

NWL

FEB 2014

PROJECT ID: 8448-00-71
WITH: N/A

COUNTY: SAWYER

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile (incl. erosion control)
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections

TOTAL SHEETS = 34

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

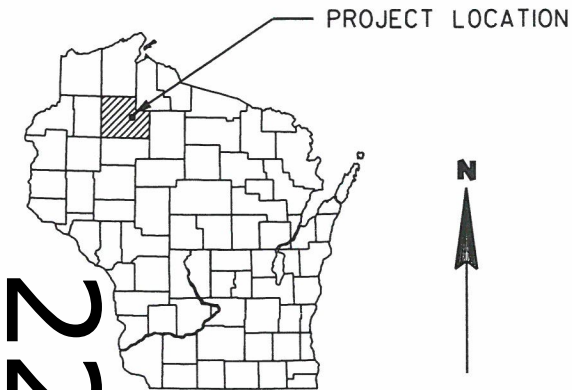
LORETTA - NORTH COUNTY LINE

BRUNET RIVER BRIDGE B-57-0083

CTH GG
SAWYER COUNTY

STATE PROJECT NUMBER
8448-00-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8448-00-71	WISC 2014055	1



DESIGN DESIGNATION

A.A.D.T. 2014	=	235
A.A.D.T. 2034	=	315
D.H.V. 2034	=	32
D.D.	=	50/50
T.	=	4.0%
DESIGN SPEED	=	60 MPH
ESALS	=	36,500

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	
MARSH AREA	
WOODED OR SHRUB AREA	

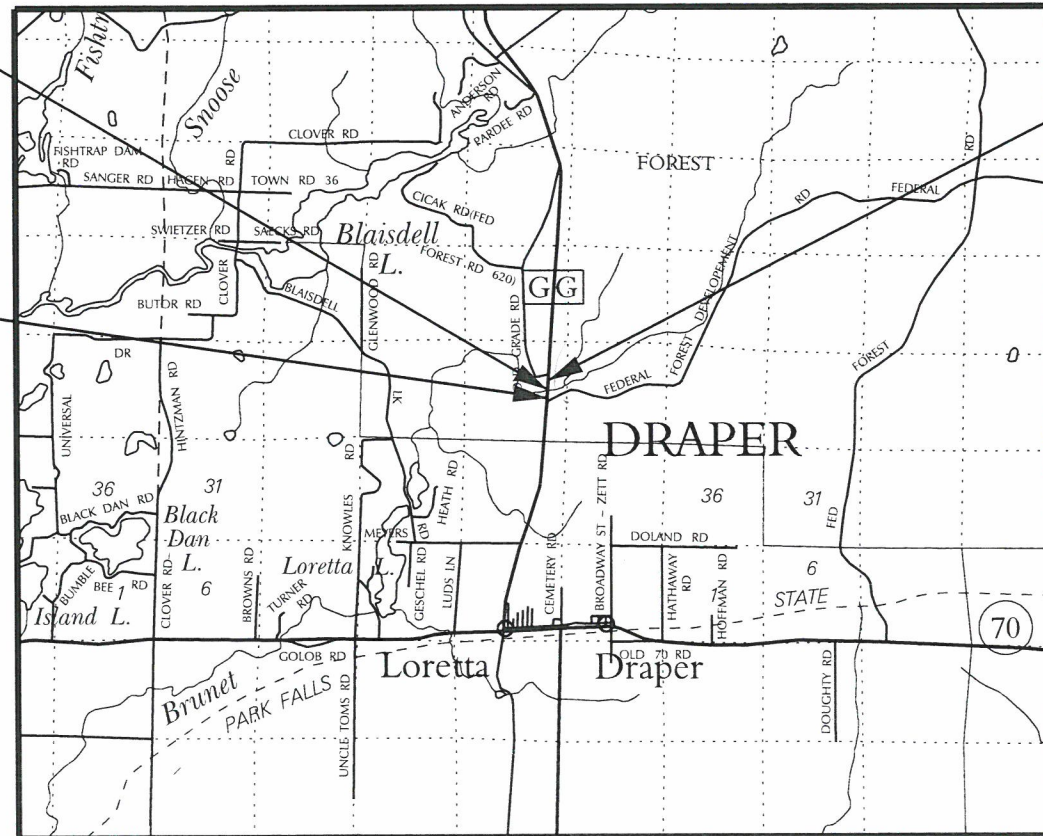
PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
OVERHEAD	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STRUCTURE
B-57-0083

BEGIN PROJECT
8448-00-71
STA. 8+50
Y = 403,361.24
X = 780,284.74

END PROJECT
8448-00-71
STA. 11+50
Y = 403,660.79
X = 780,301.26



LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.057 MI.

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

ACCEPTED FOR
SAWYER COUNTY

9/11/13
DATE

HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY:

MSA
PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL

1835 N. Stevens St. Rhinelander, WI 54501
715-362-3244 1-800-844-7854 Fax: 715-362-4116
© MSA PROFESSIONAL SERVICES

WISCONSIN
JAMES W. BOLLMANN JR.
33598-006
THREE LAKES,
WI
PROFESSIONAL ENGINEER

9-6-13
Date

Signature

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor MSA Professional Services, Inc.

Designer MSA Professional Services, Inc.

Management Consultant KNIGHT E/A INC.

C.O. Examiner

APPROVED FOR THE DEPARTMENT

DATE: 10/23/13 Ryan B. McKane
(Management Consultant Signature)

E

STANDARD ABBREVIATIONS

AC	ACRE	F/L	FLOW LINE	SALV	SALVAGED
AGG	AGGREGATE	FT	FOOT	SAN	SANITARY SEWER
<	ANGLE	GN	GRID NORTH	SECT	SECTION
ASPH	ASPHALTIC	HR	HANDICAP RAMP	SHLDR	SHOULDER
AC	ASPHALT CEMENT	HT	HEIGHT	SW	SIDEWALK
ADT	AVERAGE DAILY TRAFFIC	CWT	HUNDREDWEIGHT	S	SOUTH
B & B	BALLED AND BURLAPPED	HYD	HYDRANT	SB	SOUTHBOUND
BM	BENCH MARK	IN DIA	INCH DIAMETER	SPECS	SPECIFICATIONS
CB	CATCH BASIN	INL	INLET	SO	SQUARE
℄ OR C/L	CENTER LINE	ID	INSIDE DIAMETER	SF OR SO FT	SQUARE FEET
C-C	CENTER TO CENTER	I	INTERSECTION ANGLE	SY	SQUARE YARD
CONC	CONCRETE	I.E.	INVERT ELEVATION	SSPRC	STORM SEWER
CO	COUNTY	IP	IRON PIPE OR PIN		PIPE REINFORCED CONCRETE
CTH	COUNTY TRUNK HIGHWAY	JCT	JUNCTION	STD	STANDARD
CY	CUBIC YARD	L	LENGTH OF CURVE	SDD	STANDARD DETAIL DRAWINGS
CULV	CULVERT	LF	LINEAR FOOT	STH	STATE TRUNK HIGHWAYS
CP	CULVERT PIPE	LC	LONG CHORD OF CURVE	STA	STATION
CPRC	CULVERT PIPE	LCB	LONG CHORD BEARING	SS	STORM SEWER
	REINFORCED CONCRETE	LS	LUMP SUM	T	TANGENT
C & G	CURB AND GUTTER	MH	MANHOLE	TEL	TELEPHONE
D	DEGREE OF CURVE	N	NORTH	TEMP	TEMPORARY
DHV	DESIGN HOUR VOLUME	Y	NORTH GRID COORDINATE	TLE	TEMPORARY LIMITED EASEMENT
DIA OR ⌀	DIAMETER	O.E.	OUTLET ELEVATION	T	TON
DIST	DISTRICT	OL	OUT LOT	TC	TOP OF CURB
DWY	DRIVEWAY	OD	OUTSIDE DIAMETER	TN	TOWN
E	EAST	OH	OVERHEAD LINES	TRANS	TRANSITION
X	EAST GRID COORDINATE	PAVT	PAVEMENT	T	TRUCKS (percent of)
EB	EASTBOUND	PLE	PERMANENT LIMITED EASEMENT	TYP	TYPICAL
ELEC	ELECTRIC	PC	POINT OF CURVATURE	UNCL	UNCLASSIFIED
EL OR ELEV	ELEVATION	PI	POINT OF INTERSECTION	USH	UNITED STATES HIGHWAY
EMB	EMBANKMENT	PT	POINT OF TANGENCY	VAR	VARIABLE
EW	ENDWALL	PCC	PORTLAND CEMENT CONCRETE	VERT	VERTICAL
ESALS	EQUIVALENT SINGLE	LB	POUND	VC	VERTICAL CURVE
	AXLE LOADS	PE	PRIVATE ENTRANCE	VOL	VOLUME
EXC	EXCAVATION	R OR RAD	RADIUS	WM	WATER MAIN
EBS	EXCAVATION BELOW	RR	RAILROAD	WV	WATER VALVE
	SUBGRADE	R	RANGE	W	WEST
EXIST	EXISTING	℄ OR R/L	REFERENCE LINE	WB	WESTBOUND
EXP	EXPANSION	REQD	REQUIRED	YD	YARD
F-F	FACE TO FACE	RT	RIGHT		
FERT	FERTILIZER	R/W	RIGHT-OF-WAY		
FE	FIELD ENTRANCE	RD	ROAD		

DESIGN CONTACT

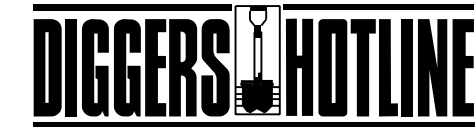
MSA PROFESSIONAL SERVICES, INC.
ATTN.: CHAD SCHROEDER
1835 N. STEVENS STREET
RHINELANDER, WI 54501-2163
PHONE: 715-362-3244
cschroeder@msa-ps.com

DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES
ATTN.: BILL GANTZ
810 WEST MAPLE STREET
SPOONER, WI 54801
PHONE: 715-635-4071
william.gantz@dwi.wisconsin.gov

UTILITIES

THERE ARE NO KNOWN UTILITES
AT THE PROJECT SITE



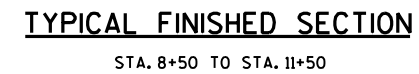
Dial 811 or (800) 242-8511

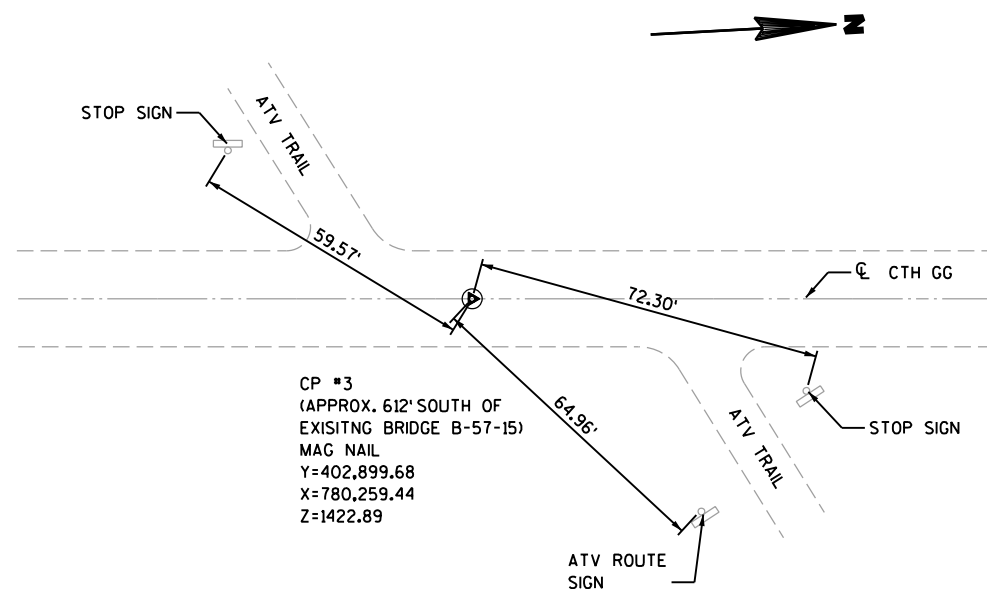
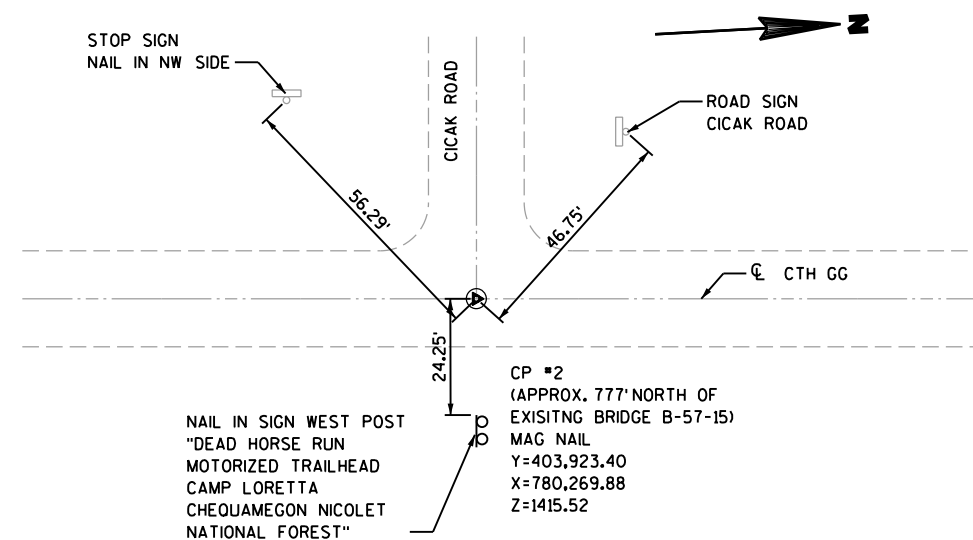
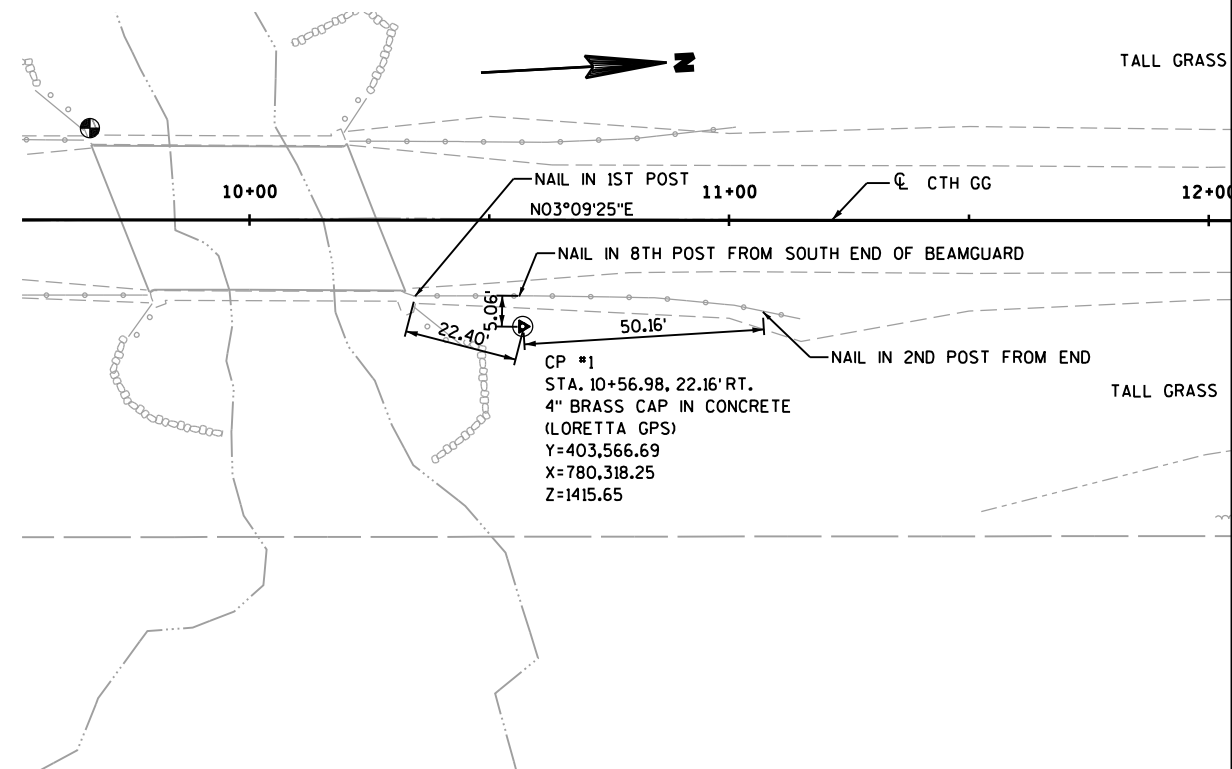
www.DiggersHotline.com

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 PROJECT AREA = 0.90 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.37 ACRES



**CONTROL POINT TIES**

PROJECT NO: 8448-00-71

HWY: CTH GG

COUNTY: SAWYER

PROJECT TIES

SHEET

E

DATE 05DEC13		E S T I M A T E O F Q U A N T I T I E S			
LINE		8448-00-71			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	2.000	2.000
0020	201.0205	GRUBBING	STA	2.000	2.000
0030	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 10+00	LS	1.000	1.000
0040	205.0100	EXCAVATION COMMON **P**	CY	370.000	370.000
0050	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-57-0083	LS	1.000	1.000
0060	210.0100	BACKFILL STRUCTURE	CY	280.000	280.000
0070	213.0100	FINISHING ROADWAY (PROJECT) 01. 8448-00-71	EACH	1.000	1.000
0080	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	50.000	50.000
0090	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	410.000	410.000
0100	455.0605	TACK COAT	GAL	14.000	14.000
0110	465.0105	ASPHALTIC SURFACE	TON	140.000	140.000
0120	502.0100	CONCRETE MASONRY BRIDGES	CY	144.000	144.000
0130	502.3200	PROTECTIVE SURFACE TREATMENT	SY	300.000	300.000
0140	503.0136	PRESTRESSED GIRDER TYPE I 36-INCH	LF	252.000	252.000
0150	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	5,040.000	5,040.000
0160	506.0605	STRUCTURAL STEEL HS	LB	18,930.000	18,930.000
0170	506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8.000	8.000
0180	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 01. B-57-0083	EACH	3.000	3.000
0190	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-57-0083	LS	1.000	1.000
0200	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	14.000	14.000
0210	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	550.000	550.000
0220	606.0300	RIPRAP HEAVY	CY	310.000	310.000
0230	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	150.000	150.000
0240	614.0920	SALVAGED RAIL	LF	324.000	324.000
0250	619.1000	MOBILIZATION	EACH	1.000	1.000
0260	625.0100	TOPSOIL	SY	330.000	330.000
0270	627.0200	MULCHING	SY	550.000	550.000
0280	628.1504	SILT FENCE	LF	650.000	650.000
0290	628.1520	SILT FENCE MAINTENANCE	LF	650.000	650.000
0300	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0310	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0320	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	350.000	350.000
0330	628.6005	TURBIDITY BARRIERS	SY	215.000	215.000
0340	628.7570	ROCK BAGS	EACH	30.000	30.000
0350	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0360	630.0120	SEEDING MIXTURE NO. 20	LB	35.000	35.000
0370	630.0200	SEEDING TEMPORARY	LB	20.000	20.000
0380	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	4.000	4.000
0390	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0400	638.2602	REMOVING SIGNS TYPE II	EACH	4.000	4.000
0410	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	4.000	4.000
0420	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0430	643.0100	TRAFFIC CONTROL (PROJECT) 01. 8448-00-71	EACH	1.000	1.000
0440	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,600.000	1,600.000
0450	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	2,560.000	2,560.000
0460	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,440.000	1,440.000
0470	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	515.000	515.000
0480	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	675.000	675.000
0490	650.4500	CONSTRUCTION STAKING SUBGRADE **P**	LF	236.000	236.000
0500	650.5000	CONSTRUCTION STAKING BASE **P**	LF	236.000	236.000

DATE 05DEC13		E S T I M A T E O F Q U A N T I T I E S			
LINE					8448-00-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0510	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-57-0083	LS	1.000	1.000
0520	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 8448-00-71	LS	1.000	1.000
0530	650.9920	CONSTRUCTION STAKING SLOPE STAKES **P**	LF	300.000	300.000
0540	690.0150	SAWING ASPHALT	LF	44.000	44.000
0550	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	864.000	864.000
0560	ASP.1TOA	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	1,200.000	1,200.000
0570	ASP.1TOG	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	300.000	300.000

3

201.0105		CLEARING	
201.0205		GRUBBING	
STATION	-	STATION	
9+00	-	11+00	
		CLEARING STA	GRUBBING STA
		2	2
		TOTALS:	2 2

628.1504	SILT FENCE				
628.1520	SILT FENCE MAINTENANCE				
STATION	-	STATION	LOCATION	FENCE LF	MAINT. LF
8+50	-	9+67.7	LT	120	120
8+50	-	9+67.7	RT	175	175
10+32.3	-	11+50	LT	170	170
10+32.3	-	11+50	RT	145	145
UNDISTRIBUTED				40	40
				TOTALS:	650 650

