NEL

MAY 2016

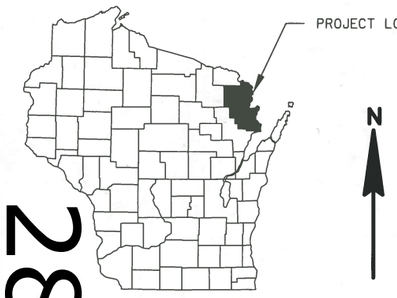
PROJECT ID: 9327-02-71

WITH: N/A

COUNTY: MARINETTE

ORDER OF SHEETS

TOTAL SHEETS = 100



28

DESIGN DESIGNATION

A.A.D.T.	(2016)	= 1400
A.A.D.T.	(2036)	= 1600
D.H.V.		= 5.2%
D.D.		= 59/41
T.		= 6.1%
DESIGN SPEED		= 45 MPH
ESALS		= 204,400

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

HIGH VOLTAGE — CAUTION

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

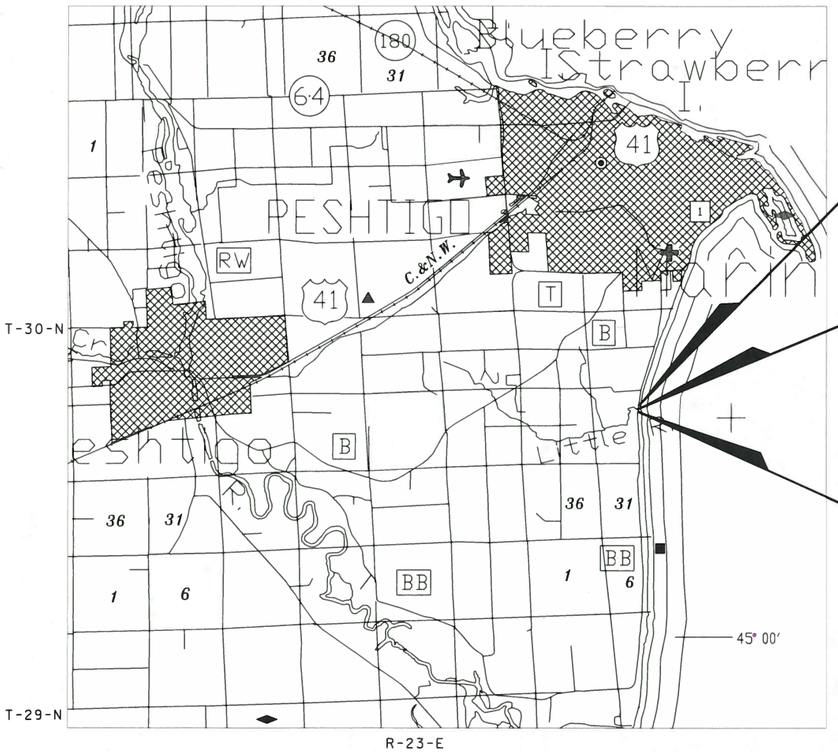
PLAN OF PROPOSED IMPROVEMENT

T OF PESHTIGO CTH BB

LITTLE RIVER BRIDGE & APPROACHES

CTH BB
MARINETTE COUNTY

STATE PROJECT NUMBER
9327-02-71



END PROJECT 9327-02-71
STA 219+25.00
N = 128971.95
E = 805017.79

STRUCTURE B-38-0146
STA 217+38.25 - 217+87.75

BEGIN PROJECT 9327-02-71
STA 215+75.00
N = 128634.84
E = 804923.77

R-38-0007
STA 217+99.25 - 219+13.01

R-38-0008
STA 217+99.25 - 219+18.89

LAYOUT
SCALE 0 1MI

TOTAL NET LENGTH OF CENTERLINE = 0.066 MI

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9327-02-71		

ACCEPTED FOR

COUNTY of MARINETTE

1/29/16 (Date) (SIGNATURE COMMISSIONER)

ORIGINAL PLANS PREPARED BY

Mead & Hunt

Mead & Hunt, Inc.
1345B North Road
Green Bay, WI 54313
phone: 920-496-0500
meadhunt.com

WISCONSIN
ANGELA B. KERRIGAN
NO. 39383-006
De Pere, WI
PROFESSIONAL ENGINEER

1/27/16

STATE OF WISCONSIN

PREPARED BY

Surveyor MEAD & HUNT, INC.

Designer MEAD & HUNT, INC.

Management Consultant SEH, INC.

APPROVED FOR THE DEPARTMENT

Management Consultant Signature

DATE: 1/29/2016

GENERAL NOTES

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.

FILL EXPANSION OF EARTHWORK IS ESTIMATED AT 30%.

WHEN THE QUANTITY OF BASE AGGREGATE OR ASPHALTIC SURFACE 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.

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE 4-INCH TOPSOIL, FERTILIZE, SEED AND MULCH.

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 INCHES OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 1 3/4 INCHES UPPER LAYER AND A 2 1/4 INCHES LOWER LAYER.

THE EXACT LOCATION OF THE EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVAL.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NAVD88 (2007).

ASPHALTIC PAVEMENT REMOVAL IS INCLUDED IN BID ITEM "COMMON EXCAVATION".

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.76 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.60 ACRES

MARINETTE COUNTY
MARINETTE COUNTY HIGHWAY DEPARTMENT
501 PINE STREET
PESHTIGO, WI 54157
ATTN: RAYMOND PALONEN, HIGHWAY COMMISIONER
TELEPHONE: (715)-582-3771
E-MAIL: RPALONEN@MARINETTECOUNTY.COM

DESIGN CONSULTANT
MEAD & HUNT, INC.
1345B NORTH ROAD
GREEN BAY, WI 54313
ATTN: ANGIE KERRIGAN, P.E.
TELEPHONE: (920)-496-0500
E-MAIL: ANGIE.KERRIGAN@MEADHUNT.COM

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVE
GREEN BAY, WI 54313
ATTN: JAMES DOPERALSKI
TELEPHONE: (920)-662-5119
E-MAIL: JAMES.DOPERALSKI@WISCONSIN.GOV

UTILITY CONTACTS

WISCONSIN PUBLIC SERVICE CORP
1717 10TH AVENUE
MENOMINEE, MI 49858
ATTN: RANDY ATWOOD (ELC)
TELEPHONE (715)-923-5717
E-MAIL: RJATWOOD@WISCONSINPUBLICSERVICE.COM

TIME WARNER CABLE
3520 DESTINATION DRIVE
APPLETON, WI 54915
ATTN: VINCE ALBIN
TELEPHONE: (920)-378-0444
E-MAIL: VINCE.ALBIN@TWCABLE.COM

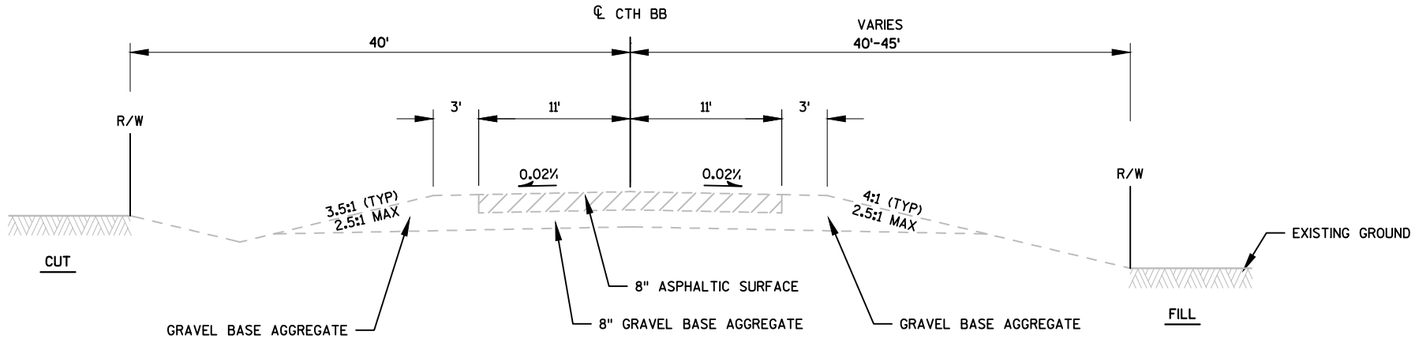
WISCONSIN PUBLIC SERVICE CORP
1717 10TH AVENUE
MENOMINEE, MI 49858
ATTN: HOWARD SORENSEN (GAS)
TELEPHONE (906)-863-4359
E-MAIL: HJSORENSEN@WISCONSINPUBLICSERVICE.COM

CENTURYLINK
PO BOX 260
WAUSAUKEE, WI 54177
ATTN: PATRICK TRACY
TELEPHONE: (715)-927-0970
E-MAIL: PATRICK.TRACY@CENTURYLINK.COM

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

2

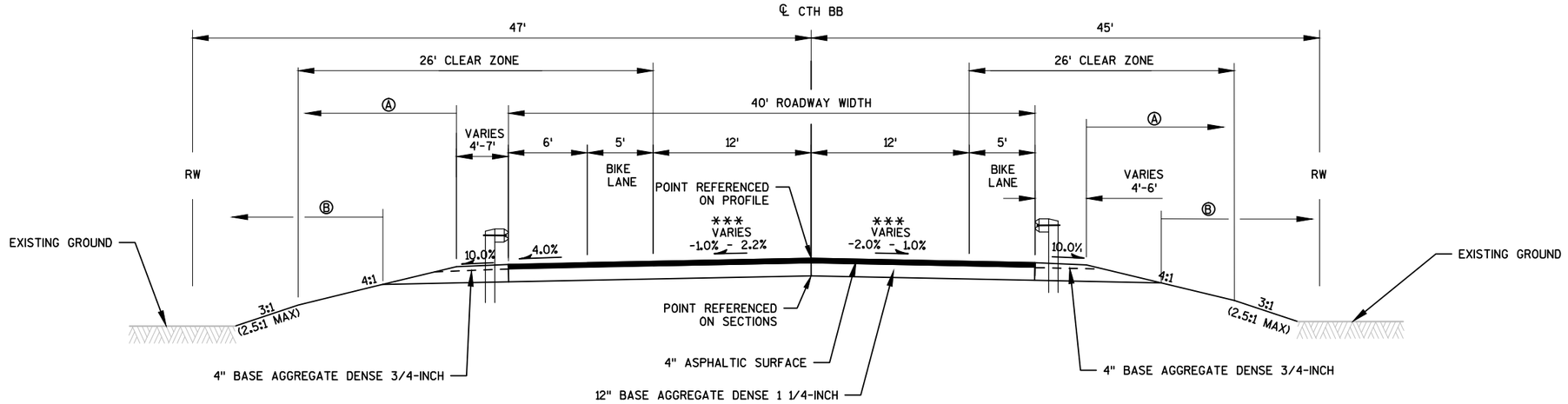


TYPICAL EXISTING SECTION

STA 215+75 TO STA 217+48
STA 217+78 TO STA 219+25

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	PLAN: TYPICAL SECTIONS	SHEET 3	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\SHEETSPLAN\93270271_TS.DWG PLOT DATE : 1/13/2016 2:14 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



TYPICAL FINISHED SECTION ROADWAY

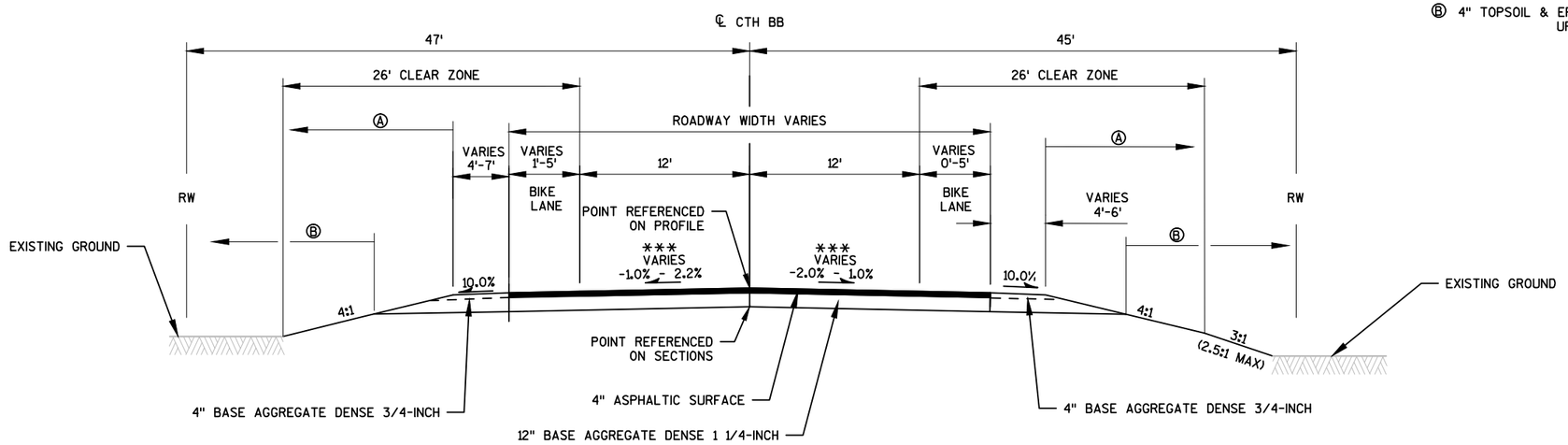
STA 216+35.63 TO STA 217+13.75

NOTES:

*** SEE SUPERELEVATION TABLE ON ALIGNMENT PLAN SHEET

Ⓐ SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

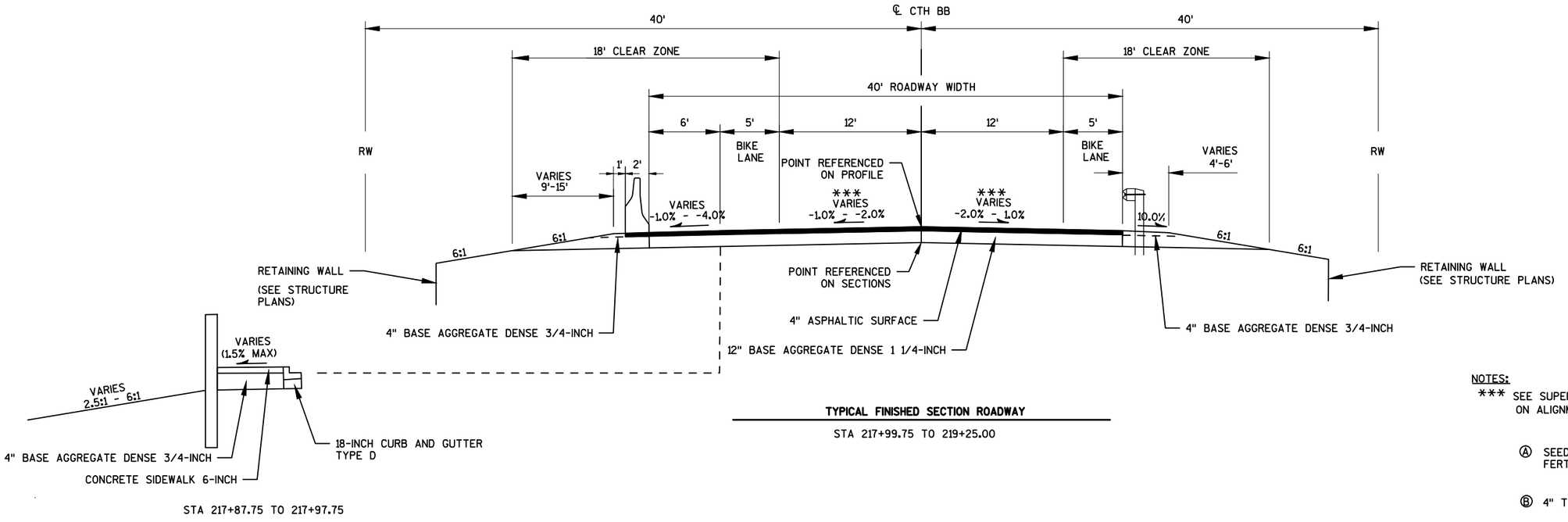
Ⓑ 4" TOPSOIL & EROSION MAT URBAN CLASS I TYPE B



TYPICAL FINISHED SECTION ROADWAY

STA 215+75.00 TO STA 216+35.63

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	PLAN: TYPICAL SECTIONS	SHEET 4	E



STA 217+87.75 TO 217+97.75

TYPICAL FINISHED SECTION ROADWAY

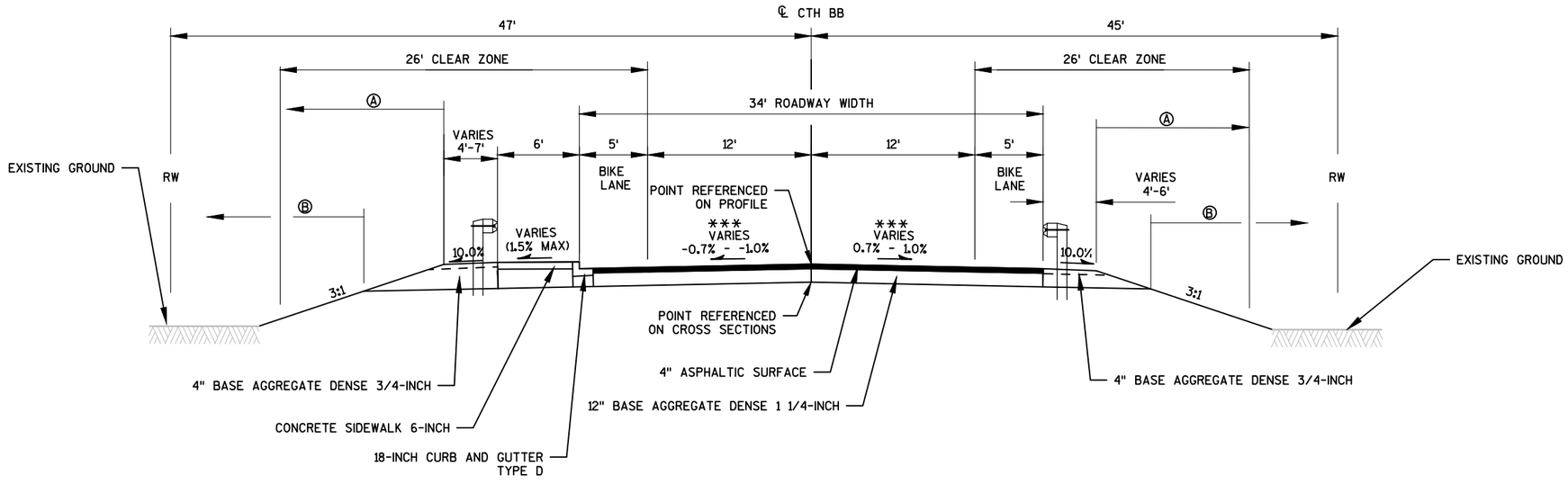
STA 217+99.75 TO 219+25.00

NOTES:

*** SEE SUPERELEVATION TABLE ON ALIGNMENT PLAN SHEET

Ⓐ SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

Ⓑ 4" TOPSOIL & EROSION MAT URBAN CLASS I TYPE B



TYPICAL FINISHED SECTION ROADWAY

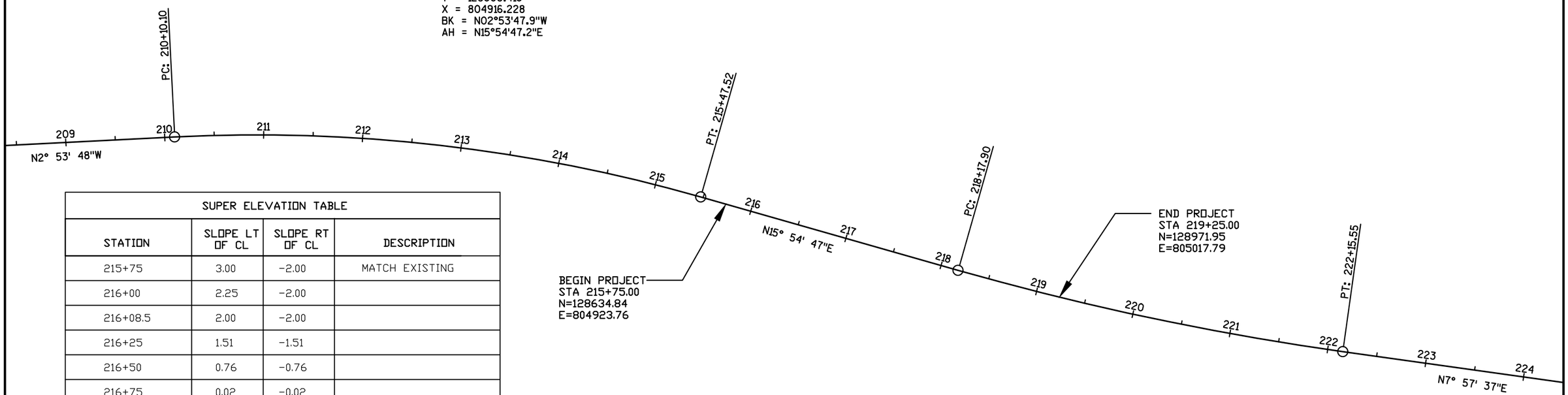
STA 217+13.75 TO STA 217+38.25

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	PLAN: TYPICAL SECTIONS	SHEET 5	E

2

N

PI STA = 212+81.25
Y = 128347.656
X = 804841.884
DELTA = 18°48'35"
D = 3°30'00"
T = 271.15'
L = 537.42'
R = 1637.02'
PC STA = 210+10.10
Y = 128076.852
X = 804855.586
PT STA = 215+47.52
Y = 128608.416
X = 804916.228
BK = N02°53'47.9"W
AH = N15°54'47.2"E



PI STA = 220+17.04
Y = 129059.944
X = 805044.961
DELTA = 7°57'11"
D = 2°00'00"
T = 199.14'
L = 397.65'
R = 2864.79'
PC STA = 218+17.90
Y = 128868.431
X = 804990.359
PT STA = 222+15.55
Y = 129257.169
X = 805072.539
BK = N15°54'47.2"E
AH = N07°57'36.5"E

SUPER ELEVATION TABLE

STATION	SLOPE LT OF CL	SLOPE RT OF CL	DESCRIPTION
215+75	3.00	-2.00	MATCH EXISTING
216+00	2.25	-2.00	
216+08.5	2.00	-2.00	
216+25	1.51	-1.51	
216+50	0.76	-0.76	
216+75	0.02	-0.02	
217+00	-0.73	0.73	
217+09	-1.00	1.00	
217+41.0	-1.00	1.00	BRIDGE
217+85.5	-1.00	1.00	BRIDGE
218+83.1	-1.00	1.00	
219+00	-1.50	1.00	
219+16.6	-2.00	1.00	
219+25	-2.25	1.00	MATCH EXISTING

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	ALIGNMENT PLAN	SHEET 6	E

2

N

RIPRAP LIGHT
GEOTEXTILE FABRIC, TYPE R

EROSION MAT URBAN CLASS I, TYPE B
(TYP)

CULVERT PIPE
CHECK

SLOPE INTERCEPT
(TYP)

SILT FENCE
(TYP)

BM #1

RIPRAP LIGHT
GEOTEXTILE FABRIC, TYPE R

WETLAND BOUNDARY
(TYP)

TIME WARNER CABLE

R/W

OH

T

G

WISCONSIN PUBLIC SERVICE CORP

INLET PROTECTION TYPE D

215+00

216+00

217+00

218+00

219+00

220+00

CTH BB

EX 18" CMP

SLOPE INTERCEPT
(TYP)

SILT FENCE
(TYP)

RIPRAP HEAVY
GEOTEXTILE FABRIC TYPE 'HR'
(SEE STRUCTURE PLANS)

TURBIDITY BARRIER

LITTLE RIVER

RIPRAP HEAVY
GEOTEXTILE FABRIC TYPE 'HR'
(SEE STRUCTURE PLANS)

WETLAND BOUNDARY
(TYP)

CP #1 3/4 REBAR

BEGIN PROJECT
STA 215+75.00

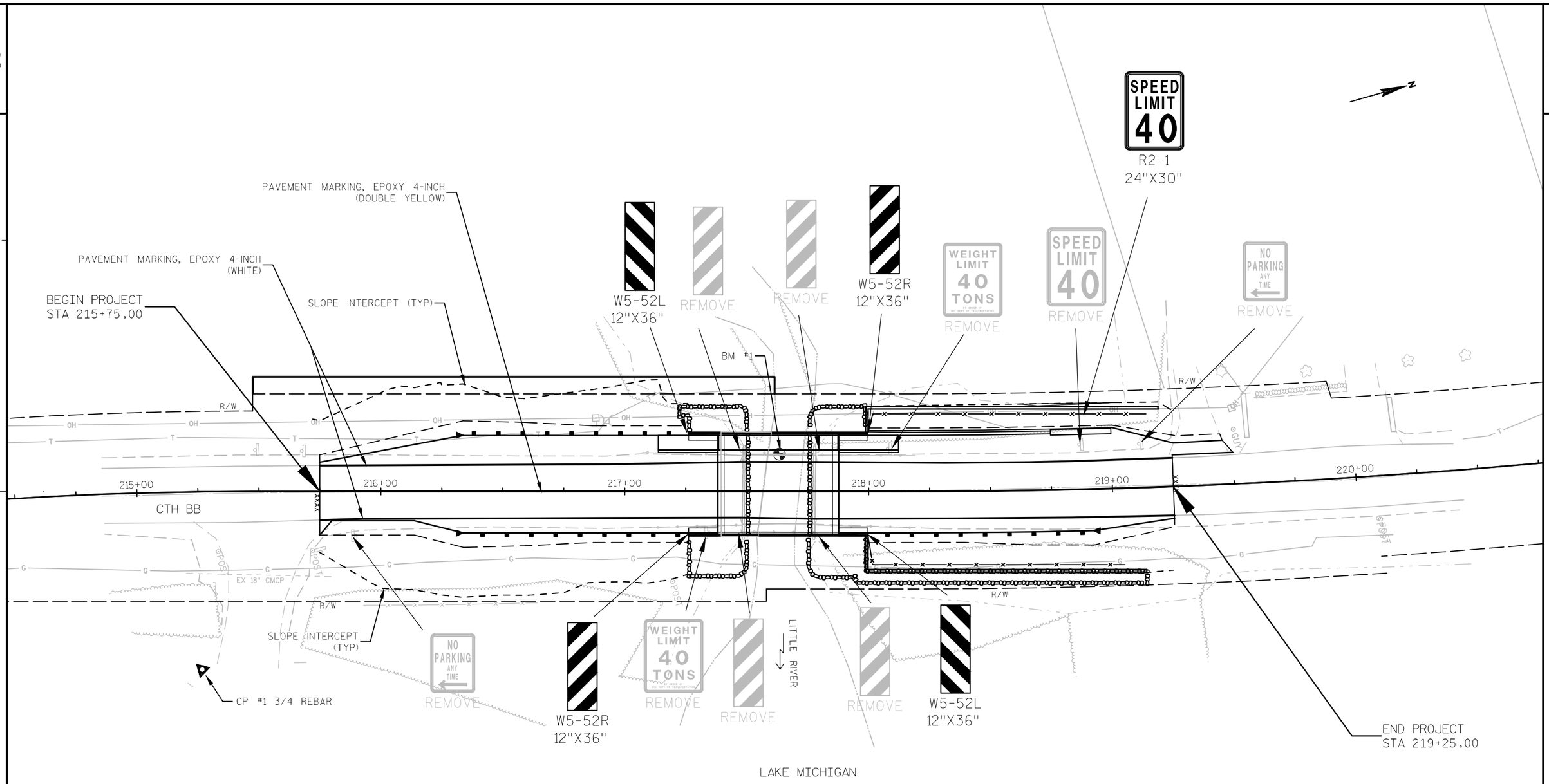
END PROJECT
STA 219+25.00

LAKE MICHIGAN

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	EROSION CONTROL PLAN	SHEET 7	E

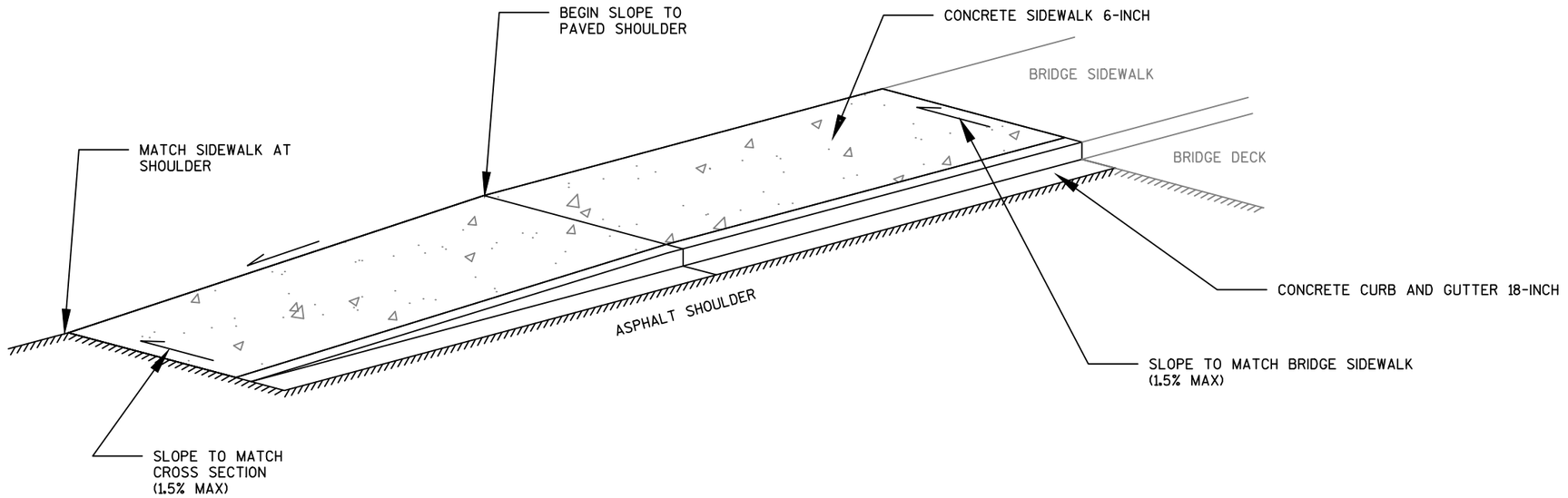
FILE NAME : X:\4183800\131108\TECH\CAD\93270200\SHEETSPLAN\93270271_050101_EC_FINAL.DWG PLOT DATE : 1/13/2016 1:48 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : **********

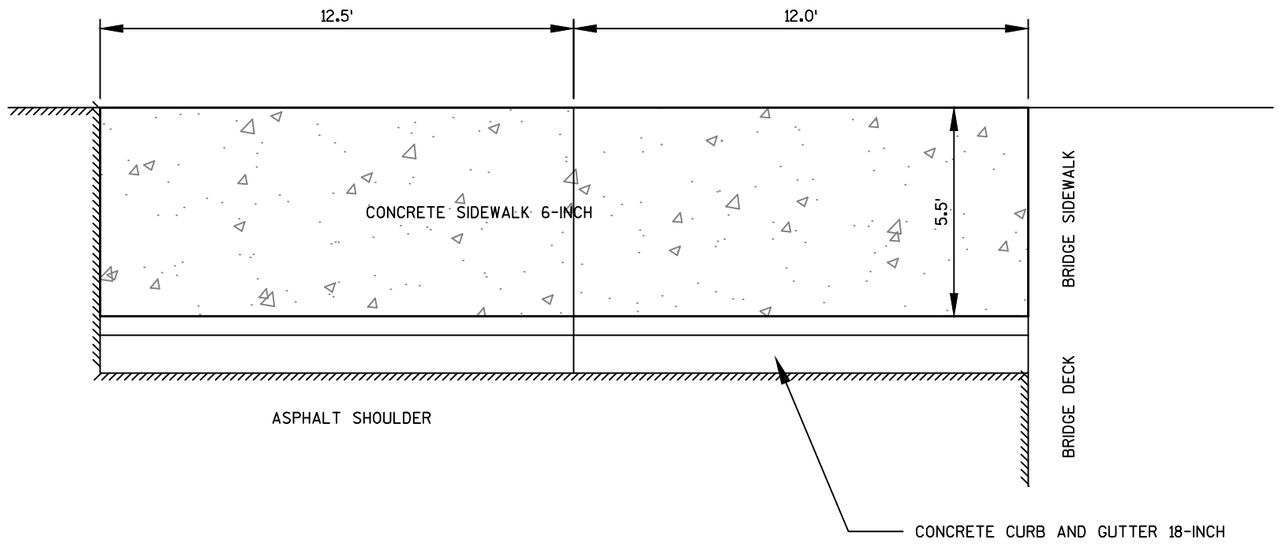
2



NOTE:
MATCH PROPOSED PAVEMENT MARKINGS TO EXISTING PAVEMENT MARKINGS AT PROJECT LIMITS

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	PAVEMENT MARKING AND SIGNING PLAN	SHEET 8	E

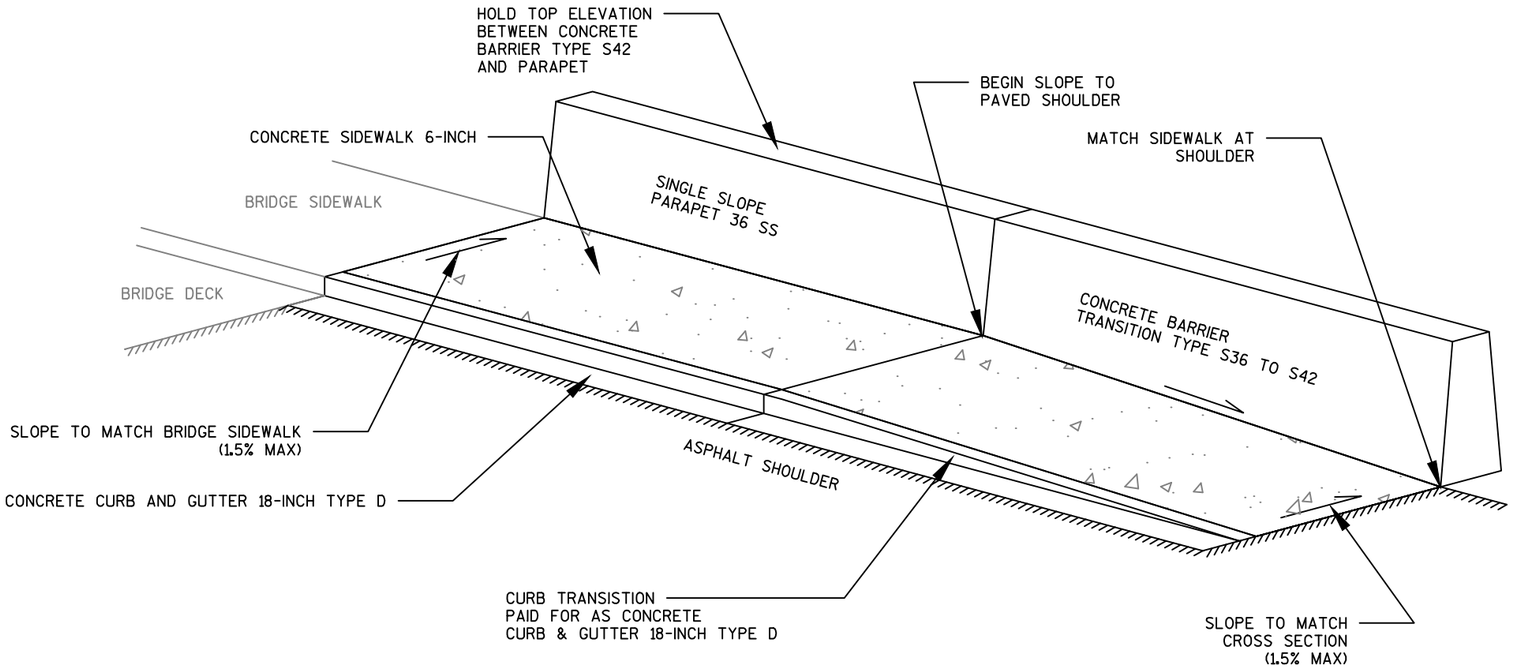


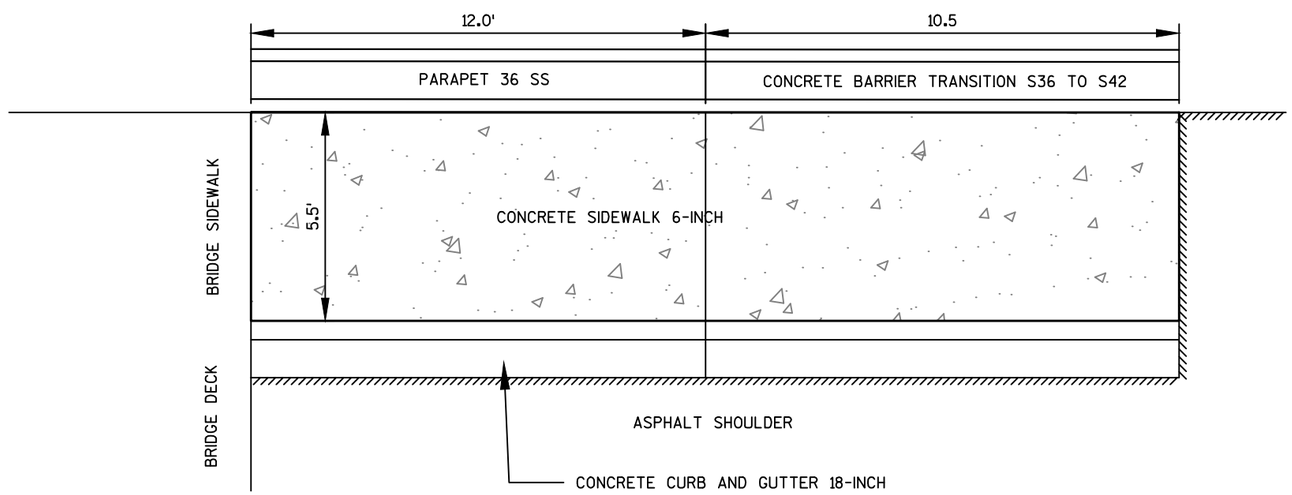


SIDEWALK AND SIDEWALK TAPER DETAIL SOUTH OF BRIDGE

NOT TO SCALE

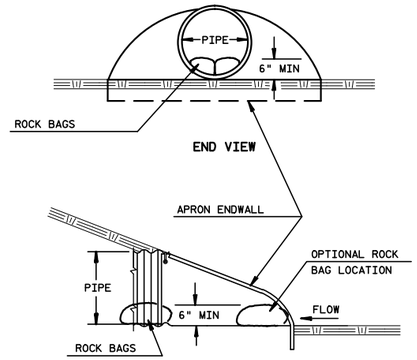
PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CONSTRUCTION DETAIL	SHEET 9	E





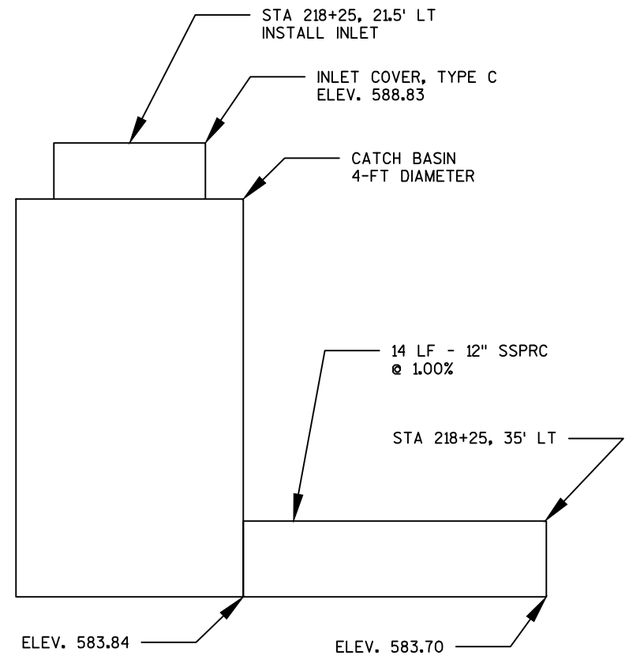
SIDEWALK AND SIDEWALK TAPER DETAIL NORTH OF BRIDGE

NOT TO SCALE



ROCK BAGS USED FOR CULVERT PIPE CHECKS DETAIL

(INSTALL ON INLET END ONLY)
PAID FOR AS ROCK BAGS



STORM INLET DETAIL

NOT TO SCALE

DATE 28MAR16 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	9327-02-71 QUANTITY
0010	201.0205	Grubbing	STA	6.000	6.000
0020	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. STA. 217+63	LS	1.000	1.000
0030	204.0180	Removing Delineators and Markers	EACH	5.000	5.000
0040	205.0100	Excavation Common	CY	491.000	491.000
0050	206.1000	Excavation for Structures Bridges (structure) 01. B-38-0146	LS	1.000	1.000
0060	208.0100	Borrow	CY	391.000	391.000
0070	210.0100	Backfill Structure	CY	240.000	240.000
0080	213.0100	Finishing Roadway (project) 01. 9327-02-71	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	57.000	57.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	580.000	580.000
0110	455.0605	Tack Coat	GAL	32.000	32.000
0120	465.0105	Asphaltic Surface	TON	306.000	306.000
0130	502.0100	Concrete Masonry Bridges	CY	182.000	182.000
0140	502.3200	Protective Surface Treatment	SY	222.000	222.000
0150	502.3210	Pigmented Surface Sealer	SY	67.000	67.000
0160	503.0128	Prestressed Girder Type I 28-Inch	LF	228.000	228.000
0170	505.0400	Bar Steel Reinforcement HS Structures	LB	4,740.000	4,740.000
0180	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	22,360.000	22,360.000
0190	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	12.000	12.000
0200	506.4000	Steel Diaphragms (structure) 01. B-38-0146	EACH	5.000	5.000
0210	513.4056	Railing Tubular Type H (structure) 01. B-38-0146	LF	147.000	147.000
0220	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0230	525.0118	Culvert Pipe Corrugated Aluminum 18-Inch	LF	126.000	126.000
0240	525.0318	Aluminum Apron Endwalls for Aluminum Culvert Pipe 18-Inch	EACH	2.000	2.000
0250	550.0500	Pile Points	EACH	12.000	12.000
0260	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	360.000	360.000
0270	601.0407	Concrete Curb & Gutter 18-Inch Type D	LF	48.000	48.000
0280	602.0415	Concrete Sidewalk 6-Inch	SF	265.000	265.000
0290	603.1142	Concrete Barrier Type S42	LF	65.000	65.000
0300	603.3535	Concrete Barrier Transition Type S36 to S42	EACH	1.000	1.000
0310	606.0100	Riprap Light	CY	8.000	8.000
0320	606.0300	Riprap Heavy	CY	255.000	255.000
0330	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	14.000	14.000
0340	611.0612	Inlet Covers Type C	EACH	1.000	1.000
0350	611.1004	Catch Basins 4-FT Diameter	EACH	1.000	1.000
0360	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	427.000	427.000
0370	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	3.000	3.000
0380	614.0800	Crash Cushions Permanent	EACH	1.000	1.000
0390	614.2500	MGS Thrie Beam Transition	LF	120.000	120.000
0400	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0410	616.0204	Fence Chain Link 4-FT	LF	240.000	240.000
0420	619.1000	Mobilization	EACH	1.000	1.000
0430	624.0100	Water	MGAL	9.000	9.000
0440	625.0500	Salvaged Topsoil **P**	SY	1,060.000	1,060.000
0450	628.1504	Silt Fence	LF	420.000	420.000

3

DATE 28MAR16 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	9327-02-71 QUANTITY
0460	628.1520	Silt Fence Maintenance	LF	140.000	140.000
0470	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0480	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0490	628.2008	Erosion Mat Urban Class I Type B	SY	1,060.000	1,060.000
0500	628.6005	Turbidity Barriers	SY	98.000	98.000
0510	628.7020	Inlet Protection Type D	EACH	1.000	1.000
0520	628.7555	Culvert Pipe Checks	EACH	4.000	4.000
0530	629.0210	Fertilizer Type B	CWT	0.700	0.700
0540	630.0120	Seeding Mixture No. 20 **P**	LB	30.200	30.200
0550	630.0200	Seeding Temporary **P**	LB	30.200	30.200
0560	634.0416	Posts Wood 4x4-Inch X 16-FT	EACH	6.000	6.000
0570	637.2210	Signs Type II Reflective H	SF	5.000	5.000
0580	637.2230	Signs Type II Reflective F	SF	21.000	21.000
0590	638.2602	Removing Signs Type II	EACH	9.000	9.000
0600	638.3000	Removing Small Sign Supports	EACH	9.000	9.000
0610	642.5001	Field Office Type B	EACH	1.000	1.000
0620	643.0100	Traffic Control (project) 01. 9327-02-71	EACH	1.000	1.000
0630	643.0420	Traffic Control Barricades Type III	DAY	990.000	990.000
0640	643.0705	Traffic Control Warning Lights Type A	DAY	1,540.000	1,540.000
0650	643.0900	Traffic Control Signs	DAY	770.000	770.000
0660	645.0120	Geotextile Fabric Type HR	SY	610.000	610.000
0670	645.0130	Geotextile Fabric Type R	SY	4.000	4.000
0680	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,400.000	1,400.000
0690	650.4500	Construction Staking Subgrade	LF	302.000	302.000
0700	650.5000	Construction Staking Base	LF	302.000	302.000
0710	650.6500	Construction Staking Structure Layout (structure) 01. B-38-0146	LS	1.000	1.000
0720	650.6500	Construction Staking Structure Layout (structure) 02. R-38-0007	LS	1.000	1.000
0730	650.6500	Construction Staking Structure Layout (structure) 03. R-38-0008	LS	1.000	1.000
0740	650.9910	Construction Staking Supplemental Control (project) 01. 9327-02-71	LS	1.000	1.000
0750	650.9920	Construction Staking Slope Stakes	LF	302.000	302.000
0760	690.0150	Sawing Asphalt	LF	55.000	55.000
0770	715.0502	Incentive Strength Concrete Structures	DOL	1,092.000	1,092.000
0780	SPV.0165	Special 01. Wall Modular Block MSE LRFD/QMP, Structure R-38-7 **P**	SF	764.000	764.000
0790	SPV.0165	Special 02. Wall Modular Block MSE LRFD/QMP, Structure R-38-8 **P**	SF	1,167.000	1,167.000

3

GRUBBING SUMMARY

STATION - STATION			OFFSET	201.0205 GRUBBING STA
216+00	-	217+00	RT	1
216+75	-	219+25	LT	3
217+75	-	219+25	RT	2
TOTAL				**6**

REMOVING DELINEATORS AND MARKERS

STATION - STATION			OFFSET	204.0180 REMOVING DELINEATORS AND MARKERS EACH
216+00	-	217+00	LT	3
216+00	-	217+00	RT	2
TOTAL				**5**

FINISHING ROADWAY (9327-02-71)

STATION - STATION	213.0100 FINISHING ROADWAY EACH
9327-02-71	1
TOTAL	**1**

BASE AGGREGATE DENSE FOR ROADWAY

STATION - STATION			LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
215+75	-	217+38	CTH BB	36	303	5
217+88	-	219+25	CTH BB	21	277	4
TOTAL				**57**	**580**	**9**

3

ASPHALT SURFACE SUMMARY

STATION - STATION			SY	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
215+75	-	217+38	654.00	16	157
217+88	-	219+25	622.00	16	149
TOTAL				**32**	**306**

DRAINAGE ITEMS

STATION	OFFSET	ELEVATION	STATION	OFFSET	ELEVATION	SLOPE	525.0118 CULVERT PIPE CORRUGATED ALUMINUM 18-INCH LF	525.0318 ALUMINUM APRON ENDWALLS FOR ALUMINUM CULVERT PIPE 18-INCH EACH	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	611.0612 INLET COVERS TYPE C EACH	611.1004 CATCH BASINS 4-FT DIAMETER EACH
215+25	24'0 LT	586.70	217+00	41.0' LT	582.20	3.58%	126	2	--	--	--
218+25	21.5' LT	583.84	218+25	35.0' LT	583.70	1.00%	--	--	14	1	1
						TOTAL	**126**	**2**	**14**	**1**	**1**

EARTHWORK SUMMARY

DIVISION	FROM/TO STATION	205.0100 EXCAVATION COMMON (1) CUT	205.0100 EXCAVATION COMMON (1) EBS EXCAVATION (2)	AVAILABLE MATERIAL (3)	UNEXPANDED FILL	EXPANDED FILL (4) 1.3	MASS ORDINATE +/- (5)	208.0100 BORROW
CTH BB SOUTH OF BRIDGE	215+75.00 - 217+38.25	248	0	248	346	450	-202	202
CTH BB NORTH OF BRIDGE	217+87.75 - 219+50.00	232	0	232	314	409	-176	176
CTH BB	UNDISTRIBUTED	0	10	0	10	13	-13	13
GRAND TOTAL		481	10	481	671	872	-391	391
TOTAL EXCAVATION COMMON		491						

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100

2) EBS Excavation to be backfilled with Borrow or Cut.

3) Available Material = Cut

4) Expanded Fill. Factor = 1.30

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

CONCRETE CURB & GUTTER AND SIDEWALK

STATION - STATION			601.0407 CONCRETE CURB & GUTTER 18-INCH TYPE D LF	602.0415 CONCRETE SIDEWALK 6-INCH SF
217+14	-	217+38	25	138
217+88	-	218+11.00	23	127
TOTAL			**48**	**265**

FENCE CHAIN LINK 4-FT

STATION - STATION			OFFSET	616.0204 FENCE CHAIN LINK 4-FT LF
218+00	-	219+15	LT	120
218+00	-	219+05	RT	120
TOTAL				**240**

MOBILIZATION

STATION - STATION	619.1000 MOBILIZATION EACH
PROJECT	1
TOTAL	**1**

ROADSIDE BARRIER ITEMS

STATION - STATION			OFFSET	603.1142 CONCRETE BARRIER TYPE S42 LF	603.3535 CONCRETE BARRIER TRANSITION S36 TO S42 EACH	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
216+35	-	217+26	LT	--	--	40	1
216+35	-	217+26	RT	--	--	40	1
218+00	-	219+00	LT	65	1	--	--
218+00	-	218+90	RT	--	--	40	1
TOTAL				**65**	**1**	**120**	**3**

CRASH CUSHIONS PERMANENT

STATION - STATION			OFFSET	614.0800 CRASH CUSHIONS PERMANENT EACH	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
218+00	-	219+00	LT	1	2	OM-3R (W05-58R)	TL-2	UNIDIRECTIONAL	L	PERMANENT CONCRETE BARRIER ON SHOULDER
TOTAL				**1**						

FINISHING ITEMS

STATION - STATION			OFFSET	625.0500 SALVAGED TOPSOIL **P** SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 **P** LB	630.0200 SEEDING TEMPORARY **P** LB
215+75.00	-	217+38.25	LT	251	251	0.2	6.8	6.8
215+75.00	-	217+38.25	RT	307	307	0.2	9.0	9.0
217+87.75	-	219+25.00	LT	126	126	0.1	3.4	3.4
217+87.75	-	219+25.00	RT	164	164	0.1	5.0	5.0
UNDISTRIBUTED			--	212	212	0.1	6.0	6.0
TOTAL				**1060**	**1060**	**0.7**	**30**	**30**

EROSION CONTROL MOBILIZATION

STATION - STATION	628.1905 EROSION CONTROL MOBILIZATION EA	628.1910 EMERGENCY EROSION CONTROL MOBILIZATION EA
PROJECT	5	3
TOTAL	**5**	**3**

SILT FENCE

STATION - STATION			OFFSET	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
215+75	-	217+10	LT	150	50
215+75	-	217+10	RT	150	50
218+00	-	219+25	LT	120	40
TOTAL				**420**	**140**

TURBIDITY BARRIER

STATION	LOCATION	628.6005 TURBIDITY BARRIER SY
217+50.00	CTH BB	49
217+80.00	CTH BB	49
TOTAL		**98**

EROSION CONTROL AT DRAINAGE STRUCTURES

STATION	OFFSET	606.0100 RIPRAP LIGHT CY	628.7020 INLET PROTECTION TYPE D EACH	628.7555 CULVERT PIPE CHECKS EACH	645.0130 GEOTEXTILE FABRIC TYPE 'R' SY
215+30	LT	--	--	4	--
217+05	LT	4	--	--	2
218+25	LT	4	1	--	2
TOTAL		**8**	**1**	**4**	**4**

SIGNING SUMMARY

STATION	OFFSET	638.2602 REMOVING SIGNS TYPE II EA	638.3000 REMOVING SMALL SIGN SUPPORTS EA	634.0416 POSTS WOOD 4X6-INCH X 16-FT EA	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	COMMENT
215+90	RT	1	1	--	--	--	R7-1-L 18"X24"
217+27	LT	--	--	1	--	3.00	W5-52L 12"X36"
217+27	LT	--	--	1	--	3.00	W5-52L 12"X36"
217+35	RT	1	1	--	--	--	
217+48	LT	1	1	--	--	--	
217+48	RT	1	1		--	--	
217+78	RT	1	1	--	--	--	
217+78	LT	1	1	--	--	--	
218+00	LT	--	--	1	--	3.00	W5-52L 12"X36"
218+00	RT	--	--	1	--	3.00	W5-52L 12"X36"
218+10	LT	1	1	1	--	--	
218+87	LT	1	1	1	5.00	--	R2-1 24"x30"
219+00	LT	--	--	1	--	9.00	W5-58R 36"x36"
219+12	LT	1	1	--	--	--	R7-1-L 18"X24"
TOTAL		**9**	**9**	**7**	**5.00**	**21.00**	

FIELD OFFICE TYPE B

STATION - STATION	642.5001 FIELD OFFICE TYPE B EACH
PROJECT	1
TOTAL	**1**

TRAFFIC CONTOL (PROJECT)

STATION - STATION	643.0100 TRAFFIC CONTROL 9327-02-71 EACH
PROJECT	1
TOTAL	**1**

PAVEMENT MARKING SUMMARY

STATION - STATION			OFFSET	646.0106 PAVEMENT MARKING EPOXY 4-INCH YELLOW LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH WHITE LF
215+75	-	219+25	LT	--	350
215+75	-	219+25	RT	--	350
215+75	-	219+25	CL	700	
SUBTOTAL				700	700
TOTAL				**1,400**	

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
WEST OF BRIDGE	495	770	385
EAST OF BRIDGE	495	770	385
TOTAL	**990**	**1,540**	**770**

CONSTRUCTION STAKING SUMMARY

STATION - STATION			650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT 01. B-38-0146 LS	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT 02. R-38-0007 LS	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT 03. B-38-0008 LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL .01 9391-02-71 LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
PROJECT			--	--	1	1	1	1	--
215+75.00	-	STRUCTURE	164	164	--	--	--	--	164
STRUCTURE	-	219+25.00	138	138	--	--	--	--	138
TOTAL			**302**	**302**	**1**	**1**	**1**	**1**	**302**

SAWCUTTING SUMMARY

STATION	LOCATION	690.0150 SAWING ASPHALT LF
215+75	--	30
219+25	--	25
TOTAL		**55**

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (HIGHWAY, PERMANENT LIMITED, OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING
NATIONAL GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT

SECTION CORNER
NOTATION FOR COMBUSTABLE FLUIDS
NOTATION FOR HIGH VOLTAGE TRANSMISSION LINES

R/W MONUMENT
NON-MONUMENTED R/W POINT
FOUND IRON PIN
VALVE (GAS, WATER, ETC.)
SIGN
OFF-PREMISE SIGN

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE		
TELEPHONE POLE		
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)		

ACCESS CONTROLLED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)

BRIDGE

PARCEL NUMBER 25
UTILITY NUMBER 40

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS	(100')
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RIGHT	RT
CENTERLINE	C/L	RIGHT OF WAY	R/W
CERTIFIED SURVEY MAP	CSM	SECTION	SEC
CONCRETE	CONC	SEPTIC VENT	SEPV
COUNTY	CO	SQUARE FEET	SF
COUNTY TRUNK HIGHWAY	CTH	STATE TRUNK HIGHWAY	STH
DISTANCE	DIST	STATION	STA
CORNER	COR	SUBDIVISION	SUBD
DOCUMENT NUMBER	DOC	TANGENT	TAN
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED EASEMENT	TLE
GAS VALVE	GV	TRANSPORTATION PROJECT PLAT	TPP
GRID NORTH	GN	UNITED STATES HIGHWAY	USH
HIGHWAY EASEMENT	HE	VOLUME	V
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY NUMBER	NGS NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		

CURVE DATA

LONG CHORD	LC
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE OR DELTA	Δ
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

CONVENTIONAL UTILITY SYMBOLS

WATER	—W—
GAS	—G—
TELEPHONE	—T—
OVERHEAD TRANSMISSION LINES	—OH—
ELECTRIC	—E—
CABLE TELEVISION	—TV—
FIBER OPTIC	—FO—
SANITARY SEWER	—SAN—
STORM SEWER	—SS—

CAUTION
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

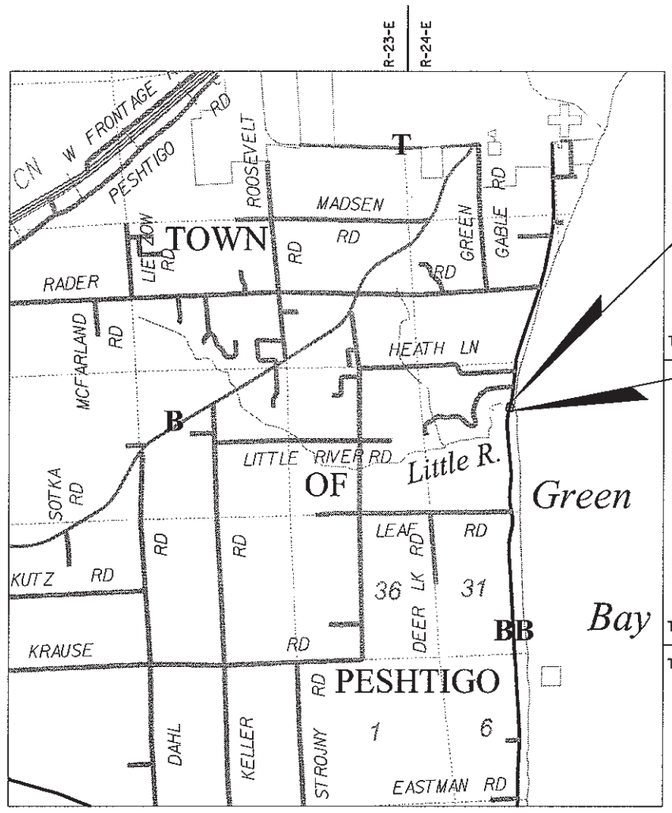
R/W PROJECT NUMBER 9327-02-00	SHEET NUMBER	TOTAL SHEETS
R/W PROJECT NUMBER	4.01	2

PLAT OF RIGHT OF WAY REQUIRED FOR

LEAF ROAD - HEATH LANE
(CTH BB BRIDGE B-38-146)

CTH BB — MARINETTE COUNTY

CONSTRUCTION PROJECT NUMBER 9327-02-71



END RELOCATION ORDER
STA 218+17.90
1403.86' S AND 3280.65' E FROM NW COR SECTION 30 T30N, R24E
Y = 128,868.431
X = 804,990.359

BEGIN RELOCATION ORDER
STA 215+47.52
1663.88' S AND 3206.52' E FROM NW COR SECTION 30 T30N, R24E
Y = 128,608.416
X = 804,916.228

LAYOUT
SCALE 0 — 1 MILE

TOTAL NET LENGTH OF CENTERLINE = .051 MI.

Mead & Hunt

WISCONSIN
CHARLES A. FORMOE
S-1876
MILWAUKEE, WI
LAND SURVEYOR

CHARLES A. FORMOE
S-1876

REVISION DATE

STATE OF WISCONSIN
MARINETTE COUNTY

APPROVED FOR MARINETTE COUNTY
DATE: 12/23/15 (Signature)

NOTES:

COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO THE WISCONSIN COUNTY, MARINETTE COUNTY, NAD 83 (2007), US SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. PLAT DISTANCES ARE GROUND LENGTH AND MAY BE CONVERTED TO GRID LENGTH BY MULTIPLYING THE DISTANCE BY THE GRID FACTOR PROVIDED ON THE DETAIL SHEETS.

ALL NEW RIGHT OF WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 1" X 24" IRON PIPE WITH DOT CAP), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

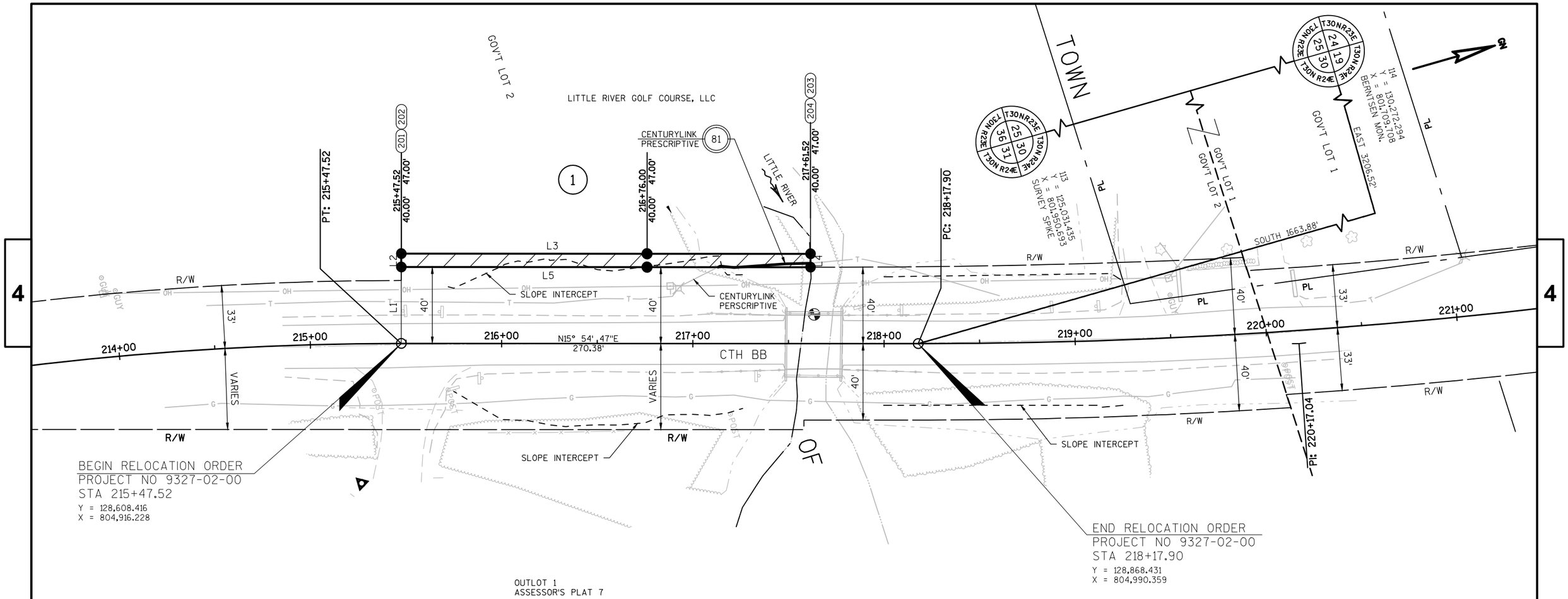
ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-AQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, OR FROM CENTERLINE OF EXISTING PAVEMENTS.

