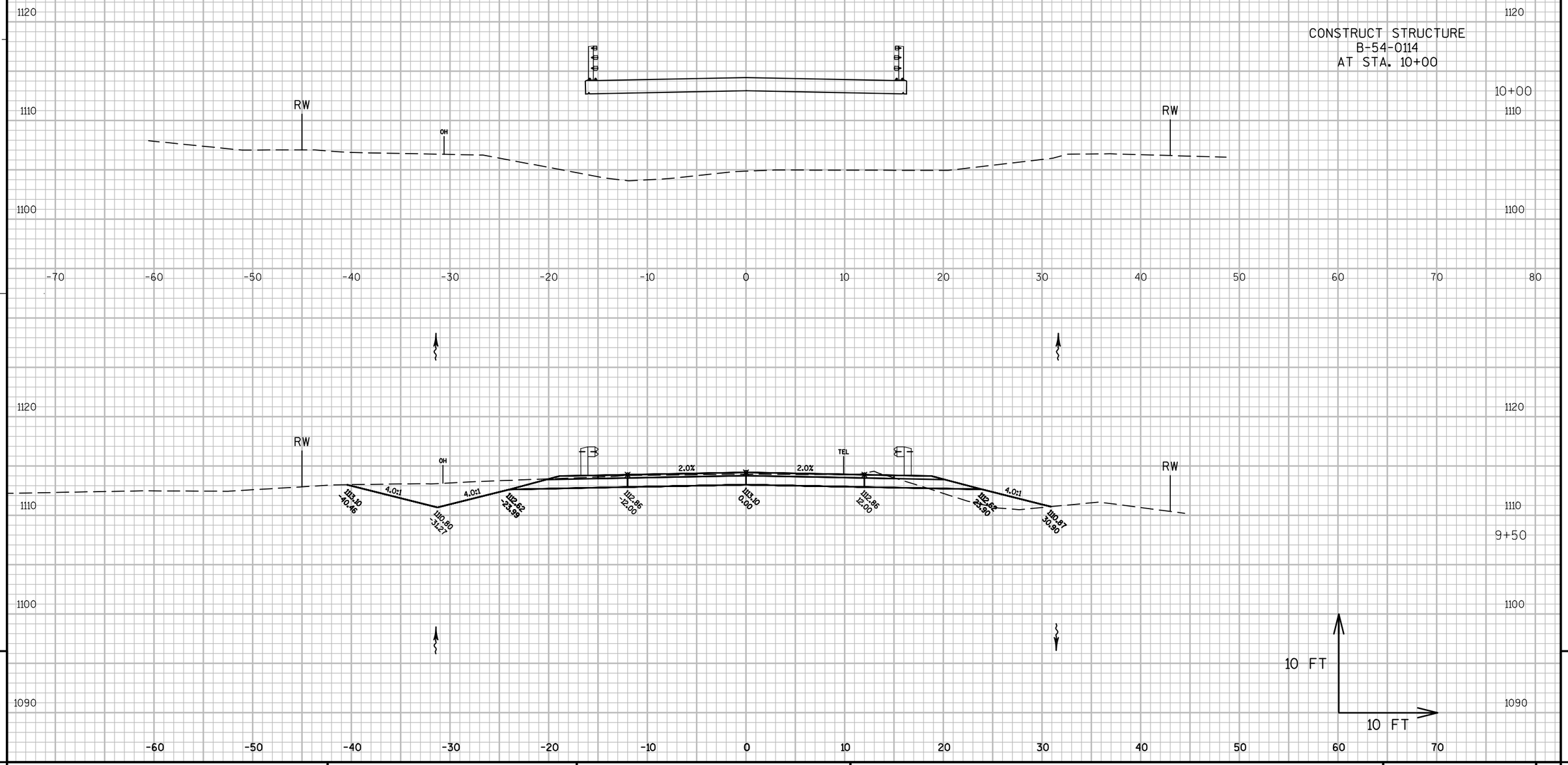
9

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 69	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\090201_XS.DWG PLOT DATE : 1/20/2014 7:52 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

CONSTRUCT STRUCTURE
B-54-0114
AT STA. 10+00

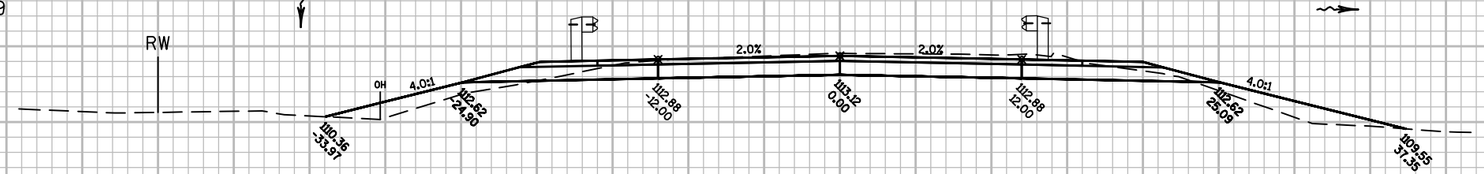


PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 70	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\090201_XS.DWG PLOT DATE : 1/20/2014 7:53 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

