NEL FEBRUARY 2017

PROJECT ID: 4198-04-71
WITH: N/A

COUNTY: SHEBOYGAN

ORDER OF SHEETS

TOTAL SHEETS = 72

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T HOLLAND, CTH RR

ONION RIVER BRIDGE & APPROACHES

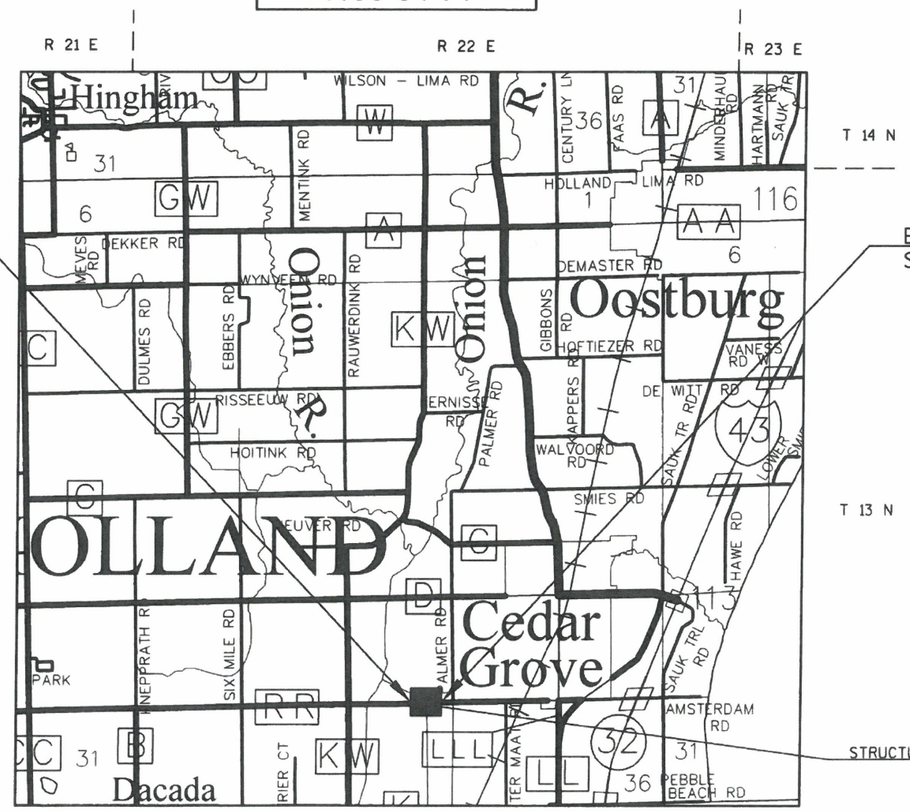
CTH RR

SHEBOYGAN COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4198-04-71	WISC 2017026	1

STATE PROJECT NUMBER
4198-04-71

PROJECT LOCATION



LAYOUT
SCALE 0 2

TOTAL NET LENGTH OF CENTERLINE = 0.055

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

DESIGN DESIGNATION

A.A.D.T.	2017	=	810
A.A.D.T.	2037	=	1200
D.H.V.		=	148
D.D.		=	60/40
T.		=	3.3%
DESIGN SPEED		=	55 MPH
ESALS		=	95,000

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

ACCEPTED FOR SHEBOYGAN COUNTY

7/15/2016 (DATE) (COUNTY HIGHWAY COMMISSIONER)

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES

WISCONSIN
PHILLIP J. VERVILLE III
E36336
GREEN BAY, WI
PROFESSIONAL ENGINEER

7/20/16 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
- Surveyor: AYRES ASSOCIATES
- Designer: AYRES ASSOCIATES
- Management Consultant: JT ENGINEERING

APPROVED FOR THE DEPARTMENT
DATE: 8/1/16 (Management Consultant Signature)

E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\010101_TI.DWG
LAYOUT NAME - 010101 TI

PLOT DATE : 7/6/2016 7:25 AM

PLOT BY : SOUFAL, KEVIN

PLOT NAME :

WISDOT/CADDS SHEET 10

GENERAL NOTES

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

FILL EXPANSION FACTOR IS 30%.

CONSTRUCT ASPHALTIC SURFACE WITH A 1 3/4" UPPER LAYER AND A 2 1/4" LOWER LAYER.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

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

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

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

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

THE EXACT LOCATION AND WIDTH OF FIELD ENTRANCES WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

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

ALL ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD 88 (2007).

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR.

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

UTILITIES

*WE ENERGIES - ELECTRIC
245 SAND DRIVE
WEST BEND, WISCONSIN 53095
ATTENTION: ALAN SCHMITT
E-MAIL: ALAN.SCHMITT@WE-ENERGIES.COM
TELEPHONE 262-338-7662
CELL 414-322-1824

*FRONTIER COMMUNICATIONS
315 OAK STREET
OAKFIELD, WISCONSIN 53065
ATTENTION: RUSS RYAN
TELEPHONE 920-583-3275
CELL 920-737-9662

*-MEMBER OF DIGGERS HOTLINE

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

RUNOFF COEFFICIENT TABLE

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

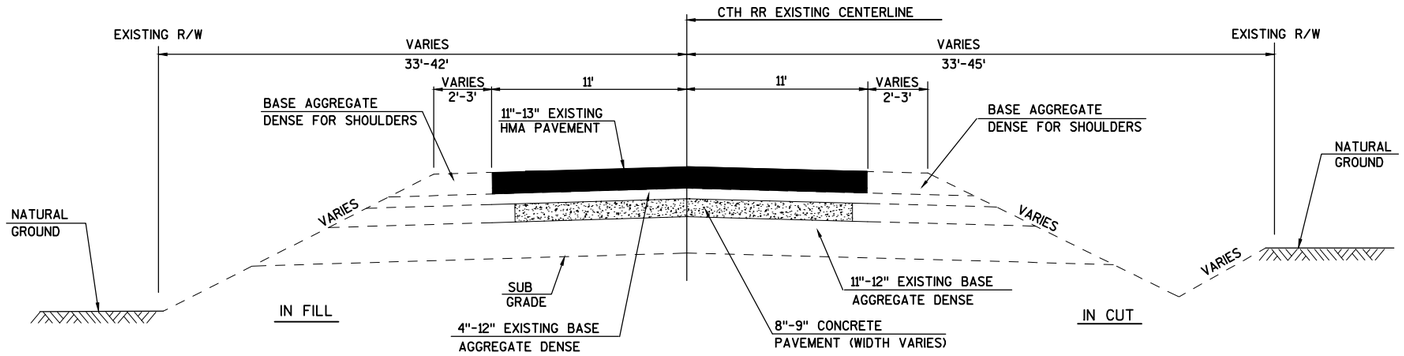
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.80 ACRES
SOIL GROUP C

STANDARD ABBREVIATIONS

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

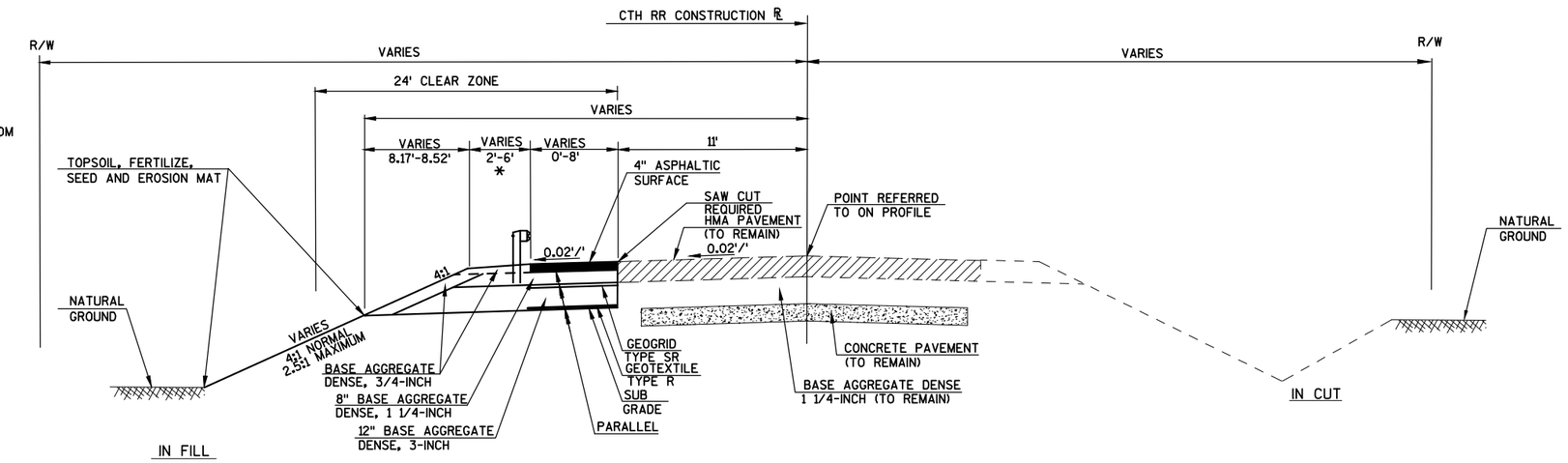
DEPARTMENT OF NATURAL RESOURCES

WDNR
2984 SHAWANO AVE.
GREEN BAY, WISCONSIN 54313
ATTENTION: JAY SCHIEFELBEIN
E-MAIL: JEREMIAH.SCHIEFELBEIN@WISCONSIN.GOV
TELEPHONE 920-662-5130



TYPICAL EXISTING SECTION FOR CTH RR

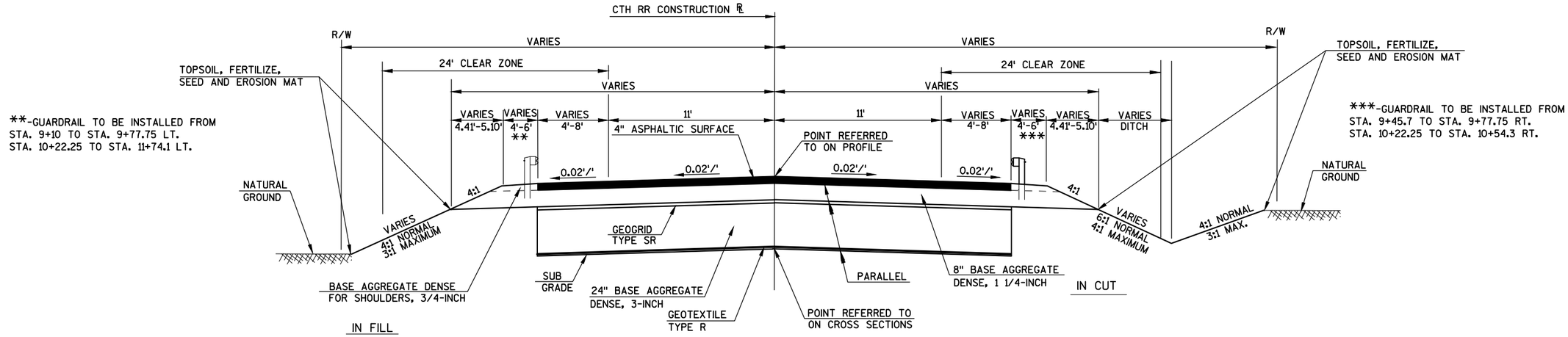
STA. 6+87 - STA. 13+22



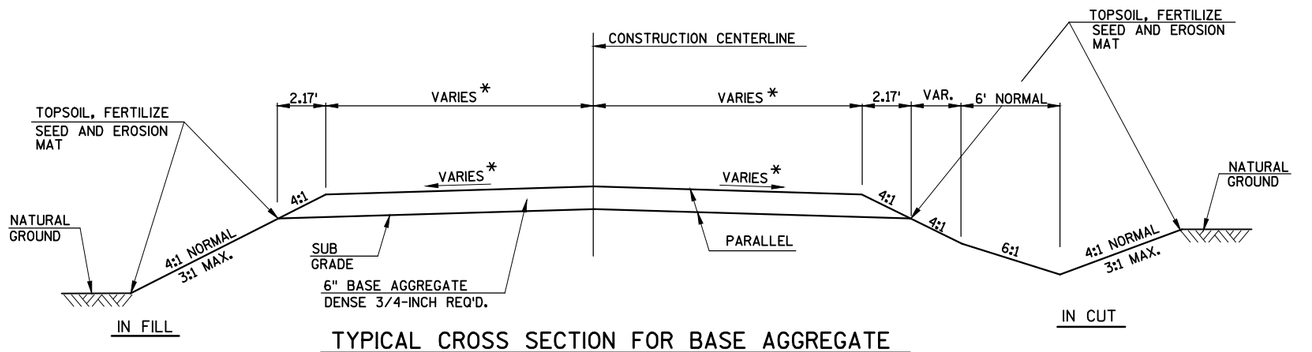
TYPICAL FINISHED SECTION FOR CTH RR

STA. 6+87 - STA. 9+10 LT.
STA. 12+00 - STA. 13+22 LT.

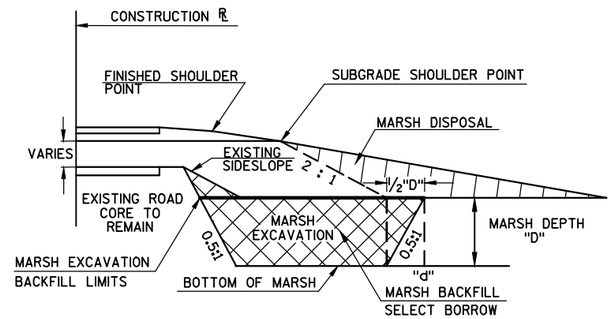
PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	TYPICAL SECTIONS	SHEET 3	E



TYPICAL FINISHED SECTION FOR CTH RR
STA. 9+10 - STA. 9+77.75
STA. 10+22.25 - STA. 12+00



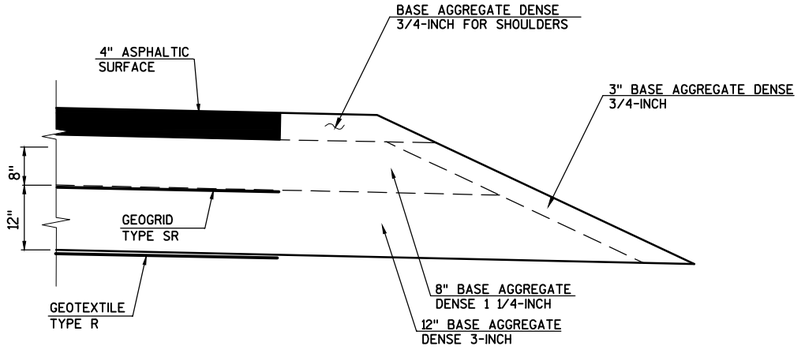
TYPICAL CROSS SECTION FOR BASE AGGREGATE DENSE PRIVATE ENTRANCES AND FIELD ENTRANCES
(REPLACE IN KIND)



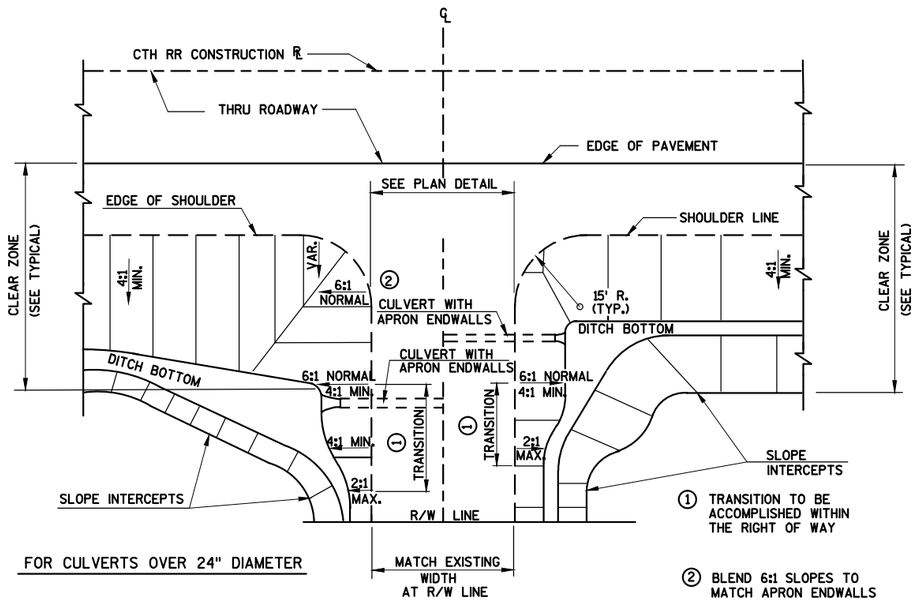
NOTE: BACKFILL QUANTITIES COMPUTED FROM POINT "d" TO COMPENSATE FOR PROBABLE DISPLACED MARSH AREA.

TYPICAL SECTION-MARSH EXCAVATION

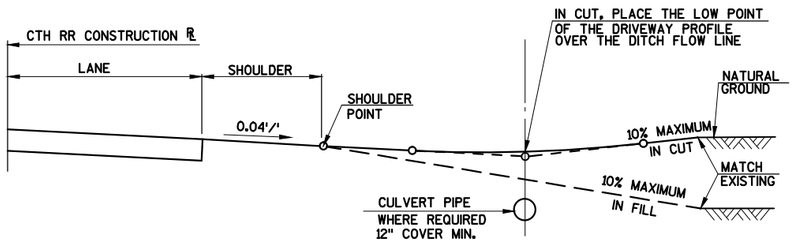
PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	TYPICAL SECTIONS	SHEET 4	E



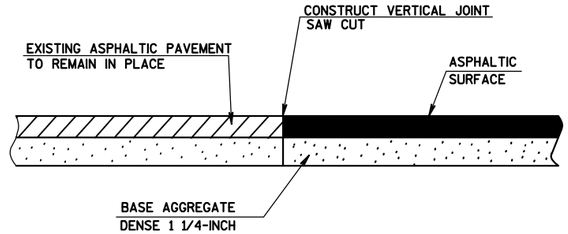
DETAIL FOR BASE AGGREGATE DENSE



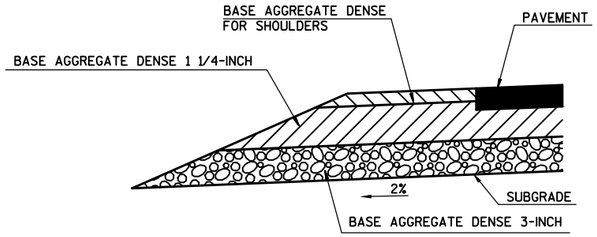
ENTRANCE GRADING DETAIL



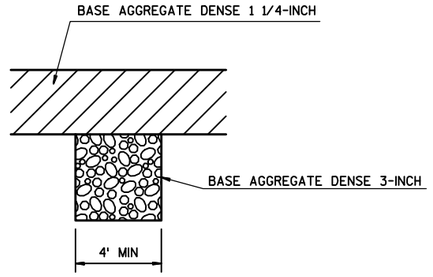
TYPICAL DRIVEWAY PROFILES



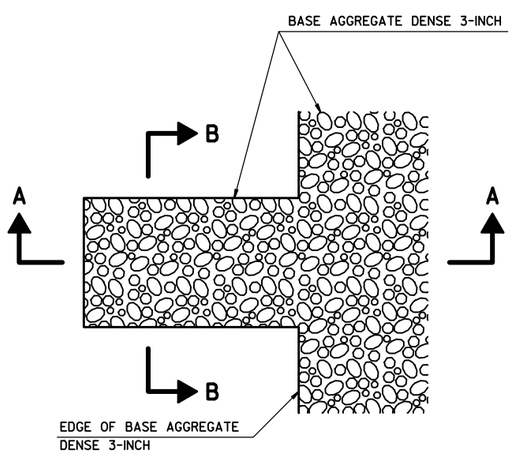
SAW CUT DETAIL



SECTION A-A



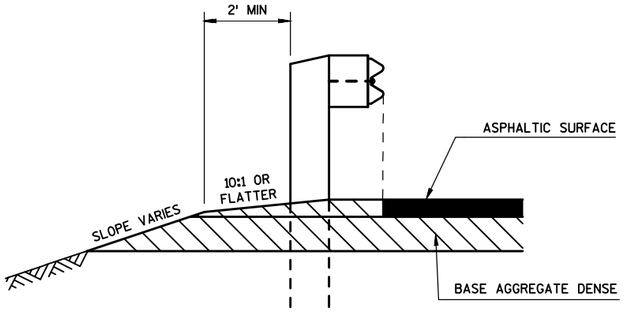
SECTION B-B



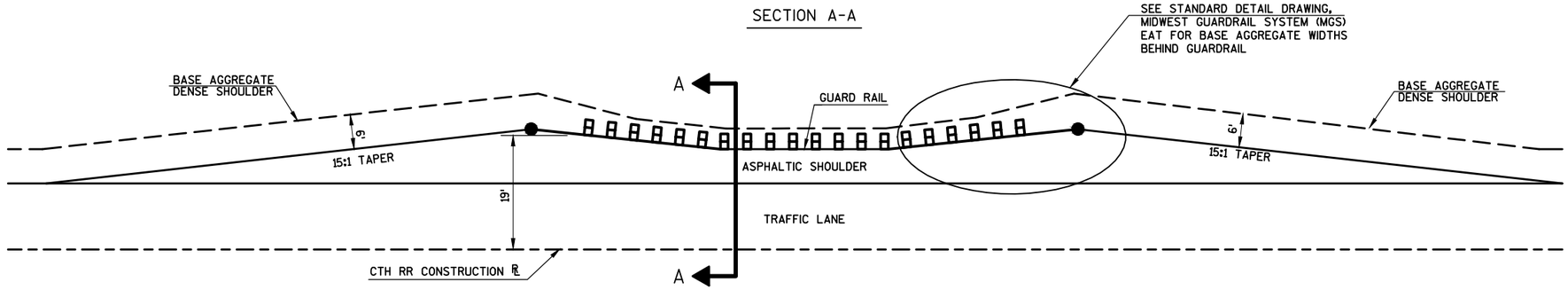
DETAIL FOR FRENCH DRAINS

(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

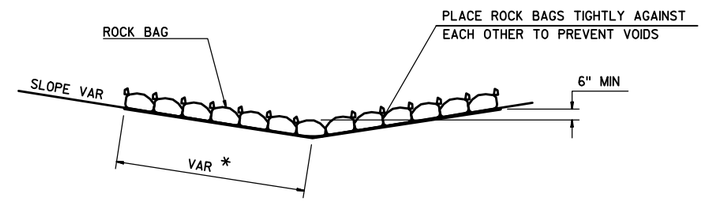
EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL BE CONSIDERED INCIDENTAL TO THE ITEM BASE AGGREGATE DENSE 3-INCH.



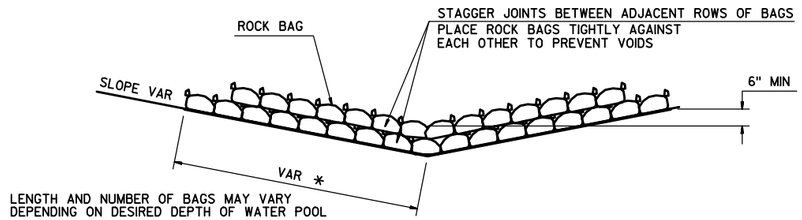
SECTION A-A



DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL



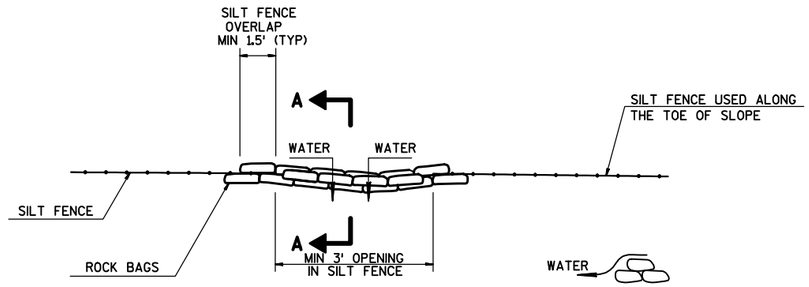
SIDE VIEW (SINGLE LAYER)



SIDE VIEW (MULTIPLE LAYER)

ROCK BAGS DITCH CHECK

PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

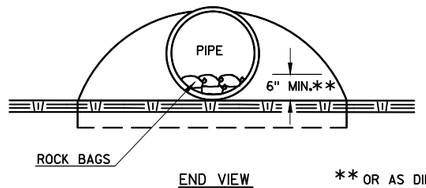


TOP VIEW

SECTION A-A

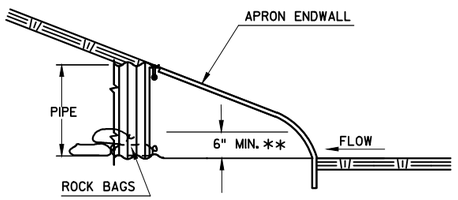
ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



END VIEW

** OR AS DIRECTED BY THE ENGINEER



SIDE VIEW

CULVERT PIPE DITCH CHECK

PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CONSTRUCTION DETAILS	SHEET 6	E

2

N

ONION RIVER

7+22.0
-11.9'

8+00.0
-11.0'

8+25.5
-25.0'

8+25.5
-19.0'

MGS
EAT

8+50.5
-22.3'

MGS
GUARDRAIL 3

8+75.5
-21.0'

9+25.5
-19.0'

MGS THRIE
BEAM APPROACH

9+25.5
-15.0'

10+74.5
-19.0'

MGS THRIE
BEAM APPROACH

10+74.5
-15.0'

MGS
GUARDRAIL 3

11+49.5
-22.3'

11+24.5
-21.0'

MGS
EAT

11+74.5
-25.0'

11+74.5
-19.0'

15'

12+92.6
-11.0'

7 CTH RR 8 19' 9 15' 10 15' 11 19' 12 13

STEEL THRIE
BEAM APPROACH

15'

STEEL THRIE
BEAM APPROACH

15'

BEGIN PROJECT
STA. 9+10.00
Y = 106224.790
X = 183520.525

STEEL PLATE BEAM
GUARD SHORT RADIUS

8'R.

20'

9+53.8
23.0'

3.5'

86'

9+45.8
48'

8'R.

10+46.3
23.0'

20'

3.5'

10+54.3
48'

STEEL PLATE BEAM
GUARD SHORT RADIUS

11+50.0
15.0'

12+00.0
11.0'

END PROJECT
STA. 12+00.00

49'

CONSTRUCTION LIMITS
STA. 48+87

PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	PLAN DETAIL	SHEET 7	E

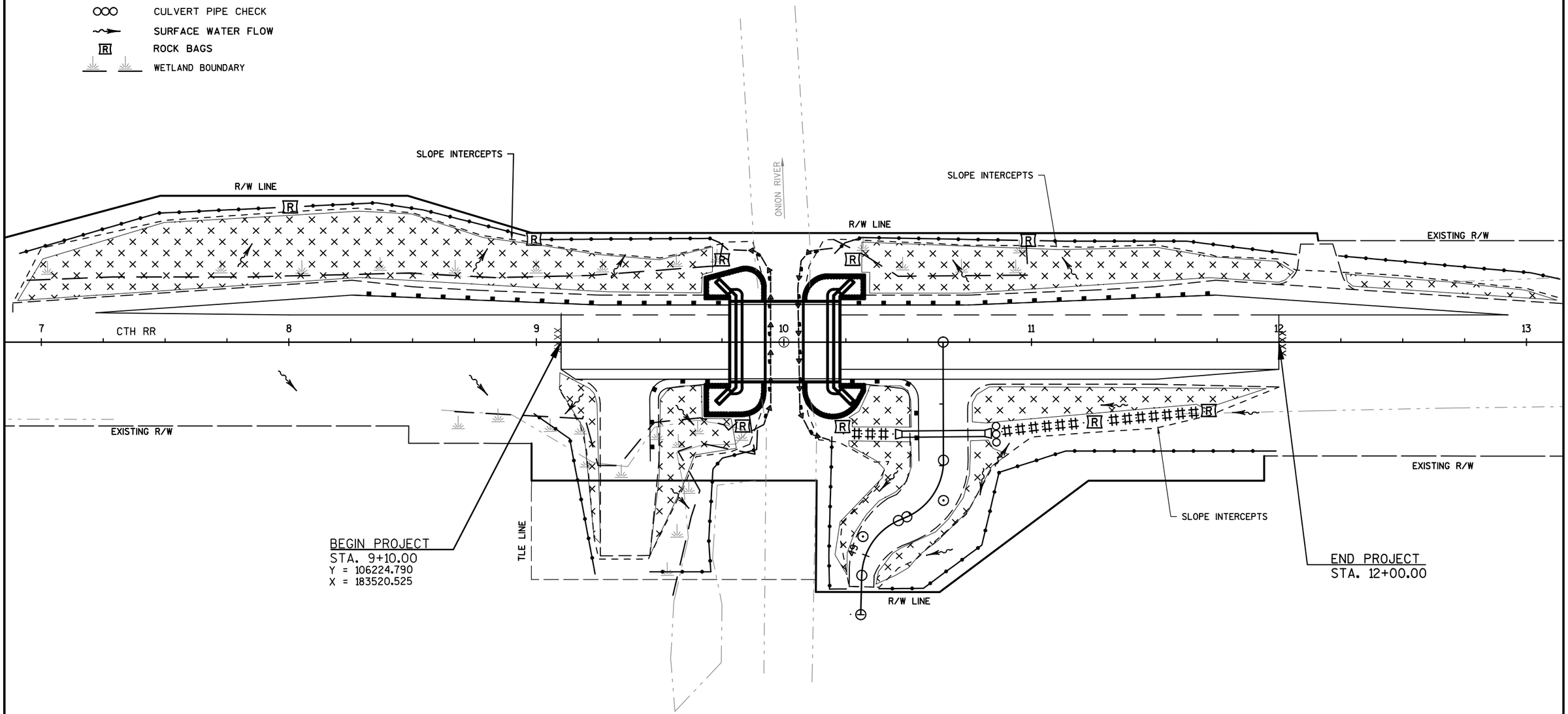
2

2

LEGEND

- EROSION MAT CLASS II, TYPE C
- EROSION MAT CLASS 1 TYPE B URBAN
- TURBIDITY BARRIER
- SILT FENCE
- SLOPE INTERCEPT
- CULVERT PIPE CHECK
- SURFACE WATER FLOW
- ROCK BAGS
- WETLAND BOUNDARY

N



PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	EROSION CONTROL	SHEET 8	E

4198-04-71

Line	Item	Item Description	Unit	Total	Qty
0010	201.0205	Grubbing	STA	2.000	2.000
0020	203.0500.S	Removing Old Structure Over Waterway (station) 01. 10+00	LS	1.000	1.000
0030	204.0100	Removing Pavement	SY	600.000	600.000
0040	205.0100	Excavation Common	CY	700.000	700.000
0050	205.0400	Excavation Marsh	CY	650.000	650.000
0060	206.1000	Excavation for Structures Bridges (structure) 01. B-59-192	LS	1.000	1.000
0070	208.0100	Borrow	CY	1,230.000	1,230.000
0080	208.1100	Select Borrow	CY	615.000	615.000
0090	210.1500	Backfill Structure Type A	TON	460.000	460.000
0100	213.0100	Finishing Roadway (project) 01. 4198-04-71	EACH	1.000	1.000
0110	305.0110	Base Aggregate Dense 3/4-Inch	TON	320.000	320.000
0120	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	750.000	750.000
0130	305.0130	Base Aggregate Dense 3-Inch	TON	1,740.000	1,740.000
0140	455.0605	Tack Coat	GAL	60.000	60.000
0150	465.0105	Asphaltic Surface	TON	240.000	240.000
0160	502.0100	Concrete Masonry Bridges **P**	CY	162.000	162.000
0170	502.3200	Protective Surface Treatment	SY	190.000	190.000
0180	505.0400	Bar Steel Reinforcement HS Structures	LB	4,920.000	4,920.000
0190	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	20,180.000	20,180.000
0200	513.4061	Railing Tubular Type M (structure) 01. B-59-192	LF	89.000	89.000
0210	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0220	521.0118	Culvert Pipe Corrugated Steel 18-Inch	LF	50.000	50.000
0230	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	2.000	2.000
0240	550.2104	Piling CIP Concrete 10 3/4 X 0.25-Inch	LF	840.000	840.000
0250	606.0300	Riprap Heavy	CY	170.000	170.000
0260	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	160.000	160.000
0270	614.0200	Steel Thrie Beam Structure Approach	LF	41.000	41.000
0280	614.0345	Steel Plate Beam Guard Short Radius	LF	62.500	62.500
0290	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	2.000	2.000
0300	614.2300	MGS Guardrail 3	LF	125.000	125.000
0310	614.2500	MGS Thrie Beam Transition	LF	79.000	79.000
0320	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0330	619.1000	Mobilization	EACH	1.000	1.000
0340	624.0100	Water	MGAL	28.000	28.000
0350	625.0100	Topsoil	SY	1,600.000	1,600.000
0360	627.0200	Mulching	SY	1,000.000	1,000.000
0370	628.1504	Silt Fence	LF	1,200.000	1,200.000
0380	628.1520	Silt Fence Maintenance	LF	2,400.000	2,400.000

4198-04-71

Line	Item	Item Description	Unit	Total	Qty
0390	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0400	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0410	628.2008	Erosion Mat Urban Class I Type B	SY	1,800.000	1,800.000
0420	628.2027	Erosion Mat Class II Type C	SY	175.000	175.000
0430	628.6005	Turbidity Barriers	SY	90.000	90.000
0440	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0450	628.7570	Rock Bags	EACH	150.000	150.000
0460	629.0210	Fertilizer Type B	CWT	1.600	1.600
0470	630.0120	Seeding Mixture No. 20	LB	50.000	50.000
0480	630.0200	Seeding Temporary	LB	60.000	60.000
0490	630.0300	Seeding Borrow Pit	LB	30.000	30.000
0500	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0510	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0520	638.2602	Removing Signs Type II	EACH	6.000	6.000
0530	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0540	642.5001	Field Office Type B	EACH	1.000	1.000
0550	643.0100	Traffic Control (project) 01. 4198-04-71	EACH	1.000	1.000
0560	643.0420	Traffic Control Barricades Type III	DAY	1,120.000	1,120.000
0570	643.0705	Traffic Control Warning Lights Type A	DAY	1,680.000	1,680.000
0580	643.0900	Traffic Control Signs	DAY	840.000	840.000
0590	645.0120	Geotextile Type HR	SY	325.000	325.000
0600	645.0130	Geotextile Type R	SY	1,000.000	1,000.000
0610	645.0220	Geogrid Type SR	SY	1,000.000	1,000.000
0620	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,104.000	1,104.000
0630	650.4500	Construction Staking Subgrade	LF	591.000	591.000
0640	650.5000	Construction Staking Base	LF	591.000	591.000
0650	650.6500	Construction Staking Structure Layout (structure) 01. B-59-192	LS	1.000	1.000
0660	650.9910	Construction Staking Supplemental Control (project) 01. 4198-04-71	LS	1.000	1.000
0670	650.9920	Construction Staking Slope Stakes	LF	591.000	591.000
0680	690.0150	Sawing Asphalt	LF	325.000	325.000
0690	690.0250	Sawing Concrete	LF	40.000	40.000
0700	715.0502	Incentive Strength Concrete Structures	DOL	984.000	984.000
0710	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	150.000	150.000
0720	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

GRUBBING

STATION	TO	STATION	LOCATION	201.0205 QUANTITY STA
9+10	-	11+00	CTH RR	2
TOTAL				2

REMOVING PAVEMENT

STATION	TO	STATION	LOCATION	204.0100 QUANTITY SY
9+10	-	12+00	CTH RR	600
TOTAL				600

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (item #205.0100) Cut (2)	Unusable Pavement Material (4)	Available Material (5)	Excavation Marsh (6) (item #205.0400)	Expanded Marsh Backfill (10) (item #208.1100) Factor 1.50	Unexpanded Fill	Expanded Fill (13) Factor 1.30	Mass Ordinate +/- (14)	Borrow (item #208.0100)	Comment:
1	6+87 - 9+10	CTH RR (NW SHOULDER)	92	0	92	510	464	699	909	-818	818	
	9+10 - 12+00	CTH RR	537	353	184	140	151	443	577	-393	330	
	12+00 - 13+22	CTH RR (NE SHOULDER)	61	0	61	0	0	0	0	63	0	
	48+87 - 49+60	FIELD ENTRANCE	10	0	10	0	0	71	92	-82	82	
Division 1 Totals			700	353	347	650	615	1,213	1,578	-1,230	1,230	

2) Unsuable Pavement Material is included in Cut
4) Unusable Pavement Material = Existing Asphaltic Pavement & Concrete Pavement. Backfill any areas below subgrade with borrow.
5) Available Material = Cut - Unusuable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material as shown in cross sections, then Borrow for the remaining Marsh Excavation.
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item Number 208.1100.
13) Expanded Fill. Factor = 1.3 Expanded Fill = Unexpanded Fill * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

BASE AGGREGATE DENSE, WATER, GEOTEXTILE, & GEOGRID

STATION	TO	STATION	LOCATION	305.0110 BASE AGG. 3/4-INCH TON	305.0120 BASE AGG. 1 1/4-INCH TON	305.0130 BASE AGG. 3-INCH TON	624.0100 WATER MGAL	645.0130 GEOTEXTILE TYPE R SY	645.0220 GEOGRID TYPE SR SY	REMARKS
6+87	-	9+10	CTH RR	60	155	500	7	75	75	
9+10	-	9+77.75	CTH RR	15	150	350	5	260	260	
9+25	-	9+50.00	CTH RR, RT	70	-	-	1	-	-	FIELD ENTRANCE
10+22.25	-	12+00	CTH RR	45	400	840	13	630	630	
10+50.00	-	12+30	CTH RR	100	-	-	1			ENTRANCES
12+00	-	13+22	CTH RR	30	45	44	1	35	35	
	9+10		CTH RR, LT & RT	-	-	3	-	-	-	FRENCH DRAINS
	10+30		CTH RR, LT & RT	-	-	3	-	-	-	FRENCH DRAINS
TOTALS				320	750	1,740	28	1,000	1,000	

ASPHALTIC SURFACE

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
6+87	-	9+10	CTH RR	6	25
9+10	-	9+77.75	CTH RR	14	55
10+22.25	-	12+00	CTH RR	37	145
12+00	-	13+22	CTH RR	3	15
TOTALS				60	240

ALL ITEMS ARE GROUP CODE 0010 UNLESS OTHERWISE STATED

3

3

STEEL PLATE BEAMGUARD & MGS GUARDRAIL

STATION	TO	STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL LF	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+25.5	-	9+78.7	CTH RR, LT	-	-	-	62.5	39.5	1
9+45.2	-	9+78.2	CTH RR, RT	20.5	31.25	1	-	-	-
10+21.3	-	11+74.5	CTH RR, LT	-	-	-	62.5	39.5	1
10+21.3	-	10+54.3	CTH RR, RT	20.5	31.25	1	-	-	-
TOTALS				41	62.5	2	125	79	2

CULVERT PIPE & ENDWALLS

STATION	LOCATION	521.0118 CULVERT PIPE CORRUGATED STEEL 18-INCH LF	521.1221 APRON ENDWALLS CULVERT PIPE STEEL 18-INCH EACH	THICKNESS STEEL INCH
10+64	CTH RR, RT	50	2	0.064
TOTALS		50	2	

SILT FENCE

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 MAINTENANCE LF
6+68	-	9+88	CTH RR, LT	320	640
10+10	-	13+22	CTH RR, LT	300	600
9+10.00	-	9+88	CTH RR, RT	170	340
10+10	-	12+00	CTH RR, RT	270	540
			UNDISTRIBUTED	140	280
TOTALS				1,200	2,400

EROSION MAT

STATION	TO	STATION	LOCATION	URBAN CLASS I TYPE B 628.2008 SY	CLASS II TYPE C 628.2027 SY
6+87	-	9+77.75	CTH RR, LT	650	-
9+10	-	9+77.75	CTH RR, RT	150	-
10+22.25	-	12+00	CTH RR, RT	360	140
10+22.25	-	13+22	CTH RR, LT	300	-
UNDISTRIBUTED				340	35
TOTAL				1,800	175