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

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

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

FOR THE LATEST ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN GREENBAY, WISCONSIN.



Line Table		
POINT #	Direction	Length
L1	N74°05'13"W	40.00
L2	N74°05'13"W	7.00
L3	N15°54'47"E	214.00
L4	S74°05'13"E	7.00
L5	S15°54'47"W	214.00

POINT TABLE		
POINT NUMBER	NORTHING	EASTING
201	128619.383	804877.761
202	128621.302	804871.029
203	128827.101	804929.703
204	128825.182	804936.435

PI STA = 212+81.25
Y = 128347.656
X = 804841.884
DELTA = 18°48'35"
D = 3°30'00"
T = 271.15'
L = 537.42'
R = 1637.02'
PC STA = 210+10.10
PT STA = 215+47.52

PI STA = 220+17.04
Y = 129059.944
X = 805044.961
DELTA = 7°57'11"
D = 2°00'00"
T = 199.14'
L = 397.65'
R = 2864.79'
PC STA = 218+17.90
PT STA = 222+15.55

UTILITY SCHEDULE OF INTEREST REQUIRED		
UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
81	CENTURYLINK	RELEASE OF RIGHTS

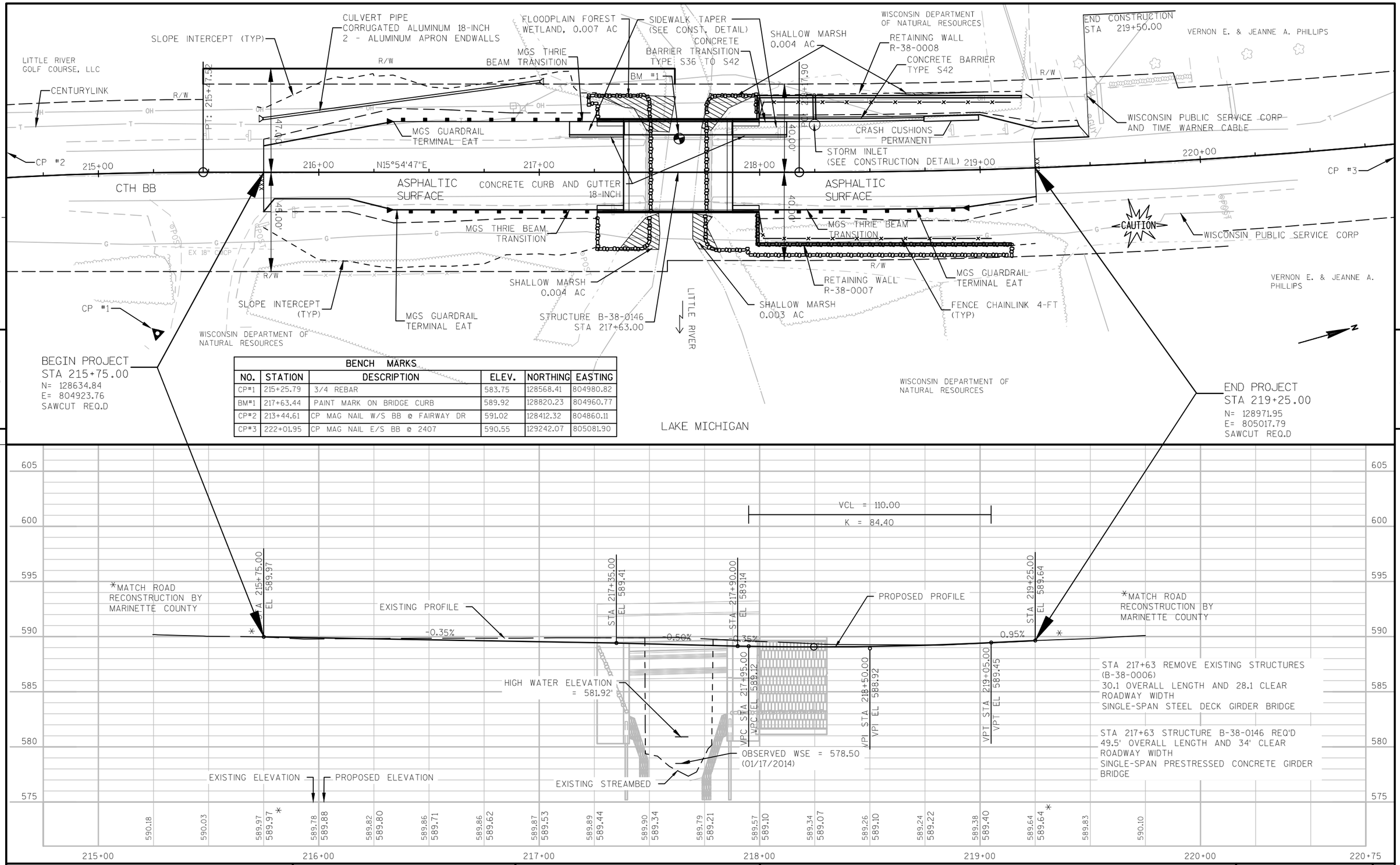
SCHEDULE OF LANDS AND INTERESTS REQUIRED					
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W NEW SF	R/W EXISTING SF	R/W TOTAL SF
1	LITTLE RIVER GOLF COURSE, LLC	FEE	1498	0	1498

NOTES:
EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE:
TOWN OF PESHTIGO HIGHWAY PROJECT (1955) DOCUMENTS: Vol.221, Pg.425, Doc. 278478; Vol.221, Pg.427, Doc. 278479; Vol.221, Pg.461, Doc. 278510; Vol.221, Pg.50, Doc. 278041.

REVISION DATE JAN. 12, 2016	DATE January 12, 2016	SCALE, FEET 0 25 50	HWY: CTH BB	STATE R/W PROJECT NUMBER 9327-02-00	PLAT SHEET 4.02
	GRID FACTOR _____		COUNTY: MARINETTE	CONSTRUCTION PROJECT NUMBER 9327-02-71	PS&E SHEET --17 E

FILE NAME : 040102_RP.DWG
LAYOUT NAME - 040102_RP
PLOT DATE : 1/12/2016 1:53 PM PLOT BY : CHUCK FORMOE PLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 75



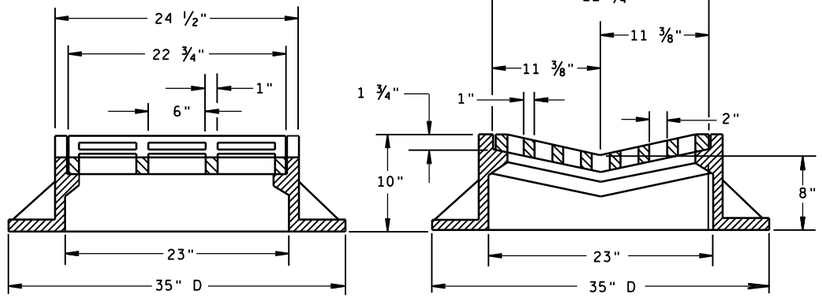
BENCH MARKS					
NO.	STATION	DESCRIPTION	ELEV.	NORTHING	EASTING
CP#1	215+25.79	3/4 REBAR	583.75	128568.41	804980.82
BM#1	217+63.44	PAINT MARK ON BRIDGE CURB	589.92	128820.23	804960.77
CP#2	213+44.61	CP MAG NAIL W/S BB @ FAIRWAY DR	591.02	128412.32	804860.11
CP#3	222+01.95	CP MAG NAIL E/S BB @ 2407	590.55	129242.07	805081.90

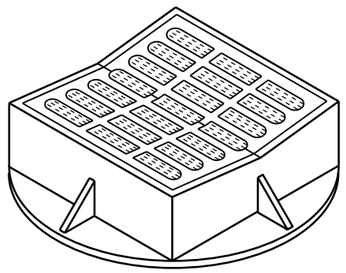
PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	PLAN AND PROFILE: CTH BB	SHEET 18	E

Standard Detail Drawing List

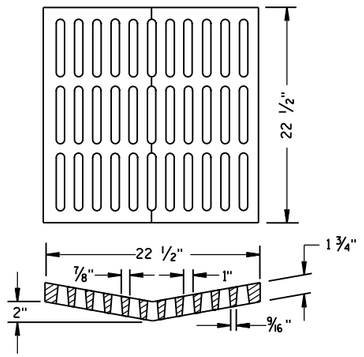
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A08-01	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08D01-18	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B33-01G	CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR
14B33-01H	CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR
14B39-01C	36-INCH SSCB TO 42-INCH SSCB HEIGHT TRANSITION
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)

6



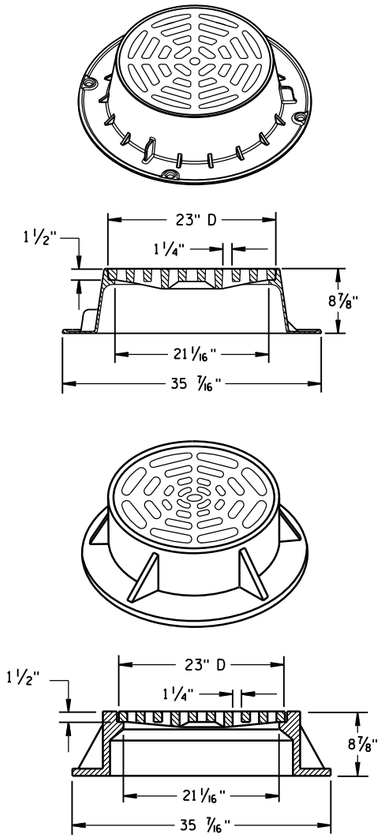


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

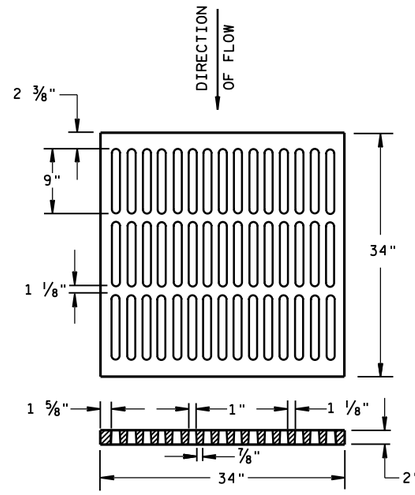
NOTE: EITHER CASTING IS ACCEPTABLE

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.

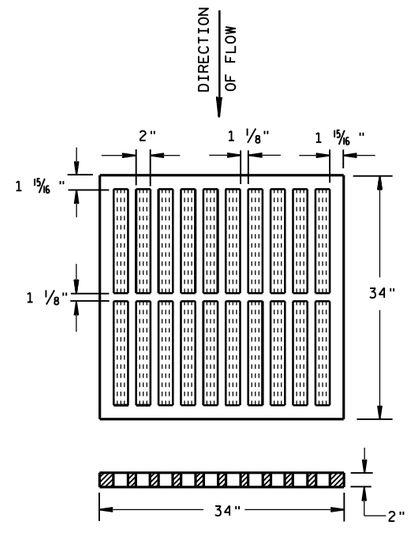
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



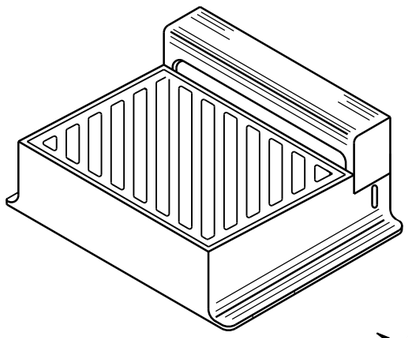
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

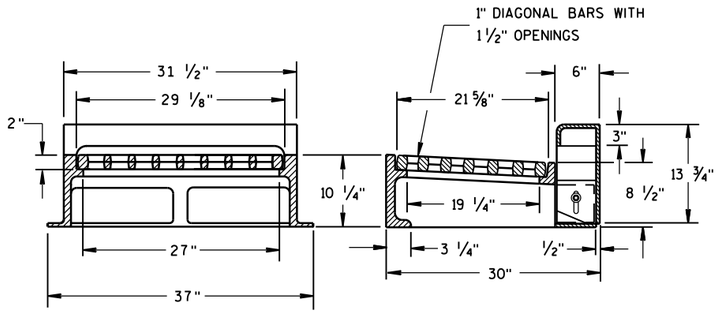


TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE



DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

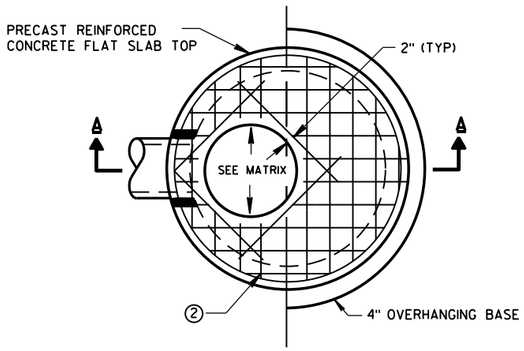
INLET COVERS
TYPE B, B-A, C,
MS, MS-A, & WM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

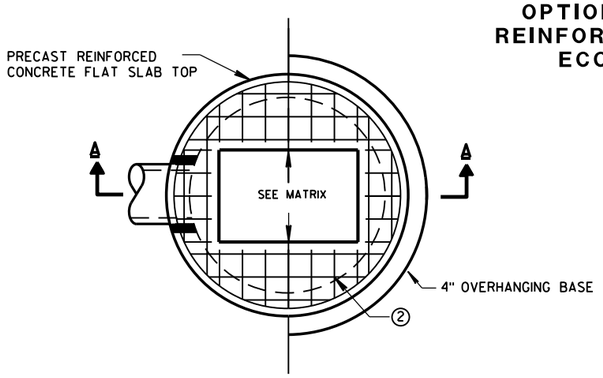
APPROVED
11/27/2013 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

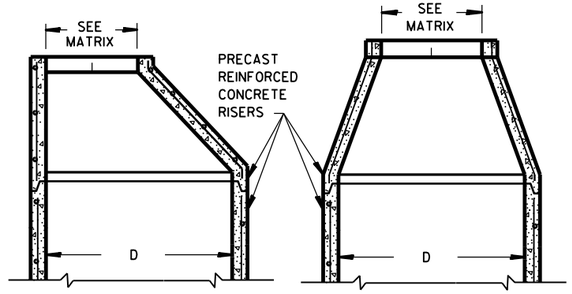
S.D.D. 8 A 5-19b



PLAN VIEW CIRCULAR OPENING

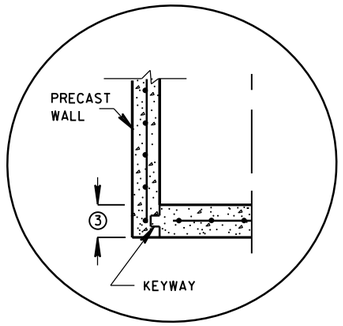


PLAN VIEW RECTANGULAR OPENING

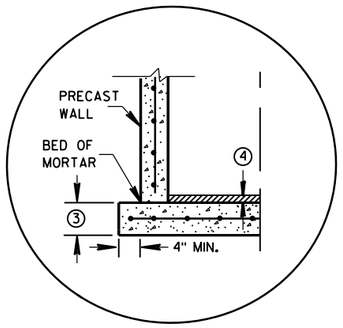


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

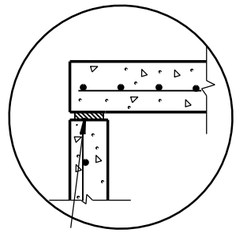


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



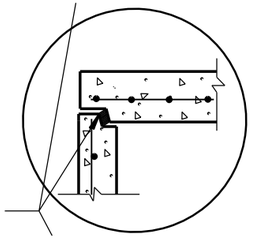
SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"

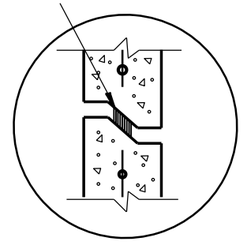


TOP WITH PLAIN END JOINT

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)

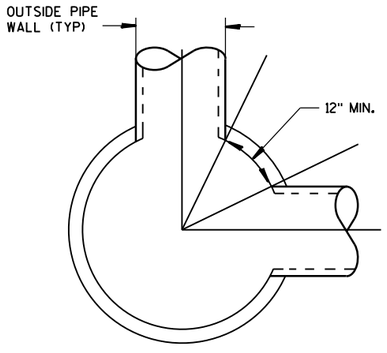


TOP WITH TONGUE AND GROOVE JOINT

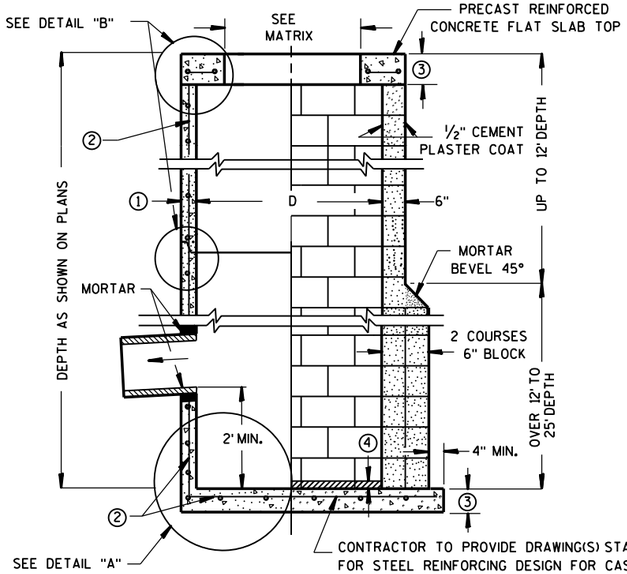


RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"



DETAIL "C"



CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

SECTION A-A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.

② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER OPENING MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT)											
3-FT	2X2	X	X					X		X		
	2 DIA.				X							X
4-FT-6-FT	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2 DIA.				X							X
	2X3						X					
	2.5X3					X						

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30

CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

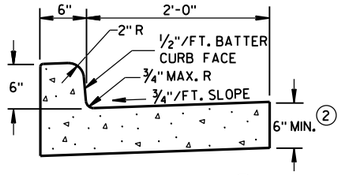
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

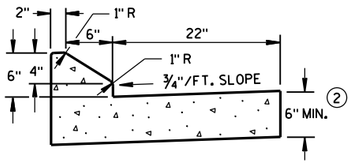
CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

6

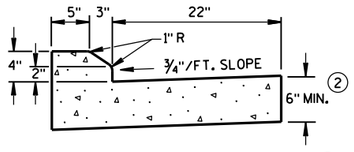
S.D.D. 8 A 8-1



TYPES A & D ①

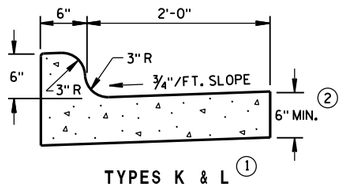


6" SLOPED CURB TYPES G & J ①

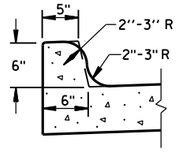


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

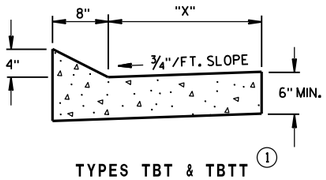


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

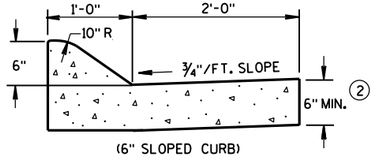
CONCRETE CURB & GUTTER 30"



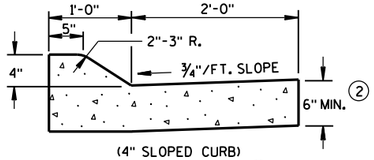
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

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

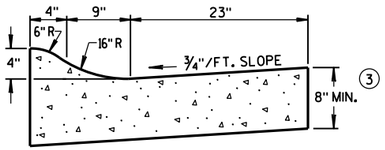


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

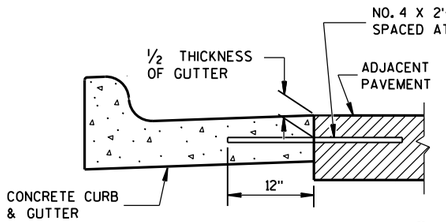
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

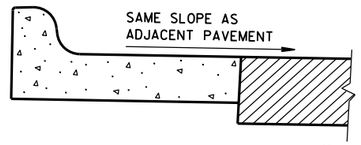
③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

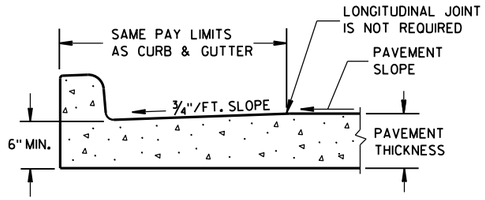
⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



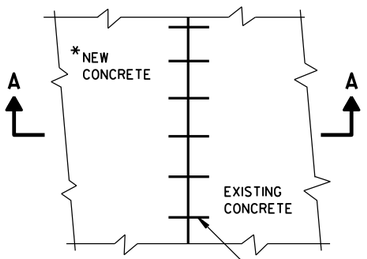
TYPICAL TIE BAR LOCATION ①



REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)

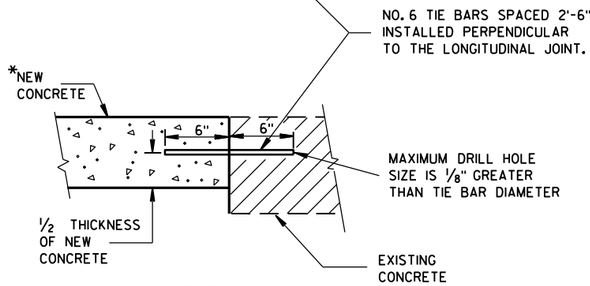


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



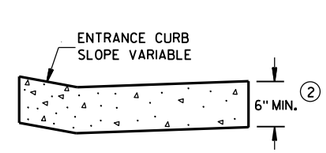
PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

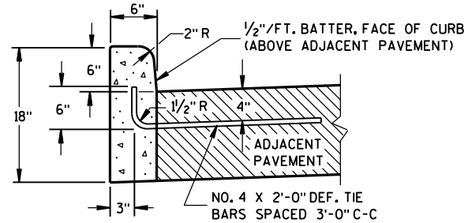


SECTION A-A

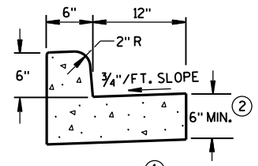
TIE BARS DRILLED
INTO EXISTING PAVEMENT



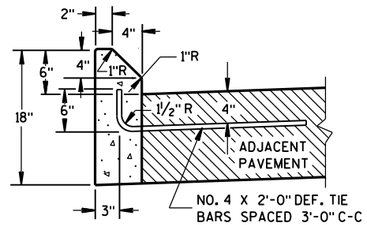
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



① TYPES A & D

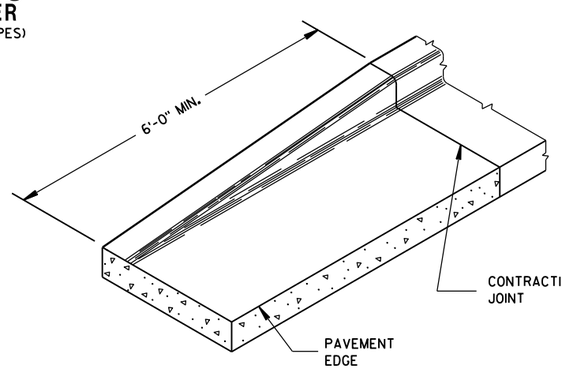


① TYPES A & D
CONCRETE CURB & GUTTER 18"



① TYPES G & J

CONCRETE CURB



END SECTION CURB & GUTTER

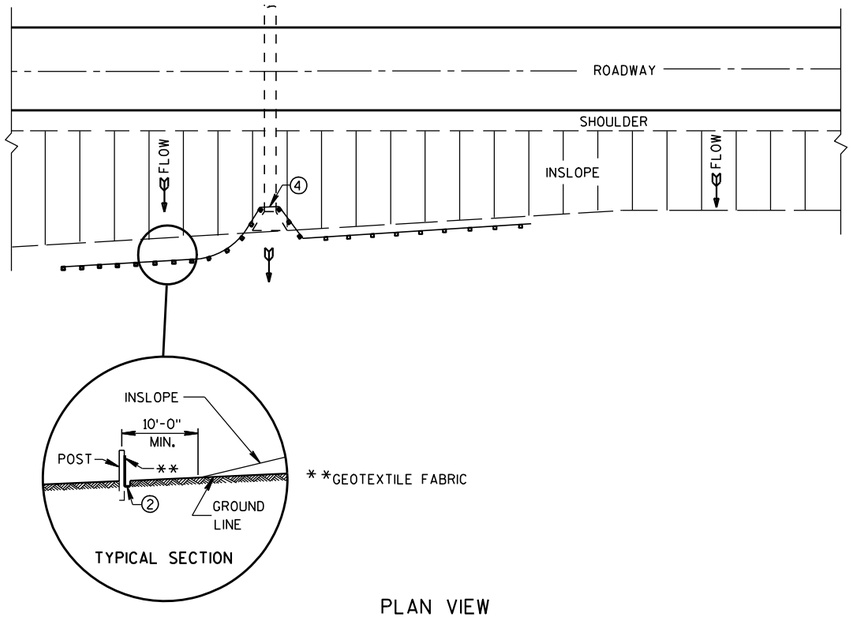
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

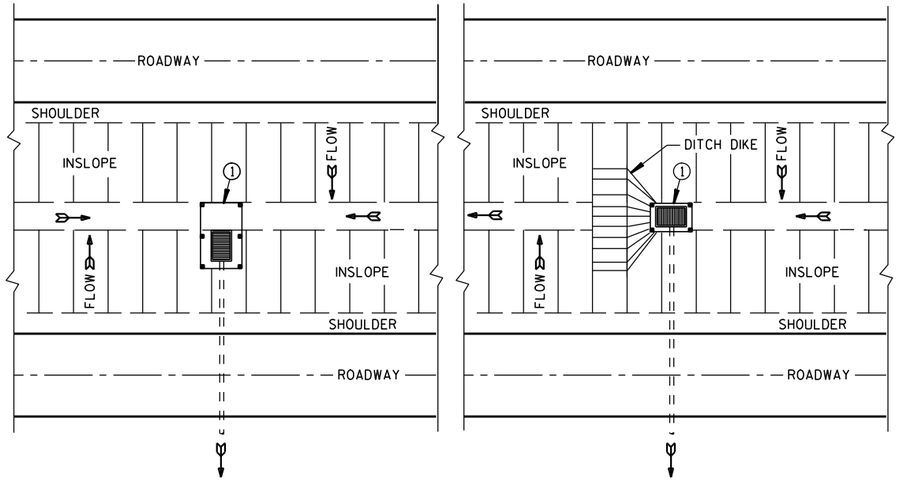
6

S.D.D. 8 D 1-18



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.

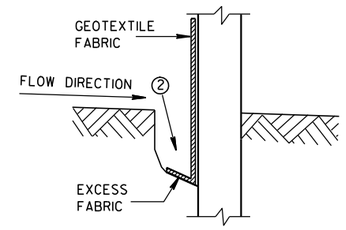
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

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.

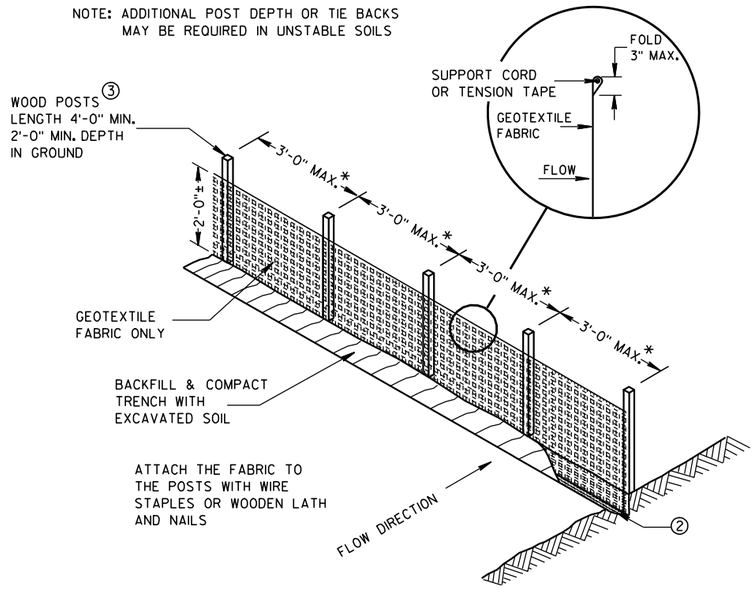
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

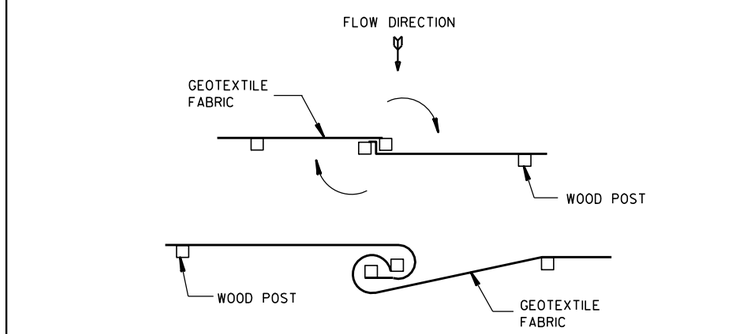
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



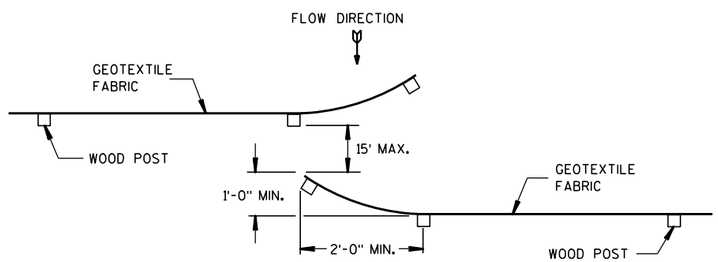
TRENCH DETAIL



SILT FENCE

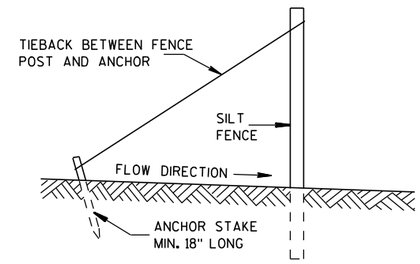


TWIST METHOD



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

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S.D.D. 8 E 9-6

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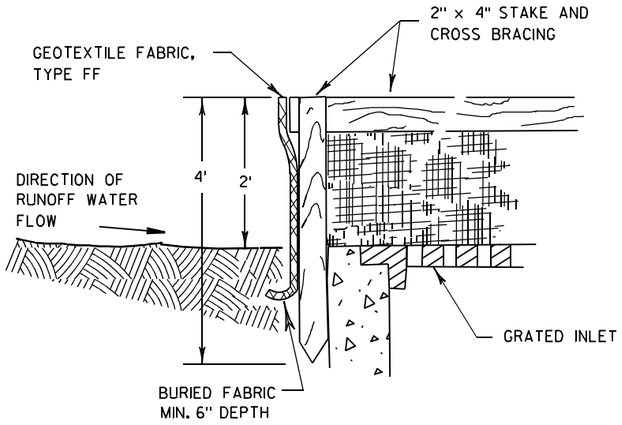
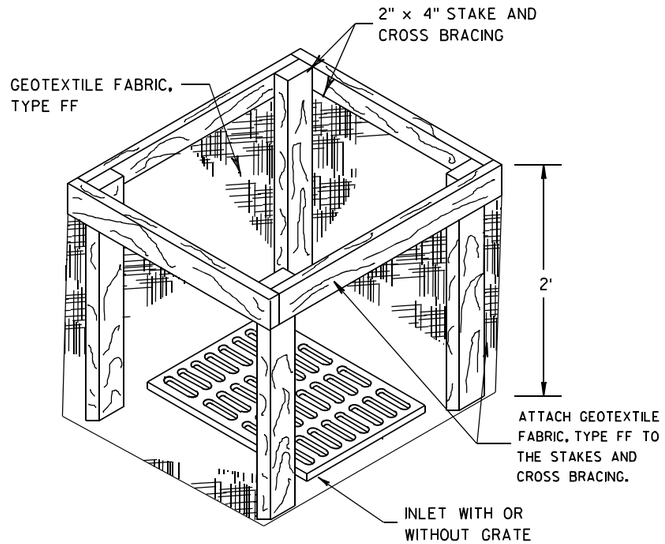
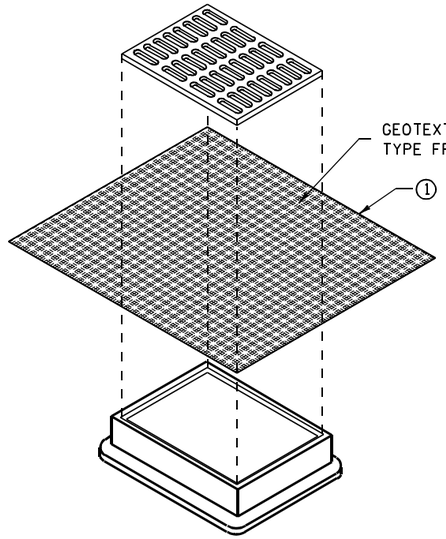
S.D.D. 8 E 9-6



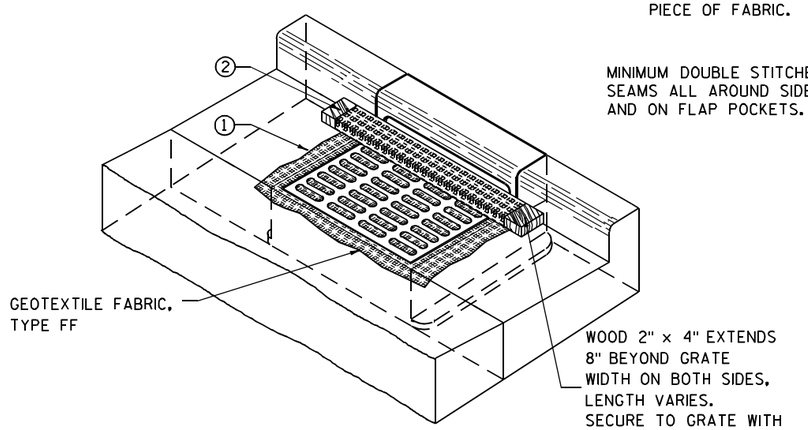


INLET PROTECTION, TYPE A

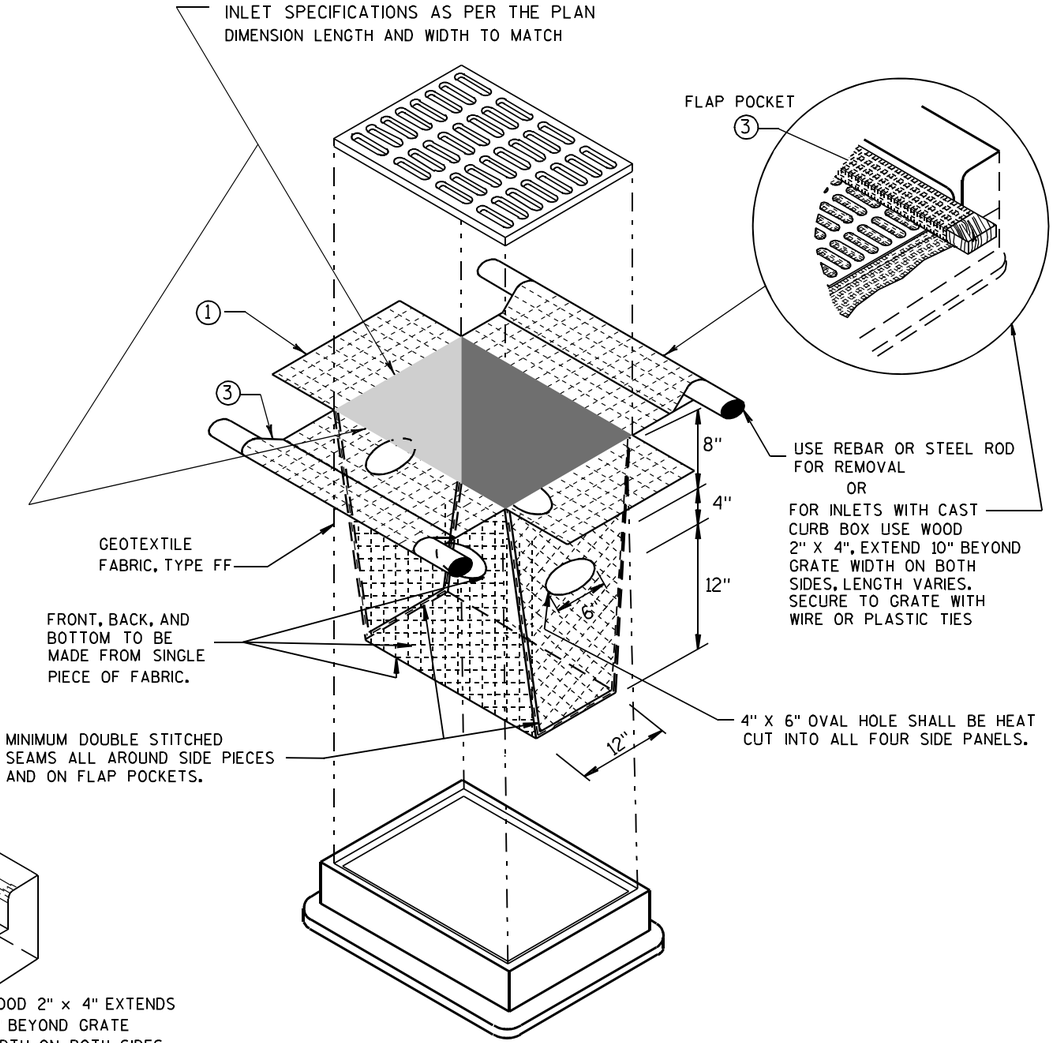


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

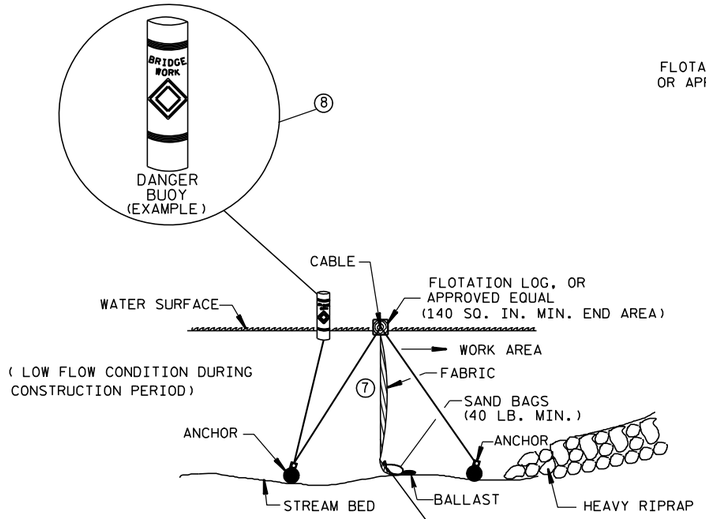
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

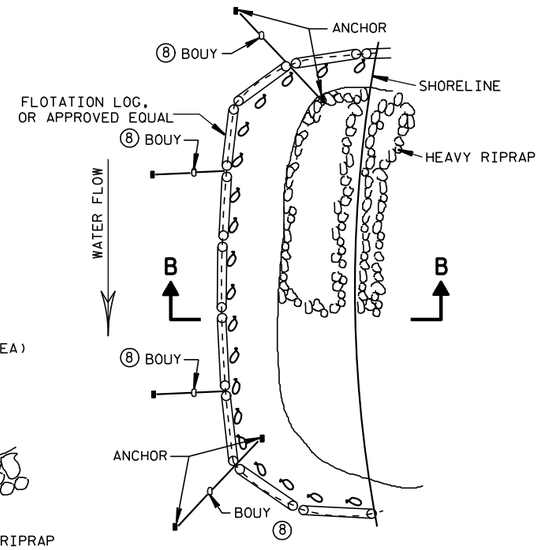
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

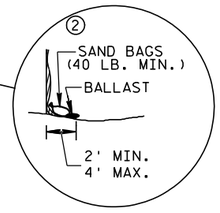
APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 E 10-2

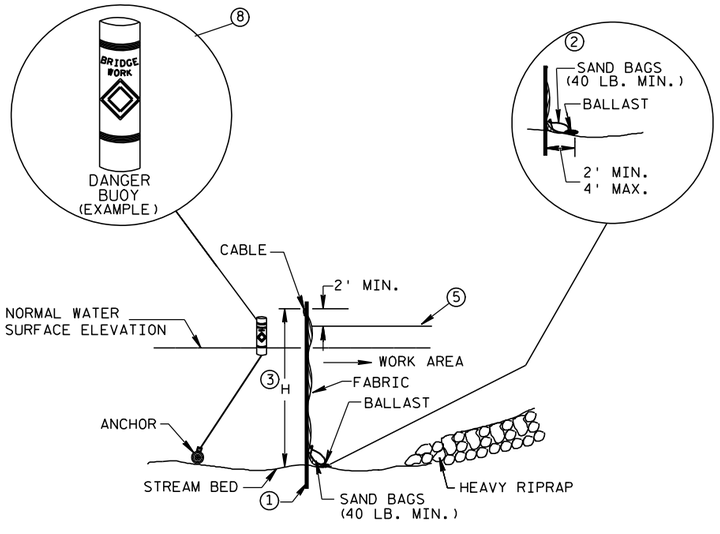


SECTION B-B

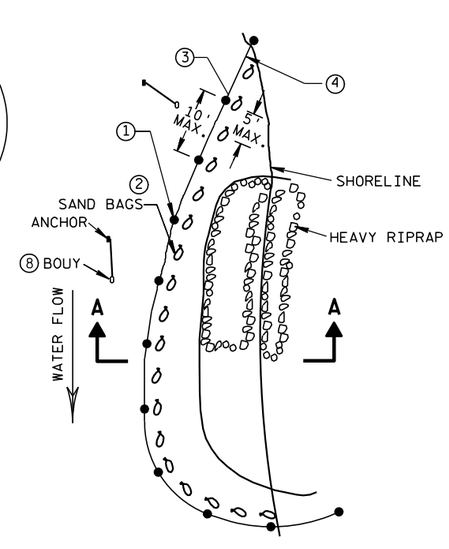




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

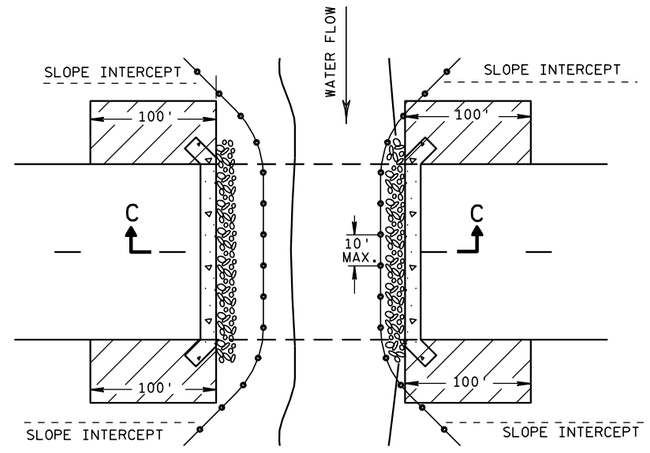
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

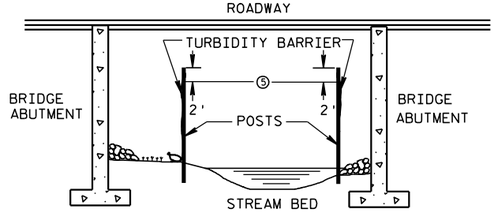
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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S.D.D. 8 E 11-2

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S.D.D. 8 E 11-2

METAL APRON ENDWALLS

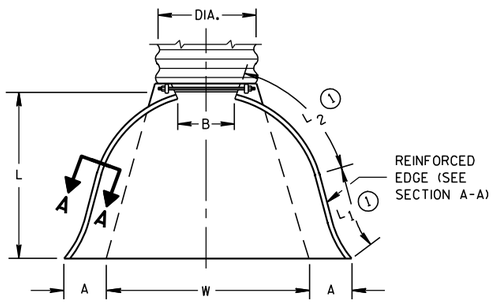
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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

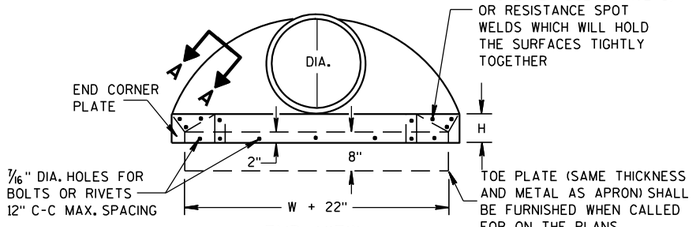
REINFORCED CONCRETE APRON ENDWALLS

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

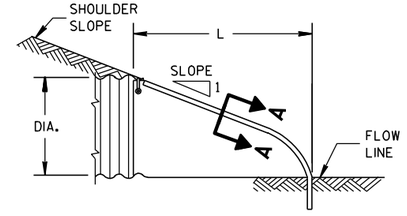
*MINIMUM
**MAXIMUM



PLAN VIEW

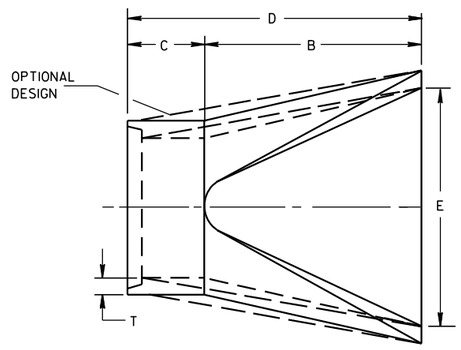


END VIEW

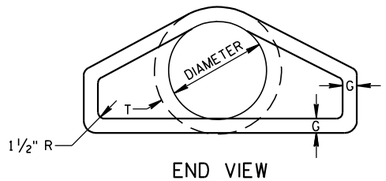


SIDE ELEVATION

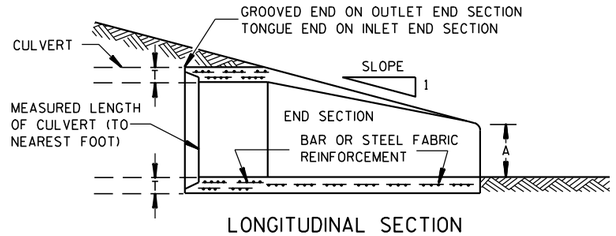
METAL ENDWALLS



PLAN

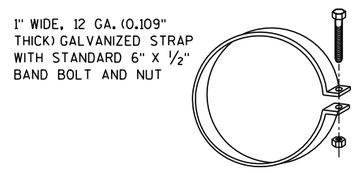


END VIEW



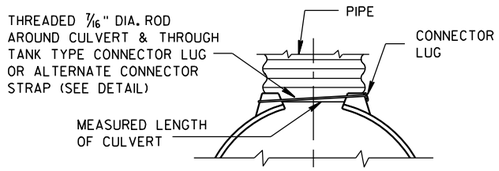
LONGITUDINAL SECTION

CONCRETE ENDWALLS

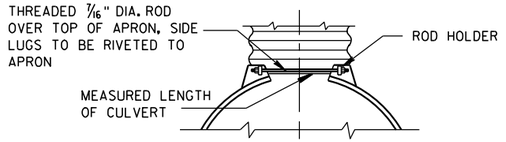


ALTERNATE FOR TYPE 1 CONNECTION

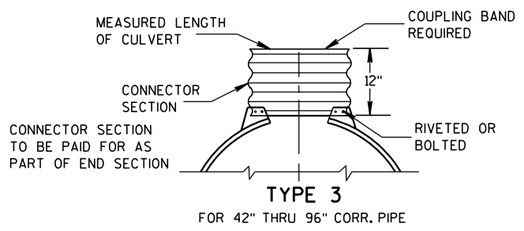
END SECTION CONNECTOR STRAP



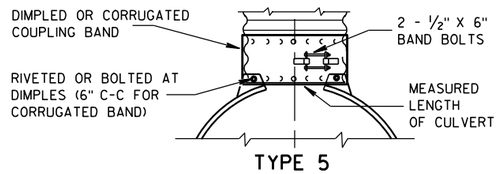
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

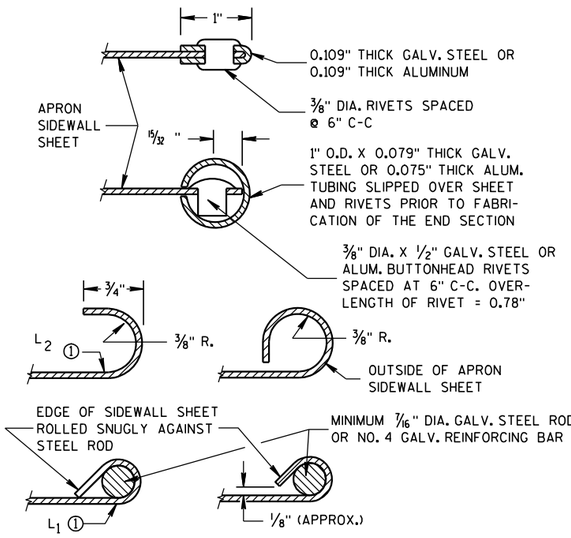
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

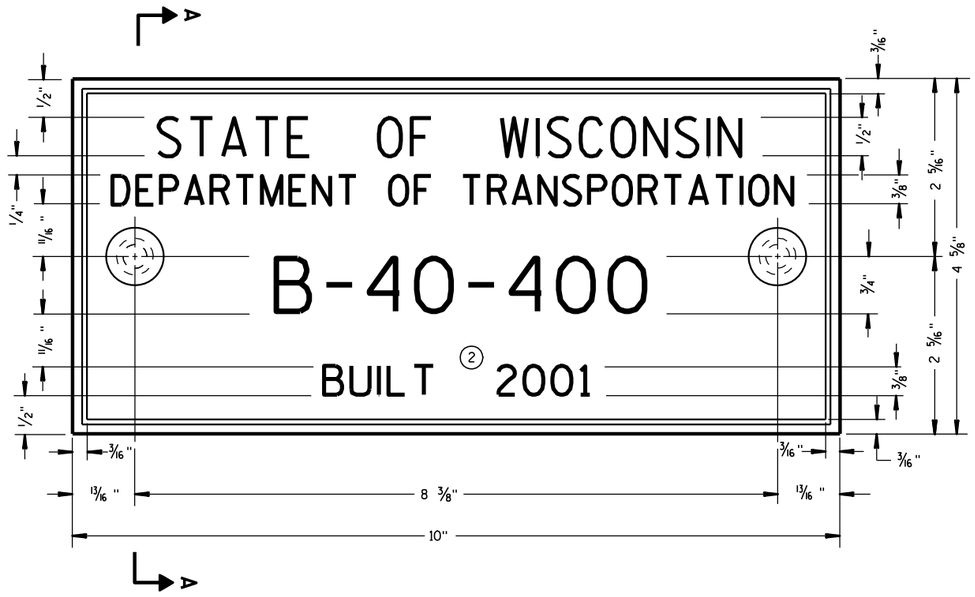
APRON ENDWALLS FOR CULVERT PIPE

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)

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

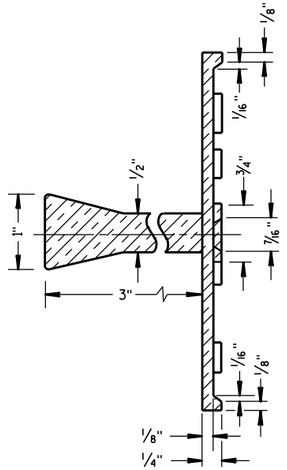
GENERAL NOTES

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

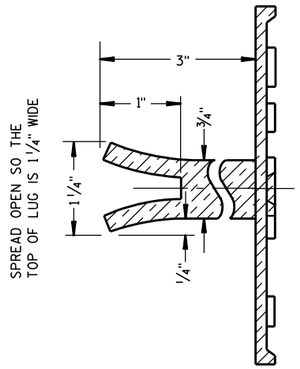
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

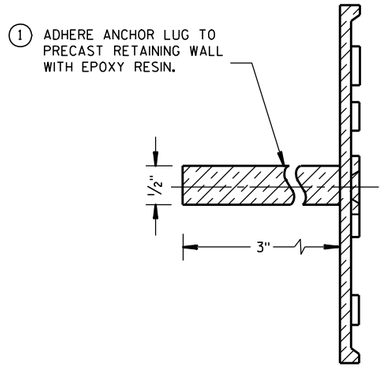
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

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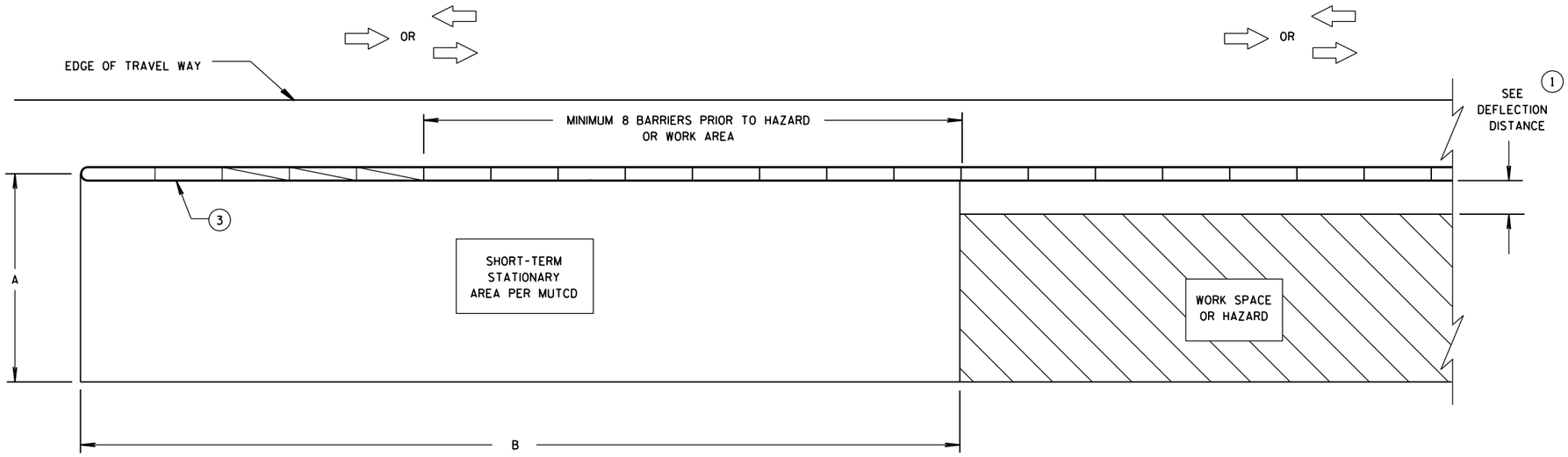
S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10



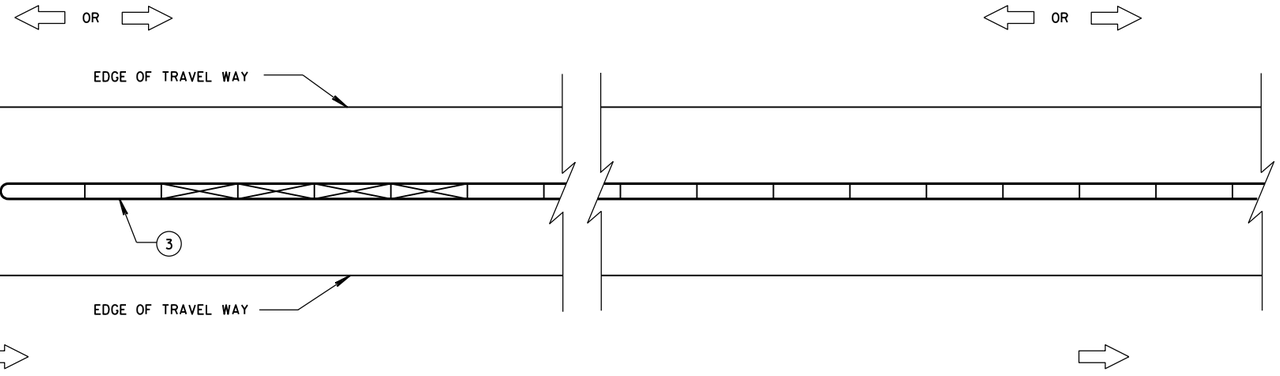
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE (2)

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

(2) VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

(3) ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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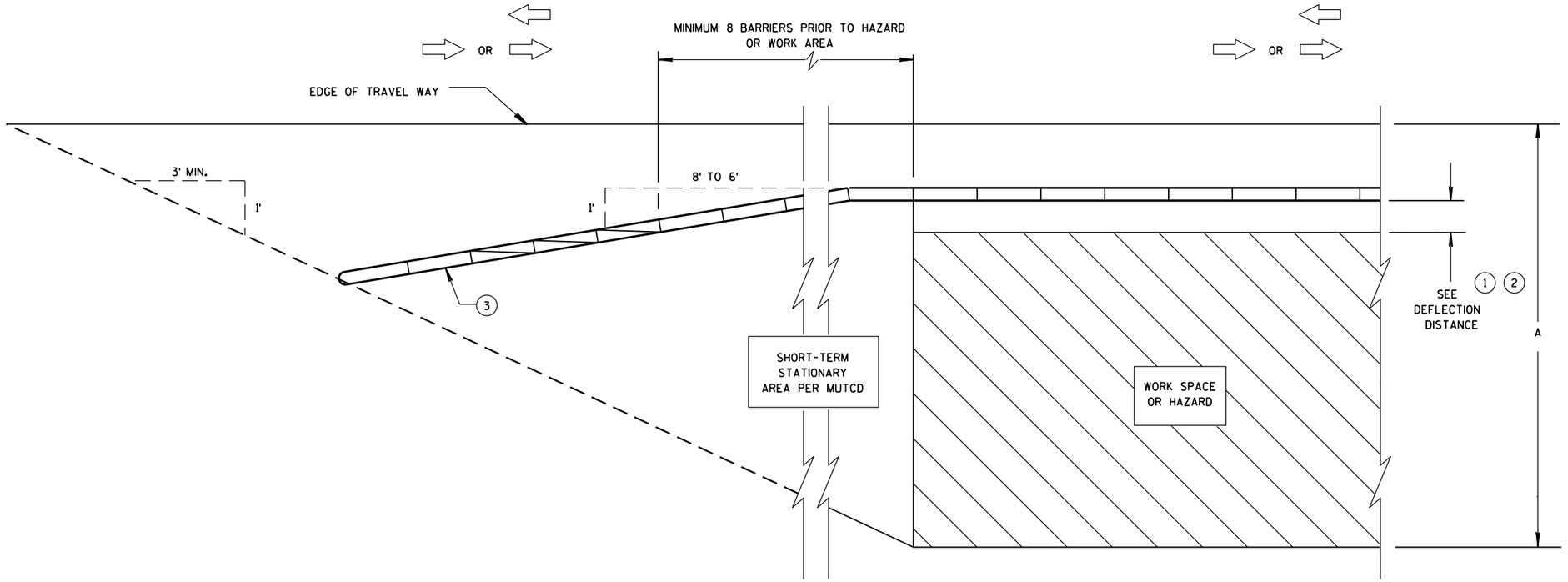
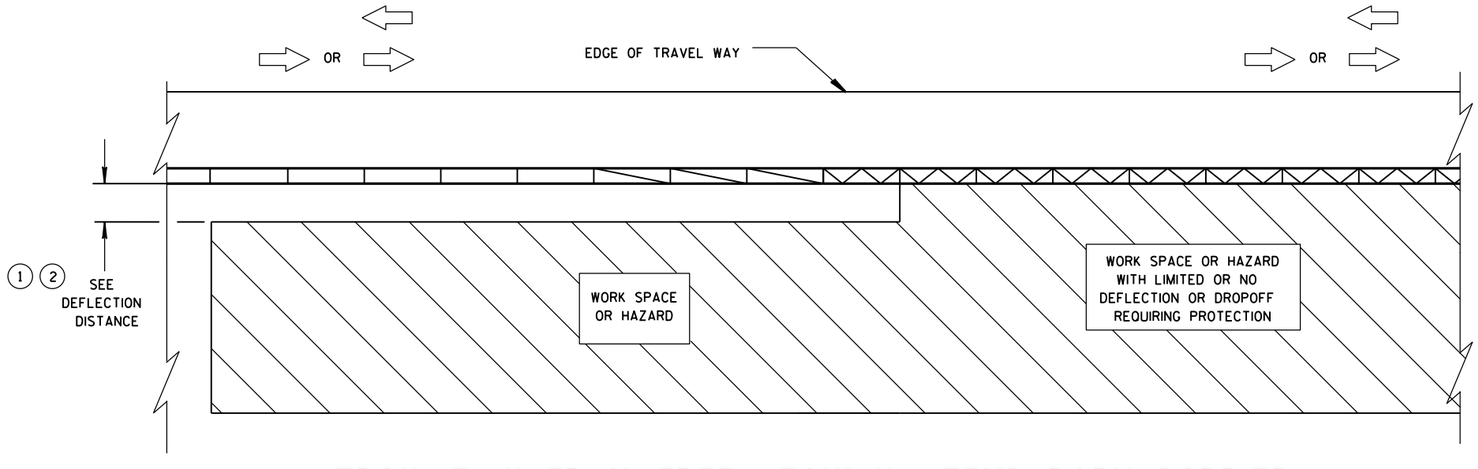
S.D.D. 14 B 8-2a
S.D.D. 14 B 8-2a



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

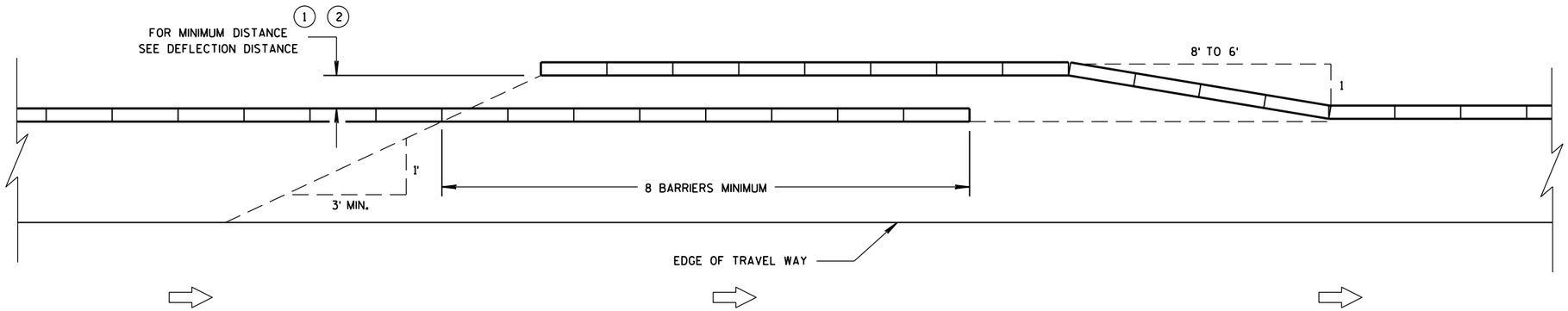
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