205.0100		EXCAVATION COMMON **p**				
STATION	-	STATION	EX. COMMON C.Y.	FILL C.Y. (1)	EXP. FILL C.Y. (1,2)	WASTE C.Y. (1)
8+50	-	11+50	370	0	0	370
		TOTALS:	370	0	0	370
(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.						
(2) - FILL EXPANSION = 30%						

628.1905	MOBILIZATION EROSION CONTROL	
628.1910	MOBILIZATION EMERGENCY EROSION CONTROL	
LOCATION PROJECT	MOBILIZATION 4	EMERGENCY MOB. 2
TOTALS:	4	2

305.0110	BASE AGGREGATE DENSE 3/4-INCH			
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH			
STATION	-	STATION	3/4-INCH TON	1 1/4-INCH TON
8+50	-	9+67.7	25	205
10+32.3	-	11+50	25	205
		TOTALS:	50	410

628.2008	EROSION MAT URBAN CLASS I TYPE B	
STATION	-	STATION SY
8+50	-	9+67.7 130
10+32.3	-	11+50 175
		UNDISTRIBUTED 45
		TOTAL: 350

455.0605	TACK COAT		
465.0105	ASPHALTIC SURFACE		
STATION	-	STATION	TACK GAL
8+50	-	9+67.7	7
10+32.3	-	11+50	7
		TOTALS:	14 140

628.7570	ROCK BAGS	
STATION	LOCATION	EACH
		UNDISTRIBUTED 30
		TOTAL: 30

USE FOR SILT FENCE WEEPS IF NEEDED

625.0100	TOPSOIL					
627.0200	MULCHING					
629.0210	FERTILIZER TYPE B					
630.0120	SEEDING MIXTURE NO. 20					
630.0200	SEEDING TEMPORARY					
STATION	-	STATION	TOPSOIL SY	MULCHING SY	FERTILIZER CWT	SEEDING *20 LB
8+50	-	9+67.7	130	--	0.2	7
10+32.3	-	11+50	175	--	0.2	9
		WASTE AREA	--	530	0.4	15
		UNDISTRIBUTED	25	20	0.2	4
		TOTALS	330	550	1	35
						20

628.6005	TURBIDITY BARRIERS	
LOCATION	SY	
SOUTH ABUTMENT	115	
NORTH ABUTMENT	100	
TOTAL:	215	

614.0920	SALVAGED RAIL			
STATION	-	STATION	LOCATION	LF
8+90	-	9+70	LT	81
8+95	-	9+75	RT	81
10+20	-	11+00	LT	81
10+25	-	11+05	RT	81
		TOTALS:	324	

634.0614	POSTS WOOD 4x6-INCH x 14-FT				
637.2230	SIGNS TYPE II REFLECTIVE F				
STATION	LOCATION	SIGN CODE	SIGNS REFLECTIVE SF	WOOD POSTS EACH	COMMENTS
9+67.7	RT	W5-52R	3	1	OBJECT MARKER
9+67.7	LT	W5-52L	3	1	OBJECT MARKER
10+32.3	RT	W5-52L	3	1	OBJECT MARKER
10+32.3	LT	W5-52R	3	1	OBJECT MARKER
			TOTALS:	12	4

NOTE: ALL ITEMS LISTED ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

PROJECT NO:8448-00-71

HWY:CTH GG

COUNTY:SAWYER

MISCELLANEOUS QUANTITIES

SHEET

E

638.2602 REMOVING SIGNS TYPE II
638.3000 REMOVING SMALL SIGN SUPPORTS

STATION	LOCATION	REMOVING SIGNS EACH	REMOVING POSTS EACH	COMMENTS
9+70	RT	1	1	OBJECT MARKER
9+70	LT	1	1	OBJECT MARKER
10+30	RT	1	1	OBJECT MARKER
10+30	LT	1	1	OBJECT MARKER
TOTALS:		4	4	

650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

STATION	-	STATION	LS
8+50	-	11+50	1
TOTAL:			1

642.5001 FIELD OFFICE TYPE B

LOCATION	EACH
8448-00-71	1
TOTAL:	1

650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT B-57-0083

LOCATION	LS
B-57-0083	1
TOTAL:	1

NOTE: CATEGORY 0020 ITEM

643.0100 TRAFFIC CONTROL 8448-00-71
643.0420 TRAFFIC CONTROL BARRICADES TYPE III
643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A
643.0900 TRAFFIC CONTROL SIGNS

STATION	-	STATION	TRAFFIC CONTROL EACH	BARRICADES DAYS	LIGHTS DAYS	SIGNS DAYS
8+50	-	11+50	1	1600	2560	1440
TOTALS:			1	1600	2560	1440

690.0150 SAWING ASPHALT

STATION	L.F.
8+50	22
11+50	22
TOTAL:	44

646.0106 PAVEMENT MARKING EPOXY 4-INCH

STATION	-	STATION	LF	COMMENTS
8+50	-	11+50	75	YELLOW CL SKIPS
8+50	-	11+50	600	WHITE EDGELINE
TOTAL:			675	

ASP-1TOA TRANS APPRENTICE
ASP-1TOG TRANS GRADUATE

LOCATION	APPRENTICE EACH	HOURS	GRADUATE EACH	HOURS
PROJECT	1	1200	1	300
TOTALS:		1200		300

650.4500 CONSTRUCTION STAKING SUBGRADE **p**
650.5000 CONSTRUCTION STAKING BASE **p**
650.9920 CONSTRUCTION STAKING SLOPE STAKES **p**

STATION	-	STATION	SUBGRADE LF	BASE LF	SLOPE STAKES LF
8+50	-	9+67.7	118	118	118
9+67.7	-	10+32.3	--	--	64
10+32.3	-	11+50	118	118	118
TOTALS:			236	236	300

NOTE: ALL ITEMS LISTED ARE CATEGORY 0010 UNLESS OTHERWISE NOTED.

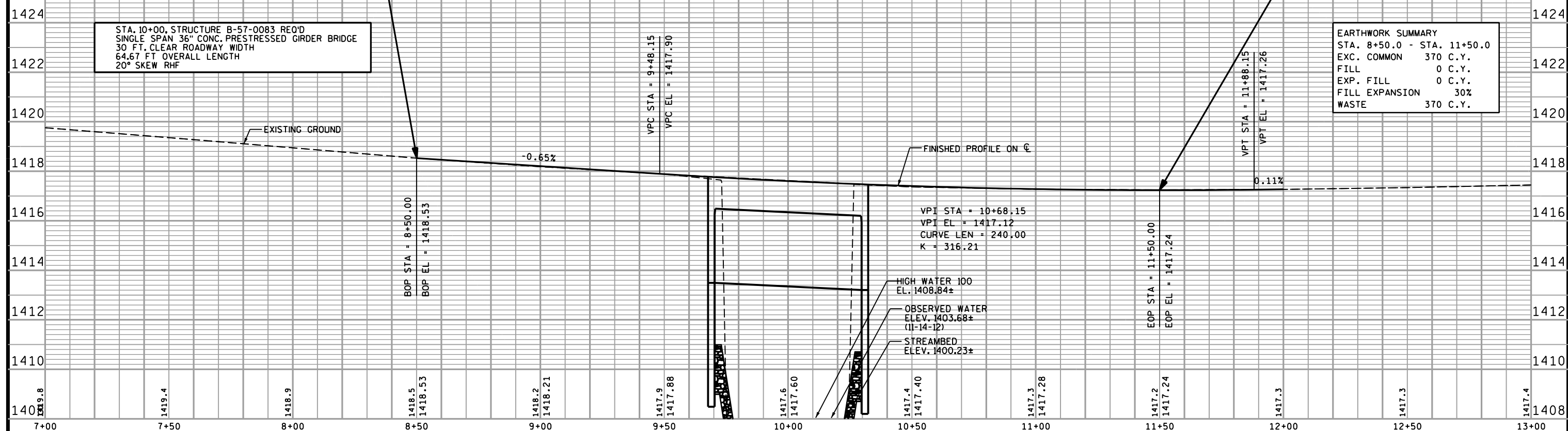
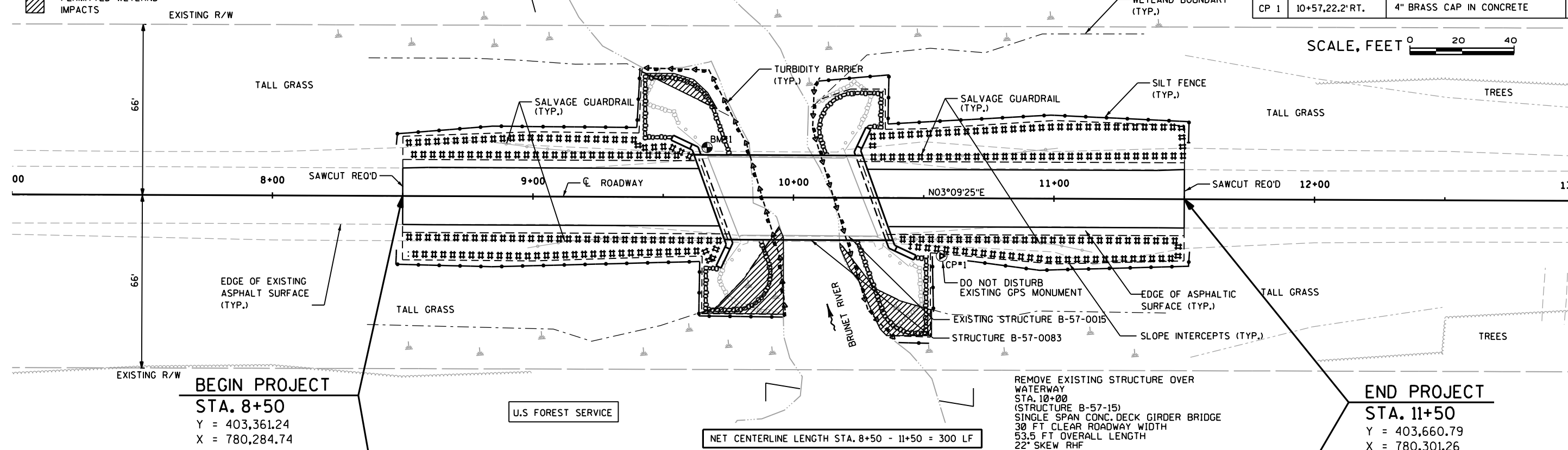
- EROSION CONTROL LEGEND
- TURBIDITY BARRIER
 - SILT FENCE
 - EROSION MAT
 - PERMITTED WETLAND IMPACTS

U.S. FOREST SERVICE

BENCHMARKS

NO.	STA./OFFSET	DESCRIPTION	ELEV.
BM 1	9+66.7, 19.1' LT.	US DOI SURVEY DISK	1418.34
CP 1	10+57.22, 2.2' RT.	4" BRASS CAP IN CONCRETE	1415.65

SCALE, FEET 0 20 40



Standard Detail Drawing List

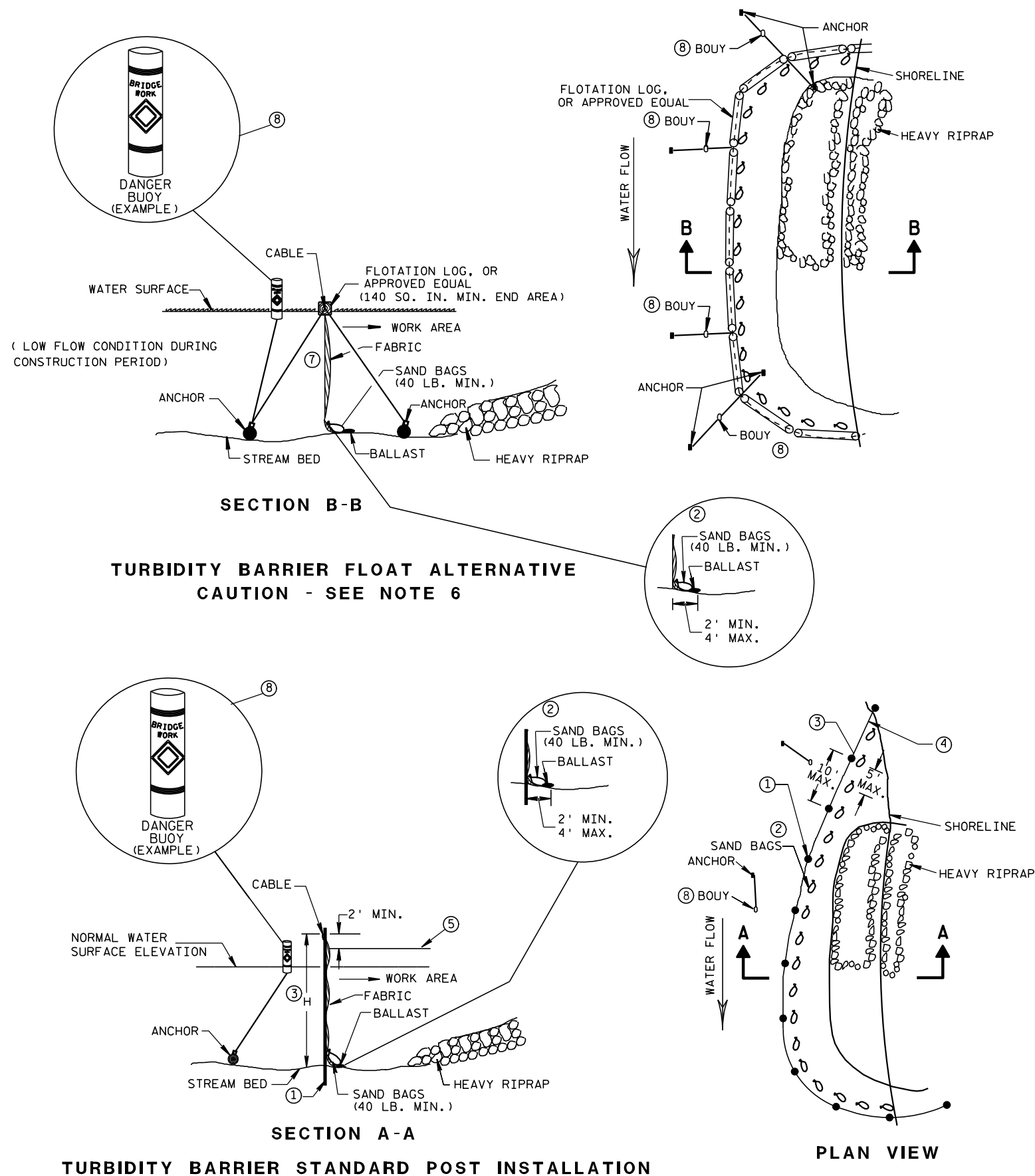
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-06	SIGNING & MARKING FOR TWO LANE BRIDGES



- 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 1 1/8" X 1 1/8" 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.



<div>SILT FENCE</div>	
<div>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</div>	
<div>APPROVED</div> <div>4-29-05</div> <div>DATE</div>	<div>/S/ Beth Cannestra</div> <div>CHIEF ROADWAY DEVELOPMENT ENGINEER</div>

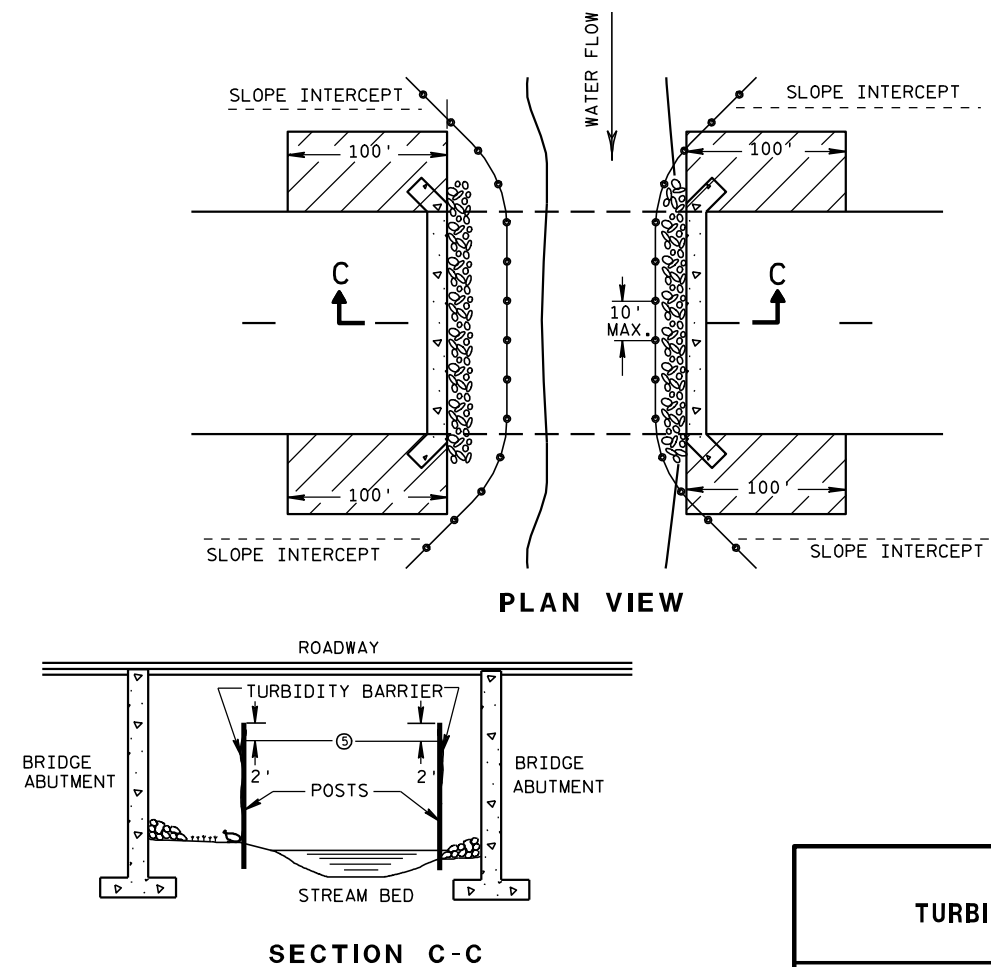


GENERAL NOTES

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. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER 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.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

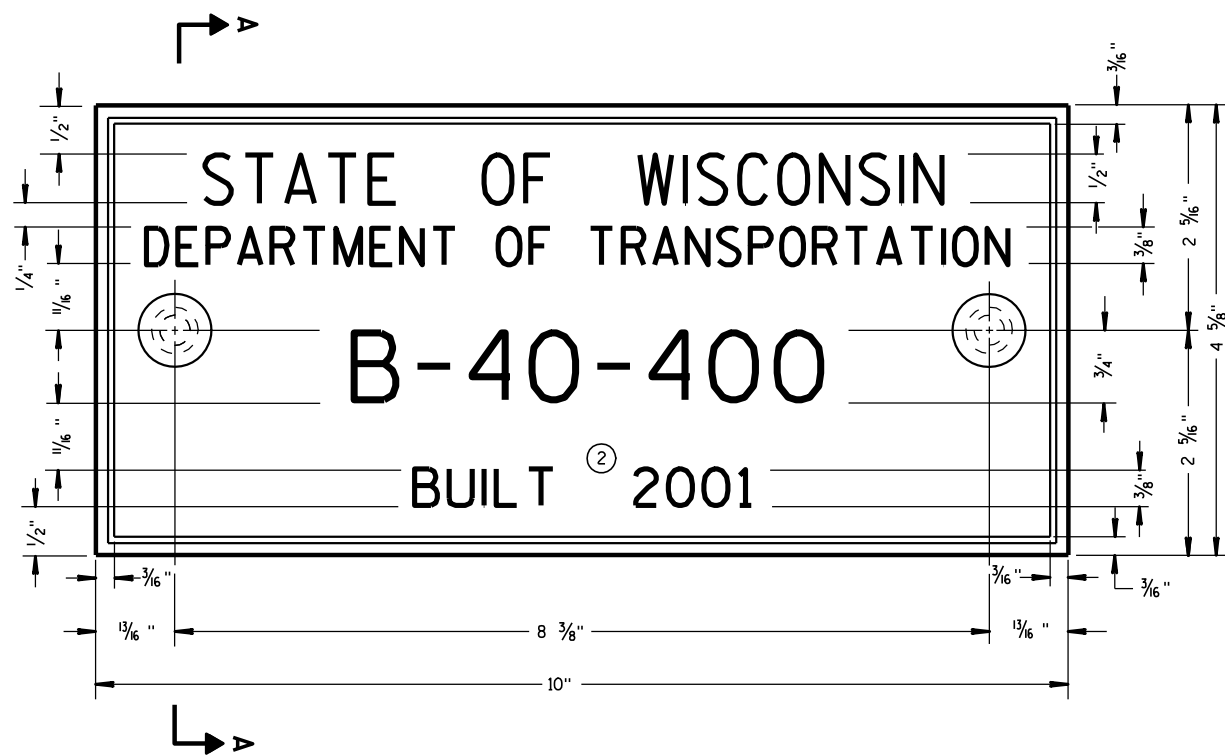
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

