MAD

NOVEMBER 2018

PROJECT ID: 5841-00-70

WITH:

COUNTY: COUNTY

ORDER OF SHEETS

TOTAL SHEETS = 86

14

N

DESIGN DESIGNATION

A.A.D.T.	2019	=	1190
A.A.D.T.	2039	=	2120
D.H.V.		=	301
D.D.		=	59/41
T.		=	6.7
DESIGN SPEED		=	35 MPH
ESALS		=	220,000

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

USH 51 - MCFARLAND

(YAHARA RIVER BRIDGE B-13-0684)

CTH AB

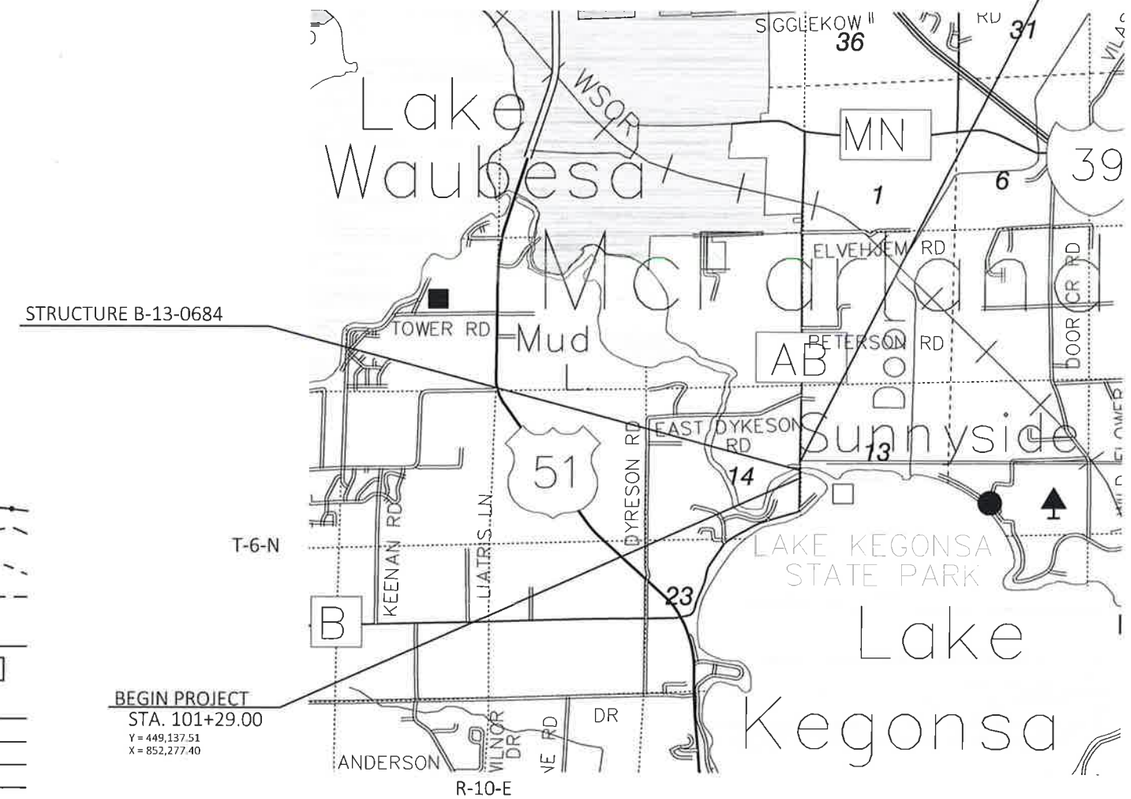
DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5841-00-70		

STATE PROJECT NUMBER

5841-00-70

END PROJECT
STA. 105+50



TOTAL NET LENGTH OF CENTERLINE = 0.080 MILE

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

ACCEPTED FOR

COUNTY of DANE

4/16/18 (Date) (HIGHWAY COMMISSIONER)

ORIGINAL PLANS PREPARED BY

WISCONSIN
MICHAEL J. STATZ
E-31249
MADISON
WI
PROFESSIONAL ENGINEER

4-9-18 (Date) (Professional Engineer)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor: MSA PROFESSIONAL SERVICES, INC.

Designer: MSA PROFESSIONAL SERVICES, INC.

MANAGEMENT CONSULTANT: KL ENGINEERING

APPROVED FOR THE DEPARTMENT

DATE: 4/27/18 (Management Consultant Signature)

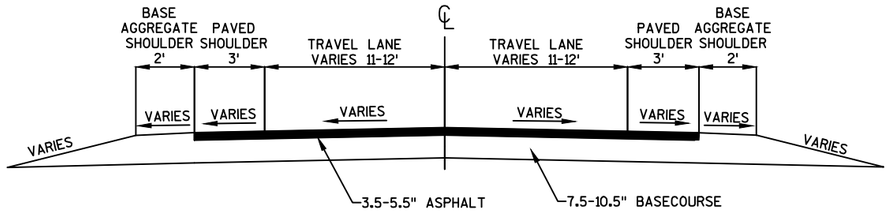
E

FILE NAME : P:\11300S\11330S\11331\11331010\CADD\SHEETSPLAN\TITLE SHEET\TITLE SHEET.DWG

PLOT DATE : 4/9/2018 4:08 PM

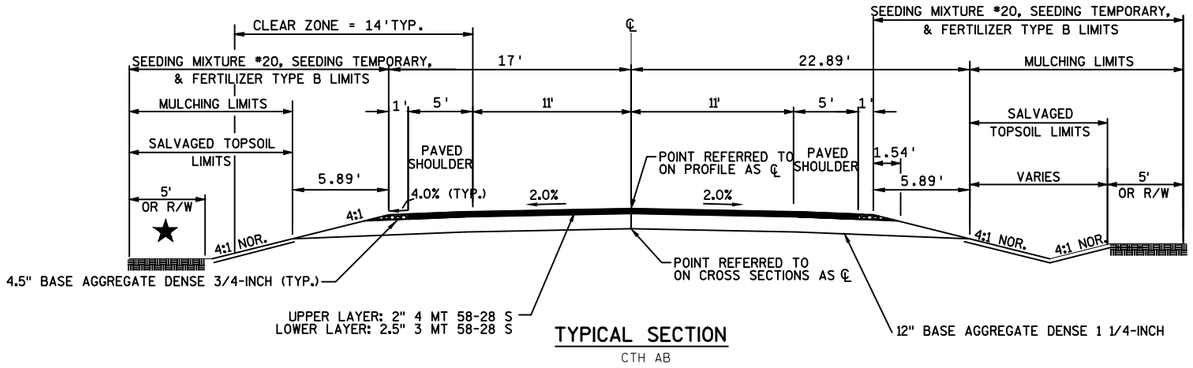
PLOT BY : CHAD WAGNER

PLOT NAME :



EXISTING TYPICAL SECTION

CTH AB



TYPICAL SECTION

CTH AB

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			A			A			A		
	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 = 0.888 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.568 ACRES

GENERAL NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS SHALL BE FERTILIZED, SEEDED AND MULCHED AS DIRECTED BY THE ENGINEER.

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

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

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO DUNN C GPS BENCHMARK WITH ELEVATION OF 858.37 LOCATED 1.9 MILES NORTHEAST OF THE EXISTING BRIDGE, THE STATION IS A BRONZE WISDOT GEODETIC SURVEY CONTROL STATION.

ALSMO LANE WILL USE THE SAME PAVEMENT STRUCTURE AS CTH AB.
2" 4 MT 58-28 S OVER 2.5" 3 MT 58-28 S PAVEMENT OVER 12" BASE AGGREGATE DENSE 1 1/4-INCH

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

DANE COUNTY WILL REMOVE EXISTING SIGNS AND POSTS EXCEPT FOR YAHARA RIVER SIGNS AND STREET NAME SIGNS.

★ WETLANDS EXIST AT STA. 102+00 TO 102+36. THE CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE THE SLOPE INTERCEPT IN THESE AREAS.

DESIGN CONTACT

MSA PROFESSIONAL SERVICES, INC.
ATTN: CHAD WAGNER, P.E.
2901 INTERNATIONAL LANE, SUITE 300
MADISON, WI 53704-3133
PHONE: (608) 242-6651
EMAIL: CWAGNER@MSA-PS.COM

DANE COUNTY DEPUTY HIGHWAY COMMISSIONER
ATTN: PAMELA J. DUNPHY, P.E.
2302 FISH HATCHERY ROAD
MADISON, WI 53713
PHONE: (608) 266-4036
EMAIL: DUNPHY@CO.DANE.WI.US

DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES
ATTN.: ERIC HEGGELUND
ENVIRONMENTAL REVIEW AND ANALYSIS SPECIALIST
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711-5397
PHONE: (608) 275-3301
EMAIL: ERIC.HEGGELUND@WISCONSIN.GOV

UTILITIES

TELEPHONE:
FRONTIER COMMUNICATIONS
ENGINEERING SUPERVISOR
ATTN: RUSS RYAN
315 OAK STREET
OAKFIELD, WI 53065
PHONE: (920) 583-3275
(920) 737-9662
EMAIL: RUSSELL.W.RYAN@FTR.COM

ELECTRIC:
ALLIANT ENERGY
ATTN: MATT WEIR
STOUGHTON, WI 53589
PHONE: (608) 877-1620
EMAIL: MATTHEWWEIR@ALLIANTENERGY.COM

GAS:
ALLIANT ENERGY
ATTN: MATT WEIR
STOUGHTON, WI 53589
PHONE: (608) 877-1620
EMAIL: MATTHEWWEIR@ALLIANTENERGY.COM

SEWER:
KEGONSA SANITARY DISTRICT
ATTN: Bill BEYLER
PO BOX 486
STOUGHTON, WI 53589
PHONE: (608) 873-0230
(608) 843-6026
EMAIL: SERVICEOPERATOR@KEGONSASANITARYDISTRICT.COM

CABLE:
CHARTER COMMUNICATIONS
ATTN: GLEN JAKUSZ
2701 DANIELS STREET
MADISON, WI 53718
PHONE: (608) 209-3202
EMAIL: GJAKUSZ@CHARTERCOM.COM

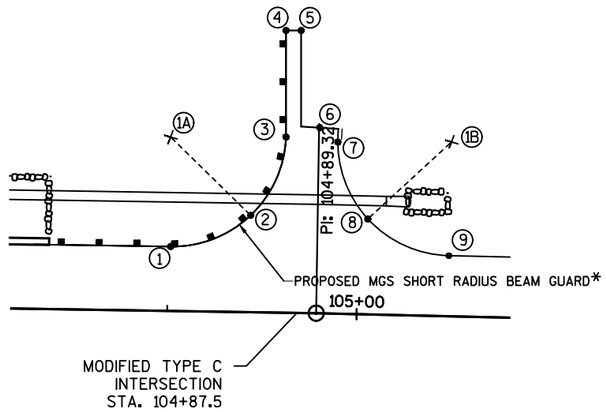
**-DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

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

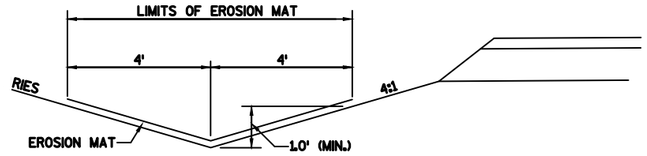
RADIUS STAKING INFORMATION			
POINT NO.	STATION	OFFSET	RADIUS
1A	104+50.63	47' LEFT	30.0'
1B	105+23.99	46' LEFT	30.0'

ALSMO LANE STAKING INFORMATION		
POINT NO.	STATION	OFFSET
1	104+50.4	17' LEFT
2	104+71.7	26' LEFT
3	104+80.6	46' LEFT
4	104+80.2	74' LEFT
5	104+84.2	74' LEFT
6	104+89.0	49' LEFT
7	104+93.9	45' LEFT
8	105+02.4	25' LEFT
9	105+24.2	16' LEFT

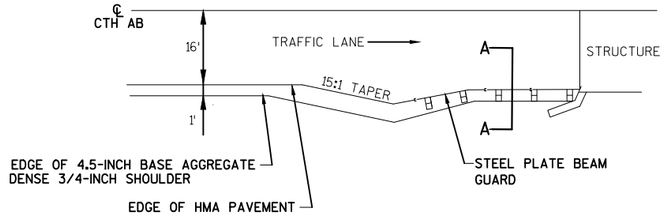
*MGS GUARDRAIL SHORT RADIUS
RADIUS: 30' LENGTH: 110.5'
CONTROLLED RELEASE TERMINAL (CRT) POSTS: 9



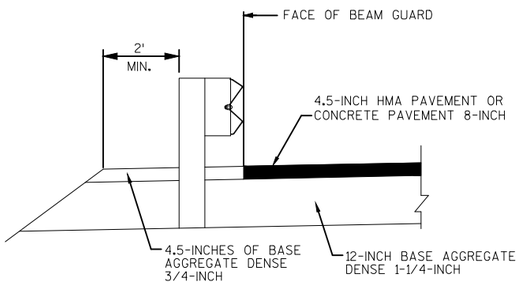
ALSMO LANE INTERSECTION DETAIL



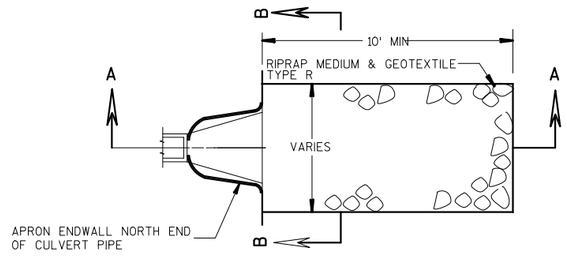
EROSION MAT DITCH DETAIL



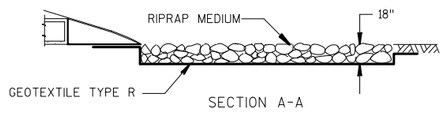
PLAN - HMA PAVEMENT SHOULDER AT BEAM GUARD



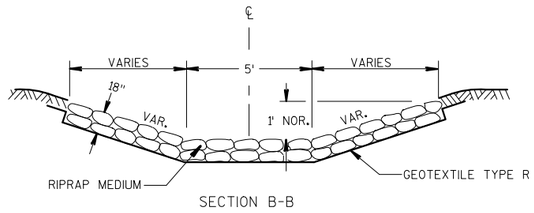
SECTION A-A THRU BEAM GUARD



PLAN VIEW

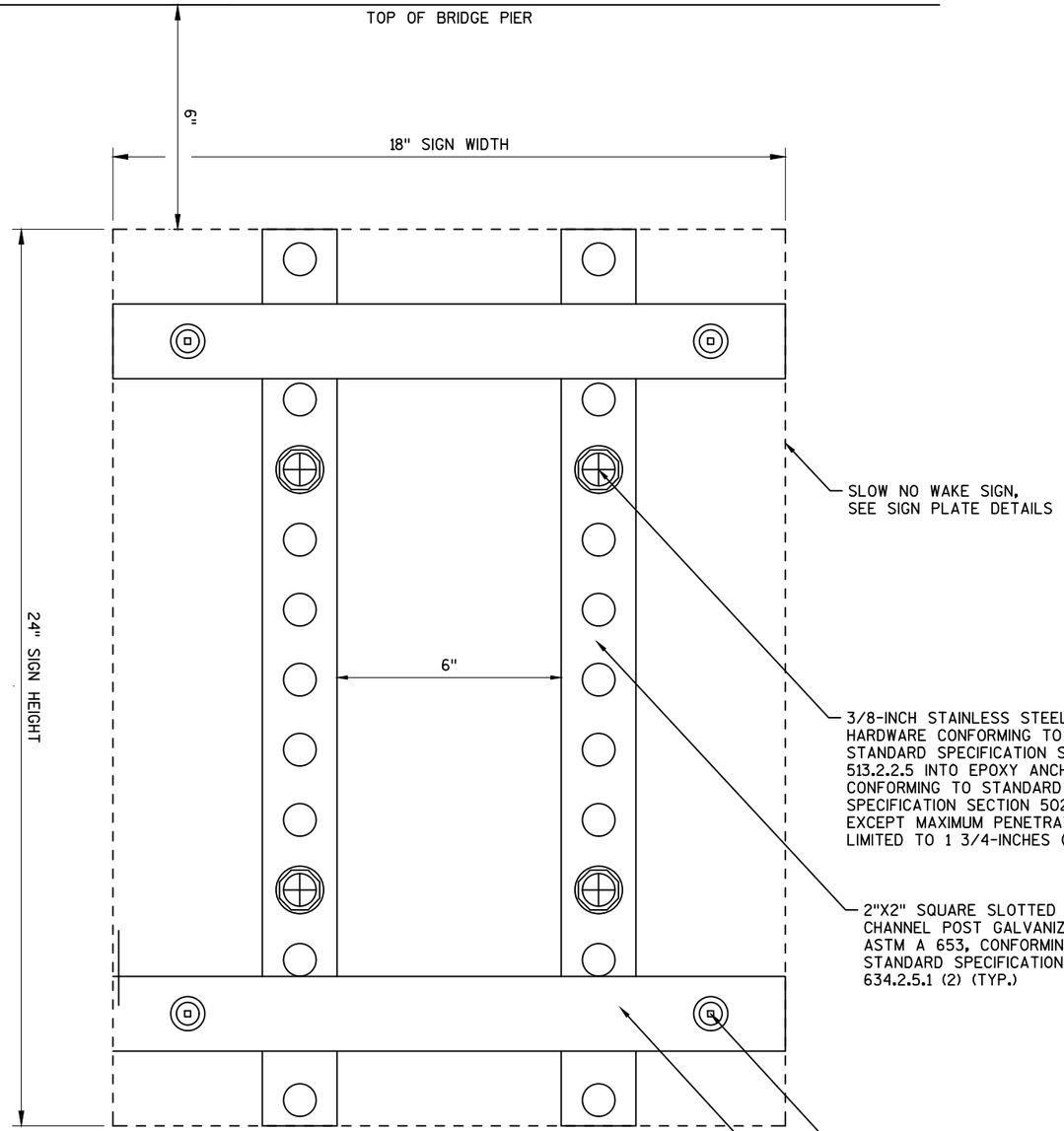


SECTION A-A

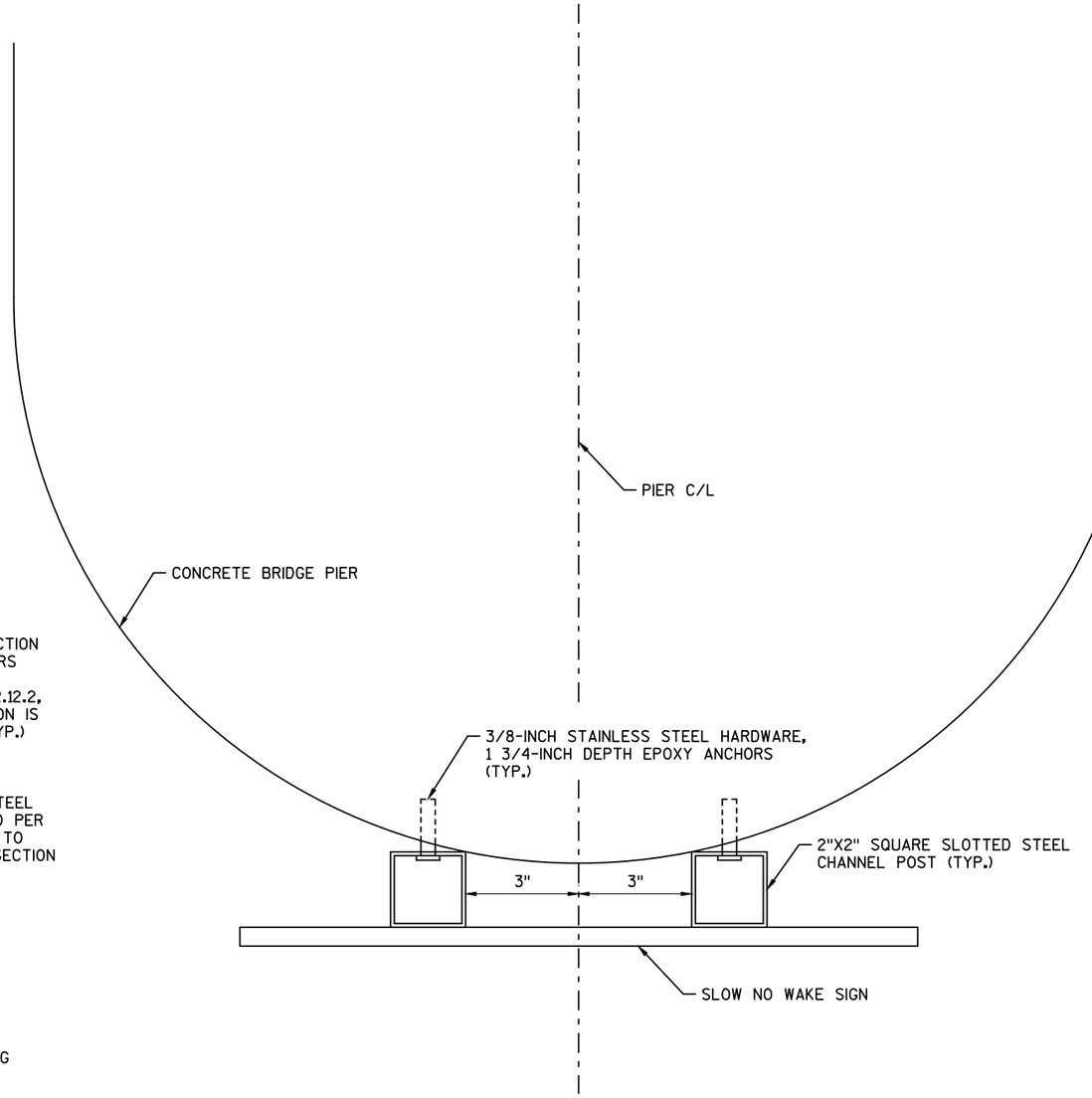


SECTION B-B

RIPRAP MEDIUM AND GEOTEXTILE DETAIL AT APRON ENDWALLS



SIGN PLATE MOUNTING DETAIL (FACING PIER)



SIGN ATTACHMENT DETAIL

SLOW NO WAKE SIGN ATTACHMENT DETAIL

① DETOUR M4-8 24"X12" — COUNTY AB M1-5A 24"X24"
② DETOUR M4-8 24"X12" — COUNTY AB M1-5A 24"X24" — M6-1 21"X21"
③ DETOUR M4-8 24"X12" — COUNTY AB M1-5A 24"X24" — M5-1R 21"X21"
④ DETOUR M4-8 24"X12" — COUNTY AB M1-5A 24"X24" — M6-1 21"X21"
⑤ DETOUR M4-8 24"X12" — COUNTY AB M1-5A 24"X24" — M5-1L 21"X21"
⑥ DETOUR M4-8 24"X12" — COUNTY AB M1-5A 24"X24" — M6-1 21"X21"
⑦ END DETOUR M4-8A 24"X18" — COUNTY AB M1-5A 24"X24"
⑧ COUNTY AB M1-5A 24"X24" — DETOUR AHEAD W20-2A 48"X48"
⑨ ROAD CLOSED AHEAD W20-3A 48"X48"
⑩ M4-9L 30"X24" DETOUR — TYPE III BARRICADE
⑪ M4-9R 30"X24" DETOUR — TYPE III BARRICADE

N

LAKE WAUBESA
MAHONEY ROAD
E. TOWER ROAD
APPLE BLOSSOM LANE
BIBLE CAMP ROAD
51
EXCHANGE STREET
COUNTY MN
VALLEY DRIVE
MAIN STREET
MARSH ROAD
CREAMERY ROAD
SIGGLEKOW ROAD
HOISCHER ROAD
ELVEHJEM ROAD
COUNTY B
SCHNEIDER DRIVE
DYRESON ROAD
SKYTOP ROAD
RIVERHOLM ROAD
DYRESON ROAD (RUSTIC ROAD 20)
COUNTY AB
MUD LAKE
ALSMO LANE
FISH CAMP ROAD
PETERSON ROAD
LAKE KEGONSA

R11-3C 60"X24" BRIDGE OUT 1 1/2 MILES AHEAD — TYPE III BARRICADE
R11-3C 60"X24" BRIDGE OUT 1/2 MILE AHEAD — TYPE III BARRICADE
R11-3C 60"X24" BRIDGE OUT 2 1/4 MILES AHEAD — TYPE III BARRICADE

PROJECT LOCATION

SEE S.D.D "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL ROAD CLOSURE AND BRIDGE OUT SIGNAGE

NOTE: NOT ALL CITY STREETS WITHIN MCFARLAND CITY LIMITS ARE SHOWN ON THIS PLAN. SELECT STREETS ARE SHOWN FOR REFERENCE.

LEGEND
- TRAFFIC CONTROL DETOUR SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DETOUR SIGN ON BARRICADES TYPE III
- DETOUR ROUTE

PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	DETOUR PLAN	SHEET	E

FILE NAME : P:\11300S\11330S\11331\11331010\CADD\SHEETSPLAN\11331010 CTH AB DETOUR PLAN.DWG
LAYOUT NAME - 027001-DT
PLOT DATE : 2/15/2018 3:56 PM
PLOT BY : ERIN JORDAN
PLOT NAME :
PLOT SCALE : **********

5841-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	4.000	4.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 103+50	LS	1.000	1.000
0010	204.0165	Removing Guardrail	LF	222.000	222.000
0012	204.0170	Removing Fence	LF	142.000	142.000
0014	205.0100	Excavation Common **P**	CY	634.000	634.000
0016	206.1000	Excavation for Structures Bridges (structure) 01. B-13-684	LS	1.000	1.000
0018	210.1500	Backfill Structure Type A	TON	420.000	420.000
0020	213.0100	Finishing Roadway (project) 01. 5841-00-70	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	70.000	70.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,090.000	1,090.000
0026	311.0110	Breaker Run	TON	190.000	190.000
0028	415.0080	Concrete Pavement 8-Inch	SY	40.000	40.000
0030	415.0410	Concrete Pavement Approach Slab	SY	74.000	74.000
0032	455.0605	Tack Coat	GAL	60.000	60.000
0034	460.2000	Incentive Density HMA Pavement	DOL	200.000	200.000
0036	460.6223	HMA Pavement 3 MT 58-28 S	TON	170.000	170.000
0038	460.6224	HMA Pavement 4 MT 58-28 S	TON	135.000	135.000
0040	502.0100	Concrete Masonry Bridges	CY	306.000	306.000
0042	502.3200	Protective Surface Treatment	SY	610.000	610.000
0044	503.0128	Prestressed Girder Type I 28-Inch	LF	840.000	840.000
0046	505.0400	Bar Steel Reinforcement HS Structures	LB	7,605.000	7,605.000
0048	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	32,285.000	32,285.000
0050	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	28.000	28.000
0052	506.4000	Steel Diaphragms (structure) 01. B-13-684	EACH	12.000	12.000
0054	513.7084	Railing Steel Type NY4 01. B-13-684	LF	312.000	312.000
0056	516.0500	Rubberized Membrane Waterproofing	SY	23.000	23.000
0058	521.1728	Apron Endwalls for Pipe Arch Sloped Side Drains Steel 28x20-Inch 6 to 1	EACH	1.000	1.000
0060	522.2319	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 19x30-Inch	LF	101.000	101.000
0062	522.2619	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	EACH	1.000	1.000
0064	550.0500	Pile Points	EACH	22.000	22.000
0066	550.2106	Piling CIP Concrete 10 3/4 X 0.365-Inch	LF	1,110.000	1,110.000
0068	606.0200	Riprap Medium	CY	3.000	3.000
0070	606.0300	Riprap Heavy	CY	330.000	330.000
0072	611.8110	Adjusting Manhole Covers	EACH	1.000	1.000

5841-00-70

Line	Item	Item Description	Unit	Total	Qty
0074	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	215.000	215.000
0076	614.2350	MGS Guardrail Short Radius	LF	47.000	47.000
0078	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000
0080	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0082	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0084	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5841-00-70	EACH	1.000	1.000
0086	619.1000	Mobilization	EACH	1.000	1.000
0088	624.0100	Water	MGAL	15.000	15.000
0090	625.0500	Salvaged Topsoil **P**	SY	540.000	540.000
0092	627.0200	Mulching **P**	SY	500.000	500.000
0094	628.1104	Erosion Bales	EACH	50.000	50.000
0096	628.1504	Silt Fence	LF	750.000	750.000
0098	628.1520	Silt Fence Maintenance	LF	1,500.000	1,500.000
0100	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0102	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0104	628.2006	Erosion Mat Urban Class I Type A	SY	50.000	50.000
0106	628.2023	Erosion Mat Class II Type B	SY	400.000	400.000
0108	628.6005	Turbidity Barriers	SY	300.000	300.000
0110	628.7560	Tracking Pads	EACH	2.000	2.000
0112	629.0210	Fertilizer Type B **P**	CWT	1.000	1.000
0114	630.0120	Seeding Mixture No. 20 **P**	LB	25.000	25.000
0116	630.0140	Seeding Mixture No. 40 **P**	LB	5.000	5.000
0118	630.0200	Seeding Temporary **P**	LB	30.000	30.000
0120	631.1100	Sod Erosion Control	SY	50.000	50.000
0122	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	6.000	6.000
0124	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	5.000	5.000
0126	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	1.000	1.000
0128	637.2210	Signs Type II Reflective H	SF	28.000	28.000
0130	637.2230	Signs Type II Reflective F	SF	18.250	18.250
0132	638.2102	Moving Signs Type II	EACH	4.000	4.000
0134	638.3000	Removing Small Sign Supports	EACH	3.000	3.000
0136	642.5001	Field Office Type B	EACH	1.000	1.000
0138	643.0420	Traffic Control Barricades Type III	DAY	518.000	518.000
0140	643.0705	Traffic Control Warning Lights Type A	DAY	370.000	370.000
0142	643.0900	Traffic Control Signs	DAY	6,068.000	6,068.000
0144	643.5000	Traffic Control	EACH	1.000	1.000
0146	645.0111	Geotextile Type DF Schedule A	SY	125.000	125.000
0148	645.0120	Geotextile Type HR	SY	630.000	630.000
0150	645.0130	Geotextile Type R	SY	6.000	6.000

5841-00-70

Line	Item	Item Description	Unit	Total	Qty
0152	646.1005	Marking Line Paint 4-Inch	LF	1,111.000	1,111.000
0154	650.4500	Construction Staking Subgrade	LF	394.000	394.000
0156	650.5000	Construction Staking Base	LF	394.000	394.000
0158	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0160	650.6500	Construction Staking Structure Layout (structure) 01. B-13-684	LS	1.000	1.000
0162	650.9910	Construction Staking Supplemental Control (project) 01. 5841-00-70	LS	1.000	1.000
0164	650.9920	Construction Staking Slope Stakes	LF	394.000	394.000
0166	690.0150	Sawing Asphalt	LF	195.000	195.000
0168	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0170	715.0502	Incentive Strength Concrete Structures	DOL	1,836.000	1,836.000
0172	SPV.0060	Special 01. Reconstruct Existing 4' Diameter Sanitary Sewer Manhole	EACH	1.000	1.000
0174	SPV.0060	Special 02. Underwater Pier Inspection B-13-684	EACH	1.000	1.000
0176	SPV.0060	Special 03. Mailbox Removal and Temporary Mailboxes	EACH	10.000	10.000
0178	SPV.0060	Special 04. Special Sign Support Mounting System	EACH	2.000	2.000
0180	SPV.0060	Special 05. Utility Line Opening (ULO)	EACH	1.000	1.000

EARTHWORK PROJECT I.D. 5841-00-70 CTH AB

Division	From/To Station	Location	Common Excavation (1) (item # 205.0100)		Salvaged/Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (6)	Mass Ordinate +/- (7)	Waste	Comment:
			Cut (2)	EBS Excavation (3)				Factor 1.25			
1	100+63 - 102+83.47		261		0	261	246	307	-46	-46	
2	104+06.54 - 105+79		267		0	267	74	93	174	174	
	STRUCTURE B-13-0684		0	0	0	0	0	0	0	0	
	UNDISTRIBUTED EBS		0	106	0	0	0	0	0	0	
Project Totals			528	106	0	528	320	400	128	128	
	Overall Project Total:		634								

1) Excavation Common is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Breaker Run material. An undistributed amount of Breaker Run material is included in the project.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
6) Expanded Fill. Factor = 1.25
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

CLEARING & GRUBBING

CATEGORY	STATION	TO STATION	LOCATION	(201.0105) CLEARING STA	(201.0205) GRUBBING STA
0010	101+00	103+00	LT&RT	2	2
	104+00	106+00	LT&RT	2	2
	PROJECT TOTALS			**4**	**4**

BASE AGGREGATE DENSE

CATEGORY	STATION	TO STATION	LOCATION	(305.0110) 3/4-INCH TON	(305.0120) 1 1/4-INCH TON	(311.0110) BREAKER TON	(624.0100) WATER MGAL
0010	100+63	102+84	LT & RT	35	530	-	7
	104+06	105+79	LT & RT	35	560	-	8
	UNDISTRIBUTED			-	-	190	-
	PROJECT TOTALS			**70**	**1,090**	**190**	**15**

NOTE: WATER BID ITEM TO BE USED FOR BASE AGGREGATE DUST CONTROL AND COMPACTION

TRACKING PADS

CATEGORY	STATION	(628.7560) EACH
0010	101+29	1
	105+50	1
PROJECT TOTAL		**2**

REMOVING GUARDRAIL

CATEGORY	STATION	TO STATION	LOCATION	(204.0165) LF
0010	102+45	103+08	RT	63
	102+62	103+08	LT	46
	103+92	104+43	RT	51
	103+92	104+54	LT	62
	PROJECT TOTAL			**222**

CONCRETE PAVEMENT

CATEGORY	STATION	TO STATION	LOCATION	(415.0080) CONCRETE PAVEMENT 8-INCH SY	(415.0410) CONCRETE PAVEMENT APPROACH SLAB 15' LONG X 22' WIDE SY
0030	102+69	102+84	LT & RT	20	37
	104+06	104+21	LT & RT	20	37
	UNDISTRIBUTED			-	-
	PROJECT TOTALS			**40**	**74**

MAILBOX REMOVAL AND TEMPORARY MAILBOXES

CATEGORY	STATION	TO STATION	LOCATION	(SPV.0060.03) EACH
0030	104+80	105+00	RT	10
	PROJECT TOTAL			**10**

REMOVING SMALL PIPE CULVERTS

CATEGORY	STATION	TO STATION	LOCATION	(203.0100) EACH
0010	104+67	105+07	LT	1
	PROJECT TOTAL			**1**

REMOVING FENCE

CATEGORY	STATION	TO STATION	LOCATION	(204.0170) LF
0030	101+42	101+90	LT	48
	103+88	104+72	LT	94
	PROJECT TOTAL			**142**

HMA PAVEMENT

CATEGORY	STATION	TO STATION	(460.6223) HMA PAVEMENT 3 MT 58-28 S TON	(460.6224) HMA PAVEMENT 4 MT 58-28 S TON	(455.0605) TACK COAT GAL
0010	100+63	102+69	84	67	30
	104+21	105+79	86	69	30
	PROJECT TOTALS		**170**	**135**	**60**

SANITARY SEWER ADJUSTMENTS

CATEGORY	STATION	LOCATION	(611.8110) ADJUSTING MANHOLE COVERS EACH	(SPV.0060.01) RECONSTRUCT EXISTING 4' DIAMETER SANITARY SEWER MANHOLE EACH
0040	101+99	LT	-	1
	104+89	LT	1	-
	PROJECT TOTALS		**1**	**1**

FILE NAME : P:\90s\93\00093170\CADD\C3D\SheetsPlan\Miscellaneous Quantity Sheets\1470-18-71 MQ Sheet Border.dgn PLOT DATE : 2/15/2018 PLOT BY : cwagner PLOT NAME : PLOT SCALE : 1:200
WISDOT/CADDS SHEET 43

CULVERT PIPE

CATEGORY	STATION	TO STATION	LOCATION	(522.2319) CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 19x30-INCH LF	(522.2619) APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 19x30-INCH (SOUTH END) EACH	(521.1728) APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS STEEL 28x20-INCH 6 TO 1 (NORTH END) EACH	(650.6000) CONSTRUCTION STAKING PIPE CULVERTS EACH	** JOINT TIES FOR CONCRETE PIPE EACH
0010	104+06	105+07	RT	101	1	1	1	12
	PROJECT TOTALS			**101**	**1**	**1**	**1**	

**FOR INFORMATIONAL PURPOSES ONLY; NOT A PAY ITEM

MOBILIZATIONS EROSION CONTROL

CATEGORY	STATION	TO STATION	(628.1905) EACH	(628.1910) EMERGENCY EACH
0010	100+63	105+79	2	2
	PROJECT TOTALS		**2**	**2**

MGS GUARDRAIL

CATEGORY	STATION	TO STATION	LOCATION	(614.2350) MGS GUARDRAIL SHORT RADIUS LF	(614.2630) MGS GUARDRAIL SHORT RADIUS TERMINAL EACH	(614.2500) MGS THRIE BEAM TRANSITION LF	(614.2610) MGS GUARDRAIL TERMINAL EAT EACH	NOTES
0010	101+83	102+35	LT	-	-	-	1	
	101+83	102+35	RT	-	-	-	1	
	102+35	102+75	LT	-	-	40.0	-	
	101+83	102+75	RT	-	-	40.0	-	
	104+15	104+50	LT	-	-	40.0	-	
	104+50	104+80	LT	47	-	-	-	9 CRT POSTS
	104+80	104+79	LT	-	1	-	-	
	104+26	104+66	RT	-	-	40.0	-	
	104+66	105+19	RT	-	-	-	1	
	PROJECT TOTALS			**47**	**1**	**160**	**3**	

MARKING LINE PAINT 4-INCH

CATEGORY	STATION	STATION	LOCATION	(646.1005) YELLOW LF	(646.1005) WHITE LF	NOTES
0010	100+63	104+50	LT	-	387	SOLID WHITE EDGE LINE
	105+25	105+50	LT	-	25	SOLID WHITE EDGE LINE
	101+29	105+79	RT	-	450	SOLID WHITE EDGE LINE
	101+29	105+50	CENTERLINE	105 LT.	-	SKIP DASH SINGLE YELLOW CENTERLINE
	104+06	105+50	CENTERLINE	144 RT.	-	SINGLE SOLID YELLOW CENTERLINE
	PROJECT SUBTOTALS			**249**	**862**	
	PROJECT TOTAL			**1,111**		

FINISHING ITEMS

CATEGORY	STATION	TO STATION	LOCATION	* (625.0500) SALVAGED TOPSOIL SY	* (627.0200) MULCHING SY	* (629.0210) FERTILIZER TYPE B CWT	* (630.0120) SEEDING MIXTURE NO. 20 LB	* (630.0140) SEEDING MIXTURE NO. 40 LB	* (630.0200) SEEDING TEMPORARY LB	(631.1100) SOD EROSION CONTROL SY
0010	100+63	102+71	LT	200	170	0.2	10	-	10	-
	101+29	102+71	RT	130	40	0.2	5	-	5	-
	103+96	104+78	LT	100	130	0.1	-	5	5	-
	104+29	105+79	RT	110	100	0.2	5	-	5	-
	104+95	105+50	LT	40	60	0.1	5	-	5	-
	UNDISTRIBUTED			-	-	-	-	-	-	50
	PROJECT TOTALS			**540**	**500**	**1**	**25**	**5**	**30**	**50**

* PAY PLAN QUANTITY WITHOUT MEASURE

CONSTRUCTION STAKING

CATEGORY	STATION	TO STATION	LOCATION	(650.4500) SUBGRADE LF	(650.5000) BASE LF	(650.9910) SUPPLEMENTAL CONTROL LS	(650.9920) SLOPE STAKING LF
0010	100+63	102+84	LT/RT	221	221	-	221
	104+06	105+79	LT/RT	173	173	-	173
	PROJECT 5841-00-70			-	-	1	-
	PROJECT TOTALS			**394**	**394**	**1**	**394**

EROSION CONTROL

CATEGORY	STATION	TO STATION	LOCATION	(628.1504) SILT FENCE LF	(628.1520) MAINTENANCE LF	(628.2006) EROSION MAT URBAN CLASS I TYPE A SY	(628.2023) EROSION MAT CLASS II TYPE B SY	(628.1104) EROSION BALES EACH	(628.6005) TURBIDITY BARRIERS SY	NOTES
0010	100+63	102+20	LT	160	320	-	-	-	-	
	101+29	102+71	RT	170	340	-	160	-	-	
	101+83	102+21	LT	-	-	-	90	-	-	
	102+20	103+01	LT/RT	-	-	-	-	-	100	S. ABUTMENT
	103+38	103+57	LT/RT	-	-	-	-	-	120	PIER
	103+88	104+10	LT/RT	-	-	-	-	-	80	N. ABUTMENT
	103+95	104+75	LT	115	230	-	-	-	-	
	104+19	104+30	LT	-	-	-	30	-	-	
	104+29	105+19	RT	-	-	-	100	-	-	
	104+95	105+50	LT	65	130	-	-	-	-	
	104+10	105+79	RT	170	340	-	-	-	-	
	105+13	105+23	LT	-	-	-	-	-	-	
	UNDISTRIBUTED			70	140	50	20	50	-	
	PROJECT TOTALS			**750**	**1,500**	**50**	**400**	**50**	**300**	

RIPRAP AND GEOTEXTILE

CATEGORY	STATION	TO STATION	LOCATION	(606.0200) RIPRAP MEDIUM CY	(645.0130) GEOTEXTILE TYPE R SY	NOTES
0010	105+13	105+23	LT	3	6	N. END OF CULVERT PIPE
	PROJECT TOTALS			**3**	**6**	

SAWING ASPHALT

CATEGORY	STATION	TO STATION	LOCATION	(690.0150) LF
0010	100+63	101+29	LT&RT	100
	104+80	104+94	LT	40
	105+50	105+79	LT&RT	55
	PROJECT TOTAL			**195**

PERMANENT SIGNING

CATEGORY	CODE	SIGN SIZE INCHES	STATION	LOCATION	(637.2210) SIGNS TYPE II REFLECTIVE H SF	(637.2230) SIGNS TYPE II REFLECTIVE F SF	(634.0612) POSTS WOOD 4X6-INCH 12-FT EACH	(634.0614) POSTS WOOD 4X6-INCH 14-FT EACH	(634.0618) POSTS WOOD 4X6-INCH 18-FT EACH	(638.2102) MOVING SIGNS TYPE II EACH	(638.3000) REMOVING SMALL SIGN SUPPORT EACH	NOTES
0010	W5-52R	12X36	102+72	RT	-	3.00	1	-	-	-	-	OBJECT MARKER B-13-0684 SE
	W5-52L	12X36	102+72	LT	-	3.00	1	-	-	-	-	OBJECT MARKER B-13-0684 SW
	W5-52R	12X36	104+19	LT	-	3.00	1	-	-	-	-	OBJECT MARKER B-13-0684 NW
	W5-52L	12X36	104+31	RT	-	3.00	1	-	-	-	-	OBJECT MARKER B-13-0684 NE
	R7-1	18X24	100+81	LT	3.00	-	-	1	-	-	-	NO PARKING ANY TIME
	R7-1	18X24	102+50	LT	3.00	-	-	1	-	-	-	NO PARKING ANY TIME
	EXISTING	-	102+63	RT	-	-	-	1	-	1	1	YAHARA RIVER SIGN
	R9-55	18X24	102+96	RT	3.00	-	1	-	-	-	-	NO FISHING FROM BRIDGE
		18X24	103+45	LT	3.00	-	-	-	-	-	-	SLOW NO WAKE (MOUNTED ON PIER NOSE)
		18X24	103+45	RT	3.00	-	-	-	-	-	-	SLOW NO WAKE (MOUNTED ON PIER NOSE)
	R9-55	18X24	104+03	LT	3.00	-	1	-	-	-	-	NO FISHING FROM BRIDGE
	EXISTING	-	104+38	LT	-	-	-	1		1	1	YAHARA RIVER SIGN
	W14-1	30X30	105+01	LT	-	6.25	-	-	1	-	-	DEAD END
	R12-1	24X30	105+01	LT	5.00	-	-	-	-	-	-	WEIGHT LIMIT 15 TONS (MOUNTED ON DEAD END POST)
	EXISTING	-	105+01	LT	-	-	-	-	-	2	1	STREET NAME SIGNS (MOUNTED ON DEAD END POST)
	R2-1	24X30	105+16	LT	5.00	-	-	1	-	-	-	SPEED LIMIT (30 MPH)
	PROJECT TOTALS				**28**	**18.25**	**6**	**5**	**1**	**4**	**3**	

TRAFFIC CONTROL

CATEGORY	DESCRIPTION	BARRICADES TYPE III NO. DEVICES	(643.0420) TRAFFIC CONTROL BARRICADES TYPE III DAY	WARNING LIGHTS TYPE A NO. DEVICES	(643.0705) TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	SIGNS NO. DEVICES	(643.0900) TRAFFIC CONTROL SIGNS DAY	DURATION		(643.5000) TRAFFIC CONTROL (PROJECT) EACH
0010	USH 51	-	-	-	-	20	1,480	74	DAYS	-
	CTH B	2	148	4	296	9	666	74	DAYS	-
	CTH MN	-	-	-	-	48	3,552	74	DAYS	-
	CTH AB	5	370	10	74	5	370	74	DAYS	-
	PROJECT 5841-00-70	-	-	-	-	-	-	-	-	1
	PROJECT TOTALS		**518**		**370**		**6,068**			**1**

UTILITY LINE OPENING (ULO)

CATEGORY	STATION	LOCATION	(SPV.0060.05) EACH	UTILITY
0010	104+70	26' LT	1	GAS
	PROJECT TOTAL		**1**	

SPECIAL SIGN SUPPORT MOUNTING SYSTEM

CATEGORY	STATION	LOCATION	(SPV.0060.04) EACH
0010	103+45	LT	1
	103+45	RT	1
	PROJECT TOTAL		**2**

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING — TO BE REMOVED
BRIDGE

SECTION CORNER SYMBOL
SECTION CORNER MONUMENT
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
SIGN
OFF-PREMISE SIGN

R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED)

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE	■	□
TELEPHONE POLE	●	⌀
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)	✖	✖

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

PARCEL NUMBER (25) UTILITY NUMBER (40)
PARALLEL OFFSETS

CONVENTIONAL ABBREVIATIONS

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

CURVE DATA

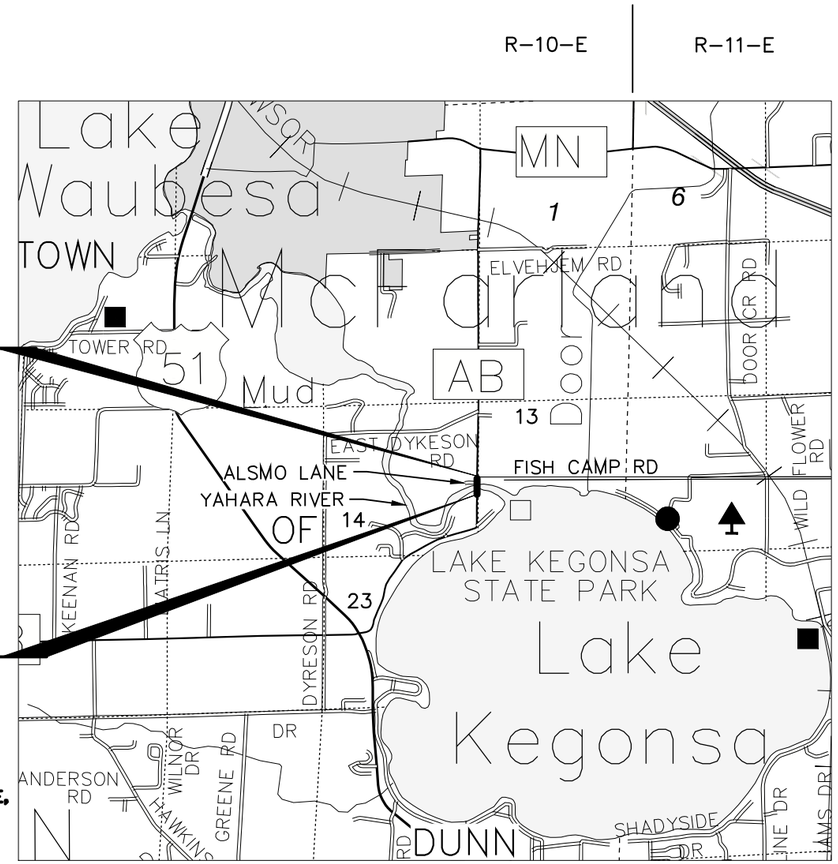
LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

END RELOCATION
ORDER STA.106+42.77
Y = 449,651.214
X = 852,284.916

APPROXIMATELY 3 FEET EAST OF THE EAST 1/4 CORNER OF SECTION 14, T-6-N, R-10-E, TOWN OF DUNN, DANE COUNTY, WI.

BEGIN RELOCATION
ORDER STA.101+29.00
Y = 449,137.512
X = 852,277.392

APPROXIMATELY 514 FEET SOUTH OF AND 4 FEET WEST OF THE EAST 1/4 CORNER OF SECTION 14, T-6-N, R-10-E, TOWN OF DUNN, DANE COUNTY, WI.



CONVENTIONAL UTILITY SYMBOLS

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

N

LAYOUT
SCALE 0 0.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.1 MI.

NOTES:

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

RIGHT OF WAY MONUMENTS ARE 3/4"X24" REBAR AND ARE PLACED PRIOR TO OR AT THE TIME OF LAND TITLE TRANSFER.

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

EXISTING RIGHT-OF-WAY IS BASED ON PREVIOUS DANE COUNTY PROJECT SO633(1), CSM #12387 AND STATE STATUTE 82.31.

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
5841-00-00		
FEDERAL PROJECT NUMBER	4.01	2

PLAT OF RIGHT-OF-WAY REQUIRED FOR
USH 51 - MCFARLAND
(YAHARA RIVER BRIDGE B-13-0684)

CTH AB — DANE CO.