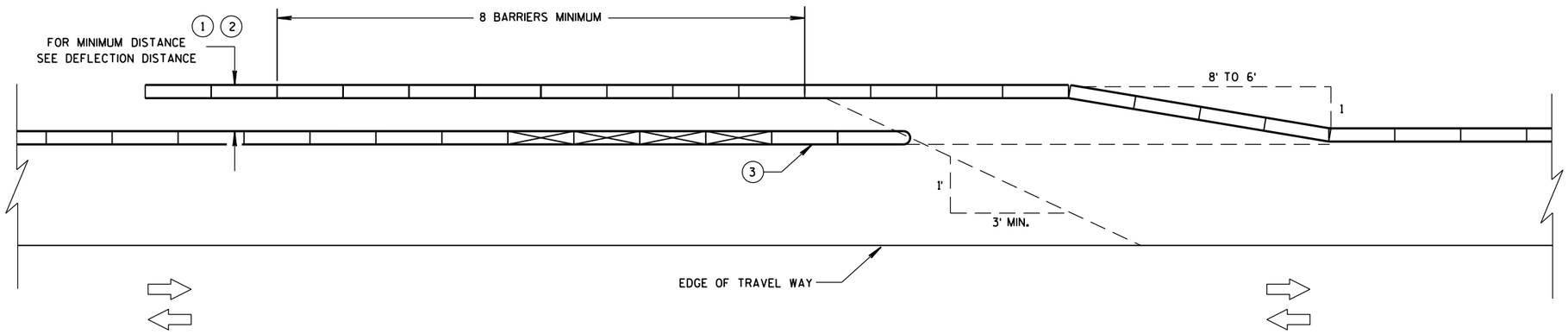
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

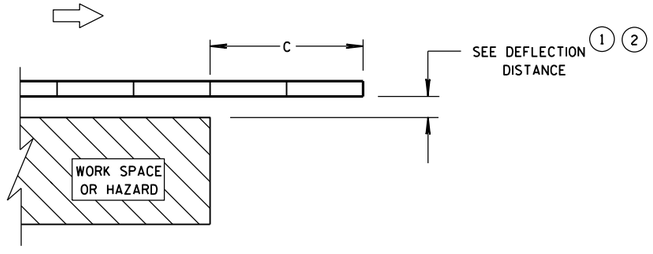
S.D.D. 14 B 8-2b



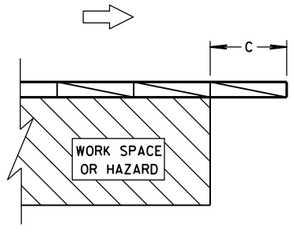
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



ENDING TEMPORARY BARRIER DOWNSTREAM - UNANCHORED



ENDING TEMPORARY BARRIER DOWNSTREAM - ANCHORED

LEGEND

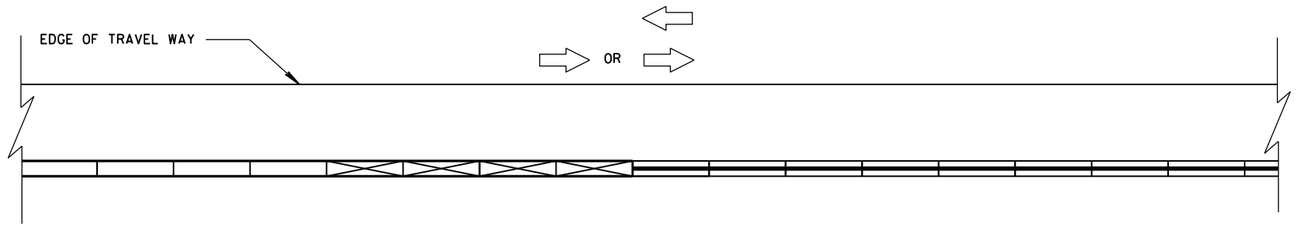
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

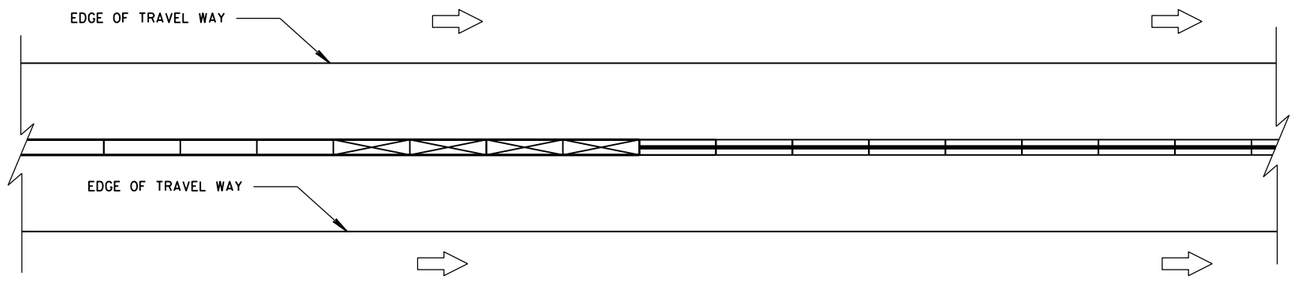
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 8-2c



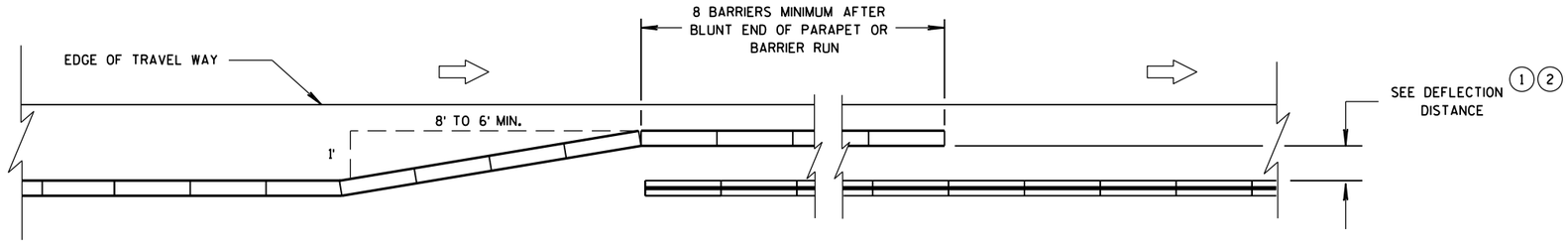
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



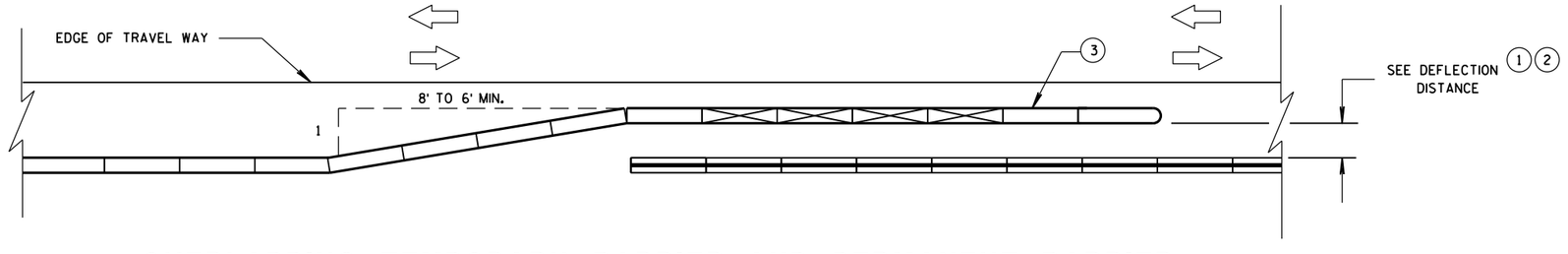
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 8-2d

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

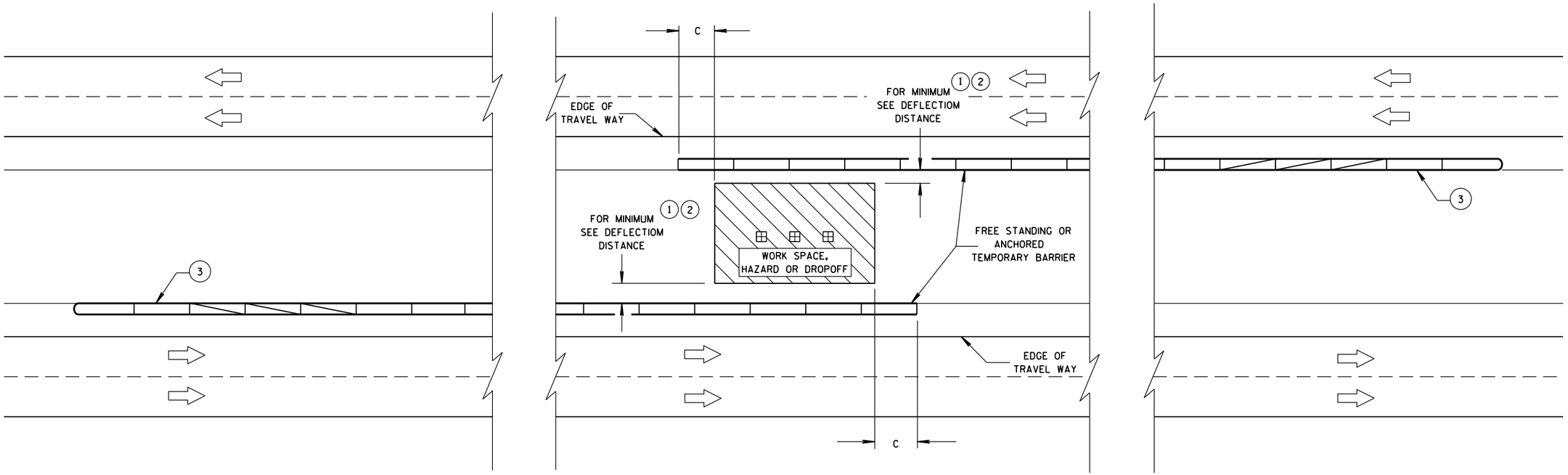
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (2)

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



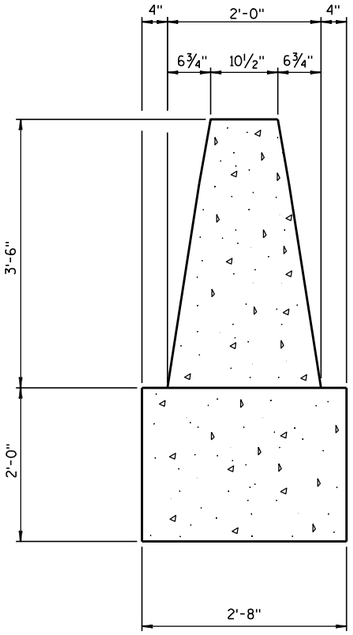
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

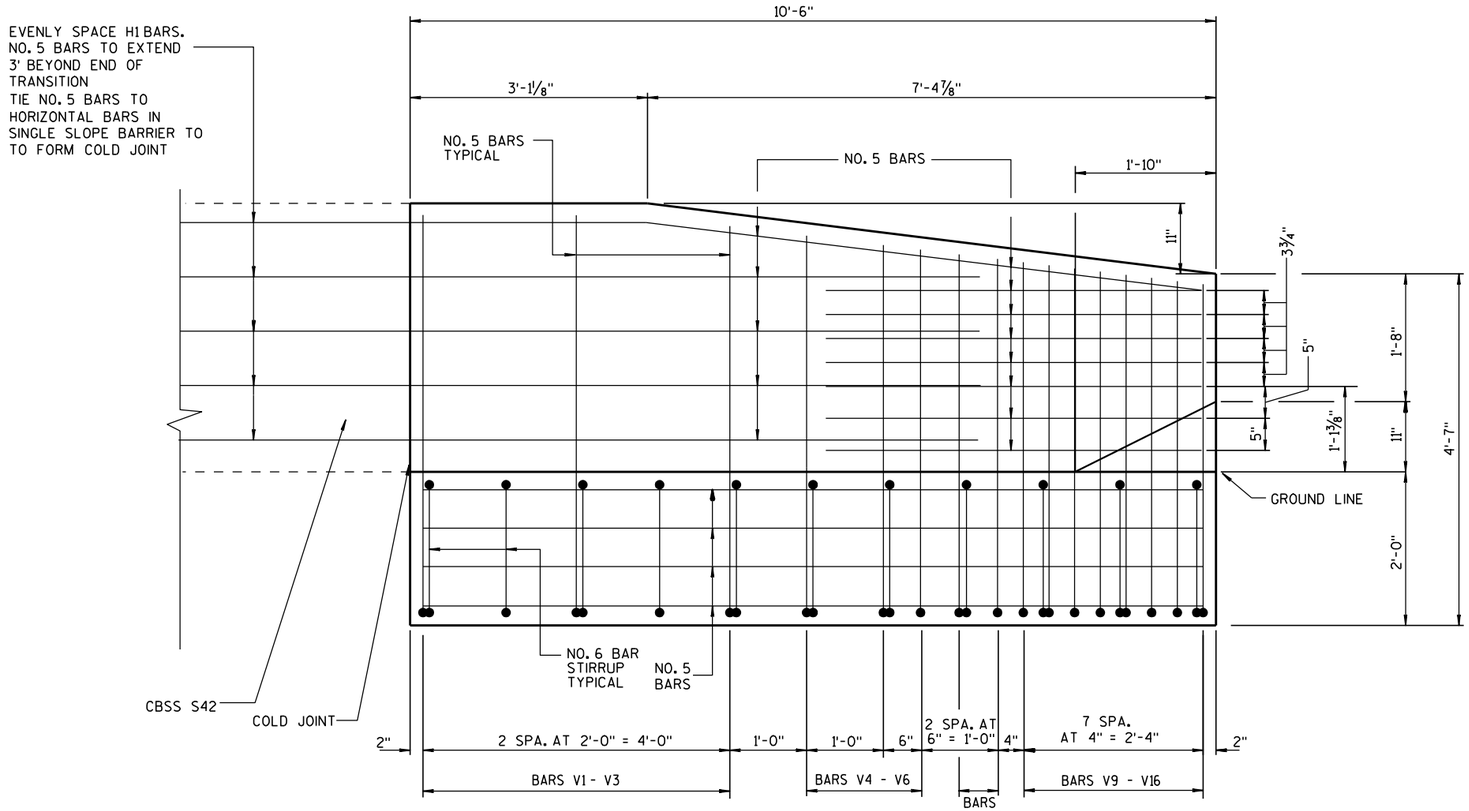
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINNER
FHWA

6

S.D.D. 14 B 8-2e

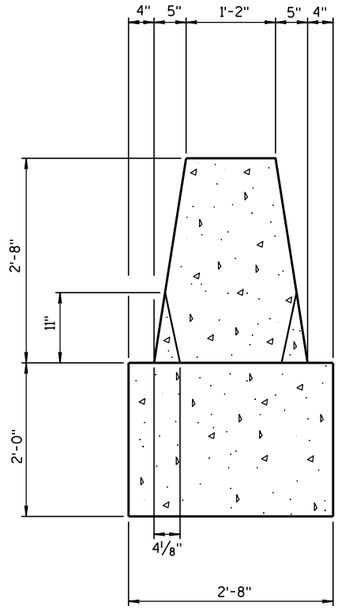


SECTION A-A

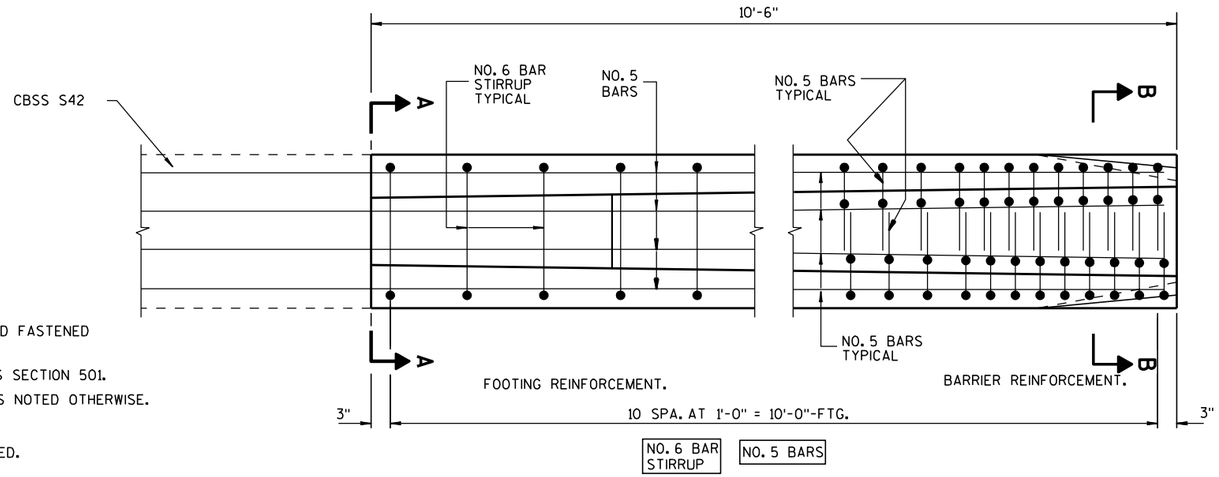


SEE SECTIONS ① THRU ⑯

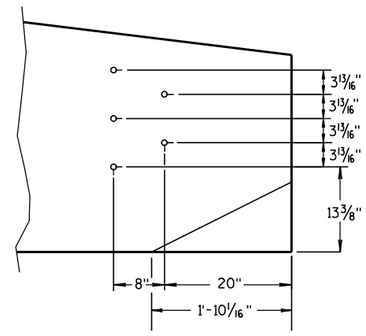
ELEVATION VIEW



SECTION B-B



PLAN VIEW



PVC PIPE LOCATIONS

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 603.

SPLICES OF LONGITUDINAL BARS TO BE 2'LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS NOTED OTHERWISE.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.

USE ¾" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.

THRIE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.

INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.

EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.

CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE of BARRIER.

THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.

2" CLEAR COVER TYPICAL.

CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR

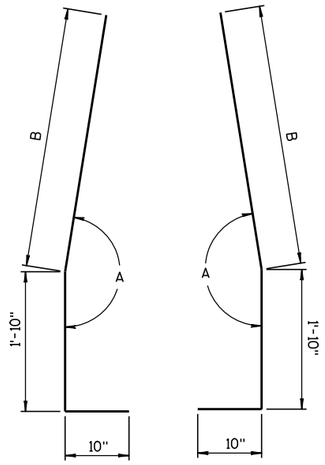
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 33-1g

BAR CHART
SECTIONS V1 - V11

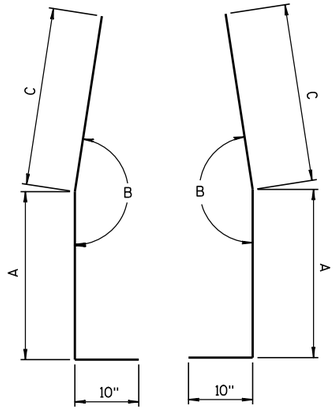
BAR	A	B
V1	170°-50'	3'-4½"
V2	171°-20'	3'-4½"
V3	171°-30'	3'-2½"
V4	171°-25'	3'-1½"
V5	171°-15'	3'-0"
V6	171°-15'	2'-11"
V7	171°-20'	2'-10½"
V8	171°-10'	2'-9½"
V9	171°-10'	2'-9"
V10	171°-05'	2'-8½"
V11	171°-10'	2'-8"



BAR BENDING DETAIL
FOR BARS V1 - V11

BAR CHART
SECTIONS V12 - V13

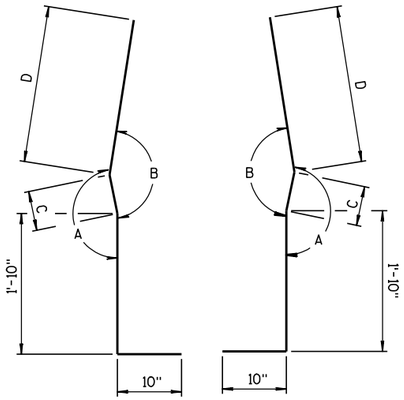
BAR	A	B	C
V12	2'-2"	171°-15'	2'-3½"
V13	2'-7"	171°-05'	1'-10"



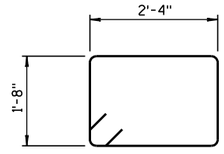
BAR BENDING DETAIL
FOR BARS V12 - V13

BAR CHART
SECTIONS V14 - V16

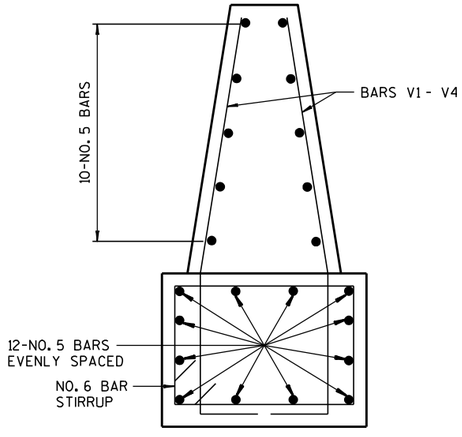
BAR	A	B	C	D
V14	168°-15'	159°-15'	6"	2'-0"
V15	169°-20'	161°-00'	8"	1'-10"
V16	168°-40'	160°-10'	10"	1'-8"



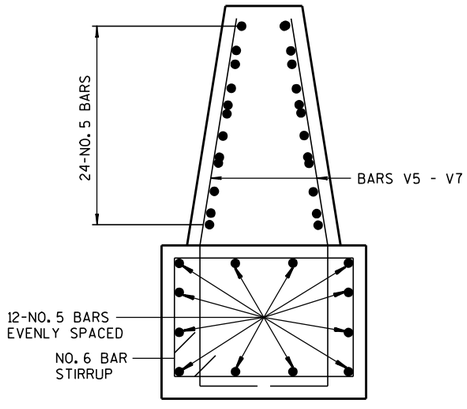
BAR BENDING DETAIL
FOR BARS V14 - V16



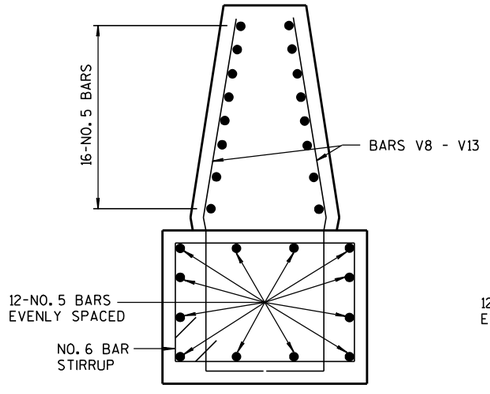
STIRRUP BAR
BENDING DETAIL



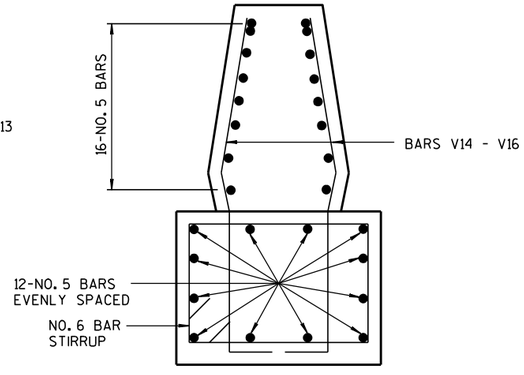
BAR DETAIL
SECTIONS V1 - V4



BAR DETAIL
SECTIONS V5 - V7



BAR DETAIL
SECTIONS V8 - V13



BAR DETAIL
SECTIONS V14 - V16

CONCRETE BARRIER
SINGLE SLOPE 42"
THRIE BEAM ANCHOR

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

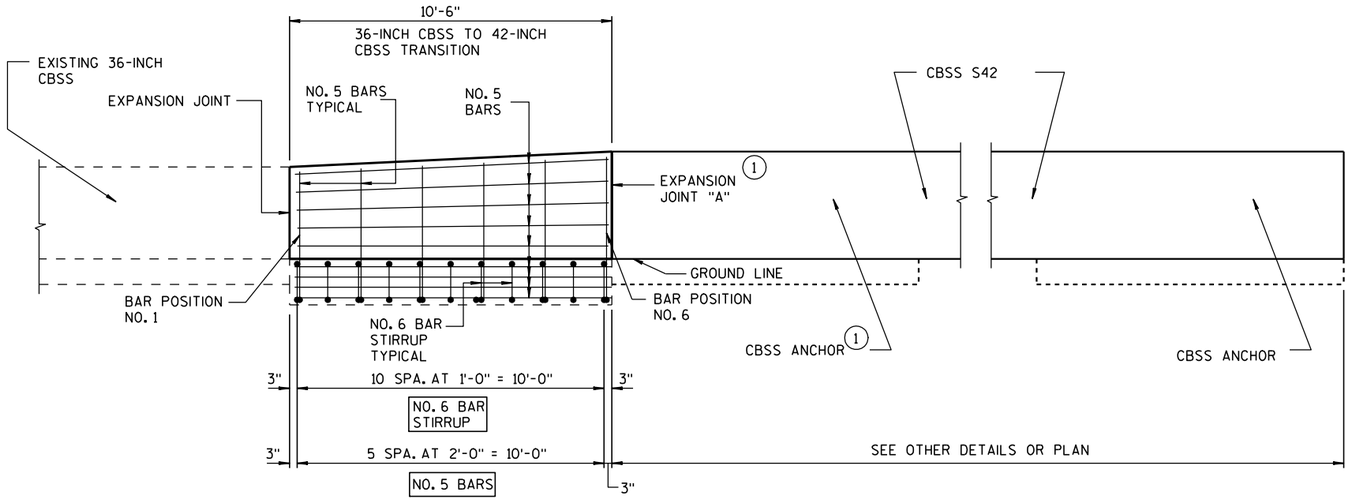
6-3-2010
DATE

/S/ Jerry H. Z---
ROADWAY STANDARDS ENGINEER

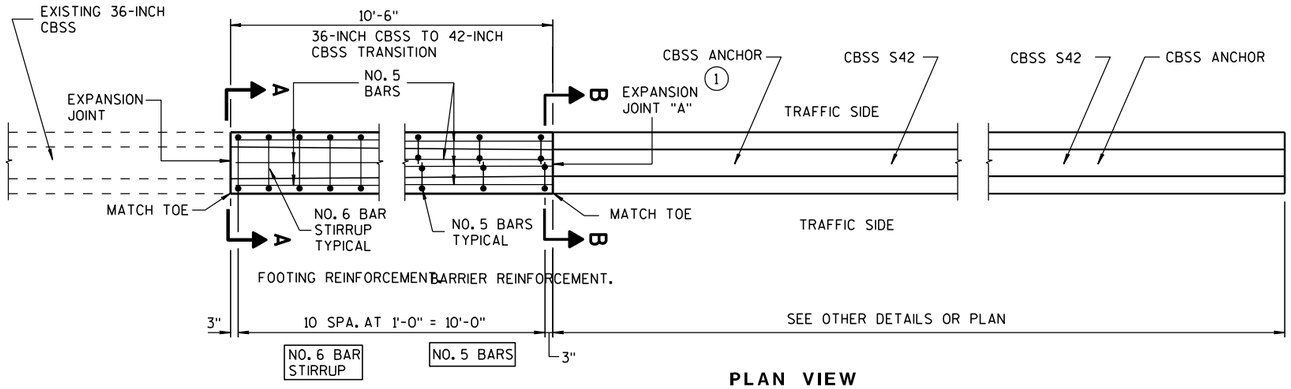
ENT

FHWA

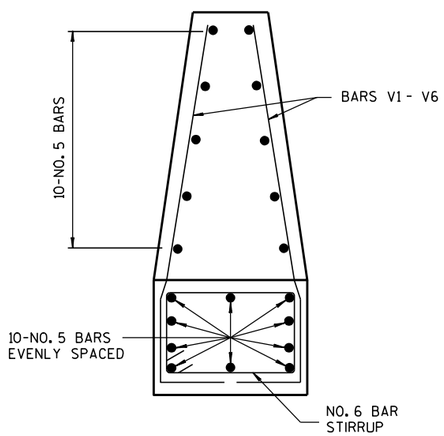
6
S.D.D. 14 B 33-1h



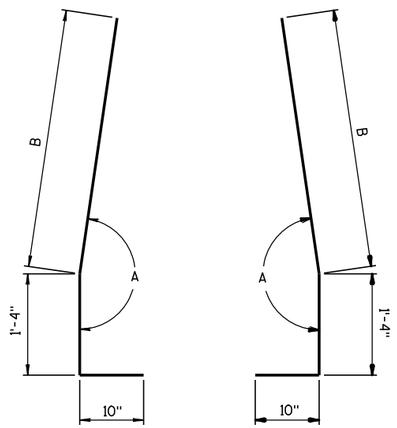
ELEVATION VIEW



PLAN VIEW



BAR DETAIL
BAR POSITION NO. 1 - NO. 6



BAR BENDING DETAIL
FOR BARS V1 - V6

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 603.

SPLICES OF LONGITUDINAL BARS TO BE 2'LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS NOTED OTHERWISE.

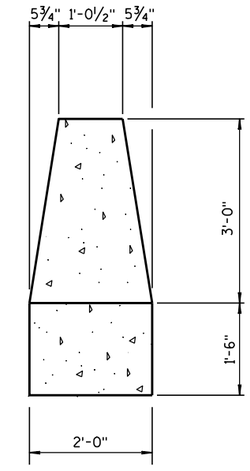
4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS 501.

USE ¾" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS NOTED OTHERWISE.

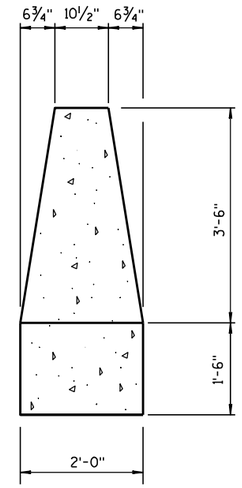
THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.

2" CLEAR COVER TYPICAL.

(1) EXPANSION JOINT "A" MAY BE REPLACED WITH A COLD-JOINT PROVIDED THAT 3 FEET OF LAP OF LONGITUDINAL STEEL IS PROVIDED. IF COLD-JOINT IS USED ANCHOR NOT REQUIRED.



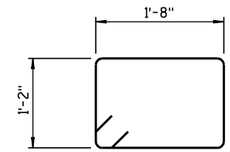
SECTION A-A



SECTION B-B

BAR CHART
SECTIONS V1 - V6

BAR	A	B
V1	170°-55'	2'-10½"
V2	171°-05'	3'-0"
V3	171°-20'	3'-1"
V4	171°-20'	3'-2"
V5	171°-35'	3'-3"
V6	171°-40'	3'-4½"



STIRRUP BAR
BENDING DETAIL

36-INCH SINGLE SLOPE CONCRETE BARRIER TO 42-INCH SINGLE SLOPE CONCRETE BARRIER HEIGHT TRANSITION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-3-2010
DATE
/S/ Jerry H. Zoo
ROADWAY STANDARDS ENGINEER

FHWA

S.D.D. 14 B 39-1c

6

GENERAL NOTES

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

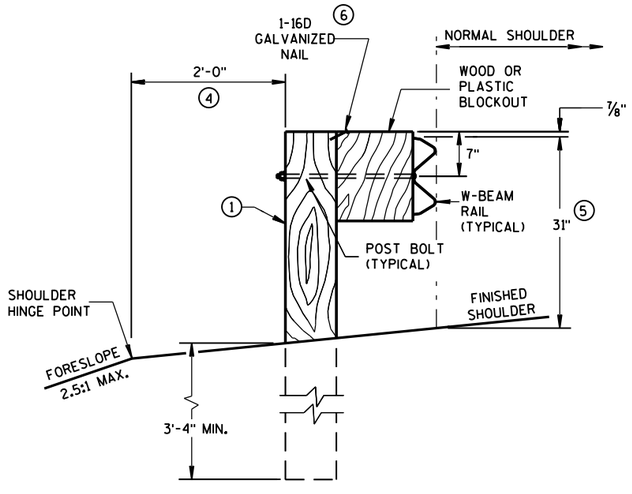
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

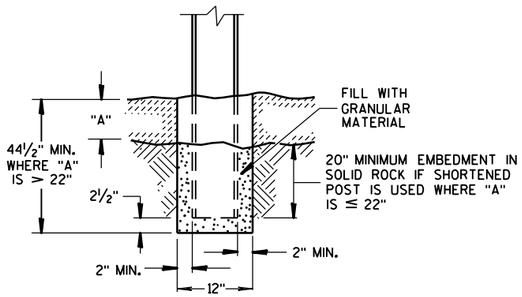
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



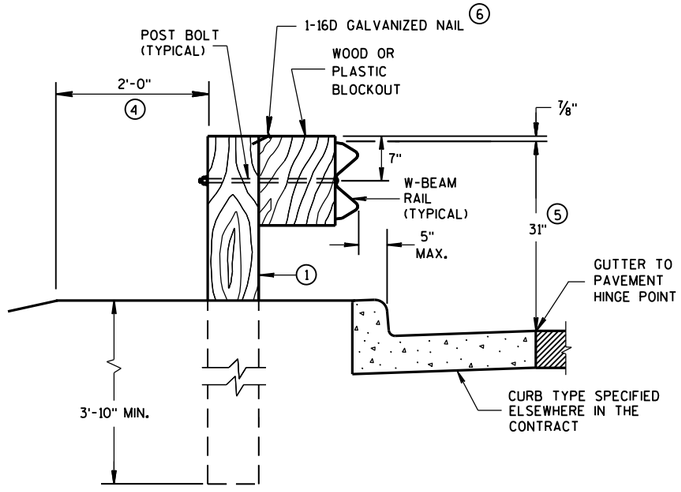
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



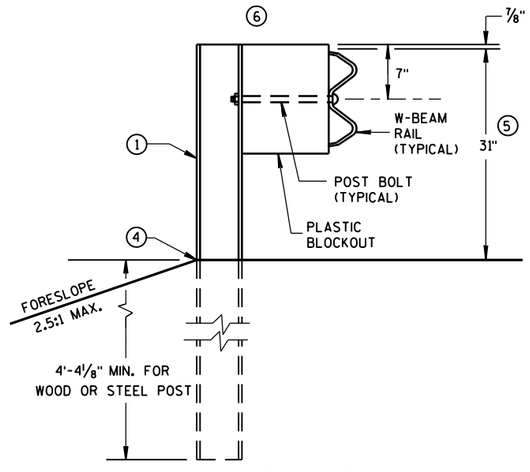
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



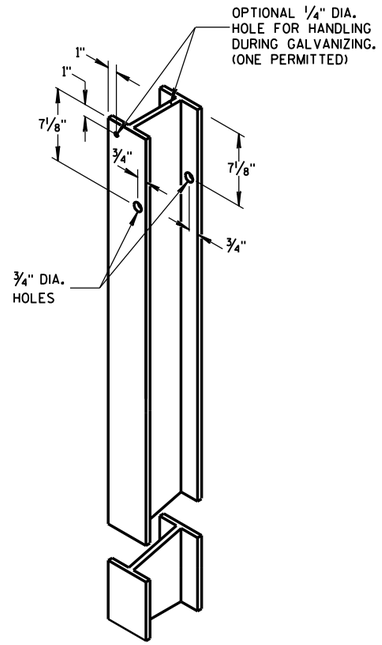
END VIEW

LOCATED ALONG A CURBED ROADWAY

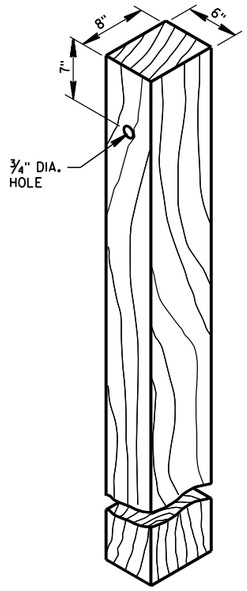


END VIEW

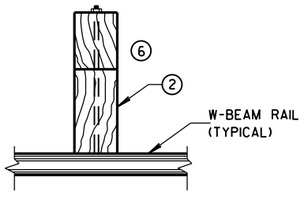
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



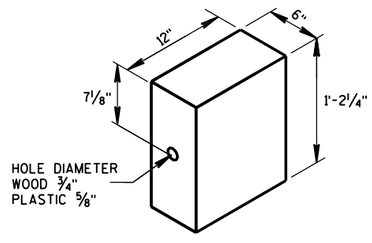
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



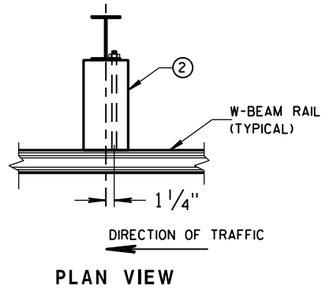
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

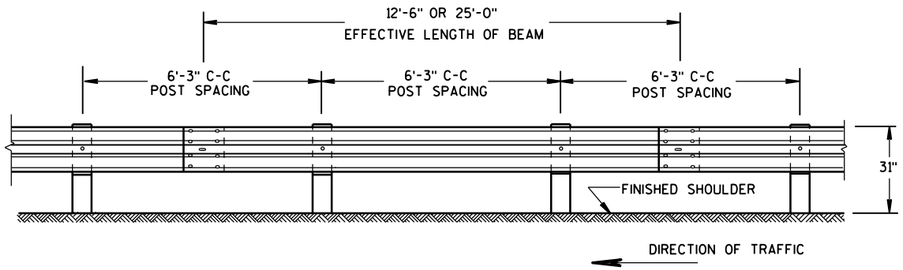


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

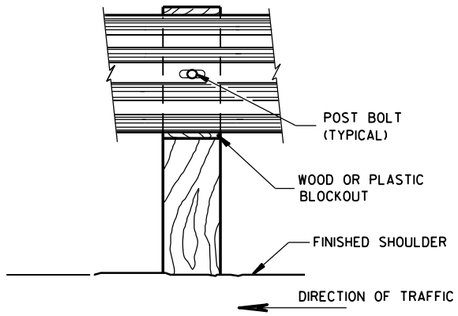
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

GENERAL NOTES

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

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

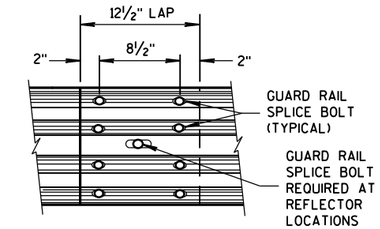
(9) REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

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

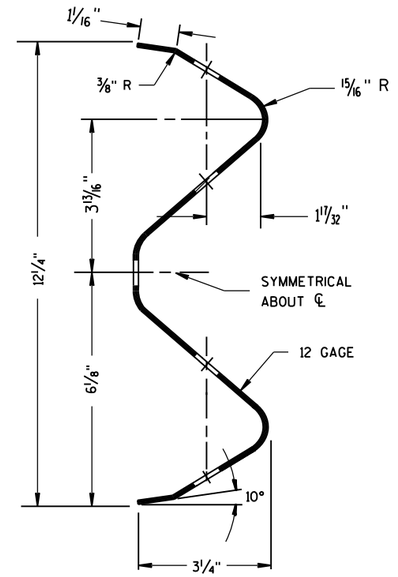
(11) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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

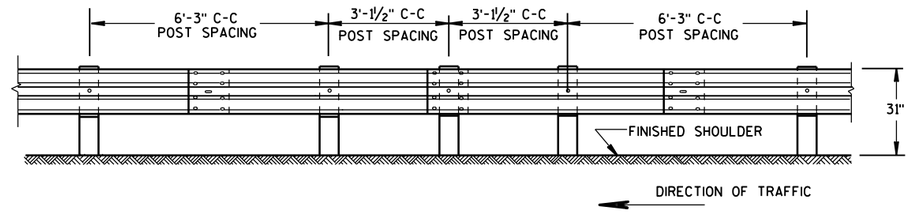
GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



FRONT VIEW
MID-SPAN BEAM SPLICE

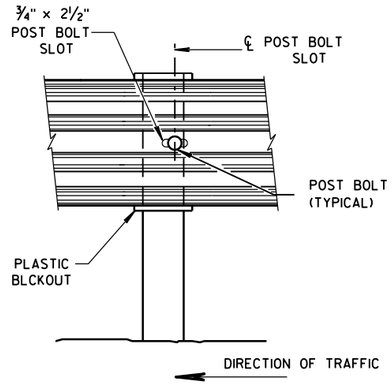


SECTION THRU W-BEAM RAIL

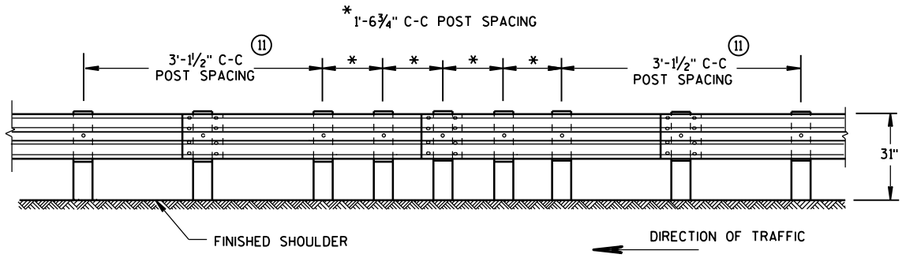


FRONT VIEW

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

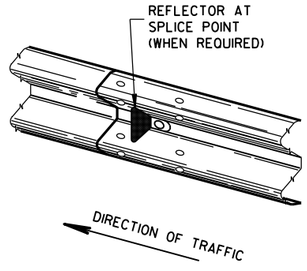


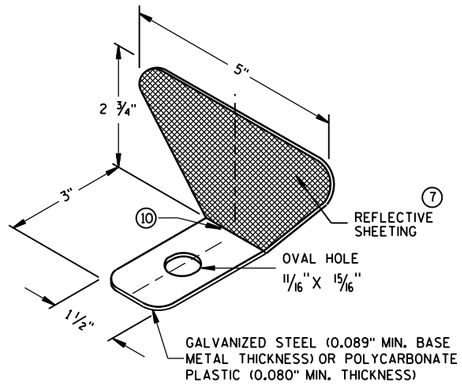
FRONT VIEW AT STEEL POST



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

REFLECTOR SPACING (8)

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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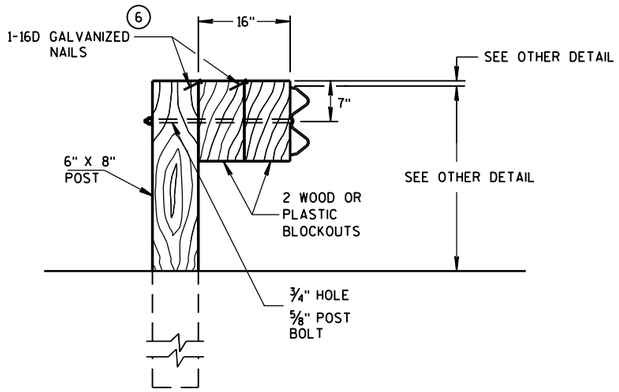
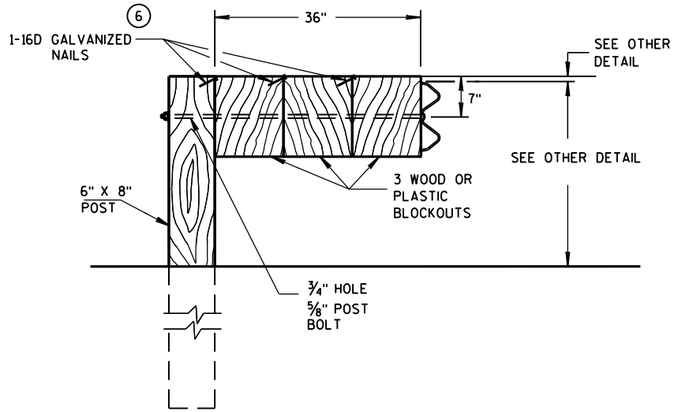
S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

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

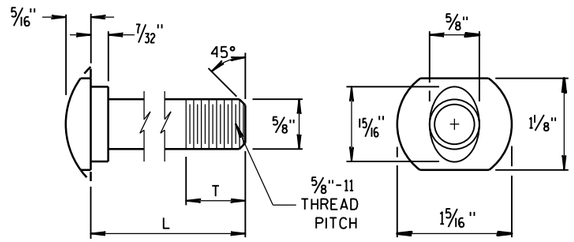


DETAIL FOR 36" BLOCKOUT DEPTH

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

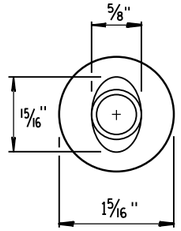
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

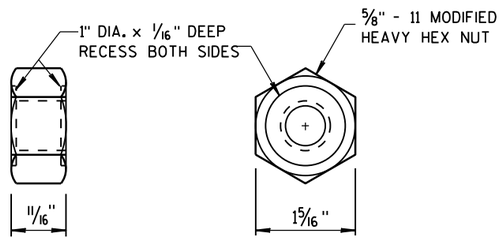


POST BOLT TABLE

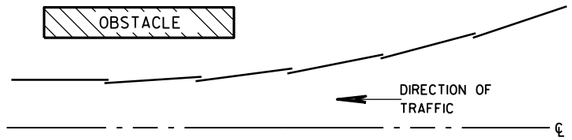
L	T (MIN.)
1¼"	1⅛"
2"	1¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

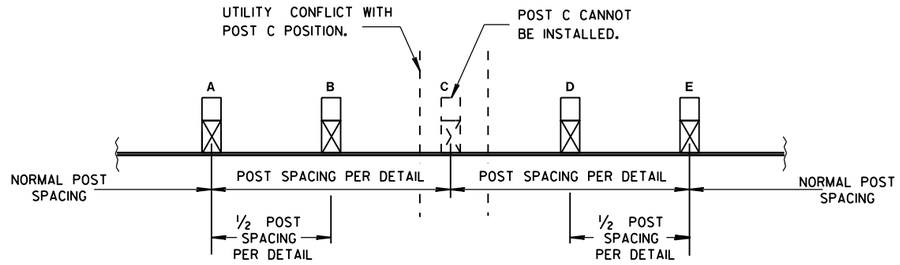


POST BOLT AND RECESS NUT

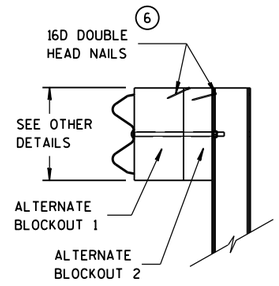


PLAN VIEW

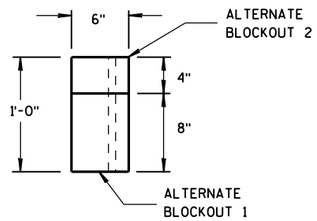
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

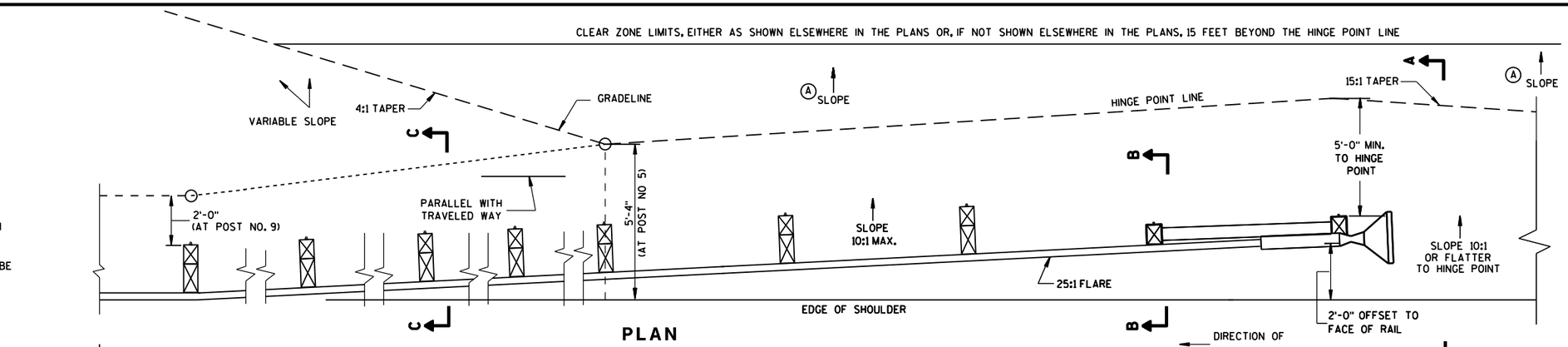
SEE SDD 14B42 FOR MORE INFORMATION.

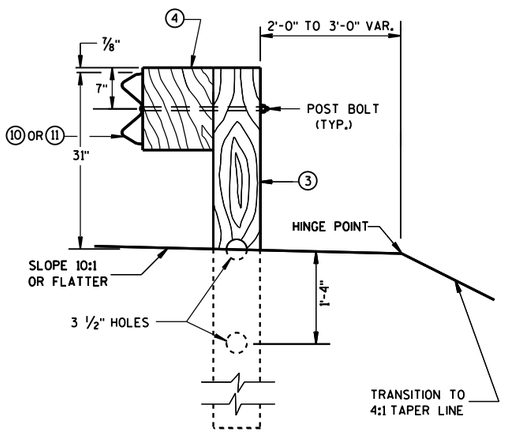
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

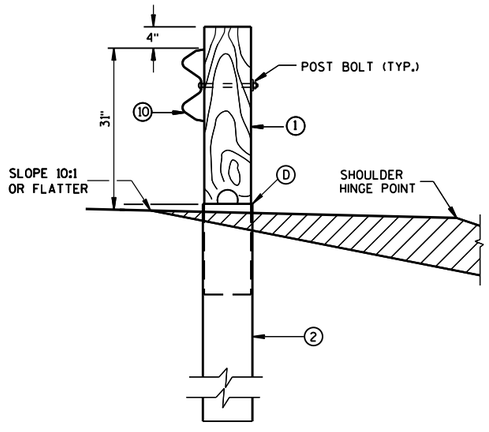
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

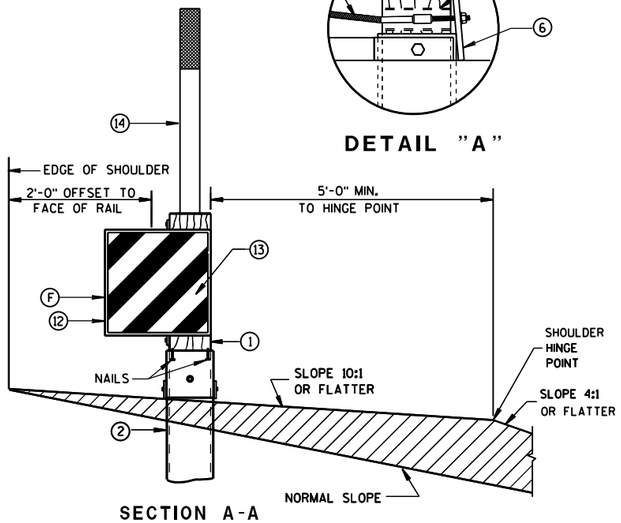




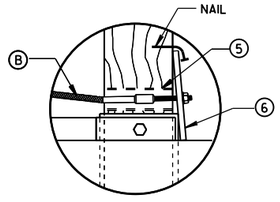
SECTION C-C
TYPICAL AT POST NOS. 3-9



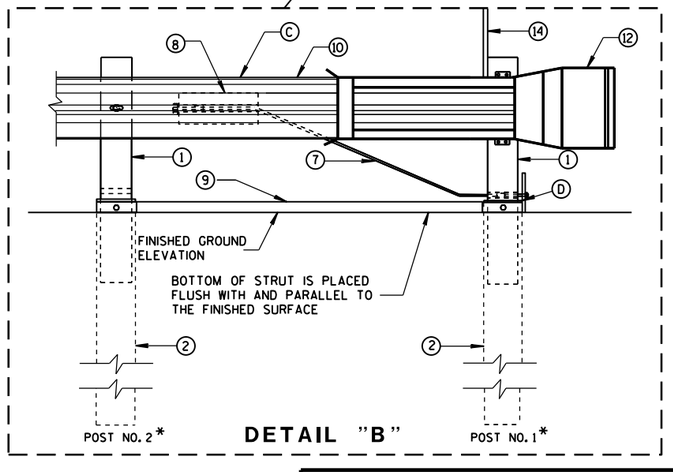
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



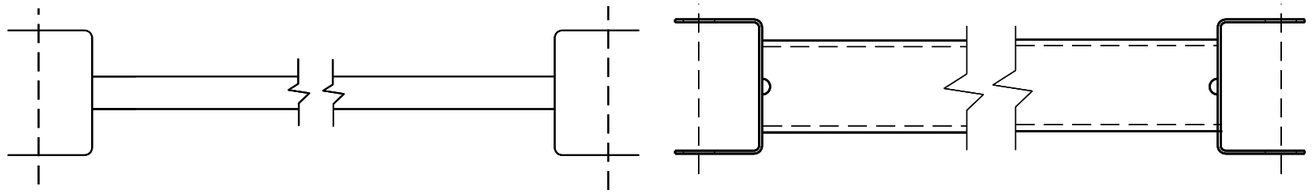
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

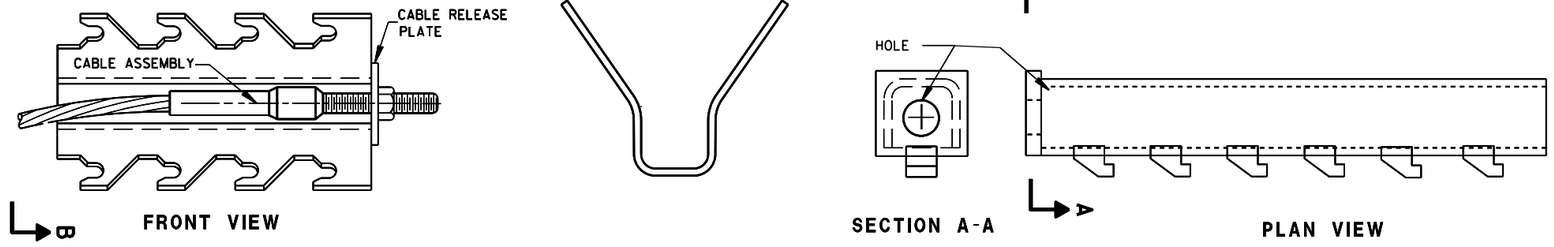
S.D.D. 14 B 44-2a



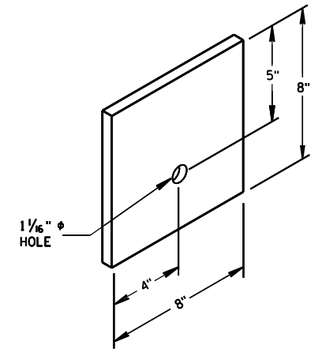
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



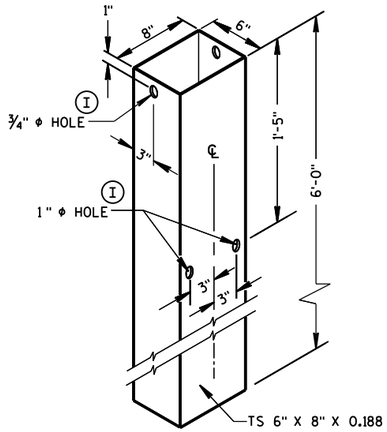
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

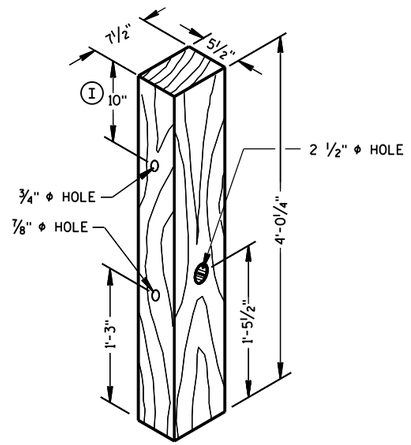
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

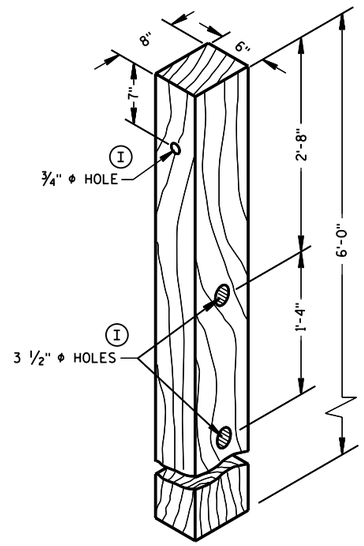


FOUNDATION TUBE (2)



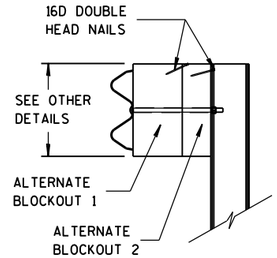
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

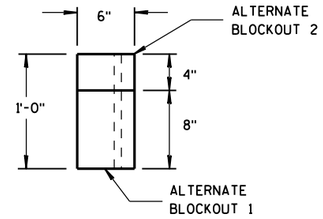


POSTS NUMBER 3-9

WOOD CRT POST (3)

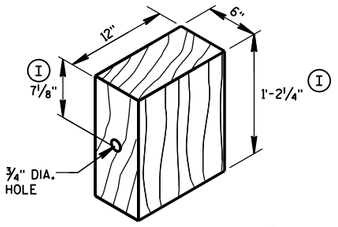


SIDE VIEW



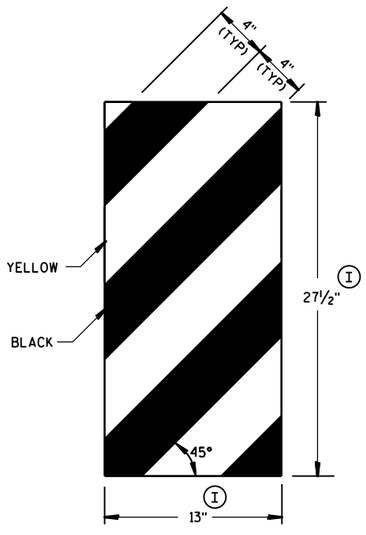
TOP VIEW

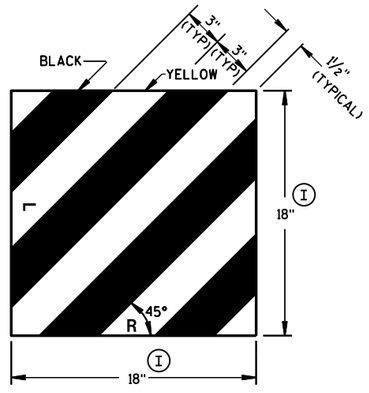
ALTERNATE WOOD BLOCKOUT DETAIL



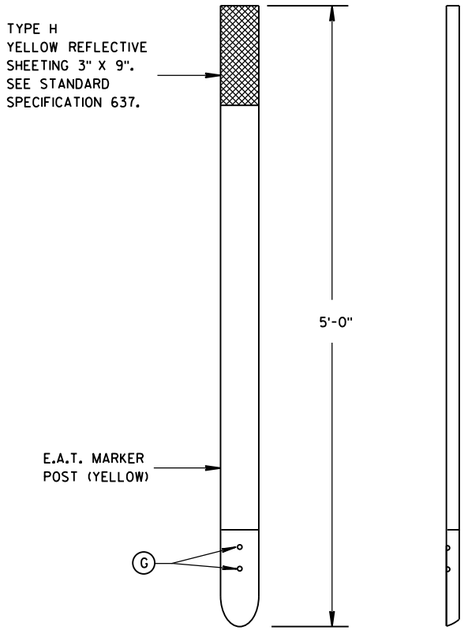
WOOD BLOCKOUT (4)

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





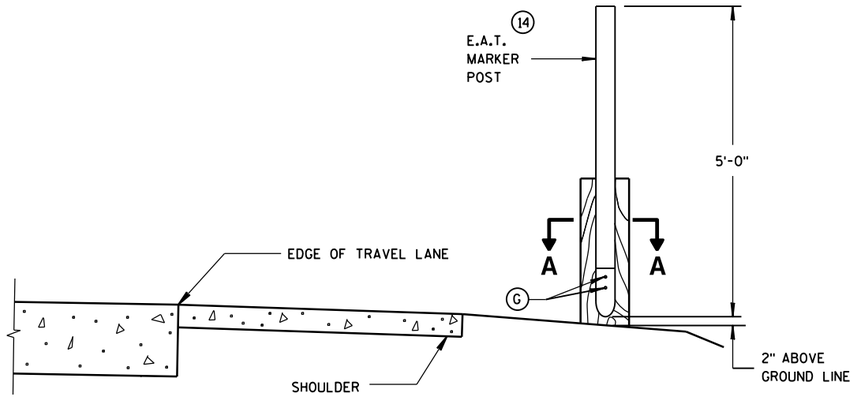
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

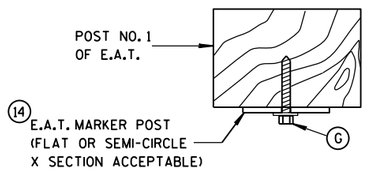
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

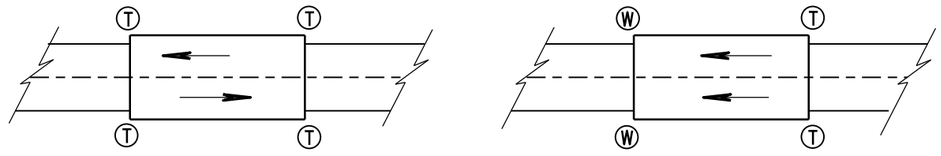
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