ROCK BAGS

STATION	LOCATION	628.7570 EACH	REMARKS
8+75	CTH RR, LT	15	SILT FENCE RELIEF
9+00	CTH RR, LT	15	SILT FENCE RELIEF
9+75	CTH RR, LT	15	SILT FENCE RELIEF
9+80	CTH RR, RT	15	SILT FENCE RELIEF
10+24	CTH RR, RT	15	SILT FENCE RELIEF
10+26	CTH RR, LT	15	SILT FENCE RELIEF
11+00	CTH RR, LT	15	SILT FENCE RELIEF
11+25	CTH RR, RT	10	DITCH CHECK
11+75	CTH RR, RT	10	DITCH CHECK
	UNDISTRIBUTED	25	
TOTAL		150	

TURBIDITY BARRIERS

STATION	LOCATION	628.6005 SY
WEST ABUTMENT	CTH RR	45
EAST ABUTMENT	CTH RR	45
TOTAL		90

REMOVING SIGNS & SUPPORTS

STATION	LOCATION	638.2602 SIGNS TYPE II EACH	638.3000 SMALL SIGN SUPPORTS EACH
8+85	CTH RR, RT	1	1
9+90	CTH RR, LT & RT	2	2
10+10	CTH RR, LT & RT	2	2
10+15	CTH RR, LT	1	1
TOTALS		6	6

CULVERT PIPE CHECKS

STATION	LOCATION	628.7555 EACH
10+80	CTH RR, RT	5
TOTAL		5

SIGNS REFLECTIVE TYPE II AND WOOD POSTS

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

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TOPSOIL, FERTILIZER, AND SEED

STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCH SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0300 SEEDING BORROW PIT
6+87	-	9+77.75	CTH RR, LT	650	-	0.4	18	9	-
9+10	-	9+77.75	CTH RR, RT	150	-	0.1	4	2	-
10+22.25	-	12+00	CTH RR, RT	360	-	0.2	10	5	-
10+22.25	-	13+22	CTH RR, LT	300	-	0.2	8	4	-
UNDISTRIBUTED			BORROW PIT/WASTE AREA	-	1000	0.6	-	20	30
UNDISTRIBUTED			ENTIRE PROJECT	140	-	0.1	10	20	-
TOTALS				1,600	1,000	1.6	50	60	30

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

SAWING

STATION	TO	STATION	LOCATION	690.0150 ASPHALT LF	690.0250 CONCRETE LF
7+22	-	9+10	CTH RR, LT	188	-
	9+10		CTH RR	22	20
	12+00		CTH RR	22	20
12+00	-	12+93	CTH RR, LT	93	-
	TOTAL			325	40

3

TRAFFIC CONTROL SUMMARY

LOCATION	APPROXIMATE SERVICE DAYS	643.0420 BARRICADES TYPE III NO. IN SERVICE	643.0420 DAYS	643.0705 WARNING LIGHTS TYPE A NO. IN SERVICE	643.0705 DAYS	643.0900 SIGNS NO. IN SERVICE	643.0900 DAYS	REMARKS
CTH RR/CTH KW	70	1	70	2	140	1	70	BRIDGE OUT .7 MILES AHEAD LOCAL TRAFFIC ONLY
500 FEET WEST OF WORK ZONE LIMITS	70	-	-	-	-	3	210	ADVANCED CLOSURE SIGNING - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B
500 FEET WEST OF WORK ZONE LIMITS	70	2	140	4	280	1	70	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL E
WEST WORK ZONE LIMITS	70	5	350	6	420	1	70	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST WORK ZONE LIMITS	70	5	350	6	420	1	70	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
500 FEET EAST OF WORK ZONE LIMITS	70	2	140	4	280	1	70	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL E
500 FEET EAST OF WORK ZONE LIMITS	70	-	-	-	-	3	210	ADVANCED CLOSURE SIGNING - SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B
CTH RR/CTH LL	70	1	70	2	140	1	70	BRIDGE OUT 1.4 MILES AHEAD LOCAL TRAFFIC ONLY
TOTALS			1,120		1,680		840	

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF	GROUP CODE
6+87	-	9+10	CTH RR	223	223	-	1	223	0010
9+10	-	9+77.75	CTH RR	68	68	-	-	68	0010
10+22.25	-	12+00	CTH RR	178	178	-	-	178	0010
12+00	-	13+22	CTH RR	122	122	-	-	122	0010
SUBTOTALS				591	591	0	1	591	0010
10+00			CTH RR	-	-	1	-	-	0020
SUBTOTALS				0	0	1	0	0	0020
TOTALS				591	591	1	1	591	

PAVEMENT MARKING

STATION	TO	STATION	LOCATION	646.0106 4-INCH EPOXY YELLOW LF	646.0106 4-INCH EPOXY WHITE LF	REMARKS
7+22	-	9+10	CTH RR	-	188	EDGELINE
9+10	-	12+00	CTH RR	150	580	CENTERLINE PASSING & EDGELINES
12+00	-	12+93	CTH RR	-	186	EDGELINE
SUBTOTAL				150	954	
TOTAL				1,104		

ALL ITEMS ARE GROUP CODE 0010 UNLESS OTHERWISE STATED

CONVENTIONAL SIGNS AND ABBREVIATIONS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
EXISTING R/W LINE
NEW R/W LINE
REFERENCE LINE
SLOPE INTERCEPT — SLOPE INTERCEPTS
CORPORATE LIMITS — NAME
UNDERGROUND FACILITY (GAS, TEL., ELEC. ETC.) — (TYPE)
FENCE
TEMPORARY LIMITED EASEMENT
TRANSMISSION TOWER & LINE
SECTION CORNER

CULVERT (BOX, PIPE OR CATTLE PASS) — (TYPE)
RAIL LINE (SMALL SCALE)
BUILDING — (TYPE)
IRON PIN OF RECORD — IP
R/W MONUMENT
R/W MARKER
BUSHES
DECIDUOUS TREES
CONIFEROUS TREES
WOODS

AC.	ACRE
SEC.	SECTION
S.F. OR SQ.FT.	SQUARE FEET
STA.	STATION
STH	STATE TRUNK HIGHWAY
N.	NORTH GRID COORDINATE
CL.. OR C/L	CENTERLINE
R/W	RIGHT-OF-WAY
CO.	COUNTY
CTH	COUNTY TRUNK HIGHWAY
T.L.E.	TEMPORARY LIMITED EASEMENT
E.	EAST GRID COORDINATE
EXIST.	EXISTING
W.	WEST
PE	PRIVATE ENTRANCE
PL	PROPERTY LINE
RT.	RIGHT
G.N.	GRID NORTH
REL	RELEASE OF RIGHTS
RD.	ROAD
RL, R/L	REFERENCE LINE
LT.	LEFT
TN.	TOWN

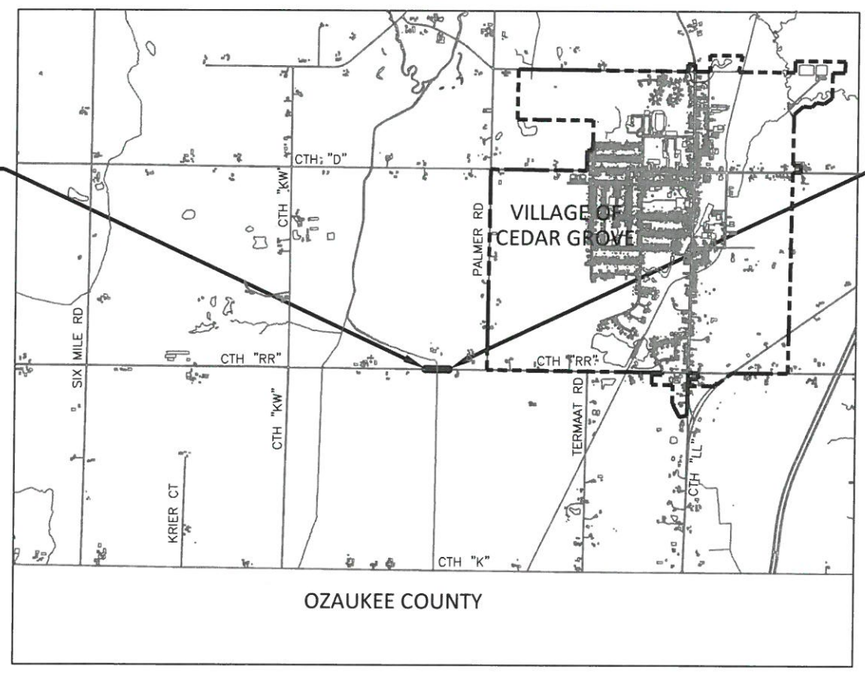
BEGIN RELOCATION ORDER
STA. 629+00
Y = 106226.492
X = 183258.561

END RELOCATION ORDER
STA. 635+46.31
Y = 106220.069
X = 183904.851

T.13N. - R.22E.

T.13N. - R.22E.

T.13N. - R.22E.



T.12N. - R.22E.

NOTES

DIMENSIONING FOR THE NEW R/W IS MEASURED ALONG AND PERPENDICULAR TO THE REFERENCE LINES.

POINTS OF REFERENCE AS SPECIFIED ON EACH PLAT DETAIL SHEET: COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO SHEBOYGAN COUNTY COORDINATE GRID.

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.

LAYOUT
SCALE 0 — 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.12 MI

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
4198-04-00	4.01	2
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT OF WAY REQUIRED FOR
CTH "RR" BRIDGE
CTH "KW" – CTH "LL"

C.T.H. "RR" SHEBOYGAN COUNTY

ORIGINAL PLAT PREPARED BY
SHEBOYGAN COUNTY HIGHWAY DEPARTMENT
1211 NORTH 23 STREET
SHEBOYGAN, WISCONSIN
53081

WISCONSIN
EDGAR HARVEY, JR.
S-1489
WALDO
WI
LAND SURVEYOR

EDGAR HARVEY, JR., RLS
MARCH 17, 2016

REVISION DATE
APRIL 5, 2016

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED:

DATE: _____
District Transportation Director

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5 WISCONSIN DIVISION

APPROVED:

DATE: _____
Division ... tor

SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NUMBER	PAGE NUMBER		INTEREST REQUIRED	TOTAL ACRES	R/W ACRES REQUIRED			NET ACRES REM	TLE ACRES
					NEW	EXISTING	TOTAL		
1	4.02	JOHN A. SCHOENEMANN AND ROSEMARY SCHOENEMANN	FEE	42.3	0.1599	0.4949	0.6548	41.6452	
2	4.02	GENE L. DANA AND JOAN DANA	FEE & TLE	5.0	0.0397	0.1461	0.1858	4.8142	0.1057
3	4.02	JOHN R. AND NANCY J. GABRICH	FEE	4.272	0.1447	0.2615	0.4062	3.8658	

COORDINATES

480	106176.068	183804.087
484	106184.503	183458.501
485	106191.502	183458.619
486	106166.774	183732.991
487	106259.491	183258.889
488	106285.495	183359.152
489	106284.502	183459.147
491	106269.005	183508.996
492	106265.851	183826.406
498	106184.010	183508.151
500	106167.865	183623.246
502	106127.870	183622.576
503	106129.012	183507.605
504	106122.373	183672.490
505	106122.870	183622.492
506	106166.068	183803.987

TOWN

SW–SE 27–13–22

SE–SE 27–13–22

4

EXISTING RIGHT OF WAY ACQUIRED BY STATE AID PROJECT NO. 2100, CEDAR GROVE–SILVER CREEK ROAD, STH NO. 144

(1) JOHN A. SCHOENEMANN AND ROSEMARY SCHOENEMANN

CTH "RR"

DRAINAGE DITCH #2

ROGER PRINSEN AND MARION PRINSEN

END RELOCATION ORDER STA. 635+46.31
106220.069
183904.851

106233.271
182310.493

628+00 629+00 630+00 631+00 RL S89°25'50"E 632+00 633+00 634+00 635+00

S89°29'13"E 948.09'

SL S89°29'13"E

BEGIN RELOCATION ORDER STA. 629+00.00
106226.492
183258.561

S89°25'50"E 317.43'

S07°45'10"E 46.63'

N00°57'36"E 43.93'

S89°25'50"E 100.02'

S00°57'36"W 38.49'

S89°25'50"E 49.65'

S89°25'50"E 115.25'

TLE

S89°25'50"E 71.00'

N53°43'31"E 75.05'

S00°57'36"W 45.60'

S89°25'50"E 50.00'

N75°27'36"E 103.58'

S89°25'50"E 100.00'

S72°43'53"E 52.20'

628+00 1.71' RT N00°34'10"E 34.71' 628+00 33' LT (487)

630+00 60' LT (488)

631+00 60' LT (489)

631+50 45' LT (491)

634+67.43 45' LT (492)

634+74.17 1.14' RT N07°45'10"E 3.03'

631+00.61 1.51' RT 631+00.40 33' RT S00°57'36"W 7.00' (485)

631+00.35 40' RT (484)

631+50 40' RT S00°34'10"W 15.00' (498)

631+50 95' RT (503)

631+50 55' RT (501)

632+65.25 55' RT (500)

632+64.98 95' RT (502)

632+64.94 100' RT (505)

633+14.94 100' RT (504)

633+75 55' RT (496)

634+46 55' RT N00°34'10"E 10.00' (508)

634+46 45' RT (480)

635+46.02 45' RT

635+46.31 1.07' RT

PL

BENJAMIN AND JACLYN LUKINS

JOSPEH J. LAPINSKI, AND MATTHEW J. LAPINSKI, AND GREGORY J. LAPINSKI AND JEANETTE A. LAPINSKI

(2) GENE L. DANA AND JOAN DANA

BELGIUM–HOLLAND

PRIVATE ACCESS EASEMENT

(3) JOHN R. AND NANCY J. GABRICH

MARY C. CONRAD

NW–NE 34–13–22

NE–NE 34–13–22

HOLLAND

REVISIONS APRIL 5, 2016	DATE MARCH 17, 2016	SCALE, FEET 0 25 50 100	HWY: CTH "RR"	STATE R/W PROJECT NUMBER 4198–04–00	PLAT SHEET 4.02
	GRID FACTOR		COUNTY: SHEBOYGAN	CONSTRUCTION PROJECT NUMBER 4198–04–71	PS&E SHEET 15 E

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
6	6+92	RR SPK IN PP*00-18457-28' RT	717.72
5	13+22	RR SPK IN PP300-18426-30' RT.	725.92

FIELD ENTRANCE CURVE NOTES

PI STA = 49+39.69	PI STA = 49+07.37
Y = 106159.337	Y = 106145.043
X = 183674.362	X = 183641.665
DELTA = 65°58'03"	DELTA = 64°16'19"
D = 229°10'59"	D = 229°10'59"
T = 16.23'	T = 15.70'
L = 28.78'	L = 28.04'
R = 25.00'	R = 25.00'
PC STA = 49+23.47	PC STA = 48+91.67
PT STA = 49+52.25	PT STA = 49+19.71

JOHN A. AND ROSEMARY SCHOENEMANN

SLOPE INTERCEPT

R/W LINE

25' SLOPE TRANSITION FROM EXISTING TO 4:1 STA. 6+87 TO STA. 7+12

LIMITS OF WETLANDS

ONION RIVER

N

STA. 10+64.30 CTH RR=
STA. 50+00.00 FIELD ENTRANCE
Y = 106223.308
X = 183674.831

JOHN A. AND ROSEMARY SCHOENEMANN

LIMITS OF WETLANDS

R/W LINE

SLOPE INTERCEPT

BURIED TELEPHONE CABLE (APPROXIMATE LOCATION)

P.L.

CABC FE

ROGER AND MARION PRINSEN

REBAR IN CONCRETE — 51.29' — 46.66' — PK NAIL IN CMP — PALMER RD — PK NAIL — 44.41' — PK NAIL IN CMP — PK NAIL — CTH RR — PK IN PP — 44.85'

Y=106209.749
X=184937.792

SE 1/4 COR. 27-13-22

EXISTING R/W

CONSTRUCTION LIMITS
STA. 13+22

7 — CTH RR — 8 — S89°26'59"E — 9 — 10 — 11 — 12 — 13

EXISTING R/W
CONSTRUCTION LIMITS
STA. 6+87

BM*6

JOSEPH J. LAPINSKI, ETAL

REBAR IN CONCRETE — 38.84' — PK NAIL — CTH RR — 87.91' — PK NAIL IN CMP — DH NAIL IN 16" CEDAR — 32.55' — 51.67' — PK IN PP

S 1/4 COR. 27-13-22
Y=106233.271
X=182310.493

WOODS

BEGIN PROJECT
STA. 9+10.00
Y = 106224.790
X = 183520.525

LIMITS OF WETLANDS

SLOPE INTERCEPT

R/W LINE

REMOVE FIELD ENTRANCE

FIELD ENTRANCE REQUIRED
TLE FOR FIELD ENTRANCE CONSTRUCTION

GENE L. AND JOAN DANA

TLE LINE

N0°25'11"E

CABC FE

P.L.

N66°23'14"E

43'

R/W LINE

SLOPE INTERCEPT

FIELD ENTRANCE REQUIRED

JOHN R. AND NANCY J. GABRICH

LEGEND

- TREES TO BE REMOVED
- XXXX SAW CUT
- WETLANDS

END PROJECT
STA. 12+00.00

5

5

FIELD ENTRANCE PROFILE

STA. 10+64.30 CTH RR=
STA. 50+00.00 FIELD ENTRANCE

FINISHED GRADE

STA 48+87.12 EL 721.14

STA 49+02.12 EL 721.30

STA 49+83.00 EL 724.15

STA 50+00.00 EL 724.49

1.08%

3.52%

2.00%

EXISTING PROFILE

STA. 49+65
1-18" CPCS REQ'D.

VPI STA 10+30.00
VPI EL 724.470

FINISHED GRADE

0.96%

0.24%

VCL = 180.00

K = 250.99

HIGH WATER 100 EL.=717.1

HIGH WATER 2 EL.=714.4

WATER EL.=713.4 (10-17-2014)

STA 9+10.00 EL 723.32

VPC STA 9+40.00 VPC EL 723.61

VPT STA 11+20.00 VPT EL 724.69

EXISTING PROFILE

STA 12+00.00 EL 724.88

STA. 10+00.00
REMOVE STRUCTURE B-59-306
SINGLE SPAN CONCRETE FLAT SLAB
23.3' LONG
42' CLEAR ROADWAY

STA. 10+00
STRUCTURE B-59-192 REQUIRED
SINGLE SPAN CONCRETE FLAT SLAB
30' CLEAR ROADWAY
44.5' OVERALL LENGTH

720.90	721.28	721.91	722.11	721.14	722.99	722.55	723.87	724.19	724.49	722.93	723.08	723.24	723.44	723.46	723.63	723.70	723.87	723.92	712.83	724.11	724.13	724.28	724.16	724.42	724.21	724.54	724.27	724.63	724.41	724.70	724.57	724.76	724.73	724.82	724.88	724.88	725.00	725.08	725.16	725.25

PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	PLAN AND PROFILE:	SHEET	E

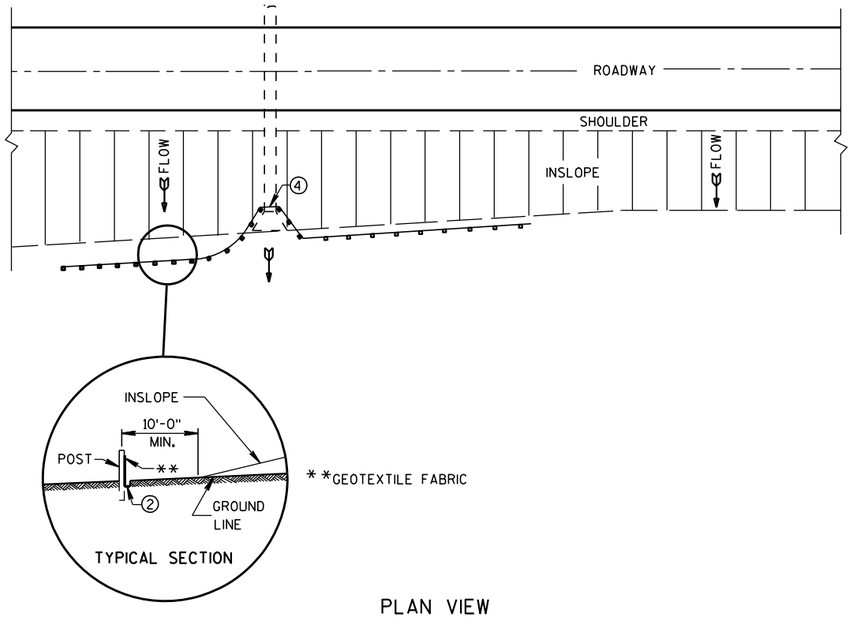
FILE NAME : N:\C3D\45039500\SHEETSPLAN\050101_PP.DWG
LAYOUT NAME - 050101_PP - 05020

PLOT DATE : 7/6/2016 7:29 AM PLOT BY : SOUFAL, KEVIN PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

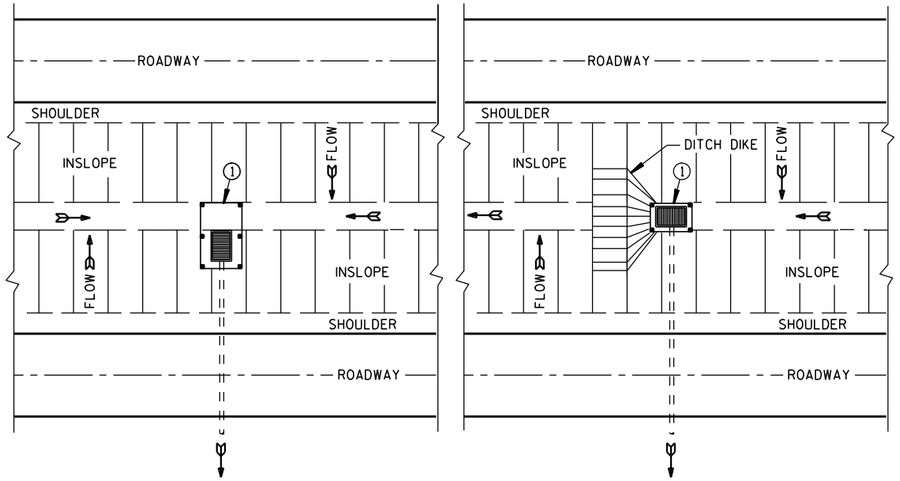
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



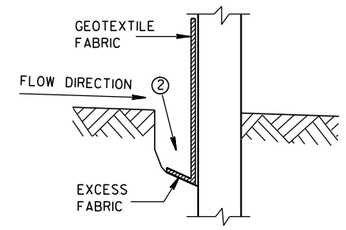
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

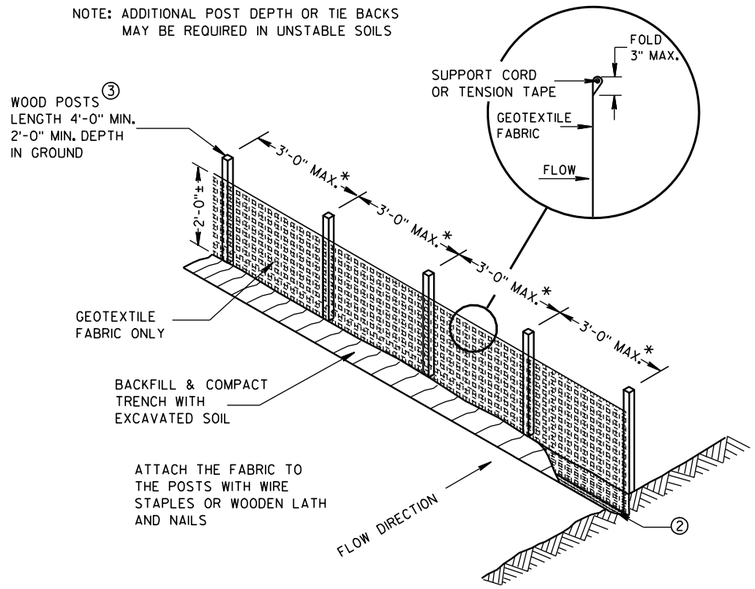
GENERAL NOTES

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

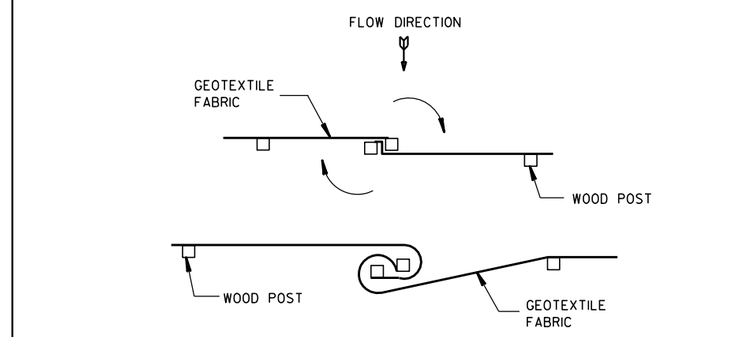
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



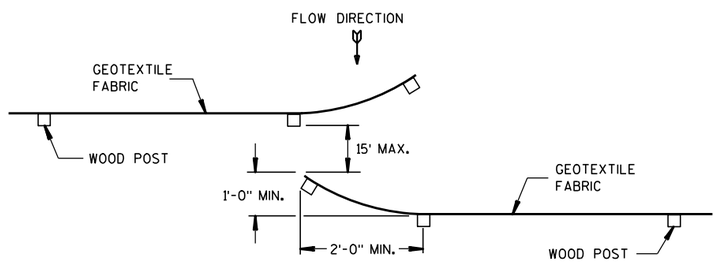
TRENCH DETAIL



SILT FENCE

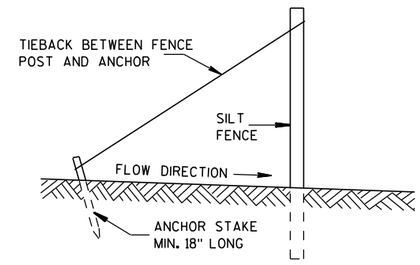


TWIST METHOD



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

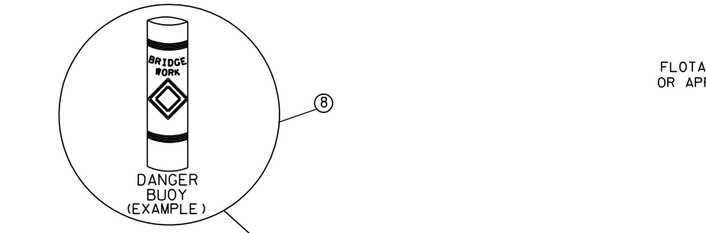
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

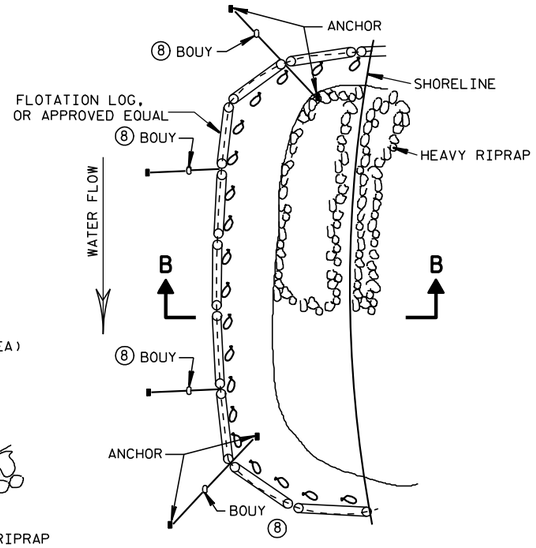
S.D.D. 8 E 9-6

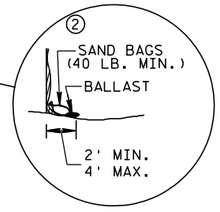
6

S.D.D. 8 E 9-6

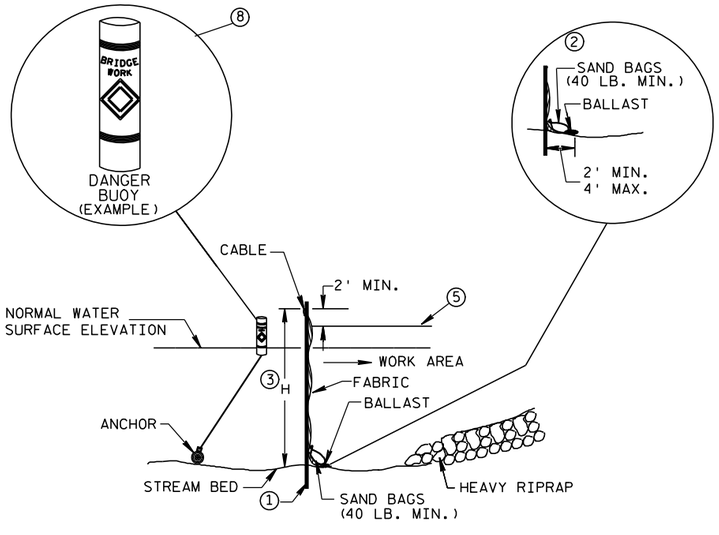


SECTION B-B

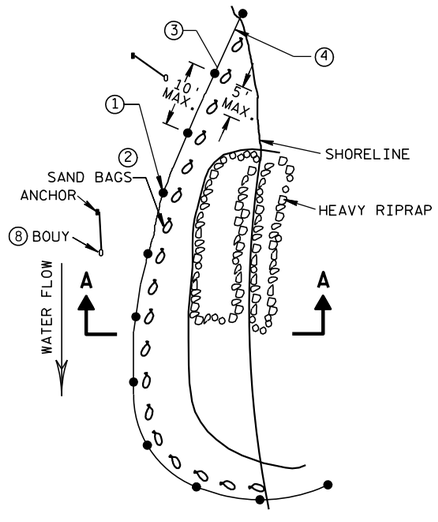




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

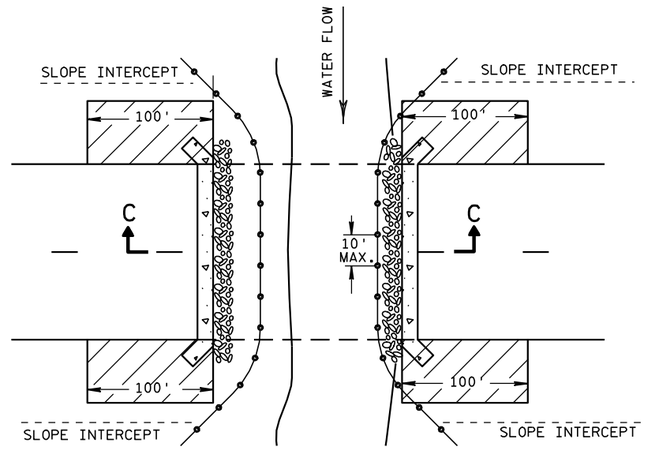
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

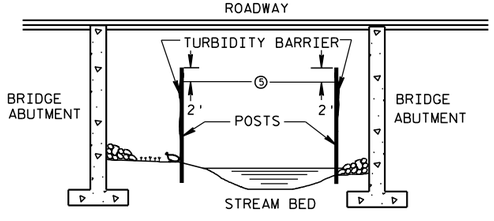
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

METAL APRON ENDWALLS

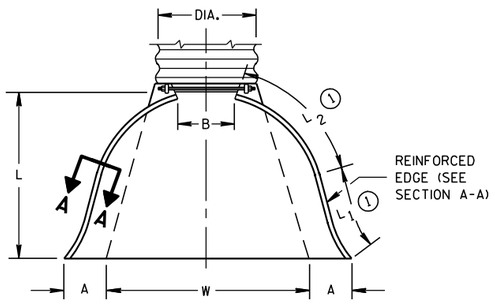
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

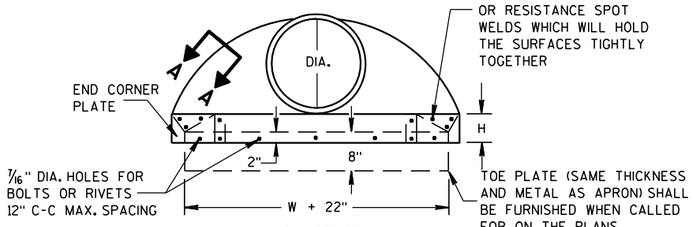
REINFORCED CONCRETE APRON ENDWALLS

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

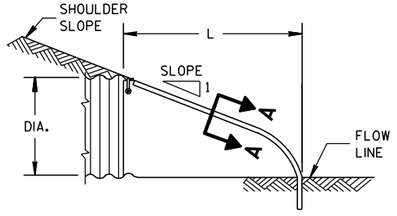
*MINIMUM
**MAXIMUM



PLAN VIEW

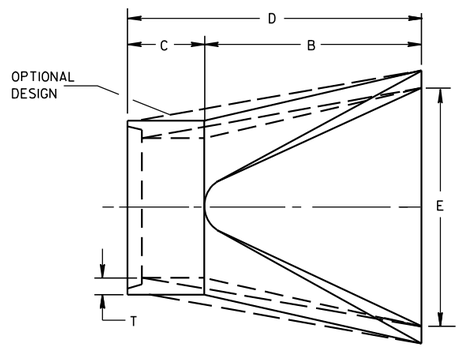


END VIEW

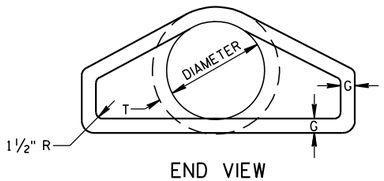


SIDE ELEVATION

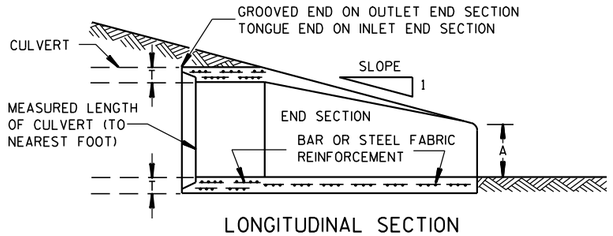
METAL ENDWALLS



PLAN

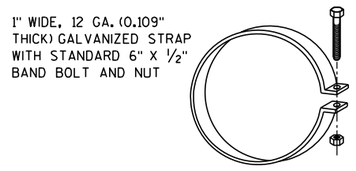


END VIEW



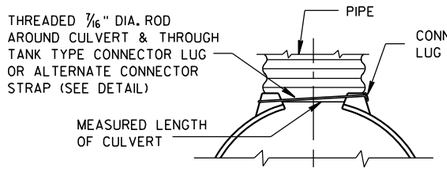
LONGITUDINAL SECTION

CONCRETE ENDWALLS

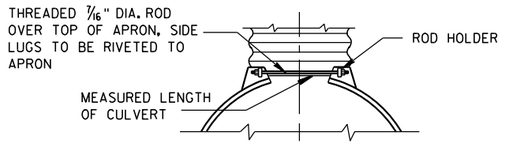


ALTERNATE FOR TYPE 1 CONNECTION

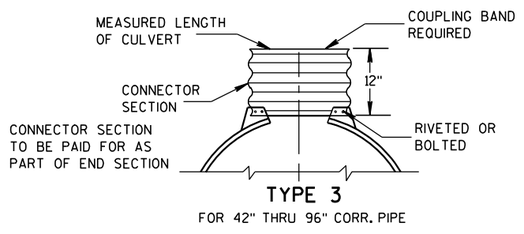
END SECTION CONNECTOR STRAP



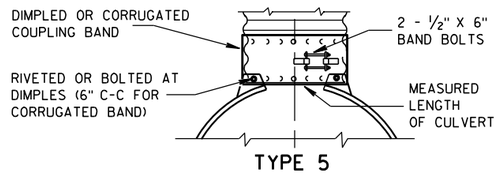
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

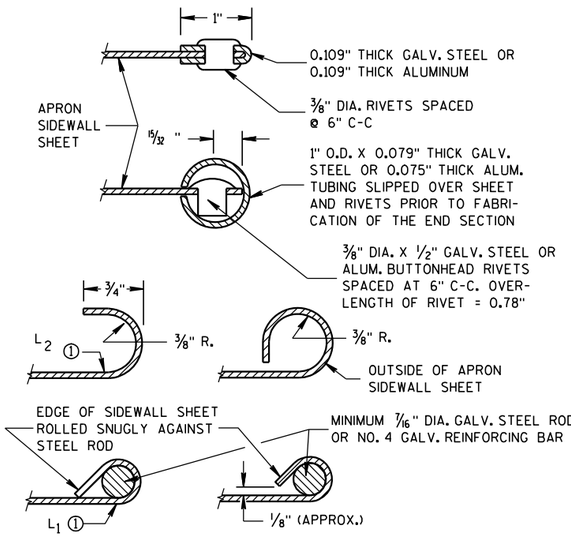
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

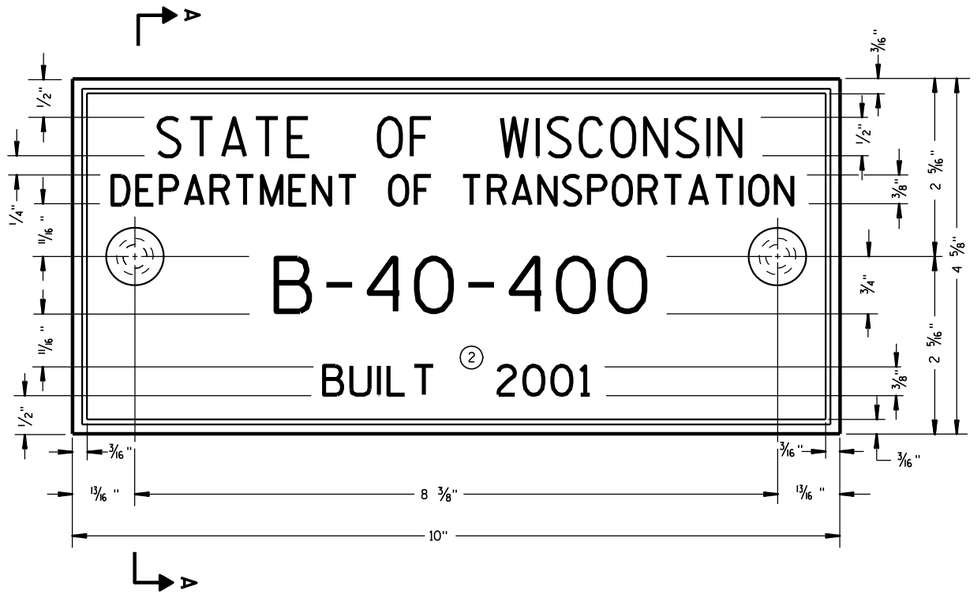
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

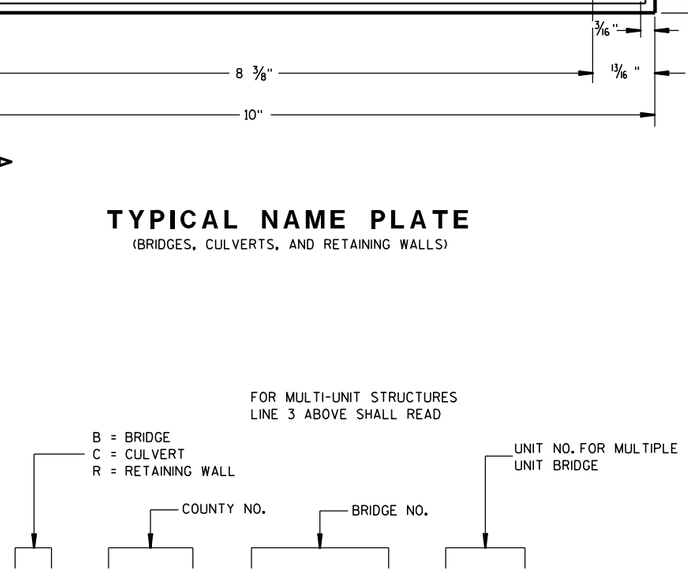
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



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



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

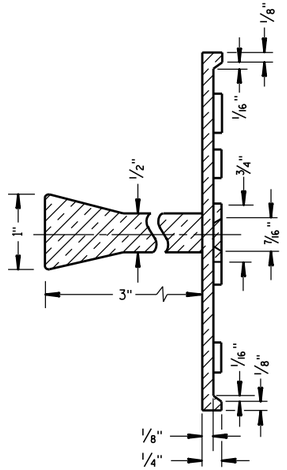
GENERAL NOTES

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

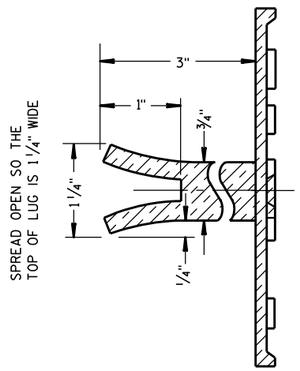
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

