SWL

PROJECT ID: WITH: N/A **5587-00-72**

COUNTY: **GRANT**

NOVEMBER 2017

ORDER OF SHEETS

TOTAL SHEETS = 72

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

USH 61 - LIVINGSTON

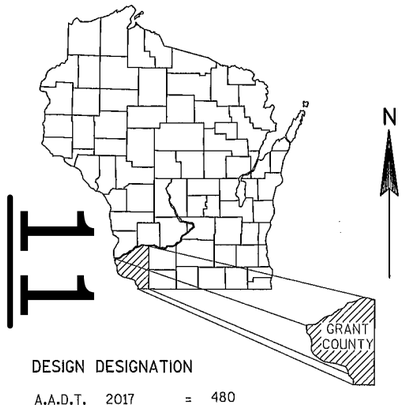
(LEGGETT CREEK BRIDGE B-22-0286)

CTH E

GRANT COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5587-00-72	WISC 2017507	1

STATE PROJECT NUMBER
5587-00-72



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DESIGN DESIGNATION

A.A.D.T.	2017	=	480
A.A.D.T.	2037	=	580
D.H.V.	2033	=	---
D.D.		=	---
T.	2033	=	5%
DESIGN SPEED		=	30 mph
ESALS		=	131,400

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

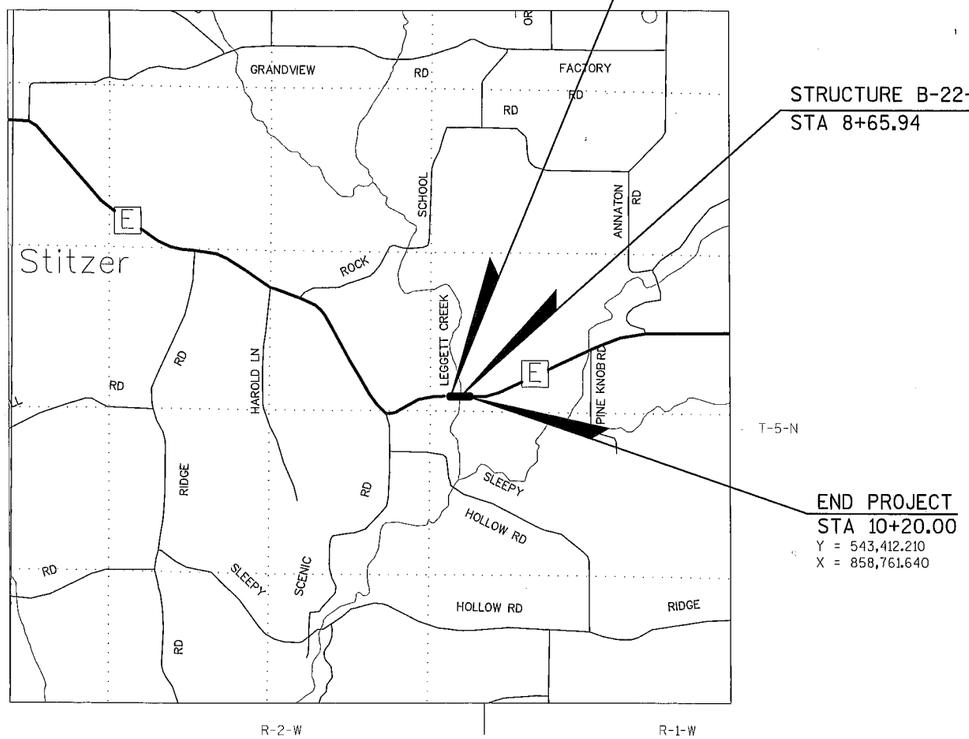
PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

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

BEGIN PROJECT 5587-00-72
STA 7+00.00
Y = 543,441.877
X = 858,443.022

STRUCTURE B-22-0286
STA 8+65.94

END PROJECT
STA 10+20.00
Y = 543,412.210
X = 858,761.640



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.060 MI.

-"COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), 'GRANT' COUNTY."

ACCEPTED FOR

COUNTY of GRANT

4/05/17 (Date)

David L. Bartlett (COUNTY HIGHWAY COMMISSIONER)

ORIGINAL PLANS PREPARED BY

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

WISCONSIN
KEITH E. KOSBAU
E-28476
MILW AUKEE, WI
PROFESSIONAL ENGINEER

Keith Kosbau
4-4-2017

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	Mead & Hunt, Inc.
Designer	Mead & Hunt, Inc.
Management Consultant	KL ENGINEERING

APPROVED FOR THE DEPARTMENT

DATE: 4/28/17 (Management Consultant Signature)

E

2

GENERAL NOTES

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

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

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

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

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

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

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

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVAL. SILT FENCE IN WETLAND AREAS SHALL BE PLACED AT THE SLOPE INTERCEPT TO PREVENT DISTURBANCE OF WETLANDS.

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

DO NOT OPERATE MACHINERY OUTSIDE OF THE SLOPE INTERCEPTS. OTHER WETLANDS MAY EXIST IN LOCATIONS THAT ARE NOT SHOWN IN THE PLANS. DO NOT STAGE IN OR DISTURB WETLAND AREAS.

CONSULTANT CONTACT

MEAD & HUNT, INC
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2440 DEMMING WAY
MIDDLETON, WI 53562
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TELEPHONE: 608.273.6380
EMAIL: keith.kosbau@meadhunt.com

DNR LIAISON

WISCONSIN DNR
MR ANDY BARTA
3911 FISH HATCHERY RD
FITCHBURG, WI 53711
ATTN: MR ANDY BARTA
TELEPHONE: 608.275.3481
EMAIL: andy.barta@wisconsin.gov

GRANT COUNTY

GRANT COUNTY HWY COMMISSIONER
MR DAVE LAMBERT, PE
1011 N ADAMS ST
LANCASTER, WI 53813
ATTN: MR DAVE LAMBERT
TELEPHONE: 608.723.2595
EMAIL: dlambert@tds.net

UTILITY CONTACTS

CENTURY LINK (COMMUNICATIONS)
MR TRAVIS KREMSREITER
135 N BONSON ST
PLATTEVILLE, WI 53818
ATTN: MR TRAVIS KREMSREITER
TELEPHONE: 608.342.4369 (w) 608.732.8948 (m)
EMAIL: travis.kremsreiter@centurylink.com

STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	PI	POINT OF INTERSECTION
ASPH	ASPHALTIC	PL	PROPERTY LINE
BM	BENCH MARK	REQ'D	REQUIRED
℄	CENTERLINE	RHF	RIGHT-HAND FORWARD
CWT	HUNDREDWEIGHT	RT	RIGHT
CY	CUBIC YARD	R/W	RIGHT-OF-WAY
DHV	DESIGN HOURLY VOLUME	SF	SQUARE FOOT
DWY	DRIVEWAY	SHLDR	SHOULDER
EL	ELEVATION	STA	STATION
EXC	EXCAVATION	SY	SQUARE YARD
FT	FOOT	T	TRUCKS (PERCENT OF)
FTG	FOOTING	TLE	TEMPORARY LIMITED EASEMENT
LB	POUND	TYP	TYPICAL
LF	LINEAR FOOT	VAR	VARIABLE
LHF	LEFT-HAND FORWARD	VC	VERTICAL CURVE
LS	LUMP SUM	VPC	VERTICAL POINT OF CURVE
LT	LEFT	VPI	VERTICAL POINT OF INTERSECTION
NO	NUMBER	VPT	VERTICAL POINT OF TANGENCY

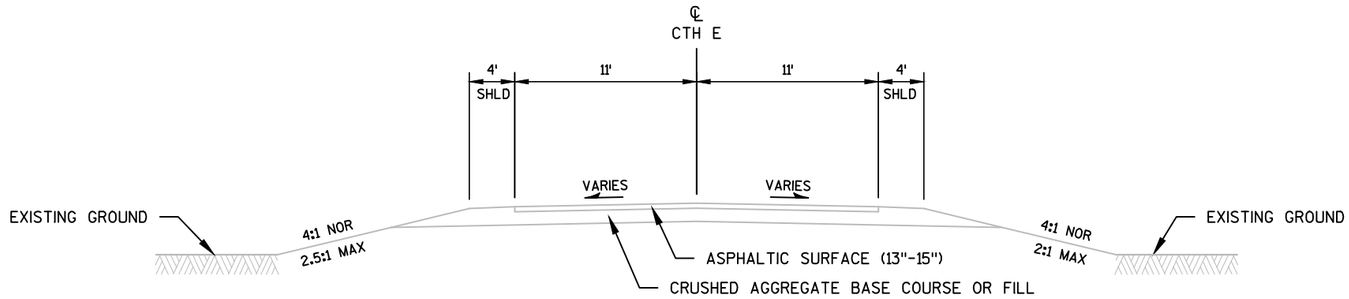
DIGGERS HOTLINE

Dial 811 or (800) 242-8511

www.DiggersHotline.com

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

2

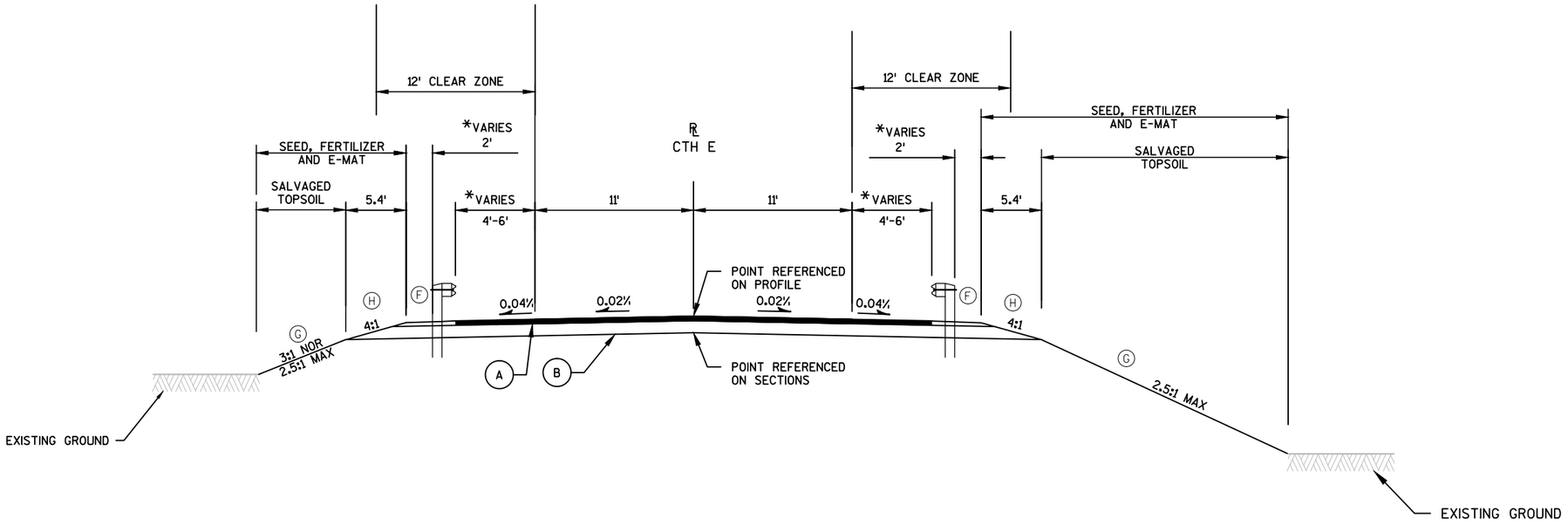


EXISTING TYPICAL SECTION

STA 6+46 TO STA 13+05

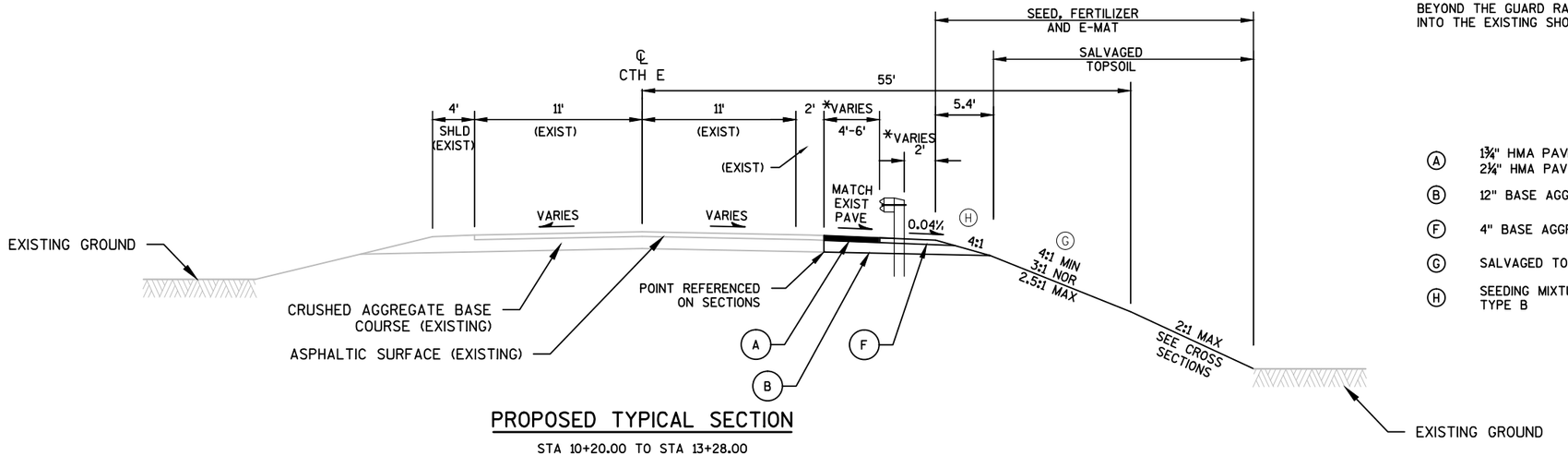
PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	TYPICAL SECTIONS	SHEET 3

2



PROPOSED TYPICAL SECTION

STA 7+00 TO STA 10+20.00



PROPOSED TYPICAL SECTION

STA 10+20.00 TO STA 13+28.00

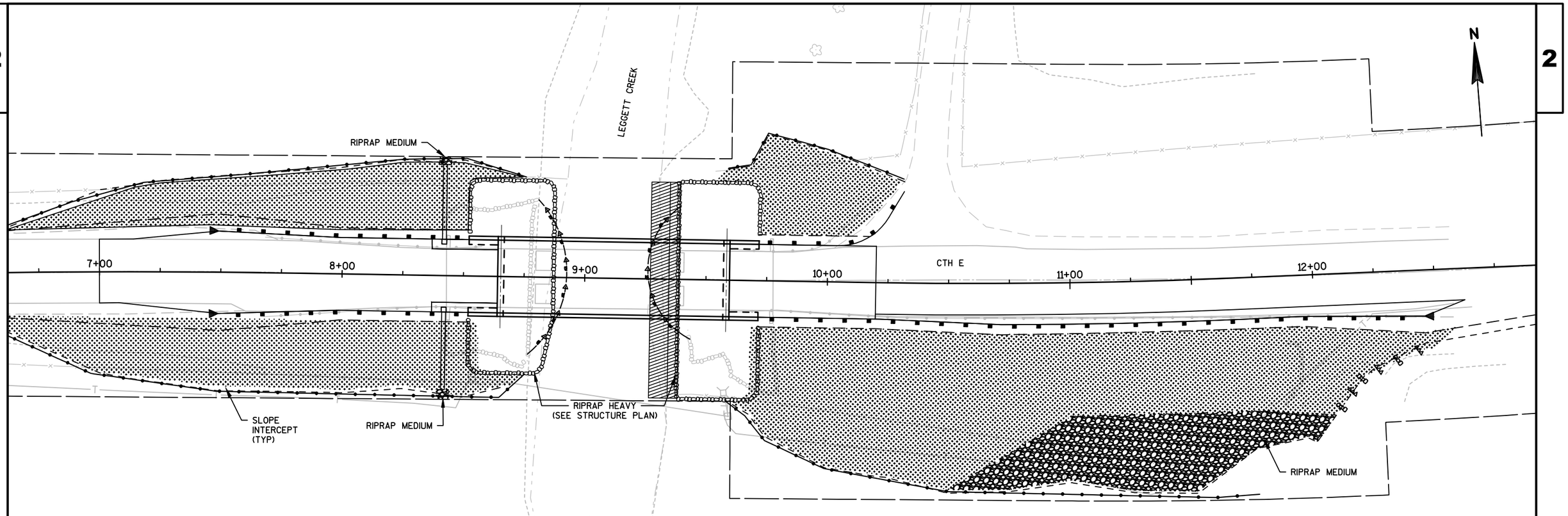
NOTE:
*PAVE THE SHOULDER FULL WIDTH TO THE FACE OF THE BEAM GUARD WHERE BEAM GUARD IS PROPOSED

BEYOND THE GUARD RAIL LIMITS TAPER THE SHOULDER WIDTH TO MATCH INTO THE EXISTING SHOULDER

KEY

- (A) 1¾" HMA PAVEMENT 4 LT 58-28 S (UPPER) 2¼" HMA PAVEMENT 3 LT 58-28 S (LOWER)
- (B) 12" BASE AGGREGATE DENSE 1¼-INCH
- (F) 4" BASE AGGREGATE DENSE ¾-INCH
- (G) SALVAGED TOPSOIL, EROSION MAT URBAN CLASS 1 TYPE A
- (H) SEEDING MIXTURE NO 30, SEEDING TEMPORARY AND FERTILIZER TYPE B

PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	TYPICAL SECTIONS	SHEET 4	E



LEGEND

- EROSION MAT URBAN CLASS I TYPE A
- SILT FENCE
- ROCK BAGS
- RIP RAP OR STONE DITCH CHECK
- SLOPE INTERCEPT
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW

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 = __0.54___ ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = __0.51__ACRES

PROJECT NO:5587-00-72	HWY: CTH E	COUNTY: GRANT	EROSION CONTROL	SHEET 5

FILE NAME : X:\3016900\155830.01\TECH\CAD\55870002\SHEETSPLAN\022001_EC.DWG
LAYOUT NAME - 022001_EC
PLOT DATE : 4/11/2017 10:42 AM PLOT BY : TIMOTHY VELTE PLOT NAME : PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

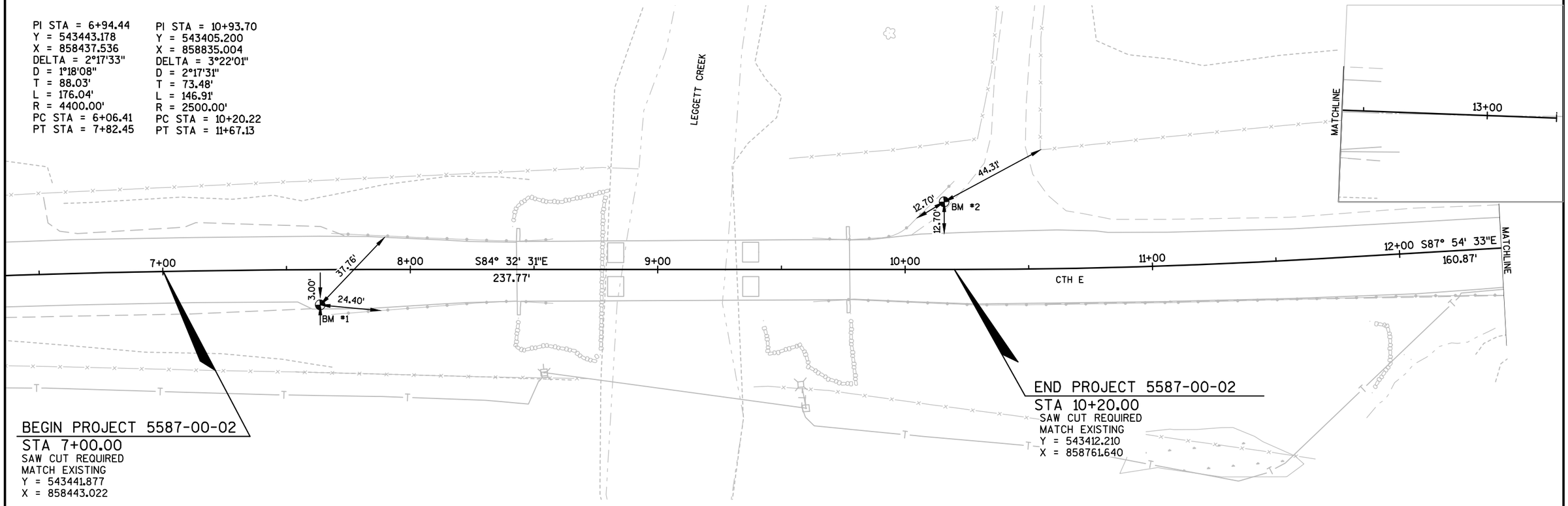
2

BENCH MARKS AND CONTROL POINTS

NO.	STATION	OFFSET	Y	X	DESCRIPTION	ELEV.
1	7+63.6	14.3' RT	543422.306	858505.079	PK NAIL	855.34'
2	10+15.8	27.3' LT	543439.794	858760.072	REBAR	862.76'

PI STA = 6+94.44
Y = 543443.178
X = 858437.536
DELTA = 2°17'33"
D = 1°18'08"
T = 88.03'
L = 176.04'
R = 4400.00'
PC STA = 6+06.41
PT STA = 7+82.45

PI STA = 10+93.70
Y = 543405.200
X = 858835.004
DELTA = 3°22'01"
D = 2°17'31"
T = 73.48'
L = 146.91'
R = 2500.00'
PC STA = 10+20.22
PT STA = 11+67.13



PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	ALIGNMENT DETAIL AND CONTROL TIES	SHEET 6	E

5587-00-72

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 9+12	LS	1.000	1.000
0008	205.0100	Excavation Common **P**	CY	247.000	247.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-22-286	LS	1.000	1.000
0012	208.0100	Borrow	CY	4,407.000	4,407.000
0014	210.1500	Backfill Structure Type A	TON	470.000	470.000
0016	213.0100	Finishing Roadway (project) 01. 5587-00-72	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	125.000	125.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	895.000	895.000
0022	416.1010	Concrete Surface Drains	CY	4.600	4.600
0024	455.0605	Tack Coat	GAL	61.000	61.000
0026	460.2000	Incentive Density HMA Pavement	DOL	130.000	130.000
0028	460.5223	HMA Pavement 3 LT 58-28 S	TON	111.000	111.000
0030	460.5224	HMA Pavement 4 LT 58-28 S	TON	86.000	86.000
0032	502.0100	Concrete Masonry Bridges	CY	217.000	217.000
0034	502.3200	Protective Surface Treatment	SY	320.000	320.000
0036	502.3210	Pigmented Surface Sealer	SY	100.000	100.000
0038	503.0146	Prestressed Girder Type I 45W-Inch	LF	376.000	376.000
0040	505.0400	Bar Steel Reinforcement HS Structures	LB	3,360.000	3,360.000
0042	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	27,710.000	27,710.000
0044	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0046	506.4000	Steel Diaphragms (structure) 01. B-22-286	EACH	6.000	6.000
0048	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0050	520.1012	Apron Endwalls for Culvert Pipe 12-Inch	EACH	2.000	2.000
0052	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	420.000	420.000
0054	606.0200	Riprap Medium	CY	130.000	130.000
0056	606.0300	Riprap Heavy	CY	415.000	415.000
0058	606.0700	Grouted Riprap Heavy	CY	100.000	100.000
0060	611.0654	Inlet Covers Type V	EACH	2.000	2.000
0062	611.3220	Inlets 2x2-FT	EACH	2.000	2.000
0064	612.0212	Pipe Underdrain Unperforated 12-Inch	LF	45.000	45.000
0066	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	158.000	158.000
0068	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0070	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000
0072	614.0305	Steel Plate Beam Guard Class A	LF	13.000	13.000
0074	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0076	614.0920	Salvaged Rail	LF	575.000	575.000

5587-00-72

Line	Item	Item Description	Unit	Total	Qty
0078	614.2300	MGS Guardrail 3	LF	207.000	207.000
0080	614.2500	MGS Thrie Beam Transition	LF	117.000	117.000
0082	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0084	619.1000	Mobilization	EACH	1.000	1.000
0086	624.0100	Water	MGAL	18.800	18.800
0088	625.0500	Salvaged Topsoil **P**	SY	2,625.000	2,625.000
0090	627.0200	Mulching	SY	27,750.000	27,750.000
0092	628.1504	Silt Fence	LF	666.000	666.000
0094	628.1520	Silt Fence Maintenance	LF	666.000	666.000
0096	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0098	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0100	628.2006	Erosion Mat Urban Class I Type A	SY	2,551.000	2,551.000
0102	628.6005	Turbidity Barriers	SY	105.000	105.000
0104	628.7504	Temporary Ditch Checks	LF	150.000	150.000
0106	628.7570	Rock Bags	EACH	30.000	30.000
0108	629.0210	Fertilizer Type B	CWT	20.120	20.120
0110	630.0130	Seeding Mixture No. 30 **P**	LB	48.000	48.000
0112	630.0200	Seeding Temporary **P**	LB	36.000	36.000
0114	630.0300	Seeding Borrow Pit	LB	375.000	375.000
0116	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0118	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0120	638.2602	Removing Signs Type II	EACH	4.000	4.000
0122	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0124	642.5001	Field Office Type B	EACH	1.000	1.000
0126	643.0100	Traffic Control (project) 01. 5587-00-72	EACH	1.000	1.000
0128	645.0111	Geotextile Type DF Schedule A	SY	100.000	100.000
0130	645.0120	Geotextile Type HR	SY	890.000	890.000
0132	645.0130	Geotextile Type R	SY	473.000	473.000
0134	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,535.000	1,535.000
0136	650.4000	Construction Staking Storm Sewer	EACH	2.000	2.000
0138	650.4500	Construction Staking Subgrade	LF	520.000	520.000
0140	650.5000	Construction Staking Base	LF	520.000	520.000
0142	650.6500	Construction Staking Structure Layout (structure) 01. B-22-286	LS	1.000	1.000
0144	650.9910	Construction Staking Supplemental Control (project) 01. 5587-00-72	LS	1.000	1.000
0146	650.9920	Construction Staking Slope Stakes	LF	520.000	520.000
0148	690.0150	Sawing Asphalt	LF	295.000	295.000
0150	715.0502	Incentive Strength Concrete Structures	DOL	1,284.000	1,284.000
0152	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000

					5587-00-72	
0154	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	600.000	600.000	

CLEARING & GRUBBING

PROJECT ID	CATEGORY	STATION - STATION	LOCATION	201.0105 CLEARING (STA)	201.0205 GRUBBING (STA)
5587-00-72	0010	8+00 - 9+00	RT	1	1
		11+50 - 12+50	RT	1	1
			TOTAL	2	2

BASE AGGREGATE

PROJECT ID	CATEGORY	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)
5587-00-72	0010	7+00	7+50	LT & RT	20	175	3.9
		7+50	8+52	LT & RT	35		
		7+50	8+64	LT & RT		385	8.5
		9+60	10+20	LT & RT		180	2.3
		9+72	10+20	LT & RT	20		
		10+20	12+50	LT & RT	40	155	3.9
		10+45		PE LT	10		0.2
				TOTAL	125	895	18.8

CONRETE SURFACE DRAIN

PROJECT ID	CATEGORY	STATION - STATION		LOCATION	416.1010 CONCRETE SURFACE DRAINS (CY)
5587-00-72	0010	8+52 -	8+64	LT	
		8+52 -	8+64	RT	
		8+37	8+64	LT	2.3
		8+37 -	8+64	RT	2.3
				TOTAL	4.6

ASPHALTIC SURFACE

PROJECT ID	CATEGORY	STATION - STATION		LOCATION	455.0605 TACK COAT (GAL)	460.5223 HMA PAVEMENT 3 LT 58-28 S (TON)	460.5224 HMA PAVEMENT 4 LT 58-28 S (TON)
5587-00-72	0010	7+00 -	7+50	MAINLINE	12	21	16
		7+50 -	8+64	MAINLINE	28	50	40
		9+60 -	10+20	MAINLINE	14	25	20
		10+20 -	12+50	MAINLINE	7	15	10
				TOTAL	61	111	86

EARTHWORK SUMMARY

CATEGORY	STATION - STATION		LOCATION	205.0100 EXCAVATION COMMON (1) CUT FROM EW DATA (CY)	(2) EBS (CY)	(2A) SALVAGED/ UNUSABLE PAVEMENT MATERIAL (CY)	(3) REDUCED EBS IN FILL FACTOR = 0.8 (CY)	(3A) REDUCED EBS IN FILLS (30%) (CY)	(4) EXPANDED FILL FROM EW DATA (CY)	(5) EXPANDED FILL (CY)	(6) MASS ORDINATE (CY)	208.0100 BORROW (7) BORROW (CY)	WASTE (CY)
0010	6+46 -	8+52	LT/RT	187					892	892	-705		
	9+72 -	13+28	LT/RT	60					3,762	3,762	-3,702		
	TOTAL			247					4,654	4,654	-4,407	4,407	

(1) COMMON FROM COMPUTER EARTHWORK DATA, INCLUDES PAVEMENT REMOVAL(CONTAINS SALVAGED/UNUSABLE PAVEMENT MATERIAL)
(2) UNDISTRIBUTED EBS
EBS IS ESTIMATED AS AN UNDISTRIBUTED QUANTITY
EBS QUANTITIES ARE PARTIALLY USED IN EARTHWORK BALANCE
(2A) SALVAGED/UNUSABLE PAVEMENT MATERIAL
(3) REDUCED EBS IN FILL - EXCAVATED EBS MATERIAL IS USABLE IN FILLS OUTSIDE THE 1:1 SLOPE. EBS IN FILL REDUCTION FACTOR = 0.8
(3A) IT IS ESTIMATED THAT 30% OF THE EBS MATERIAL CAN BE USED IN FILLS. THE BALANCE IS CONSIDERED WASTE
(4) EXPANDED FILL FROM COMPUTER EARTHWORK DATA
(5) EXPANDED FILL. FACTOR = 1.3
EXPANDED FILL = EW DATA FILL - REDUCED EBS IN FILL
(6) MASS ORDINATE IS + OR - QUANTITY FOR STAGE . PLUS IS EXCESS, MINUS IS SHORTAGE
(7) BORROW TO BE OBTAINED FROM LOCATION OF CONTRACTOR'S CHOICE

SALVAGED

PROJECT ID	CATEGORY	STAGE	STATION - STATION		LOCATION	614.0920 SALVAGED RAIL (LF)
5587-00-72	0010		7+50 -	8+65	LT	115
			7+50 -	8+65	RT	115
			9+61 -	10+20	LT	65
			9+61 -	12+41	RT	280
					TOTAL	575

SAWING ASPHALT

PROJECT ID	CATEGORY	STATION - STATION		LOCATION	690.0150 SAWING ASPHALT (LF)
5587-00-72	0010	7+00 -		LT & RT	24
		10+20 -	12+67	LT & RT	247
		10+20 -		RT	24
				TOTAL	295

BEAM GUARD

PROJECT ID	CATEGORY	STATION - STATION		LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH (LF)	614.0305 STEEL PLATE BEAM GUARD CLASS A (LF)	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL (EA)	614.2300 MGS GUARDRAIL 3 (LF)	614.2500 MGS THRIE BEAM TRANSITION (LF)	614.2610 MGS GUARDRAIL TERMINAL EAT (EA)
5587-00-72	0010	9+71	9+92	LT	21					
		9+92	10+04.5	LT		13				
		10+04.5	10+31.34	LT			1			
		8+02.5	8+13	LT				13		
		8+02.5	8+13	RT				13		
		10+10	11+92	RT				182		
		8+13	8+52	LT					39	
		8+13	8+52	RT					39	
		9+71	10+10	RT					39	
		7+49	8+02.5	LT						1
		7+49	8+02.5	RT						1
		11+92.58	12+45.58	RT						1
				TOTAL	21	13	1	207	117	3

STORM SEWER

PROJECT ID	CATEGORY	STATION	LOCATION	611.3220 INLETS 2X2-FT (EACH)	611.0654 INLET COVERS TYPE V (EACH)	612.0212 PIPE UNDERDRAIN UNPERFORATED 12-INCH (LF)	520.1012 APRON ENDWALLS FOR CULVERT PIPE 12-INCH (EACH)
5587-00-72	0010	8+42	14' LT	1	1	20	1
		8+42	14' RT	1	1	25	1
			TOTAL	2	2	45	2

SIGNING

PROJECT ID	CATEGORY	STATION	LOCATION	SIGN CODE	634.0614 POSTS WOOD 4x6-INCH x 14-FT (EACH)	637.2230 SIGNS TYPE II REFLECTIVE F (SF)	638.2602 REMOVING SIGNS TYPE II (EA)	638.3000 REMOVING SMALL SIGN SUPPORTS (EA)
5587-00-72	0010	8+50	LT	W5-52L	1	3		
		8+50	RT	W5-52R	1	3		
		9+73	LT	W5-52L	1	3		
		9+73	RT	W5-52R	1	3		
		SE QUAD	BRIDGE				1	1
		SW QUAD	BRIDGE				1	1
		NE QUAD	BRIDGE				1	1
		NW QUAD	BRIDGE				1	1
				TOTAL	4	12	4	4

TRAFFIC CONTROL

PROJECT ID	CATEGORY	LOCATION	643.0100 TRAFFIC CONTROL (PROJECT) (EA)
5587-00-72	0010	PROJECT	1
		TOTAL	1

CONSTRUCTION STAKING

PROJECT ID	CATEGORY	STATION - STATION	LOCATION	650.4000 CONSTRUCTION STAKING STORM SEWER (EA)	650.4500 CONSTRUCTION STAKING SUBGRADE (LF)	650.5000 CONSTRUCTION STAKING BASE (LF)	650.9920 CONSTRUCTION STAKING SLOPE STAKES (LF)
5587-00-72	0010	8+00 - 9+00	RT	1	218	218	218
		11+50 - 12+50	RT	1	302	302	302
			TOTAL	2	520	520	520

PAVEMENT MARKING

PROJECT ID	CATEGORY	STATION - STATION		LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH (LF)
5587-00-72	0010	7+00	10+20	CL	640
		7+00	12+75	RT	575
		7+00	10+20	LT	320
				TOTAL	1535

EROSION CONTROL

PROJECT ID	CATEGORY	STATION - STATION		LOCATION	628.6005 TURBIDITY BARRIERS (SY)	628.7504 TEMPORARY DITCH CHECKS (LF)	628.7570 ROCK BAGS (EACH)	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.2006 EROSION MAT URBAN CLASS I TYPE A (SY)	606.0200 RIPRAP MEDIUM (SY)	645.0130 GEOTEXTILE FABRIC TYPE R (SY)	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)	627.0200 MULCHING (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0130 SEEDING MIXTURE NO. 30 (LB)	630.0200 SEEDING TEMPORARY (LB)	625.0500 SALVAGED TOPSOIL (SY)	630.0300 SEEDING BORROW PIT (LB)
5587-00-72	0010	8+92		LT & RT	55			1	1	1	1	1	1	1		1	1	1		
		9+25		LT & RT	50															
		UNDISTRUBUTED				150														
		11+75		RT			10													
		12+00		RT			10													
		12+25		RT			10													
		7+50	- 8+75	LT				125	125											
		7+50	- 8+75	RT				125	125											
		9+60	- 11+75	RT				225	225											
		9+65	- 10+55	LT				90	90											
		UNDISTRUBUTED						100	100											
		6+46	- 8+52	RT						530						0.33	10.0	7.5	530	
		6+50	- 8+52	LT						370						0.23	7.0	5.0	370	
		9+72	- 10+20	LT						150						0.10	2.5	2.0	150	
		9+72	- 12+08	RT						1,250						0.79	22.5	16.9		
		UNDISTRUBUTED								250						0.17	4.5	3.5	250	
		8+42									3	11								
		8+42									3	11								
		10+50	- 12+08								124	450								
		BORROW SITE PROJECT													27,750	17.50				375
		9+72	10+75	RT									4	4					695	
		10+75	12+46	RT															630	
				TOTAL	105	150	30	666	666	2,551	130	473	5	5	27,750	20.12	48	36	2,625	375

PI STA = 6+94.44
Y = 543443.178
X = 858437.536
DELTA = 2°17'33"
D = 1°18'08"
T = 88.03'
L = 176.04'
R = 4400.00'
PC STA = 6+06.41
PT STA = 7+82.45

PI STA = 10+93.70
Y = 543405.200
X = 858835.004
DELTA = 3°22'01"
D = 2°17'31"
T = 73.48'
L = 146.91'
R = 2500.00'
PC STA = 10+20.22
PT STA = 11+67.13

BENCH MARKS AND CONTROL POINTS

NO.	STATION	OFFSET	Y	X	DESCRIPTION	ELEV.
1	7+63.6	14.3' RT	543422.306	858505.079	PK NAIL	855.34'
2	10+15.8	27.3' LT	543439.794	858760.072	REBAR	862.76'

LARRY KLAAS
SLOPE INTERCEPT
MGS GUARDRAIL 3 REQ'D (TYP)
8+42, 14' LT
INLET 2X2-V REQ'D
MGS THRIEBEAM TRANSITION
REQ'D (TYP)
LEGGETT CREEK
STRUCTURE B-22-0286 REQ'D
SLOPE INTERCEPT
STEEL THRIE BEAM STRUCTURE APPROACH
STEEL PLATE BEAM GUARD CLASS A
SALVAGED RAIL, TYP.
+31.34, 37.71' LT
BM #2
GRAVEL
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
R24'
MGS GUARDRAIL TERMINAL
EAT REQ'D (TYP)
+49.00, 17.00' LT
PT: 7+82.45
+99.00, 15.00' LT
R/W
+04.14, 15.00' LT
PT: 11+67.13
MATCHLINE
EP: 13+28.00
33"E
13+00
+67
XXXXXXXXXX
END CONSTRUCTION
STA 13+28.00
10:1
15:1
+45.58, 19.00' RT
W5-52L
12"X36"
W5-52R
12"X36"
15:1
10:1
+37.00, -11.00' LT
EXISTING ASPHALTIC
SURFACE
7+00
8+00
S84° 32' 31"E
237.77'
9+00
PC: 10+20.22
10+00
11+00
12+00
S87° 54'
160.8
MATCHLINE
CTH E
100'
180'
N
BEGIN CONSTRUCTION
STA 6+46.00
10:1
15:1
SALVAGED RAIL, TYP.
BM #1
+37.00, 11.00' RT
+49.00, 17.00' RT
+99.00, 15.00' RT
8+42, 14' RT
INLET 2X2-V REQ'D
+21.63, 15.00' RT
25:1 TAPER
+71.63, 17.00' RT
+95.58, 17.00' RT
+28
W5-52R
12"X36"
W5-52L
12"X36"
WETLAND BOUNDARY
SLOPE INTERCEPT
CENTURYLINK
CONCRETE SURFACE DRAINS
REQ'D 6-INCH (TYP)
WETLAND BOUNDARY
+61
R/W
SLOPE INTERCEPT
TODD KLAAS
TODD KLAAS

5

BEGIN PROJECT 5587-00-02
STA 7+00.00
SAW CUT REQUIRED
MATCH EXISTING
Y = 543441.877
X = 858443.022

END PROJECT 5587-00-02
STA 10+20.00
SAW CUT REQUIRED
MATCH EXISTING
Y = 543412.210
X = 858761.640

5

VCL = 150.00
K = 40.83
K = 41.97
VCL = 175.00
7.97%
3.80%
0.13%
B-22-286
PROPOSED PROFILE
EXISTING PROFILE
VPC STA 9+67.50
VPC EL 862.57
VPC STA 7+00.00
VPC EL 855.15
VPI STA 7+75.00
VPI EL 855.25
VPT STA 8+50.00
VPT EL 858.10
VPI STA 10+55.00
VPI EL 865.90
VPT STA 11+42.50
VPT EL 872.87
HIGH WATER
Q_{100} 848.94
HIGH WATER
Q_2 843.56
OBSERVED WATER
SURFACE 840.57
(08/27/2015)
EXISTING PROFILE
STREAM BED 838.48

STA 9+10
REMOVE EXISTING STRUCTURE B-22-0037
135'-0" OVERALL LENGTH
24'-0" CLEAR ROADWAY WIDTH
THREE SPAN STEEL GIRDER BRIDGE WITH CONCRETE
ABUTMENTS AND BACKWALLS
STA 9+12.19
STRUCTURE B-22-286 REQ'D
95'-0" OVERALL LENGTH
30'-0" CLEAR ROADWAY WIDTH SINGLE SPAN
54-INCH PRESTRESSED GIRDER BRIDGE

880 870 860 850 840 830

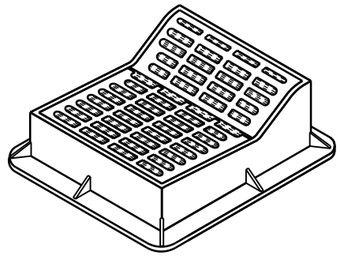
855.03 855.15 855.15 855.53 855.52 856.44 856.50 853.17 858.10 838.63 860.00 850.08 861.90 863.93 863.93 866.58 869.69 873.44 877.41 881.37

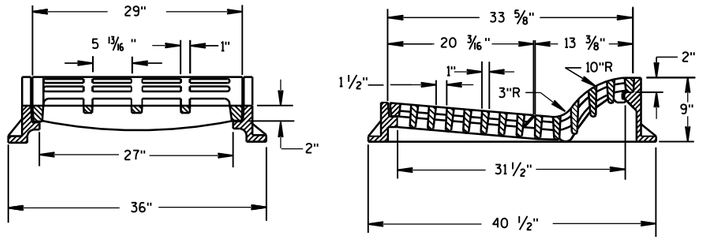
6+50 7+00 8+00 9+00 10+00 11+00 12+00 12+50

PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	PLAN AND PROFILE	SHEET 12

Standard Detail Drawing List

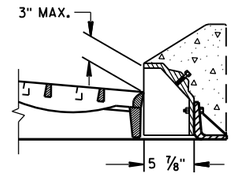
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D03-06	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	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)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-16A	PAVEMENT MARKING (MAINLINE)





TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

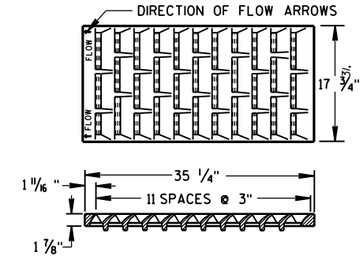
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

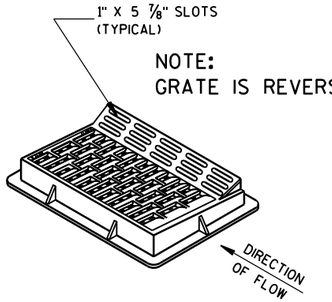
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