CONSTRUCTION PROJECT NUMBER
5841-00-70

ACCEPTED FOR

COUNTY of DANE

(Date) (COUNTY HIGHWAY COMMISSIONER)

ORIGINAL PLAT PREPARED BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL • REMEDIATION DEVELOPMENT • ENVIRONMENTAL
2901 International Lane, Suite 300 Madison, WI 53704-3133
608-242-7779 1-800-446-0679 Fax: 608-242-5664

WISCONSIN
BRADLEY L. TISDALE S-2824 WAUNAKEE WI
LAND SURVEYOR

10/28/16 (Date)
(Professional Land Surveyor)

4

REVISION DATE			

DATE 8/10/2016

GRID FACTOR NA

FILE NAME : P:\11300S\11330S\11331\11331010\CADD\RW\CTH AB TITLE SHEET_TPP.DWG
LAYOUT NAME - ****

SCHEDULE OF LANDS & INTERESTS REQUIRED

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

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W SQ FT REQUIRED			TLE SQ FT
			NEW	EXISTING	TOTAL	
1	DANE COUNTY	FEE	216	5914	6130	--
2	LOUISE LADD WHITSON, AS TRUSTEE OF THE BURTON NEIL LADD TRUST	FEE/TLE	--	8681	8681	839
3	HENMAS, INC., A WISCONSIN CORPORATION	FEE/TLE	--	7276	7276	833

UTILITY NUMBER	OWNER(S)	PARCEL AFFECTED	INTEREST REQUIRED
80	KEGONSA SANITARY DISTRICT	1 - DOC #2065832	RELEASE OF RIGHTS
81	FRONTIER COMMUNICATIONS	1 - NO EASEMENT OF RECORD	RELEASE OF RIGHTS
82	WISCONSIN POWER & LIGHT COMPANY d/b/a ALLIANT ENERGY	1 - NO EASEMENT OF RECORD	RELEASE OF RIGHTS

ALIGNMENT INFORMATION

PI = STA 100+00.00
Y = 449,008.513
X = 852,276.940

DA = N00°12'03"E

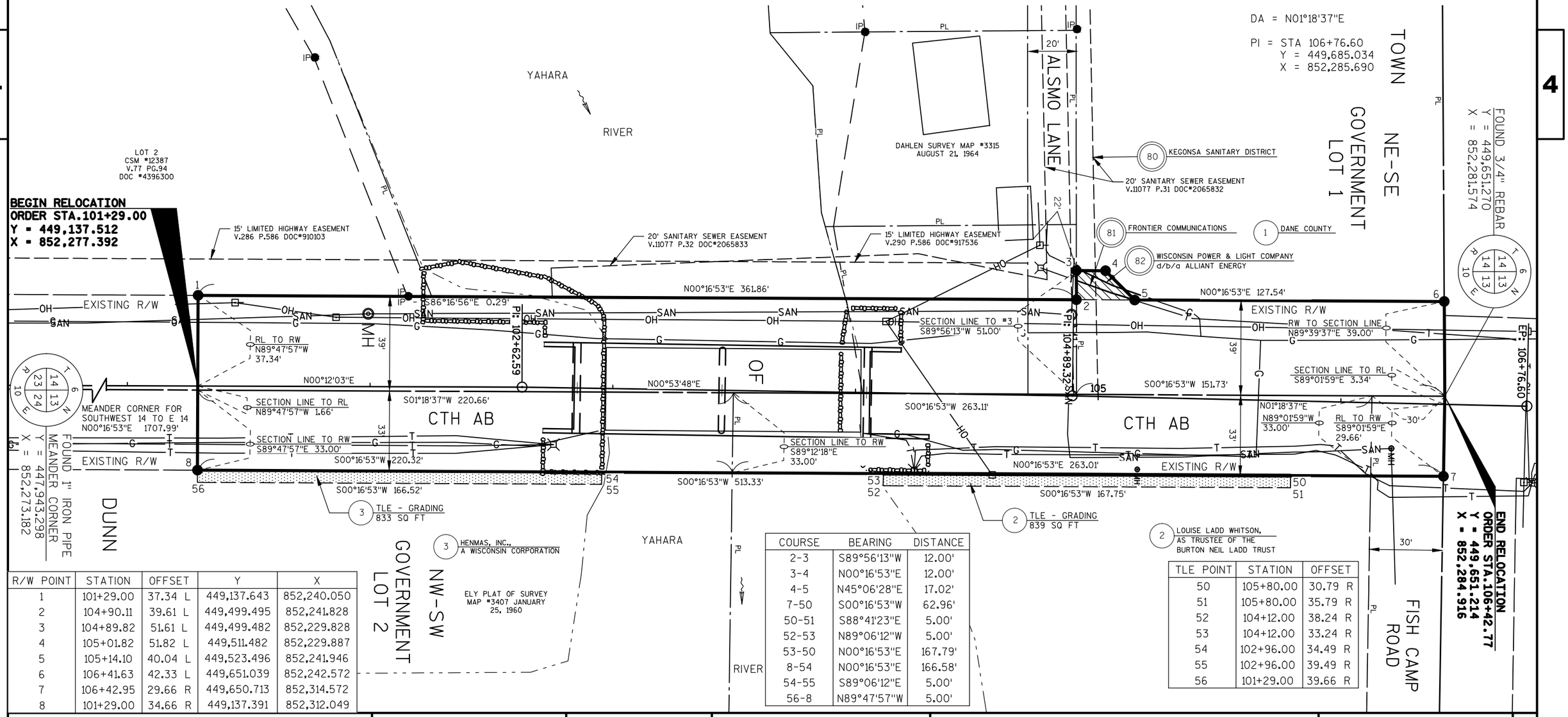
PI = STA 102+62.59
Y = 449,271.106
X = 852,277.860

DA = N00°53'48"E

PI = STA 104+89.32
Y = 449,497.800
X = 852,281.408

DA = N01°18'37"E

PI = STA 106+76.60
Y = 449,685.034
X = 852,285.690



R/W POINT	STATION	OFFSET	Y	X
1	101+29.00	37.34 L	449,137.643	852,240.050
2	104+90.11	39.61 L	449,499.495	852,241.828
3	104+89.82	51.61 L	449,499.482	852,229.828
4	105+01.82	51.82 L	449,511.482	852,229.887
5	105+14.10	40.04 L	449,523.496	852,241.946
6	106+41.63	42.33 L	449,651.039	852,242.572
7	106+42.95	29.66 R	449,650.713	852,314.572
8	101+29.00	34.66 R	449,137.391	852,312.049

COURSE	BEARING	DISTANCE
2-3	S89°56'13"W	12.00'
3-4	N00°16'53"E	12.00'
4-5	N45°06'28"E	17.02'
7-50	S00°16'53"W	62.96'
50-51	S88°41'23"E	5.00'
52-53	N89°06'12"W	5.00'
53-50	N00°16'53"E	167.79'
8-54	N00°16'53"E	166.58'
54-55	S89°06'12"E	5.00'
56-8	N89°47'57"W	5.00'

TLE POINT	STATION	OFFSET
50	105+80.00	30.79 R
51	105+80.00	35.79 R
52	104+12.00	38.24 R
53	104+12.00	33.24 R
54	102+96.00	34.49 R
55	102+96.00	39.49 R
56	101+29.00	39.66 R

REVISION DATE

DATE 08/10/2016

GRID FACTOR

SCALE, FEET 0 20 40

HWY: CTH AB

COUNTY: DANE

STATE R/W PROJECT NUMBER 5841-00-00

CONSTRUCTION PROJECT NUMBER 5841-00-70

PLAT SHEET 4.02

PS&E SHEET 13

E

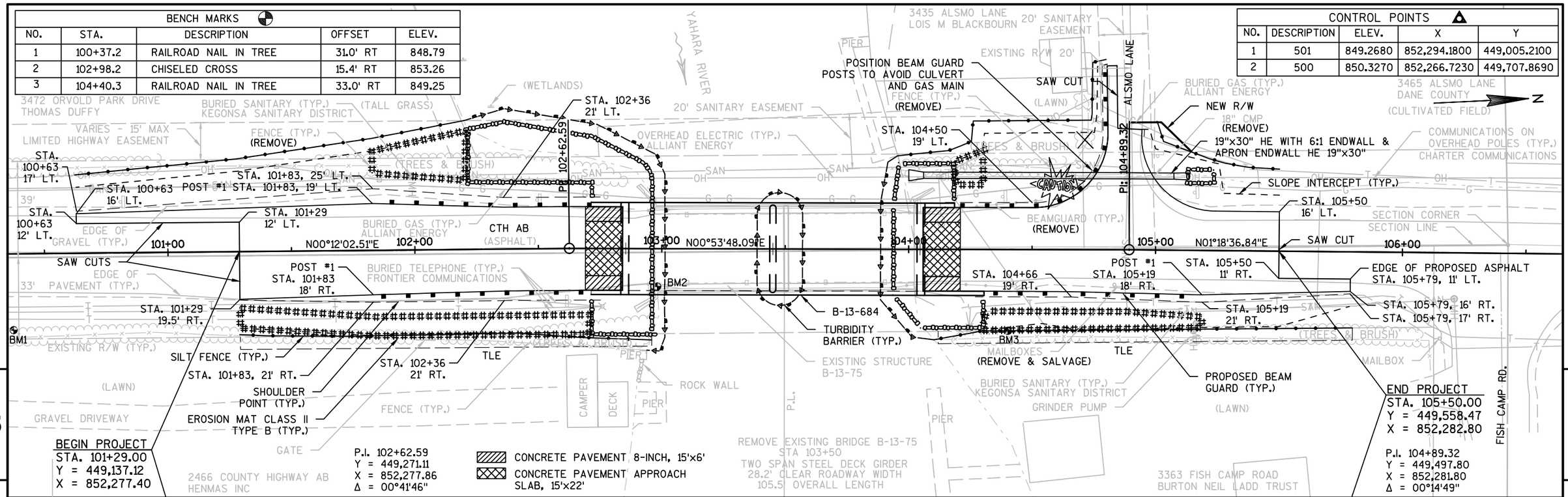
FILE NAME : CTH AB_PLINE.DWG
LAYOUT NAME - ****

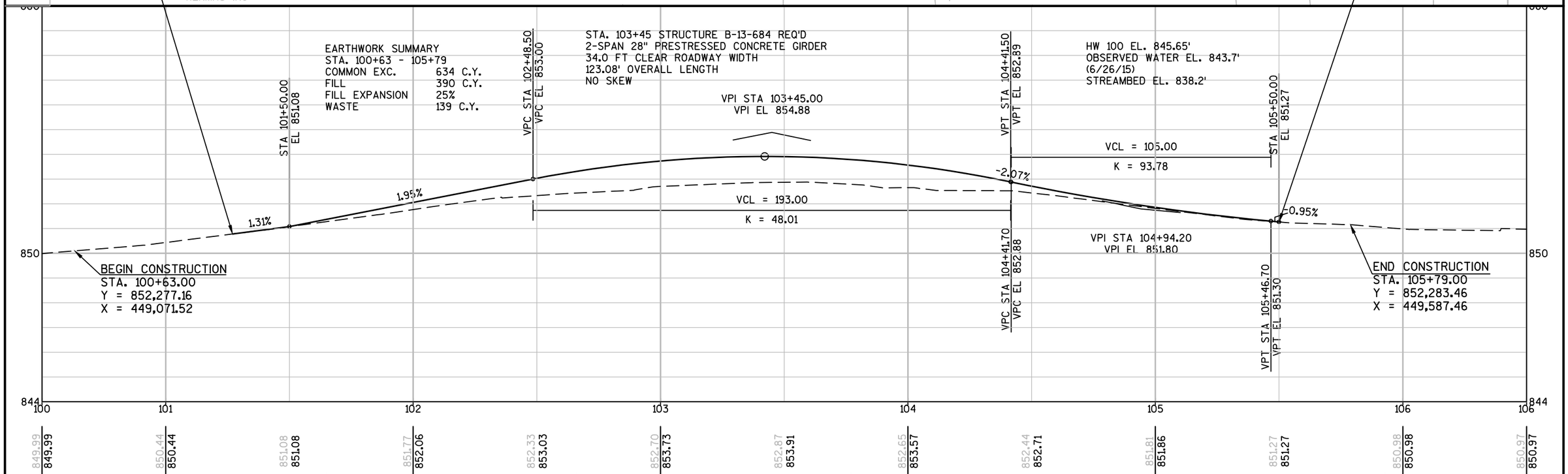
PLOT DATE : 8/10/2016 4:40 PM PLOT BY : BRAD TISDALE PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 75

BENCH MARKS				
NO.	STA.	DESCRIPTION	OFFSET	ELEV.
1	100+37.2	RAILROAD NAIL IN TREE	31.0' RT	848.79
2	102+98.2	CHISELED CROSS	15.4' RT	853.26
3	104+40.3	RAILROAD NAIL IN TREE	33.0' RT	849.25

CONTROL POINTS				
NO.	DESCRIPTION	ELEV.	X	Y
1	501	849.2680	852,294.1800	449,005.2100
2	500	850.3270	852,266.7230	449,707.8690



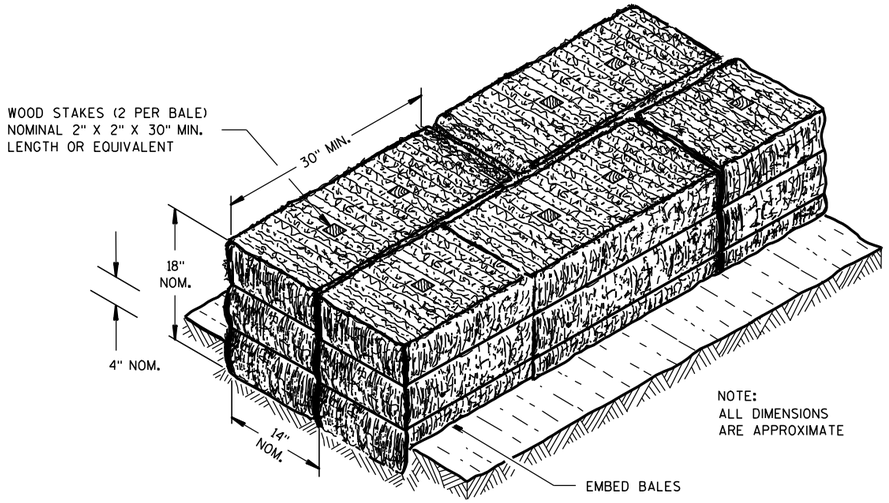


PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	PLAN AND PROFILE: CTH AB	SHEET 14	E

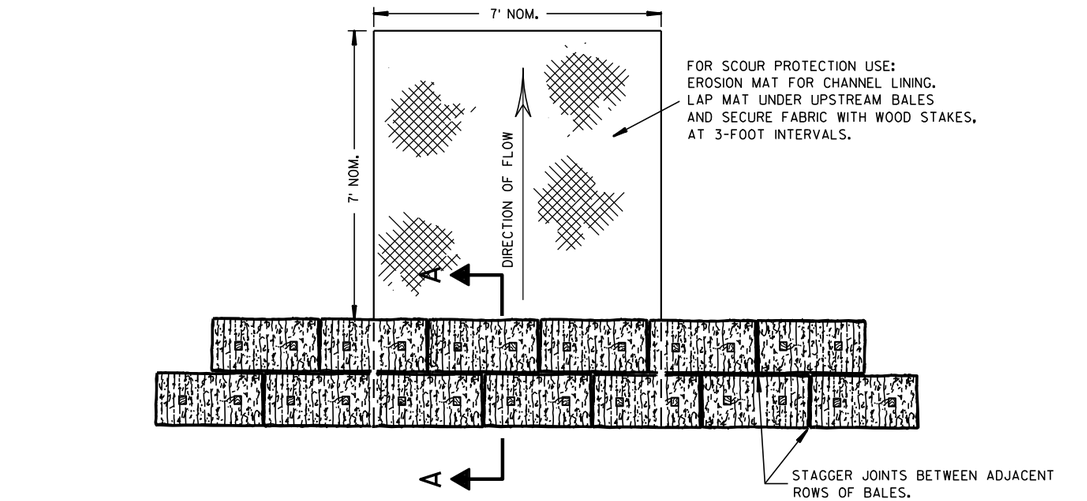
Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F08-02	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

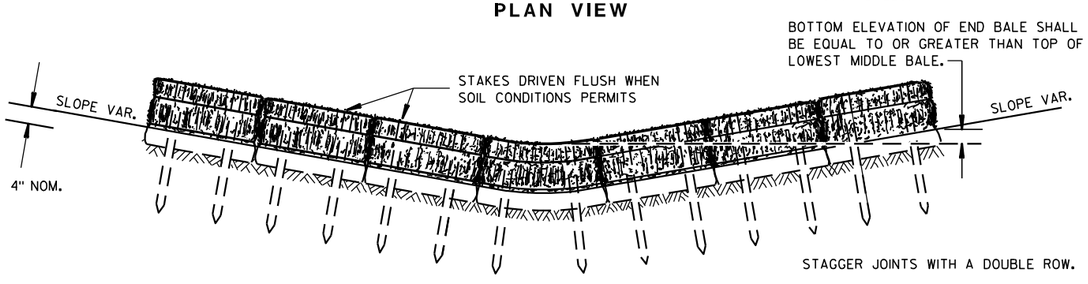
6



SECTION A-A



PLAN VIEW



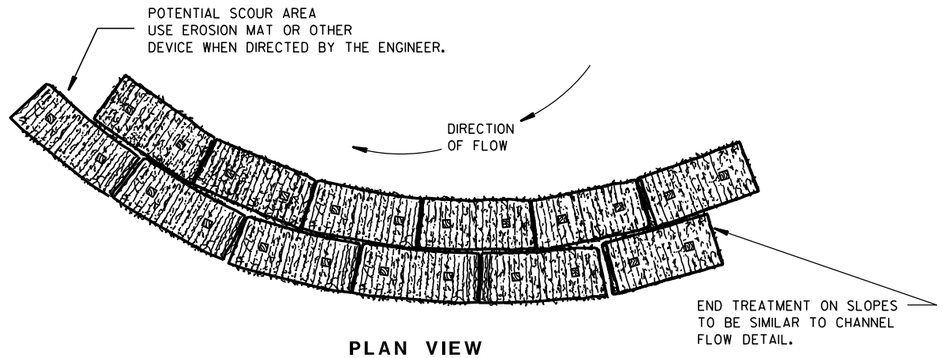
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

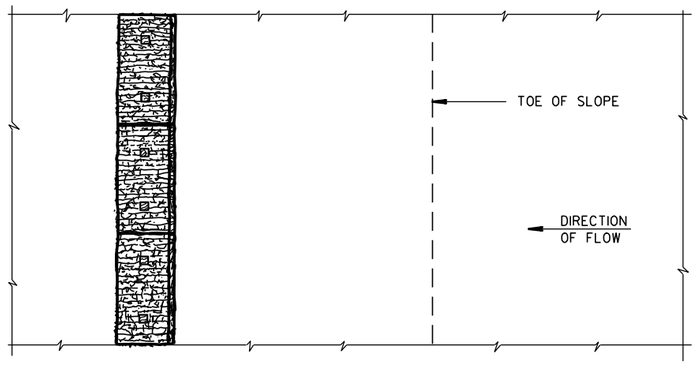
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

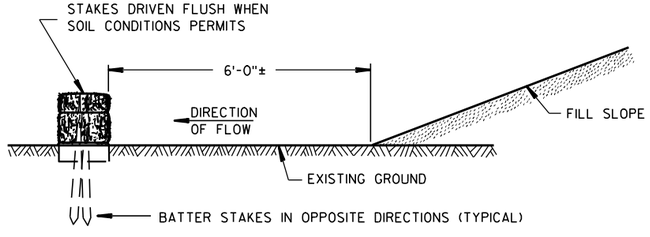


PLAN VIEW

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

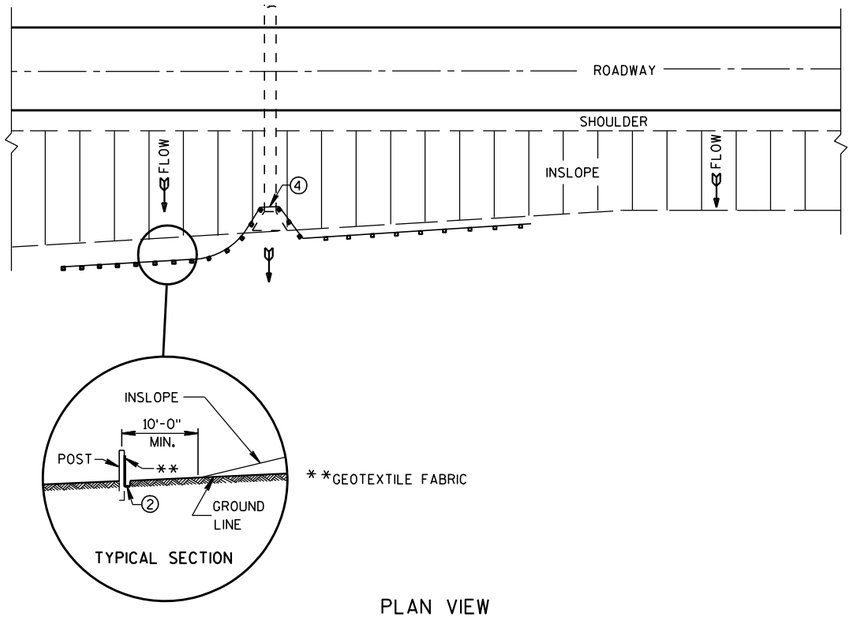
FHWA

6

S.D.D. 8 E 8-3

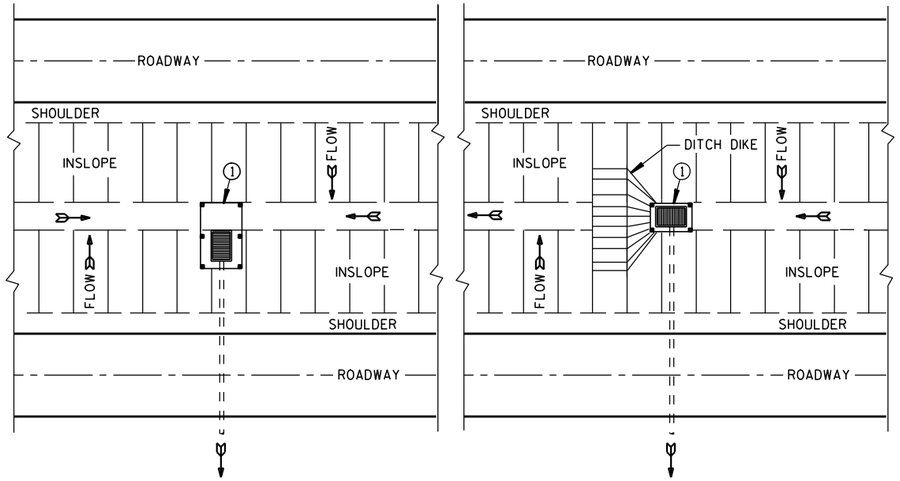
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



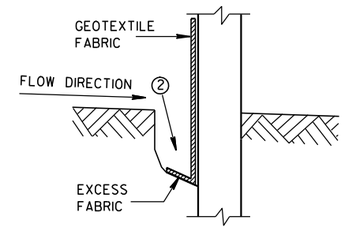
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

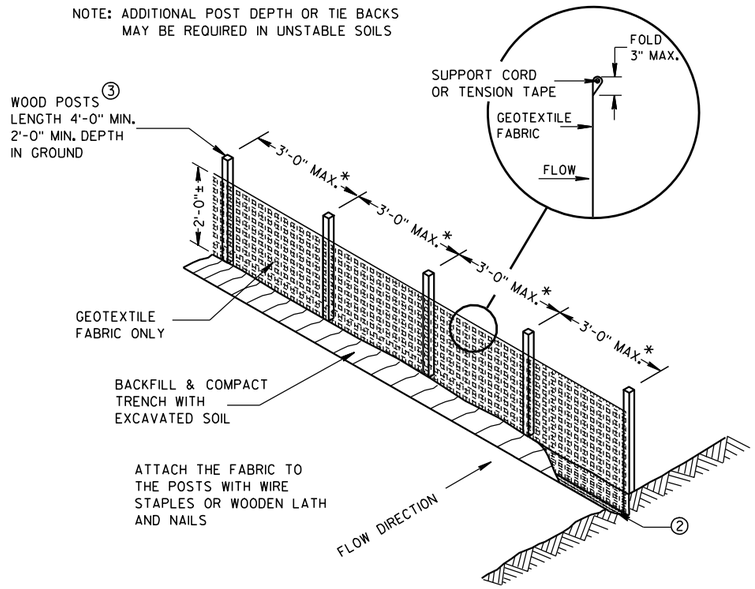
GENERAL NOTES

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

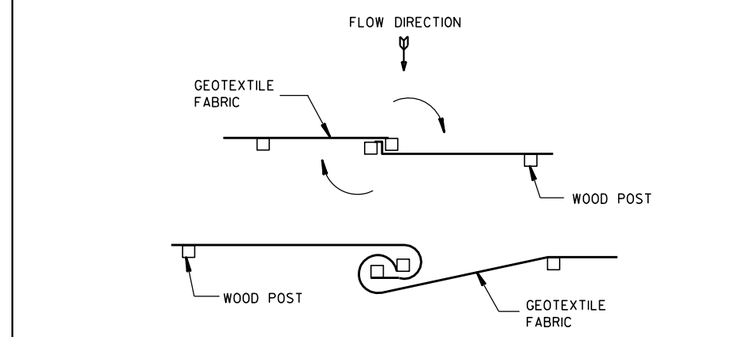
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



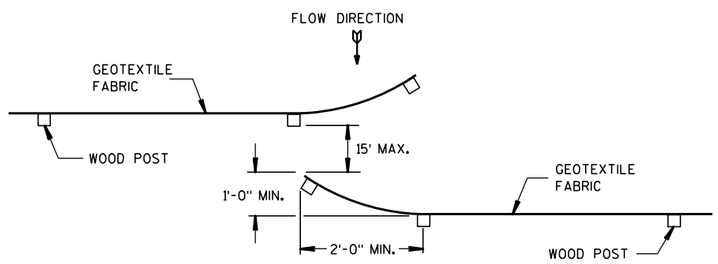
TRENCH DETAIL



SILT FENCE

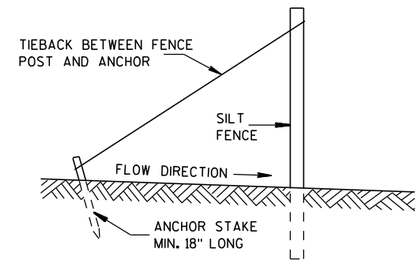


TWIST METHOD



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

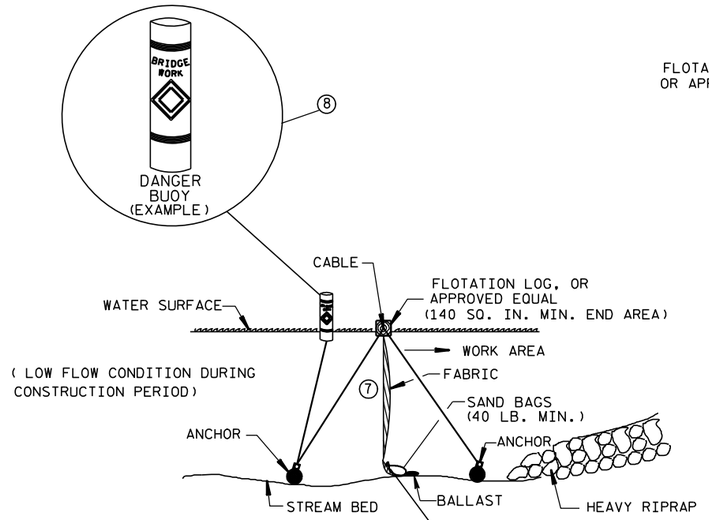
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

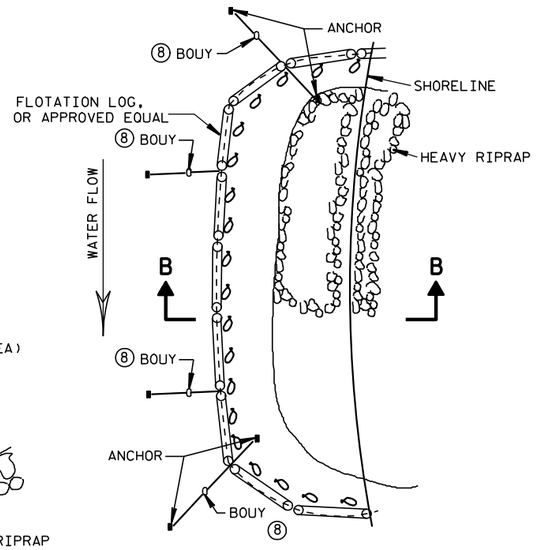
S.D.D. 8 E 9-6

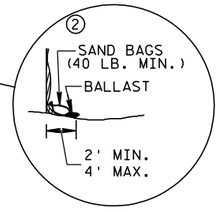
6

S.D.D. 8 E 9-6

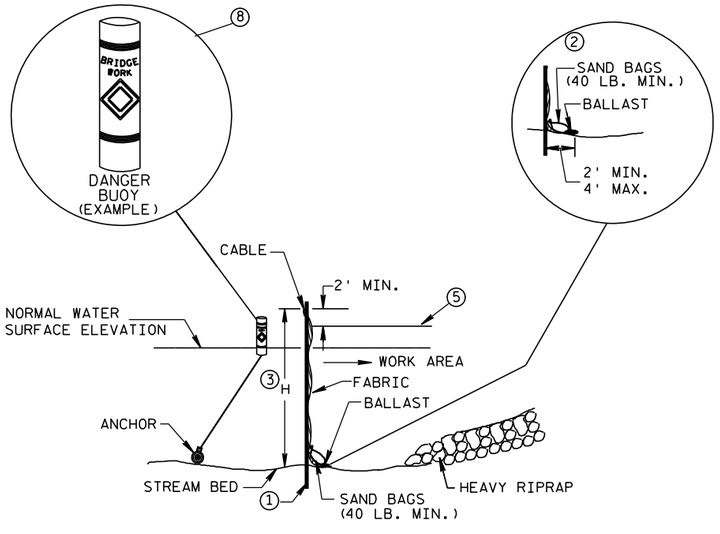


SECTION B-B

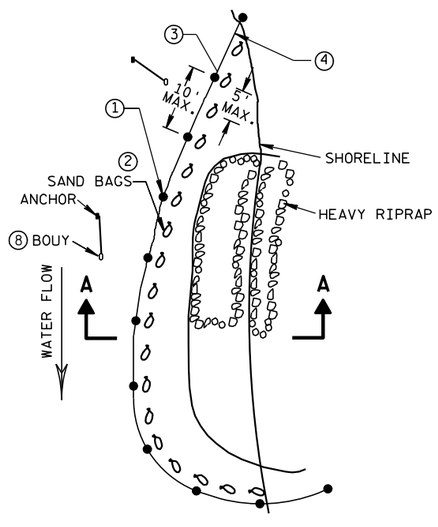




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

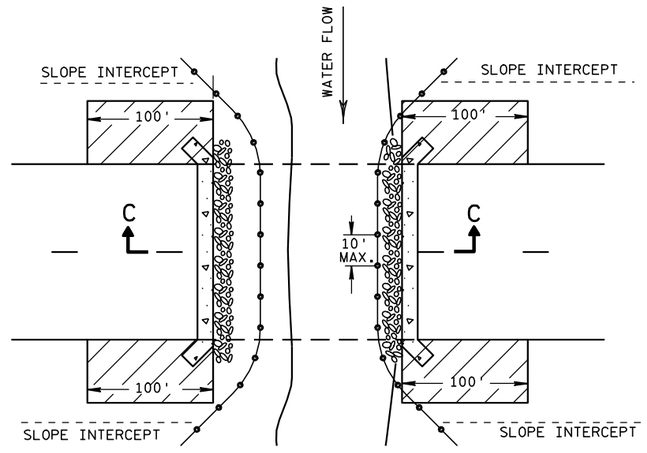
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

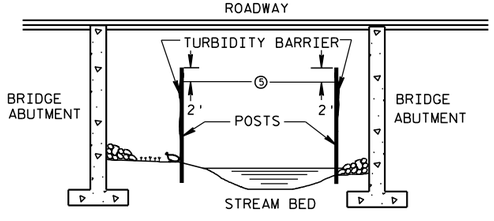
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

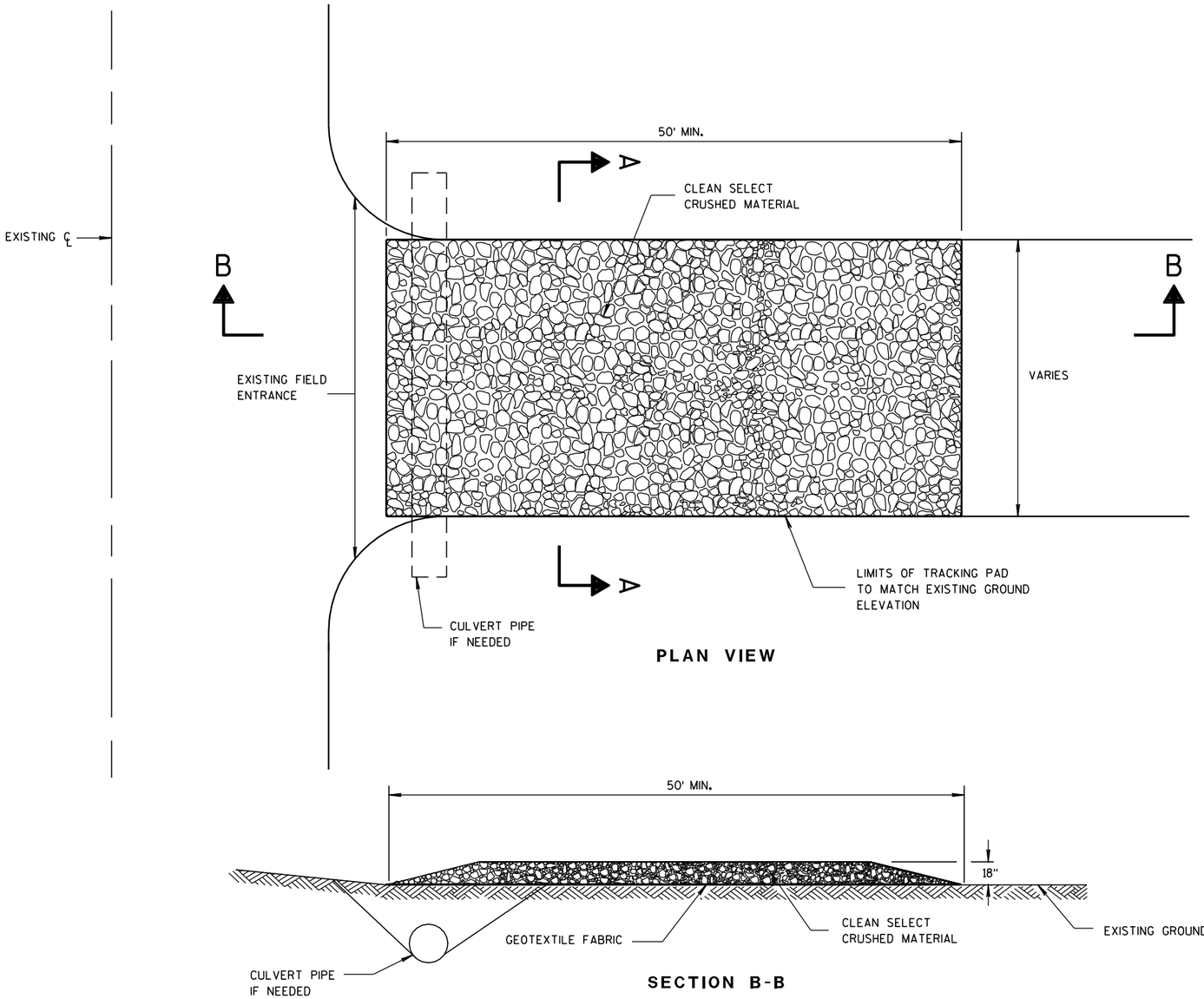
TURBIDITY BARRIER

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



PLAN VIEW

SECTION B-B

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

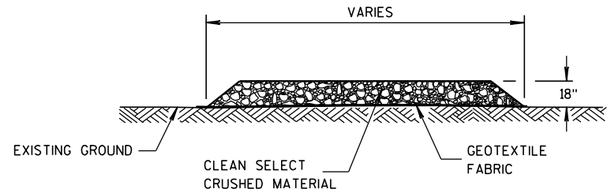
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A-A

TRACKING PAD

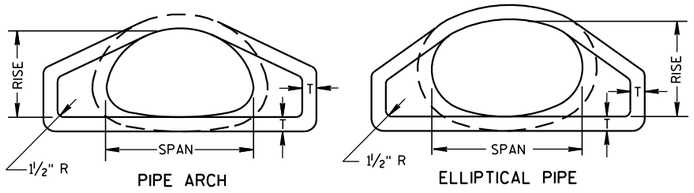
TRACKING PAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/24/2011 DATE FHWA	/S/ Jerry H. Zoda ROADWAY STANDARDS ENGINEER

6

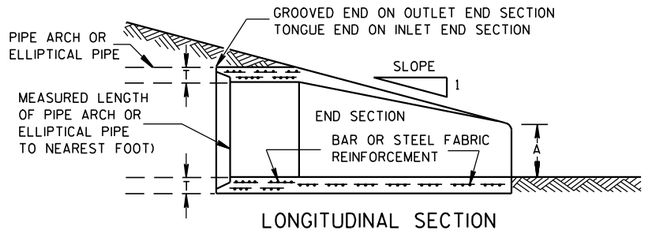
S.D.D. 8 E 14-1

6

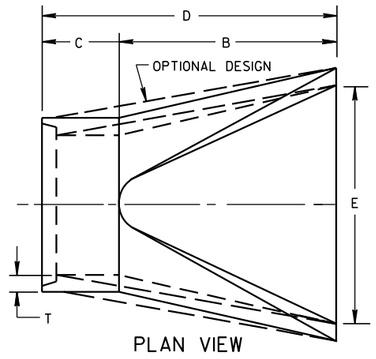
S.D.D. 8 E 14-1



END VIEW

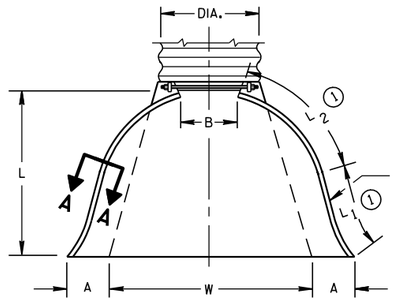


LONGITUDINAL SECTION

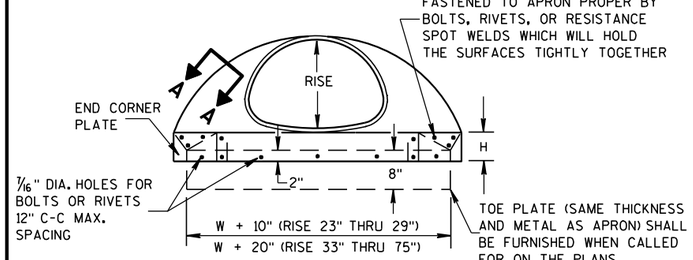


PLAN VIEW

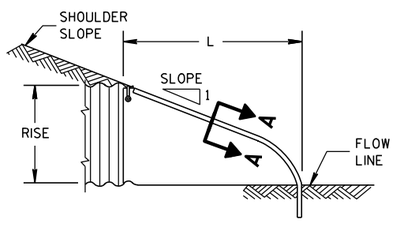
CONCRETE ENDWALLS



PLAN VIEW

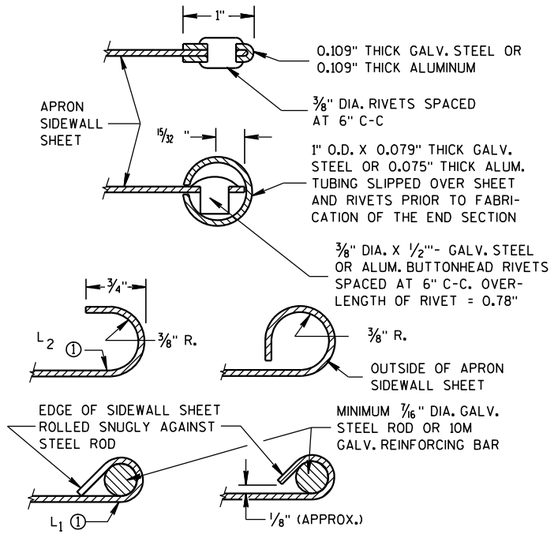


END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

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

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

3" X 1" CORRUGATIONS

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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

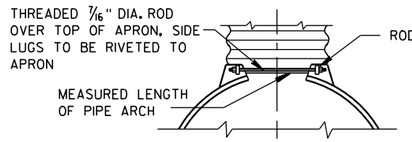
REINFORCED CONCRETE PIPE ARCH

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

REINFORCED CONCRETE ELLIPTICAL PIPE

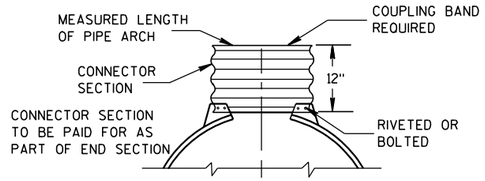
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48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

**NOMINAL SIZE



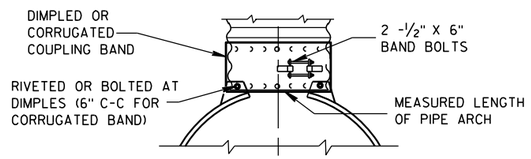
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

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

CONNECTION DETAILS

GENERAL NOTES

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

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

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

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

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

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

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94 — DATE

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

FHWA

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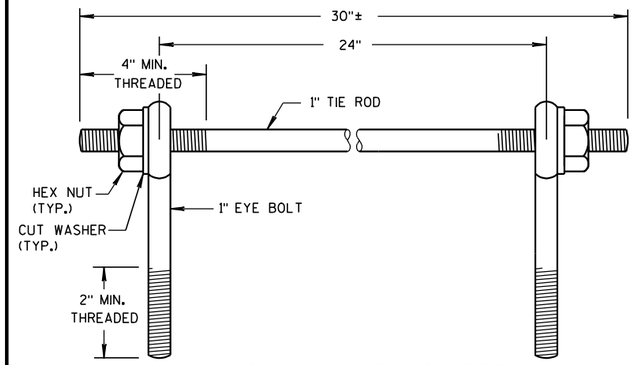
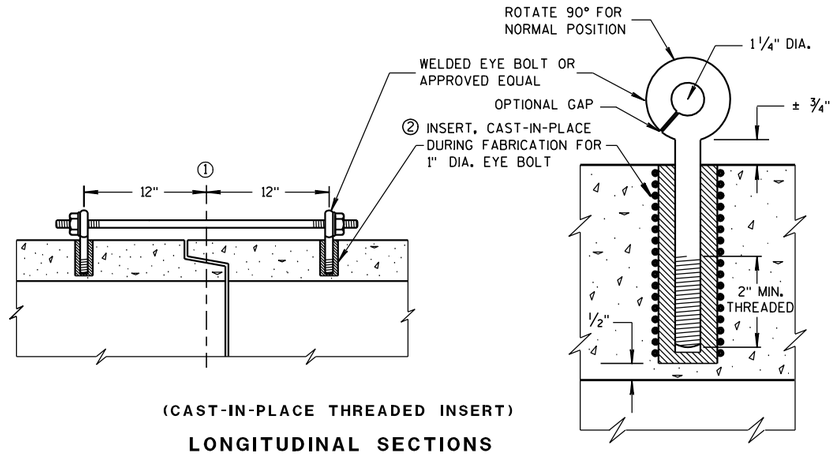
S.D.D. 8 F 2-1



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 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 APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

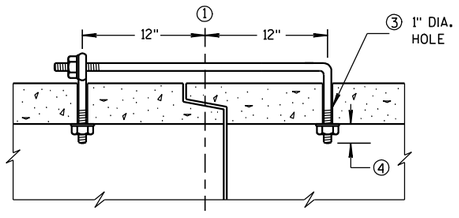
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

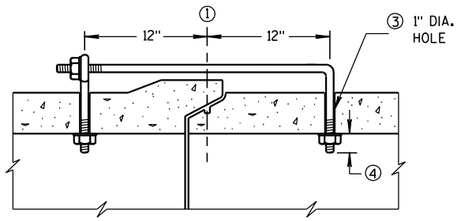
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

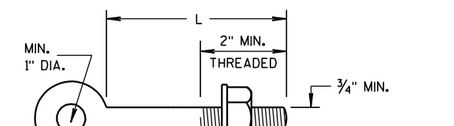


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

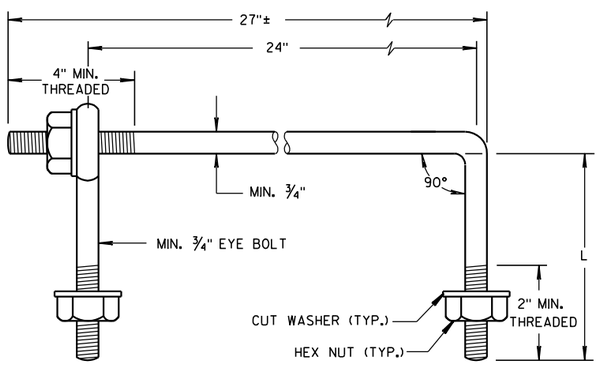
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

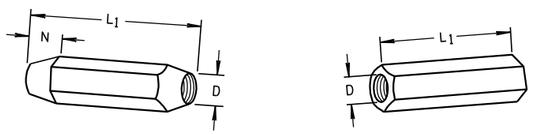
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

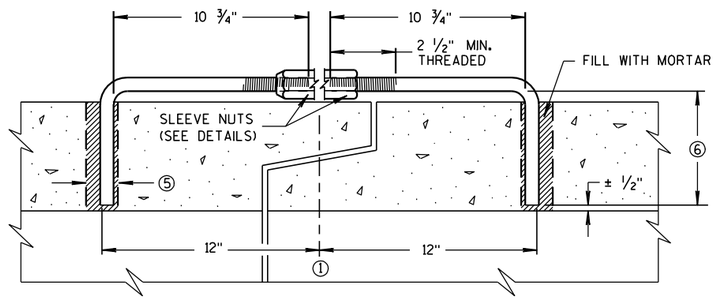
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

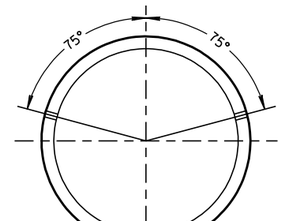
SLEEVE NUTS



LONGITUDINAL SECTION

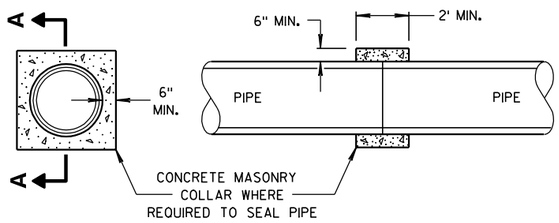
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 8 F 4-7

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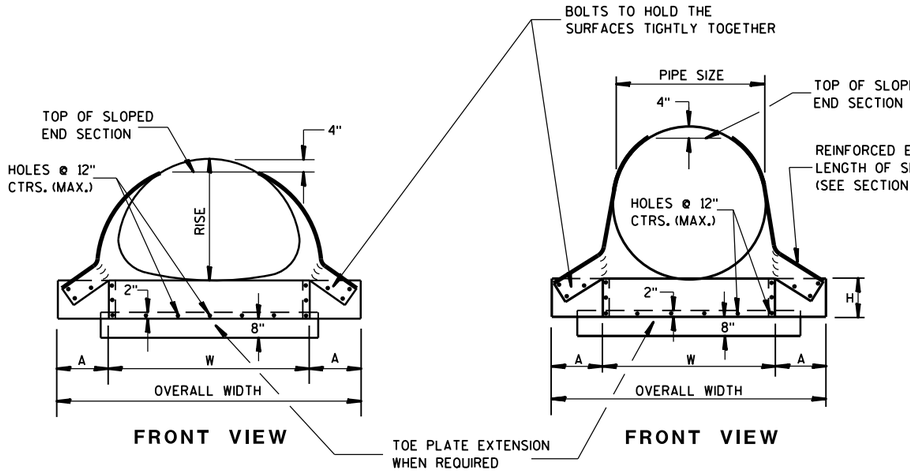
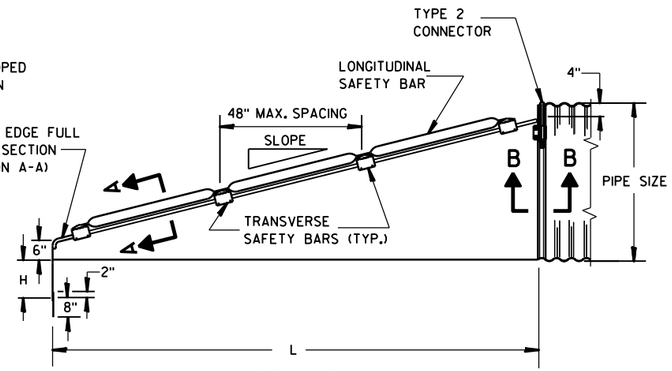
S.D.D. 8 F 4-7



FRONT VIEW

FRONT VIEW



SIDE VIEW
(48" SIZE ILLUSTRATED)

GENERAL NOTES

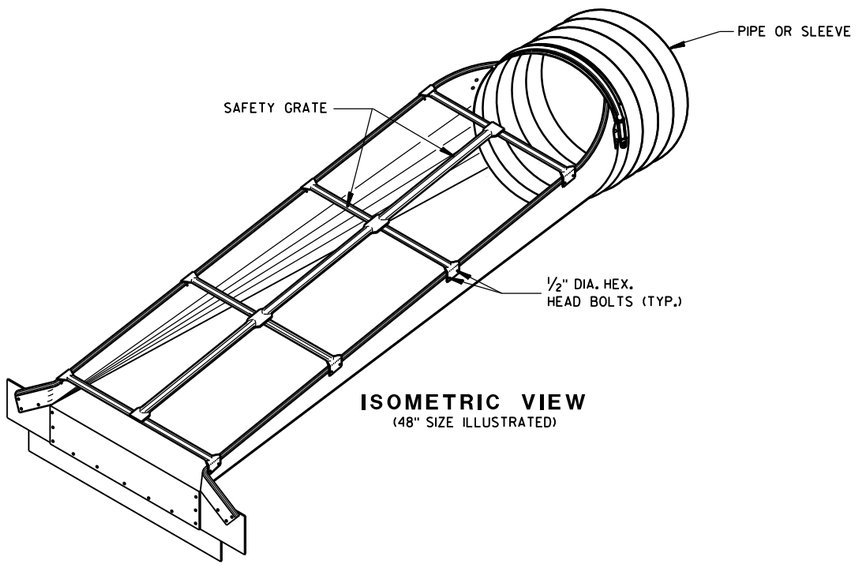
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

SAFETY GRATES SHALL BE FABRICATED FROM 3-INCH DIAMETER GALVANIZED PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL. THE LONGITUDINAL BAR SHALL BE WELDED TO THE TRANSVERSE BARS WHERE THE BARS CROSS. THE NUMBER OF TRANSVERSE BARS REQUIRED WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

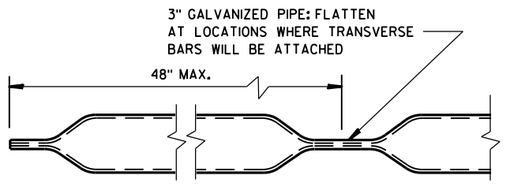
SLOPED STEEL ENDWALLS LOCATED AT THE ENDS OF CONCRETE CULVERT PIPE SHALL BE FURNISHED WITH STEEL ADAPTER SLEEVES.