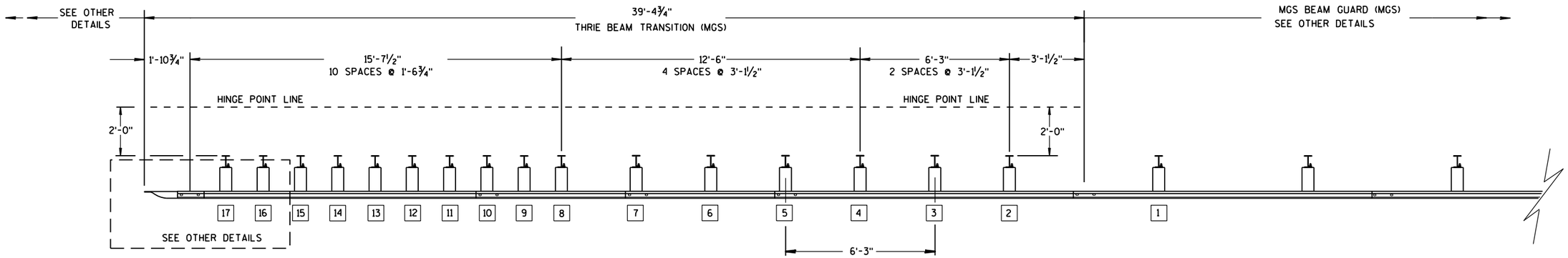
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

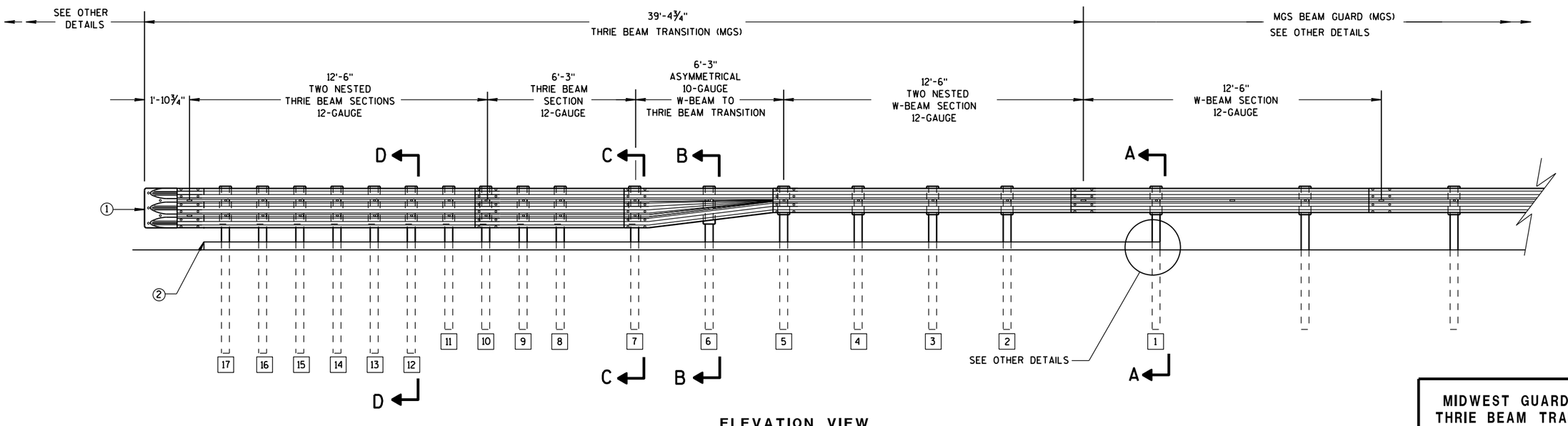
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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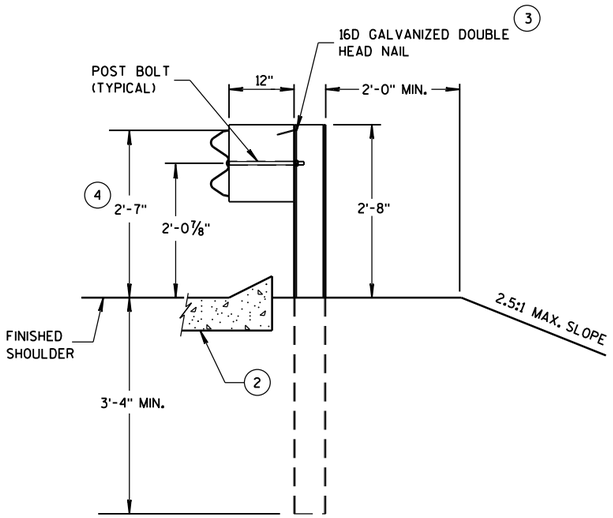
S.D.D. 14 B 45-4a

GENERAL NOTES

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

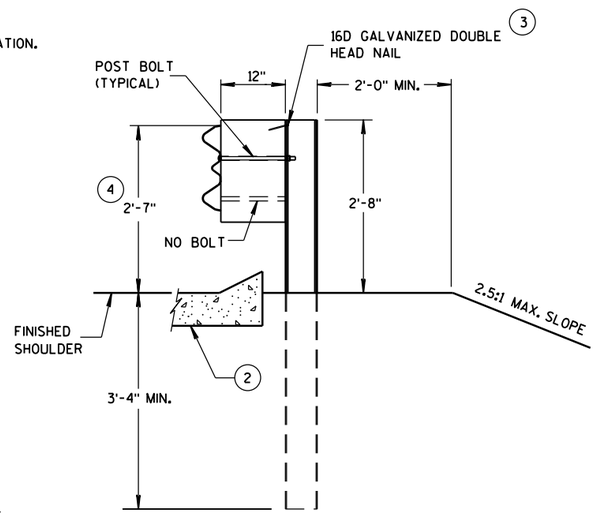
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



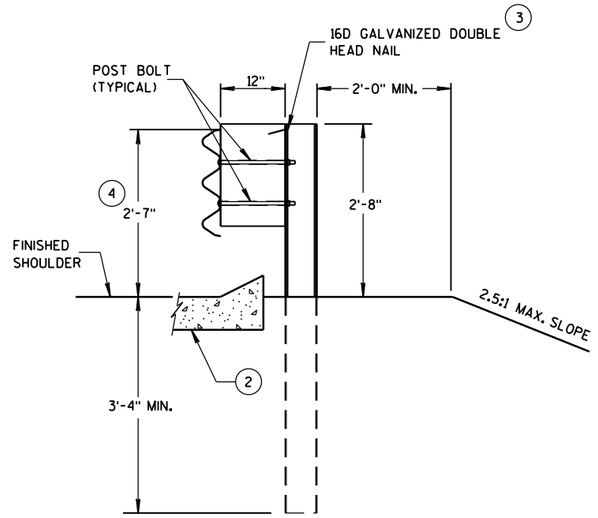
SECTION A-A

POSTS 1-5



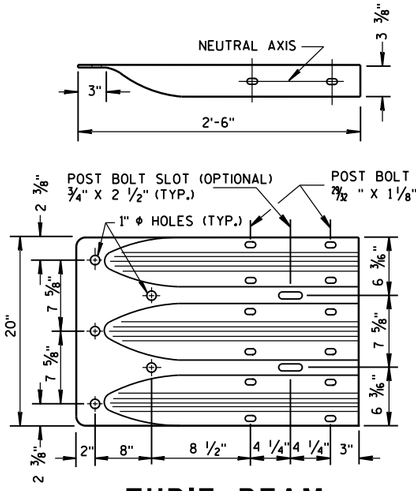
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

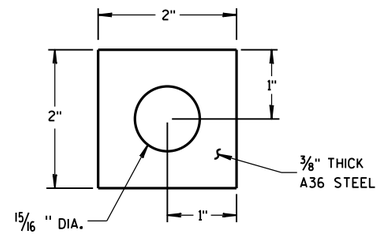
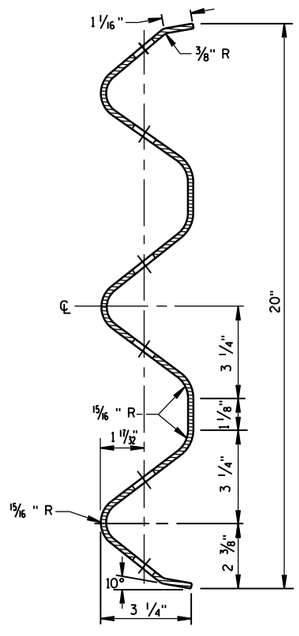
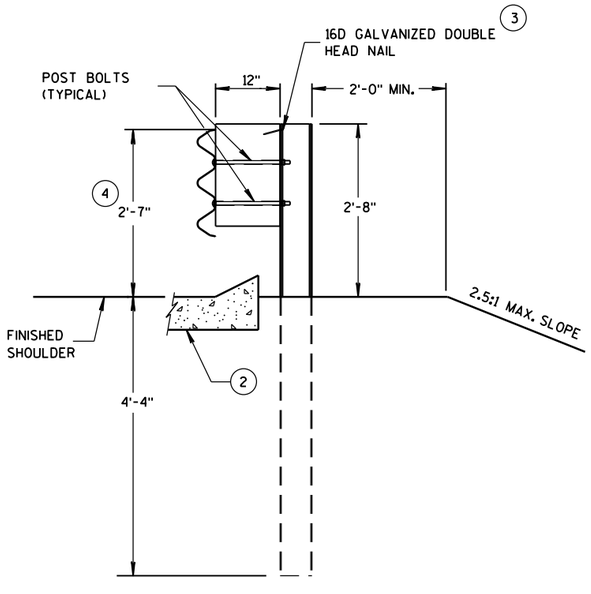


PLATE WASHER DETAIL

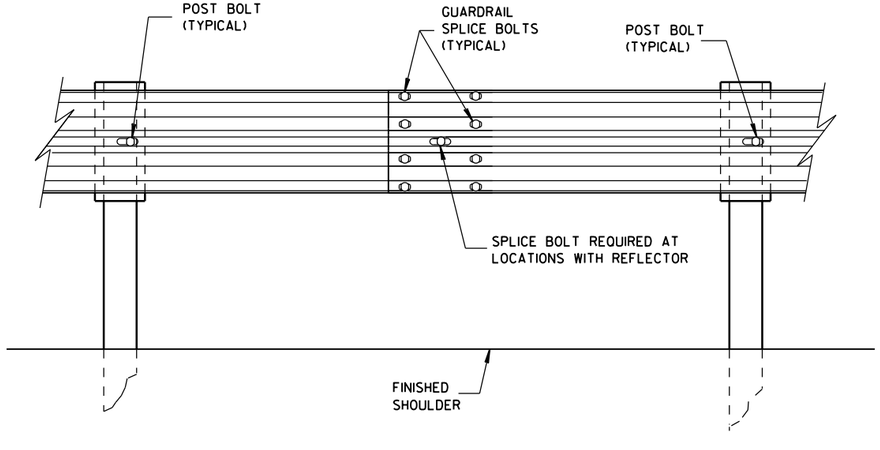


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



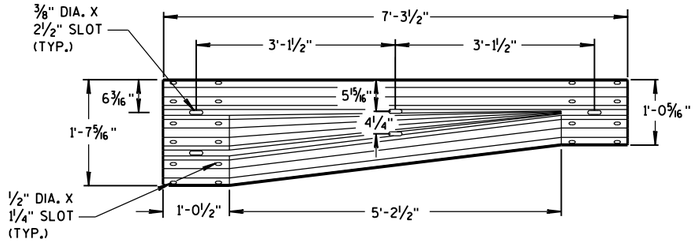
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

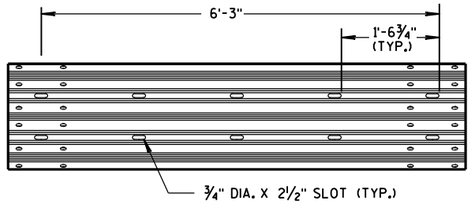
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

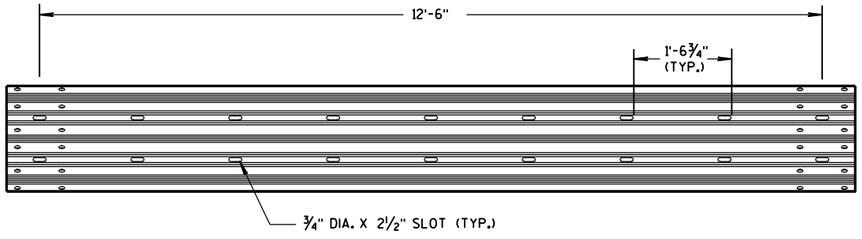
S.D.D. 14 B 45-4b



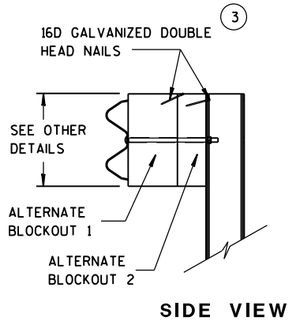
W-BEAM TO THRIE BEAM TRANSITION SECTION



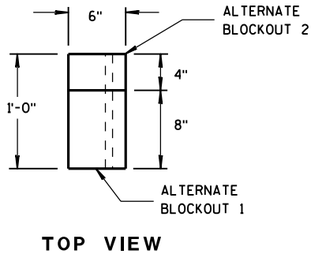
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

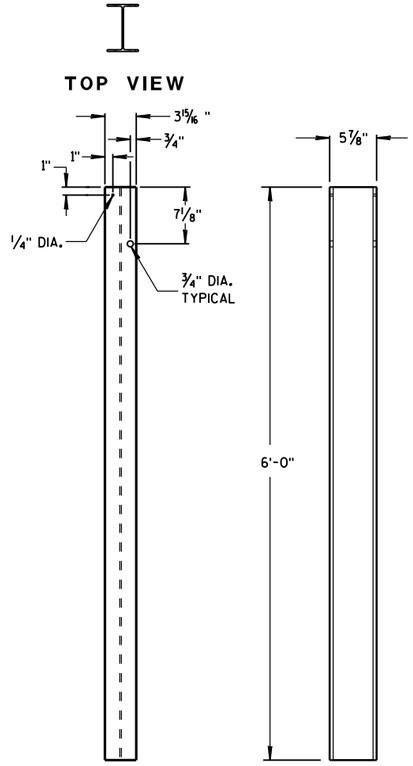


SIDE VIEW

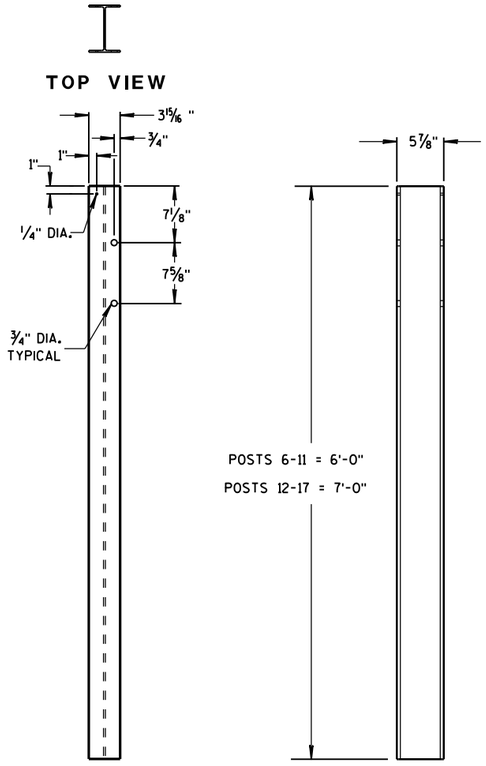


TOP VIEW

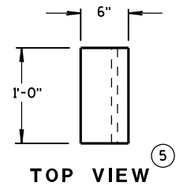
ALTERNATE WOOD BLOCKOUT DETAIL



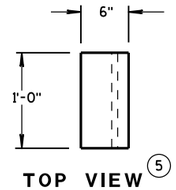
STEEL POSTS 1-5



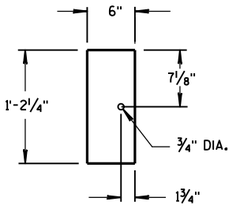
STEEL POSTS 6-17



TOP VIEW

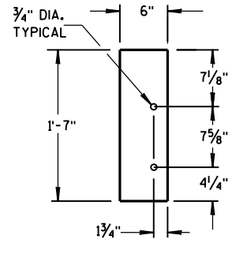


TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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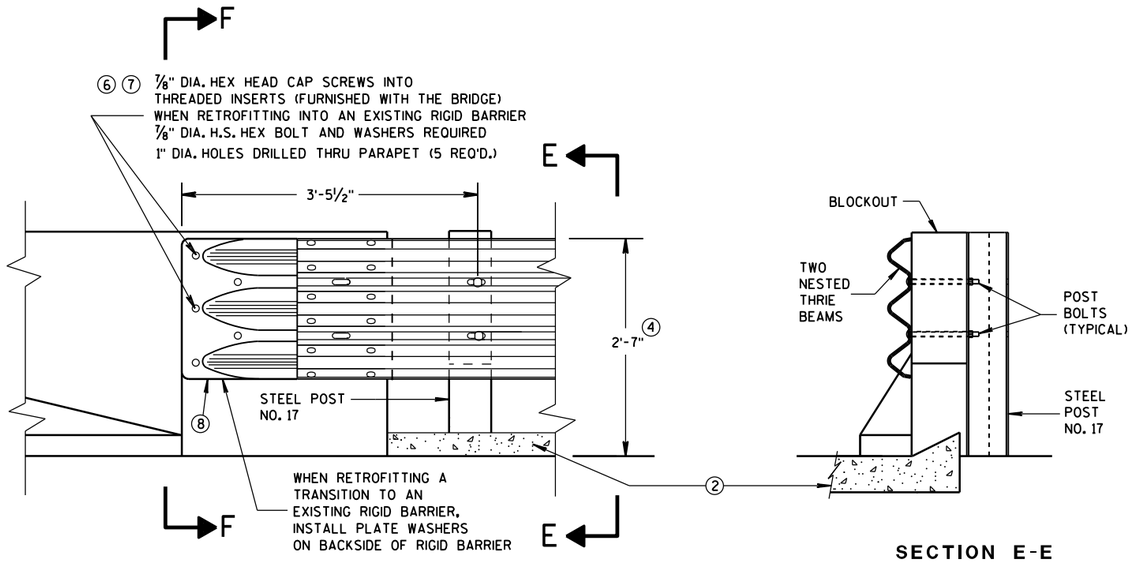
S.D.D. 14 B 45-4c
S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

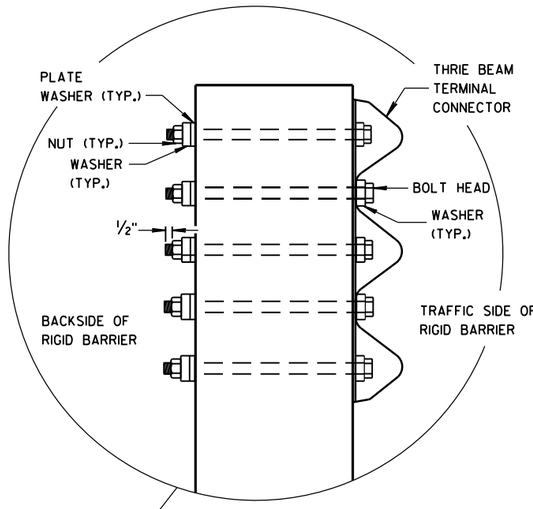
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

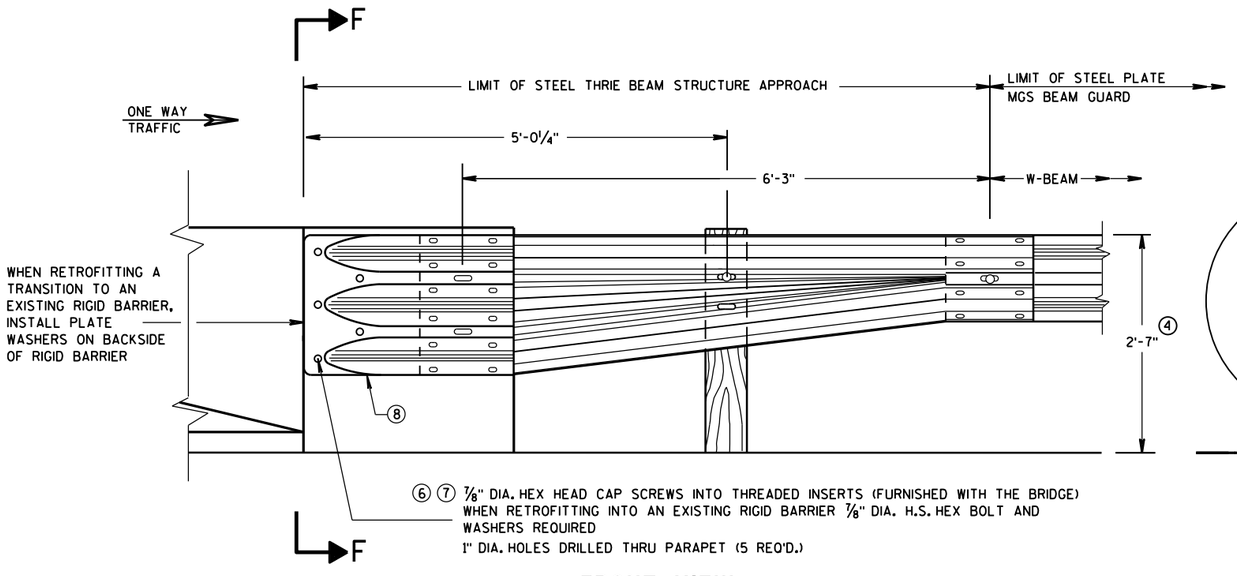
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

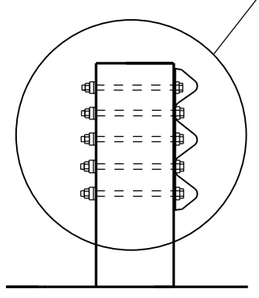
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

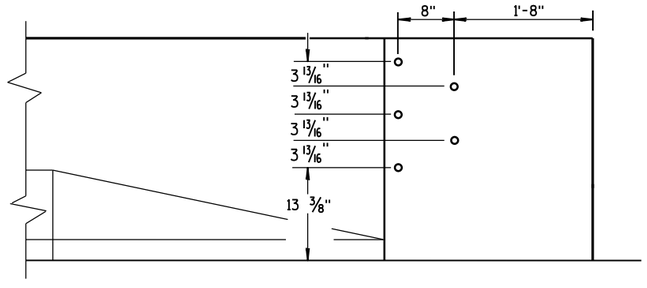




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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

GENERAL NOTES

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

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

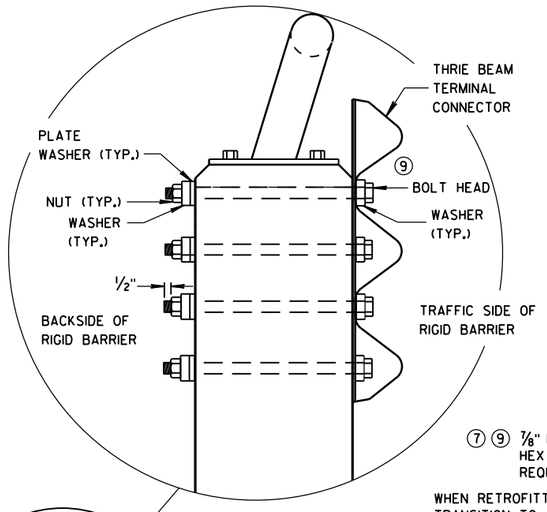
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

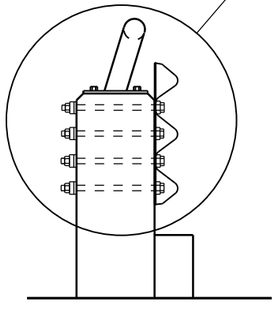
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

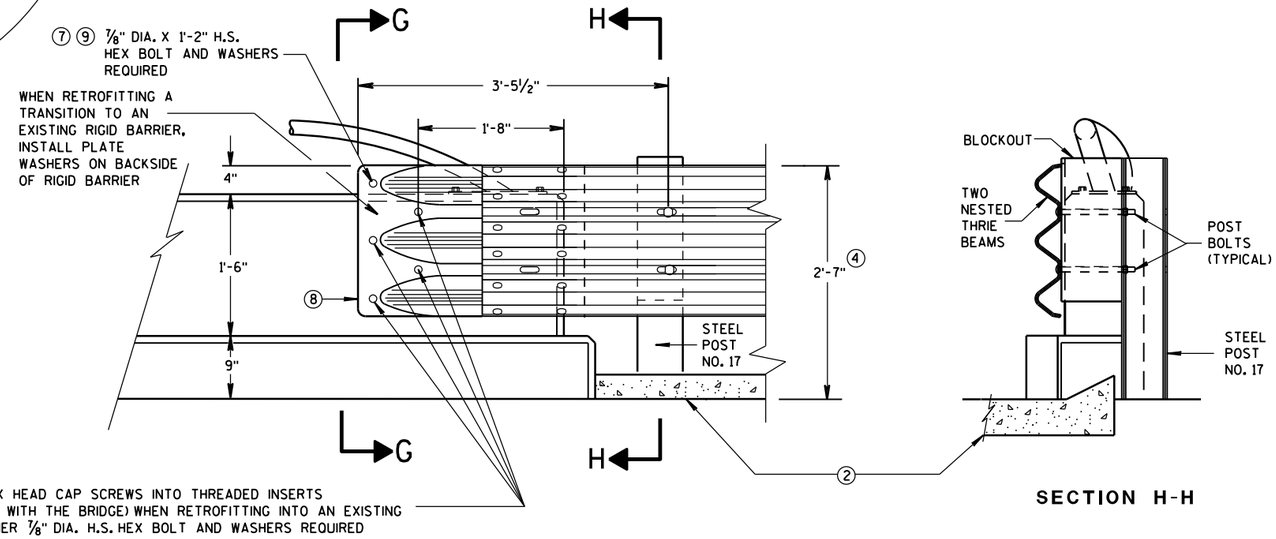
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





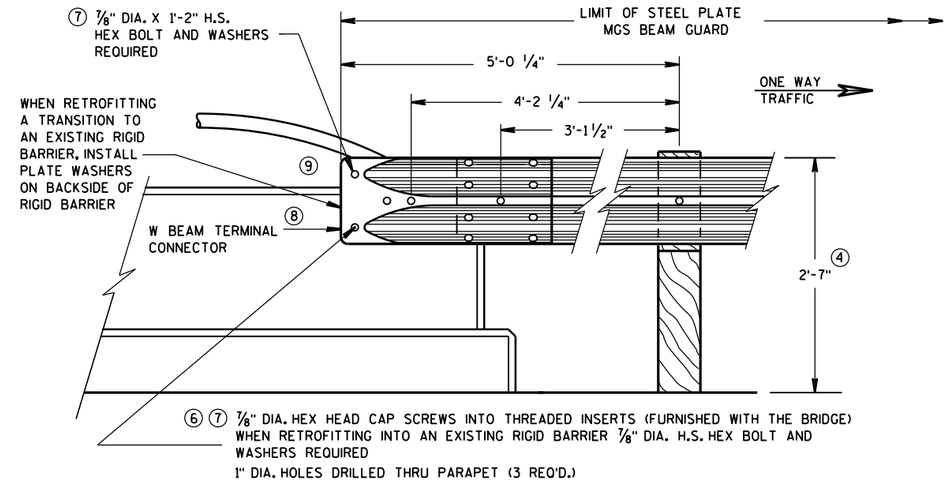
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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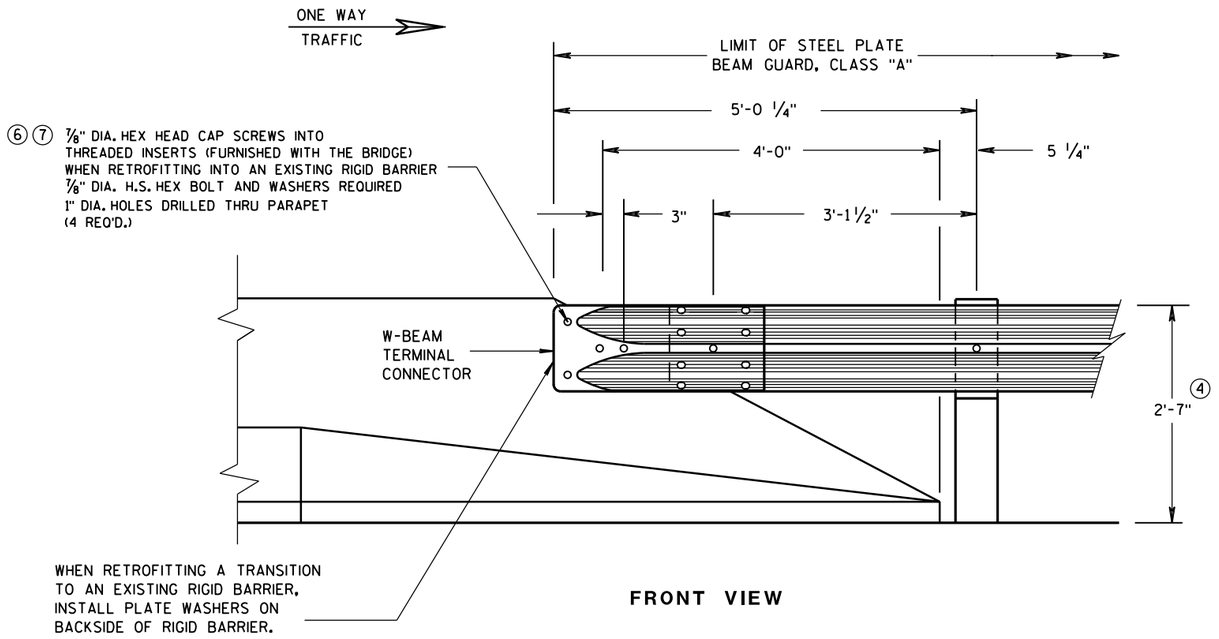


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

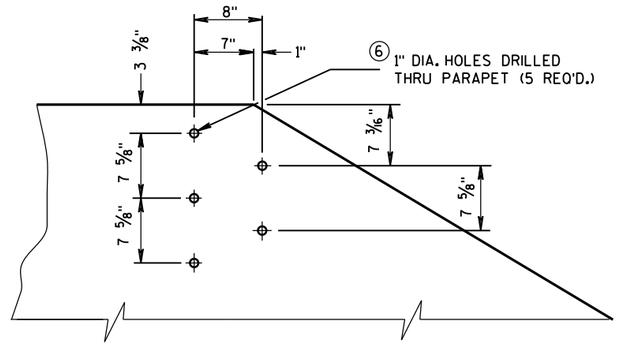
GENERAL NOTES

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

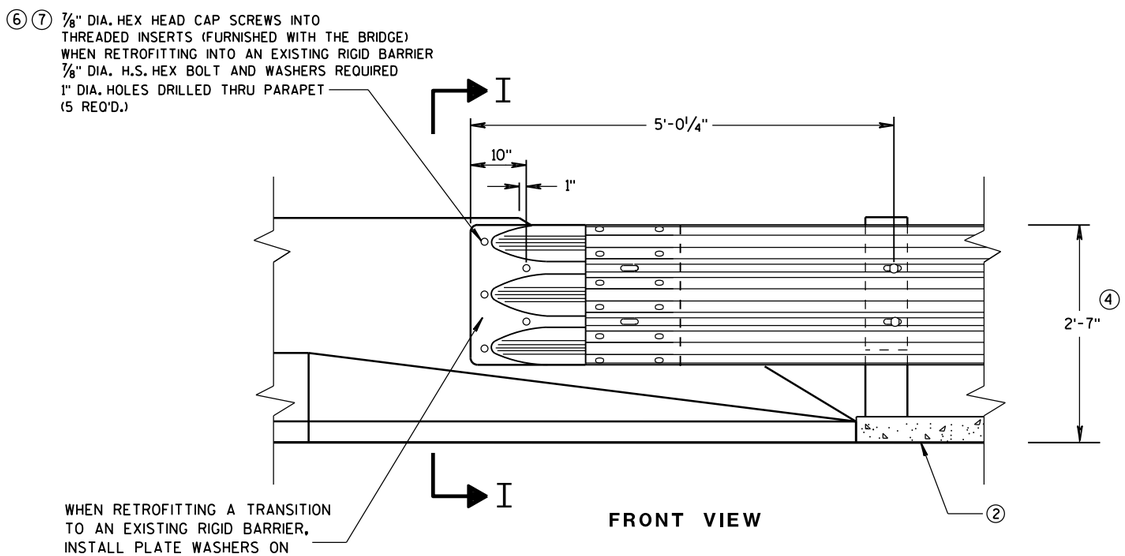
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

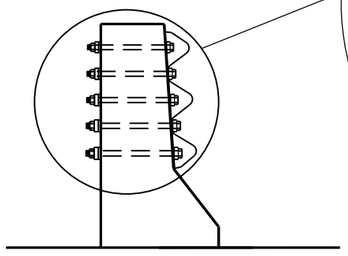
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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



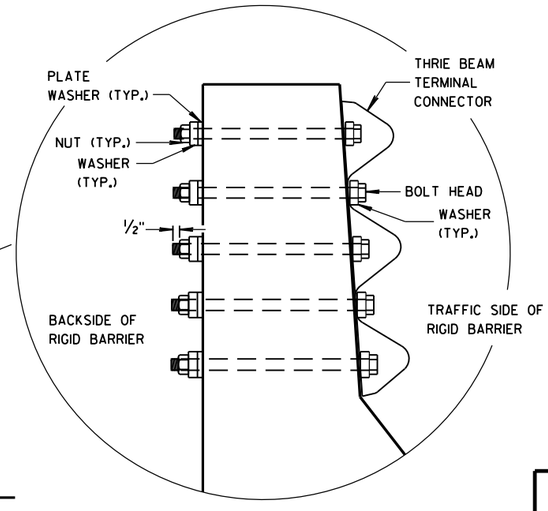
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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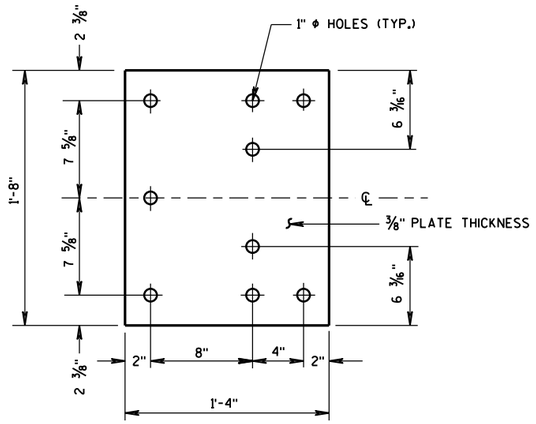
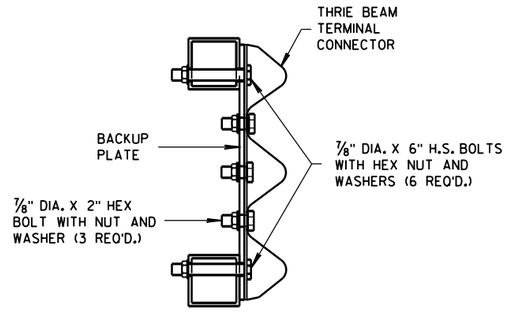
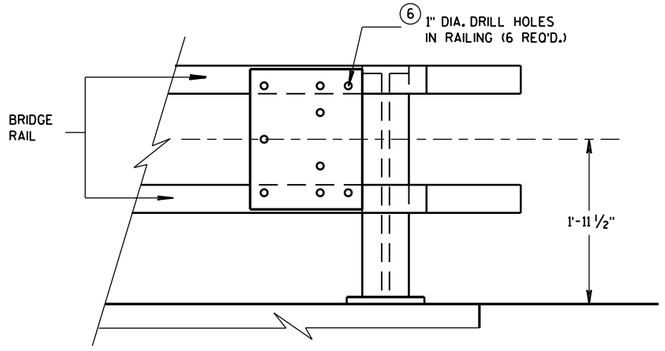


BACK-UP PLATE DETAIL



SECTION J-J

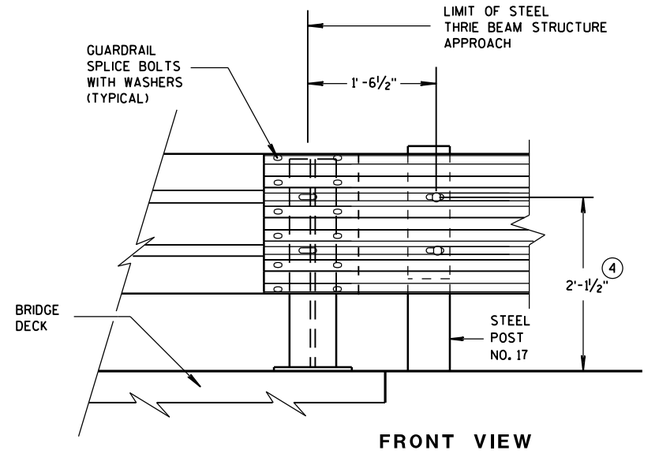


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

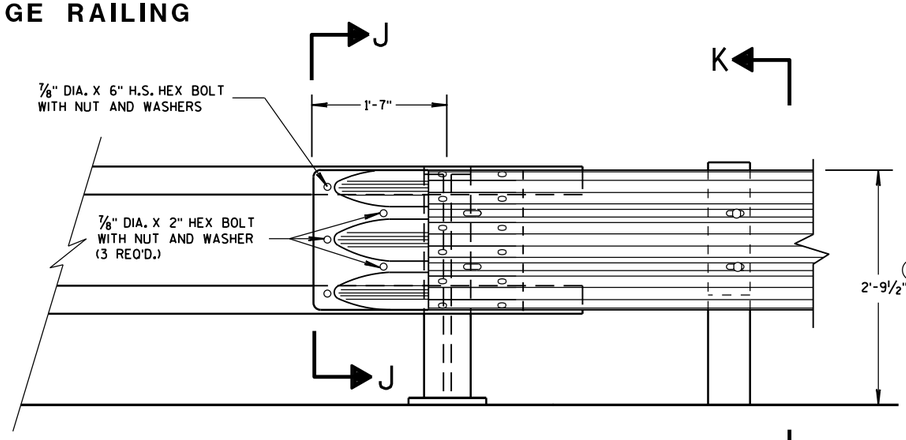
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(6) DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

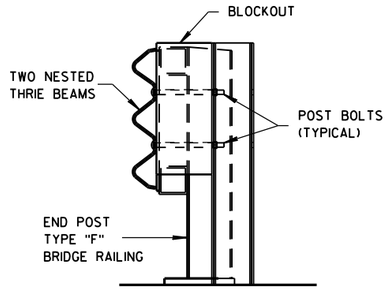


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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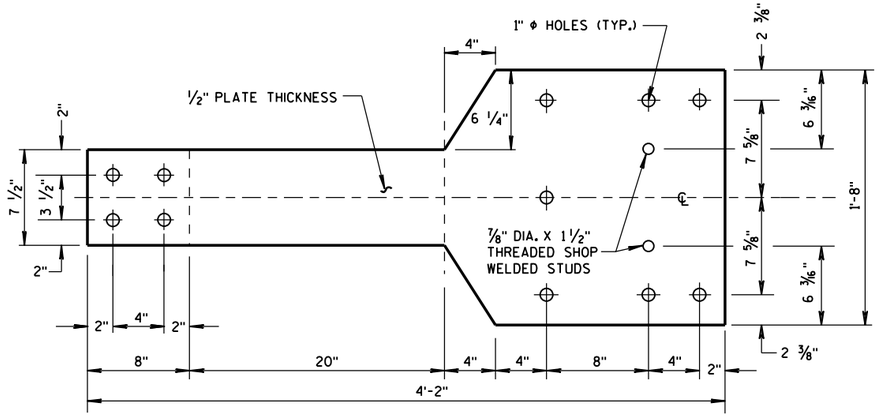
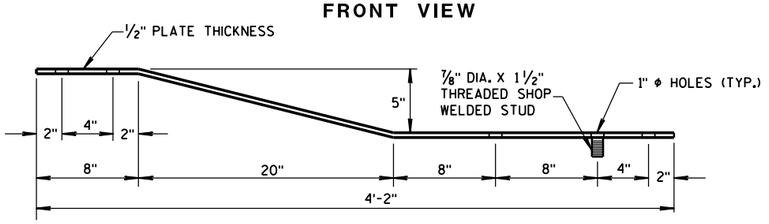
GENERAL NOTES

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

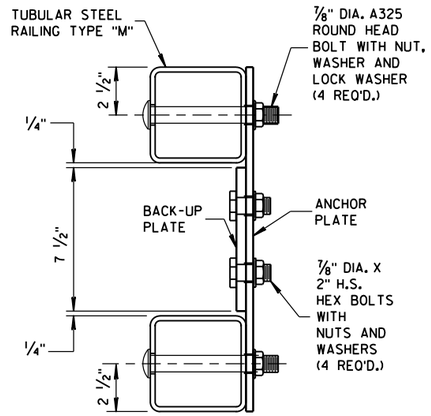


FRONT VIEW

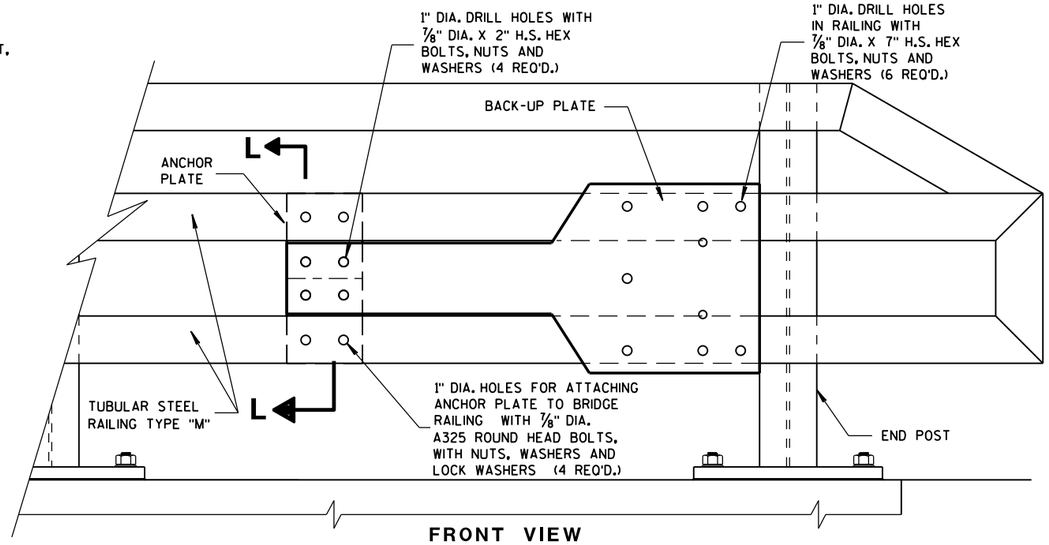


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

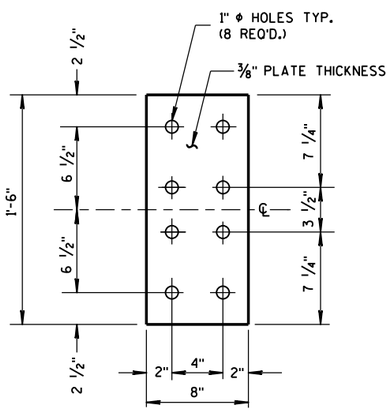


SECTION L-L



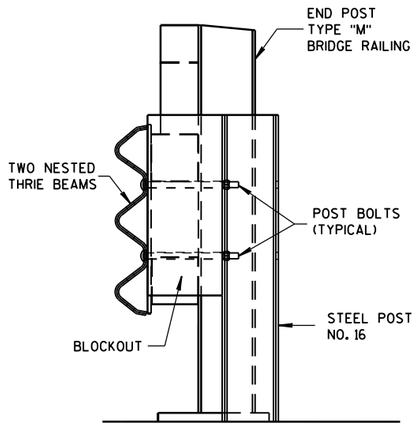
FRONT VIEW

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

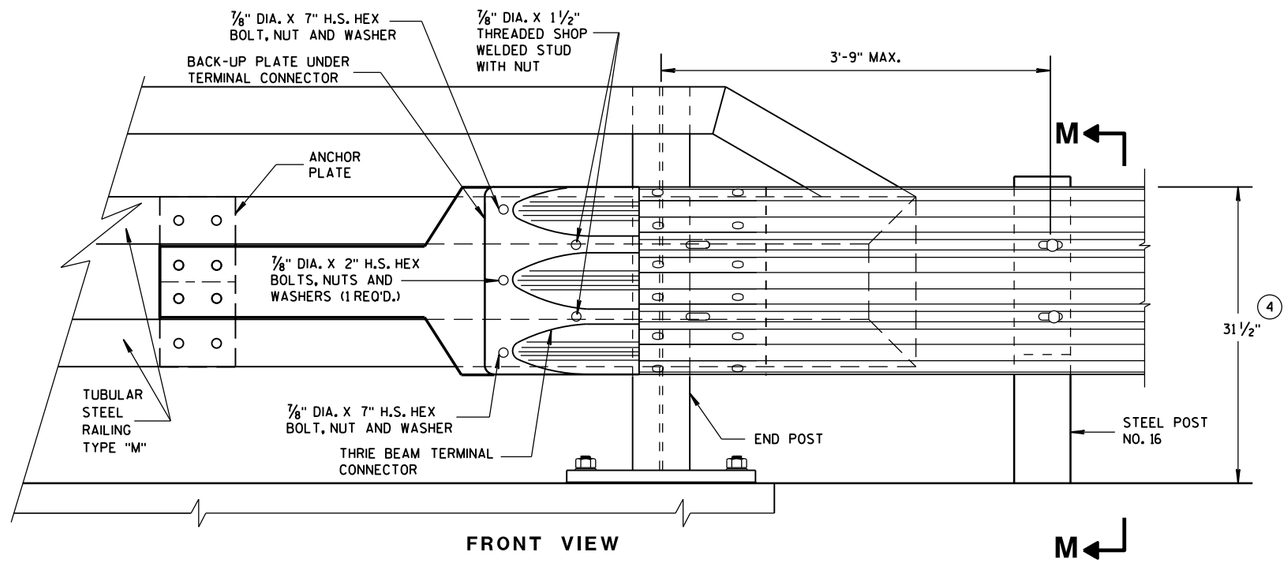


FRONT VIEW

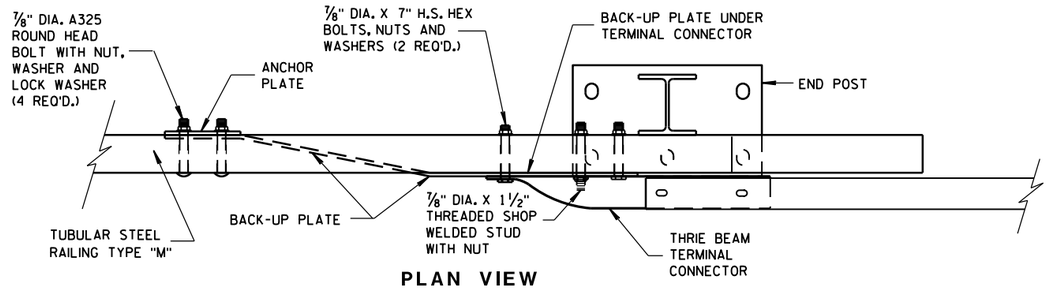
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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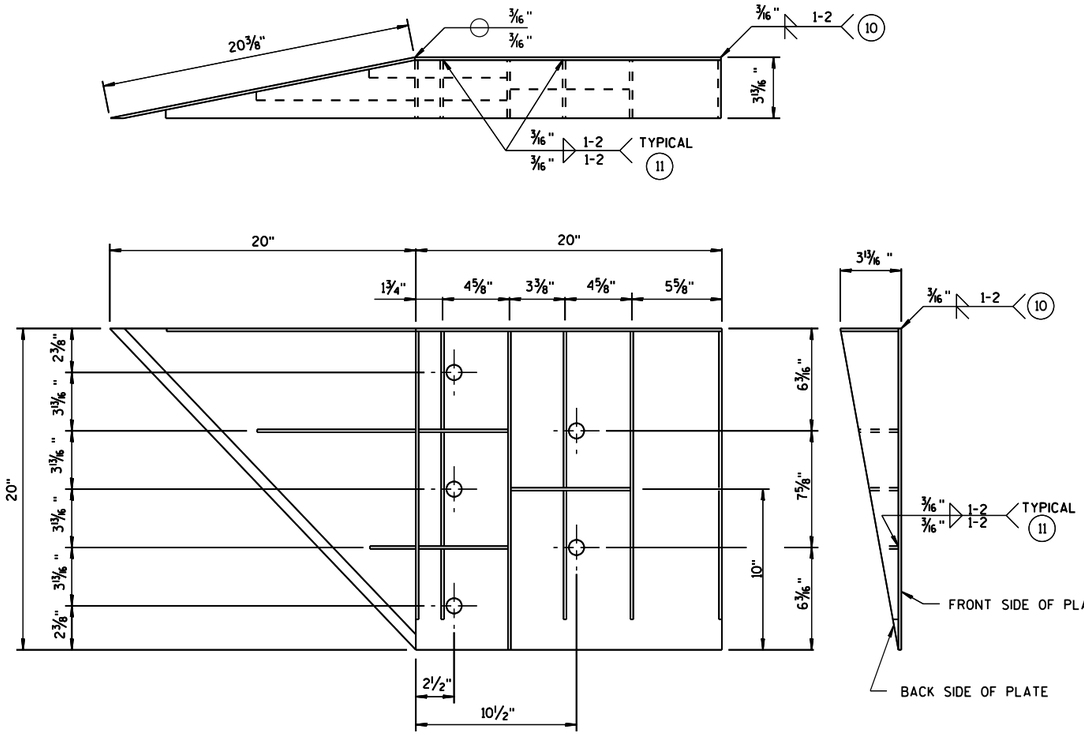

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

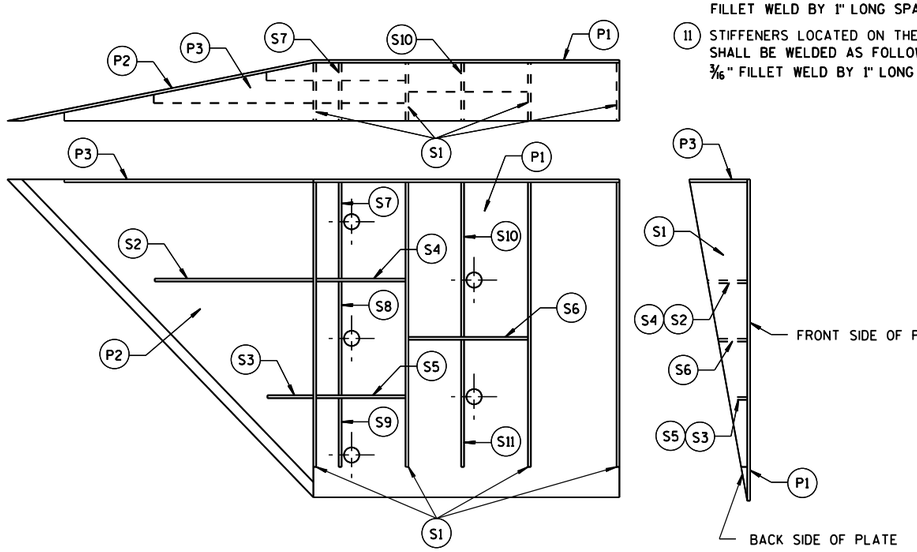

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

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

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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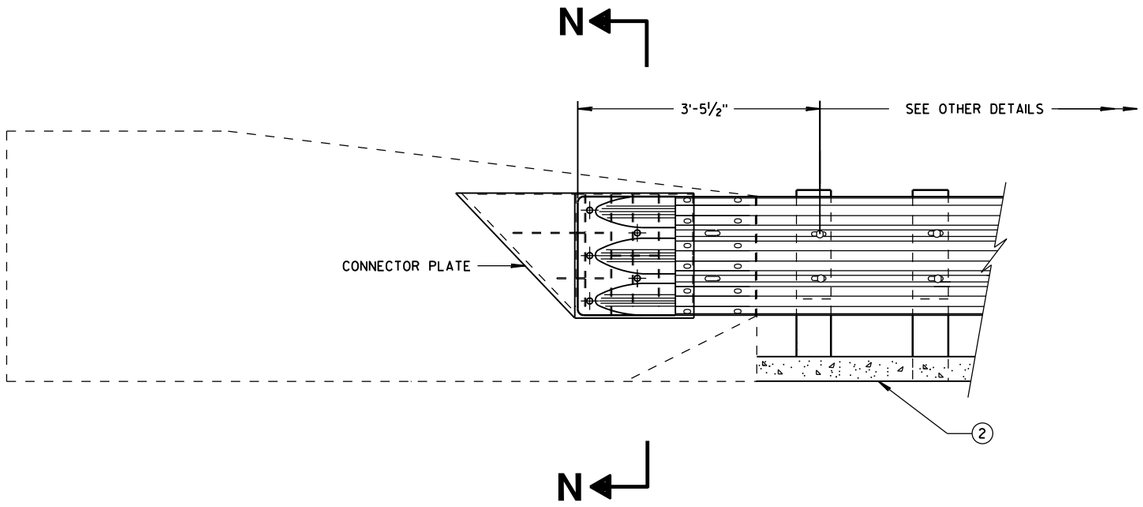
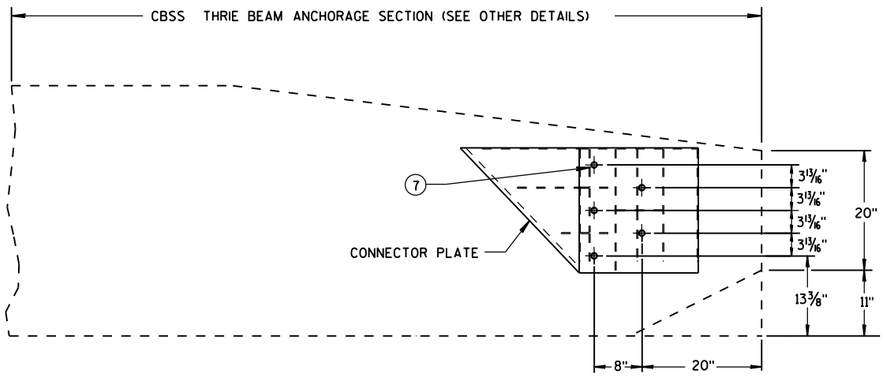


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



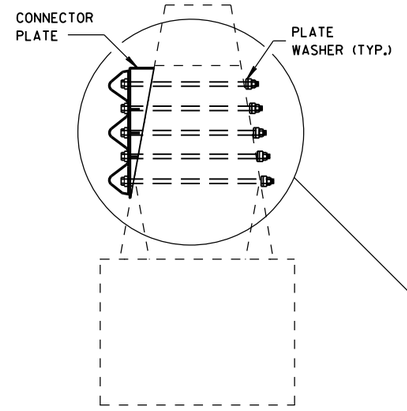
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

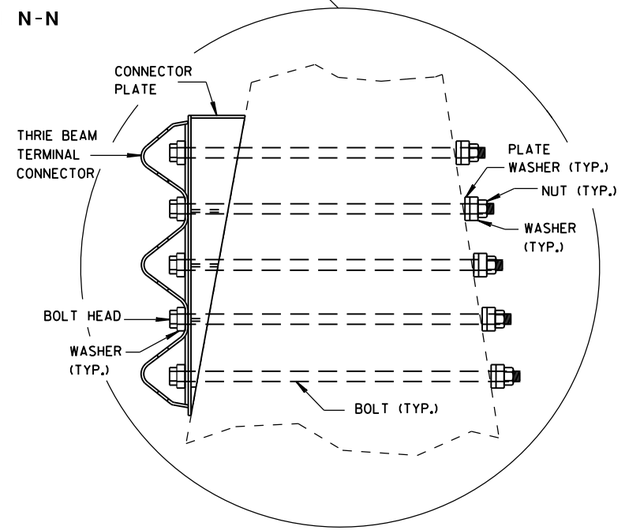
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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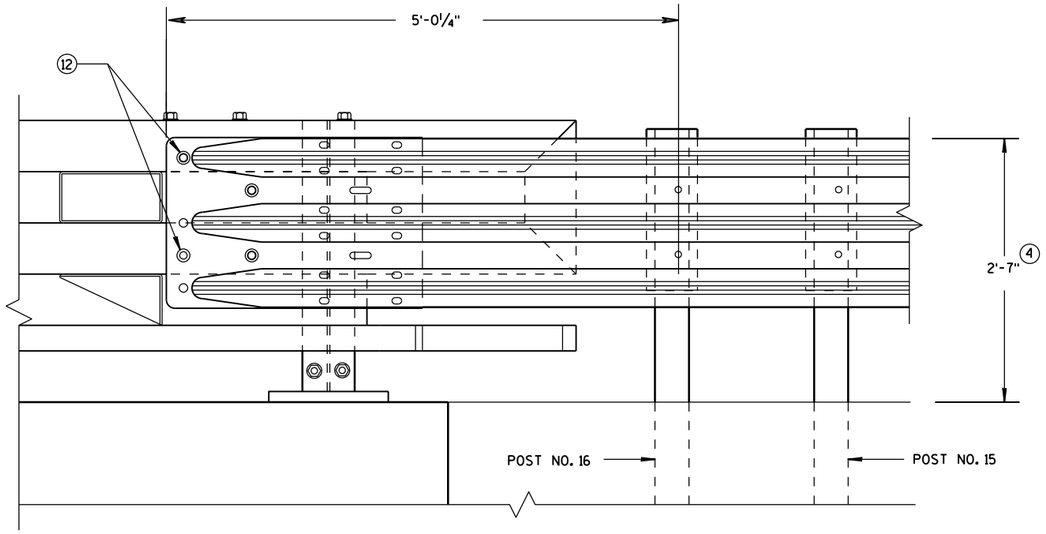
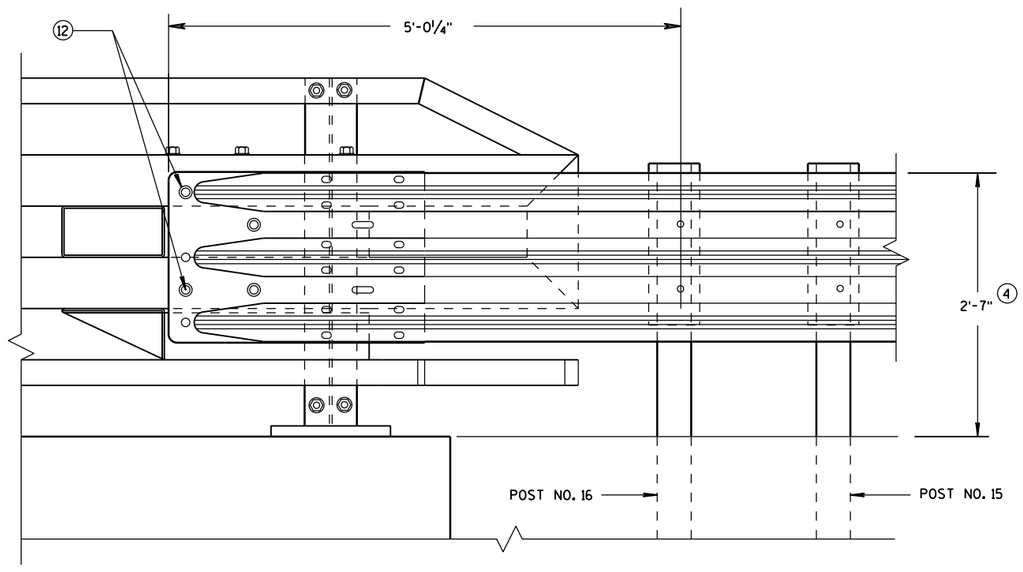


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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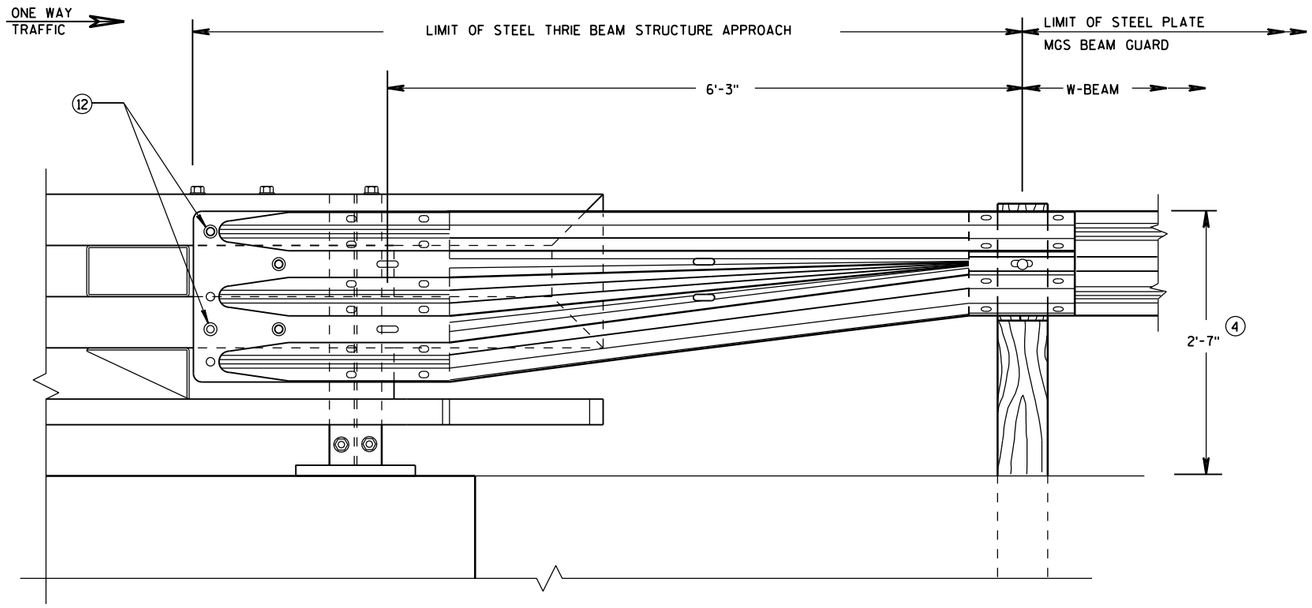