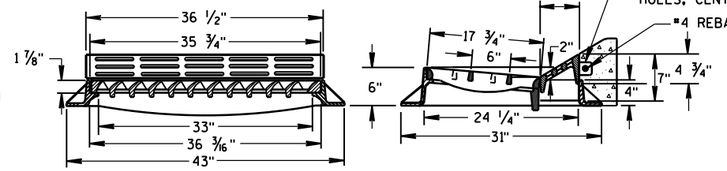
GENERAL NOTES

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 INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



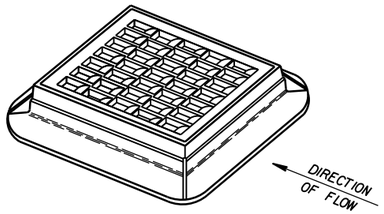


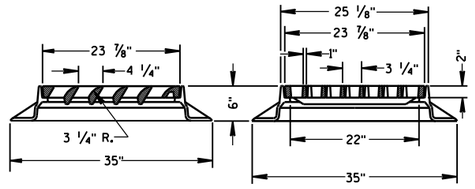


TYPE "HM"

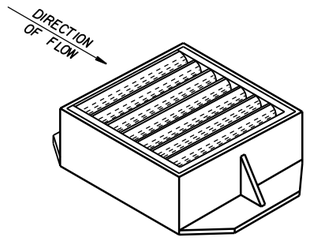
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

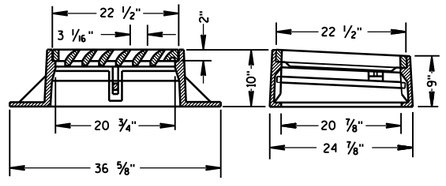
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



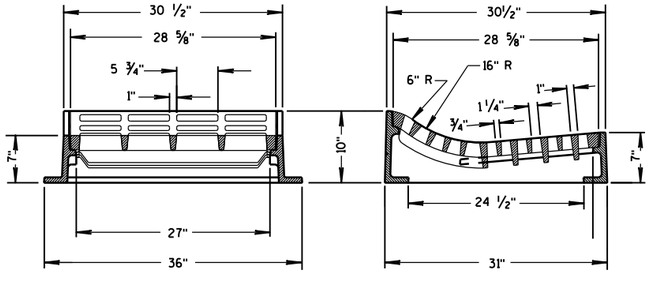


TYPE "S"



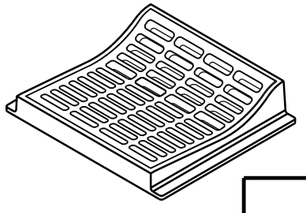


TYPE "V"



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



INLET COVERS
TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

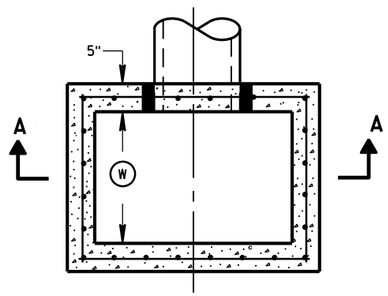
FHWA

6

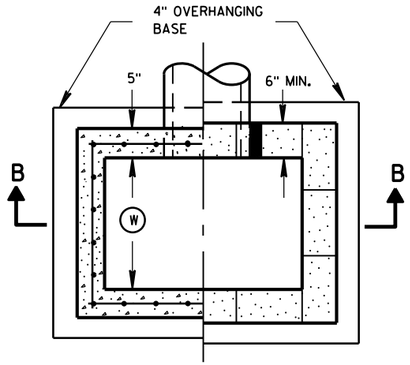
S.D.D. 8 A 5-19c

6

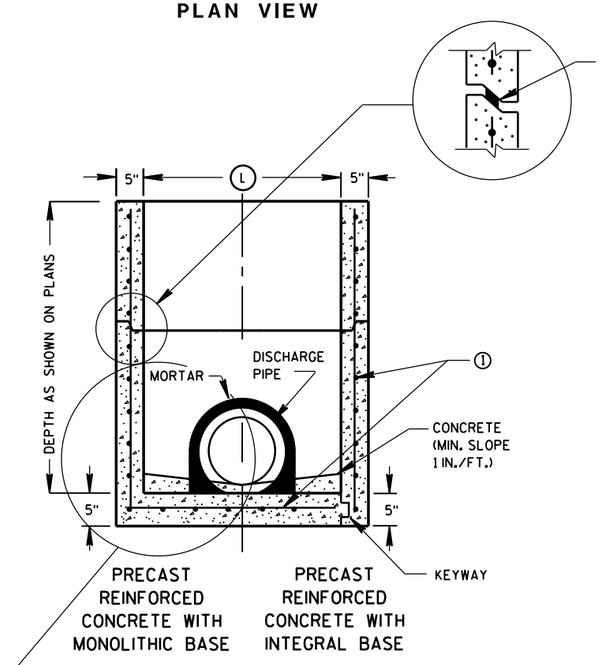
S.D.D. 8 A 5-19c



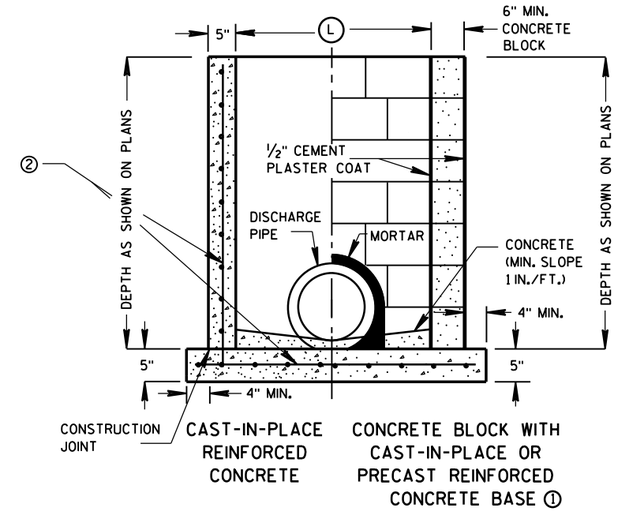
PLAN VIEW



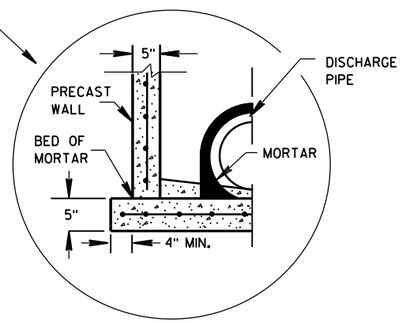
PLAN VIEW



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

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 INLET 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 PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES 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 FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

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

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND 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.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

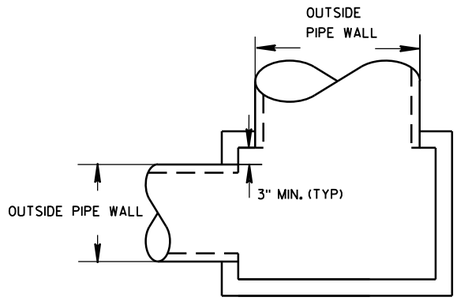
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



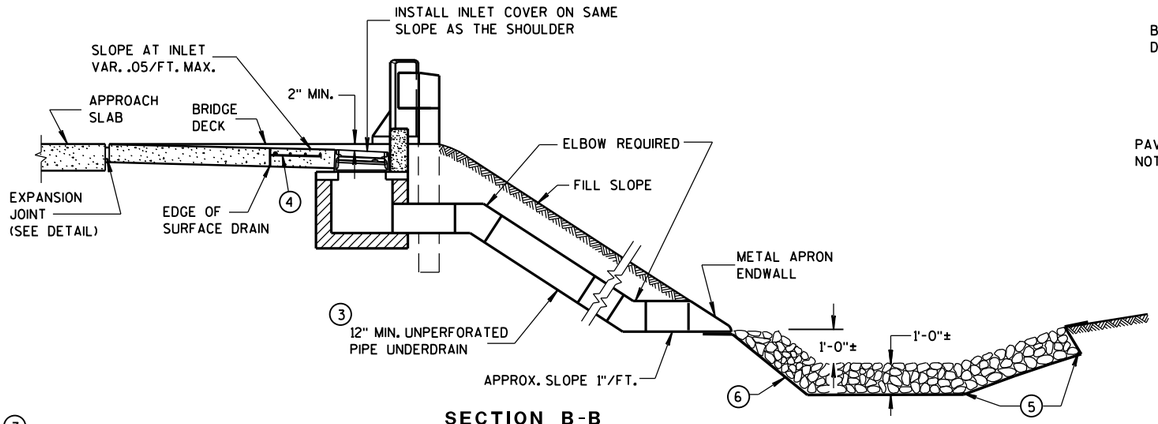
DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

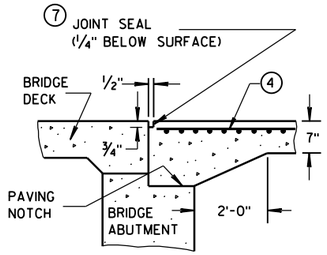
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D IT UNIT SUPERVIS
FHWA

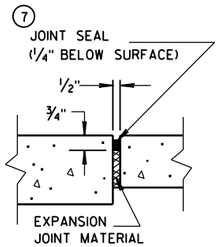
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT



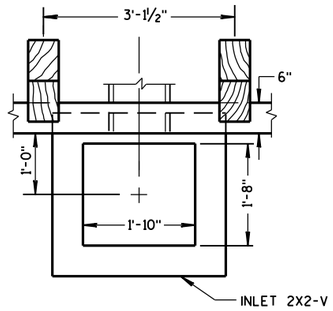
SECTION B-B



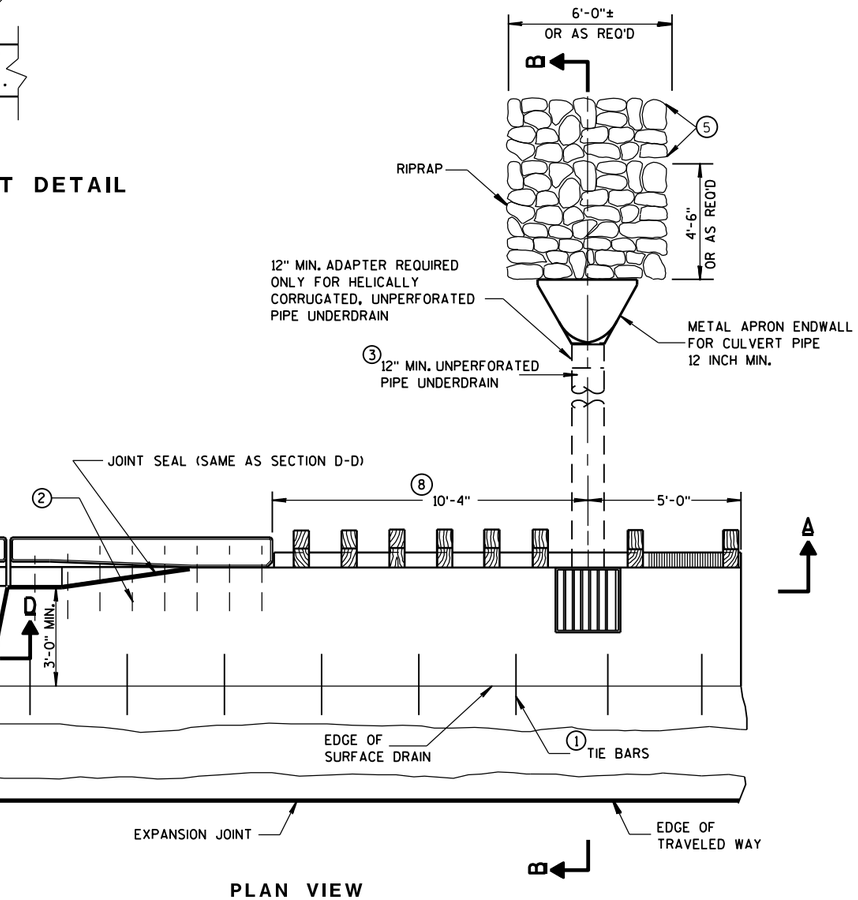
SECTION D-D



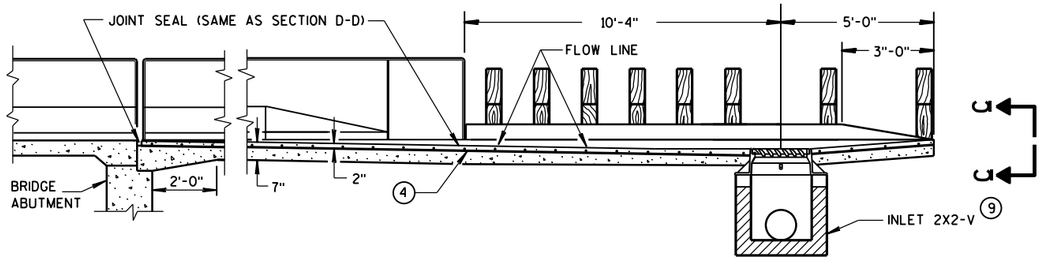
EXPANSION JOINT DETAIL



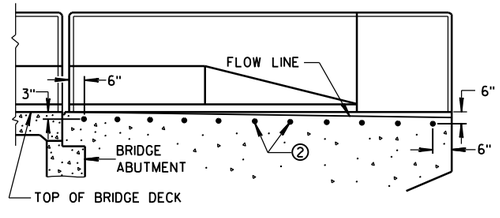
PLAN VIEW



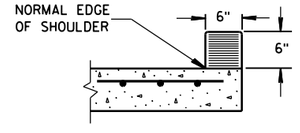
PLAN VIEW



SECTION A-A



LOCATION OF TIE BARS IN WINGWALL



SECTION C-C

GENERAL NOTES

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

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

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) THE PIPE UNDERDRAIN MAY BE ANY ONE OF THE SIX MATERIALS LISTED IN THE STANDARD SPECIFICATIONS SECTION 612.2 EXCEPT DRAIN TILE.

(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

(6) GEOTEXTILE FABRIC, TYPE 'R'

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".

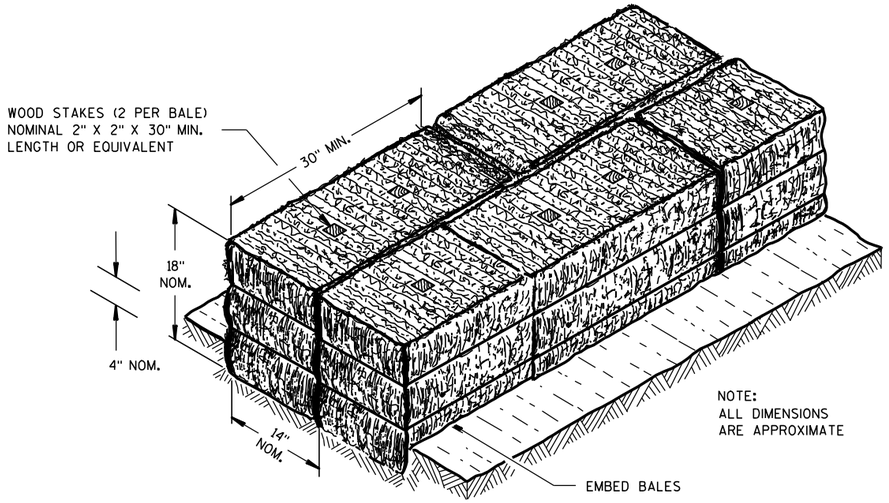
(9) SEE CURRENT STANDARD DETAIL DRAWINGS 8A5 AND 8C7 FOR DETAILS.

CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

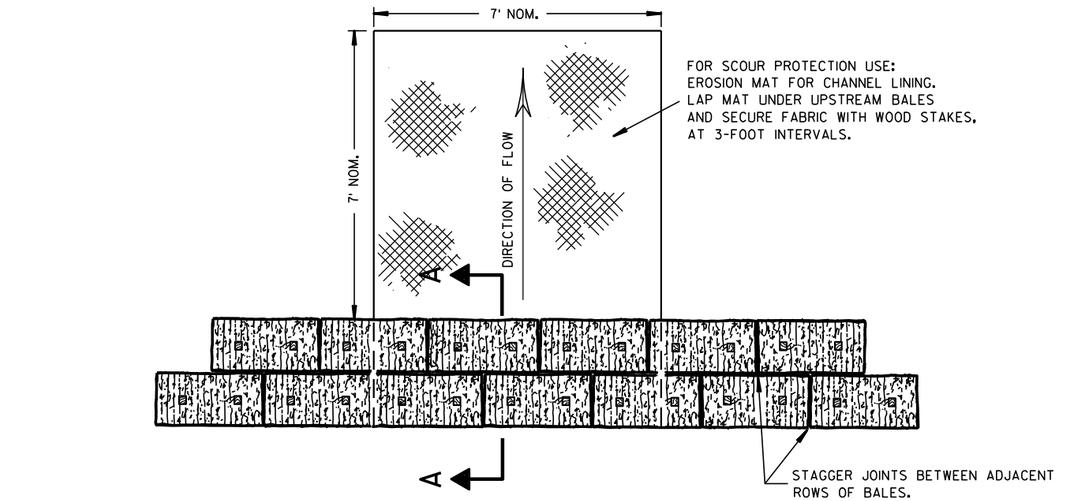
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

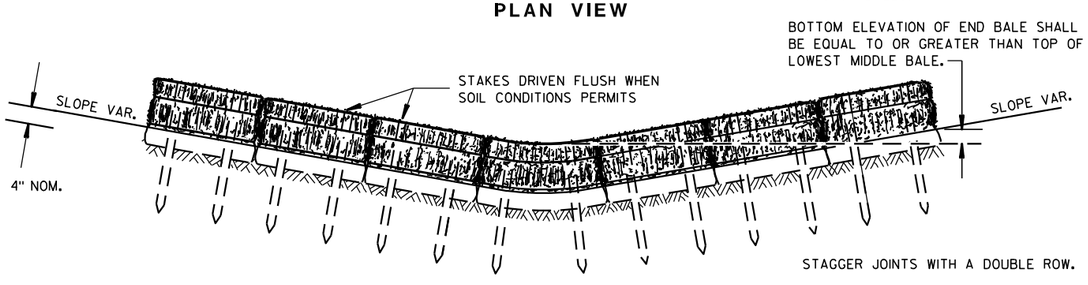
6
S.D.D. 8 D 3-6



SECTION A-A



PLAN VIEW



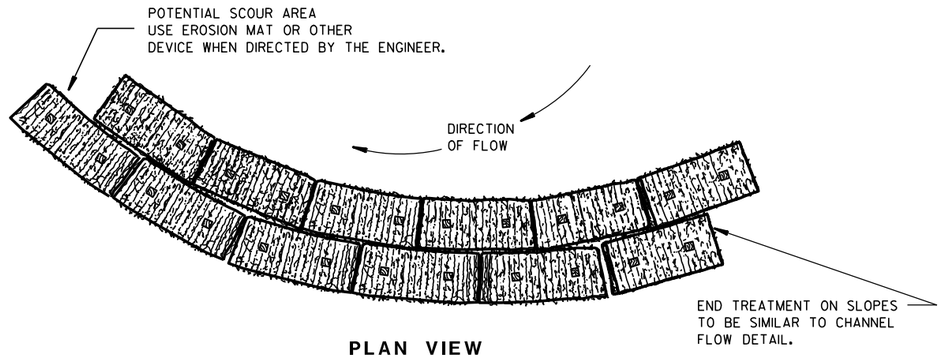
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

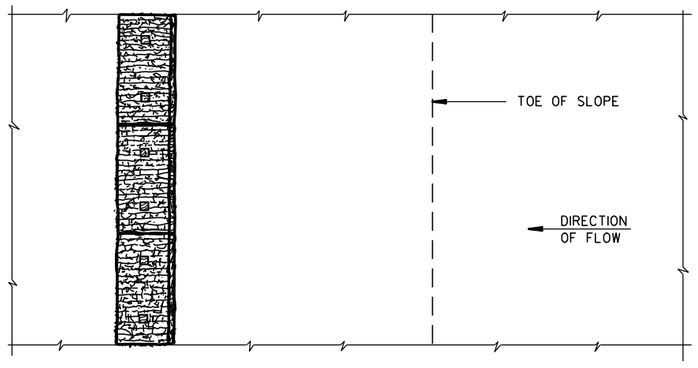
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

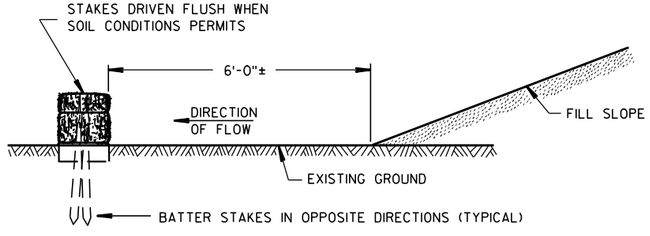


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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

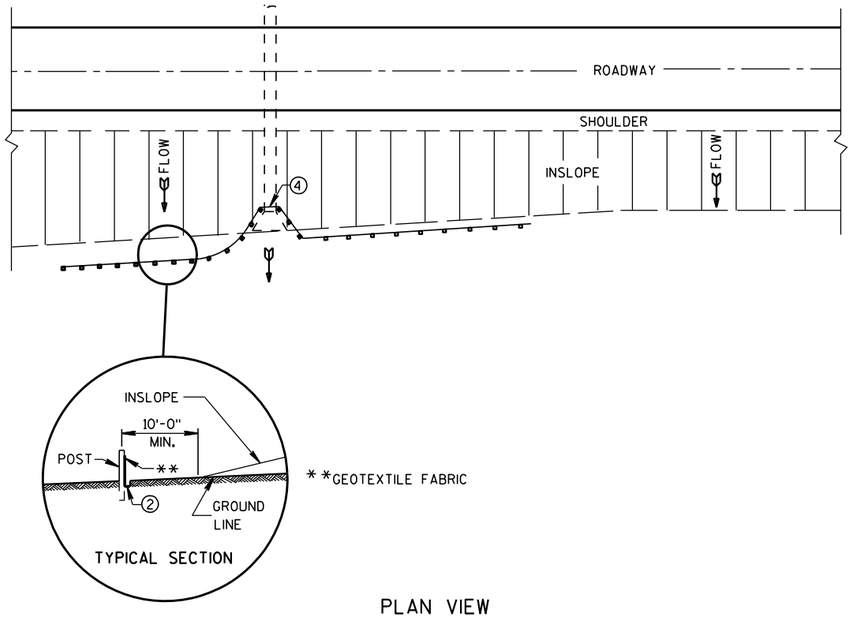
FHWA

6

S.D.D. 8 E 8-3

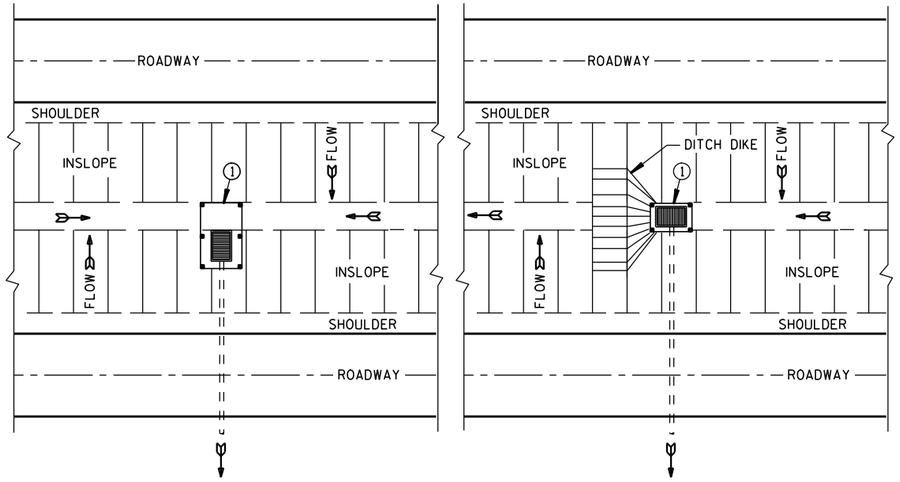
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



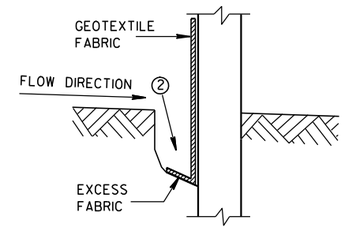
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

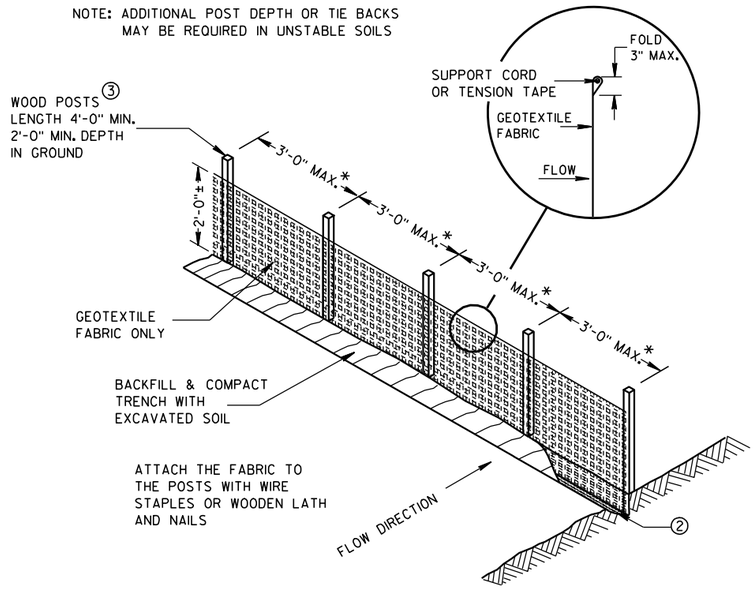
GENERAL NOTES

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

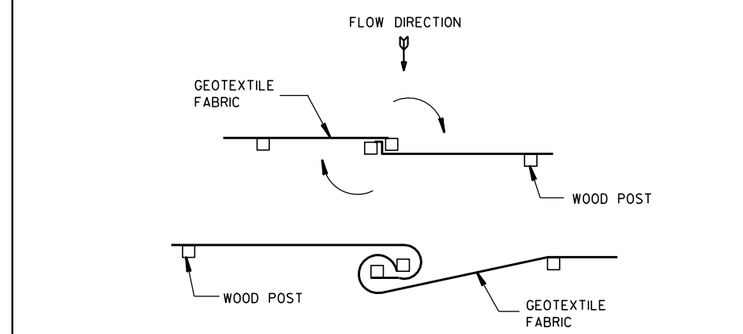
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



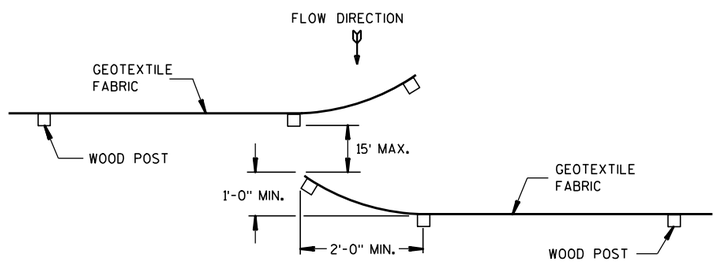
TRENCH DETAIL



SILT FENCE

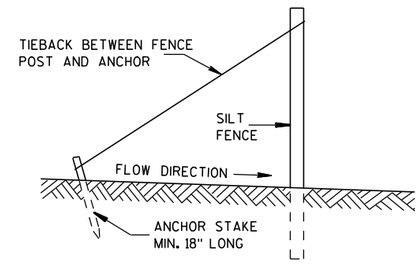


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

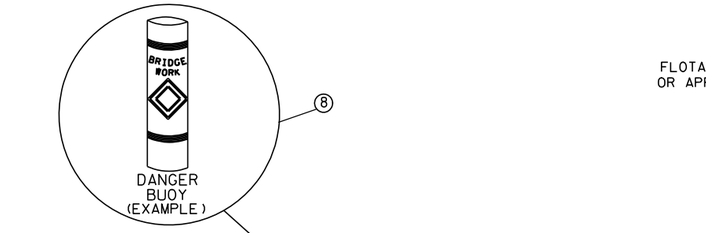
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

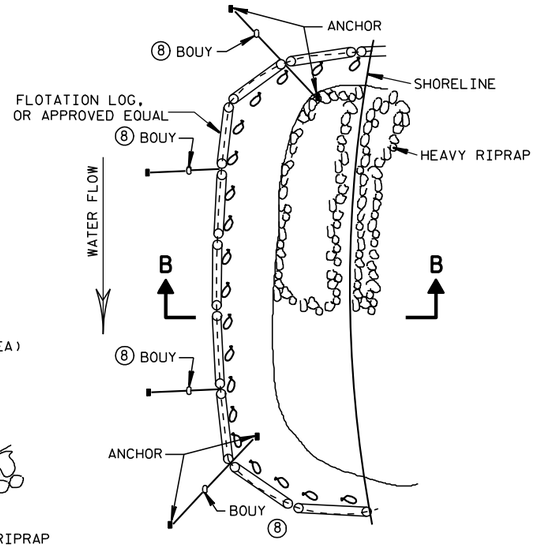
S.D.D. 8 E 9-6

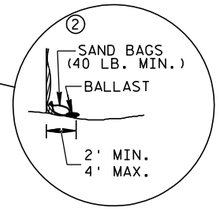
6

S.D.D. 8 E 9-6

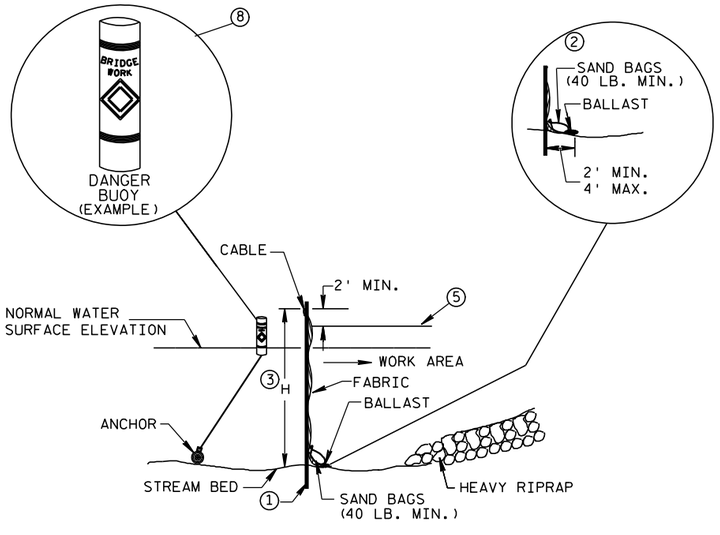


SECTION B-B

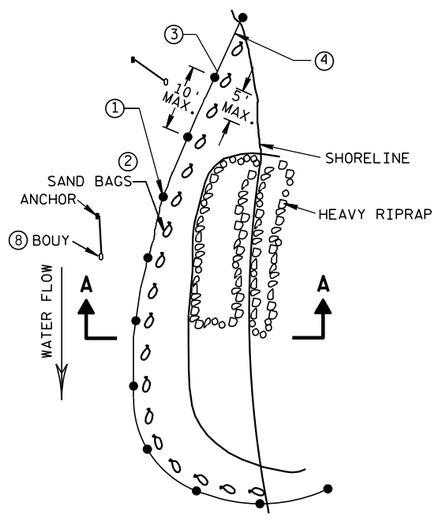




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

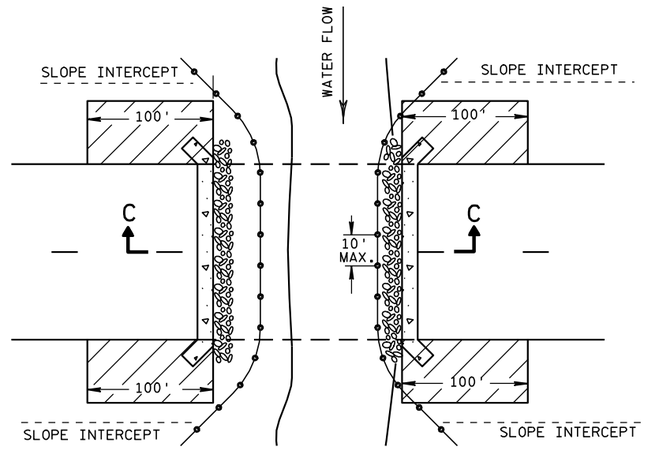
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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

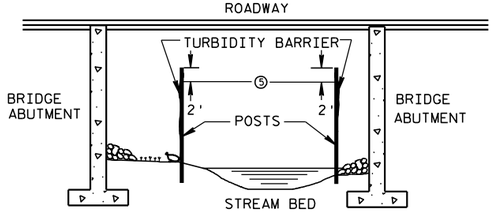
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

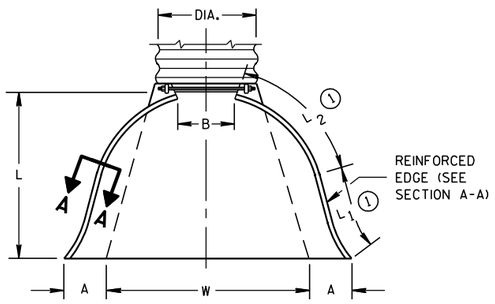
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 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

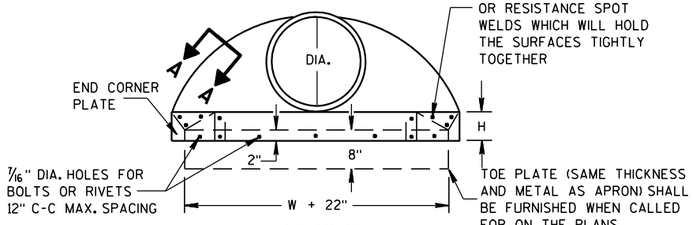
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
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

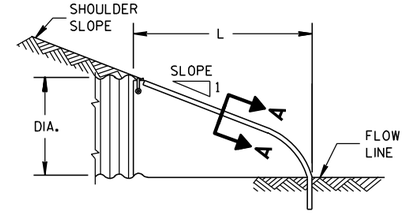
* MINIMUM
** MAXIMUM



PLAN VIEW

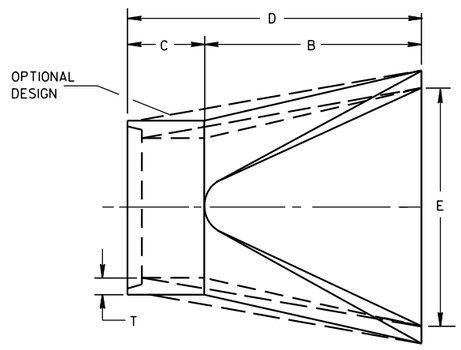


END VIEW

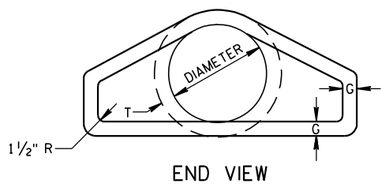


SIDE ELEVATION

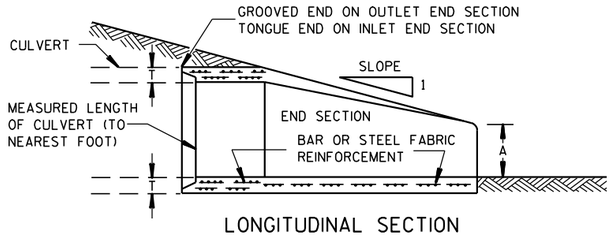
METAL ENDWALLS



PLAN

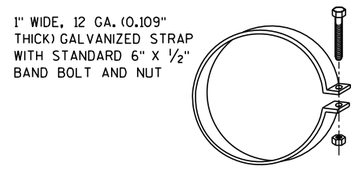


END VIEW



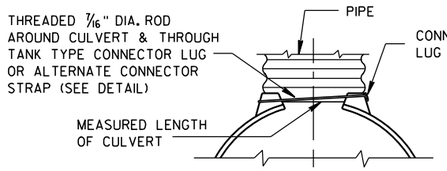
LONGITUDINAL SECTION

CONCRETE ENDWALLS

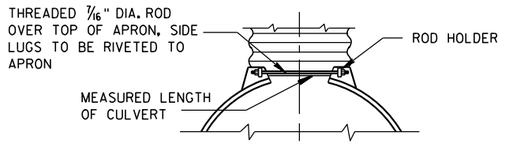


ALTERNATE FOR TYPE 1 CONNECTION

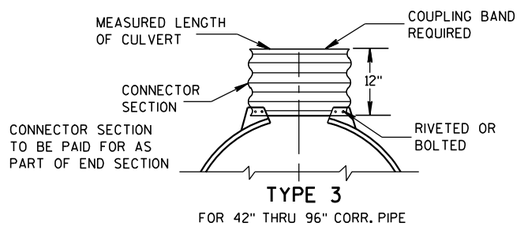
END SECTION CONNECTOR STRAP



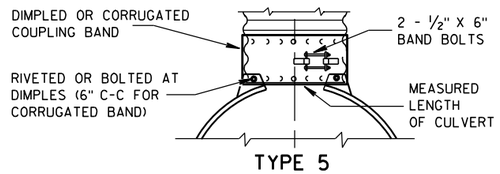
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

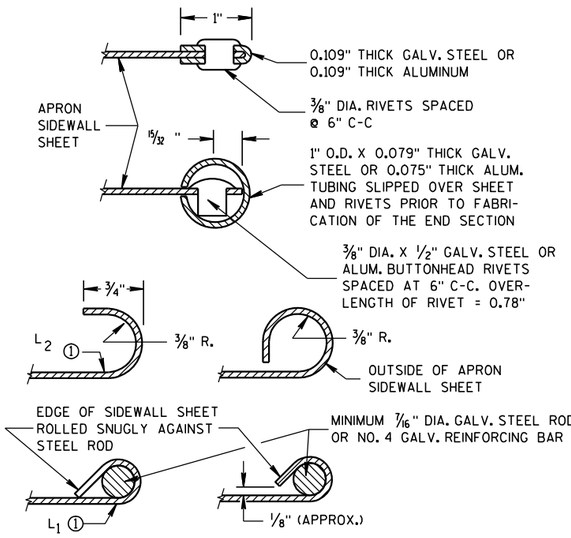
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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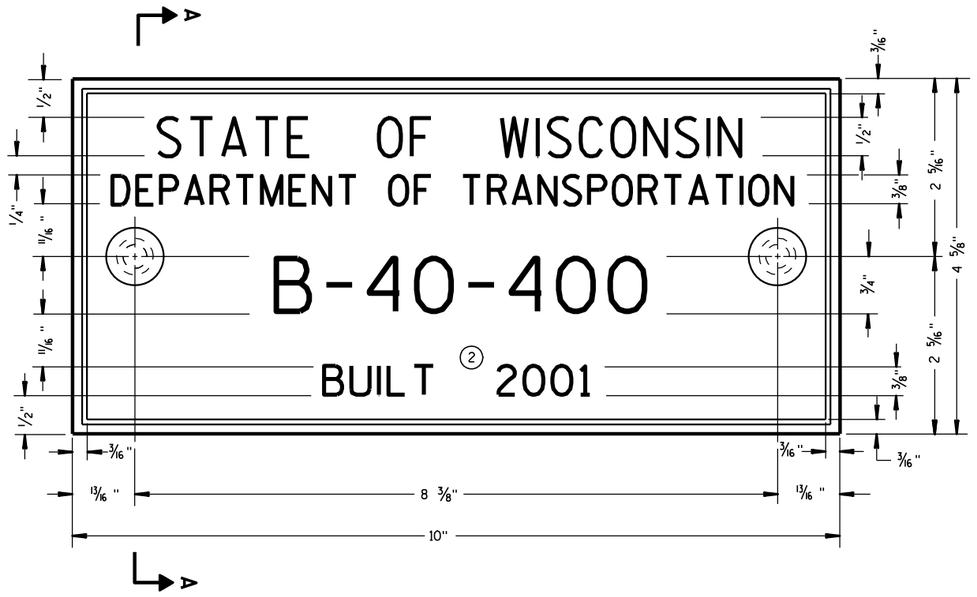
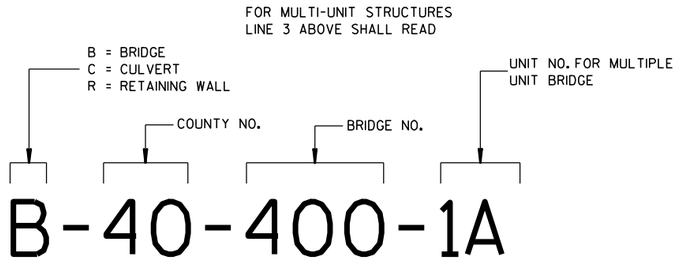


TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

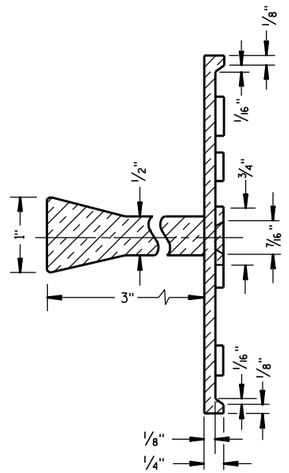
GENERAL NOTES

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

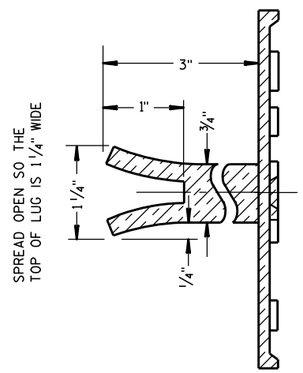
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

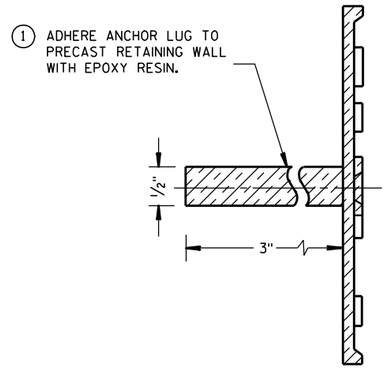
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