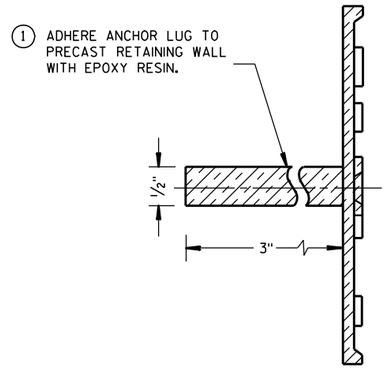
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

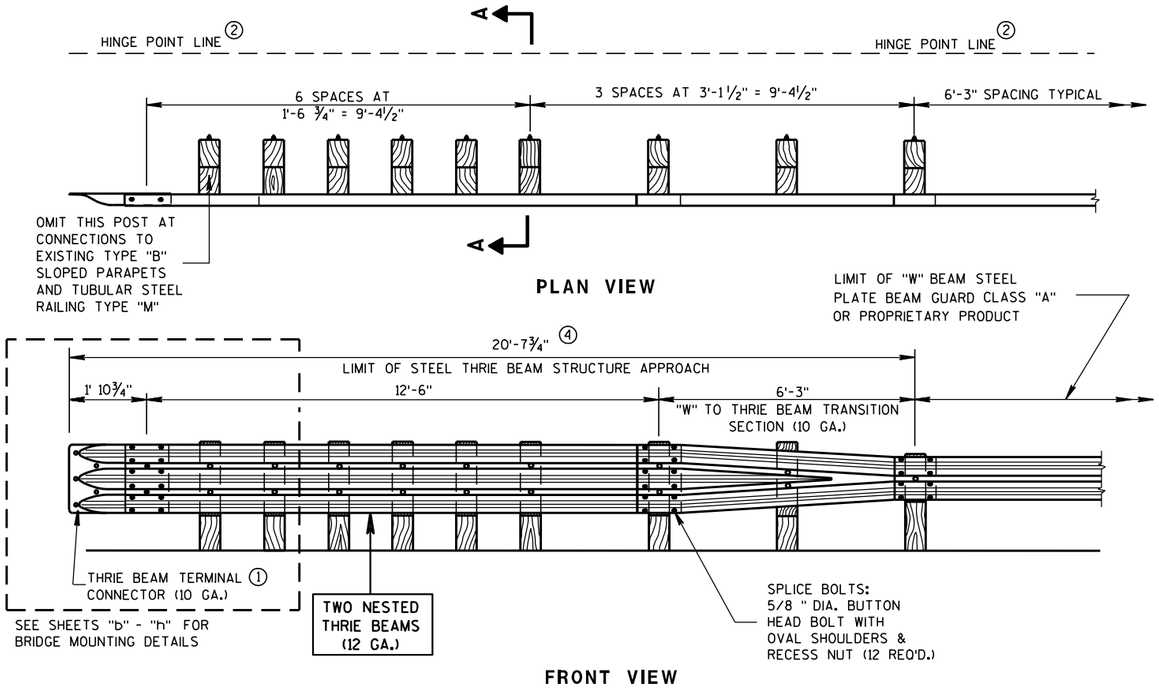
3/26/10 DATE

/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 12 A 3-10



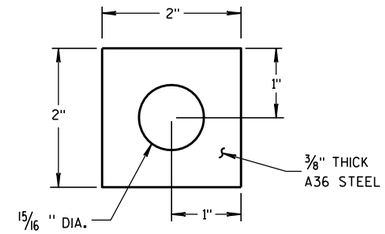


PLATE WASHER DETAIL

GENERAL NOTES

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

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

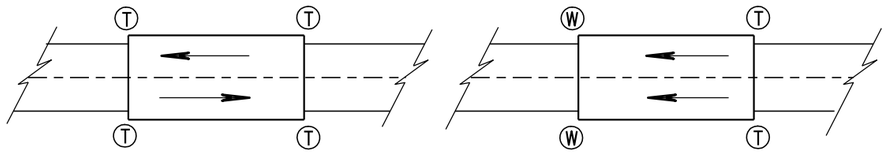
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

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

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

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



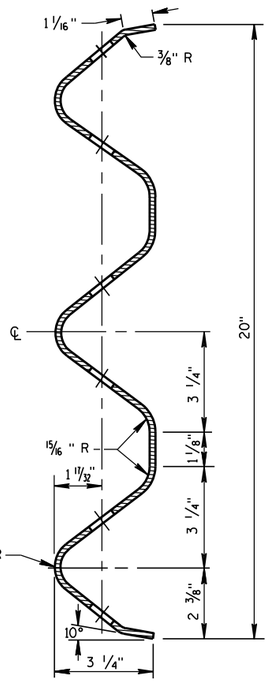
TWO WAY TRAFFIC

ONE WAY TRAFFIC

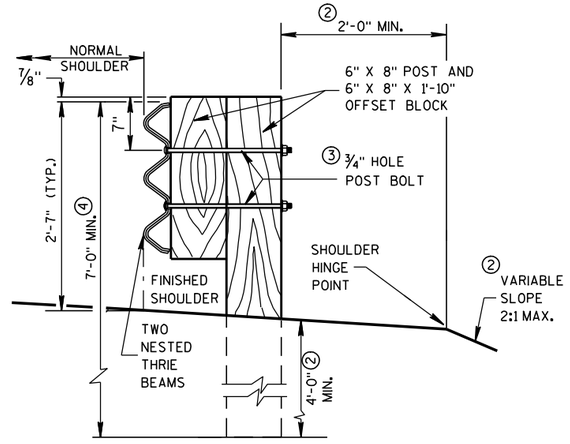
(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

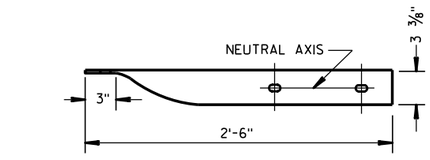
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

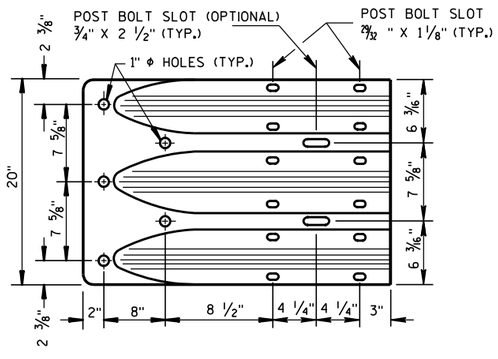


SECTION THRU THRIE BEAM RAIL ELEMENT

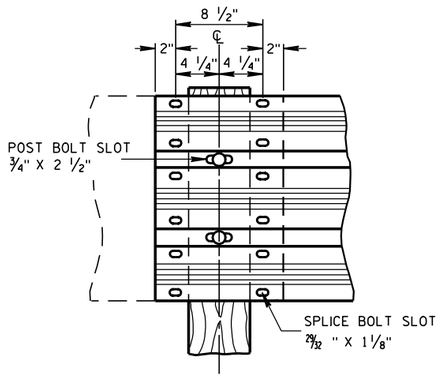


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS 122
ENGINEER

FHWA

6

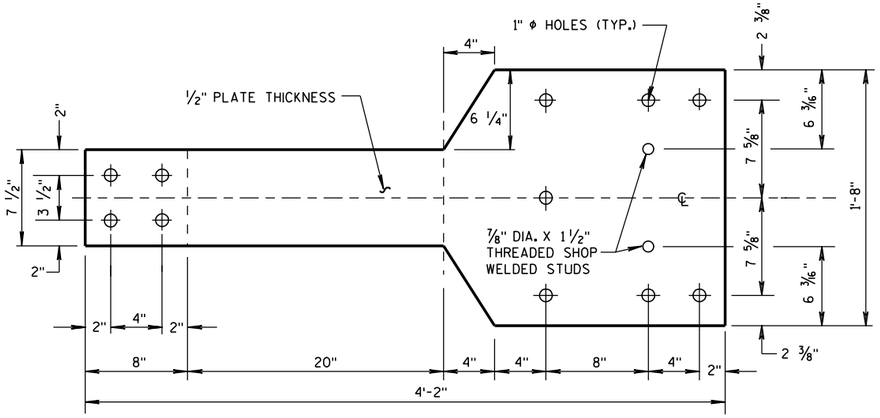
S.D.D. 14 B 20-11a

6

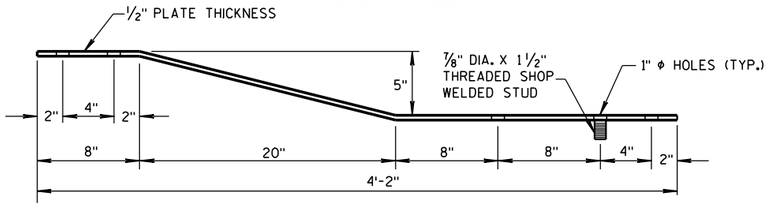
S.D.D. 14 B 20-11a

GENERAL NOTES

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

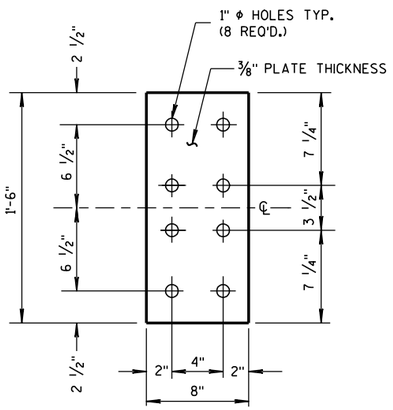


FRONT VIEW



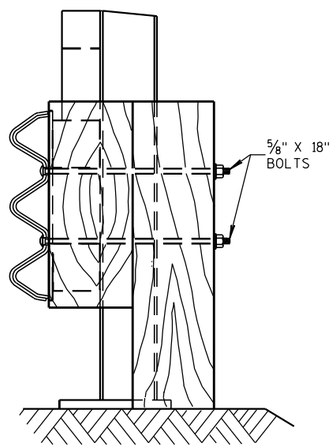
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

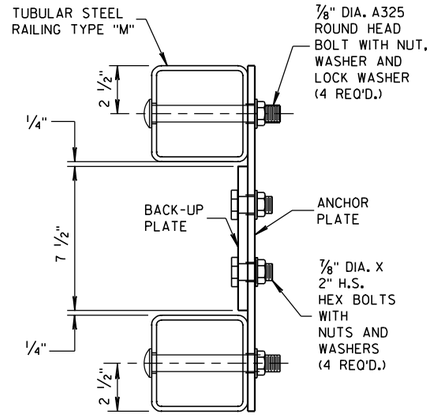


FRONT VIEW

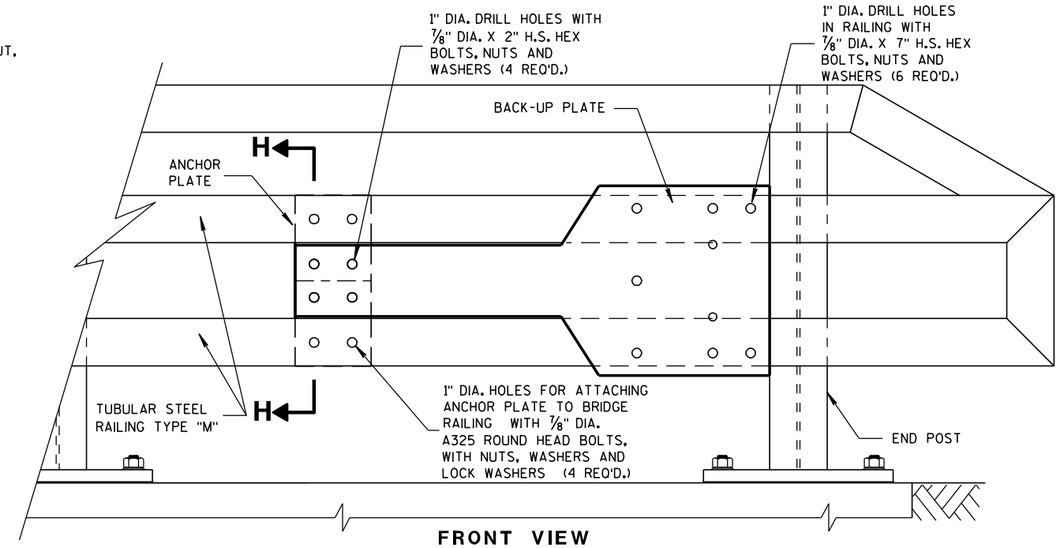
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

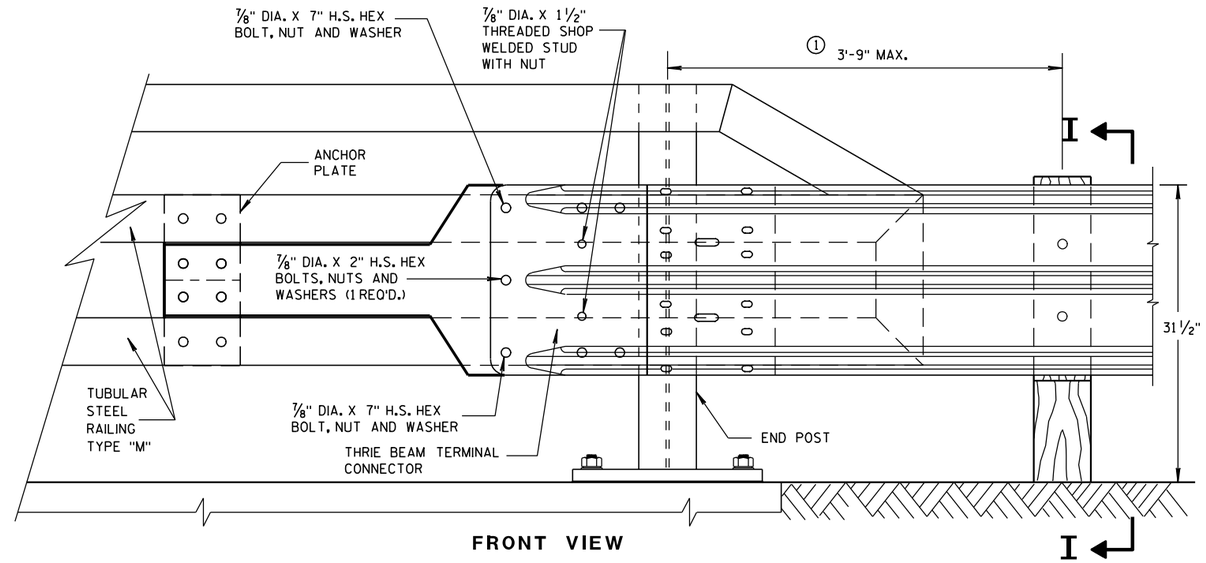


SECTION H-H

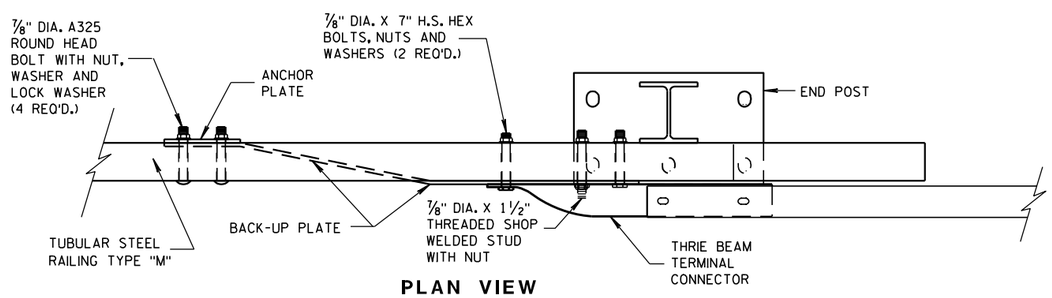


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER

FHWA

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

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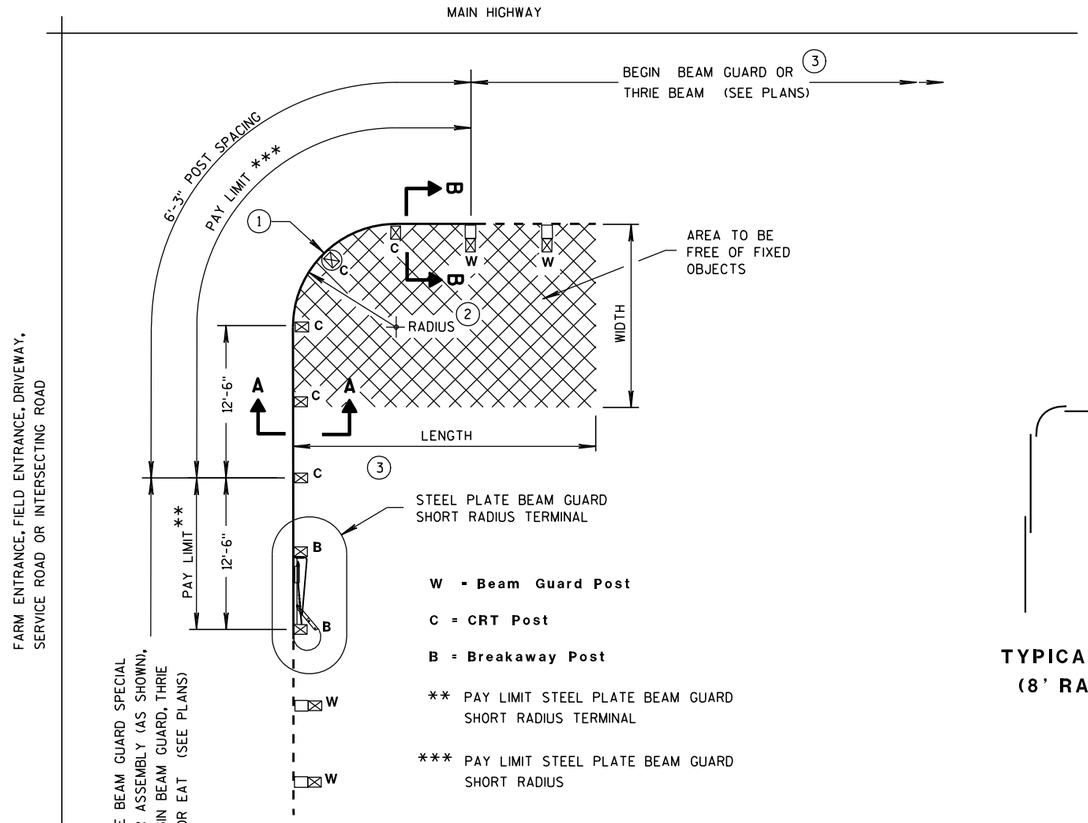
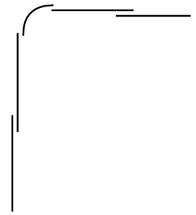
S.D.D. 14 B 20-11f



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

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

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

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

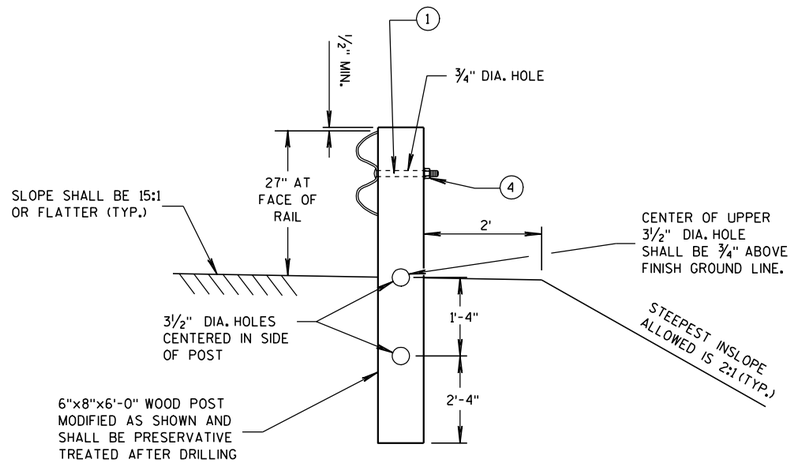
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

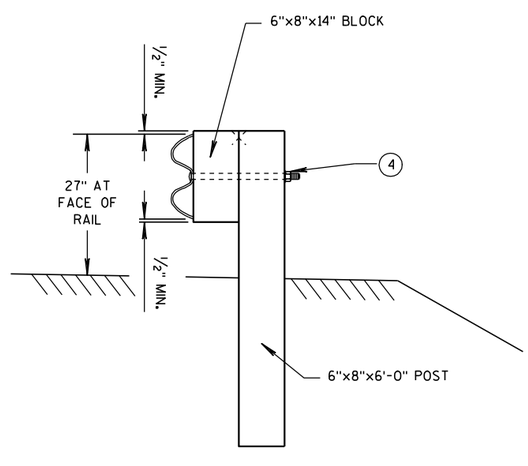
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

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



SECTION A-A
(CRT POST)

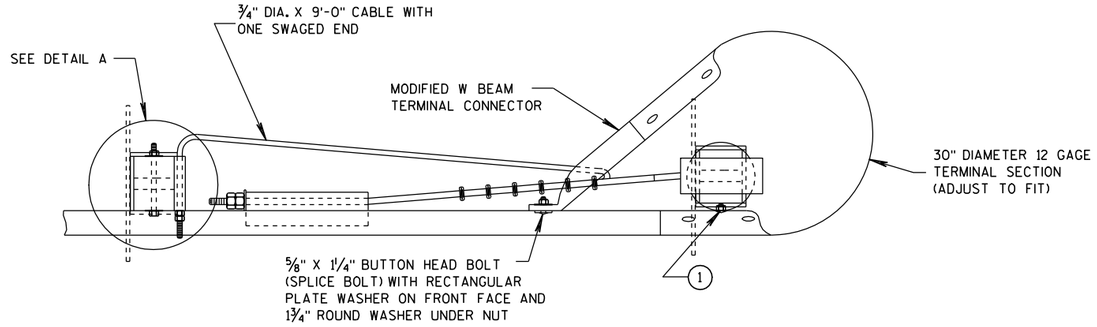


SECTION B-B
(BEAM GUARD POST)

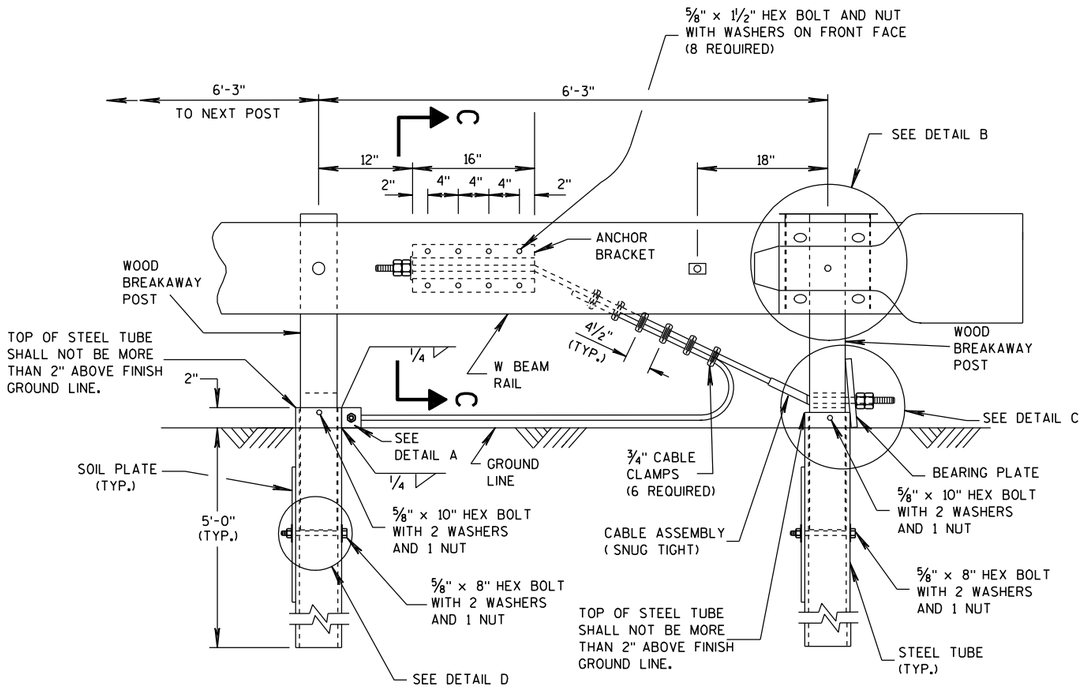
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

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

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



PLAN VIEW



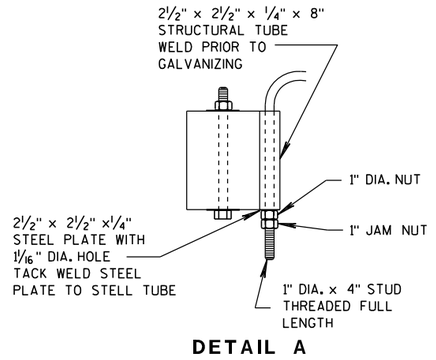
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

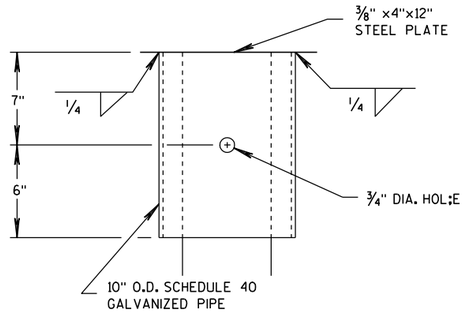
GENERAL NOTES

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

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



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

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

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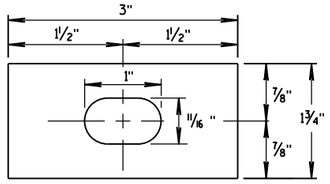
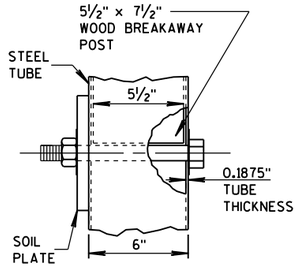
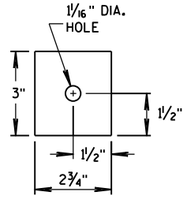
S.D.D. 14 B 27-1b



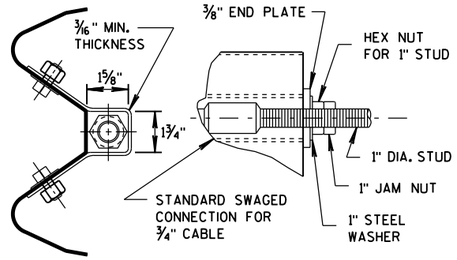
RECTANGULAR PLATE WASHER



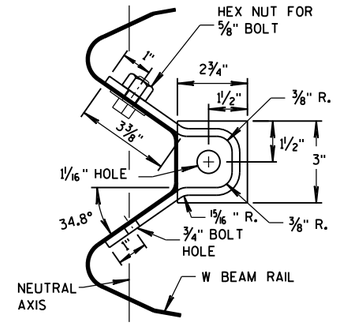
DETAIL D



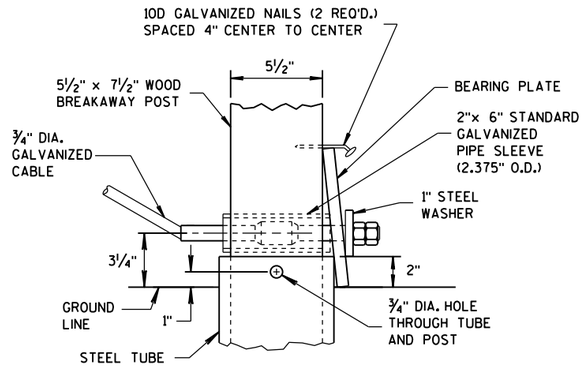
END PLATE



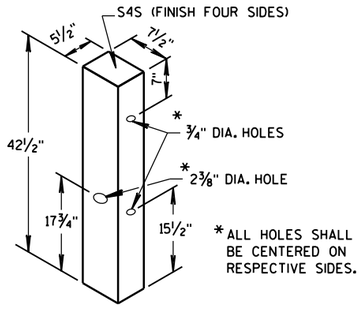
SECTION C-C
(END PLATE REMOVED)



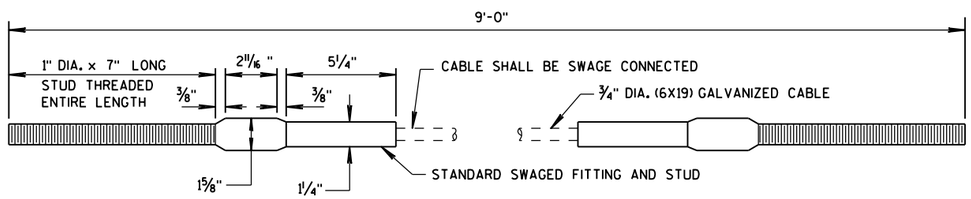
ANCHOR BRACKET



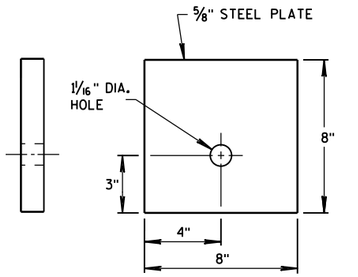
DETAIL C



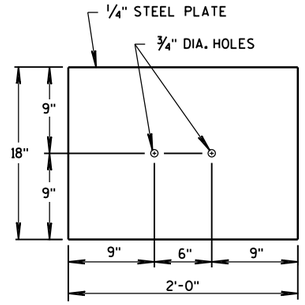
WOOD BREAKAWAY POST



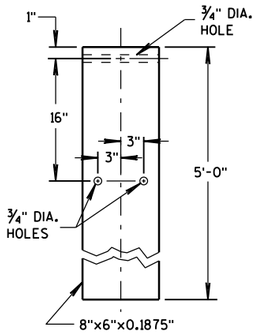
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

6

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

GENERAL NOTES

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

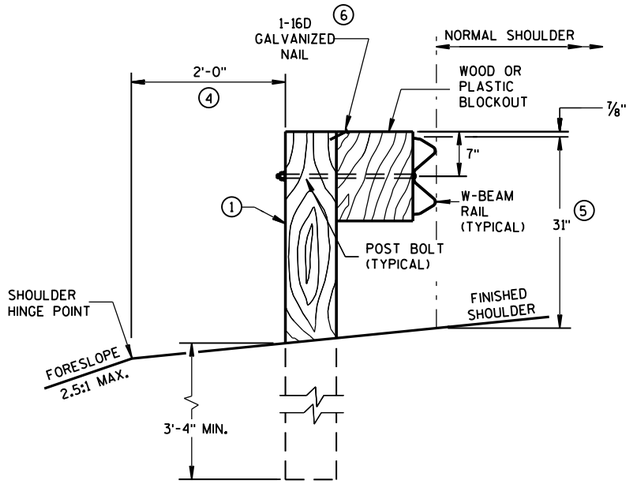
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

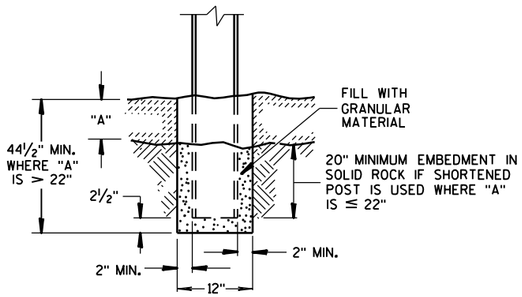
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



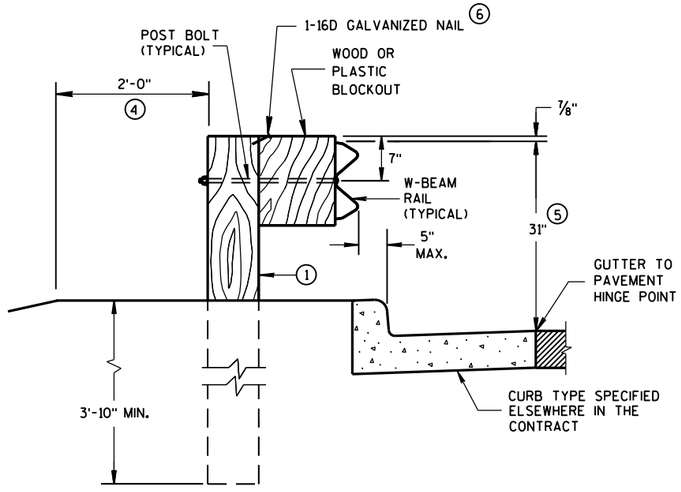
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



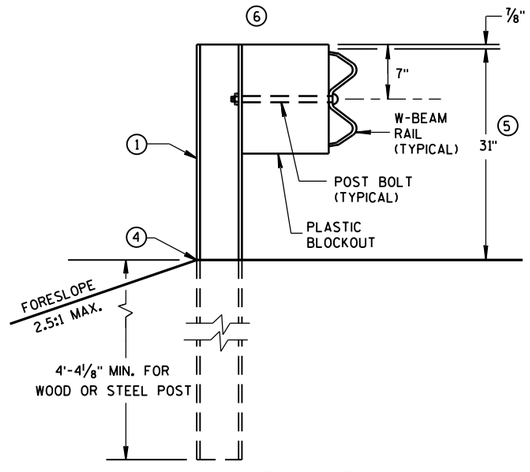
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



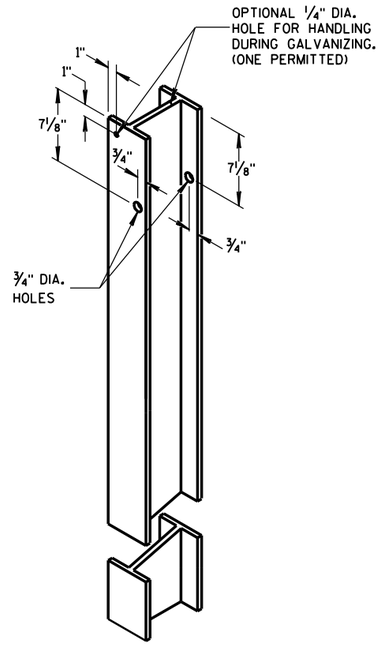
END VIEW

LOCATED ALONG A CURBED ROADWAY

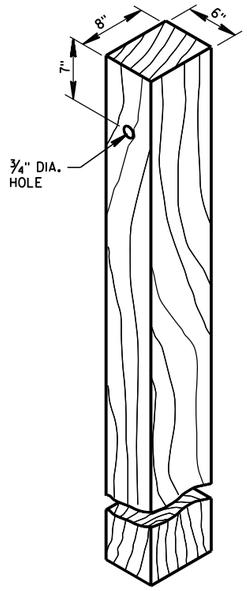


END VIEW

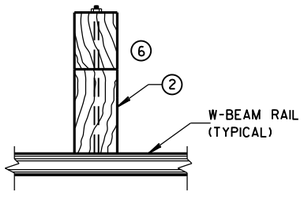
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



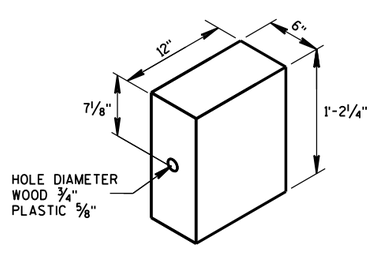
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



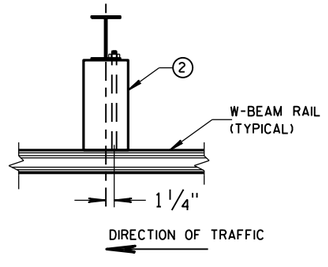
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



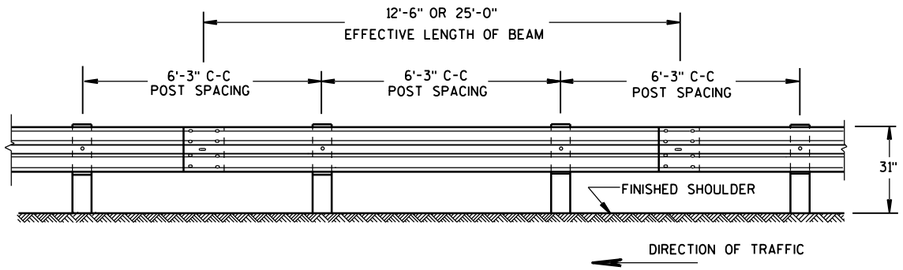
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

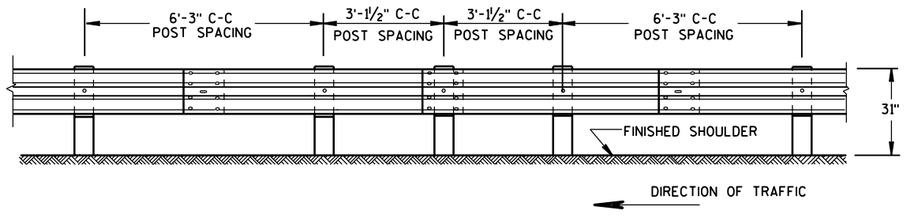
6

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



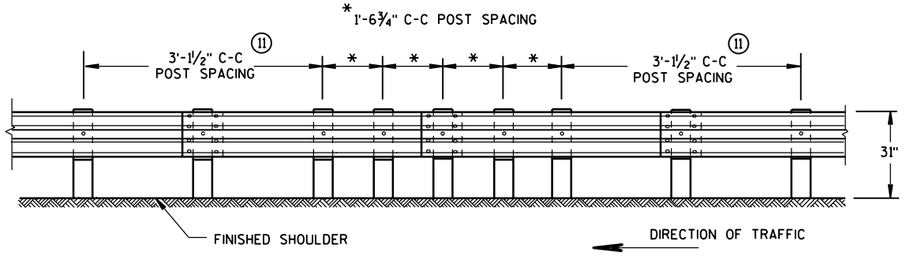
FRONT VIEW

POST SPACING STANDARD INSTALLATION



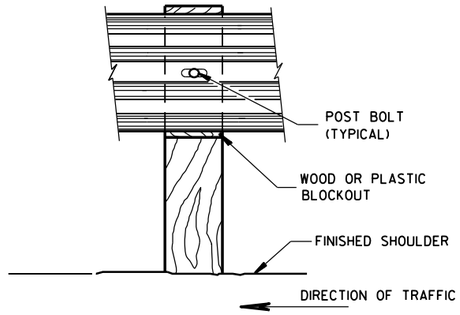
FRONT VIEW

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

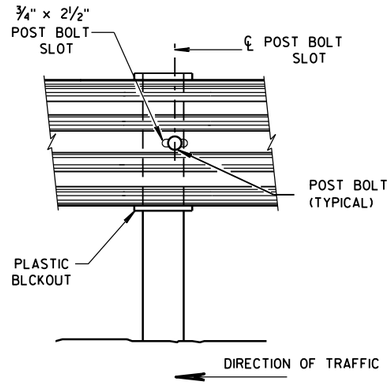


FRONT VIEW

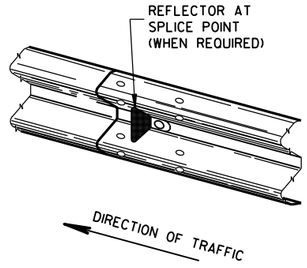
QUARTER POST SPACING (QS)