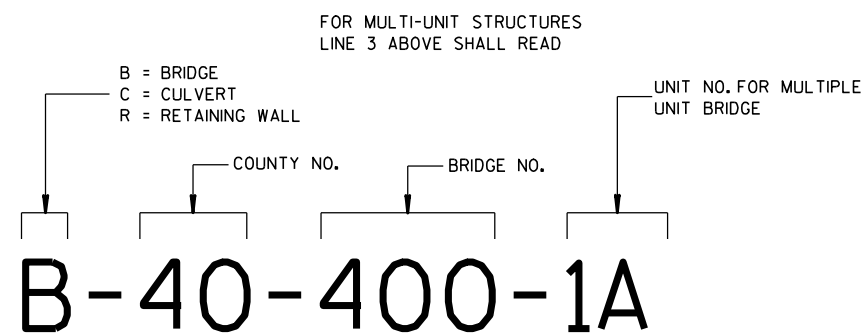
6/04/02
DATE

FWHA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



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



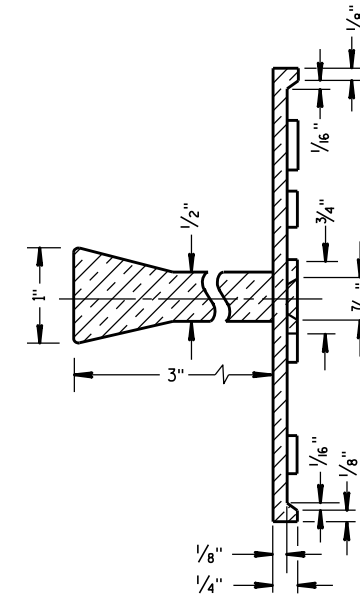
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

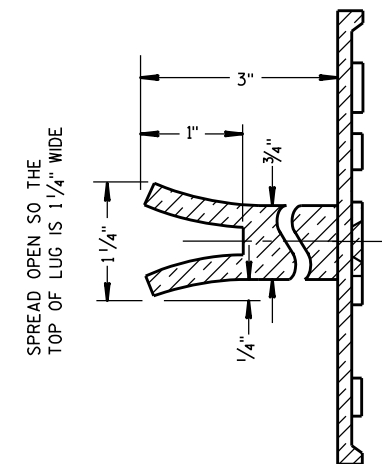
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

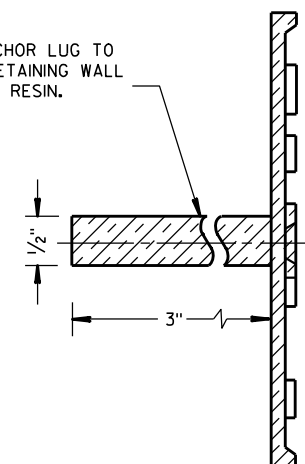


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

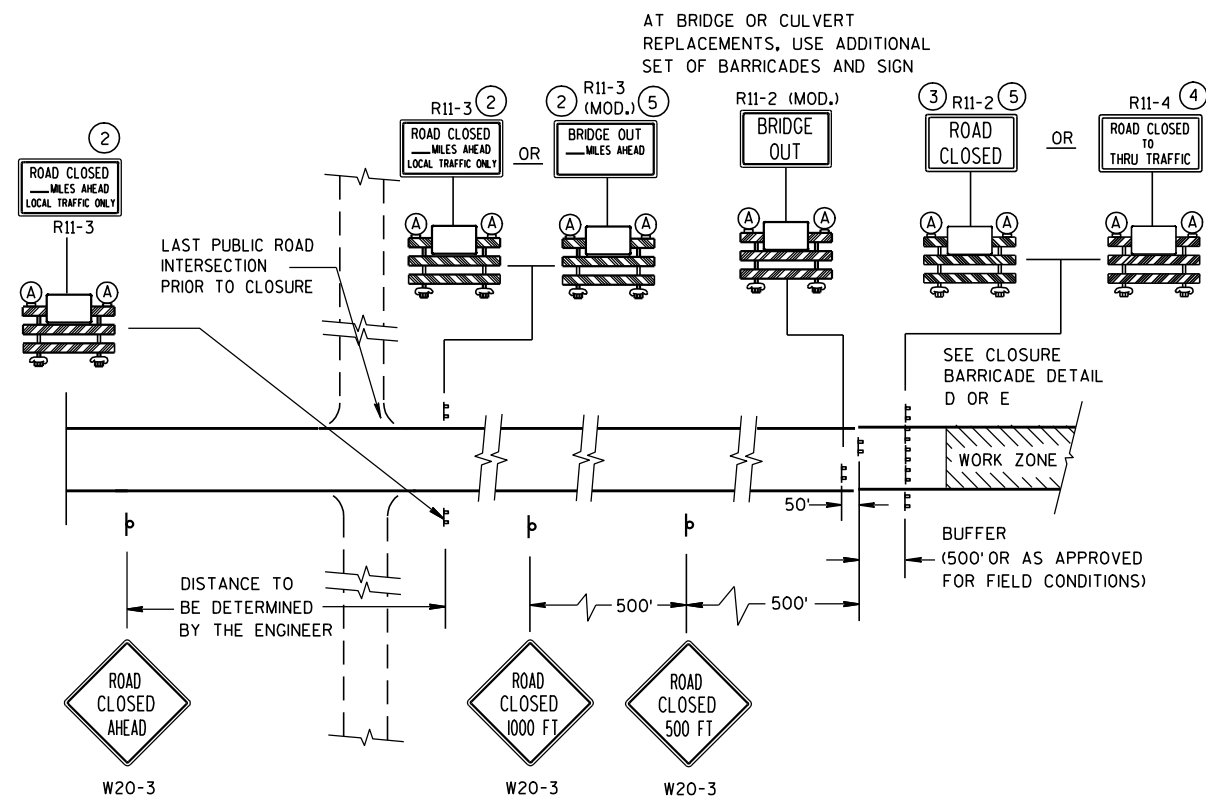
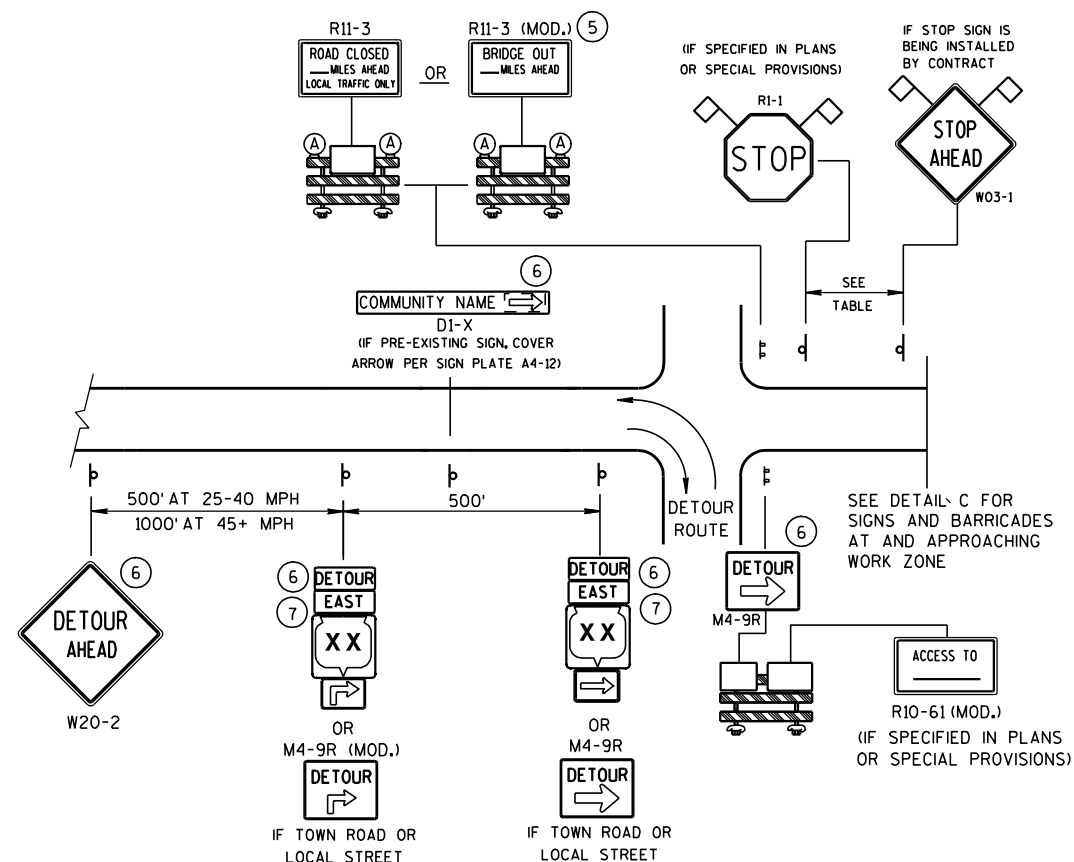
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

FHWA

/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

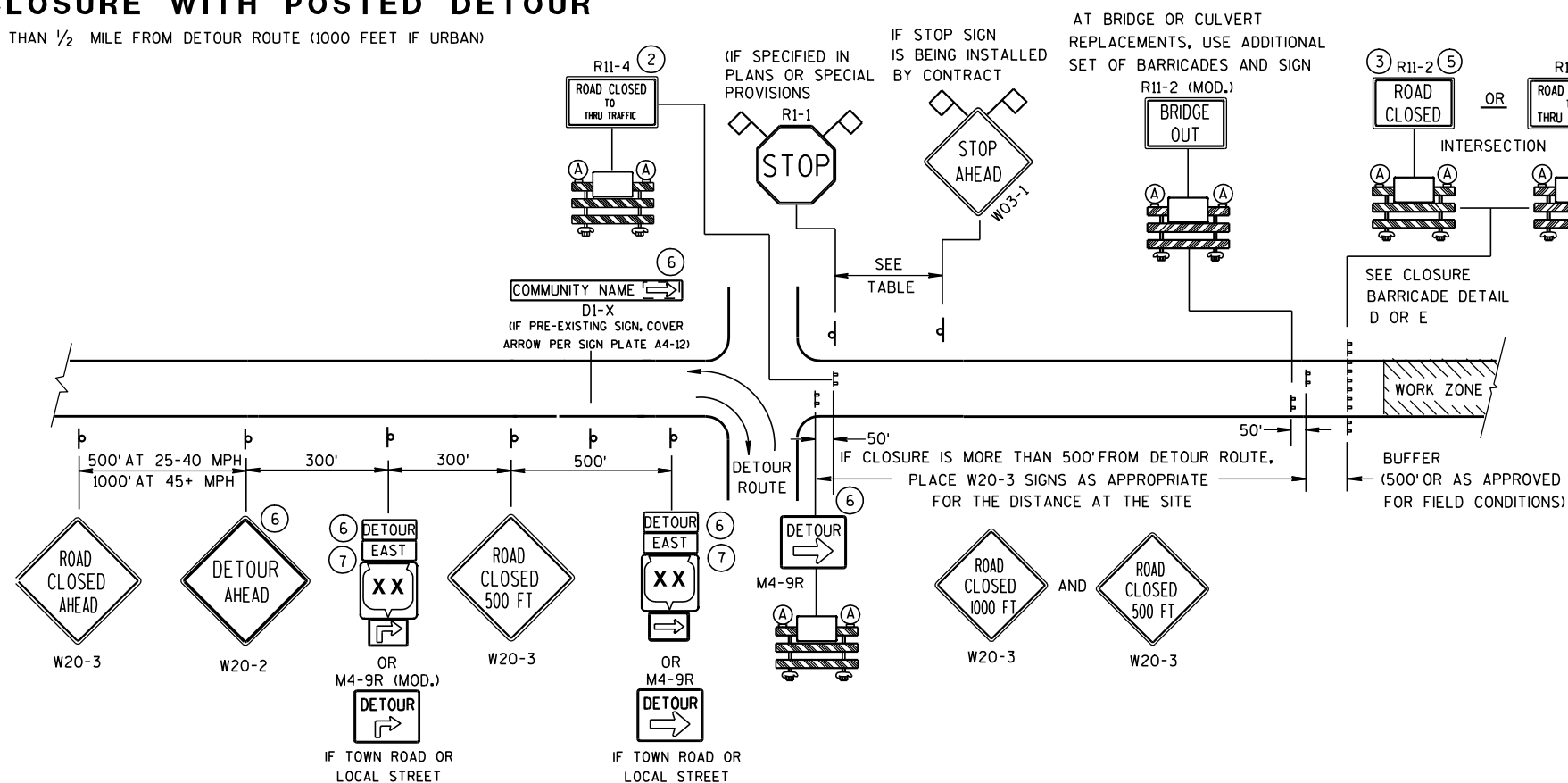


SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)














LOCAL STREET LOCAL STREET

DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

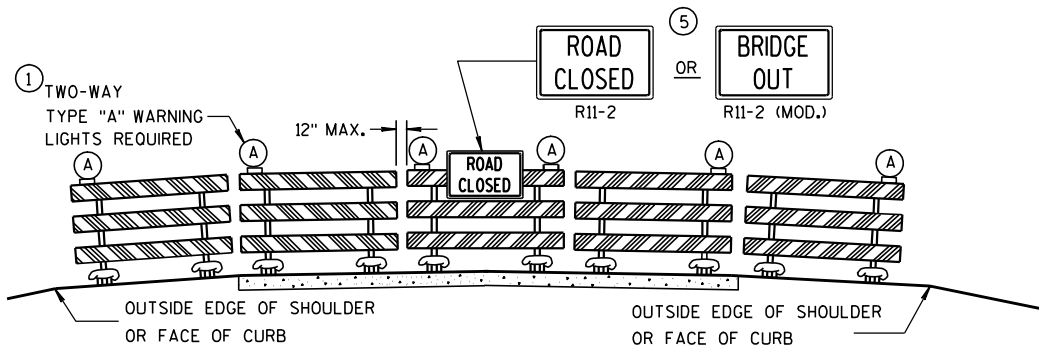
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

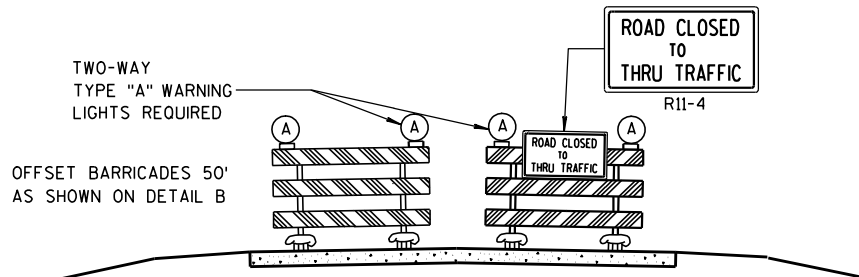
-  POST MOUNTED SIGN
 TYPE III BARRICADES
 (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
 WORK ZONE
 M4-8
 M3-X
 OR  OR 
 M1-4 M1-5A M1-6
 OR 
 M05-1 M06-1
 FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-4a 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.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

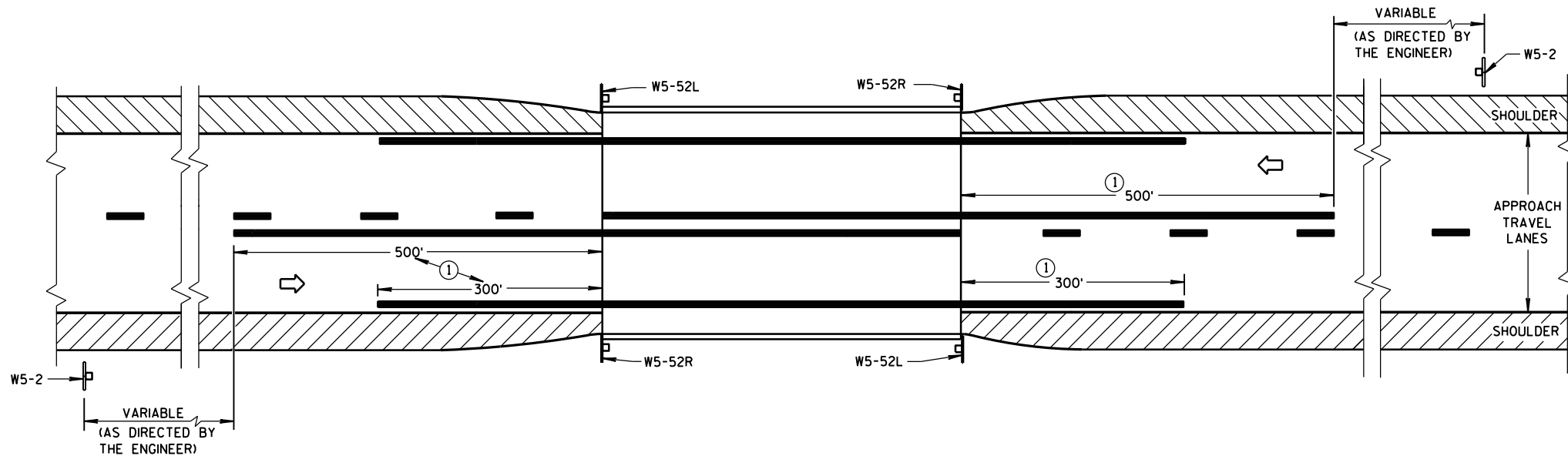
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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 AND 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.

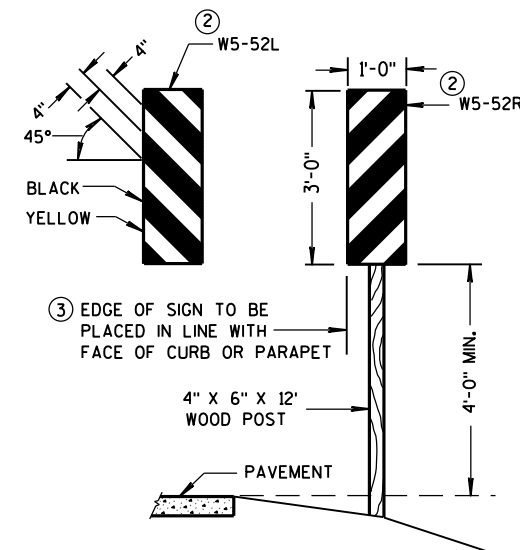
BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
9/16/03 DATE	/S/ Thomas N. Notbohm CHIEF SIGNS AND MARKING ENGINEER
FHWA	



SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



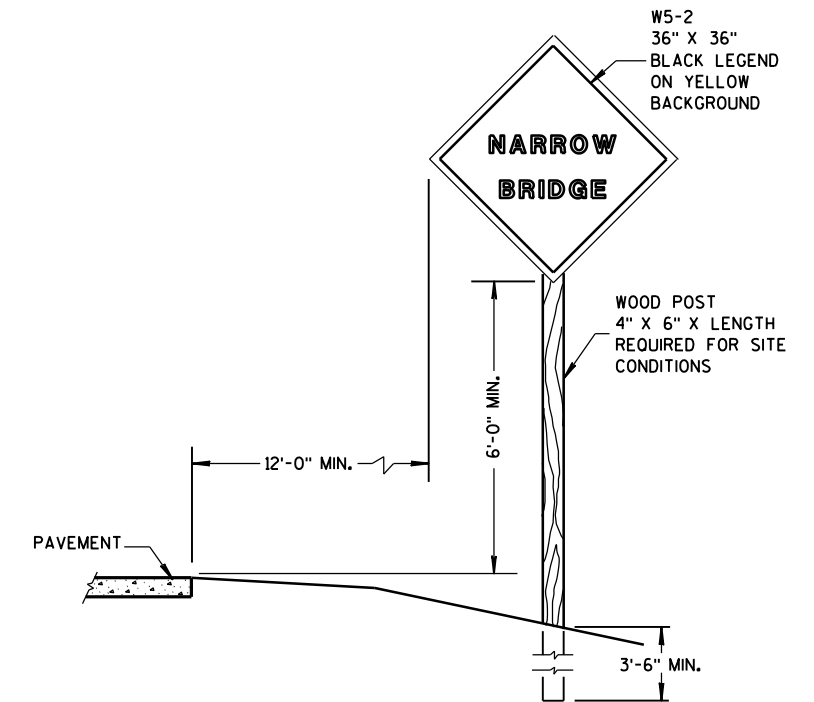
OBJECT MARKER PLACEMENT

GENERAL NOTES

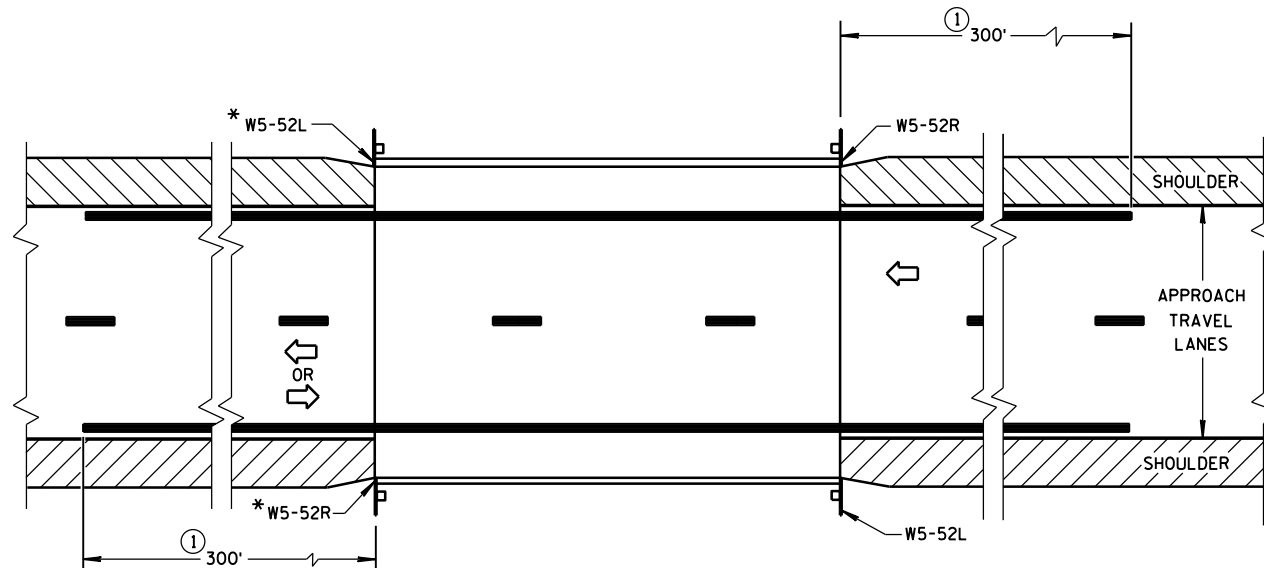
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.