STEEL APRON ENDWALLS FOR CULVERT PIPE CROSS DRAINS

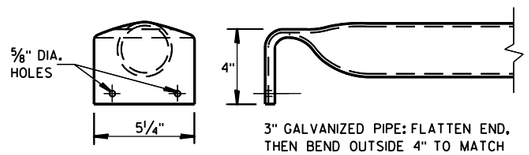
PIPE DIA. (IN.)	MIN. THICK.		DIMENSIONS (Inches)				L DIMENSIONS			
	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
36	.109	12	12	9	42	66	4:1	104	6:1	156
42	.109	12	16	12	48	80	4:1	128	6:1	192
48	.109	12	16	12	54	86	4:1	152	6:1	228
54	.109	12	16	12	60	92	4:1	176	6:1	264
60	.109	12	16	12	66	98	4:1	200	6:1	300



ISOMETRIC VIEW
(48" SIZE ILLUSTRATED)



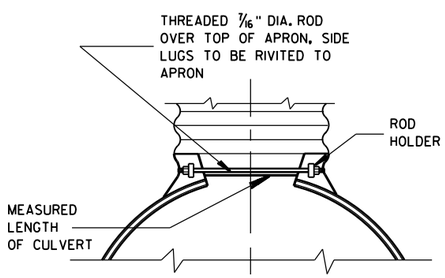
LONGITUDINAL SAFETY BAR



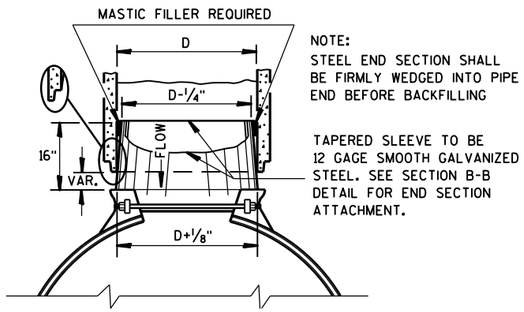
TRANSVERSE SAFETY BAR

STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED CROSS DRAINS

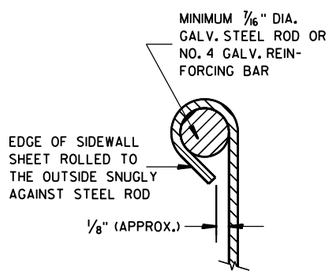
EQUIV. DIA. (IN.)	INCHES		MIN. THICK.		DIMENSIONS (Inches)				L DIMENSIONS			
	SPAN	RISE	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
30	35	24	.079	14	12	9	41	65	4:1	56	6:1	84
36	42	29	.109	12	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222



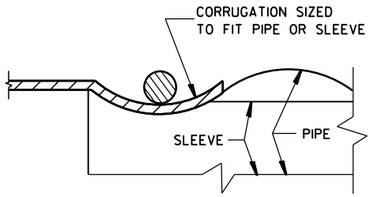
TYPE 2 CONNECTOR DETAIL



STEEL ADAPTER SLEEVE FOR CONCRETE PIPE



SECTION A-A



SECTION B-B

STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

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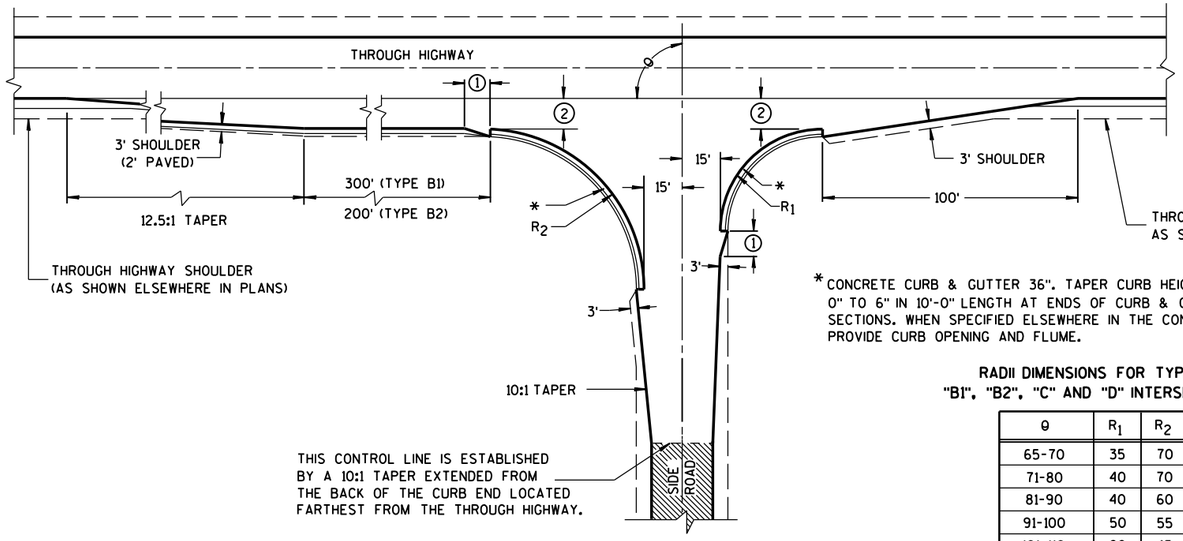
S.D.D. 8 F 8-2

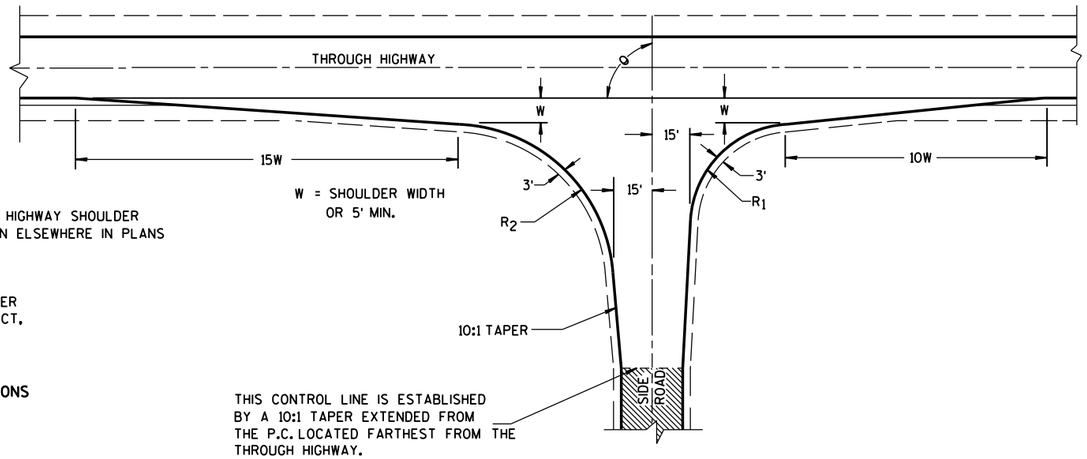


TYPE "B1" AND "B2"

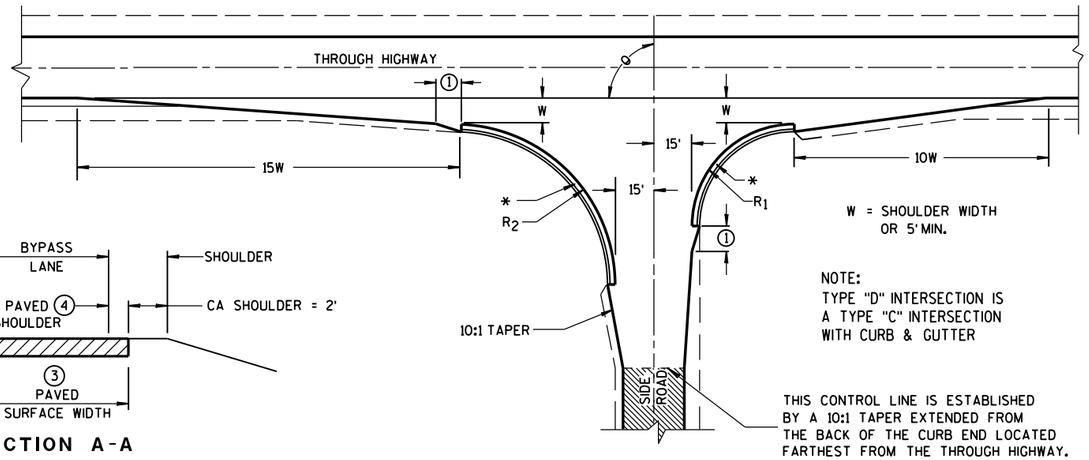
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

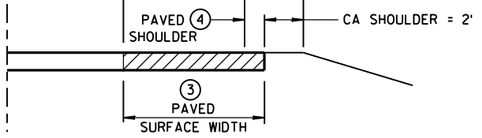
(1) 10-FT TYPICAL.

(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

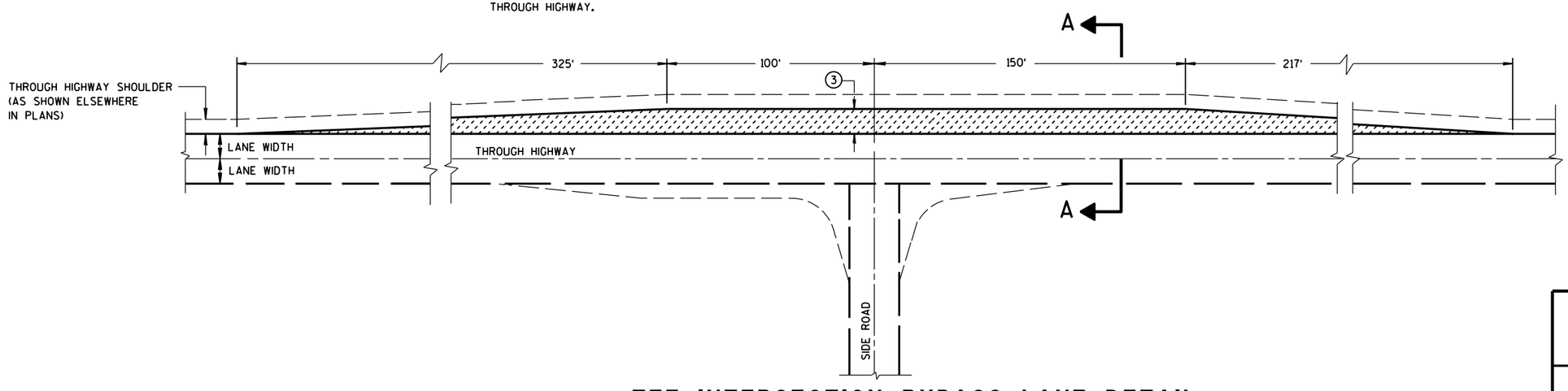
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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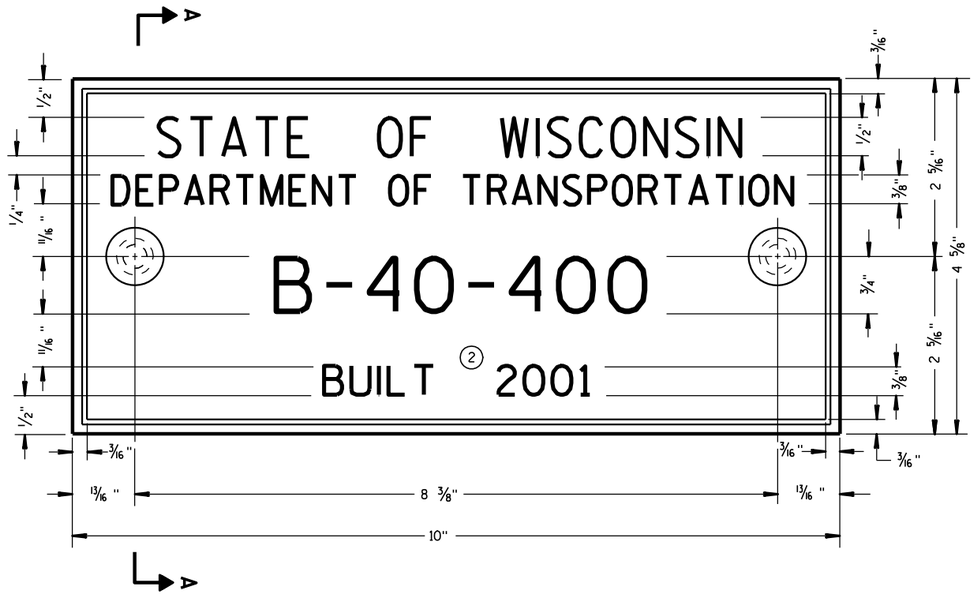
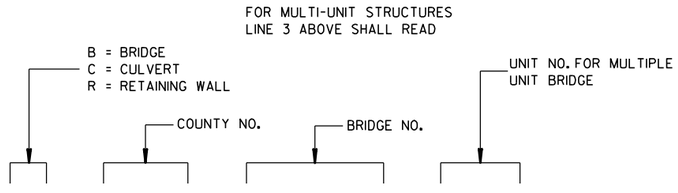


TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

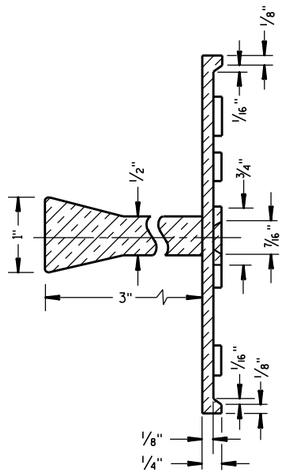
GENERAL NOTES

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.

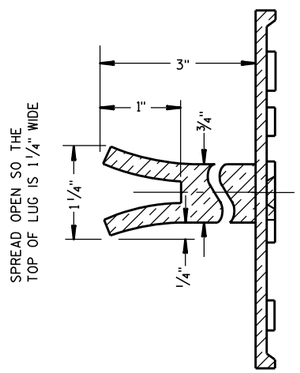
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

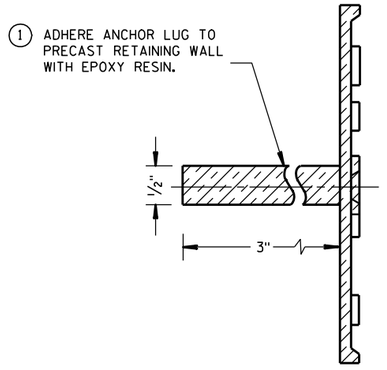
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 DEVELOP ENGINEER
FHWA	

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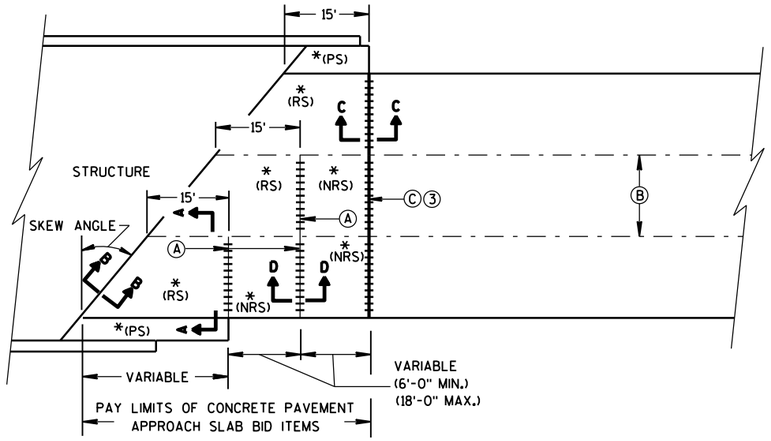
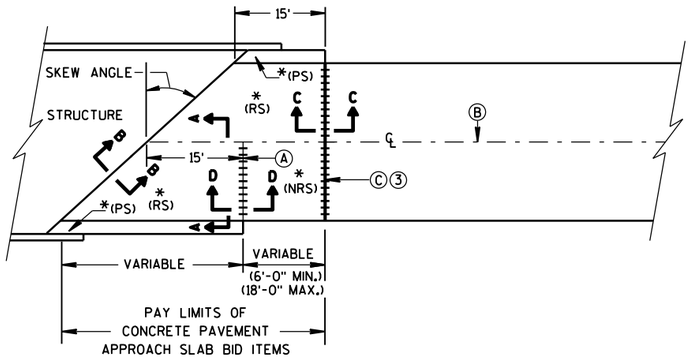
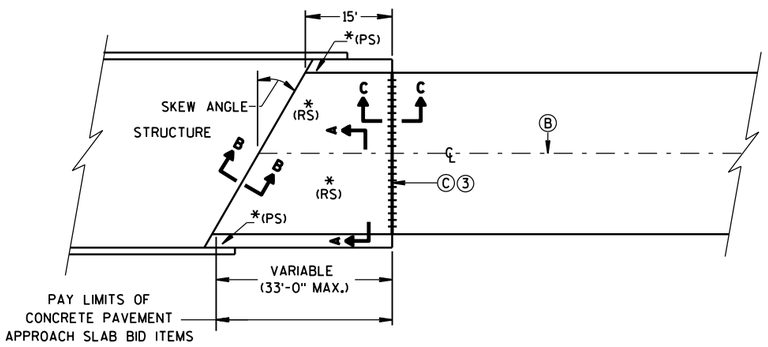
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

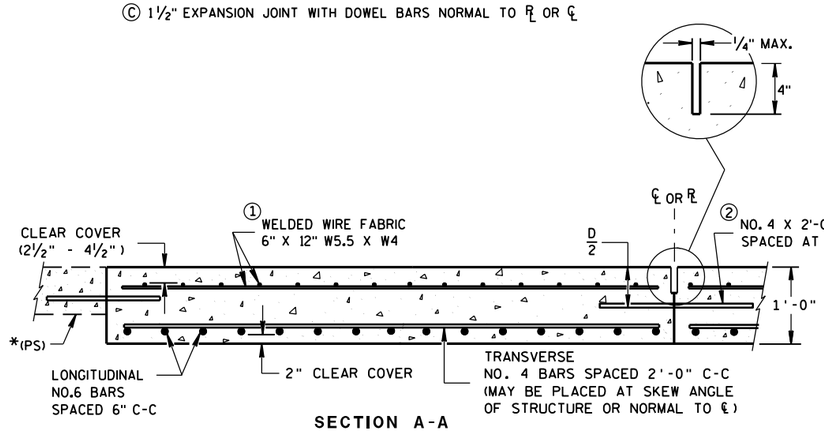
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

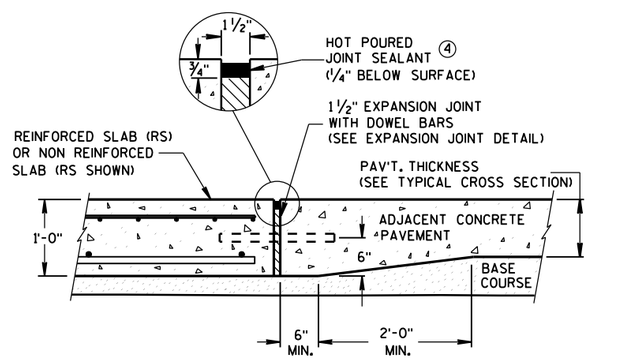
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

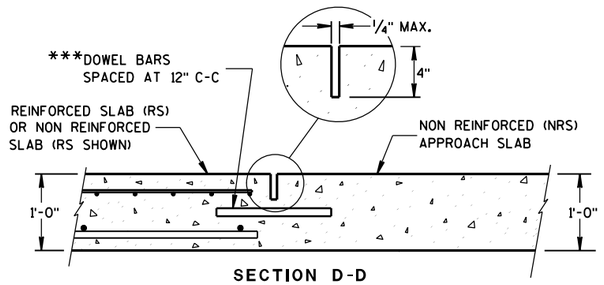
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

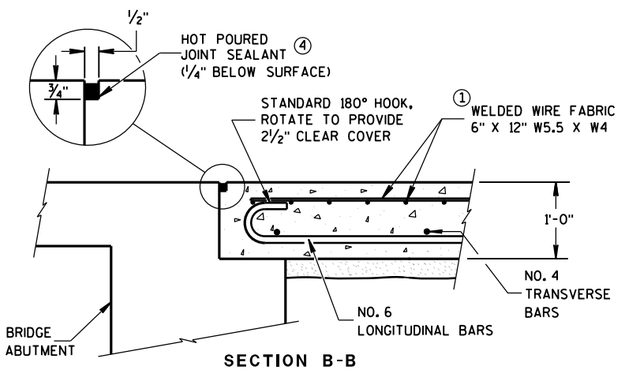
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

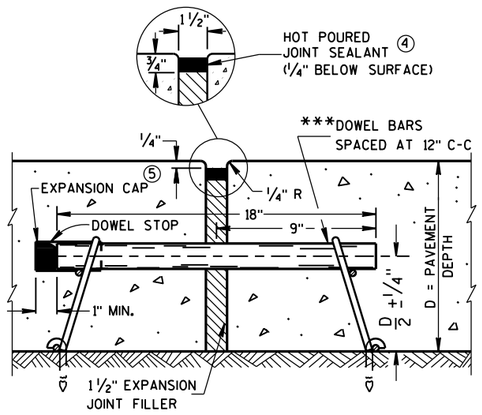
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

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S.D.D. 13 B 2-8a

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S.D.D. 13 B 2-8a

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.

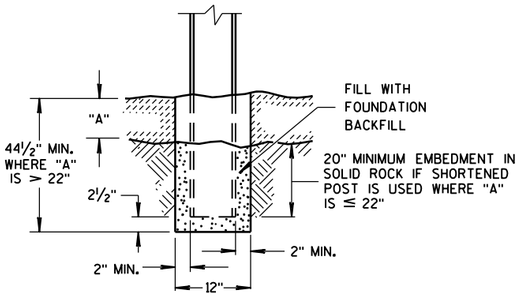
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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.

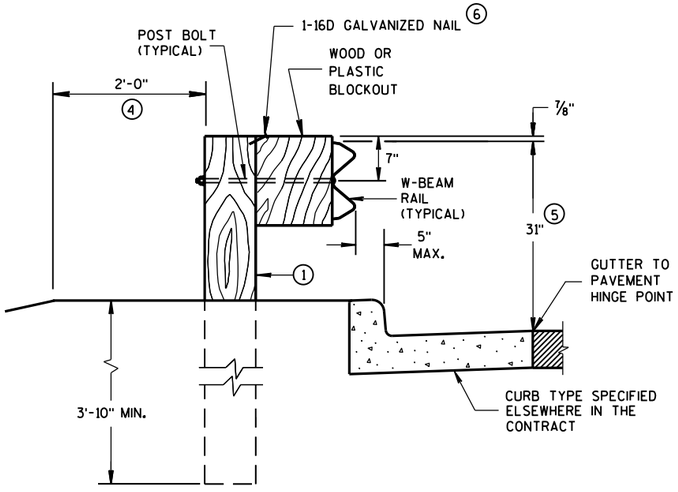
④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

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.



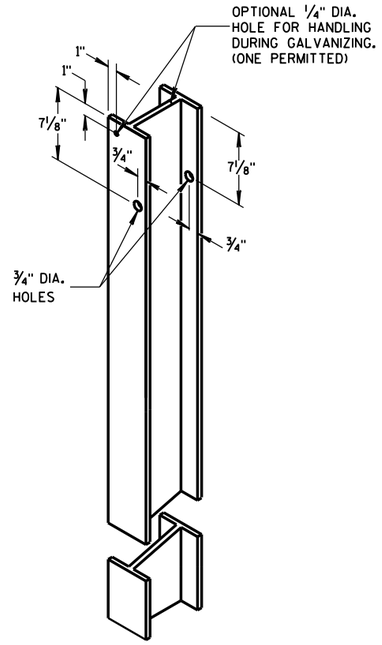
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



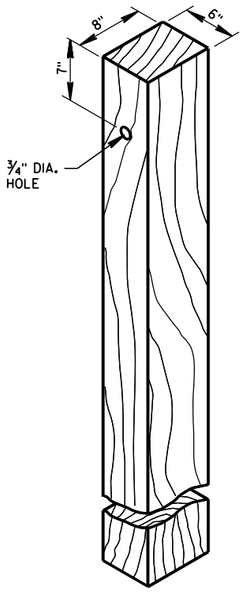
END VIEW
LOCATED ALONG A CURBED ROADWAY

END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

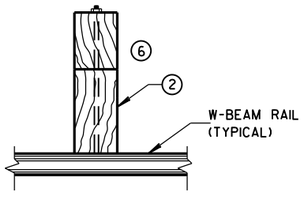
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



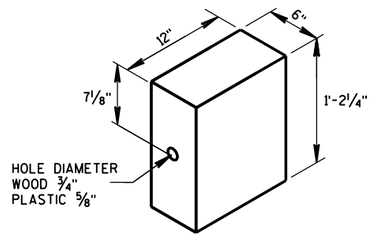
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



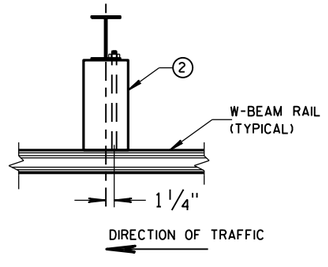
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



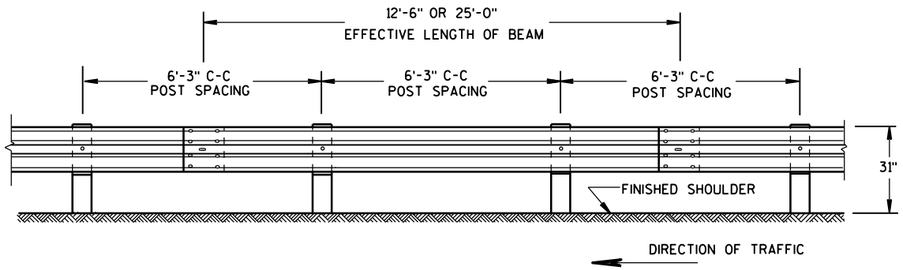
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

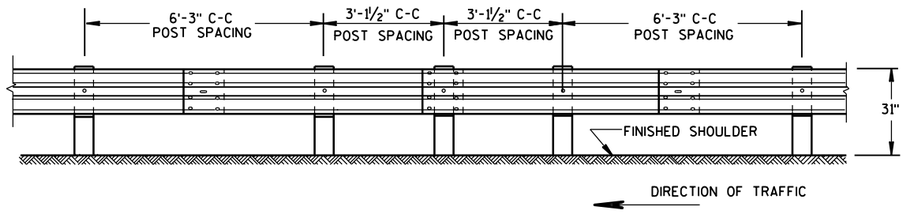
6

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



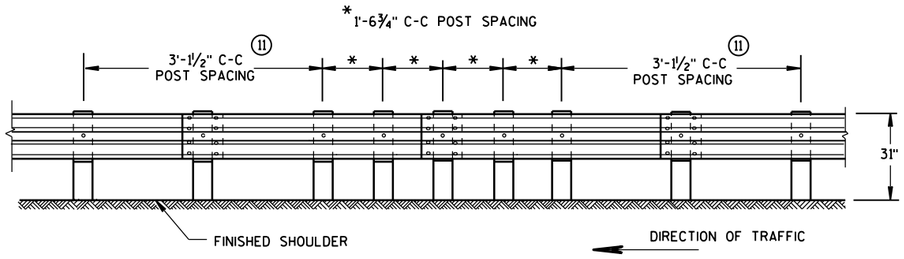
FRONT VIEW

POST SPACING STANDARD INSTALLATION



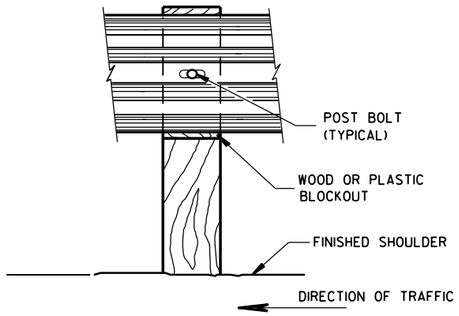
FRONT VIEW

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

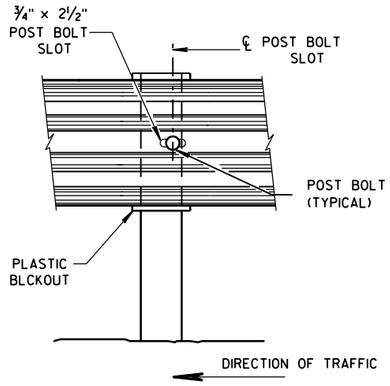


FRONT VIEW

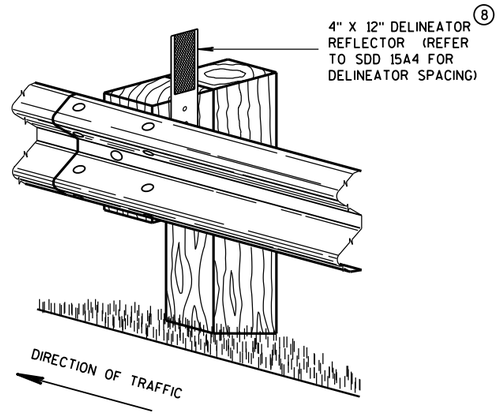
QUARTER POST SPACING (QS)



FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

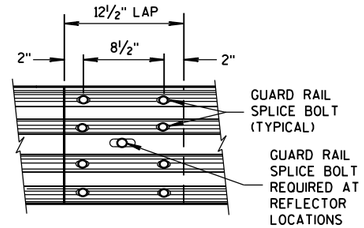
GENERAL NOTES

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

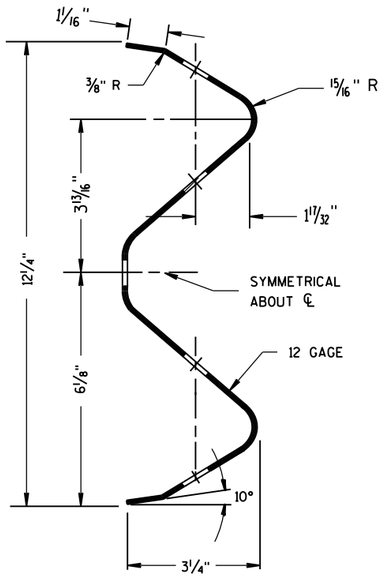
(11) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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

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



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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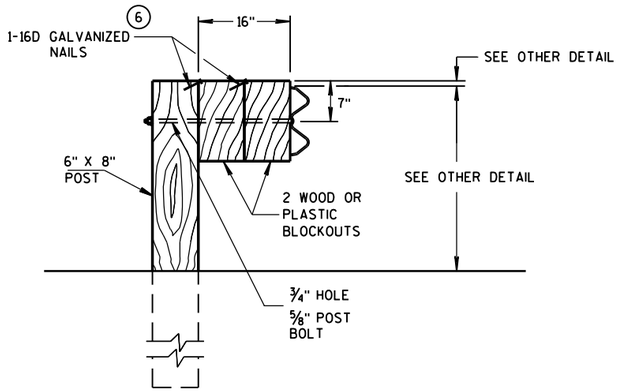
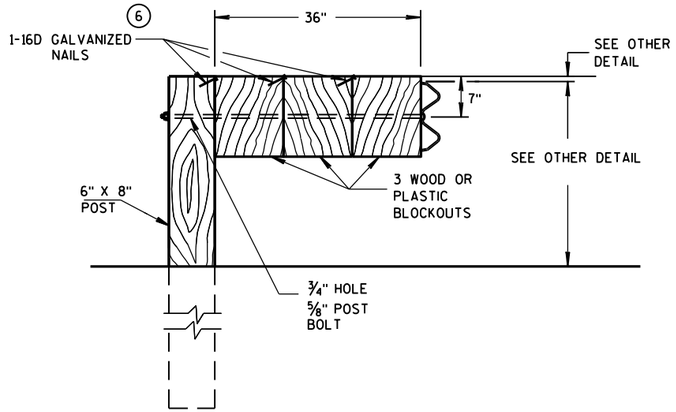
S.D.D. 14 B 42-5b



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.

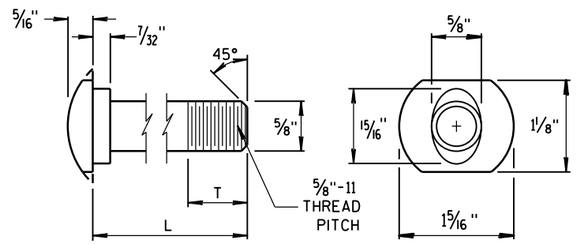


DETAIL FOR 36" BLOCKOUT DEPTH

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.

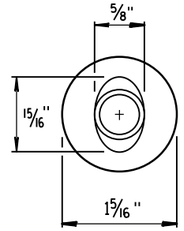
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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.

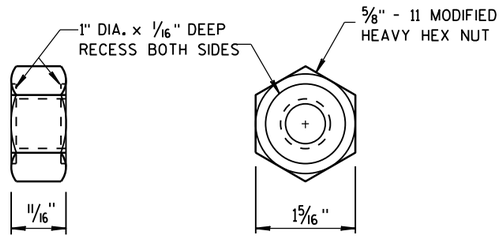


POST BOLT TABLE

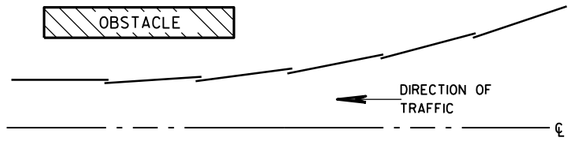
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

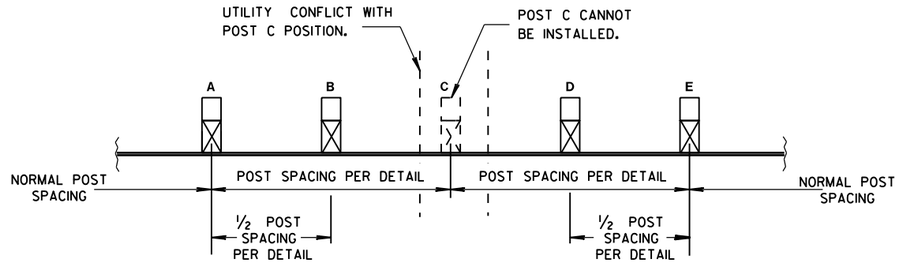


POST BOLT, SPLICE BOLT AND RECESS NUT

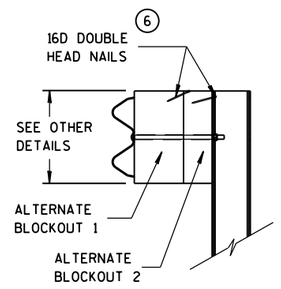


PLAN VIEW

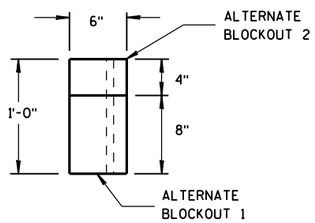
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

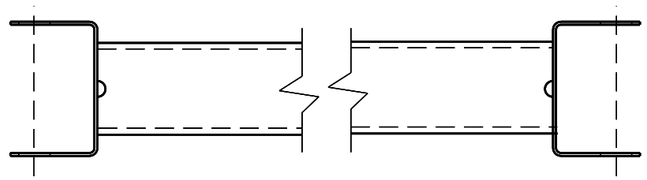
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

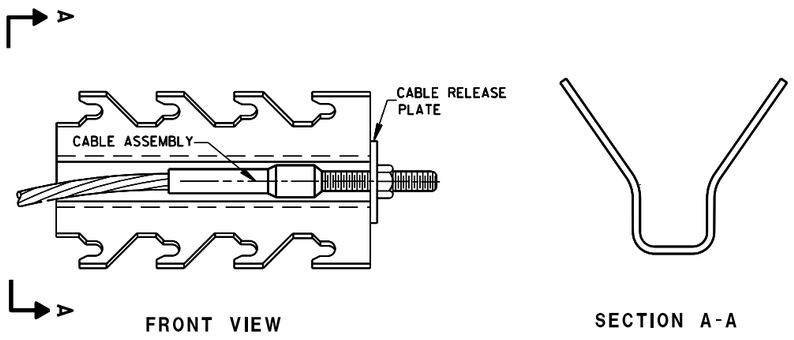
6

S.D.D. 14 B 42-5c



(9) (H)

GENERIC GROUND STRUT



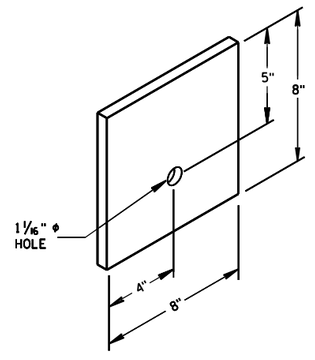
FRONT VIEW

SECTION A-A

GENERIC ANCHOR CABLE BOX (8) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	UPPER POST NO. 1 6" X 6" TUBE
(2)	LOWER POST NO. 1
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	IMPACT HEAD
(13)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
(14)	SOIL PLATE
(15)	UPPER POST NO. 2
(16)	LOWER POST NO. 2



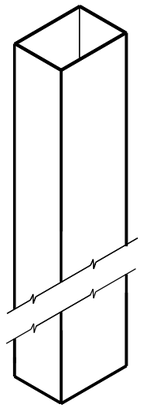
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

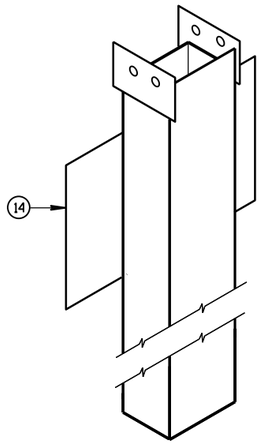
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

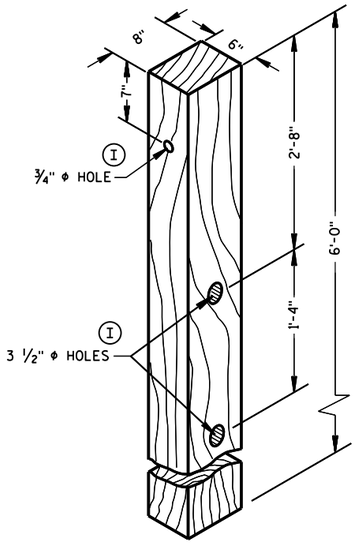
S.D.D. 14 B 44-3b



UPPER POST NO. 1 (1)

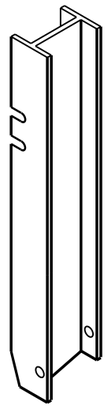


LOWER POST NO. 1 (2)



POSTS NUMBER 3-9

WOOD CRT POST (3)



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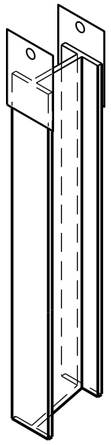

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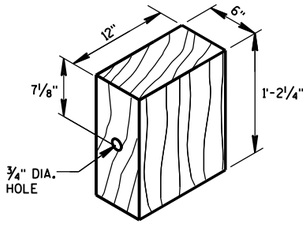
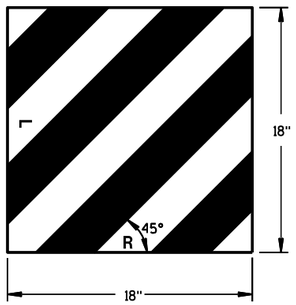


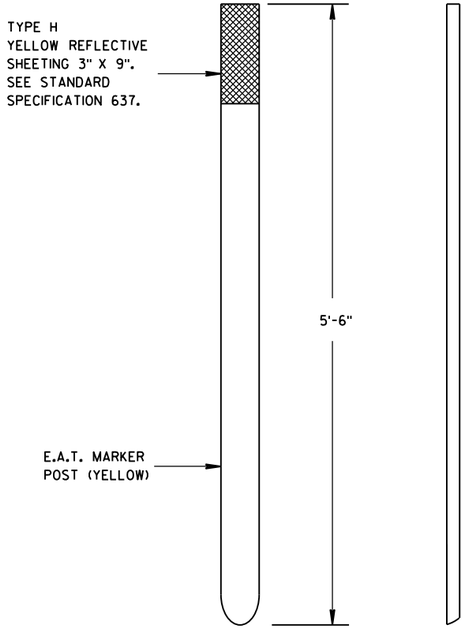
WOOD BLOCKOUT (4)

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



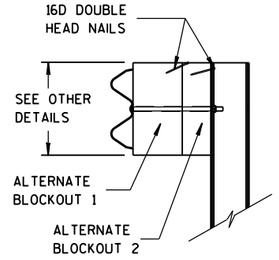
W5-59

REFLECTIVE SHEETING DETAIL (H)

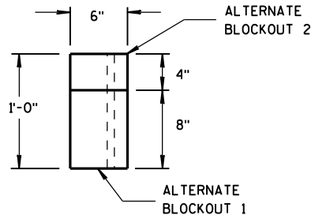


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

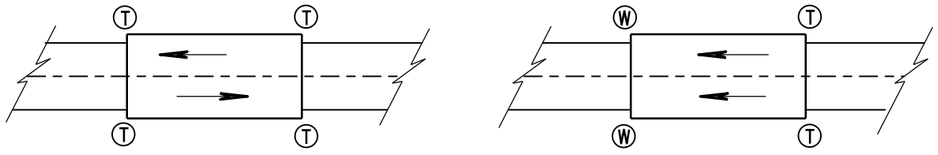
June 2017
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS
UNIT SUPERVISOR

FHWA

6

S.D.D. 14 B 44-3c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

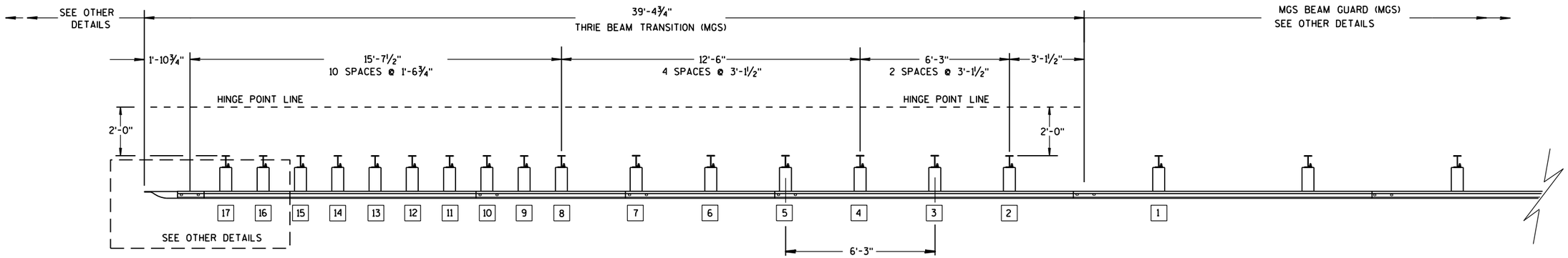
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

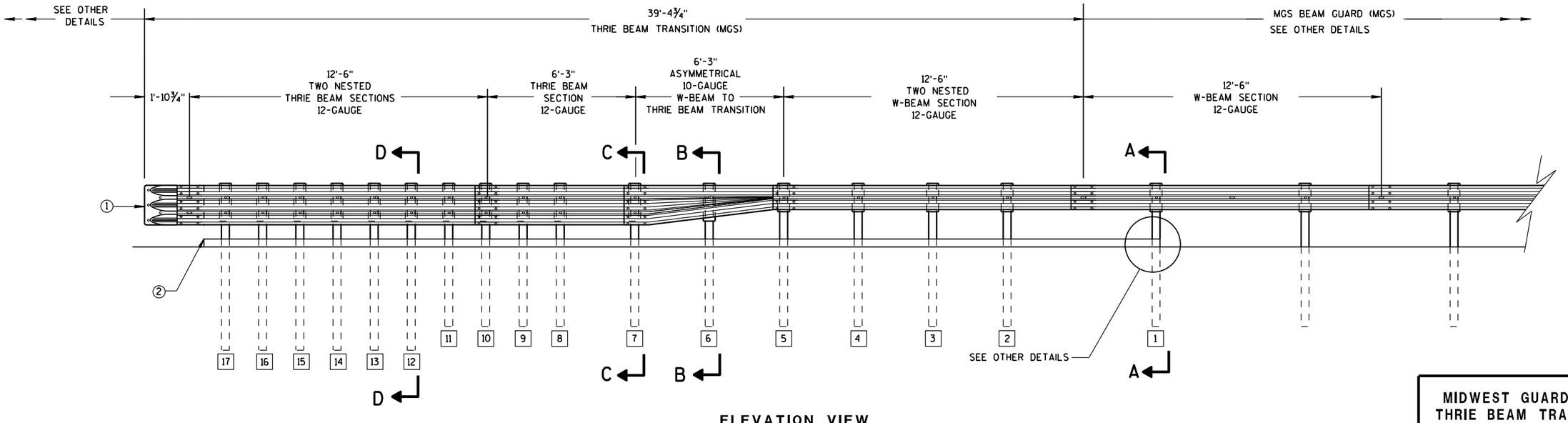
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

6

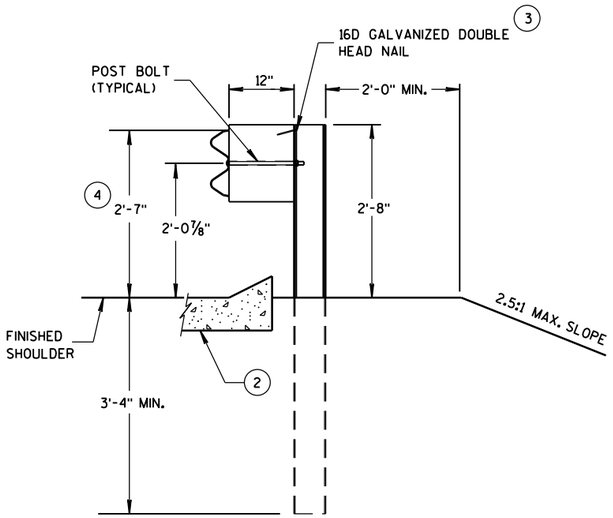
S.D.D. 14 B 45-4a

GENERAL NOTES

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

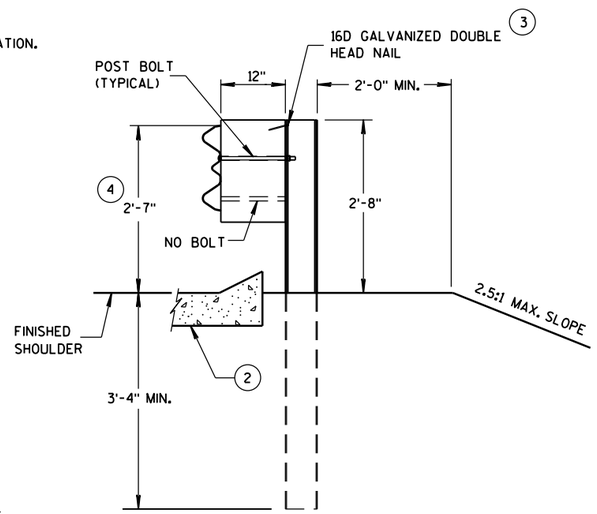
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



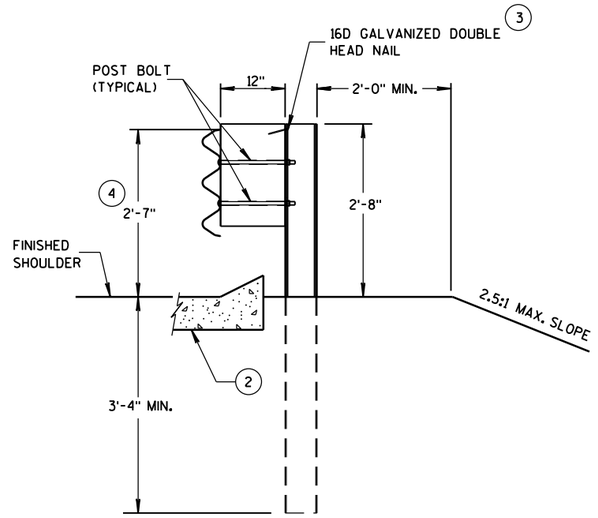
SECTION A-A

POSTS 1-5



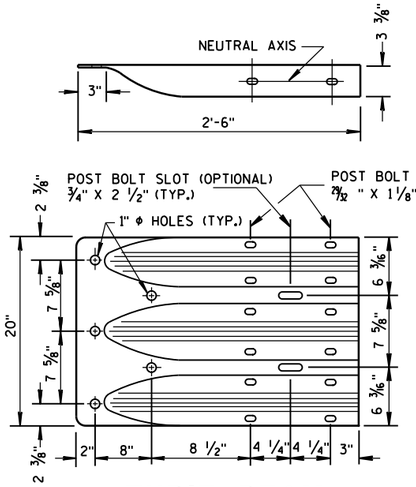
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

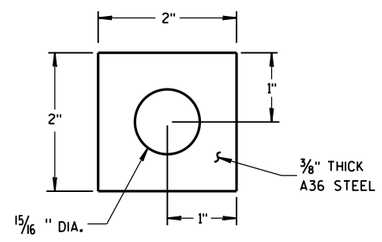
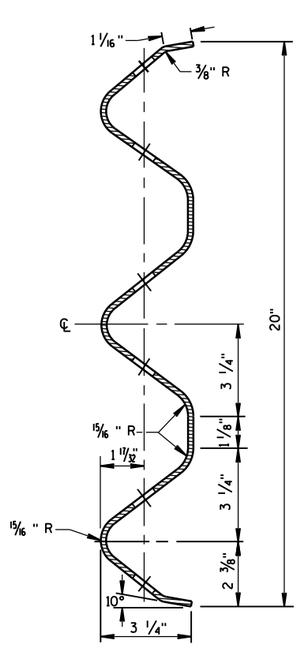
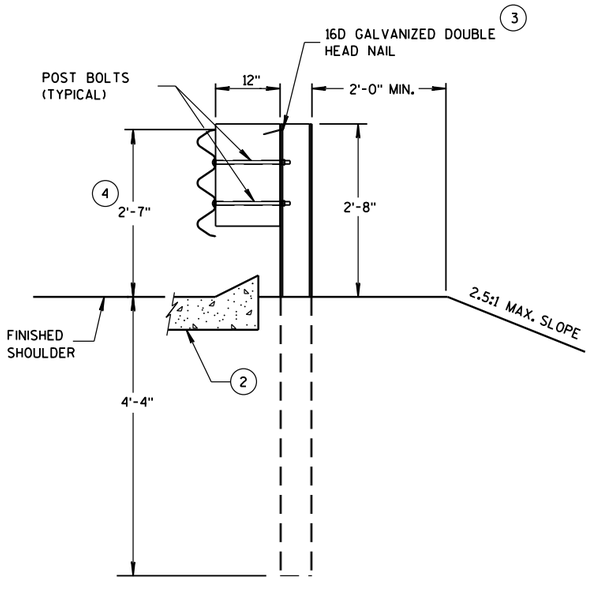


PLATE WASHER DETAIL

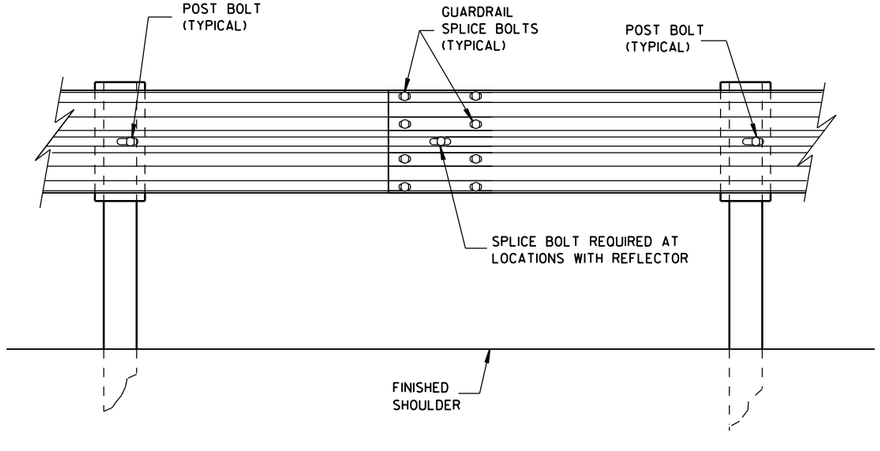


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



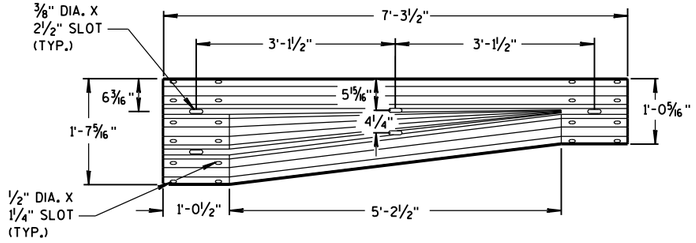
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

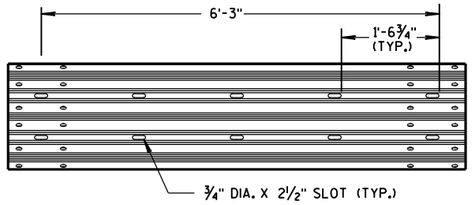
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

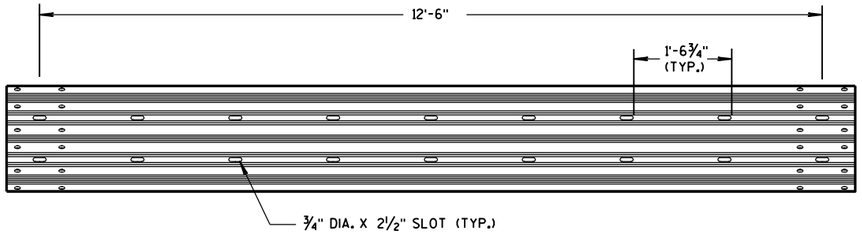
S.D.D. 14 B 45-4b



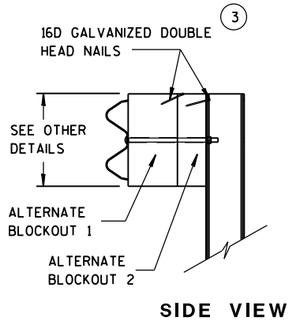
W-BEAM TO THRIE BEAM TRANSITION SECTION



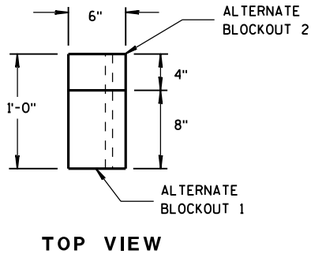
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

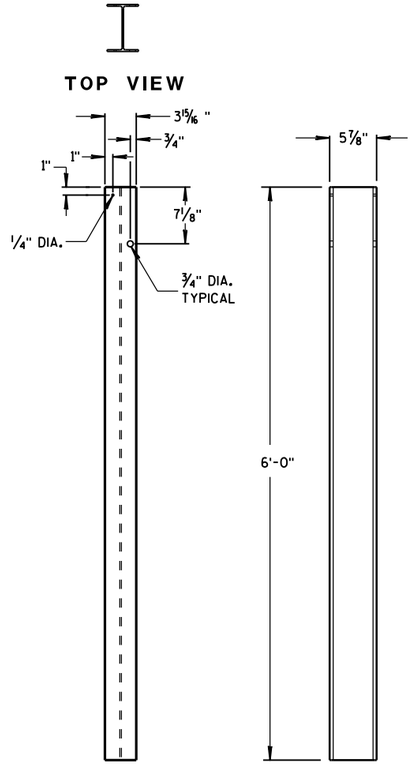


SIDE VIEW



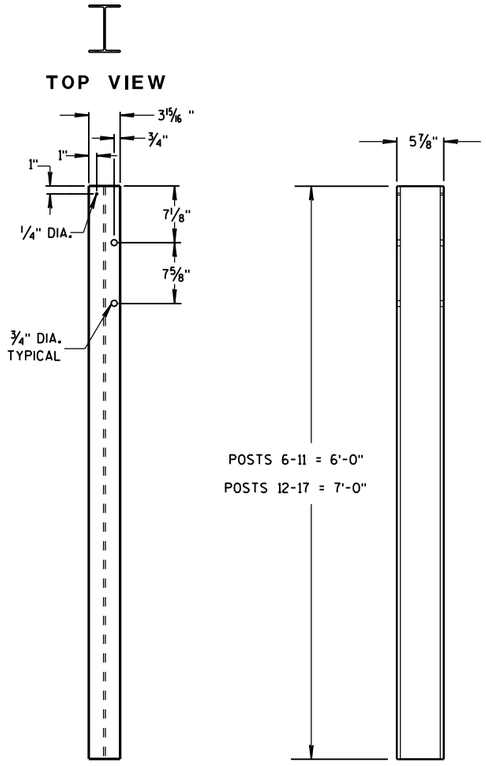
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