FRONT VIEW

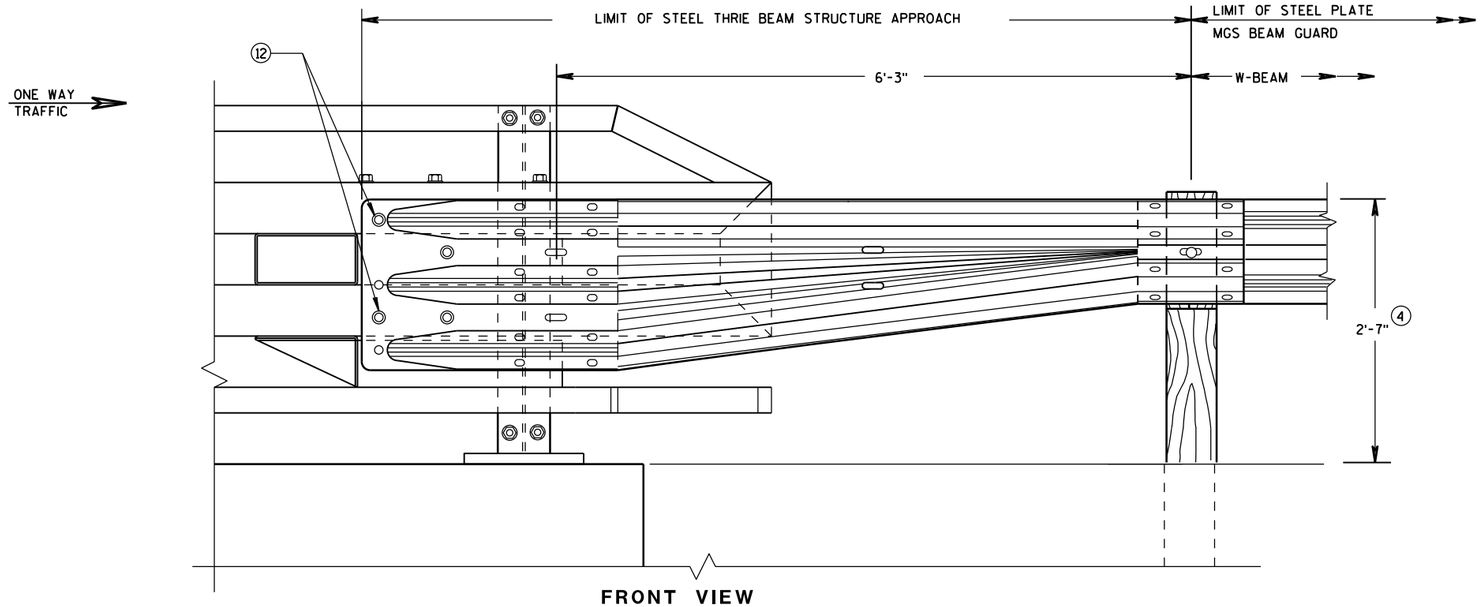
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS D 53
ENGINEER
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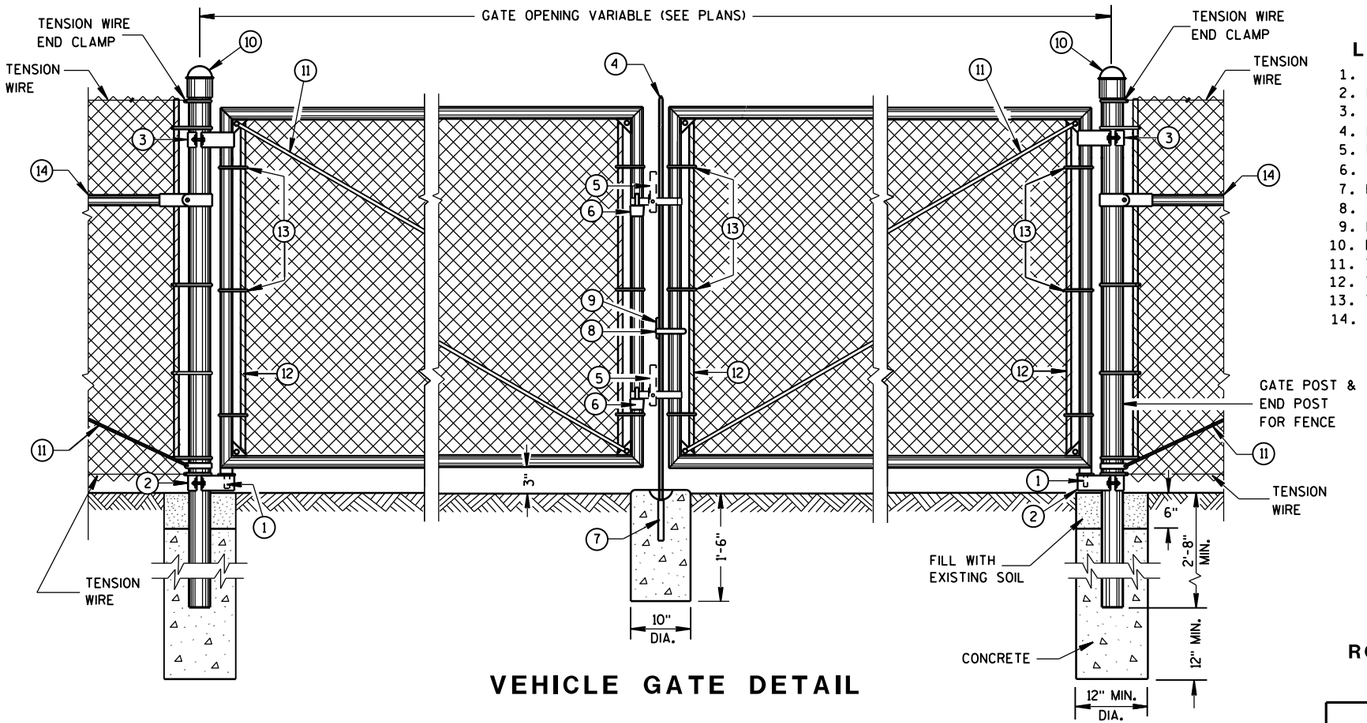
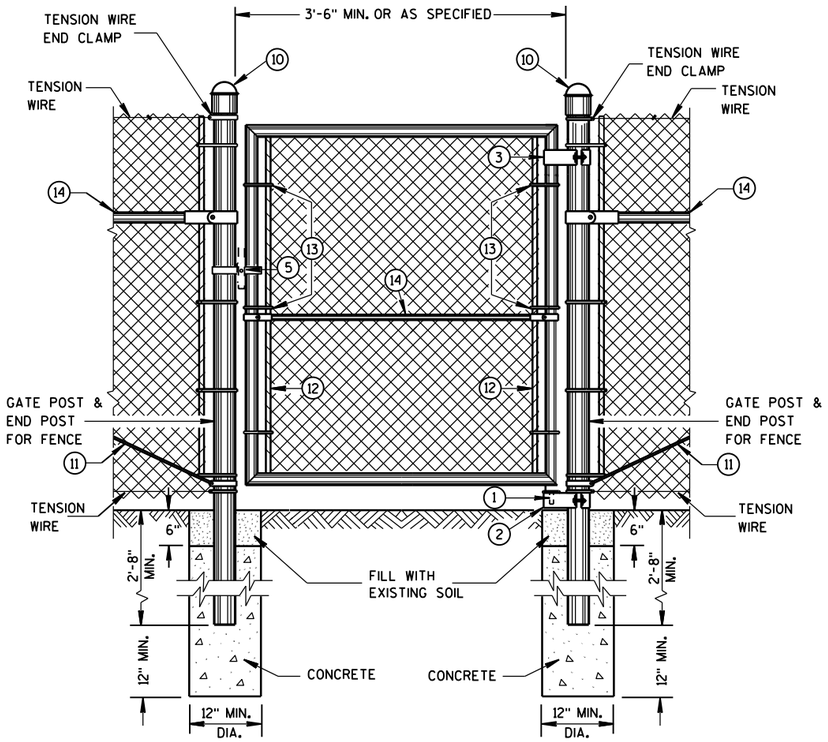


VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

LEGEND

1. STRAIGHT PLUG
2. BOTTOM HINGE
3. TOP HINGE
4. PLUNGER ROD
5. FULCRUM LATCH
6. FORK CATCH *
7. PLUNGER ROD CATCH
8. LOCK KEEPER GUIDE
9. LOCK KEEPER
10. DOME TOPS
11. TRUSS RODS
12. TENSION BAR
13. TENSION BANDS
14. BRACE RAIL

*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

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

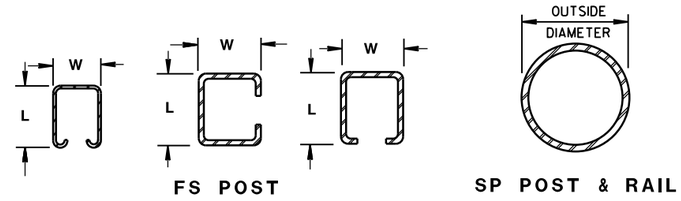
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

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

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

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

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



FS POST — SP POST & RAIL

CROSS SECTIONS OF POSTS AND RAILS

REQUIRED FENCE POST SIZES

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

BRACE RAIL TYPES

USE		TYPE
BRACE RAIL		SP1 OR FS1

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

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

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

REQUIRED POST SIZE FOR GATES

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

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

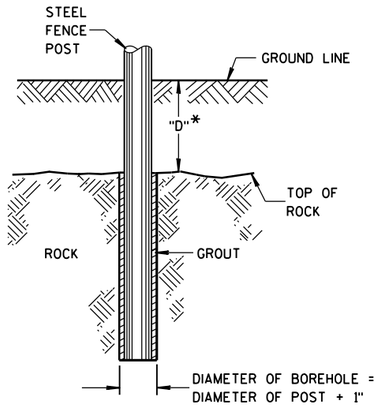
POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

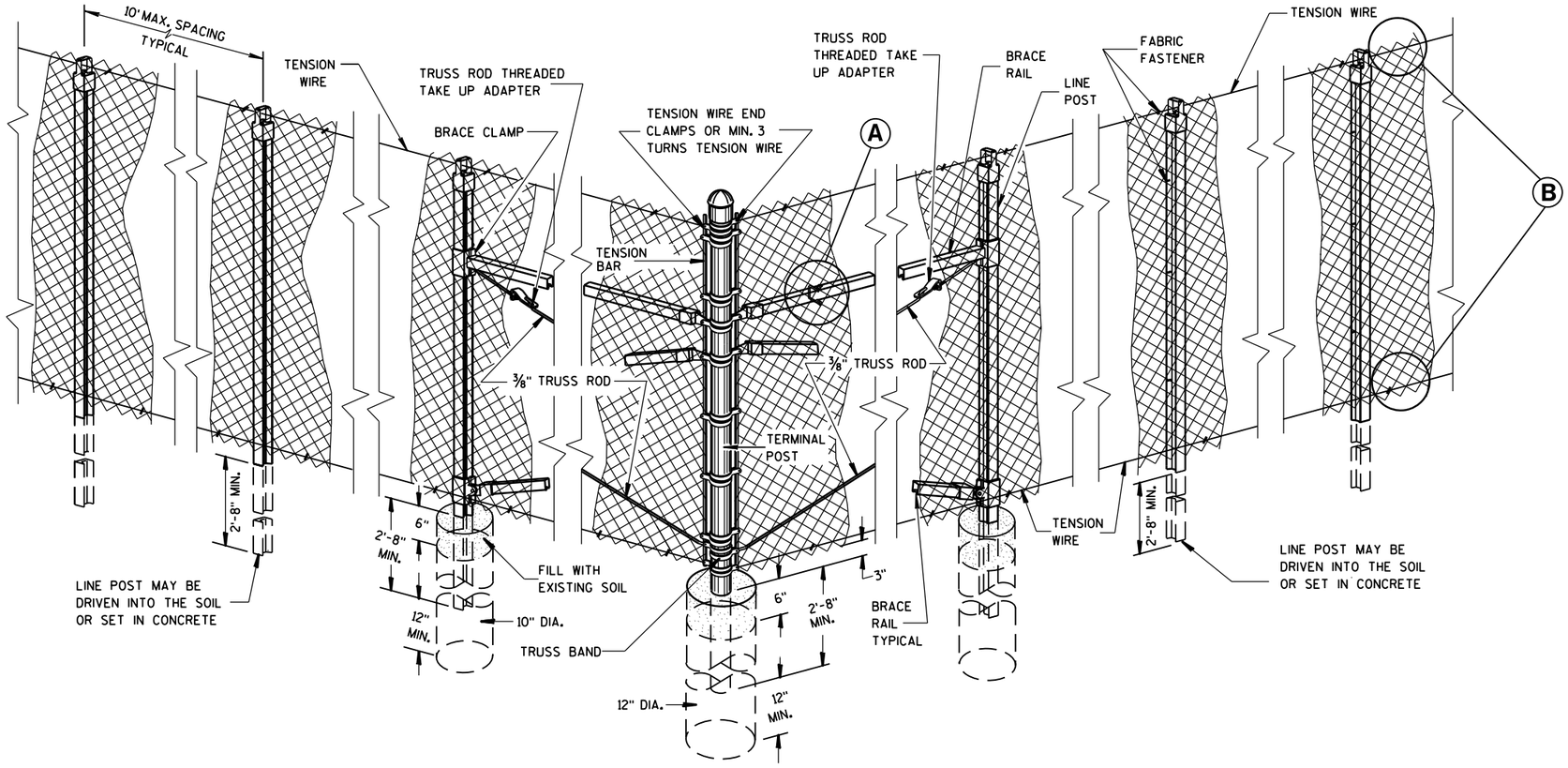
6

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

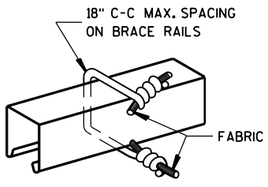


*IF "D" IS LESS THAN 2'-6", DRILL ROCK AND INSTALL GROUT

ROCK INSTALLATION OF LINE POST



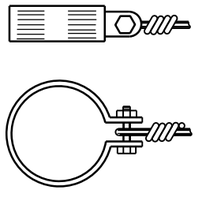
END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS



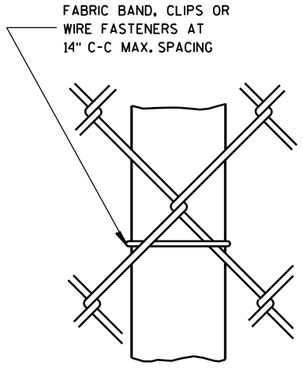
BRACE RAIL

FABRIC FASTENER

Ⓐ



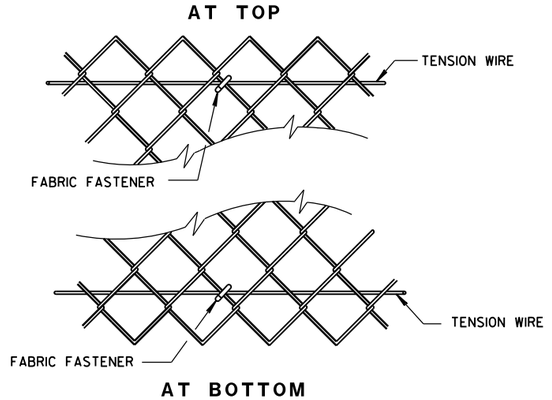
TENSION WIRE END CLAMP



LINE POST

FABRIC FASTENER

AT TOP



AT BOTTOM

SELVAGES

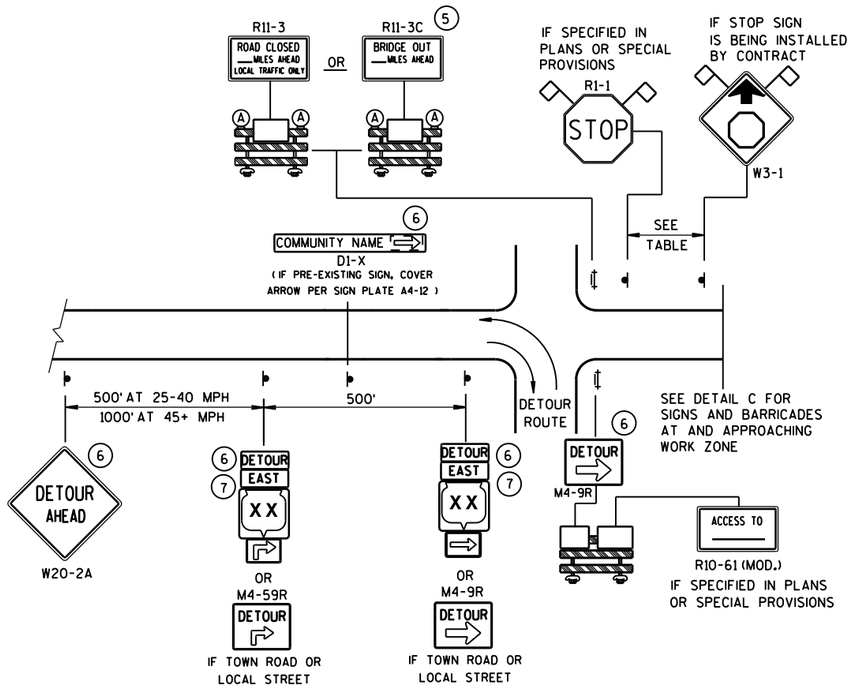
Ⓑ

FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

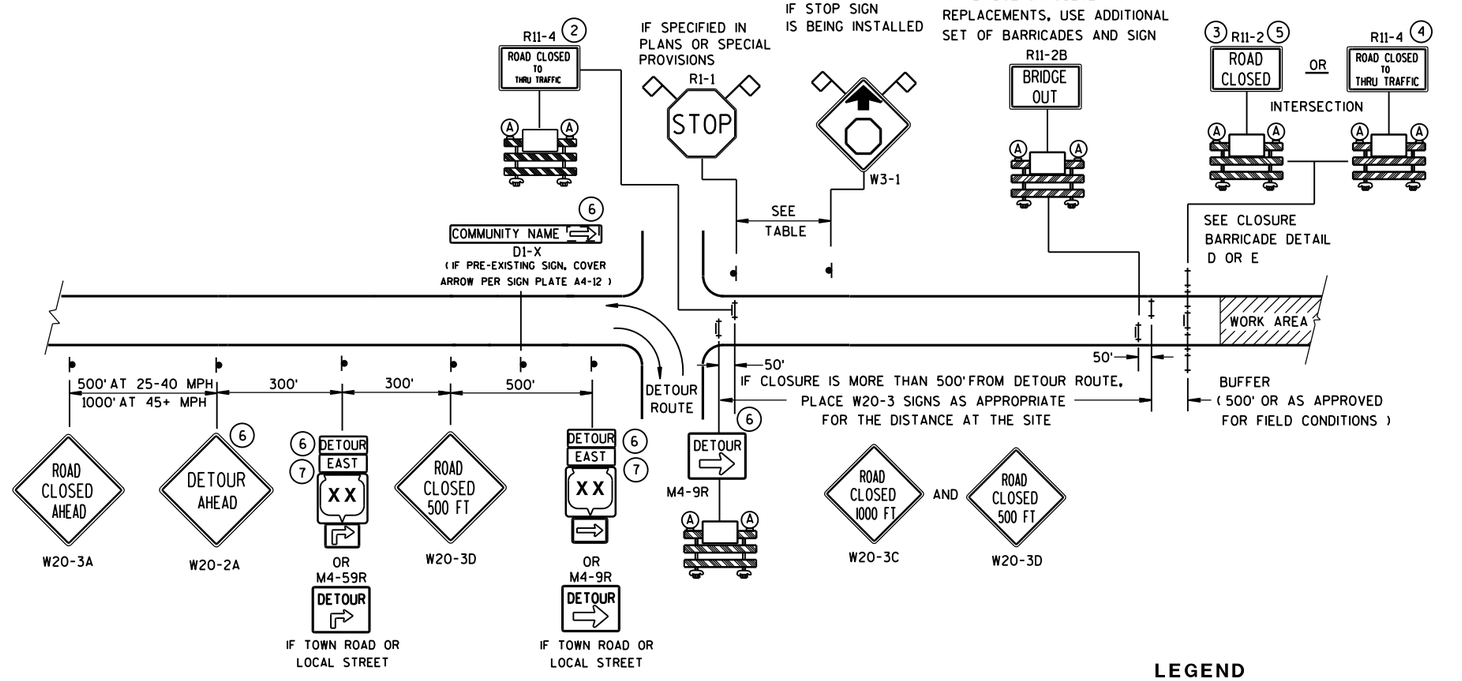
APPROVED
FEB. 2015 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 15 B 3-15b



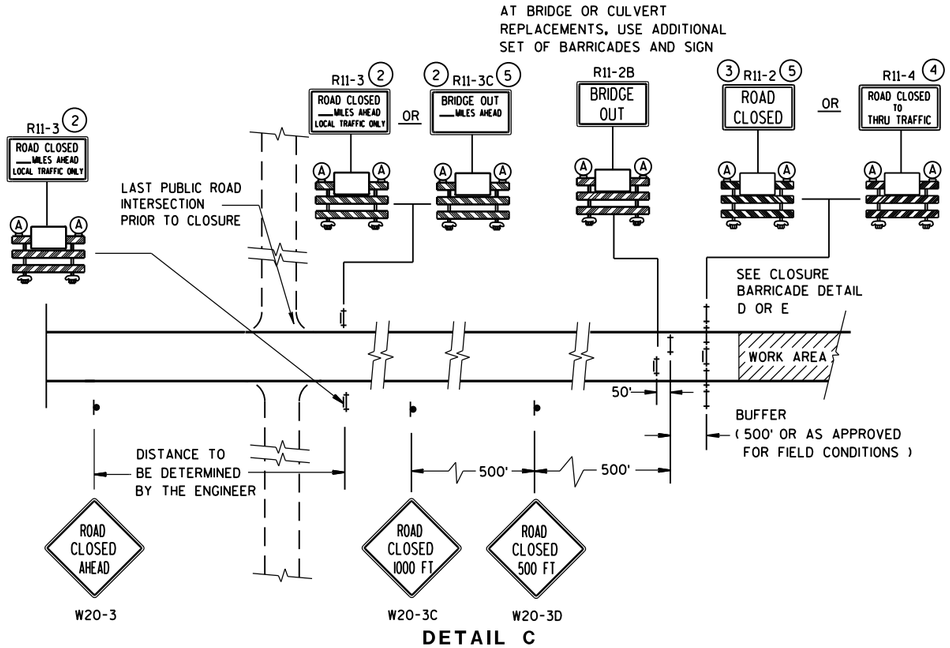
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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)

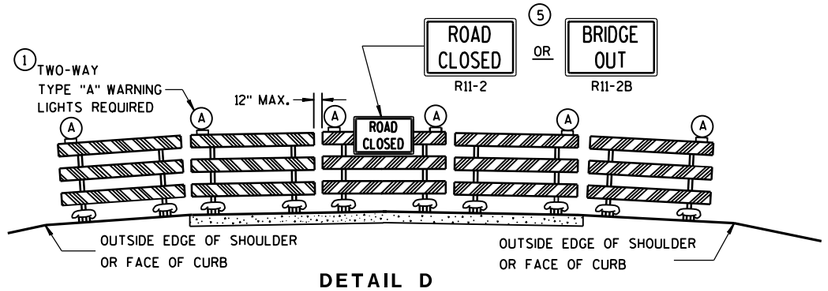
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

S.D.D. 15 C 2-6a

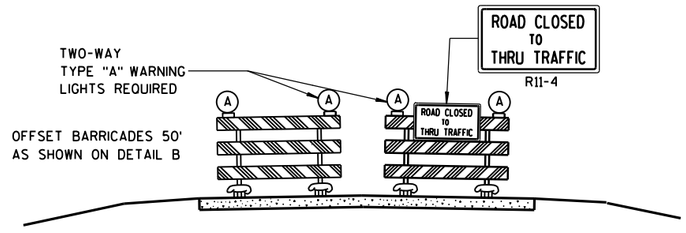
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

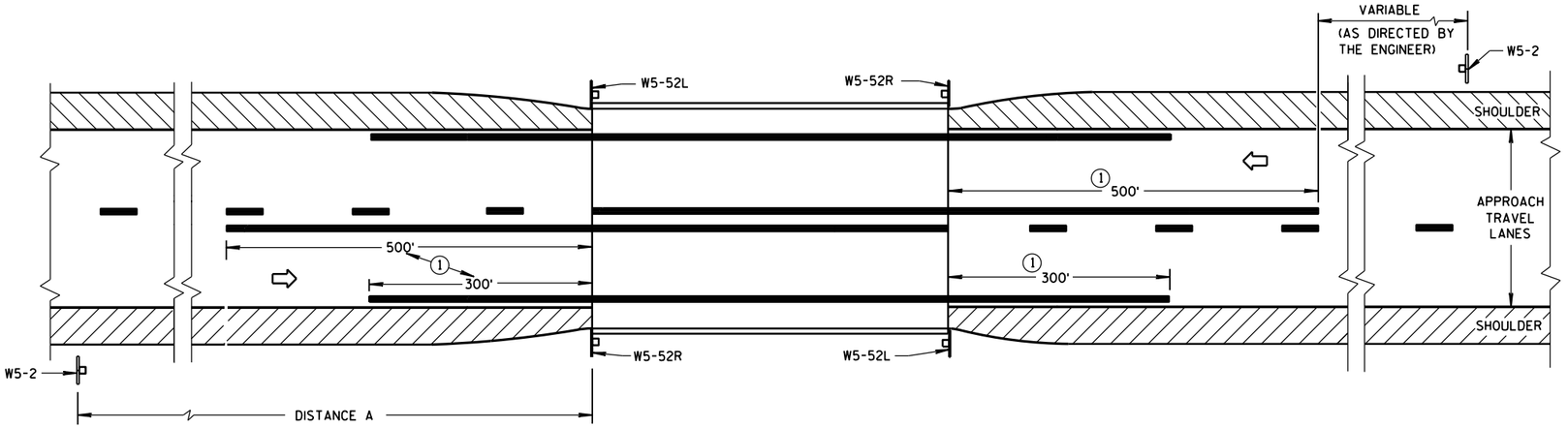
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO... SAFETY ENGI... — FHWA

6

S.D.D. 15 C 2-6b



GENERAL NOTES

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

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

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

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

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

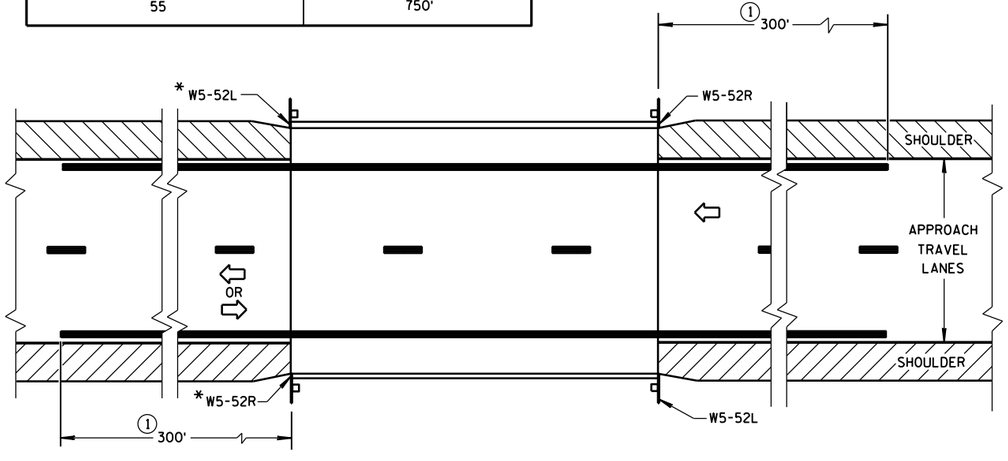
DISTANCE TABLE

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

SITUATION 1

WARRANTING CRITERIA:

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

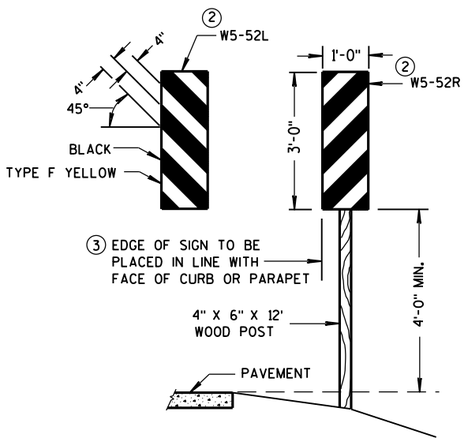


*OMIT ON ONE-WAY TRAVELLED WAYS

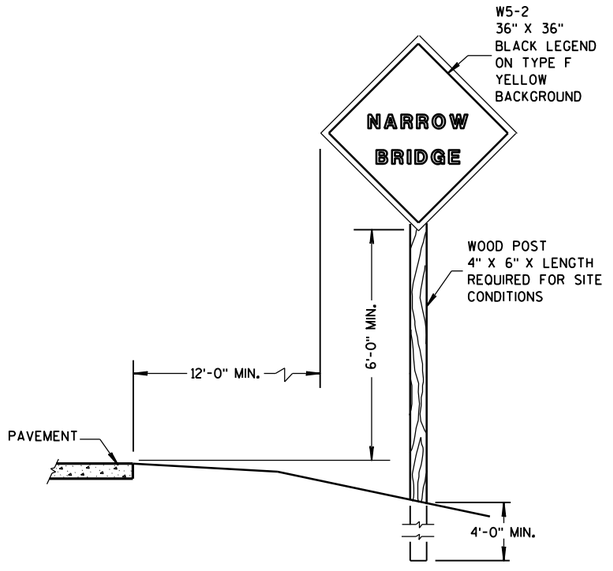
SITUATION 2

WARRANTING CRITERIA:

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

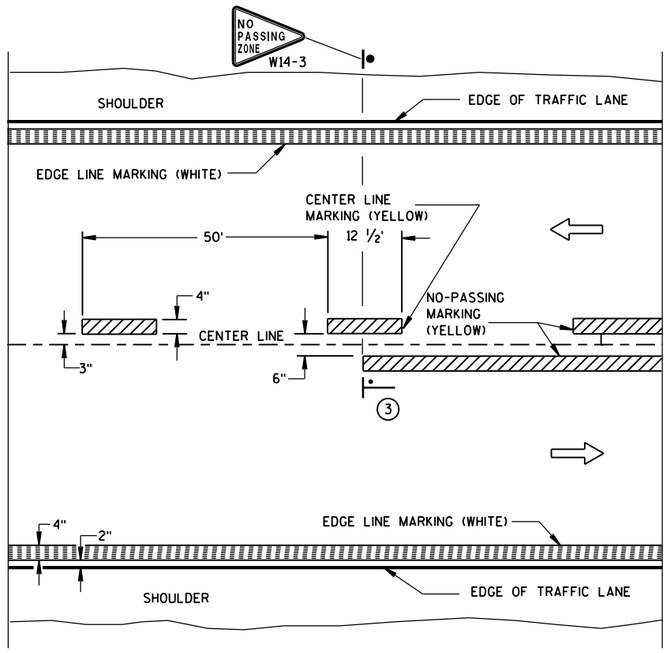
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

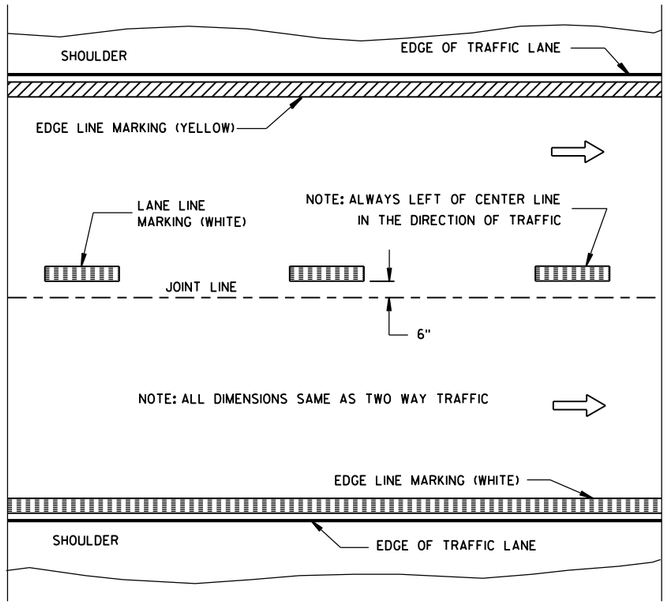
FHWA

6

S.D.D. 15 C 6-7

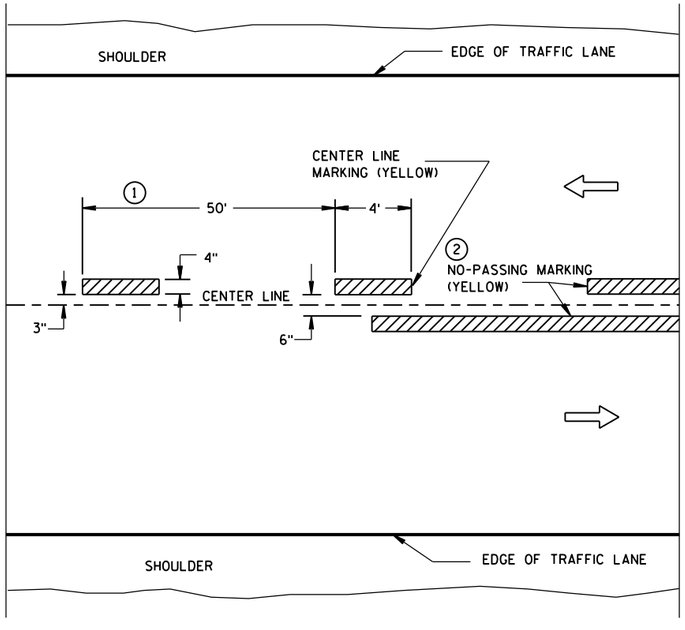


TWO WAY TRAFFIC

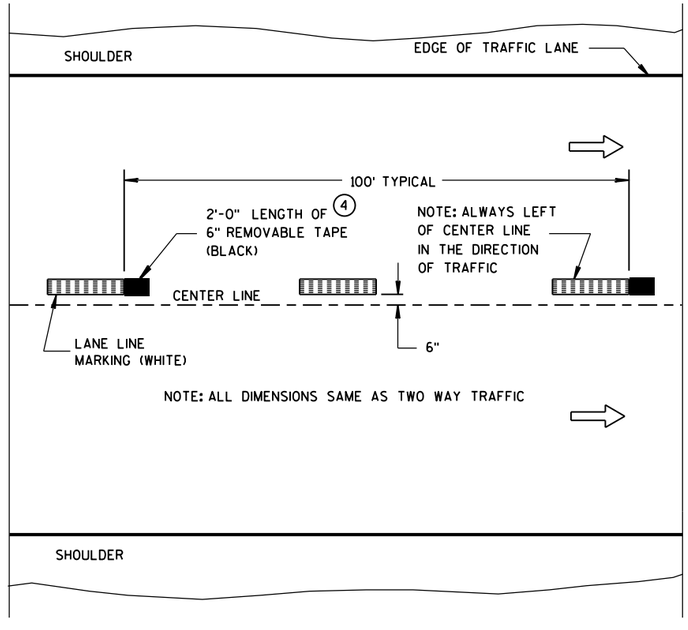


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

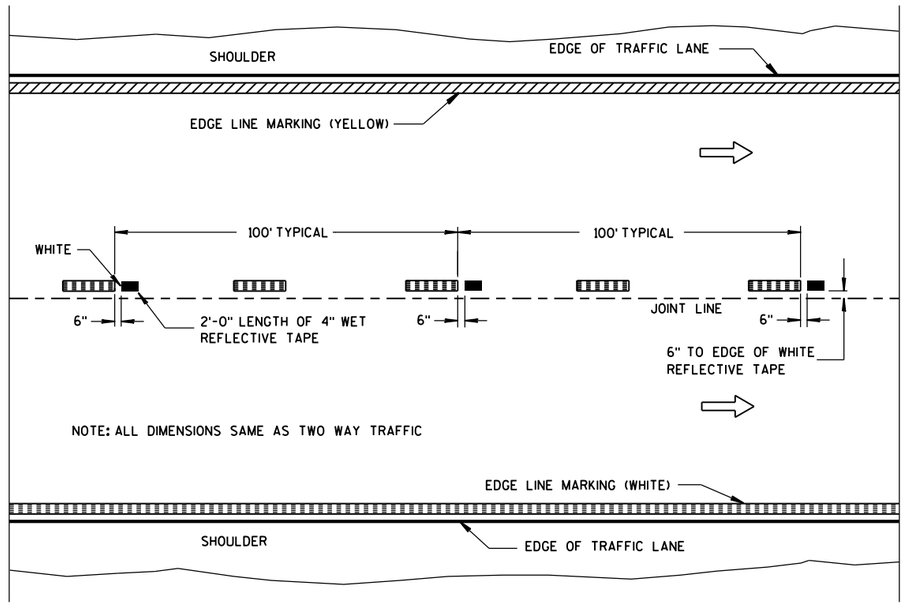
GENERAL NOTES

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

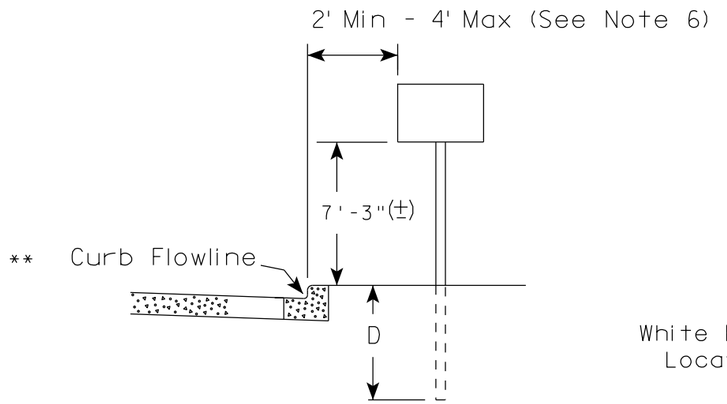
6

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

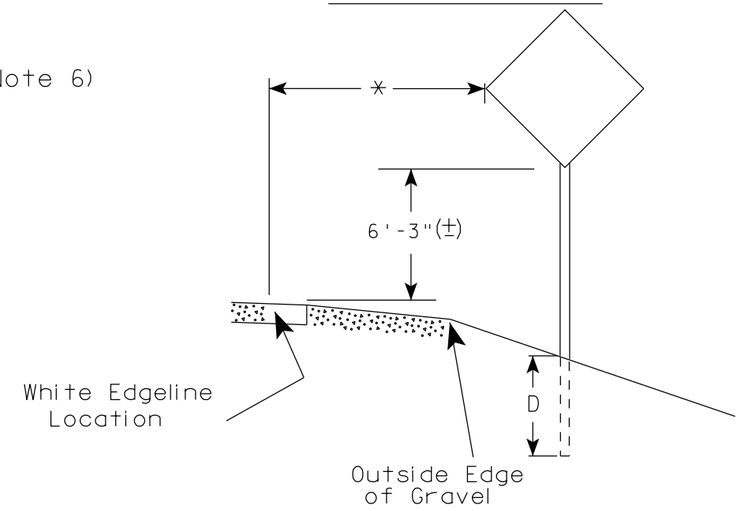
6

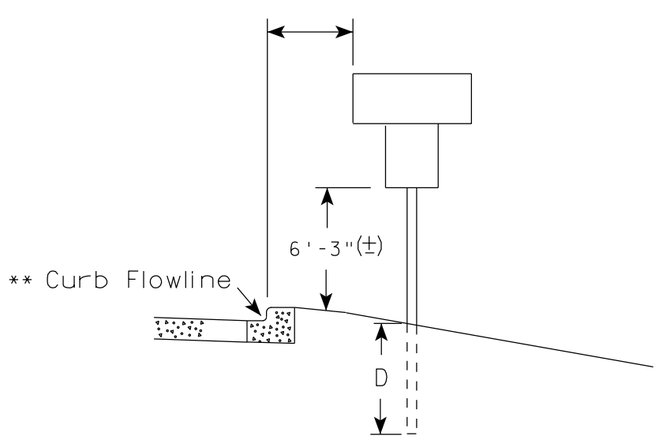
S.D.D. 15 C 8-16a

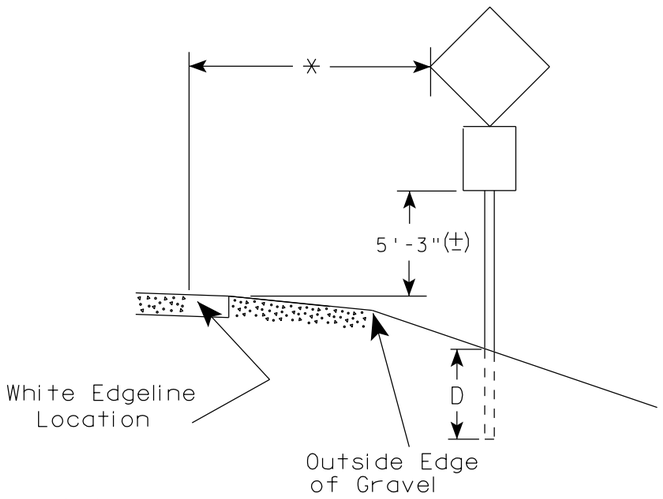
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

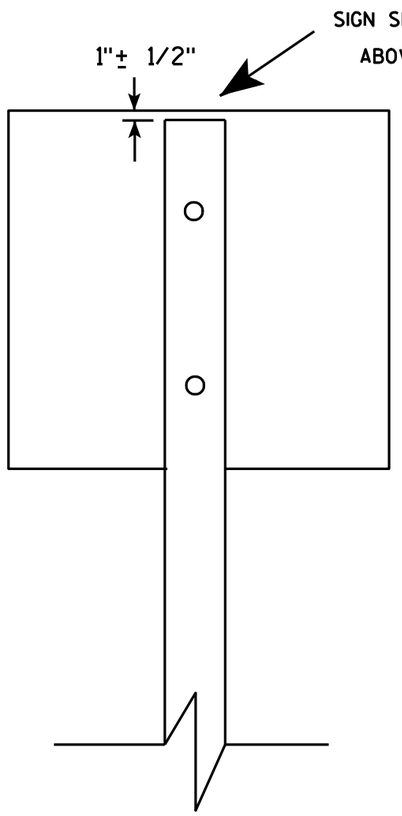
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

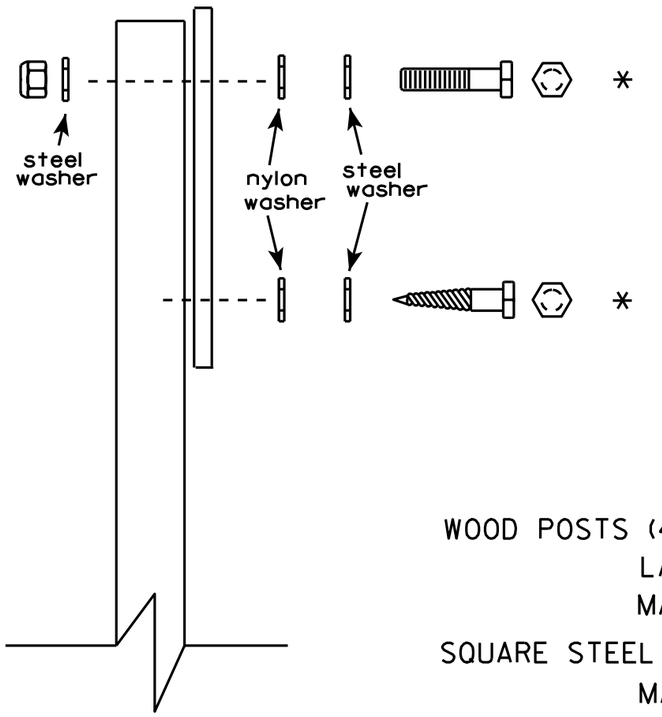
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE		SHEET NO:	E





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

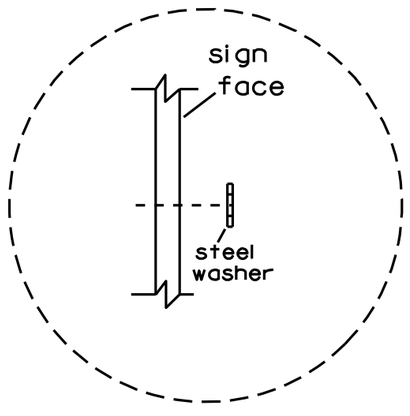
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

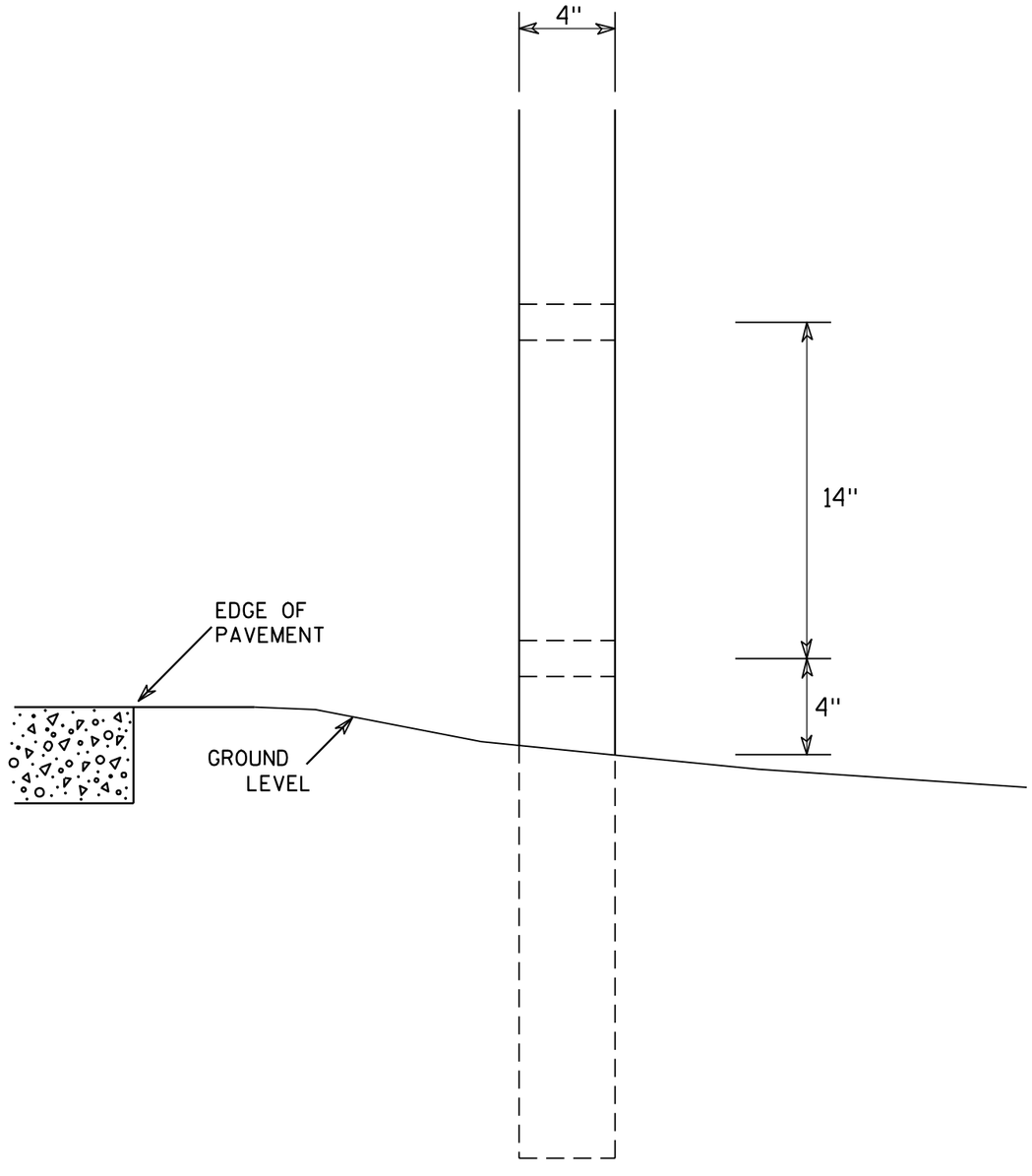
PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE		SHEET NO: 61	E

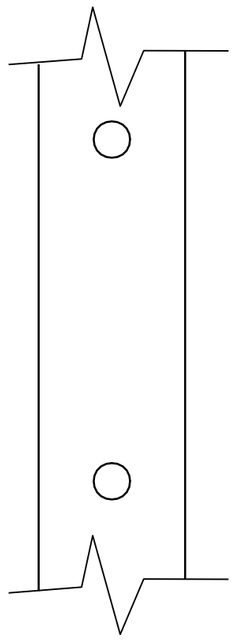
FILE NAME : C:\Users\PROJECTS\tr_stdplate\A48.DGN PLOT DATE : 23-MAR-2010 10:15 PLOT BY : ditjph

WISDOT/CADDS SHEET 42

7

7





SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

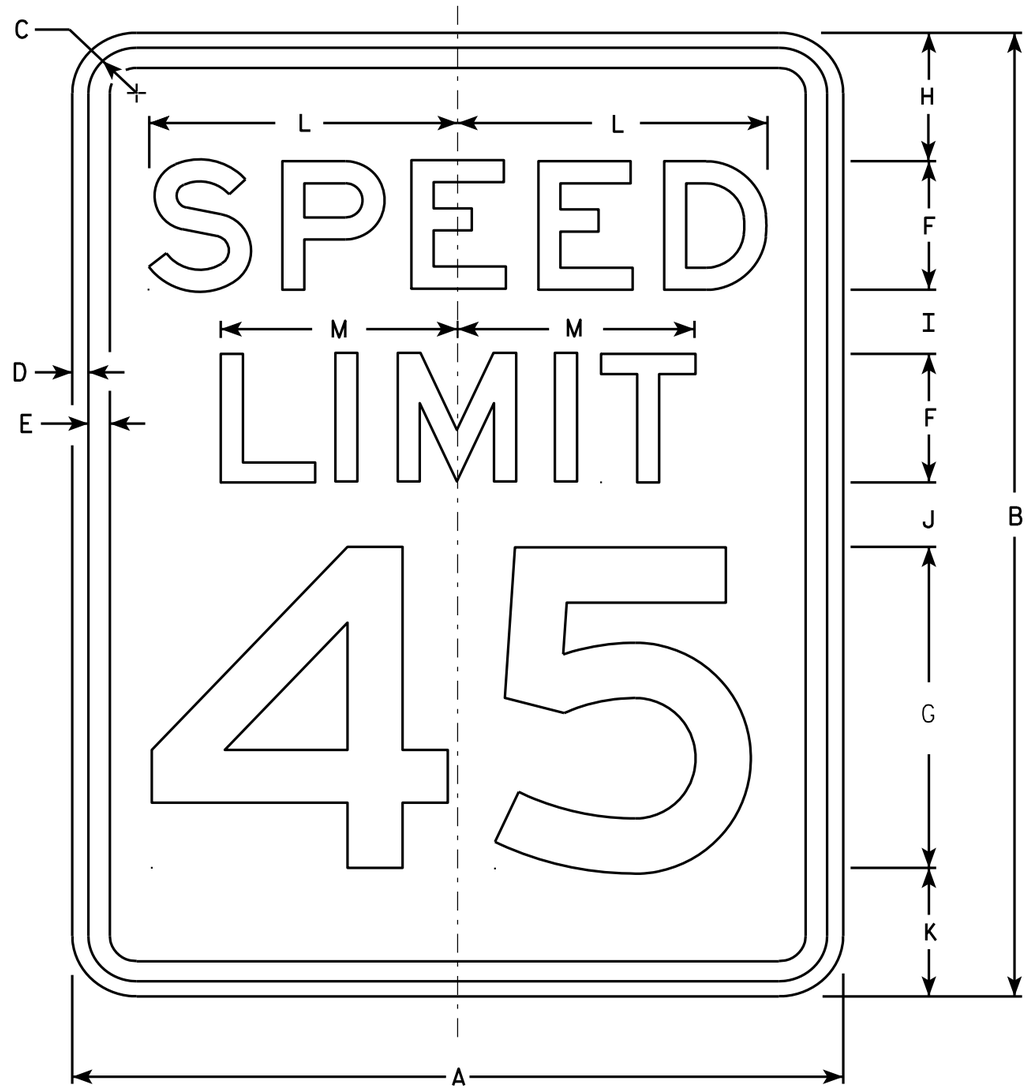
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE		SHEET NO: 62	E

FILE NAME : C:\Users\Projects\tr_stdplate\A411.DGN PLOT DATE : 10-NOV-2005 10:09 PLOT BY : DOTSJA PLOT NAME : PLOT SCALE : 6.207338:1.000000

WISDOT/CADDS SHEET 42



R2-1

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 - E
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.

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	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

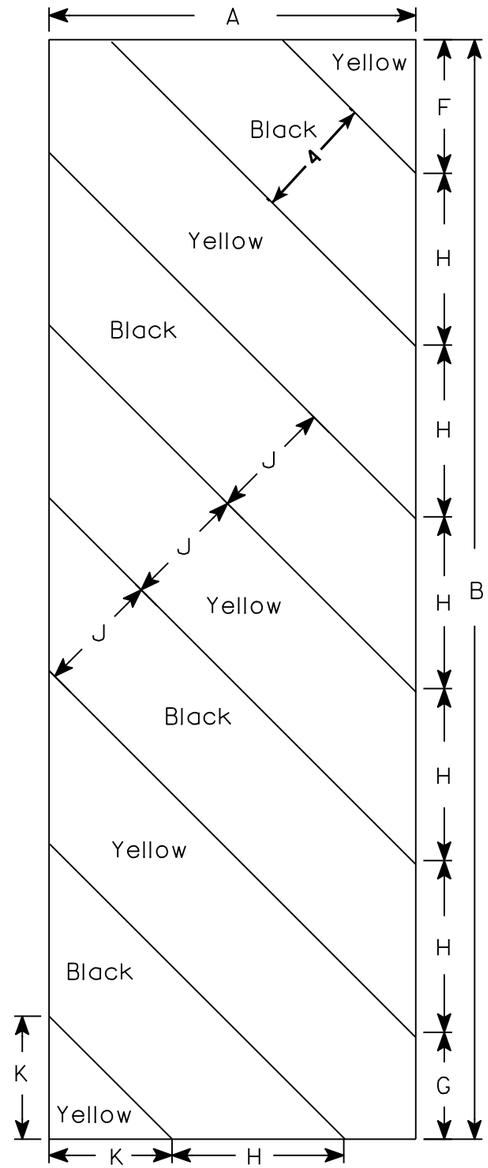
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

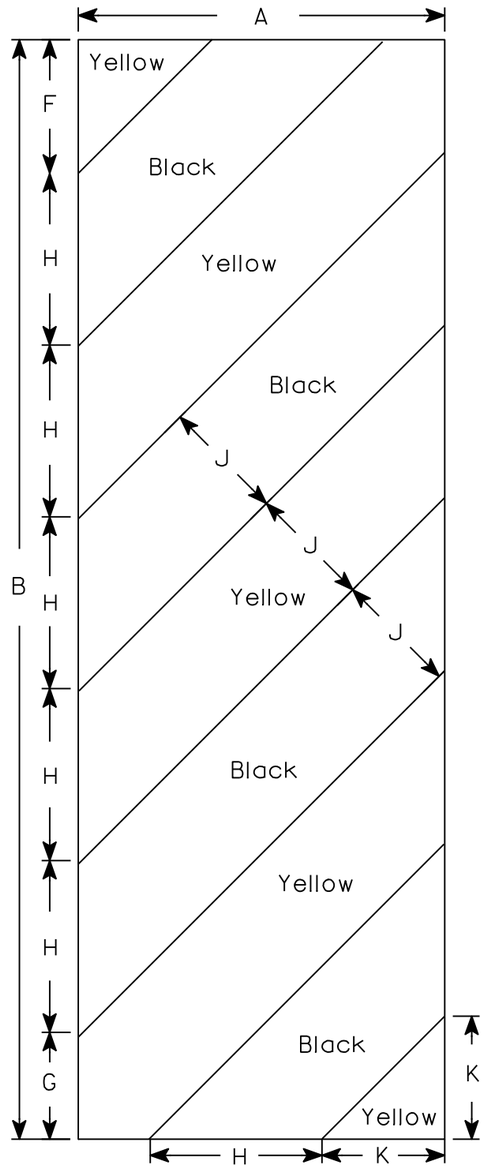
PROJECT NO: 9327-02-71 | HWY: CTH BB | COUNTY: MARINETTE | SHEET NO: 63 | E

7

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R21.DGN PLOT DATE : 28-MAY-2010 08:32 PLOT BY : ditjph PLOT NAME : PLOT SCALE : 4.717577:1.000000
WISDOT/CADDS SHEET 42



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

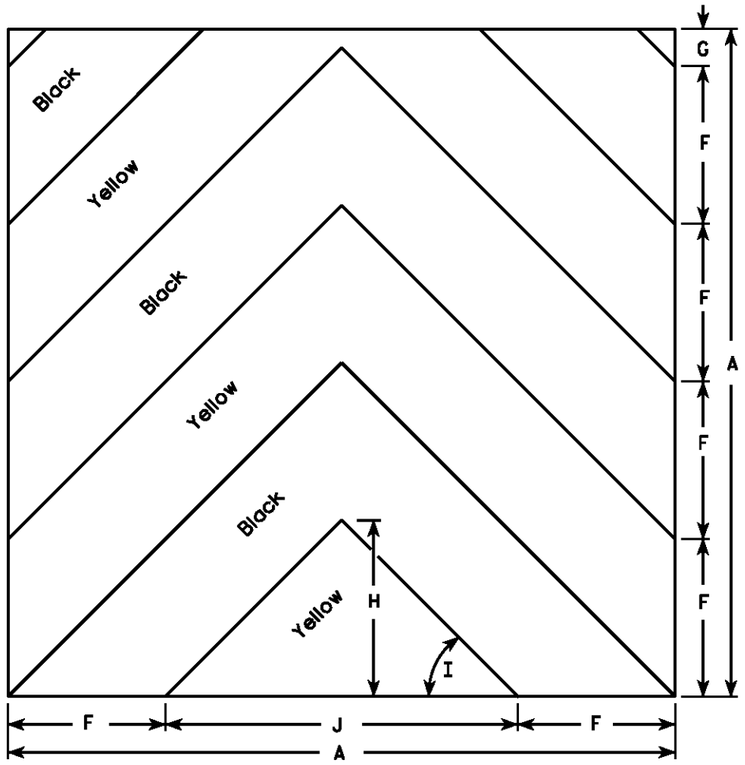
APPROVED Matthew R Rauch
for State Traffic Engineer

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

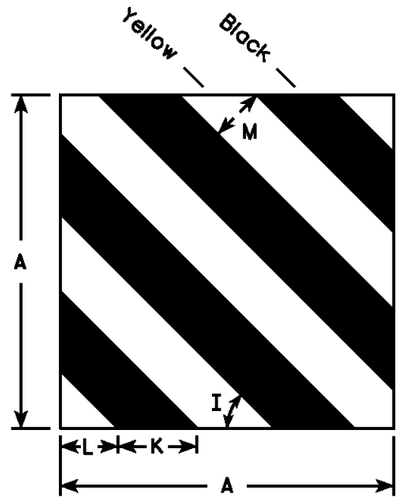
PROJECT NO: 9327-02-71 | HWY: CTH BB | COUNTY: MARINETTE | SHEET NO: 64 | E

NOTES

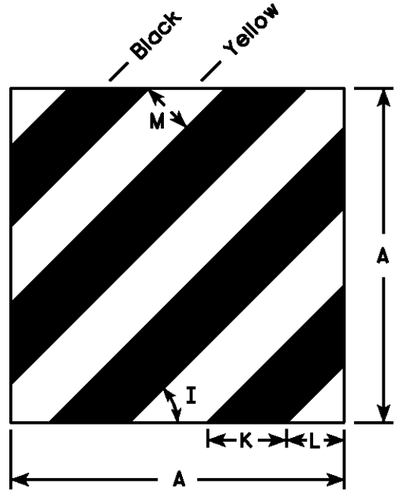
1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Sign shall be a sheeting overlay no aluminum base material
4. Overall sign size varies depending upon manufacturer of crash cushion.