SIGN PLACEMENT



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.

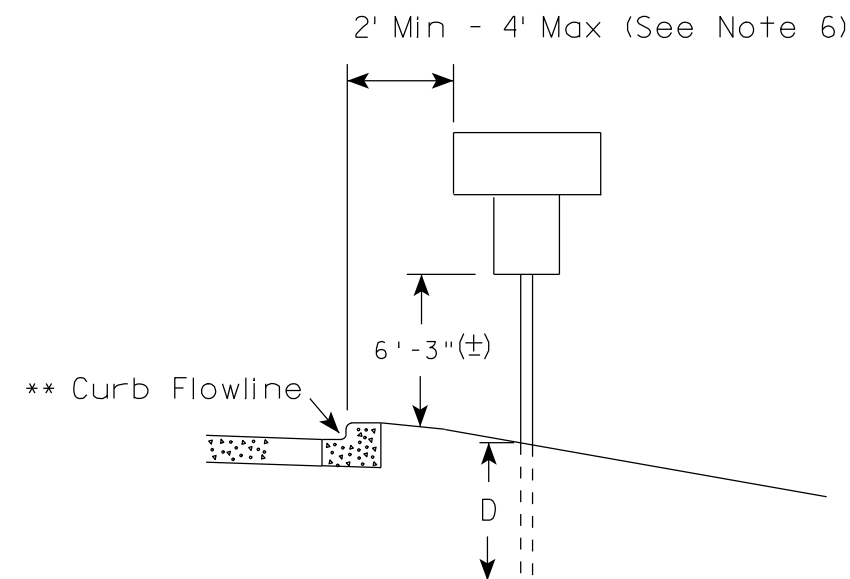
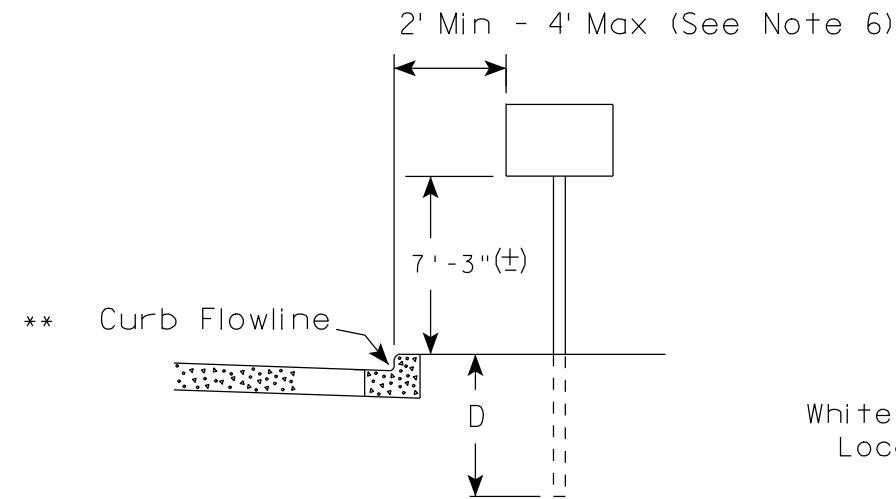
*OMIT ON ONE-WAY TRAVELLED WAYS

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

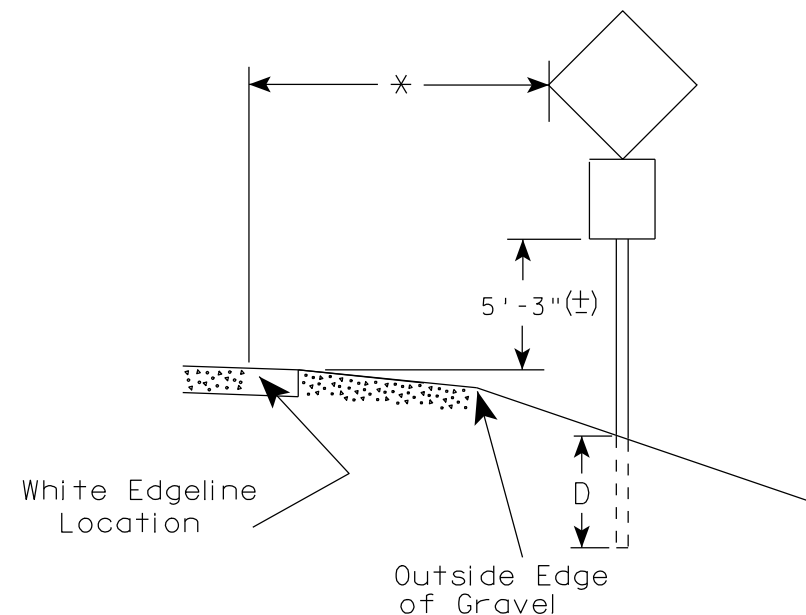
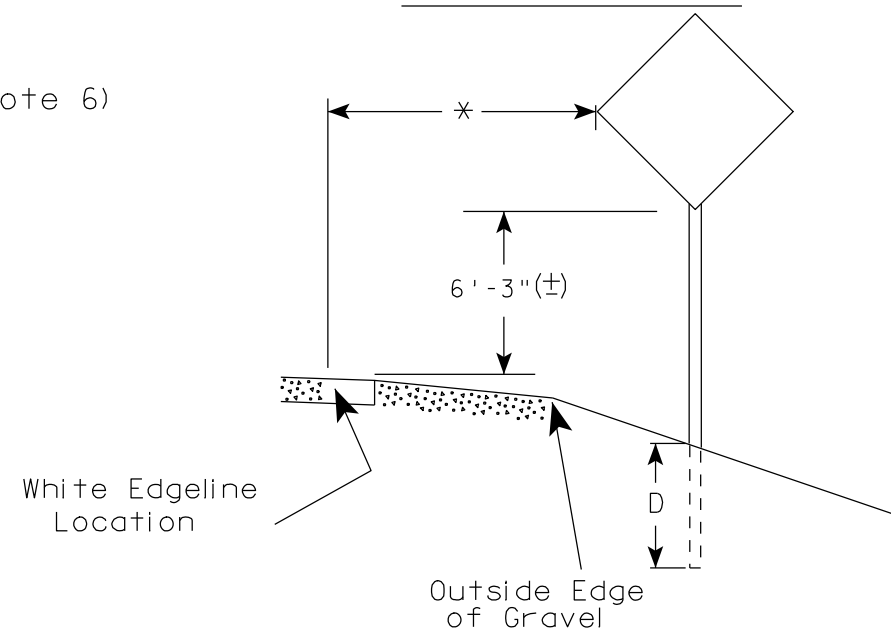
APPROVED
3/4/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

URBAN AREA



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

RURAL AREA (See Note 2)



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

GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/24/2013 PLATE NO. A4-3.17

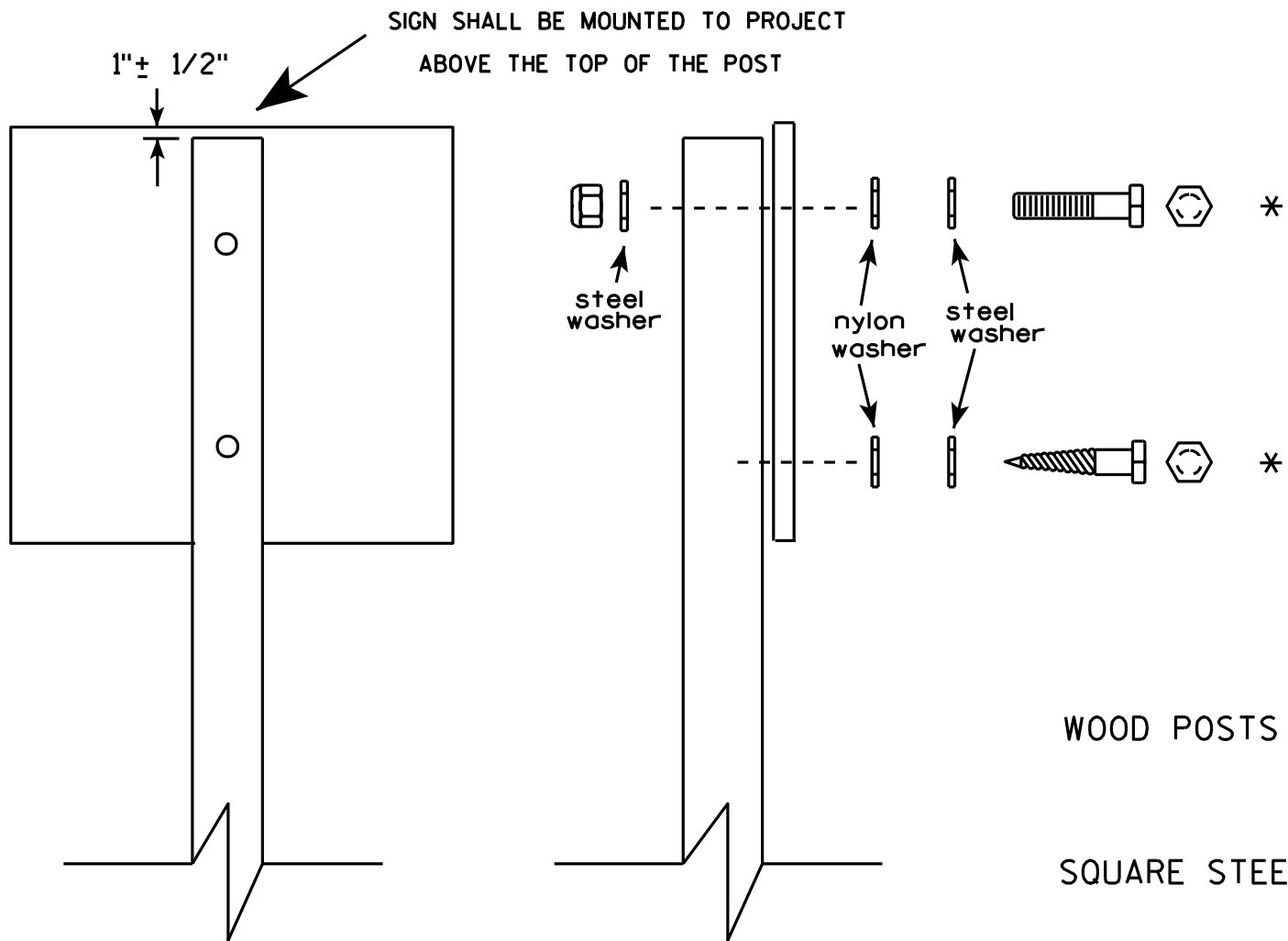
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

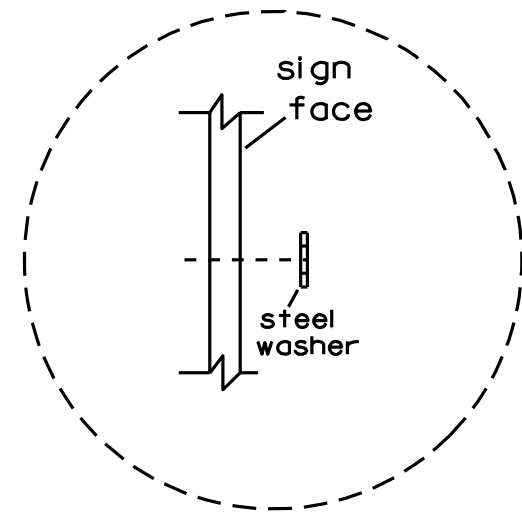


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

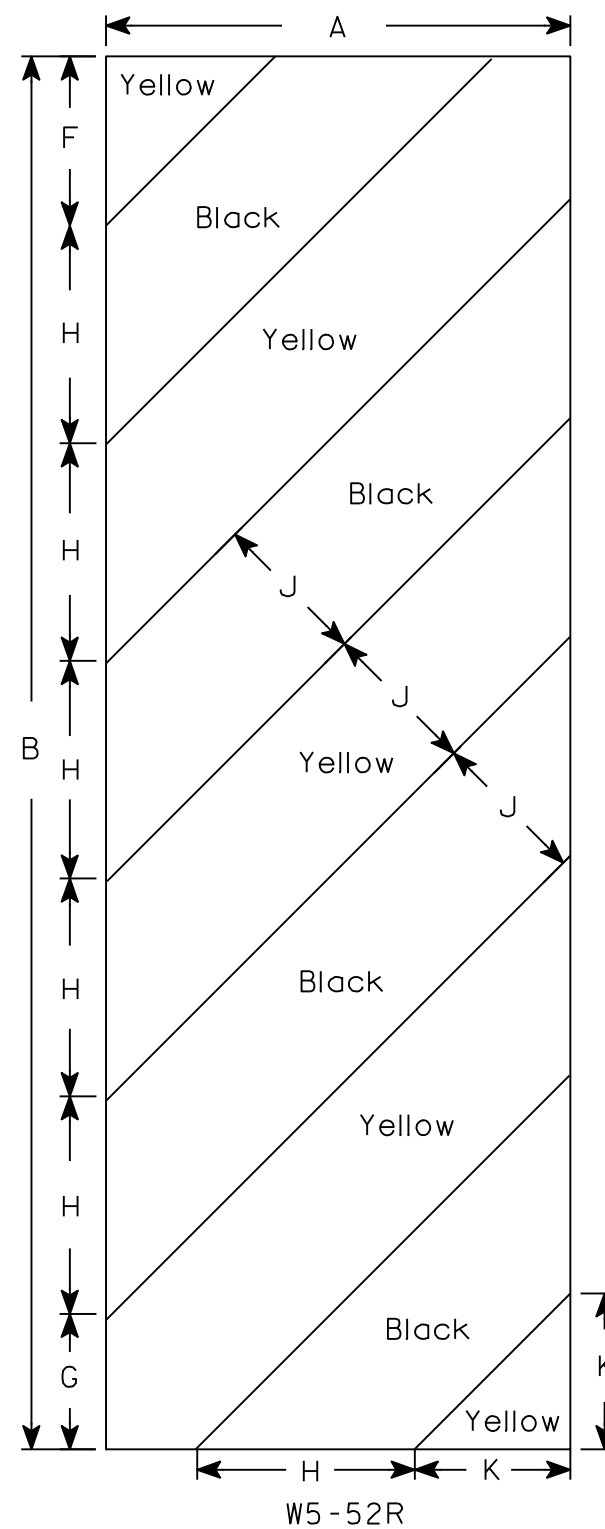
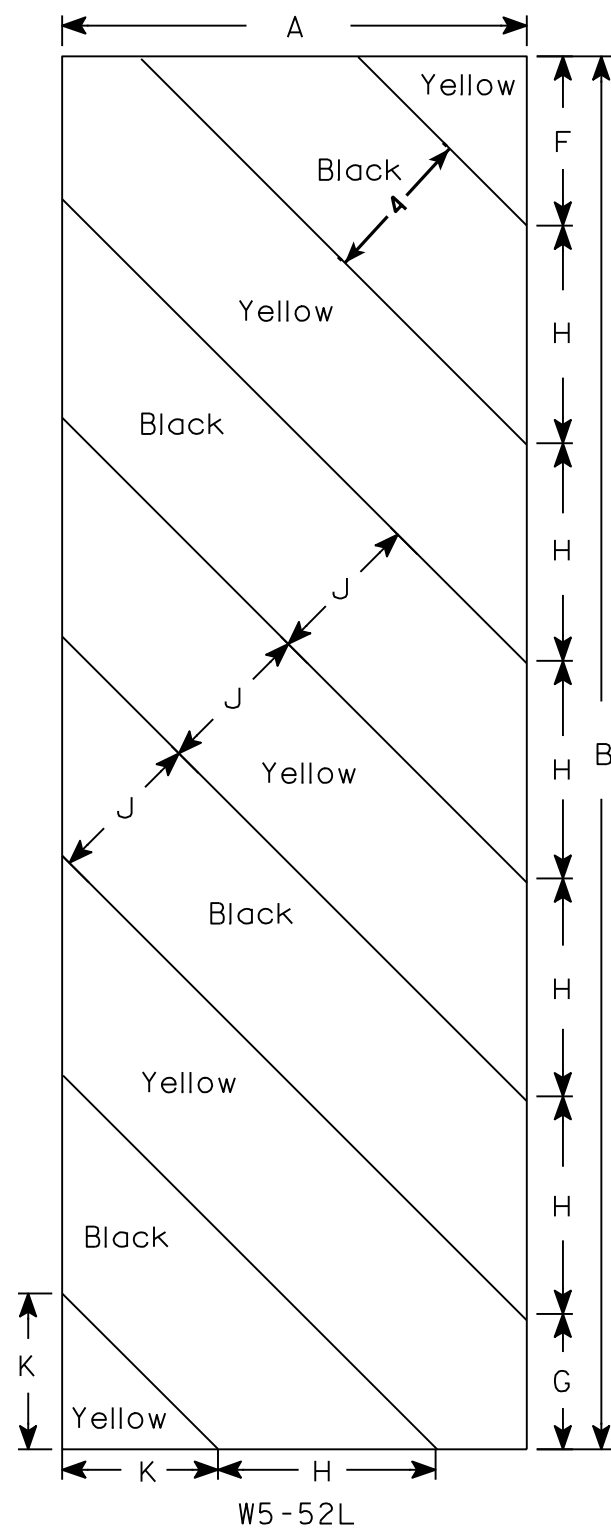
- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 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	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7



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.

[illegible]

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:

E

8448-00-71

BENCHMARKS NAVD 88

NO.	STA./OFFSET	DESCRIPTION	ELEV.
BM 1	9+66.7, 19.1' LT.	US DOI SURVEY DISK	1418.34
CP 1	10+57, 22.2' RT.	4" BRASS CAP IN CONCRETE	1415.65

DESIGN DATA

LIVE LOAD:

DESIGN RATING : HL-93

INVENTORY RATING FACTOR : 1.21

OPERATIONAL RATING FACTOR : 1.67

MAXIMUM STANDARD PERMIT VEHICLE LOAD = 250 KIPS.

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

TRAFFIC DATA:

A.A.D.T. (2014) = 235

A.A.D.T. (2034) = 315

R.D.S. = 60 MPH

ULTIMATE DESIGN STRESSES:

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.

36-INCH PRESTRESSED GIRDERS
 CONCRETE MASONRY $f'_c = 8,000$ P.S.I.
 STRANDS - 0.50" ϕ WITH AN ULTIMATE TENSILE STRENGTH OF $f_y = 270,000$ P.S.I.

PILING STEEL HP $f_y = 50,000$ P.S.I.

FOUNDATION DATA:

ABUTMENTS ARE TO BE SUPPORTED ON PILING STEEL HP 10-INCH \times 42 LB. DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE AT THE ABUTMENT BODIES AND 30 TONS PER PILE AT THE WINGS AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 40'-0" AT THE SOUTH ABUTMENT BODY, 25'-0" AT THE SOUTH ABUTMENT WINGS, 50'-0" AT THE NORTH ABUTMENT BODY, AND 25'-0" AT THE NORTH ABUTMENT WINGS.