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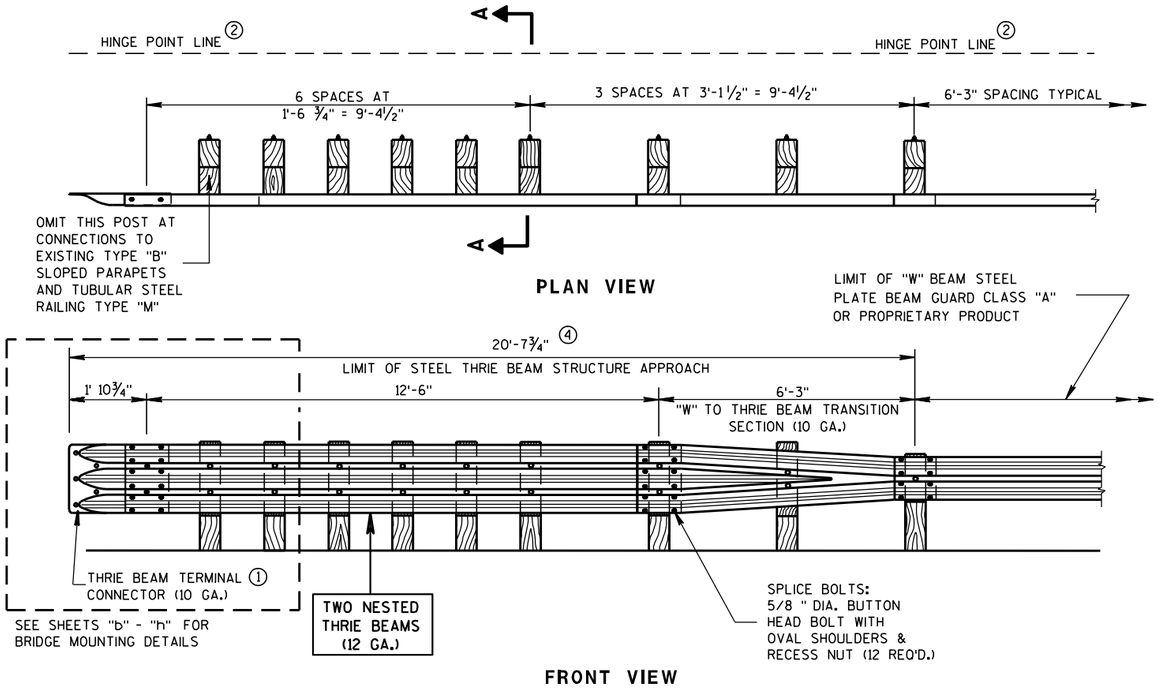


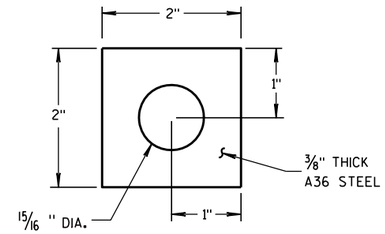


PLATE WASHER DETAIL

GENERAL NOTES

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

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

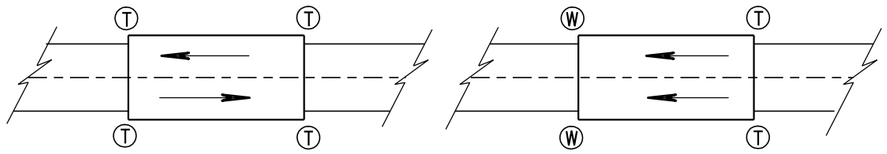
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

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

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

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



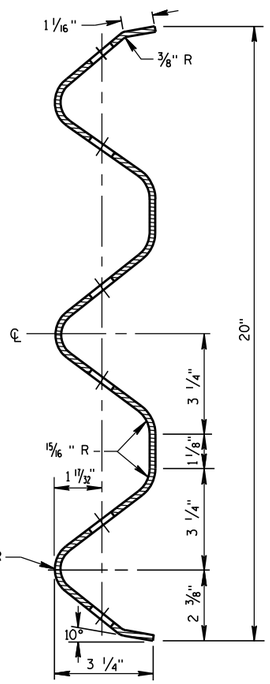
TWO WAY TRAFFIC

ONE WAY TRAFFIC

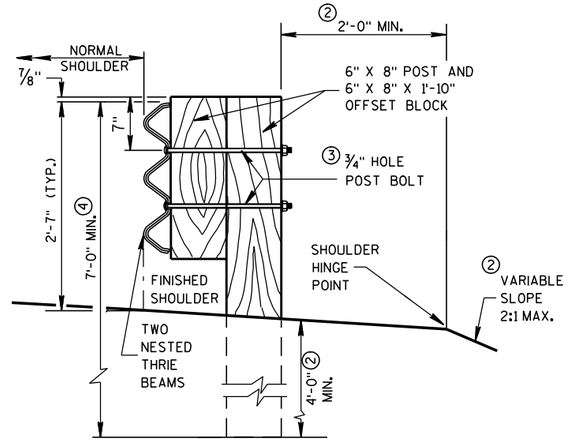
T THRIE BEAM CONNECTION

W W-BEAM CONNECTION WHEN REQUIRED

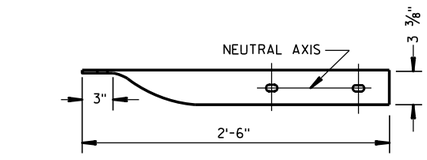
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

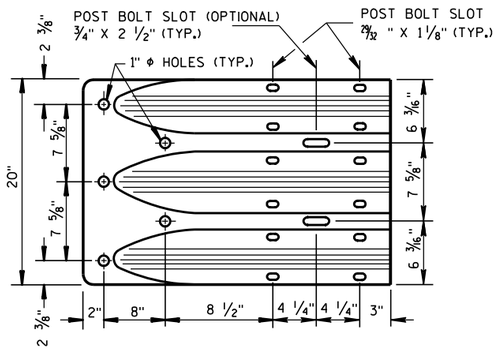


SECTION THRU THRIE BEAM RAIL ELEMENT

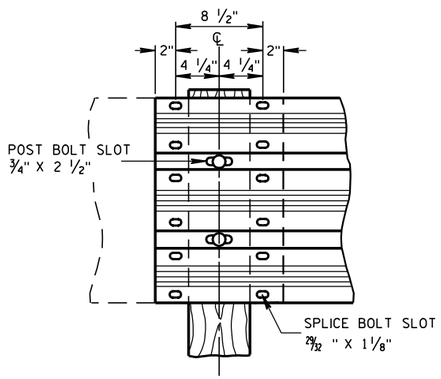


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

122

FHWA

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

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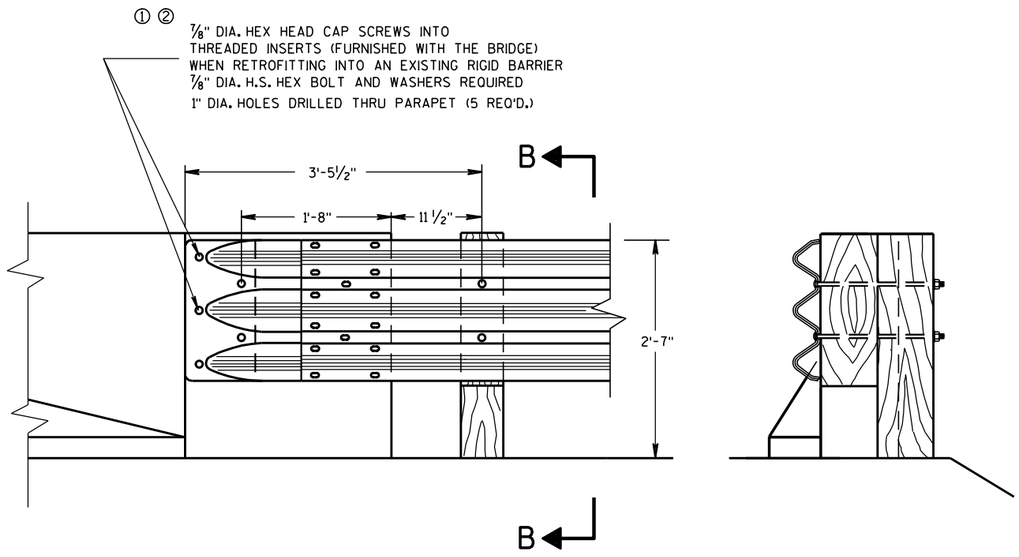
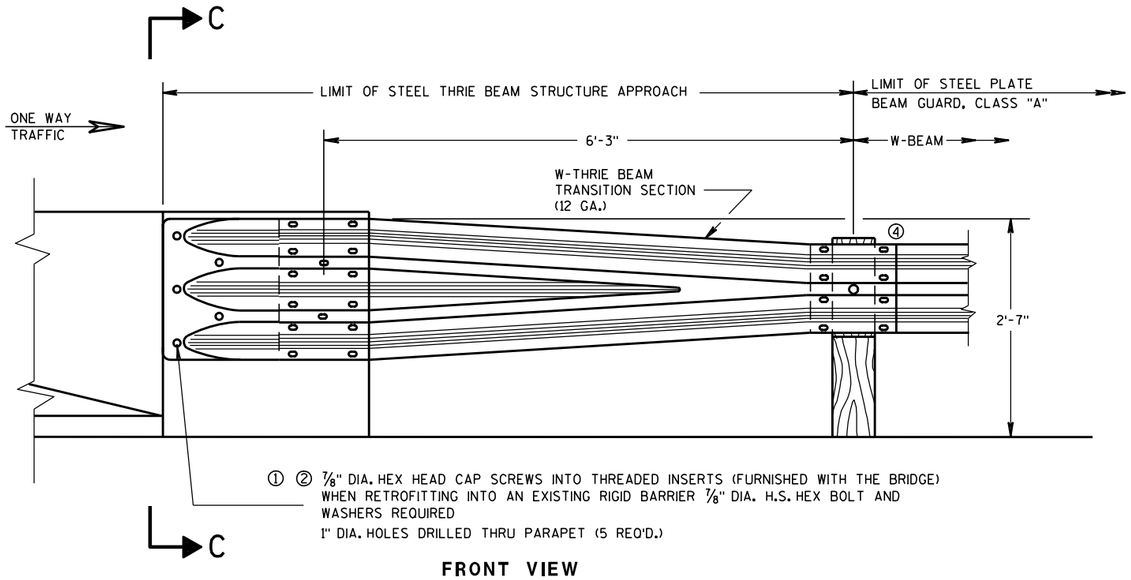
S.D.D. 14 B 20-11a



FRONT VIEW

SECTION B-B

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER ⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

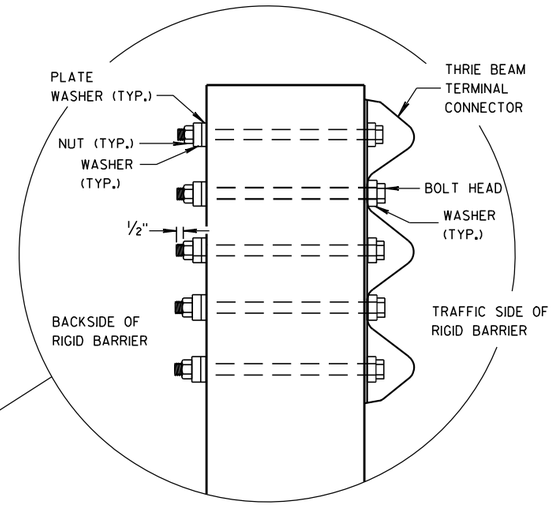
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

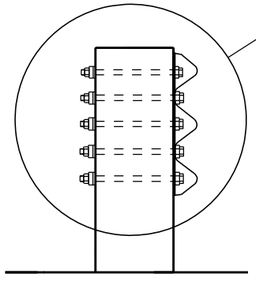
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ 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 ½".

④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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





SECTION C-C

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

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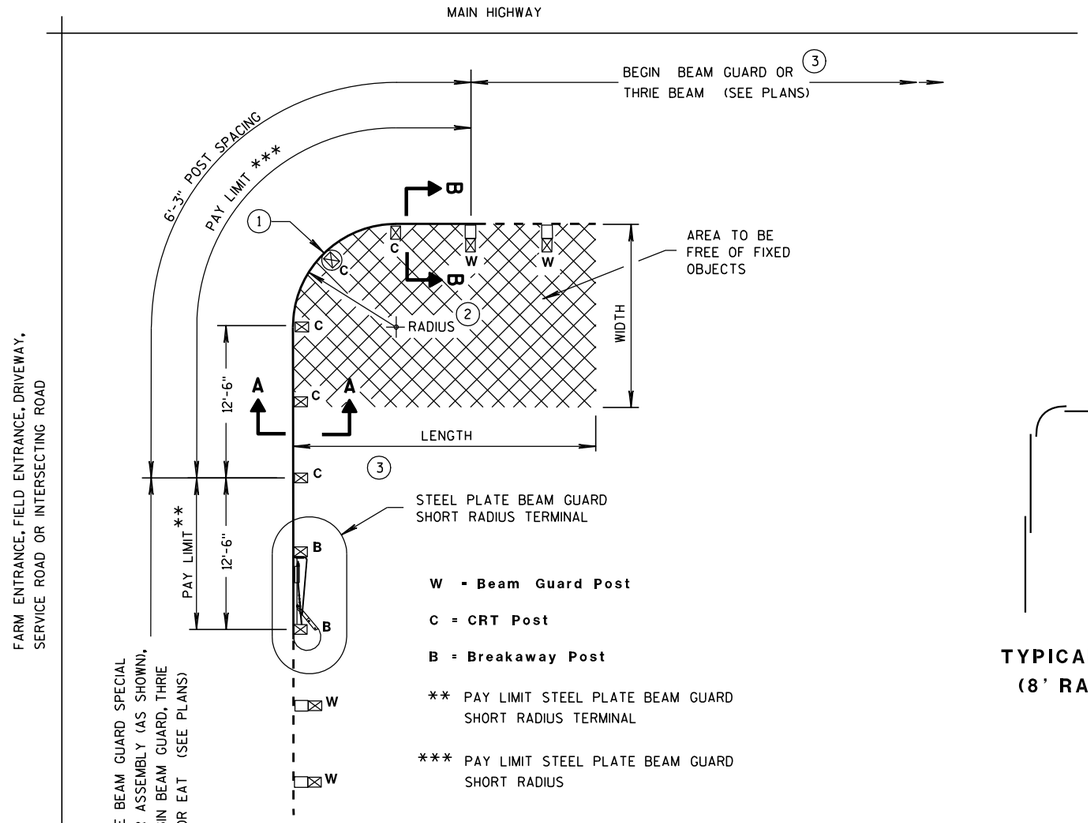
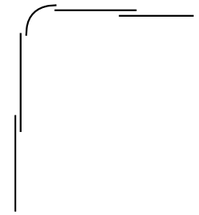
S.D.D. 14 B 20-11b



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

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

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

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

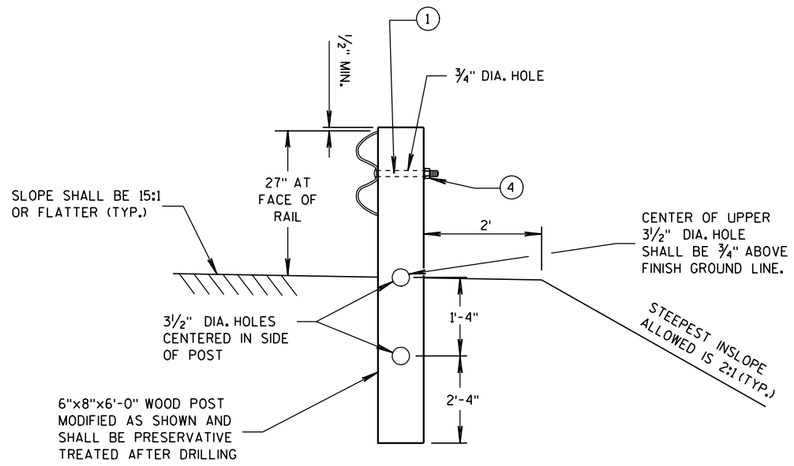
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

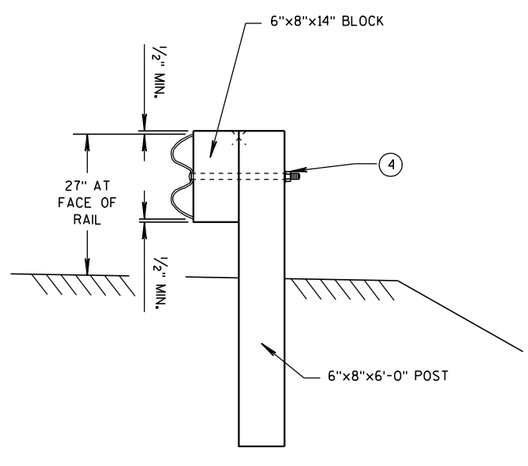
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

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



SECTION A-A
(CRT POST)



SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

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

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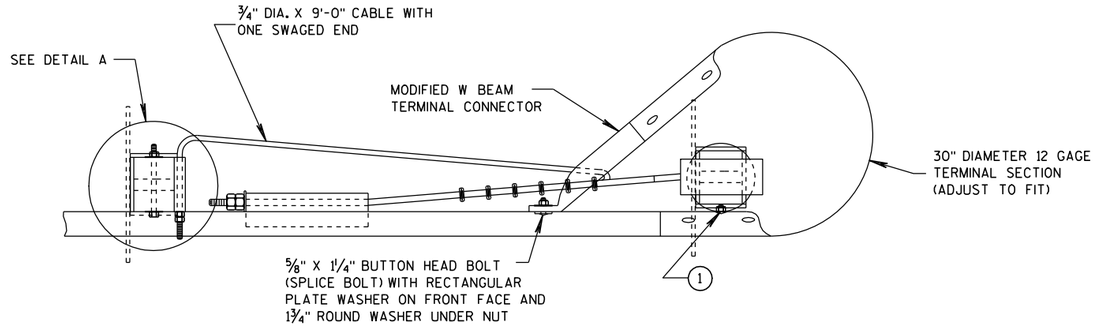
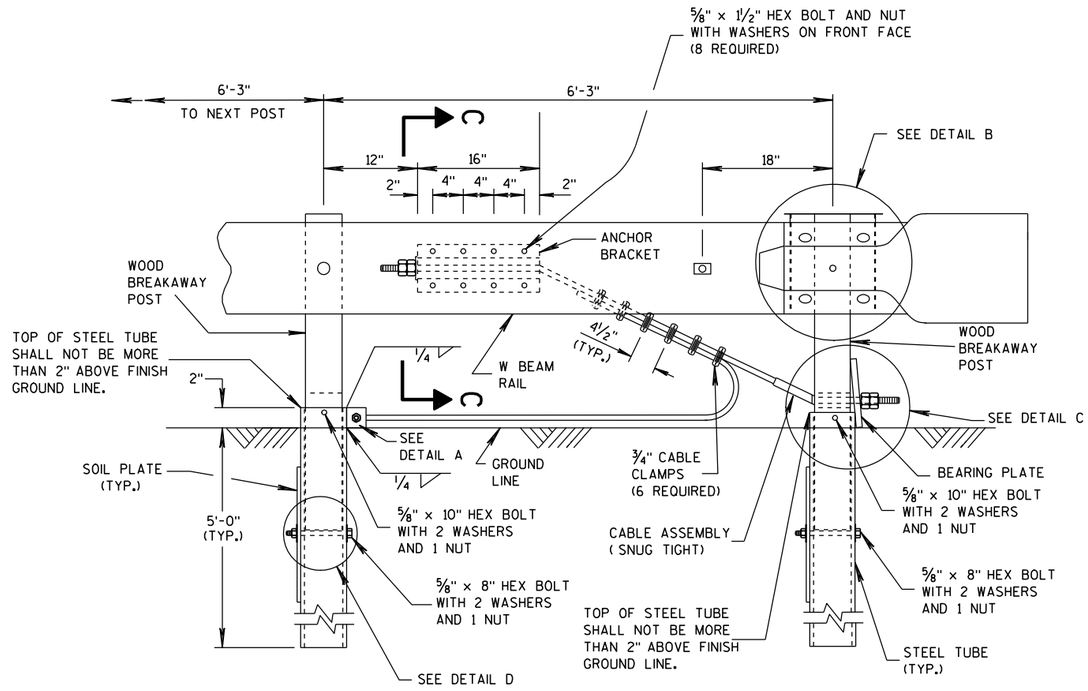
S.D.D. 14 B 27-1a



PLAN VIEW



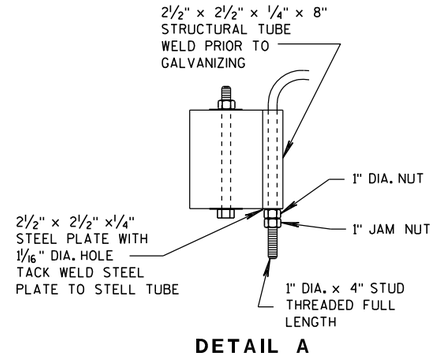
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

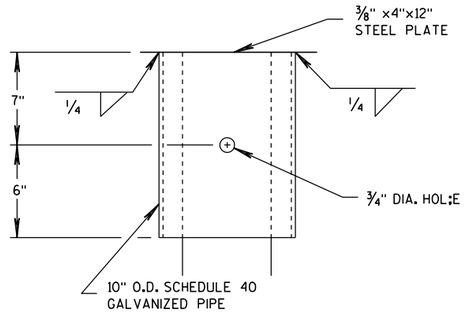
GENERAL NOTES

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

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



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

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

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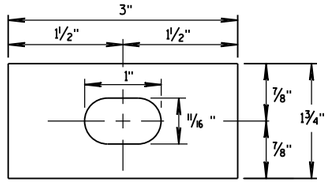
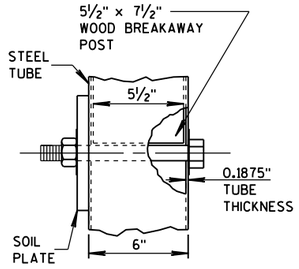
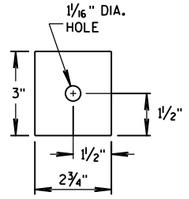
S.D.D. 14 B 27-1b



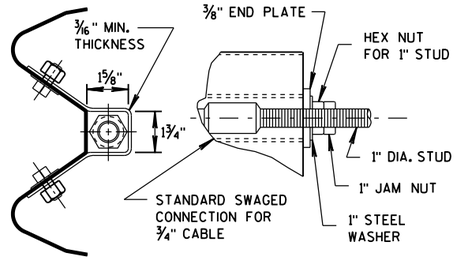
RECTANGULAR PLATE WASHER



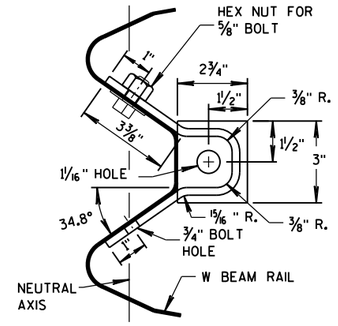
DETAIL D



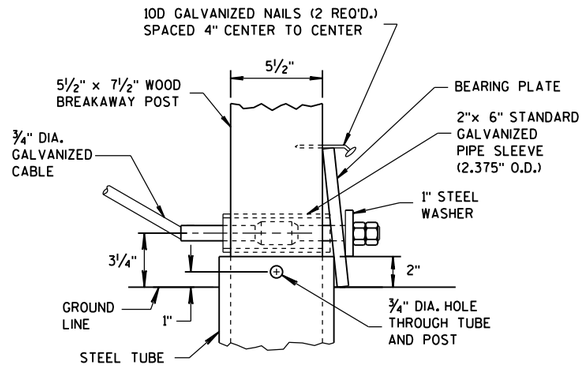
END PLATE



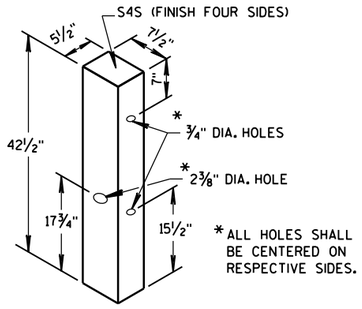
SECTION C-C
(END PLATE REMOVED)



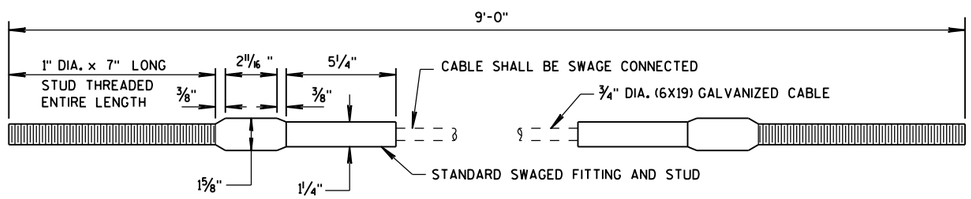
ANCHOR BRACKET



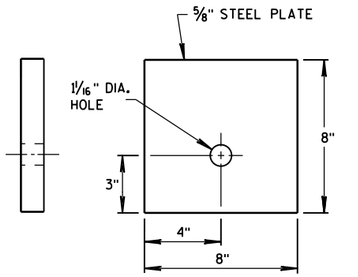
DETAIL C



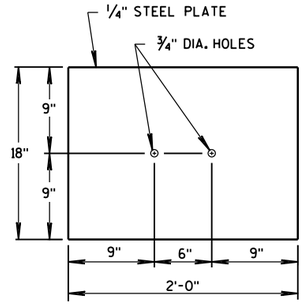
WOOD BREAKAWAY POST



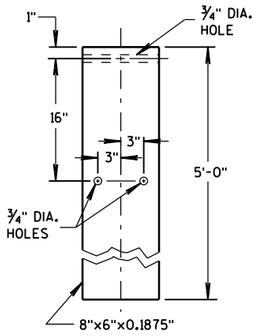
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

6

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

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

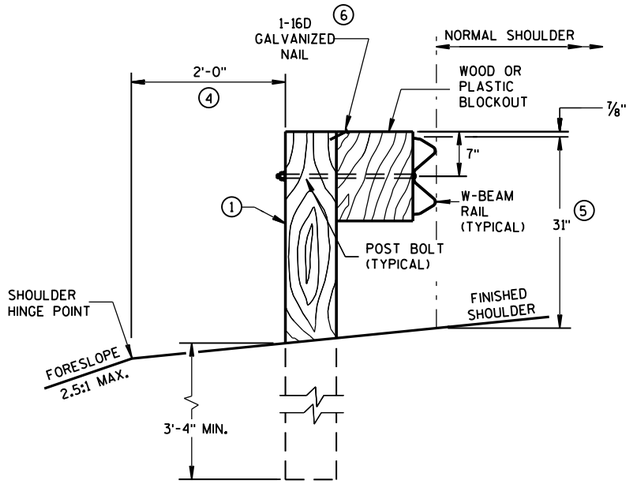
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

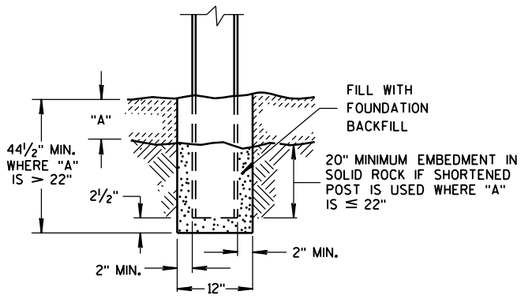
⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



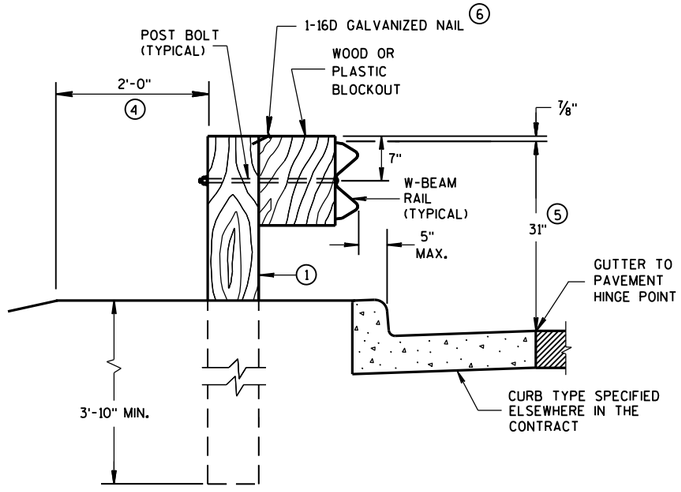
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



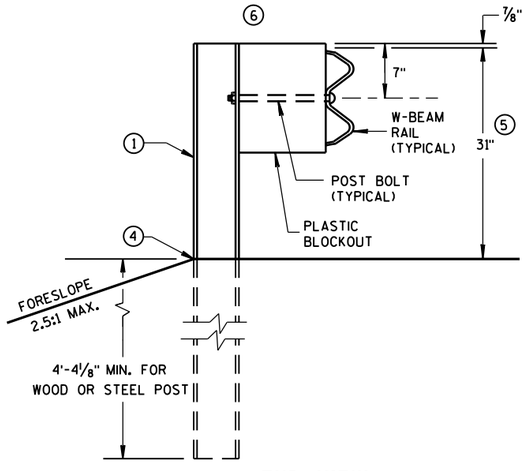
END VIEW

SETTING STEEL OR WOOD POST IN ROCK ③



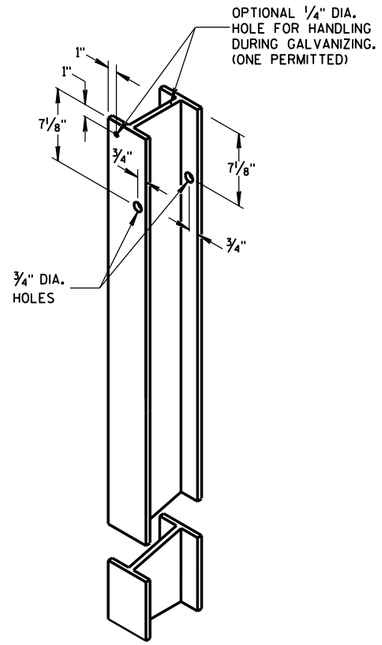
END VIEW

LOCATED ALONG A CURBED ROADWAY

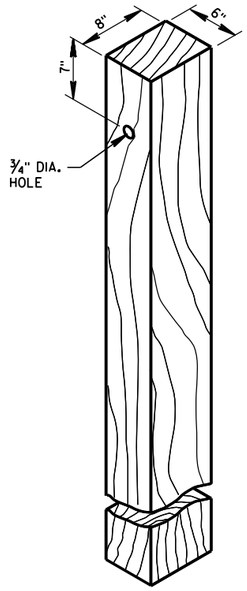


END VIEW

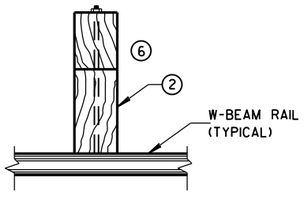
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



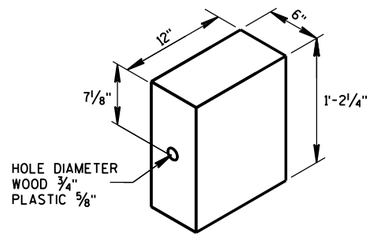
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



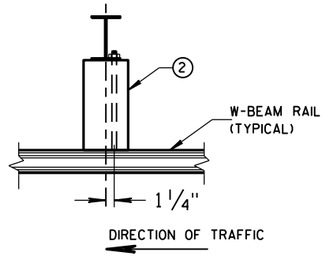
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



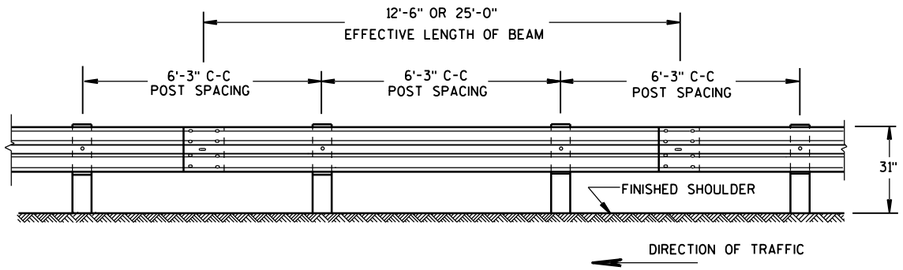
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

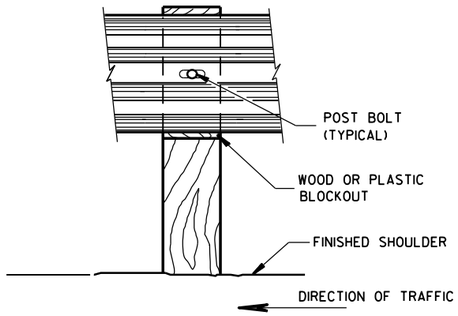
6

S.D.D. 14 B 42-4a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

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

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

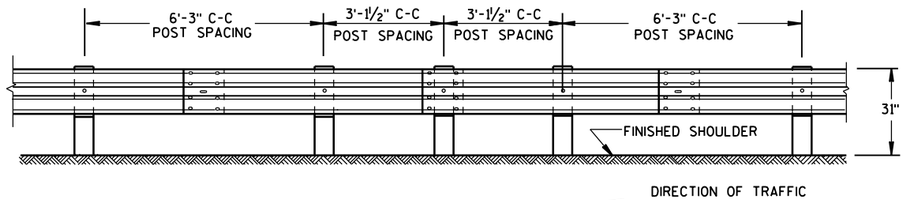
9. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

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

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

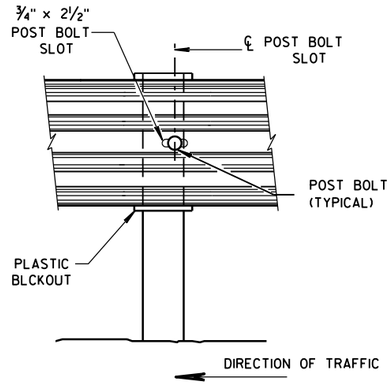
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

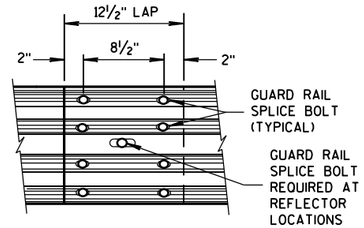


FRONT VIEW

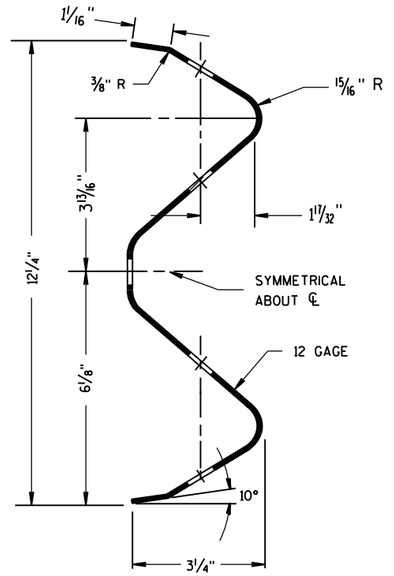
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



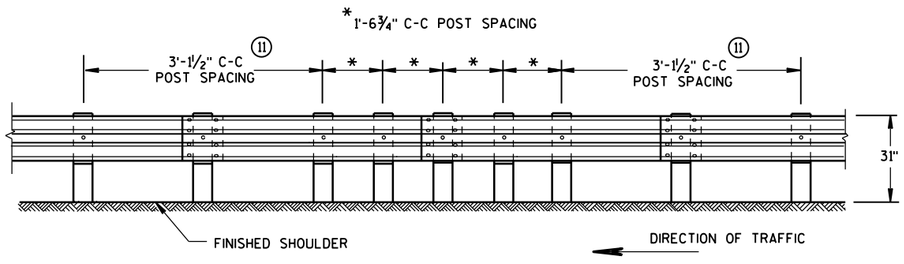
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

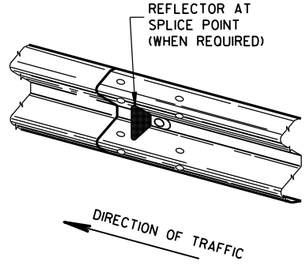


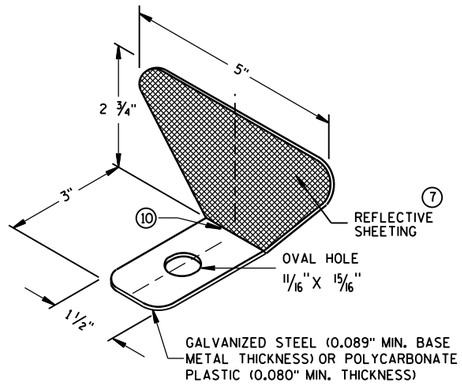
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

REFLECTOR SPACING (8)

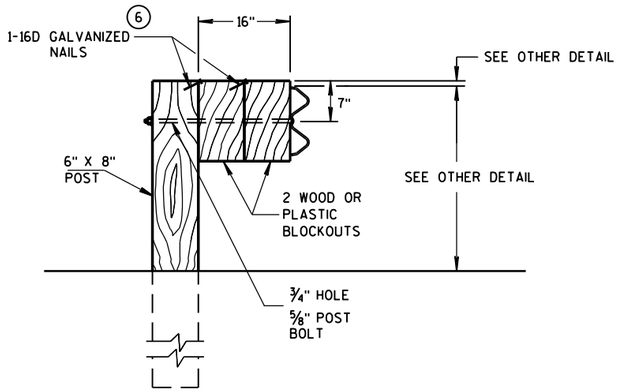
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 (9)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (10)	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

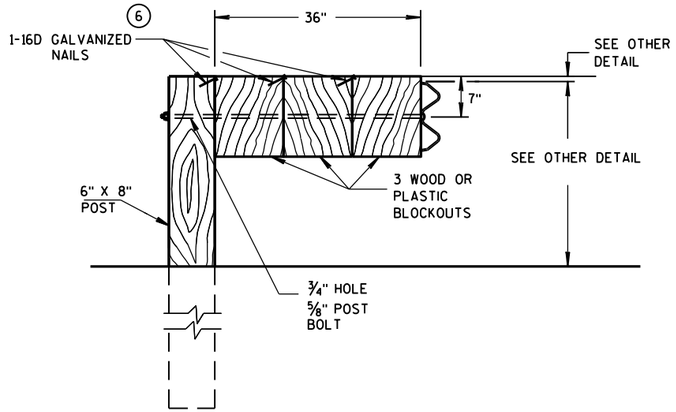
6

S.D.D. 14 B 42-4b



DETAIL FOR 16" BLOCKOUT DEPTH

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

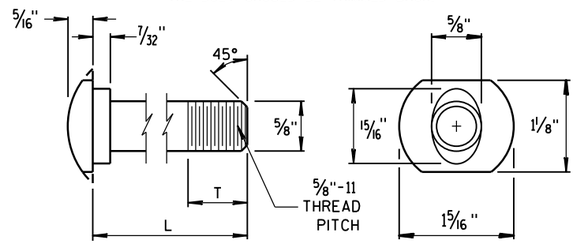


DETAIL FOR 36" BLOCKOUT DEPTH

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

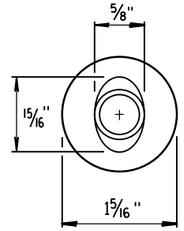
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

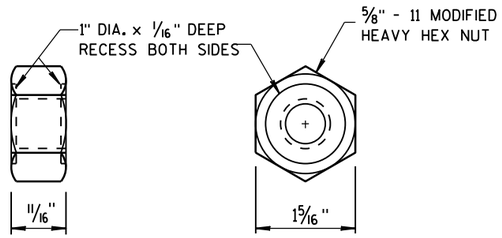


POST BOLT TABLE

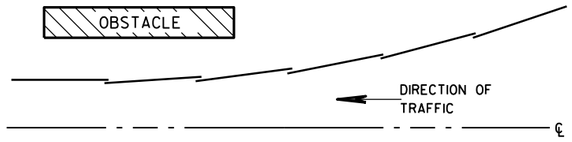
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

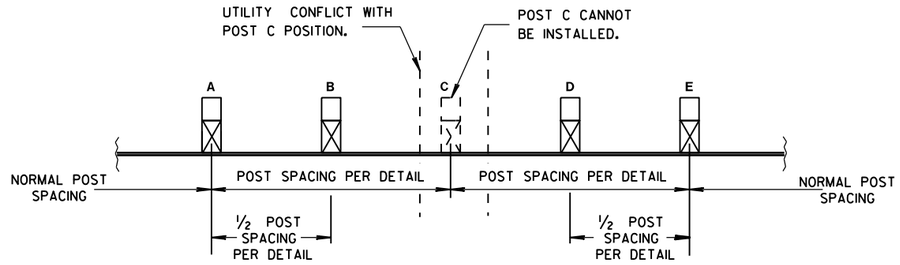


POST BOLT, SPLICE BOLT AND RECESS NUT

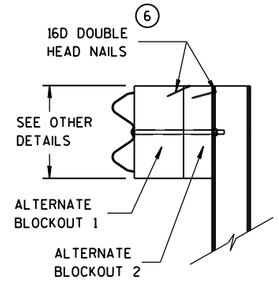


PLAN VIEW

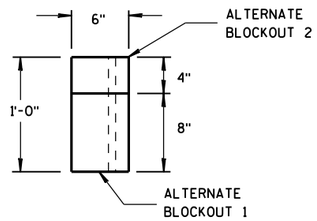
BEAM LAPPING DETAIL



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 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6
S.D.D. 14 B 42-4c

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.