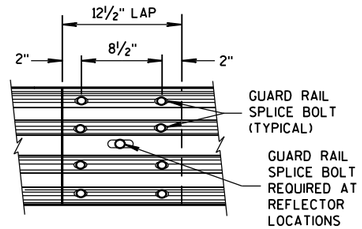


FRONT VIEW AT WOOD POST



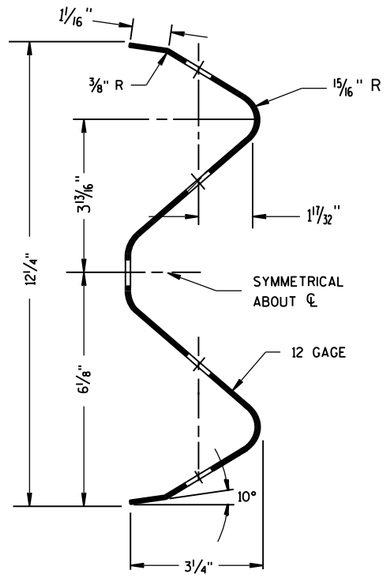
FRONT VIEW AT STEEL POST



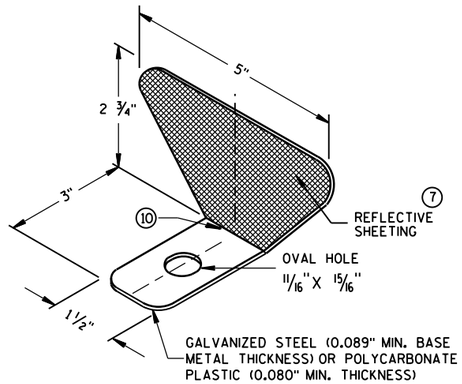


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

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

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

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

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

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

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

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

REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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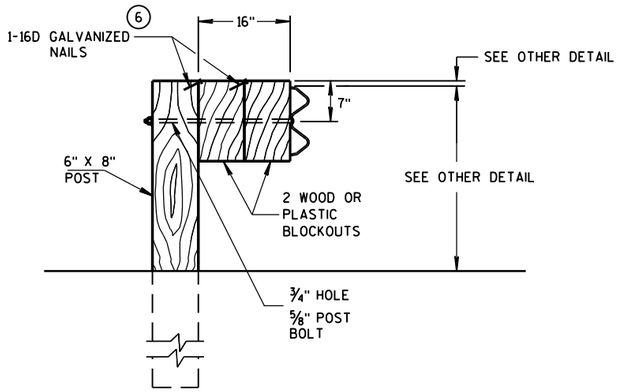
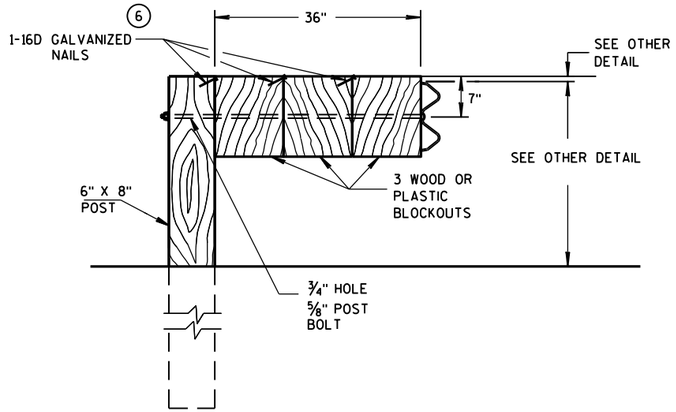
S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

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

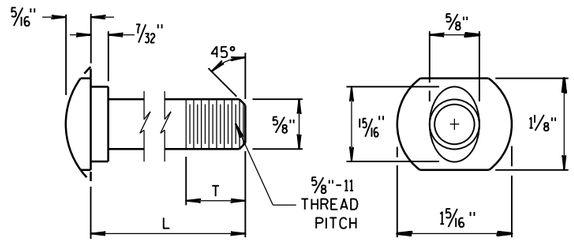


DETAIL FOR 36" BLOCKOUT DEPTH

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

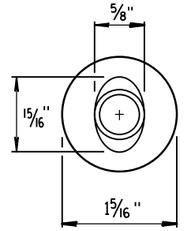
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

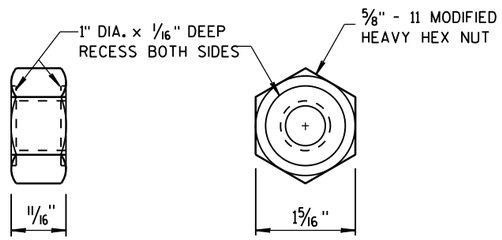


POST BOLT TABLE

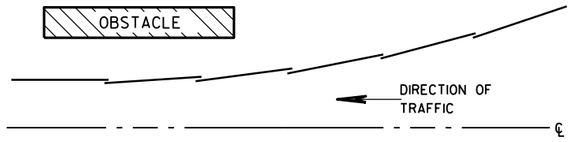
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

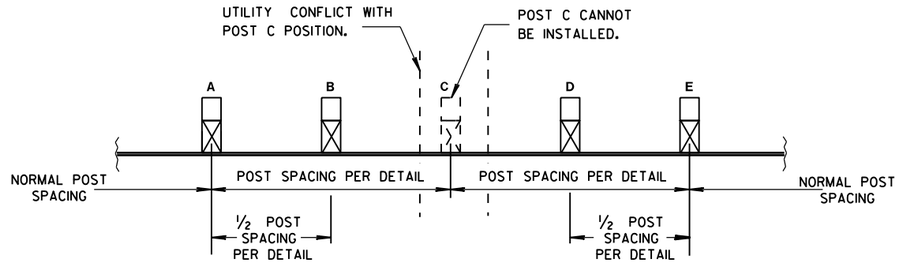


POST BOLT AND RECESS NUT

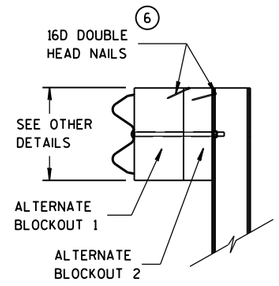


PLAN VIEW

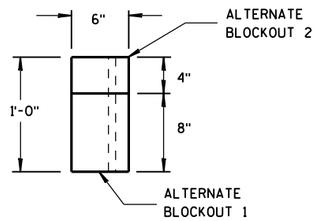
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

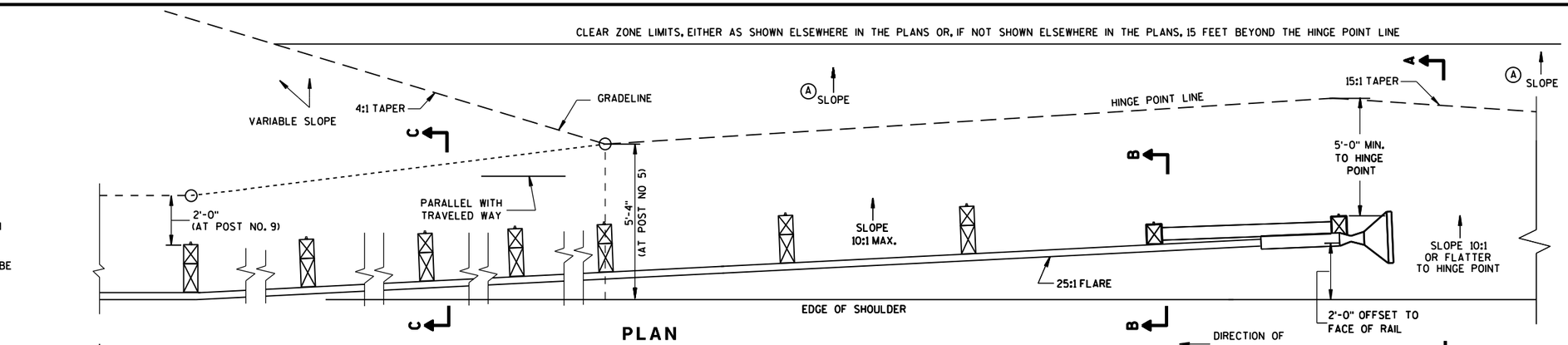
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

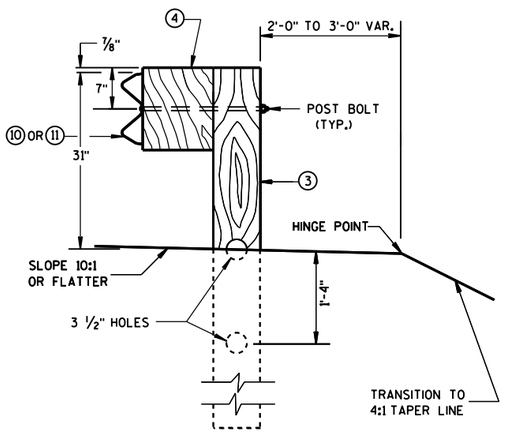
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

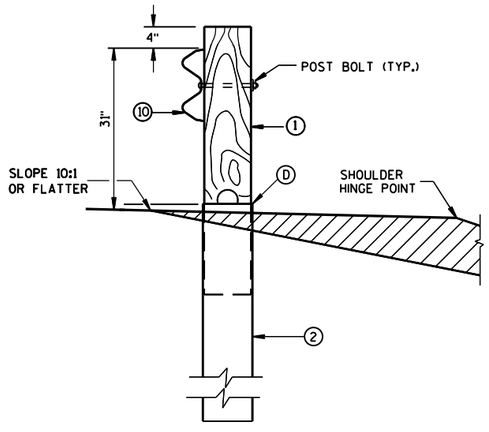
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



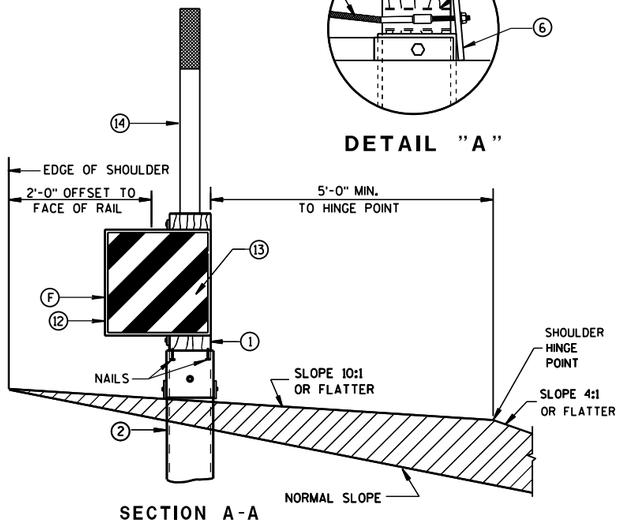
ELEVATION



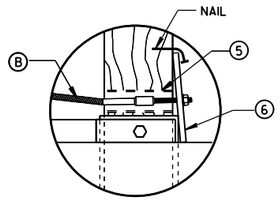
SECTION C-C
TYPICAL AT POST NOS. 3-9



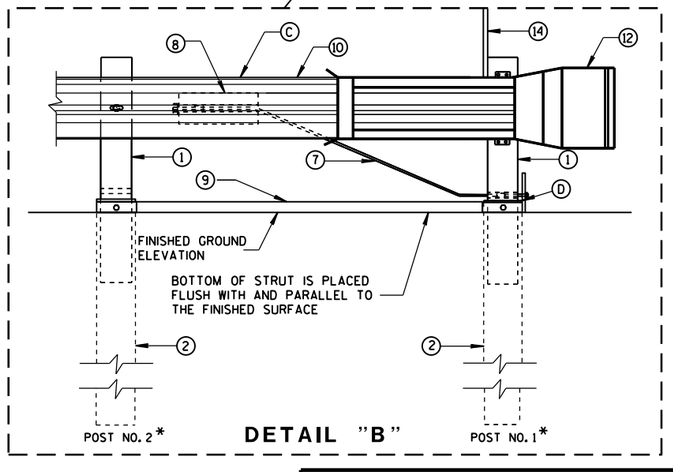
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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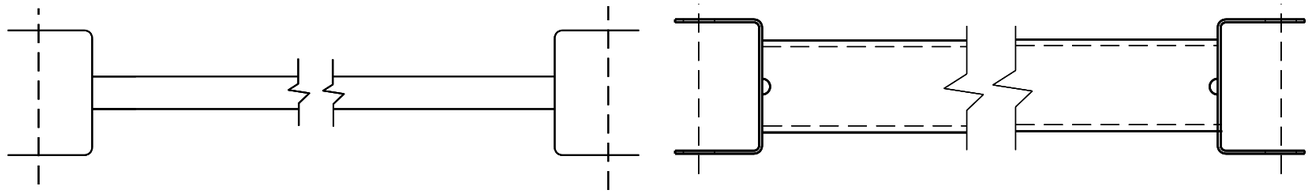
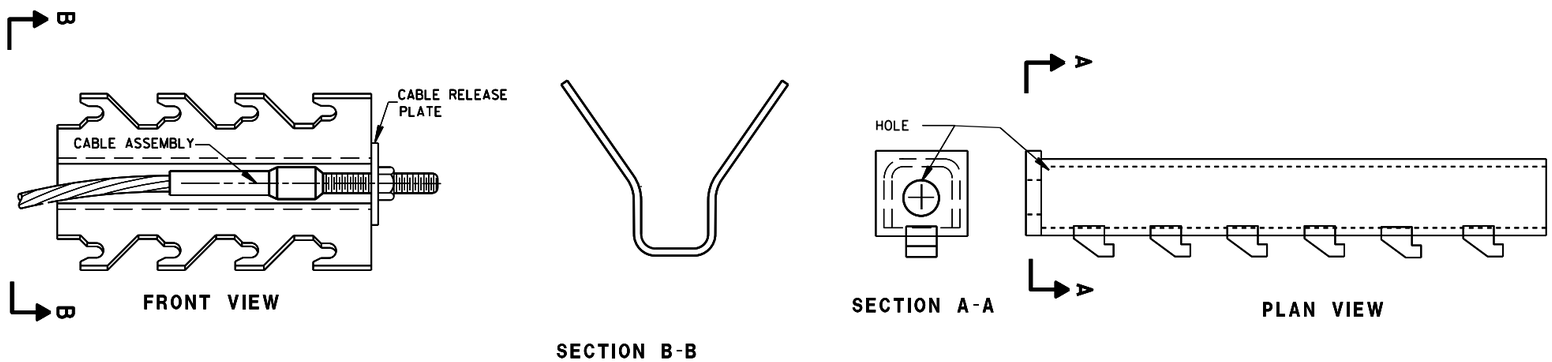


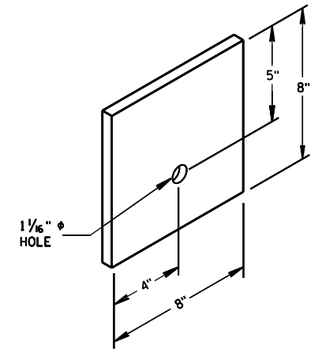
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)

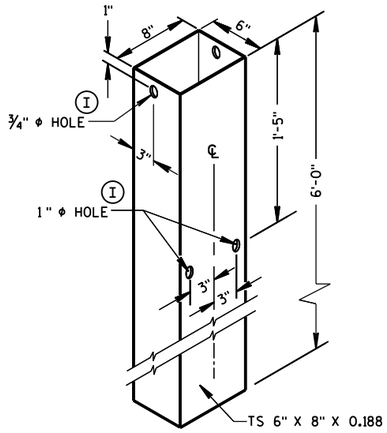


BEARING PLATE (6)

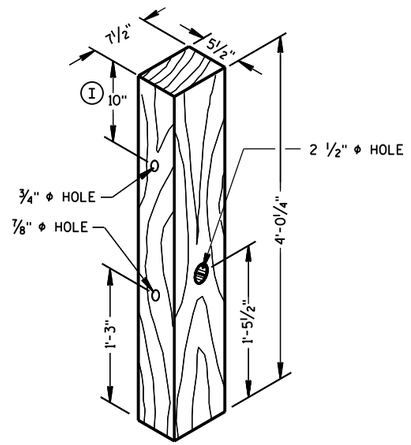
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

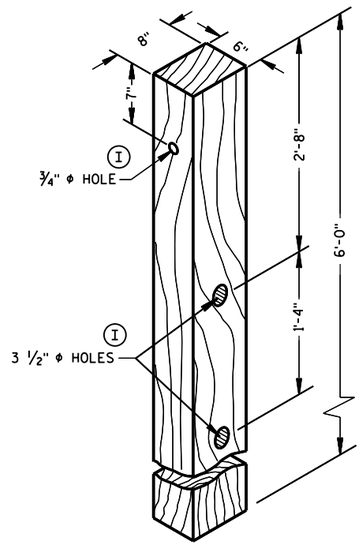


FOUNDATION TUBE (2)



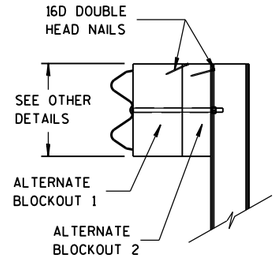
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

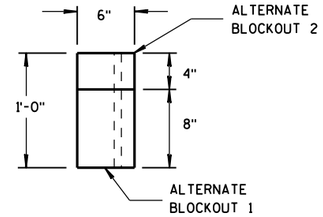


POSTS NUMBER 3-9

WOOD CRT POST (3)

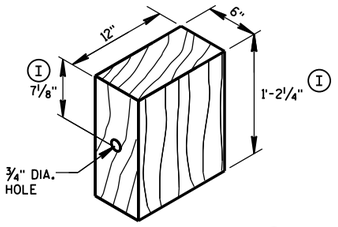


SIDE VIEW



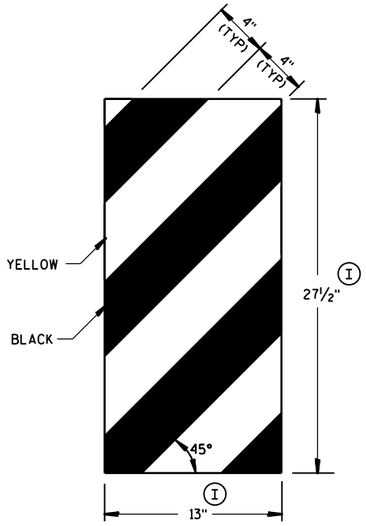
TOP VIEW

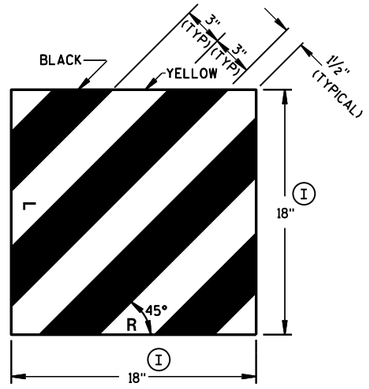
ALTERNATE WOOD BLOCKOUT DETAIL



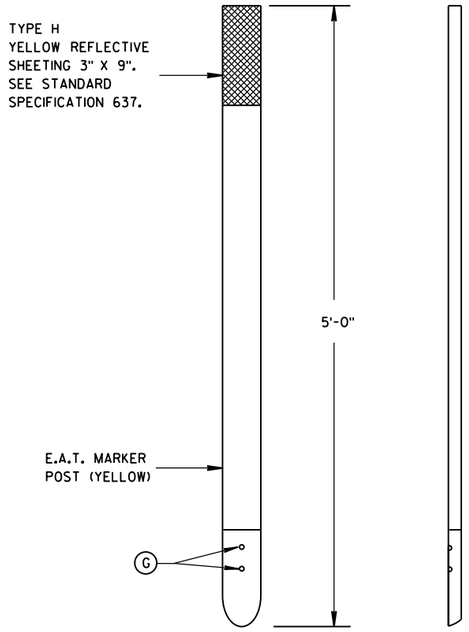
WOOD BLOCKOUT (4)

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





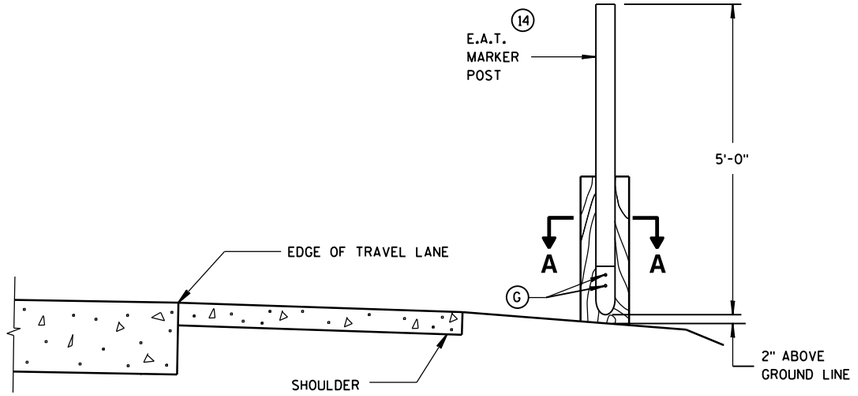
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

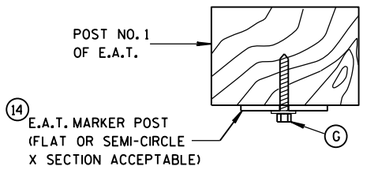
SIDE VIEW

E.A.T. MARKER POST (14)



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

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

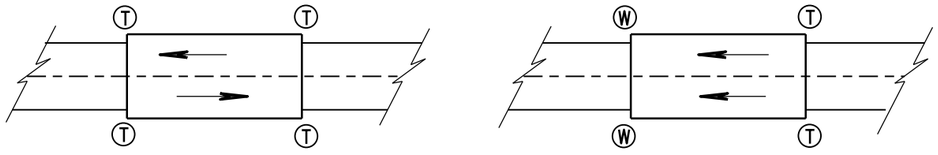


SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

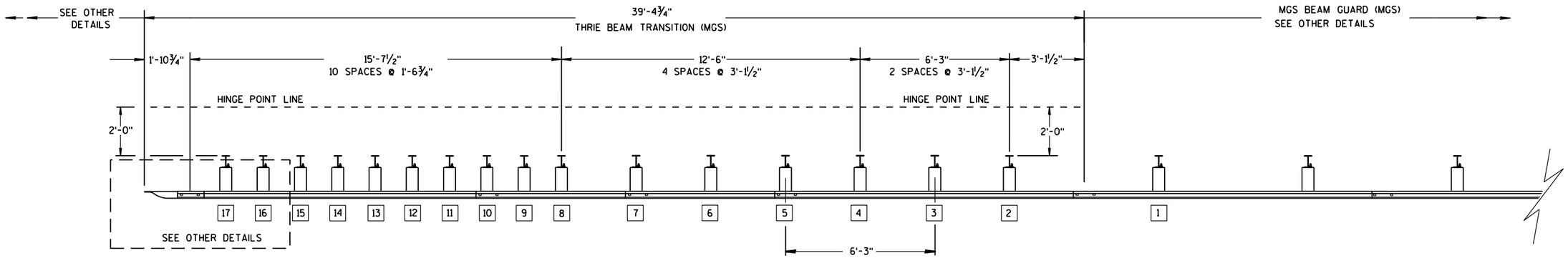
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

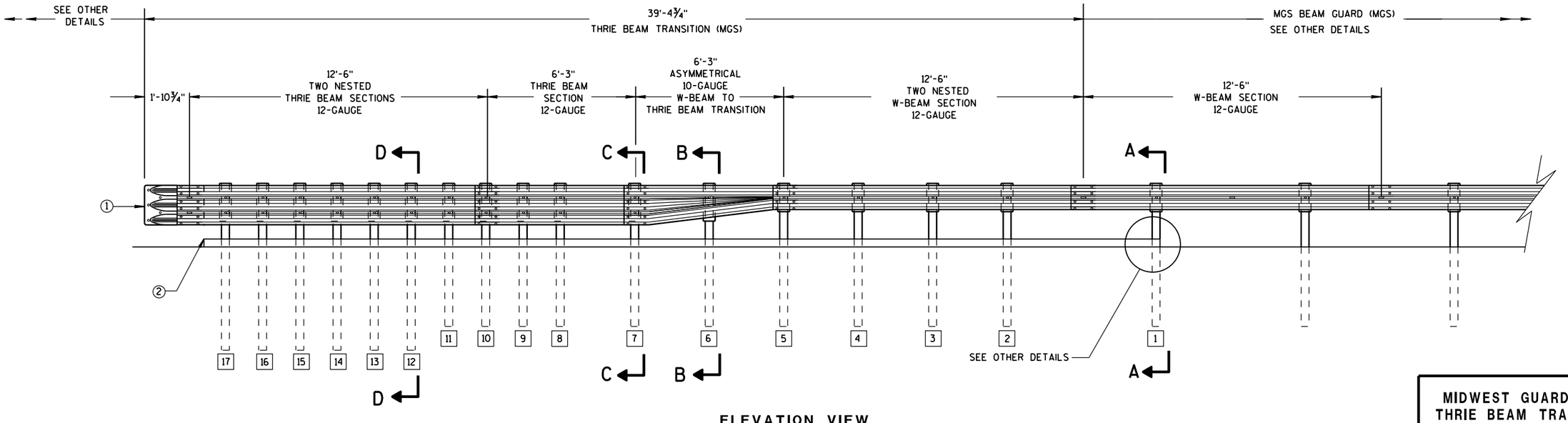
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

6

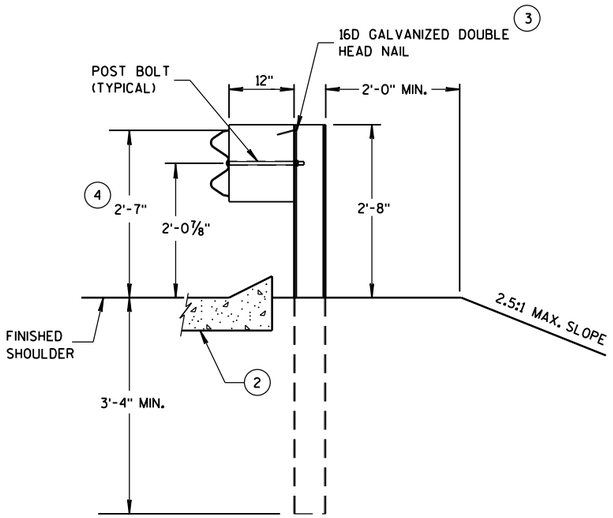
S.D.D. 14 B 45-4a

GENERAL NOTES

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

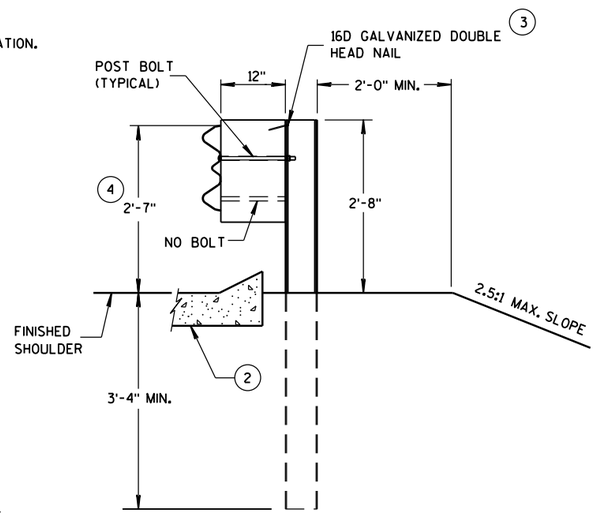
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



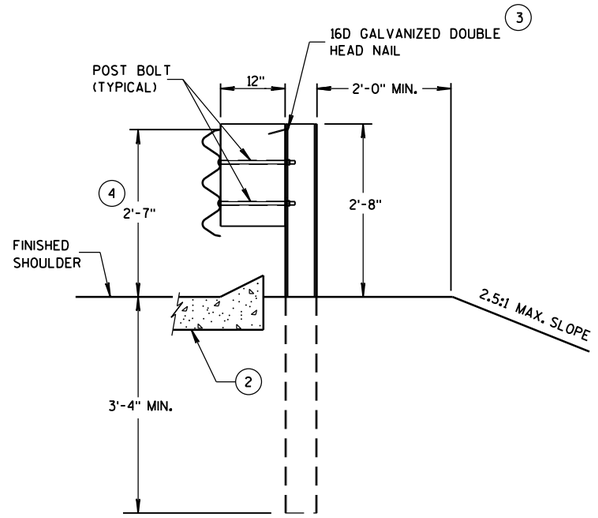
SECTION A-A

POSTS 1-5



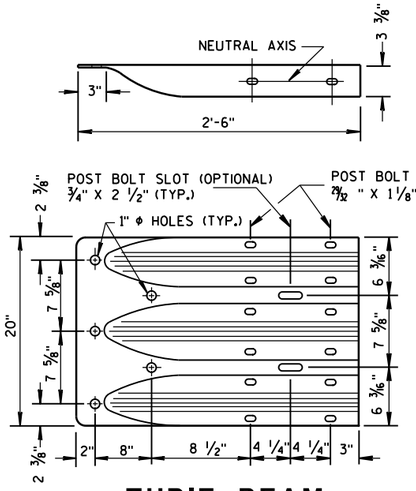
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

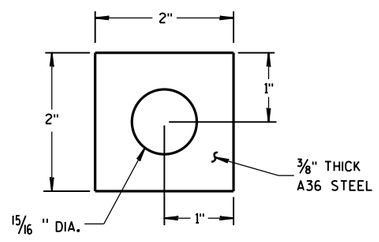
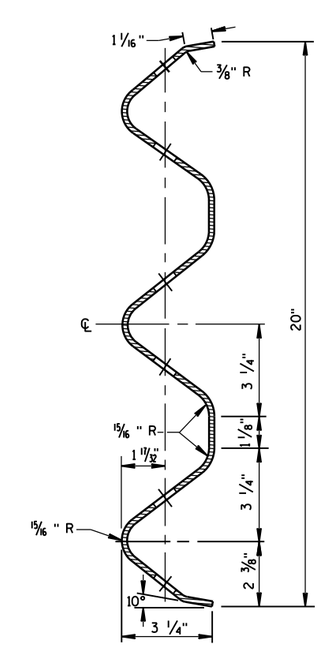
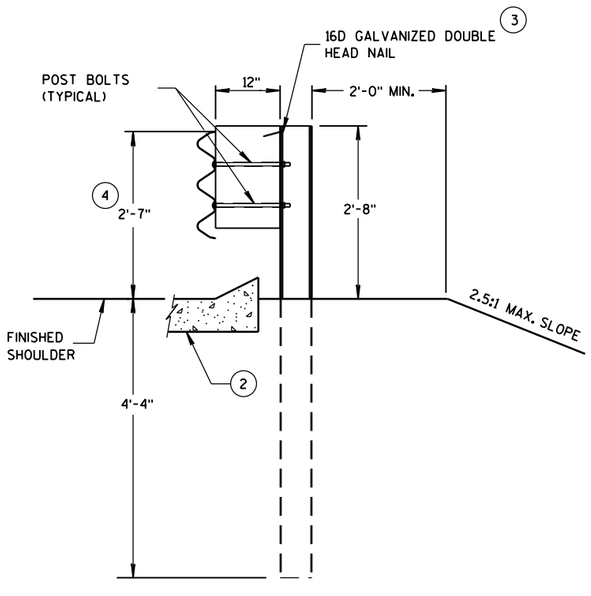


PLATE WASHER DETAIL

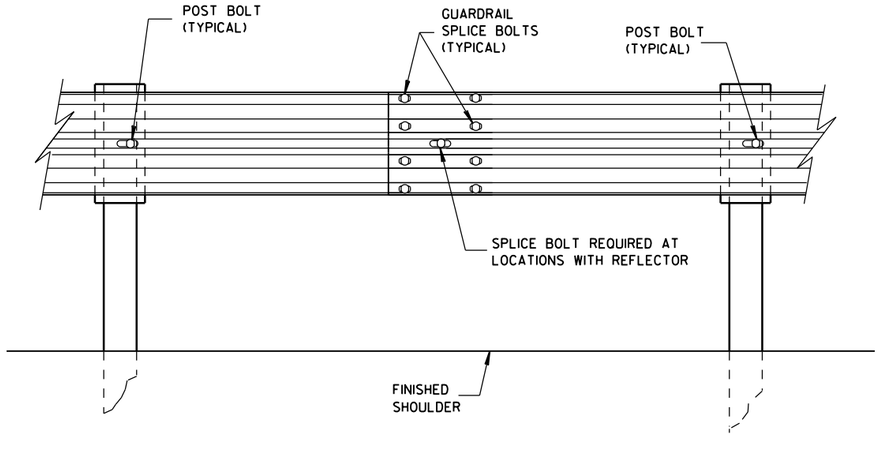


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



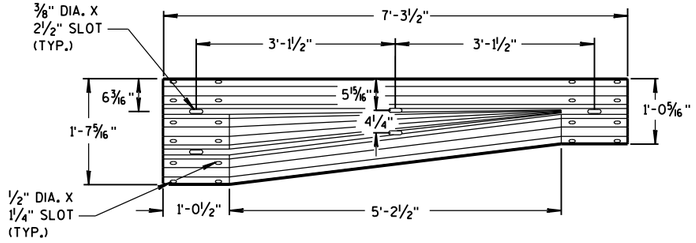
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

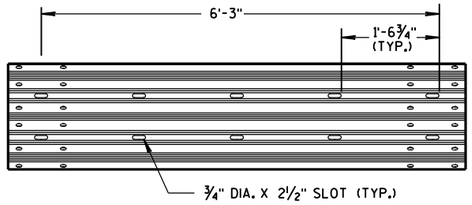
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

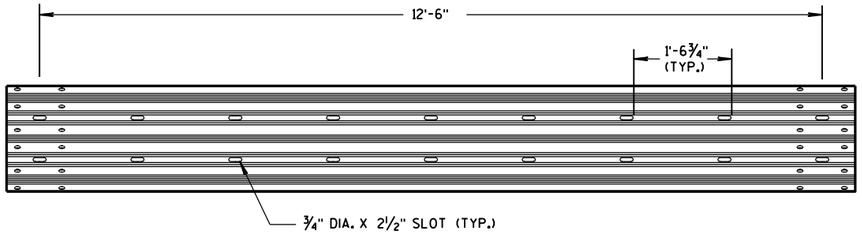
S.D.D. 14 B 45-4b



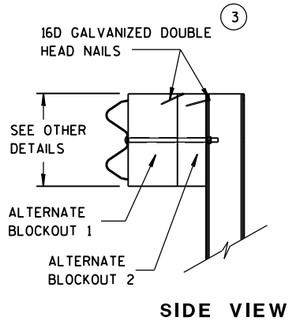
W-BEAM TO THRIE BEAM TRANSITION SECTION



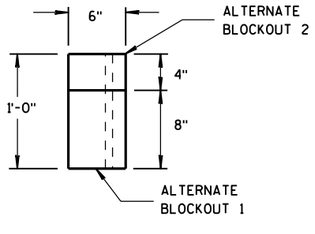
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

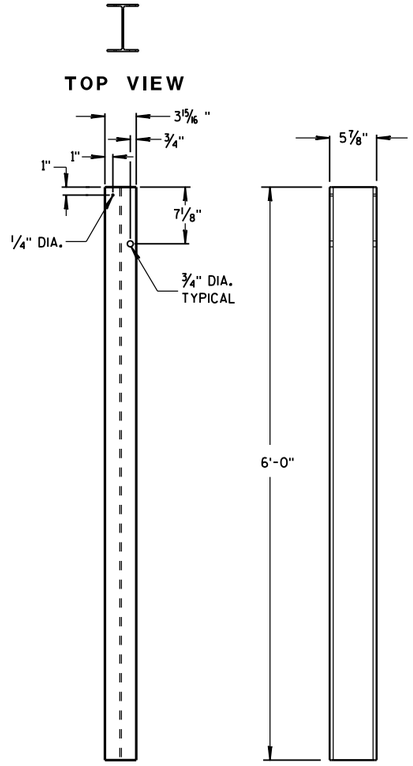


SIDE VIEW



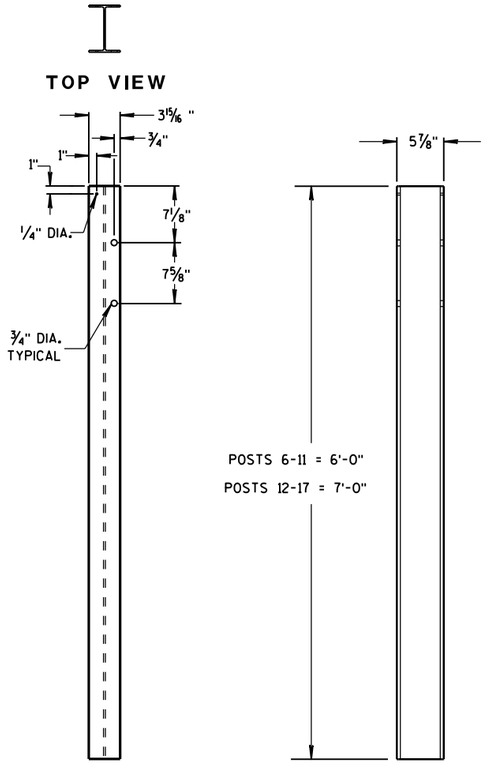
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



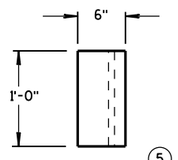
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

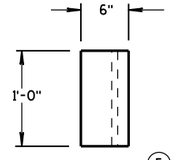


FRONT VIEW SIDE VIEW

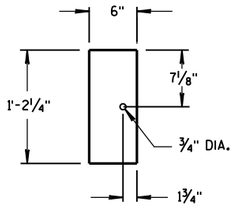
STEEL POSTS 6-17



TOP VIEW (5)

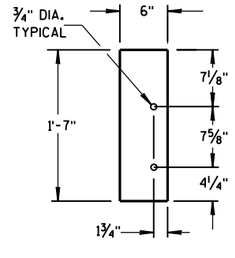


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

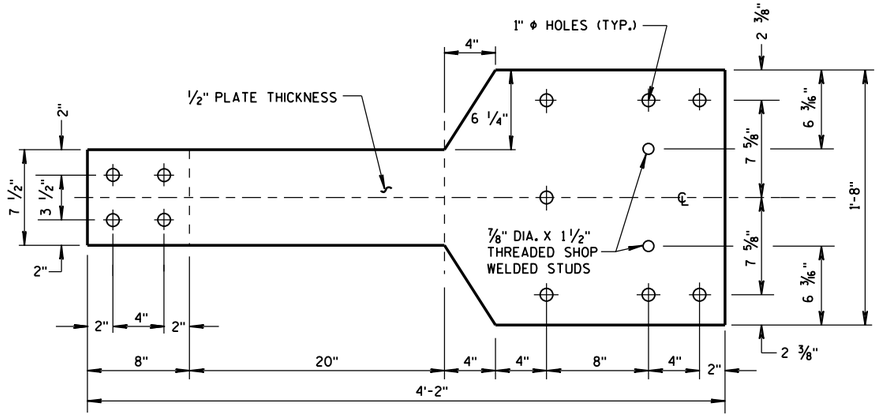
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