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

HYDRAULIC DATA:

100 YEAR FREQUENCY

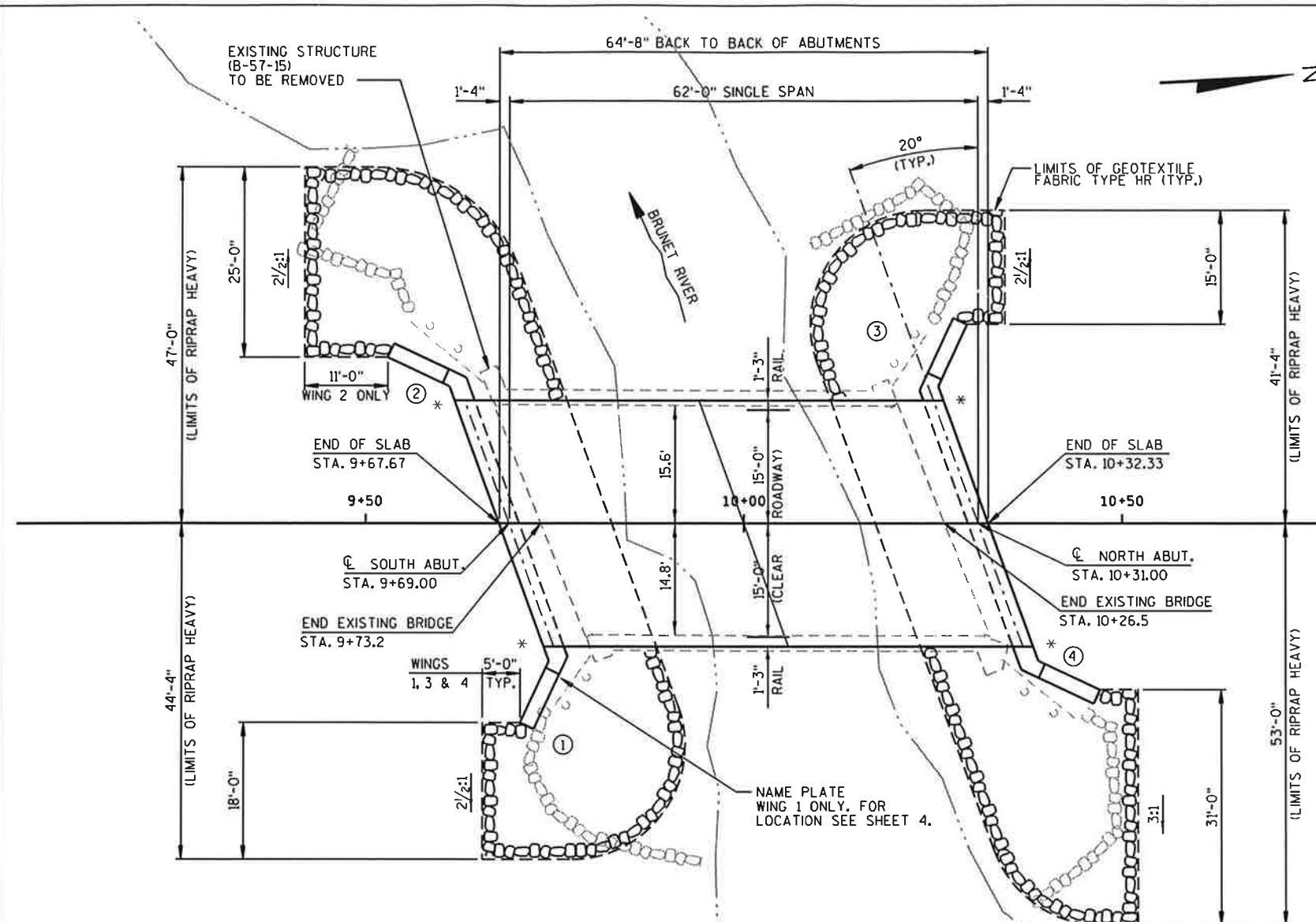
DRAINAGE AREA	10.9 SQ. MI.
Q_{100}	1100 C.F.S.
VELOCITY	5.44 F.P.S.
WATERWAY AREA	202 SQ. FT.
HIGH WATER Q_{100} ELEVATION	1408.84 \pm
ROADWAY OVERFLOW DESIGN FREQUENCY	N/A
SCOUR CRITICAL CODE	8
Q_2 ELEVATION (280 C.F.S.)	1405.09 \pm
ROADWAY OVERFLOW DESIGN FREQUENCY	
OVERTOPPING FREQUENCY	>100 YEARS

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

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

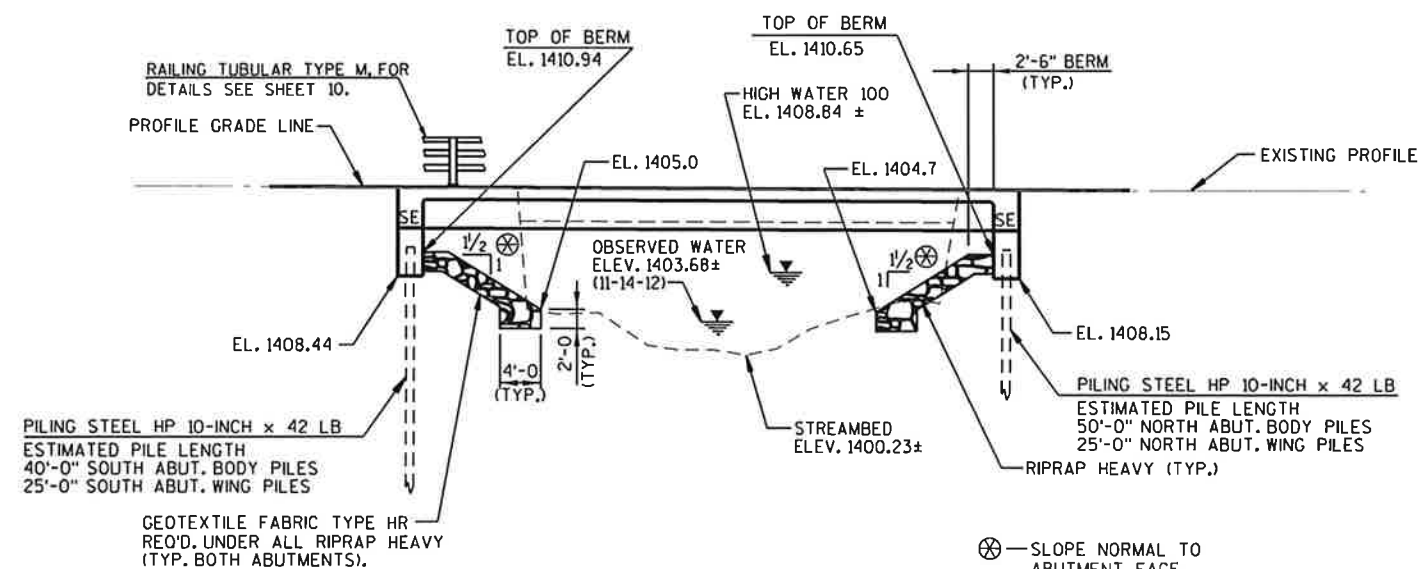
LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES & DETAILS
3. SUBSURFACE EXPLORATION
4. ABUTMENTS
5. ABUTMENT DETAILS
6. 36" PRESTRESSED GIRDER DETAILS
7. SUPERSTRUCTURE
8. SUPERSTRUCTURE SECTIONS & DETAILS
9. STEEL DIAPHRAGM
10. RAILING TUBULAR TYPE M



PLAN

(SINGLE SPAN 36" PRESTRESSED CONCRETE GIRDER)



ELEVATION

(NORMAL TO CTH GG)



NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 ACCEPTED *William C. Dreher* **11/27/13**
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-57-83
 CTH GG OVER BRUNET RIVER

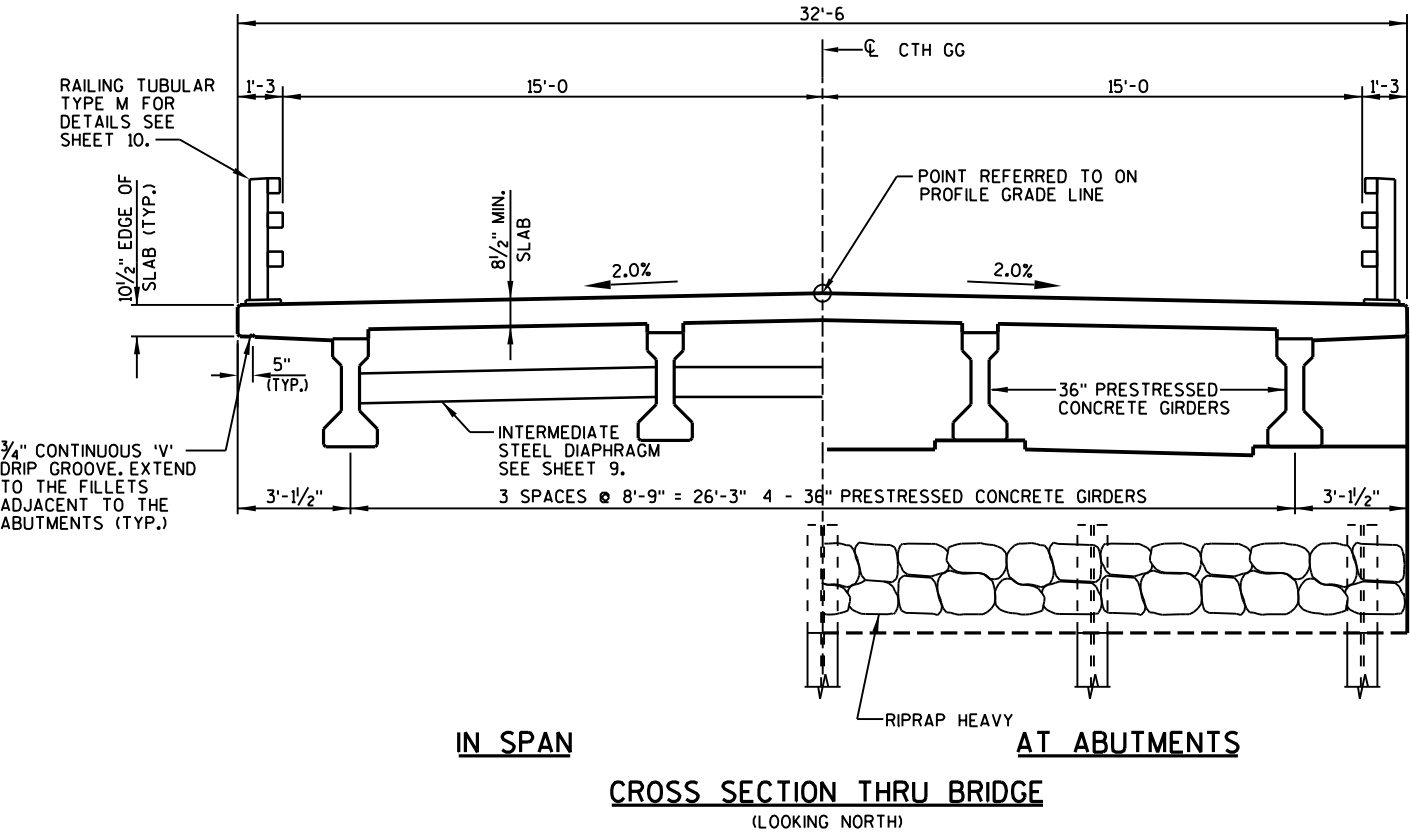
COUNTY SAWYER TOWN/CITY/VILLAGE DRAPER

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.
 DESIGNED BY LJR DESIGN CK'D. DHW DRAWN BY RLR PLANS CK'D. LJR

GENERAL PLAN SHEET 1 OF 10

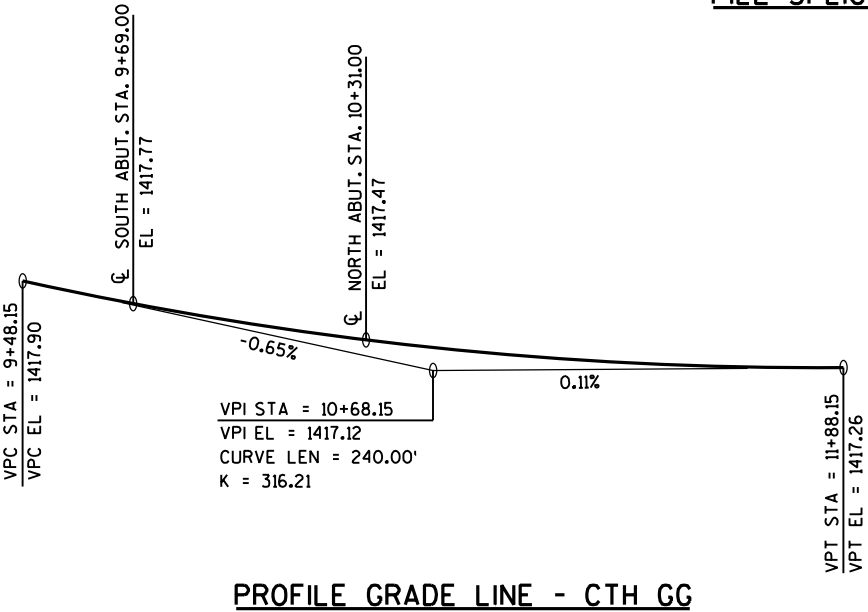
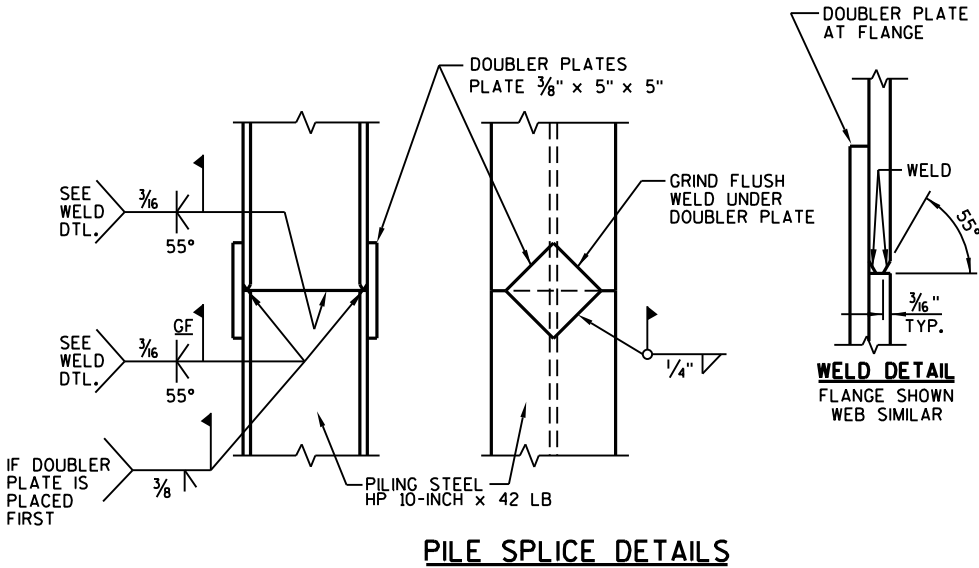
GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE HR TO THE LIMITS SHOWN ON SHEET 1 AND ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.
THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE ABUTMENTS.
THE MINIMUM CONCRETE HAUNCH OVER EITHER EDGE OF THE PRESTRESSED GIRDERS SHALL BE 1¼" AND THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH DEPTH OF 2¾".
THIS STRUCTURE WILL REPLACE EXISTING BRIDGE, B-57-15, A 53.5 FOOT LONG SINGLE SPAN CONCRETE DECK GIRDER BRIDGE SET ON TIMBER BACKED ABUTMENTS WITH C.I.P. PILING.
AT THE ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE. THE BACKFILL STRUCTURE ESTIMATED QUANTITIES ASSUMED A 1½:1 EXCAVATION SLOPE AT THE ABUTMENTS.
DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF THE ABUTMENT UNTIL THE SUPERSTRUCTURE IS IN PLACE.
ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NAVD 88 BENCHMARK "US DOI GEODETIC SURVEY DISK" LOCATED IN A DRILL HOLE ON THE WEST END OF THE SOUTH BRIDGE ABUTMENT, ELEV. 1418.34.
PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EDGES OF SLAB, TO THE OUTSIDE 1'-0" OF THE UNDERSIDE OF SLAB OVERHANG, AND TO THE EXPOSED SURFACES OF THE ABUTMENT WING WALLS.

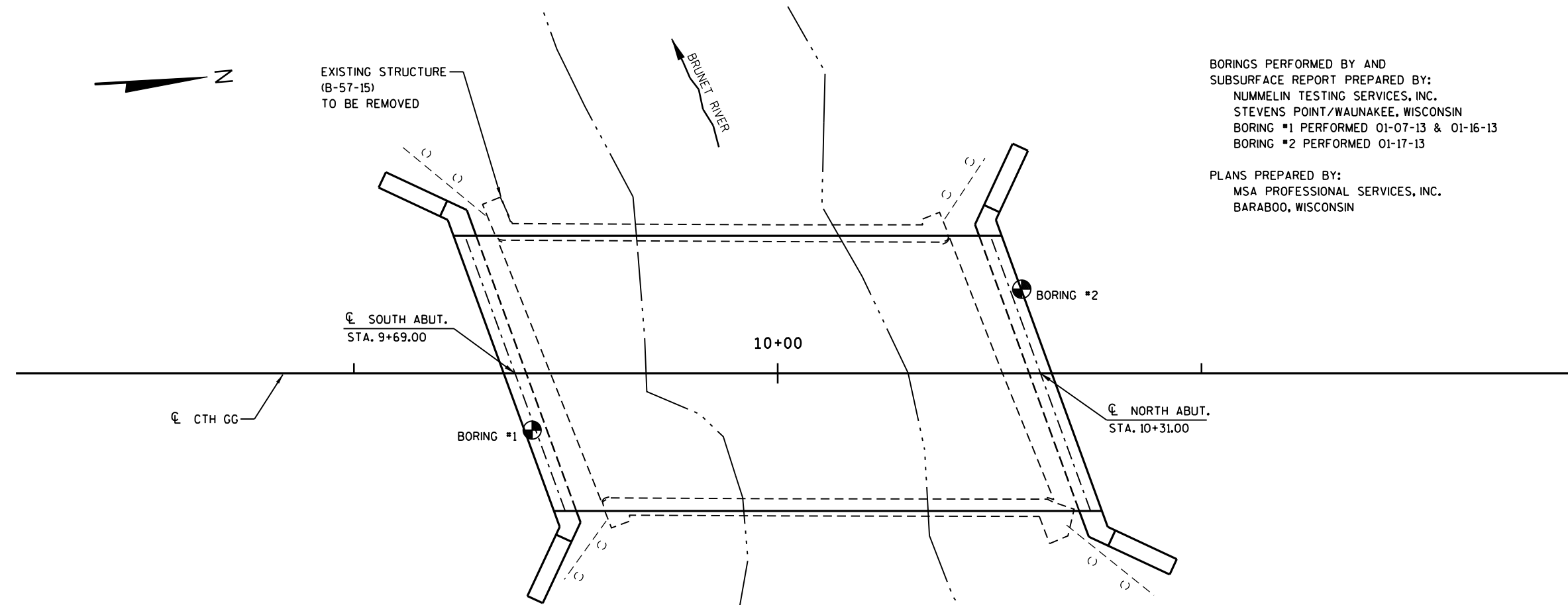


TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	NORTH ABUT.	SUPER	TOTAL
203.0600.S.01	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES (B-57-0083)	LS	-	-	-	1
210.0100	BACKFILL STRUCTURE	CY	140	140	-	280
502.0100	CONCRETE MASONRY BRIDGES	CY	32	32	80	144
502.3200	PROTECTIVE SURFACE TREATMENT	SY	20	20	260	300
503.0136	PRESTRESSED GIRDER TYPE I 36-INCH	LF	-	-	252	252
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2520	2520	-	5040
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1540	1540	15850	18930
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-	-	8	8
506.4000.01	STEEL DIAPHRAGMS B-57-0083	EACH	-	-	3	3
513.4060.01	RAILING TUBULAR TYPE M (B-57-0083)	LS	-	-	-	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	7	-	14
550.1100	PILING STEEL HP (10-INCH x 42 LB)	LF	250	300	-	550
606.0300	RIPRAP HEAVY	CY	160	150	-	310
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	75	75	-	150
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	265	250	-	515
NON-BID ITEMS						
	PREFORMED FILLER	SIZE	-	-	-	½", ¾"
	CORK FILLER	SIZE	-	-	-	¾"



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-83			
DRAWN BY RLR		PLANS CK'D. LJR	
CROSS SECTION, QUANTITIES & DETAILS			SHEET 2 OF 10



BORINGS PERFORMED BY AND
SUBSURFACE REPORT PREPARED BY:
NUMMELIN TESTING SERVICES, INC.
STEVENS POINT/WAUNAKEE, WISCONSIN
BORING #1 PERFORMED 01-07-13 & 01-16-13
BORING #2 PERFORMED 01-17-13

PLANS PREPARED BY:
MSA PROFESSIONAL SERVICES, INC.
BARABOO, WISCONSIN

STATE PROJECT NUMBER

8448-00-71

ABBREVIATIONS

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

MATERIAL SYMBOLS

TOPSOIL SAND SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

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

LEGEND OF BORING

BORING NO.
STA.
ELEV.