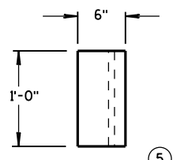
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

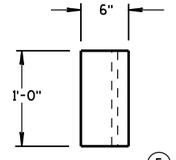


FRONT VIEW SIDE VIEW

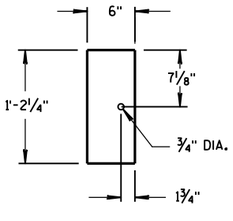
STEEL POSTS 6-17



TOP VIEW

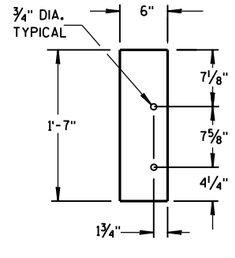


TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

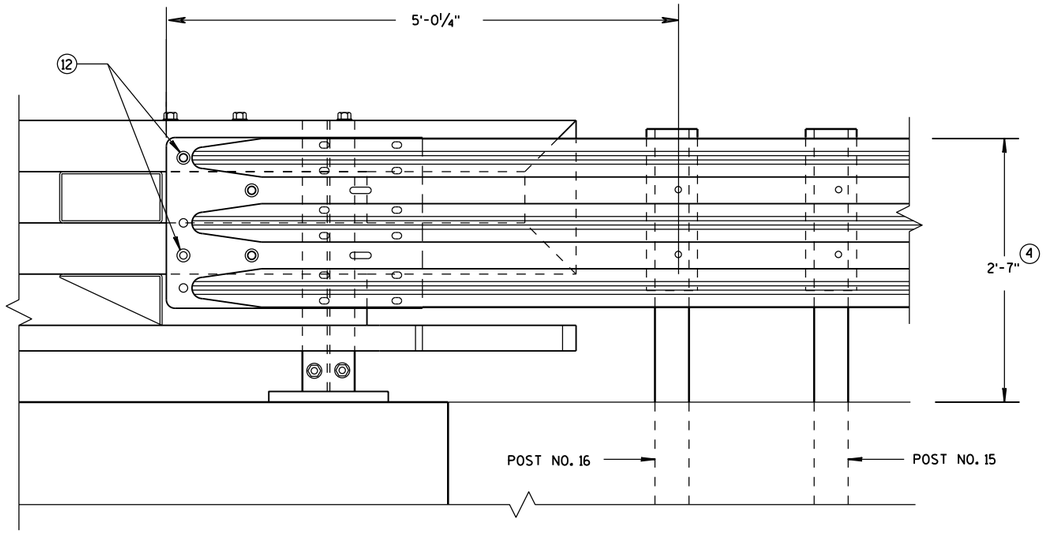
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

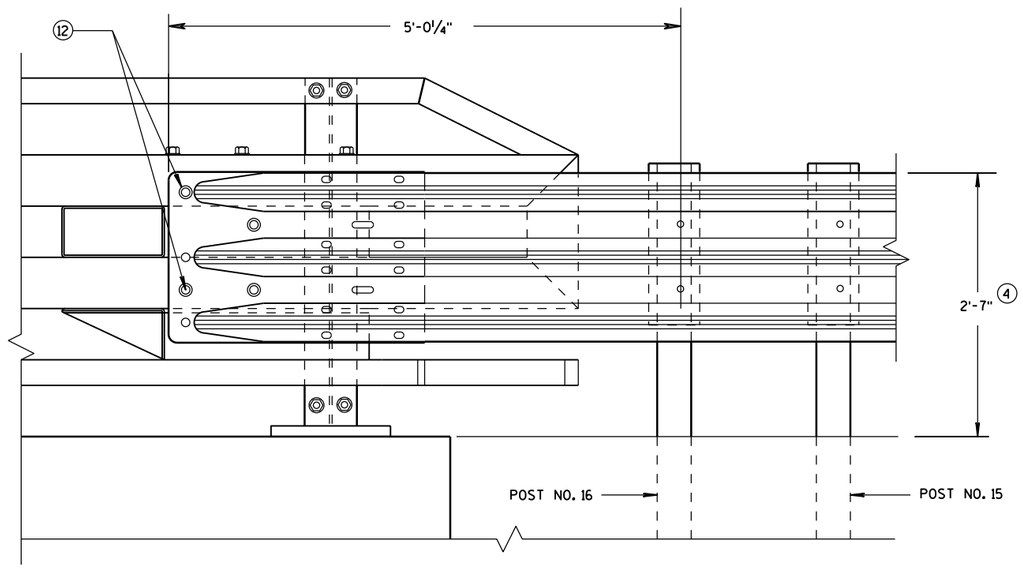
6

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



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER

FHWA

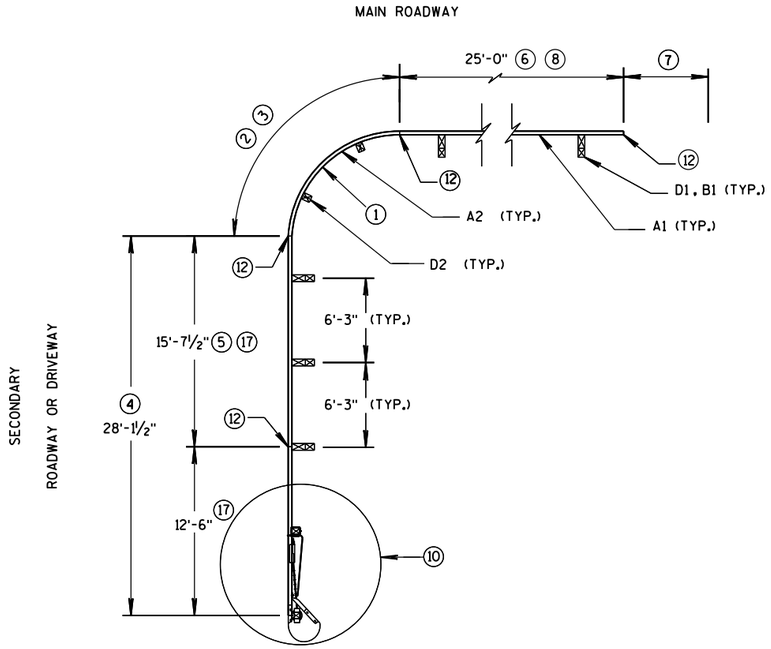
NT

6

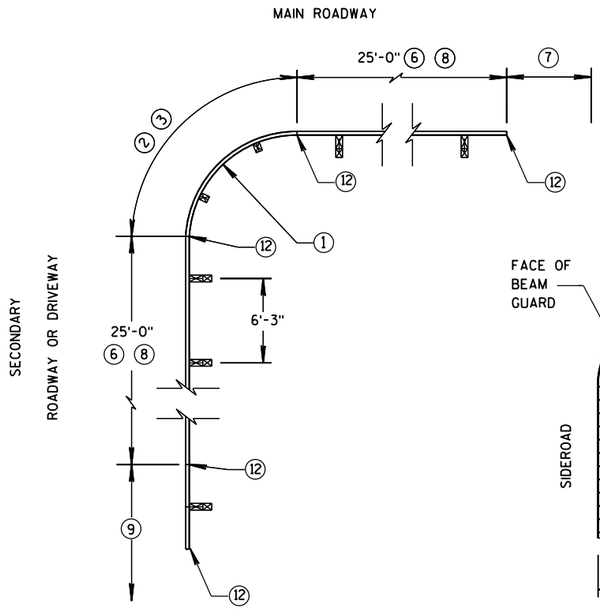
S.D.D. 14 B 45-4k

6

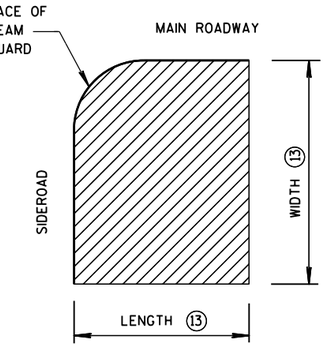
S.D.D. 14 B 45-4k



SHORT RADIUS BEAM GUARD WITH SHORT RADIUS TERMINAL ON SECONDARY ROAD OR DRIVEWAY PLAN VIEW



SHORT RADIUS BEAM GUARD WITH EAT, ADDITIONAL BEAM GUARD OR TRANSITION TO RIGID BARRIER ON SECONDARY ROAD OR DRIVEWAY PLAN VIEW



AREA FREE OF FIXED OBJECTS FOR RADIUS 32' AND LESS (16)

TABLE FOR RADIUS OF 32' AND LESS

RADIUS FT	LENGTH FT	WIDTH FT
8	25	15
16	30	15
24	40	20
32	50	30

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

SEE 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.

GALVANIZE PARTS AFTER FABRICATION.

WELDING IS TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1

UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.

UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERITCAL.

ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUTS.

UNLESS NOTED OTHERWISE CUT OR PROVIDE BOLTS THAT ARE ¼" TO ½" BEYOND THE NUT

DRAWINGS ARE NOT TO SCALE.

(1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.

(2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6'-3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE TERMINAL (CRT) POSTS.

(3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAILS RESTED ON TOP OF LAG SCREW.

(4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID FOR WITH BEAM GUARD ITEM.

(5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.

(6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.

(7) BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. SEE PLAN.

(8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.

(9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.

(10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS)

(11) HEIGHT VARIES. SEE NOTE (8) AND (17).

(12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRE PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.

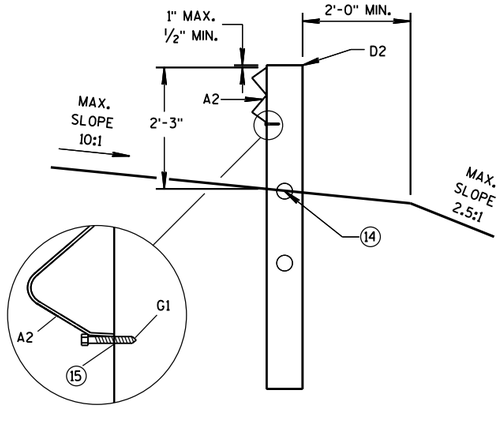
(13) SEE TABLE FOR VALUES.

(14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS ¾" ABOVE FINISHED GROUND ±1".

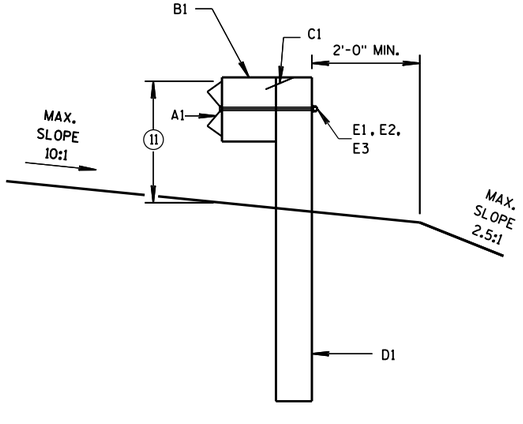
(15) DRILL 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.

(16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.

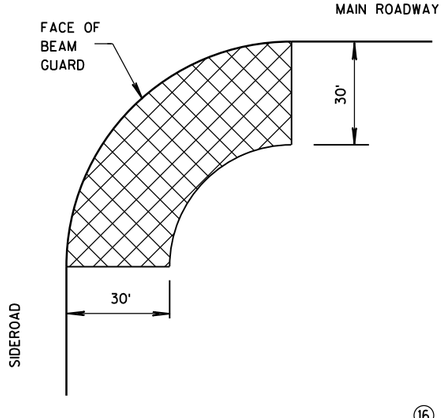
(17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL.



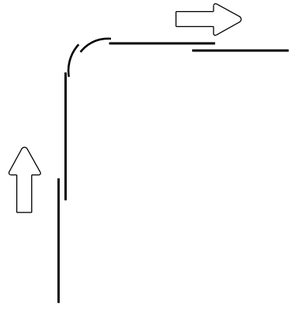
CONTROLLED RELEASE TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS IN HEIGHT TRANSITION



AREA FREE OF FIXED OBJECTS (16) RADIUS GREATER THAN 32'



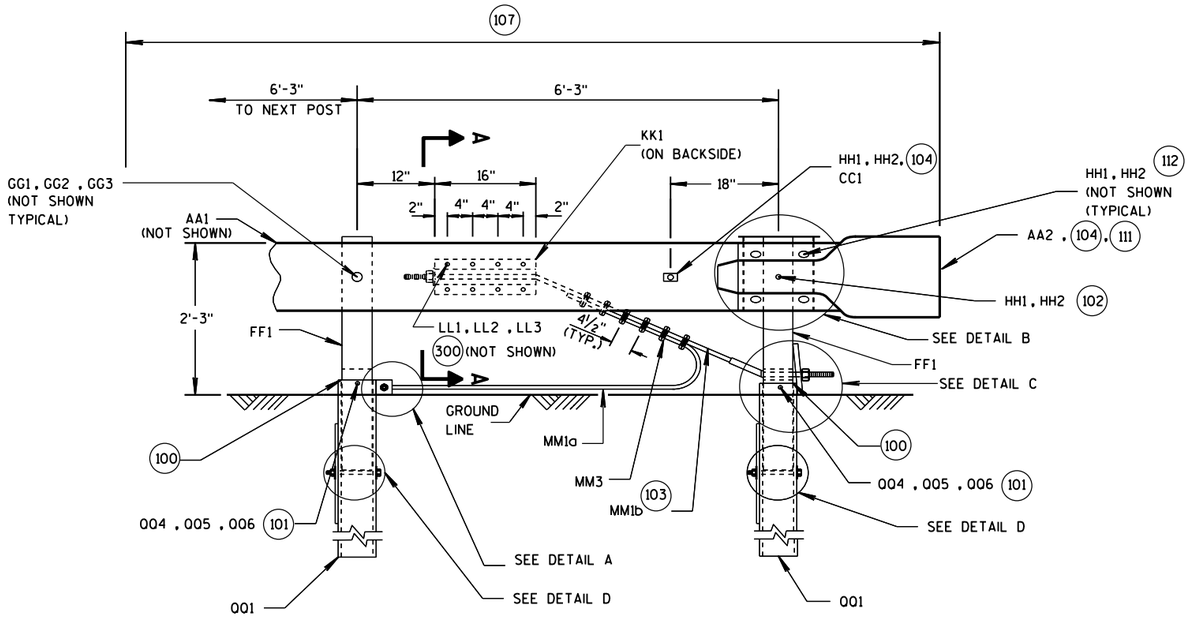
LAP SPLICE DETAIL

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

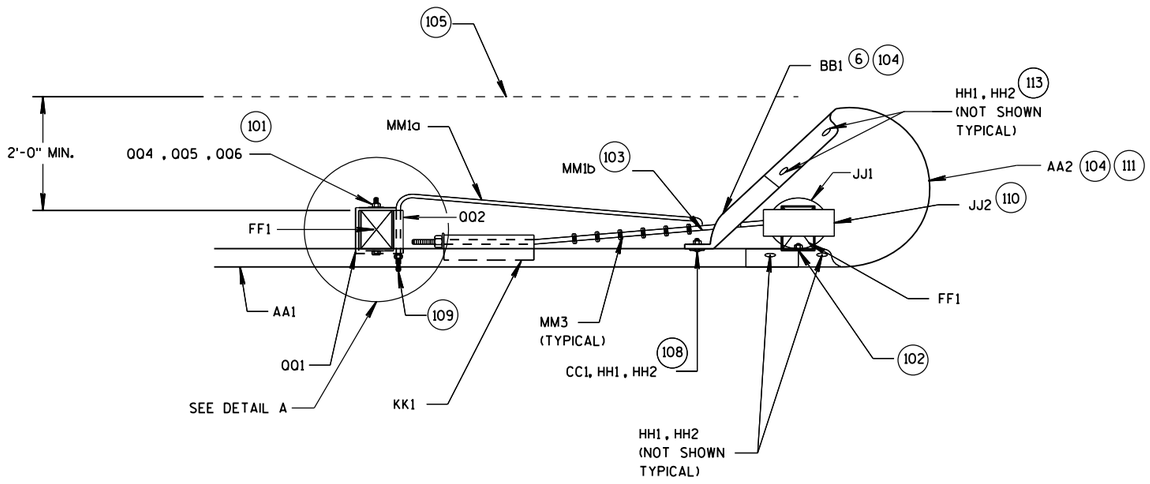
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 35

S.D.D. 14 B 53-1a

S.D.D. 14 B 53-1a



SHORT RADIUS TERMINAL
PROFILE VIEW



SHORT RADIUS TERMINAL
TOP VIEW

(100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.

(101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

(102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM END SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL B.

(103) CABLE IS TAUT.

(104) ADJUST AA2 AND BB1 TO FIT.

(105) BREAK POINT OF SHOULDER.

(106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL A PROFILE VIEW.

(107) PAY LIMIT FOR BEAM GUARD.

(108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.

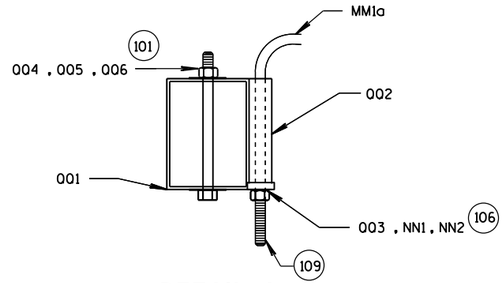
(109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS ½" TOLERANCE). DEBURR AFTER CUTTING.

(110) SEE STEEL PIPE ASSEMBLY DETAILS.

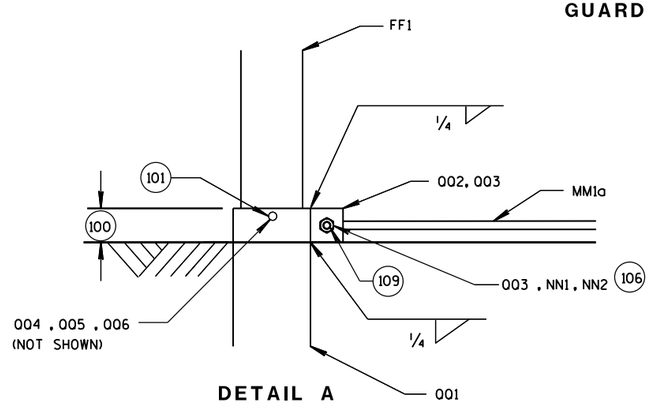
(111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.

(112) FOUR HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.

(113) FOUR HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



DETAIL A
TOP VIEW
(WOOD BREAKAWAY AND BEAM GUARD RAIL POSTS NOT SHOWN)



DETAIL A
PROFILE VIEW

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL
MGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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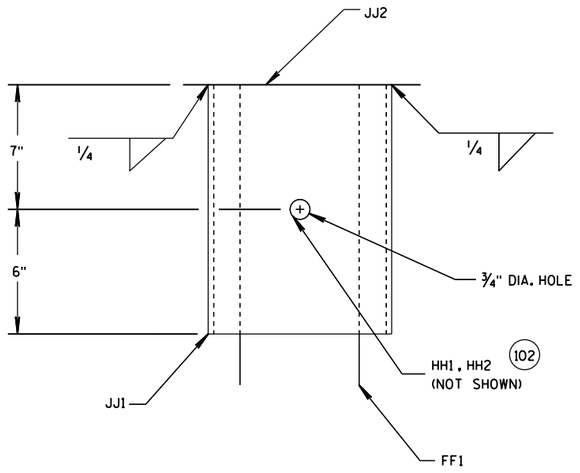
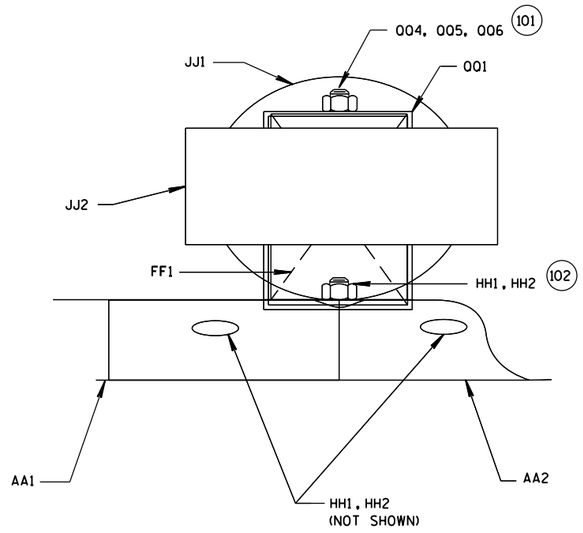
S.D.D. 14 B 53-1b

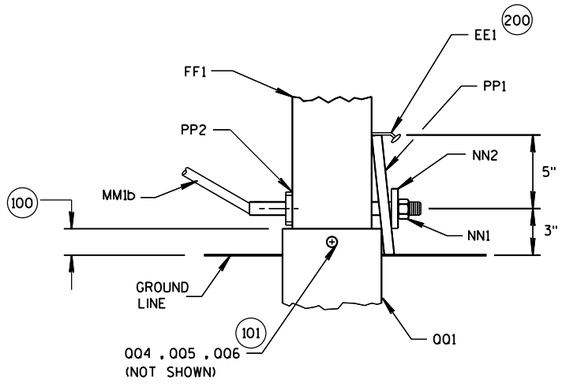


DETAIL B
PROFILE VIEW OF STEEL PIPE ASSEMBLY
(BEAM GUARD AND W-BEAM
END SECTION NOT SHOWN)

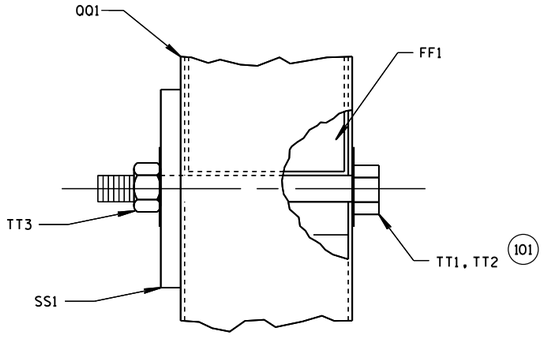


DETAIL B
PLAN VIEW OF STEEL PIPE ASSEMBLY

200 2 NAILS SPACED 4 INCHES CENTER TO CENTER.



DETAIL C
PROFILE VIEW



DETAIL D
PROFILE VIEW

SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

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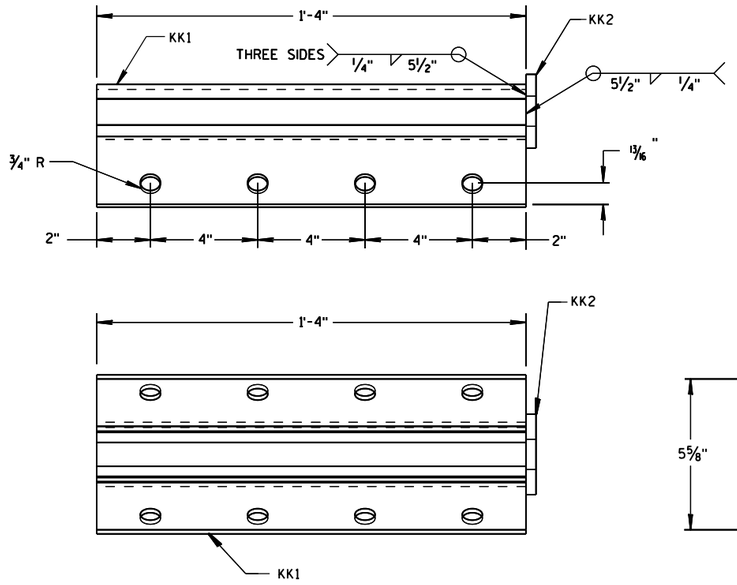
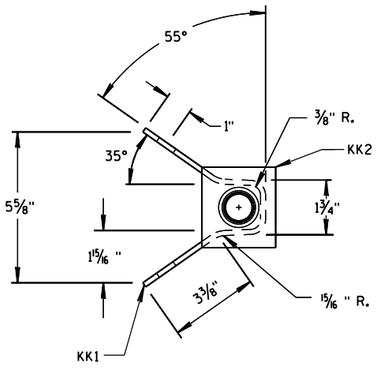
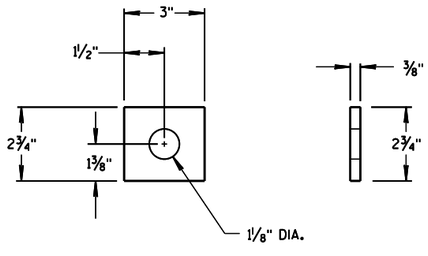
(300) WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.

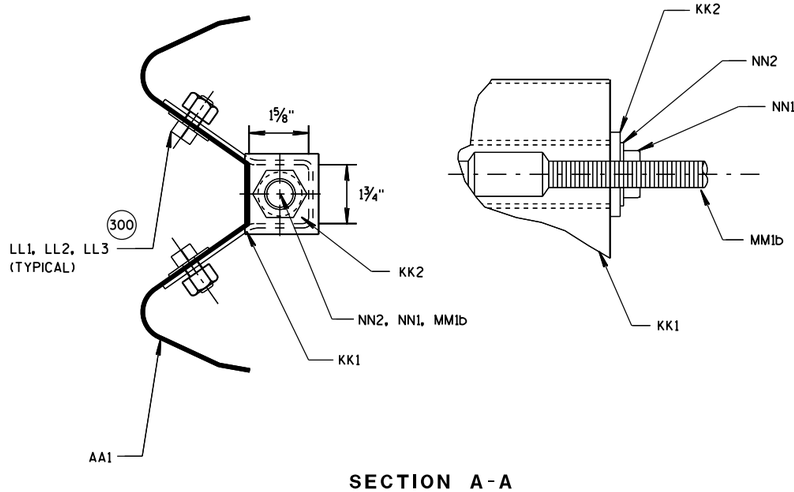




ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)



SECTION A-A

SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
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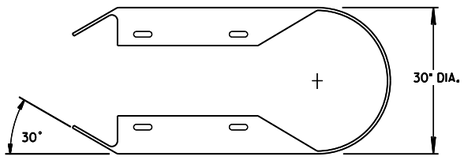
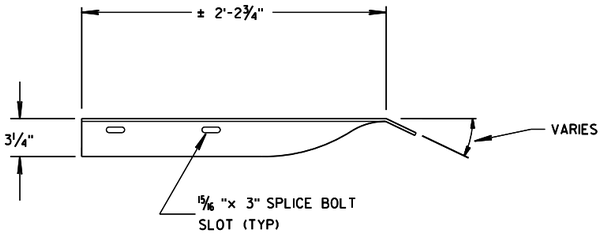


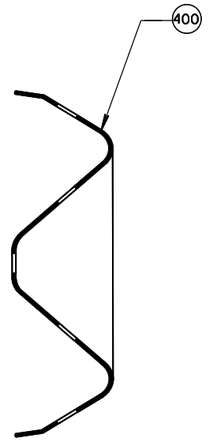
TOP VIEW



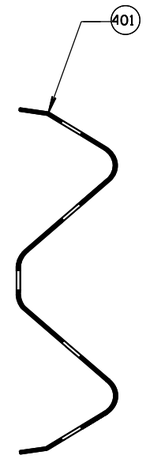
TOP VIEW

(400) CROSS SECTON OF PART IS TO FIT OVER AA1.

(401) CROSS SECTON OF PART IS TO FIT OVER OR UNDER AA1.

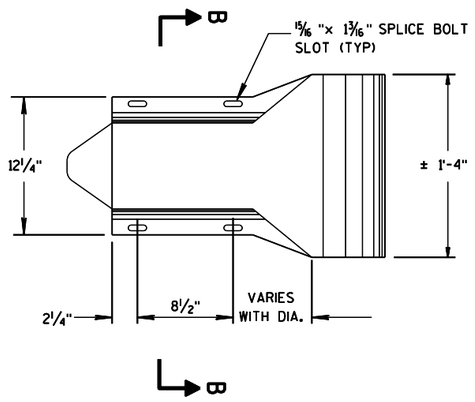


SECTION B-B



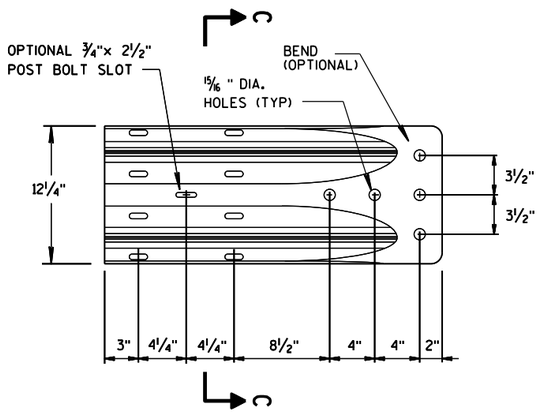
SECTION C-C

6



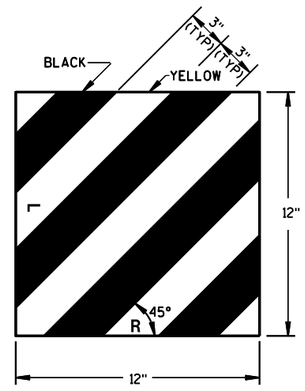
W-BEAM
END SECTION BUFFER (AA2)

PROFILE VIEW



W-BEAM
TERMINAL CONNECTOR (BB1)

PROFILE VIEW



REFLECTIVE SHEETING
(UU1, UU2)

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SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
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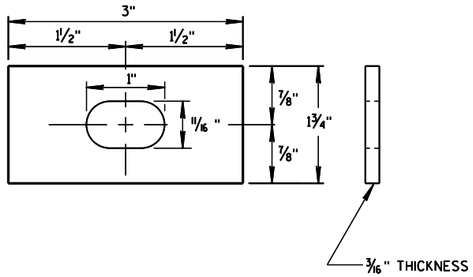
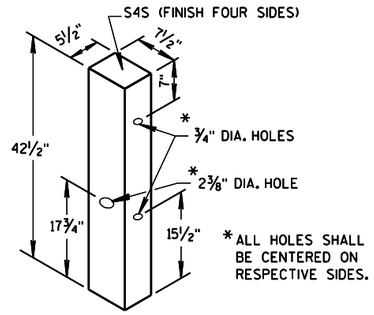
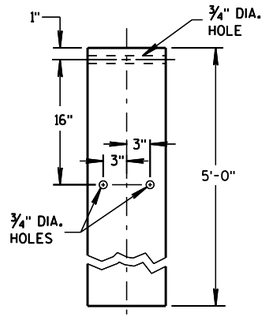


RECTANGULAR PLATE WASHER (CC1)



WOOD BREAKAWAY POST (FF1)



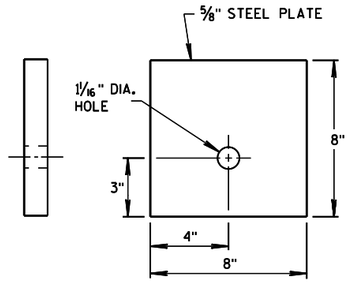
FOUNDATION TUBE (QQ1) (500)

(500) SEE DETAIL "D" FOR LOCATION AND ATTACHING SS1.

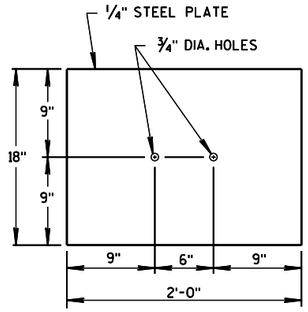
(501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.

(502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.

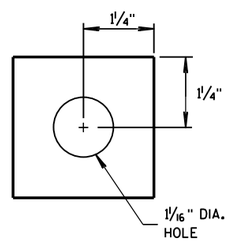
(503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



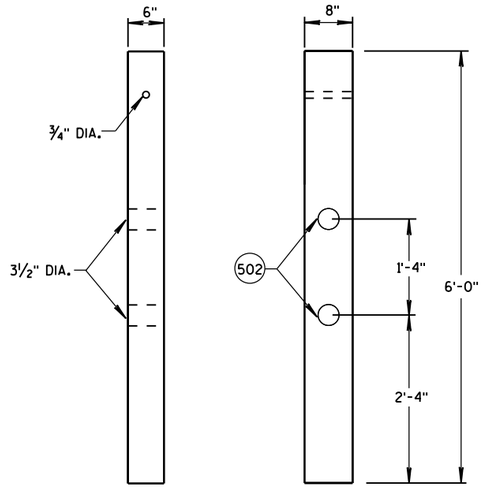
BEARING PLATE (PP1)



SOIL PLATE (SS1)

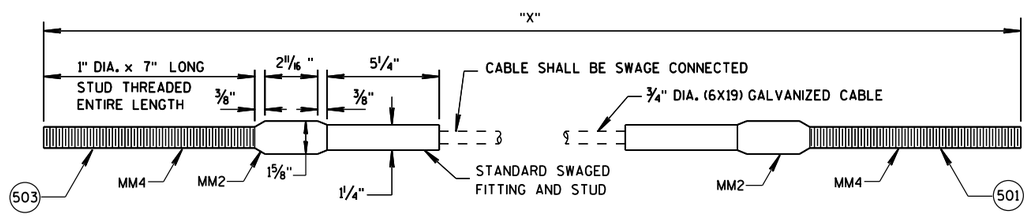


TUBE END PLATE (QQ3)



FRONT VIEW SIDE VIEW

CONTROLLED RELEASE TERMINAL POST (CRT) (D2)



"X" LENGTH	
MM1a	9'-0"
MM1b	6'-8"

CABLE ASSEMBLY (MM1a , MM1b)

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPOR

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S.D.D. 14 B 53-1f

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT-WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329	
E3	POST BOLT - NUT		5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY AND OTHER INFORMATION
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	
			3/8" DIA. 3" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
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S.D.D. 14 B 53-1g

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE 14B42 FOR GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	SEE 14B42 FOR GEOMETRY
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1'-0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	
NN2	ANCHOR CABLE - NUT - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	1" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
PP1	BEARING PLATE AT POST	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 53-1h

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
003	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2½" X 2½" X ¼"
		GALV. AASHTO M111 / ASTM A123	
004	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	⅝" DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
005	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	⅝" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
006	GROUND STRUT AND YOKE - NUT	HEAVY HEX	⅝" DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
SS1	SOIL PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	⅝" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	⅝" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	⅝" DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING SHEETING TYPE FOR MARKER
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

6

S.D.D. 14 B 53-1i

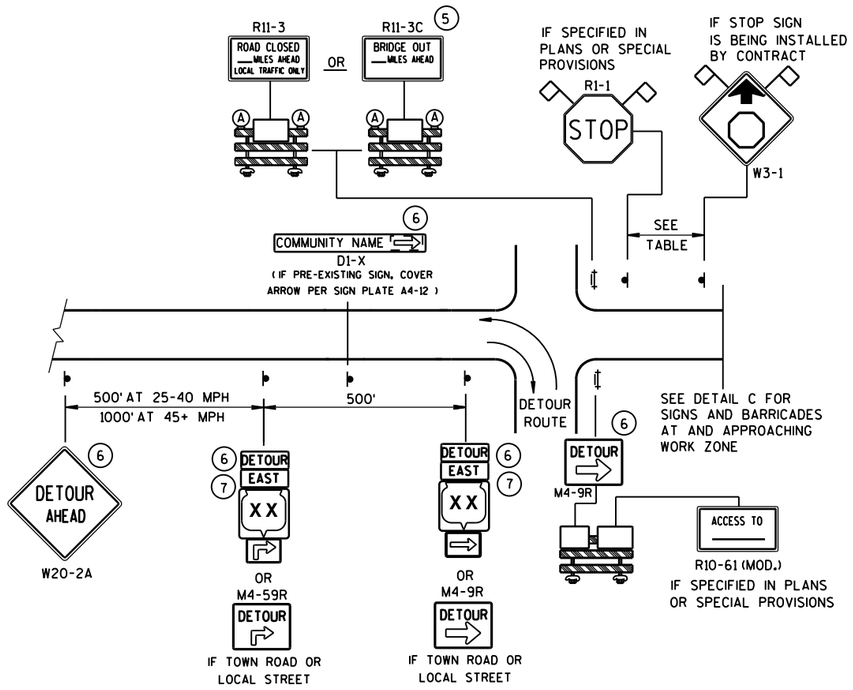
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D
UNIT SUPERVI
FHWA

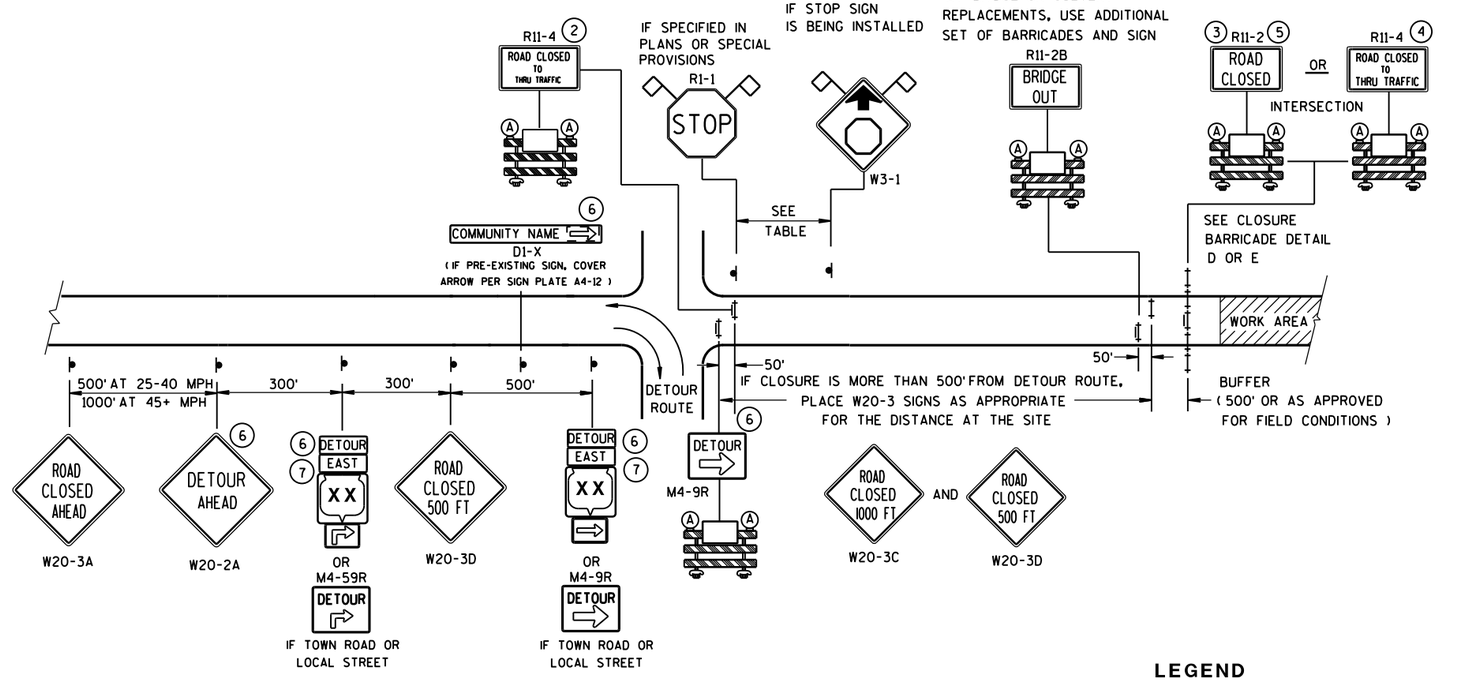
6

S.D.D. 14 B 53-1i



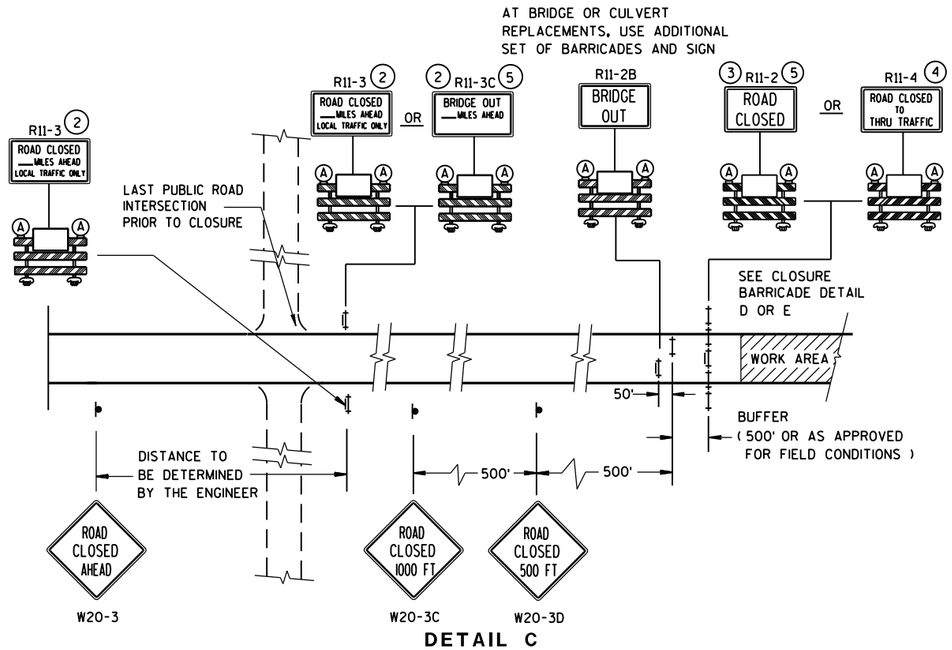
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

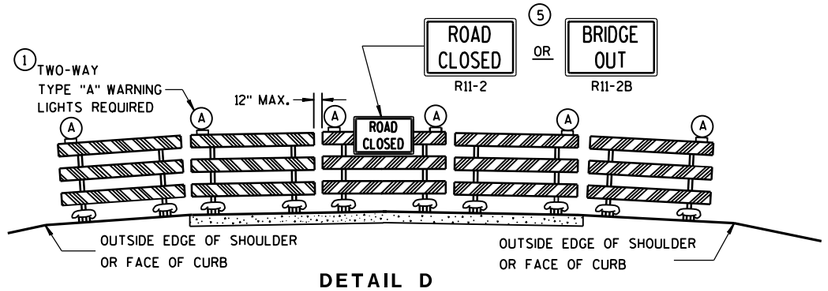
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

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

6

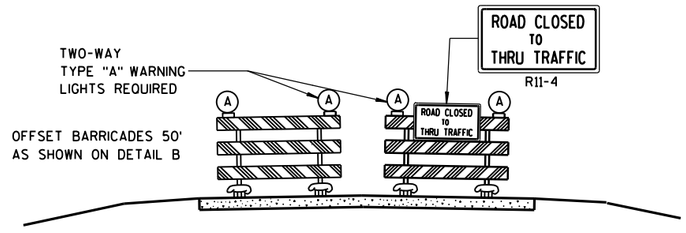
S.D.D. 15 C 2-6a



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

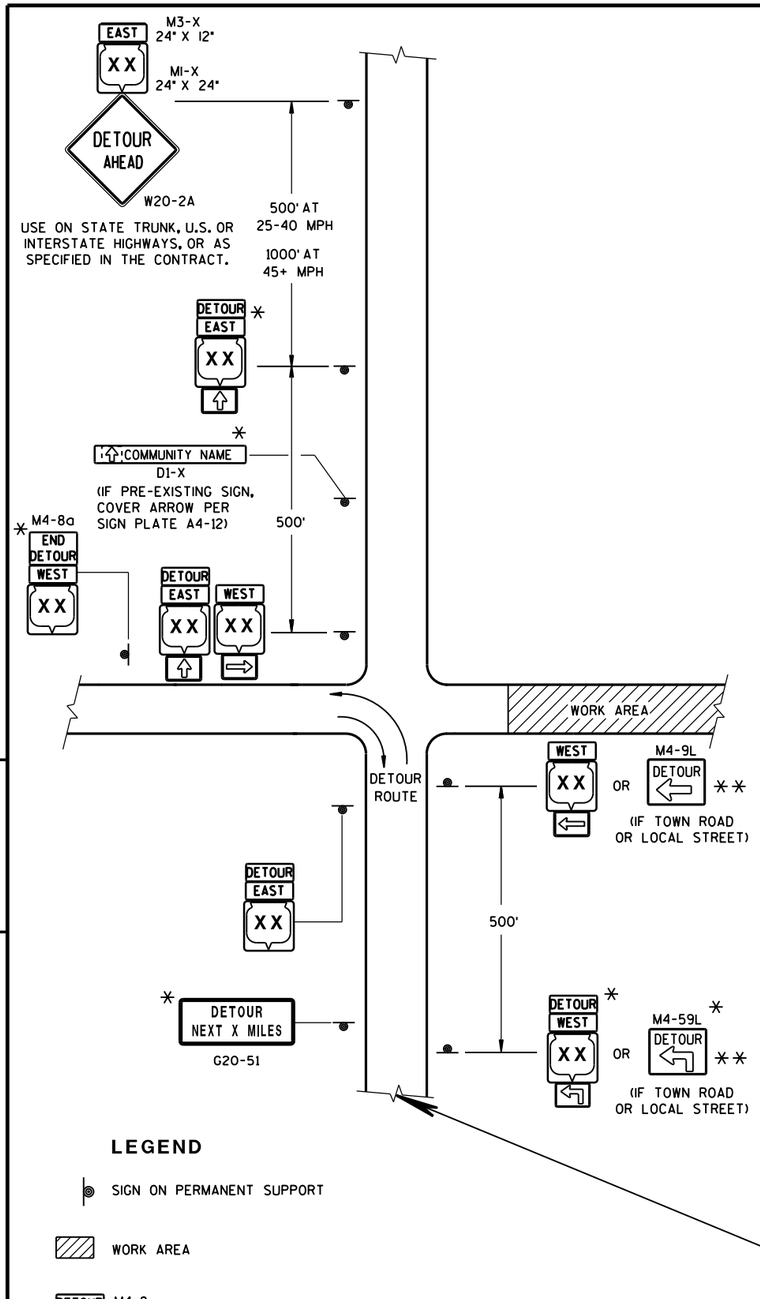
Sept. 2015 — DATE

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

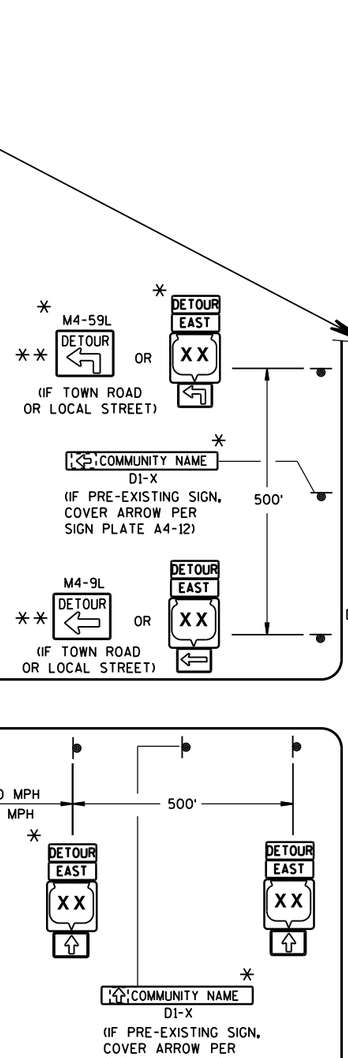
6

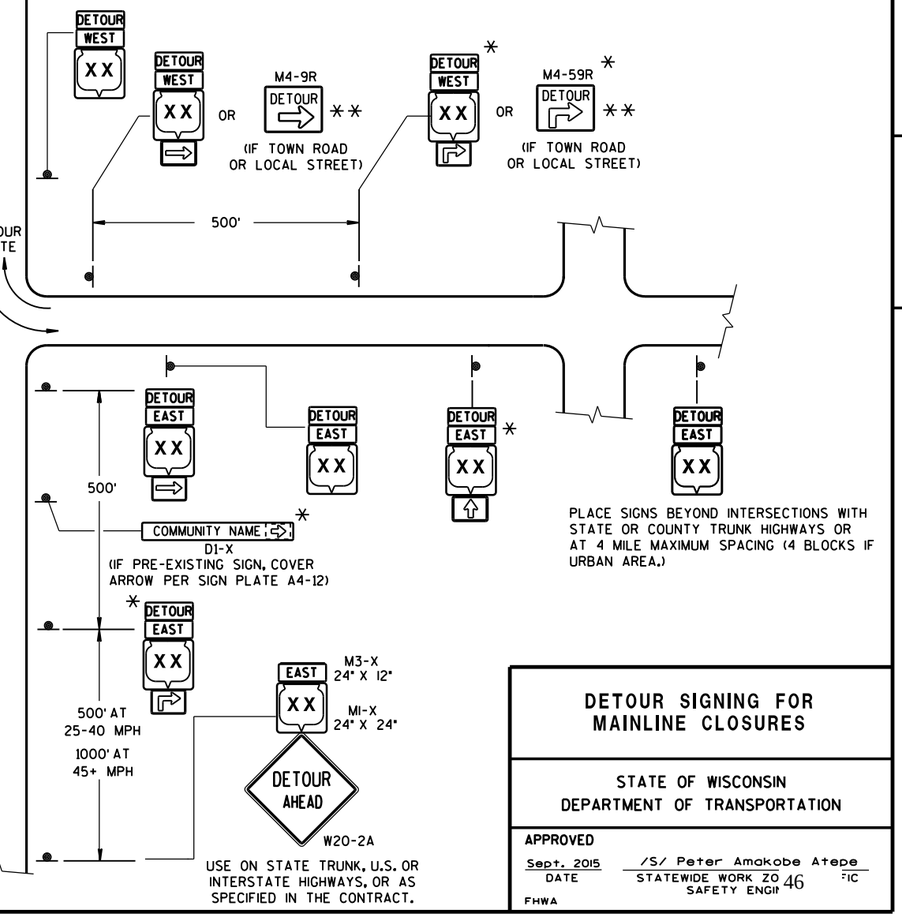
S.D.D. 15 C 2-6b

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



MATCH POINT





GENERAL NOTES

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

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

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

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

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

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

SIGN SIZES SHALL BE AS FOLLOWS:

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

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

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST — M4-8 / M3-X
- XX OR COUNTY XX OR XX — M1-4 / M1-5A / M1-6
- MO5-1 OR MO6-1 OR MO6-1

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

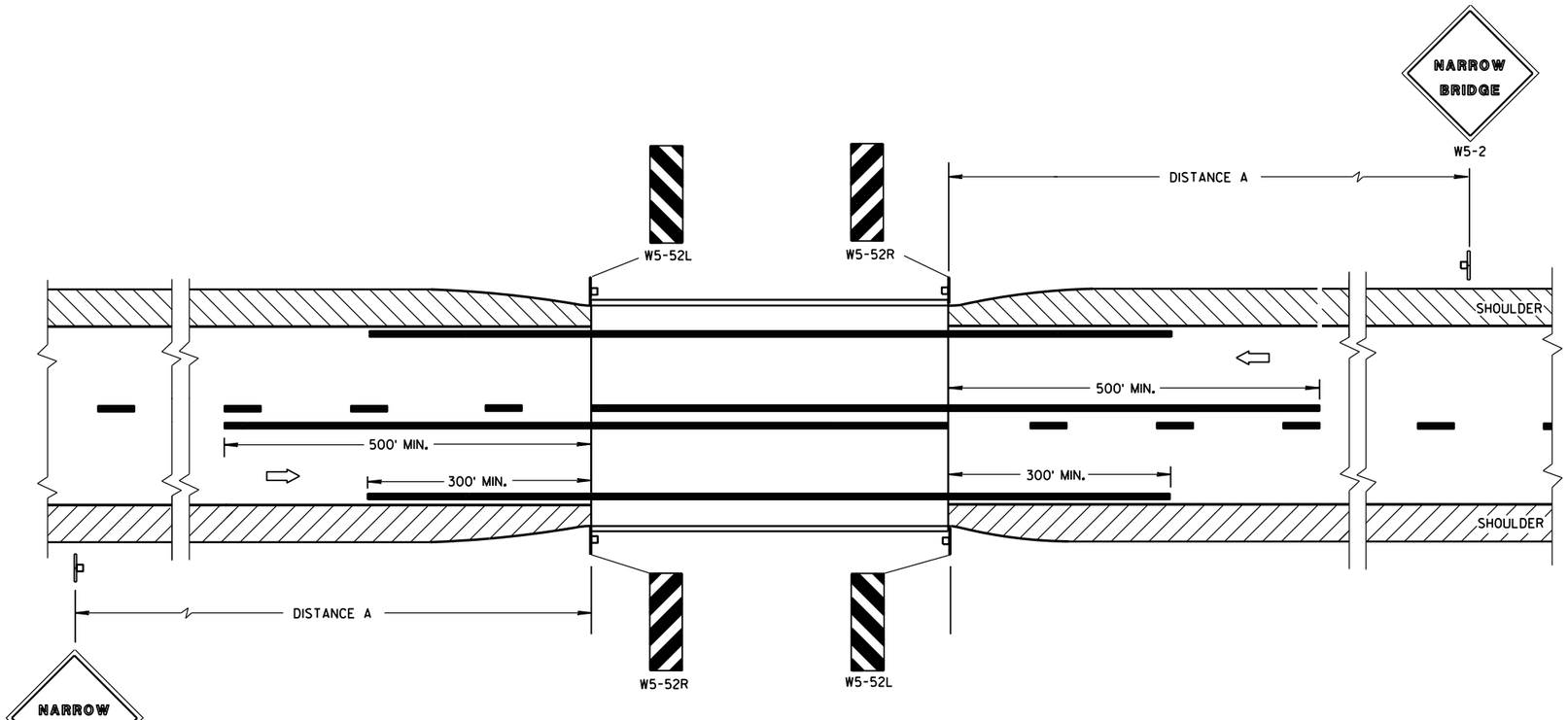
Sept. 2015 — DATE

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

FHWA

6

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



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

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

GENERAL NOTES

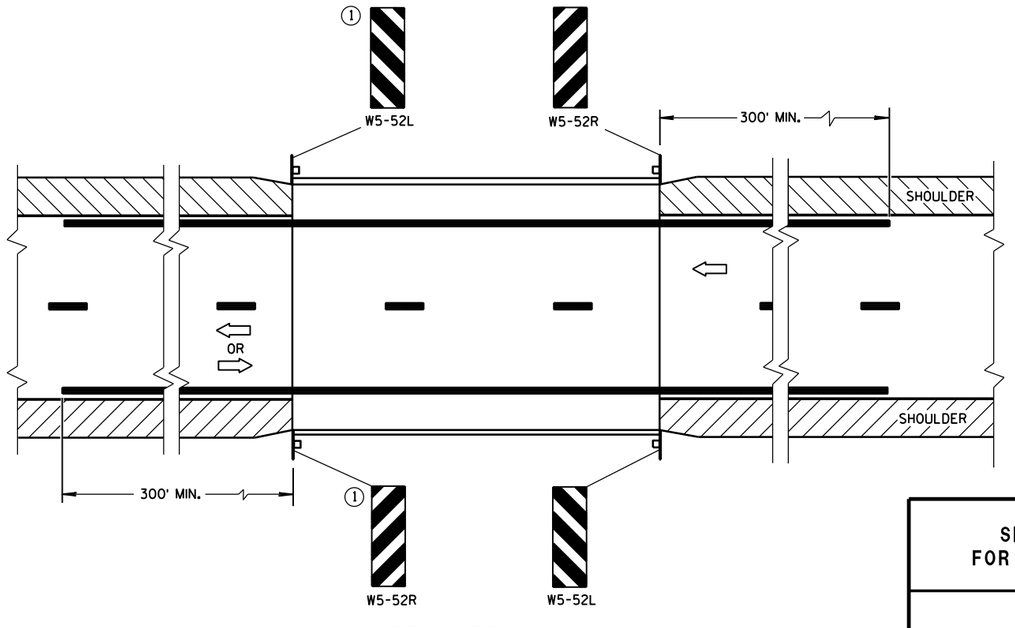
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

(1) OMIT ON ONE-WAY TRAVELLED WAYS.