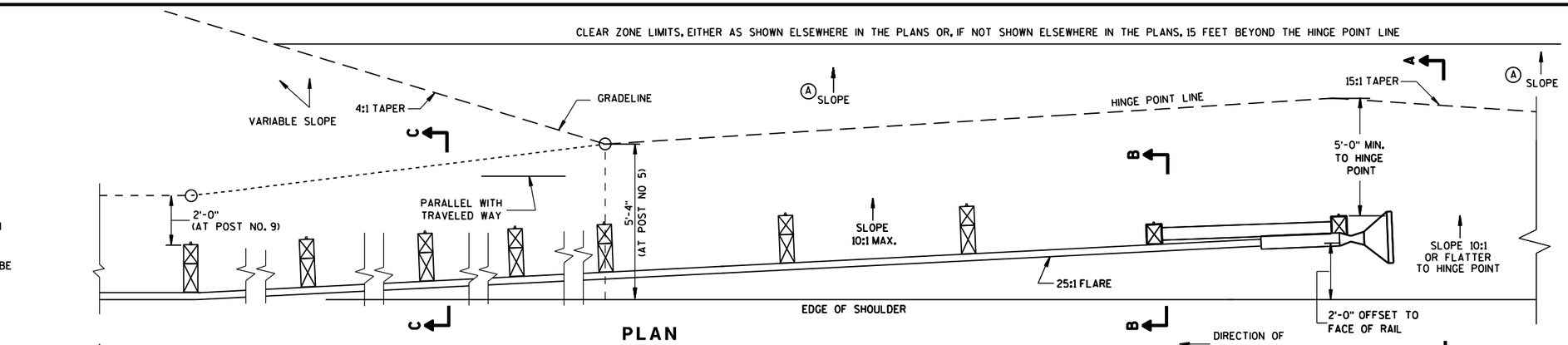
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

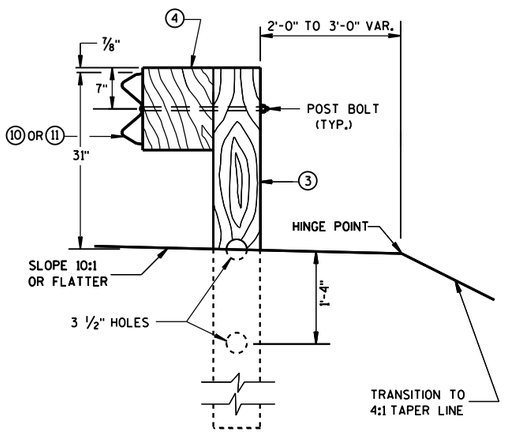
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

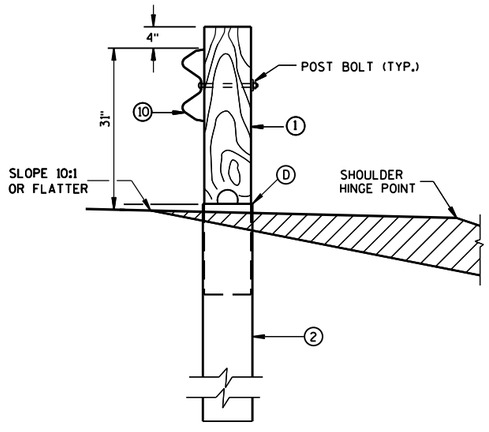
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



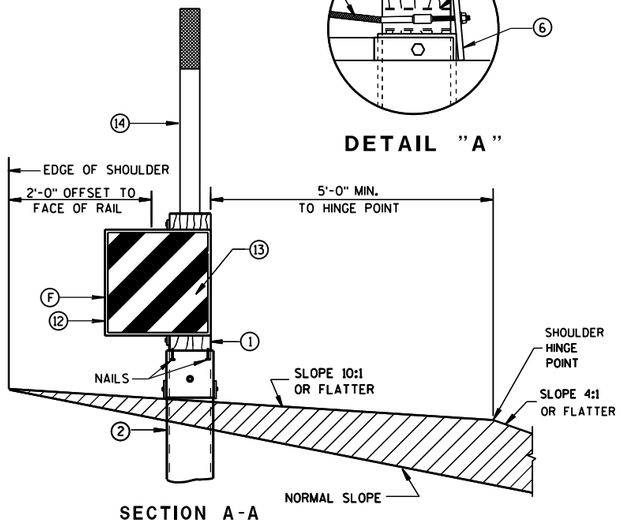
ELEVATION



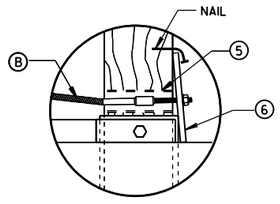
SECTION C-C
TYPICAL AT POST NOS. 3-9



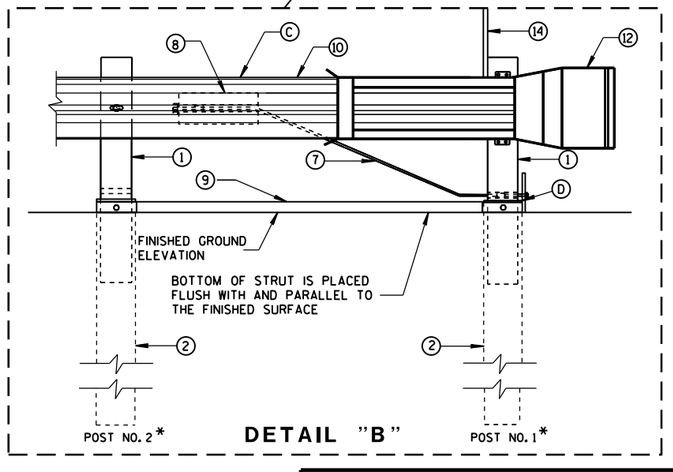
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



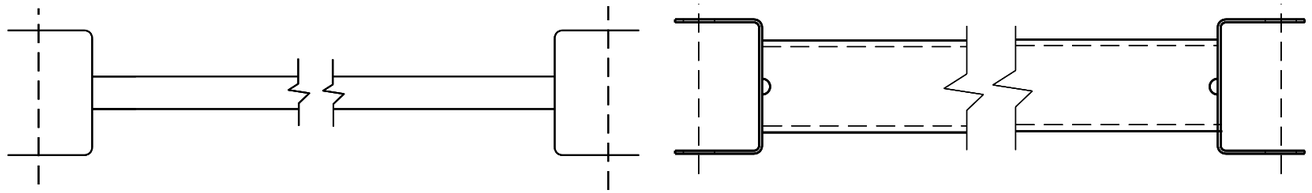
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

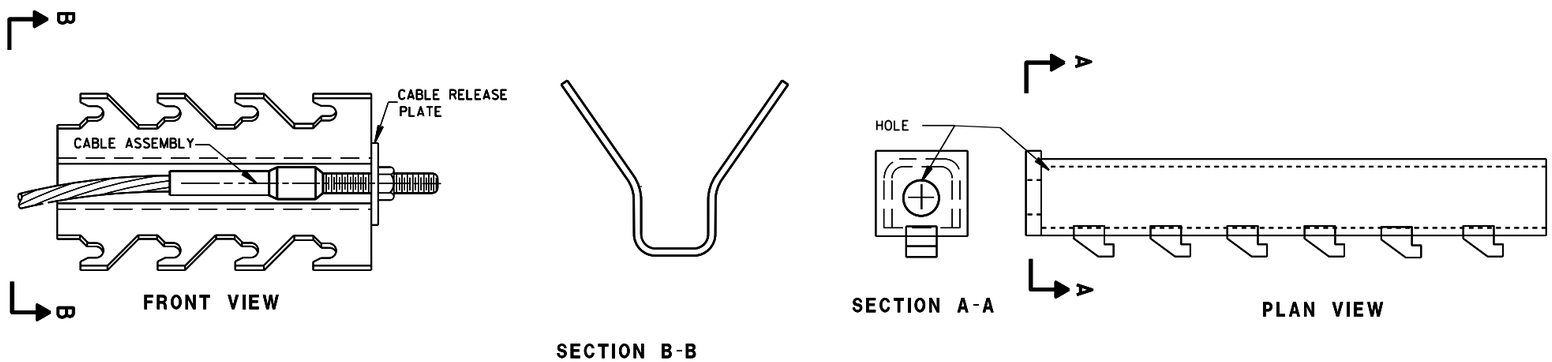
S.D.D. 14 B 44-2a



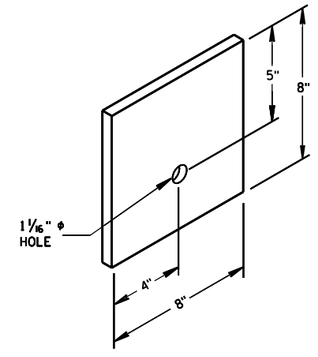
GENERIC GROUND STRUT (9) (H)

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)

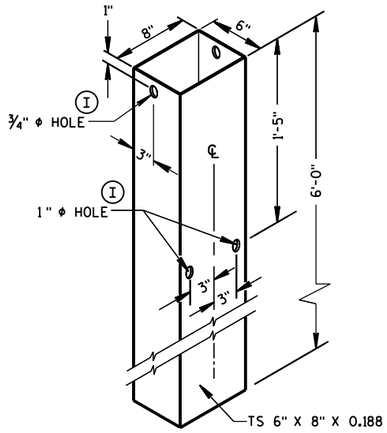


BEARING PLATE (6)

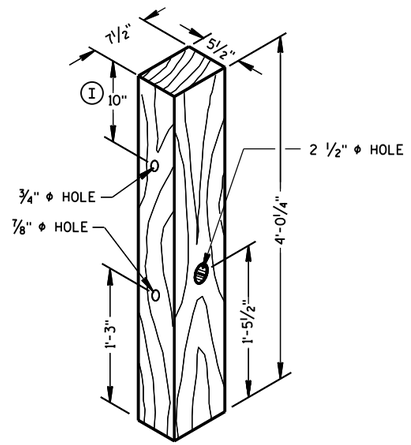
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 44-2b

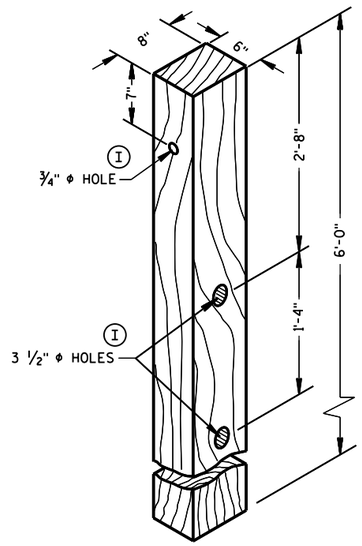


FOUNDATION TUBE (2)



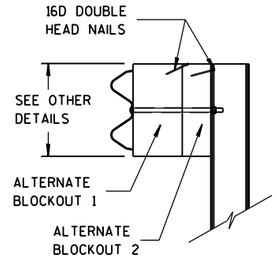
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

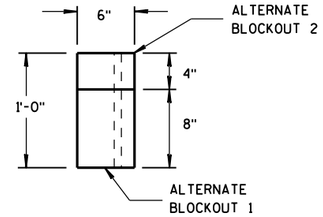


POSTS NUMBER 3-9

WOOD CRT POST (3)

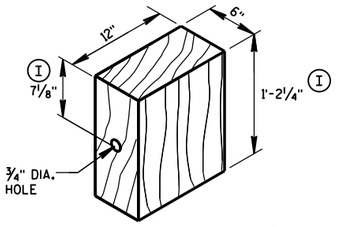


SIDE VIEW



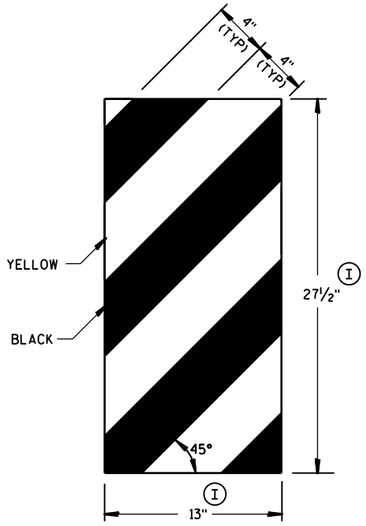
TOP VIEW

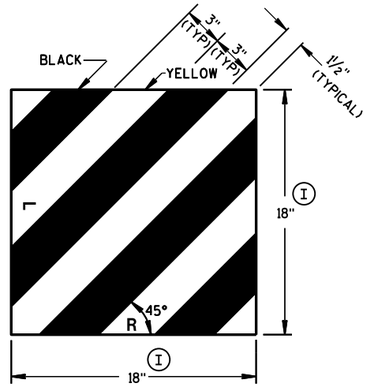
ALTERNATE WOOD BLOCKOUT DETAIL



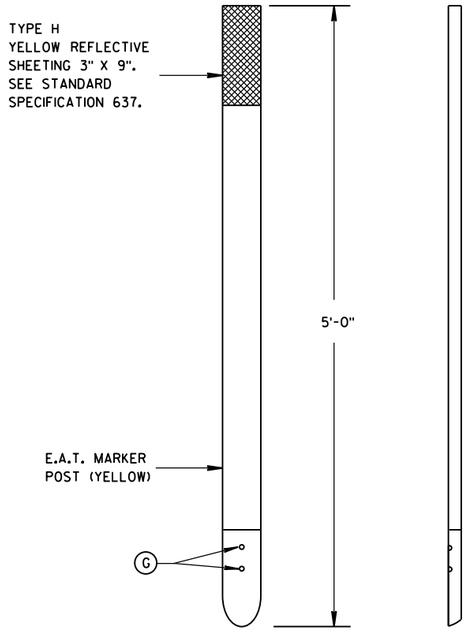
WOOD BLOCKOUT (4)

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





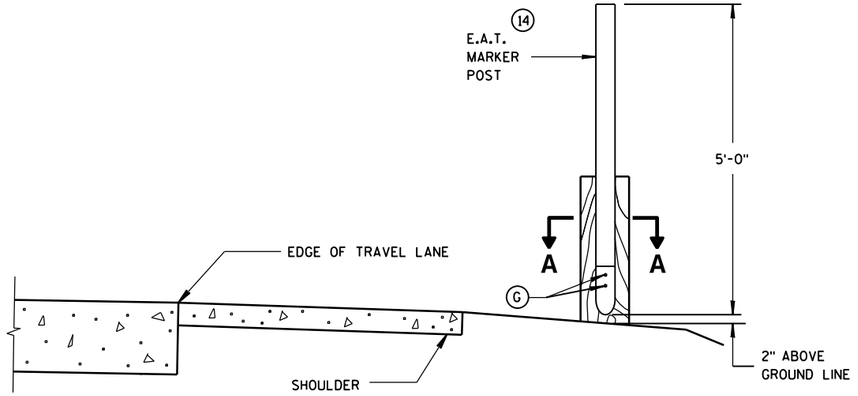
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

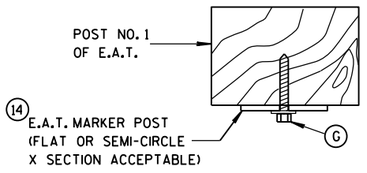
SIDE VIEW

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)

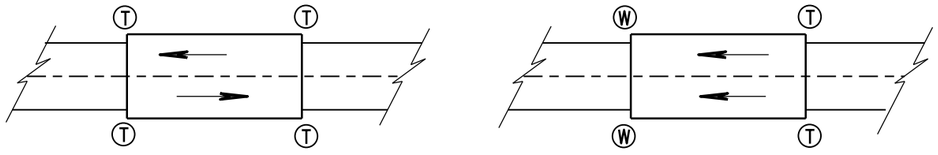


SECTION A-A

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



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

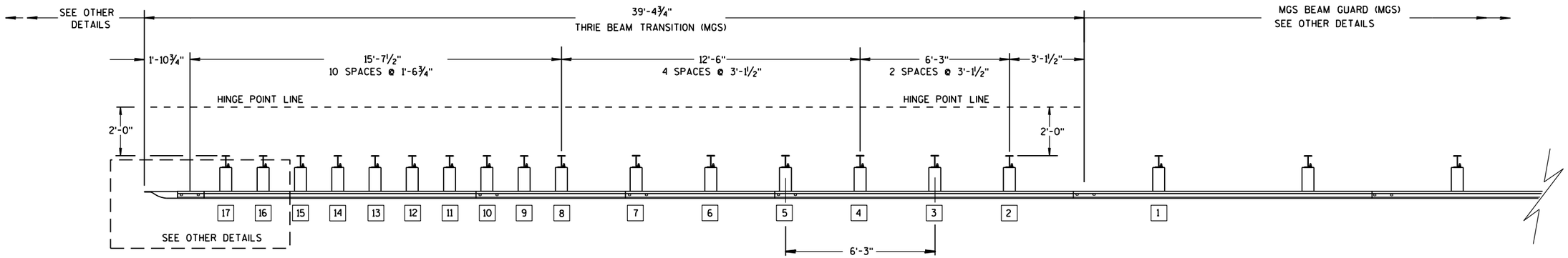
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

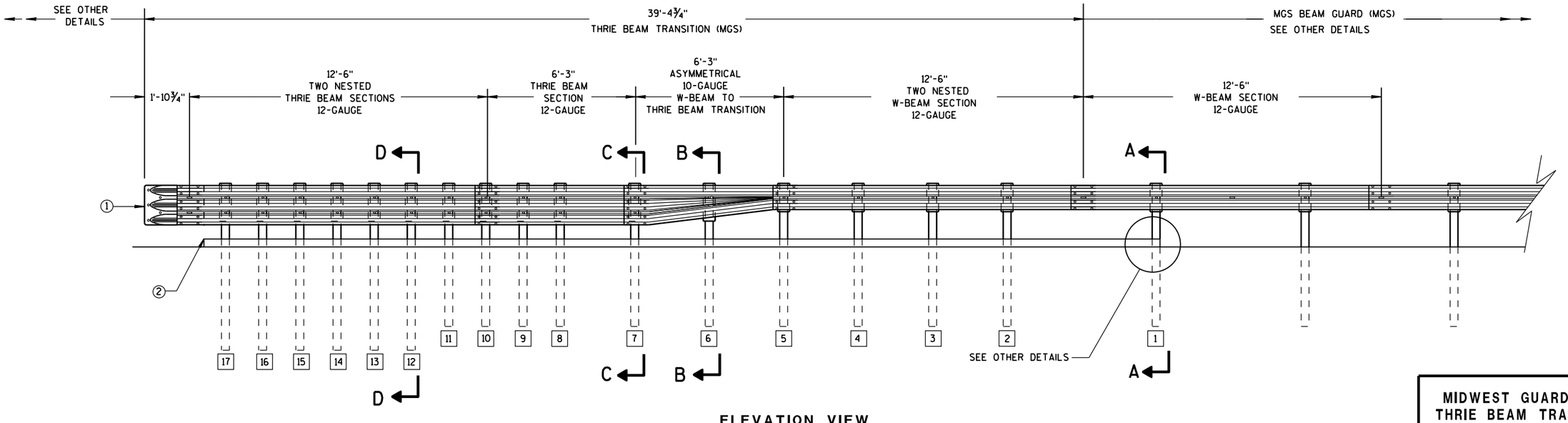
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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 TRANSPOR

6

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

6

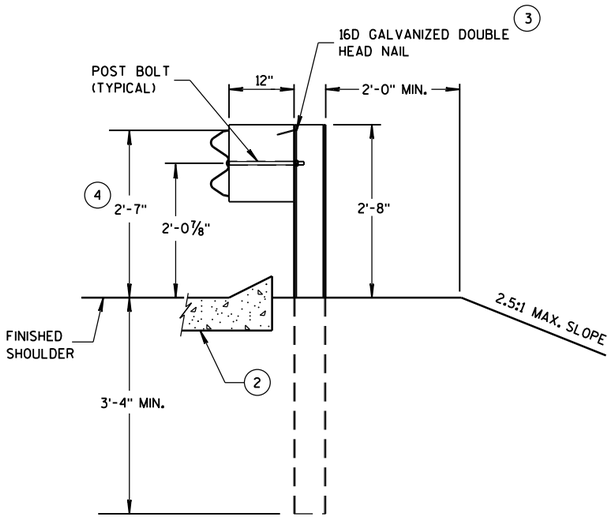
S.D.D. 14 B 45-4a

GENERAL NOTES

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

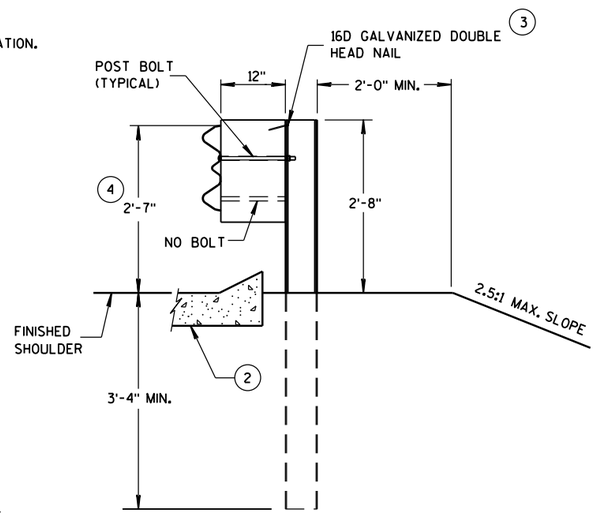
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



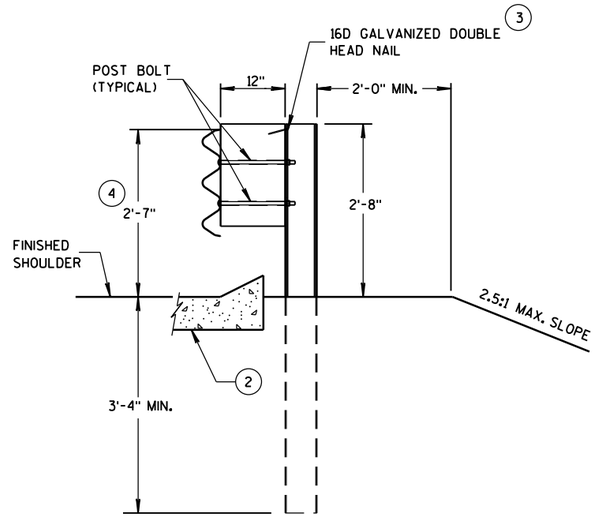
SECTION A-A

POSTS 1-5



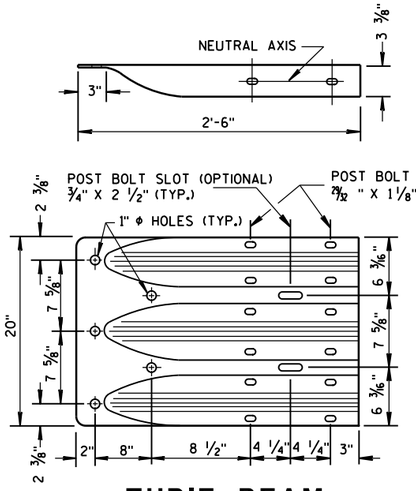
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

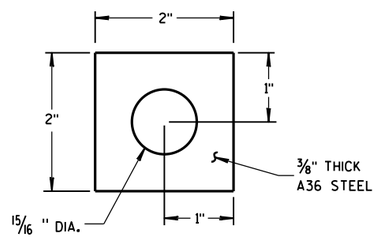
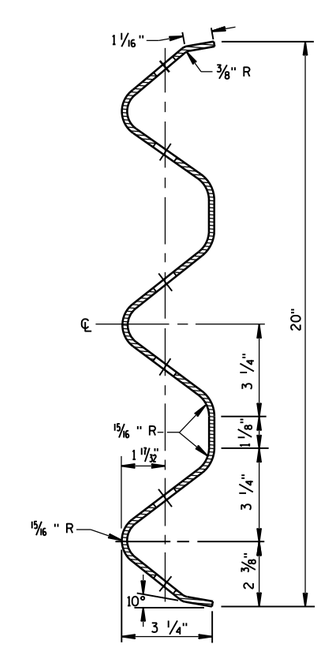
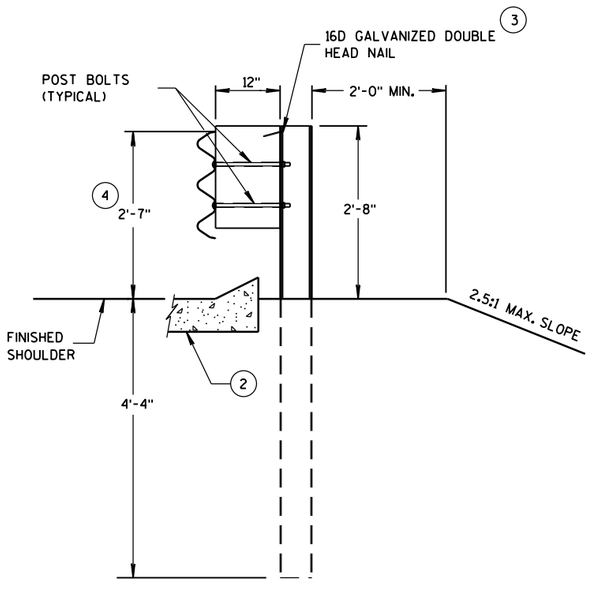


PLATE WASHER DETAIL

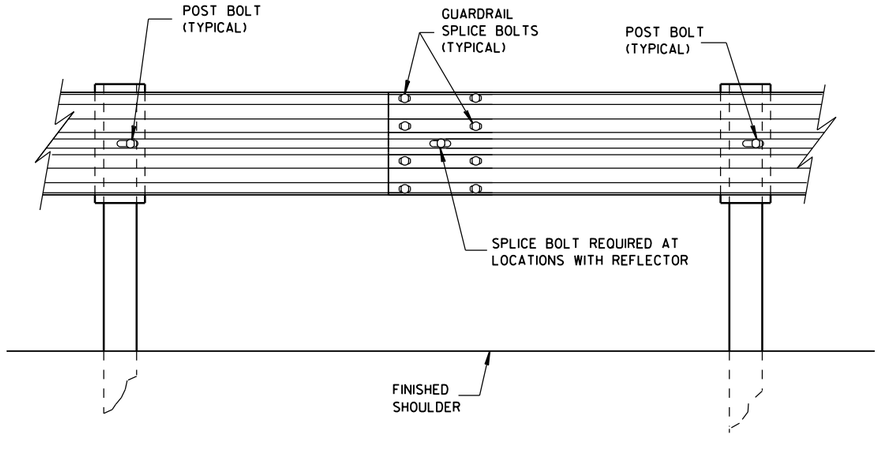


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



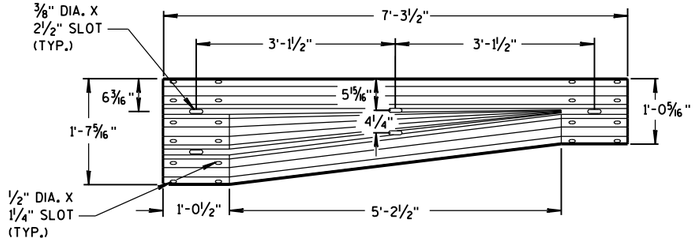
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

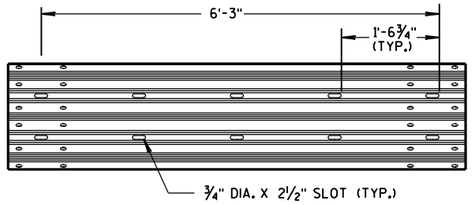
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

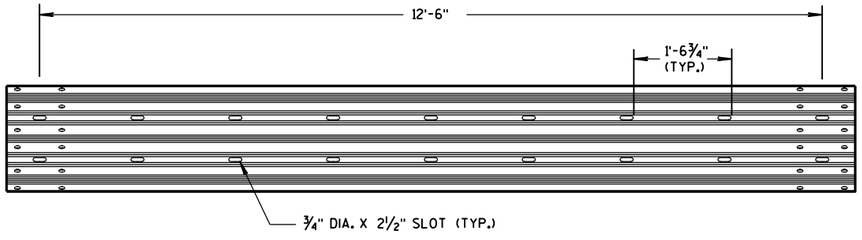
S.D.D. 14 B 45-4b



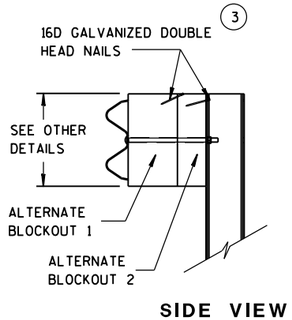
W-BEAM TO THRIE BEAM TRANSITION SECTION



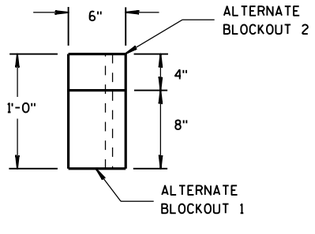
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

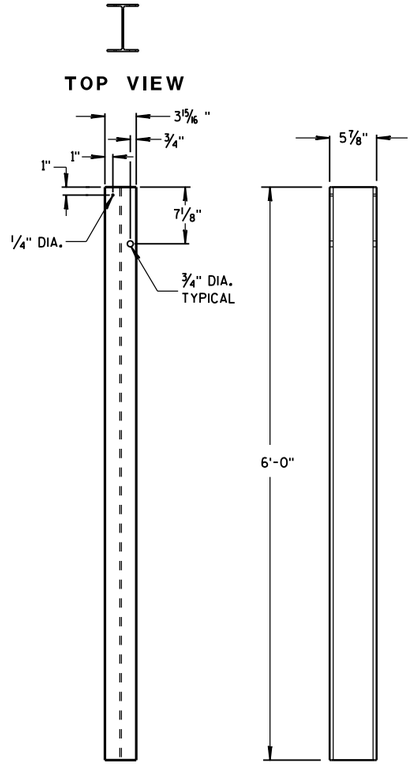


SIDE VIEW



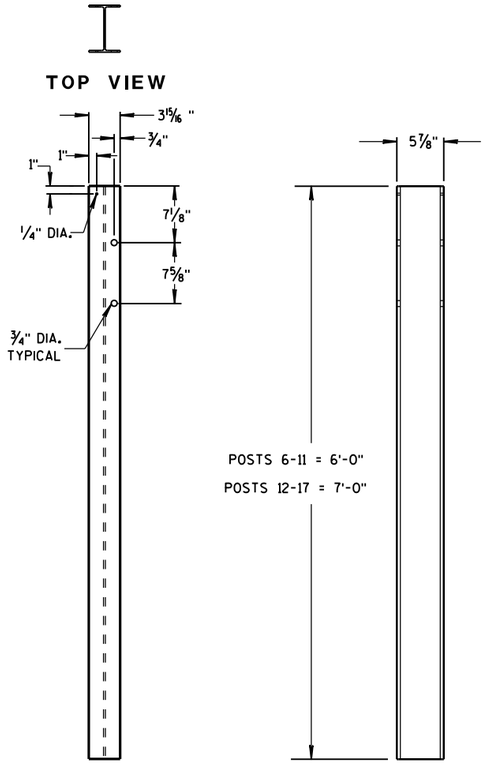
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



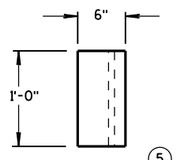
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

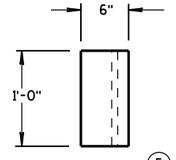


FRONT VIEW SIDE VIEW

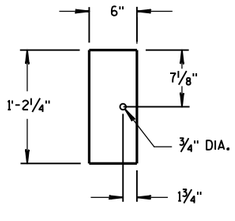
STEEL POSTS 6-17



TOP VIEW (5)

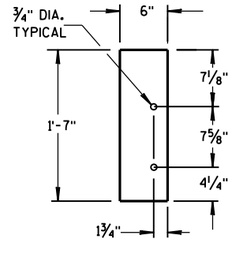


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

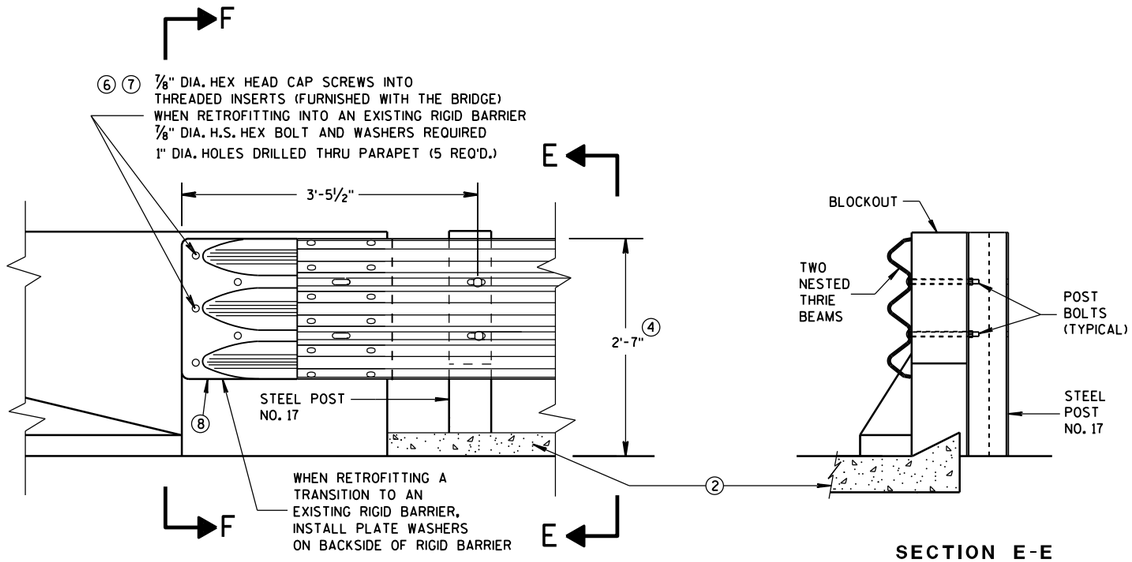
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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



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.

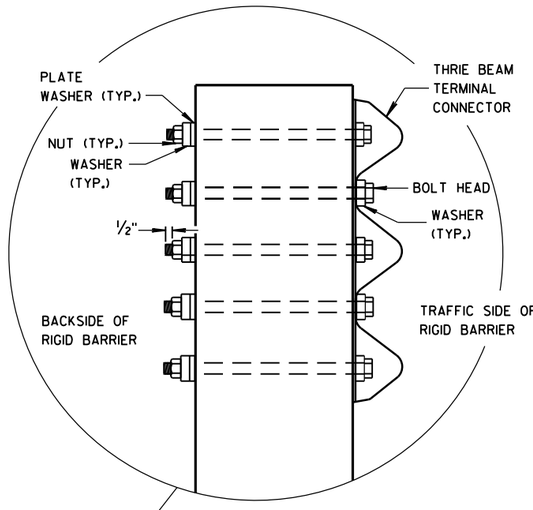
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

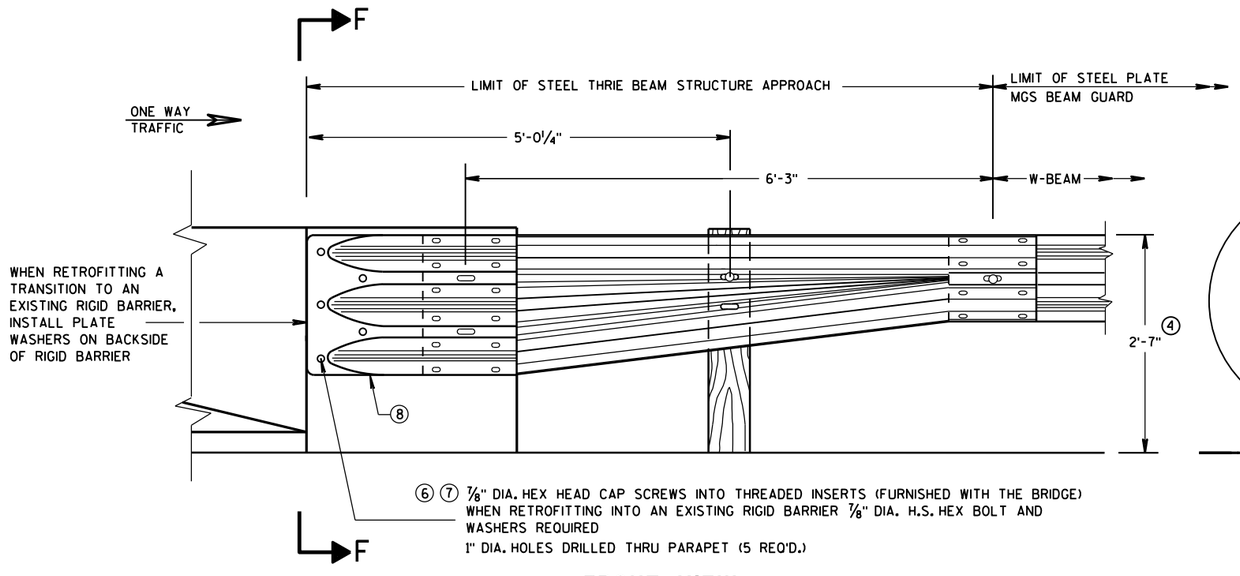
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

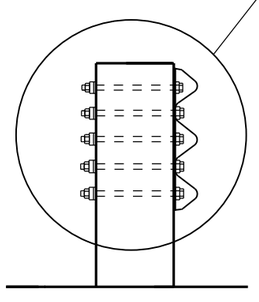
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. 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".

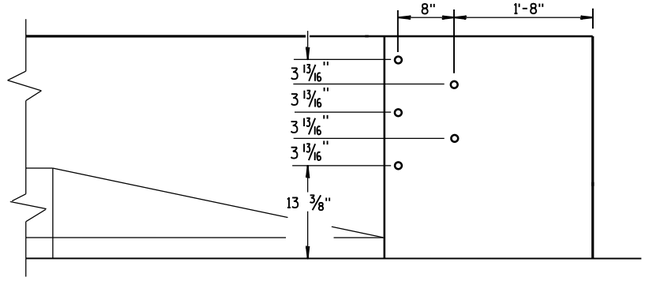




FRONT VIEW



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

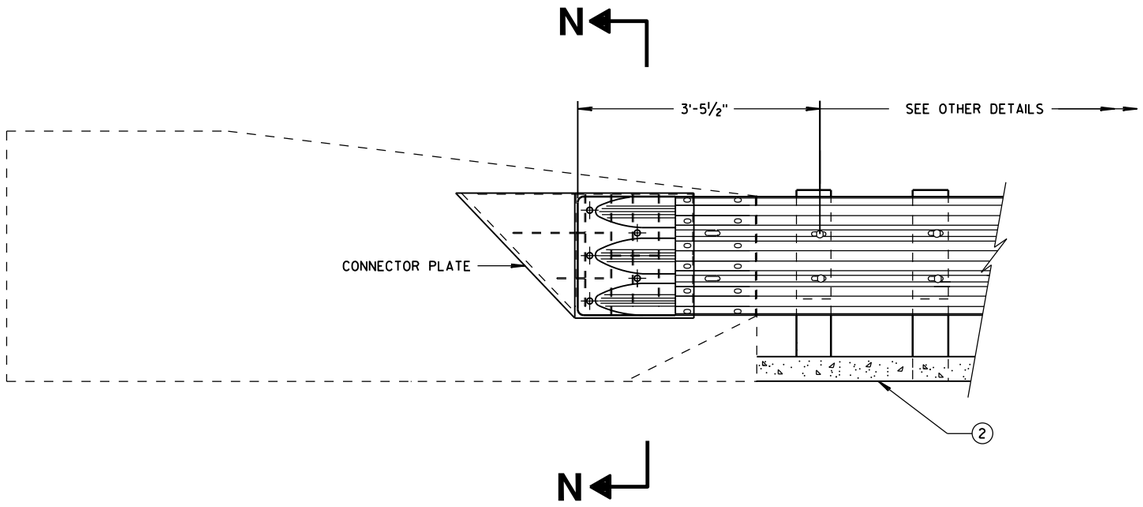
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

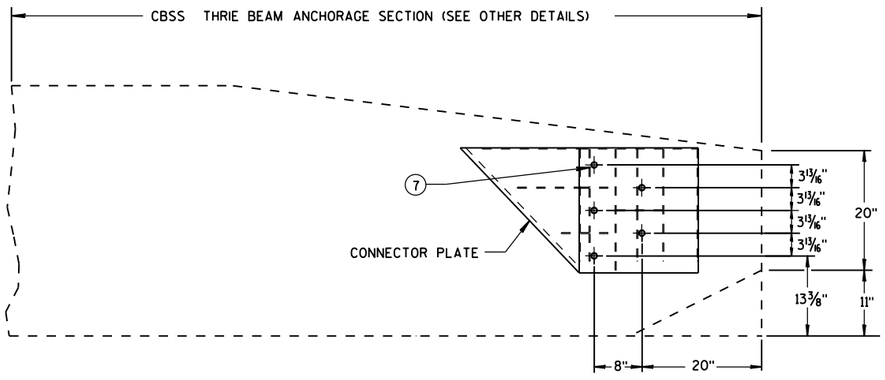
S.D.D. 14 B 45-4d

6

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



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



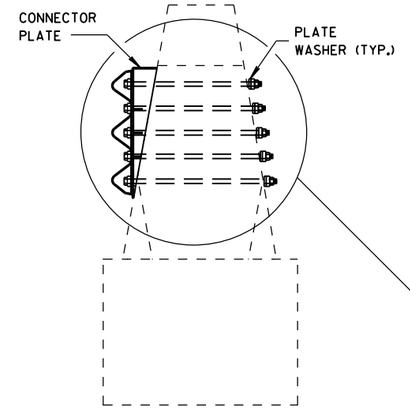
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

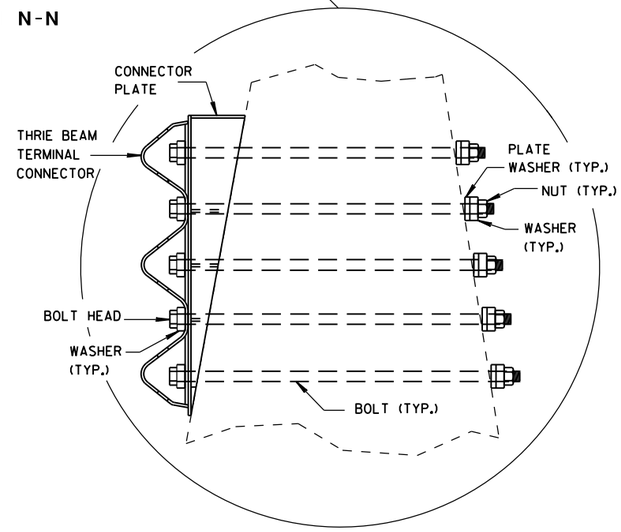
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

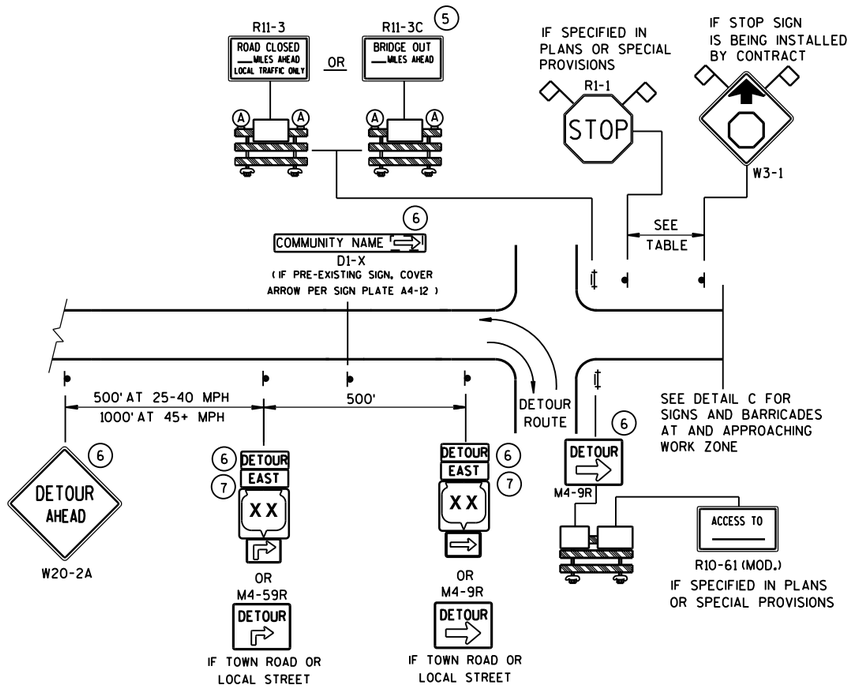
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS DEVELOPMENT ENGINEER
NT
FHWA