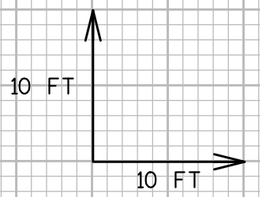
POST 9



11+26

11+00

10+50



9

9

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 71	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\090201_XS.DWG PLOT DATE : 1/20/2014 7:53 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

12+00

END MGS
GUARDRAIL TERMINAL
EAT LEFT

POST 1

11+76

POST 5

11+51

11+50

GRAVEL PE
RIGHT

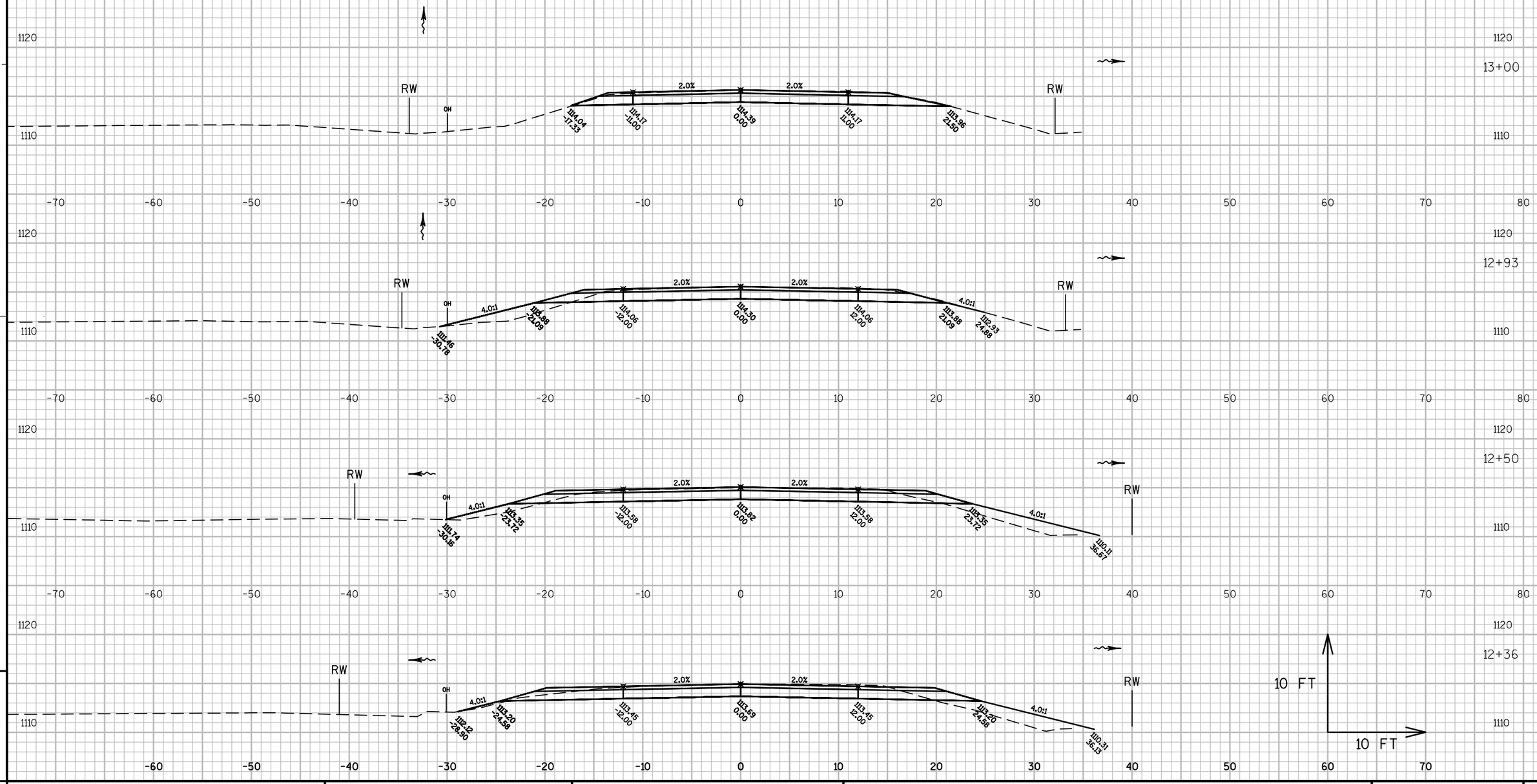
10 FT

10 FT

PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 72	E

FILE NAME : X:\2881800\121275.01\TECH\CAD\8787-00-70\SHEETSPLAN\090201_XS.DWG PLOT DATE : 1/20/2014 7:54 AM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT

END PROJECT 8787-00-70
STA. 13+00



PROJECT NO: 8787-00-70	HWY: CTH A	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 73	E

Wisconsin Department of Transportation

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