⇨ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

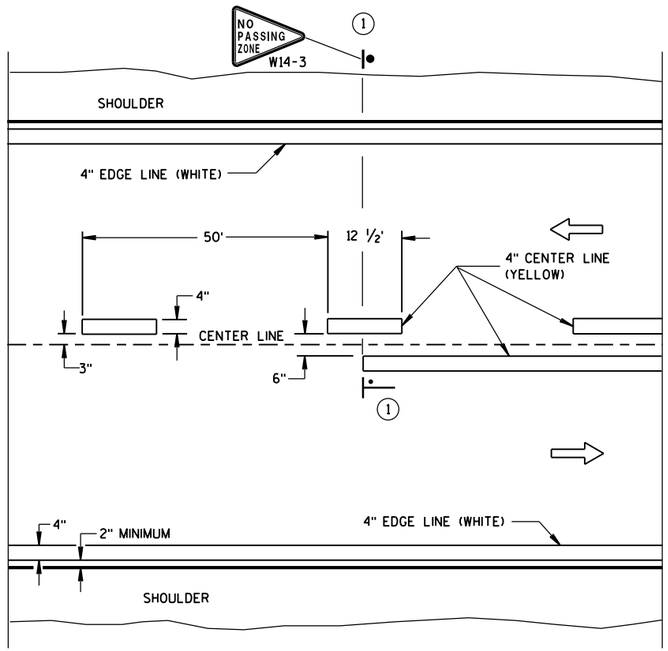
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

6

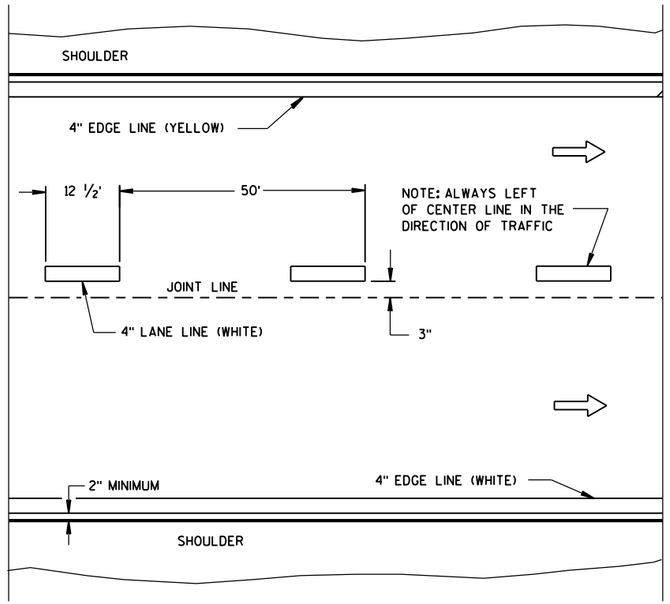
S.D.D. 15 C 6-9

6

S.D.D. 15 C 6-9



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

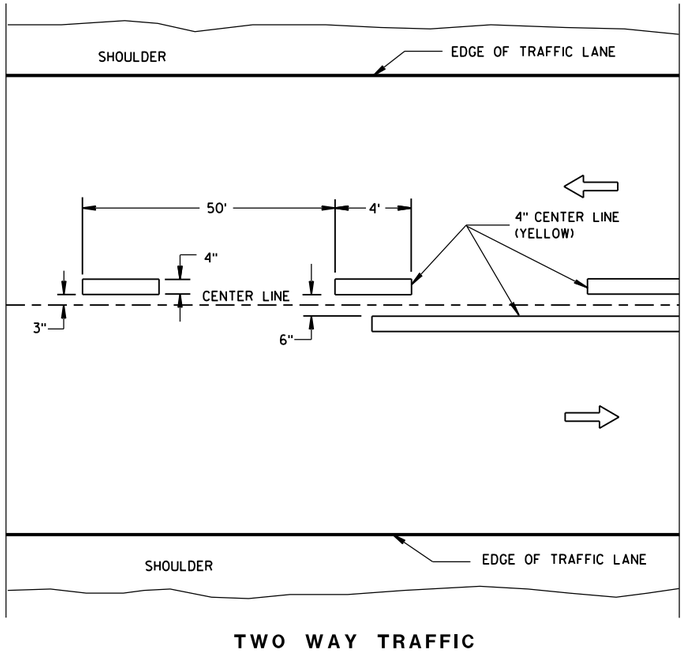
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

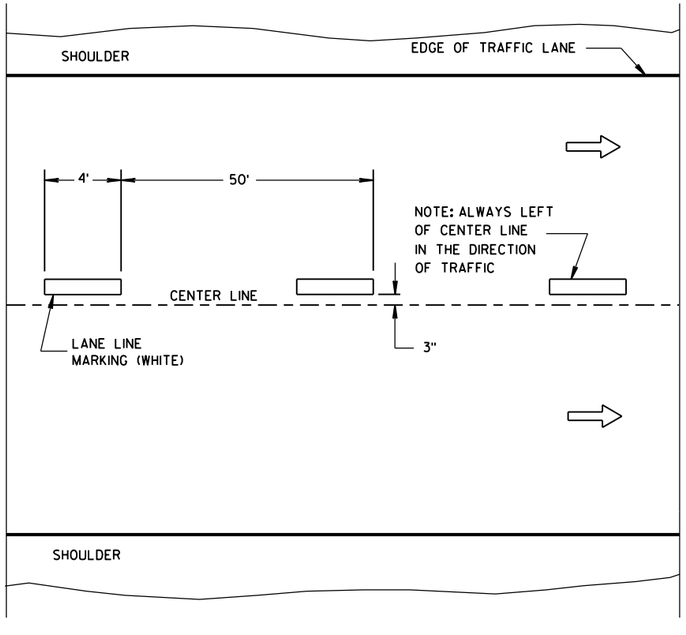
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

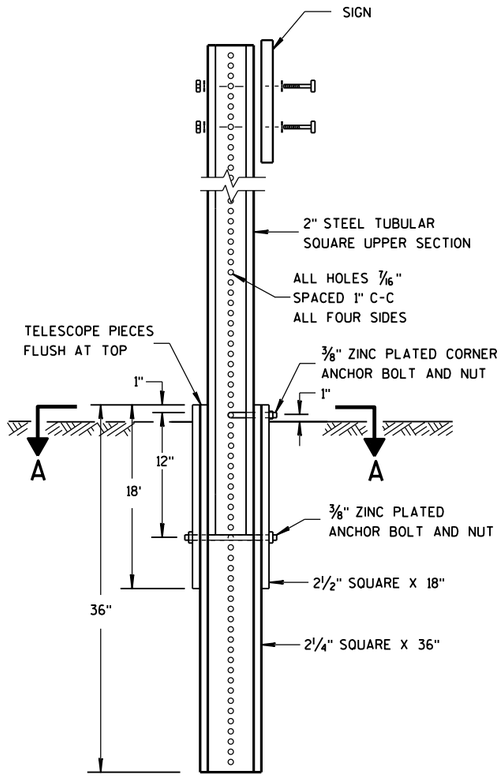
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]INEER
FHWA

6

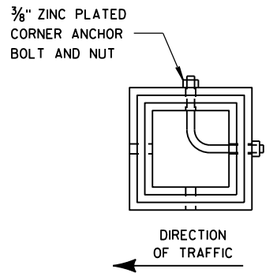
S.D.D. 15 C 8-18a

6

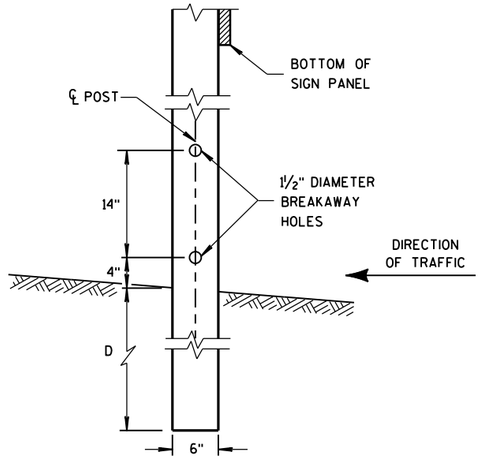
S.D.D. 15 C 8-18a



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



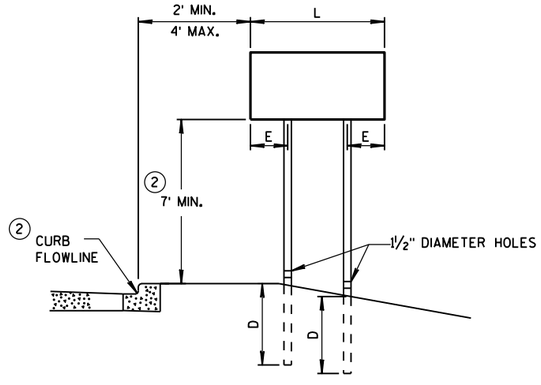
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

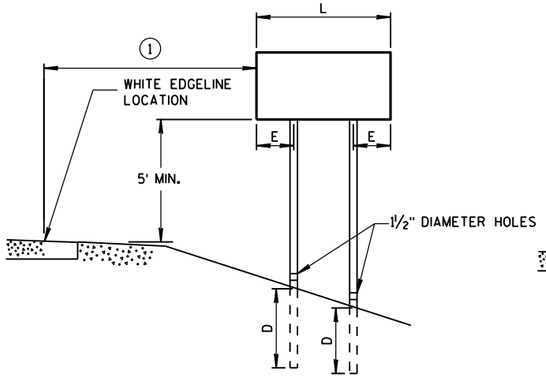
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

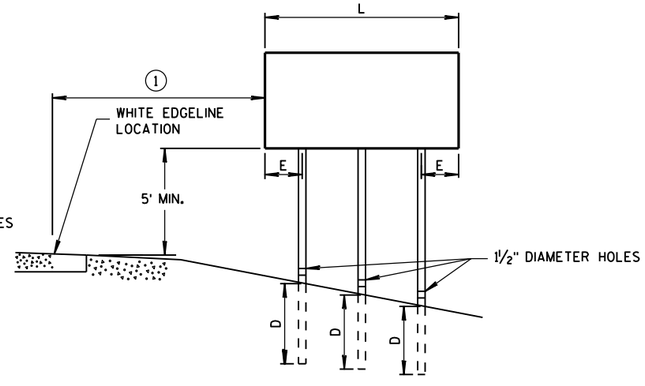
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

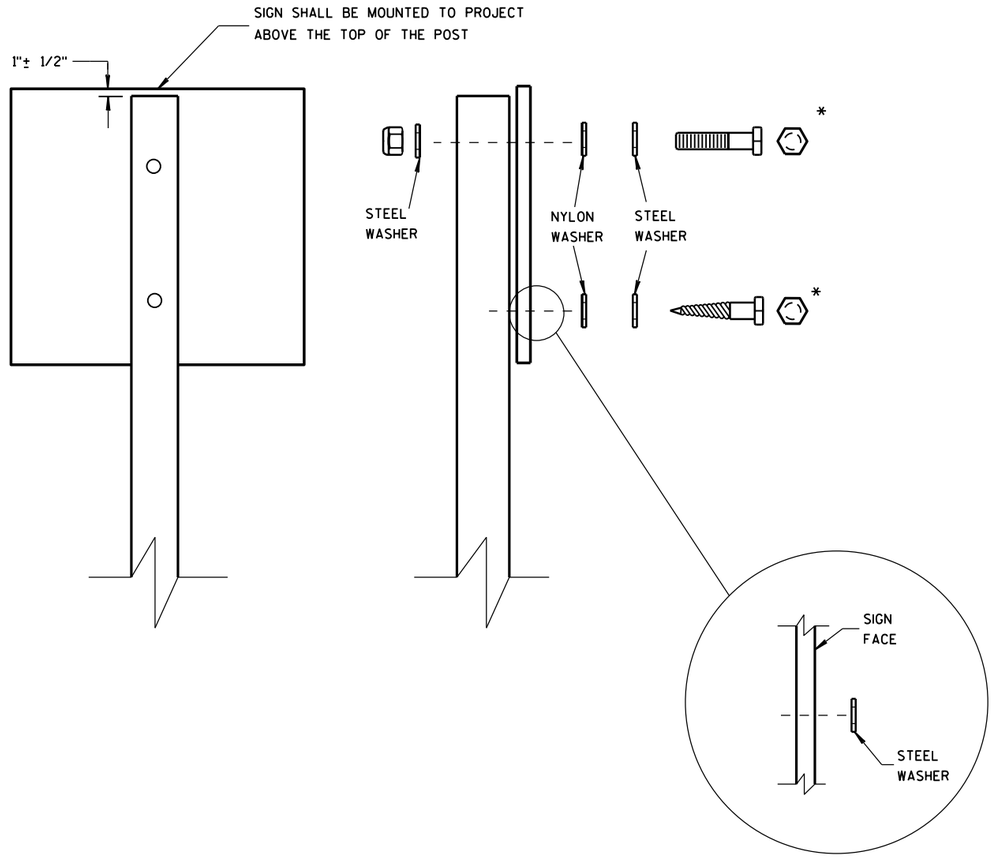
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 D 38-2a



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

* 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-2b

S.D.D. 15 D 38-2b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

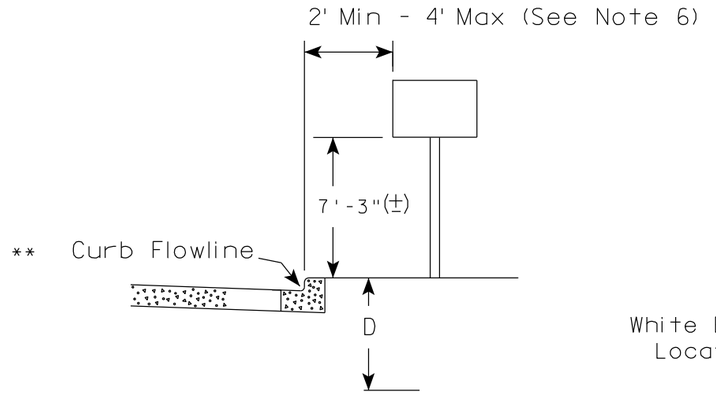
APPROVED

June 2017
DATE

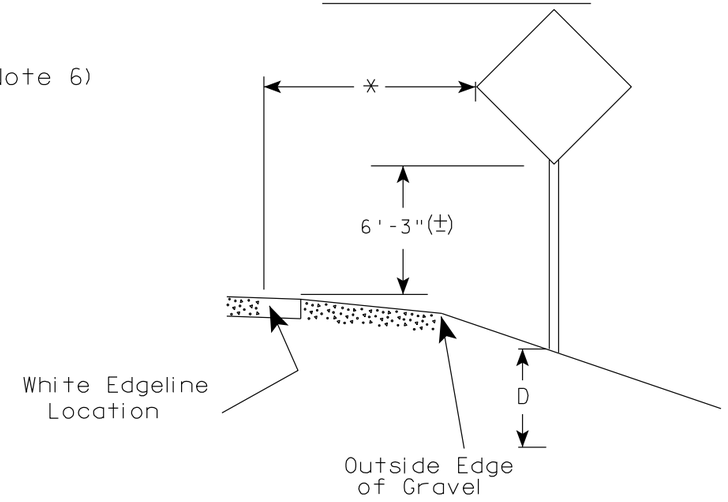
/S/ Andrew Heldtke
WORK ZONE ENG

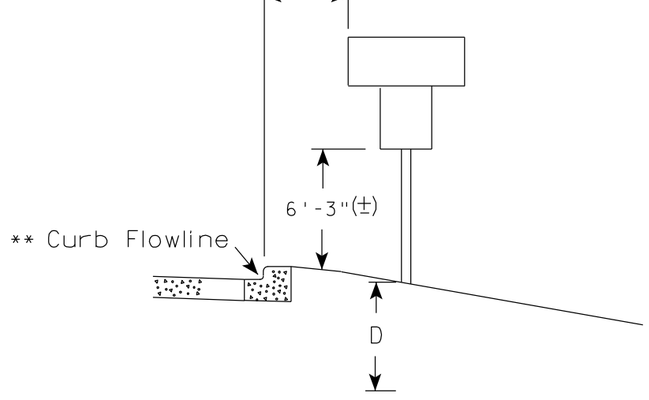
FHWA

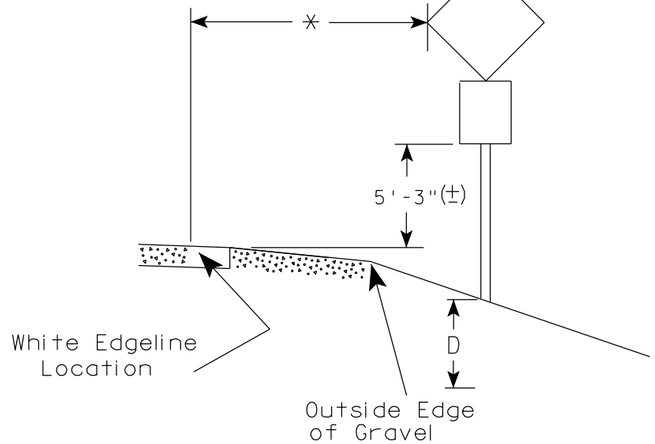
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

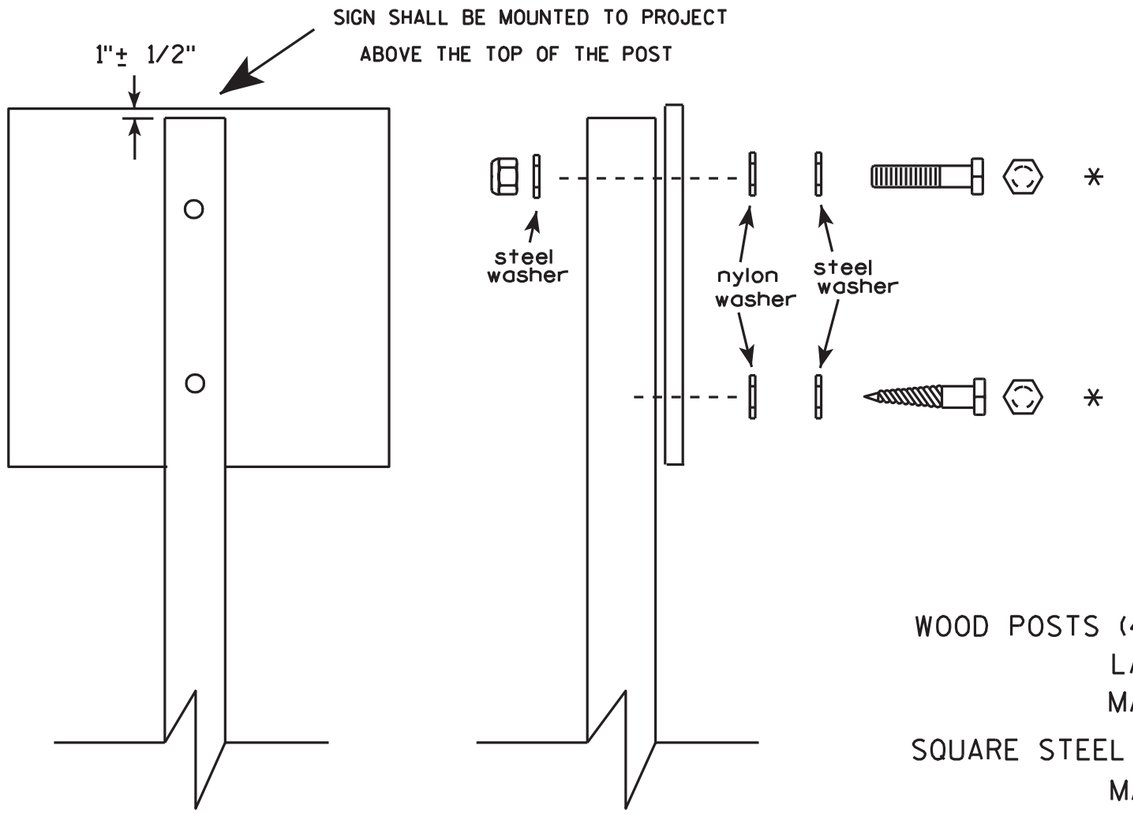
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 51	E



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

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

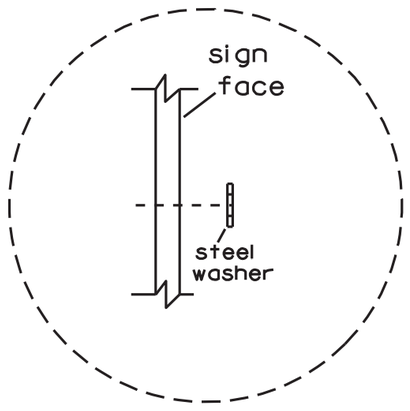
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

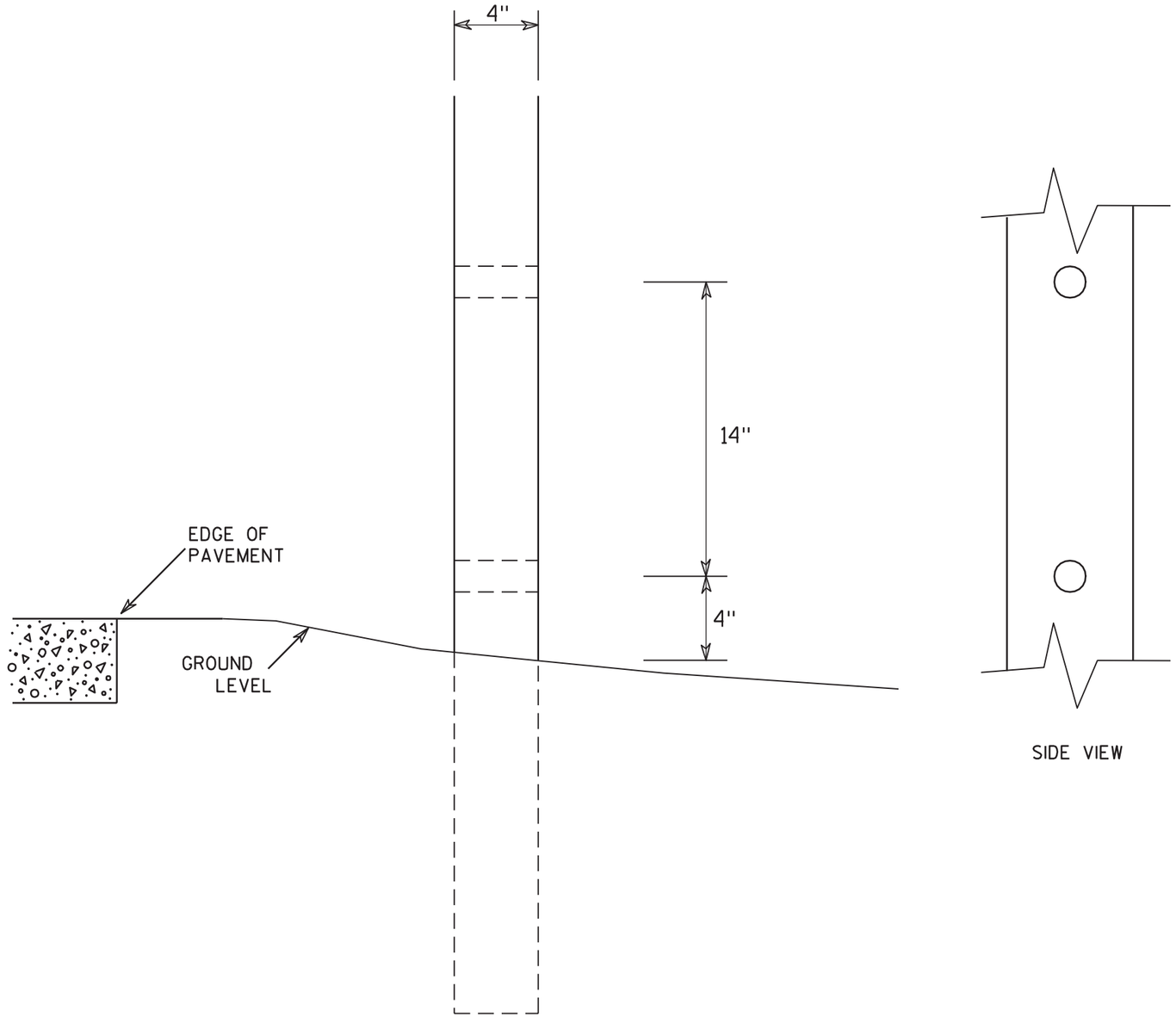
DATE 3/23/10 PLATE NO. A4-8.7

7

7

PROJECT NO:

SHEET NO: 52 E



SIDE VIEW

GENERAL NOTES

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

7

7

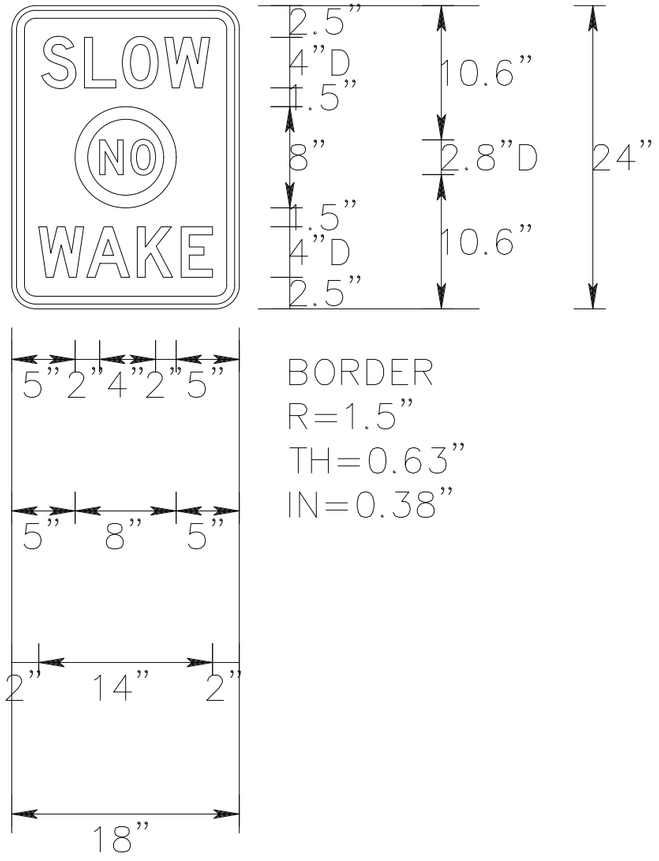
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

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

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



NOTES

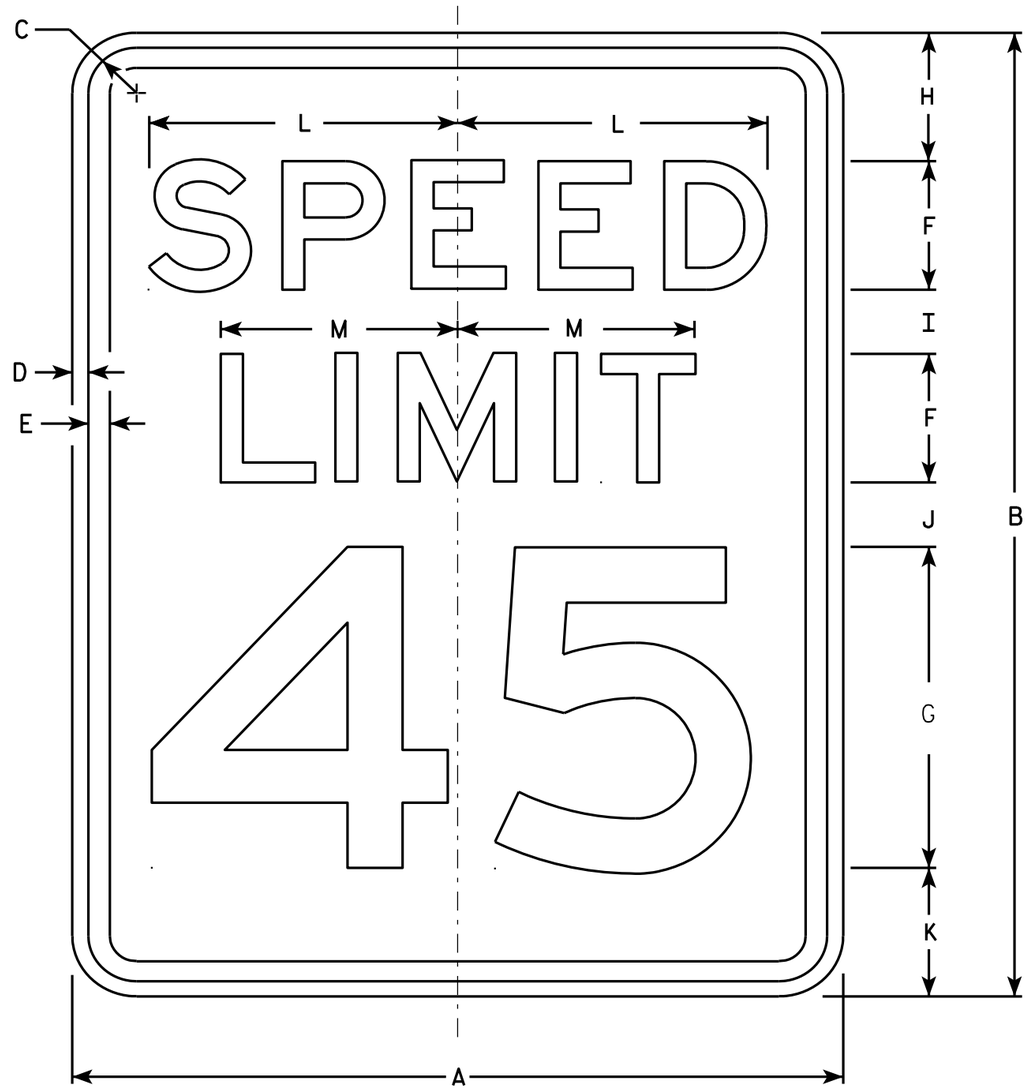
1. Sign is TYPE II Non Reflective - reference WisDOT Standard Specification for Highway and Structure Construction, latest edition.
2. Color:
   - Background - White
   - Message - Black
   - Border and Circle - Orange
3. Message Series - D
4. Corners shall be rounded.

7

7

PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	SIGN PLATES	SHEET	E

FILE NAME : P:\11300S\11330S\11331\11331010\CADD\SHEETSPLAN\070101-SD.DWG
LAYOUT NAME - Slow No Wake
PLOT DATE : 2/23/2018 7:24 AM
PLOT BY : CHAD WAGNER
PLOT NAME :
PLOT SCALE : 1" = 1'
WISDOT/CADDS SHEET



R2-1

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

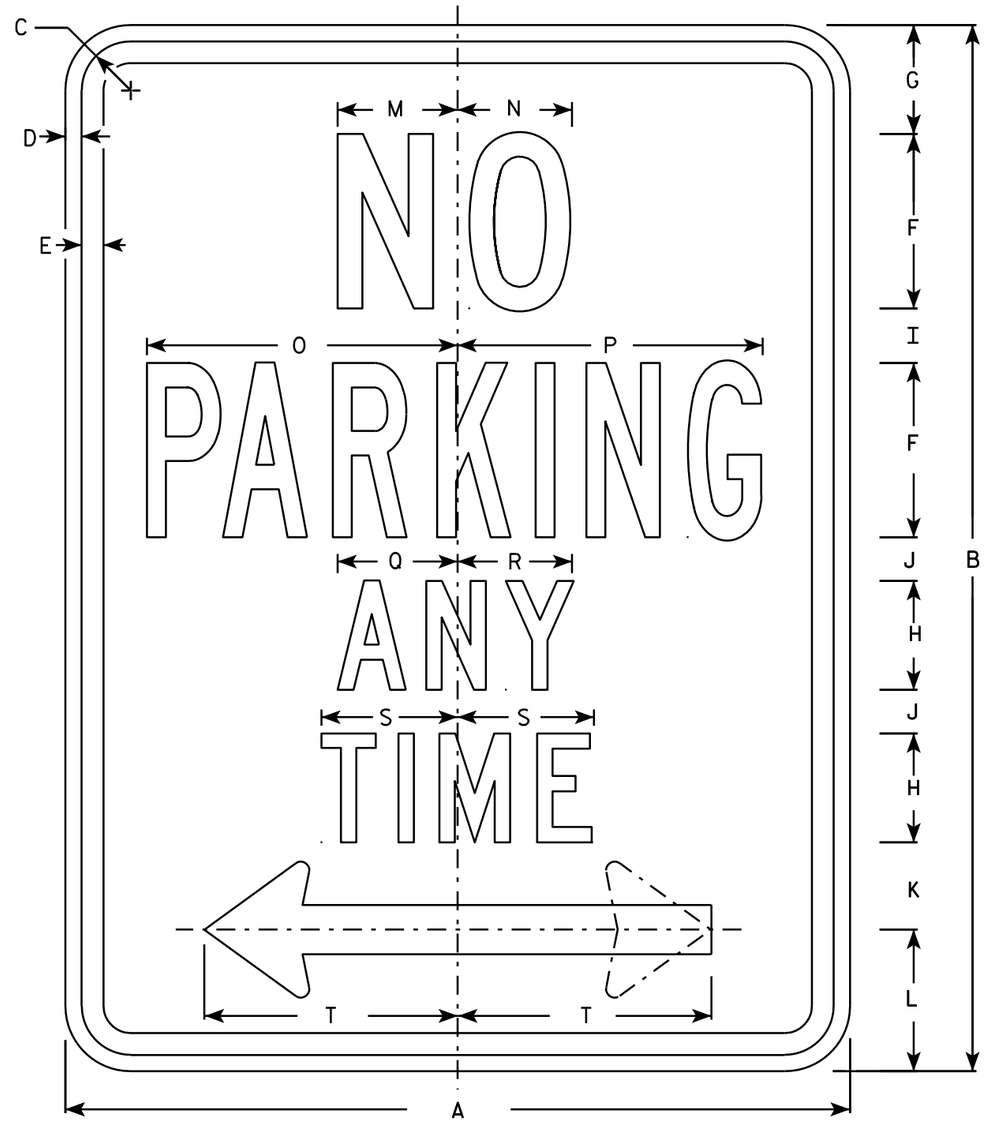
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

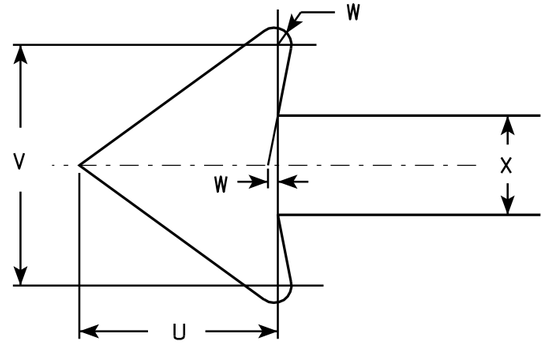
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 55	E



R7-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Red
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1, 3 and 4 are series C, line 2 is series B.
6. R7-1D (double arrow)
   R7-1L (left arrow)
   R7-1R (right arrow)



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	12	18	1 1/8	3/8	3/8	3	1 7/8	2	7/8	5/8	1 1/2	2 1/2	2	2	4 7/8	4 7/8	2 1/4	2 1/8	2 1/2	3 7/8	1 1/2	1 3/4	1/8	3/4			1.5
2S	18	24	1 1/8	3/8	1/2	4	2 1/2	2 1/2	1 1/4	1	2	3 1/4	2 3/4	2 5/8	7 1/8	7	2 3/4	2 5/8	3 1/8	5 7/8	2 1/4	2 5/8	1/4	1 1/8			3.0
2M	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2			5.0
3	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2			5.0
4																											
5																											

STANDARD SIGN
R7-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R7-1.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 56	E

R9-55

NOTES

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

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	18	24	1 1/8	3/8	1/2	4	3	2 1/2	1 7/8	2 1/8	1 1/4	2 1/4	3 3/4	7 1/4	7 1/2	5 1/2											3.0
2M	18	24	1 1/8	3/8	1/2	4	3	2 1/2	1 7/8	2 1/8	1 1/4	2 1/4	3 3/4	7 1/4	7 1/2	5 1/2											3.0
3																											
4																											
5																											

STANDARD SIGN
R9-55

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/4/2011 PLATE NO. R9-55.6

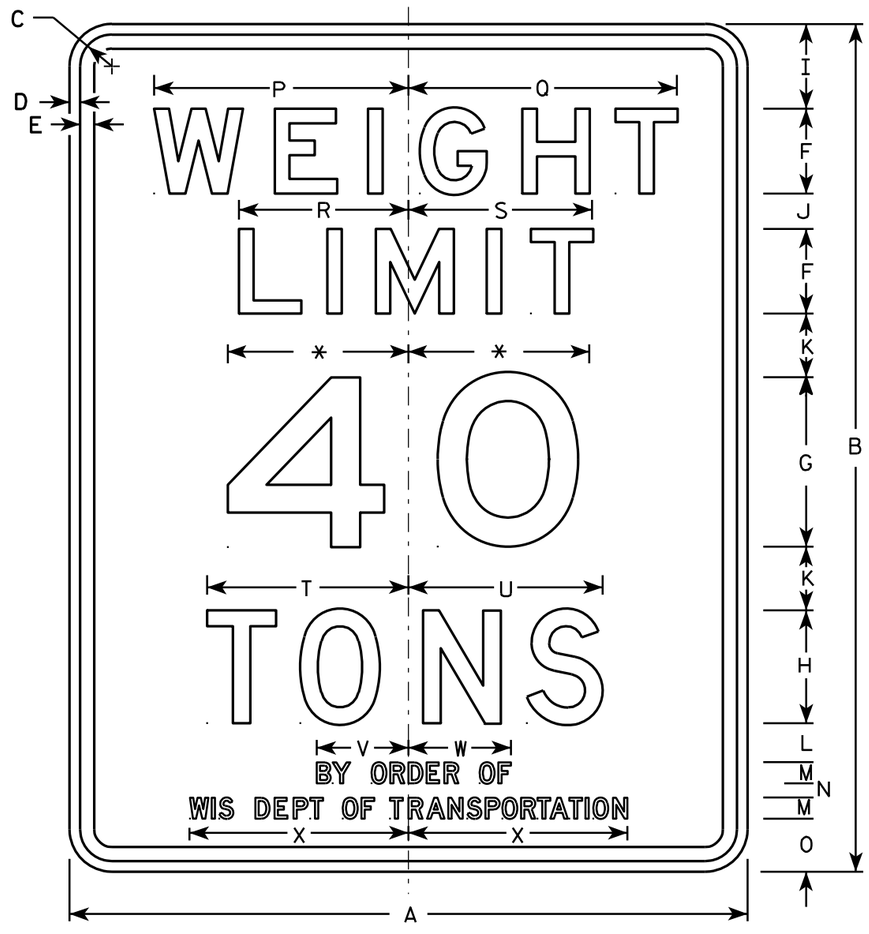
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 57	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R955.DGN PLOT DATE : 04-APR-2011 14:38 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 3.972696:1.000000

WISDOT/CADDS SHEET 42

7

7



R12-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1, 2 & 3 are series E
   Lines 4, 5, & 6 are series D.
6. Substitute appropriate numeral and optically adjust spacing to achieve proper balance.
7. Substitute name of county or town on County Trunk and Town Highways respectively. Community name on City or Village Streets including Connecting Highways is optional.

* Varies (see note 6)

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	24	30	1 1/8	3/8	1/2	3	6	4	3	1 1/4	2 1/4	1 3/8	3/4	1/2	1 7/8	9	9 1/2	6	6 1/2	7 1/8	6 7/8	3 1/4	3 5/8	7 3/4			5.0
2S	24	30	1 1/8	3/8	1/2	3	6	4	3	1 1/4	2 1/4	1 3/8	3/4	1/2	1 7/8	9	9 1/2	6	6 1/2	7 1/8	6 7/8	3 1/4	3 5/8	7 3/4			5.0
2M	24	30	1 1/8	3/8	1/2	3	6	4	3	1 1/4	2 1/4	1 3/8	3/4	1/2	1 7/8	9	9 1/2	6	6 1/2	7 1/8	6 7/8	3 1/4	3 5/8	7 3/4			5.0
3	36	48	1 3/8	1/2	5/8	6	10	8	4 1/2	2 1/2	2 1/4	1 1/2	3/4	1/2	3	13 1/2	14 1/4	9	9 3/4	10 5/8	10 1/4	3 1/4	3 5/8	7 3/4			12.0
4	48	60	2 1/4	3/4	1	6	12	8	6	2 1/2	4 1/2	2 3/4	1 1/2	1	3 3/4	18	19	12	13	14 1/4	13 3/4	6 1/2	7 1/4	15 1/2			20.0
5																											

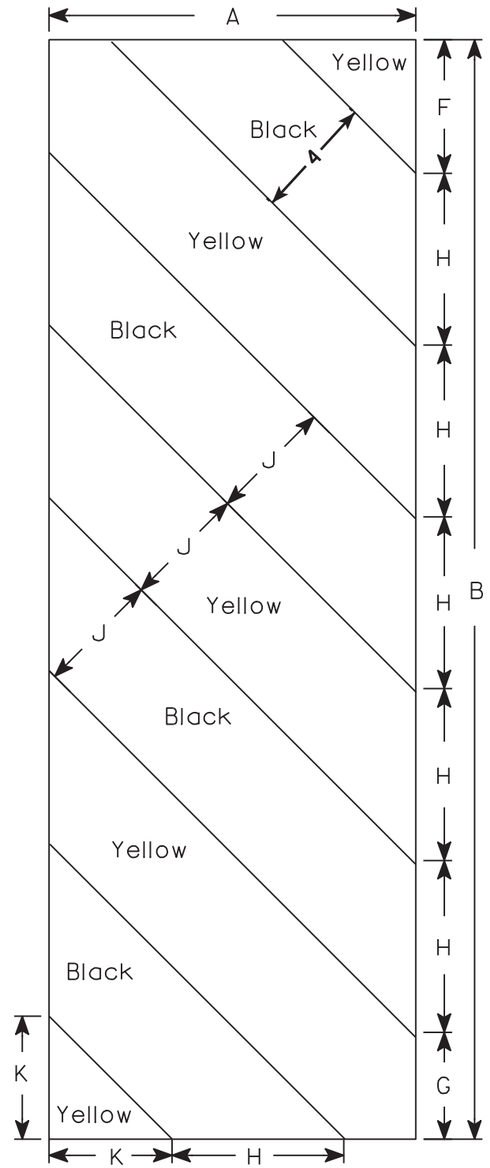
STANDARD SIGN
R12-1

WISCONSIN DEPT OF TRANSPORTATION

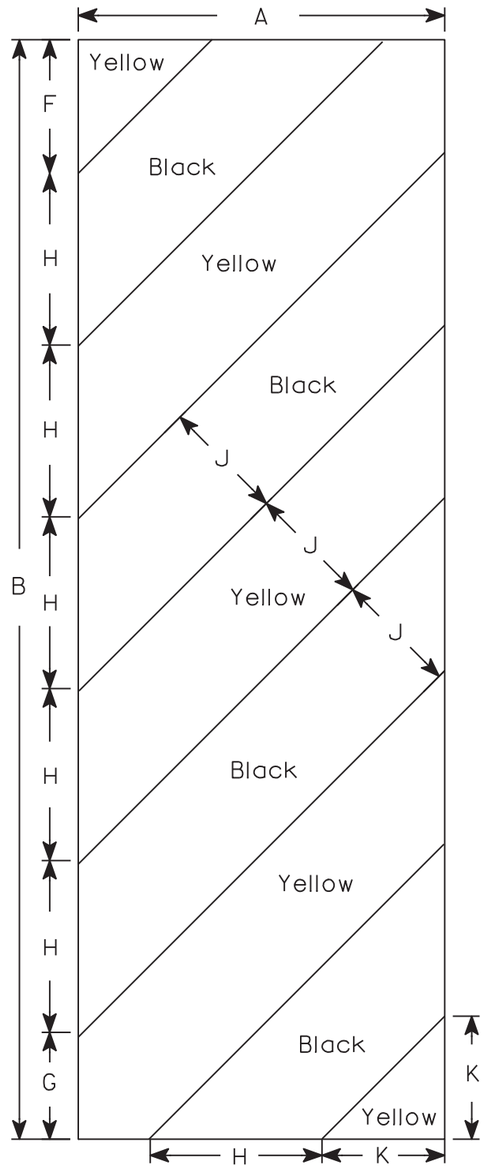
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R12-1.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 58 | 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

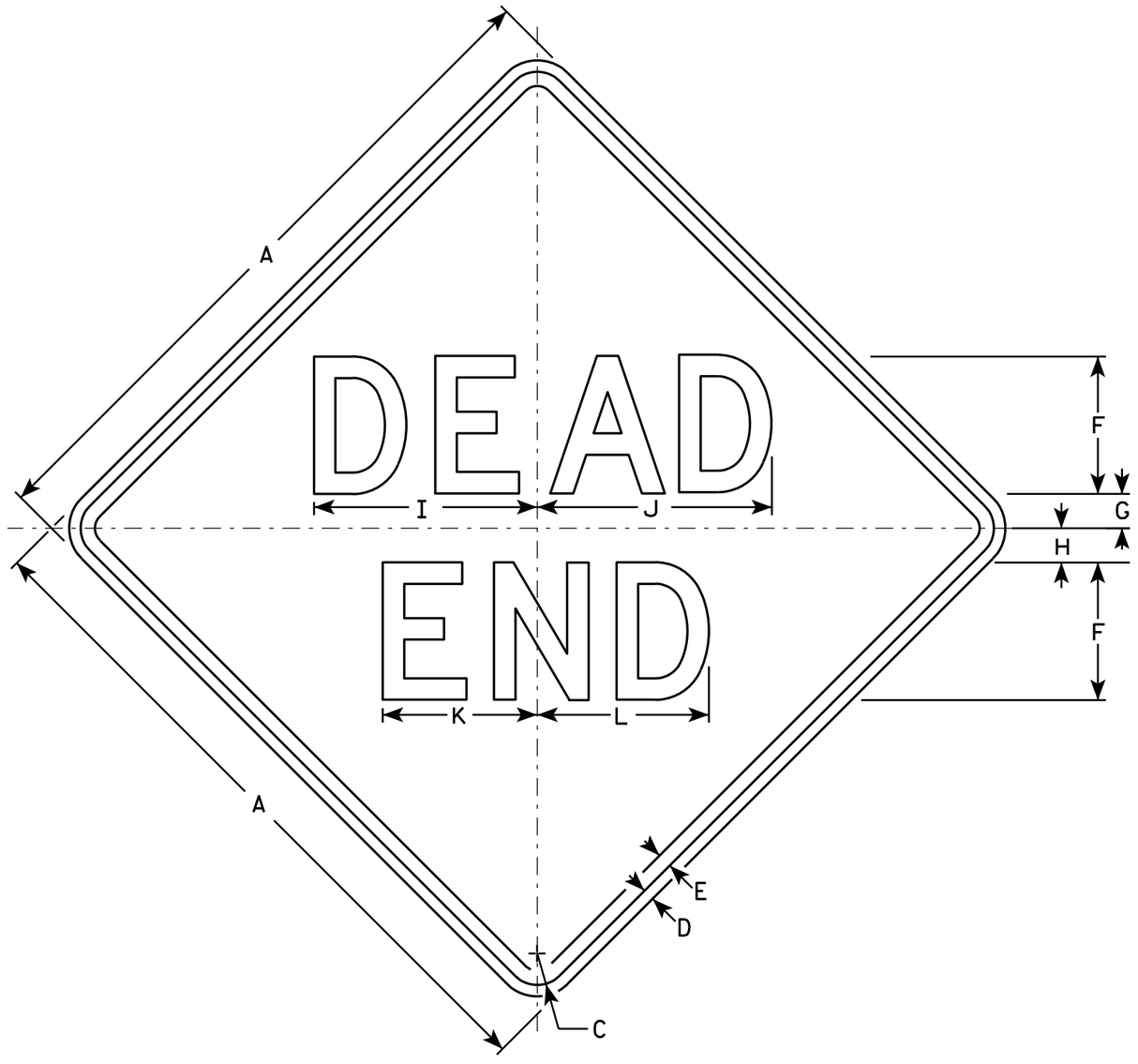
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch

for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 59 | E



W14-1

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. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	5	1	2	8 1/4	8 5/8	5 5/8	6 1/4															4.0
2S	30		1 3/8	1/2	5/8	6	1 1/2	2 1/2	9 3/4	10 1/4	6 3/4	7 1/2															6.25
2M	30		1 3/8	1/2	5/8	6	1 1/2	2 1/2	9 3/4	10 1/4	6 3/4	7 1/2															6.25
3	36		1 5/8	5/8	3/4	7	2	3	11 3/8	12	7 7/8	8 3/4															9.0
4																											
5																											

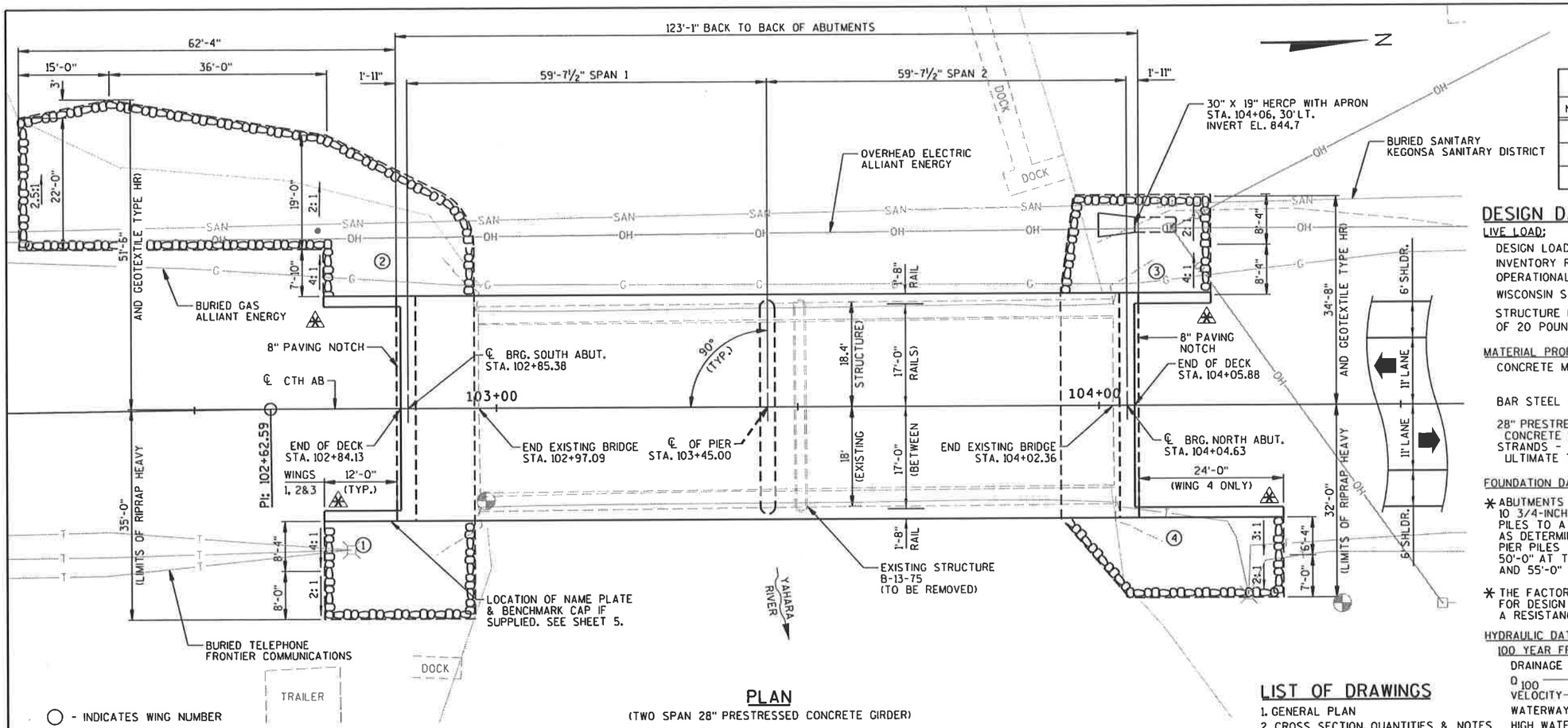
STANDARD SIGN
W14-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W14-1.7

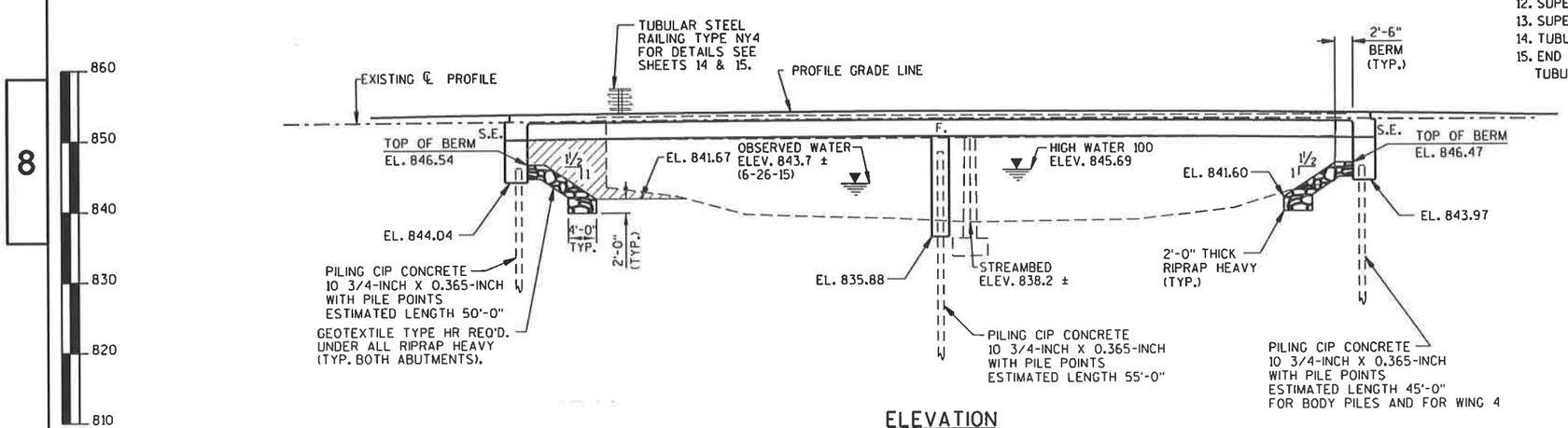
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 60	E



PLAN

(TWO SPAN 28" PRESTRESSED CONCRETE GIRDER)

- ◯ - INDICATES WING NUMBER
- ⁂ - INDICATES LOCATION OF THRIE BEAM GUARD ATTACHMENT AT WINGS.
- ▨ - REMOVAL OF THIS MATERIAL IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-13-684".