W5-58D



W5-58L



W5-58R

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	VARIES					8 ½	2	9 ½	45°	19	8 ½	6 ¼	6														VARIES
2M	VARIES					8 ½	2	9 ½	45°	19	8 ½	6 ¼	6														VARIES
3																											
4																											
5																											

STANDARD SIGN

W5-58D & W5-58L&R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch

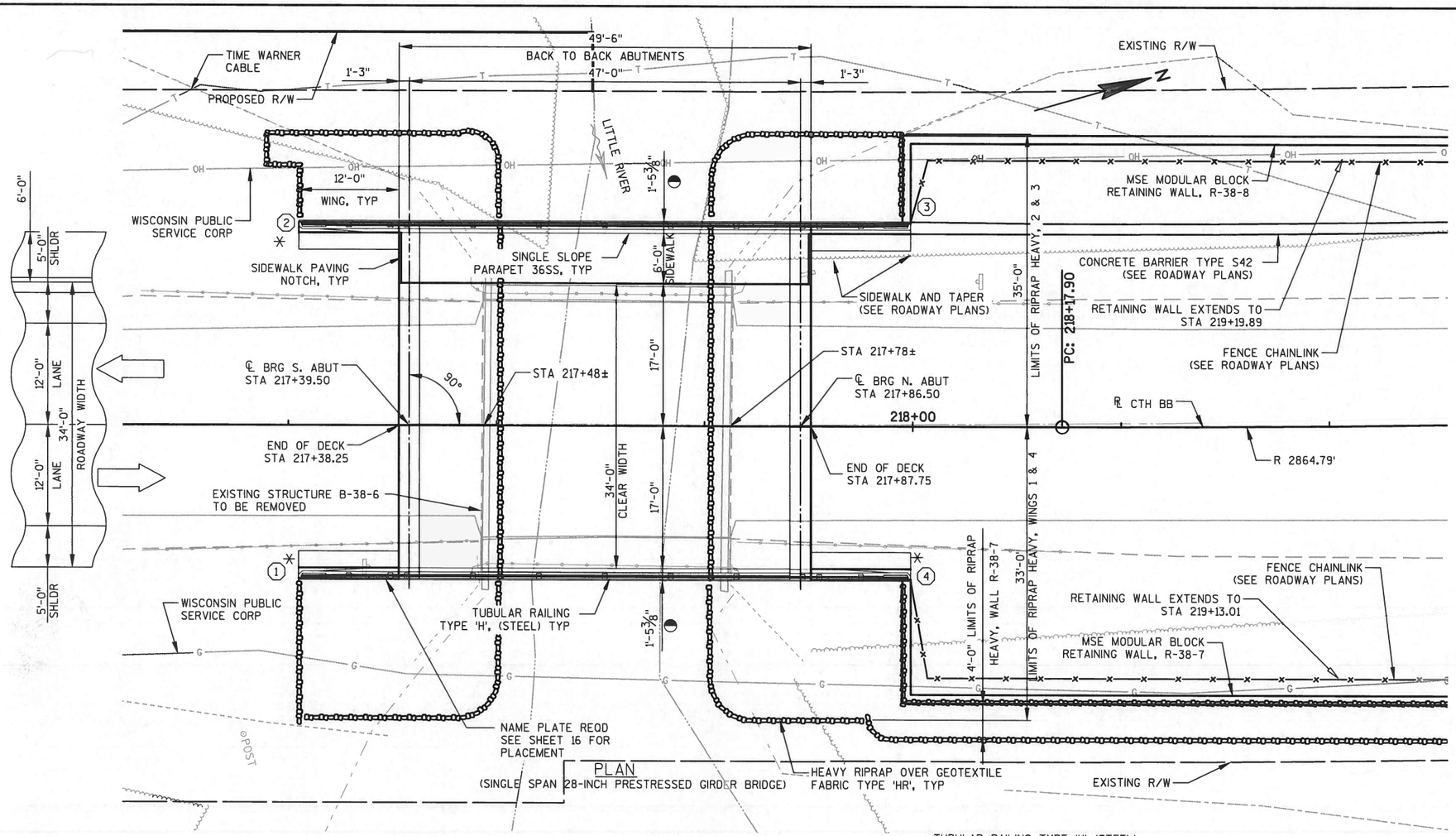
for State Traffic Engineer

DATE 9/30/13 PLATE W5-58.9

PROJECT NO: 9327-02-71 | HWY: CTH BB | COUNTY: MARINETTE | SHEET NO: E

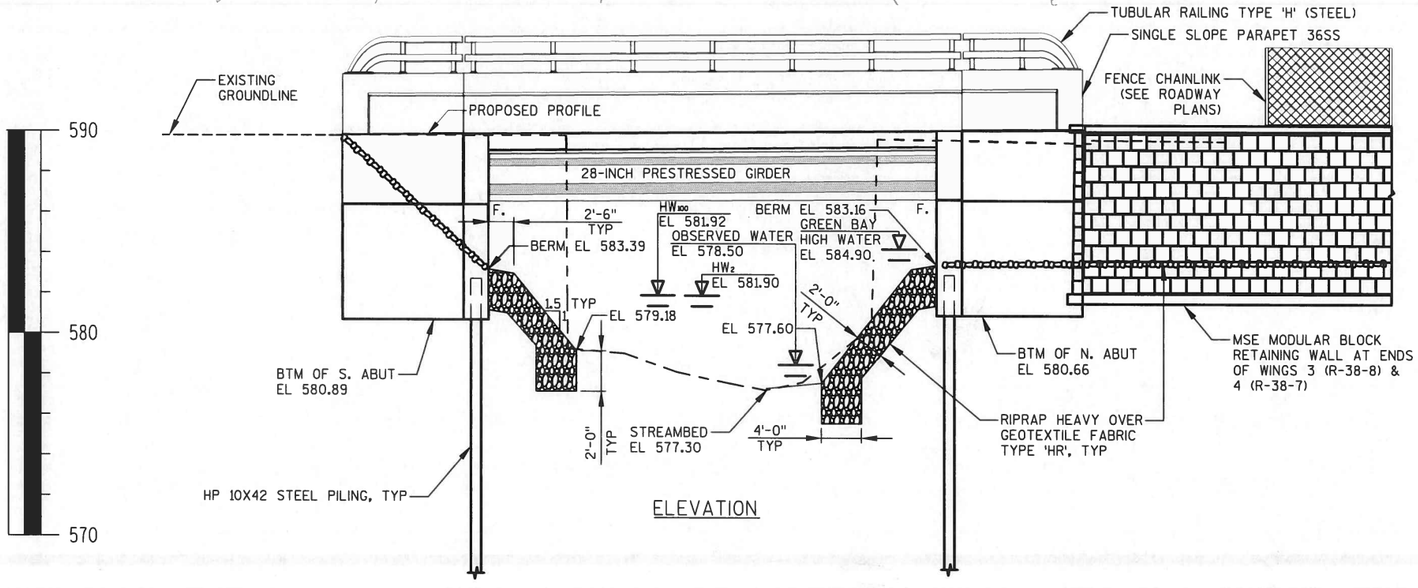
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W558.DGN PLOT DATE : 30-SEP-2013 13:15 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 8.172537:1.000000

WISDOT/CADDS SHEET 42



PLAN

(SINGLE SPAN 28-INCH PRESTRESSED GIRDER BRIDGE)



ELEVATION

* ANCHOR ASSEMBLY FOR THRIE BEAM GUARD

(#) INDICATES WING NUMBER

◓ 1'-3" PLUS 2⅝" OVERHANG

STATE PROJECT NUMBER

9327-02-71

DESIGN DATA:

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	1.18
OPERATING RATING FACTOR	1.53
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	250 KIPS

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

MATERIAL PROPERTIES:

CONCRETE MASONRY, SUPERSTRUCTURE	f'c = 4000 psi
ALL OTHER	f'c = 3500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT	fy = 60,000 psi
28" PRESTRESSSED GIRDERS, CONCRETE MASONRY	f'c = 8,000 psi
STRANDS - 0.6" DIAMETER WITH ULTIMATE TENSILE STRENGTH OF	fu = 270,000 psi

TRAFFIC DATA:

ADT (2016) = 1400

ADT (2036) = 1600

DESIGN SPEED = 45 MPH

FOUNDATION DATA:

ABUTMENTS SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180* TONS PER PILE AS REQUIRED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 25' AT THE SOUTH ABUTMENT AND 35' AT THE NORTH ABUTMENT. PILE POINTS REQUIRED.

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

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q_{100}	120 cfs
STREAM VELOCITY	1.06 fps
HIGH WATER	EL. 581.92
WATERWAY AREA	113 ft
DRAINAGE AREA	12.6 mi²
SCOUR CRITICAL CODE	8
OVERTOPPING FREQUENCY	N/A
GREEN BAY HIGH WATER	EL. 584.90

2 YEAR FREQUENCY

Q_2	50 cfs
HIGH WATER	EL. 581.90

LIST OF DRAWINGS:

SEE SHEET 2 FOR COMPLETE LIST OF DRAWINGS

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489
CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

NO.	DATE	REVISION	BY

Mead & Hunt
Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
608.273.6380
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/08/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-38-146

CTH BB OVER LITTLE RIVER

COUNTY	TOWN/~~CITY/VILLAGE~~
MARINETTE	PESHTIGO

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

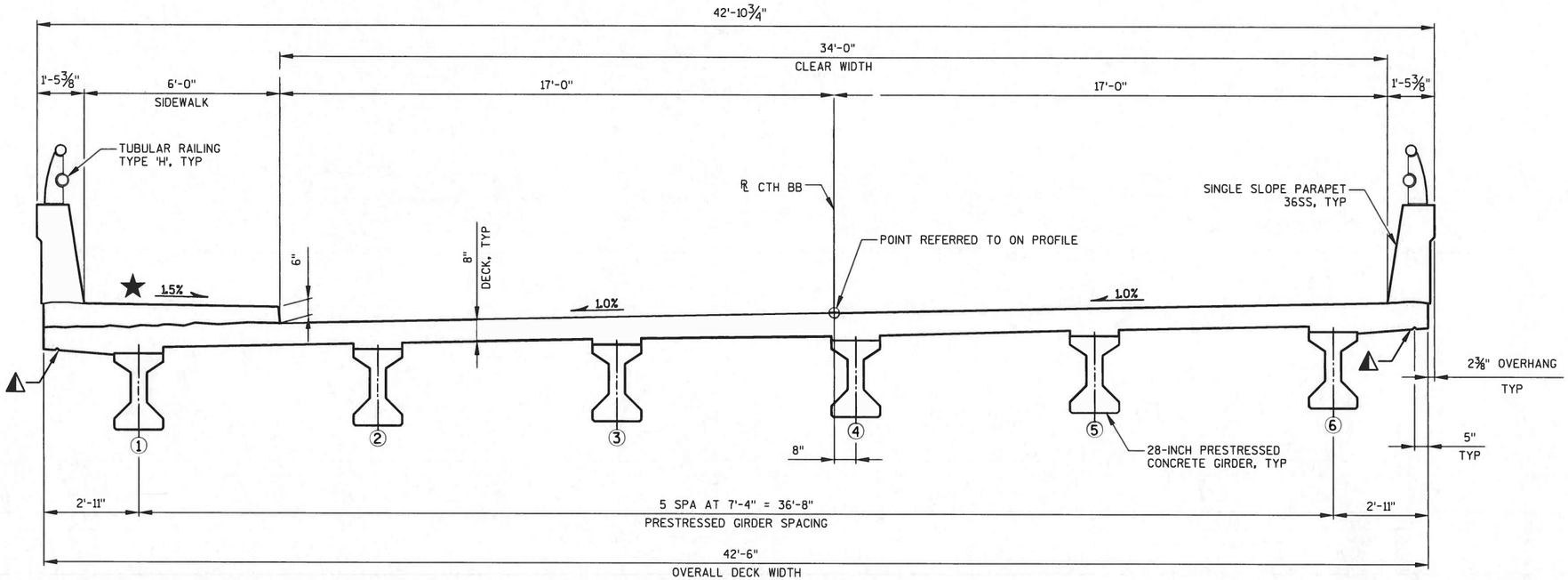
DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
RCP	GAR	JAK	MJB

GENERAL PLAN

SHEET 66 7

8

STATE PROJECT NUMBER
9327-02-71



TYPICAL SECTION
(LOOKING NORTH)

TOTAL ESTIMATED QUANTITIES

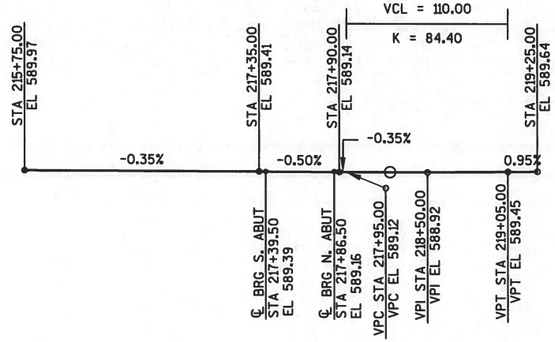
BID ITEM NO.	BID ITEMS	UNIT	S ABUT	N ABUT	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA 217+63	LS	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-38-146	LS	---	---	---	1
210.0100	BACKFILL STRUCTURE	CY	120	120	---	240
502.0100	CONCRETE MASONRY BRIDGES	CY	43	43	96	182
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	222	222
502.3210	PIGMENTED SURFACE TREATMENT	SY	11	11	45	67
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	---	---	228	228
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2370	2370	---	4740
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2440	2400	17520	22360
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	---	12	12
506.4000	STEEL DIAPHRAGMS B-38-146	EACH	---	---	5	5
513.4056	RAILING TUBULAR TYPE H B-38-146	LF	24	24	99	147
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	8	---	16
550.0500	PILE POINTS	EACH	6	6	---	12
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	150	210	---	360
606.0300	RIPRAP HEAVY	CY	95	105	---	200
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	82	75	---	157
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	1	---	3
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	200	240	---	440
	NON BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"

SUPER ELEVATION TABLE

STATION	SLOPE LT OF CL	SLOPE RT OF CL	DESCRIPTION
217+09	-1.00	1.00	
217+41.0	-1.00	1.00	BRIDGE
217+85.5	-1.00	1.00	BRIDGE
218+83.1	-1.00	1.00	

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
CP #1	215+25.79	3/4 REBAR	583.75
BM #1	217+63.44	PAINT MARK ON BRIDGE CURB	589.92



℞ CTH BB PROFILE GRADE LINE

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

AT THE BACKFACE OF ABUTMENT ALL 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 TO BE REMOVED IS A 30.0' LONG BY 28.0" CLEAR ROADWAY WIDTH, SINGLE SPAN STEEL GIRDER BRIDGE WITH TIMBER BENT ABUTMENTS AND BACKWALLS (B-38-0006).

ALL STATIONS AND ELEVATIONS ARE IN FEET.

◓ ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD88 (2007).

◭ ¾" V-GROOVE, EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAIL SHEET.

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

LIST OF DRAWINGS:

WISCONSIN
GARY A. RUCHTI
E-30936
MADISON
WI
PROFESSIONAL ENGINEER
1/29/16

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

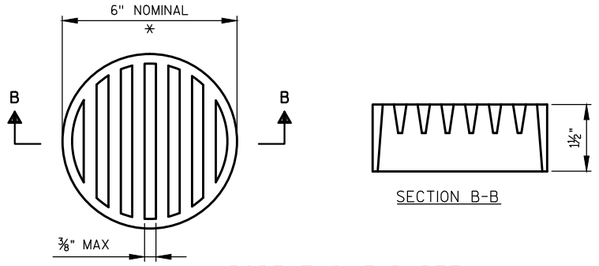
TYPICAL SECTION, GENERAL NOTES AND QUANTITIES

SHEET 2 OF 17
67

8

8

STATE PROJECT NUMBER
9327–02–71

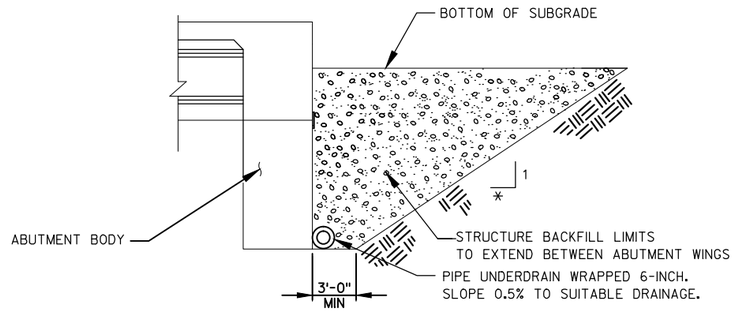


RODENT SHIELD DETAIL

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

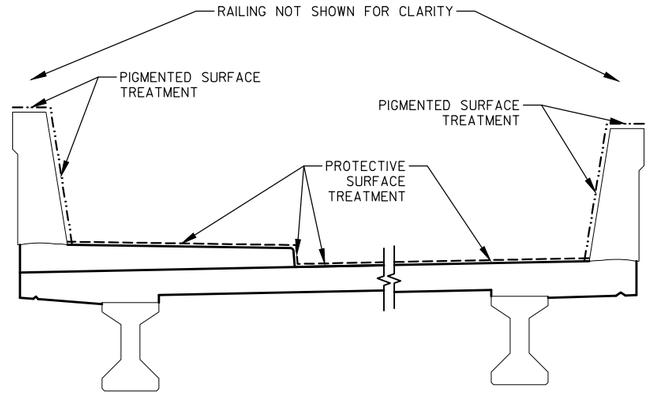
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

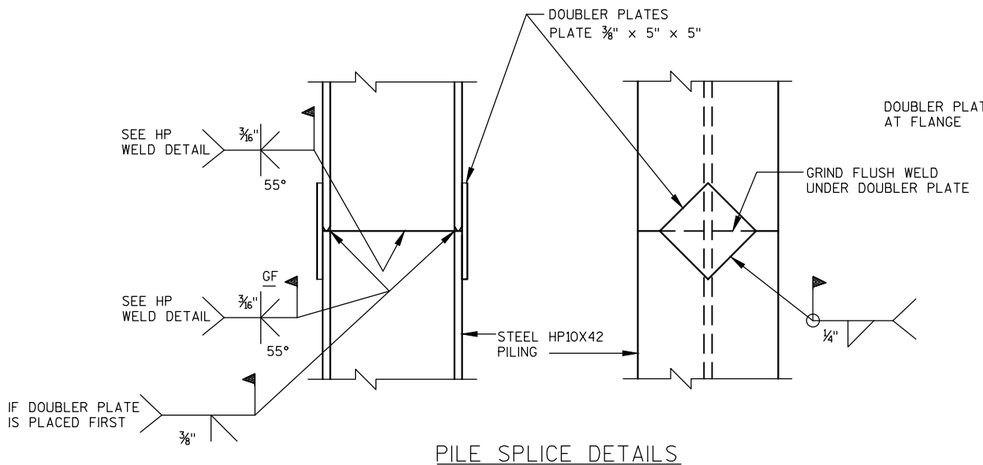


STRUCTURE BACKFILL DETAIL

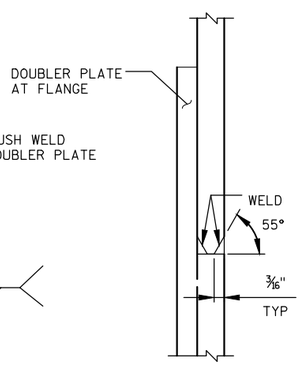
(TYPICAL AT BOTH ABUTMENTS)
* OSHA MINIMUM REQUIREMENT, A SLOPE OF 1.5:1 WAS USED FOR QUANTITY CALCULATIONS



LIMITS OF SURFACE TREATMENTS



PILE SPLICE DETAILS



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

8

8

NO.	DATE	REVISION	BY

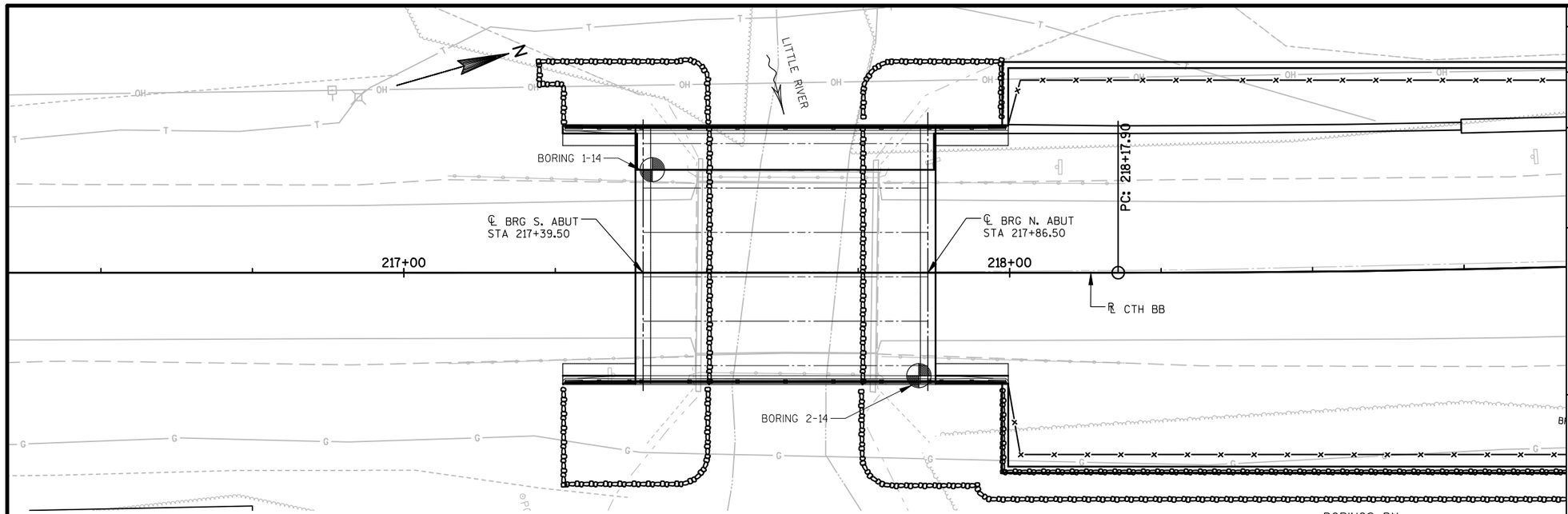
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–38–146

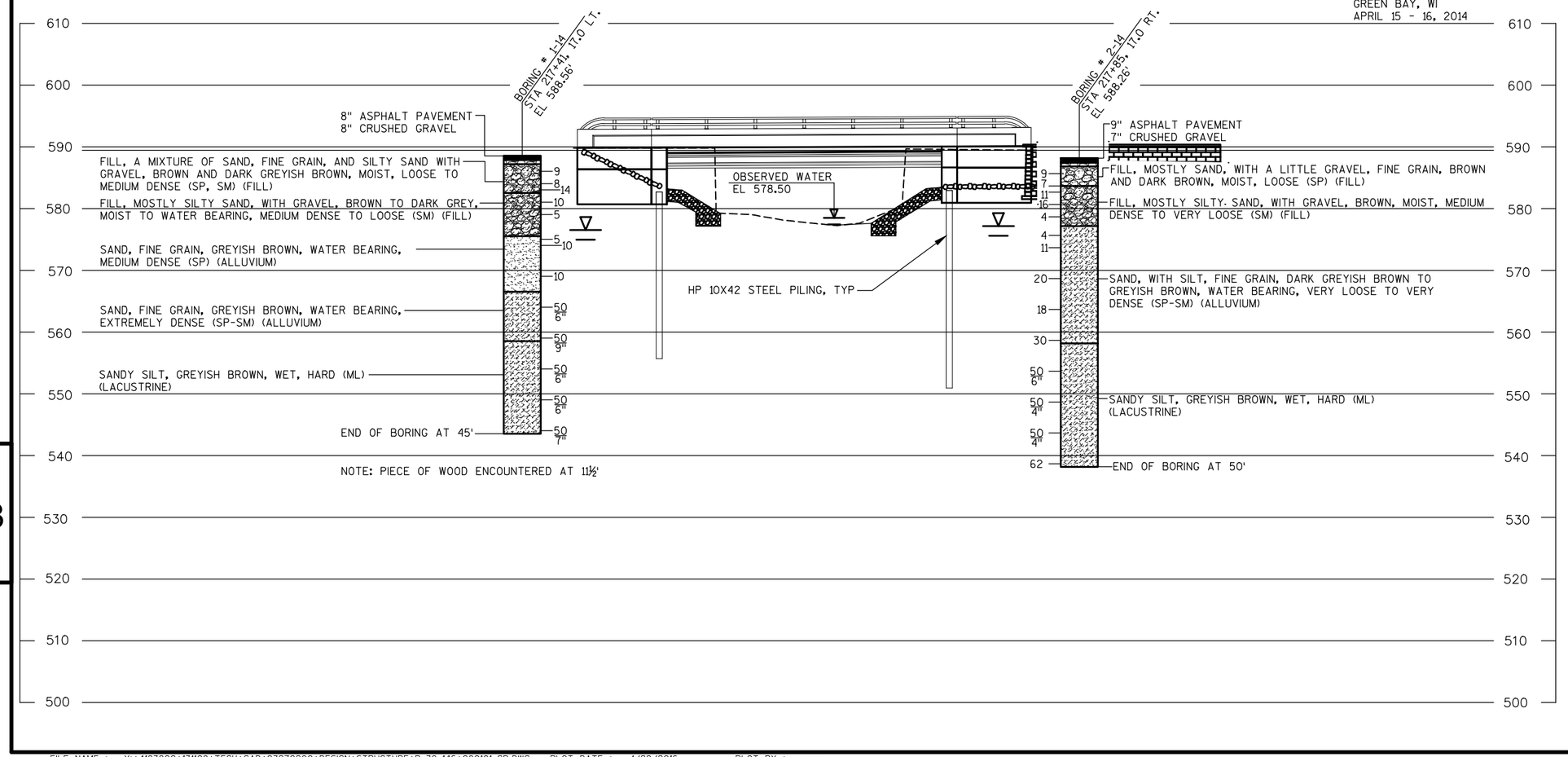
DRAWN BY JAK | PLANS CK'D. MJB

TYPICAL DETAILS

SH 68 OF 17



BORINGS BY:
RIVER VALLEY TESTING, INC
GREEN BAY, WI
APRIL 15 - 16, 2014



NOTE: PIECE OF WOOD ENCOUNTERED AT 11½'

STATE PROJECT NUMBER

9327-02-71

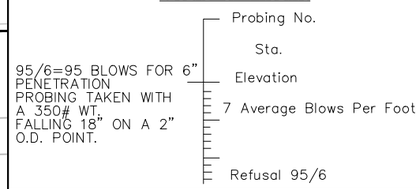
ABBREVIATIONS

F— Fine M—Medium C— Coarse
Ws—Weathered So—Sound

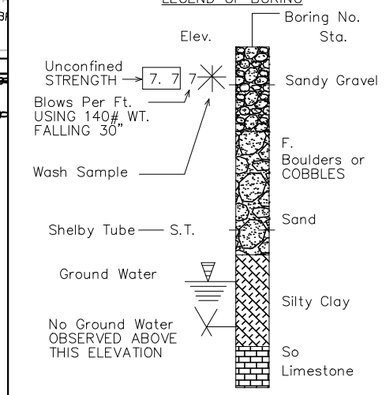
MATERIAL SYMBOLS

Asphalt, Silt, Sand, Concrete, Organic Soil, Air, Gravel, Clay, Water

LEGEND OF PROBING



LEGEND OF BORING



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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY TAV | PLANS CK'D. MJB

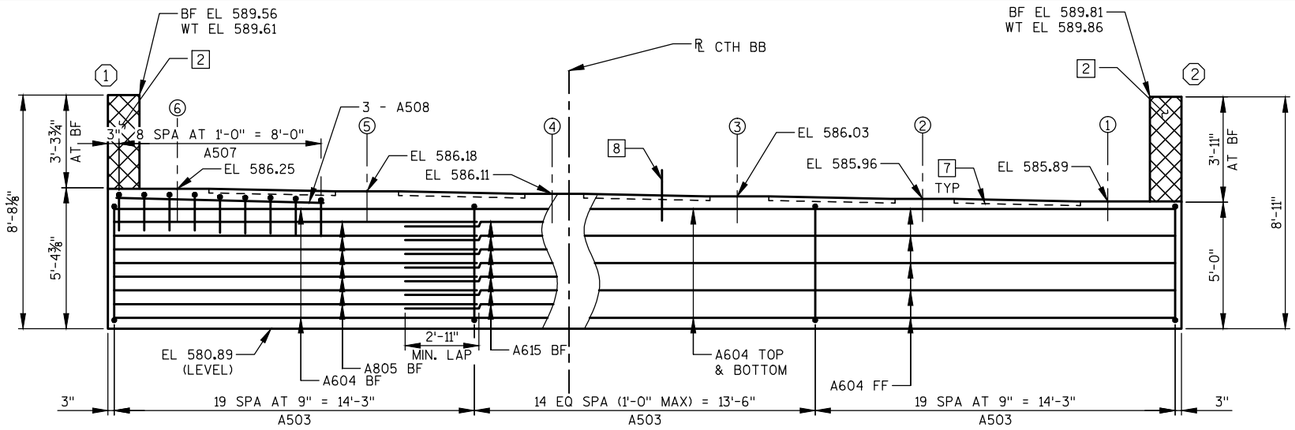
SUBSURFACE EXPLORATION

SH 69 OF 17

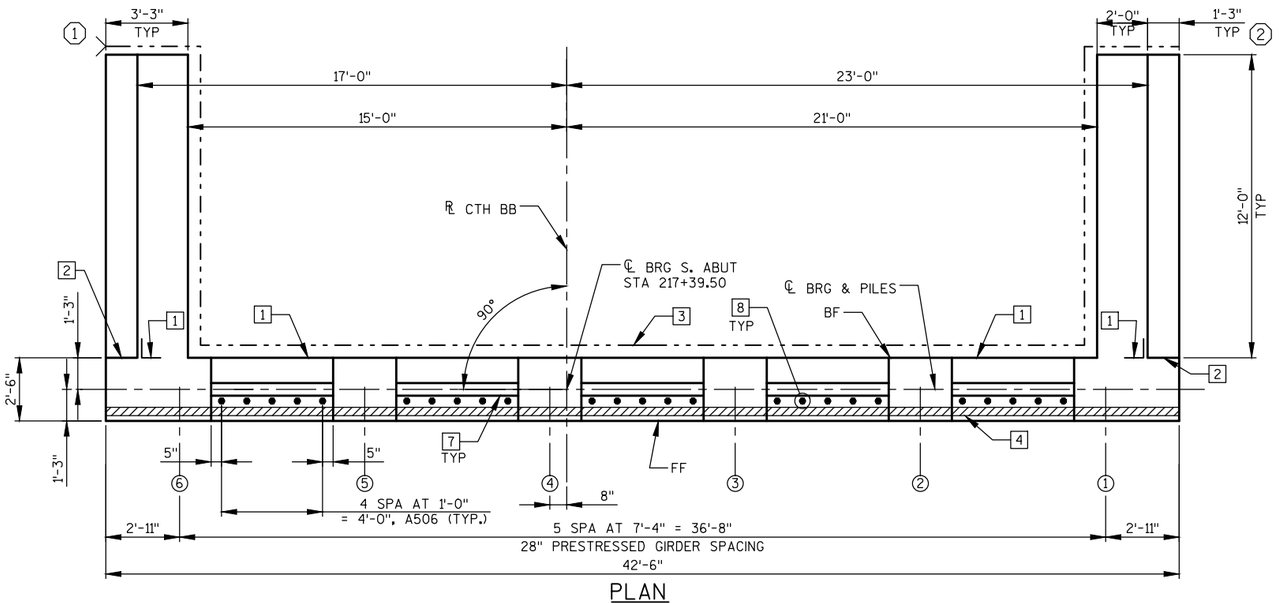
8

8

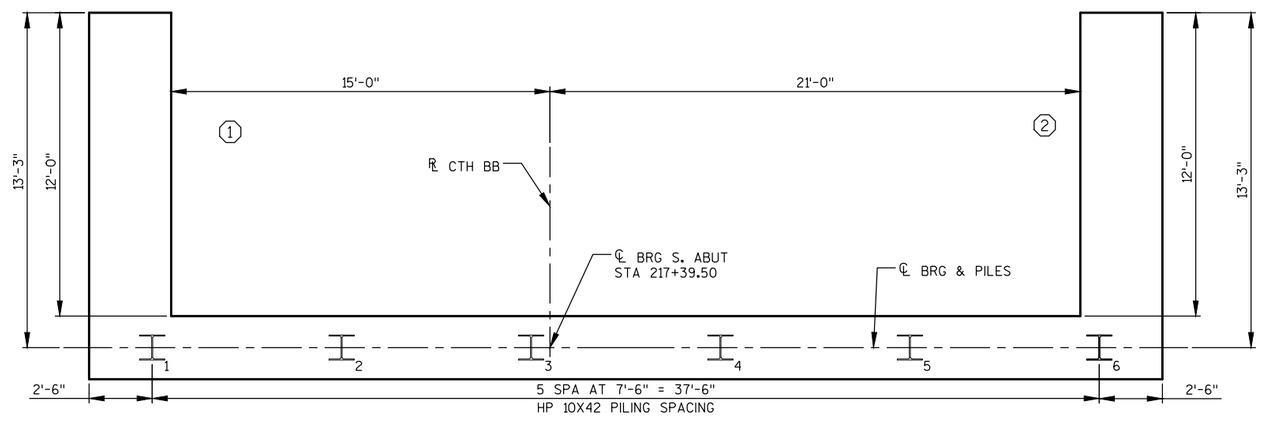
FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080101_GP.DWG PLOT DATE : 1/29/2016 PLOT BY : ---- PLOT SCALE : 1:1



ELEVATION
(LOOKING SOUTH)



PLAN



PILE PLAN

STATE PROJECT NUMBER

9327-02-71

NOTES:

FOR PILE SPLICE DETAILS SEE SHEET 3.

SEE SHEET 7 FOR SECTION THRU ABUTMENT BODY.

FILL/EXCAVATE TO BOTTOM OF SOUTH ABUTMENT EL 580.89 BEFORE DRIVING PILING.

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 25' LONG.

[1] 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

[2] ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET, 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.

[3] PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE SHEET 3 FOR RODENT SHIELD DETAILS.

[4] 4" X ¾" FILLER LENGTH OF ABUTMENT.

[5] ¾" PERFORMED FILLER UNDER GIRDERS.

[6] NON-LAMINATED ELASTOMERIC BEARING PAD ½" X 8" X 1'-6".

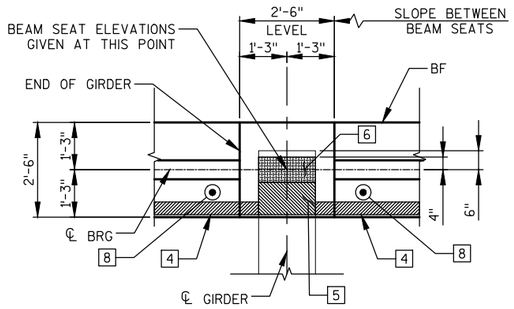
[7] KEYED CONSTRUCTION JOINT BETWEEN GIRDERS FORMED BY BEVELED 2" X 6".

[8] A506 BARS, BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

(#) INDICATES WING NUMBER

(*) INDICATES GIRDER NUMBER

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



BEARING PAD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

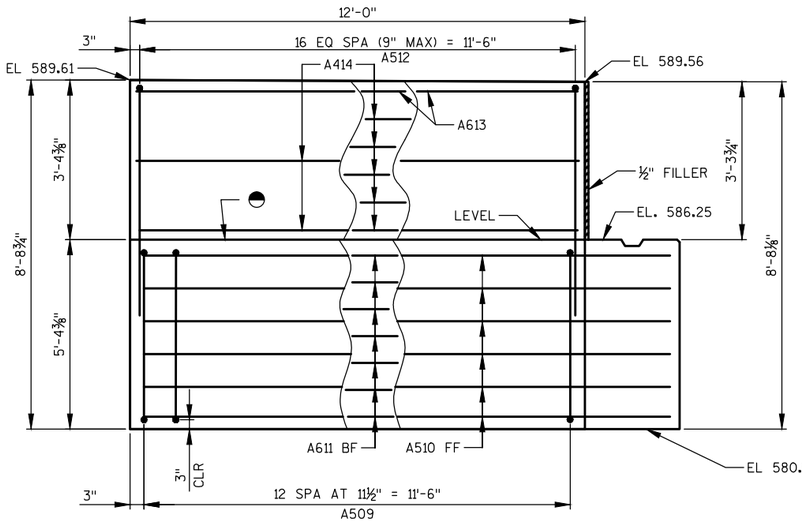
SOUTH ABUTMENT

SH 70 OF 17

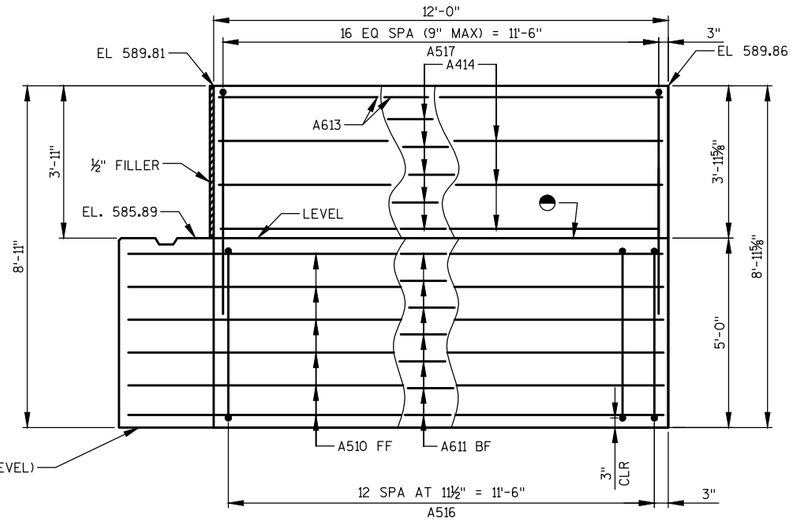
8

8

STATE PROJECT NUMBER
9327-02-71



WING 1 ELEVATION



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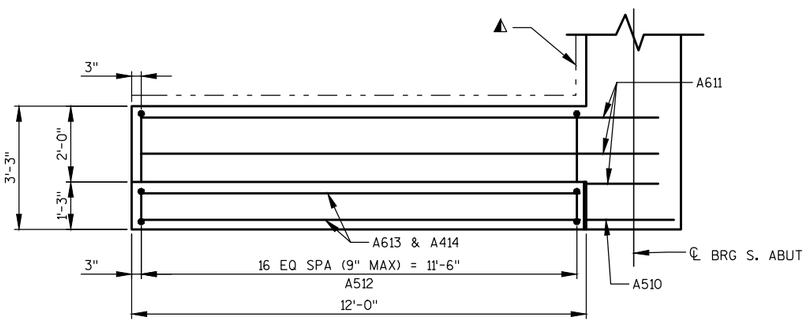
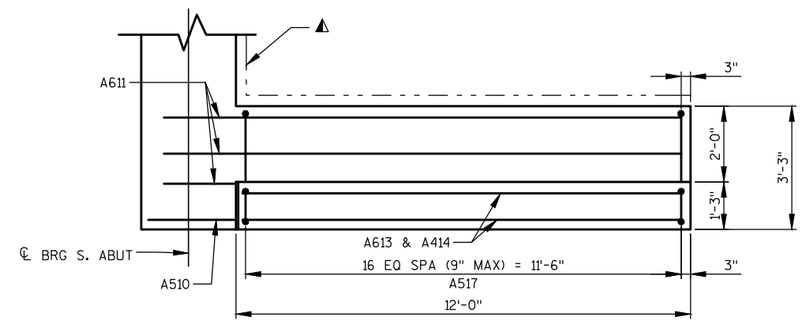
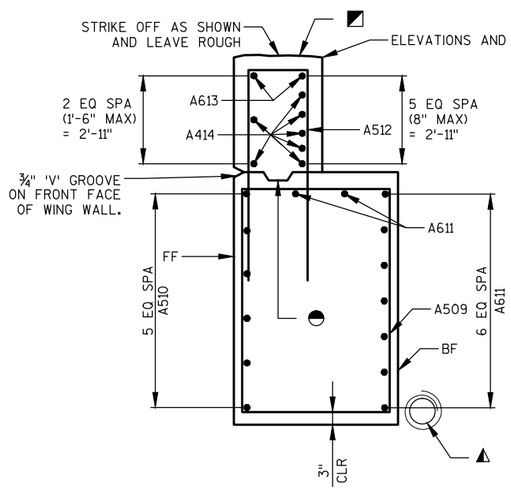


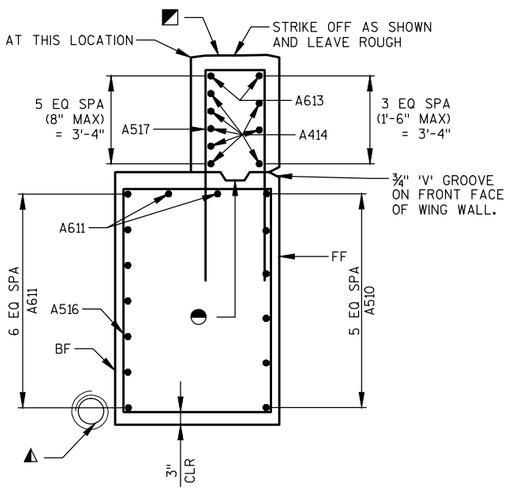
WING 1 PLAN



WING 2 PLAN



WING 1 SECTION



WING 2 SECTION

NOTES:

▲ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE SHEET 3 FOR RODENT SHIELD DETAILS.

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

◩ PARAPET REINFORCEMENT NOT SHOWN FOR CLARITY. SEE SHEET 16 FOR DETAILS

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

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

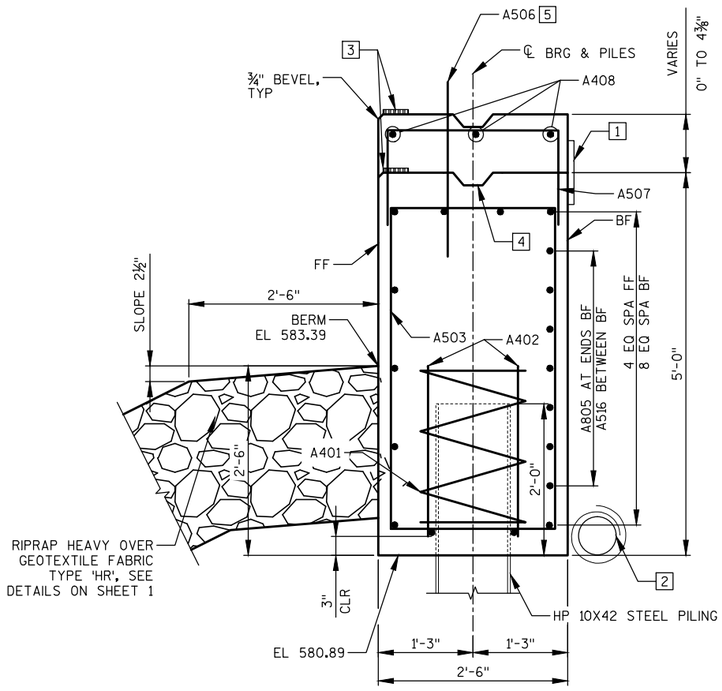
SOUTH ABUTMENT DETAILS

SH 71 OF 17

FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080105_SA.DWG PLOT DATE : 1/29/2016 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER

9327-02-71



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE A604 BARS.

NOTES:

1 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

2 PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE THIS SHEET FOR RODENT SHIELD DETAILS.

3 4" X ¾" FILLER LENGTH OF ABUTMENT.

4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY.

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

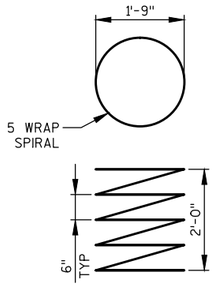
FF - FRONT FACE
BF - BACK FACE
EF - EACH FACE
WT - WING TIP

BILL OF BARS
SOUTH ABUTMENT

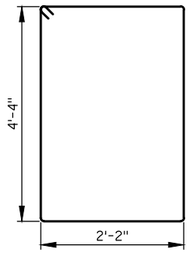
COATED= 1640 LBS.
UNCOATED= 2370 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
A401		6	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
A402		12	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
A503		53	13 - 8	X		ABUTMENT BODY - STIRRUPS	VERT
A604		11	42 - 2			ABUTMENT BODY - FF, TOP, BTM	HORIZ
A805		14	12 - 0			ABUTMENT BODY - BF AT ENDS	HORIZ
A506	25		2 - 0			ABUTMENT BODY - DOWELS	VERT
A507		9	4 - 9			ABUTMENT BODY - TOP	VERT
A408		3	8 - 3			ABUTMENT BODY - TOP	HORIZ
A509	13		16 - 0	X		WING WALL 1 - BODY	VERT
A510	12		14 - 2			WING WALL - FF OF BODY	HORIZ
A611	18		14 - 2			WING WALL - BODY	HORIZ
A512	17		11 - 2	X		WING WALL 1 - TOP	VERT
A613	4		11 - 7			WING WALL - TOP	HORIZ
A414	14		11 - 7			WING WALL - TOP	HORIZ
A615		7	26 - 0			ABUTMENT BODY - BF IN MIDDLE	HORIZ
A516	13		15 - 4	X		WING WALL 2 - BODY	VERT
A517	17		12 - 4	X		WING WALL 2 - TOP	VERT

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



A401



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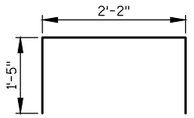

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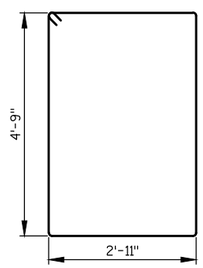

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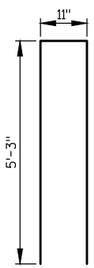

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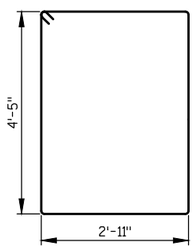

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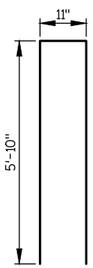

A517

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NO.	DATE	REVISION	BY

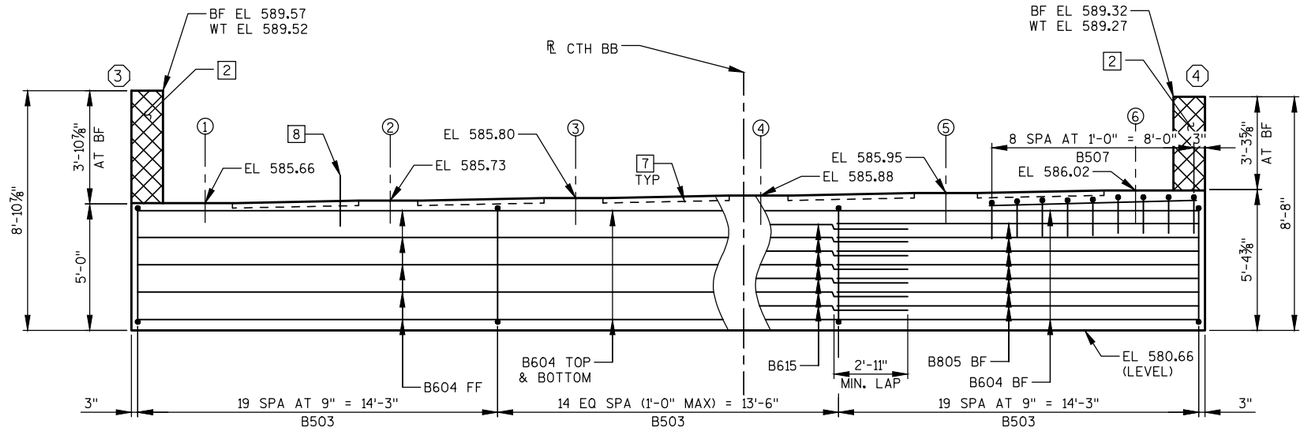
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

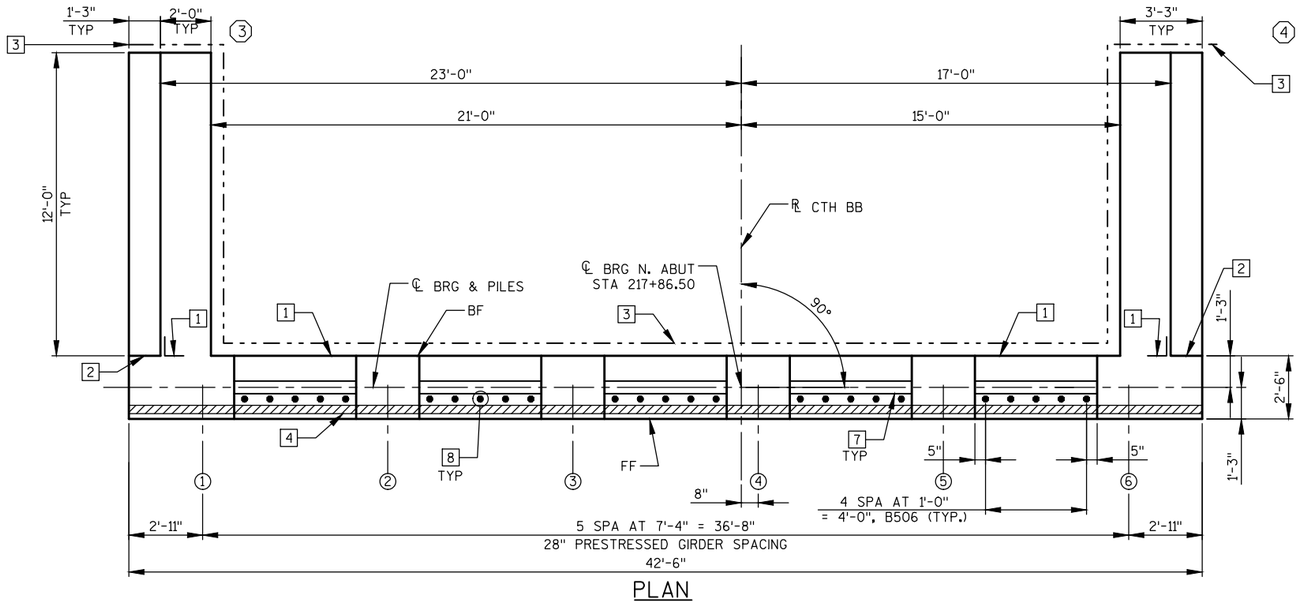
DRAWN BY JAK | PLANS CK'D. MJB

SOUTH ABUTMENT DETAILS

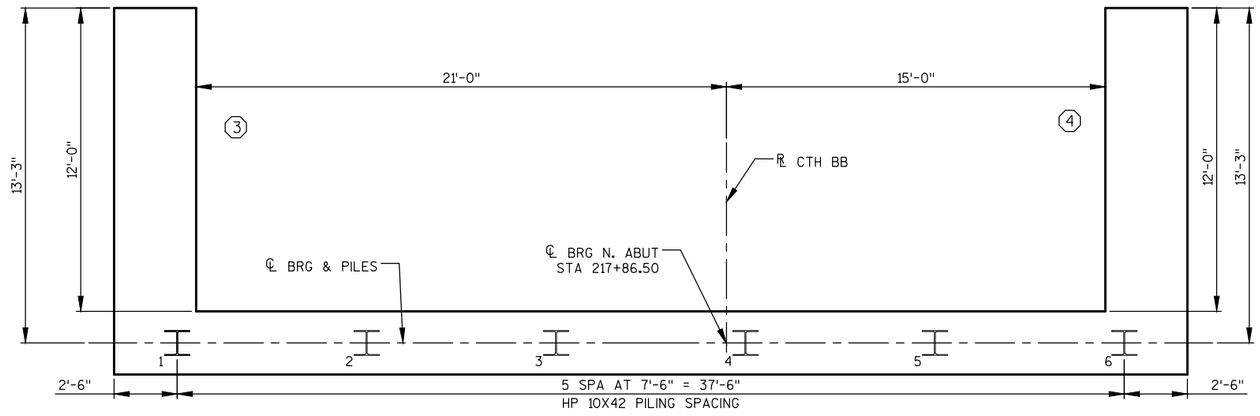
SH 72 OF 17



ELEVATION
(LOOKING NORTH)



PLAN



PILE PLAN

STATE PROJECT NUMBER

9327-02-71

NOTES:

FOR PILE SPLICE DETAILS SEE SHEET 3.

SEE SHEET 10 FOR SECTION THRU ABUTMENT BODY.

FILL/EXCAVATE TO BOTTOM OF NORTH ABUTMENT EL 580.66 BEFORE DRIVING PILING.

NORTH ABUTMENT TO BE SUPPORTED ON HP 10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 35' LONG.

[1] 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

[2] ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET, 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.

[3] PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO TIE INTO UNDERDRAIN OF RETAINING WALLS R-38-7 AND R-38-8.

[4] 4" X ¾" FILLER LENGTH OF ABUTMENT.

[5] ¾" PERFORMED FILLER UNDER GIRDERS.

[6] NON-LAMINATED ELASTOMERIC BEARING PAD ½" X 8" X 1'-6".

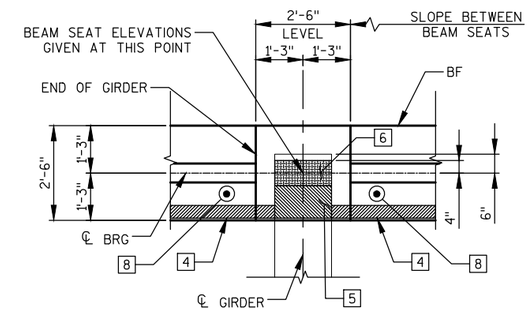
[7] KEYED CONSTRUCTION JOINT BETWEEN GIRDERS FORMED BY BEVELED 2" X 6".

[8] B506 BARS, MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

(#) INDICATES WING NUMBER

(*) INDICATES GIRDER NUMBER

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



BEARING PAD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

NORTH ABUTMENT

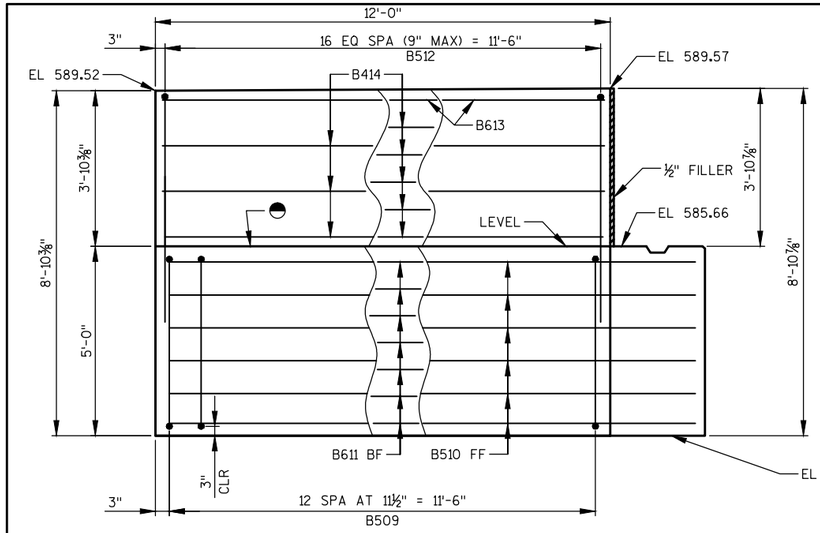
SH 73 OF 17

8

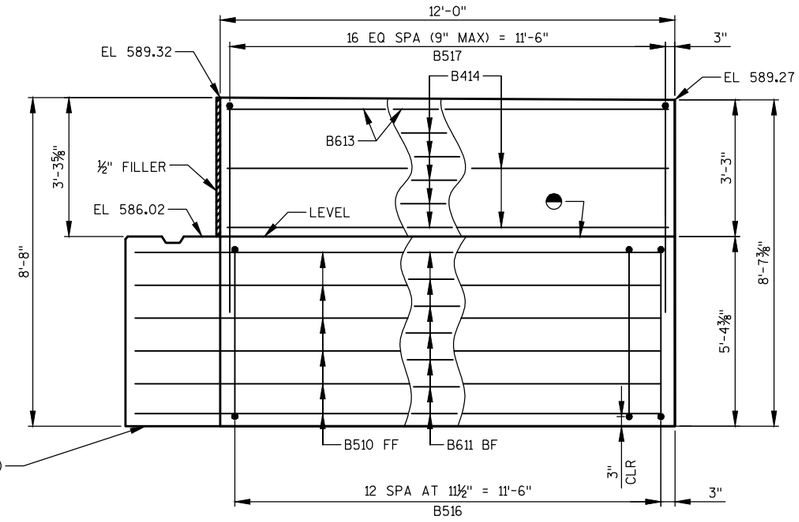
8

STATE PROJECT NUMBER

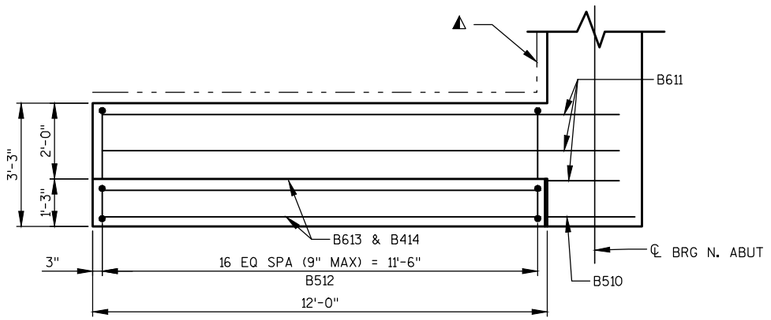
9327-02-71



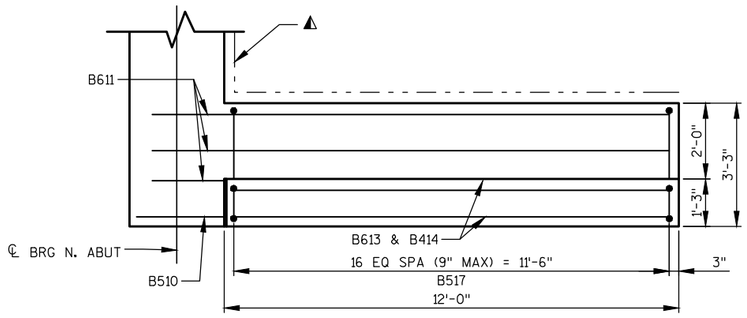
WING 3 ELEVATION



WING 4 ELEVATION



WING 3 PLAN



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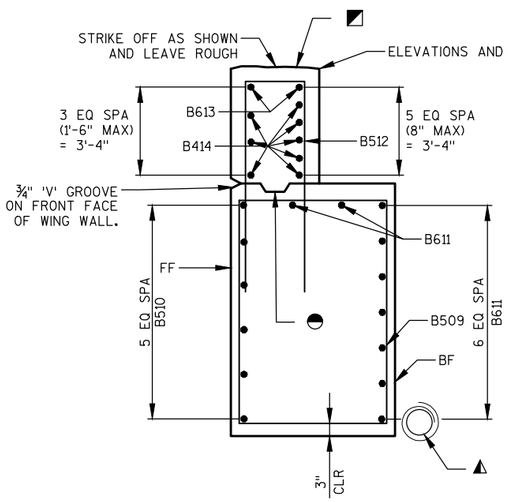
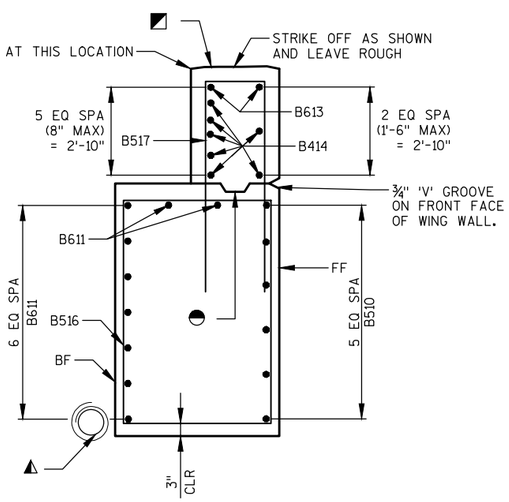


WING 3 SECTION



WING 4 SECTION

NOTES:

▲ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE SHEET 3 FOR RODENT SHIELD DETAILS.

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

◩ PARAPET REINFORCEMENT NOT SHOWN FOR CLARITY. SEE SHEET 16 FOR DETAILS.

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

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

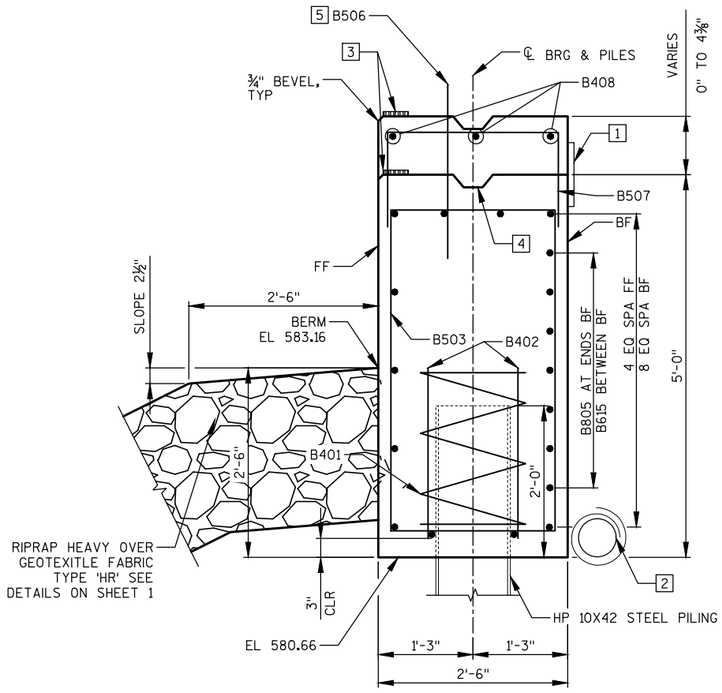
DRAWN BY JAK | PLANS CK'D. MJB

NORTH ABUTMENT DETAILS

SH 74 OF 17

STATE PROJECT NUMBER

9327-02-71



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE B604 BARS.

NOTES:

1 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

2 PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE THIS SHEET FOR RODENT SHIELD DETAILS.

3 4" X ¾" FILLER LENGTH OF ABUTMENT.

4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY.

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

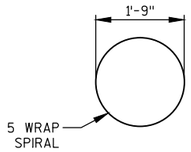
FF - FRONT FACE
BF - BACK FACE
EF - EACH FACE
WT - WING TIP

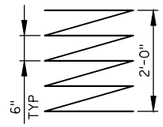
BILL OF BARS
NORTH ABUTMENT

COATED= 1600 LBS.
UNCOATED= 2370 LBS.

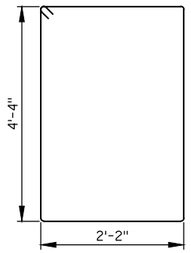
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
B401		6	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
B402		12	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
B503		53	13 - 8	X		ABUTMENT BODY - STIRRUPS	VERT
B604		11	42 - 2			ABUTMENT BODY - FF, TOP, BTM	HORIZ
B805		14	12 - 0			ABUTMENT BODY - BF AT ENDS	HORIZ
B506	25		2 - 0			ABUTMENT BODY - DOWELS	VERT
B507		9	4 - 9	X		ABUTMENT BODY - TOP	VERT
B408		3	8 - 3			ABUTMENT BODY - TOP	HORIZ
B509	13		12 - 2	X		WING WALL 3 - BODY	VERT
B510	12		14 - 2			WING WALL - FF OF BODY	HORIZ
B611	18		14 - 2			WING WALL - BODY	HORIZ
B512	17		12 - 2	X		WING WALL 3 - TOP	VERT
B613	4		11 - 7			WING WALL - TOP	HORIZ
B414	15		11 - 7			WING WALL - TOP	HORIZ
B615		7	26 - 0			ABUTMENT BODY - BF IN MIDDLE	HORIZ
B516	13		16 - 0	X		WING WALL 4 - BODY	VERT
B517	17		11 - 0	X		WING WALL 4 - TOP	VERT

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.