6

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

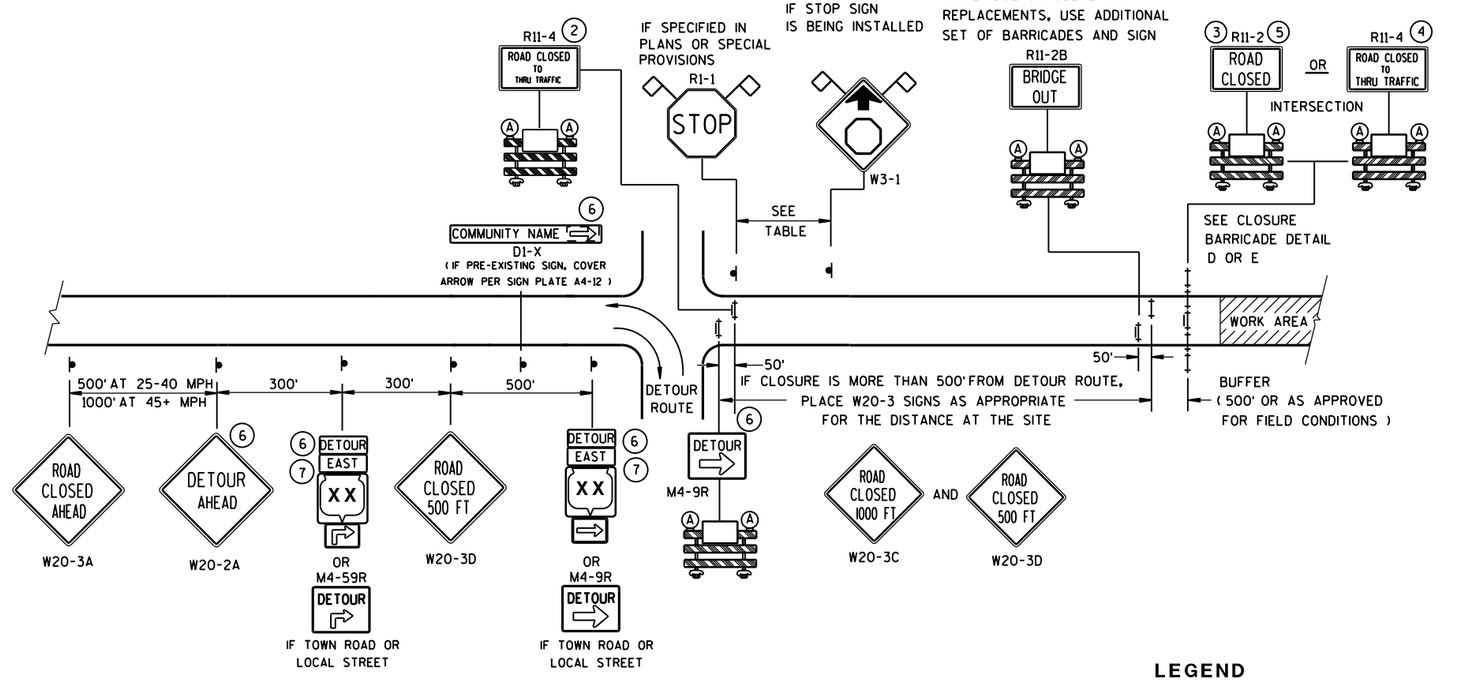
6

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



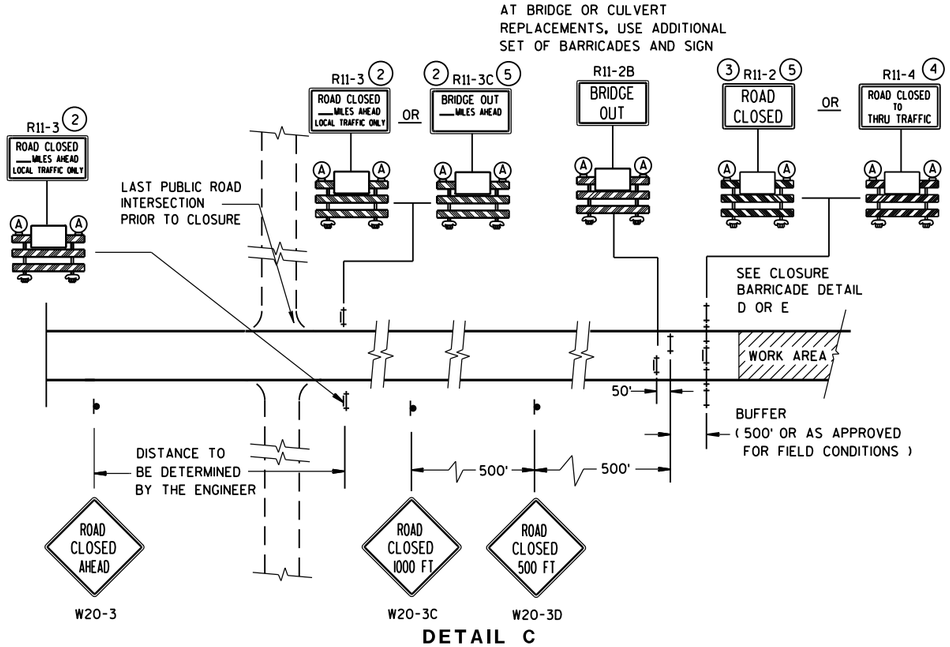
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

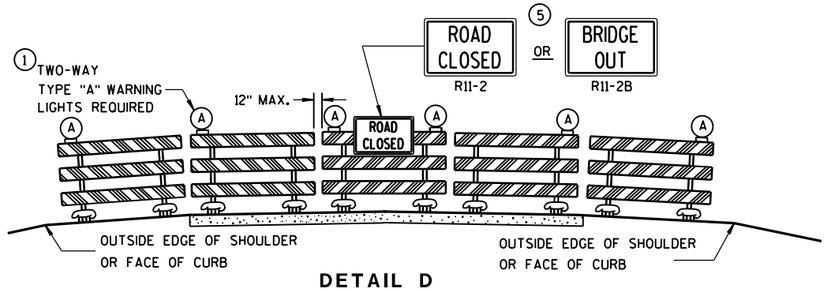
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

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

6

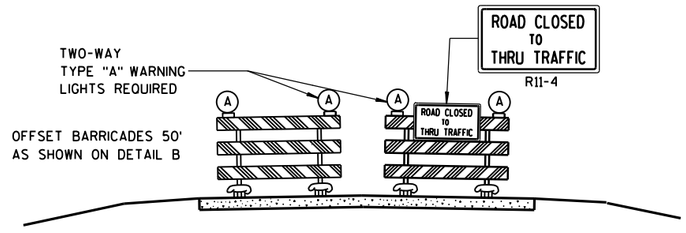
S.D.D. 15 C 2-6a



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

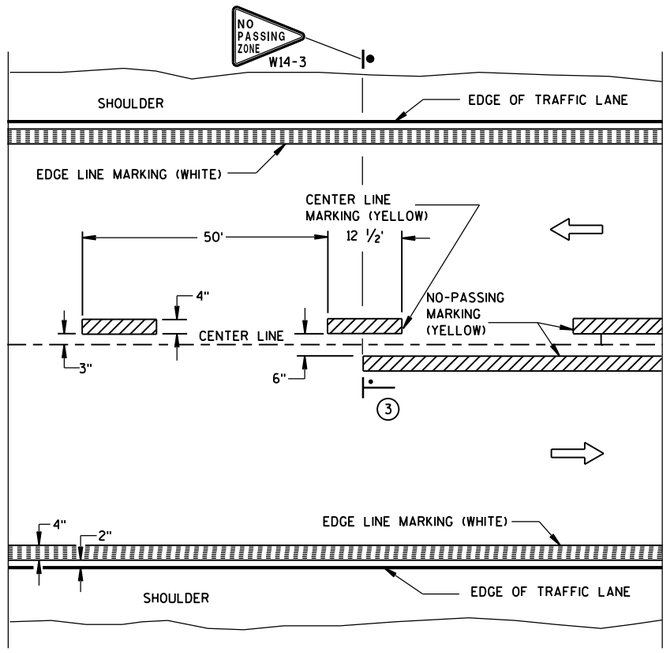
Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI — FIC

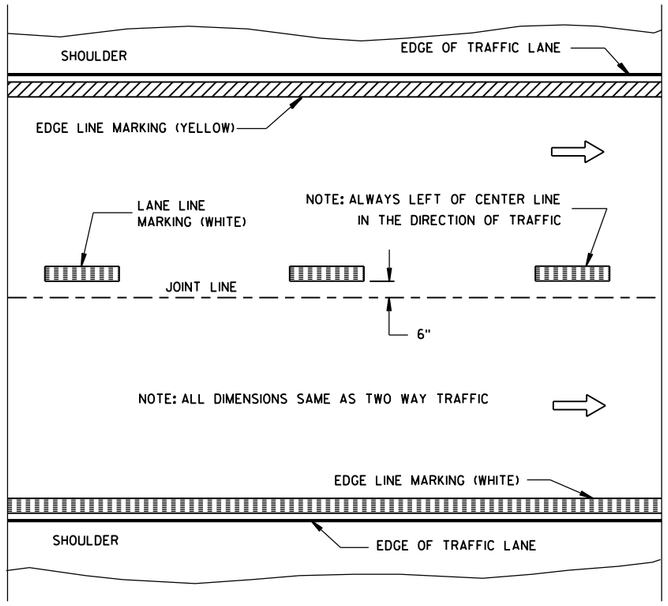
FHWA

6

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

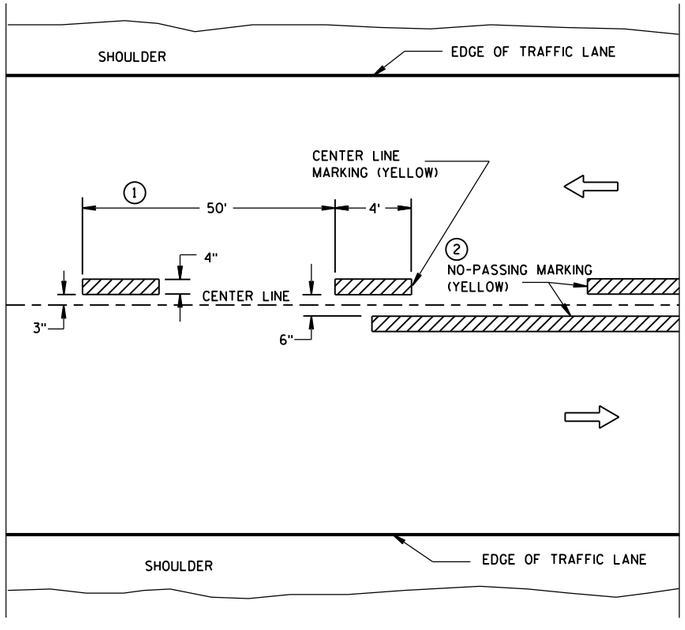


TWO WAY TRAFFIC

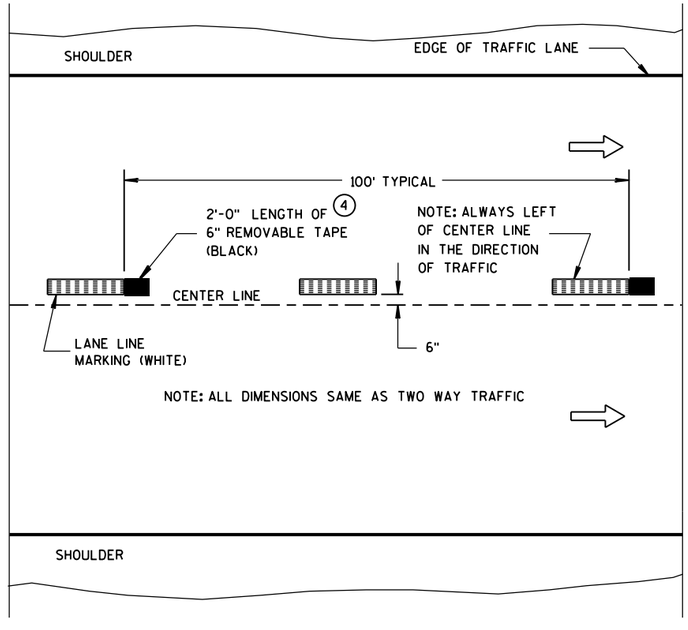


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

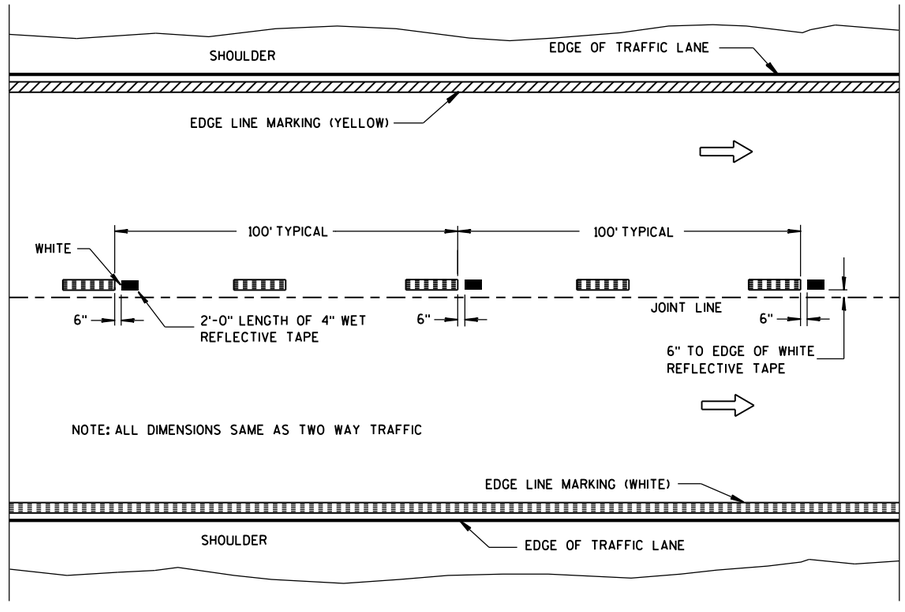
GENERAL NOTES

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

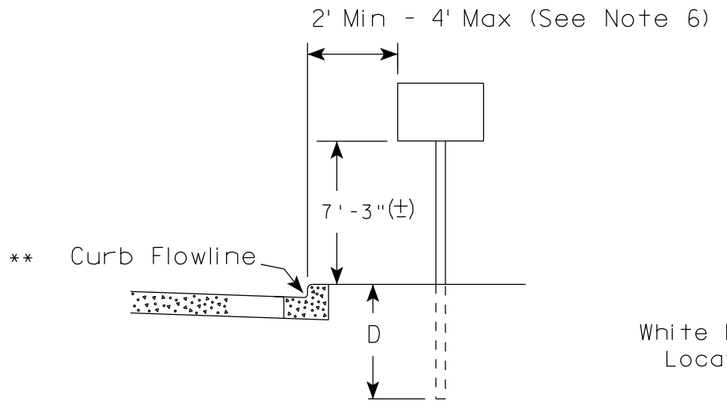
6

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

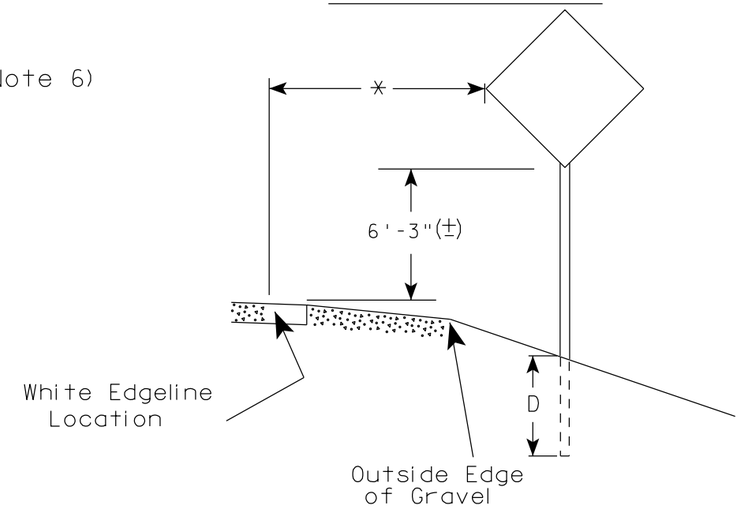
6

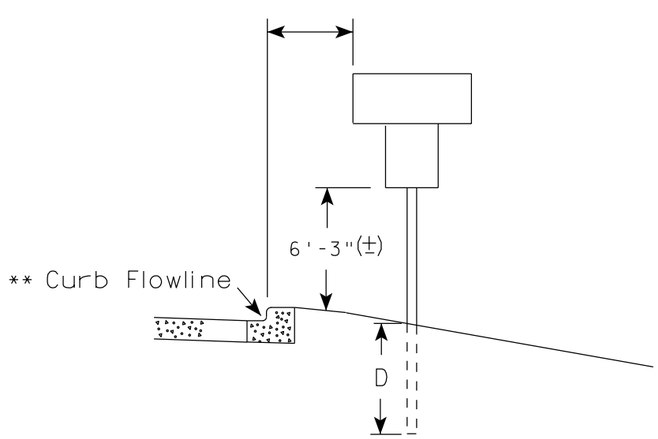
S.D.D. 15 C 8-16a

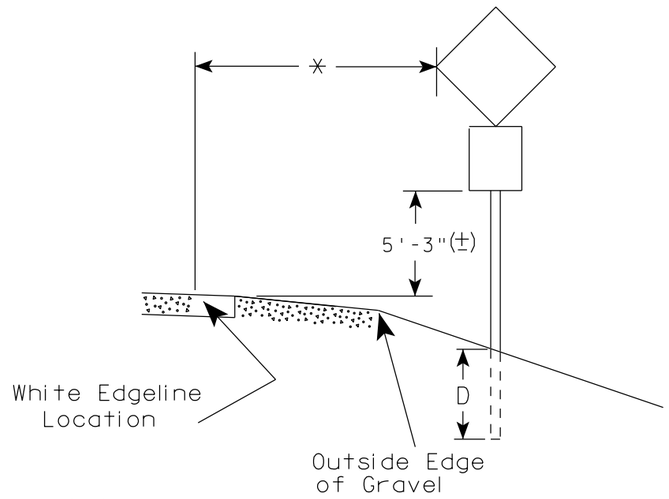
URBAN AREA



RURAL AREA (See Note 2)







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" (±).

POST EMBEDMENT DEPTH

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

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

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

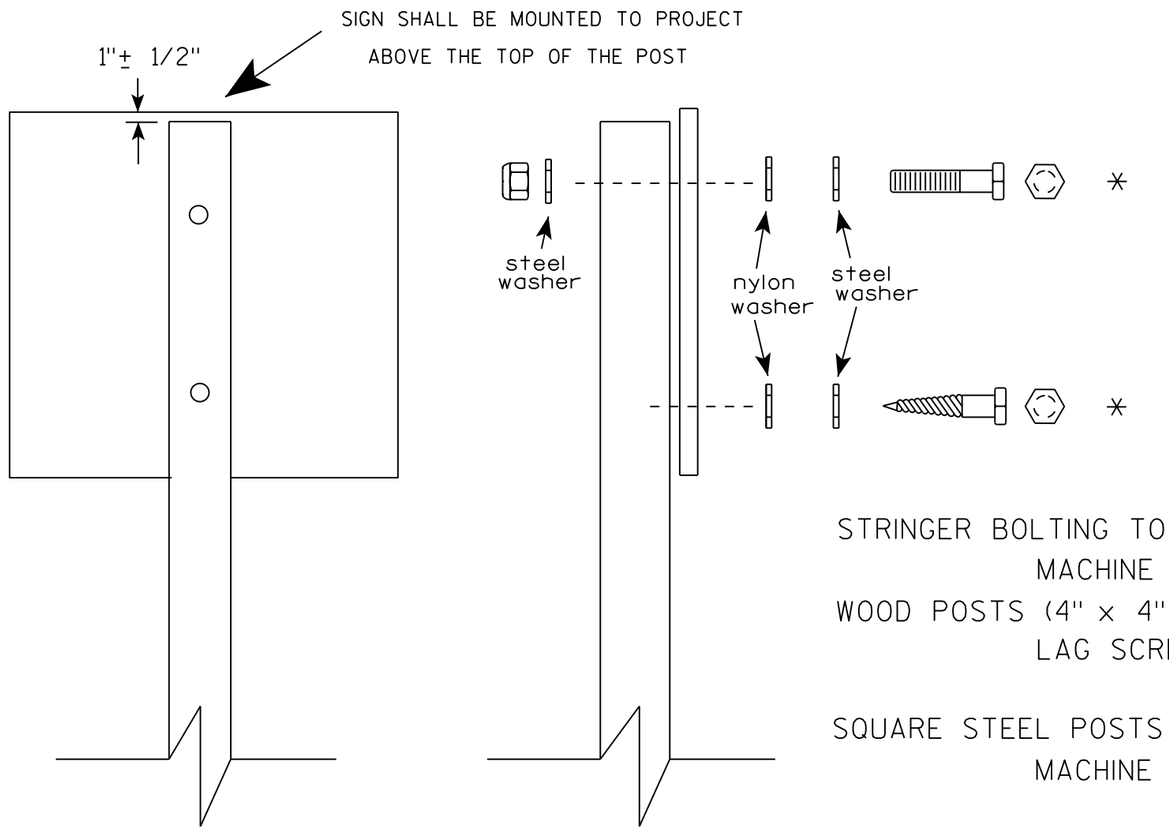
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

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

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)
SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
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

* 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

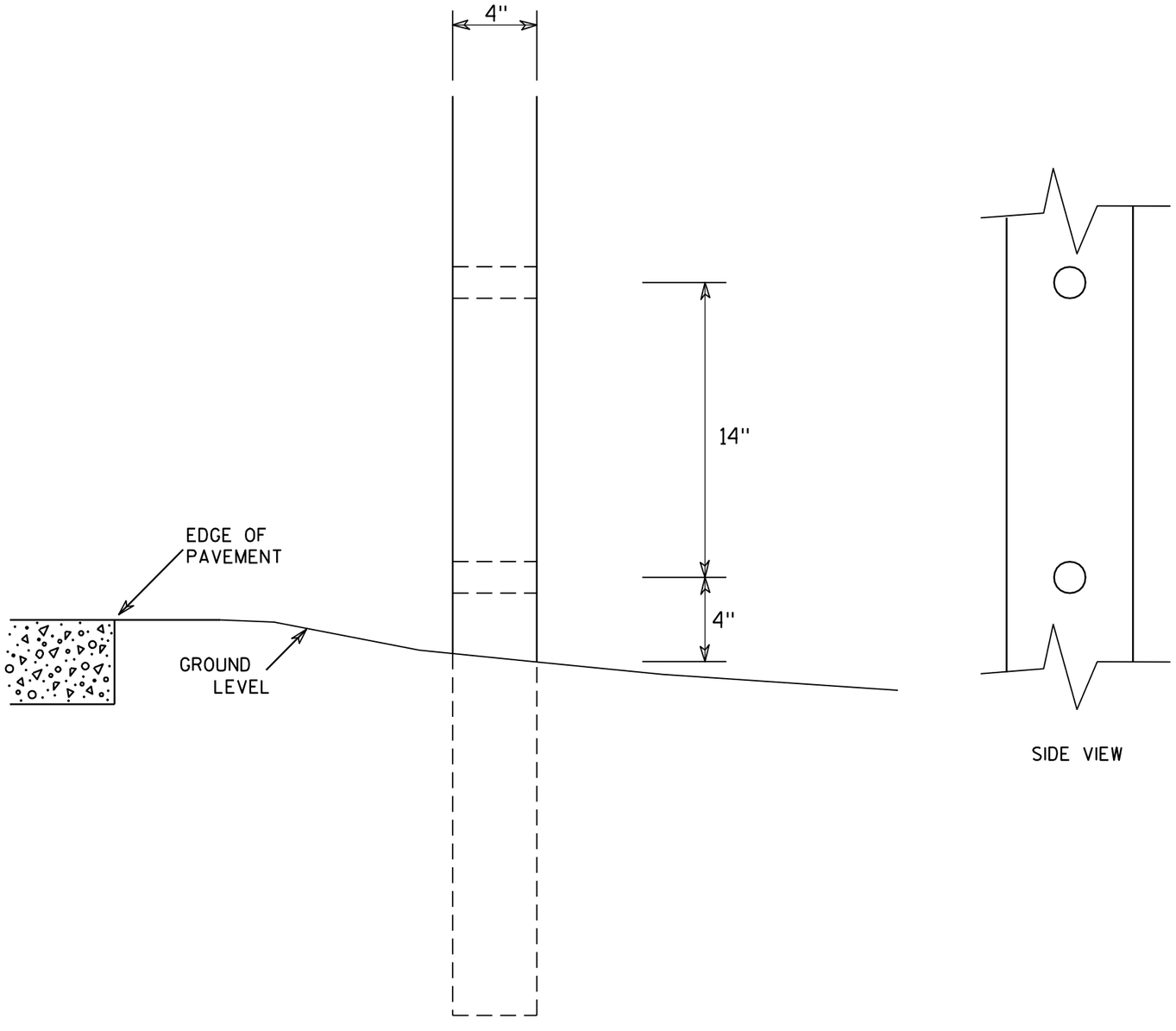
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

PROJECT NO: SHEET NO: E

FILE NAME : C:\CADfiles\Projects\tr_stdplate\A48.DGN PLOT DATE : 11-AUG-2016 11:35 PLOT BY : $$ plotuser $$



SIDE VIEW

GENERAL NOTES

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

7

7

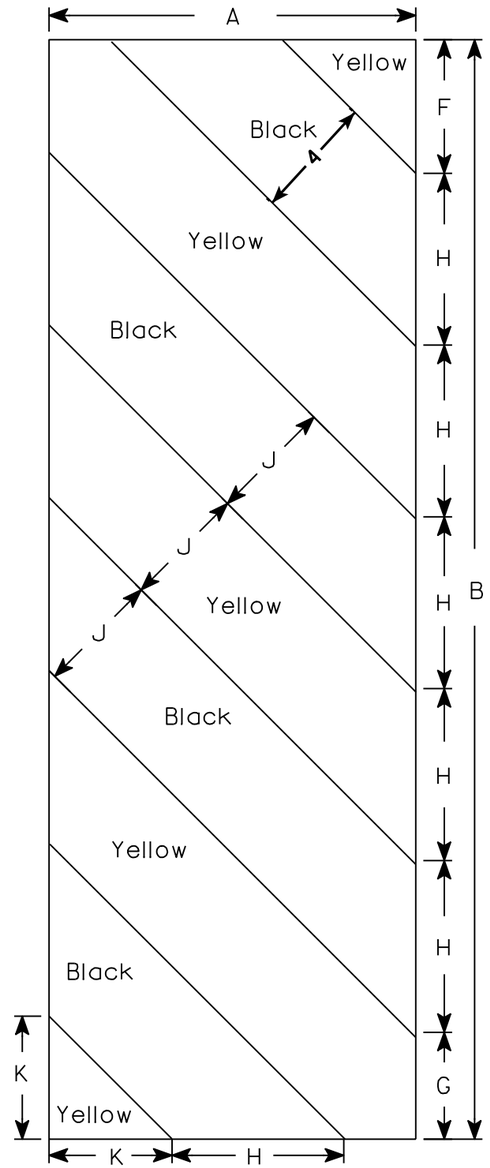
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

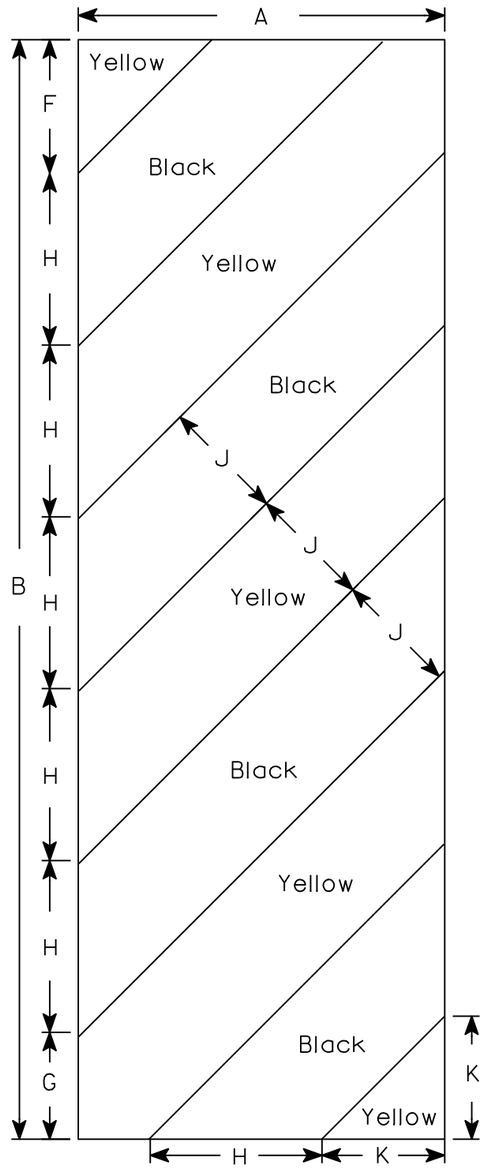
APPROVED Chester J Spang
for State Traffic Engineer

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

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



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

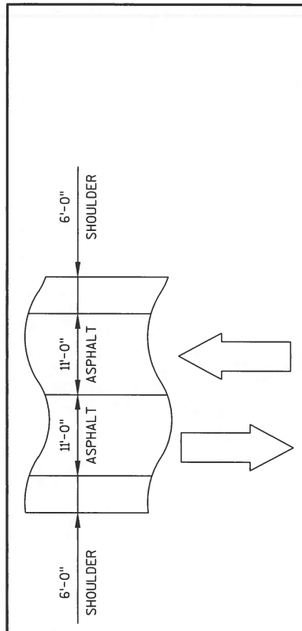
WISCONSIN DEPT OF TRANSPORTATION

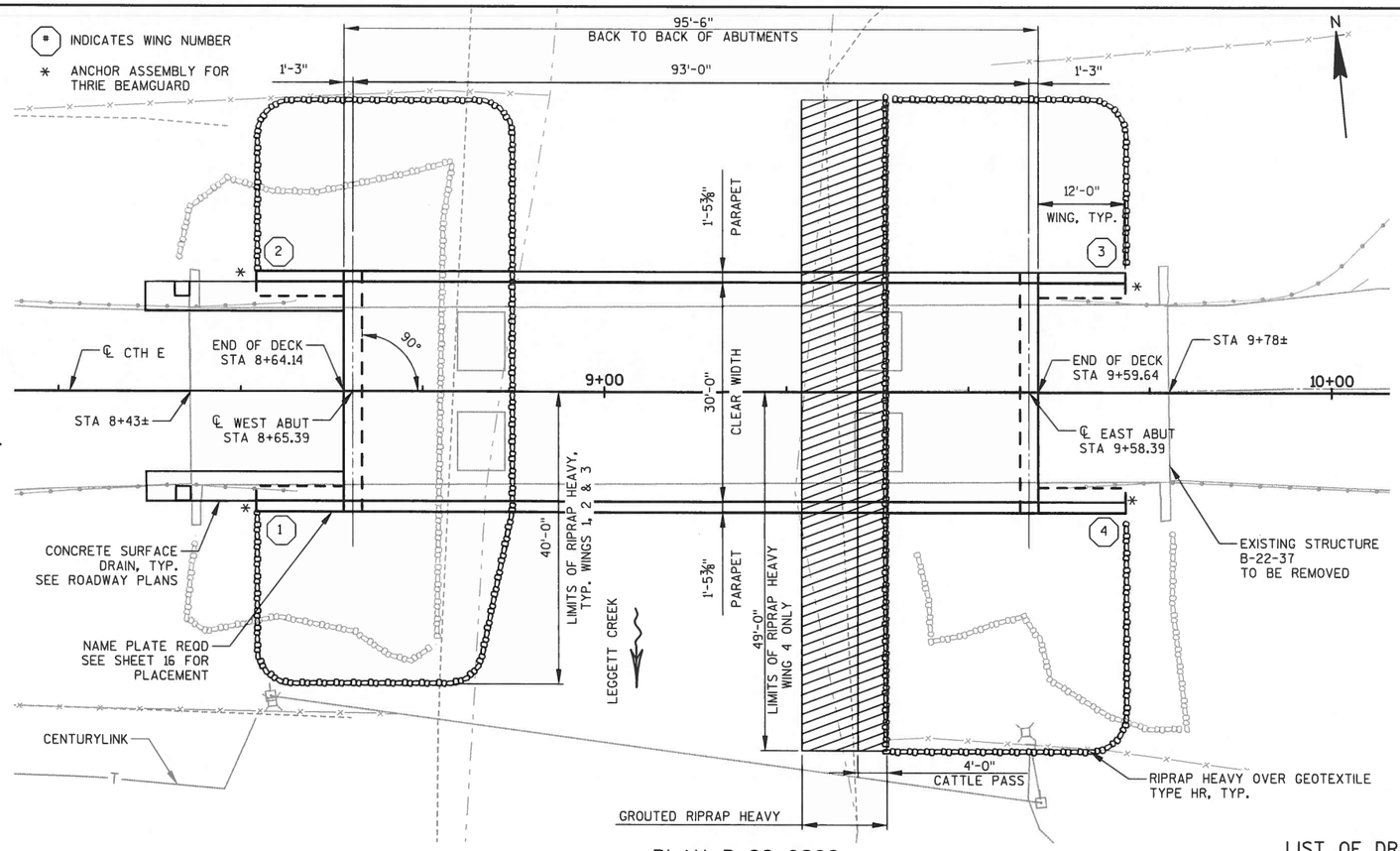
APPROVED Matthew R Rauch
for State Traffic Engineer

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

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

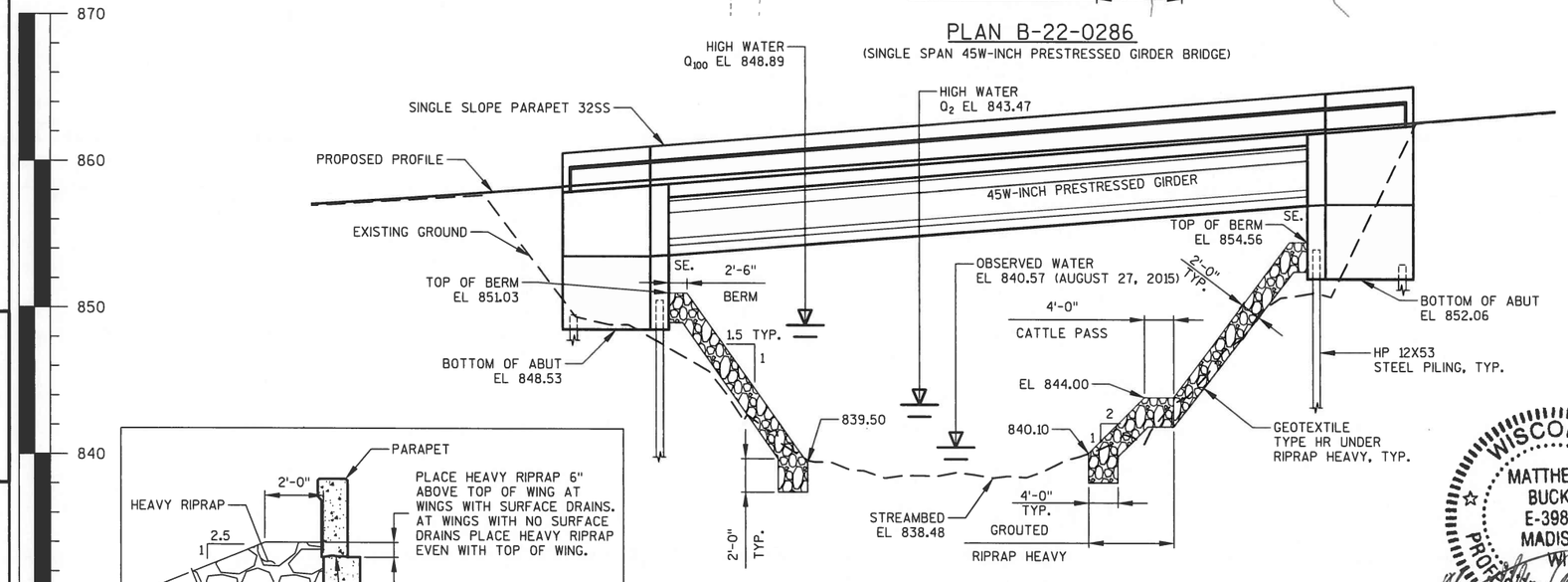
STATE PROJECT NUMBER
5587-00-72





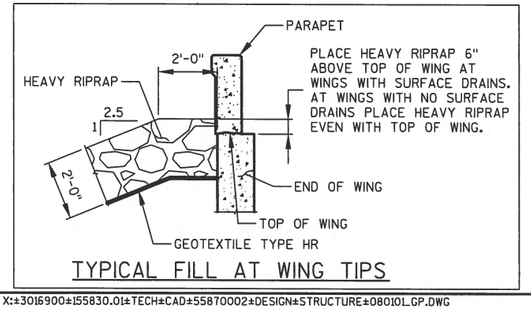
PLAN B-22-0286

(SINGLE SPAN 45W-INCH PRESTRESSED GIRDER BRIDGE)



ELEVATION

(NORMAL TO ℄ OF STREAM)



TYPICAL FILL AT WING TIPS

DESIGN DATA:

DESIGN LOADING — HL-93
INVENTORY RATING FACTOR — 1.26
OPERATING RATING FACTOR — 1.91
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
45W PRESTRESSED GIRDERS, CONCRETE MASONRY — f'c = 8,000 psi
STRANDS - 0.6" DIAMETER WITH ULTIMATE TENSILE STRENGTH OF — fu = 270,000 psi

TRAFFIC DATA:

ADT (2017) = 480
ADT (2037) = 580
DESIGN SPEED = 50 MPH

FOUNDATION DATA:

ABUTMENTS SUPPORTED ON HP 12-INCH X 53 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 220* TONS PER PILE AS REQUIRED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 30' LONG.

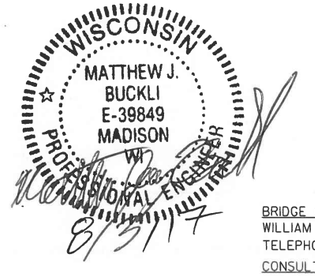
* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES DYNAMIC EQUATION TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA:

100 YEAR FREQUENCY
Q_{100} — 4500 cfs
STREAM VELOCITY — 9.38 fps
HIGH WATER — EL. 848.89
WATERWAY AREA — 480 ft^2
DRAINAGE AREA — 18.5 mi^2
SCOUR CRITICAL CODE — 8
OVERTOPPING FREQUENCY — N/A

2 YEAR FREQUENCY
Q_2 — 560 cfs
STREAM VELOCITY — 2.59 fps
HIGH WATER — EL. 843.47

LIST OF DRAWINGS:



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 08/03/17
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-22-286

CTH E OVER LEGGETT CREEK

COUNTY	TOWN/~~CITY/VILLAGE~~
GRANT	LIBERTY

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D	DRAWN BY	PLANS CK'D.
MJB	LYH/JSH	JAK	JSH

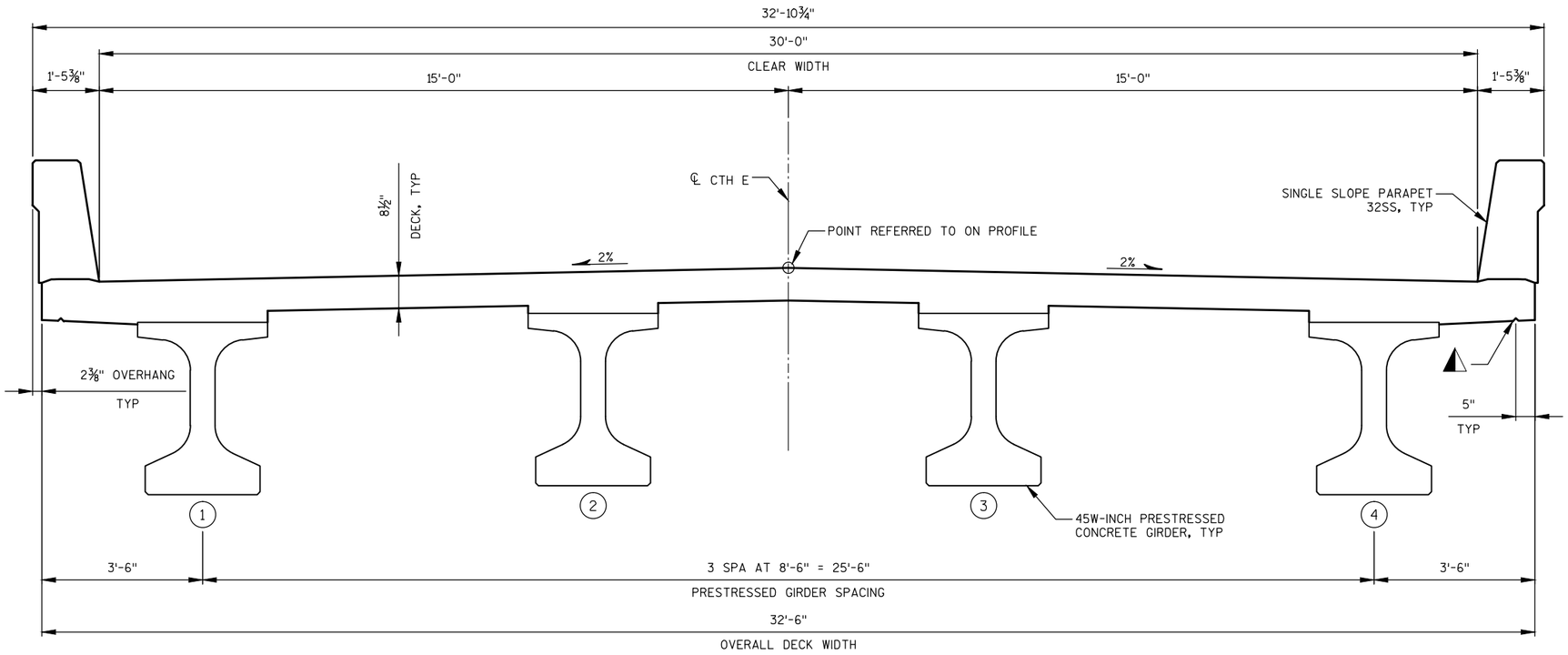
GENERAL PLAN

SHEET 1 45

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489
CONSULTANT CONTACT
MATT BUCKLI, P.E.
TELEPHONE: (608) 443-0441

STATE PROJECT NUMBER

5587-00-72



TYPICAL SECTION
(LOOKING EAST)

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 HEAVY RIPRAP OR GROUTED HEAVY RIPRAP AND GEOTEXTILE TYPE HR 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 135' LONG BY 24.0' CLEAR ROADWAY WIDTH, THREE SPAN STEEL GIRDER BRIDGE WITH CONCRETE ABUTMENTS AND PIERS (B-22-0037).

ALL STATIONS AND ELEVATIONS ARE IN FEET.