ELEVATION

(LOOKING WEST)

STATE PROJECT NUMBER
5841-00-70

BENCHMARKS ⌖ NAVD 88

NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	100+37.2, 31.0' RT.	RAILROAD NAIL IN TREE	848.79
2	102+98.2, 15.4' RT.	CHISELED CROSS	853.26
3	104+40.3, 33.0' RT.	RAILROAD NAIL IN TREE	849.25

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.08
OPERATIONAL RATING FACTOR: 1.40

TRAFFIC DATA:

A.A.D.T. (2017) = 1,100
A.A.D.T. (2037) = 1,900
R.D.S. = 35 MPH

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 ——— $f'c$ = 4,000 P.S.I.
ALL OTHER ——— $f'c$ = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 ——— fy = 60,000 P.S.I.

28" PRESTRESSED GIRDERS
CONCRETE MASONRY ——— $f'c$ = 8,000 P.S.I.
STRANDS - 0.60" ϕ WITH AN
ULTIMATE TENSILE STRENGTH OF ——— fy = 270,000 P.S.I.

FOUNDATION DATA:

* ABUTMENTS AND PIER TO BE SUPPORTED ON PILING CIP CONCRETE 10 3/4-INCH X 0.365-INCH WITH PILE POINTS. DRIVE ABUTMENT PILES TO A REQUIRED DRIVING RESISTANCE OF 150 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. DRIVE PIER PILES TO 140 TONS * PER PILE. ESTIMATED PILE LENGTHS ARE 50'-0" AT THE SOUTH ABUTMENT, 45'-0" AT THE NORTH ABUTMENT, AND 55'-0" AT THE PIER.

* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5.

HYDRAULIC DATA:

100 YEAR FREQUENCY

DRAINAGE AREA	335 SQ. MI.
Q_{100}	1073 C.F.S.
VELOCITY	1.95 F.P.S.
WATERWAY AREA	551 SQ. FT.
HIGH WATER$_{100}$ ELEVATION	845.69
ROADWAY OVERFLOW DESIGN FREQUENCY	> 100 YEARS
SCOUR CRITICAL CODE	5
HIGH WATER$_2$ ELEVATION (450 C.F.S.)	843.50

LIST OF DRAWINGS

CONSULTANT DESIGN CONTACT:
DAN WAGNER
(608) 355-8952

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

WISCONSIN
DANIEL H. WAGNER
E-19220
BARABOO, WI
PROFESSIONAL ENGINEER

Daniel H. Wagner
2-27-2018

NO.	DATE	REVISION	BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher SDR 05/16/18
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-13-684

CTH AB OVER THE YAHARA RIVER

COUNTY	TOWN ~~CITY/VILLAGE~~
DANE	DUNN

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DHW	JAS	RLR	DHW

GENERAL PLAN

SHEET 1 OF 15
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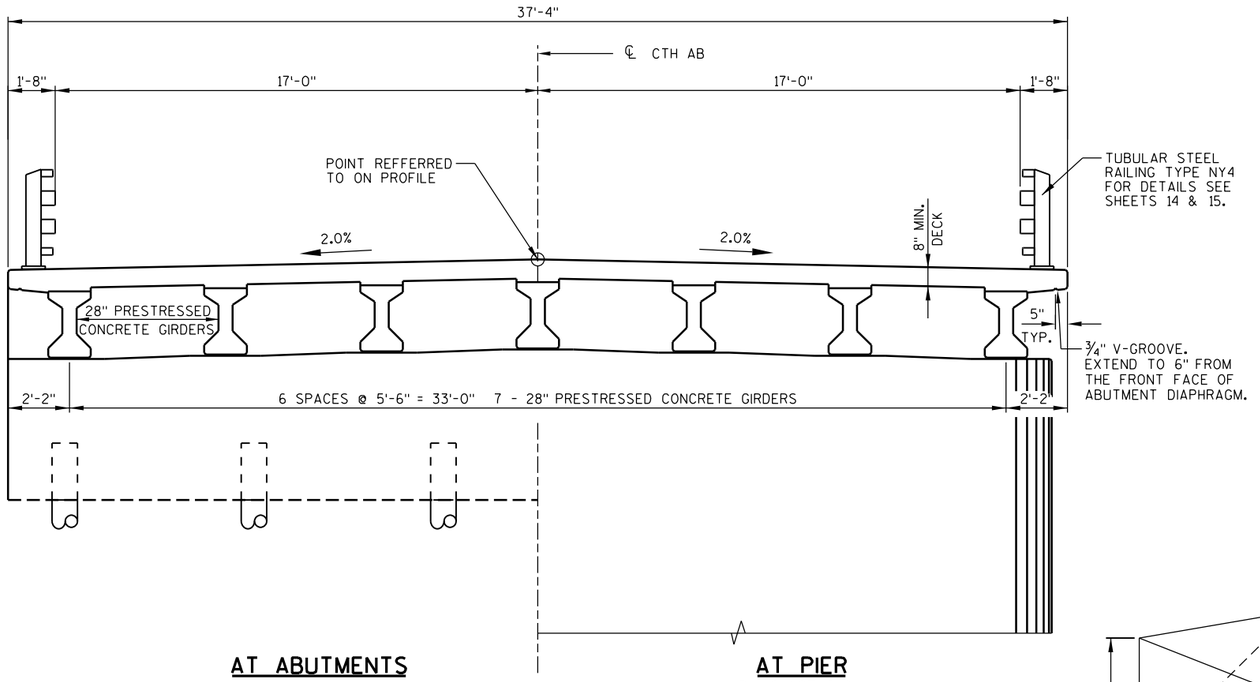
STATE PROJECT NUMBER

5841-00-70



AT ABUTMENTS

AT PIER
(PILING NOT SHOWN)

CROSS SECTION THRU BRIDGE
(LOOKING NORTH)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE LIMITS SHOWN ON SHEET 1 AND ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE ABUTMENTS AND PIER.

THIS STRUCTURE WILL REPLACE EXISTING BRIDGE, B-13-75, A 28.2 FT. CLEAR WIDTH, 105.50 FT. LONG, TWO SPAN, STEEL DECK GIRDER BRIDGE ON TIMBER BACKED CONCRETE CAP ABUTMENTS AND A CONCRETE PILE ENCASED PIER.

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

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

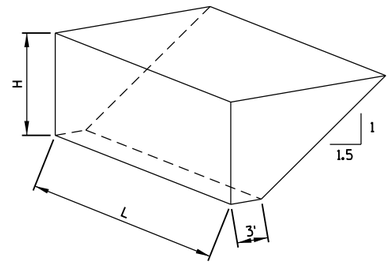
APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF THE DECK, TO THE SIDES OF THE DECK, TO THE UNDERSIDE OF THE DECK OVERHANG, TO THE TOPS OF WINGS, TO THE EXPOSED FRONT FACE OF WINGS, TO THE DIAPHRAGMS OUTSIDE THE EXTERIOR GIRDERS AND TO THE EXPOSED ABUTMENT ENDS AND FACE TO 1.5 FEET IN FROM THE ABUTMENT END.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO DUNN C GPS BENCHMARK WITH ELEVATION OF 858.37 LOCATED 1.9 MILES NORTHEAST OF THE EXISTING BRIDGE. THE STATION IS A BRONZE WISDOT GEODETIC SURVEY CONTROL STATION.

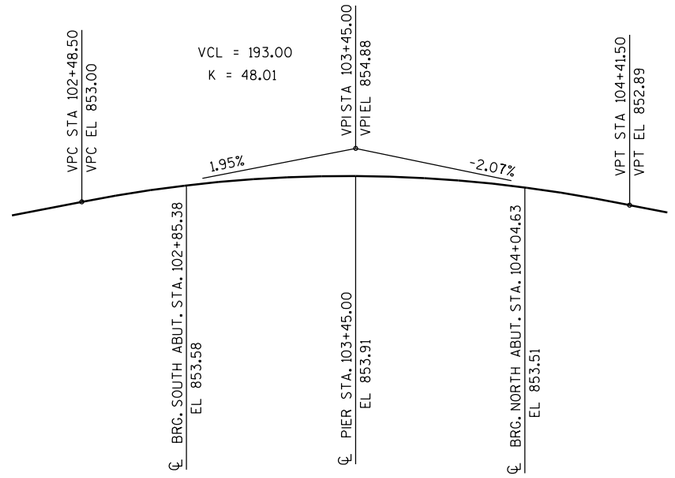
THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON SHEET 12.

TOTAL ESTIMATED QUANTITIES

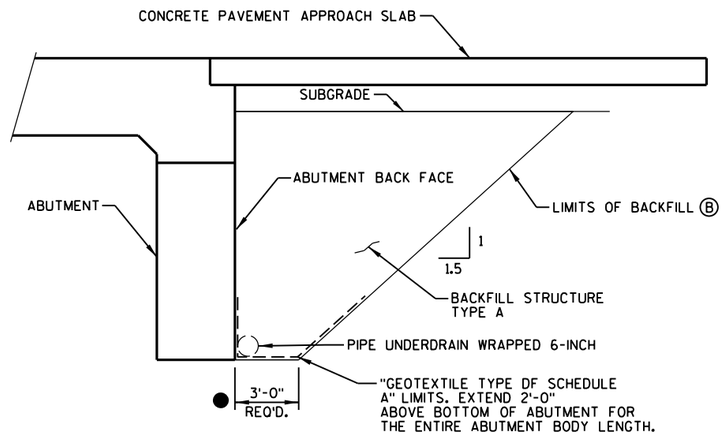
ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	PIER	NORTH ABUT.	SUPER	TOTAL
203.0600.S.01	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 103+50	LS	-	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-13-684	LS	-	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	210	-	210	-	420
502.0100	CONCRETE MASONRY BRIDGES	CY	49	47	56	154	306
502.3200	PROTECTIVE SURFACE TREATMENT	SY	15	-	22	573	610
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	-	-	-	840.0	840
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2435	2350	2820	-	7605
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1765	40	2705	27775	32285
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-	-	-	28	28
506.4000.01	STEEL DIAPHRAGMS B-13-684	EACH	-	-	-	12	12
513.7084.01	RAILING STEEL TYPE NY4 B-13-684	LF	27	-	39	246	312
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11	-	12	-	23
550.0500	PILE POINTS	EACH	6	9	7	-	22
550.2106	PILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	300	495	315	-	1110
606.0300	RIPRAP HEAVY	CY	220	-	110	-	330
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100	-	115	-	215
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	60	-	65	-	125
645.0120	GEOTEXTILE TYPE HR	SY	410	-	220	-	630
SPV.0060.02	UNDERWATER PIER INSPECTION B-13-684	EACH	-	1	-	-	1
	NON-BID ITEMS						
	CORK FILLER	SIZE					¾"
	PREFORMED FILLER	SIZE					½" & ¾"



ABUTMENT BACKFILL DIAGRAM
L = OUT-TO-OUT OF ABUTMENT, INCLUDING WINGS
H = AVERAGE ABUTMENT FILL HEIGHT



PROFILE GRADE LINE - CTH AB



STRUCTURE BACKFILL DETAIL
● - NORMAL TO ℄ OF SUBSTRUCTURE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

DRAWN BY RLR | PLANS CK'D. DHW

CROSS SECTION, QUANTITIES & NOTES

SHEET 2 OF 15
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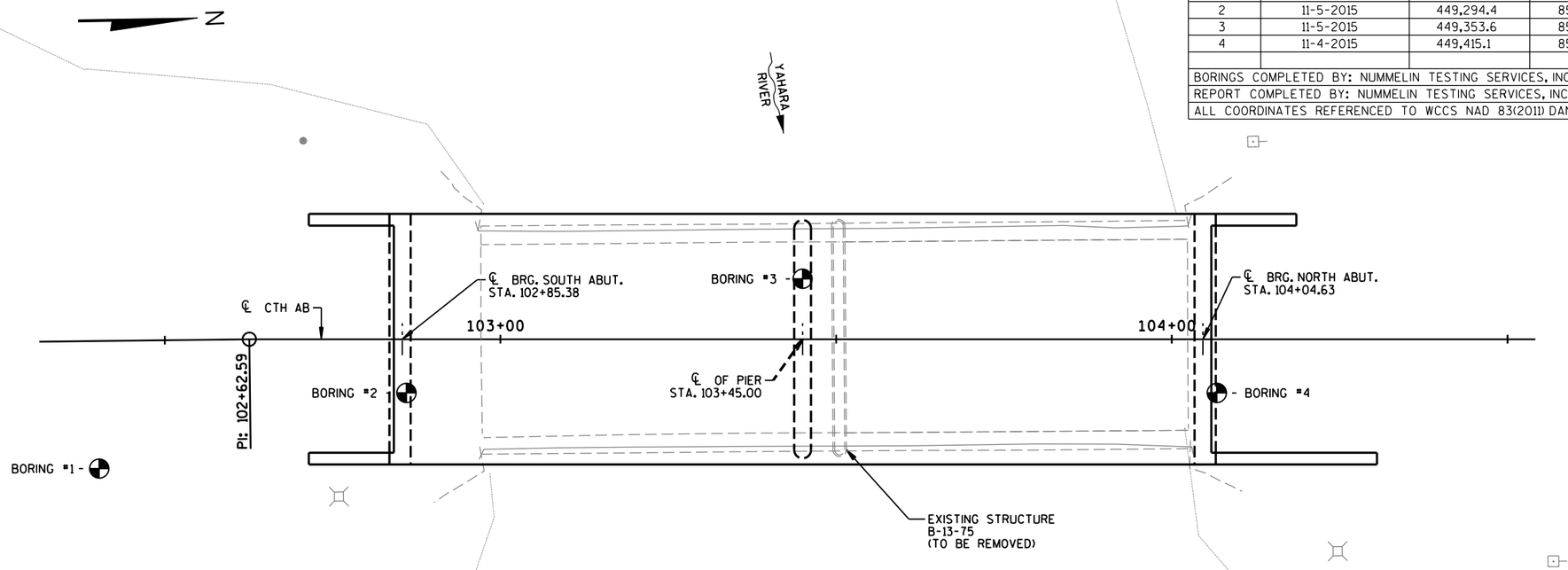
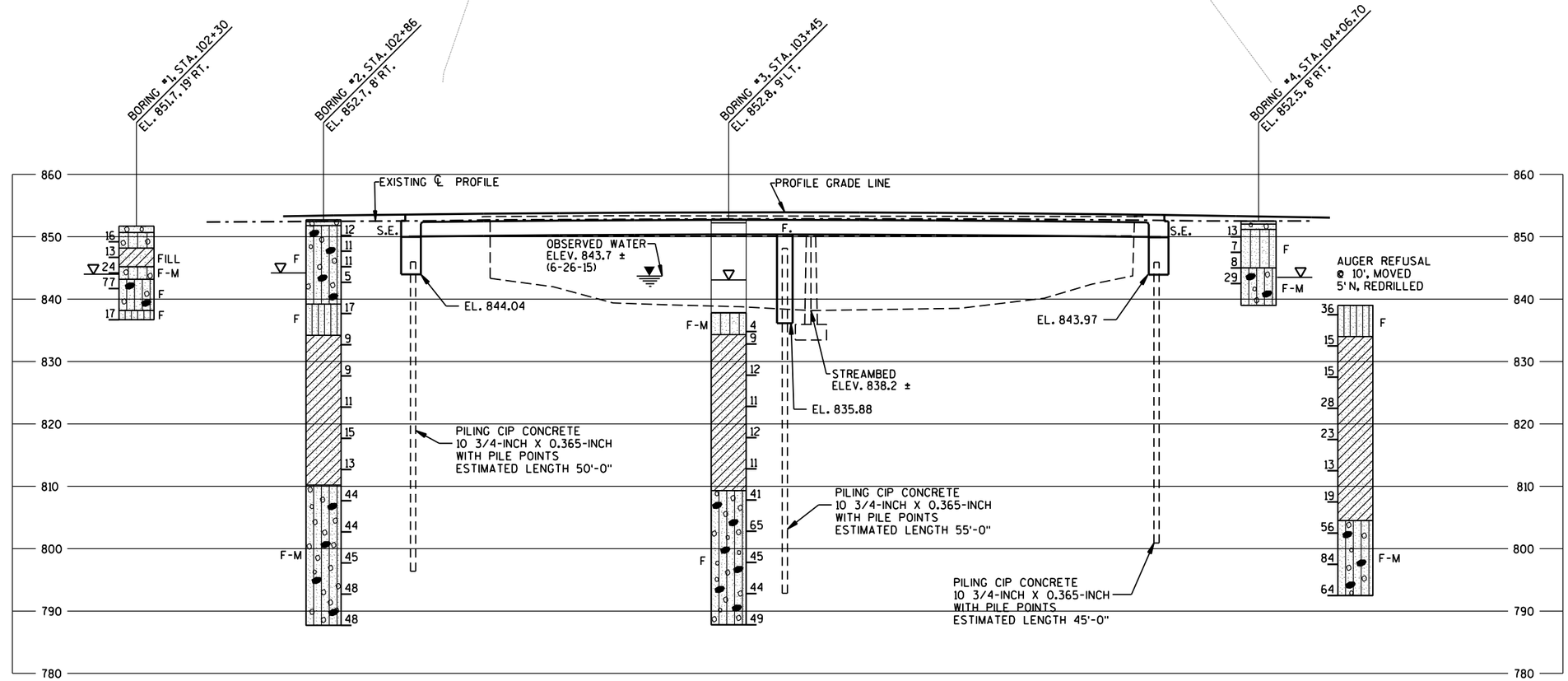
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	11-4-2015	449,248.4	852,296.8
2	11-5-2015	449,294.4	852,286.2
3	11-5-2015	449,353.6	852,270.2
4	11-4-2015	449,415.1	852,288.1
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) DANE COUNTY			





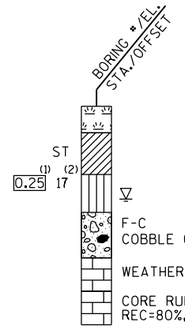
STATE PROJECT NUMBER

5841-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

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

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

DRAWN BY RLR | PLANS CK'D. JAS

SUBSURFACE EXPLORATION

SHEET 3 OF 15
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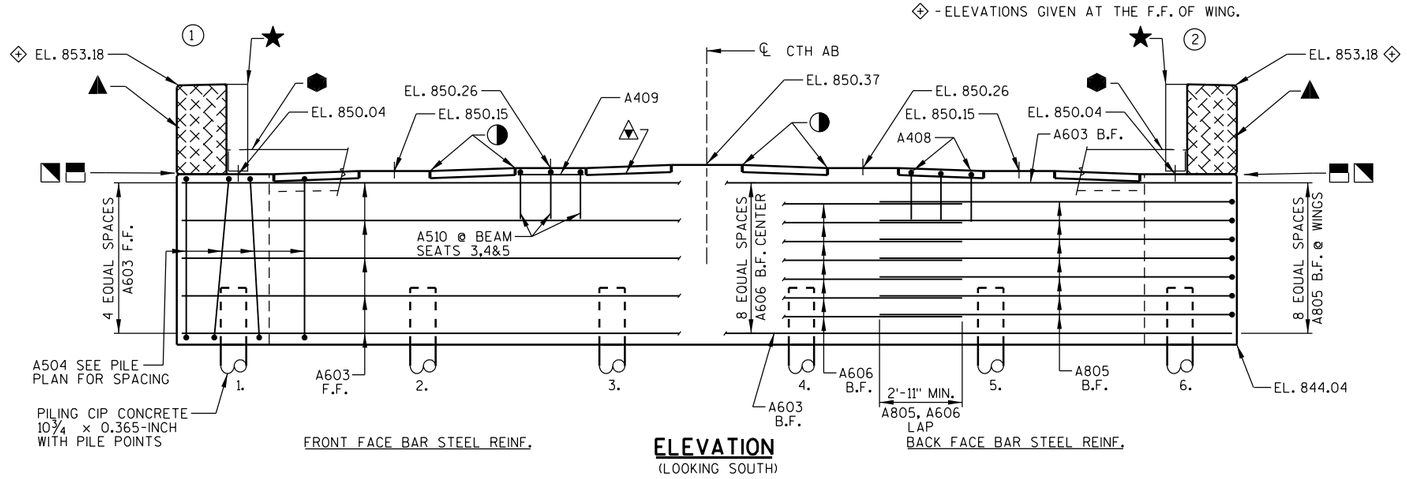
DATE= 1/31/2018

NOTES:
BEAM SEATS TO BE LEVEL.

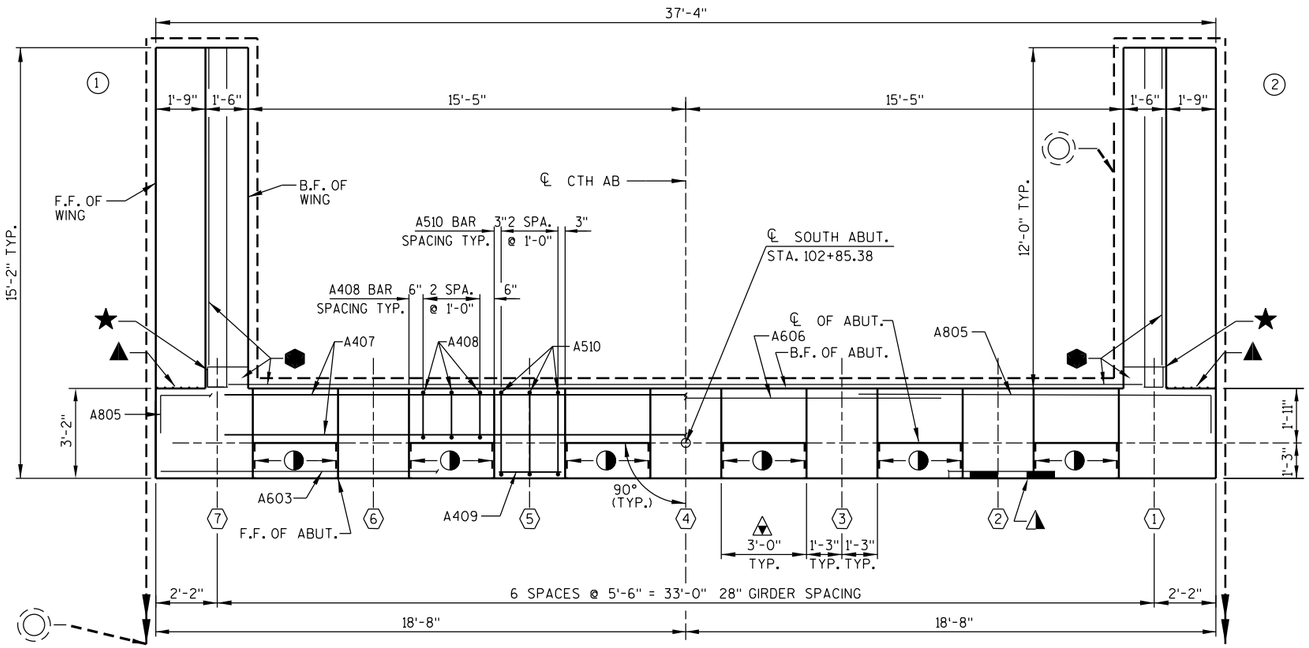
FOR WING DETAILS SEE SHEET 5.
⟡ - ELEVATIONS GIVEN AT THE F.F. OF WING.



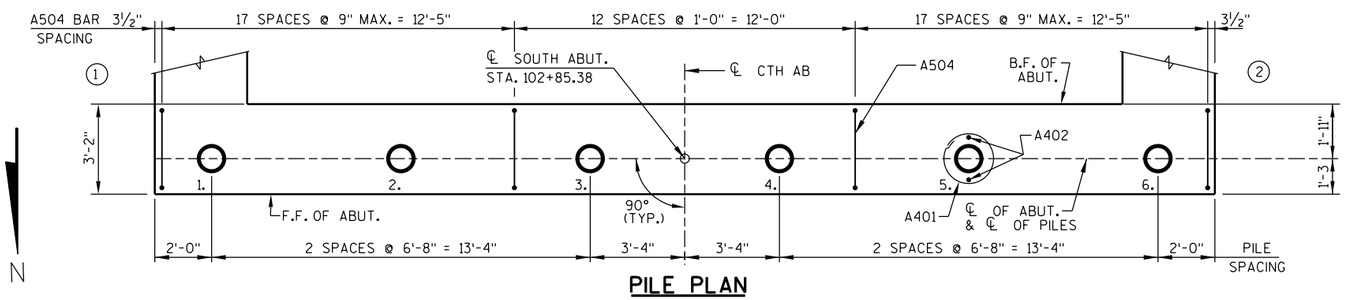
FRONT FACE BAR STEEL REINF.

BACK FACE BAR STEEL REINF.

ELEVATION
(LOOKING SOUTH)

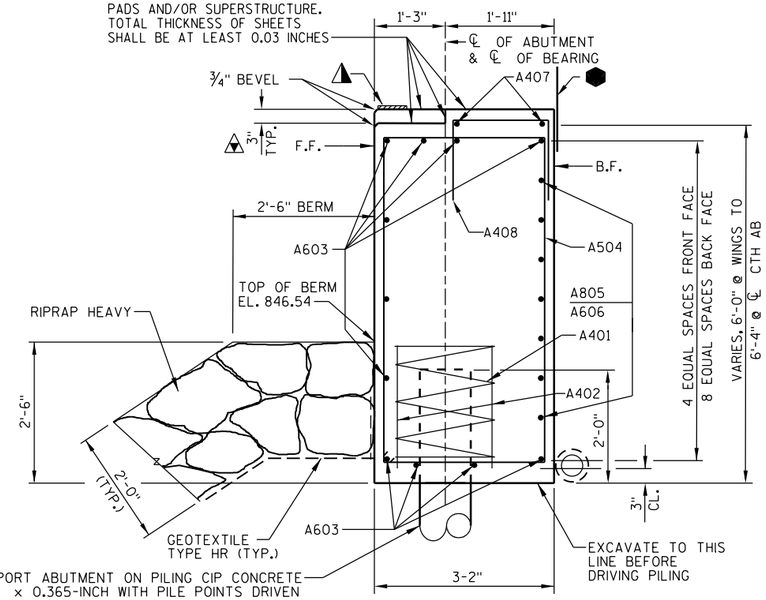


PLAN



PILE PLAN

STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03 INCHES



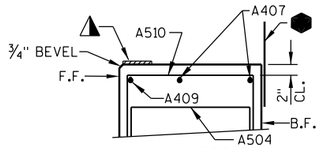
SUPPORT ABUTMENT ON PILING CIP CONCRETE 10¾ x 0.365-INCH WITH PILE POINTS DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 50'-0". FOR PILE SPLICE DETAILS SEE SHEET 5.

TYPICAL SECTION THRU ABUTMENT

LEGEND

- ◯ – INDICATES WING NUMBER.
- ⬡ – INDICATES GIRDER NUMBER.
- ⬢ – KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6. PLACE ON B.F. OF WING. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE.
- ◥ – ¾" "V" GROOVE ON FRONT FACE OF WING WALL.
- ⟡ – SEMI-EXPANSION POCKET. CONSTRUCT 3" DEEPER THAN SURROUNDING BEAM SEATS AND BACKWALL.
- ◑ – ¾" CORK FILLER (SIDE VERTICAL FACES ONLY).
- ▲ – ½" PREFORMED JOINT FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONC.).
- ◭ – 4"x ¾" PREFORMED JOINT FILLER, EXTEND FULL LENGTH OF ABUTMENT.
- ★ – VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.
- ⬢ – HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WING TOPS AND ALONG WING CONSTRUCTION JOINT.
- ◯ – PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU RIPRAP HEAVY AND GEOTEXTILE. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE. SEE SHEET 7.

F.F. – FRONT FACE
B.F. – BACK FACE
CL. – CLEAR



TOP OF ABUTMENT @ BEARING SEATS 3, 4&5
SEE PLAN FOR REINF. SPACING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

DRAWN BY	RLR	PLANS CK'D.	DHW

SOUTH ABUTMENT

SHEET 4 OF 15
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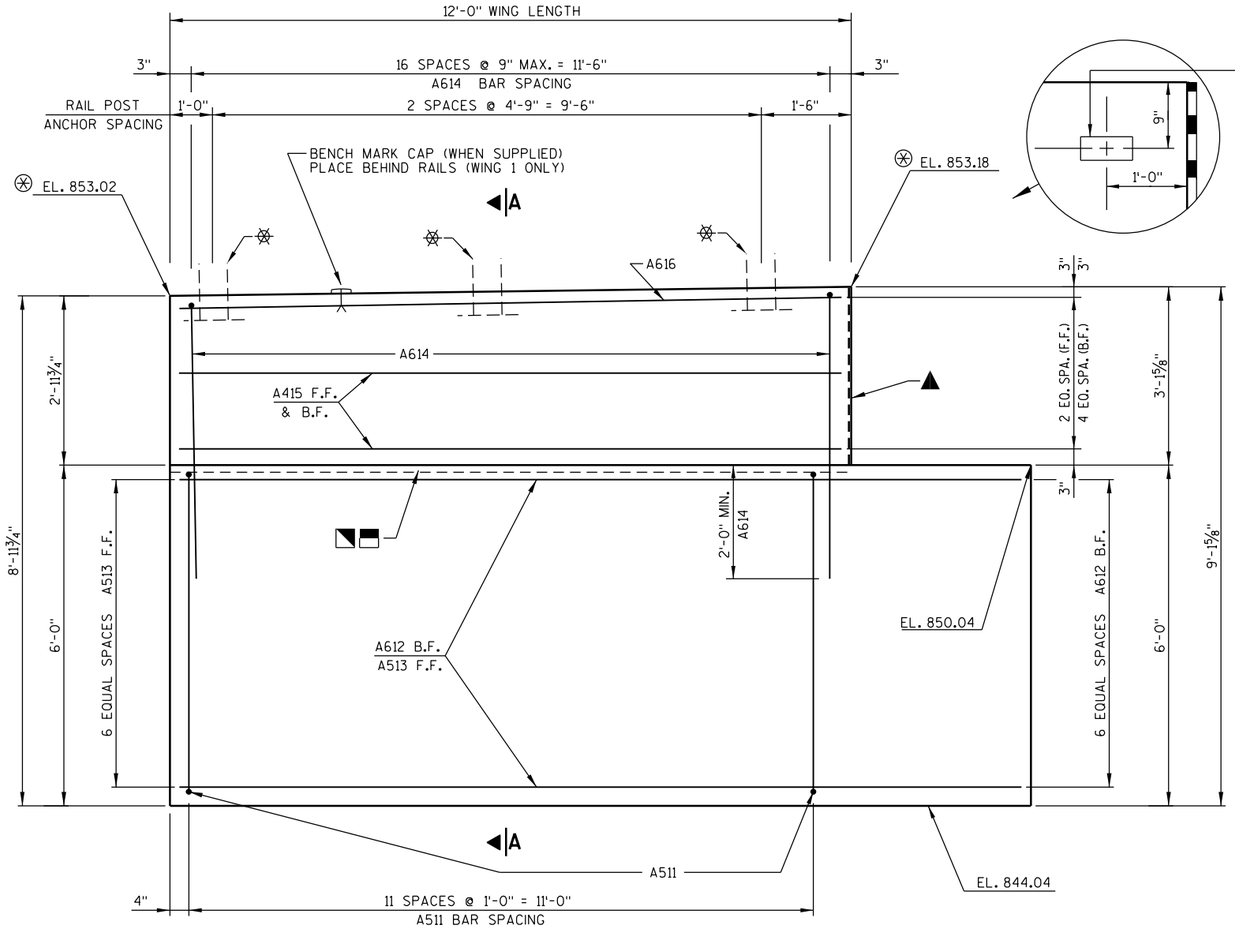
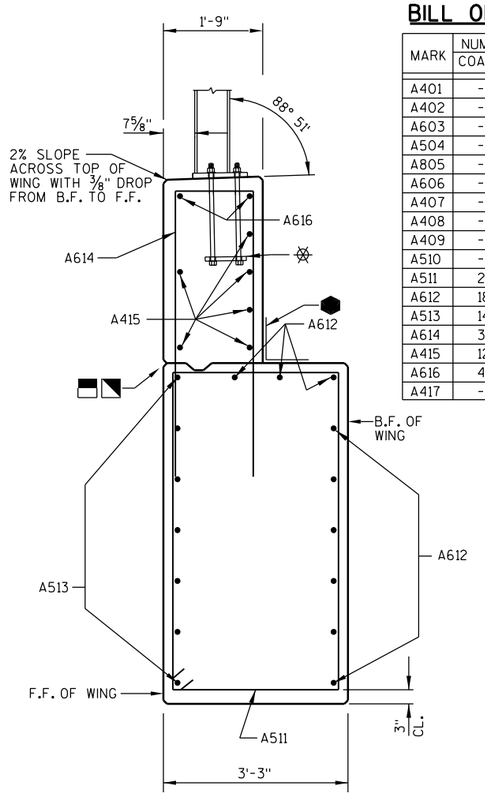


ELEVATION - WING

NAME PLATE LOCATION WING 1 ONLY

⊛ - FOR RAIL POST ANCHOR DETAILS SEE SHEET 14.

⊛ - ELEVATIONS ARE GIVEN AT THE F.F. OF WING.



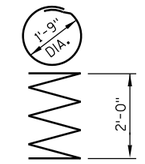
SECTION A-A THRU WING

BILL OF BARS (SOUTH ABUT.)

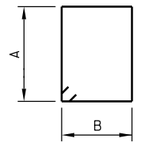
(COATED) 1765 LBS.
(UNCOATED) 2435 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	LOCATION
A401	-	6	28'-0"	X	ABUTMENT BODY - 1 SPIRAL WRAP @ EACH PILE
A402	-	12	2'-3"		ABUTMENT BODY - 2 PER PILE - VERT.
A603	-	11	37'-0"		ABUTMENT BODY - F.F., TOP & BOTTOM - HORIZ.
A504	-	47	17'-0"	X	ABUTMENT BODY - STIRRUP - VERT.
A805	-	14	13'-2"	X	ABUTMENT BODY - B.F. @ WINGS - HORIZ.
A606	-	7	18'-10"		ABUTMENT BODY - B.F. @ CENTER - HORIZ.
A407	-	2	32'-6"		ABUTMENT BODY - SE NOTCH BACKWALL - HORIZ.
A408	-	18	4'-7"	X	ABUTMENT BODY - SE NOTCH BACKWALL - VERT.
A409	-	3	2'-2"		ABUTMENT BODY - GIRDER SEATS 3, 4&5, F.F. - HORIZ.
A510	-	9	5'-7"	X	ABUTMENT BODY - GIRDER SEATS 3, 4&5 - VERT.
A511	24	-	17'-8"	X	WINGS 1 & 2 - BASE - STIRRUP - VERT.
A612	18	-	13'-11"		WINGS 1 & 2 - BASE - B.F. & TOP - HORIZ.
A513	14	-	14'-10"		WINGS 1 & 2 - BASE - F.F. - HORIZ.
A614	34	-	11'-1"	X	WINGS 1 & 2 - TOP - STIRRUP - VERT.
A415	12	-	11'-8"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
A616	4	-	11'-8"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
A417	-	4	5'-7"		ABUTMENT BODY - ENDS - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



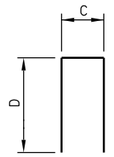
A401
(5 WRAPS)



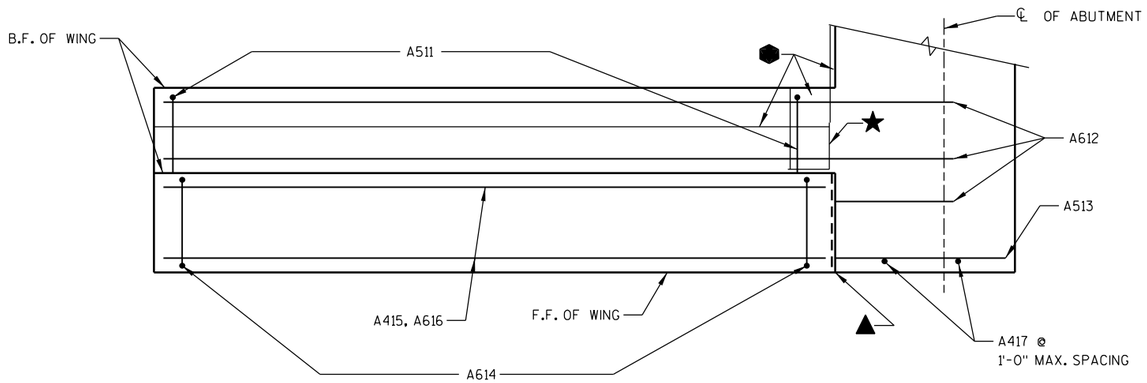
MARK	A	B
A504	5'-4"	2'-10"
A511	5'-7"	2'-11"

A805
STD. 90° HOOK

MARK	C	D
A408	1'-7"	1'-7"
A510	2'-10"	1'-6"
A614	1'-5"	5'-0"

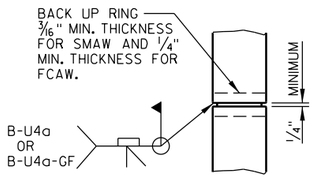


NOTE:
WING 1 SHOWN
WING 2 SIMILAR

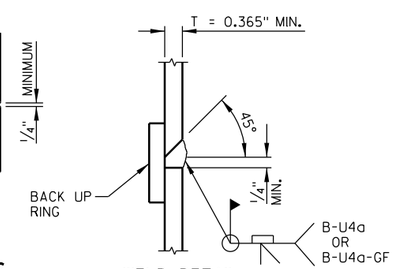


PLAN - WING

SEE SHEET 4 LEGEND FOR DESCRIPTION OF



PILE SPLICE DETAILS



WELD DETAIL

NO.	DATE	REVISION	BY

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SOUTH ABUTMENT DETAILS

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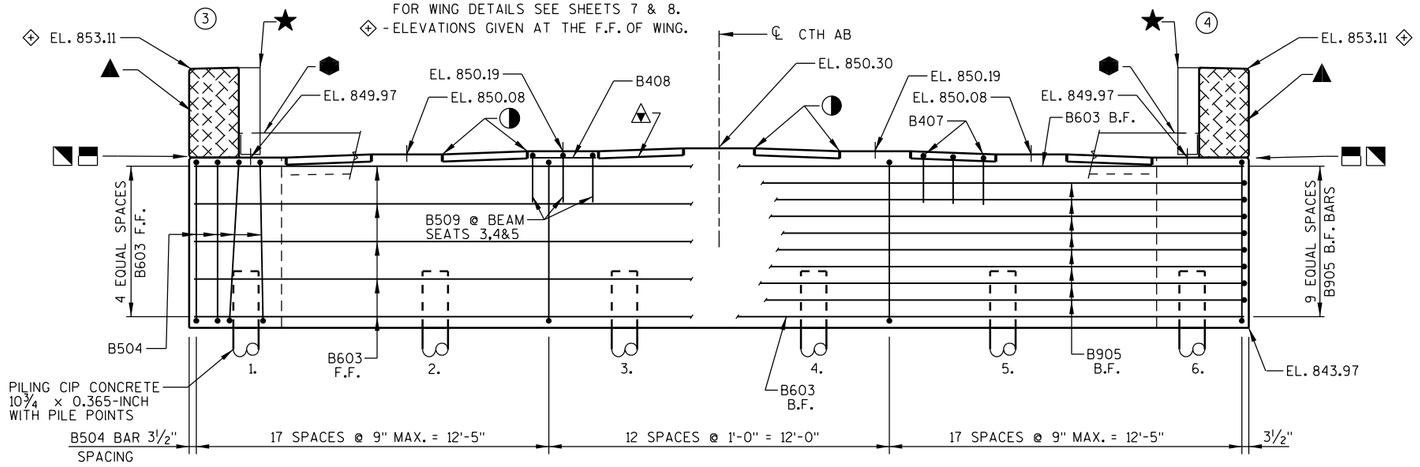
NOTES:
BEAM SEAT TO BE LEVEL.
FOR WING DETAILS SEE SHEETS 7 & 8.
◈ - ELEVATIONS GIVEN AT THE F.F. OF WING.

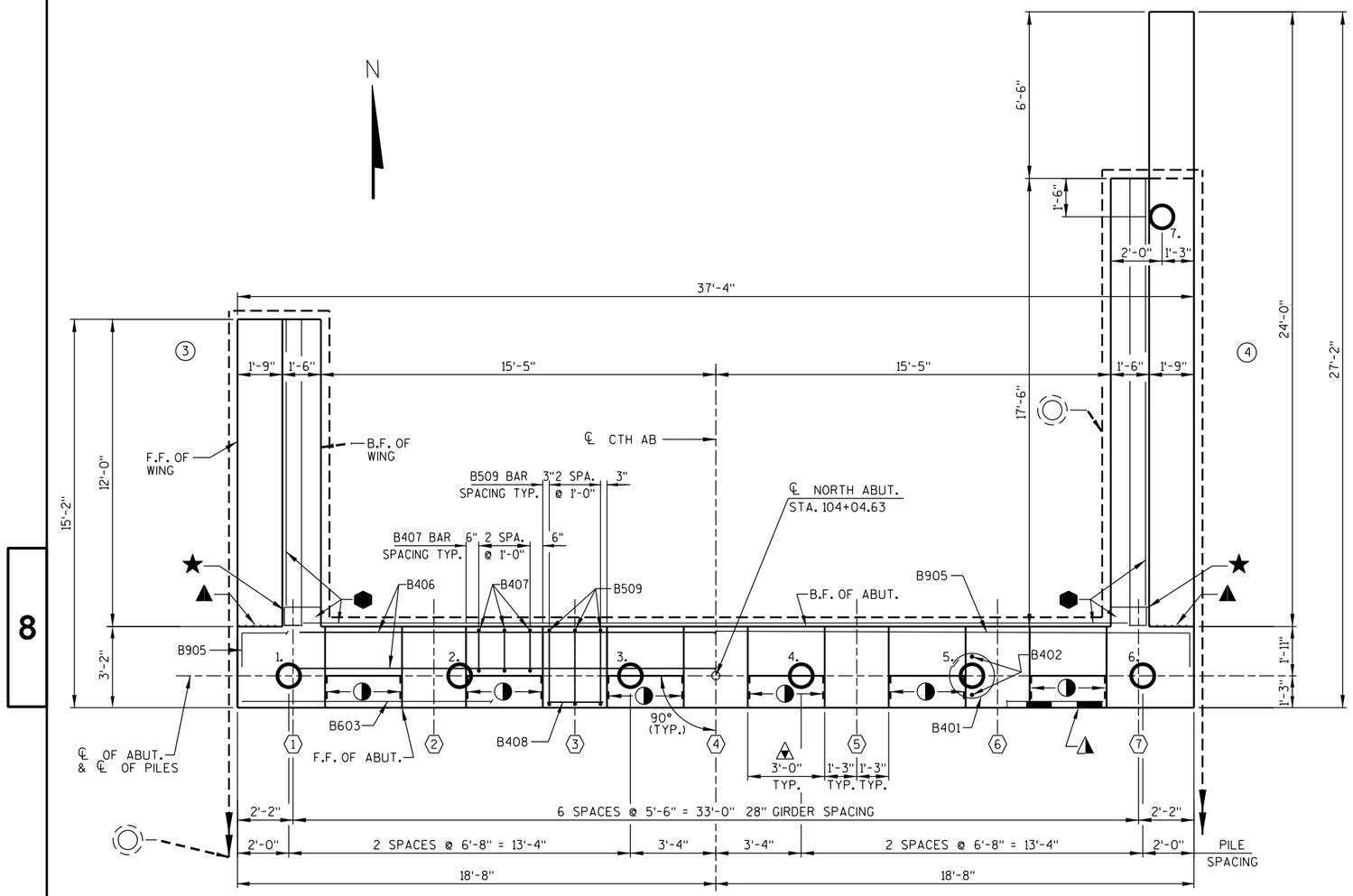


FRONT FACE BAR STEEL REINF.

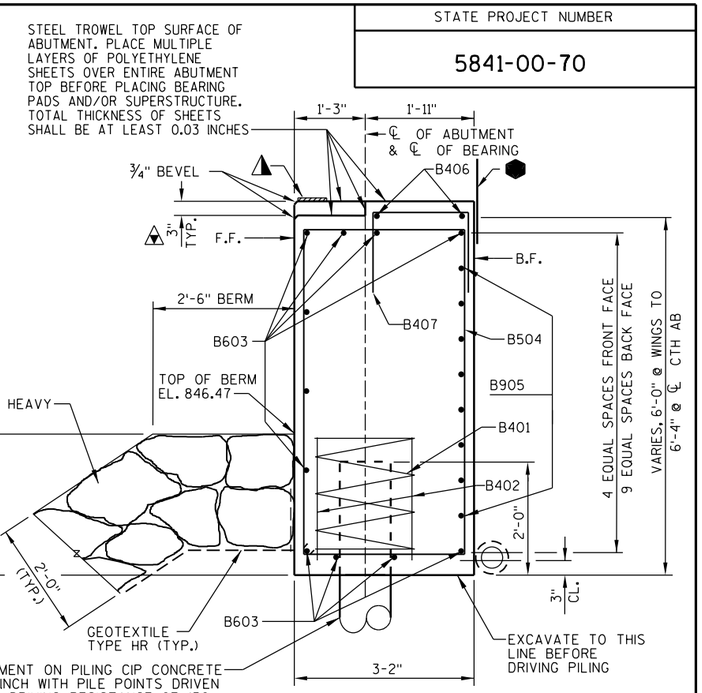
BACK FACE BAR STEEL REINF.