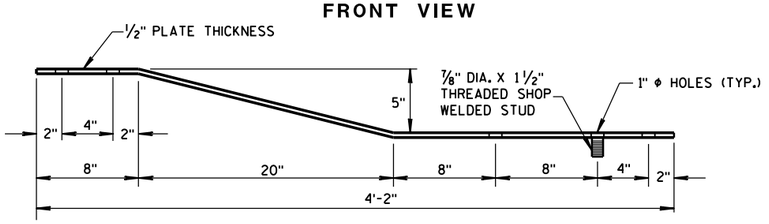
S.D.D. 14 B 45-4c

GENERAL NOTES

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

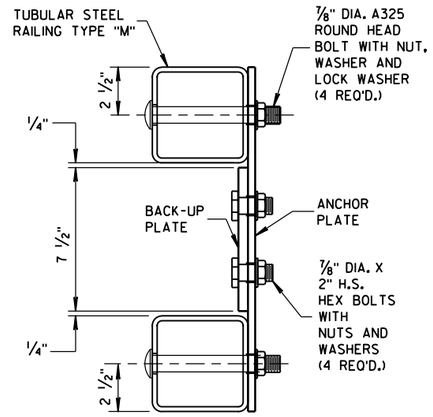


FRONT VIEW

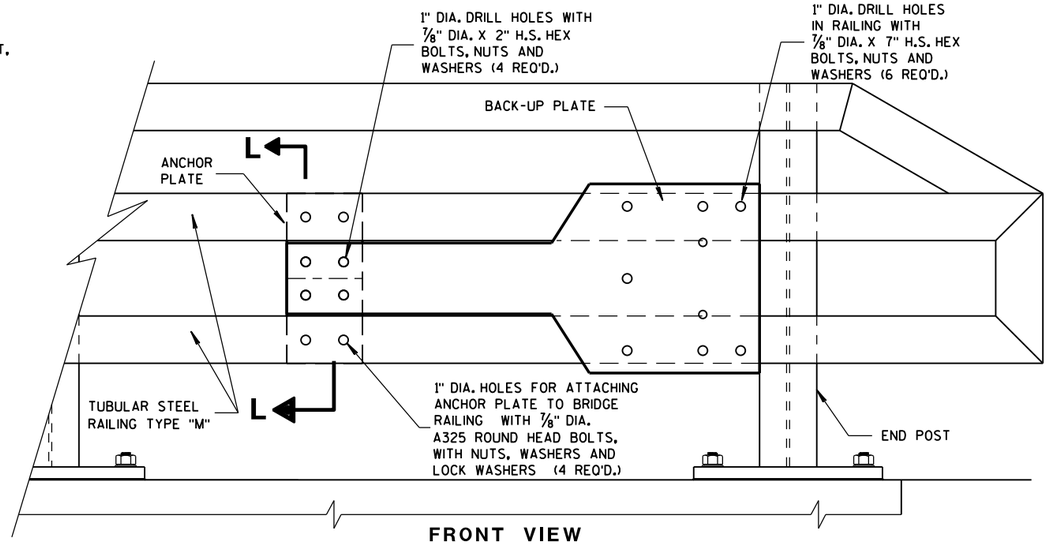


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

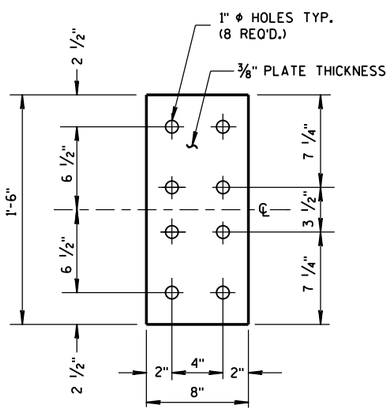


SECTION L-L



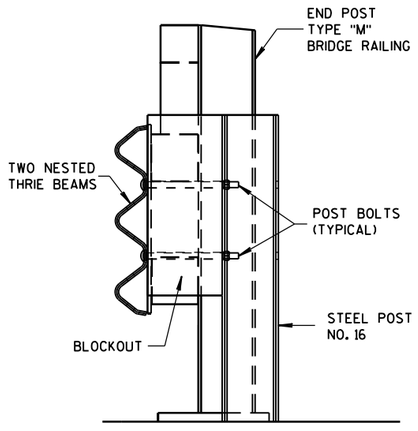
FRONT VIEW

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

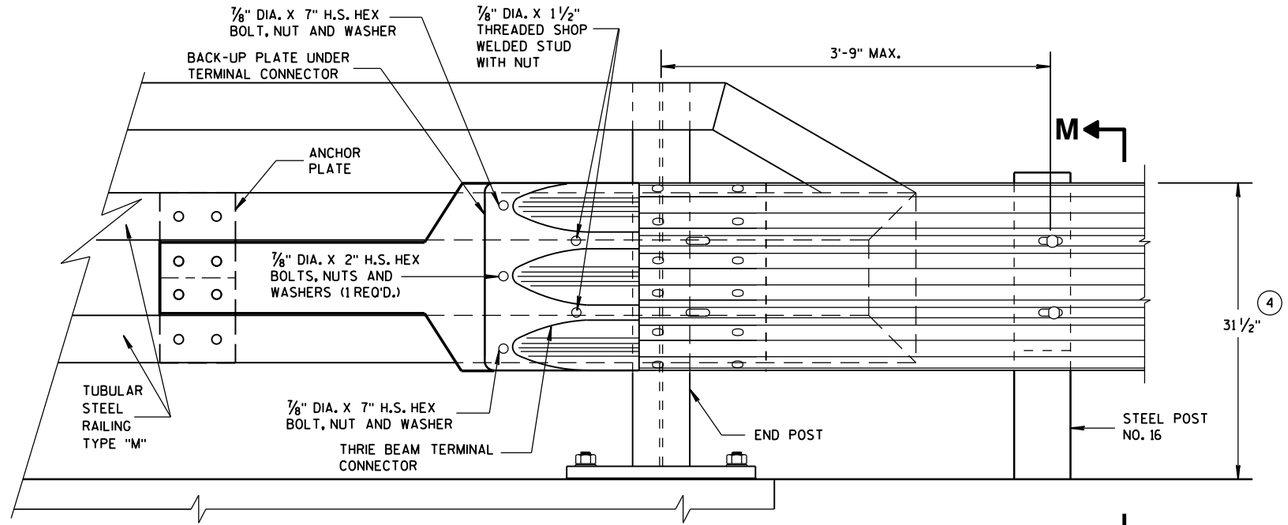


FRONT VIEW

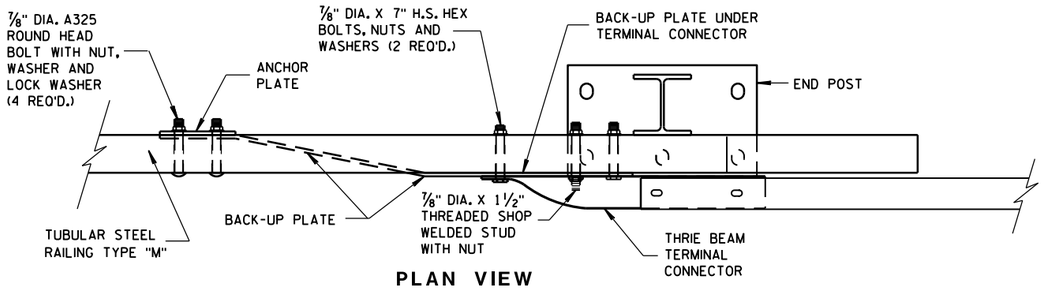
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

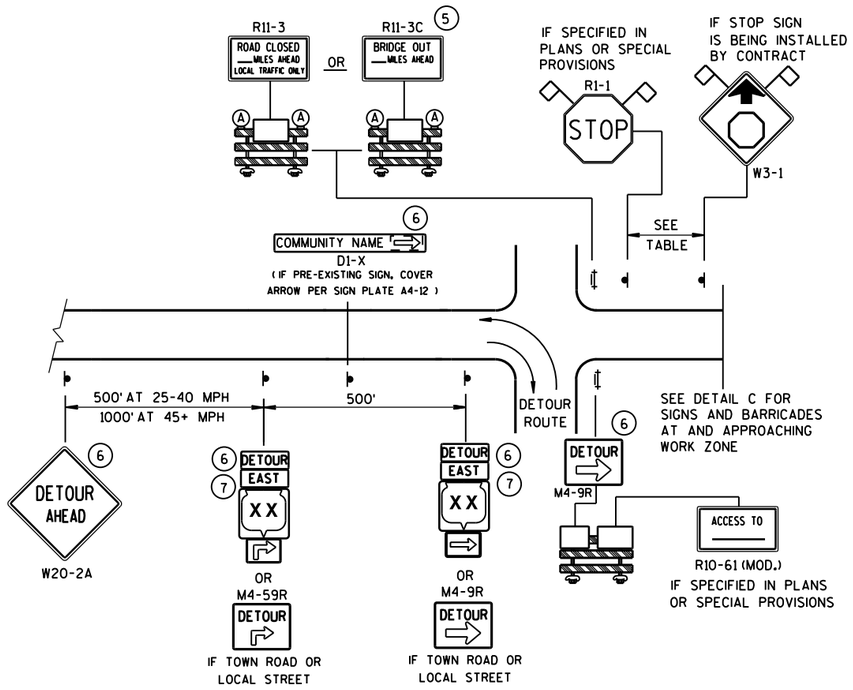
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

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

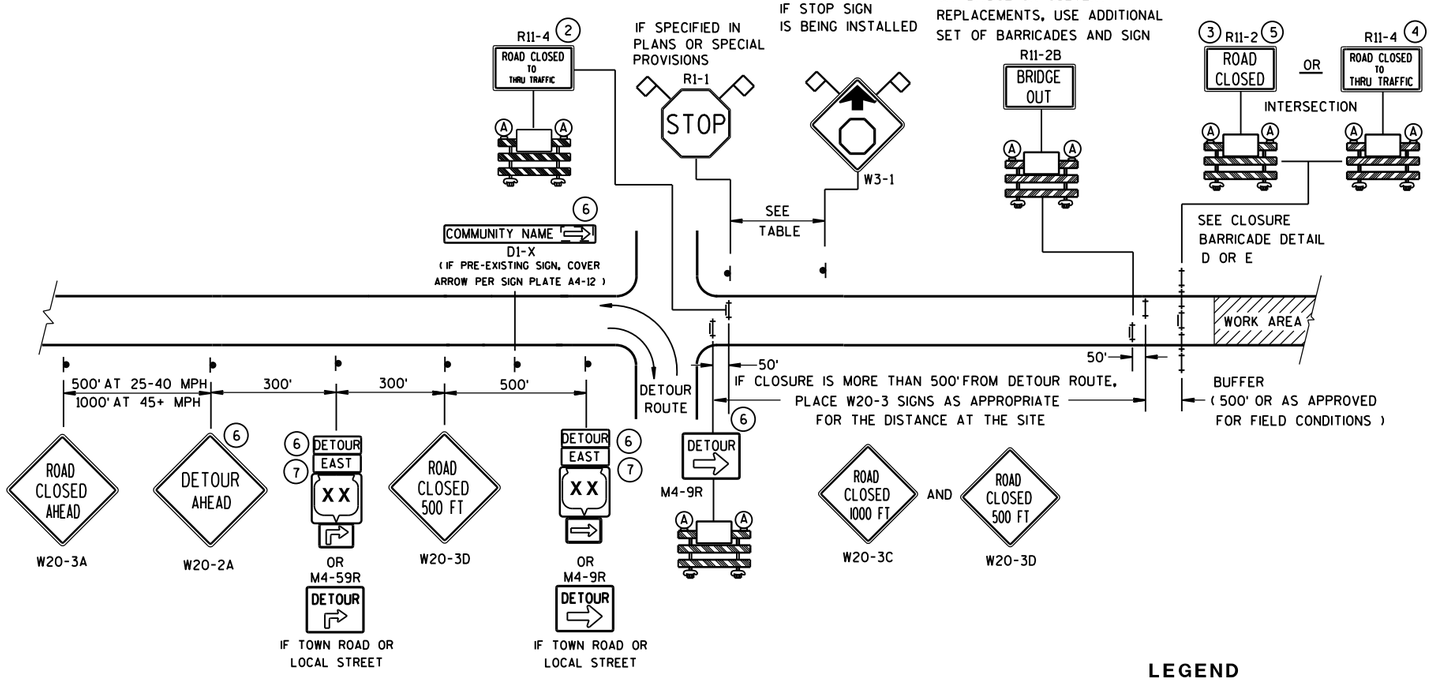
6

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



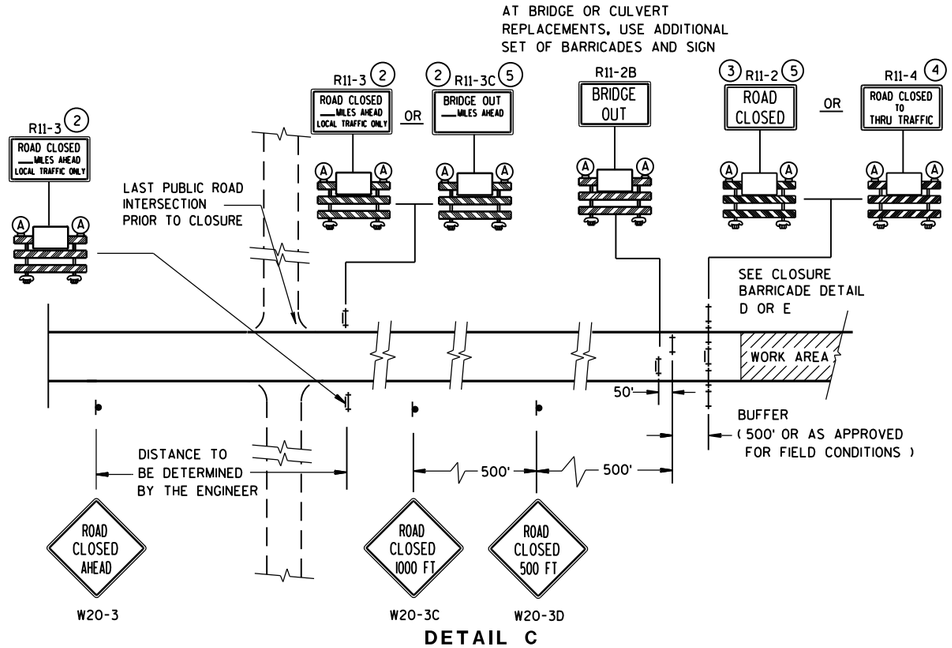
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

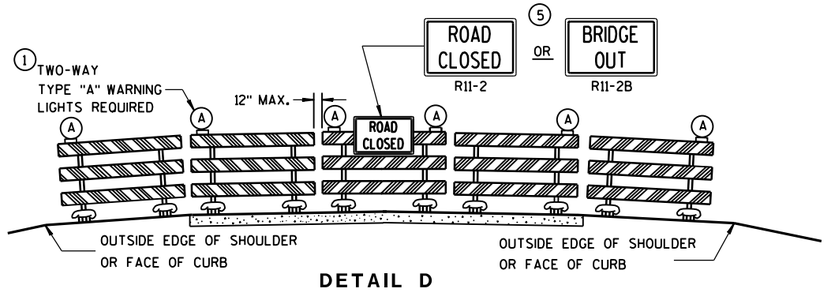
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

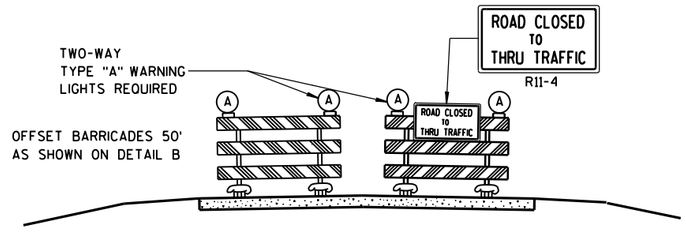
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

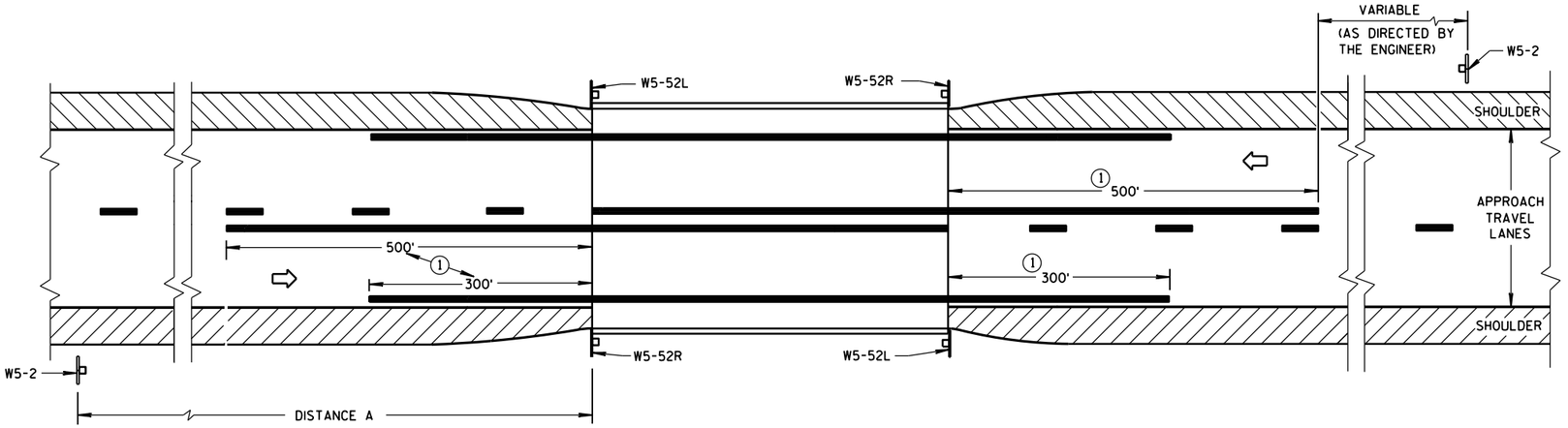
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

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

6

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



GENERAL NOTES

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

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

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

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

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

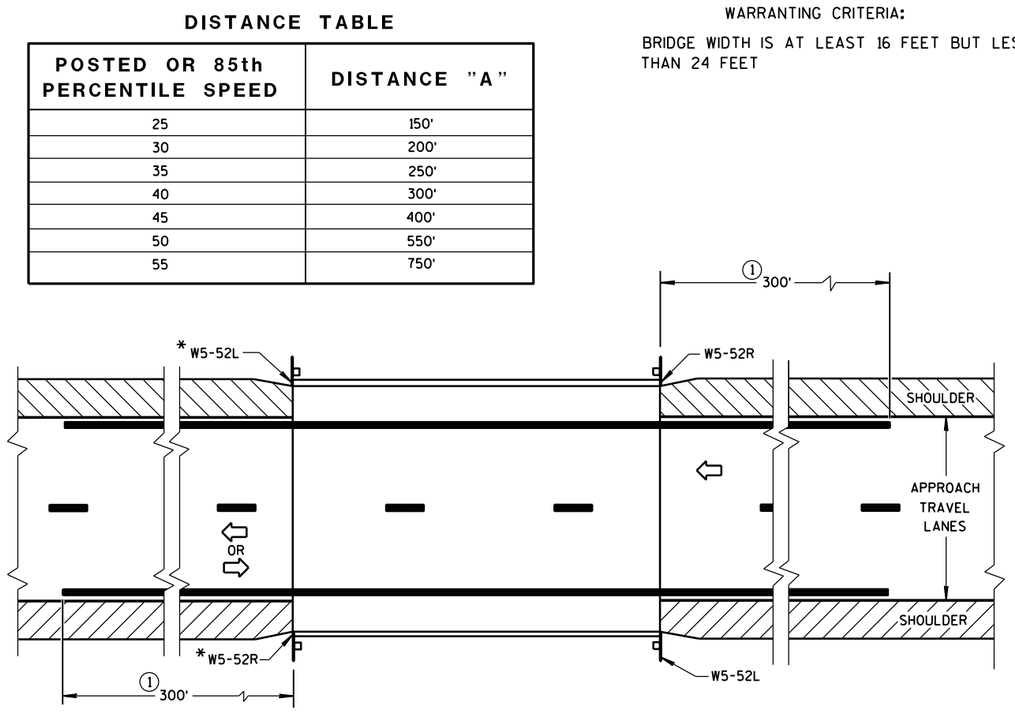
DISTANCE TABLE

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

SITUATION 1

WARRANTING CRITERIA:

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



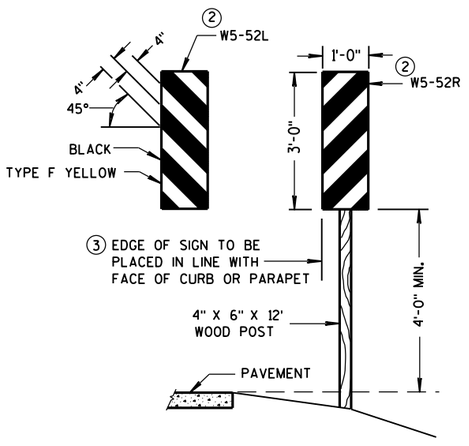
*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

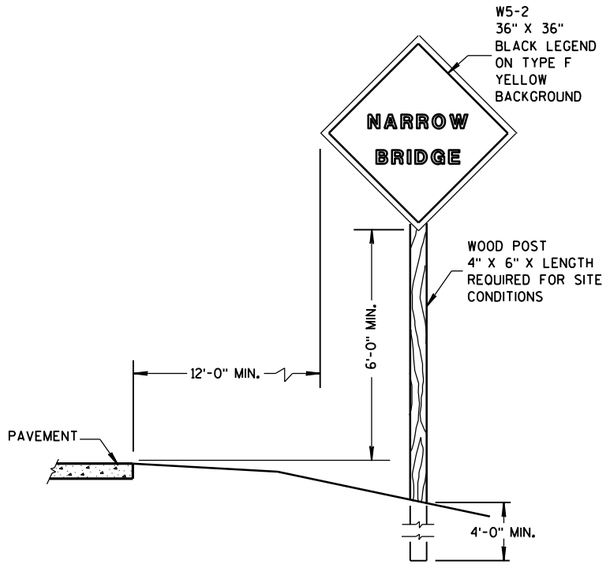
WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND

2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

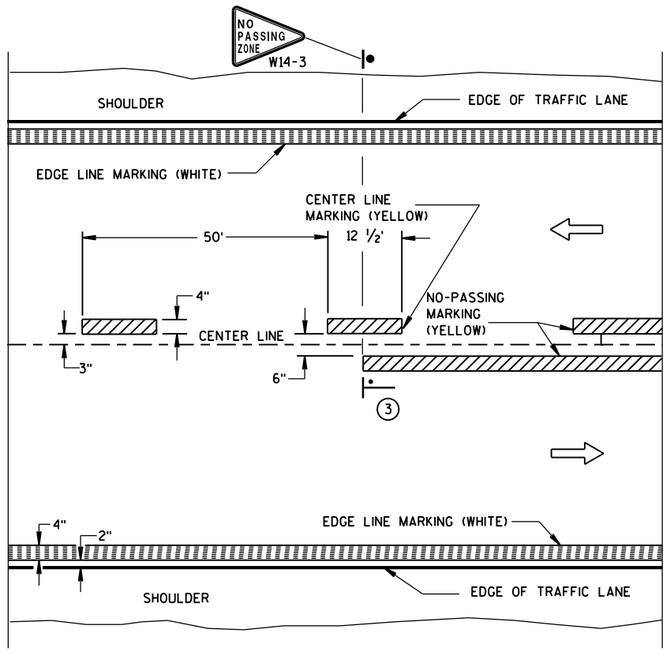
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

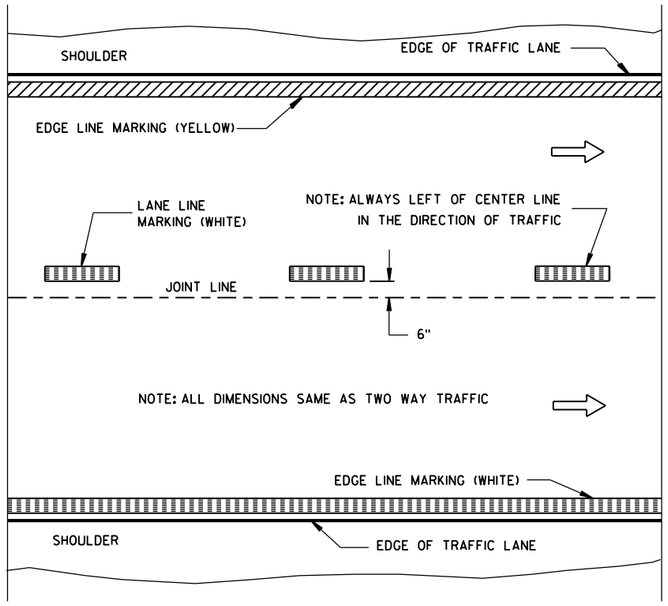
FHWA

6

S.D.D. 15 C 6-7

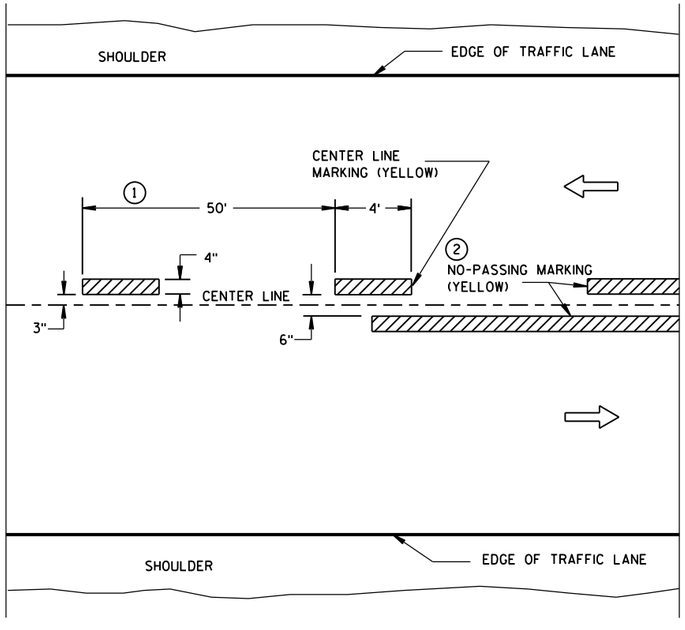


TWO WAY TRAFFIC

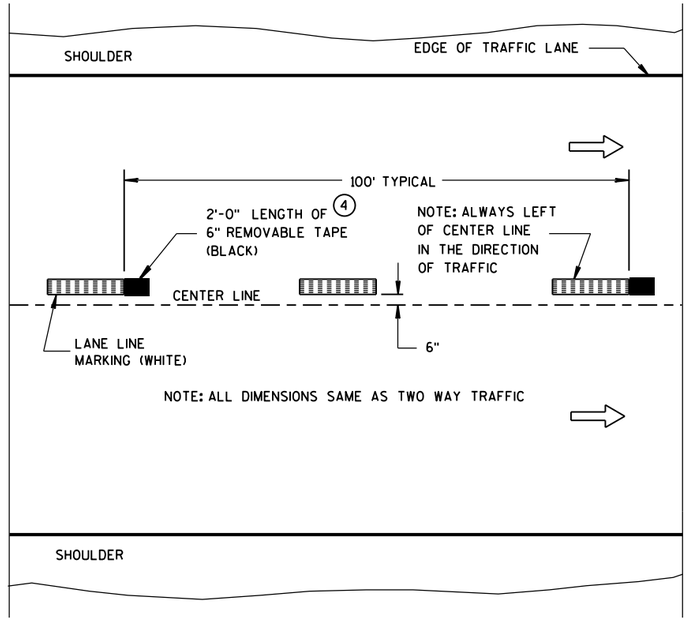


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

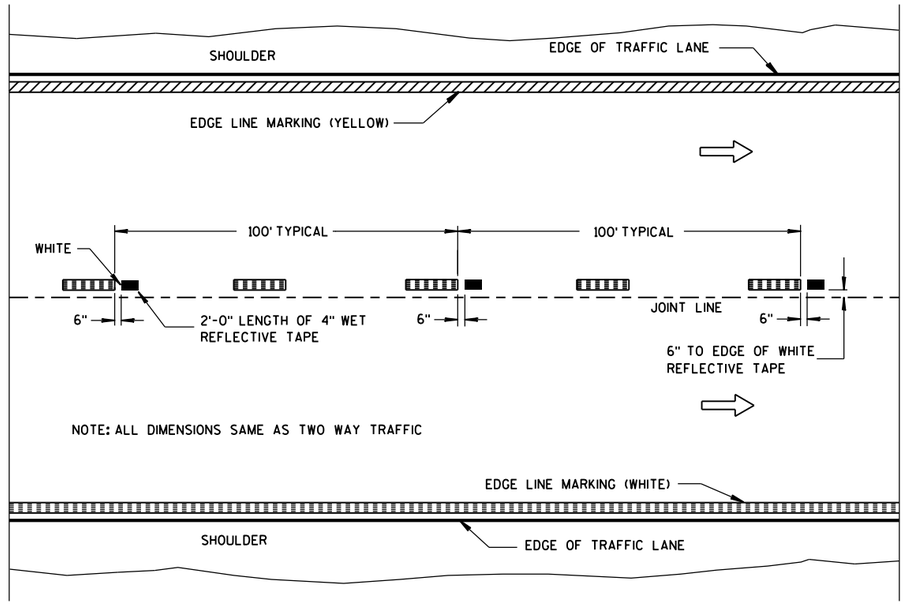
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

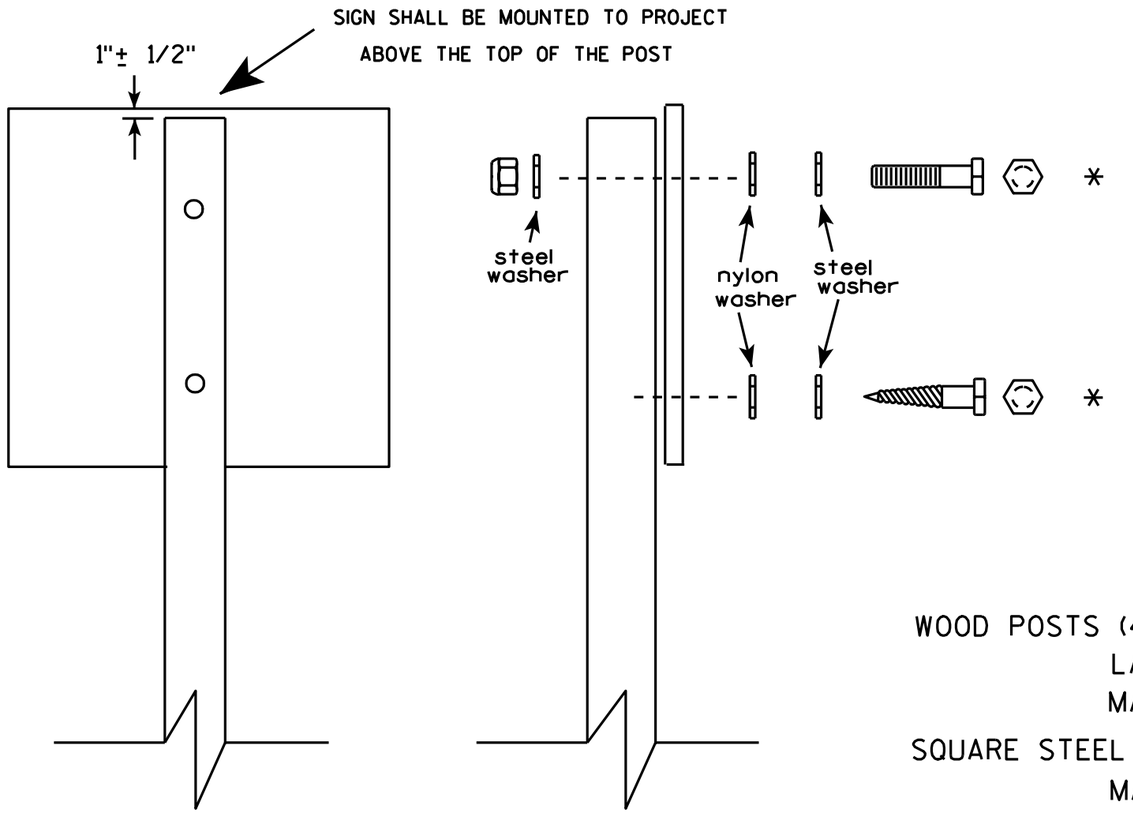
FHWA

6

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

6

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



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

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

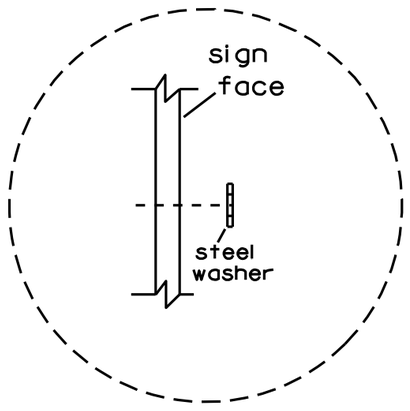
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

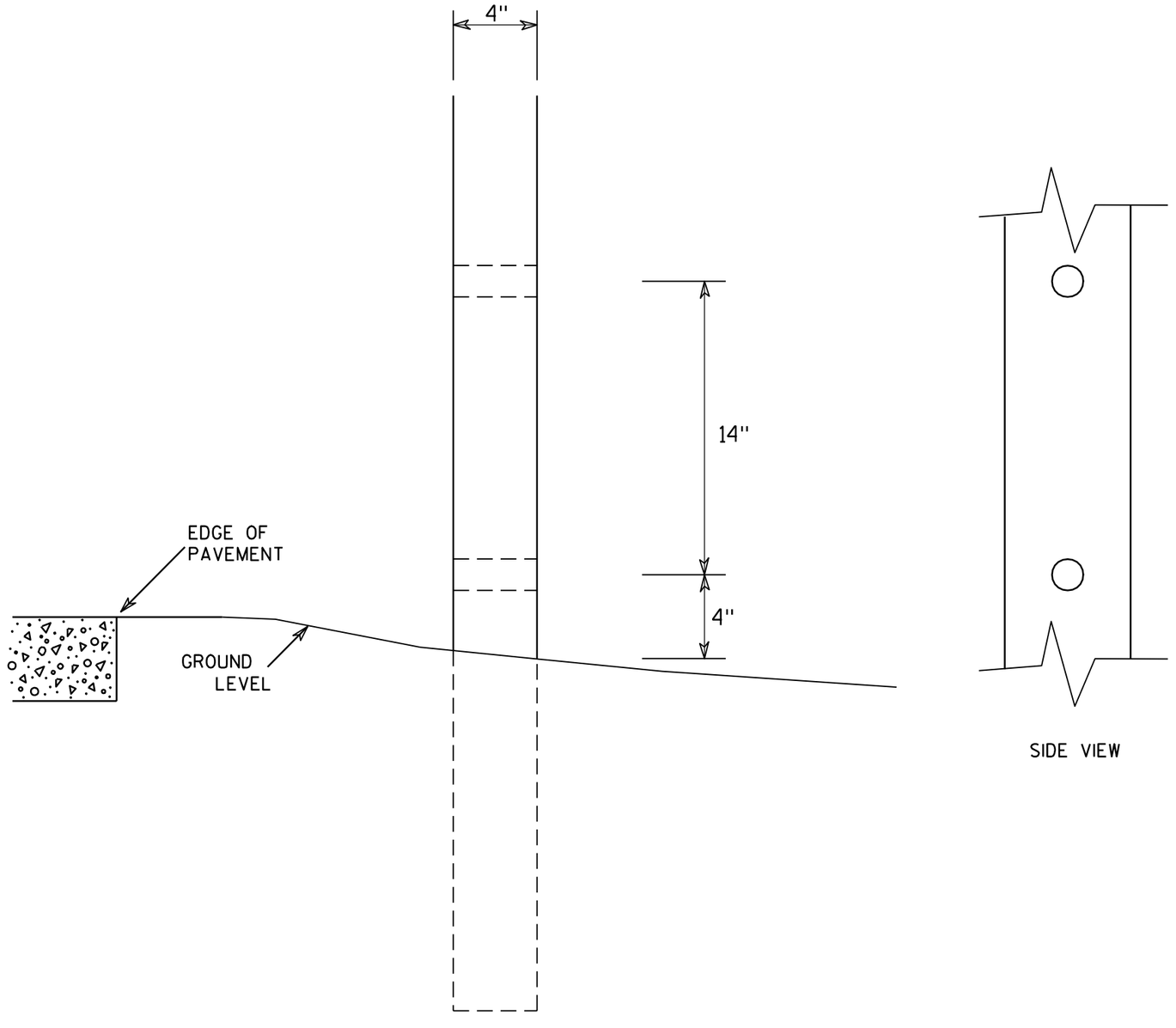
DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO:

SHEET NO: 41 E

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

WISDOT/CADDS SHEET 42



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

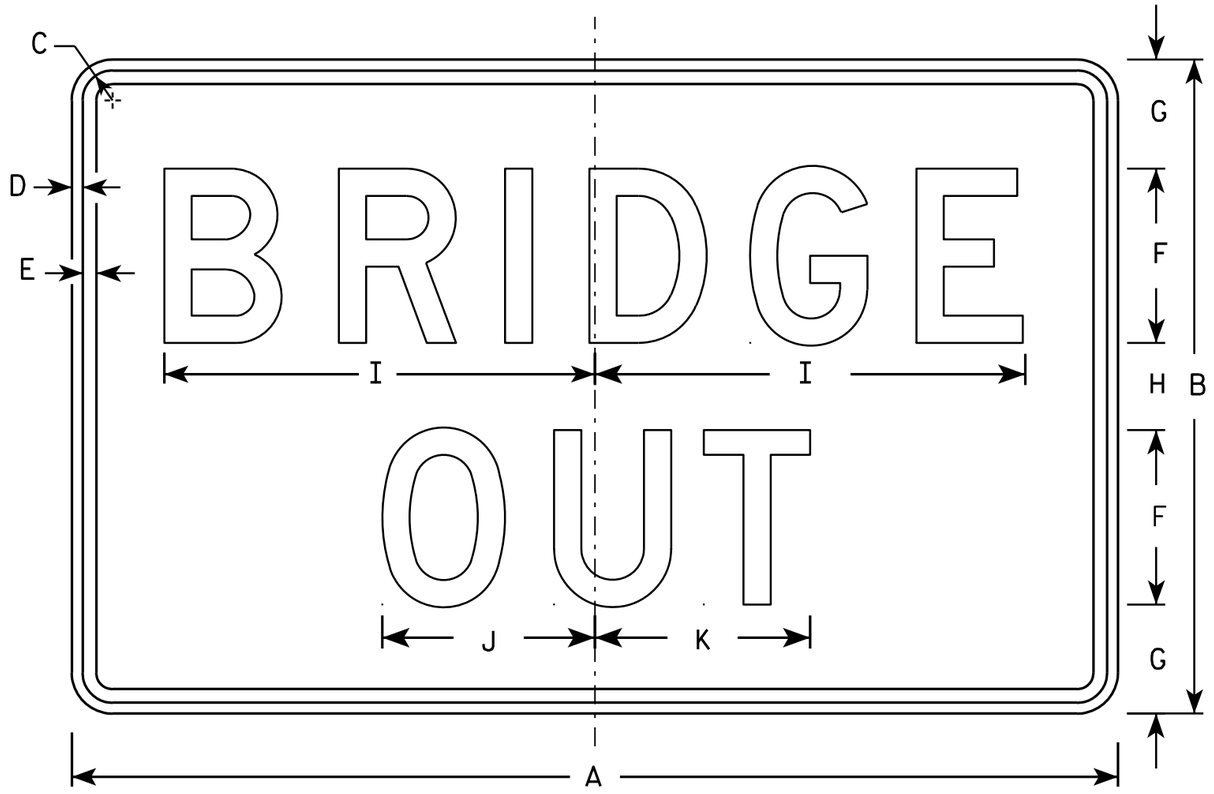
4 X 6 WOOD POST MODIFICATIONS

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: 42	E



R11-2B

NOTES

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

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

STANDARD SIGN
R11-2B

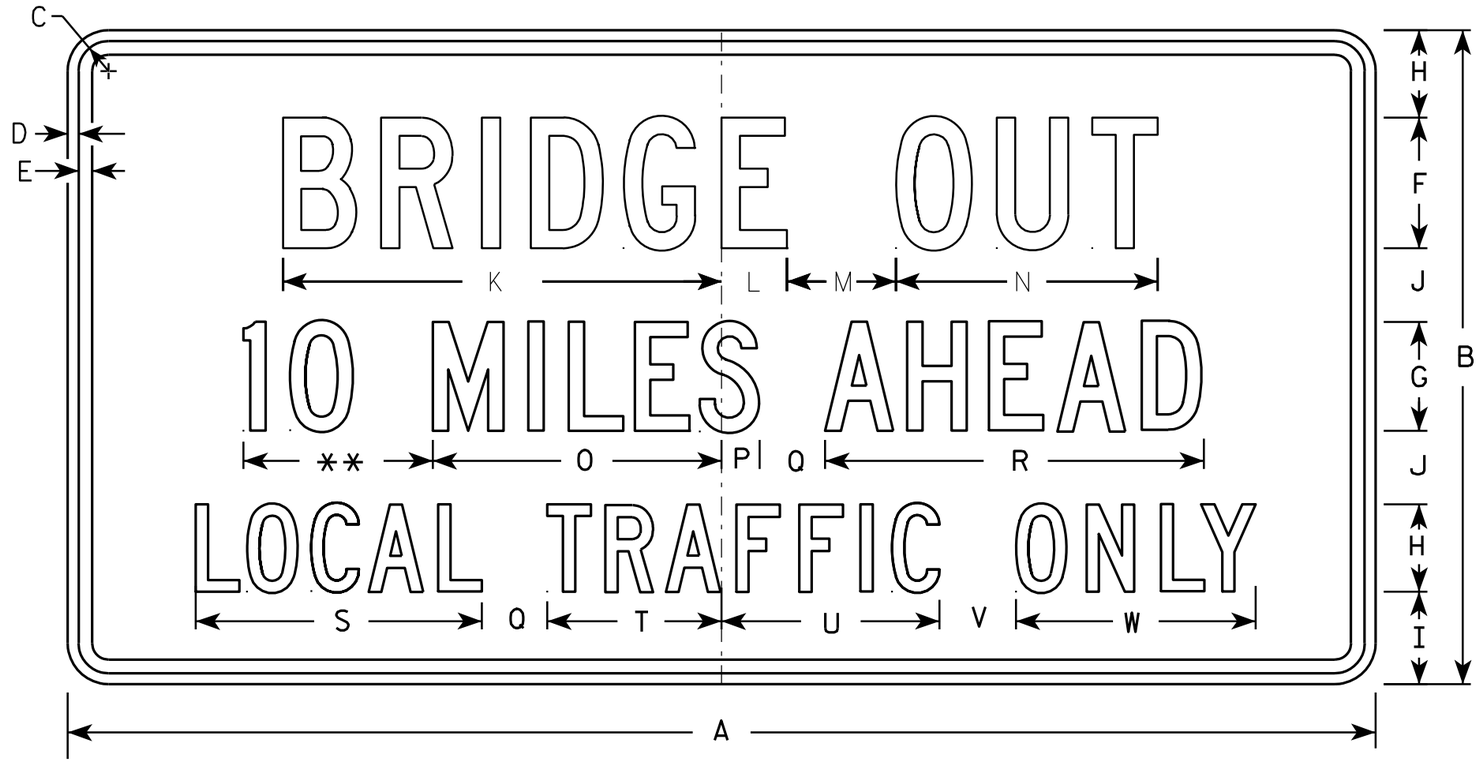
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