◓ ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD88.

◭ ¾" V-GROOVE REQ'D. EXTEND 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.

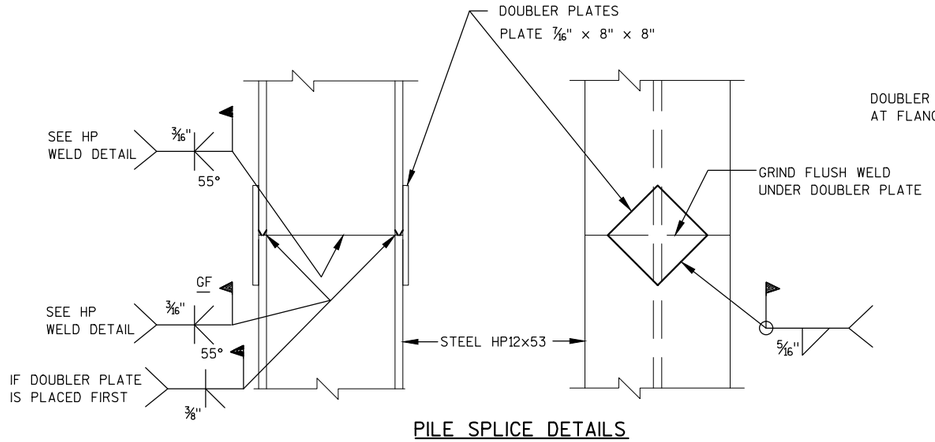
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURE BRIDGES B-22-286" SHALL BE THE EXISTING GROUNDLINE.

BENCH MARKS ◓

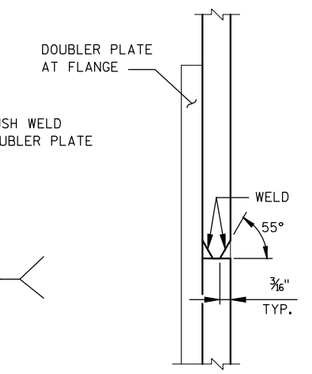
NO.	STATION	OFFSET	DESCRIPTION	ELEV.
1	7+63.6	14.3' RT	SOUTH SIDE PK NAIL	855.34
2	10+15.8	27.3' LT	NORTH SIDE REBAR IN SHOULDER	862.76

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	W ABUT	E ABUT	SUPER	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 9+12	LS	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-22-286	LS	---	---	---	1
210.1500	STRUCTURE BACKFILL TYPE A	TON	230	240	---	470
502.0100	CONCRETE MASONRY BRIDGES	CY	38	39	140	217
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	320	320
502.3210	PIGMENTED SURFACE SEALER	SY	10	10	80	100
503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH	LF	---	---	376	376
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1680	1680	---	3360
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2350	2370	22990	27710
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	---	8	8
506.4000	STEEL DIAPHRAGMS B-22-286	EACH	---	---	6	6
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	7	---	14
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	210	210	---	420
606.0300	RIPRAP HEAVY	CY	205	210	---	415
606.0700	GROUTED RIPRAP HEAVY	CY	---	100	---	100
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	79	79	---	158
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	2	---	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	50	50	---	100
645.0120	GEOTEXTILE TYPE HR	SY	360	530	---	890
	NON BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"



PILE SPLICE DETAILS



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY JAK | PLANS CK'D. JSH

TYPICAL SECTION, GENERAL NOTES, AND QUANTITIES

SHEET 46 OF 16

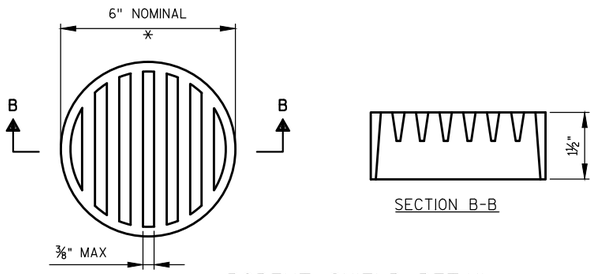
8

8

FILE NAME : X:±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±080102_TS.DWG PLOT DATE : 8/3/2017 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER

5587-00-72

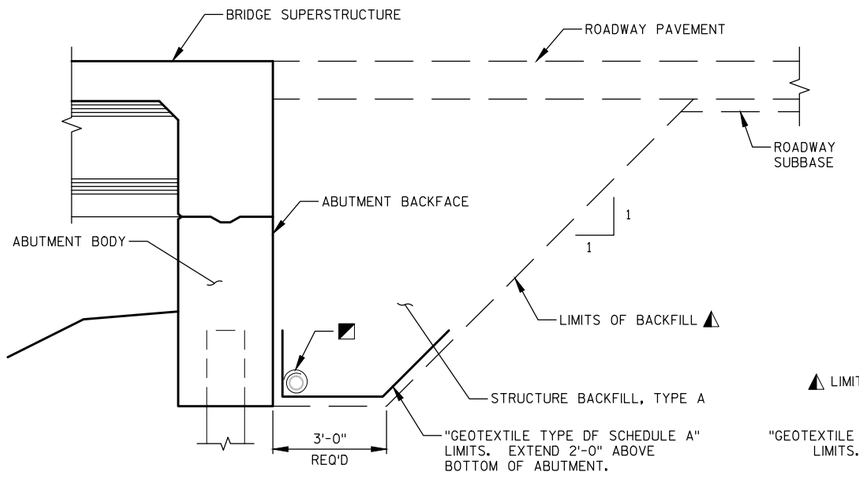


RODENT SHIELD DETAIL

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

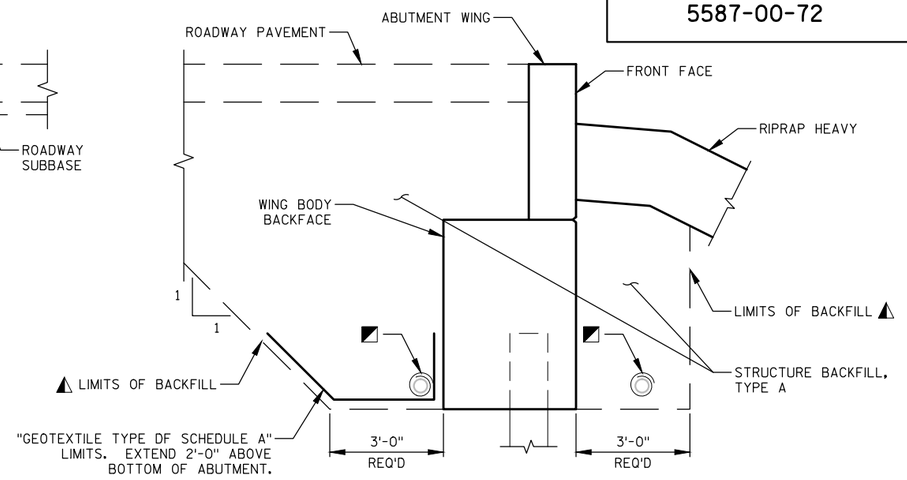
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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 & PIPE UNDERDRAIN DETAIL

(TYPICAL AT BOTH ABUTMENTS)

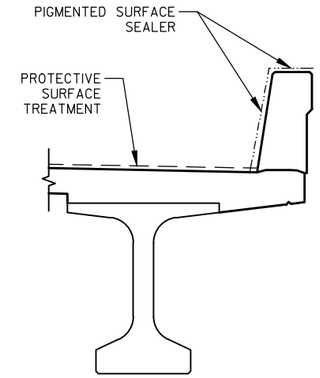


TYPICAL SECTION THRU WING

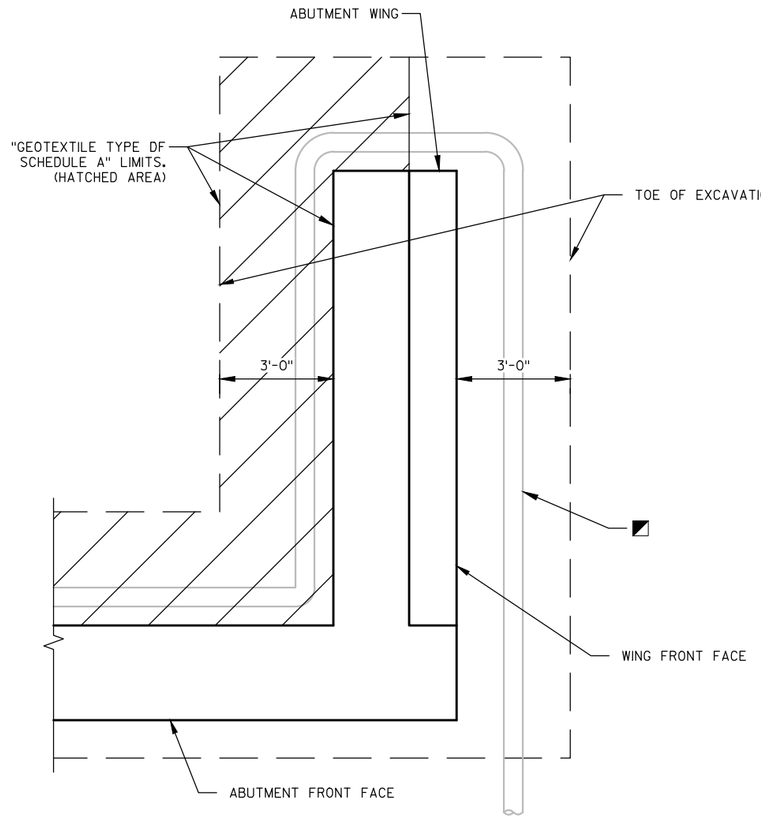
(SHOWING STRUCTURE BACKFILL LIMITS)

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

◩ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHEILD AT ENDS OF PIPE UNDERDRAIN.

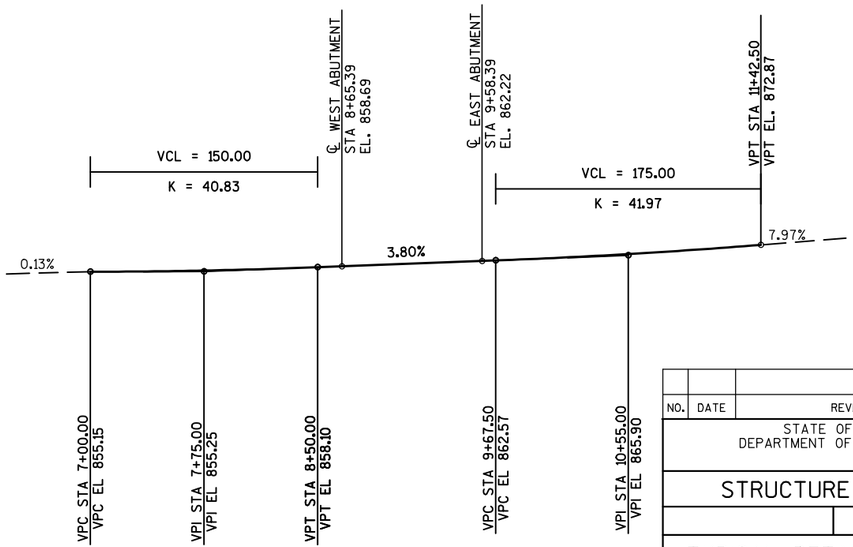


LIMITS OF SURFACE TREATMENTS



ABUTMENT PLAN WITH WING

(SHOWING STRUCTURE BACKFILL LIMITS)



PROFILE GRADE LINE, ℄ CTH E

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

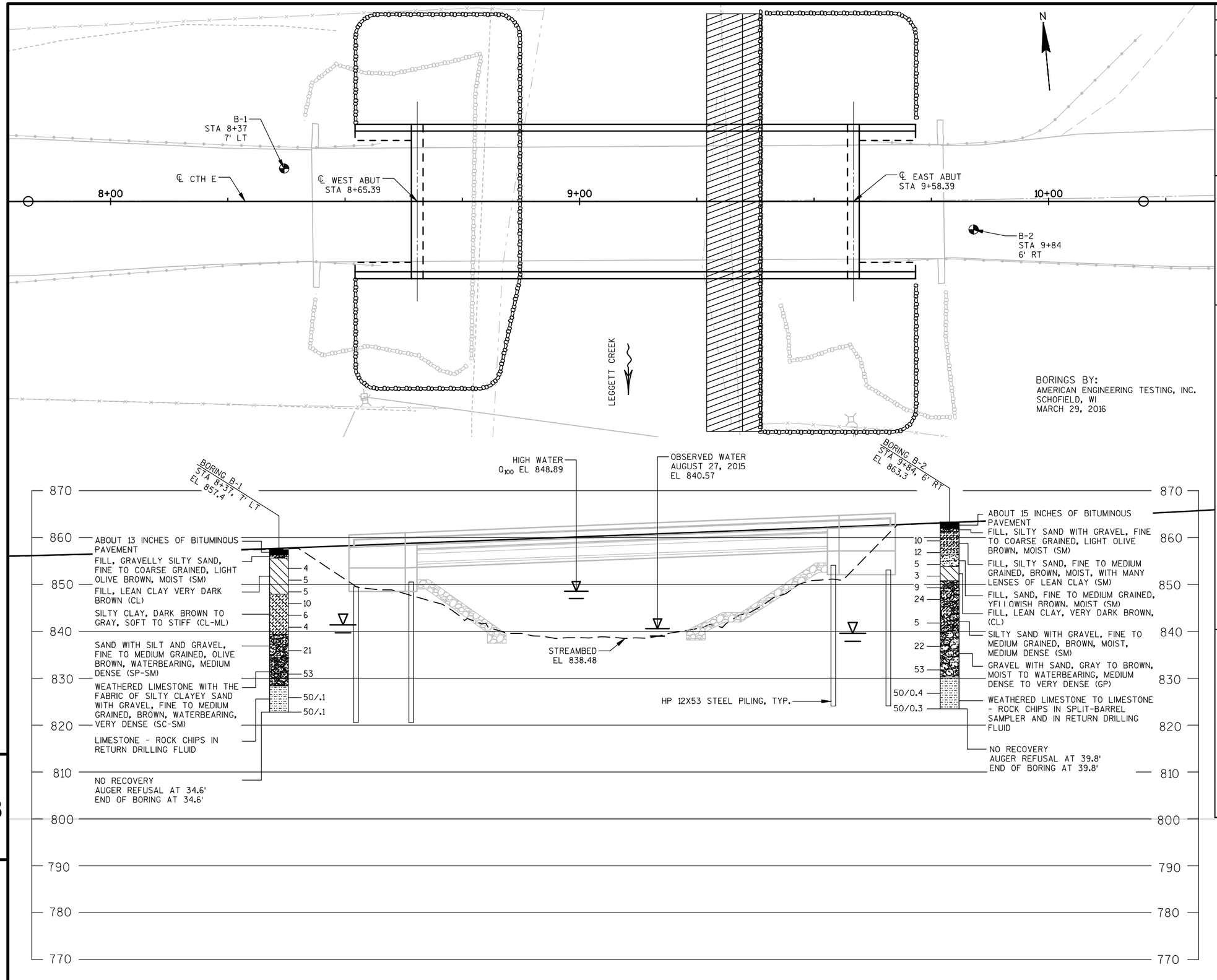
DRAWN BY JAK | PLANS CK'D. JSH

TYPICAL DETAILS

SHEET 47 OF 16

8

8



STATE PROJECT NUMBER

5587-00-72

ABBREVIATIONS

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

MATERIAL SYMBOLS

Asphalt, Silt, Sand, Concrete, Peat, Air, Gravel, Clay, Water

LEGEND OF PROBING

95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

Probing No.
Sta.
Elevation
7 Average Blows Per Foot
Refusal 95/6

LEGEND OF BORING

Boring No.
Elev.
Sta.
Unconfined STRENGTH → 7. 7 7
Blows Per Ft. USING 140# WT. FALLING 30"
Wash Sample
Shelby Tube — S.T.
Ground Water
No Ground Water OBSERVED ABOVE THIS ELEVATION
Sandy Gravel
F. Boulders or COBBLES
Sand
Silty Clay
So Limestone

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.

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

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SUBSURFACE EXPLORATION

SHEET 48 OF 16

8

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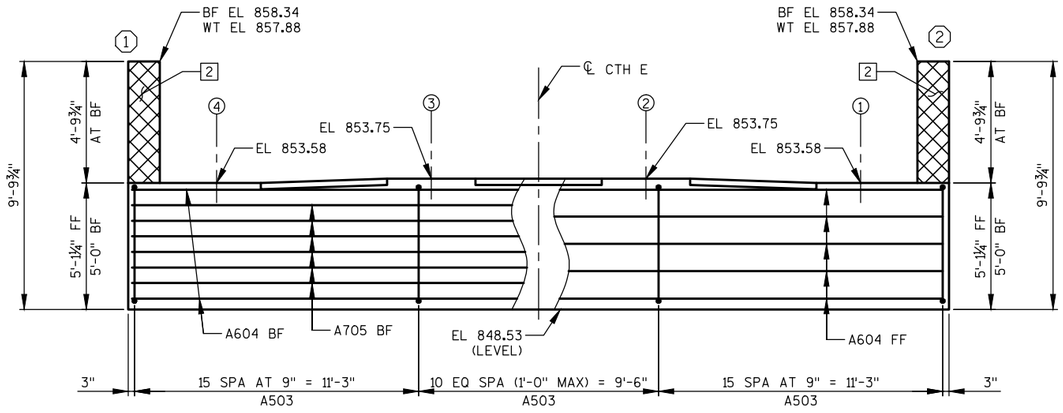
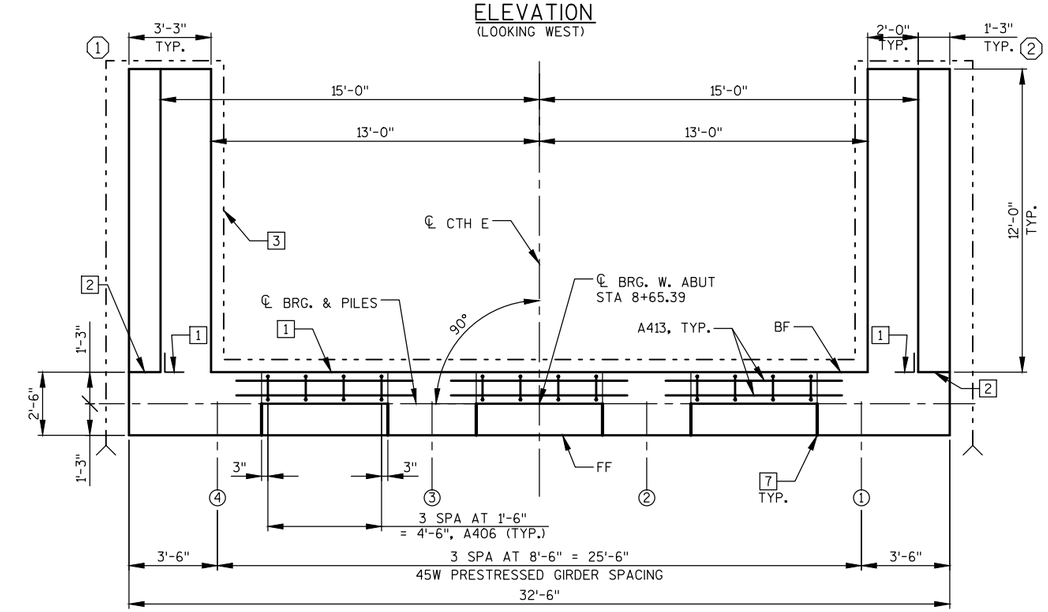
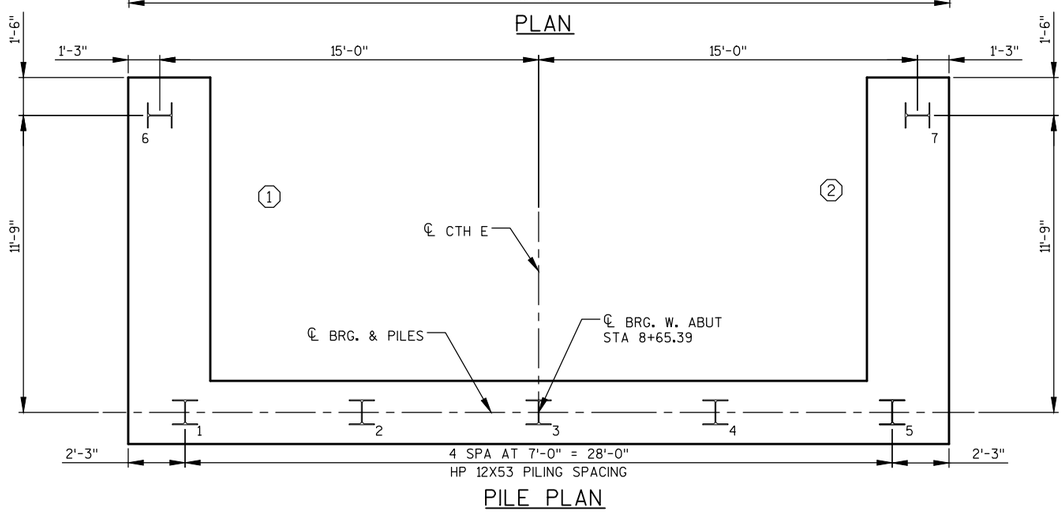


ELEVATION
(LOOKING WEST)



PLAN



PILE PLAN

NOTES:

FOR PILE SPLICE DETAILS SEE SHEET 2.

SEE SHEET 7 FOR SECTION THRU ABUTMENT BODY.

FILL/EXCAVATE TO BOTTOM OF WEST ABUTMENT EL 848.53 BEFORE DRIVING PILING.

WEST ABUTMENT TO BE SUPPORTED ON HP 12X53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 30' 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 2'-10".

[7] ¾" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

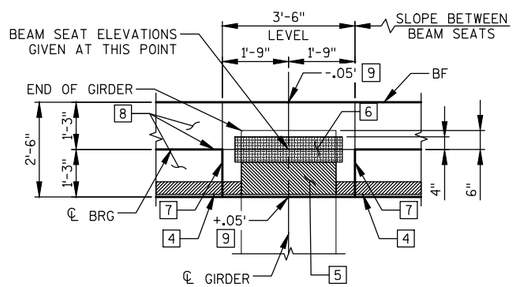
[8] STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF ALL SHEETS TO BE AT LEAST 0.03".

[9] SLOPED BEAM SEAT REQUIRED. USE THESE ADJUSTMENTS FROM ELEVATIONS GIVEN TO LAYOUT BEAM SEAT AT FRONT FACE AND BACK FACE.

(#) 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

STATE PROJECT NUMBER
5587-00-72

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

WEST ABUTMENT

SHEET 49 OF 16

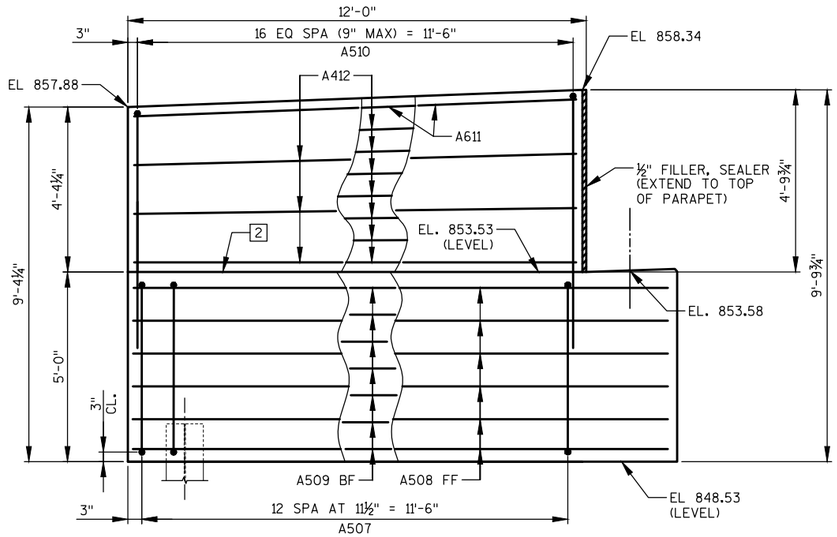
8

8

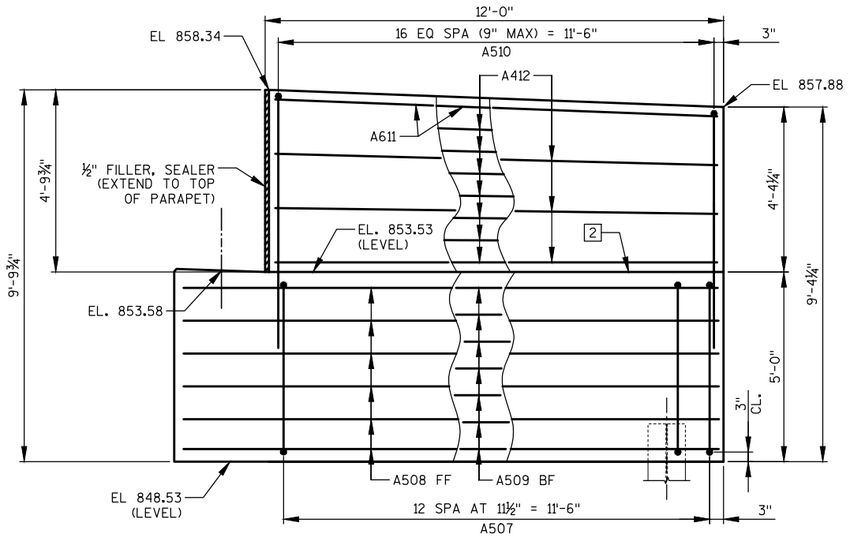
FILE NAME : X:±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±080105_WA.DWG PLOT DATE : 5/6/2017 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER

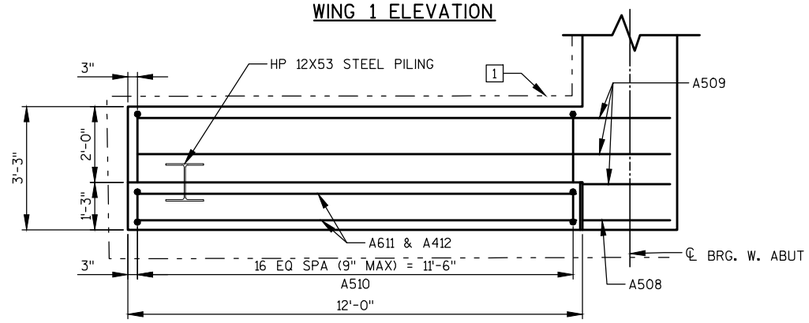
5587-00-72



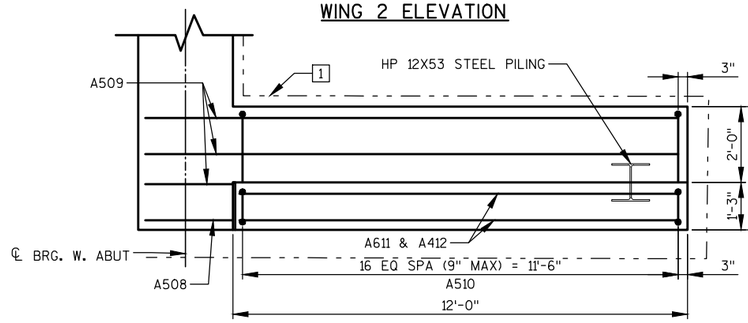
WING 1 ELEVATION



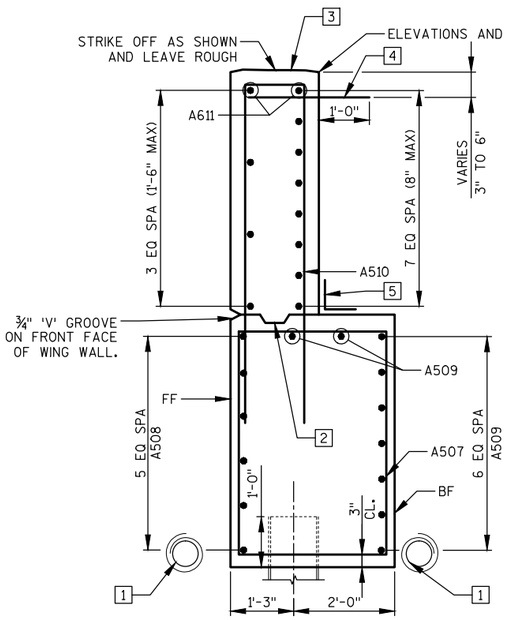
WING 2 ELEVATION



WING 1 PLAN

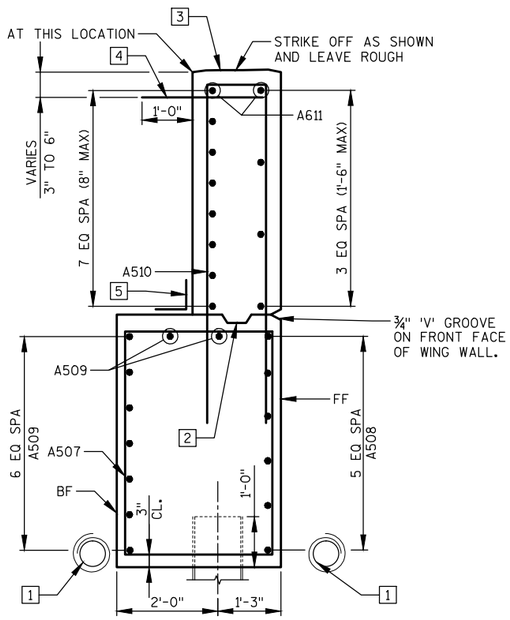


WING 2 PLAN



WING 1 SECTION

ALL HORIZONTAL BARS NOT LABELED IN WING TOP ARE A412 BARS.



WING 2 SECTION

ALL HORIZONTAL BARS NOT LABELED IN WING TOP ARE A412 BARS.

NOTES:

1. 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.
2. OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACKFACE.
3. PARAPET REINFORCEMENT NOT SHOWN FOR CLARITY. SEE SHEET 16 FOR DETAILS.
4. A414 DOWELS AT 1'-0" MAX. SPACING ALONG ENTIRE WING LENGTH. SEE STANDARD DETAIL DRAWING "CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES".
5. 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

FF - FRONT FACE
BF - BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

WEST ABUTMENT DETAILS

SHEET 50 OF 16

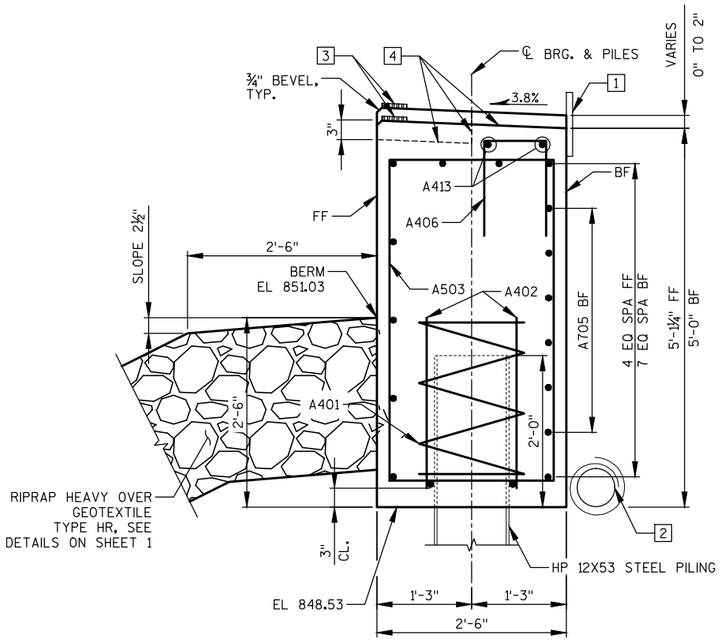
8

8

FILE NAME : X:±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±080105_WA.DWG PLOT DATE : 5/6/2017 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER

5587-00-72



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 SHEET 3 FOR RODENT SHIELD DETAILS.
3. 4" X ¾" FILLER LENGTH OF ABUTMENT.
4. STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF ALL SHEETS TO BE AT LEAST 0.03".

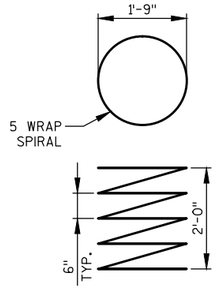
FF - FRONT FACE
BF - BACK FACE

BILL OF BARS
WEST ABUTMENT

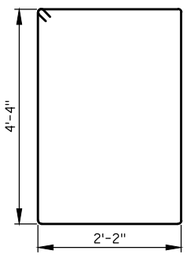
COATED= 1620 LBS.
UNCOATED= 1680 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
A401		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
A402		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
A503		41	13 - 8	X		ABUTMENT BODY - STIRRUPS	VERT
A604		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORIZ
A705		6	32 - 2			ABUTMENT BODY - BF	HORIZ
A406		12	3 - 1	X		ABUTMENT BODY - SEAT STEP	VERT
A507	26		15 - 4	X		WING WALL - BODY	VERT
A508	12		14 - 2			WING WALL - FF OF BODY	HORIZ
A509	18		14 - 2			WING WALL - BODY	HORIZ
A510	34		14 - 0	X		WING WALL - TOP TIES	VERT
A611	4		11 - 7			WING WALL - TOP	HORIZ
A412	20		11 - 7			WING WALL - TOP	HORIZ
A413		6	7 - 0			ABUTMENT BODY - SEAT STEP	HORIZ
A414	24		2 - 0			WING WALL - TOP DOWELS	HORIZ

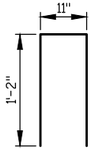
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



A401



A503



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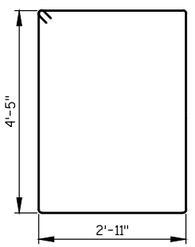

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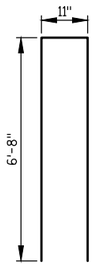


A510

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

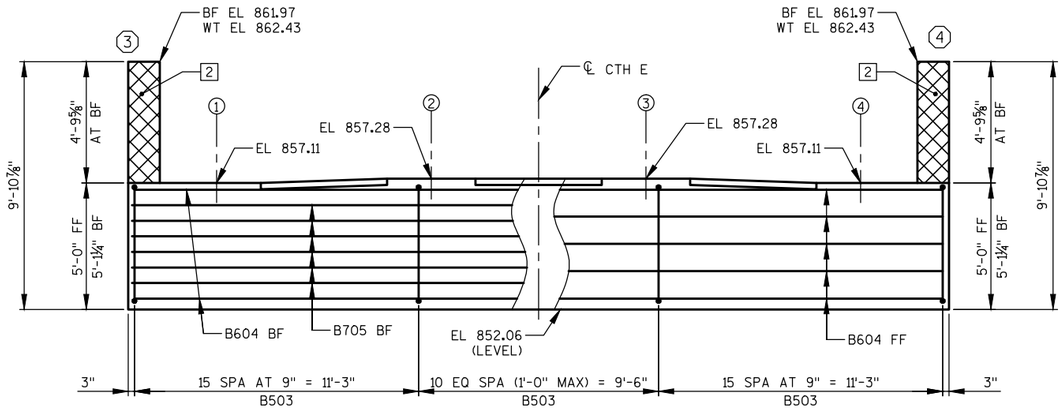
WEST ABUTMENT DETAILS

SHEET 51 OF 16

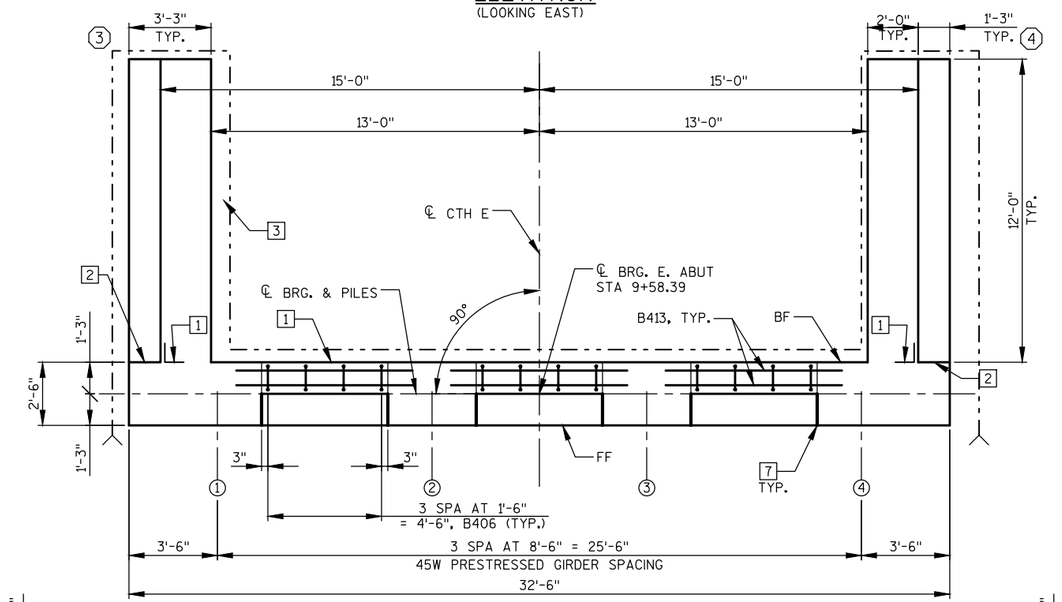
8

8

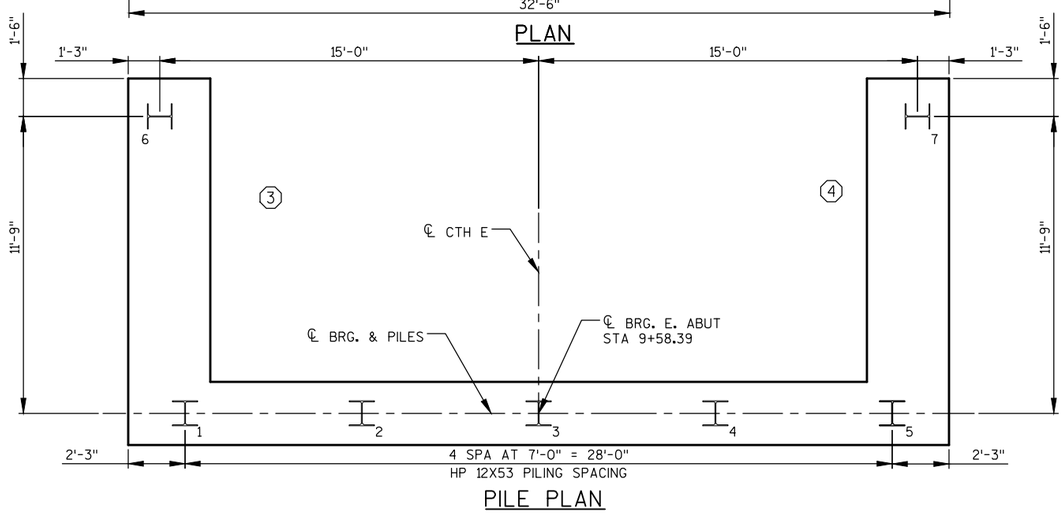
FILE NAME : ±±CORP.MEADHUNT.COM±SHAREDFOLDERS±ENTP±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±085255.DWG PLOT BY : **** PLOT SCALE : 1" = 1'



ELEVATION
(LOOKING EAST)



PLAN



PILE PLAN

NOTES:

FOR PILE SPLICE DETAILS SEE SHEET 2.

SEE SHEET 10 FOR SECTION THRU ABUTMENT BODY.

FILL/EXCAVATE TO BOTTOM OF EAST ABUTMENT EL 852.06 BEFORE DRIVING PILING.

EAST ABUTMENT TO BE SUPPORTED ON HP 12X53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED AT 30' 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 2'-10".

[7] ¾" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

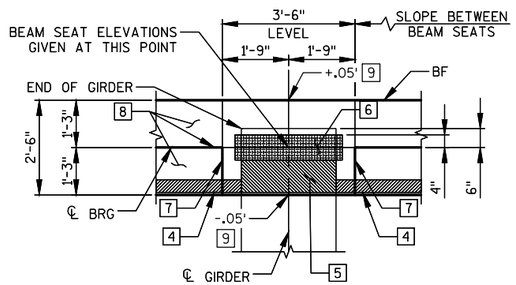
[8] STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF ALL SHEETS TO BE AT LEAST 0.03".

[9] SLOPED BEAM SEAT REQUIRED. USE THESE ADJUSTMENTS FROM ELEVATIONS GIVEN TO LAYOUT BEAM SEAT AT FRONT FACE AND BACK FACE.