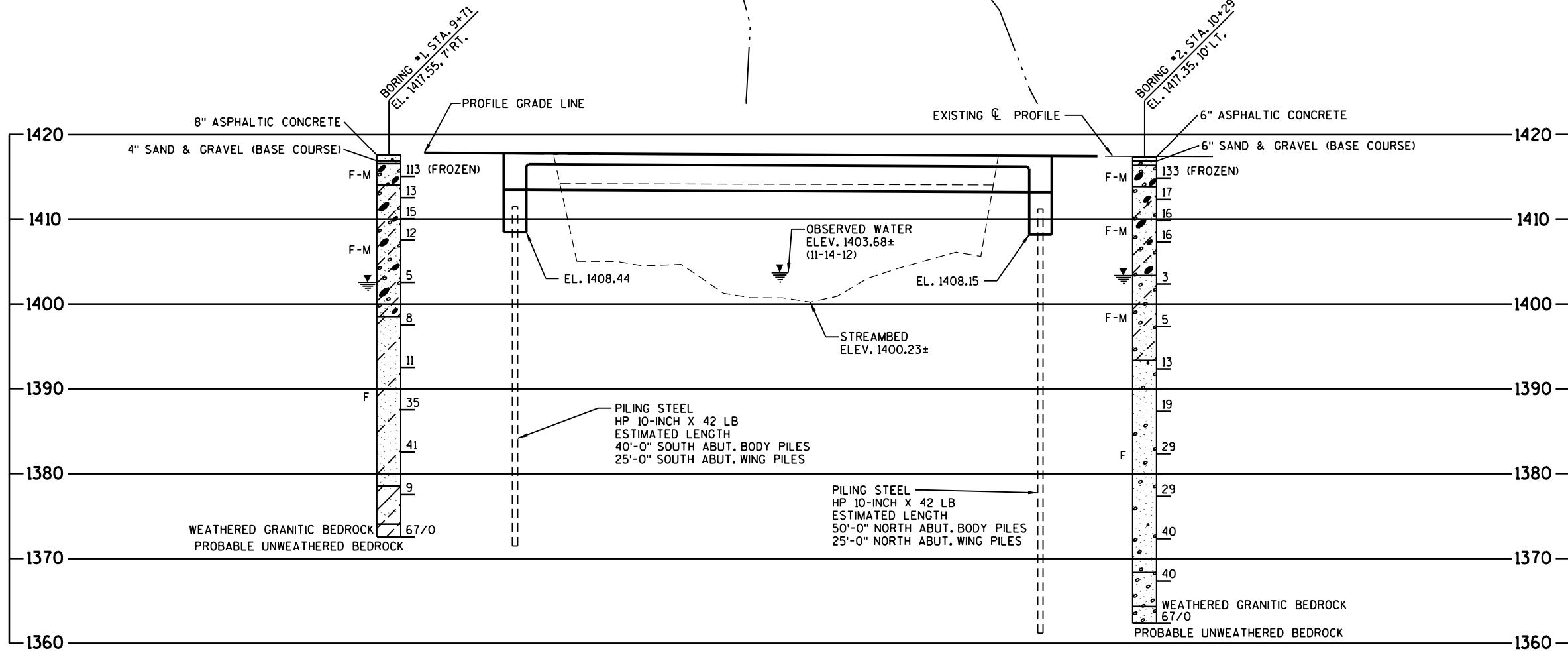
UNCONFINED STRENGTH → 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION

SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

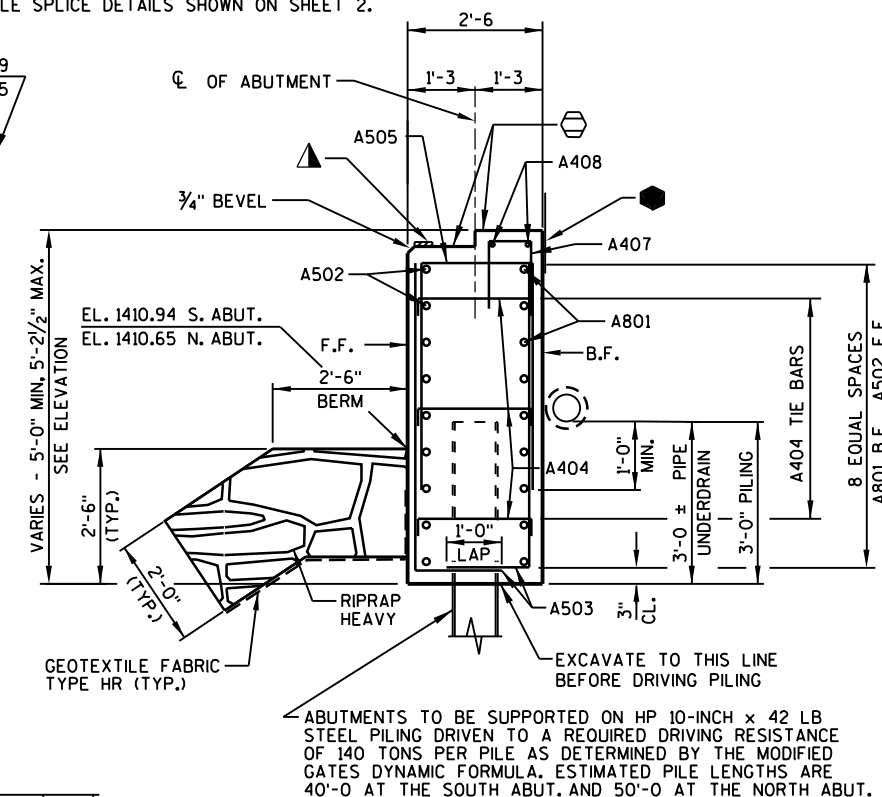
UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CAGED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE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



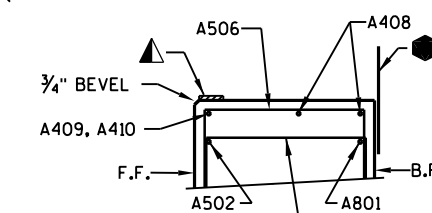
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-83			
DRAWN BY RLR		PLANS CKD. LJR	
SUBSURFACE EXPLORATION		SHEET 3 OF 10	



- — INDICATES WING NUMBER.
- ◊ — INDICATES GIRDER NUMBER.
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND/OR SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03 INCHES
- OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2 X 6. IF JOINT IS USED, POUR CONCRETE ABOVE JOINT AFTER DECK IS IN PLACE AND PLACE ON B.F. OF WING. COST OF INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".
- ¾" "V" GROOVE ON FRONT FACE OF WING WALL (IF JOINT IS USED).
- — ¾" CORK FILLER (VERTICAL FACES ONLY AT SIDES OF SEMI-EXPANSION POCKET PARALLEL WITH GIRDERS).
- ▲ — ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).
- ▲ — 4"x ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- ★ — VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- ◆ — HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS.
- △ — SEMI-EXPANSION POCKET. CONSTRUCT 3" DEEPER THAN SURROUNDING BEAM SEATS AND BACKWALL.
- — PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE (SEE DETAIL, SHEET 5).

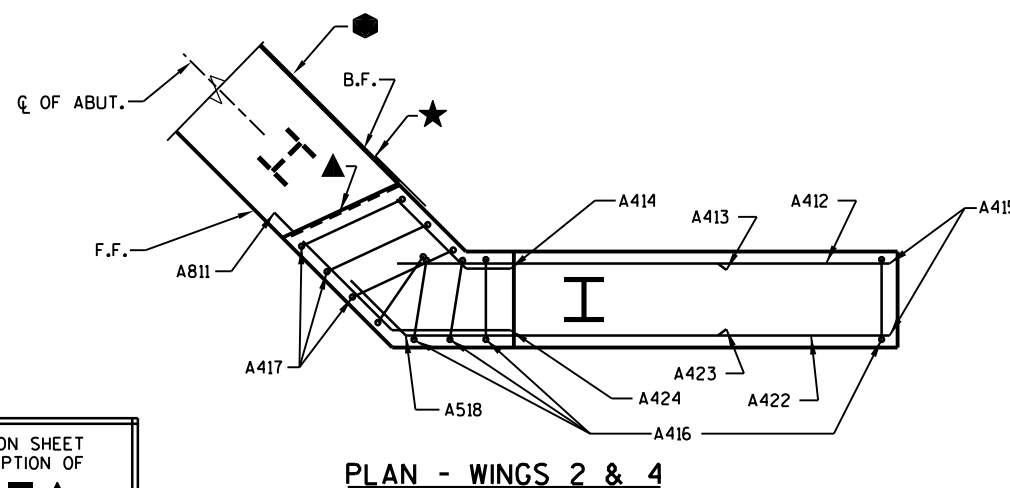
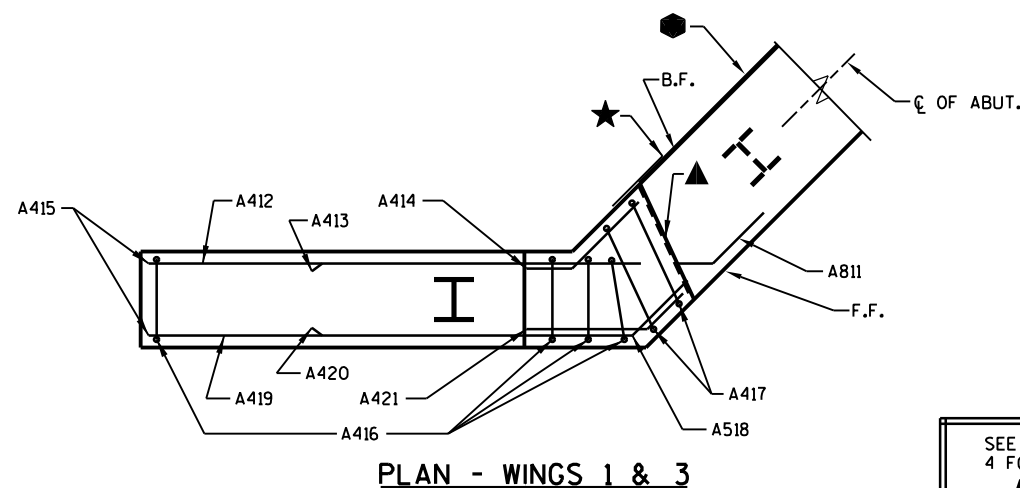
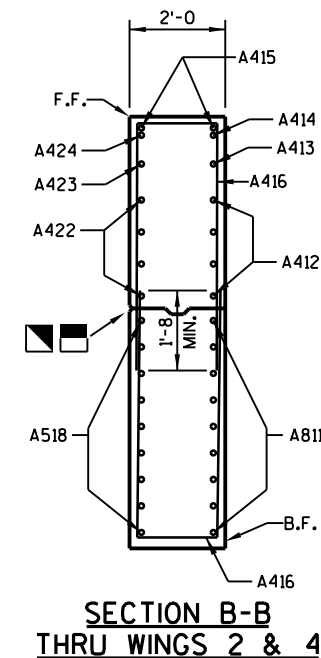
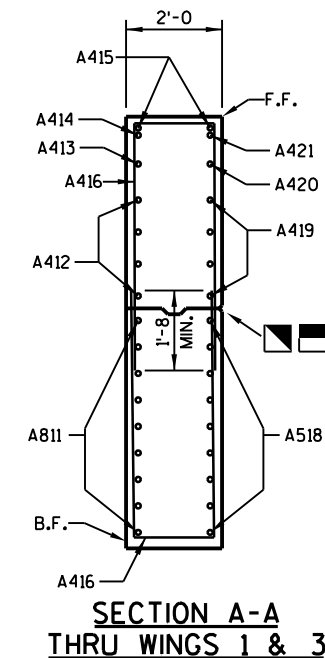
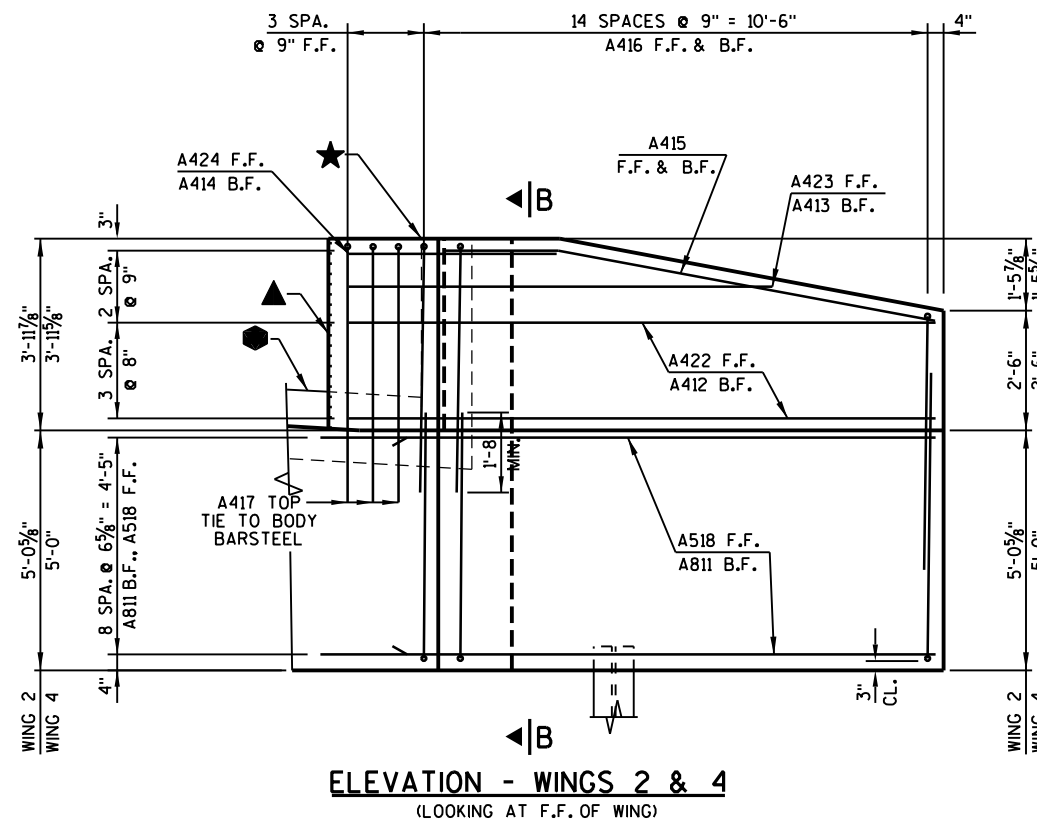
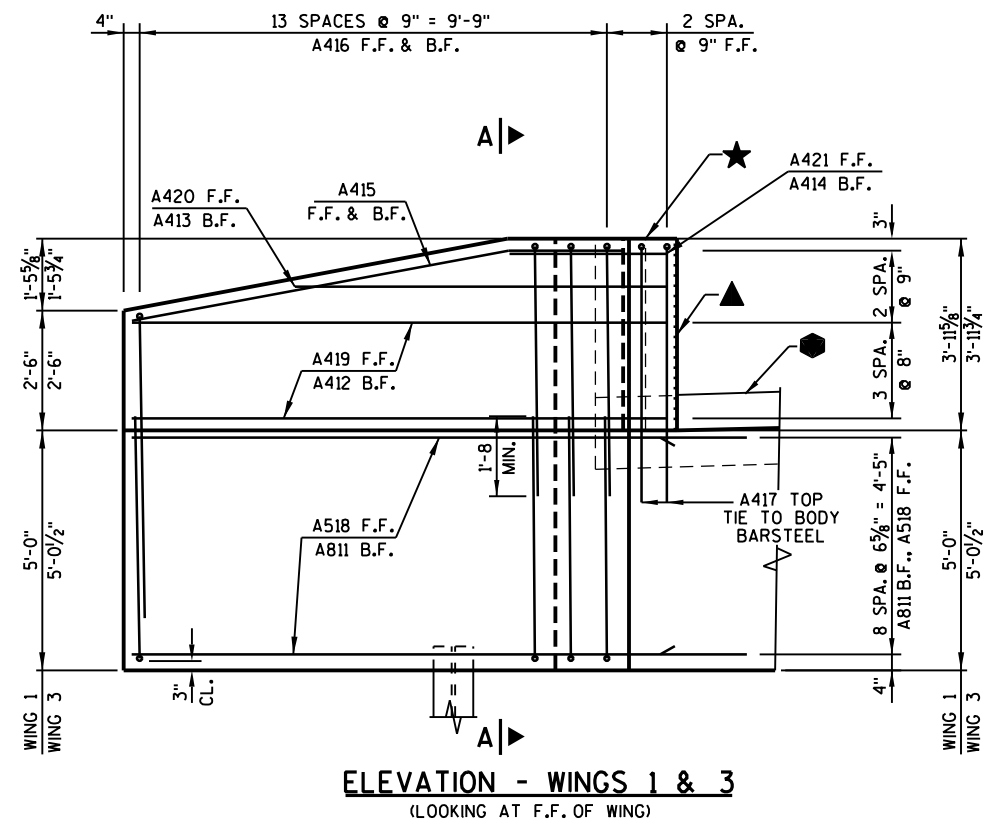
F.F.—FRONT FACE B.F.—BACK FACE CL.—CLEAR

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



(SEE PLAN FOR REINF. LOCATIONS & SPACING)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-57-83	
DRAWN BY		RLR	PLANS CK'D. JRS
ABUTMENTS		SHEET 4 OF 1	



SEE LEGEND ON SHEET 4 FOR DESCRIPTION OF
★ ● ▣ ▢ ▲

BILL OF BARS (1 ABUTMENT)

UNCOATED 2520 LBS.
COATED 1540 LBS.

MARK	NUMBER COATED	REQUIRED UNCOATED	LENGTH	BENT	LOCATION
A801	-	9	45-9	X	ABUT. BODY - B.F. - HORIZ.
A502	-	9	39-3		" " - F.F. - "
A503	-	80	5-9	X	" " - F.F. & B.F. - VERT.
A404	-	30	2-8	X	" " - TIES - HORIZ.
A505	-	40	8-0	X	" " - TOP - VERT.
A506	-	18	5-0	X	" " - BEAM SEATS - "
A407	-	12	3-10	X	" " - BACKWALL - "
A408	-	2	36-7		" " - " - HORIZ.
A409	-	2	2-3		" " - BEAM SEATS 2&3 - "
A410	-	2	5-11		" " - " - " 1 & 4 - "
A811	18	-	13-2	X	WINGS - BOTTOM - B.F. - "
A412	8	-	10-8	X	" " - B.F. - "
A413	2	-	7-4	X	" " - TOP - B.F. - "
A414	2	-	2-10	X	" " - " - " - "
A415	4	-	10-4	X	" " - F.F. & B.F. - "
A416	58	-	12-0	X	" " - F.F. & B.F. - VERT.
A417	5	-	12-9	X	" " - " - " - "
A518	18	-	11-8	X	" " - BOTTOM - F.F. - HORIZ.
A419	4	-	11-5	X	" " 1 & 3 - F.F. - "
A420	1	-	8-0	X	" " - TOP - F.F. - "
A421	1	-	3-6	X	" " - " - " - "
A422	4	-	13-0	X	" " 2 & 4 - F.F. - "
A423	1	-	9-7	X	" " - TOP - F.F. - "
A424	1	-	5-1	X	" " - " - " - "

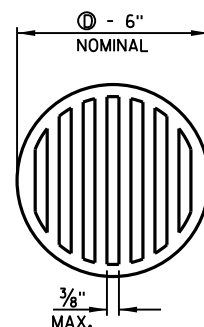
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

BAR MARKS FOR SOUTH ABUTMENT ARE SHOWN.
LABEL AND BUNDLE NORTH ABUTMENT BARS WITH B MARK (B801 THRU B424).

RODENT SHIELD NOTES:

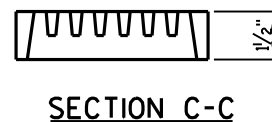
ORIENT SHIELD SO SLOTS ARE VERTICAL.