ELEVATION
(LOOKING NORTH)

N



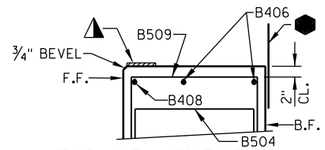
PLAN/PILE PLAN



TYPICAL SECTION THRU ABUTMENT

LEGEND

- ◯ – INDICATES WING NUMBER.
- ⬡ – INDICATES GIRDER NUMBER.
- ⬓ – KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6. PLACE ⬢ ON B.F. OF WING. POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE.
- ◥ – ¾" "V" GROOVE ON FRONT FACE OF WING WALL.
- ◬ – SEMI-EXPANSION POCKET. CONSTRUCT 3" DEEPER THAN SURROUNDING BEAM SEATS AND BACKWALL.
- ◑ – ¾" CORK FILLER (SIDE VERTICAL FACES ONLY).
- ▲ – ½" PREFORMED JOINT FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONC.).
- ◭ – 4"x ¾" PREFORMED JOINT FILLER, EXTEND FULL LENGTH OF ABUTMENT.
- ★ – VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.
- ⬢ – HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WING TOPS AND ALONG WING CONSTRUCTION JOINT.
- ◯ – PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU RIPRAP HEAVY AND GEOTEXTILE. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE. SEE SHEET 7.
- F.F. – FRONT FACE
- B.F. – BACK FACE
- CL. – CLEAR



TOP OF ABUTMENT @ BEARING SEATS 3, 4&5
SEE PLAN FOR REINF. SPACING

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NORTH ABUTMENT

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STATE PROJECT NUMBER
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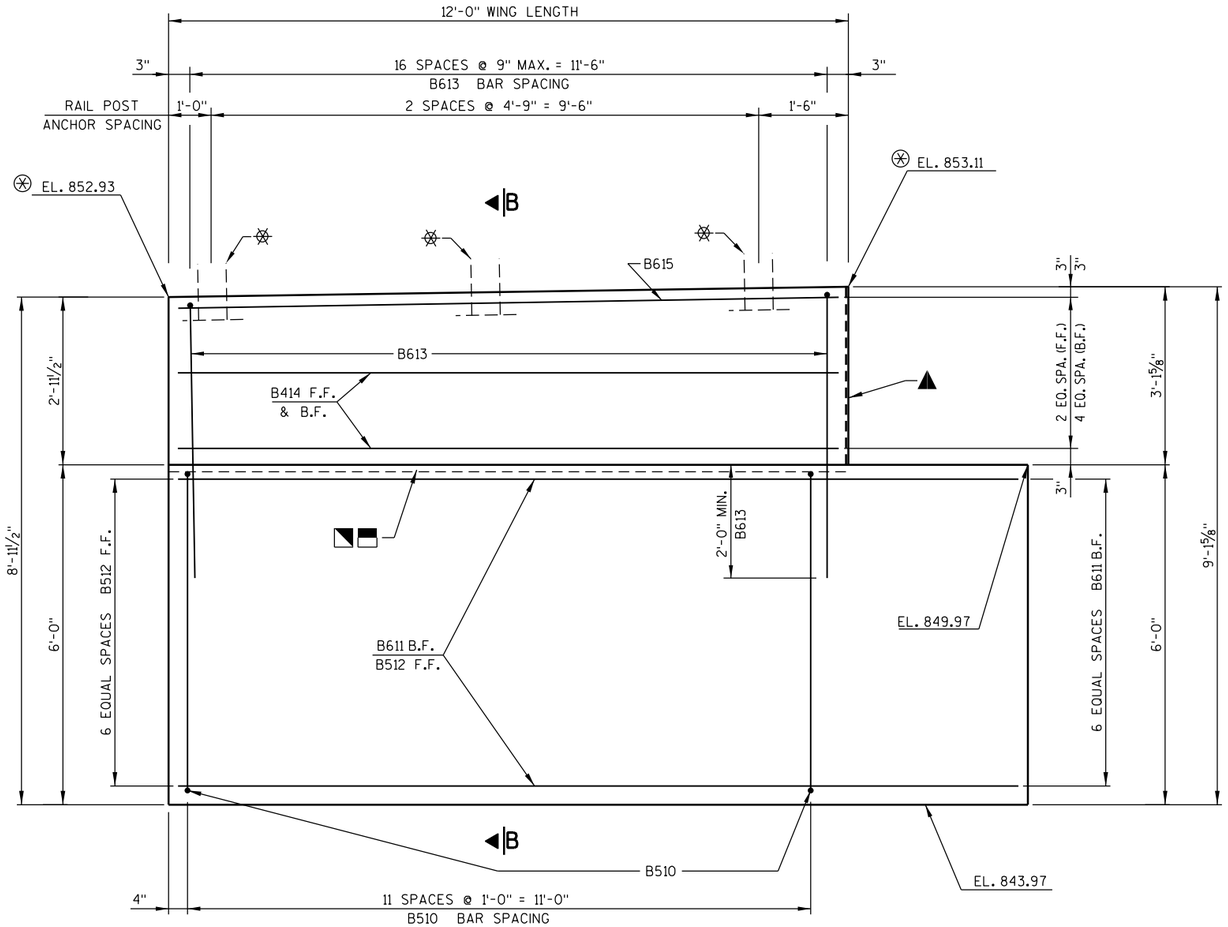
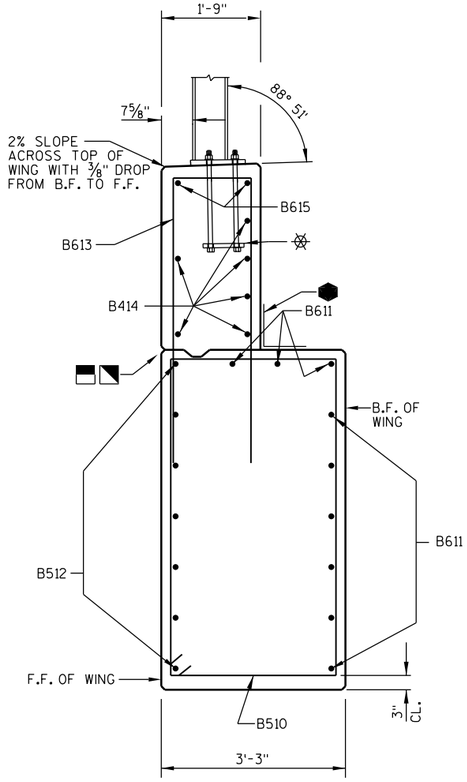


ELEVATION - WING 3



SECTION B-B THRU WING 3

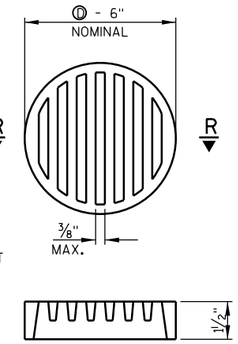
⊛ - FOR RAIL POST ANCHOR DETAILS SEE SHEET 14.

⊛ - ELEVATIONS ARE GIVEN AT THE F.F. OF WING.

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

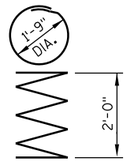
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER.
A PIPE COUPLING IS REQUIRED FOR THE ATTACHEMENT OF THIS SHIELD TO THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".



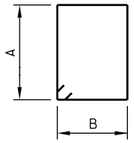
SECTION R-R

RODENT SHIELD

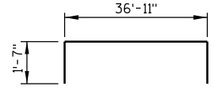
Ⓓ - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



B401
(5 WRAPS)

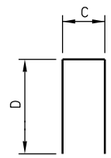


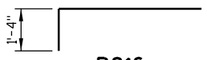
MARK	A	B
B504	5'-4"	2'-10"
B510	5'-7"	2'-11"



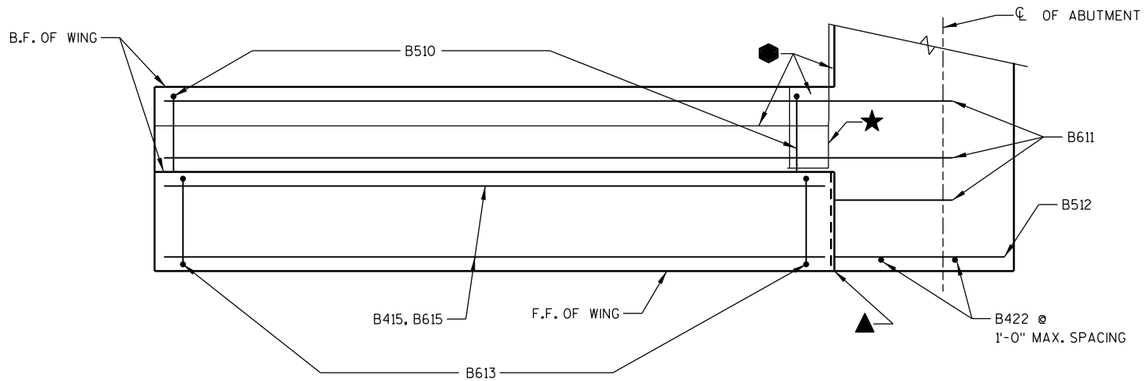
B905
STD. 90° HOOK

MARK	C	D
B407	1'-7"	1'-7"
B509	2'-10"	1'-6"
B613	1'-5"	5'-0"
B618	1'-5"	4'-8"





B816
STD. 90° HOOK



PLAN - WING 3

BILL OF BARS (NORTH ABUT.)

(COATED) 2705 LBS.
(UNCOATED) 2820 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	LOCATION
B401	-	6	28'-0"	X	ABUTMENT BODY - 1 SPIRAL WRAP @ EACH PILE
B402	-	12	2'-3"		ABUTMENT BODY - 2 PER PILE - VERT.
B603	-	11	37'-0"		ABUTMENT BODY - F.F., TOP & BOTTOM - HORIZ.
B504	-	47	17'-0"	X	ABUTMENT BODY - STIRRUP - VERT.
B905	-	8	39'-7"	X	ABUTMENT BODY - B.F. @ WINGS - HORIZ.
B406	-	2	32'-6"		ABUTMENT BODY - SE NOTCH BACKWALL - HORIZ.
B407	-	18	4'-7"	X	ABUTMENT BODY - SE NOTCH BACKWALL - VERT.
B408	-	3	2'-2"		ABUTMENT BODY - GIRDER SEATS 3, 4&5, F.F. - HORIZ.
B509	-	9	5'-7"	X	ABUTMENT BODY - GIRDER SEATS 3, 4&5 - VERT.
B510	30	-	17'-8"	X	WINGS 3 & 4 - BASE - STIRRUP - VERT.
B611	9	-	13'-11"		WING 3 - BASE - B.F. & TOP - HORIZ.
B512	7	-	14'-10"		WING 3 - BASE - F.F. - HORIZ.
B613	41	-	11'-1"	X	WINGS 3 & 4 - TOP - STIRRUP - VERT.
B414	6	-	11'-8"		WING 3 - TOP - F.F. & B.F. - HORIZ.
B615	2	-	11'-8"		WING 3 - TOP - F.F. & B.F. - HORIZ.
B816	11	-	20'-7"	X	WING 4 - BASE - B.F. & TOP - HORIZ.
B517	7	-	20'-4"		WING 4 - BASE - F.F. - HORIZ.
B618	9	-	10'-5"	X	WING 4 - TOP - TIP - STIRRUP - VERT.
B419	6	-	7'-9"		WING 4 - TOP - TIP - HORIZ.
B420	6	-	23'-7"		WING 4 - TOP - F.F. & B.F. - HORIZ.
B621	2	-	23'-7"		WING 4 - TOP - F.F. & B.F. - HORIZ.
B422	-	4	5'-7"		ABUTMENT BODY - ENDS - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

SEE SHEET 6 LEGEND FOR DESCRIPTION OF

NO.	DATE	REVISION	BY

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STRUCTURE B-13-684

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WING 3 & NORTH ABUTMENT DETAILS

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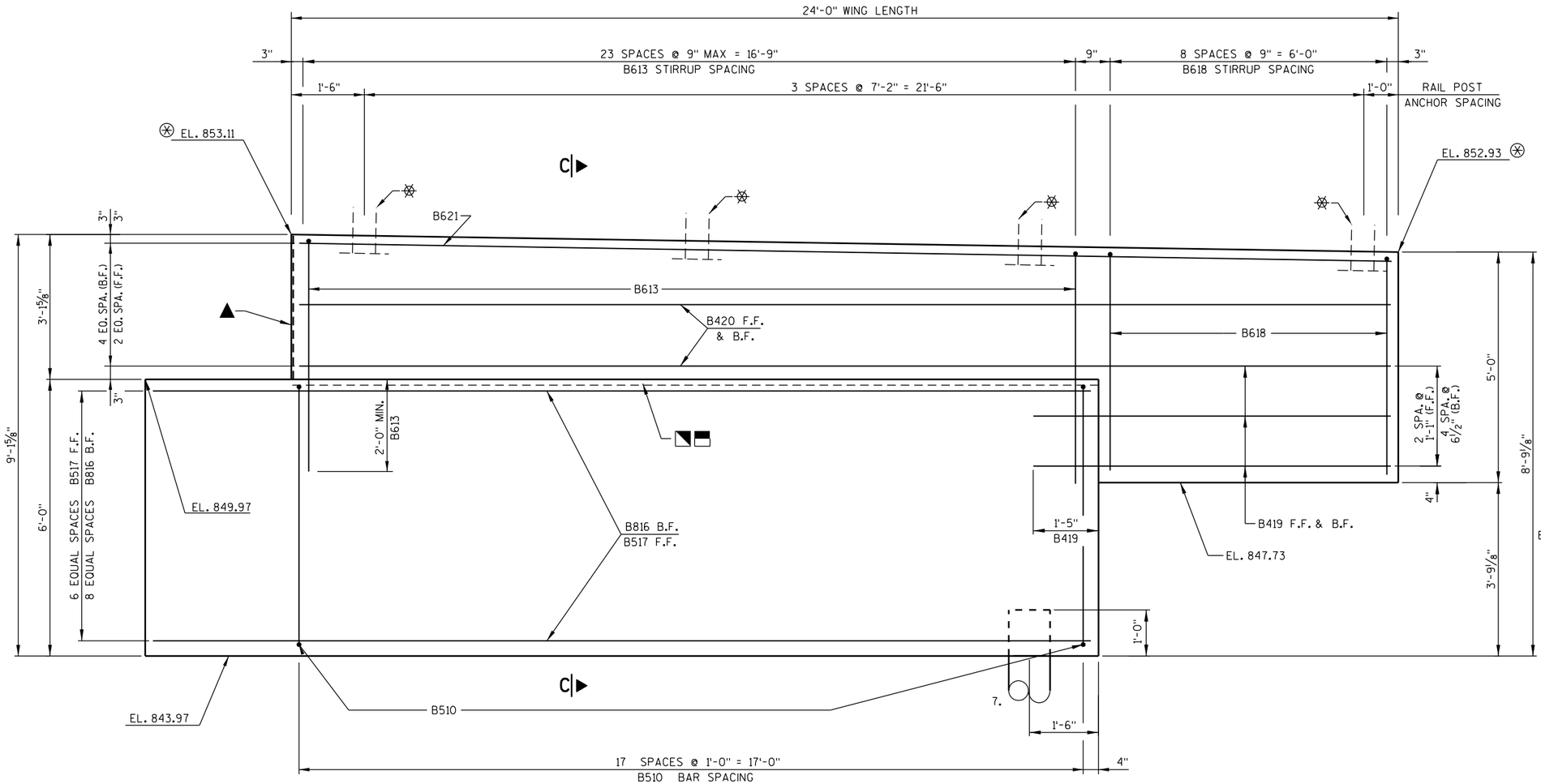
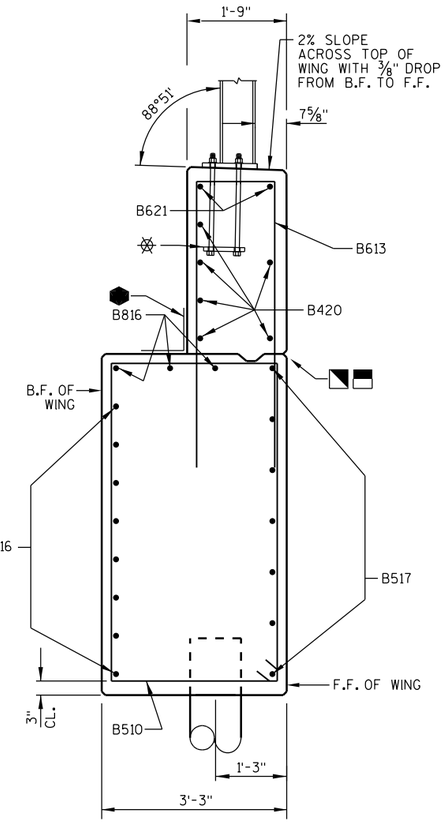
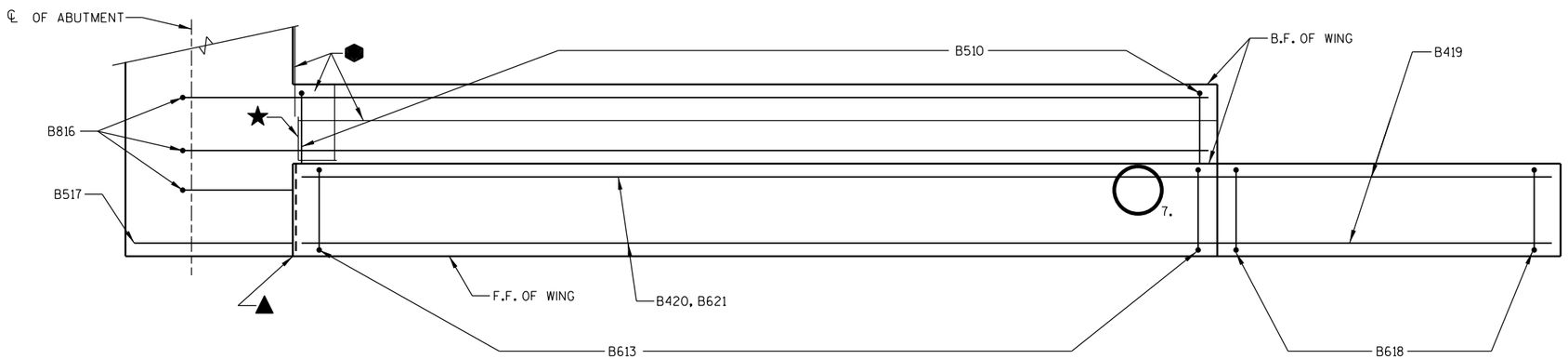


ELEVATION - WING 4



SECTION C-C THRU WING 4



PLAN - WING 4

- ⊛ - FOR RAIL POST ANCHOR DETAILS SEE SHEET 14.
- ⊛ - ELEVATIONS ARE GIVEN AT THE F.F. OF WING.

SEE SHEET 6 LEGEND FOR DESCRIPTION OF

NO.	DATE	REVISION	BY

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STRUCTURE B-13-684

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WING 4 DETAILS

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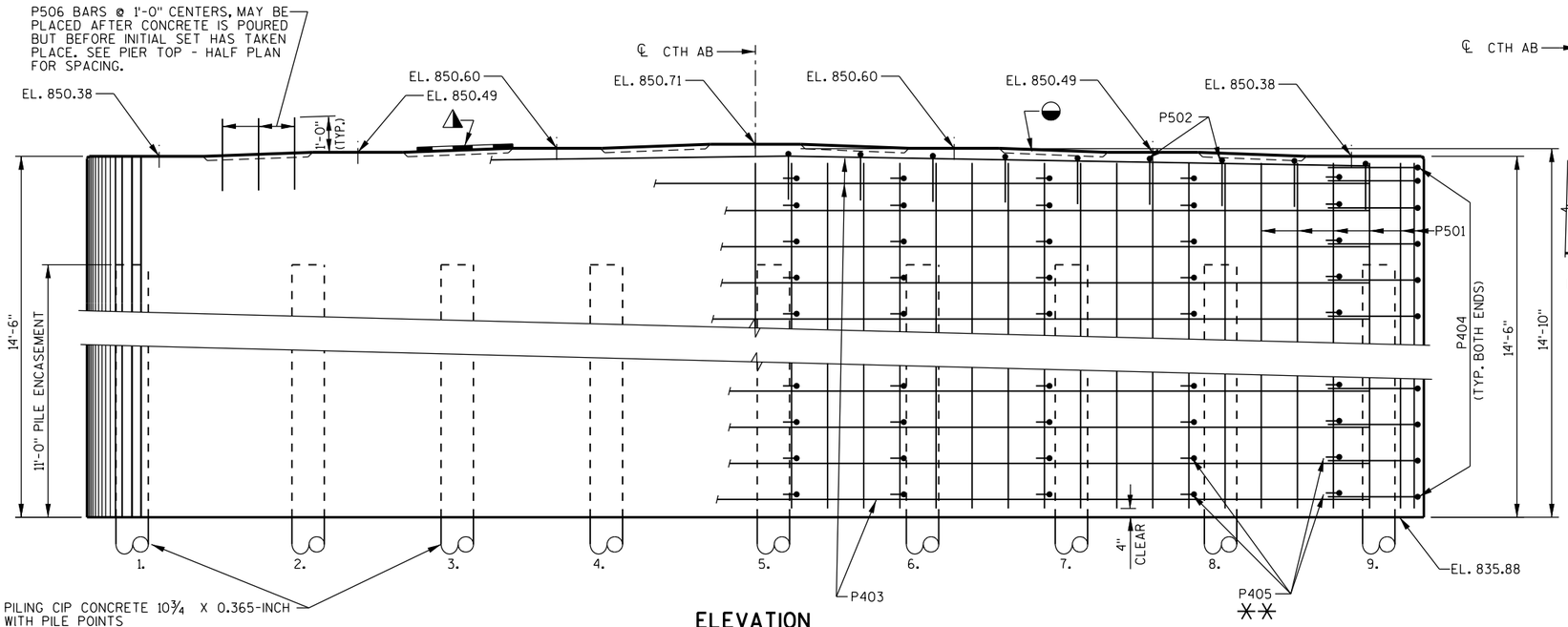
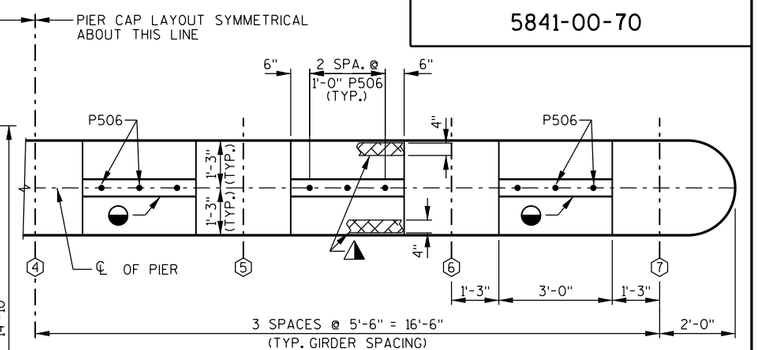


PILING CIP CONCRETE 10¾ X 0.365-INCH WITH PILE POINTS
ESTIMATED PILE LENGTHS 55'-0".

ELEVATION
(LOOKING NORTH)



PIER TOP - HALF PLAN

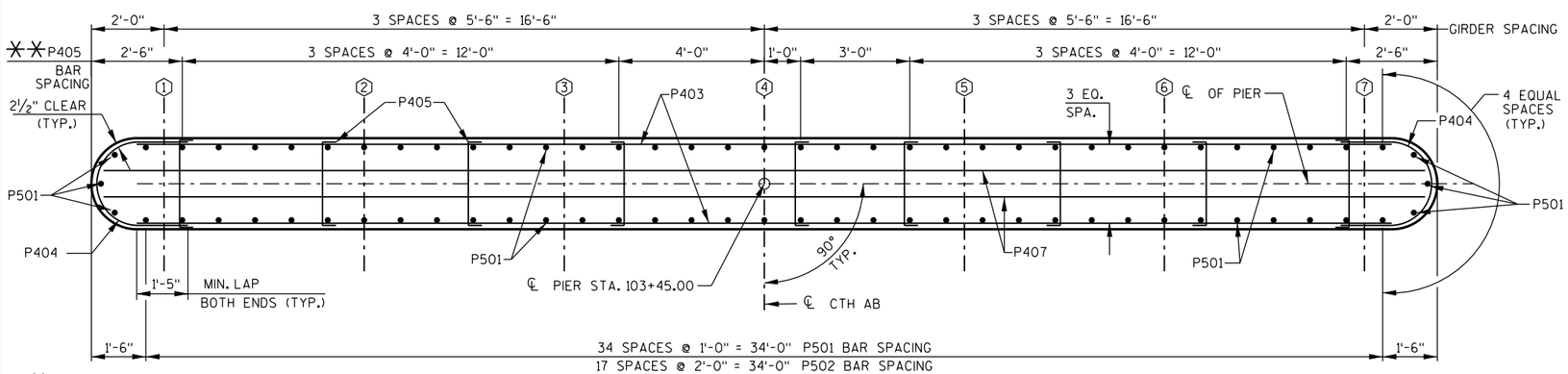
BILL OF BARS

COATED 40 LBS.
UNCOATED 2350 LBS.

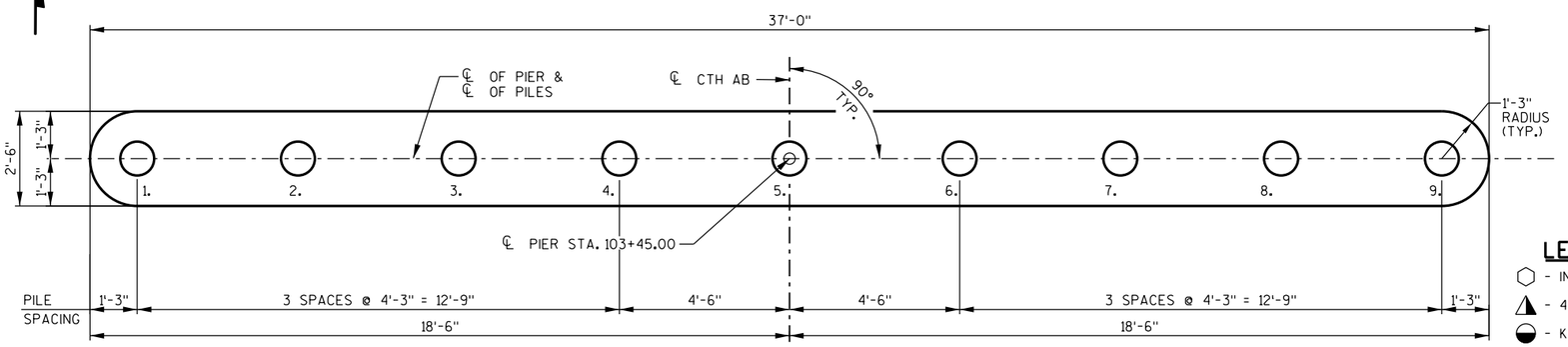
MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
P501	76	14'-0"		PIER - VERT.
P502	18	4'-5"	X	PIER - STIRRUPS - TOP - VERT.
P403	32	34'-6"		PIER - TOP & SIDES - HORIZ.
P404	32	6'-1"	X	PIER - AT ENDS - HORIZ.
P405	135	2'-8"	X	PIER - TIES - HORIZ.
Ⓒ P506	18	2'-0"		PIER - DOWELS @ TOP - VERT.
P407	2	36'-4"		PIER - TOP - HORIZ.

Ⓒ - THESE BARS SHALL BE EPOXY COATED.

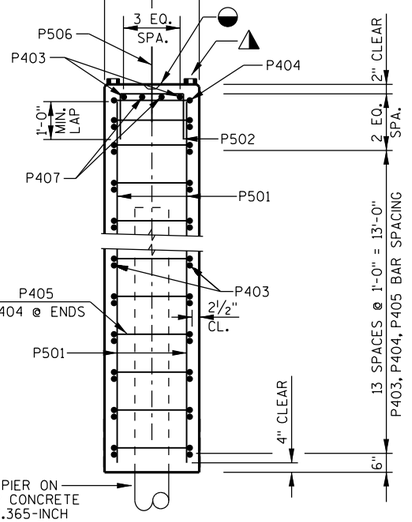
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR EXCEPT AS NOTED.



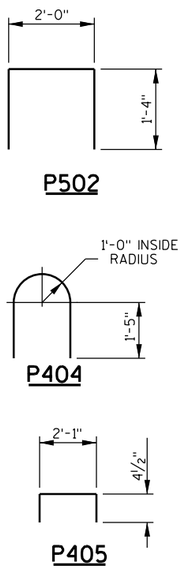
PLAN



PILE PLAN



TYPICAL SECTION THRU PIER



LEGEND

⬡ - INDICATES GIRDER NUMBER.
◭ - 4"x ¾" PREFORMED FILLER BETWEEN GIRDERS.
◒ - KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
✳✳ - ADJACENT TO EACH PILE, ONE SIDE ONLY.

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PIER

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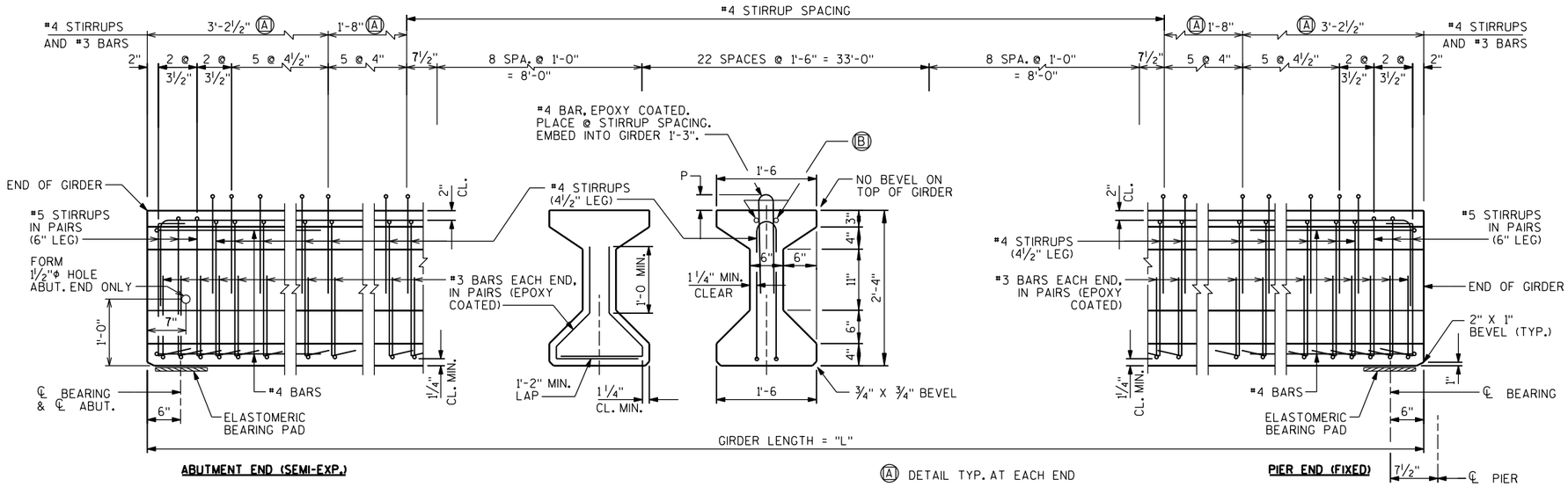


Ⓐ DETAIL TYP. AT EACH END

Ⓑ 2-#5 BARS BEND DOWN 16 BAR DIA. AT ENDS

SIDE VIEW & TYP. SECTION

NOTES

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

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.

PRESTRESSING STRANDS SHALL BE 0.6"Φ - 7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi.

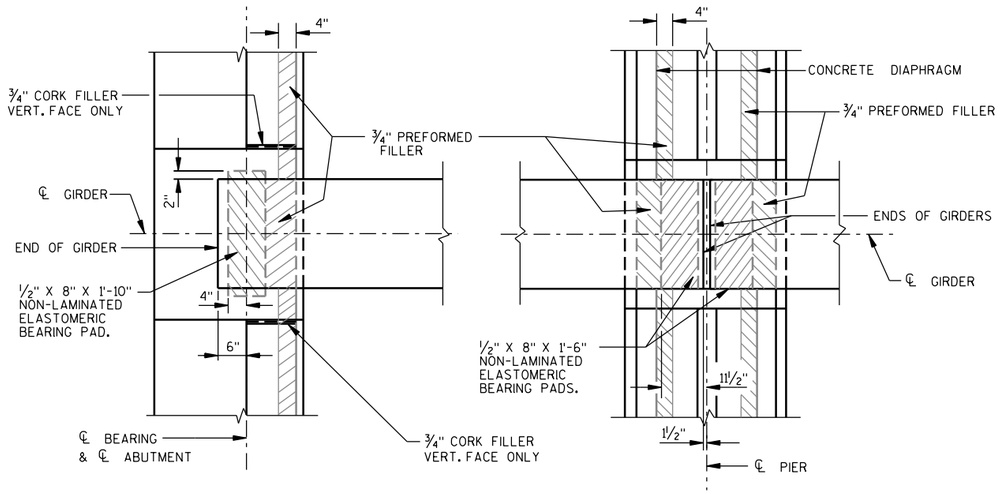
STRANDS SHALL BE FLUSH WITH THE END OF GIRDER. ENDS OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER.

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

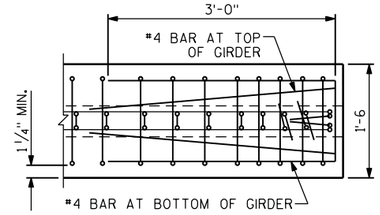
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

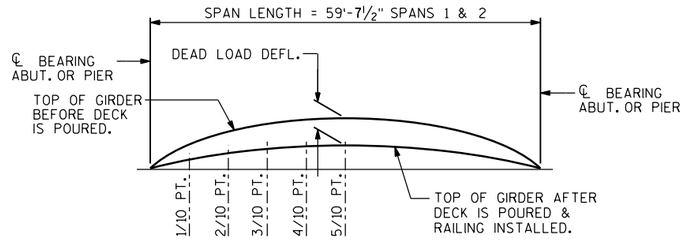


BEARING PAD DETAILS



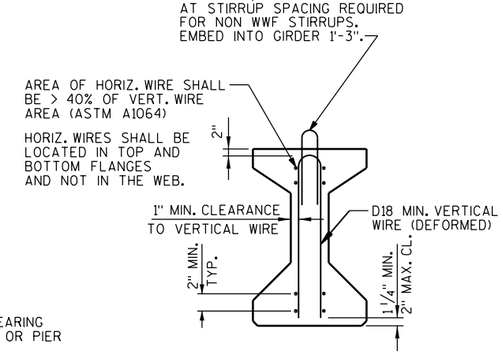
PLAN VIEW OF GIRDER ENDS

THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN IS 1 ⅞". THIS VALUE INCLUDES A MAGNIFICATION FACTOR OF 1.4 TO ACCOUNT FOR CREEP BETWEEN RELEASE AND INSTALLATION. THIS VALUE IS NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THIS VALUE IS FOR INFORMATIONAL PURPOSES ONLY.



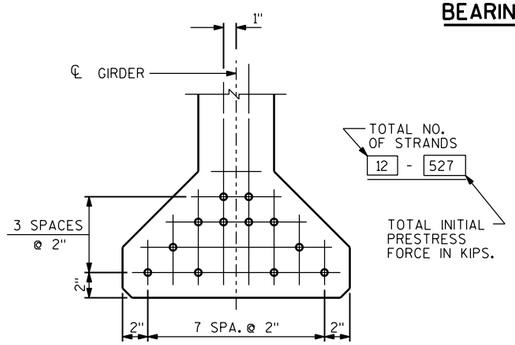
DEAD LOAD DEFLECTION DIAGRAM

NO. 4 BAR, EPOXY COATED. PLACE AT STIRRUP SPACING REQUIRED FOR NON WWF STIRRUPS. EMBED INTO GIRDER 1'-3".



SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS ASTM A1064 (Fy = 70 Ksi)



TYP. STRAND PATTERN

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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (p.s.i.)	"P" IST ⅓ OF GIRDER	"P" MID ⅓ OF GIRDER	"P" END ⅓ OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) ⁂	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) ⁂
1,2	1-7	60'-0"	0.30	0.56	0.76	0.90	0.93	0.90	0.76	0.56	0.30	8,000	6"	6"	6"	0.60	-	-	-	-	-	-	12	6,800

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

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28" PRESTRESSED GIRDER DETAILS

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STATE PROJECT NUMBER

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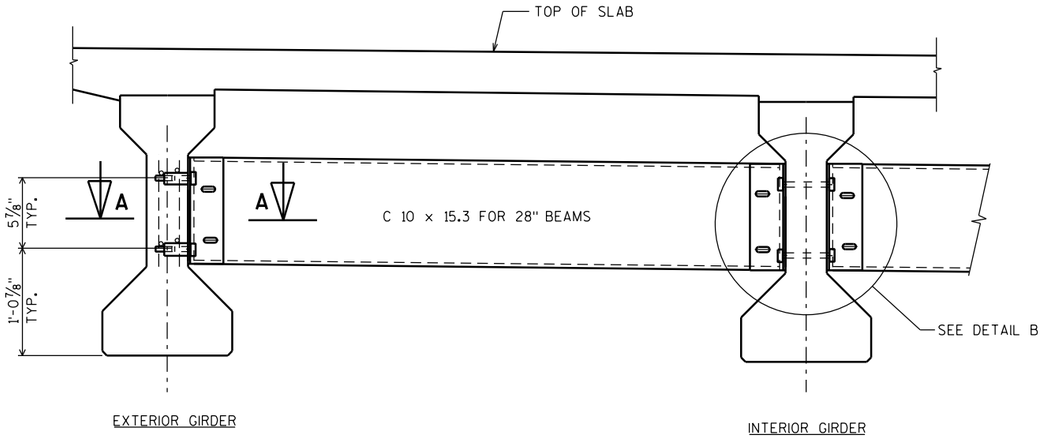


PART TRANSVERSE SECTION AT DIAPHRAGM

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICES BID FOR "STEEL DIAPHRAGMS B-13-684", EACH.

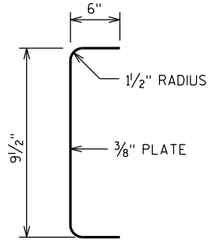
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

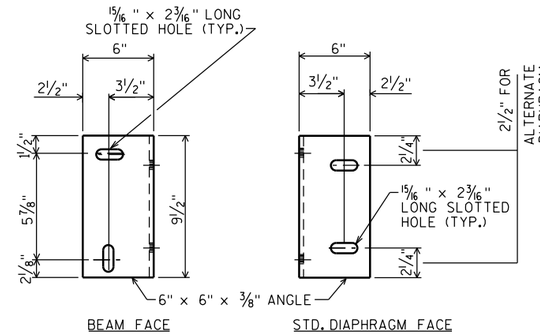
ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

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

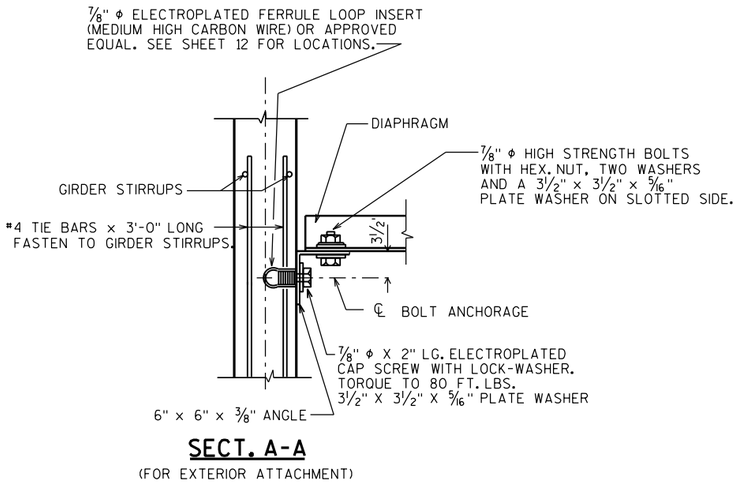
SEE SHEET 12 FOR LOCATION OF DIAPHRAGMS.



SECTION THRU ALTERNATE DIAPHRAGM

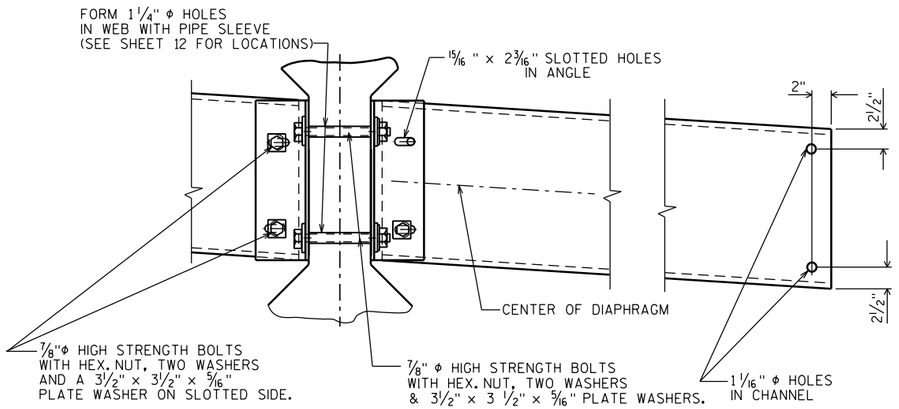


DIAPHRAGM SUPPORT



SECT. A-A

(FOR EXTERIOR ATTACHMENT)



DETAIL B

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

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STEEL DIAPHRAGM

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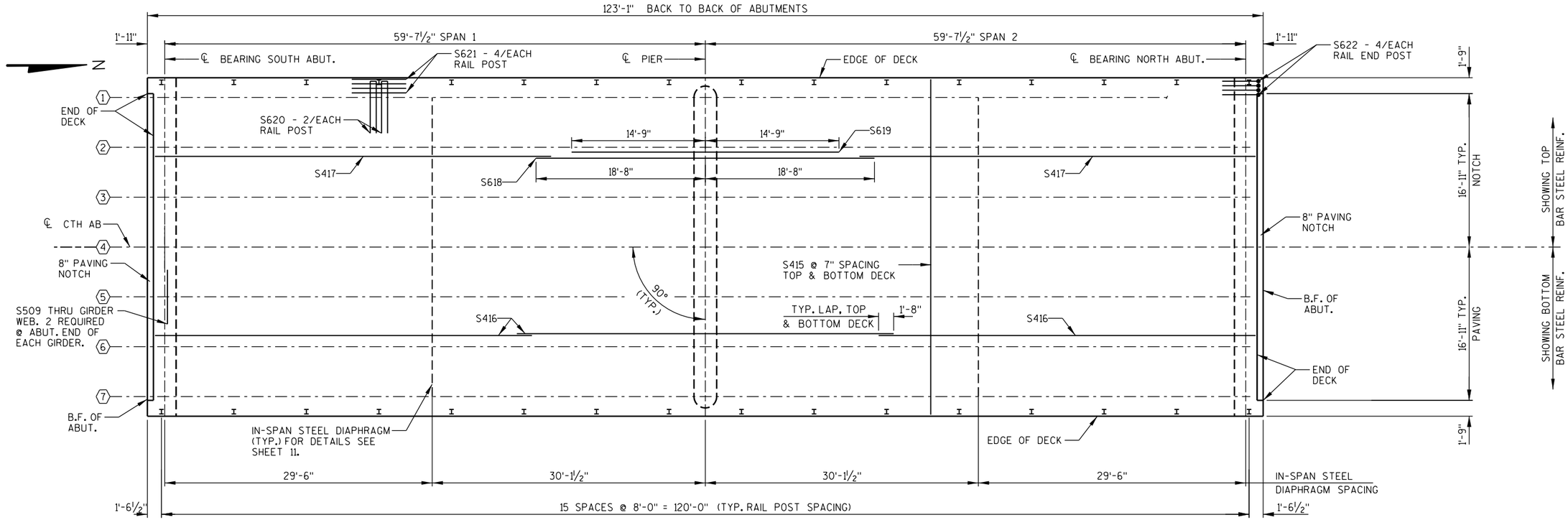
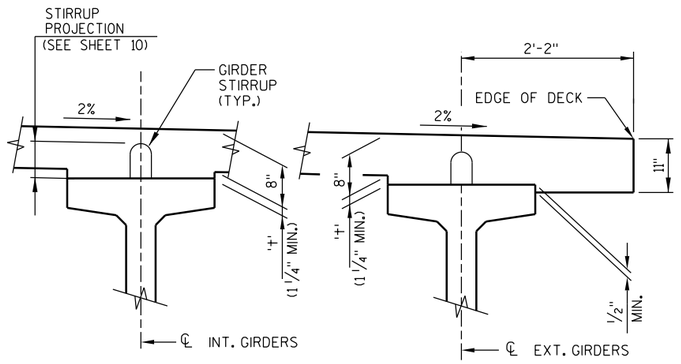


PLAN

TOP OF DECK ELEVATIONS @ ℄ OF GIRDERS

LOCATION	SPAN POINT	EAST DECK EDGE	GIRDER 7	GIRDER 6	GIRDER 5	C/L & GIRDER 4	GIRDER 3	GIRDER 2	GIRDER 1	WEST DECK EDGE
S. ABUT.	1	853.21	853.25	853.36	853.47	853.58	853.47	853.36	853.25	853.21
	1.1	853.27	853.32	853.43	853.54	853.65	853.54	853.43	853.32	853.27
	1.2	853.33	853.38	853.49	853.60	853.71	853.60	853.49	853.38	853.33
	1.3	853.38	853.43	853.54	853.65	853.76	853.65	853.54	853.43	853.38
	1.4	853.43	853.47	853.58	853.69	853.80	853.69	853.58	853.47	853.43
	1.5	853.47	853.51	853.62	853.73	853.84	853.73	853.62	853.51	853.47
	1.6	853.50	853.54	853.65	853.76	853.87	853.76	853.65	853.54	853.50
	1.7	853.52	853.56	853.67	853.78	853.89	853.78	853.67	853.56	853.52
	1.8	853.53	853.58	853.69	853.80	853.91	853.80	853.69	853.58	853.53
	1.9	853.54	853.58	853.69	853.80	853.91	853.80	853.69	853.58	853.54
PIER	2	853.54	853.58	853.69	853.80	853.91	853.80	853.69	853.58	853.54
	2.1	853.53	853.58	853.69	853.80	853.91	853.80	853.69	853.58	853.53
	2.2	853.52	853.56	853.67	853.78	853.89	853.78	853.67	853.56	853.52
	2.3	853.50	853.54	853.65	853.76	853.87	853.76	853.65	853.54	853.50
	2.4	853.47	853.51	853.62	853.73	853.84	853.73	853.62	853.51	853.47
	2.5	853.43	853.47	853.58	853.69	853.80	853.69	853.58	853.47	853.43
	2.6	853.39	853.43	853.54	853.65	853.76	853.65	853.54	853.43	853.39
	2.7	853.33	853.38	853.49	853.60	853.71	853.60	853.49	853.38	853.33
	2.8	853.28	853.32	853.43	853.54	853.65	853.54	853.43	853.32	853.28
	2.9	853.21	853.25	853.36	853.47	853.58	853.47	853.36	853.25	853.21
N. ABUT	3	853.13	853.18	853.29	853.40	853.51	853.40	853.29	853.18	853.13



DECK HAUNCH DETAIL

TO DETERMINE '+', ELEV. OF TOP OF GIRDERS AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. TO DETERMINE THE TOP OF DECK ELEVATION FOR POINT REFERRED USE TABLE ON THIS SHEET AND ADJUST FOR CROSS SLOPE OVER GIRDER. THEN FOLLOW THIS PROCESS:

NOTE: AN AVERAGE HAUNCH ("+") OF 2¼" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES."

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEADLOAD DEFLECTION (SEE SHEET 10)
- DECK THICKNESS

= HAUNCH HEIGHT '+'

IF 1¼" MINIMUM HAUNCH HEIGHT '+' CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. MAX. HAUNCH HEIGHT EQUALS "STIRRUP PROJECTION" MINUS 3".

GENERAL NOTES

⬡ - INDICATES GIRDER NUMBER

SEE SHEET 13 FOR TRANSVERSE AND LONGITUDINAL BAR SPACING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

DRAWN BY RLR | PLANS CK'D. DHW

SUPERSTRUCTURE

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DATE=1/18/2018

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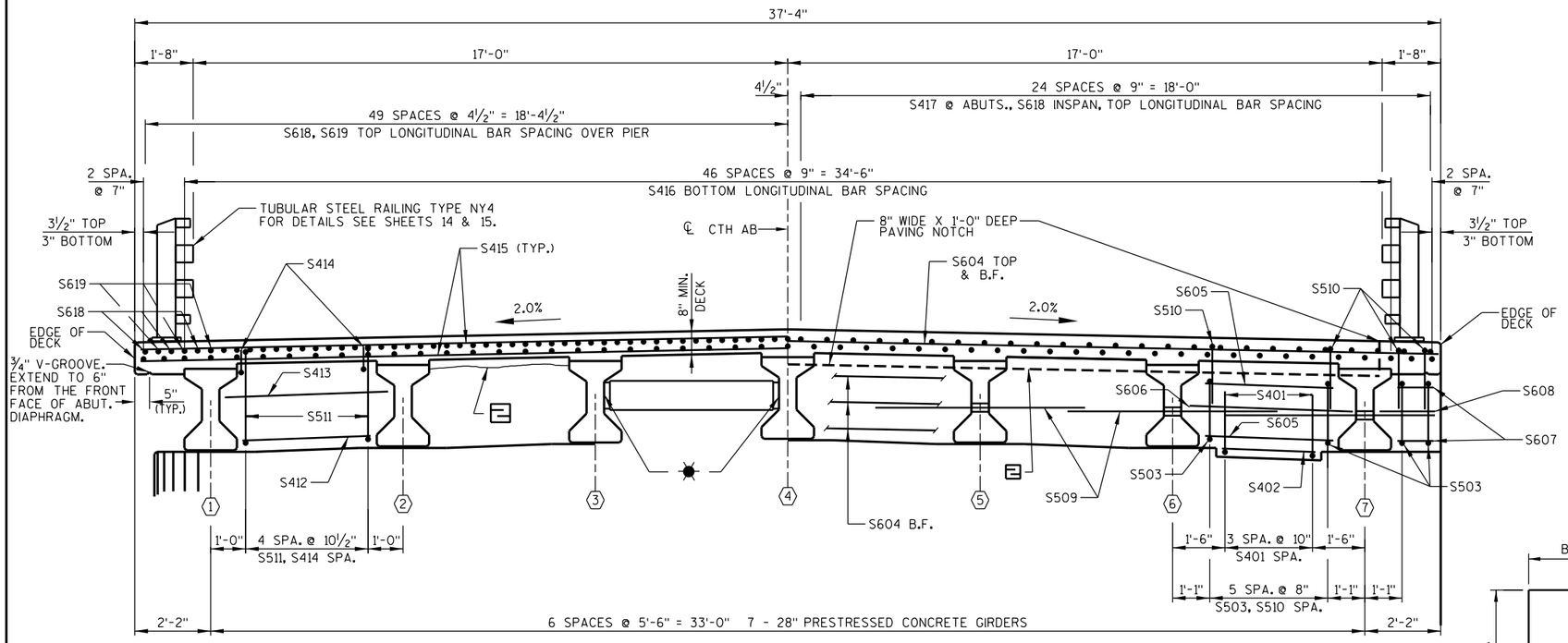
STATE PROJECT NUMBER
5841-00-70



AT PIER

IN SPAN

CROSS SECTION THRU BRIDGE

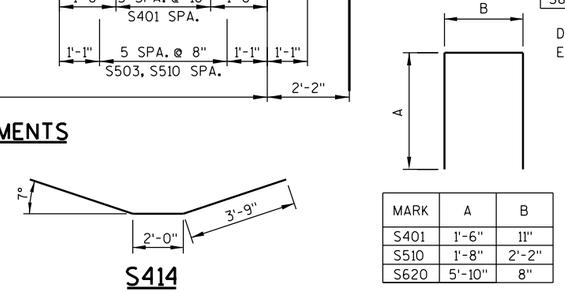
(LOOKING NORTH)

AT ABUTMENTS

BILL OF BARS (COATED) 27,775 LBS.

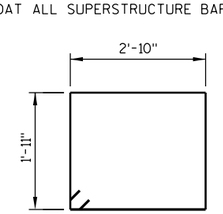
MARK	NUMBER REQ'D.	LENGTH	BENT	DESCRIPTION
S401	48	3'-9"	X	DIAPH. @ ABUT. - SEMI-EXP. NOTCH - STIRRUP - VERT.
S402	24	2'-8"		DIAPH. @ ABUT. - SEMI-EXP. NOTCH - HORIZ.
S503	80	10'-2"	X	DIAPH. @ ABUT. - STIRRUP - VERT.
S604	10	37'-0"		DIAPH. @ ABUT. - B.F. & TOP - HORIZ.
S605	24	3'-8"		DIAPH. @ ABUT. - F.F. - INTERIOR BAYS - HORIZ.
S606	12	4'-8"		DIAPH. @ ABUT. - F.F. - INTERIOR BAYS - HORIZ.
S607	8	1'-0"		DIAPH. @ ABUT. - F.F. @ ENDS - HORIZ.
S608	4	1'-7"		DIAPH. @ ABUT. - F.F. @ ENDS - HORIZ.
S509	28	6'-0"		DIAPH. @ ABUT. - 2 THRU GIRDER WEB - HORIZ.
S510	88	5'-3"	X	DIAPH. @ ABUT. - TOP STIRRUP - VERT.
S511	30	7'-8"	X	DIAPH. @ PIER - STIRRUP - VERT.
S412	36	3'-8"		DIAPH. @ PIER - HORIZ.
S413	12	4'-8"		DIAPH. @ PIER - HORIZ.
S414	30	9'-5"	X	DIAPH. @ PIER - LONGIT.
S415	417	37'-0"		DECK - TOP & BOTTOM - TRANS.
S416	153	41'-7"		DECK - BOTTOM - LONGIT.
S417	100	43'-9"		DECK - TOP @ ABUTS. & IN SPAN - LONGIT.
S618	50	37'-4"		DECK - TOP - OVER PIER - LONGIT.
S619	49	29'-6"		DECK - TOP - OVER PIER - LONGIT.
S620	64	12'-0"	X	DECK - 2 PER RAIL POST - TRANS.
S621	112	6'-0"		DECK - 4 PER RAIL POST - LONGIT.
S622	16	6'-0"	X	DECK - 4 PER RAIL END POST - LONGIT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL SUPERSTRUCTURE BAR REINFORCEMENT.