(#) INDICATES WING NUMBER

(#) INDICATES GIRDER NUMBER

FF - FRONT FACE
BF - BACK FACE



BEARING PAD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STATE PROJECT NUMBER
5587-00-72

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

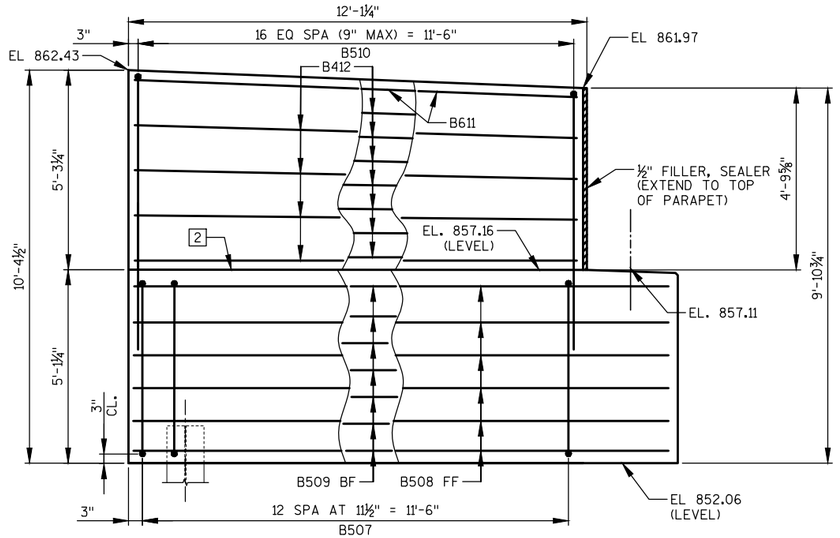
EAST ABUTMENT

SHEET 52 OF 116

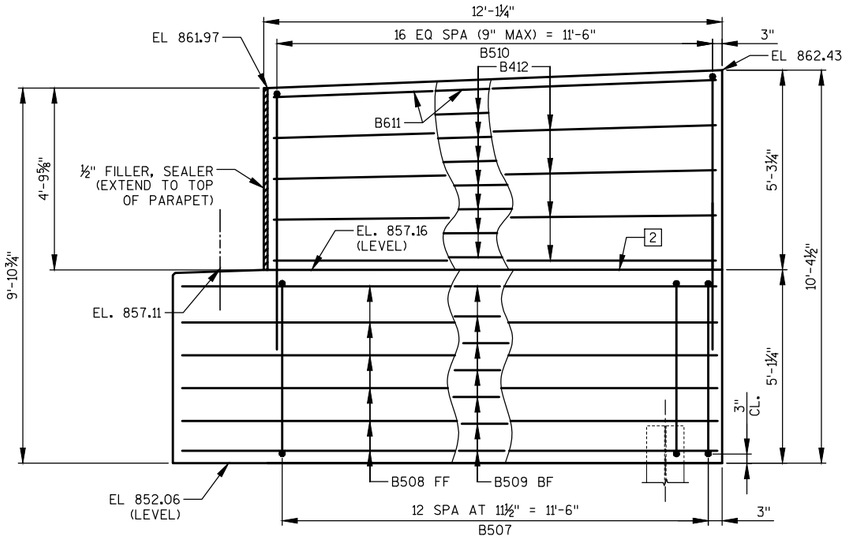
8

8

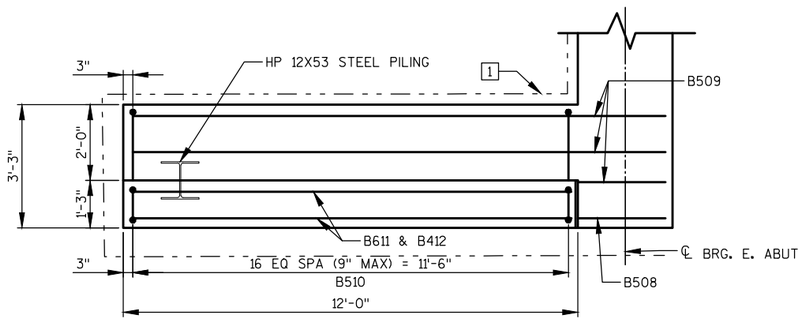
FILE NAME : X:±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±080108_EA.DWG PLOT DATE : 5/6/2017 PLOT BY : ---- PLOT SCALE : 1" = 1'



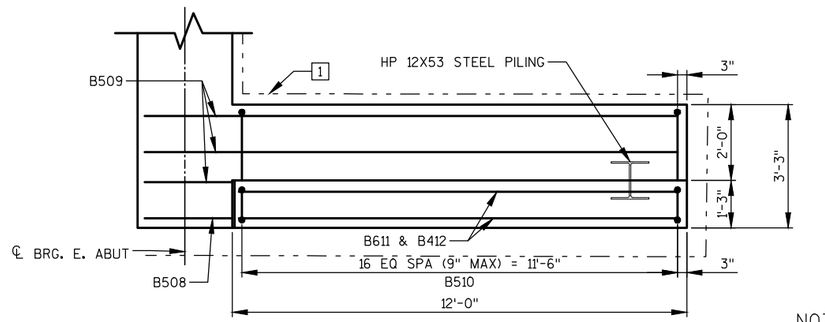
WING 3 ELEVATION



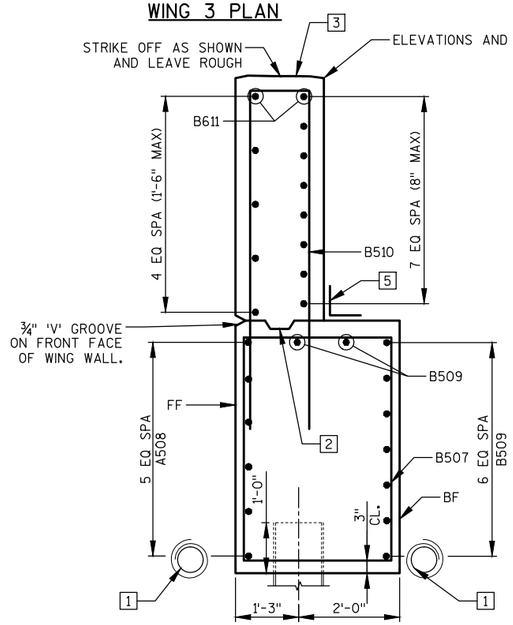
WING 4 ELEVATION



WING 3 PLAN

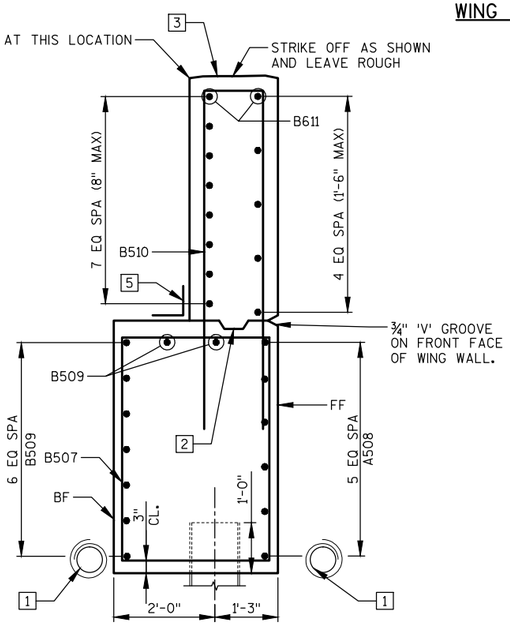


WING 4 PLAN



WING 3 SECTION

ALL HORIZONTAL BARS NOT LABELED IN WING TOP ARE B412 BARS.



WING 4 SECTION

ALL HORIZONTAL BARS NOT LABELED IN WING TOP ARE B412 BARS.

NOTES:

1. 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.
2. OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACKFACE.
3. PARAPET REINFORCEMENT NOT SHOWN FOR CLARITY. SEE SHEET 16 FOR DETAILS.
4. A414 DOWELS AT 1'-0" MAX. SPACING ALONG ENTIRE WING LENGTH. SEE STANDARD DETAIL DRAWING "CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES".
5. 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

FF - FRONT FACE
BF - BACK FACE

STATE PROJECT NUMBER

5587-00-72

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

EAST ABUTMENT DETAILS

SHEET 53 OF 16

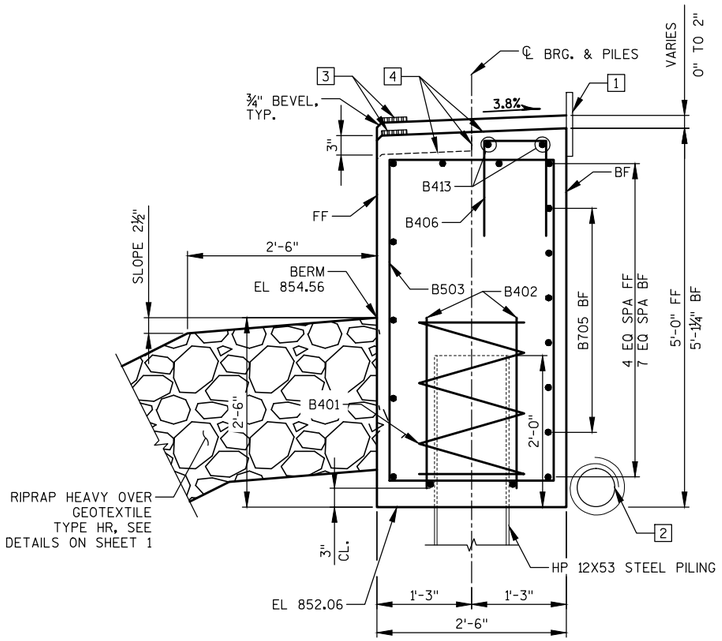
8

8

FILE NAME : X:±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±080108_EA.DWG PLOT DATE : 5/6/2017 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER

5587-00-72



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 SHEET 3 FOR RODENT SHIELD DETAILS.
3. 4" X ¾" FILLER LENGTH OF ABUTMENT.
4. STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF ALL SHEETS TO BE AT LEAST 0.03".

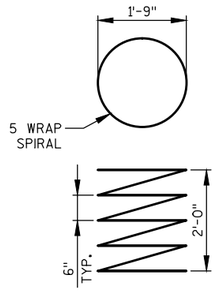
FF - FRONT FACE
BF - BACK FACE

BILL OF BARS
EAST ABUTMENT

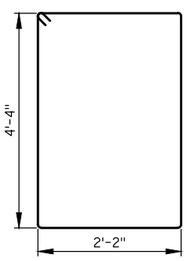
COATED= 1640 LBS.
UNCOATED= 1680 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
B401		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
B402		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
B503		41	13 - 8	X		ABUTMENT BODY - STIRRUPS	VERT
B604		11	32 - 2			ABUTMENT BODY - FF, TOP, BTM	HORIZ
B705		6	32 - 2			ABUTMENT BODY - BF	HORIZ
B406		12	3 - 5	X		ABUTMENT BODY - SEAT STEP	VERT
B507	26		15 - 6	X		WING WALL - BODY	VERT
B508	12		14 - 2			WING WALL - FF OF BODY	HORIZ
B509	18		14 - 2			WING WALL - BODY	HORIZ
B510	34		15 - 0	X		WING WALL - TOP TIES	VERT
B611	4		11 - 7			WING WALL - TOP	HORIZ
B412	22		11 - 7			WING WALL - TOP	HORIZ
B413		6	7 - 0			ABUTMENT BODY - SEAT STEP	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.



B401



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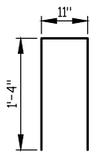

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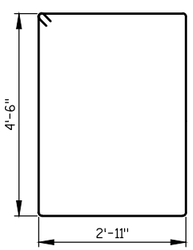

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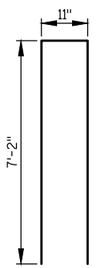


B510

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

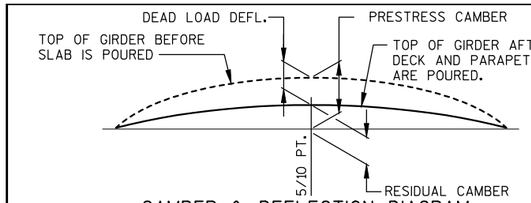
EAST ABUTMENT DETAILS

SHEET 54 OF 16

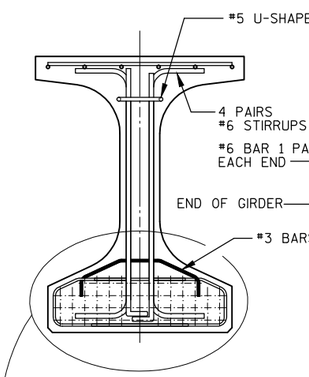
8

8

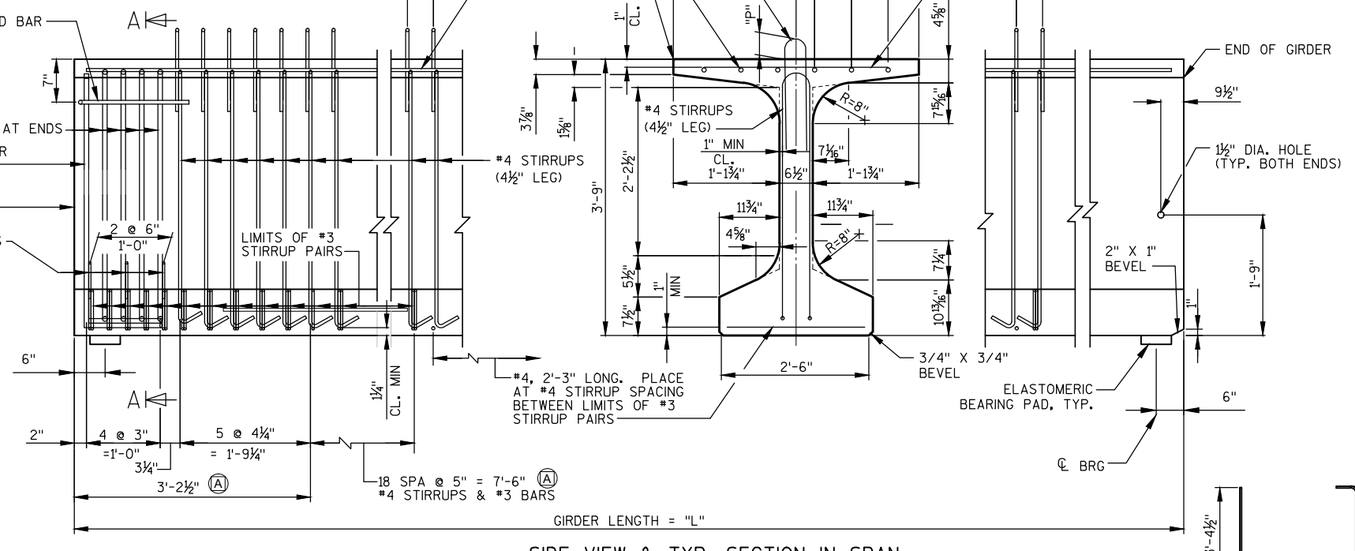
STATE PROJECT NUMBER
5587-00-72



CAMBER & DEFLECTION DIAGRAM



SECTION A-A



SIDE VIEW & TYP. SECTION IN SPAN

Ⓐ DETAIL TYPICAL AT EACH END

Ⓑ 6-#4 BARS, FULL LENGTH, MIN. LAP = 2'-4"

NOTES:

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

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

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

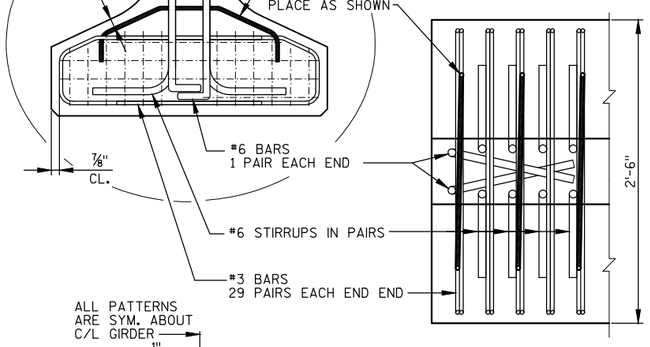
STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS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

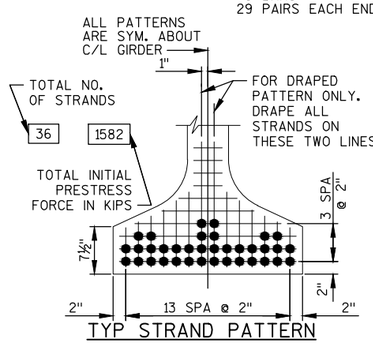
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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.



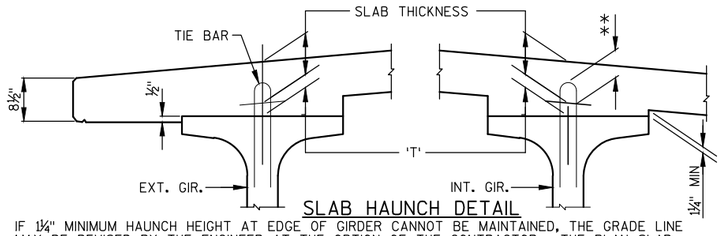


TYP STRAND PATTERN

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	3⅝

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



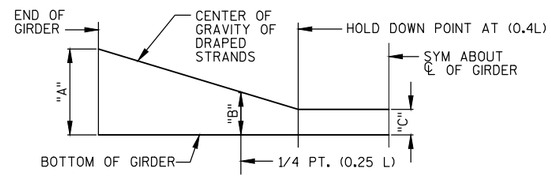
SLAB HAUNCH DETAIL

** 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.

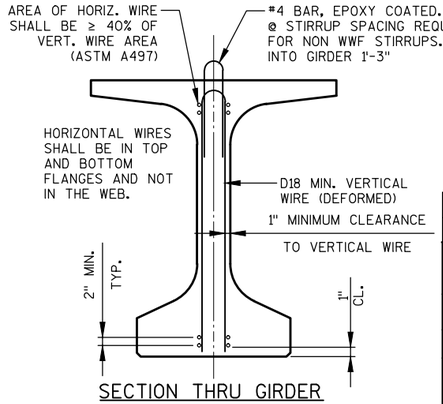
TO DETERMINE 'T', ELEV. OF TOP OF GIRDERS AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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 3⅝" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DRAPED STRAND PROFILE



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS ASTM A1064 (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"	"B" MIN.	"B" MAX.	"C"		TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
1	ALL	94'-0"	½	1	1⅜	1¾	1¾	1¾	1⅜	1	½	8000	8	7	8	0.6	36	6400	33	12	15	5		—	—

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

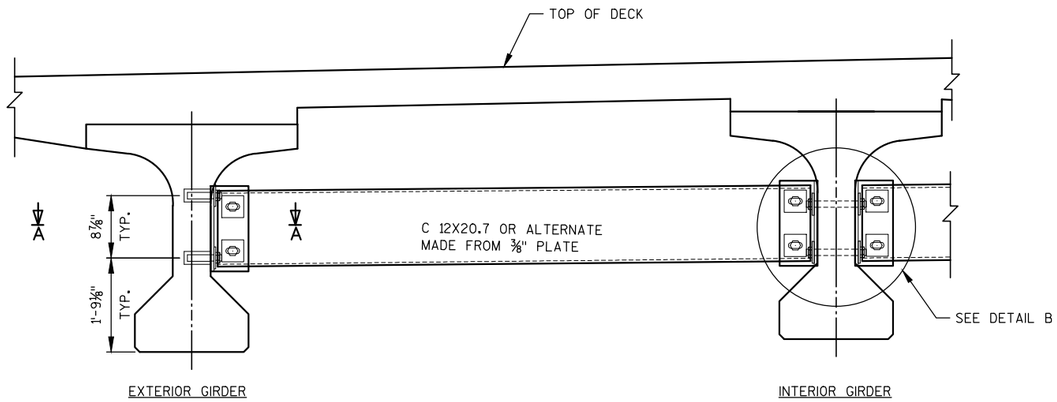
STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

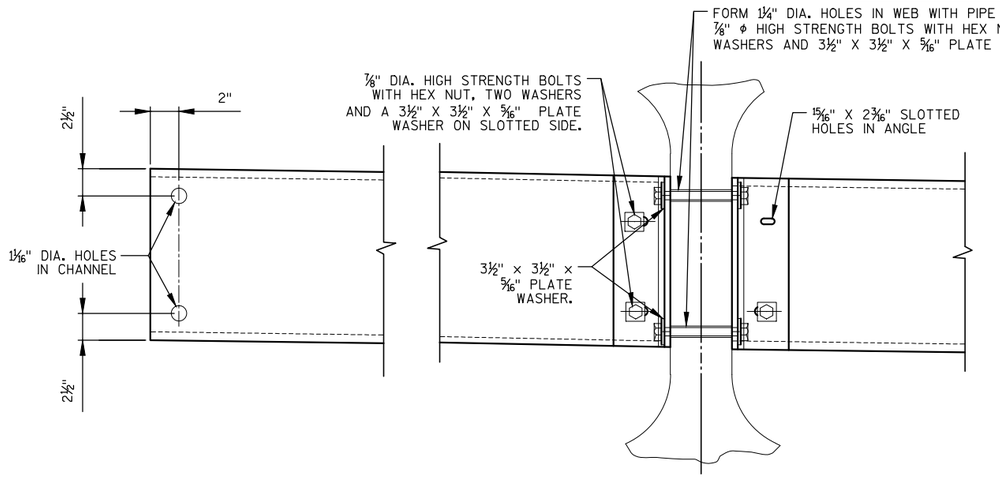
45W PRESTRESSED GIRDER DETAILS

SHEET 1 55

STATE PROJECT NUMBER
5587-00-72

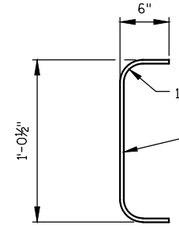


PART TRANSVERSE SECTION AT DIAPHRAGM

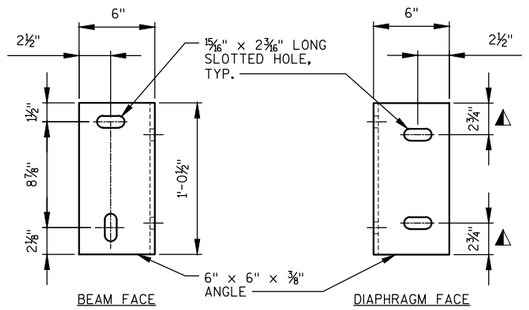


DETAIL B

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

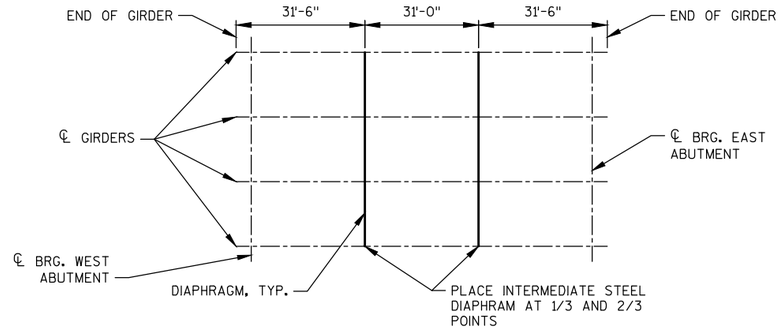


SECTION THRU ALTERNATE DIAPHRAGM



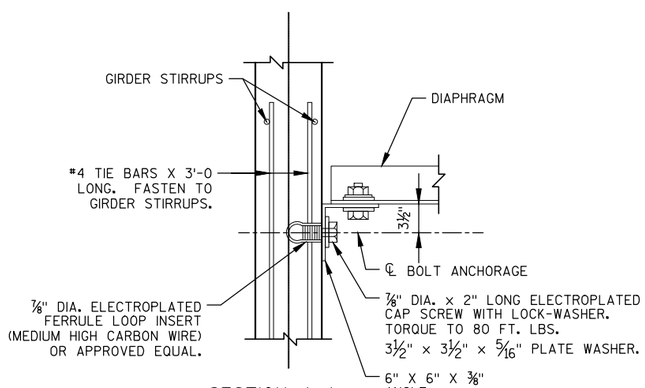
DIAPHRAGM SUPPORT

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



PLAN VIEW OF DIAPHRAGM

(SHOWING TYPICAL SPAN)



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-22-286", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

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

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

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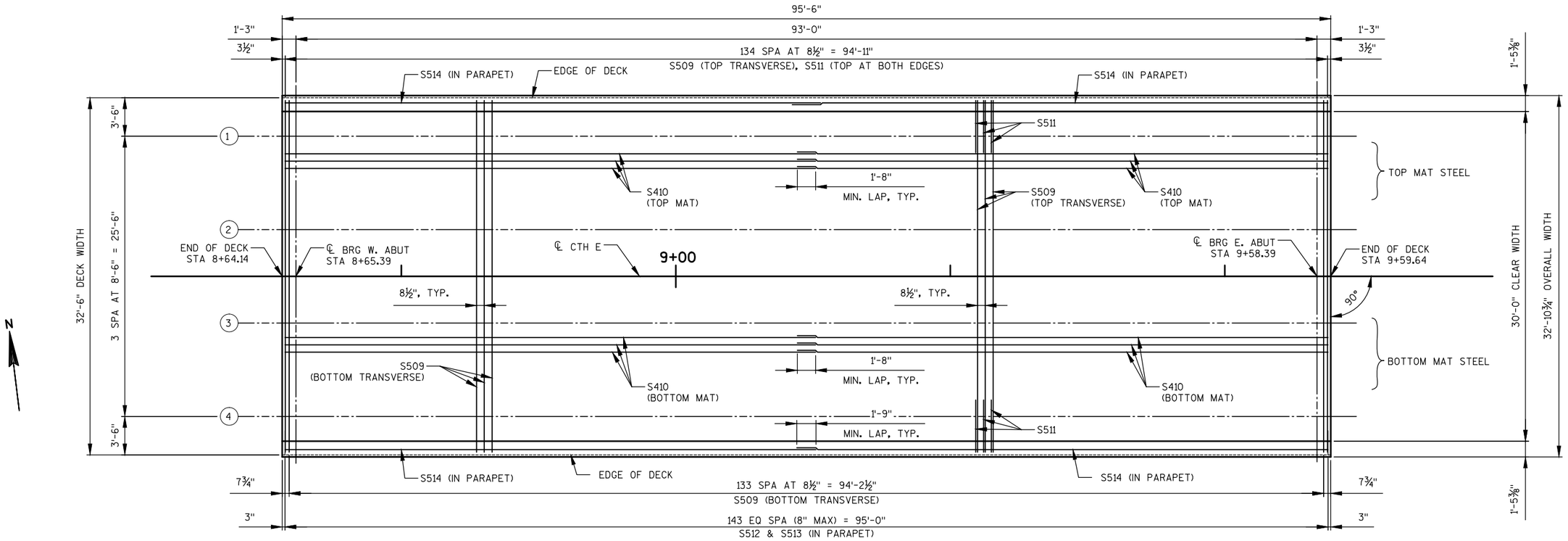
INTERMEDIATE STEEL DIAPHRAGMS

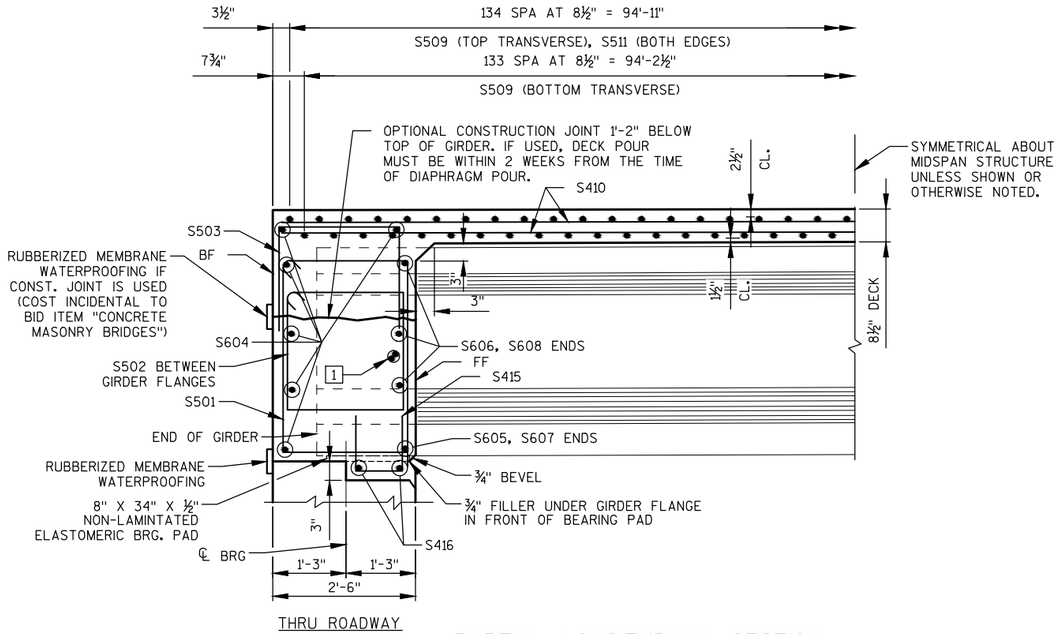
SHEET 56 OF 16

8

STATE PROJECT NUMBER
5587–00–72



REINFORCEMENT PLAN



THRU ROADWAY

PARTIAL LONGITUDINAL SECTION

NOTES

(#) INDICATES GIRDER NUMBER

[1] (1) -1½" DIA. HOLE IN WEB FOR (2) S517 HORIZ. BARS AND PLACED SYM. ABOUT ℄ OF GIRDER.

FF - FRONT FACE
BF - BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B–22–286

DRAWN BY MJB | PLANS CK'D. JSH

SUPERSTRUCTURE

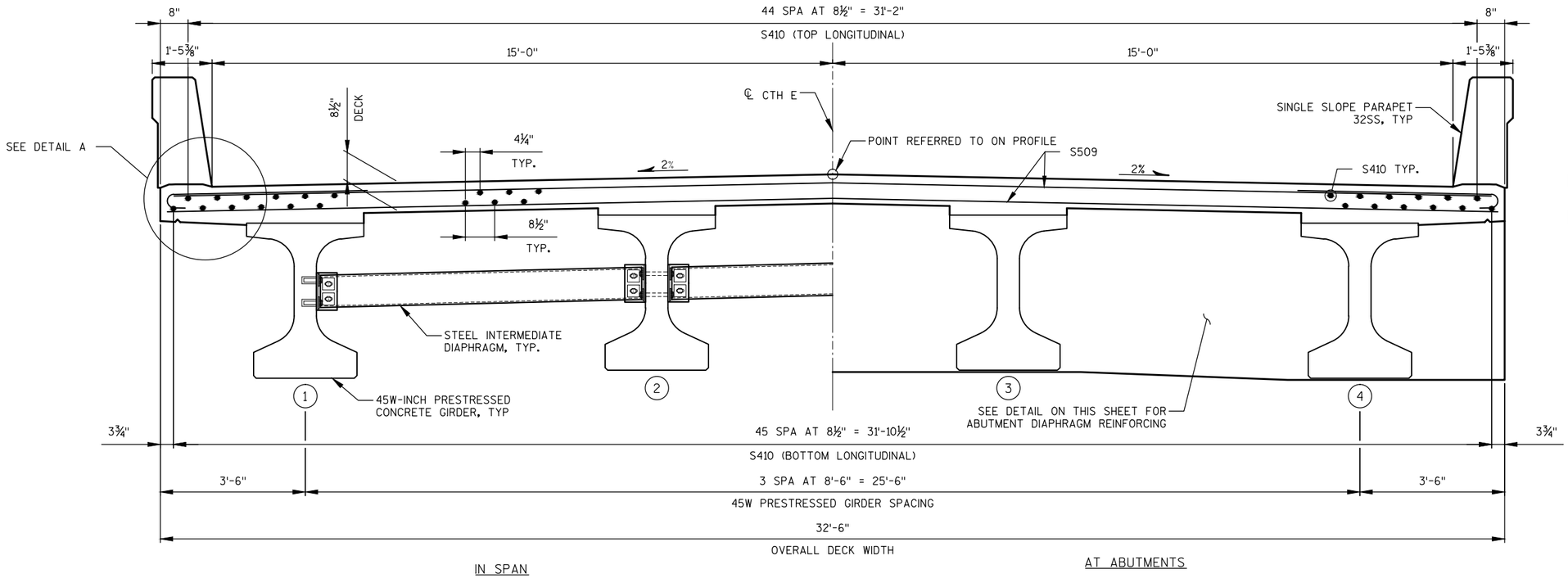
SHEET 57 OF 116

8

8

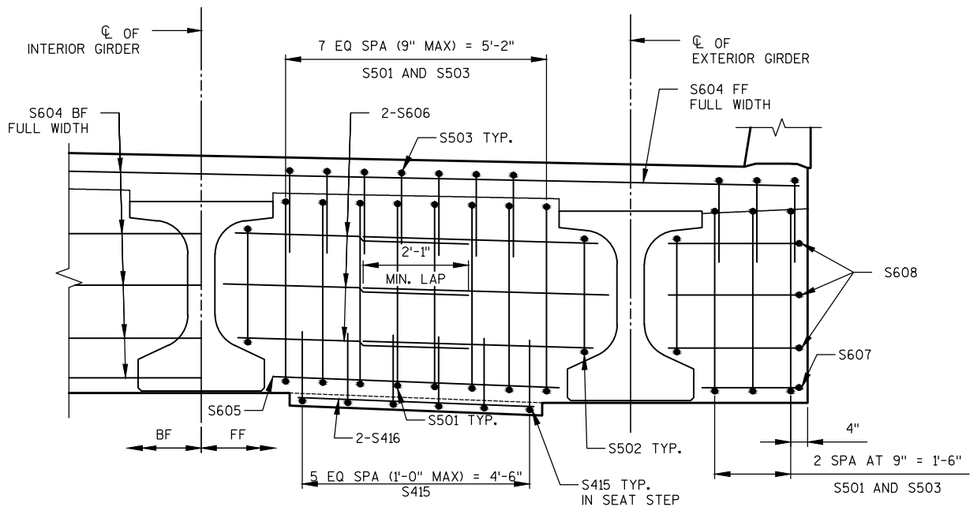
STATE PROJECT NUMBER

5587-00-72



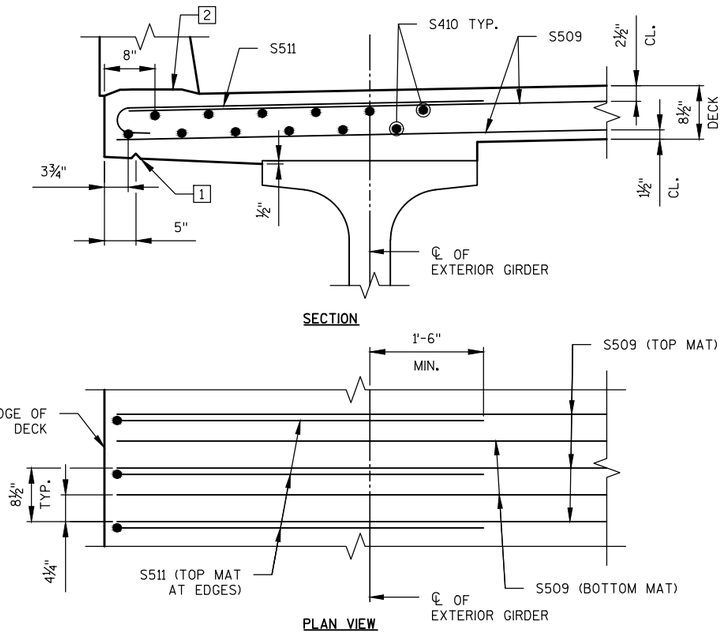
CROSS SECTION THRU ROADWAY

(LOOKING EAST)

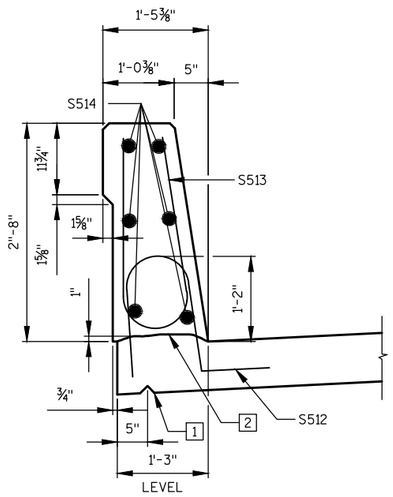


ABUTMENT DIAPHRAGMS

DECK STEEL NOT SHOWN FOR CLARITY



DETAIL A



SECTION THRU PARAPET ON BRIDGE

NOTES:

1. ¾" V-GROOVE REQ'D. EXTEND TO 6" FROM FF OF ABUTMENT DIAPHRAGM.
2. HORIZONTAL CONSTRUCTION JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.

FF - FRONT FACE
BF - BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

SUPERSTRUCTURE DETAILS

SHEET 58 OF 116

8

FILE NAME : X:±3016900±155830.01±TECH±CAD±5587000002±DESIGN±STRUCTURE±080113_SS.DWG PLOT DATE : 5/6/2017 PLOT BY : ---- PLOT SCALE : 1" = 1'

STATE PROJECT NUMBER
5587-00-72

DECK ELEVATIONS

SPAN POINT	LEFT EDGE OF DECK	GIRDER 1		GIRDER 2		REFERENCE LINE		GIRDER 3		GIRDER 4		RIGHT EDGE OF DECK
	ELEVATION	TD	TG	TD	TG	STATION	ELEVATION	TD	TG	TD	TG	ELEVATION
C/L W. ABUT.	858.39	858.43	857.37	858.60	857.54	8+65.39	858.69	858.60	857.54	858.43	857.37	858.39
0.1	858.74	858.79		858.96		8+74.69	859.04	858.96		858.79		858.74
0.2	859.09	859.14		859.31		8+83.99	859.39	859.31		859.14		859.09
0.3	859.45	859.49		859.66		8+93.29	859.75	859.66		859.49		859.45
0.4	859.80	859.85		860.02		9+02.59	860.10	860.02		859.85		859.80
0.5	860.15	860.20		860.37		9+11.89	860.45	860.37		860.20		860.15
0.6	860.51	860.55		860.72		9+21.19	860.81	860.72		860.55		860.51
0.7	860.86	860.91		861.08		9+30.49	861.16	861.08		860.91		860.86
0.8	861.21	861.26		861.43		9+39.79	861.51	861.43		861.26		861.21
0.9	861.57	861.61		861.78		9+49.09	861.87	861.78		861.61		861.57
C/L E. ABUT.	861.92	861.97	860.90	862.14	861.07	9+58.39	862.22	862.14	861.07	861.97	860.90	861.92

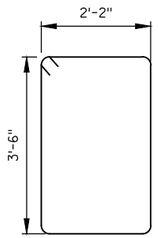
BILL OF BARS
SUPERSTRUCTURE

COATED= 22990 LBS.
UNCOATED= 0 LBS.

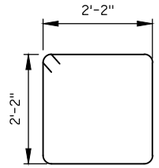
MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
S501	60		12 - 0	X		DIAPHRAGM - STIRRUPS	VERT
S502	16		9 - 4	X		DIAPHRAGM - STIRRUPS	VERT
S503	60		5 - 3	X		DIAPHRAGM - TIES	VERT
S604	12		32 - 2			DIAPHRAGM - BF	TRANS
S605	6		5 - 8			DIAPHRAGM - FF BETWEEN GIRDERS	TRANS
S606	36		4 - 11			DIAPHRAGM - FF BETWEEN GIRDERS	TRANS
S607	4		5 - 6	X		DIAPHRAGM - AT ENDS	HORIZ
S608	12		6 - 8	X		DIAPHRAGM - AT ENDS	HORIZ
S509	269		32 - 2			SLAB - TOP & BOTTOM	TRANS
S410	182		48 - 5			SLAB - TOP & BOTTOM	LONGIT
S511	270		5 - 5	X		SLAB - TOP AT EDGES	TRANS
S512	288		4 - 5	X		PARAPET - TIES	VERT
S513	288		5 - 0	X		PARAPET - STIRRUPS	VERT
S514	24		48 - 5			PARAPET	LONGIT
S415	36		3 - 5	X		DIAPHRAGM - SEAT STEP	VERT
S416	12		4 - 8			DIAPHRAGM - BETWEEN BEAM SEATS	HORIZ
S517	16		6 - 0			DIAPHRAGM - BETWEEN BEAM SEATS	HORIZ

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

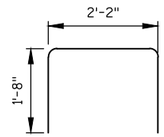
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



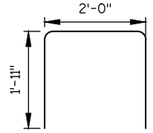
S501



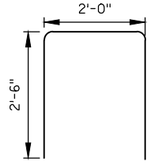
S502



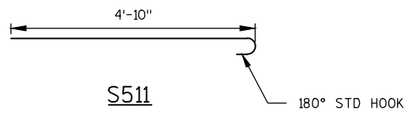
S503



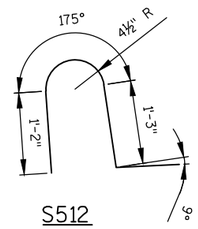
S607



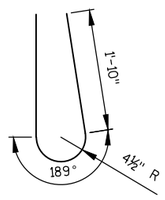
S608



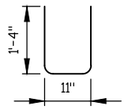
S511



S512



S513



S415

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-22-286

DRAWN BY MJB | PLANS CK'D. JSH

SUPERSTRUCTURE DETAILS

SHEET 59 OF 116

8

8

STATE PROJECT NUMBER

5587-00-72

WEST ABUTMENT COATED = 730 LBS.
WEST ABUTMENT UNCOATED = 0 LBS.
EAST ABUTMENT COATED= 730 LBS.
EAST ABUTMENT UNCOATED = 0 LBS.

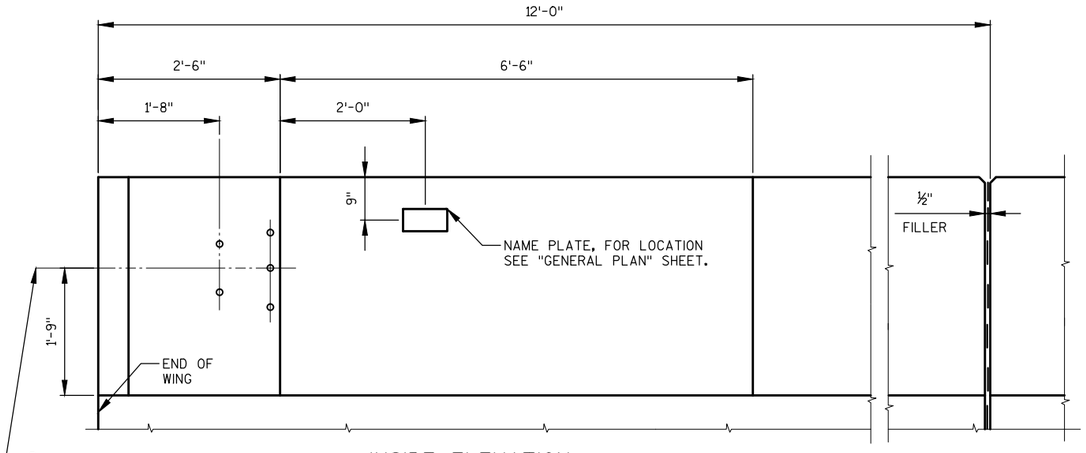
BILL OF BARS
SINGLE SLOPE PARAPET 32SS

MARK	COATED	NO. REQ'D. WEST ABUTMENT	NO. REQ'D. EAST ABUTMENT	LENGTH FT - IN	BENT	BAR SERIES	LOCATION
R501	X	12	12	5 - 10	X		PARAPET TIE VERT
R502	X	12	12	5 - 0	X		PARAPET STIRRUP VERT
R503	X	24	24	3 - 0	X		PARAPET TIE VERT
R504	X	34	34	5 - 7	X		PARAPET TIE VERT
R505	X	22	22	4 - 9	X		PARAPET TIE VERT
R506	X	12	12	4 - 10	X		PARAPET STIRRUP VERT
R507	X	2	2	11 - 7	X		PARAPET - LONTITUDINAL - TRANSITION HORIZ
R508	X	10	10	11 - 7			PARAPET - LONTITUDINAL HORIZ

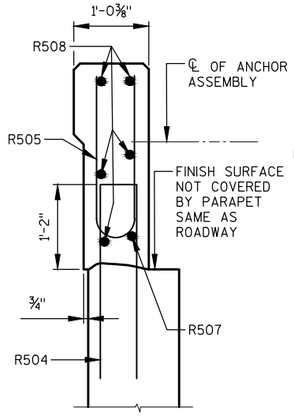
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

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

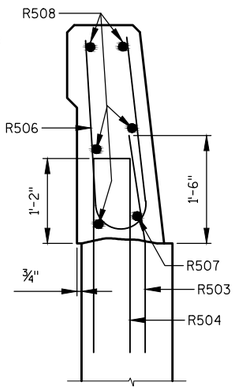
INCLUDED IN ABUTMENT QUANTITIES FOR BAR STEEL REINFORCEMENT AND CONCRETE MASONRY



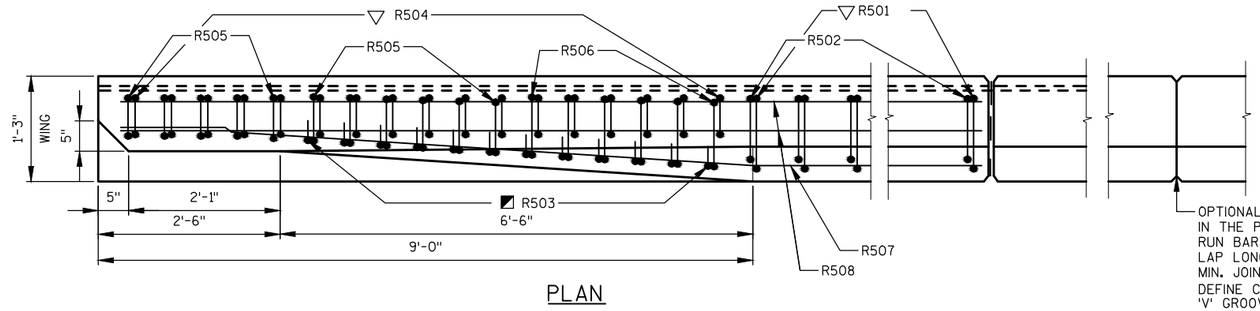
INSIDE ELEVATION



SECTION A



SECTION B



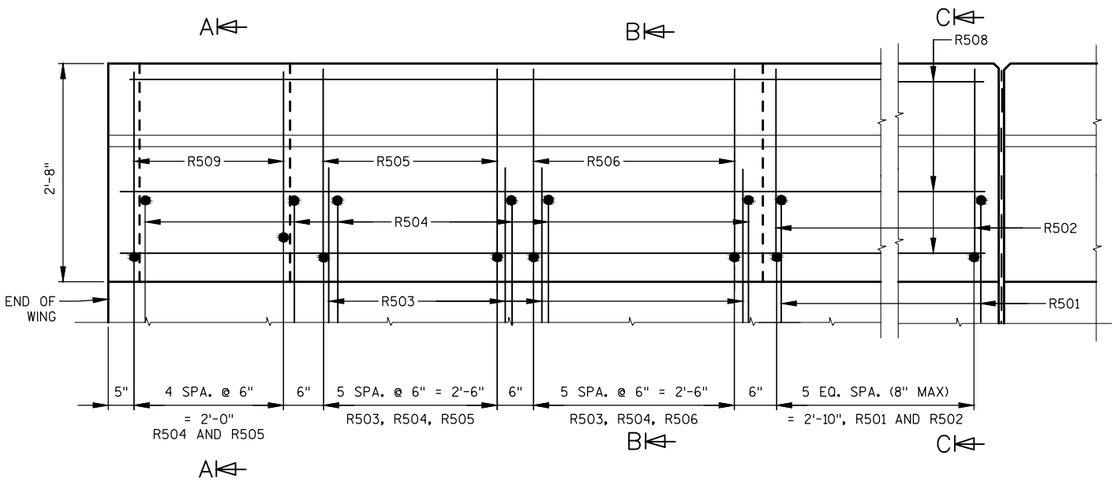
PLAN

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.