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



RODENT SHIELD

① - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



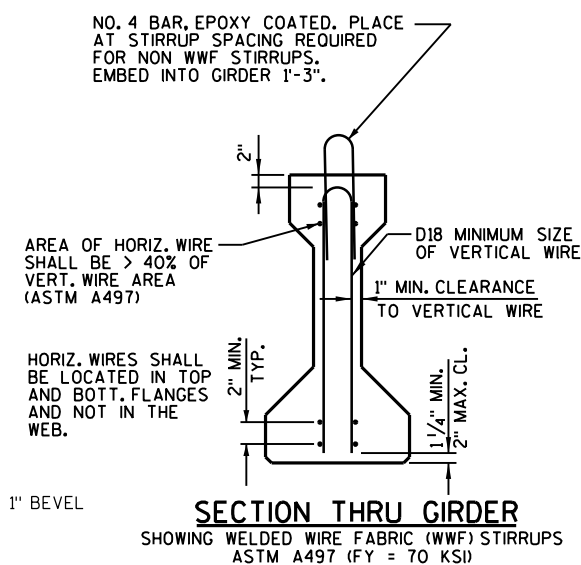
MARK	A	B
A811	1'-6"	45°
A518		
A412	1'-10"	45°
A413		
A414		
A415	2'-4"	11°
A419		
A420	1'-2"	45°
A421		
A422	2'-9"	45°
A423		
A424		

STIRRUPS AND TIES

MARK	C	D
A404	4 1/2"	2'-1"
A505	3'-1"	2'-2"
A506	1'-6"	2'-3"
A407	1'-6"	1'-0"
A416	5'-3"	1'-8"
A417	5'-4"	2'-3"

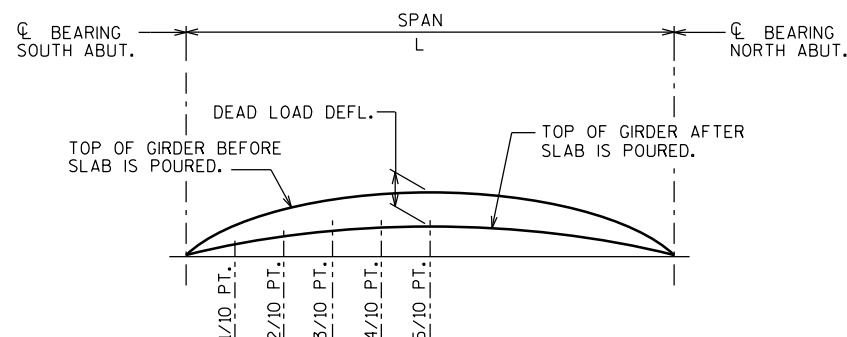
A503

A801

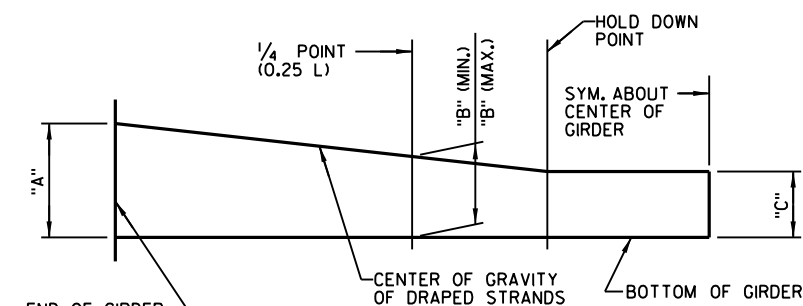


(A) DETAIL TYP. AT EACH END

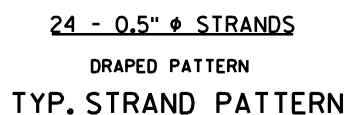
(B) 2-NO. 4 BARS. BEND DOWN 16 BAR DIA. AT ENDS



DEAD LOAD DEFLECTION DIAGRAM



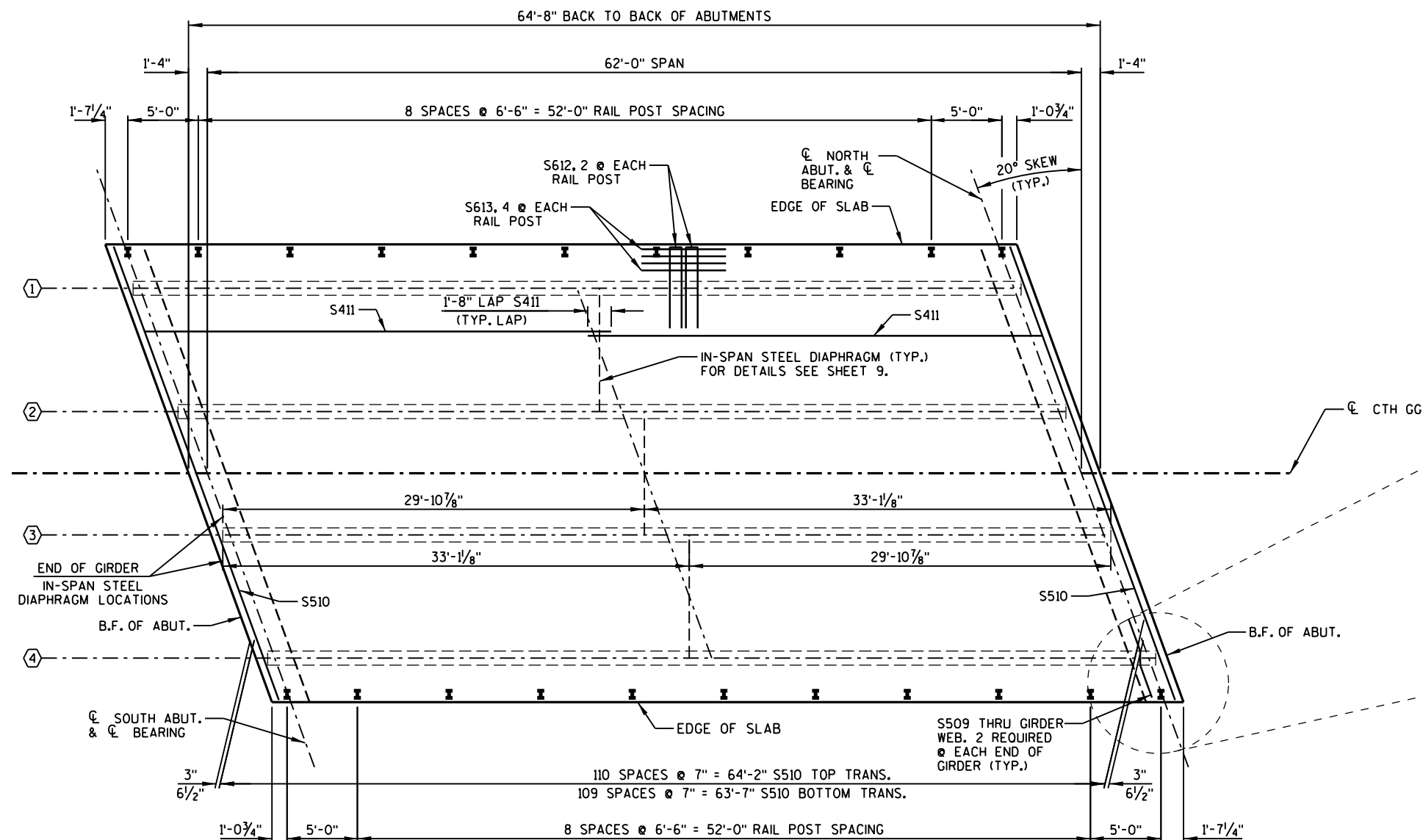
DRAPED STRAND PROFILE



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

[illegible]

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-57-83	
DRAWN BY CAR		PLANS CK'D.	JRS
36" PRESTRESSED GIRDER DETAILS		SHEET 6 OF 10	

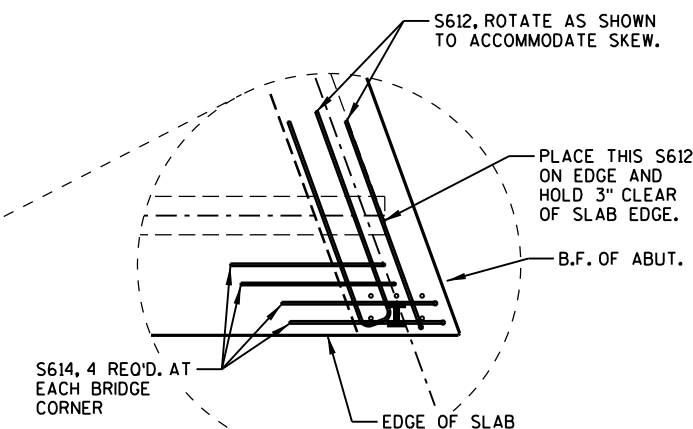


PLAN

GENERAL NOTES

○ - INDICATES GIRDER NUMBER

SEE CROSS SECTION THRU BRIDGE SHEET 8 FOR TYPICAL LONGITUDINAL BAR SPACING.



RAIL POST ANCHOR - CORNER DETAIL

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

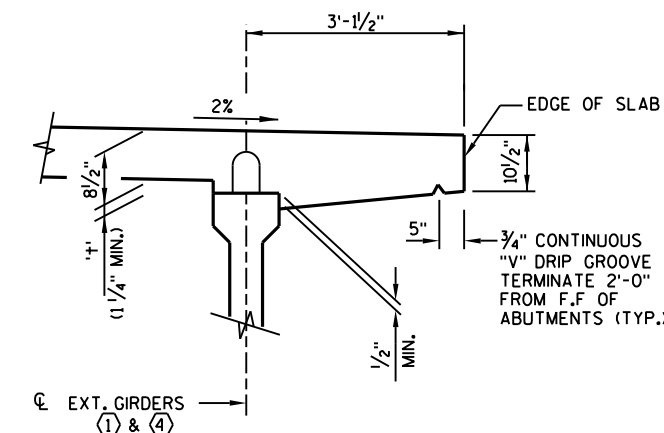
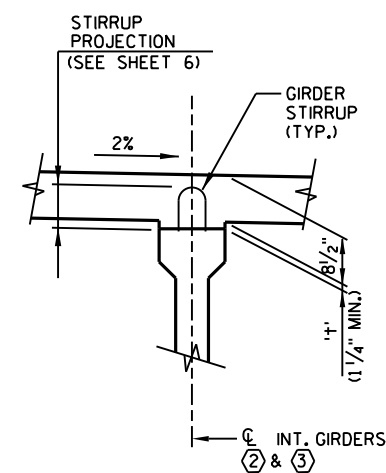
TOP OF SLAB ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEADLOAD DEFLECTION (SEE SHEET 6)
- SLAB THICKNESS

= HAUNCH HEIGHT '+'

IF 1 1/4" MINIMUM HAUNCH HEIGHT '+' CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. MAX. HAUNCH HEIGHT EQUALS "STIRRUP PROJECTION" MINUS 3".

TOP OF SLAB ELEVATIONS

LOCATION	SPAN POINT	EAST SLAB EDGE	C/L GIRDER 4	C/L GIRDER 3	C/L CTH GG	C/L GIRDER 2	C/L GIRDER 1	WEST SLAB EDGE
S. ABUT.	1	1417.41	1417.48	1417.67	1417.77	1417.69	1417.53	1417.48
	1.1	1417.38	1417.44	1417.64	1417.73	1417.65	1417.50	1417.44
	1.2	1417.34	1417.41	1417.60	1417.70	1417.62	1417.46	1417.41
	1.3	1417.31	1417.38	1417.57	1417.67	1417.59	1417.43	1417.37
	1.4	1417.28	1417.35	1417.54	1417.63	1417.55	1417.40	1417.34
	1.5	1417.25	1417.32	1417.51	1417.60	1417.52	1417.36	1417.31
	1.6	1417.22	1417.29	1417.48	1417.57	1417.49	1417.33	1417.28
	1.7	1417.20	1417.26	1417.45	1417.55	1417.47	1417.31	1417.25
	1.8	1417.17	1417.24	1417.43	1417.52	1417.44	1417.28	1417.22
N. ABUT.	1.9	1417.15	1417.21	1417.40	1417.49	1417.41	1417.25	1417.19
	2	1417.12	1417.19	1417.38	1417.47	1417.39	1417.23	1417.17



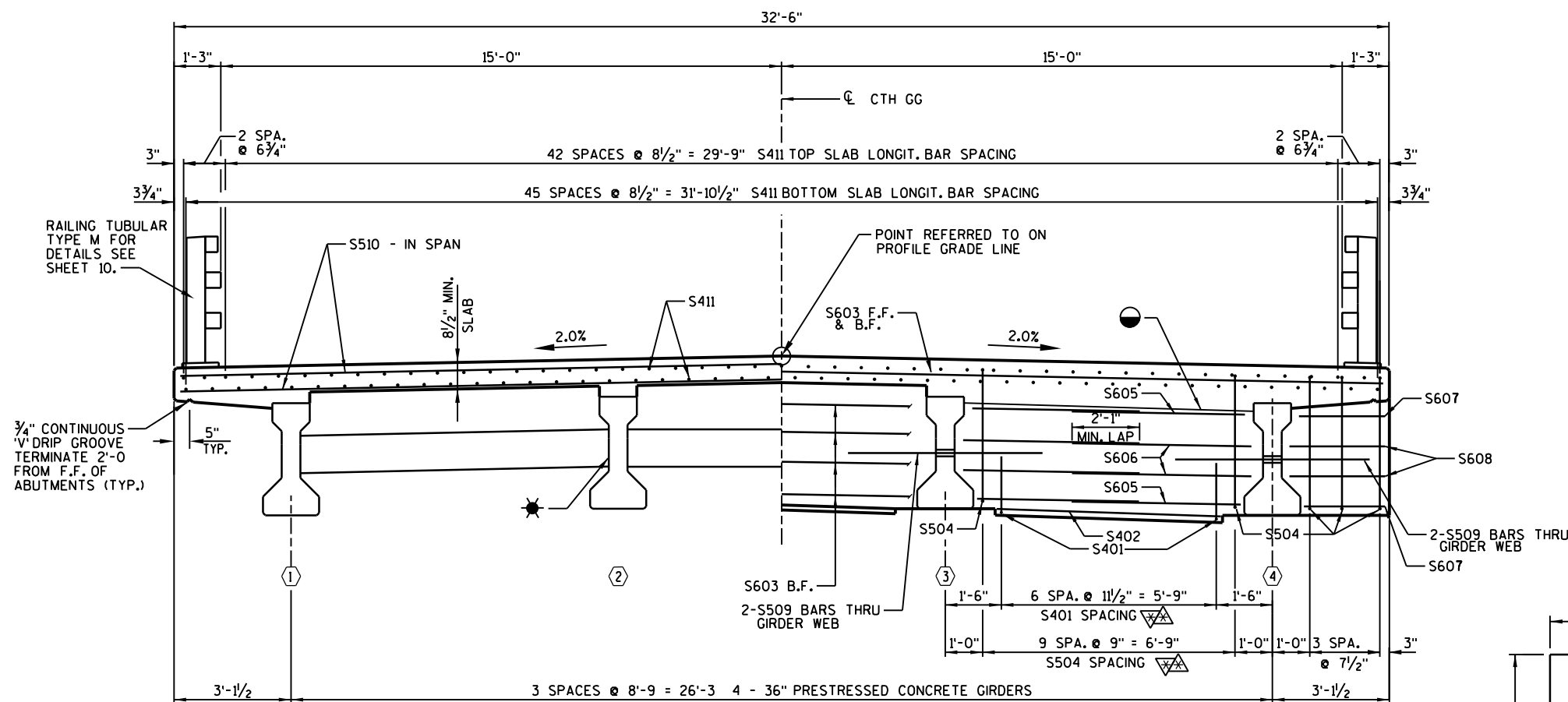
SLAB HAUNCH DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-83			
DRAWN BY CAR		PLANS CK'D. JRS	
SUPERSTRUCTURE		SHEET 7 OF 10	

BILL OF BARS (COATED) 15,850 LBS.

MARK	NUMBER REQ'D.	LENGTH	BAR SERIES	BENT	DESCRIPTION
S401	42	3-9		X	DIAPH. @ ABUT. - SEMI-EXP. NOTCH - STIRRUP - VERT.
S402	12	6-0			" " " " " " " " - HORIZ.
S603	12	34-2			" " " " - B.F. & TOP " "
S504	76	12-2		X	" " " " - STIRRUP - VERT.
S605	24	4-10			" " " " - F.F. BETWEEN GIRDERS - HORIZ.
S606	24	5-6			" " " " " " " " " "
S607	8	2-3			" " " " - F.F. @ ENDS " "
S608	8	2-8			" " " " " " " " " "
S509	16	6-0			" " " " - 2 THRU GIRDER WEB " "
S510	221	34-2			SLAB - TOP & BOTTOM - TRANS.
S411	186	33-0			" " " " " " " " - LONGIT.
S612	44	12-0		X	" " @ RAIL POSTS 2 PER POST
S613	72	6-0			" " " " " 4 " "
S614	16	7-0		X	" " " " CORNER POSTS

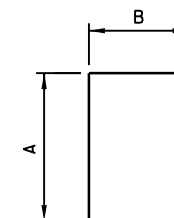
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
EPOXY COAT ALL SUPERSTRUCTURE BAR REINFORCEMENT.



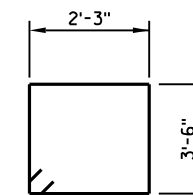
IN SPAN

AT ABUTMENTS

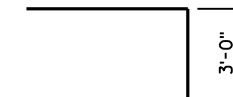
CROSS SECTION THRU BRIDGE
(LOOKING NORTH)



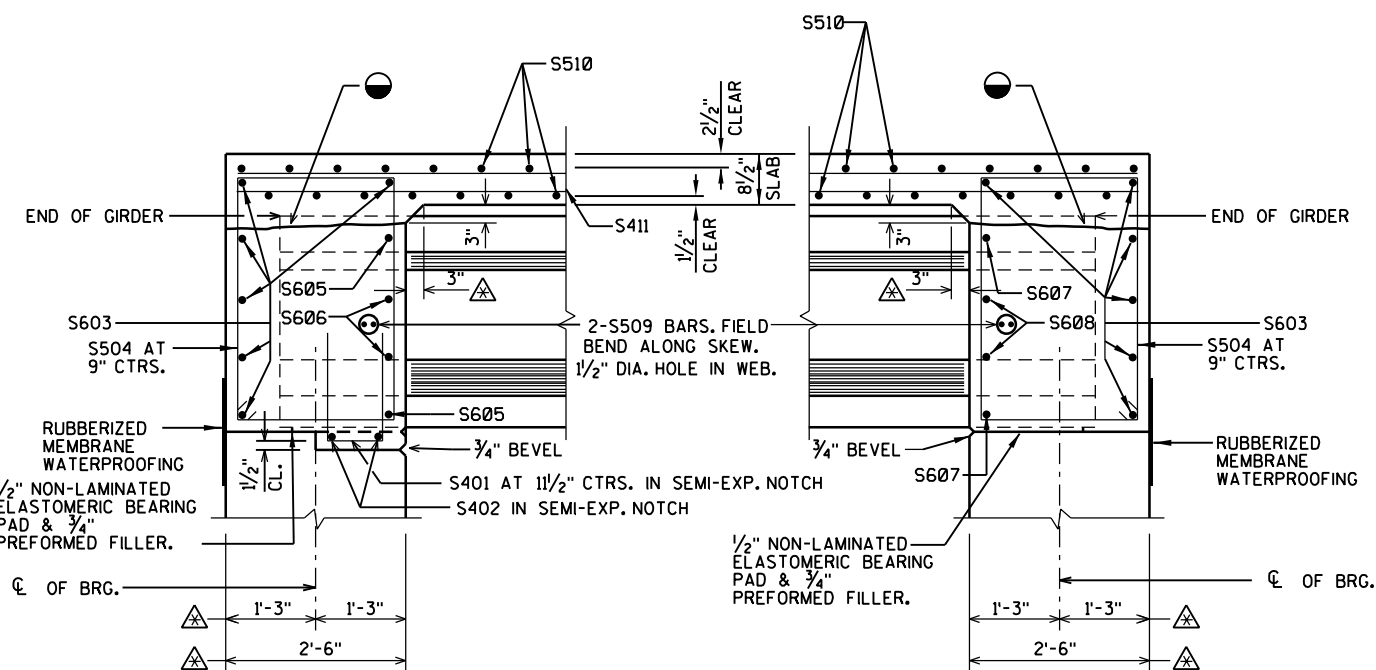
MARK	A	B
S401	1'-6"	11"
S612	5'-9"	10"



S504



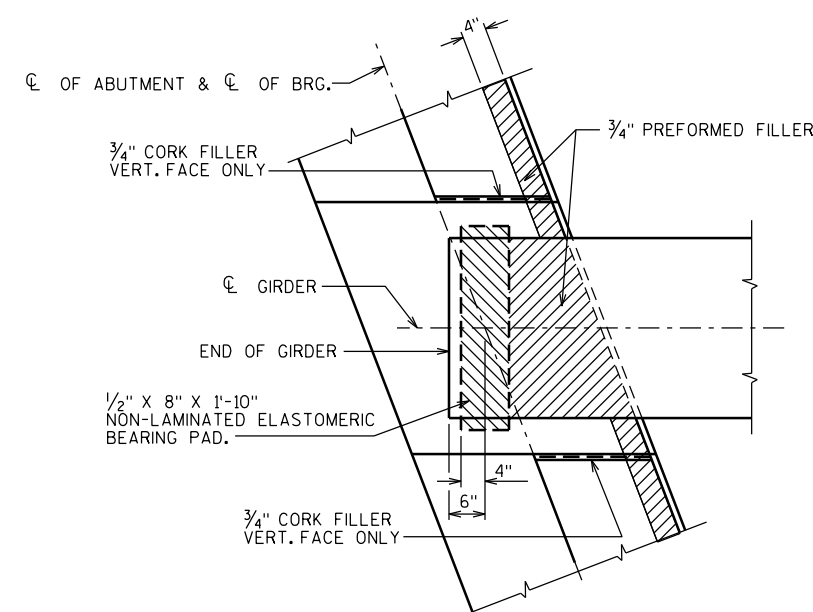
S614



INTERIOR BAYS

DIAPHRAGM ENDS

PART LONGITUDINAL SECTION

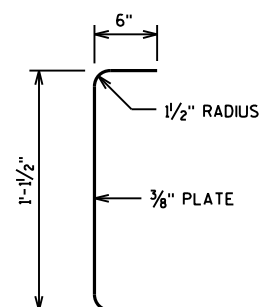


BEARING PAD DETAIL

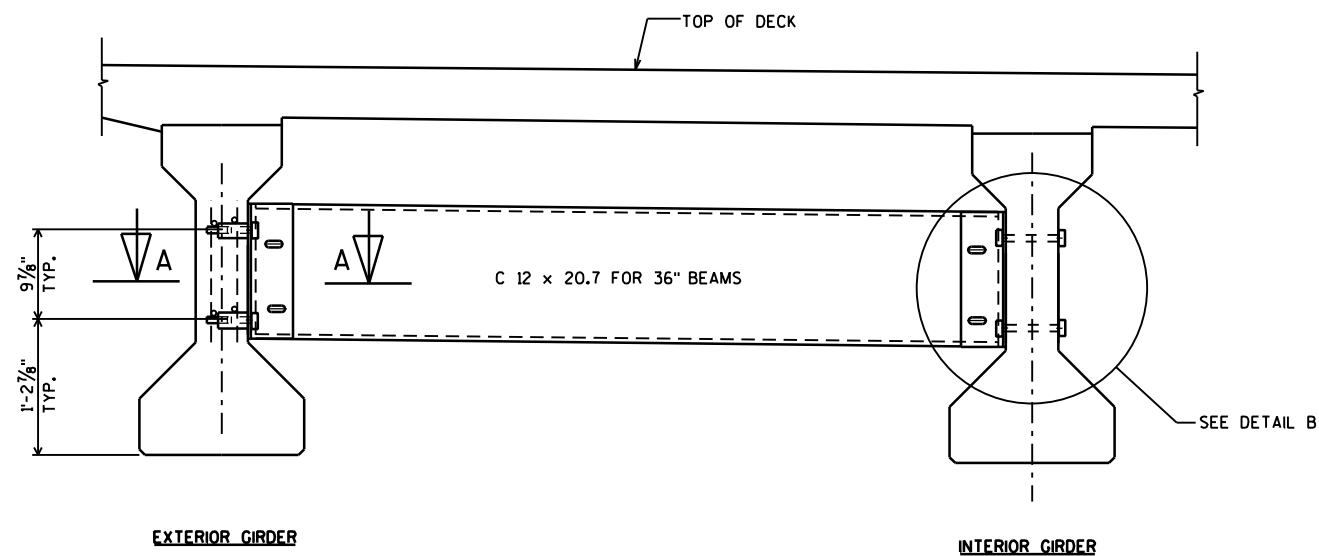
LEGEND

- - INDICATES GIRDER NUMBER
- ★ - FOR DETAILS OF STEEL DIAPHRAGMS AND DIAPHRAGM INSERTS, SEE SHEET 9. FOR LAYOUT AND SPACING OF STEEL DIAPHRAGMS, SEE PLAN, SHEET 7.
- - OPTIONAL CONSTRUCTION JOINT (TYP. ALL BAYS).
- △ - DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNITS.
- ▽△ - DIMENSION IS TAKEN NORMAL TO CL GIRDER.
- F.F. - FRONT FACE
- B.F. - BACK FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-83			
DRAWN BY CAR		PLANS CK'D. JRS	
SUPERSTRUCTURE SECTIONS & DETAILS			SHEET 8 OF 10



SECTION THRU ALTERNATE DIAPHRAGM



TRANSVERSE SECTION AT DIAPHRAGM

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-57-83", EACH.