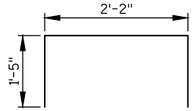




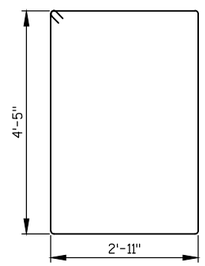
B401



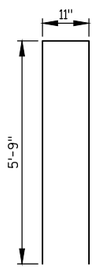
B503



B507



B509



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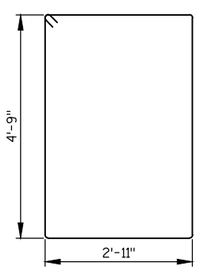

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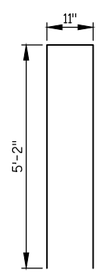

B517

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

NORTH ABUTMENT DETAILS

SH 75 OF 17

STATE PROJECT NUMBER

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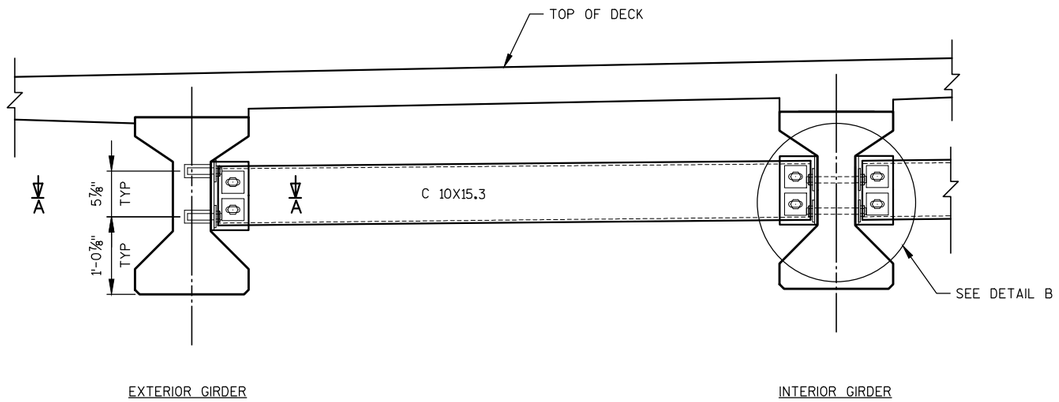
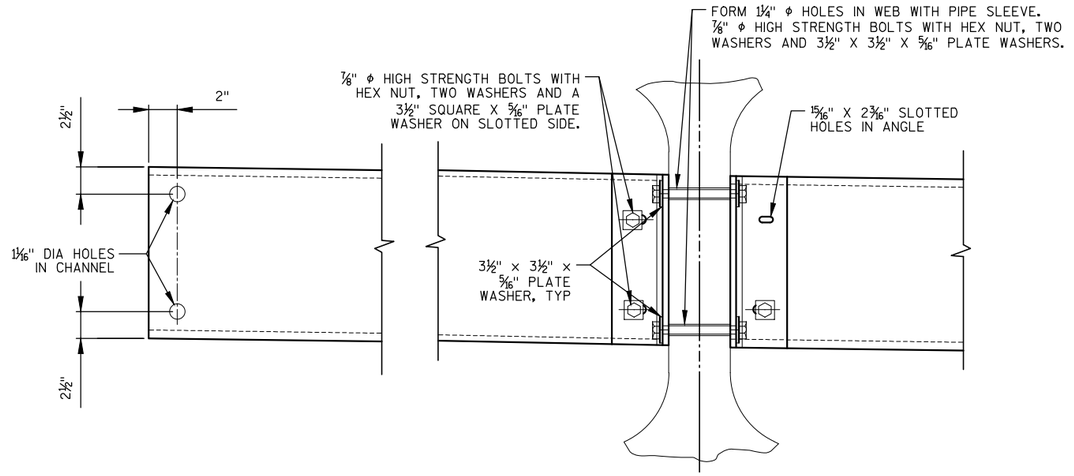
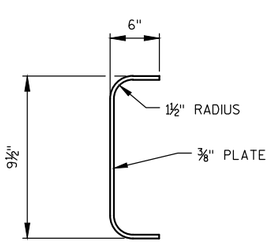


PART TRANSVERSE SECTION AT DIAPHRAGM

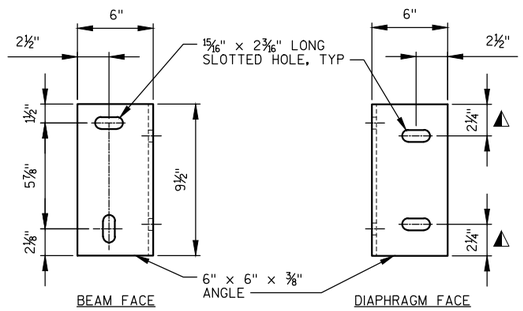


DETAIL B

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

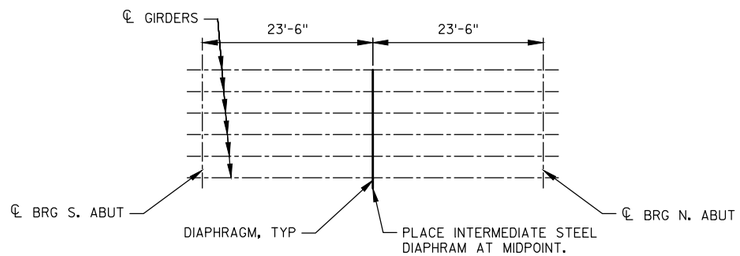


SECTION THRU ALTERNATE DIAPHRAGM

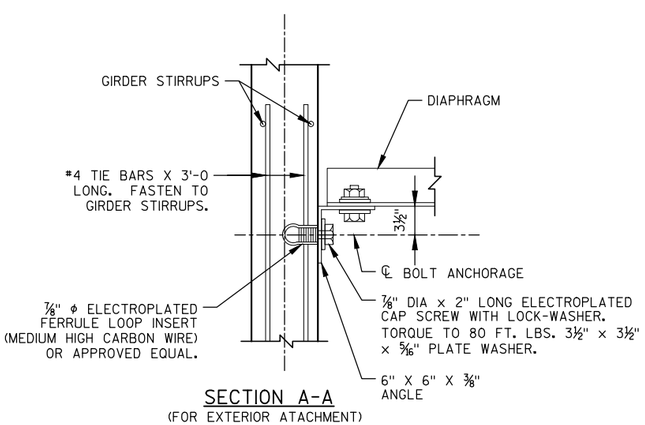


DIAPHRAGM SUPPORT

◭ IF ALTERNATE DIAPHRAGM IS USED THIS DIMENSION TO BE 2½"



PLAN VIEW OF DIAPHRAGM



SECTION A-A

(FOR EXTERIOR ATACHMENT)

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-38-146", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

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STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

INTERMEDIATE STEEL DIAPHRAGMS

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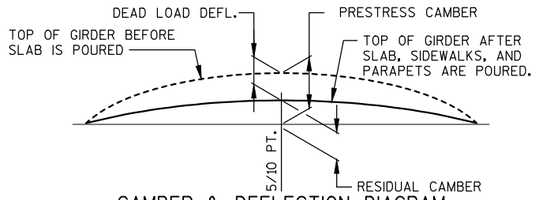
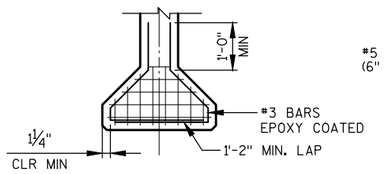
FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080113_SD.DWG PLOT DATE : 1/29/2016 PLOT BY : ---- PLOT SCALE : 1" = 1'

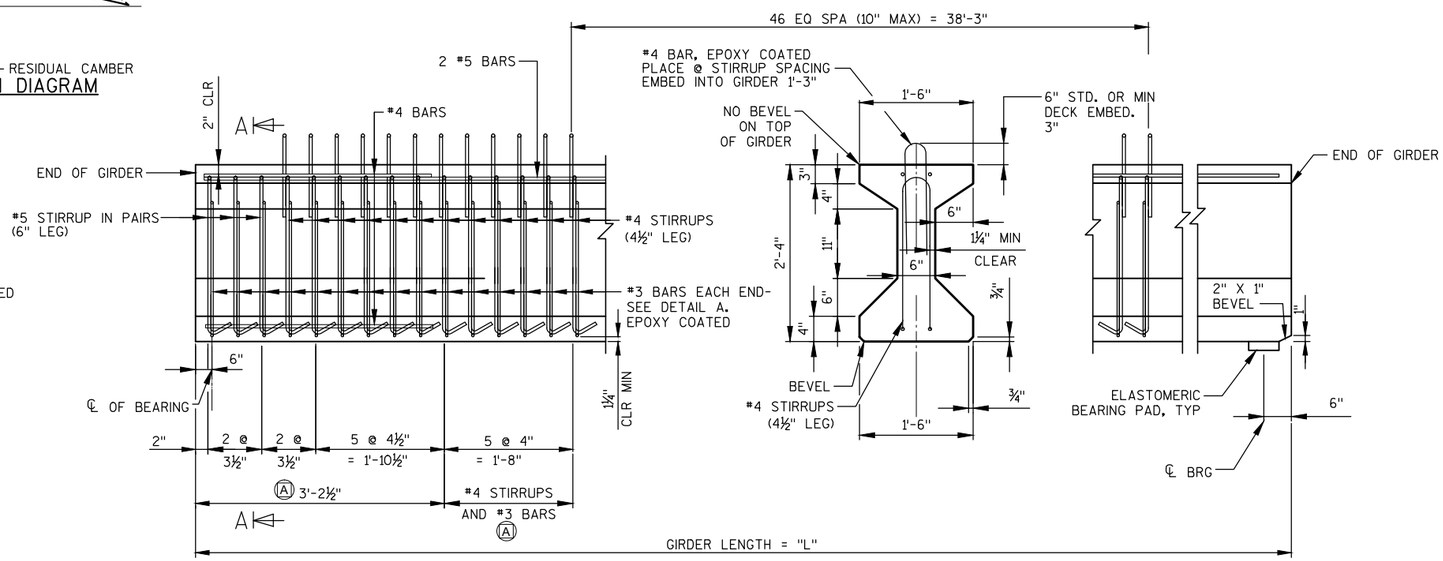
STATE PROJECT NUMBER
9327-02-71



CAMBER & DEFLECTION DIAGRAM

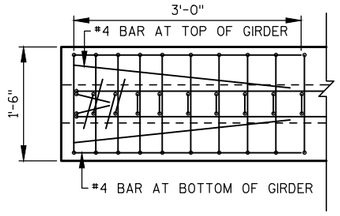


DETAIL A

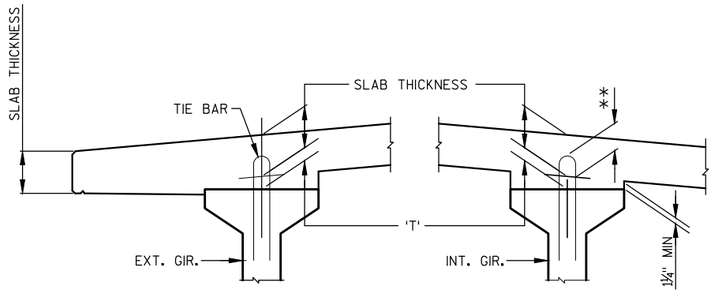


SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYPICAL AT EACH END



PLAN VIEW



SLAB HAUNCH DETAIL

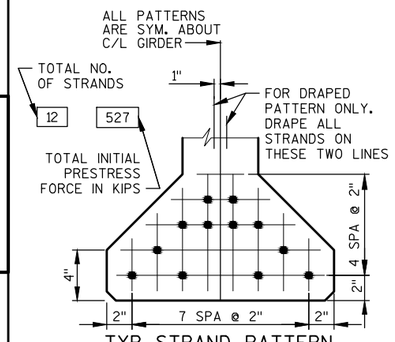
IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

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

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

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

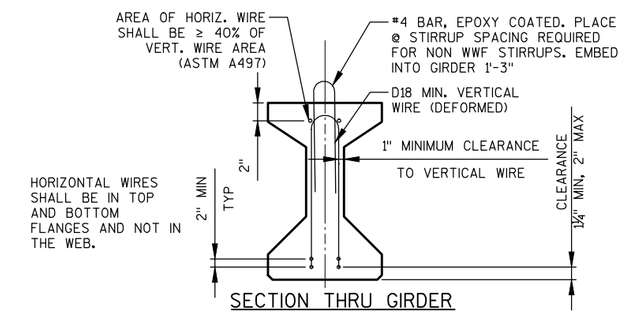


TYP STRAND PATTERN

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

SPAN	CAMBER (IN.)
1	1⅜"

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



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS ASTM A497 (FY = 70 KSI)

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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (p.s.i.)	"P" 1st† ⅓ OF GIRDER	"P" MID ⅓ OF GIRDER	"P" END ⅓ OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN							UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.) "A"	(IN.) "B" MIN.	(IN.) "B" MAX.	(IN.) "C"		TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
1	ALL	48'-0"	⅛	¼	⅜	½	½	½	⅜	¼	⅛	8000	7"	6"	7"	0.6	—	—	—	—	—	—		12	6400

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

28" PRESTRESSED GIRDER DETAILS

SHEET 77

NOTES:

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

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

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 28-INCH".

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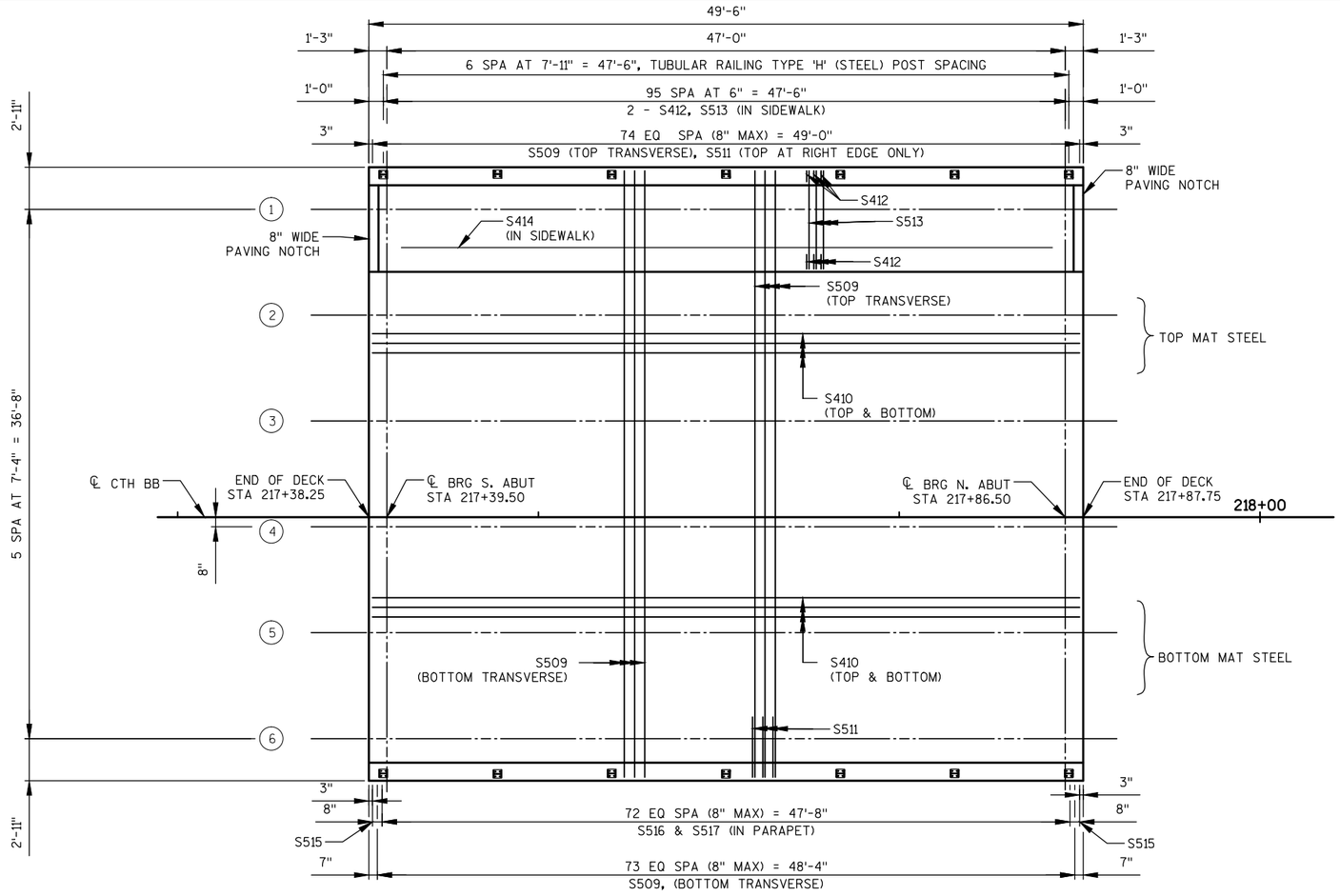
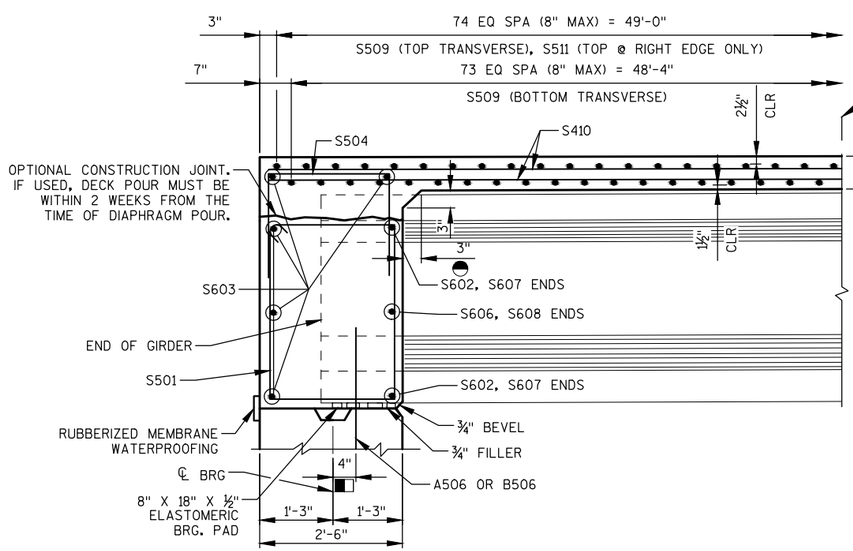
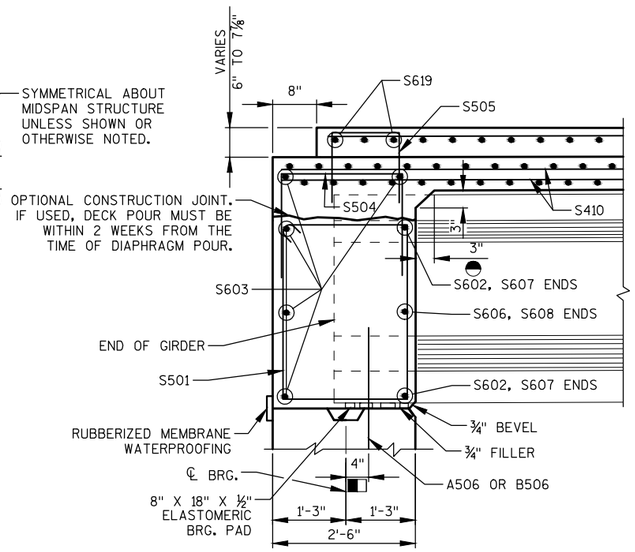


REINFORCEMENT PLAN



THRU ROADWAY

PARTIAL LONGITUDINAL SECTION



THRU SIDEWALK

PARTIAL LONGITUDINAL SECTION

NOTES

- DIMENSION IS TAKEN PARALLEL TO ℄ GIRDER.
- DIMENSION IS TAKEN NORMAL TO ℄ SUBSTRUCTURE UNITS.
- (#) INDICATES GIRDER NUMBER

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STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

SUPERSTRUCTURE

SH 78 OF 17

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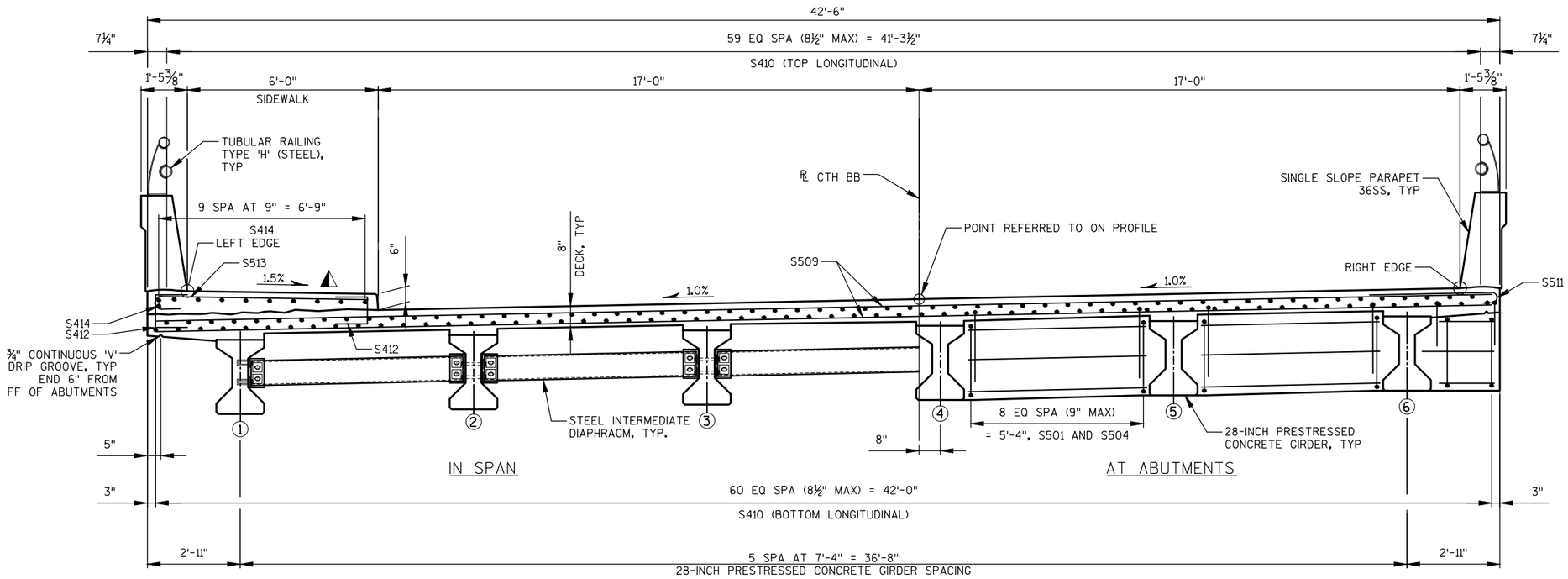
FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080110_SS.DWG PLOT DATE : 1/29/2016 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER
9327-02-71



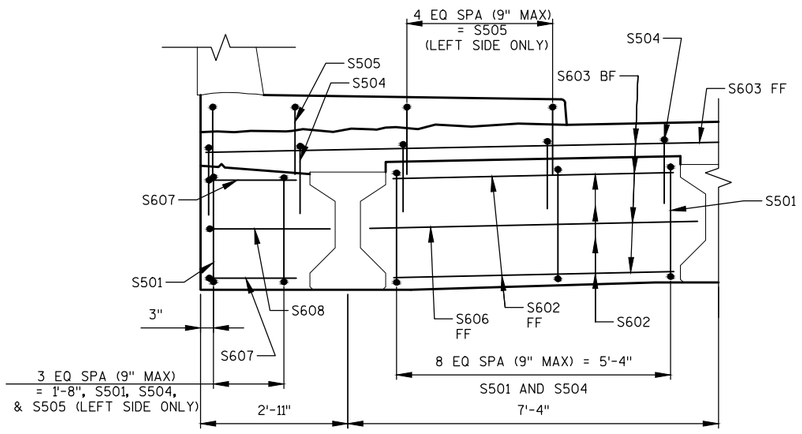
CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

NOTES:

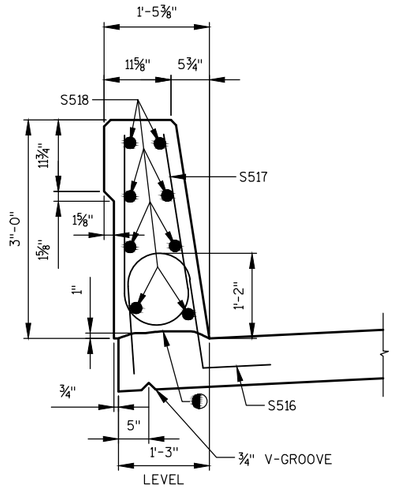
1. ± 0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL

FF - FRONT FACE
BF - BACK FACE

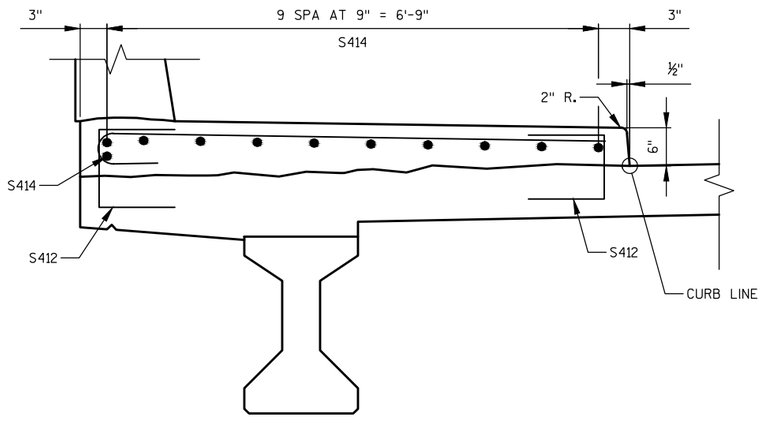


DIAPHRAGM AT ENDS

DECK AND SIDEWALK STEEL NOT SHOWN FOR CLARITY



SECTION THRU PARAPET ON BRIDGE



SIDEWALK DETAIL

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DRAWN BY JAK | PLANS CK'D. MJB

SUPERSTRUCTURE DETAILS

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8

FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080110_SS.DWG PLOT DATE : 1/29/2016 PLOT BY : ----

PLOT SCALE : 1" = 1'

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DECK ELEVATIONS

SPAN POINT	LEFT EDGE	GIRDER 1		FACE OF CURB	GIRDER 2		GIRDER 3		REFERENCE LINE		GIRDER 4		GIRDER 5		GIRDER 6		RIGHT EDGE
	ELEVATION	TD	TG	ELEVATION	TD	TG	TD	TG	STATION	ELEVATION	TD	TG	TD	TG	TD	TG	ELEVATION
S ABUT	589.81	589.17	588.26	589.22	589.25	588.34	589.32	588.41	217+39.50	589.39	589.39	588.48	589.47	588.55	589.54	588.63	589.56
0.1	589.78	589.15		589.19	589.22		589.30		217+44.20	589.36	589.37		589.44		589.52		589.53
0.2	589.76	589.13		589.17	589.20		589.28		217+48.90	589.34	589.35		589.42		589.50		589.51
0.3	589.74	589.11		589.15	589.18		589.25		217+53.60	589.32	589.33		589.40		589.47		589.49
0.4	589.72	589.08		589.13	589.16		589.23		217+58.30	589.30	589.30		589.38		589.45		589.47
0.5	589.69	589.06		589.11	589.13		589.21		217+63.00	589.28	589.28		589.35		589.43		589.44
0.6	589.67	589.04		589.09	589.10		589.18		217+67.70	589.26	589.26		589.33		589.40		589.42
0.7	589.65	589.01		589.06	589.08		589.16		217+72.40	589.23	589.23		589.31		589.38		589.40
0.8	589.62	588.99		589.03	589.06		589.14		217+77.10	589.20	589.21		589.28		589.36		589.37
0.9	589.60	588.97		589.01	589.04		589.11		217+81.80	589.18	589.19		589.26		589.33		589.35
N ABUT	589.58	588.94	588.03	588.99	589.02	588.10	589.09	588.18	217+86.50	589.16	589.16	588.25	589.24	588.32	589.31	588.40	589.33

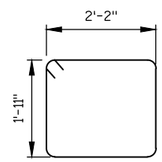
BILL OF BARS
SUPERSTRUCTURE

COATED= 17520 LBS.
UNCOATED= 0 LBS.

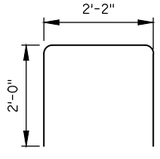
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
S501	106		8 - 10	X		DIAPHRAGM - STIRRUPS	VERT
S602	20		5 - 6			DIAPHRAGM - FF	HORIZ
S603	10		42 - 2			DIAPHRAGM - BF	HORIZ
S504	106		5 - 11	X		DIAPHRAGM - TOP	VERT
S505	18		4 - 11	X		DIAPHRAGM - SIDEWALK	VERT
S606	10		6 - 6			DIAPHRAGM - FF	HORIZ
S607	8		5 - 4	X		DIAPHRAGM - END BAR	HORIZ
S608	8		6 - 4	X		DIAPHRAGM - END BAR	HORIZ
S509	149		42 - 2			SLAB - BOTTOM & TOP	TRANS
S410	121		49 - 2			SLAB- BOTTOM & TOP	LONGIT
S511	75		4 - 10	X		SLAB - TOP AT RIGHT EDGE	TRANS
S412	192		2 - 6	X		SIDEWALK - TIES	VERT
S513	96		7 - 6	X		SIDEWALK - TOP	TRANS
S414	10		47 - 10			SIDEWALK - TOP	LONGIT
S515	4		5 - 10	X		PARAPET - END TIE	VERT
S516	150		4 - 5	X		PARAPET - TIE	VERT
S517	150		5 - 8	X		PARAPET - STIRRUP	VERT
S518	16		49 - 2			PARAPET	HORIZ
S619	4		6 - 11			DIAPHRAGM - SIDEWALK	HORIZ

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

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



S501



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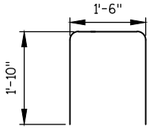

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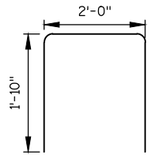

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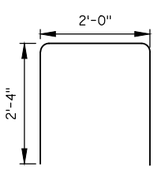

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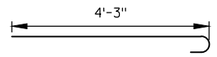

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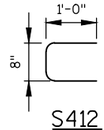

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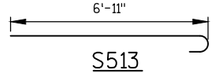
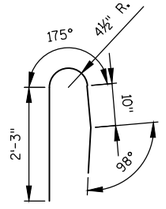


S513



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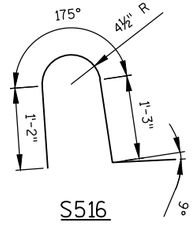

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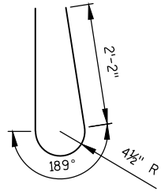


S517

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

SUPERSTRUCTURE DETAILS

SH 80 OF 17

STATE PROJECT NUMBER

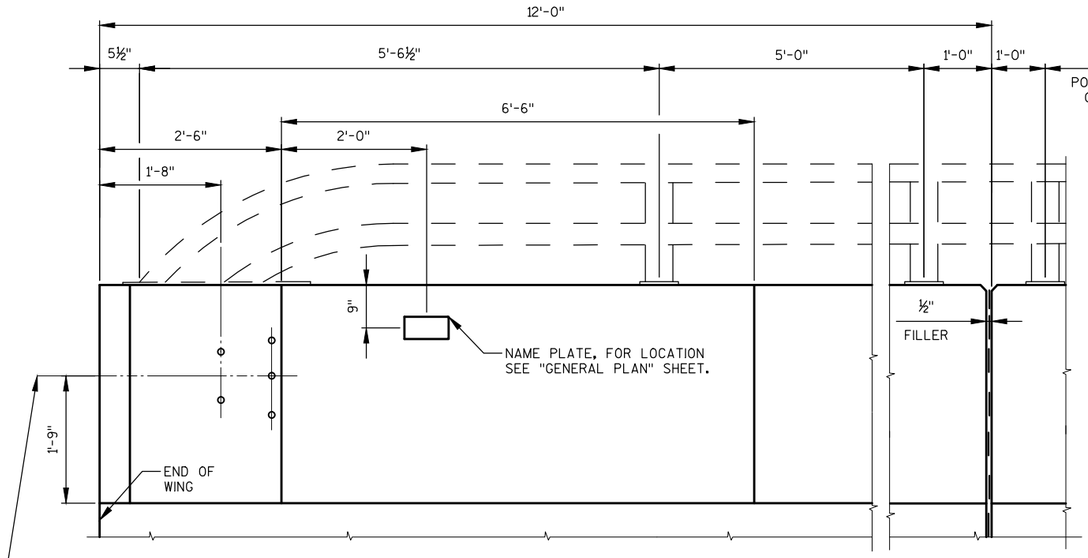
9327-02-71

SOUTH ABUTMENT COATED = 800 LBS.
SOUTH ABUTMENT UNCOATED= 0 LBS.
NORTH ABUTMENT COATED= 800 LBS.
NORTH ABUTMENT UNCOATED= 0 LBS.

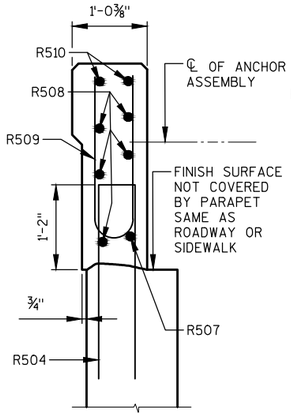
BILL OF BARS
SINGLE SLOPE PARAPET 36SS

MARK	COATED	NO. REQ'D. SOUTH ABUTMENT	NO. REQ'D. NORTH ABUTMENT	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
R501	X	12	12	5 - 10	X		PARAPET	VERT
R502	X	12	12	5 - 8	X		PARAPET	VERT
R503	X	24	24	3 - 0	X		PARAPET	VERT
R504	X	34	34	5 - 7	X		PARAPET	VERT
R505	X	12	12	5 - 5	X		PARAPET	VERT
R506	X	12	12	5 - 6	X		PARAPET	VERT
R507	X	2	2	11 - 7	X		PARAPET	HORIZ
R508	X	10	10	11 - 7			PARAPET	HORIZ
R509	X	10	10	4 - 9	X		PARAPET	VERT
R510	X	4	4	11 - 7			PARAPET	HORIZ

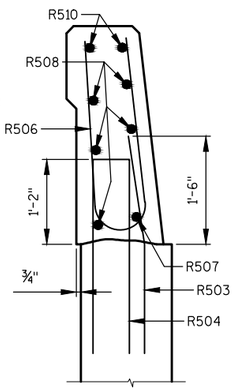
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
INCLUDED IN ABUTMENT QUANTITIES FOR BAR STEEL REINFORCEMENT AND CONCRETE MASONRY



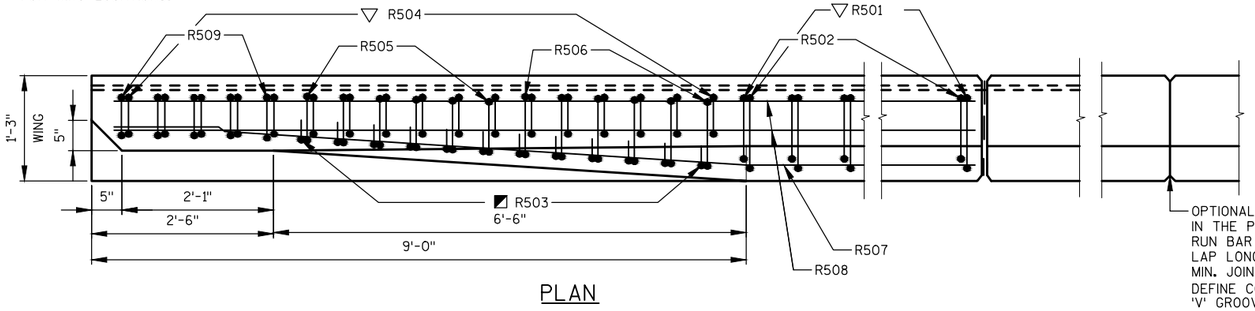
INSIDE ELEVATION



SECTION A



SECTION B



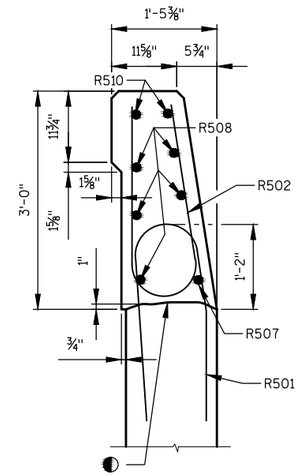
PLAN

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0" DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.

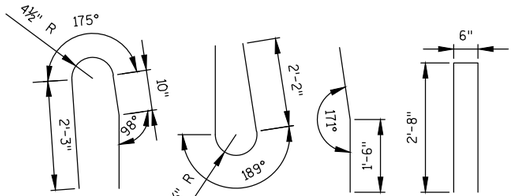
◐ CONST. JOINT - STRIKE OFF AS SHOWN.

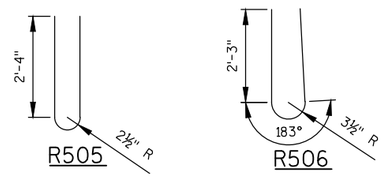
◩ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

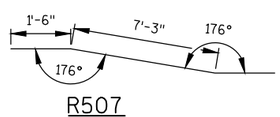
▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

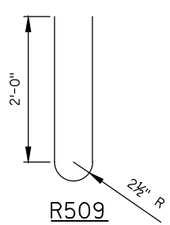


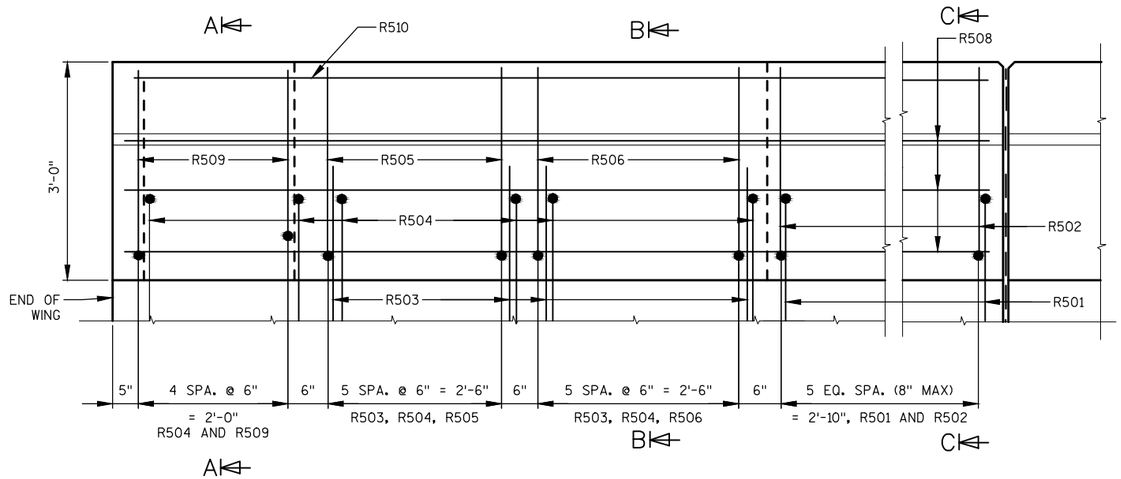
SECTION C



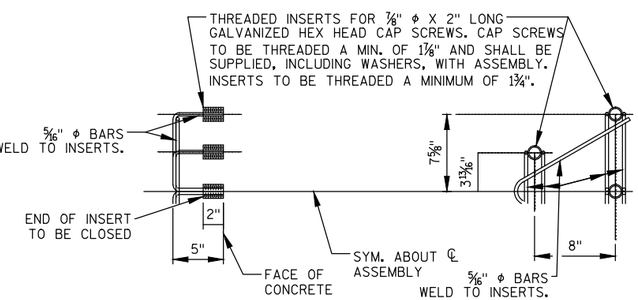








OUTSIDE ELEVATION



DETAIL OF ANCHOR ASSEMBLY

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

SINGLE SLOPE PARAPET 36SS

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8

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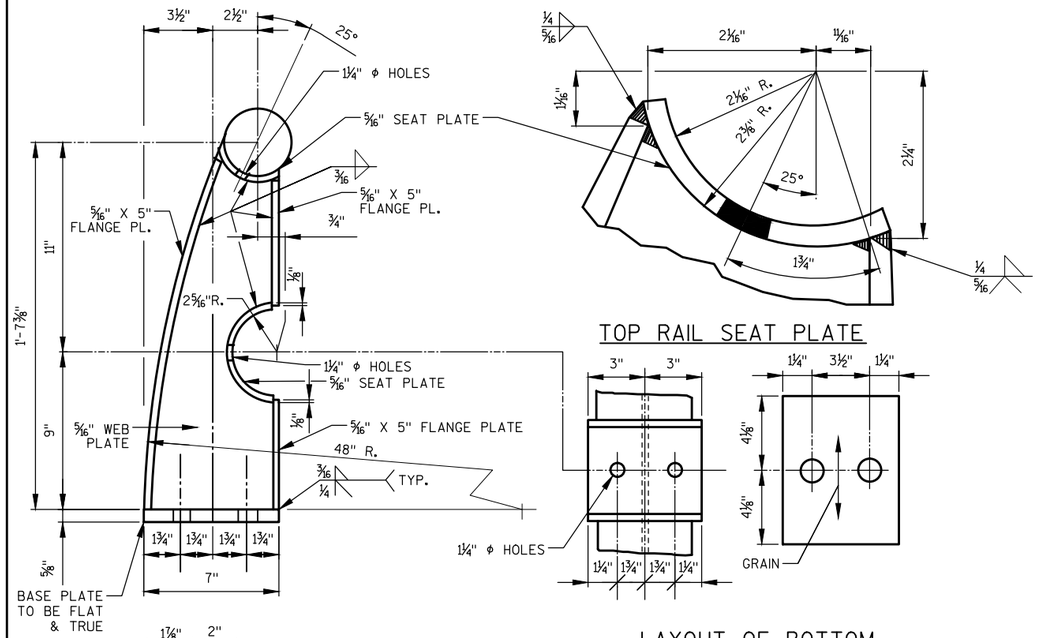
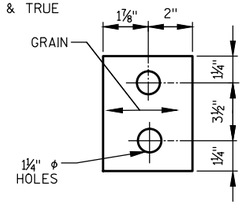
FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080115_PA.DWG PLOT DATE : 1/29/2016 PLOT BY : ---- PLOT SCALE : 1" = 1'

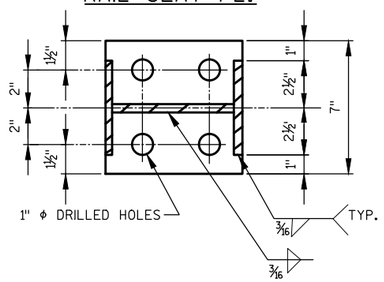


TOP RAIL SEAT PLATE

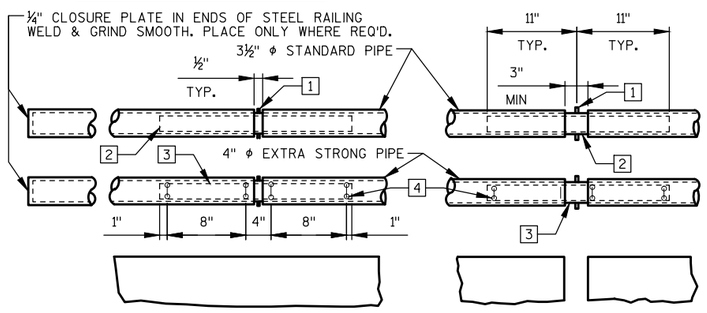
LAYOUT OF BOTTOM RAIL SEAT PL.



LAYOUT OF TOP RAIL SEAT PL.

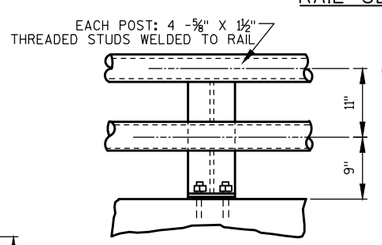


STEEL POST DETAILS



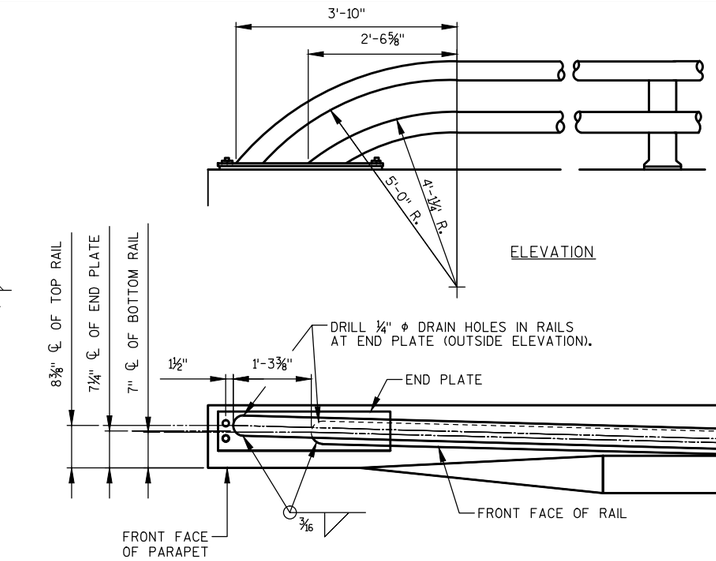
FIELD ERECTION JOINT DETAIL

DETAIL AT RAIL OPENING

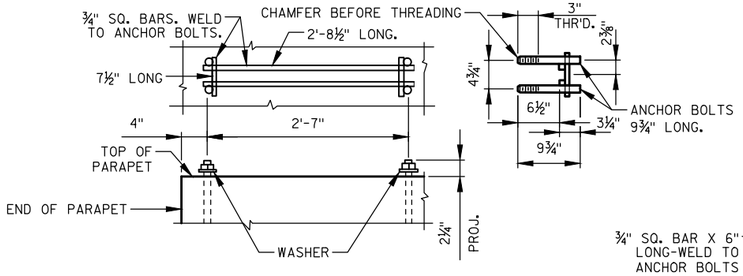


RAIL TO POST CONN.

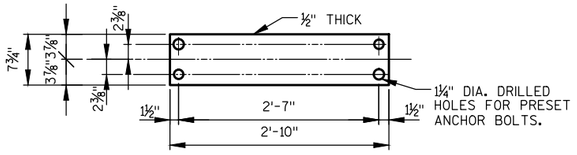
ALL SLEEVE DETAILS SAME AS "FIELD ERECTION JOINT DETAIL" UNLESS SHOWN OTHERWISE



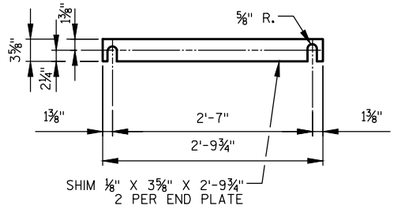
DETAILS OF RAIL BEND AT ABUTMENTS

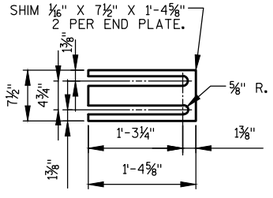


ANCHOR BOLTS AT END PLATE

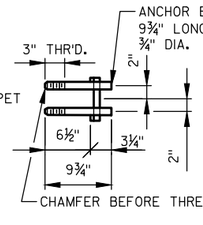


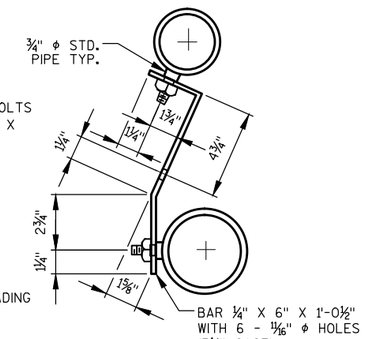
END PLATE





END PLATE SHIM DETAILS

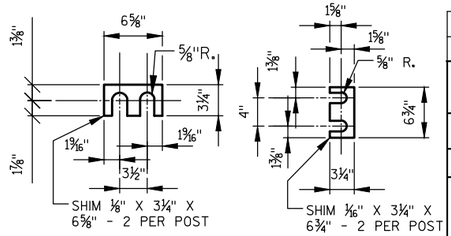




ANCHOR BOLTS AT POSTS

SHIPPING BAR

END SECTION ONLY



POST SHIM DETAILS

NOTES:

BID ITEM SHALL BE "RAILING TUBULAR TYPE H B-38-146" WHICH INCLUDES ALL ITEMS SHOWN

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL OR ASTM A307. IF A307 IS USED ELECTRO-GALVANIZE NUTS, WASHERS & TOP 3½" OF ANCHOR BOLTS.

CLOSURE ENDS ON STEEL RAILING SHALL BE ¼" PLATE. WELD AND GRIND SMOOTH.

RAILING SHALL BE FABRICATED IN 2 AND 3 PANEL LENGTHS.

RAILING POSTS SHALL BE SET NORMAL TO GRADE LINE.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG CENTERLINE OF THE POST BASE.

SHIMS SHALL BE USED UNDER POSTS AND END PLATES WHERE REQ'D. FOR ALIGNMENT.

FILL ALL EXPOSED OPENINGS BETWEEN SHIMS AND POST ANCHOR BOLTS HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

RAILS, POSTS & SHIMS SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM DESIGNATION A709, GRADE 36.

ALL MATERIALS, EXCEPT ANCHORAGES, SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.

RAILS SHALL BE BUILT STRAIGHT AND SPRUNG IN TO PLACE FOR STRUCTURES CURVED UP TO 3°, FOR STRUCTURES CURVED GREATER THAN 3°, RAILINGS SHALL BE CURVED TO FIT.

TYPE H (ALUMINUM) RAILING SHALL NOT BE USED.

LEGEND

1. 5/16" X ⅜" WELDED STUDS
2. 3" ϕ STD. PIPE X 1'-10" LONG
3. 3" ϕ EXTRA STRONG PIPE X 1'-10" LONG
4. ½" ϕ WELD BEADS AT ⅓ PTS. ON PIPE 11" CIRCUMF. GRIND BEADS SO THAT SLEEVE FITS FREELY IN THE I.D. OF 4" ϕ EXTRA STRONG PIPE.

STATE PROJECT NUMBER

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-38-146

DRAWN BY JAK | PLANS CK'D. MJB

TUBULAR RAILING TYPE 'H' (STEEL)

SH 82 OF 17

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FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±B-38-146±080117_RL.DWG PLOT DATE : 1/29/2016 PLOT BY : ---- PLOT SCALE : 1" = 1'

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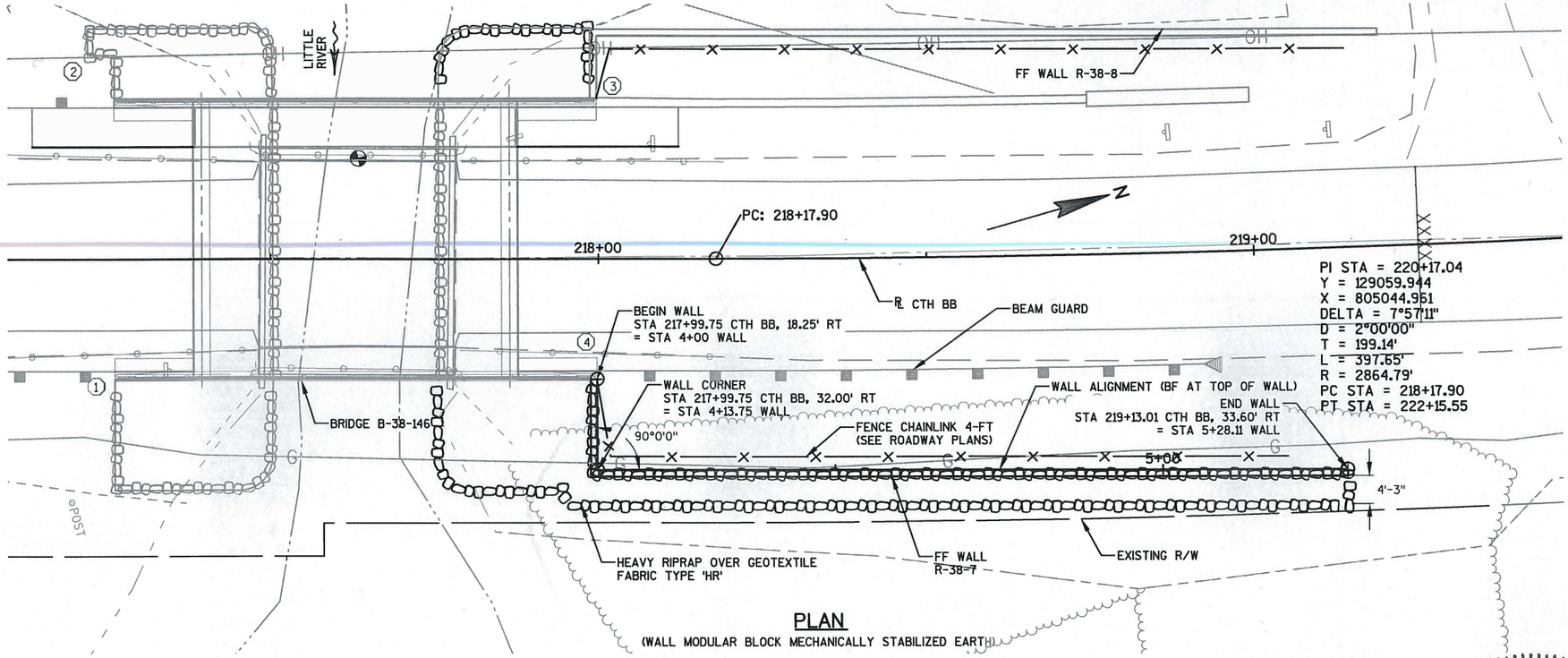
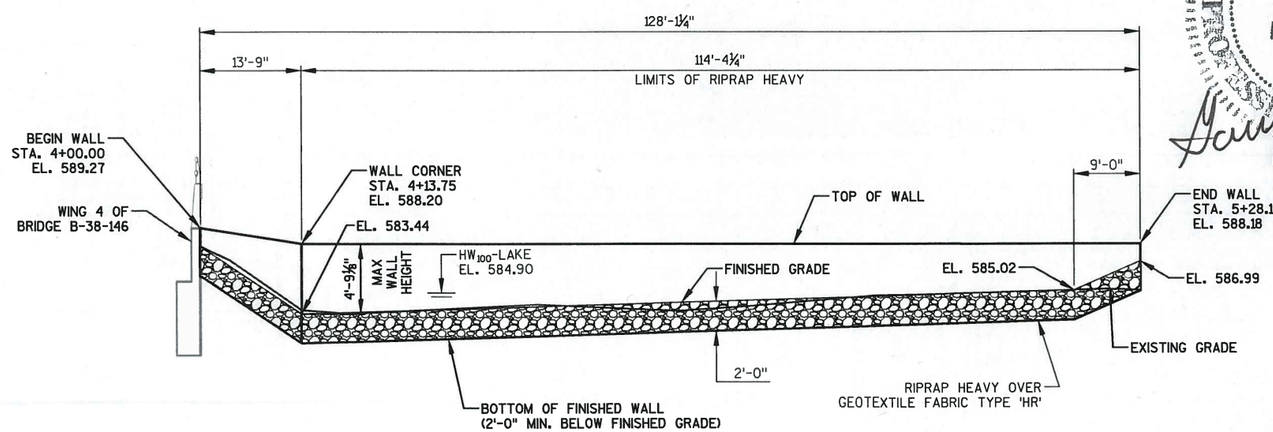


PLAN

(WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH)



ELEVATION

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH LRFD/QMP, STRUCTURE R-38-7".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET AND IN THE GEOMETRY TABLE ON SHEET 2.

DESIGN FOR RETAINING WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND WALL AS SHOWN ON THE CROSS SECTIONS.

DESIGN RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 240 PSF.

SEE SPECIAL PROVISIONS FOR ACCEPTABLE WALL SYSTEMS.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

LIST OF DRAWINGS

LEGEND

FF - FRONT FACE
BF - BACK FACE

WISCONSIN
GARY A. RUCHTI
E-30936
MADISON
WI
PROFESSIONAL ENGINEER
1/15/16

NO.	DATE	REVISION	BY

Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
608.273.6380
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 01/20/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-38-7

MODULAR BLOCK WALL ALONG CTH BB

COUNTY	TOWN ~~CITY/VILLAGE~~
MARINETTE	PESHTIGO

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
MJB	GAR	MJB	GAR

GENERAL PLAN & ELEVATION

SHEET 1 OF 3
83

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

CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

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STATE PROJECT NUMBER

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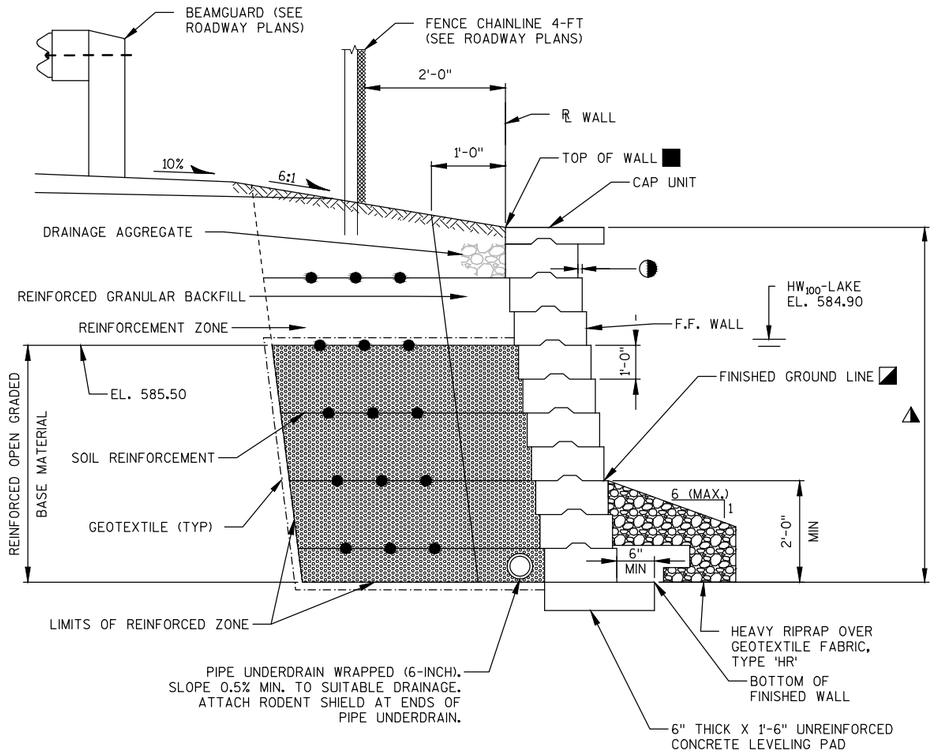

TYPICAL SECTION THRU RETAINING WALL

SOIL PARAMETERS

STRATUM LOCATIONS & SOIL DESCRIPTIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PCF)
GRANULAR BACKFILL (REINFORCED SOIL ZONE)	120	30	0
RETAINED SOIL (SP, SP-SM, SM (EXISTING FILL)) **	120	30	0
BORING *2-14 - SEE SHEET 3 FOR LOCATION			
SAND , WITH A LITTLE GRAVEL (SP) EL 586.93' TO EL 583.76'	120	30	0
SILTY SAND , WITH A LITTLE GRAVEL (SM) EL 583.76' TO EL 577.26'	120	30	0
SAND, WITH SILT (SP-SM) EL 577.26' TO EL 558.26'	125	32	0
SANDY SILT (ML) EL 558.26' TO EL 538.26'	125	32	0
BORING *3-15 - SEE SHEET 3 FOR LOCATION			
SAND (SP) EL 588.53' TO EL 585.20'	120	30	0
SILTY SAND , WITH SOME ORGANICS (SM) EL 585.20' TO EL 583.70'	120	30	0
SAND , WITH SILT (SP-SM) EL 583.70' TO EL 580.70'	120	30	0
SILTY SAND , WITH SOME ORGANICS (SM) EL 580.70' TO EL 578.70'	120	30	0
SAND (SP) EL 578.70' TO EL 569.20'	125	32	0
SAND, WITH SILT (SP-SM) EL 569.20' TO EL 559.20'	125	32	0

** DESIGN WALLS FOR THESE VALUES

WALL EXTERNAL STABILITY EVALUATION

DIMENSIONS	EVALUATED LOCATIONS	
WALL HEIGHT (FEET)	6.5	7.5
EXPOSED WALL HEIGHT (FEET)	5	6
MINIMUM LENGTH OF REINFORCEMENT (FEET)	6	6
BORING USED	2-14	3-15
CAPACITY TO DEMAND RATIO (CDR)		
SLIDING (CDR>1.0)	1.5	1.3
ECCENTRICITY (CDR>1.0)	3.4	2.7
OVERALL STABILITY (CDR>1.0)	1.4	1.3
BEARING RESISTANCE (CDR>1.0)	4.2	3.4

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED

ALL STATION AND ALL ELEVATIONS ARE IN FEET.

* ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88 (2007 ADJUSTMENT).

ALL STATIONS AND DIMENSIONS ALONG THE WALL R/L FOR R-38-7 ARE MEASURED ALONG THE BACK FACE OF WALL AT THE TOP.

FINAL DESIGN FOR INTERNAL STABILITY, EXTERNAL SLIDING AND ECCENTRICITY AT OTHER WALL HEIGHTS IS THE RESPONSIBILITY OF THE CONTRACTOR'S WALL DESIGNER. MINIMUM LENGTH OF SOIL REINFORCEMENT IS 6'-0".

REINFORCED GRANULAR BACKFILL AND OPEN GRADED BASE MATERIAL TO BE INCLUDED IN WALL BID ITEM.

GEOMETRY TABLE

WALL STATION	CTH BB STATION	OFFSET TO R/L WALL	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GROUND EL.
4+00.00	217+99.75	18.25 ft	589.27	583.44	588.04
4+13.75	217+99.75	32.00 ft	588.20	583.44	583.70
4+20.00	218+06.00	32.00 ft	588.20	583.53	583.46
4+40.00	218+25.91	32.01 ft	588.20	583.83	583.93
4+60.00	218+45.69	32.14 ft	588.19	584.14	583.75
4+80.00	218+65.46	32.40 ft	588.19	584.44	584.14
5+00.00	218+85.24	32.80 ft	588.18	584.74	584.77
5+20.00	219+05.00	33.34 ft	588.18	585.22	585.04
5+28.11	219+13.01	33.60 ft	588.18	586.99	584.99

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	TOTAL
606.0300	RIPRAP HEAVY	CY	55
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	135
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	170
SPV.0165.01	WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH LRFD/QMP, STRUCTURE R-38-7	SF	764

BENCH MARK TABLE*

NO.	STATION	DESCRIPTION	ELEV.
CP #1	215+25.79	3/4 REBAR	583.75
BM #1	217+63.44	PAINT MARK ON BRIDGE CURB	589.92

▲ PAY LIMITS FOR BID ITEM "WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH LRFD/QMP, STRUCTURE R-38-7".

◑ SET BACK PER BLOCK (VARIES BY MANUFACTURER). A VERTICAL OR NEAR VERTICAL OPTION SHOULD BE USED WHERE POSSIBLE.

■ POINT REFERRED TO FOR TOP OF WALL ELEVATION.