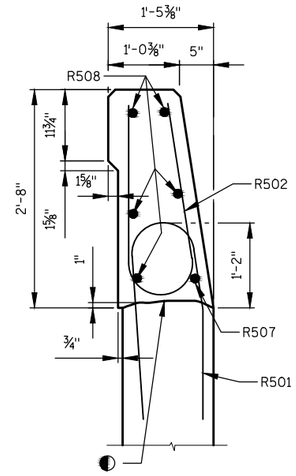
◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ 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.

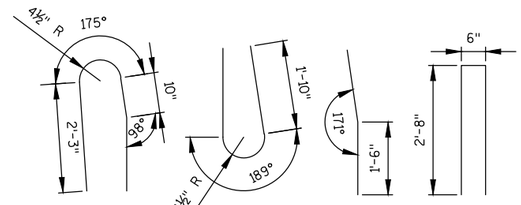
▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.



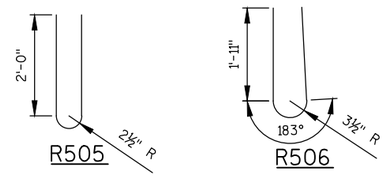
OUTSIDE ELEVATION



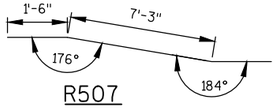
SECTION C



R501 R502 R503 R504

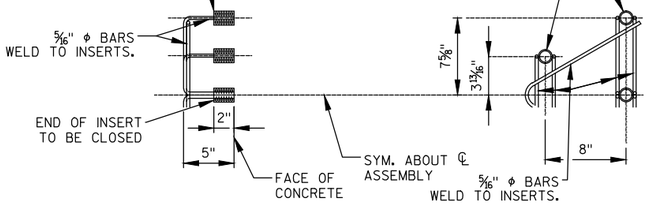


R505 R506



R507

THREADED INSERTS FOR ⅞" ϕ X 2" LONG GALVANIZED HEX HEAD CAP SCREWS. CAP SCREWS TO BE THREADED A MIN. OF 1⅛" AND SHALL BE SUPPLIED, INCLUDING WASHERS, WITH ASSEMBLY. INSERTS TO BE THREADED A MINIMUM OF 1¾".



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-22-286

DRAWN BY MJB | PLANS CK'D. JSH

SINGLE SLOPE PARAPET 32SS

SHEET 60 OF 116

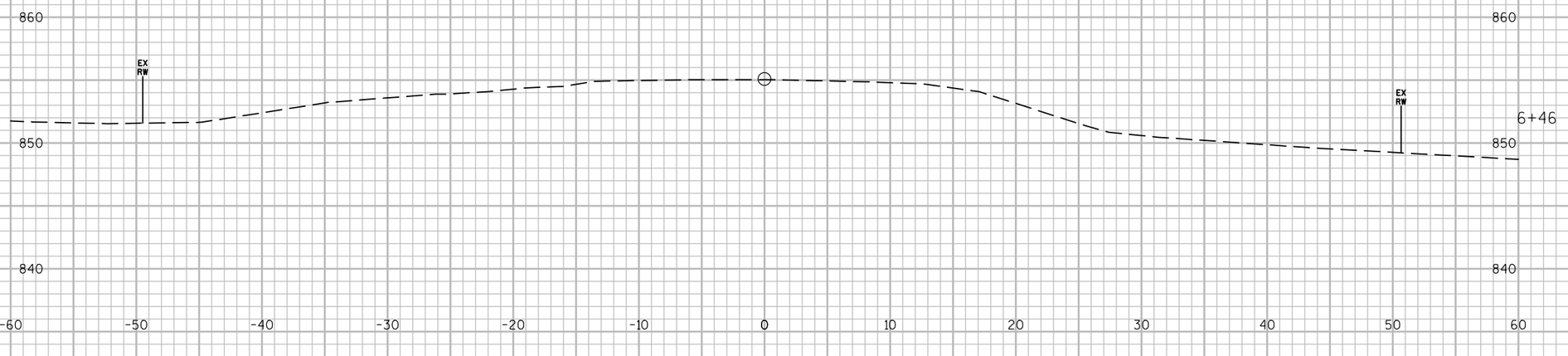
8

8

FILE NAME : X:±±3016900±155830.01±TECH±CAD±55870002±DESIGN±STRUCTURE±080116_PA.DWG PLOT DATE : 5/6/2017 PLOT BY : **** PLOT SCALE : 1" = 1'

EARTHWORK TABULATION EXPANSION FACTOR = 1.3

STATION	END AREA CUT (SF)	END AREA FILL (SF)	INCREMENTAL VOLUME CUT (CY)	INCREMENTAL VOLUME EXP FILL (CY)	CUMMULATIVE VOLUME CUT (CY)	CUMMULATIVE VOLUME EXP FILL (CY)	MASS ORDINATE (CY)
6+46.00	0	0	0	0	0	0	0
7+00.00	32	47	32	62	32	62	-30
7+49.00	31	103	57	178	89	239	-150
7+50.00	31	102	1	5	90	244	-154
7+74.00	28	104	26	119	116	364	-248
7+99.00	27	97	25	121	141	485	-344
8+00.00	27	99	1	5	142	490	-348
8+42.00	24	164	40	266	182	755	-573
8+50.00	0	405	4	137	187	892	-706
9+72.00	4	369	0	0	187	892	-706
10+00.00	31	301	18	452	205	1,344	-1,139
10+20.00	33	287	24	283	229	1,627	-1,399
10+50.00	0	359	18	467	247	2,094	-1,847
11+00.00	0	354	0	859	247	2,953	-2,706
11+50.00	0	390	0	895	247	3,848	-3,601
11+95.58	0	172	0	617	247	4,465	-4,218
12+00.00	0	163	0	36	247	4,500	-4,253
12+20.58	0	39	0	100	247	4,600	-4,353
12+45.58	0	12	0	31	247	4,631	-4,384
13+28.00	0	0	0	23	247	4,654	-4,407
		TOTAL	247	4,654			



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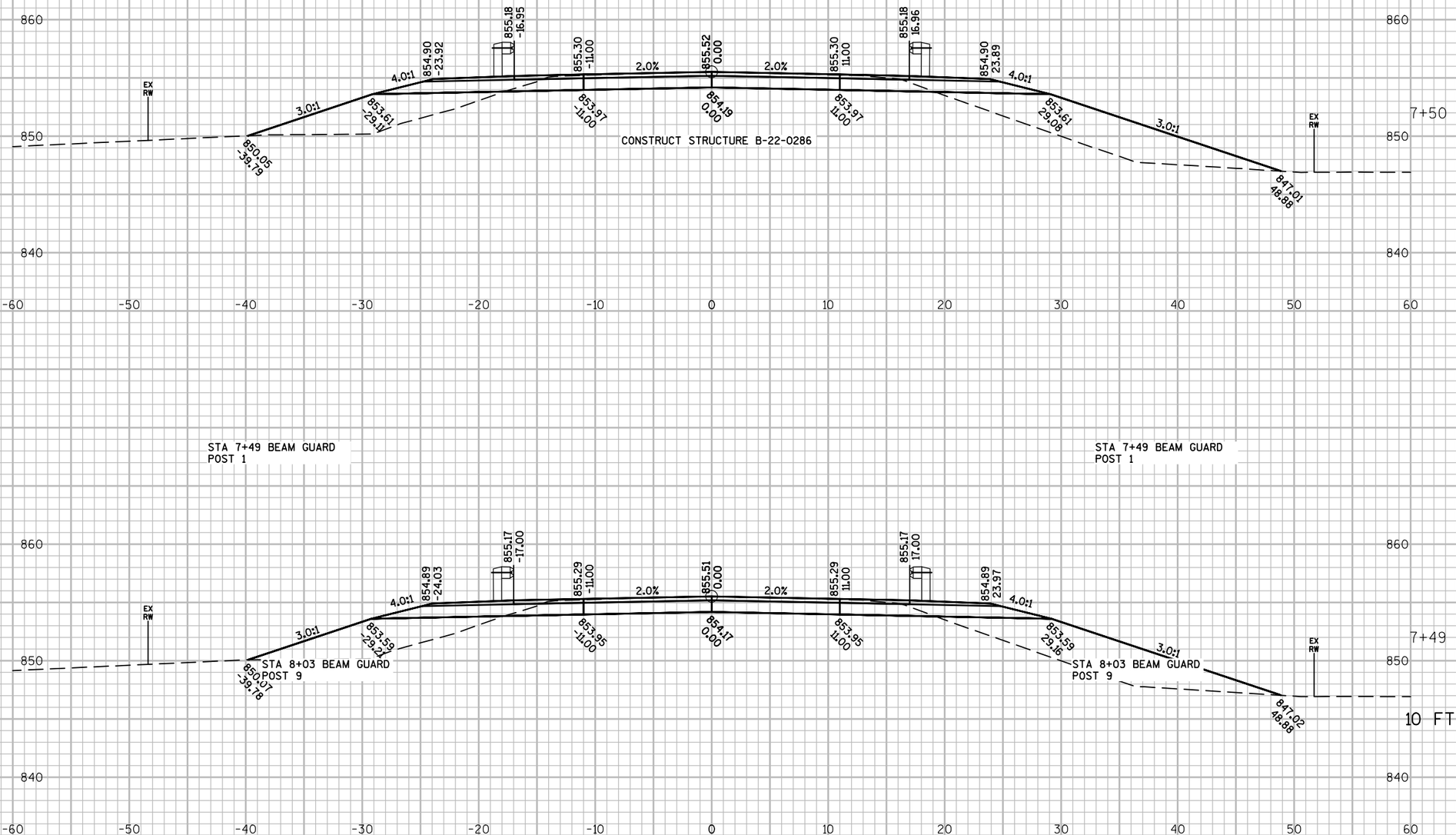
PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 62	E

FILE NAME : X:\3016900\155830.01\TECH\CAD\55870002\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS

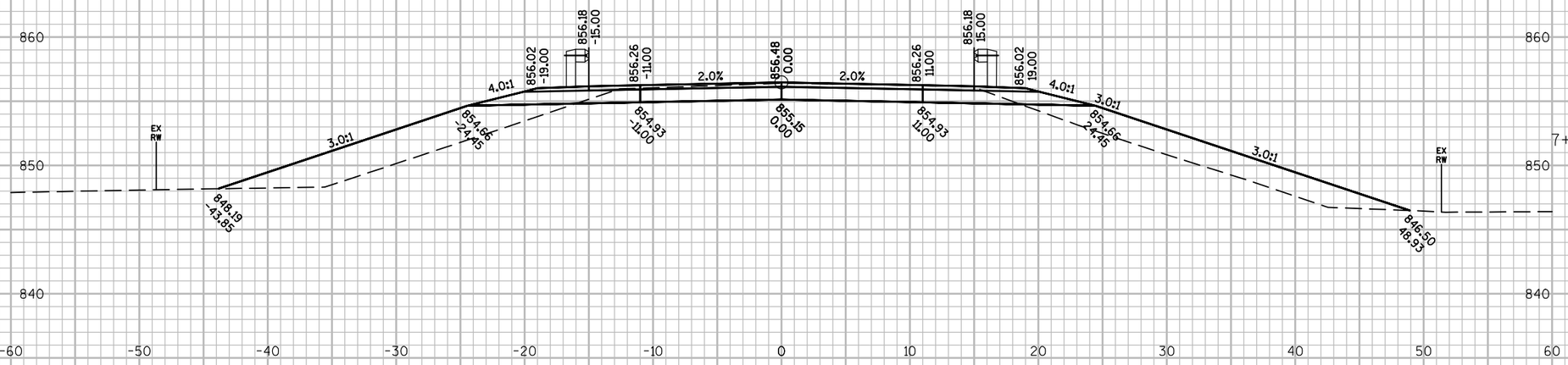
PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

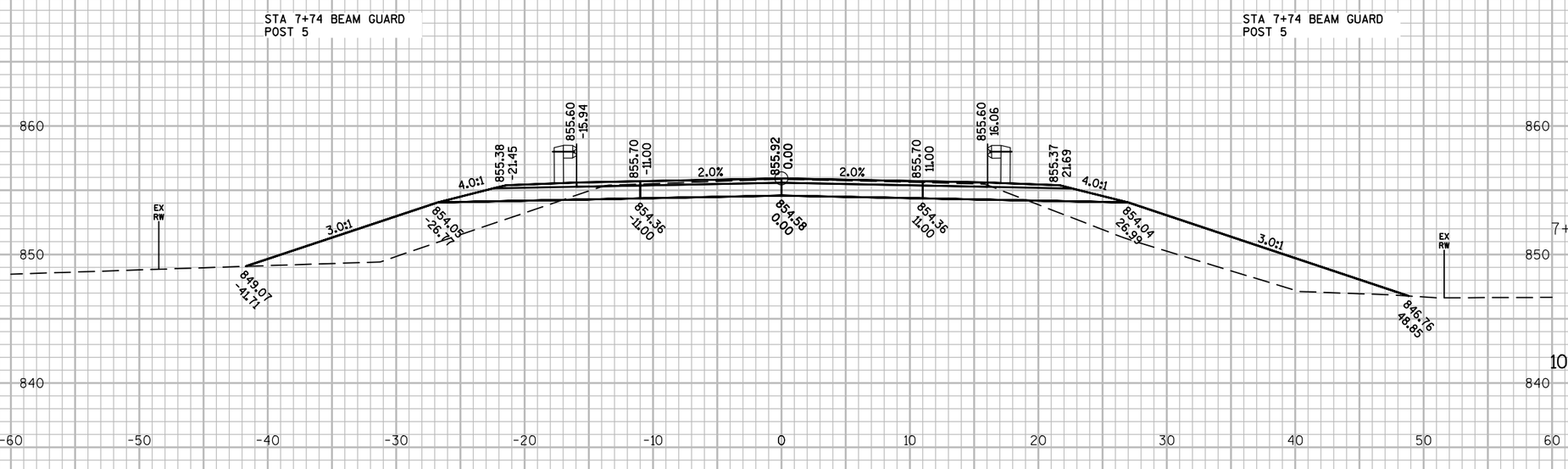


PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 63	E

STA 7+99 BEAM GUARD
POST 9



STA 7+74 BEAM GUARD
POST 5



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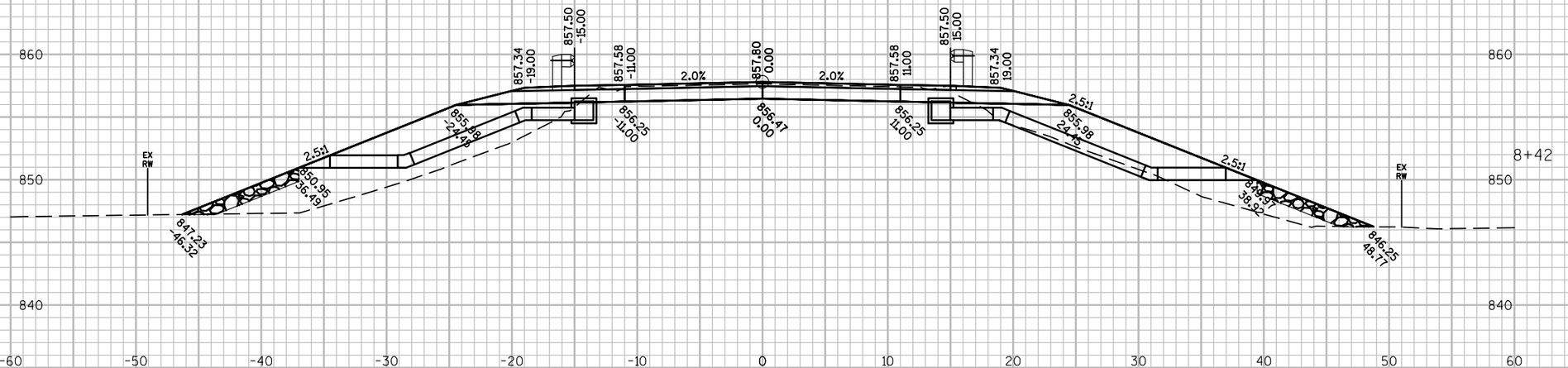
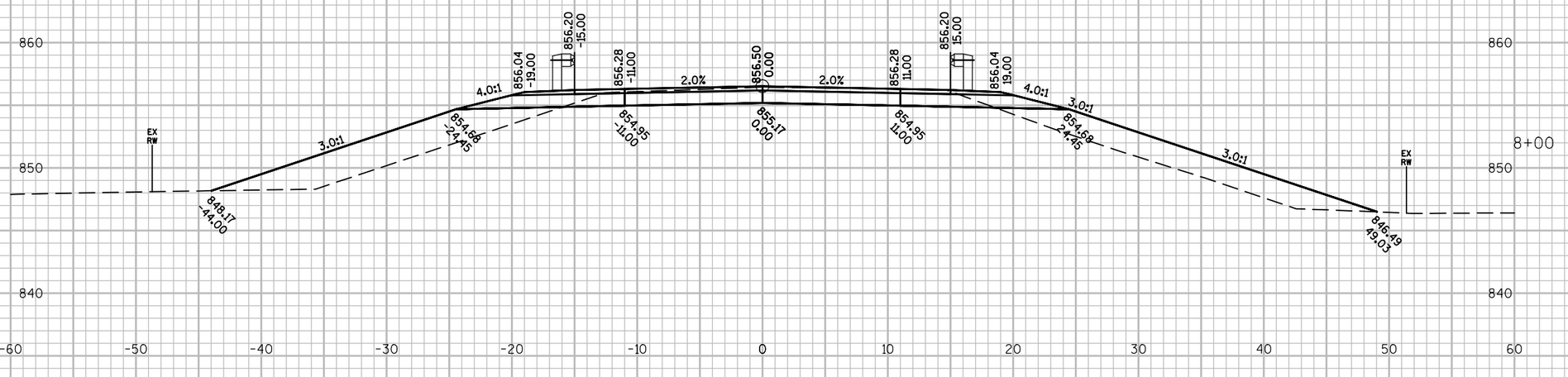
PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 64	E





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PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 65	E

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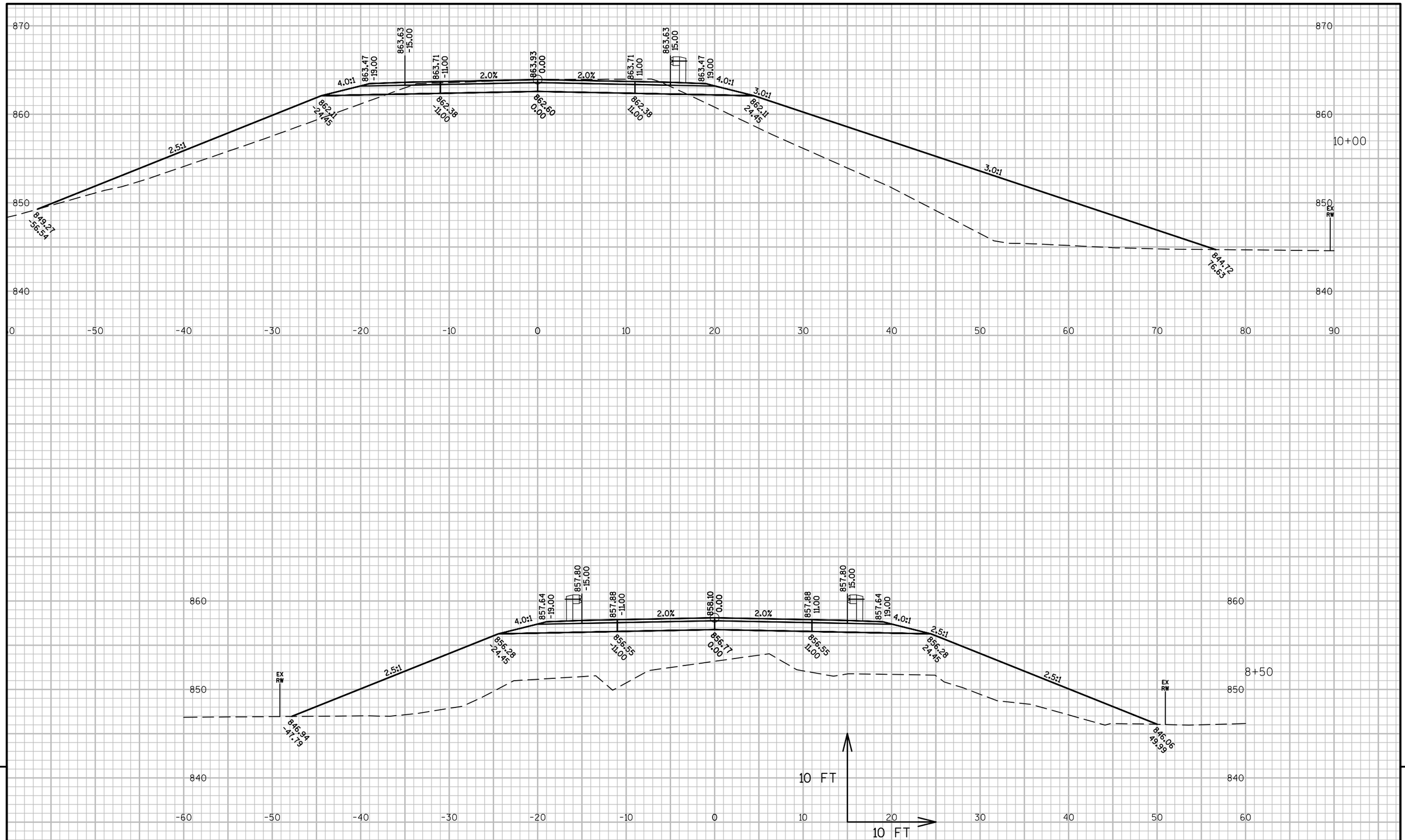
LAYOUT NAME - 090204_XS

PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 66	E

FILE NAME : X:\3016900\155830.01\TECH\CAD\55870002\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090205_XS
PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT
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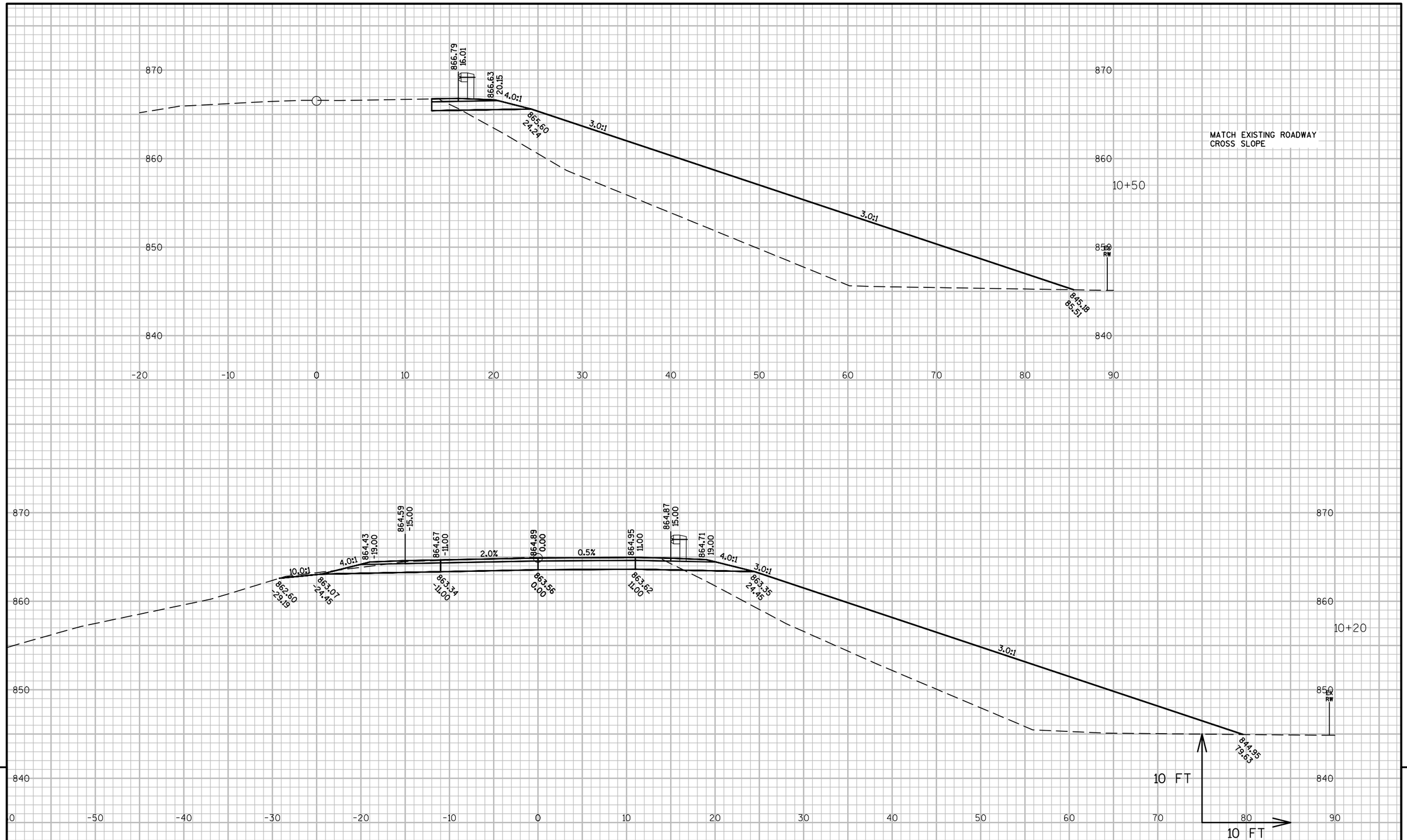

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PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 67	E

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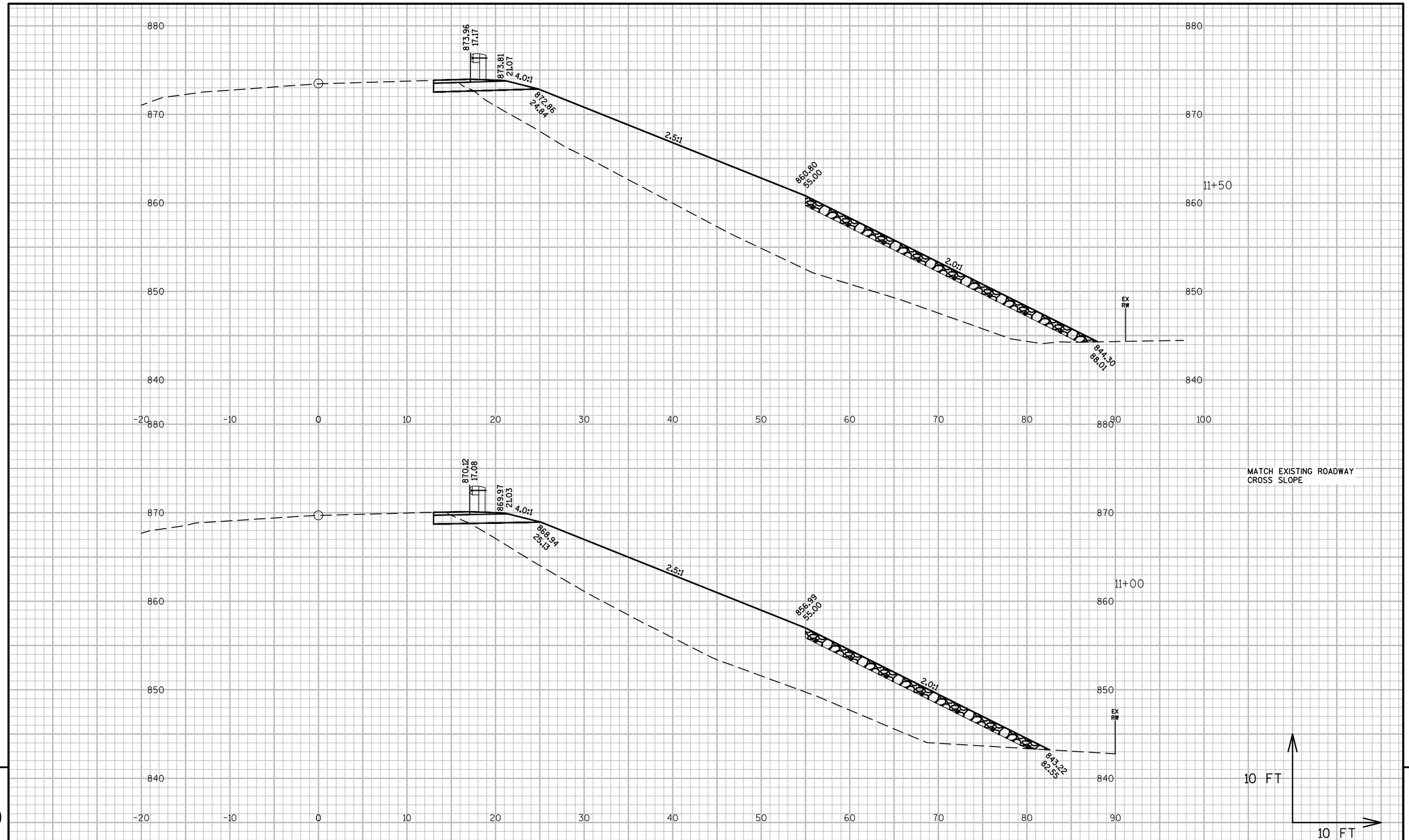
LAYOUT NAME - 090206_XS

PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 68	E

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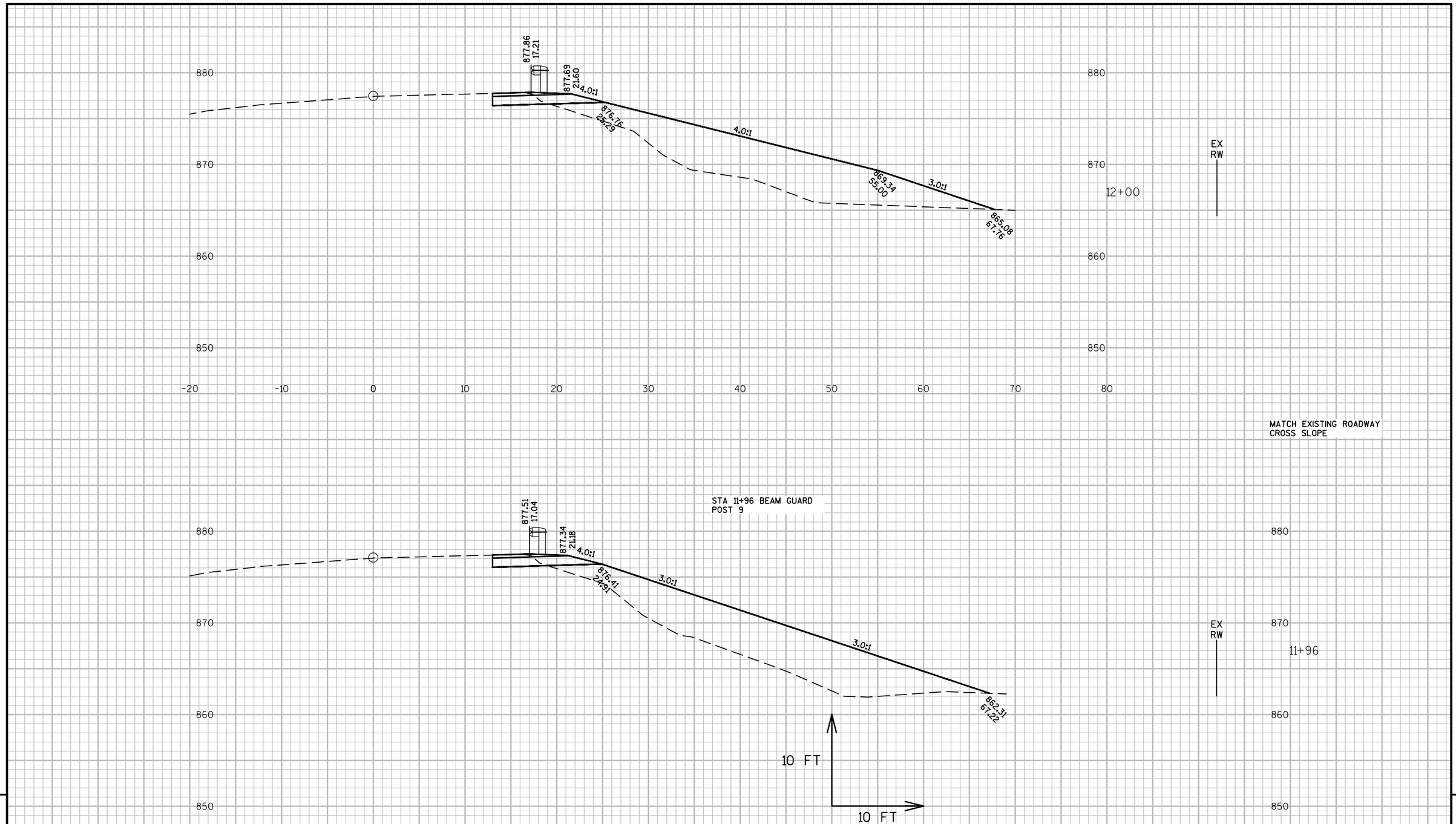
LAYOUT NAME - 090207_XS

PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

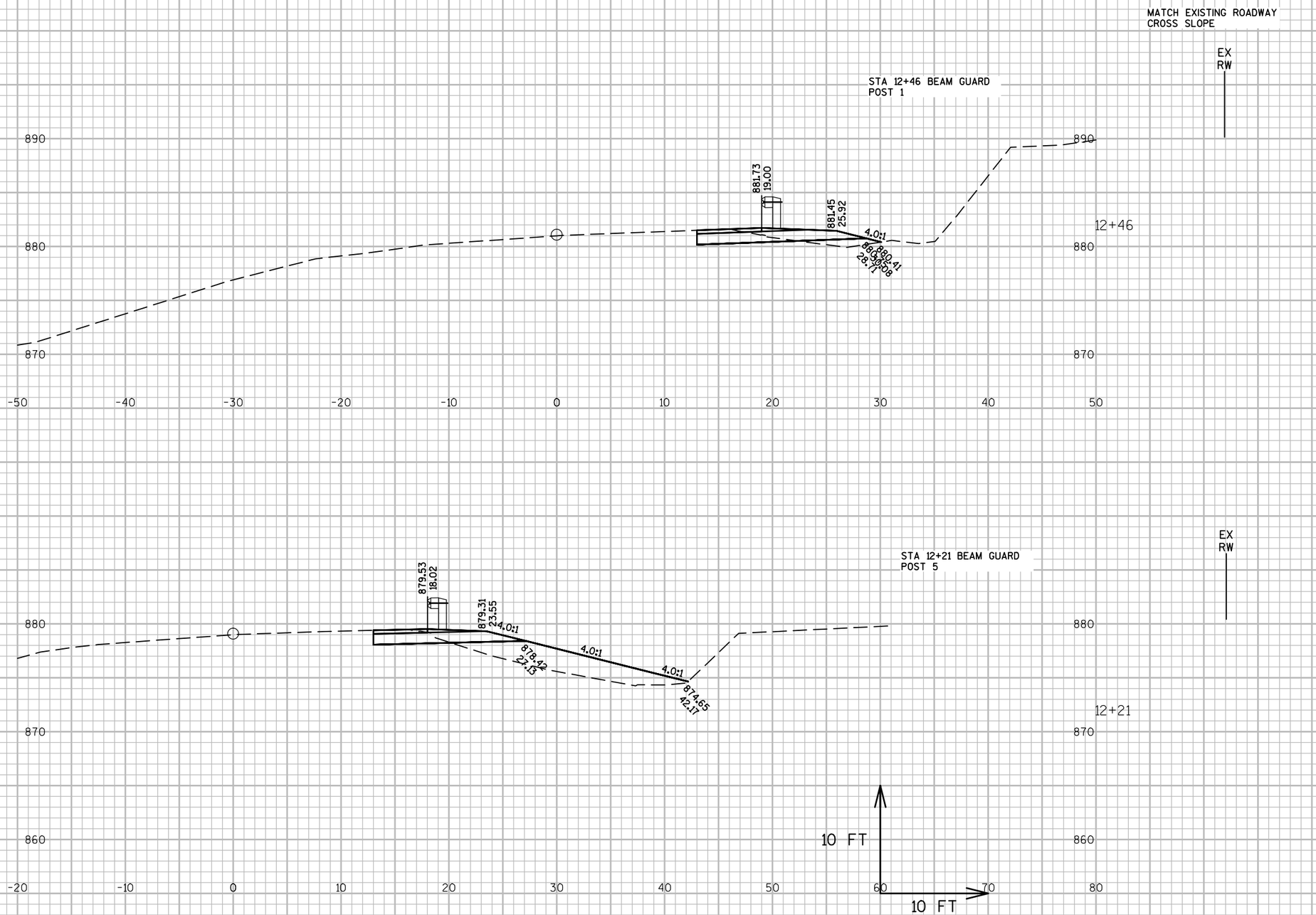
WISDOT/CADDS SHEET 49



PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 69	E

FILE NAME : X:\3016900\155830.01\TECH\CAD\55870002\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090208_XS

PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

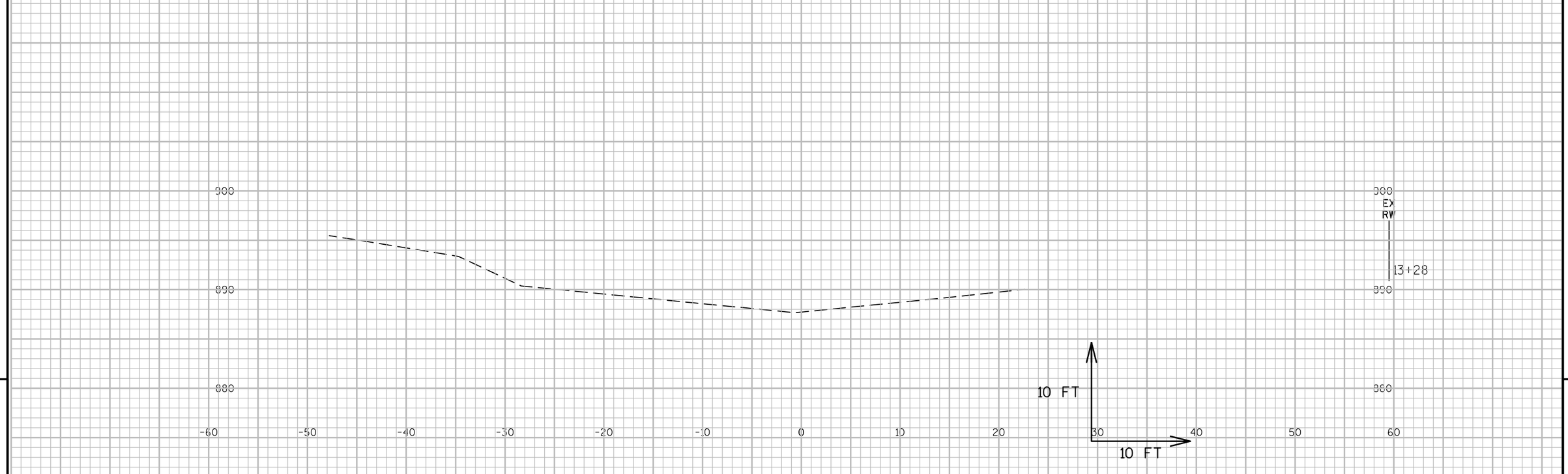


PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET 70	E

FILE NAME : X:\3016900\155830.01\TECH\CAD\55870002\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090209_XS

PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 5587-00-72	HWY: CTH E	COUNTY: GRANT	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : X:\3016900\155830.01\TECH\CAD\55870002\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090210_XS

PLOT DATE : 4/11/2017 1:46 PM PLOT BY : JASON KLEIST PLOT NAME : PLOT SCALE : 1 IN:10 FT

Wisconsin Department of Transportation

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