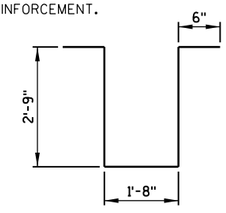


S414

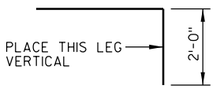
MARK	A	B
S401	1'-6"	11"
S510	1'-8"	2'-2"
S620	5'-10"	8"



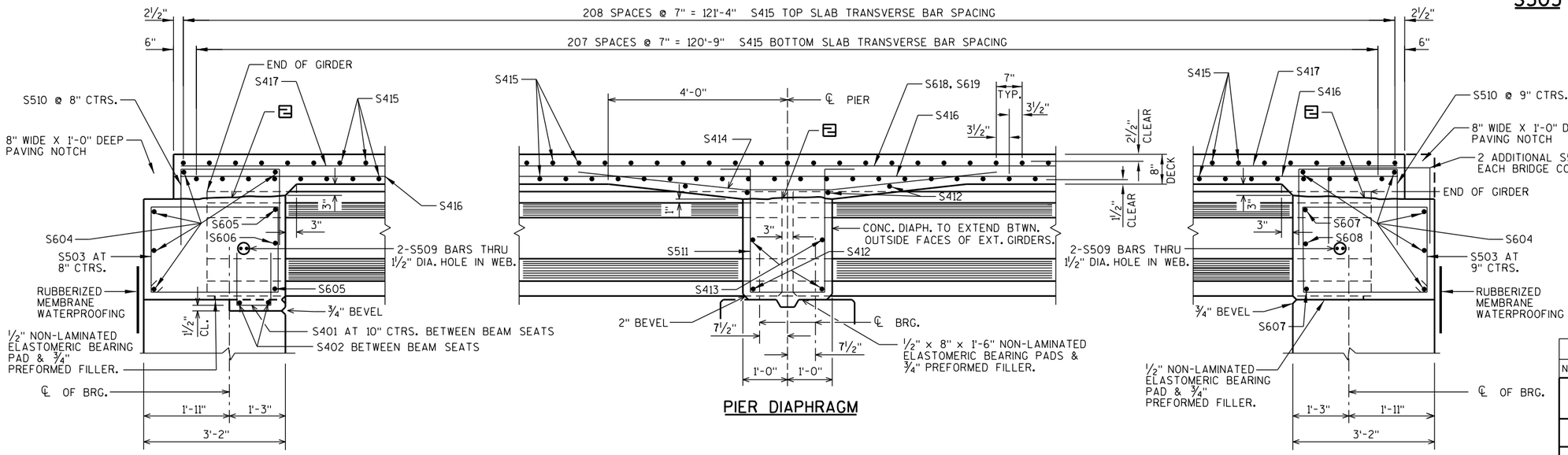
S503



S511



S622



ABUTMENT DIAPHRAGM - INT. BAYS

PIER DIAPHRAGM

ABUTMENT DIAPHRAGM - ENDS

LEGEND

F.F. - FRONT FACE

B.F. - BACK FACE

⬡ - INDICATES GIRDER NUMBER

✹ - FOR DETAILS OF IN-SPAN STEEL DIAPHRAGMS AND DIAPHRAGM INSERTS, SEE SHEET 11. FOR LAYOUT AND SPACING OF STEEL DIAPHRAGMS, SEE PLAN, SHEET 12.

℄ - OPTIONAL CONSTRUCTION JOINT (TYP. ALL BAYS). IF USED DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.

PART LONGITUDINAL SECTION

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

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SUPERSTRUCTURE SECTIONS & DETAILS

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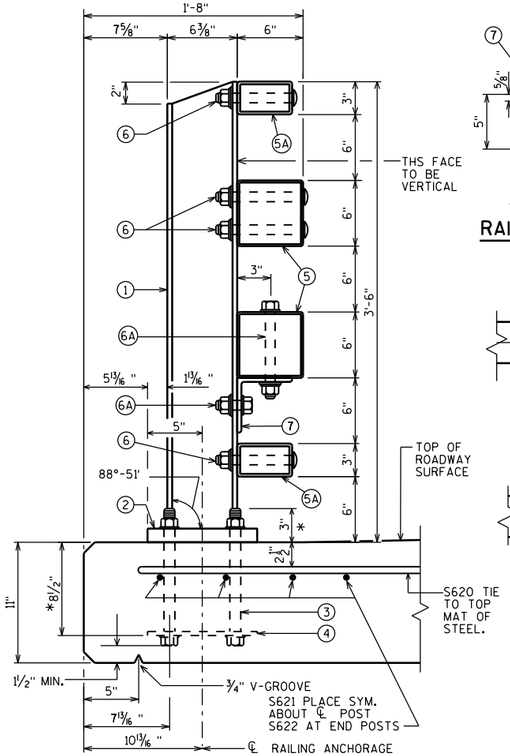
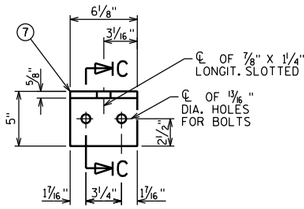


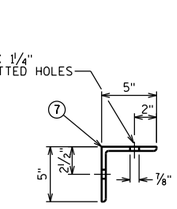
SECTION THRU RAILING ON DECK

*NORMAL TO BASE PLATE



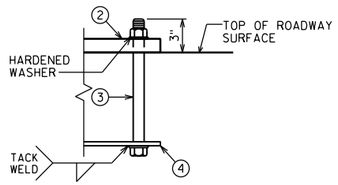
RAILING ANGLE DETAIL

INTERIOR ELEVATION



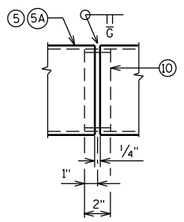
SECTION C-C

ANGLE SECTION



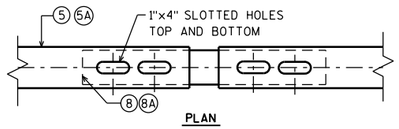
ANCHOR BOLTS

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

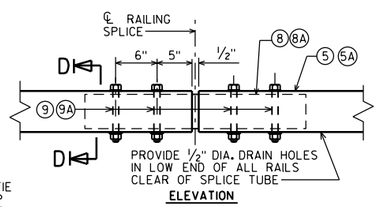


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

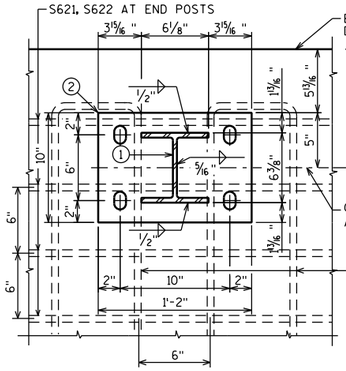


PLAN



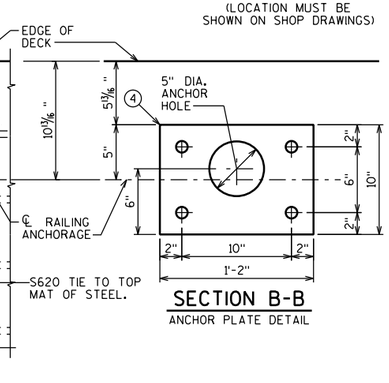
ELEVATION

FIELD ERECTION JOINT DETAIL



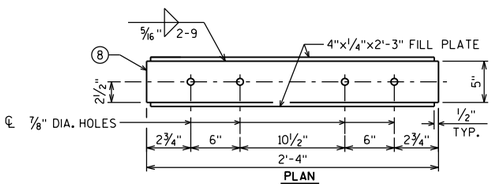
SECTION A-A

BASE PLATE DETAIL

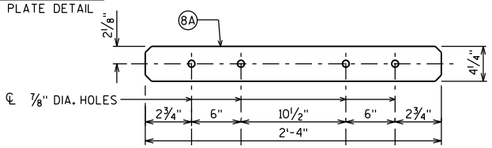


SECTION B-B

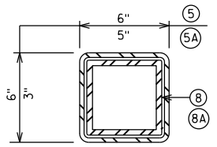
ANCHOR PLATE DETAIL



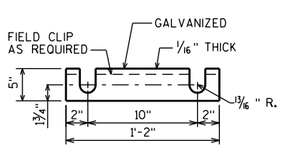
PLAN



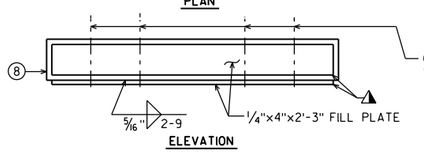
PLAN



SECTION D-D

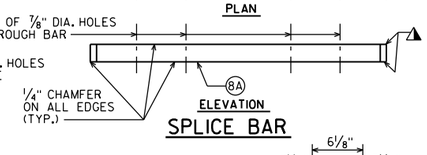


POST SHIM DETAIL



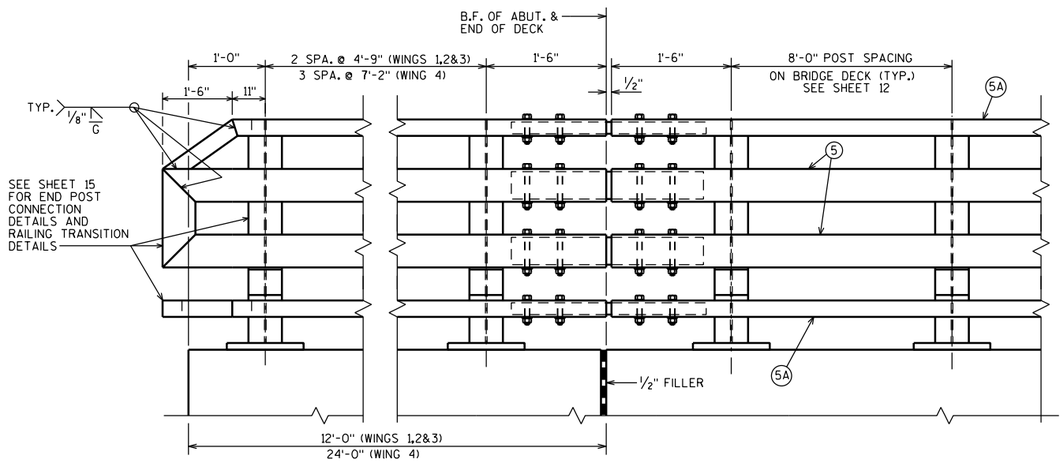
ELEVATION

SPLICE TUBE



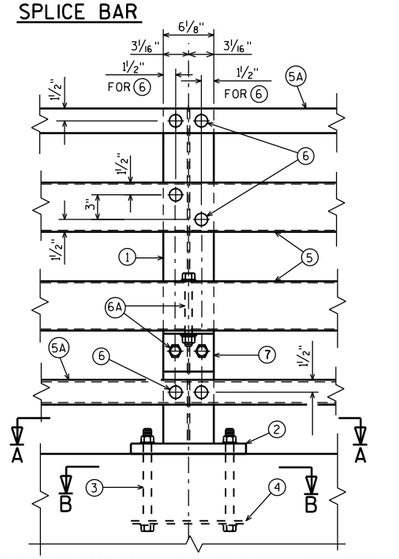
ELEVATION

SPLICE BAR



PART ELEVATION OF RAILING

INTERIOR ELEVATION



PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION

LEGEND

(1) W6 X 25 WITH 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLTS NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1¼" X 10" X 1'-2" WITH 1⅛" X 1⅞" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 11½" LONG BOLT FOR CONCRETE DECKS. USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)

(4) ⅜" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1⅛" DIA. HOLES FOR ANCHOR BOLTS NO. 3.

(5) TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ⅞" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).

(5A) TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6. IN TOP RAIL (FRONT & BACK). USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

(6) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).

(6A) ¾" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH 3/16" X 1¾" X 1¾" WASHER).

(7) L 5 X 5 X ⅝" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.

(8) TS 5 X 5 X 5/16" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

(8A) 4¼" X 2⅛" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.

(9) ¾" DIA. A325 FULLY THREADED BOLTS, 7½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.

(9A) ¾" DIA. A325 FULLY THREADED BOLTS, 4½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.

(10) SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

⚠ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY4 B-13-684", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

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

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED f_y=50 KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

DRAWN BY RLR | PLANS CK'D. DHW

TUBULAR STEEL RAILING TYPE NY4

SHEET 14 OF 15
74

FILE= 11331010_14.DGN
DATE= 1/25/2018

11331010_14.dgn 1/25/2018 12:10:17 PM tmulock

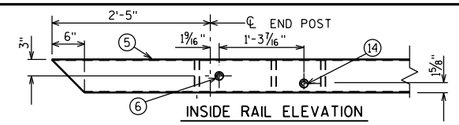
RAILNY4
7-16

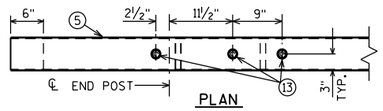
8

8

STATE PROJECT NUMBER

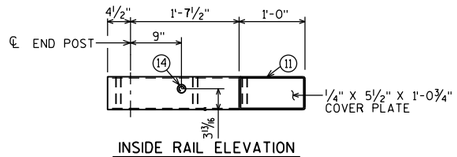
5841-00-70



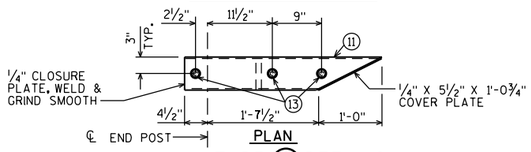


PLAN

TOP RAIL ⑤ DETAILS

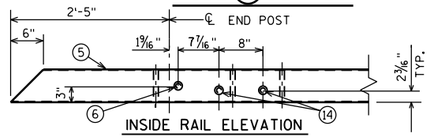


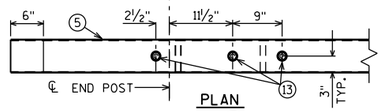
INSIDE RAIL ELEVATION



PLAN

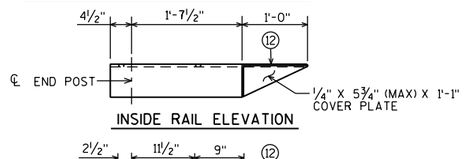
TUBE ⑪ DETAILS





PLAN

BOTTOM RAIL ⑤ DETAILS



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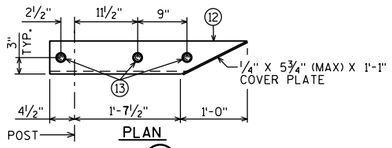
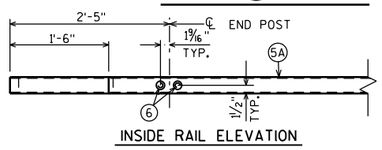


PLAN

ANGLE ⑫ DETAILS



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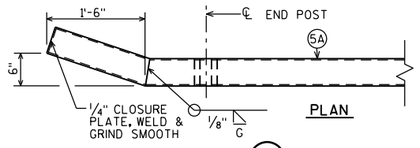
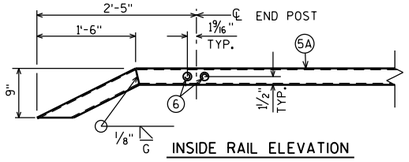
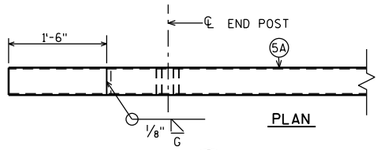


PLAN

BOTTOM RAIL 5A DETAILS

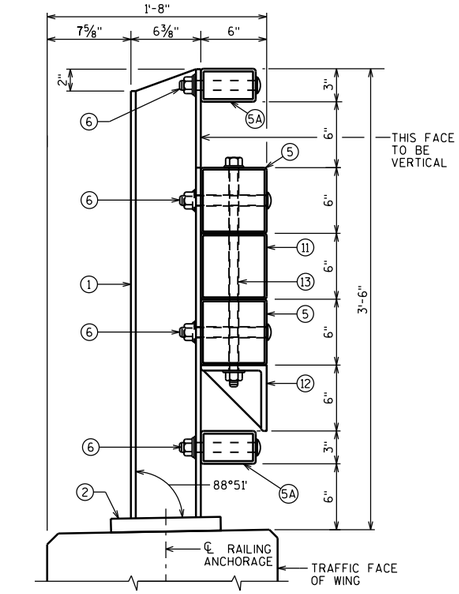


INSIDE RAIL ELEVATION

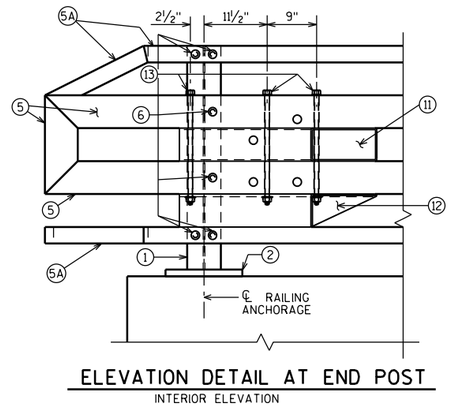


PLAN

TOP RAIL 5A DETAILS

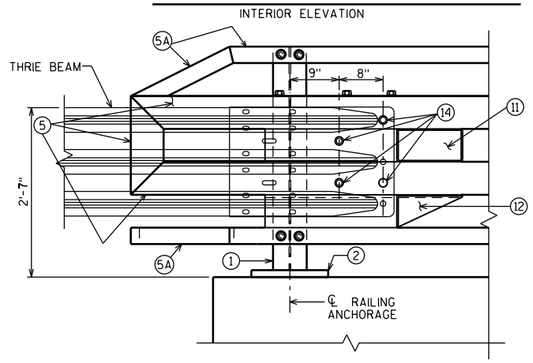


SECTION THRU RAILING END POST



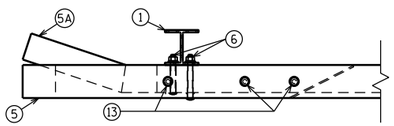
ELEVATION DETAIL AT END POST

INTERIOR ELEVATION

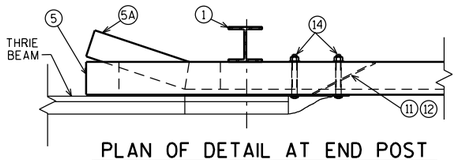


ELEVATION OF DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



PLAN OF DETAIL AT END POST



PLAN OF DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT

LEGEND

(1) W6 X 25 WITH 1 1/8" X 1 3/4" HORIZONTAL SLOTTED HOLES ON SIDE OF POST FOR BOLT NO. 6 AT NO. 5 & AT TOP RAIL NO. 5A. USE 1" DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1 1/4" X 10" X 1'-2". SEE SHEET "TUBULAR STEEL RAILING NY4" (SHEET 14) FOR MORE INFORMATION.

(5) TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 7/8" DIA. HOLES IN TOP AND BOTTOM OF RAILS FOR BOLT NO. 13 AS SHOWN IN PLAN DETAILS. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLTS NO. 6 & NO. 14 AS SHOWN IN ELEVATION DETAILS.

(5A) TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR TOP RAIL NO. 5A (FRONT & BACK). USE 1 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

(6) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1 3/4" WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).

(11) TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 1" DIA. HOLES IN FRONT AND BACK FOR BOLT NO. 14 & 7/8" DIA. HOLES IN TOP & BOTTOM FOR BOLT NO. 13.

(12) L 6 X 6 X 1/2" STRUCTURAL ANGLE. USE 7/8" DIA. HOLES IN TOP FLANGE FOR BOLT NO. 13.

(13) 3/4" DIA. A325 FULLY THREADED BOLTS, 2 WASHERS AND A HEAVY HEX NUT, ON EACH BOLT. NUT TO BE FINGER TIGHT. 3 BOLTS AT EACH END POST.

(14) 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT AND 3/16" X 2" X 2" WASHER FOR CONNECTION OF THRIE BEAM (4 REQUIRED)

NOTES

STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED f_y=50 KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-684

DRAWN BY RLR | PLANS CK'D. DHW

END POST DETAILS FOR TUBULAR STEEL RAILING TYPE NY4

SHEET 15 OF 15
75

FILE= 11331010_15.DGN
DATE= 1/18/2018

8

8

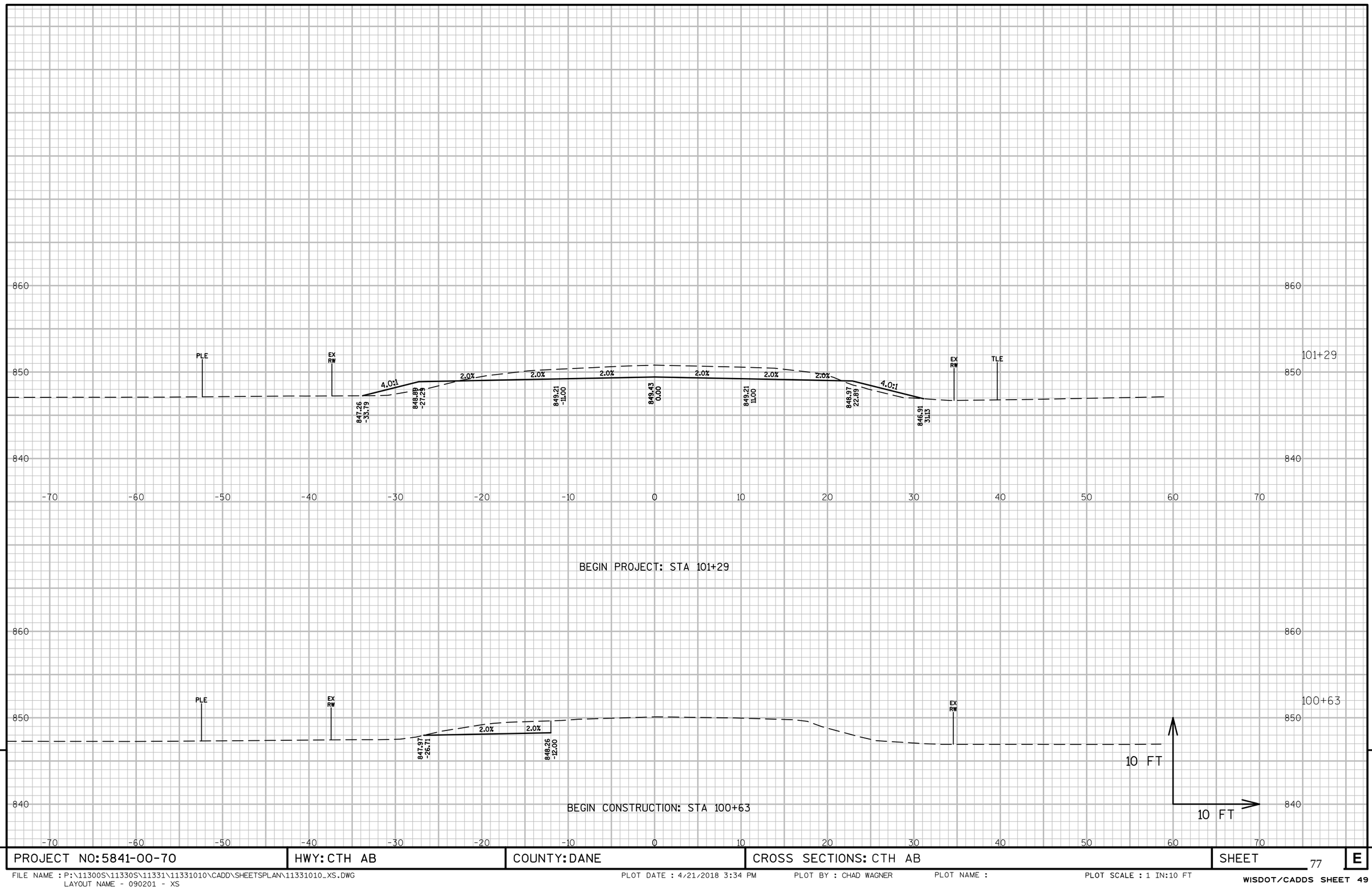
EARTHWORK PROJECT I.D. 5841-00-70 CTH AB

STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Salvaged/Unusable Pavement Material	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut Note 1	Incremental Vol (CY) (Unadjusted) Salvaged/Unusable Pavement Material Note 2	Incremental Vol (CY) (Unadjusted) Fill Note 3	Cumulative Vol (CY) Cut 1.00 Note 1	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate Note 7
100+63	10063.00	0.00	14	0	0	0	0	0	0	0	0
101+29	10129.00	66.00	51	0	9	80	0	11	80	14	66
101+83	10183.00	54.00	37	0	26	88	0	35	168	58	110
102+10	10210.00	27.00	34	0	36	35	0	31	203	97	106
102+36	10236.00	26.00	32	0	57	32	0	45	235	153	82
102+72	10272.00	36.00	4	0	78	24	0	90	259	266	-7
102+83.47	10283.47	11.47	4	0	78	2	0	33	261	307	-46
	B-13-0684					261	0	246			

EARTHWORK PROJECT I.D. 5841-00-70 CTH AB

STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Salvaged/Unusable Pavement Material	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut Note 1	Incremental Vol (CY) (Unadjusted) Salvaged/Unusable Pavement Material Note 2	Incremental Vol (CY) (Unadjusted) Fill Note 3	Cumulative Vol (CY) Cut 1.00 Note 1	Cumulative Vol (CY) Expanded Fill 1.25	Mass Ordinate Note 7
	B-13-0684										
104+06.54	10406.54	0.00	22	0	15	0	0	0	0	0	0
104+18	10418.00	11.46	22	0	15	9	0	6	9	8	3
104+30	10430.00	12.00	29	0	28	11	0	10	21	20	4
104+54	10454.00	24.00	41	0	20	31	0	22	52	47	14
104+66	10466.00	12.00	46	0	21	19	0	9	71	59	24
104+88	10488.00	22.00	62	0	8	44	0	12	115	73	56
104+93	10493.00	5.00	62	0	9	12	0	2	127	75	66
105+19	10519.00	26.00	49	0	6	54	0	7	180	84	113
105+50	10550.00	31.00	51	0	3	57	0	5	238	91	165
105+79	10579.00	29.00	4	0	0	30	0	2	267	93	193
						267	0	74			
				PROJECT TOTAL		528	0	312			

1) Excavation Common is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Breaker Run material. An undistributed amount of Breaker Run material is included in the project.
7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.



PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 77	E

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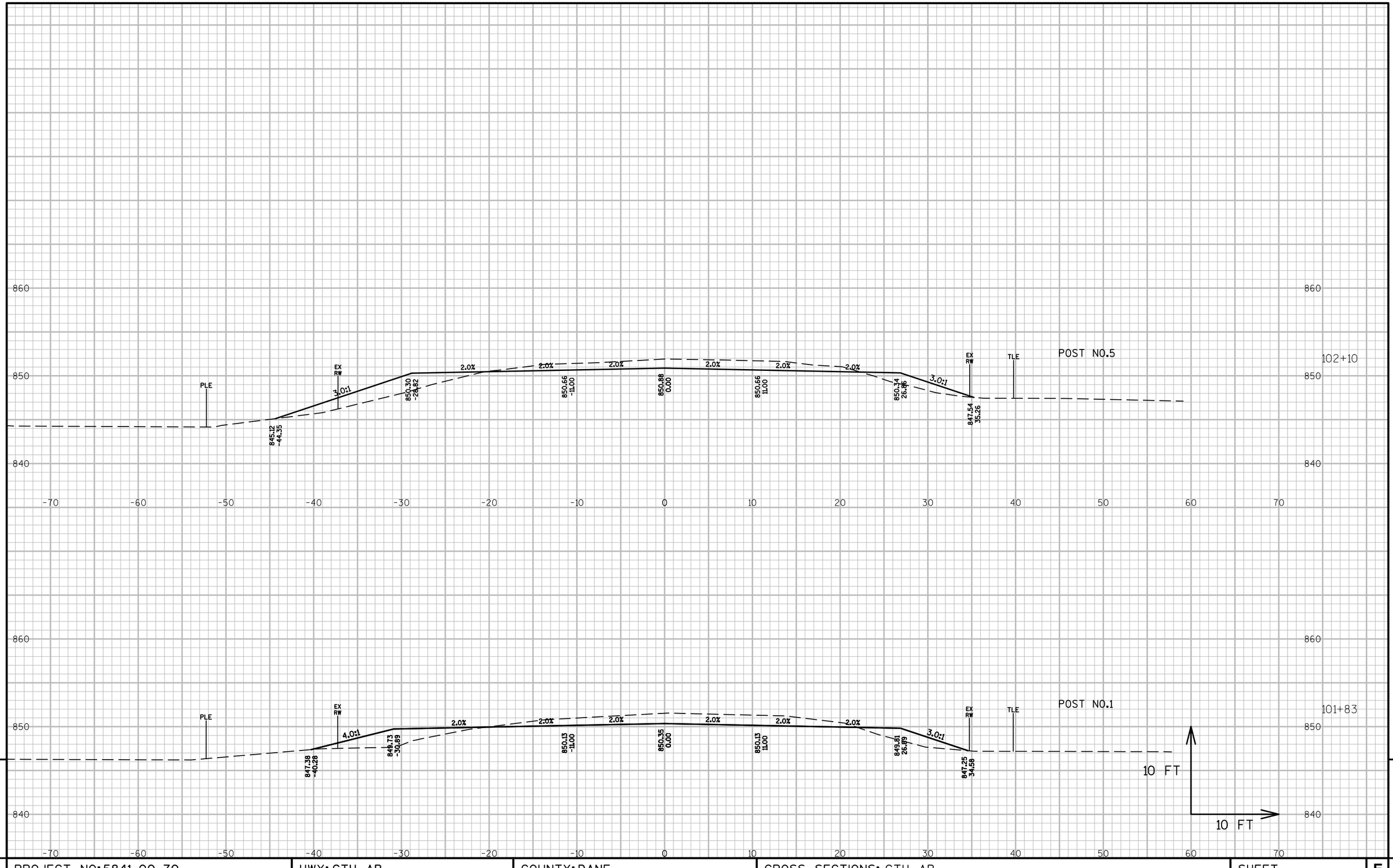
LAYOUT NAME - 090201 - XS

PLOT DATE : 4/21/2018 3:34 PM PLOT BY : CHAD WAGNER PLOT NAME : PLOT SCALE : 1 IN:10 FT



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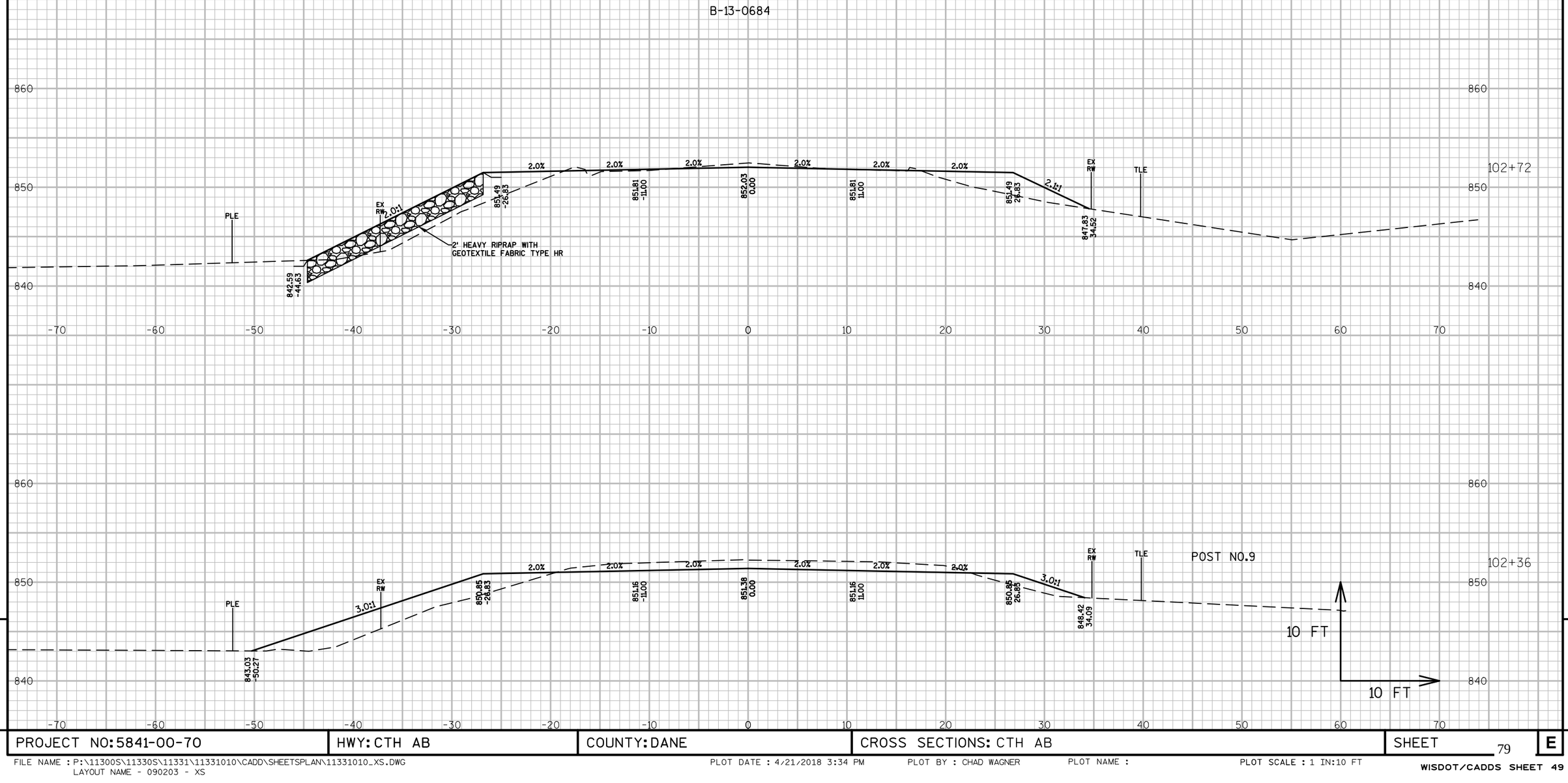
PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 78	E

9

FILE NAME : P:\11300S\11330S\11331\11331010\CADD\SHEETSPLAN\11331010_XS.DWG
LAYOUT NAME - 090202 - XS

PLOT DATE : 4/21/2018 3:34 PM PLOT BY : CHAD WAGNER PLOT NAME : PLOT SCALE : 1 IN:10 FT

B-13-0684



PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 79	E

FILE NAME : P:\11300S\11330S\11331\11331010\CADD\SHEETSPLAN\11331010_XS.DWG
LAYOUT NAME - 090203 - XS

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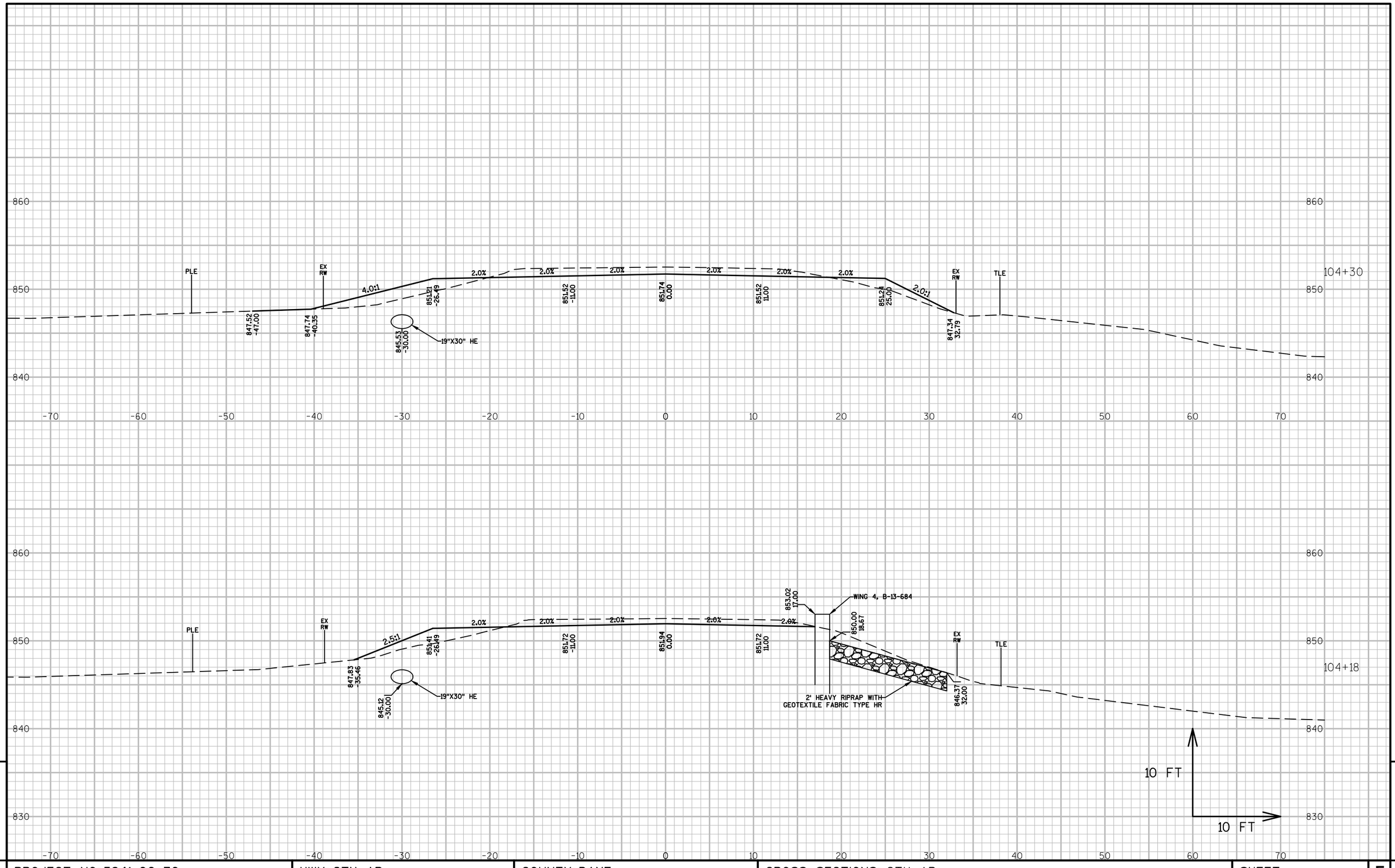
WISDOT/CADDS SHEET 49



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9

PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 80	E

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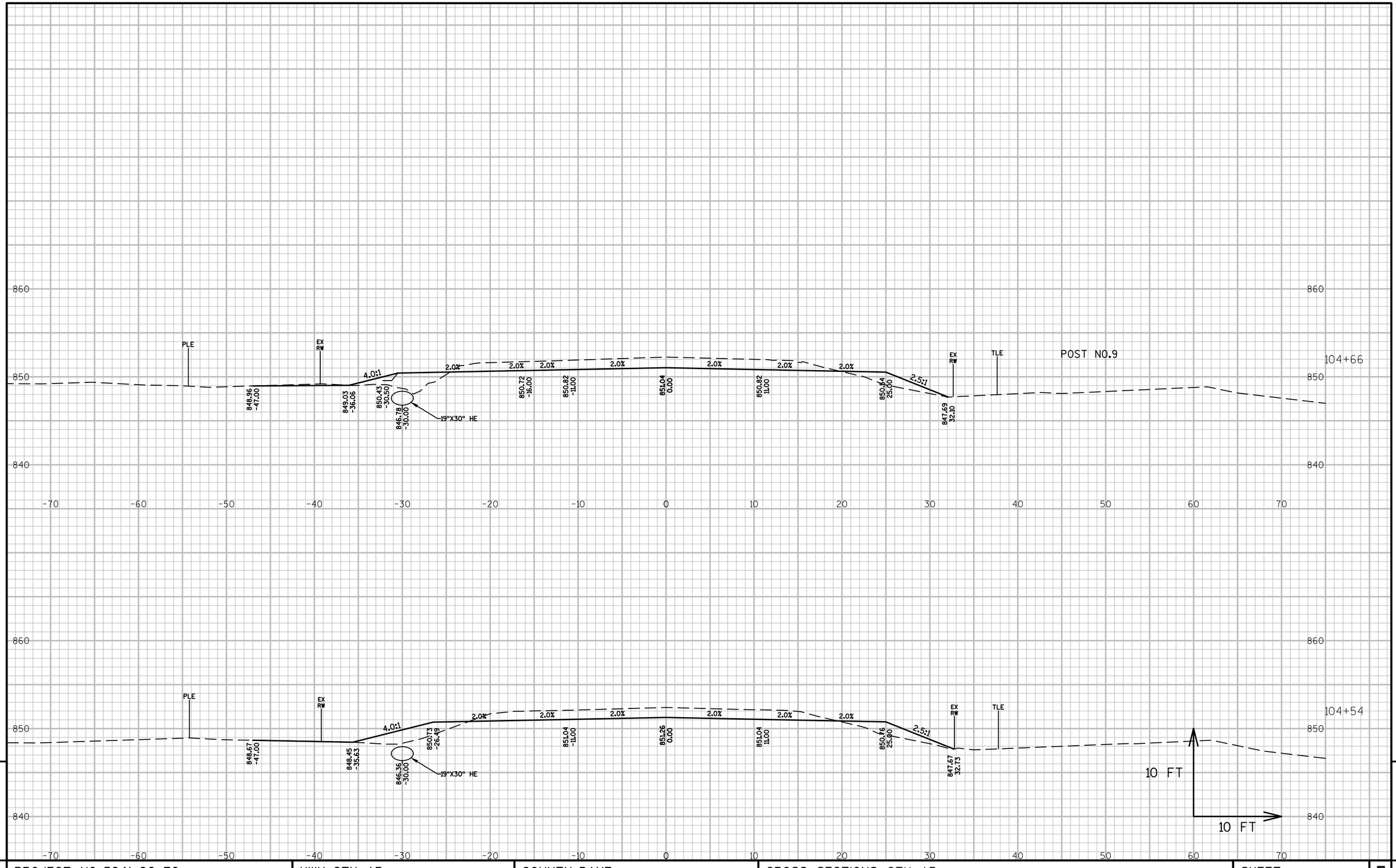

PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 81	E

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LAYOUT NAME - 090205 - XS

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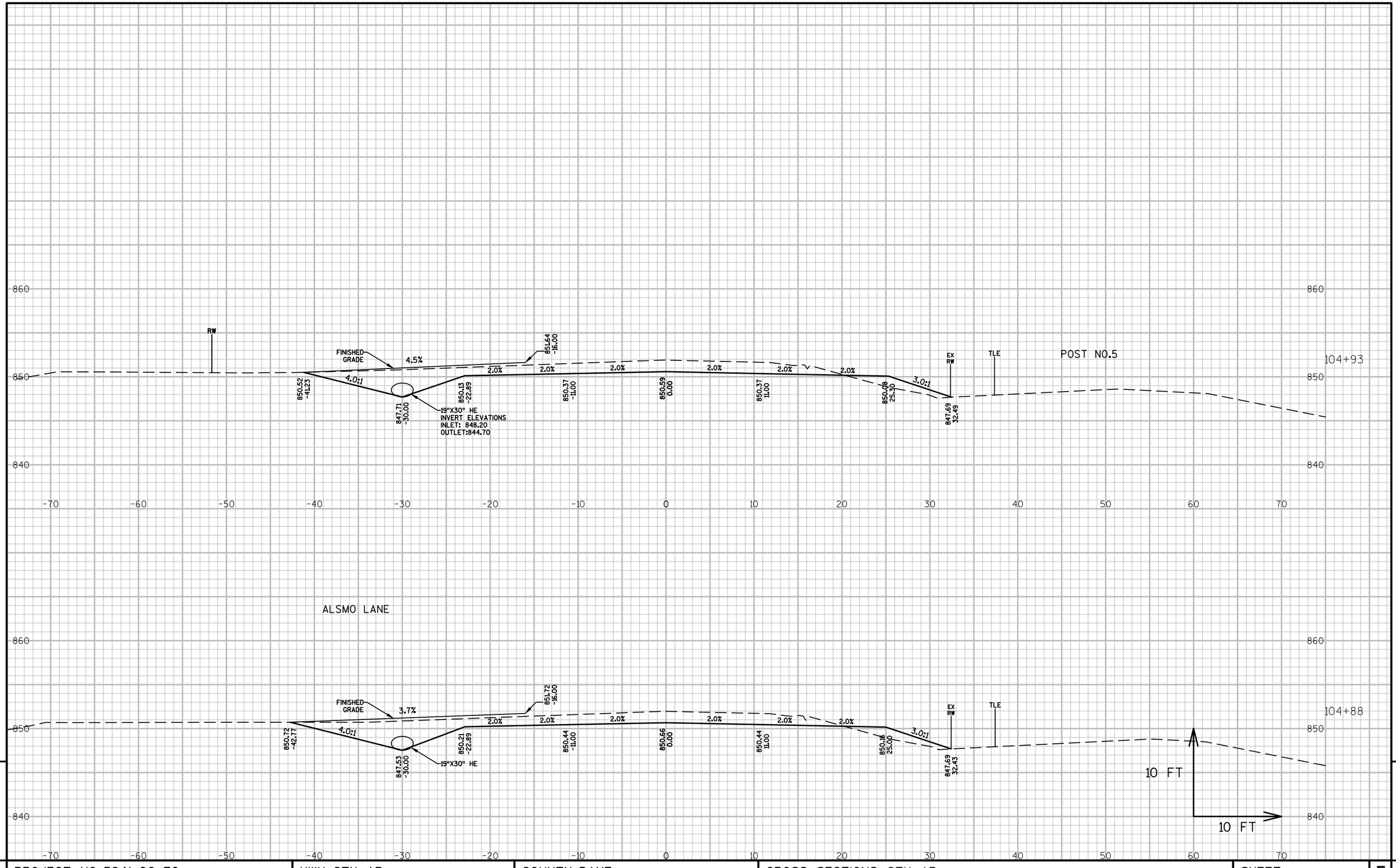
WISDOT/CADDS SHEET 49



PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 82	E

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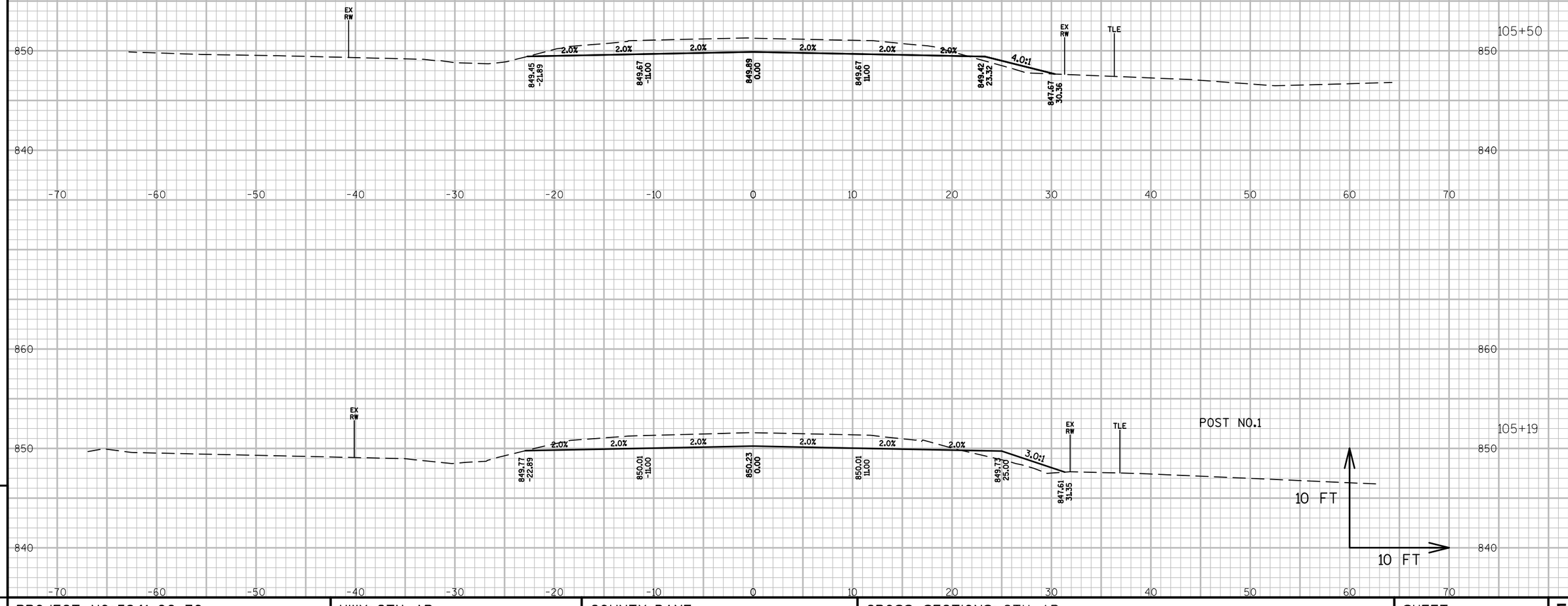
PLOT DATE : 4/21/2018 3:35 PM PLOT BY : CHAD WAGNER PLOT NAME : PLOT SCALE : 1 IN:10 FT

END PROJECT: STA 105+50



POST NO.1

9

9

PROJECT NO: 5841-00-70	HWY: CTH AB	COUNTY: DANE	CROSS SECTIONS: CTH AB	SHEET 83	E

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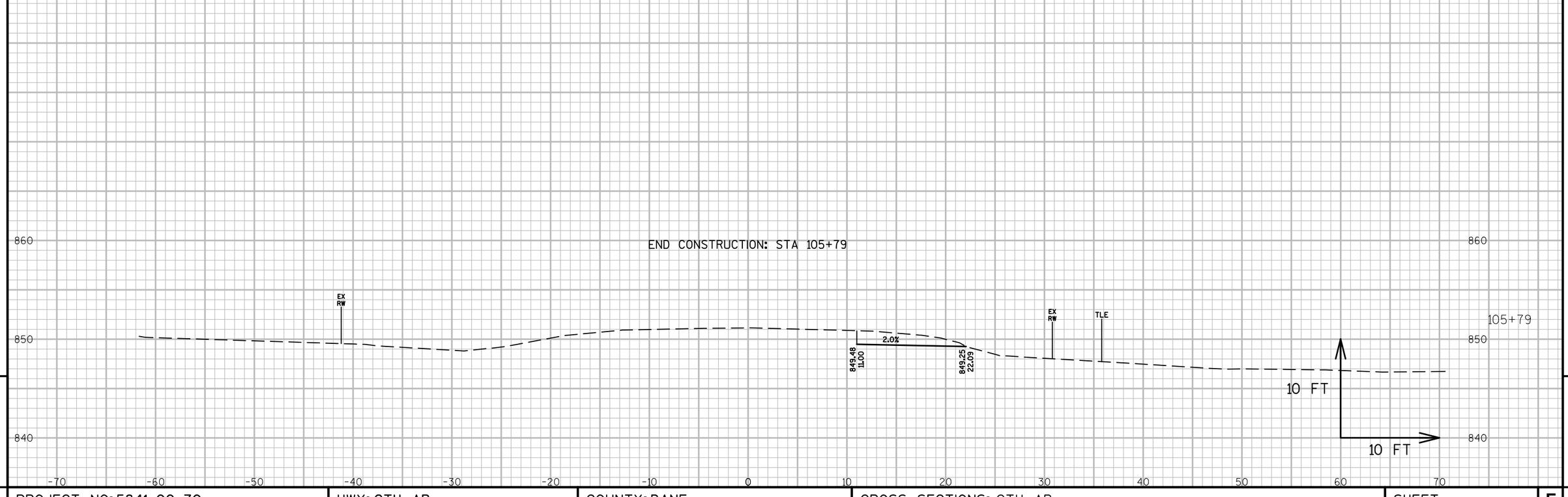
PLOT DATE : 4/21/2018 3:35 PM PLOT BY : CHAD WAGNER PLOT NAME : PLOT SCALE : 1 IN:10 FT

END CONSTRUCTION: STA 105+79



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FILE NAME : P:\11300S\11330S\11331\11331010\CADD\SHEETSPLAN\11331010_XS.DWG
LAYOUT NAME - 090208 - XS

PLOT DATE : 4/21/2018 3:35 PM PLOT BY : CHAD WAGNER PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

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