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

PROJECT NO:

SHEET NO: 43 E



R11-3B

NOTES

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

** See Note 5

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

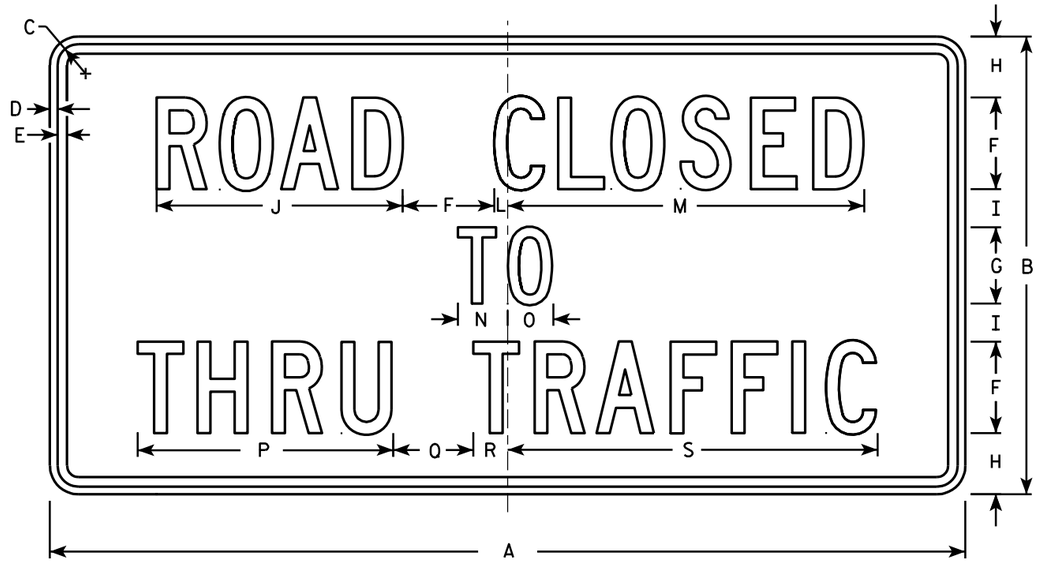
STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

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



R11-4

NOTES

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

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

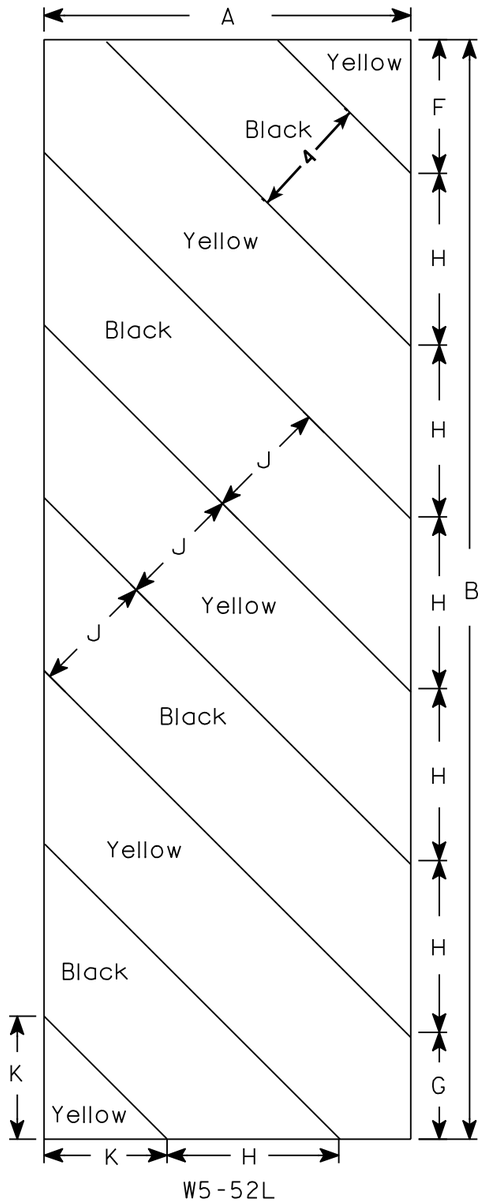
STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

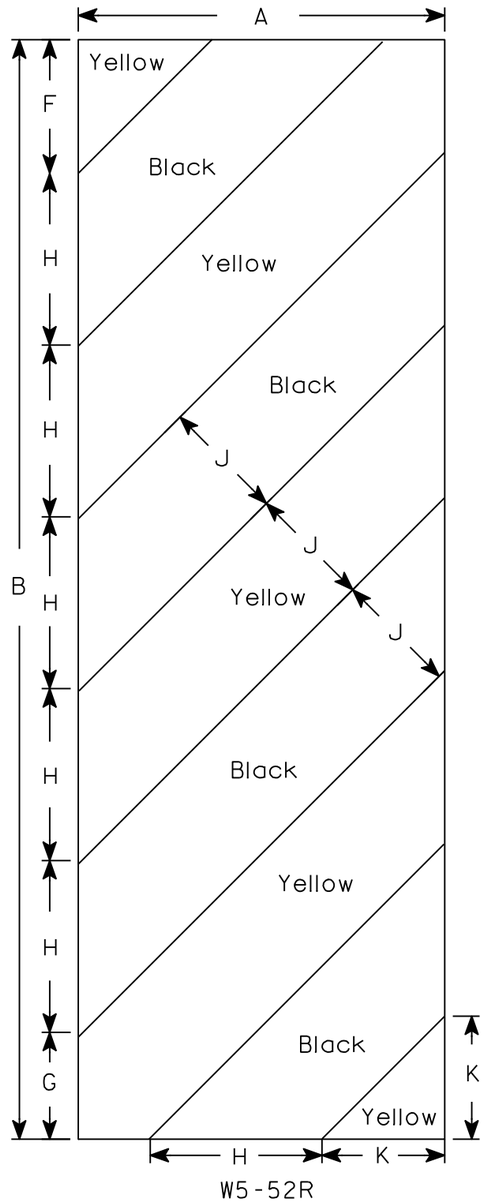
APPROVED Matthew R Rauch for State Traffic Engineer

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

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

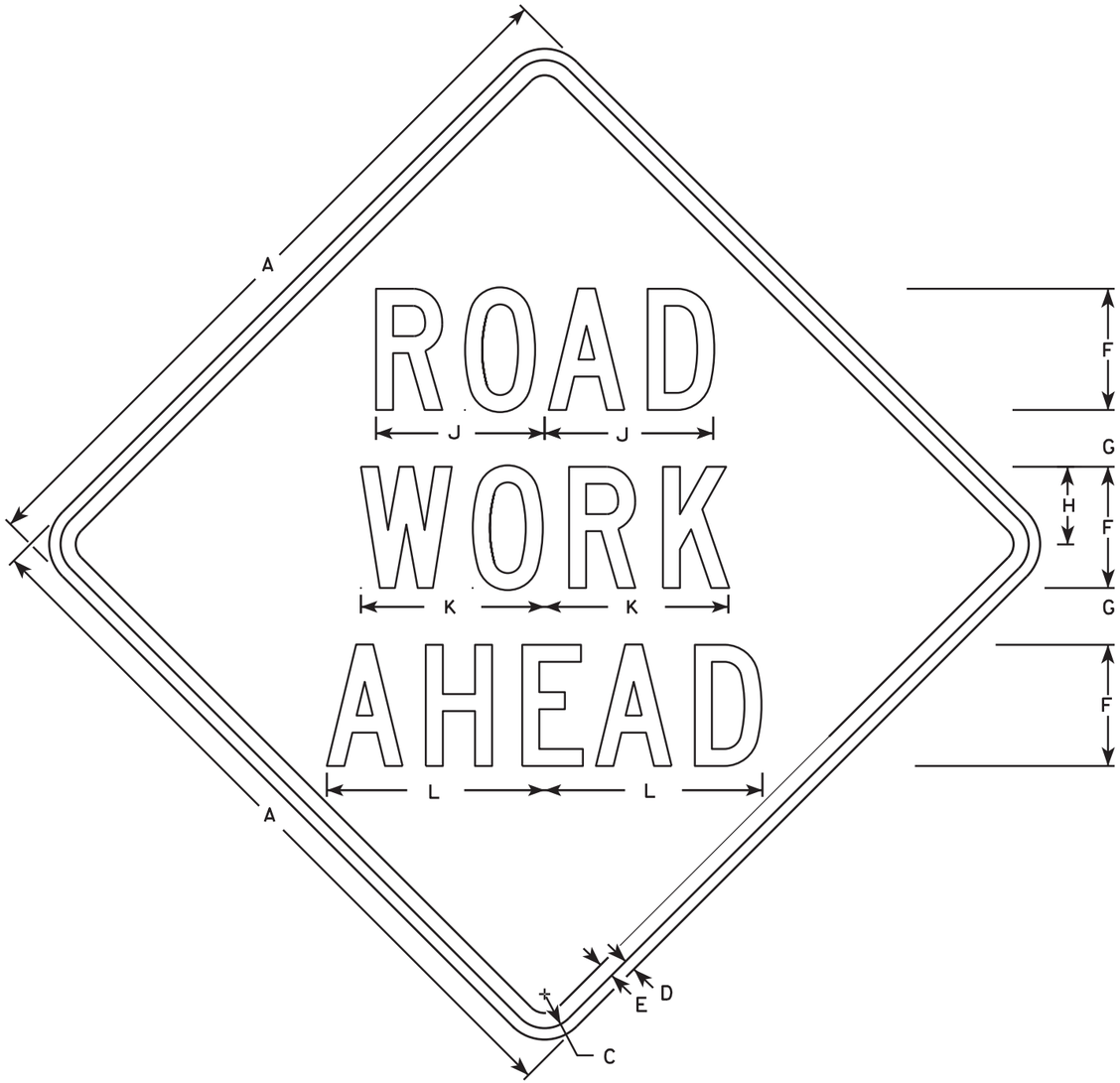
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

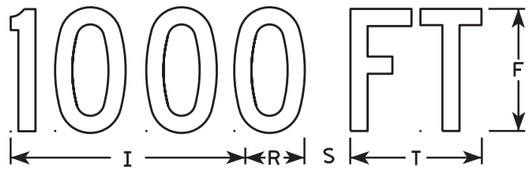
DATE 5/29/12 PLATE NO. W5-52.9

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

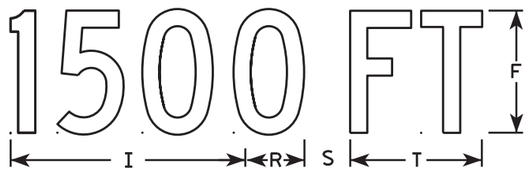


W20-1A

W20-1D



W20-1C



W20-1B

W20-1G

W20-1F

W20-1E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

State Traffic Engineer

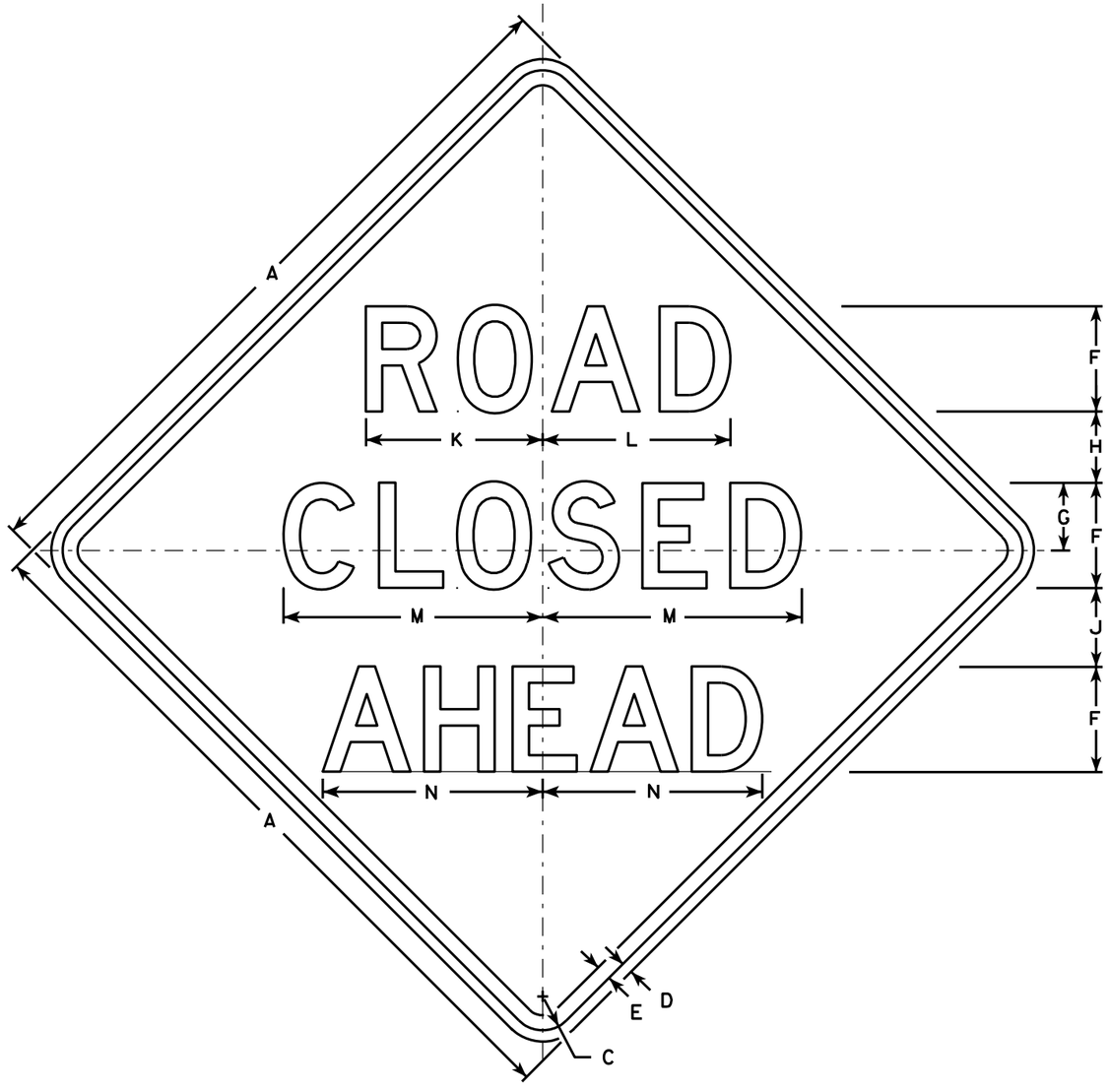
DATE 5/07/15 PLATE NO. W20-1.10

PROJECT NO:

SHEET NO: 47 E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W201.dgn PLOT DATE : 27-MAY-2015 15:58 PLOT BY : mscsja

WISDOT/CADDS SHEET 42



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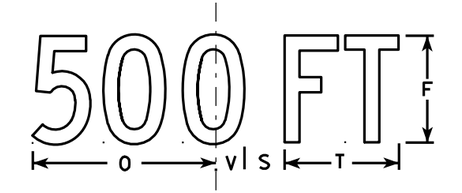
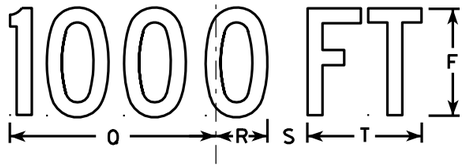
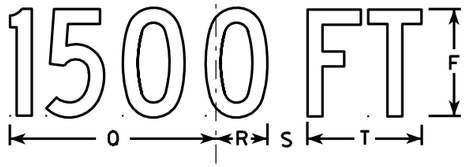


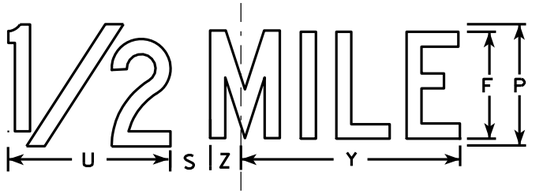
W20-3D



W20-3C



W20-3B



W20-3G

W20-3F

NOTES

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

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

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

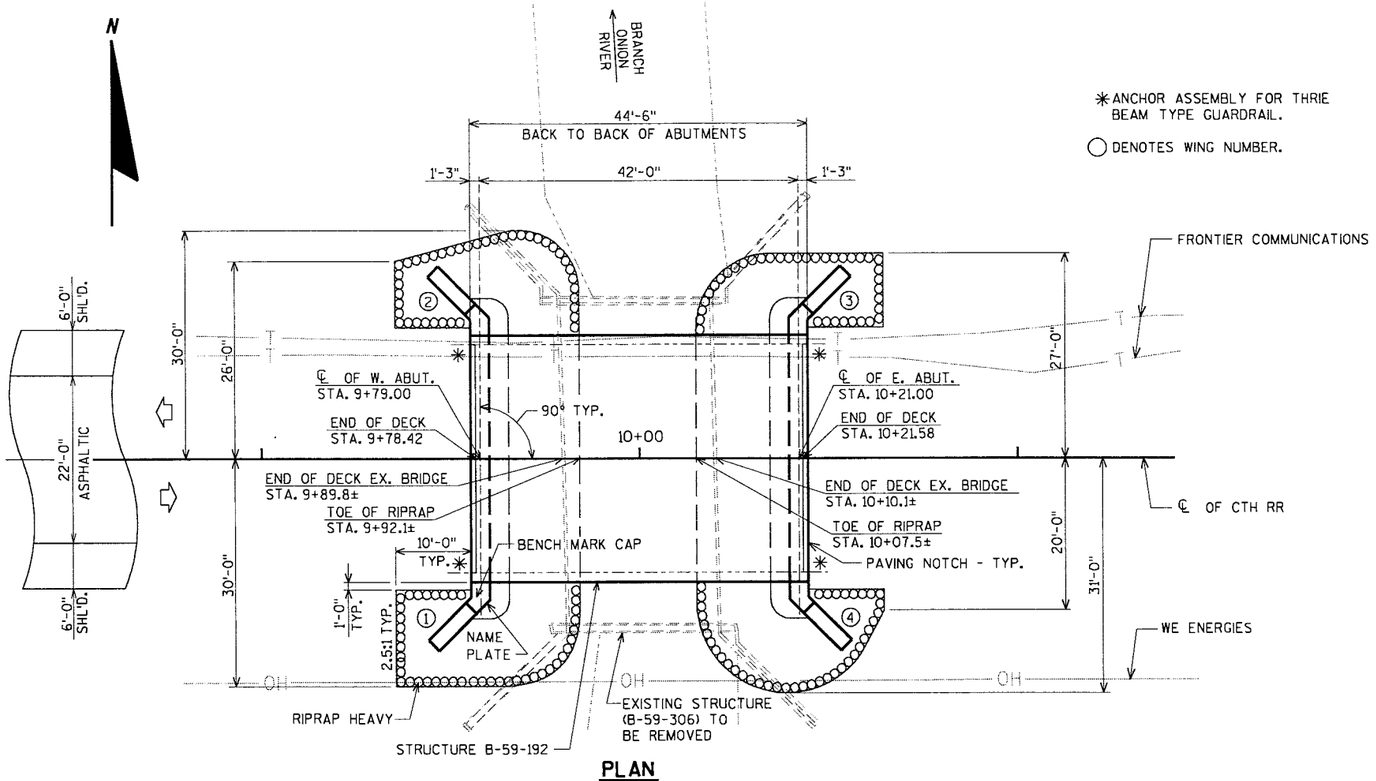
WISCONSIN DEPT OF TRANSPORTATION

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

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

STATE PROJECT NUMBER

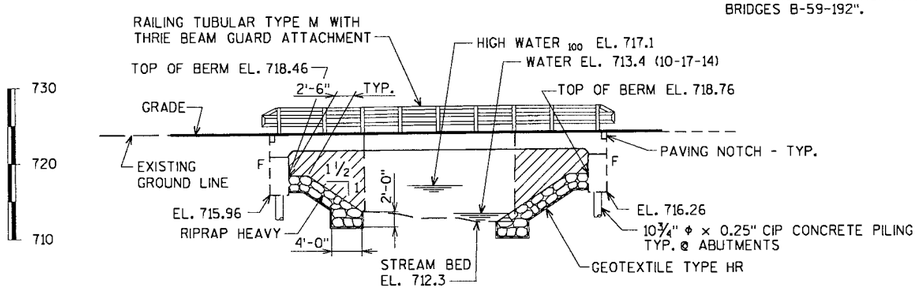
4198-04-71



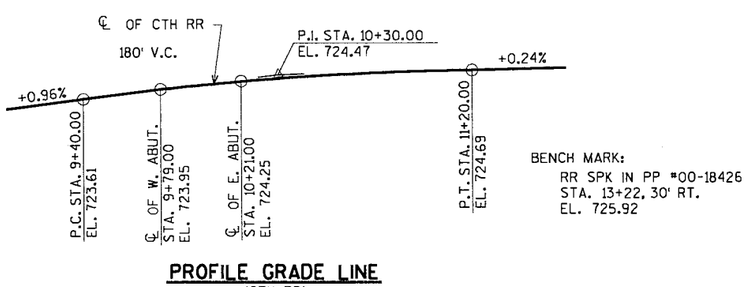
PLAN

SINGLE SPAN CONCRETE FLAT SLAB

▨ COST OF EXCAVATION IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-59-192".



ELEVATION

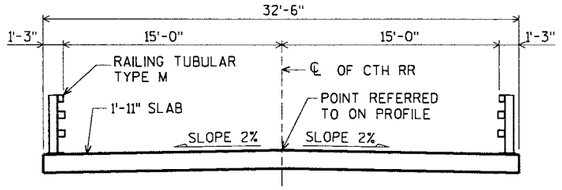


PROFILE GRADE LINE

(CTH RR)

BENCH MARK:
RR SPK IN PP #00-18426
STA. 13+22, 30' RT.
EL. 725.92

LIST OF DRAWINGS



CROSS SECTION THRU BRIDGE

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.10
OPERATING RATING FACTOR: 1.43
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

MATERIAL PROPERTIES:

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

HYDRAULIC DATA:

100 YEAR FLOOD
DRAINAGE AREA = 4.2 sq. mi.
WATERWAY AREA = 118 sq. ft.
V = 3.8 f.p.s.
Q_{100} = 450 c.f.s.
HIGH $WATER_{100}$ EL. 717.1
HIGH $WATER_2$ EL. 714.4
RDWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 8
DATUM = NAVD88 (1991)

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON 10¾" ϕ x 0.25" CIP CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS ‡ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 70'-0".

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

TRAFFIC DATA:

A.D.T. = 810 (2017)
A.D.T. = 1,200 (2037)
R.D.S. = 55 M.P.H.

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER
7/28/16

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

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

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/12/16
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-59-192

CTH RR OVER BRANCH ONION RIVER

COUNTY SHEBOYGAN | TOWN/~~CITY/VILLAGE~~ HOLLAND

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

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

GENERAL PLAN

SHEET 1 OF 11
49

DATE:
DATE:
DATE:
CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

11X17-5200.plt
450395 gp.dgn

8

8

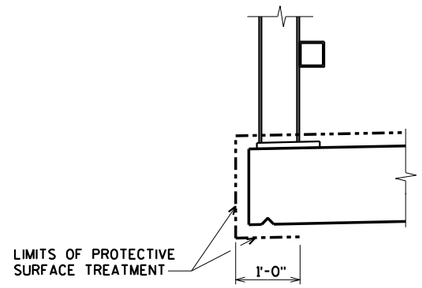
7/26/2016

black.tbl

I.D.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 10+00	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-59-192	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	230	230	-----	460
502.0100	CONCRETE MASONRY BRIDGES	CY	28	28	106	162
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	190	190
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,460	2,460	-----	4,920
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	880	880	18,420	20,180
513.4061	RAILING TUBULAR TYPE M B-59-192	LF	-----	-----	89	89
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20
550.2104	PILING CIP CONCRETE 10¾ x 0.25-INCH	LF	420	420	-----	840
606.0300	RIPRAP HEAVY	CY	90	80	-----	170
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	80	-----	160
645.0120	GEOTEXTILE TYPE HR	SY	170	155	-----	325
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	½" & ¾"



PROTECTIVE SURFACE TREATMENT DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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

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

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

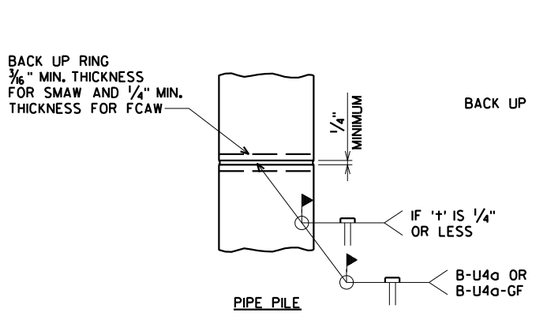
THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

THE EXISTING STRUCTURE, B-59-306, IS A SINGLE-SPAN CONCRETE FLAT SLAB BRIDGE WITH A CLEAR RDWY WIDTH OF 42 FT. AND AN OVERALL LENGTH OF 24.5 FT.

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

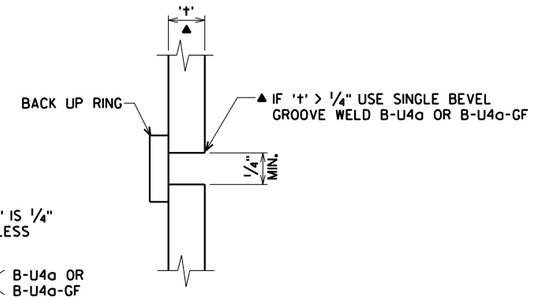
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.

THE QUANTITY OF BACKFILL STRUCTURE TYPE A, BID ITEM 210.1500, IS CALCULATED BASED ON APPLICABLE FIGURES 12.6-1 AND 12.6-2 IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL.



PILE SPLICE DETAIL

CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



CIP PILE WELD DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

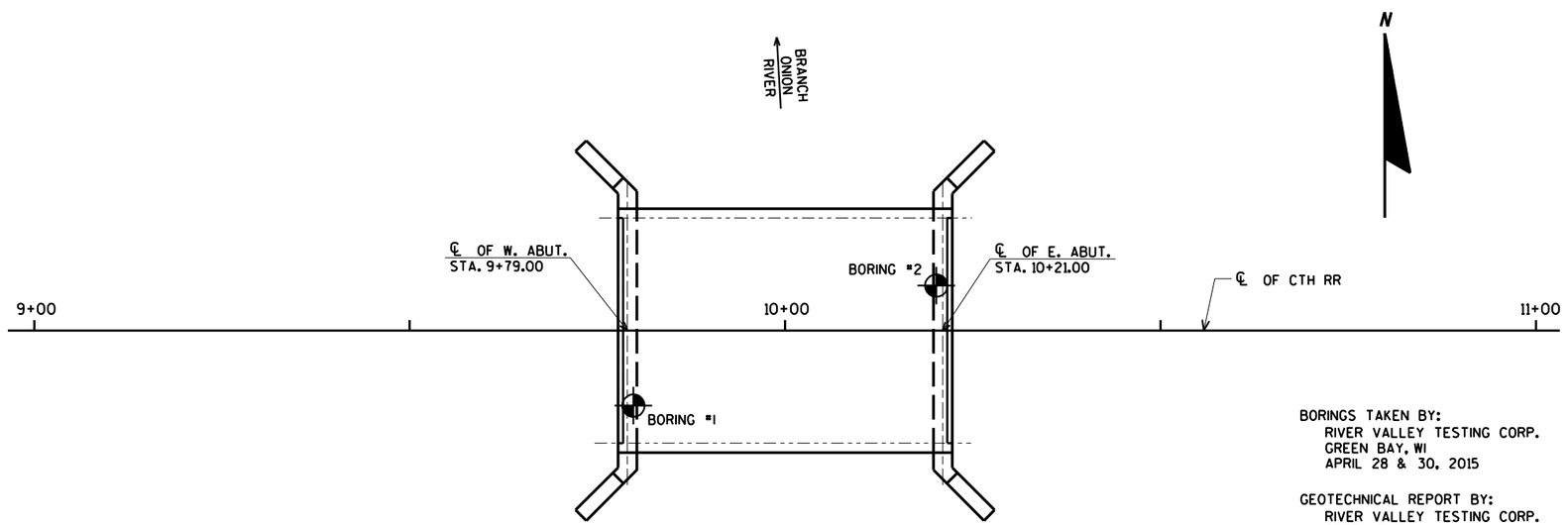
DRAWN BY CLS | PLANS CK'D. CKJ

QUANTITIES AND NOTES

SHEET 2 OF 11
50

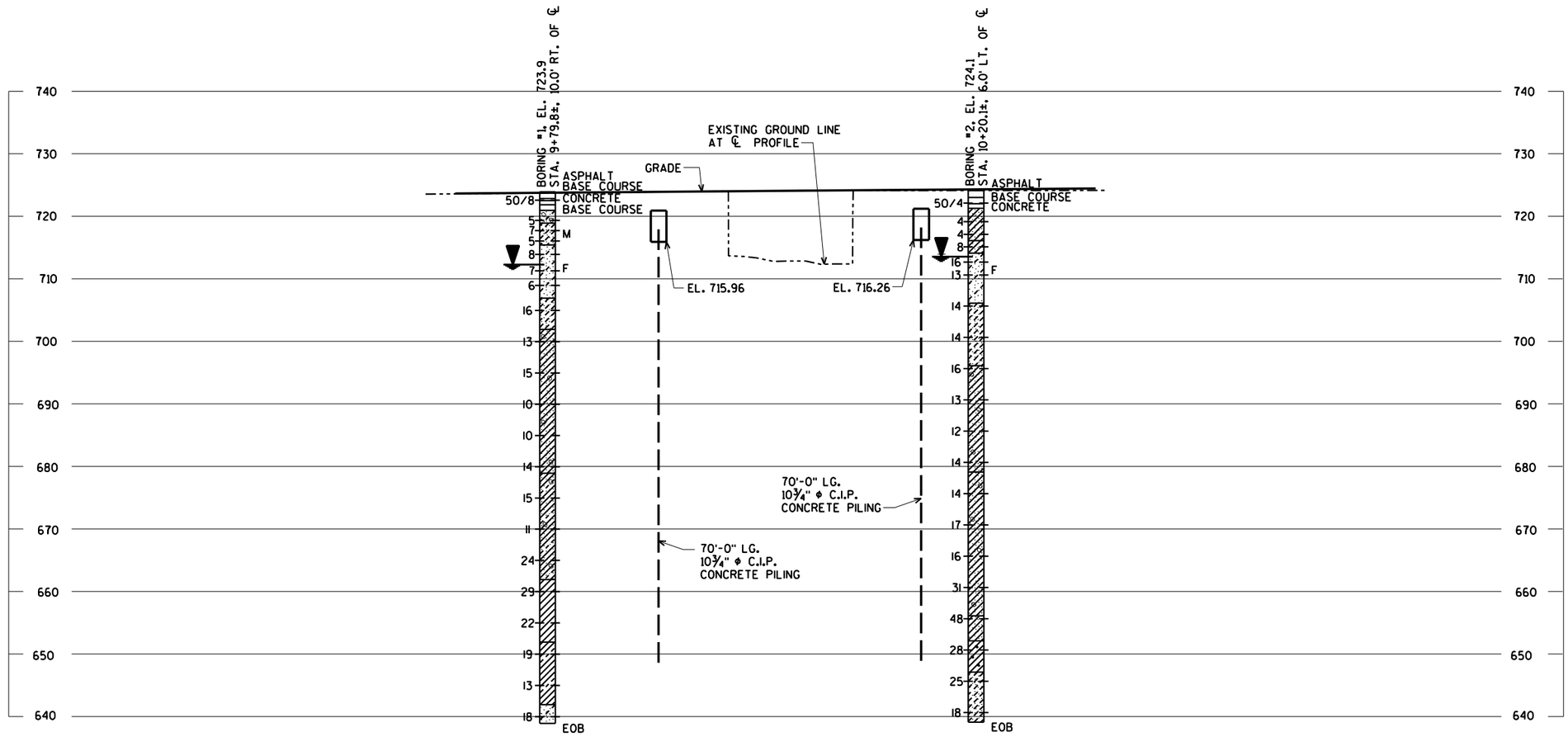
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:\45-0395.00 - Sheboygan Co - CTH RR\BRIDGE\450395 gp.dgn



BORINGS TAKEN BY:
RIVER VALLEY TESTING CORP.
GREEN BAY, WI
APRIL 28 & 30, 2015

GEOTECHNICAL REPORT BY:
RIVER VALLEY TESTING CORP.
GREEN BAY, WI
JUNE 3, 2015



STATE PROJECT NUMBER

4198-04-71

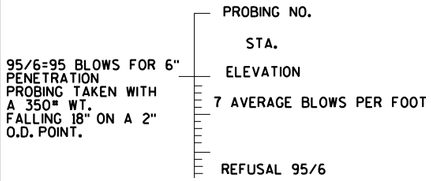
ABBREVIATIONS

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

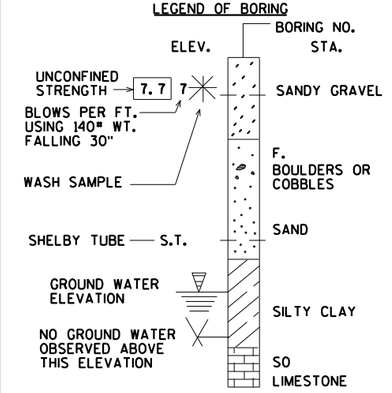
MATERIAL SYMBOLS

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

LEGEND OF PROBING



LEGEND OF BORING



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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

DRAWN BY CLS | PLANS CK'D. CKJ

SUBSURFACE EXPLORATION

SHEET 3 OF 11
51

8

8

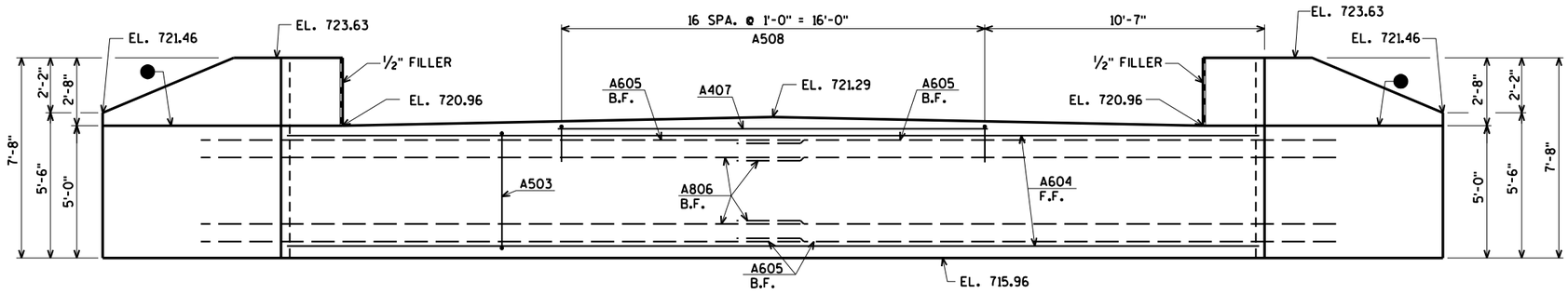
$PRFNAME$
U:±45-0395.00 - Sheboygan Co - CTH RR±BRIDGE±450395 soils.dgn

7/26/2016

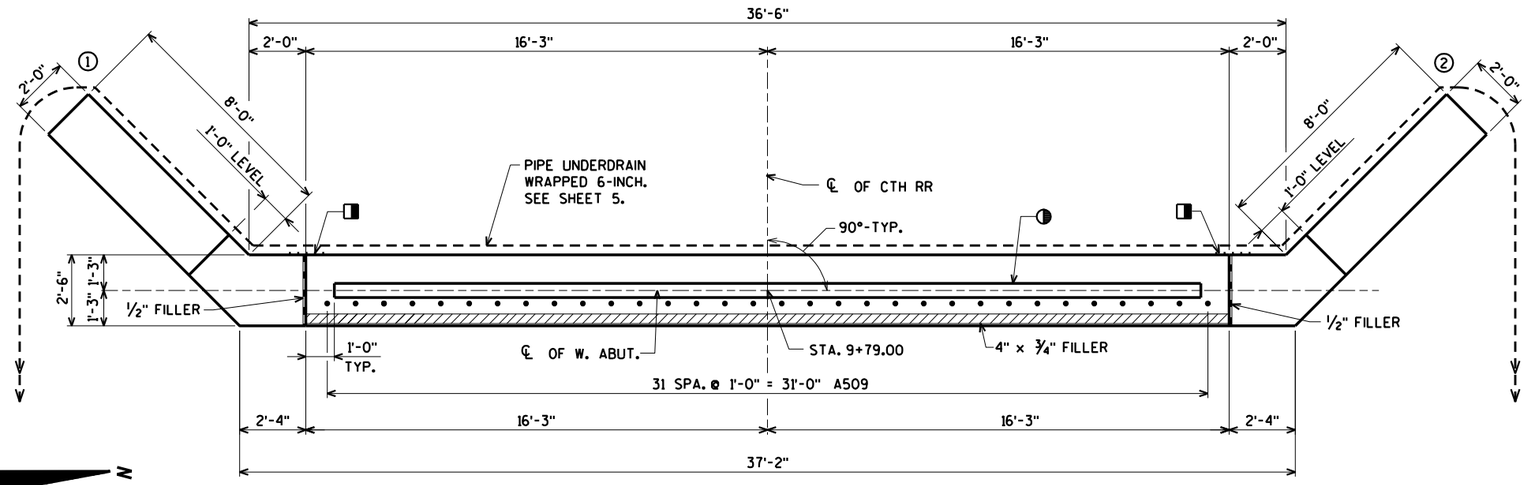
PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