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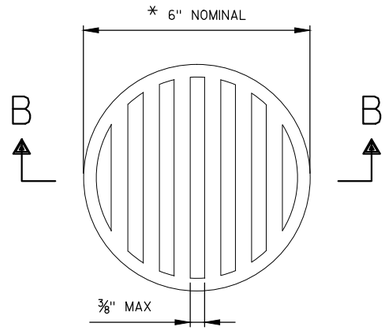

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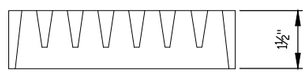

SECTION B-B

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

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-38-7

DRAWN BY MJB | PLANS CK'D. GAR

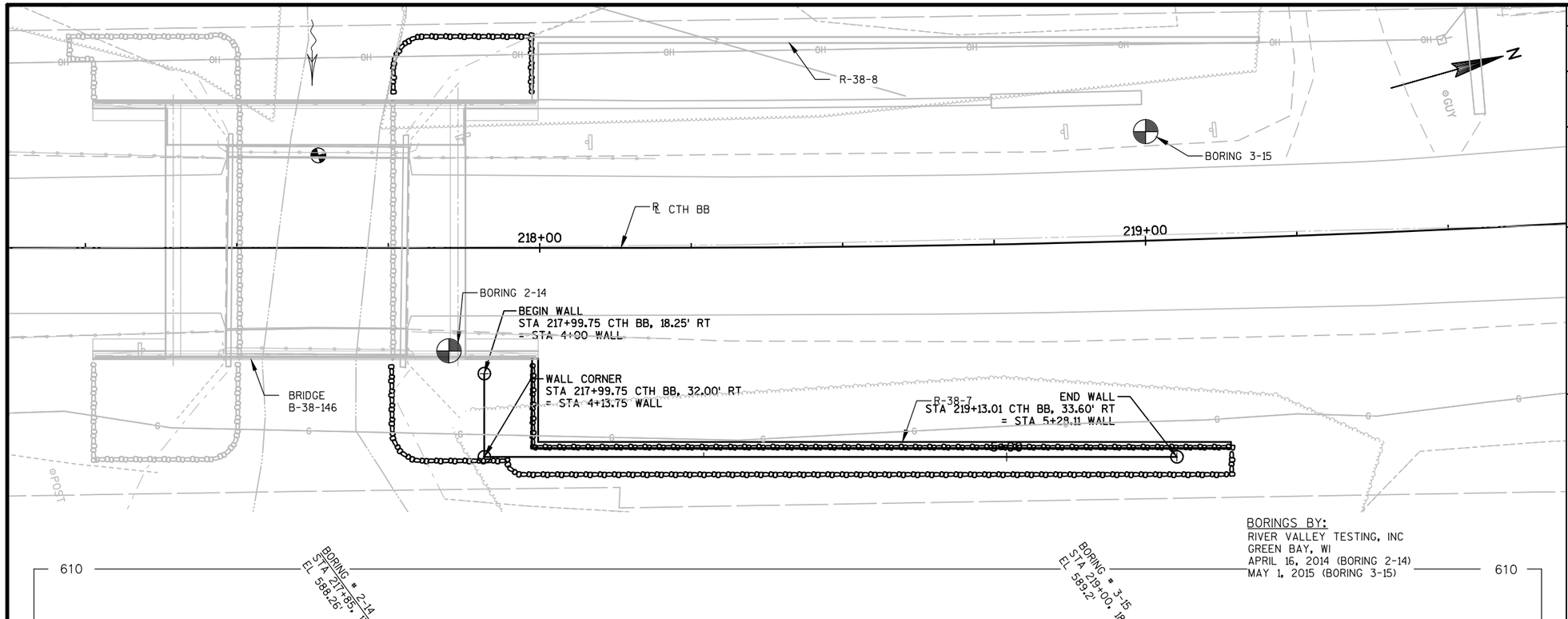
TYPICAL SECTION & QUANTITIES

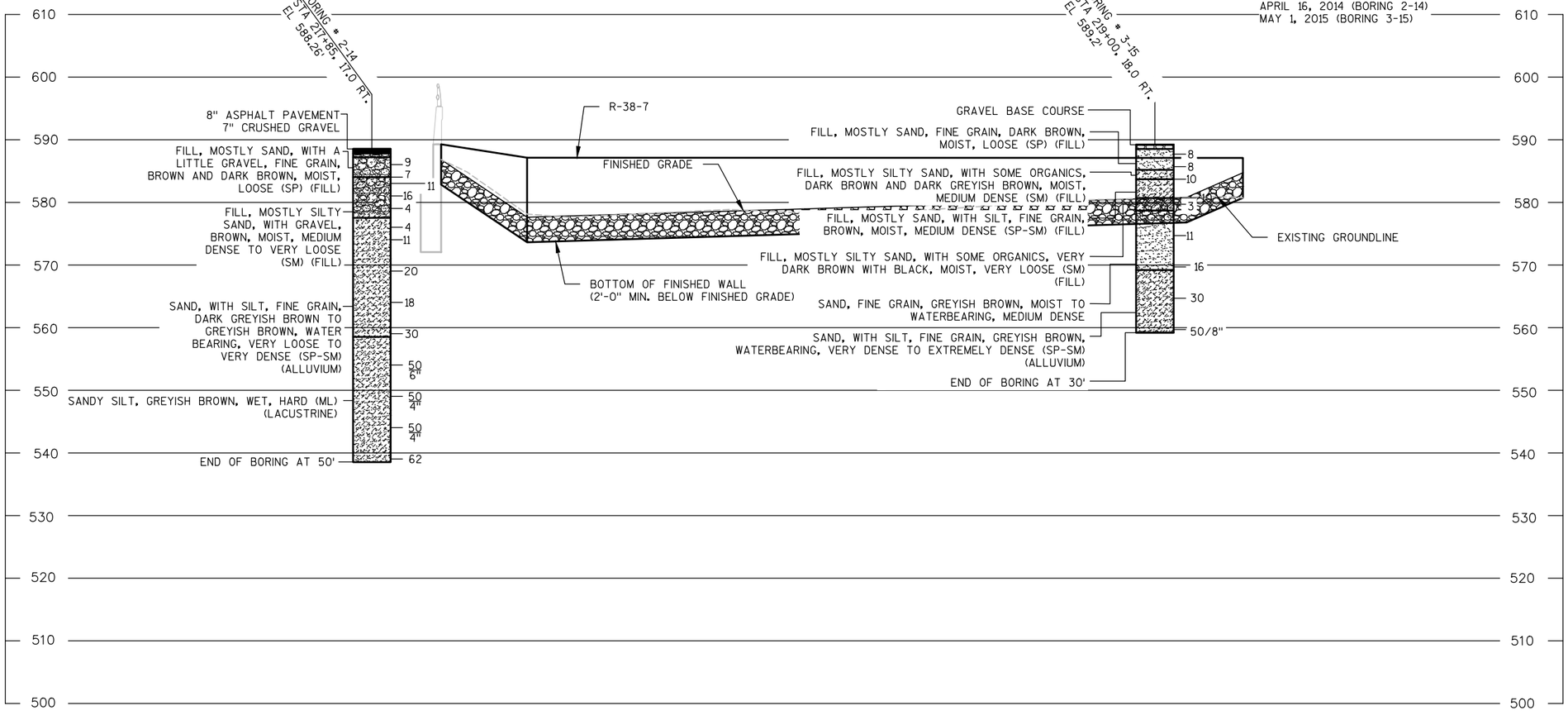
SHEET 84 OF 3

8

8

FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±R-38-7±080102_TS.DWG PLOT DATE : 1/13/2016 PLOT BY : ---- PLOT SCALE : 1" = 1'





BORINGS BY:
RIVER VALLEY TESTING, INC
GREEN BAY, WI
APRIL 16, 2014 (BORING 2-14)
MAY 1, 2015 (BORING 3-15)

STATE PROJECT NUMBER

9327-02-71

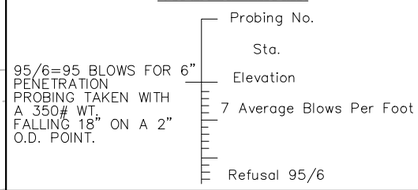
ABBREVIATIONS

F — Fine M — Medium C — Coarse
Ws — Weathered So — Sound

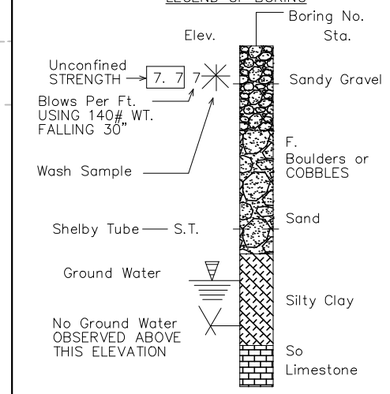
MATERIAL SYMBOLS

Asphalt | Silt | Sand
Concrete | Organic Soil | Air
Gravel | Clay | Water

LEGEND OF PROBING



LEGEND OF BORING



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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-38-7

DRAWN BY MJB | PLANS CK'D. GAR

SUBSURFACE EXPLORATION

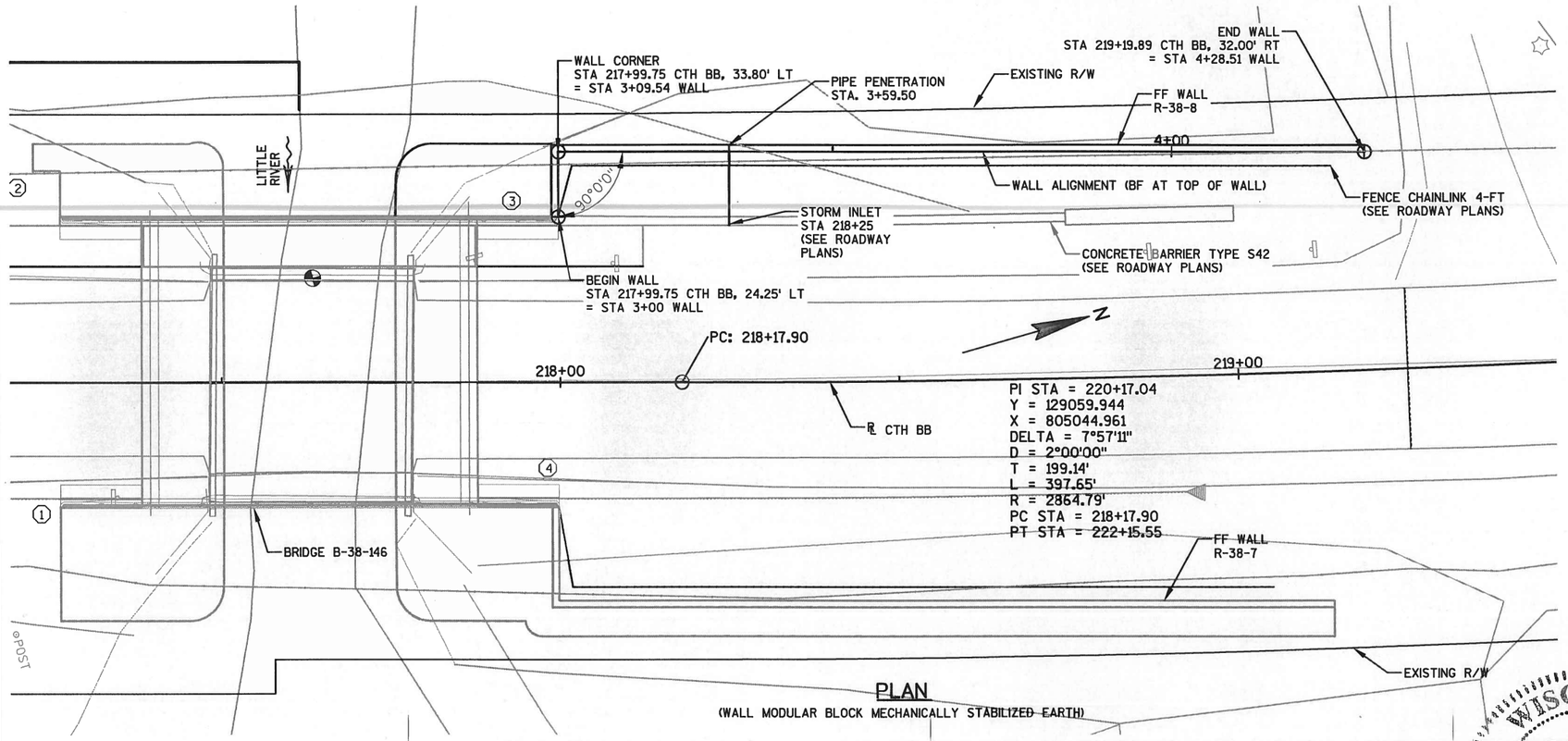
SH 85 OF 3

8

8

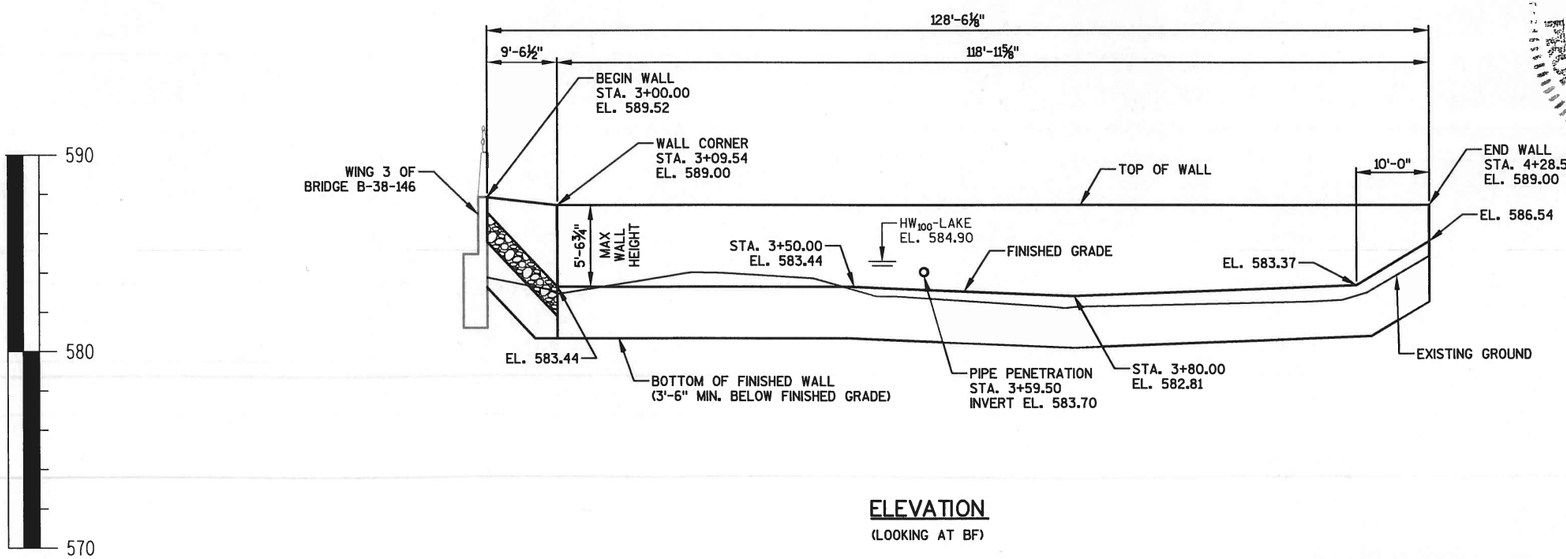
STATE PROJECT NUMBER

9327-02-71



PLAN

(WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH)



ELEVATION

(LOOKING AT BF)

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH LRFD/QMP, STRUCTURE R-38-8".

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET AND IN THE GEOMETRY TABLE ON SHEET 2.

DESIGN FOR RETAINING WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND WALL AS SHOWN ON THE CROSS SECTIONS.

DESIGN RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 240 PSF.

SEE SPECIAL PROVISIONS FOR ACCEPTABLE WALL SYSTEMS.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

PIPE PENETRATION AT WALL STATION 3+59.50 TO ACCOMODATE 12" SSPRC PIPE COMING FROM CATCH BASIN AT STA 218+25. PENETRATION DETAIL TO BE DETERMINE BY RETAIINING WALL MANUFACTURER. END OF PIPE SHOULD EXTEND MINIMUM OF 6" FROM FACE OF WALL.

LIST OF DRAWINGS

LEGEND

FF - FRONT FACE
BF - BACK FACE

WISCONSIN
GARY A. RUCHTI
E-30936
MADISON
WI
PROFESSIONAL ENGINEER

1/15/16

NO.	DATE	REVISION	BY

Mead & Hunt
Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
608.273.6380
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 01/20/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-38-8

MODULAR BLOCK WALL ALONG CTH BB

COUNTY	TOWN ~~CITY/VILLAGE~~
MARINETTE	PESHTIGO

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY	MJB	DESIGN CK'D.	GAR	DRAWN BY	MJB	PLANS CK'D.	GAR

GENERAL PLAN & ELEVATION

SHEET 1 OF 3
86

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

CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

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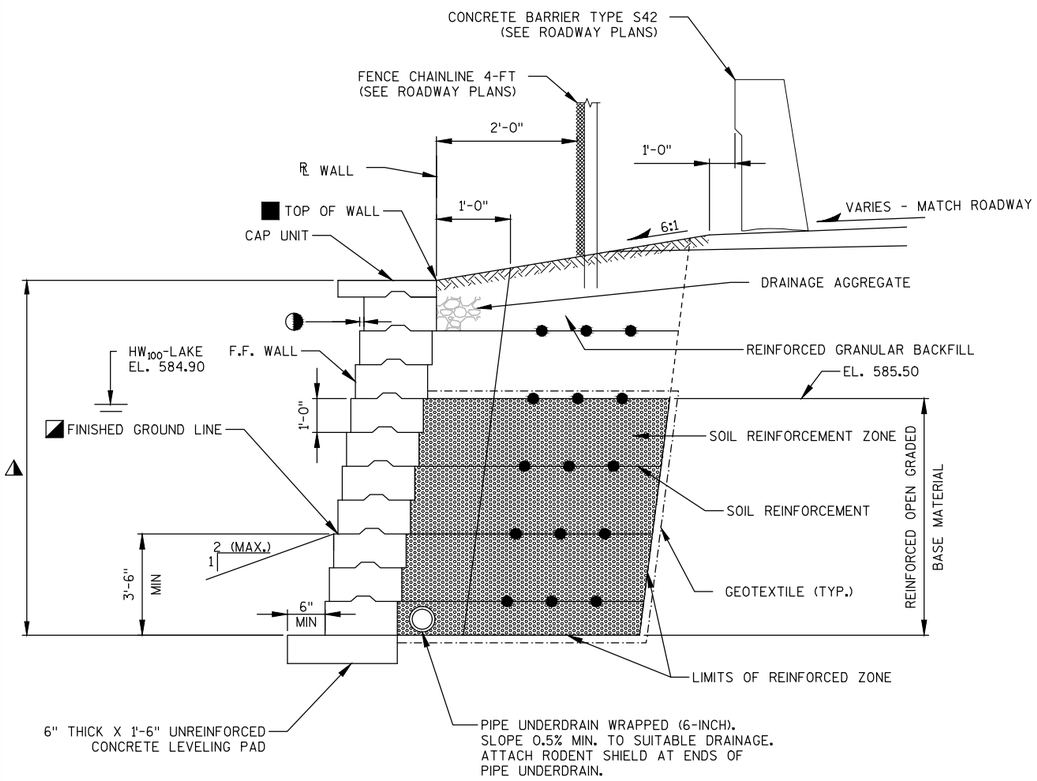
FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±R-38-8±080101_GP.DWG PLOT DATE : 1/13/2016 PLOT BY : ---- PLOT SCALE :1:1



TYPICAL SECTION THRU RETAINING WALL

⚠ PAY LIMITS FOR BID ITEM "WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH LRFD/QMP, STRUCTURE R-38-8".

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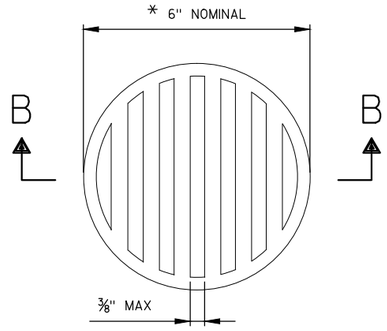
SOIL PARAMETERS

STRATUM LOCATIONS & SOIL DESCRIPTIONS	TOTAL UNIT WEIGHT (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PCF)
GRANULAR BACKFILL (REINFORCED SOIL ZONE)	120	30	0
RETAINED SOIL (SP, SP-SM, SM (EXISTING FILL)) **	120	30	0
BORING #2-14 - SEE SHEET 3 FOR LOCATION			
SAND , WITH A LITTLE GRAVEL (SP) EL 586.93' TO EL 583.76'	120	30	0
SILTY SAND , WITH A LITTLE GRAVEL (SM) EL 583.76' TO EL 577.26'	120	30	0
SAND, WITH SILT (SP-SM) EL 577.26' TO EL 558.26'	125	32	0
SANDY SILT (ML) EL 558.26' TO EL 538.26'	125	32	0
BORING #3-15 - SEE SHEET 3 FOR LOCATION			
SAND (SP) EL 588.53' TO EL 585.20'	120	30	0
SILTY SAND , WITH SOME ORGANICS (SM) EL 585.20' TO EL 583.70'	120	30	0
SAND , WITH SILT (SP-SM) EL 583.70' TO EL 580.70'	120	30	0
SILTY SAND , WITH SOME ORGANICS (SM) EL 580.70' TO EL 578.70'	120	30	0
SAND (SP) EL 578.70' TO EL 569.20'	125	32	0
SAND, WITH SILT (SP-SM) EL 569.20' TO EL 559.20'	125	32	0

** DESIGN WALLS FOR THESE VALUES

WALL EXTERNAL STABILITY EVALUATION

DIMENSIONS	EVALUATED LOCATIONS	
WALL HEIGHT (FEET)	6.5	7.5
EXPOSED WALL HEIGHT (FEET)	5	6
MINIMUM LENGTH OF REINFORCEMENT (FEET)	6	6
BORING USED	2-14	3-15
CAPACITY TO DEMAND RATIO (CDR)		
SLIDING (CDR>1.0)	1.5	1.3
ECCENTRICITY (CDR>1.0)	3.4	2.7
OVERALL STABILITY (CDR>1.0)	1.4	1.3
BEARING RESISTANCE (CDR>1.0)	4.2	3.4



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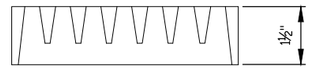

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STATE PROJECT NUMBER

9327-02-71

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED

ALL STATION AND ALL ELEVATIONS ARE IN FEET.

* ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88 (2007 ADJUSTMENT).

ALL STATIONS AND DIMENSIONS ALONG THE WALL R/L FOR R-38-8 ARE MEASURED ALONG THE BACK FACE OF WALL AT THE TOP.

FINAL DESIGN FOR INTERNAL STABILITY, EXTERNAL SLIDING AND ECCENTRICITY AT OTHER WALL HEIGHTS IS THE RESPONSIBILITY OF THE CONTRACTOR'S WALL DESIGNER. MINIMUM LENGTH OF SOIL REINFORCEMENT IS 6'-0".

REINFORCED GRANULAR BACKFILL AND OPEN GRADED BASE MATERIAL TO BE INCLUDED IN WALL BID ITEM.

GEOMETRY TABLE

WALL STATION	CTH BB STATION	OFFSET TO R/L WALL	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GROUND EL.
3+00.00	217+99.75	24.25 ft	589.52	583.44	584.08
3+09.54	217+99.75	33.80 ft	589.00	583.44	582.97
3+20.00	218+10.21	33.80 ft	589.00	583.44	583.80
3+40.00	218+30.35	33.77 ft	589.00	583.44	584.16
3+60.00	218+50.59	33.61 ft	589.00	583.23	582.66
3+80.00	218+70.82	33.31 ft	589.00	582.81	582.08
4+00.00	218+91.05	32.87 ft	589.00	583.20	582.31
4+20.00	219+11.27	32.29 ft	589.00	584.01	583.06
4+28.51	219+19.89	32.00 ft	589.00	586.54	585.54

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	TOTAL
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	135
SPV.0165.02	WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH LRFD/QMP, STRUCTURE R-38-8	SF	1167

BENCH MARK TABLE *

NO.	STATION	DESCRIPTION	ELEV.
CP #1	215+25.79	3/4 REBAR	583.75
BM #1	217+63.44	PAINT MARK ON BRIDGE CURB	589.92

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-38-8

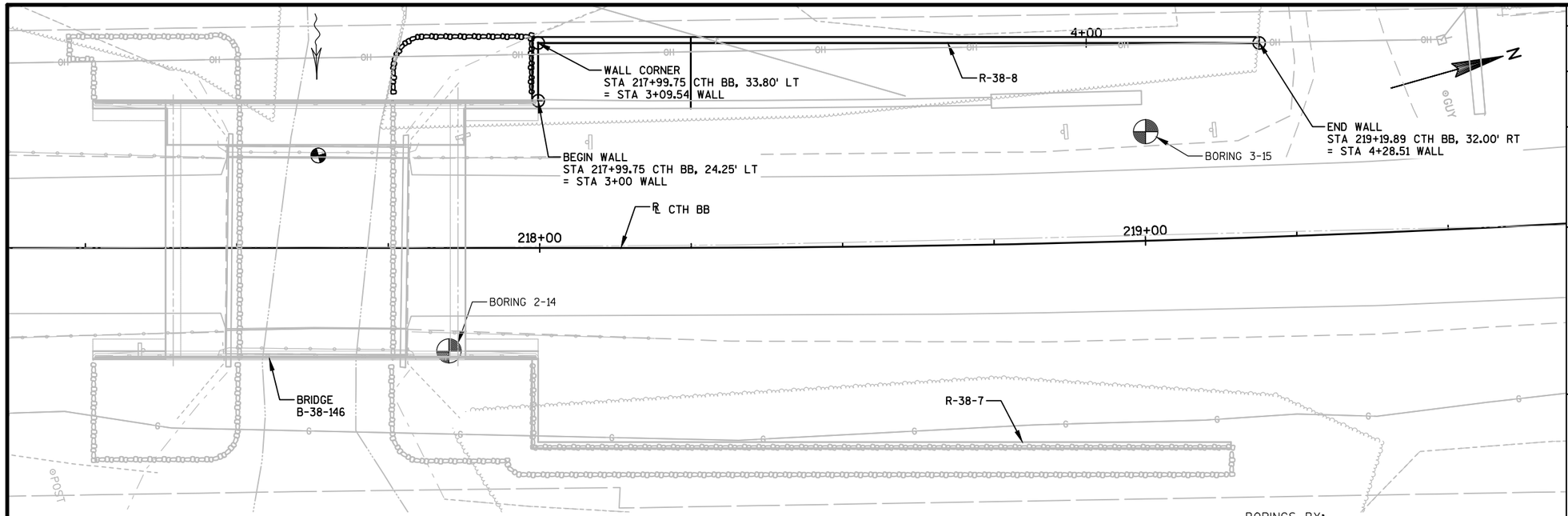
DRAWN BY MJB | PLANS CK'D. GAR

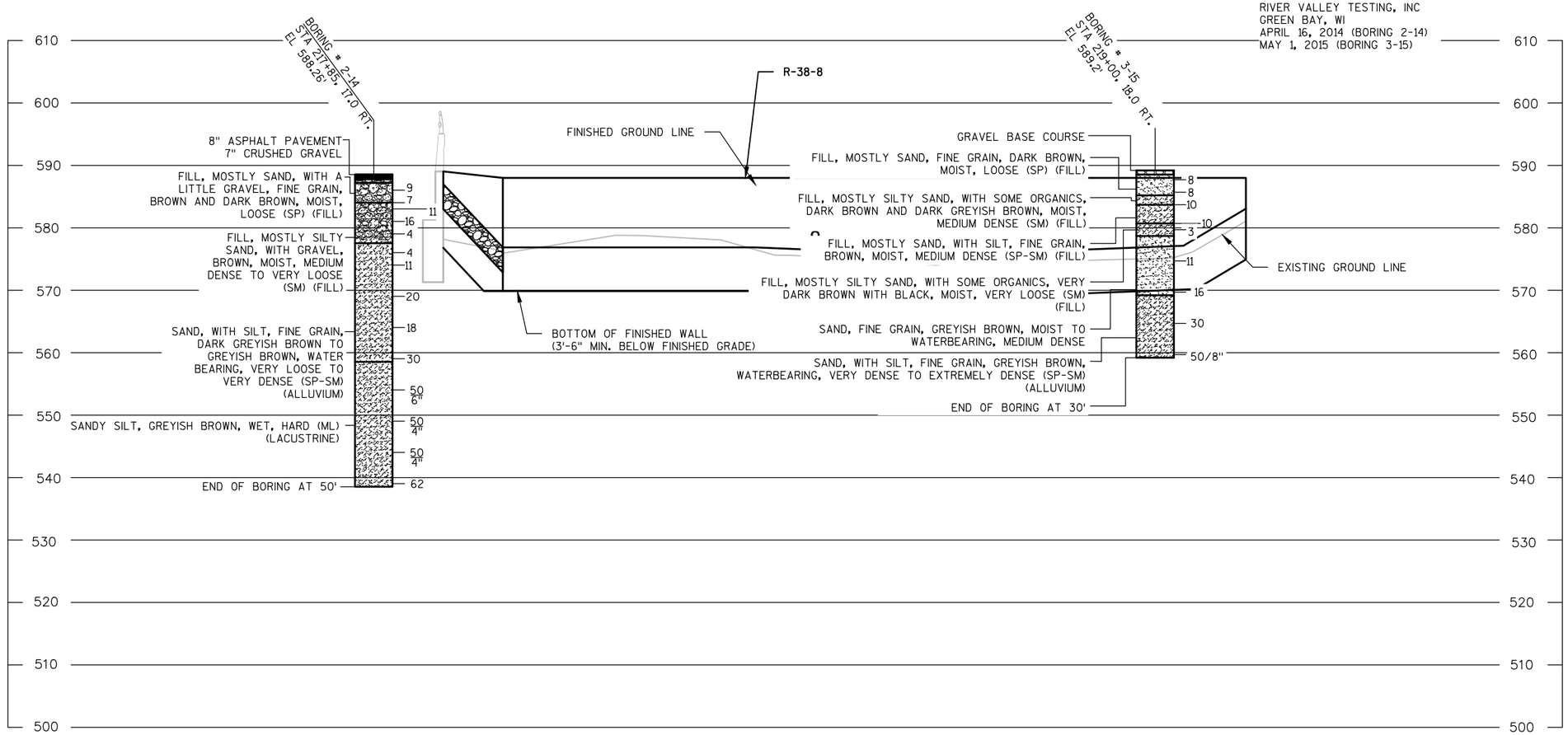
TYPICAL SECTION & QUANTITIES

SHEET 87 OF 3

8

8





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GREEN BAY, WI
APRIL 16, 2014 (BORING 2-14)
MAY 1, 2015 (BORING 3-15)

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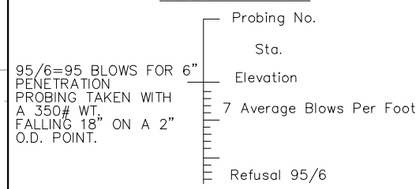

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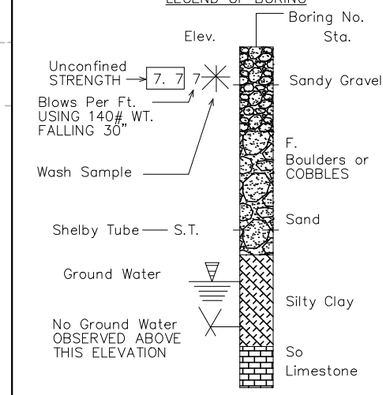

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-38-8

DRAWN BY MJB | PLANS CK'D. GAR

SUBSURFACE EXPLORATION

SH 88 OF 3

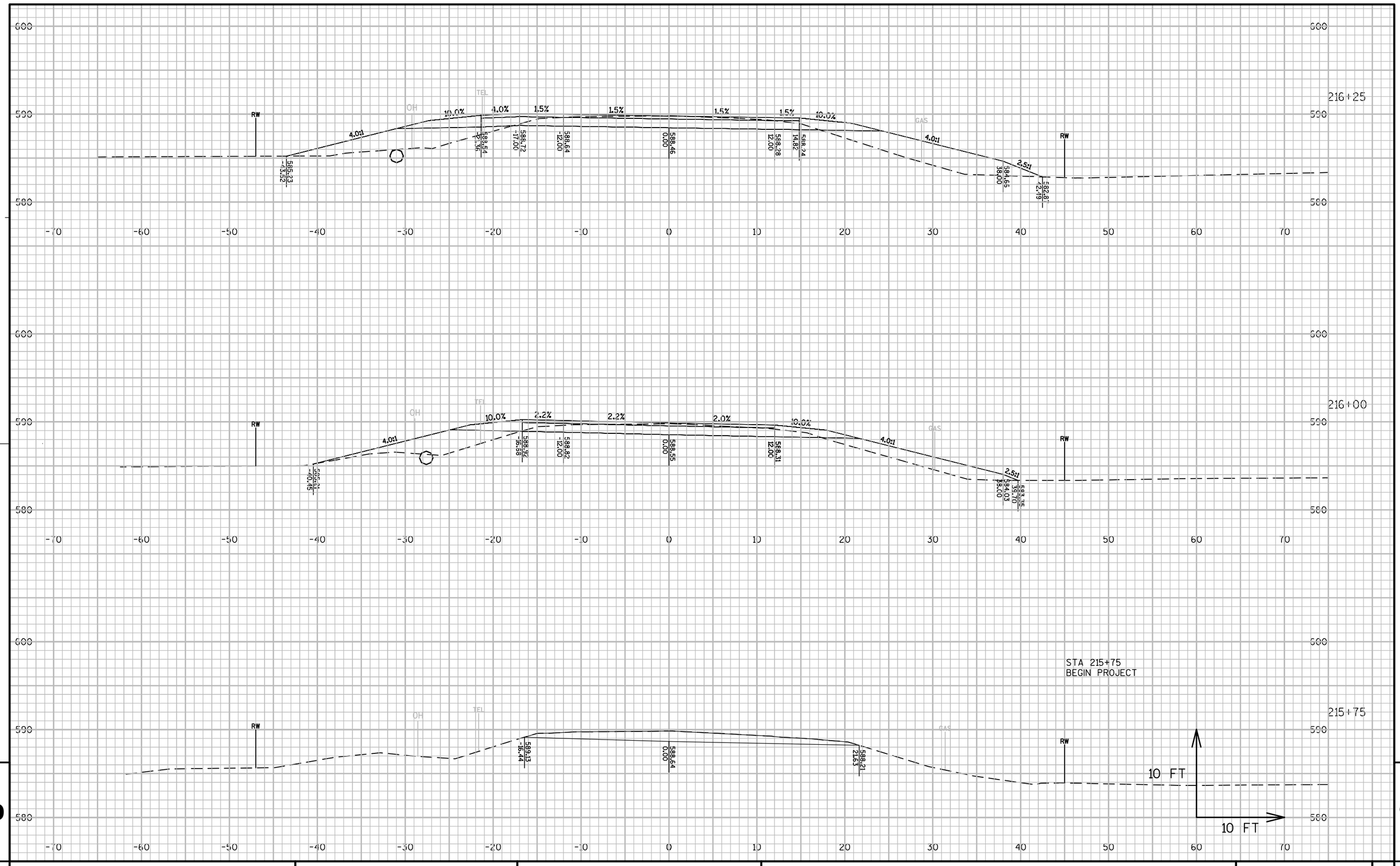
FILE NAME : X:±4183800±131108±TECH±CAD±93270200±DESIGN±STRUCTURE±R-38-8±080103.DGN DATE : 1/13/2016 PLOT BY : ---- PLOT SCALE : 1:1

CTH BB SOUTH OF BRIDGE									
			AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		
Station	Real Station	Distance	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.30 (1)	Mass Ordinate (2)
215+75.00	21575.00	0.00	31.01	11.26	0.00	0.00	0.00	0.00	
216+00.00	21600.00	25.00	30.96	50.86	28.69	28.76	28.69	37.39	
216+25.00	21625.00	25.00	35.91	79.11	30.96	60.17	59.65	78.22	
216+50.00	21650.00	25.00	40.18	78.23	35.23	72.84	94.88	172.92	
216+75.00	21675.00	25.00	43.72	69.86	38.84	68.56	133.72	262.05	
217+00.00	21700.00	25.00	48.03	49.65	42.48	55.33	176.19	333.97	
217+25.00	21725.00	25.00	52.77	23.84	44.60	44.24	178.32	319.56	
217+38.25	21738.25	13.25	68.42	26.06	27.68	16.28	203.88	355.14	
					248.48	346.19			

CTH BB EAST OF BRIDGE									
			AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		
Station	Real Station	Distance	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.30 (1)	Mass Ordinate (2)
217+87.75	21787.75	0.00	62.34	40.07	0.00	0.00	0.00	-1.00	
218+00.00	21800.00	12.25	55.24	75.57	26.67	26.23	26.67	33.10	
218+25.00	21825.00	25.00	50.40	47.02	48.91	56.75	75.58	106.88	
218+50.00	21850.00	25.00	39.38	75.23	41.56	56.60	117.15	180.46	
218+75.00	21875.00	25.00	34.74	80.45	34.31	72.07	151.46	274.16	
219+00.00	21900.00	25.00	33.68	70.62	31.68	69.94	183.14	365.08	
219+25.00	21925.00	25.00	32.01	0.03	30.41	32.71	213.55	407.60	
219+50.00	21950.00	25.00	8.30	0.00	18.66	0.01	232.21	407.62	
					232.21	314.32			

1) Expanded Fill. Factor = 1.30

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



PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 90	E

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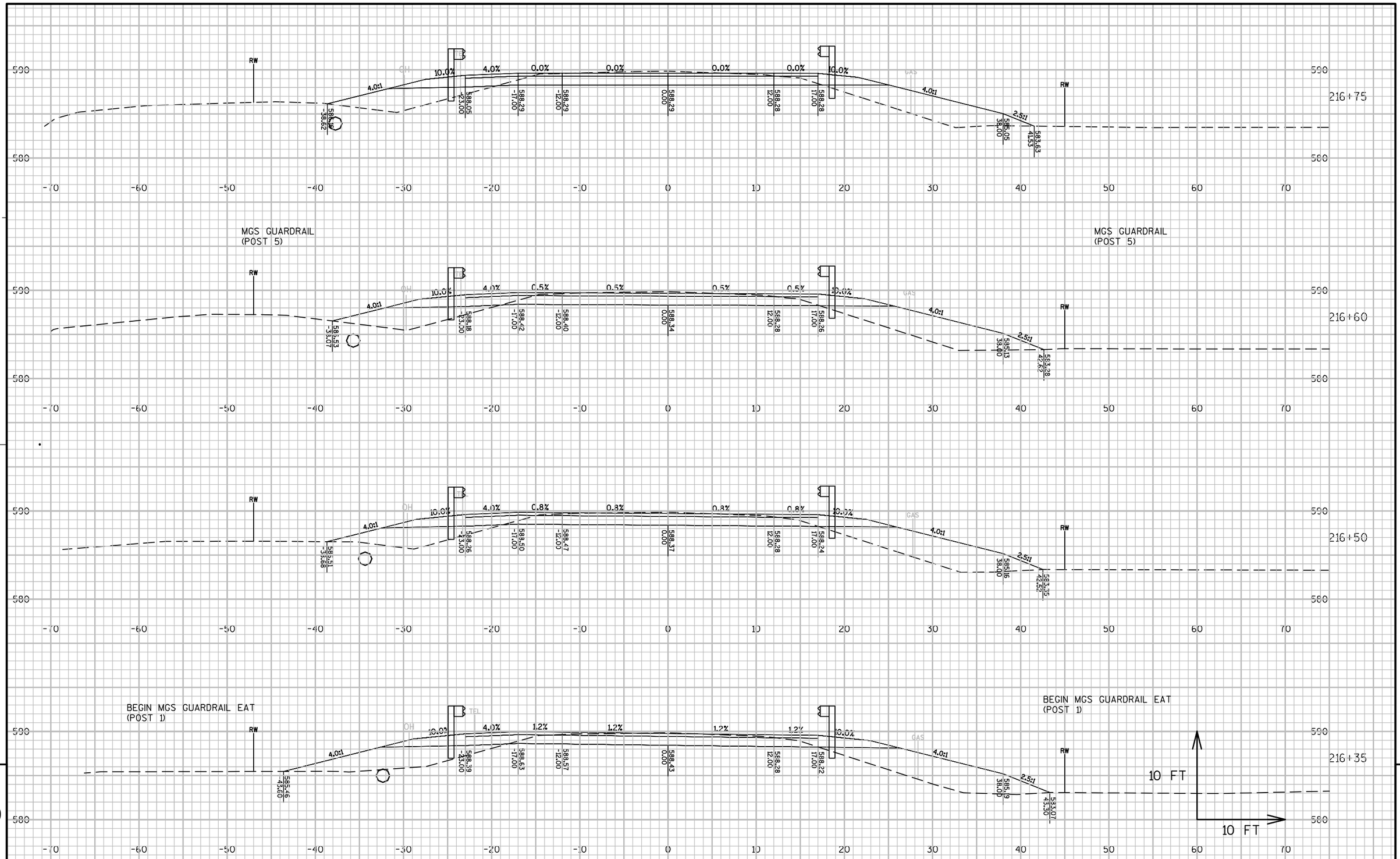
LAYOUT NAME - XS - (2)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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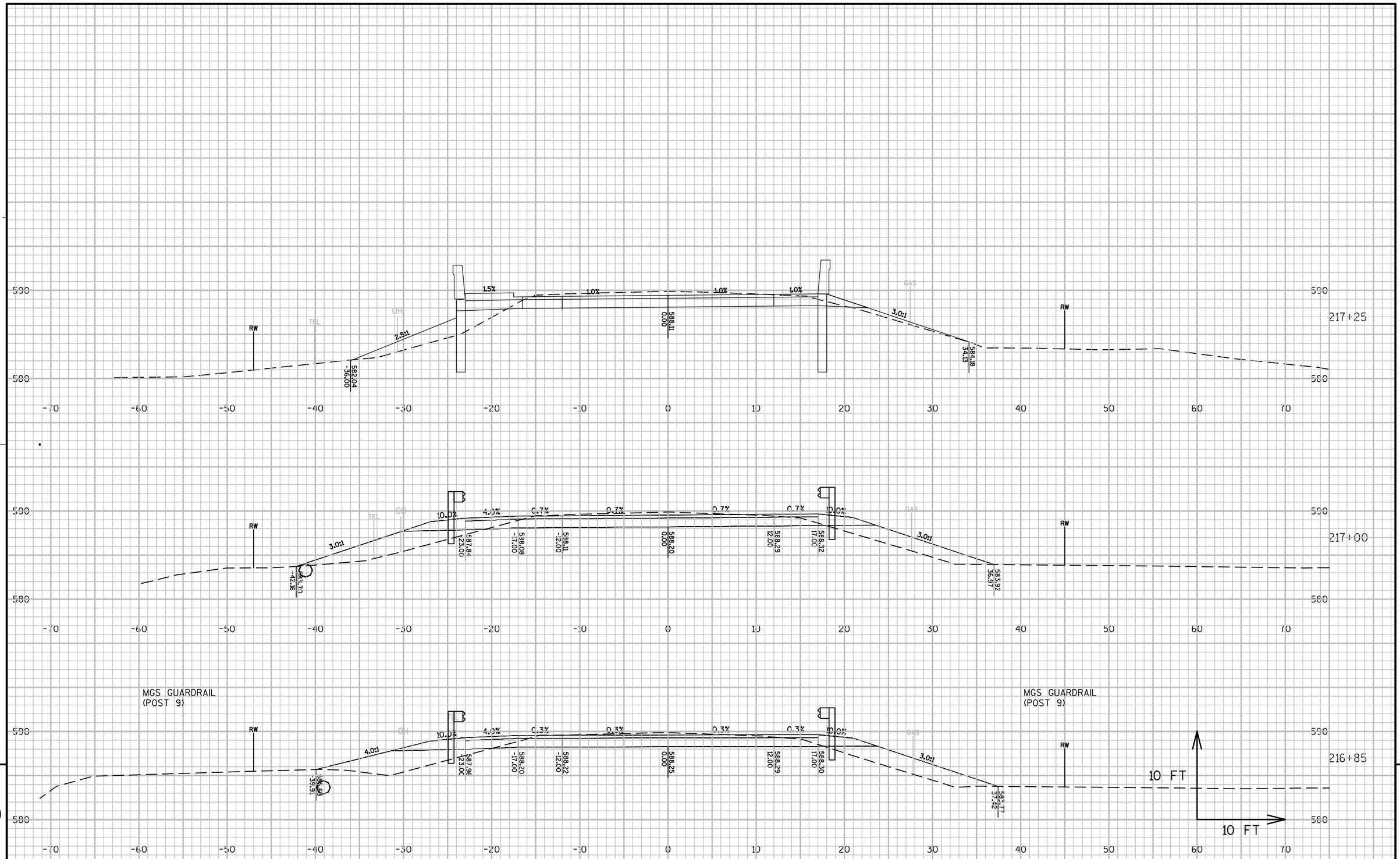
PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 91	E



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PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 92	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
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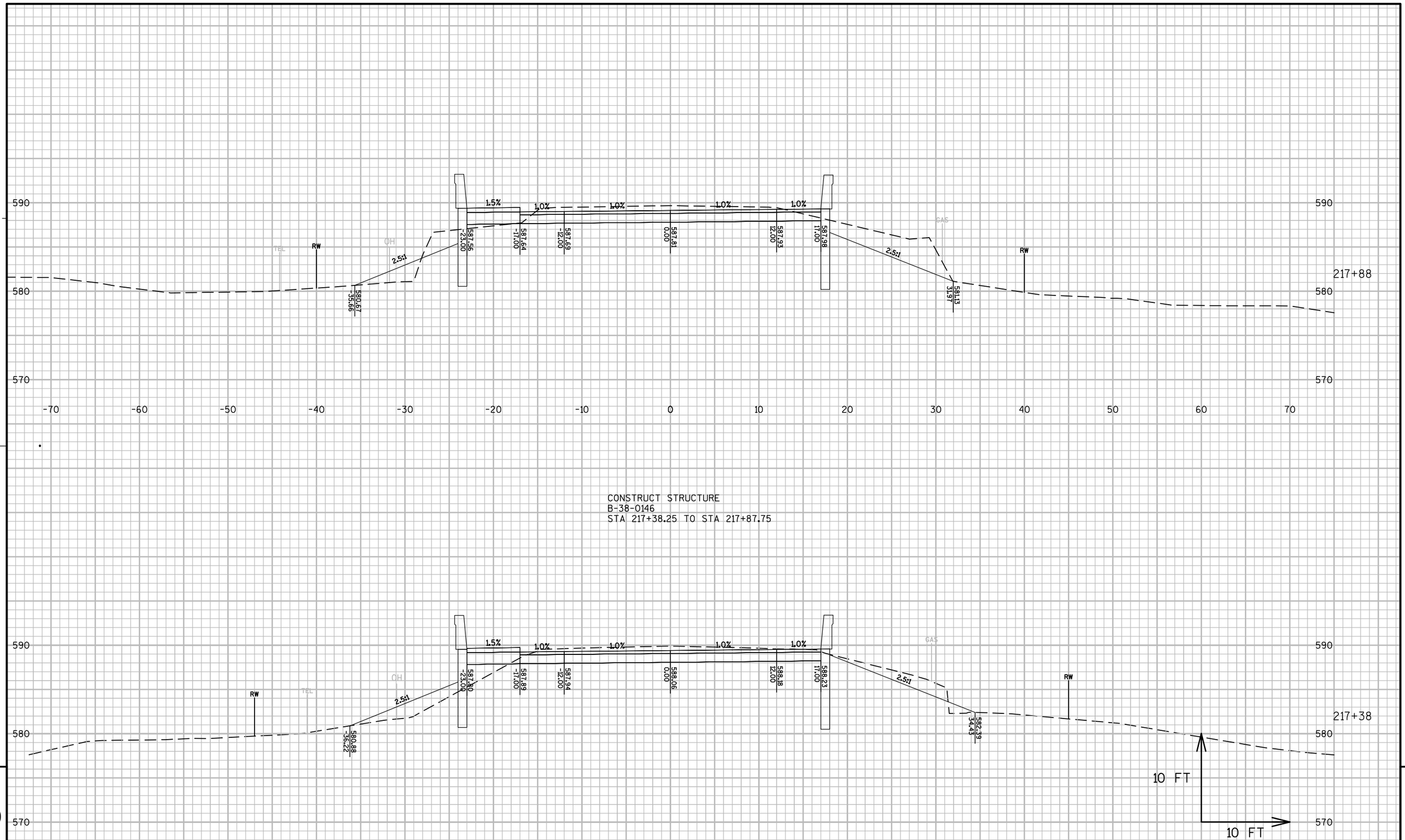
PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

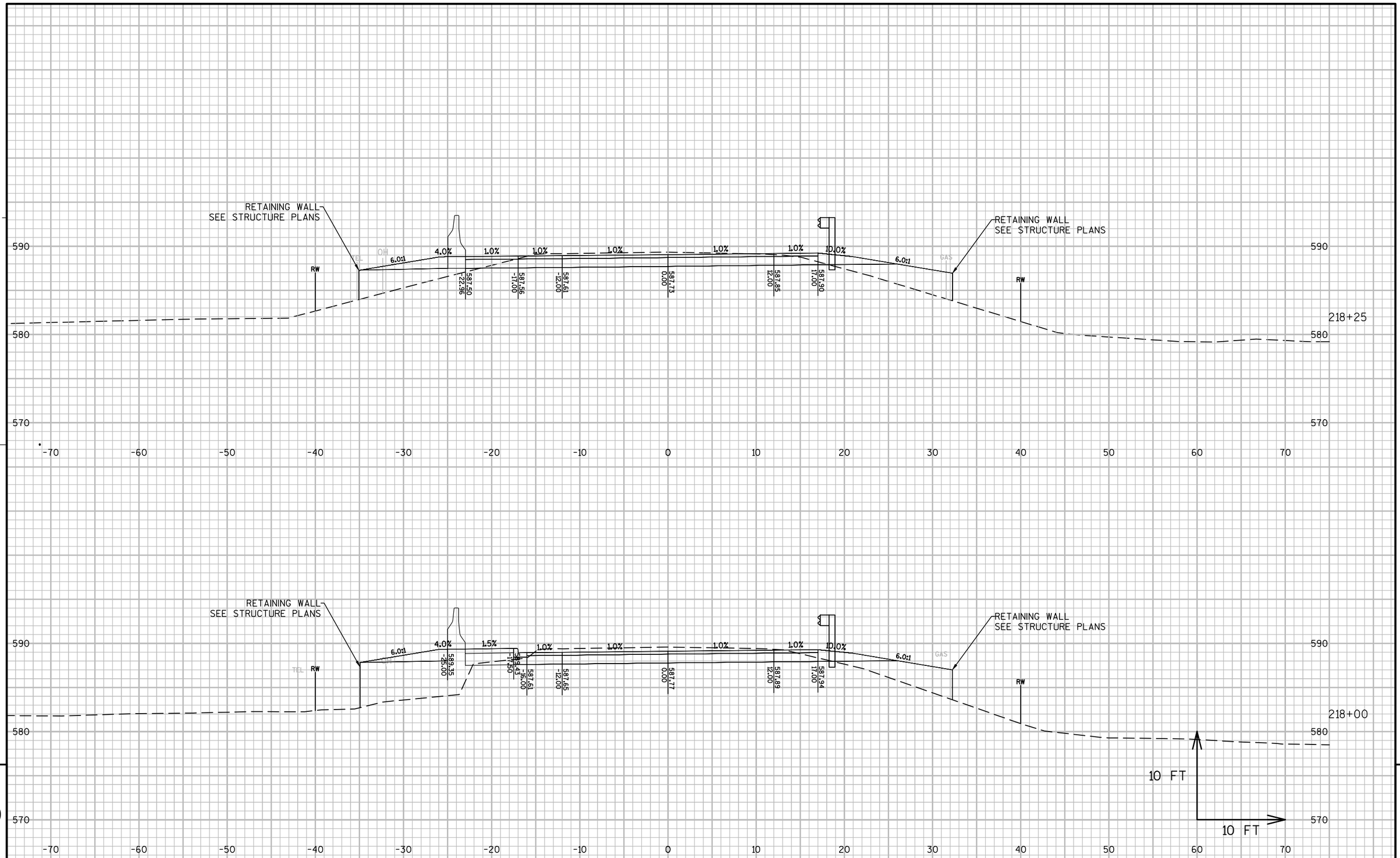


PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 93	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
LAYOUT NAME - XS - (5)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

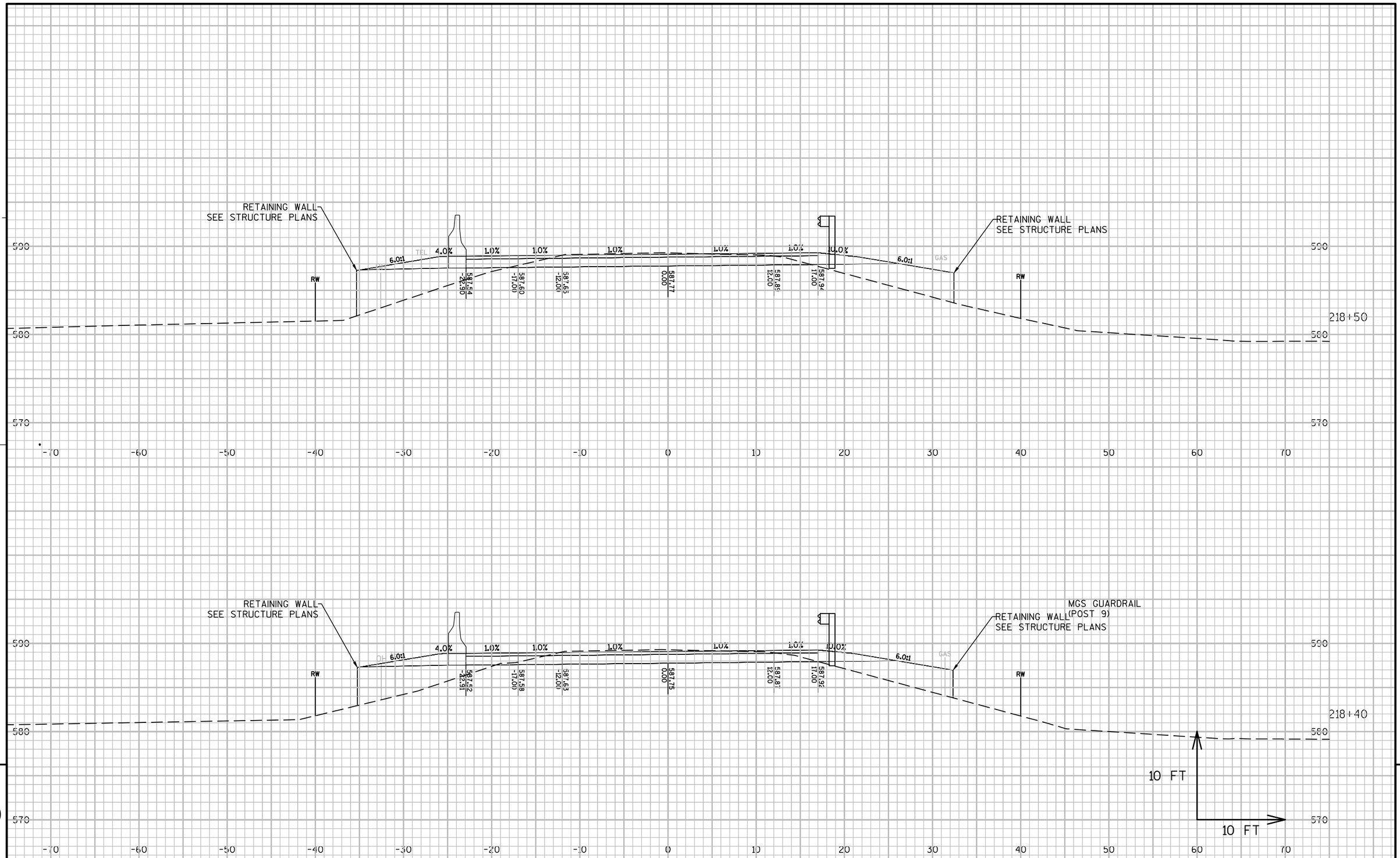


PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 94	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
LAYOUT NAME - XS - (6)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

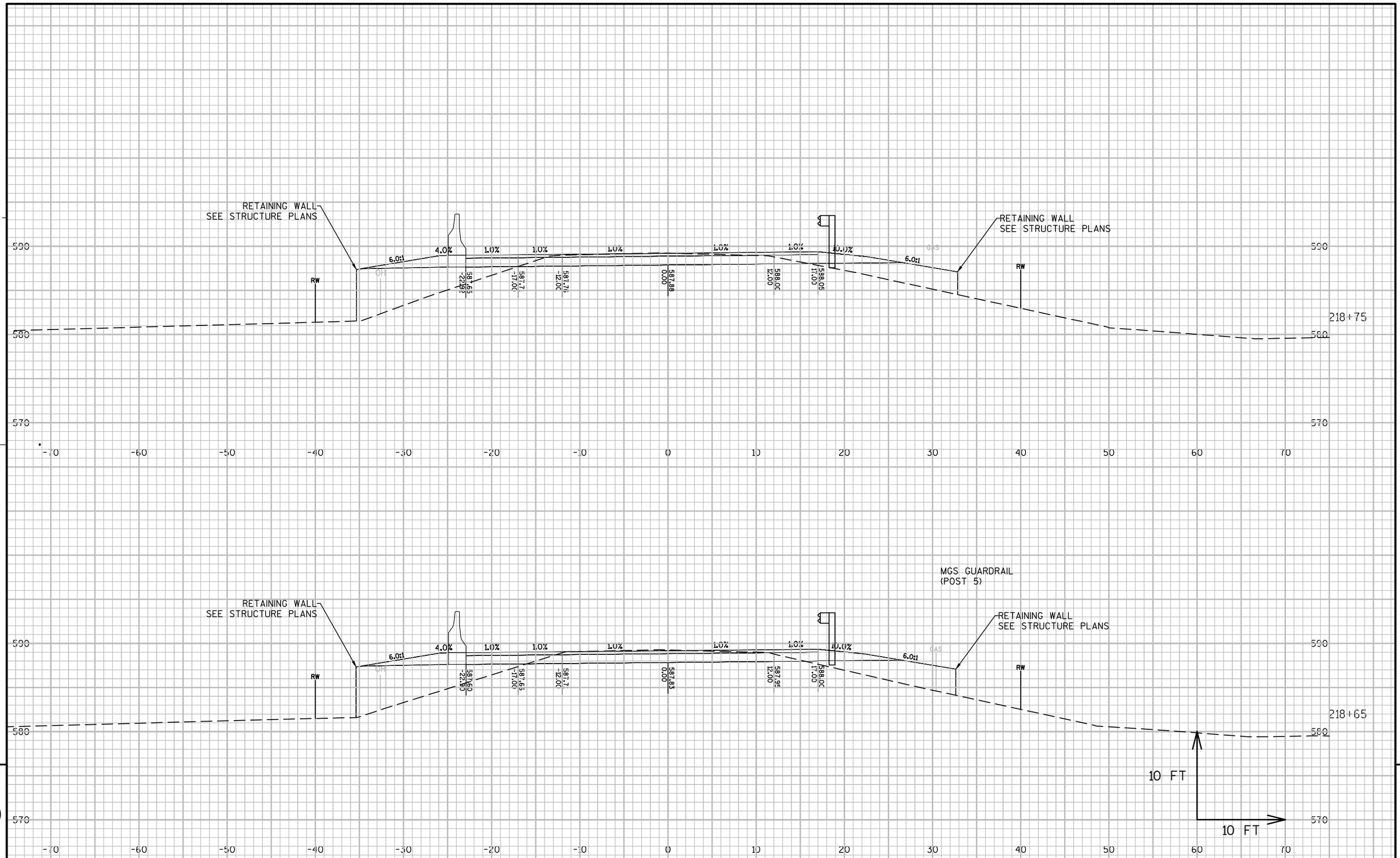
WISDOT/CADDS SHEET 49



PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 95	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
LAYOUT NAME - XS - (7)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT



PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 96	E

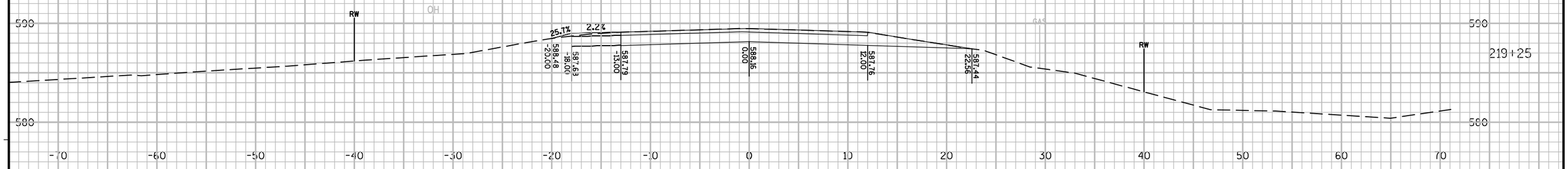
FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
LAYOUT NAME - XS - (8)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

STA 219+35 LT
CONSTRUCT P.E.

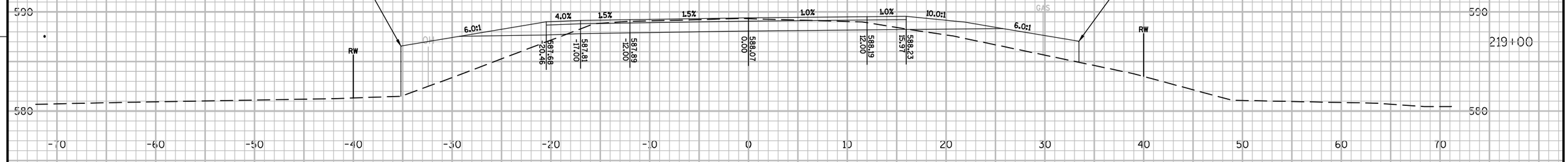
STA 219+25
END PROJECT



219+25

RETAINING WALL
SEE STRUCTURE PLANS

RETAINING WALL
SEE STRUCTURE PLANS

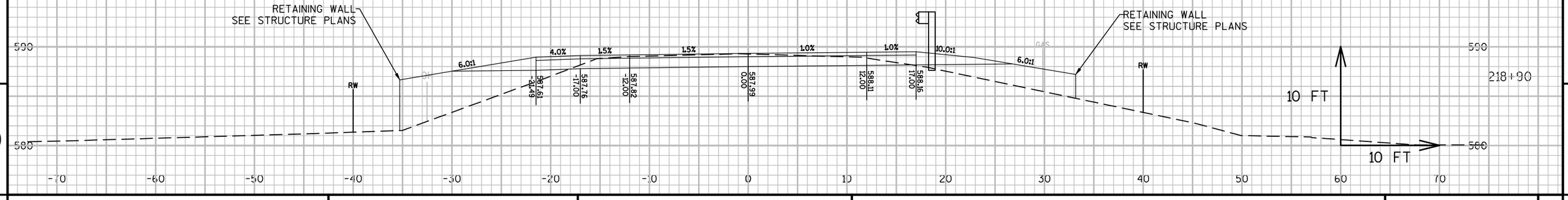


219+00

BEGIN MGS GUARDRAIL EAT
(POST 1)

RETAINING WALL
SEE STRUCTURE PLANS

RETAINING WALL
SEE STRUCTURE PLANS



218+90

9

9

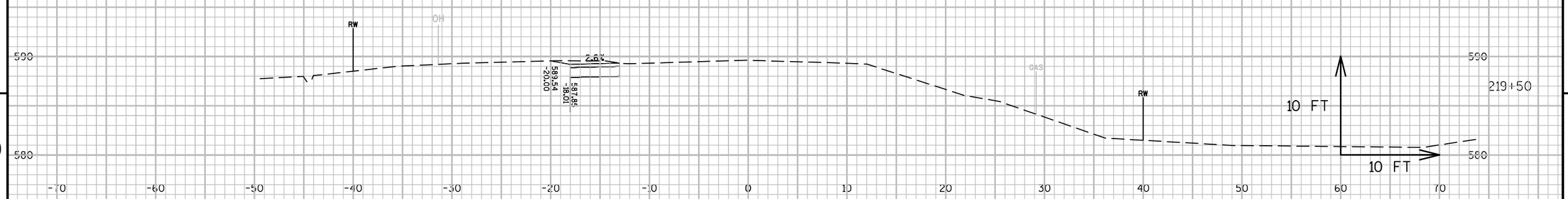
PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 97	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
LAYOUT NAME - XS - (9)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

STA 219+50, LT
END CONSTRUCTION



PROJECT NO: 9327-02-71	HWY: CTH BB	COUNTY: MARINETTE	CROSS SECTIONS: CTH BB	SHEET 98	E

FILE NAME : X:\4183800\131108\TECH\CAD\93270200\DESIGN\CORRIDORS\93270271_XS.DWG
LAYOUT NAME - XS - (10)

PLOT DATE : 12/10/2015 4:24 PM PLOT BY : DOUGLAS HOBYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

Notes

Wisconsin Department of Transportation

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