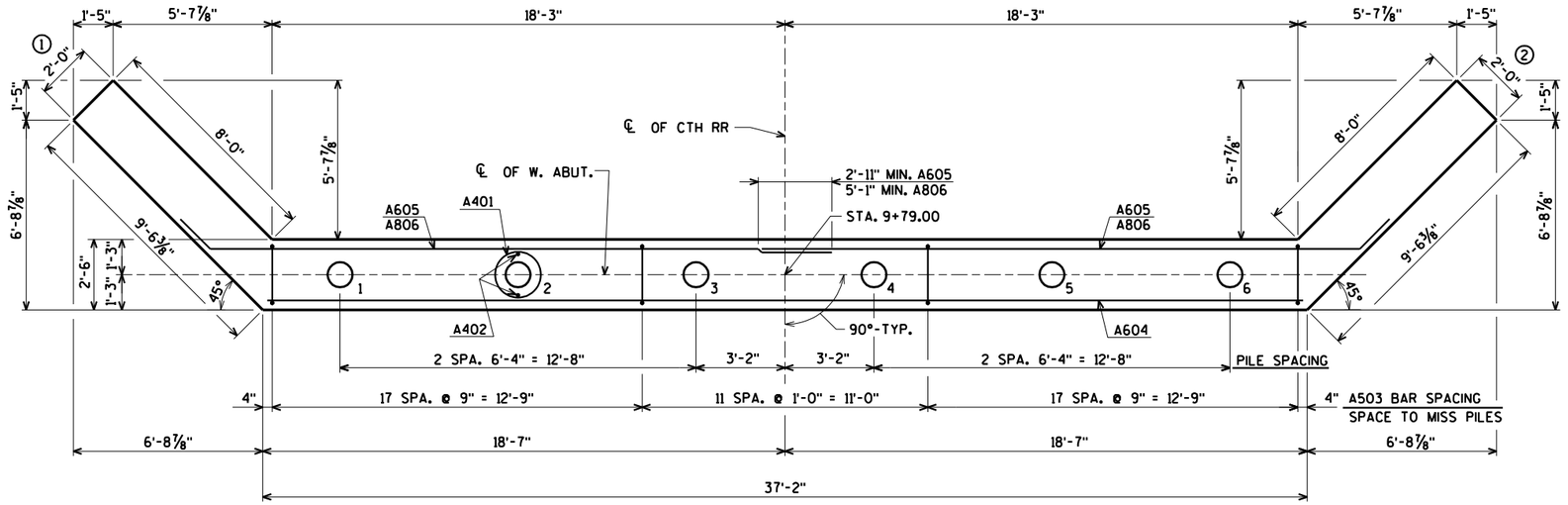
4198-04-71



ELEVATION
(LOOKING WEST)



PLAN



PILE LAYOUT

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

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

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

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

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

DRAWN BY CLS | PLANS CK'D. CKJ

WEST ABUTMENT

SHEET 4 OF 11
52

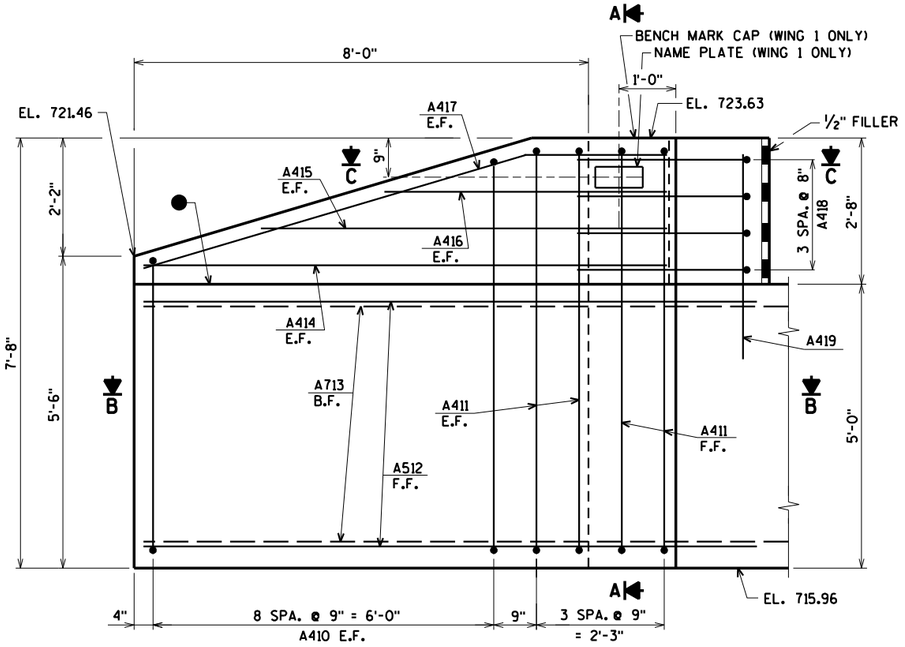
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:\45-0395.00 - Sheboygan Co - CTH RR\BRIDGE\450395 wa.dgn

8

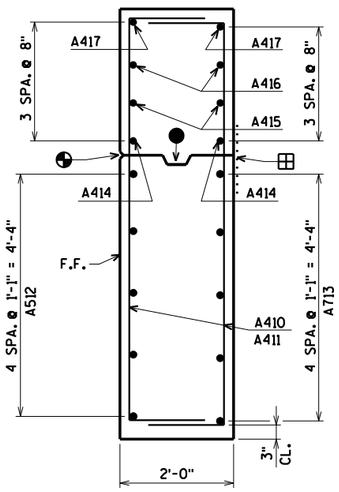
STATE PROJECT NUMBER

4198-04-71

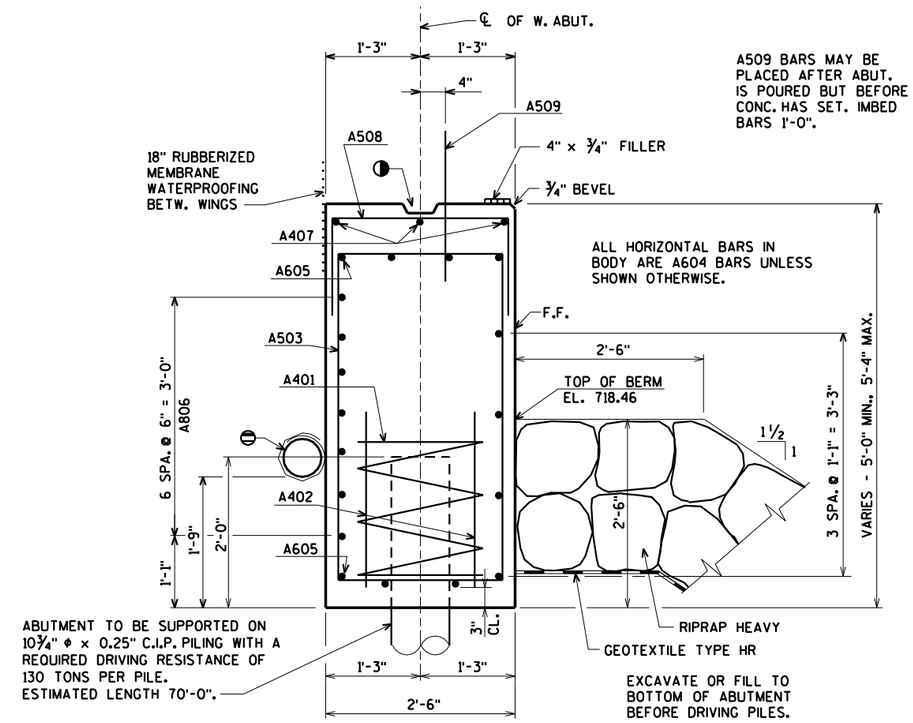


ELEVATION - WING 1

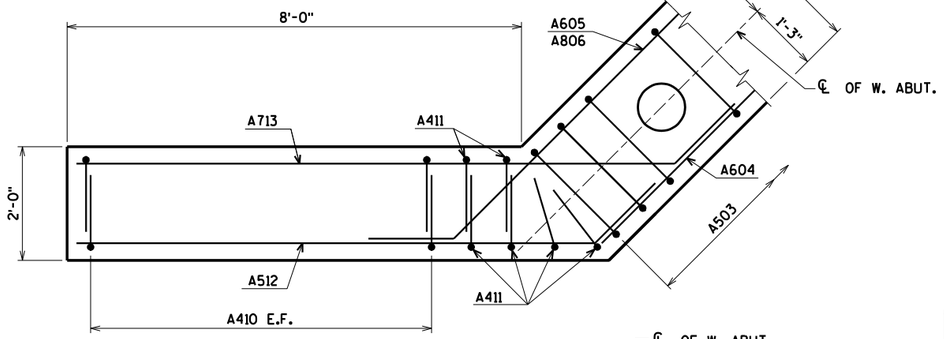
(WING 2 SIMILAR)



SECTION A



TYPICAL SECTION THRU BODY



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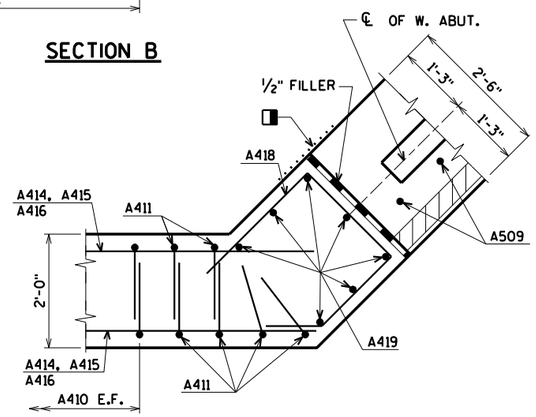

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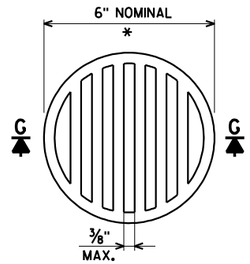

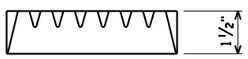

SECTION G-G

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

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

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

RODENT SHIELD DETAIL

- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

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WEST ABUTMENT WING DETAILS

SHEET 5 OF 11

53

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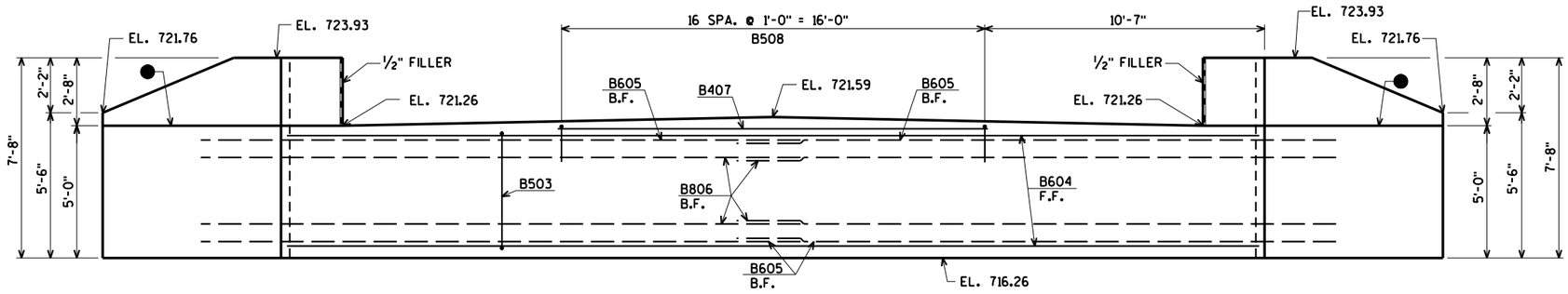
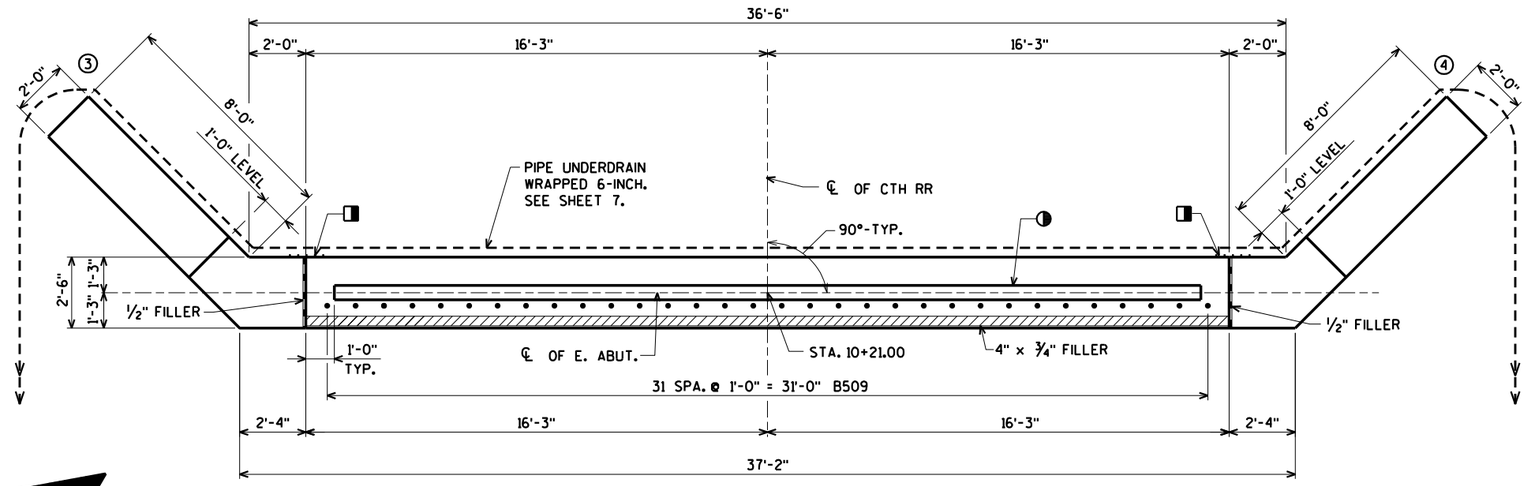
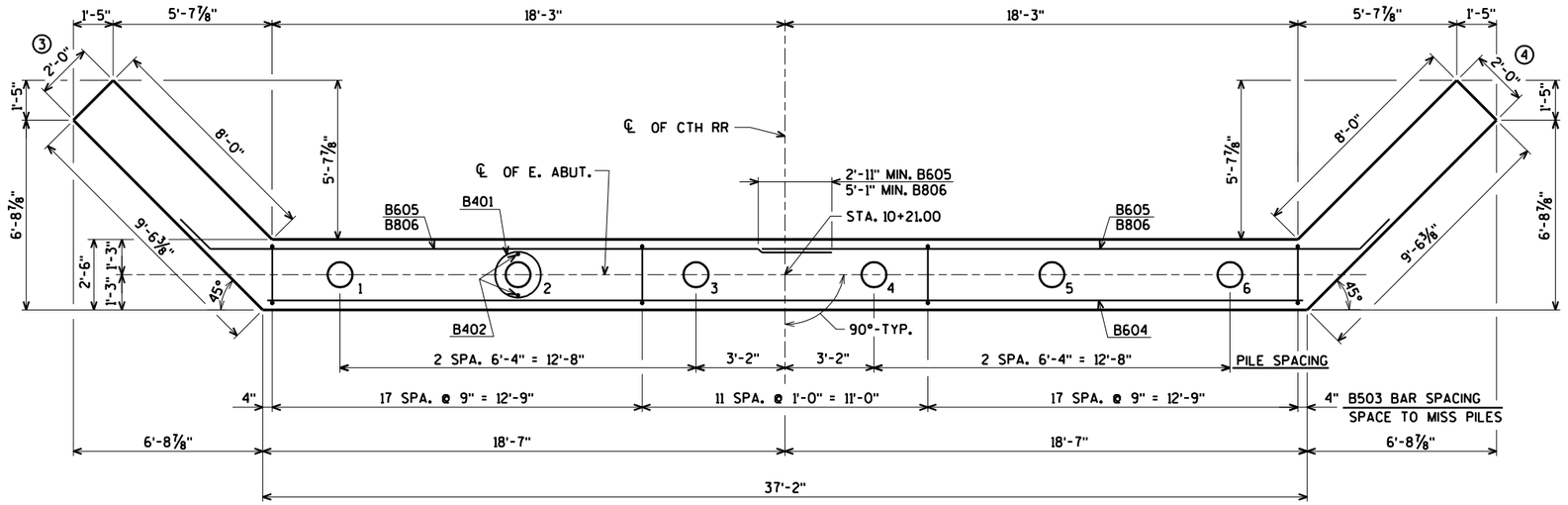


ELEVATION
(LOOKING EAST)



PLAN



PILE LAYOUT

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

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

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

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

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

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EAST ABUTMENT

SHEET 6 OF 11
54

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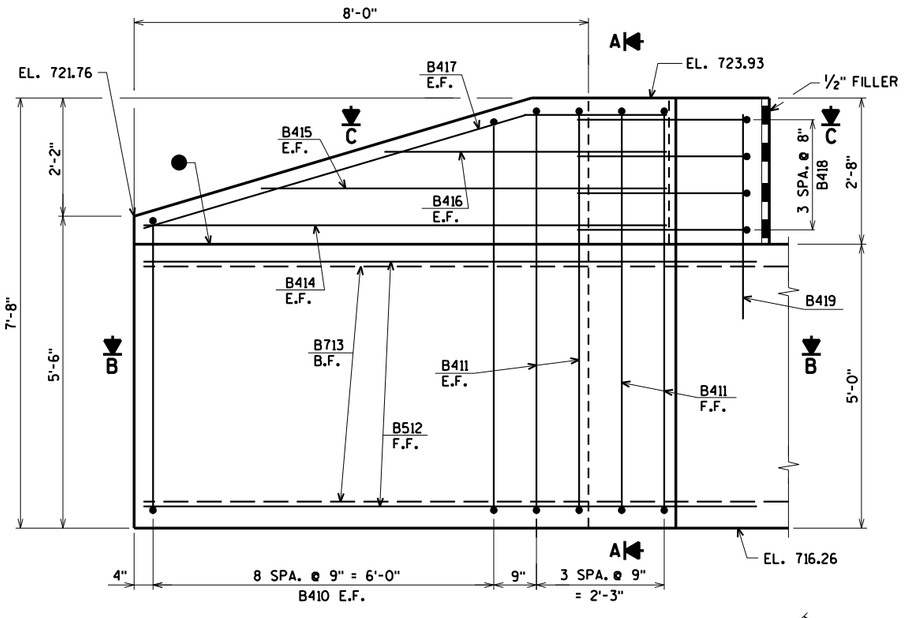
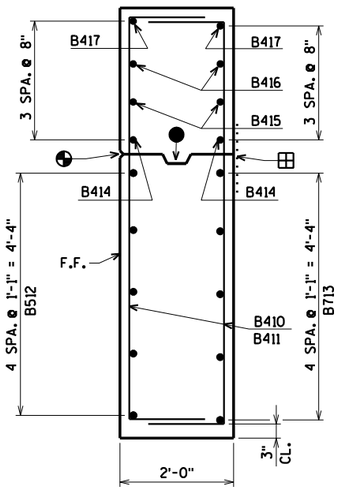
STATE PROJECT NUMBER

4198-04-71

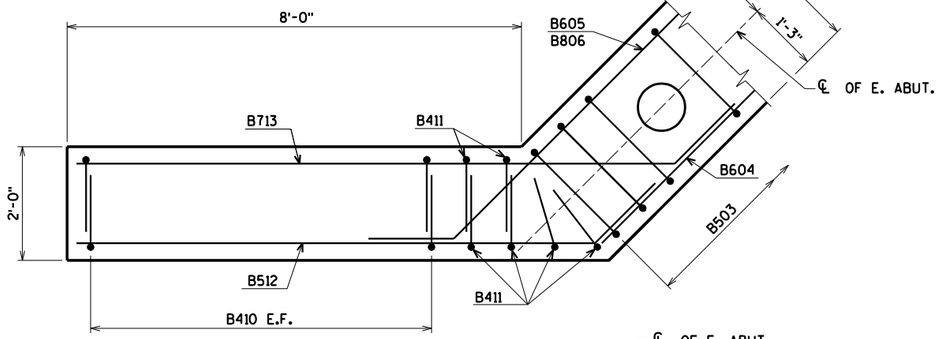


ELEVATION - WING 3

(WING 4 SIMILAR)



SECTION A



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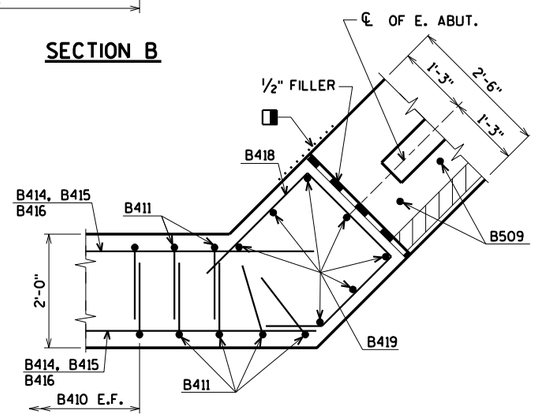

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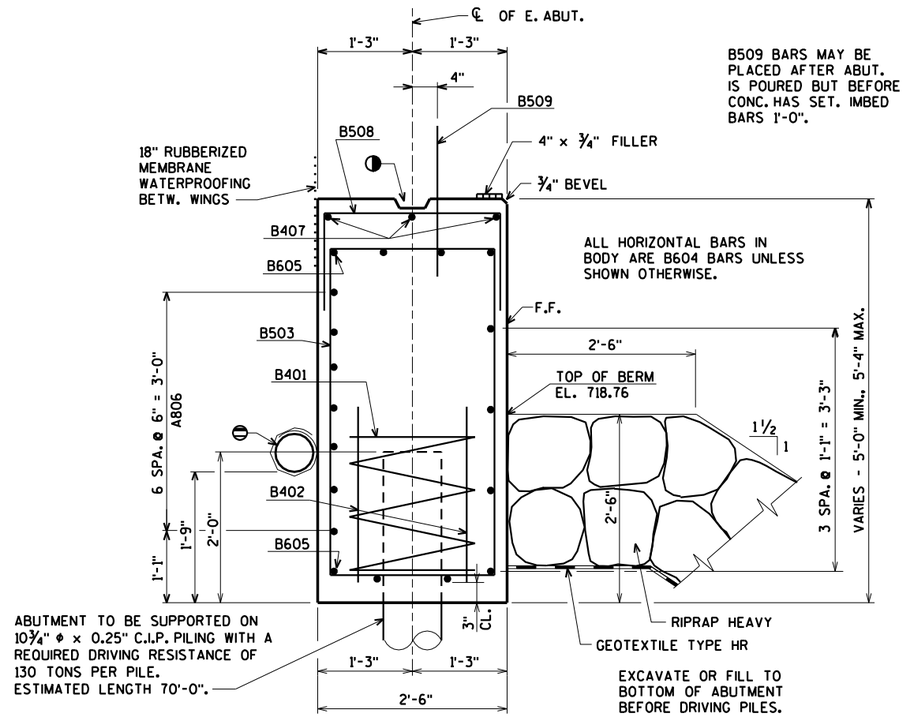

TYPICAL SECTION THRU BODY

- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. FOR DETAIL SEE SHEET 5.
- KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.
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FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

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EAST
ABUTMENT
WING DETAILS

SHEET 7 OF 11
55

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5/24/2016

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

4198-04-71

BILL OF BARS - WEST ABUTMENT

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2,460# UNCOATED 880# COATED LOCATION
A401		6	28-0	X			BODY ℄ PILES
A402		12	2-3				BODY ℄ PILES
A503		46	13-10	X			BODY VERT.
A604		9	36-11				BODY HORIZ. F.F.
A605		4	23-6	X			BODY HORIZ. B.F.
A806		14	24-7	X			BODY HORIZ. B.F.
A407		3	16-3				BODY HORIZ.
A508		17	4-3	X			BODY VERT.
A509	X	32	2-0				BODY DOWELS
A410	X	36	8-7	X		⊗	WINGS 1 & 2 VERT. E.F.
A411	X	12	9-9	X			WINGS 1 & 2 VERT. E.F.
A512	X	10	10-8	X			WINGS 1 & 2 HORIZ. F.F.
A713	X	10	12-3	X			WINGS 1 & 2 HORIZ. B.F.
A414	X	4	9-2				WINGS 1 & 2 HORIZ. E.F.
A415	X	4	7-0				WINGS 1 & 2 HORIZ. E.F.
A416	X	4	4-10				WINGS 1 & 2 HORIZ. E.F.
A417	X	4	9-7	X			WINGS 1 & 2 DIAG. E.F.
A418	X	8	8-5	X			WINGS 1 & 2 HORIZ.
A419	X	14	4-6				WINGS 1 & 2 VERT.

BILL OF BARS - EAST ABUTMENT

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2,460# UNCOATED 880# COATED LOCATION
B401		6	28-0	X			BODY ℄ PILES
B402		12	2-3				BODY ℄ PILES
B503		46	13-10	X			BODY VERT.
B604		9	36-11				BODY HORIZ. F.F.
B605		4	23-6	X			BODY HORIZ. B.F.
B806		14	24-7	X			BODY HORIZ. B.F.
B407		3	16-3				BODY HORIZ.
B508		17	4-3	X			BODY VERT.
B509	X	32	2-0				BODY DOWELS
B410	X	36	8-7	X		⊗	WINGS 3 & 4 VERT. E.F.
B411	X	12	9-9	X			WINGS 3 & 4 VERT. E.F.
B512	X	10	10-8	X			WINGS 3 & 4 HORIZ. F.F.
B713	X	10	12-3	X			WINGS 3 & 4 HORIZ. B.F.
B414	X	4	9-2				WINGS 3 & 4 HORIZ. E.F.
B415	X	4	7-0				WINGS 3 & 4 HORIZ. E.F.
B416	X	4	4-10				WINGS 3 & 4 HORIZ. E.F.
B417	X	4	9-7	X			WINGS 3 & 4 DIAG. E.F.
B418	X	8	8-5	X			WINGS 3 & 4 HORIZ.
B419	X	14	4-6				WINGS 3 & 4 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

B.F. DENOTES BACK FACE

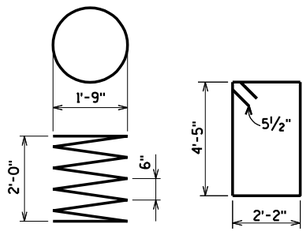
E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

BAR SERIES TABLE

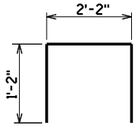
BAR MARK	NO. REQ'D.	LENGTH
A410	4 SERIES OF 9	7'-9" TO 9'-5"
B410	4 SERIES OF 9	7'-9" TO 9'-5"

BUNDLE AND TAG EACH SERIES SEPARATELY.

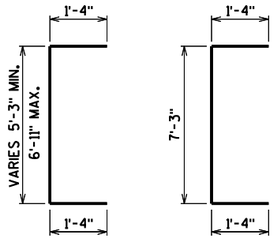


A401
B401

A503
B503

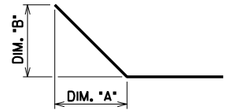


A508
B508

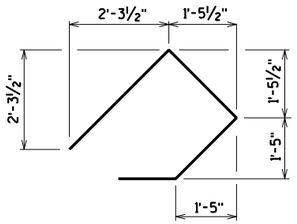


A410
B410

A411
B411



BAR NO.	DIM. "A"	DIM. "B"
A605	1'-0¾"	1'-0¾"
A806	1'-0¾"	1'-0¾"
A512	1'-0¾"	1'-0¾"
A713	1'-0¾"	1'-0¾"
A417	6'-9"	2'-1"
B605	1'-0¾"	1'-0¾"
B806	1'-0¾"	1'-0¾"
B512	1'-0¾"	1'-0¾"
B713	1'-0¾"	1'-0¾"
B417	6'-9"	2'-1"



A418
B418

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

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ABUTMENT
BILL OF BARS

SHEET 8 OF 11
56

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STATE PROJECT NUMBER
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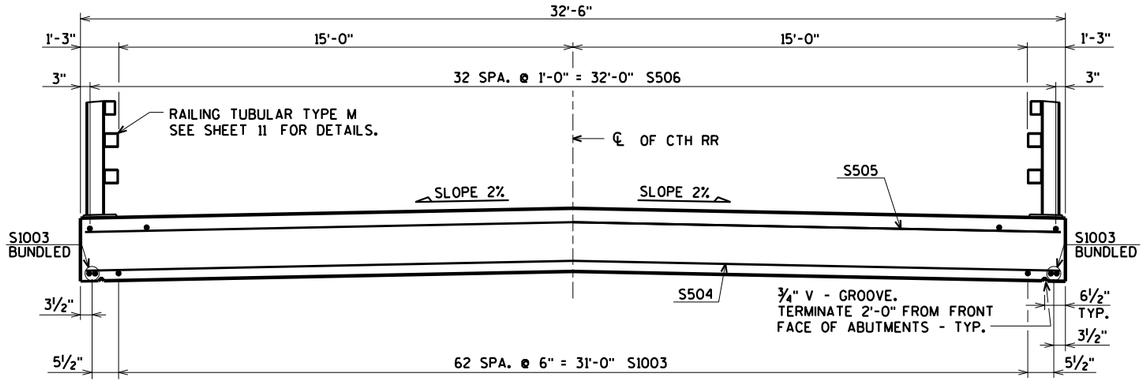
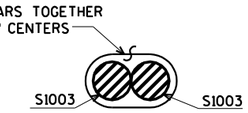


CROSS SECTION THRU BRIDGE

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

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

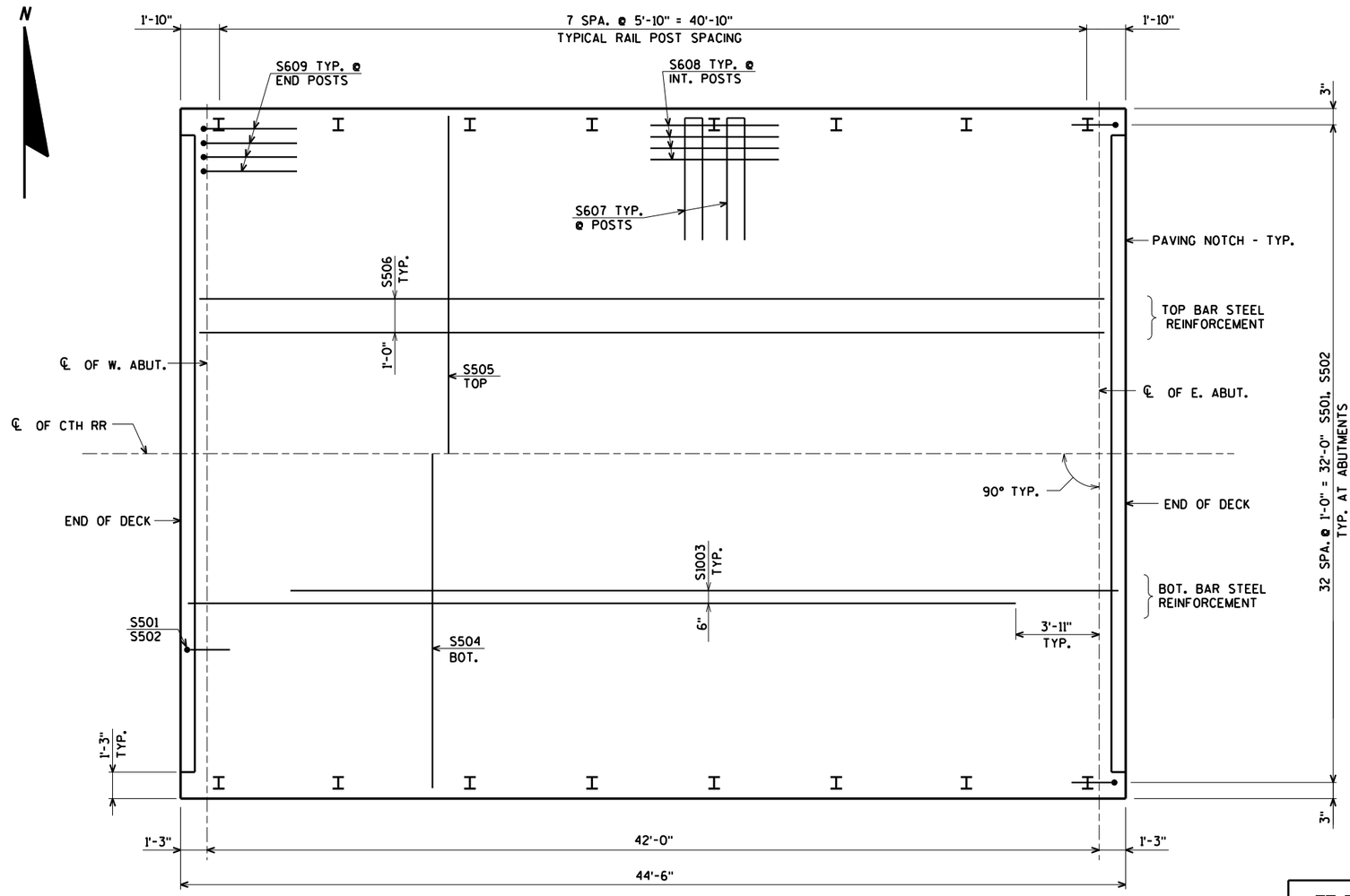


BUNDLING DETAIL

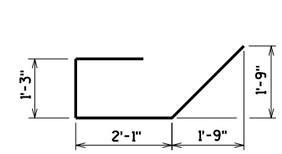
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	18,420# COATED LOCATION
S501	X	66	6-8	X		SLAB @ ABUT.
S502	X	66	3-7	X		SLAB @ ABUT.
S1003	X	67	39-2		X	SLAB LONG. BOT.
S504	X	68	32-2			SLAB TRANS. BOT.
S505	X	45	32-2			SLAB TRANS. TOP
S506	X	33	42-10			SLAB LONG. TOP
S607	X	32	12-0	X		SLAB @ RAIL POSTS
S608	X	48	6-0			SLAB @ INT. RAIL POSTS
S609	X	16	6-0	X		SLAB @ END RAIL POSTS

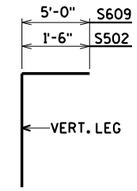
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

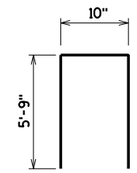


PLAN



S501





S607

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STRUCTURE B-59-192

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SUPERSTRUCTURE

SHEET 9 OF 11
57

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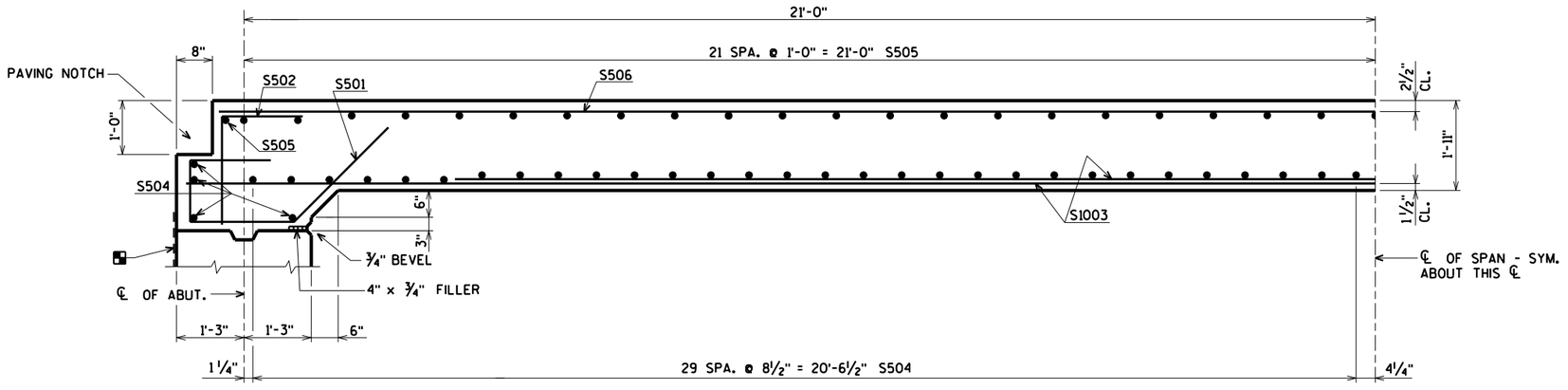
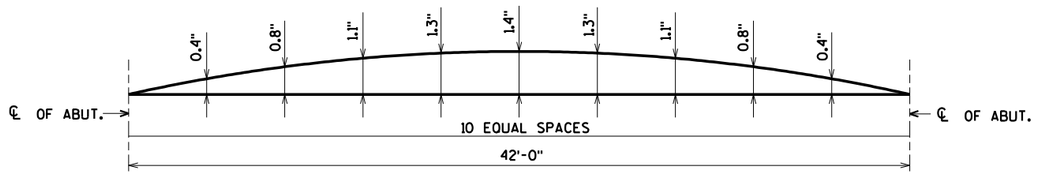


■ 18" RUBBERIZED MEMBRANE WATERPROOFING

PART LONGITUDINAL SECTION



CAMBER DIAGRAM

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

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

TOP OF DECK ELEVATIONS

LOCATION	℄ OF W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF E. ABUT.
N. EDGE OF SLAB	723.63	723.66	723.69	723.73	723.76	723.79	723.82	723.85	723.87	723.90	723.93
℄ OF STRUCTURE	723.95	723.99	724.02	724.05	724.08	724.11	724.14	724.17	724.20	724.23	724.25
S. EDGE OF SLAB	723.63	723.66	723.69	723.73	723.76	723.79	723.82	723.85	723.87	723.90	723.93

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

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SUPERSTRUCTURE DETAILS

SHEET 10 OF 11
58

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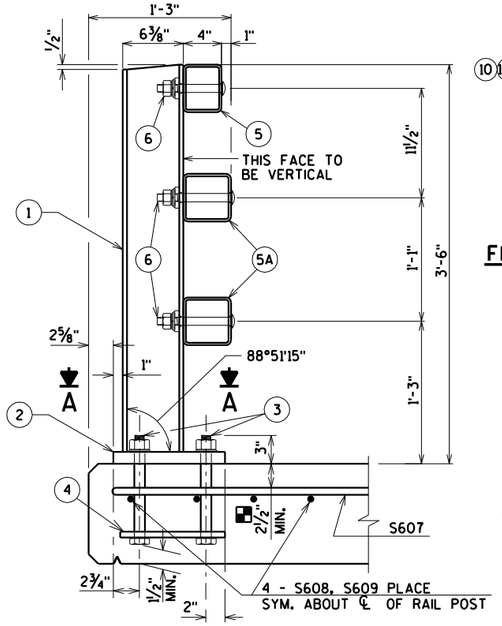
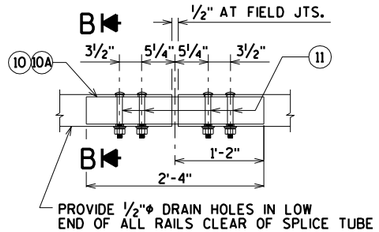
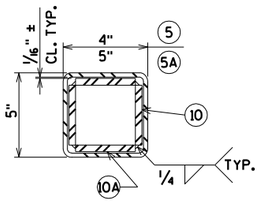


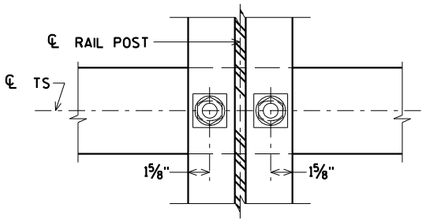
SECTION THRU RAILING ON DECK



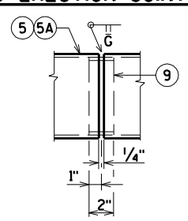
FIELD ERECTION JOINT DETAIL



SECTION B

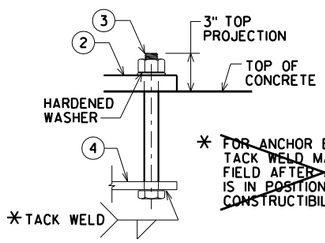


SECTION THRU POST WEB



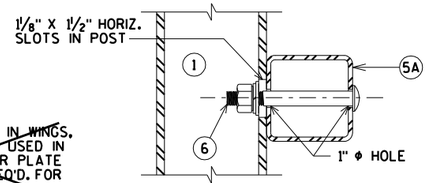
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



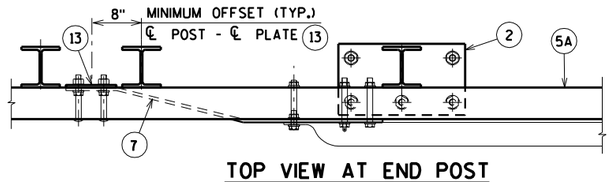
ANCHOR BOLTS

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



SECTION THRU RAIL

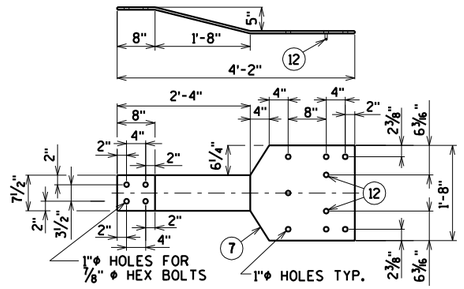
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.



TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)

TYPICAL RAIL TO POST CONNECTIONS



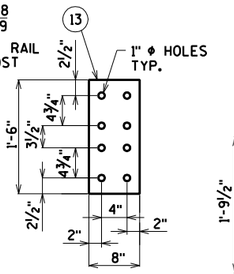
BACK-UP PLATE DETAIL

(AT BEAM GUARD ATTACHMENT)

PLACE BELOW TOP MAT SLAB REINFORCEMENT.

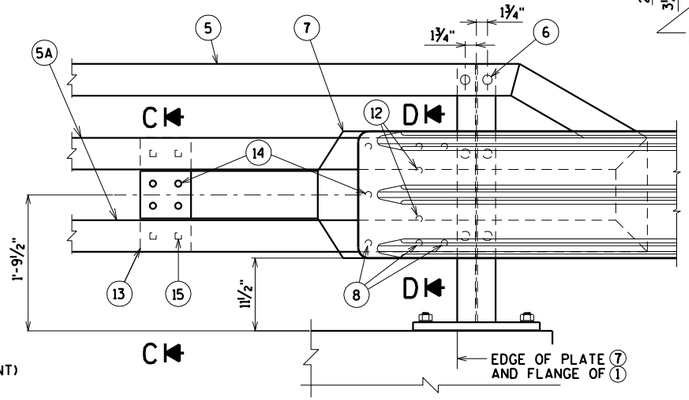
TIE TO TOP MAT OF STEEL.

SECTION A



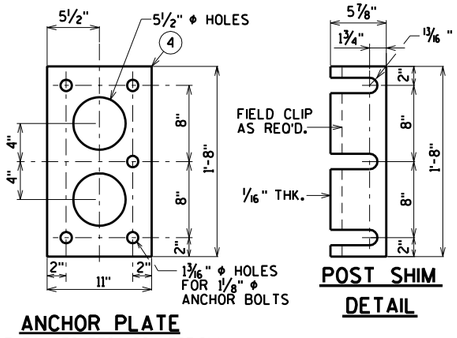
ANCHOR PLATE

(AT BEAM GUARD ATTACHMENT)



DETAIL AT END POST

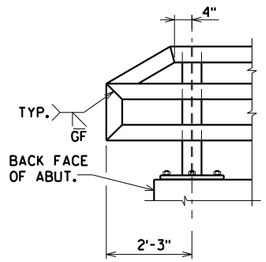
(THRIE BEAM RAIL ATTACHMENT)



ANCHOR PLATE

(AT RAIL TO DECK CONNECTION)

POST SHIM DETAIL



PART ELEVATION OF RAILING

LEGEND

① W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" x 11¾" x 1'-8" WITH 1⅝" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. ~~USE 1'-9" LONG IN ABUTMENT WINGS.~~ AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. ~~USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)~~

④ ⅝" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1³⁄₁₆" DIA. HOLES FOR ANCHOR BOLTS NO. 3

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

⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑥ ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3⁄16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

⑦ ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

⑨ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

⑩ ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ ⅞" ϕ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1⅝ " X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 1⅝ " X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS~~ IN PLATE NO. 10A.

⑫ ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

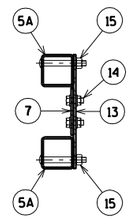
⑬ ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

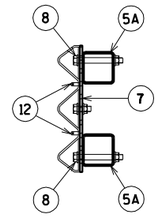
⑮ 1" ϕ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-59-192" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. ~~RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.~~
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. ~~WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.~~
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.



SECTION C



SECTION D

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-59-192

DRAWN BY CLS | PLANS CK'D. CKJ

RAILING TUBULAR TYPE M

SHEET 11 OF 11
59

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

$PRFNAME$
U:\45-0395.00 - Sheboygan Co - CTH RR\BRIDGE\450395 Mrail.dgn

5/24/2016

PENTABLE:BReau_shd_util.tbl

EARTHWORK - CTH RR (NW SHOULDER WIDENING)

STATION	AREA (SF) Cut	Unusable Pavement Material	Fill	Marsh Exc	Incremental Vol (CY) (Unadjusted) Cut Note 1	Unusable Pavement Material Note 2	Fill Note 3	Marsh Exc	Cumulative Vol (CY) Cut 1.00 Note 1	Expanded Fill 1.30	Expanded Marsh Backfill 1.50 Note 4	Mass Ordinate Note 7
6+87.00	0.0	0.0	0.0	0.0								
7+00.00	11.2	0.0	49.5	59.7	3	0	12	14	3	15	15	-13
7+50.00	12.1	0.0	91.4	67.1	22	0	130	117	24	185	125	-161
8+00.00	11.3	0.0	112.4	64.5	22	0	189	122	46	430	223	-384
8+26.00	11.5	0.0	114.0	64.1	11	0	109	62	57	572	299	-515
8+50.00	11.4	0.0	105.2	65.4	10	0	97	58	67	699	348	-632
8+76.00	10.7	0.0	69.5	61.7	11	0	84	61	78	808	400	-730
9+00.00	11.7	0.0	56.2	58.7	10	0	56	54	88	881	448	-793
9+10.00	10.1	0.0	60.1	59.1	4	0	22	22	92	909	469	-818
	TOTALS:				92	0	699	510				

EARTHWORK - CTH RR

STATION	AREA (SF) Cut	Unusable Pavement Material	Fill	Marsh Exc	Incremental Vol (CY) (Unadjusted) Cut Note 1	Unusable Pavement Material Note 2	Fill Note 3	Marsh Exc	Cumulative Vol (CY) Cut 1.00 Note 1	Expanded Fill 1.30	Expanded Marsh Backfill 1.50 Note 4	Mass Ordinate Note 7
9+10.00	100.9	38.8	59.7	59.8								
9+50.00	102.9	38.8	58.0	53.9	151	57	87	84	151	113	89	-20
9+77.75	102.9	38.8	58.0	53.9	106	40	60	55	257	191	151	-31
10+22.25	38.6	38.8	47.7	0.0								
10+50.00	38.6	38.8	47.7	0.0	40	40	49	0	296	255	151	-95
11+00.00	45.0	38.8	41.9	0.0	77	72	83	0	374	363	151	-198
11+50.00	45.0	38.8	43.7	0.0	83	72	79	0	457	466	151	-289
12+00.00	41.1	38.8	48.5	0.0	80	72	85	0	537	577	151	-393
	TOTALS:				537	353	443	140				

EARTHWORK - CTH RR (NE SHOULDER WIDENING)

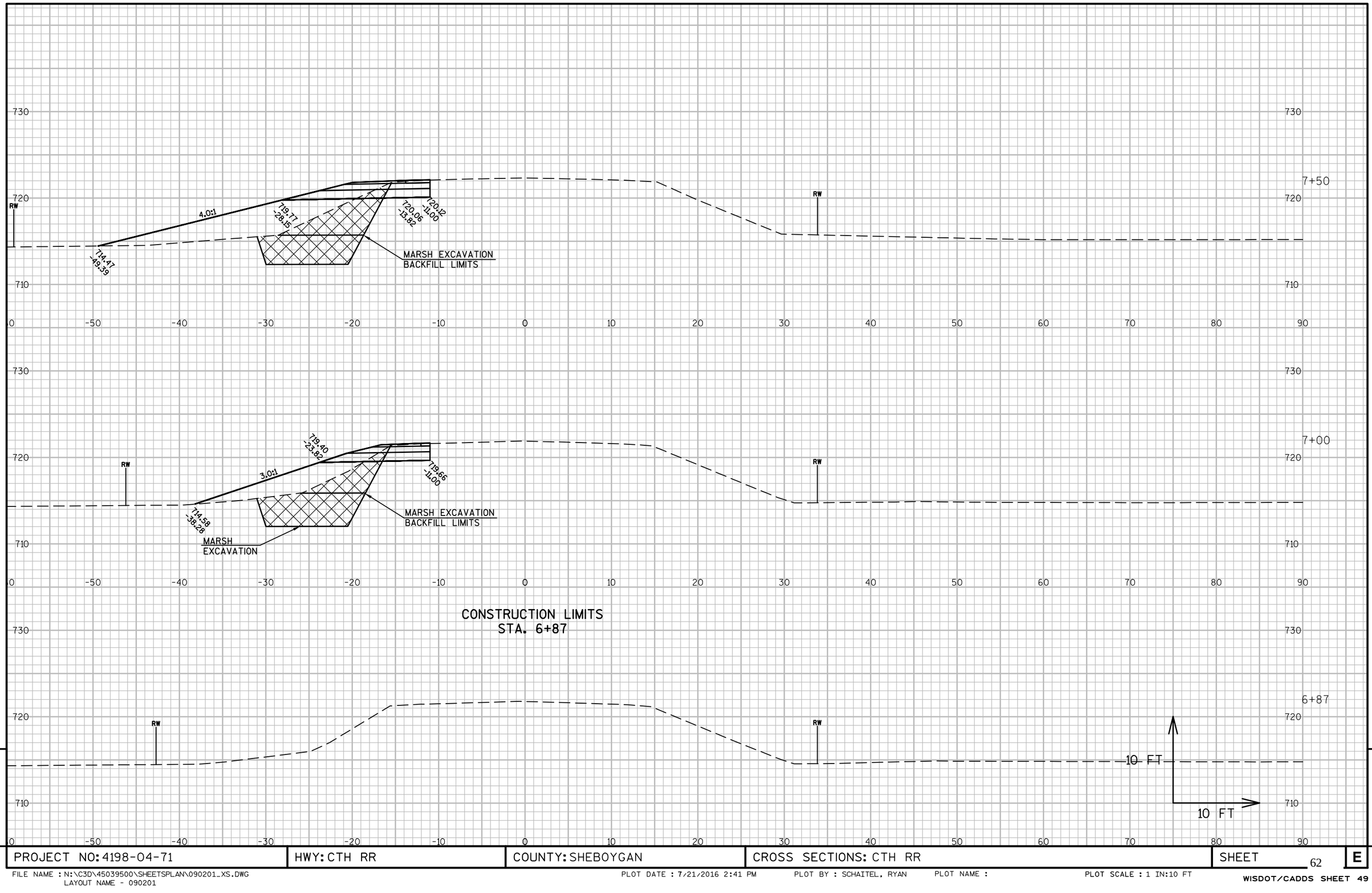
STATION	AREA (SF) Cut	Unusable Pavement Material	Fill	Marsh Exc	Incremental Vol (CY) (Unadjusted) Cut Note 1	Unusable Pavement Material Note 2	Fill Note 3	Marsh Exc	Cumulative Vol (CY) Cut 1.00 Note 1	Expanded Fill 1.30	Expanded Marsh Backfill 1.50 Note 4	Mass Ordinate Note 7
12+00.00	31.2	0.0	0.0	0.0								
12+50.00	15.7	0.0	0.0	0.0	43	0	0	0	43	0	0	43
13+00.00	3.4	0.0	0.0	0.0	18	0	0	0	61	0	0	61
13+22.00	0.0	0.0	0.0	0.0	1	0	0	0	63	0	0	63
	TOTALS:				63	0	0	0				

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

EARTHWORK - FIELD ENTRANCE

STATION	AREA (SF)				Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			Mass Ordinate
	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Unusable Pavement Material	Fill	Marsh Exc	Cut	Expanded Fill	Expanded Marsh Backfill	
									1.00	1.30	1.50	
					Note 1	Note 2	Note 3		Note 1		Note 4	Note 7
48+87.00	6.7	0.0	0.0	0.0								
49+00.00	7.5	0.0	2.5	0.0	3	0	1	0	3	1	0	3
49+50.00	0.0	0.0	50.0	0.0	7	0	49	0	10	64	0	-54
49+60.00	0.0	0.0	65.3	0.0	0	0	21	0	10	92	0	-81
		TOTALS:			10	0	71	0				

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

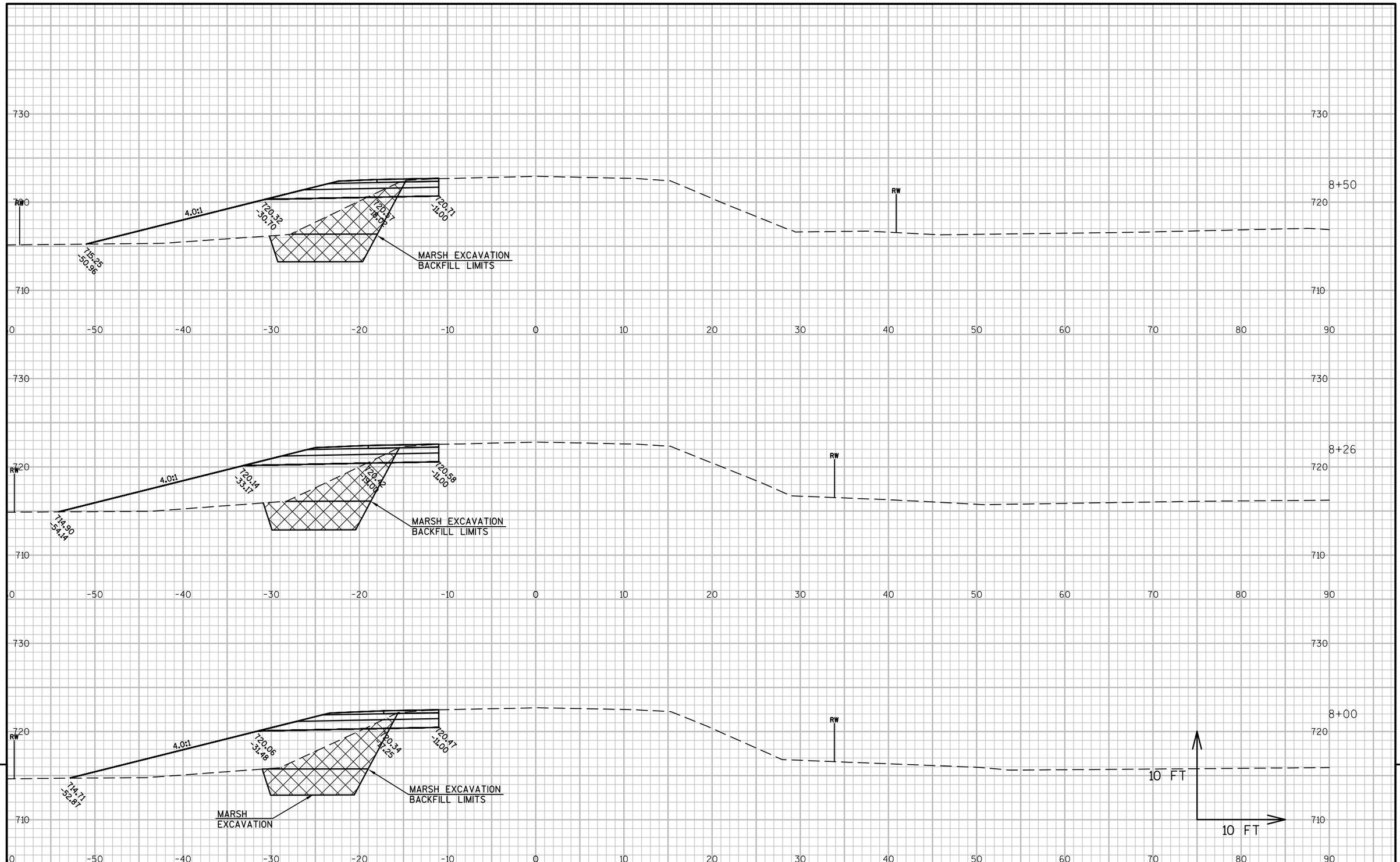


PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 62	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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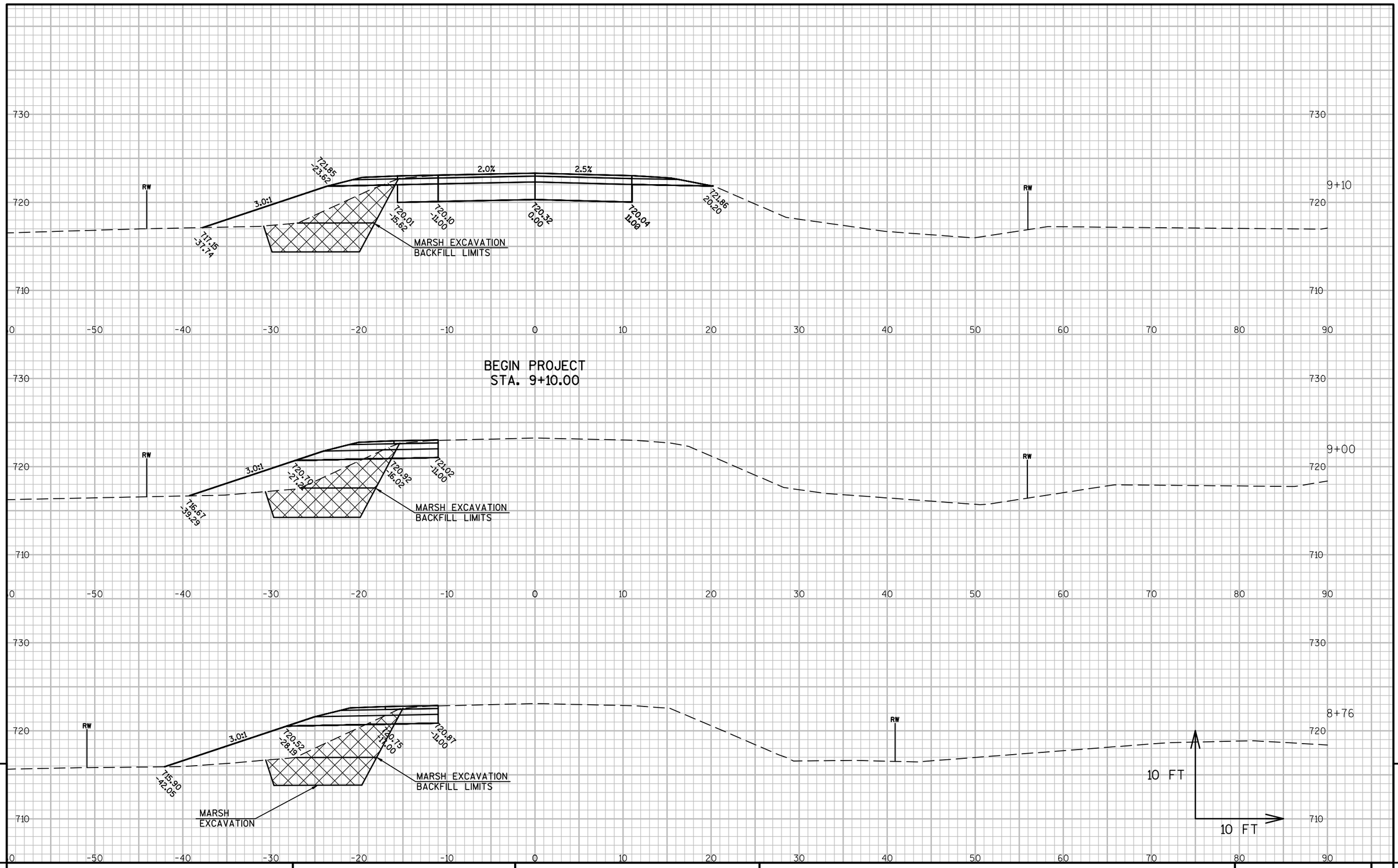
9

PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 63	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090202

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

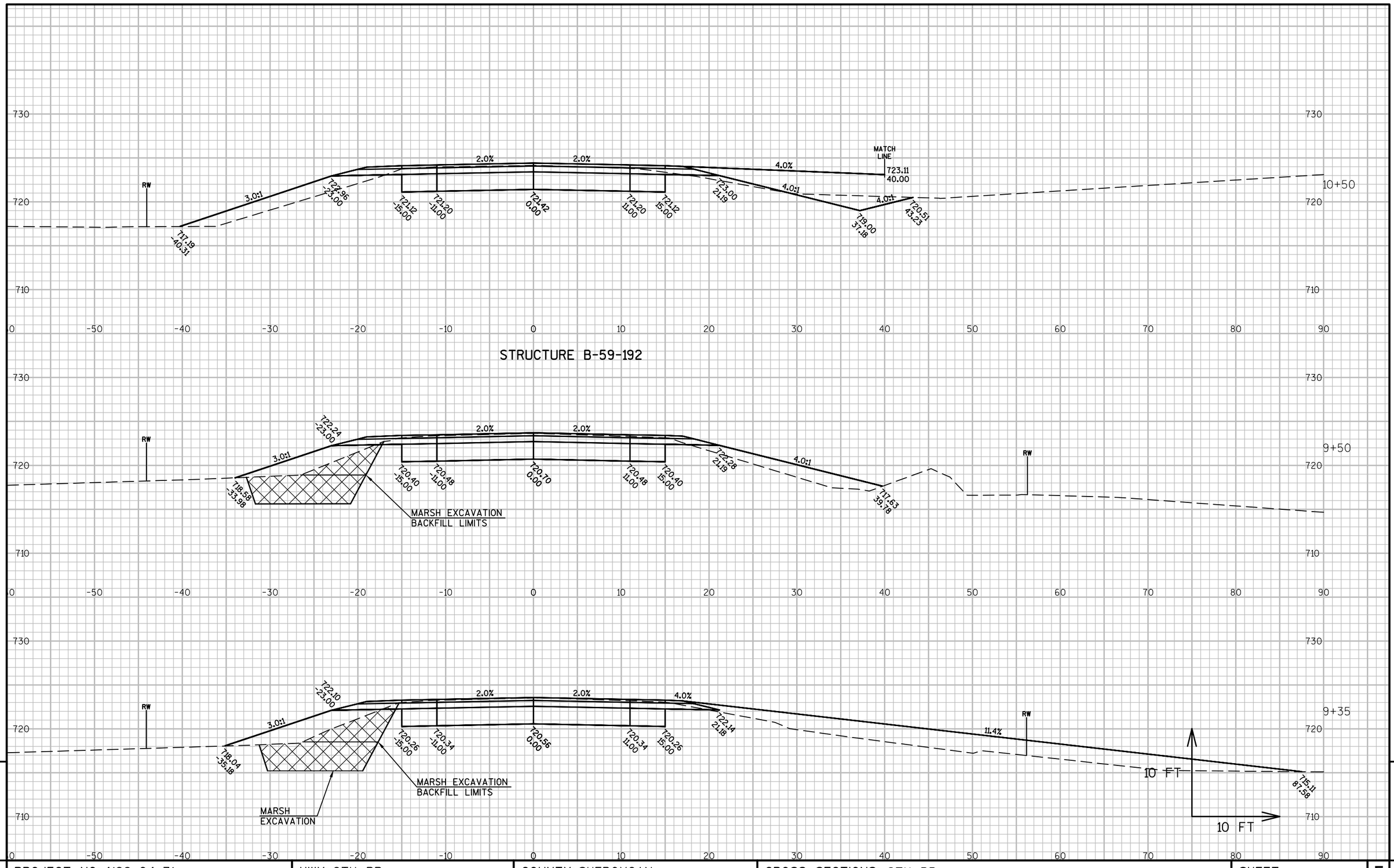


PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 64	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090203

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

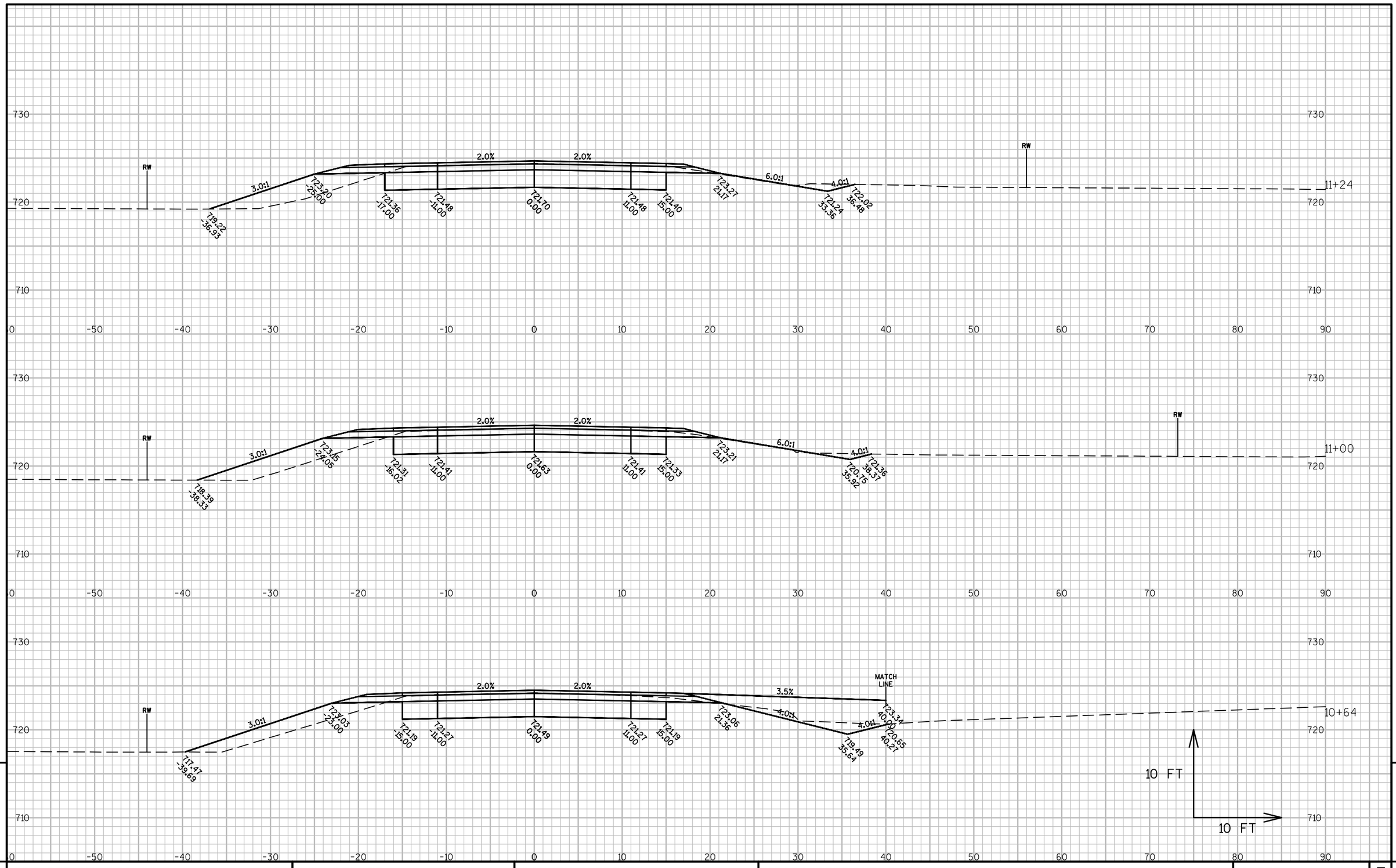
WISDOT/CADDS SHEET 49



PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 65	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090204

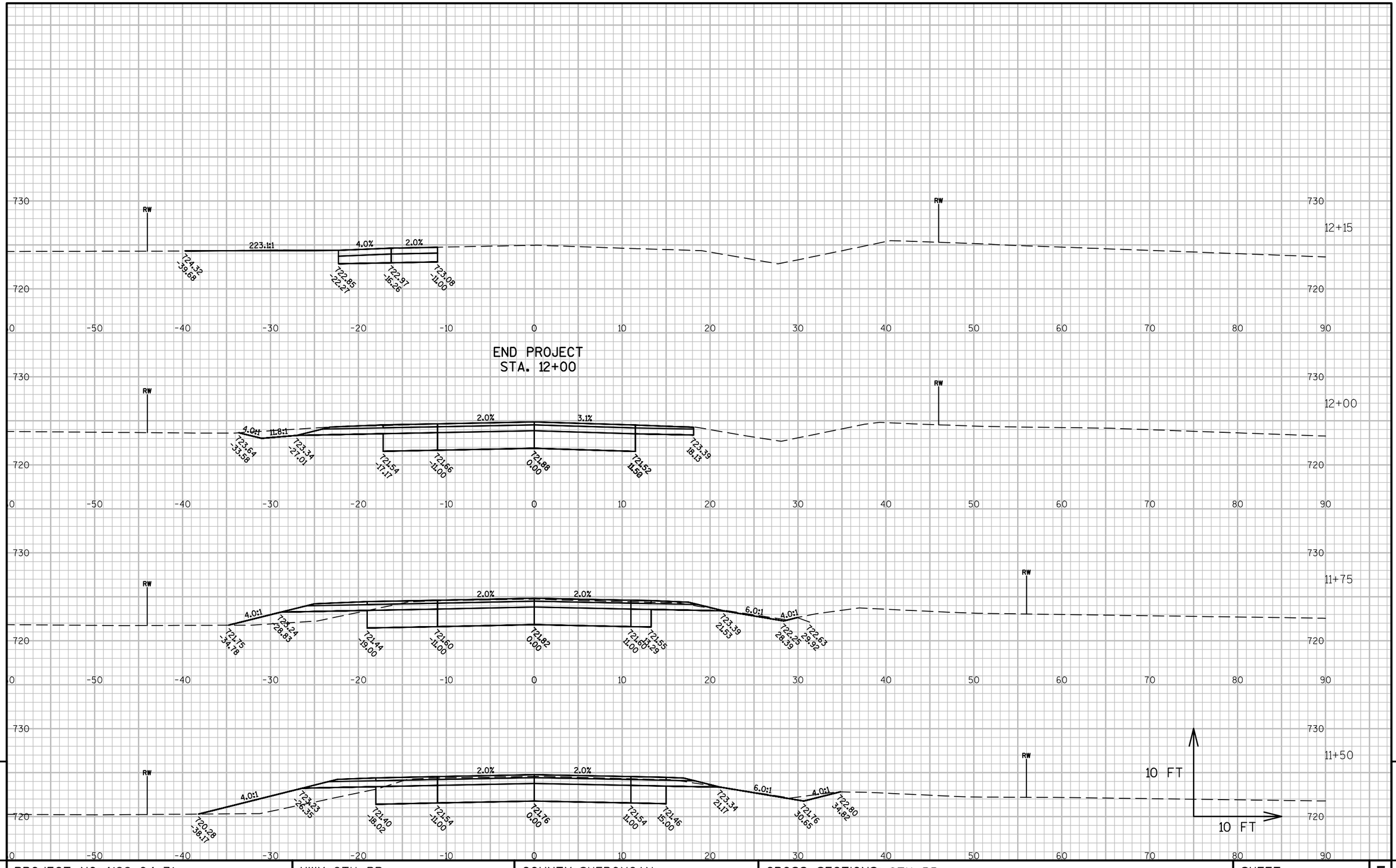
PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT



PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 66	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090205

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT



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9

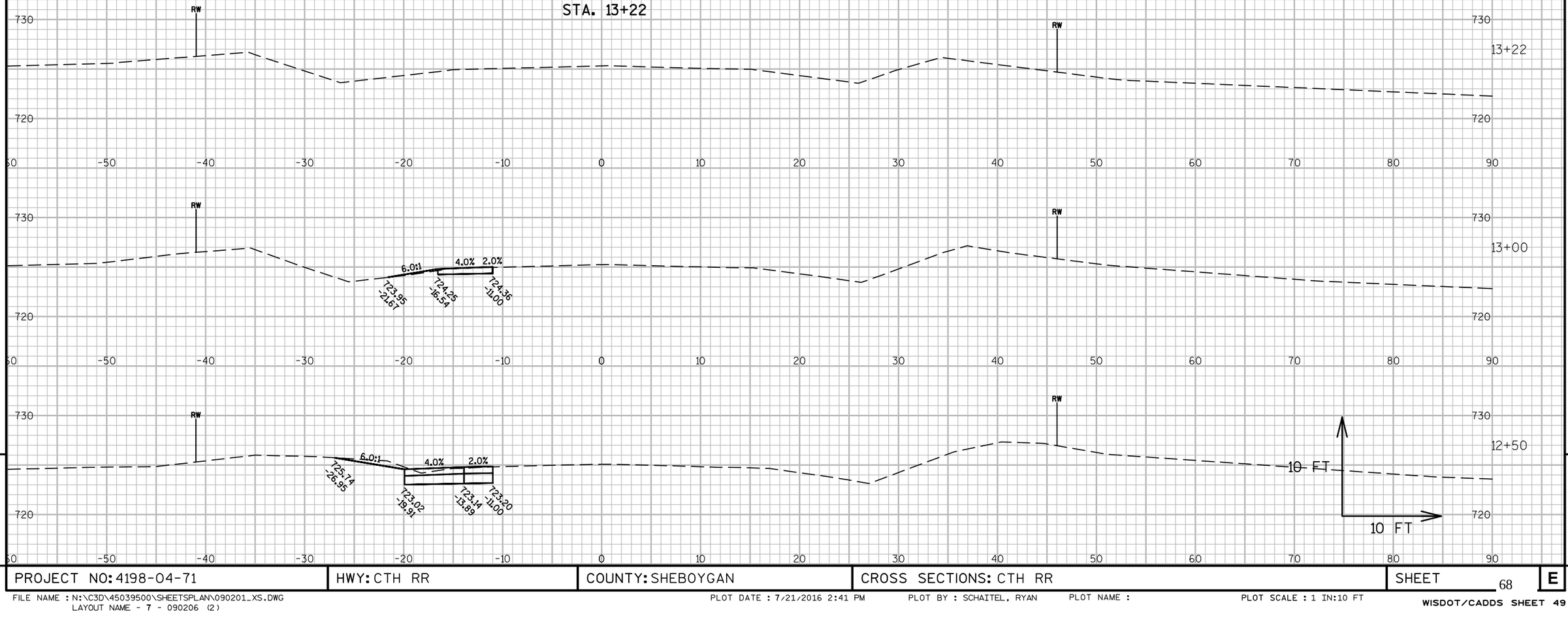
PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 67	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090206

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

CONSTRUCTION LIMITS
STA. 13+22



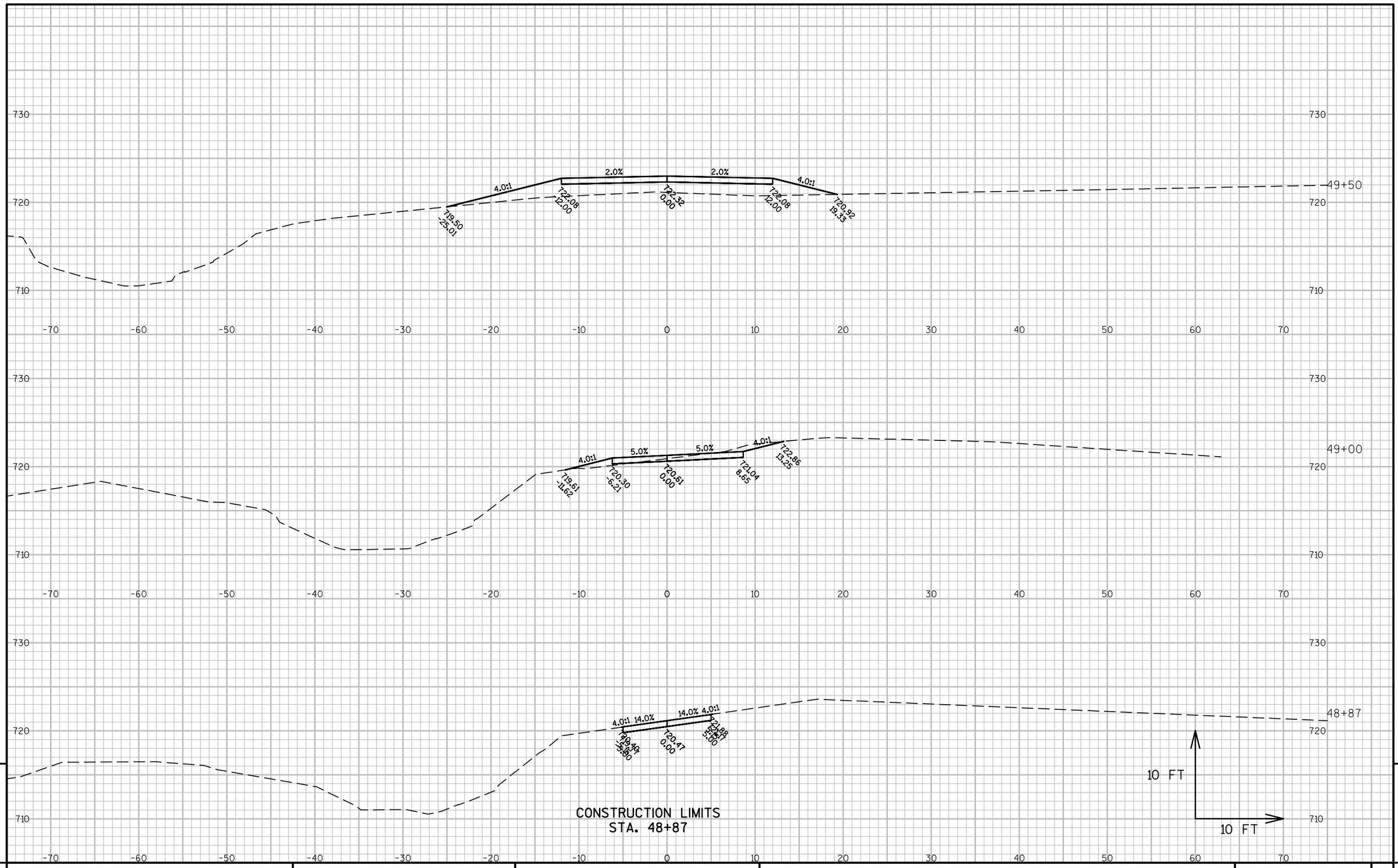
9

9

PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: CTH RR	SHEET 68	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 7 - 090206 (2)

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

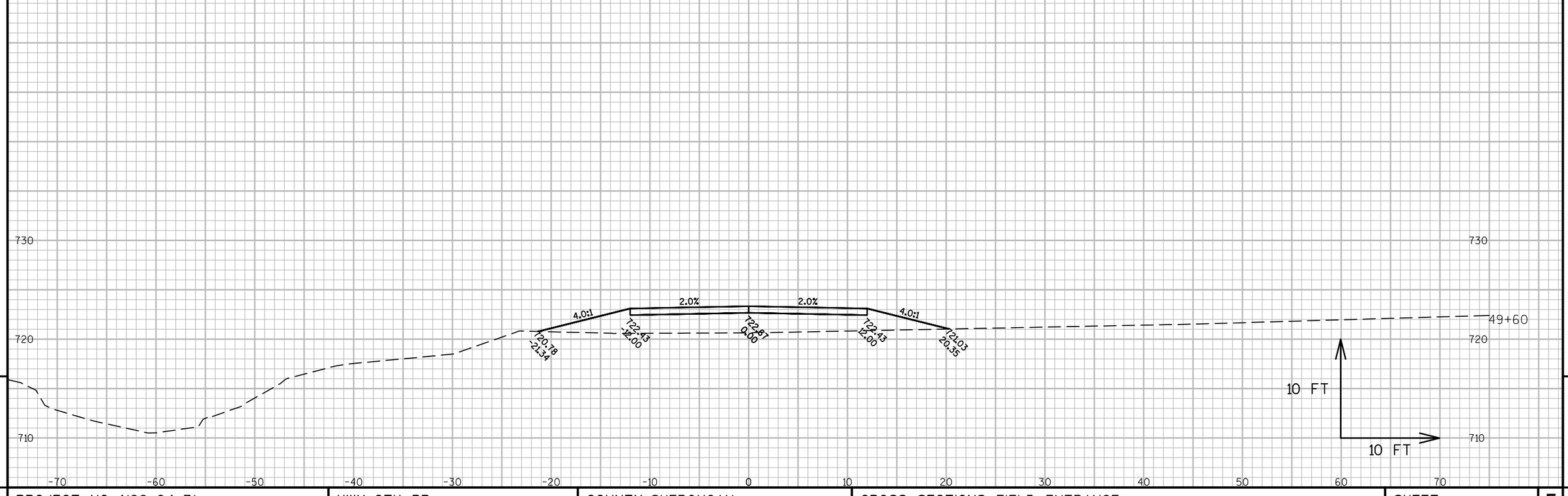


PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: FIELD ENTRANCE	SHEET 69	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 0902 (07)

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 4198-04-71	HWY: CTH RR	COUNTY: SHEBOYGAN	CROSS SECTIONS: FIELD ENTRANCE	SHEET 70	E

FILE NAME : N:\C3D\45039500\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS - 0902 (8)

PLOT DATE : 7/21/2016 2:41 PM PLOT BY : SCHAITEL, RYAN PLOT NAME : PLOT SCALE : 1 IN:10 FT

Notes

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