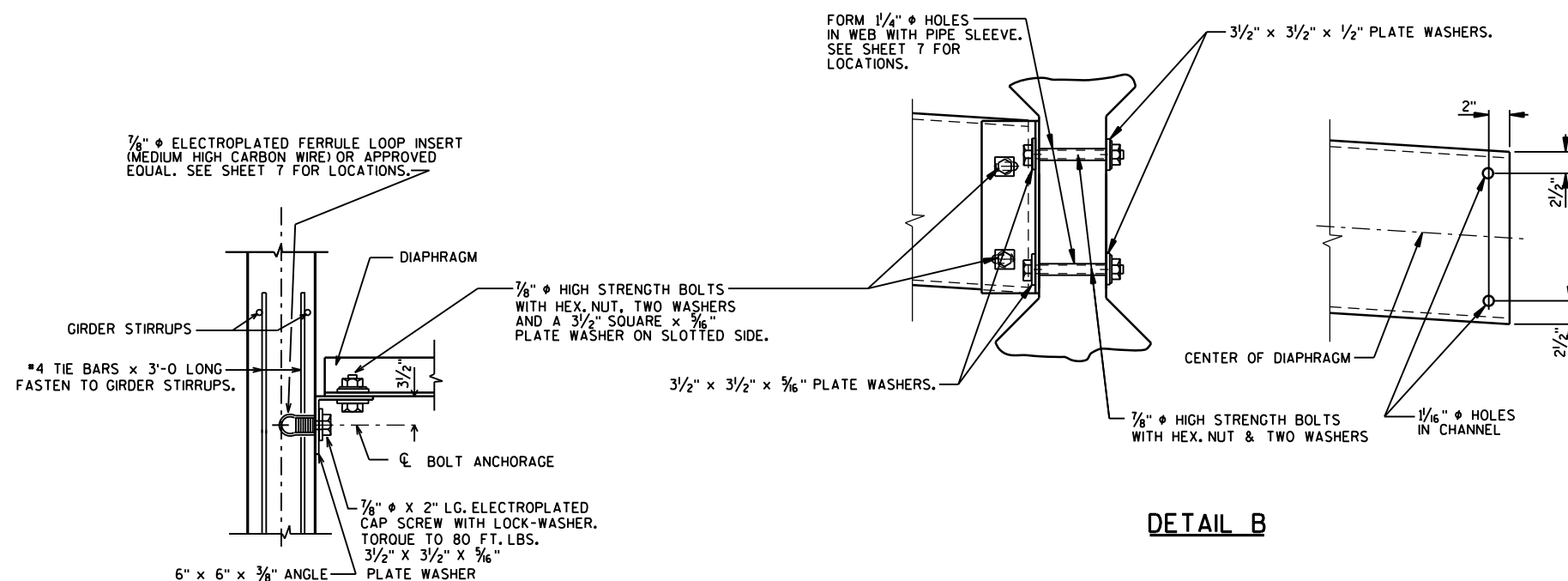
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

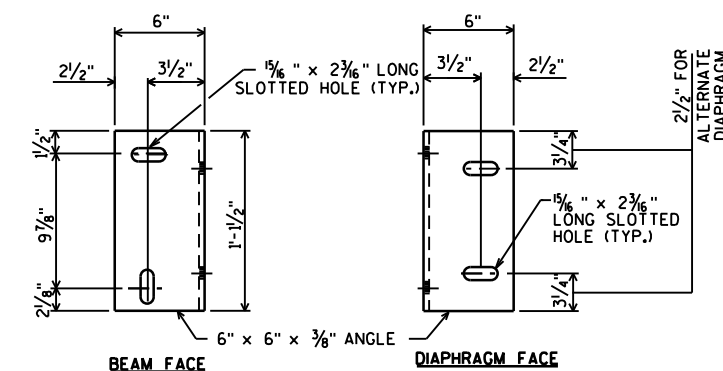
ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

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

SEE SHEET 7 FOR LOCATION OF DIAPHRAGMS.



DETAIL B

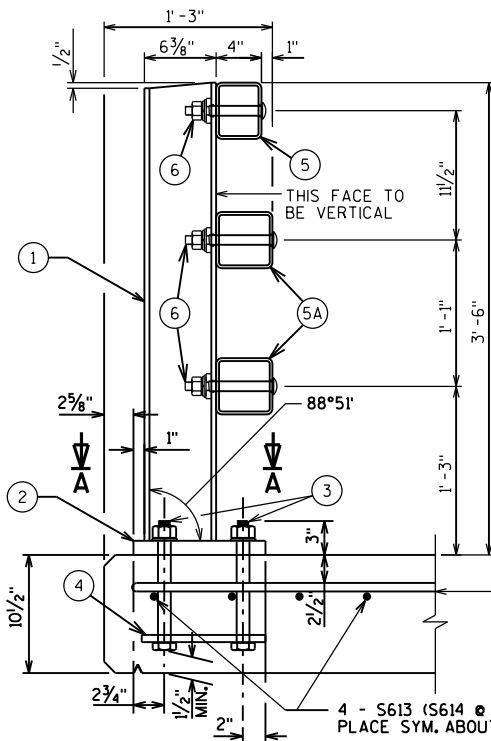


DIAPHRAGM SUPPORT

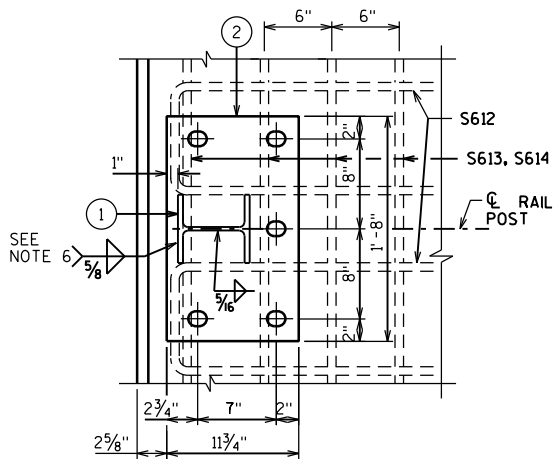
SECT. A-A

(FOR EXTERIOR ATTACHMENT)

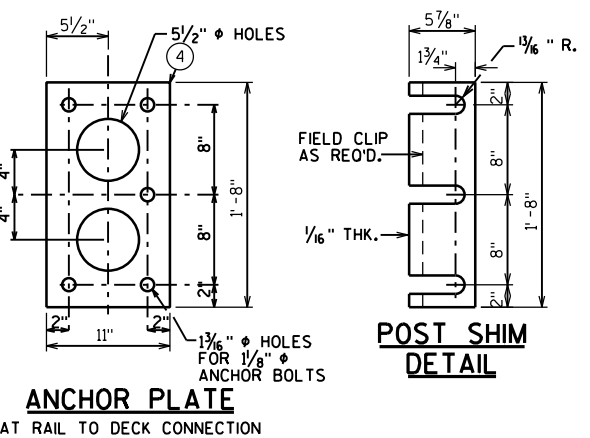
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-83			
DRAWN BY CAR		PLANS CK'D. JRS	
STEEL DIAPHRAGM		SHEET 9 OF 10	



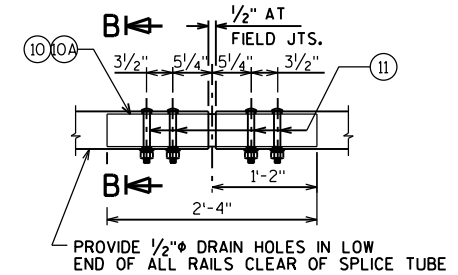
SECTION THRU RAILING ON DECK



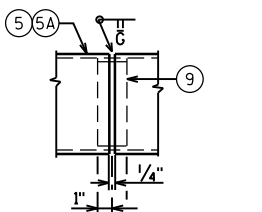
SECTION A-A



ANCHOR PLATE AT RAIL TO DECK CONNECTION



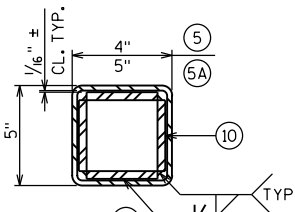
FIELD ERECTION JOINT DETAIL



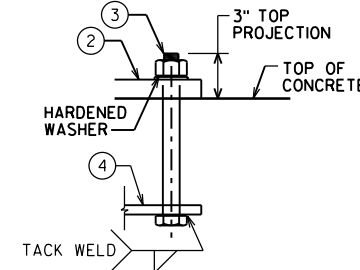
SHOP RAIL SPICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

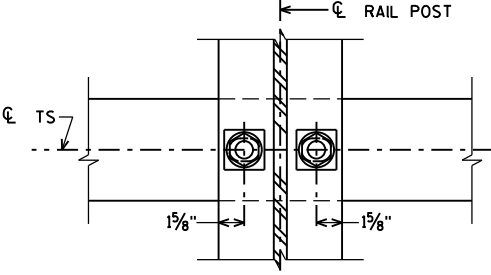
4 - S613 (S614 @ END POSTS) PLACE SYM. ABOUT CL. OF POST
PLACE SKEWED S612 BARS AT END POSTS BELOW TOP MAT SLAB REINFORCEMENT



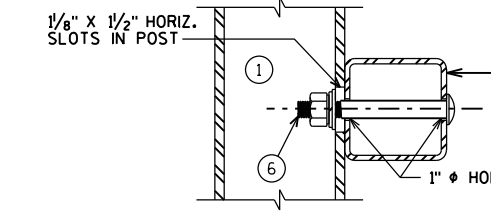
SECTION B-B



ANCHOR BOLTS



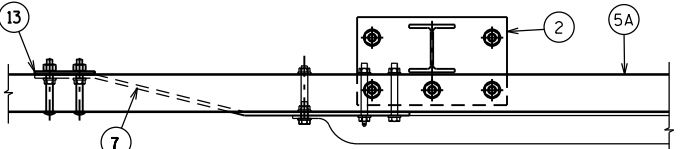
SECTION THRU POST WEB



SECTION THRU RAIL

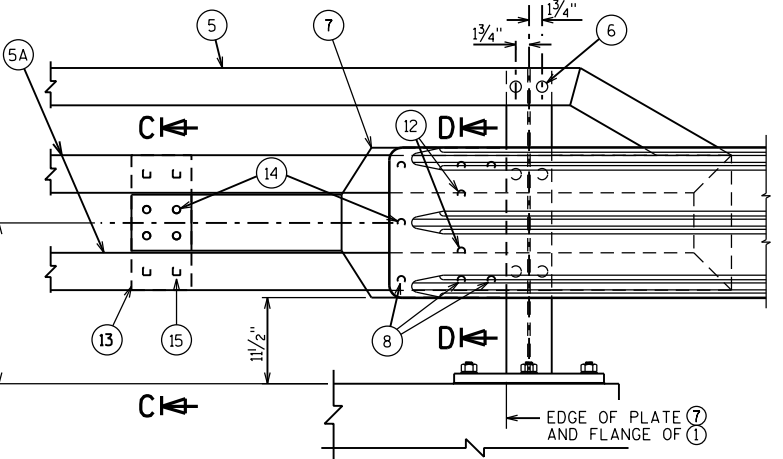
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



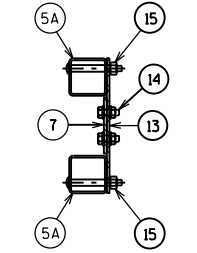
TOP VIEW AT END POST

(THREE BEAM RAIL ATTACHMENT)

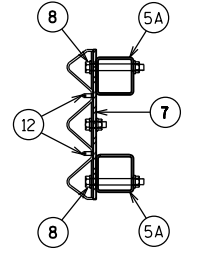


DETAIL AT END POST

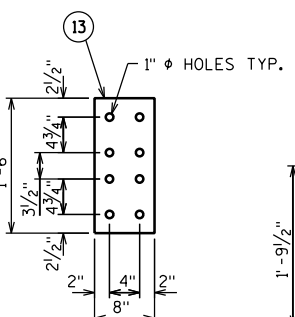
(THREE BEAM RAIL ATTACHMENT)



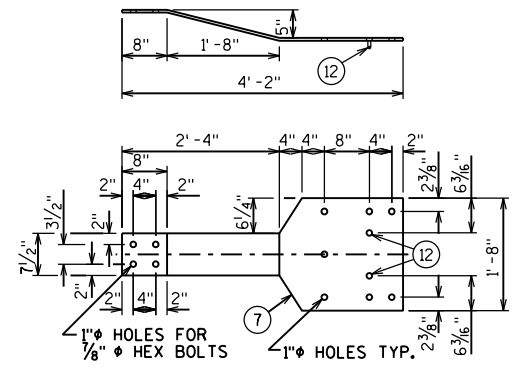
SECTION C-C



SECTION D-D

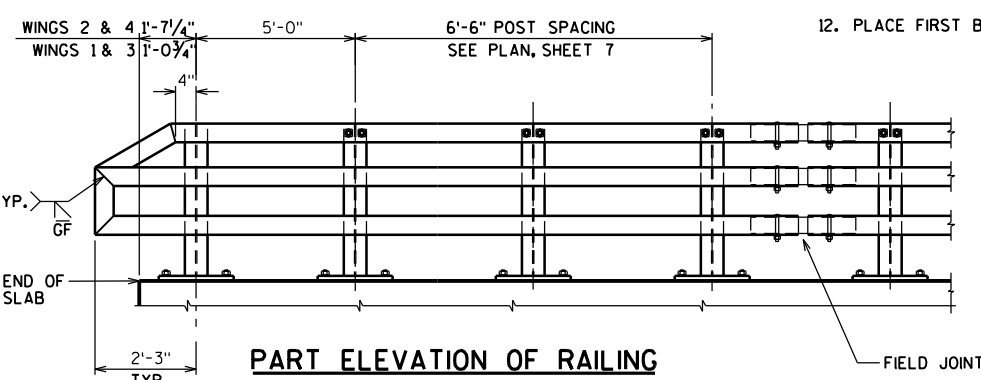


ANCHOR PLATE AT BEAM GUARD ATTACHMENT



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

- W6 x 25 WITH 1/8" x 1/2" 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.
- PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 5/8" x 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ASTM A449 - 1/8" 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 10 3/4" LONG.
- 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 5/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/8" x 1 5/8" x 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- SPICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS IN PLATE NO. 10A.
- 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

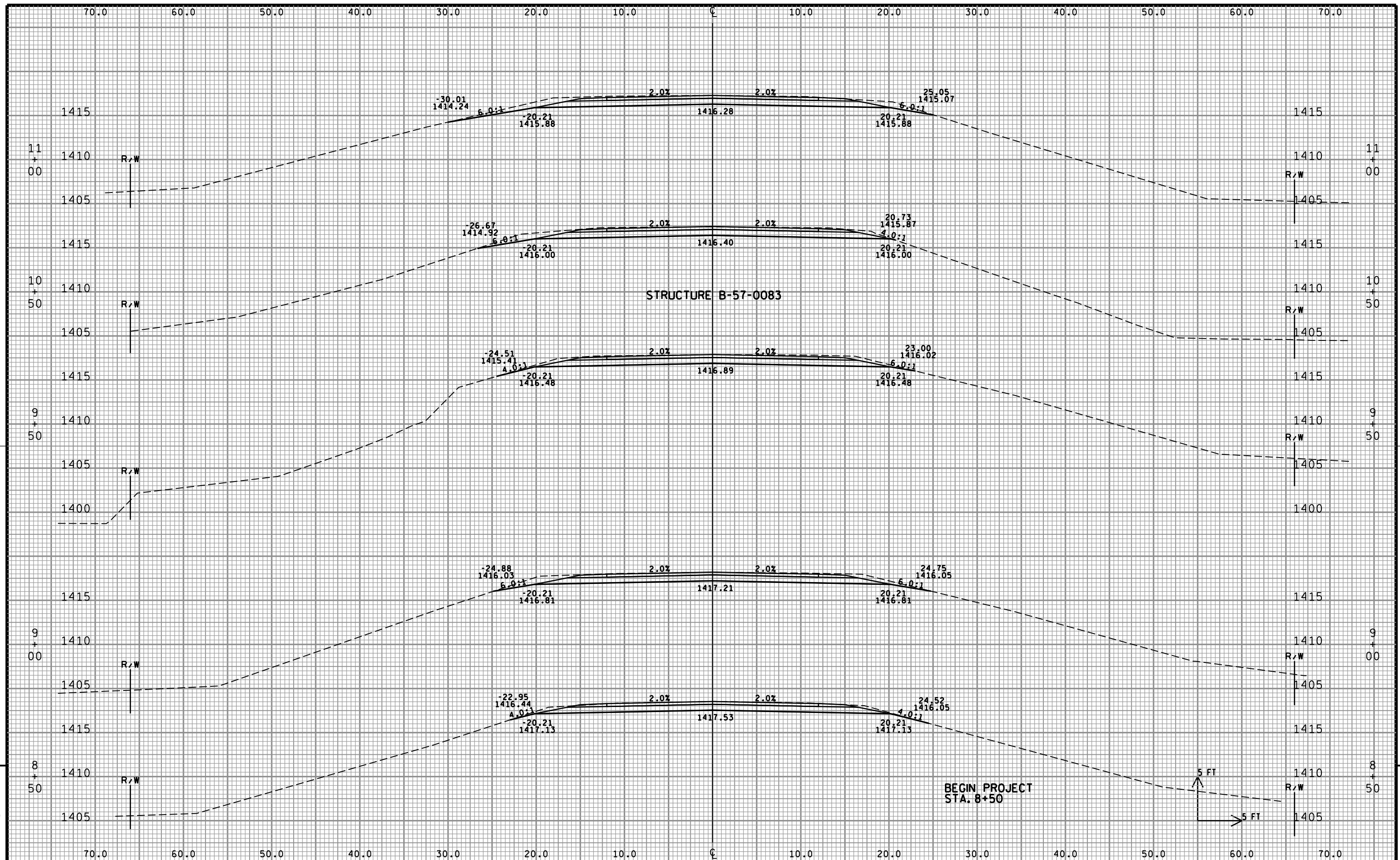
GENERAL NOTES

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-57-83" WHICH INCLUDES ALL ITEMS SHOWN.
- 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 SPICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- 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.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
- PAINTING IS NOT REQUIRED.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
- PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

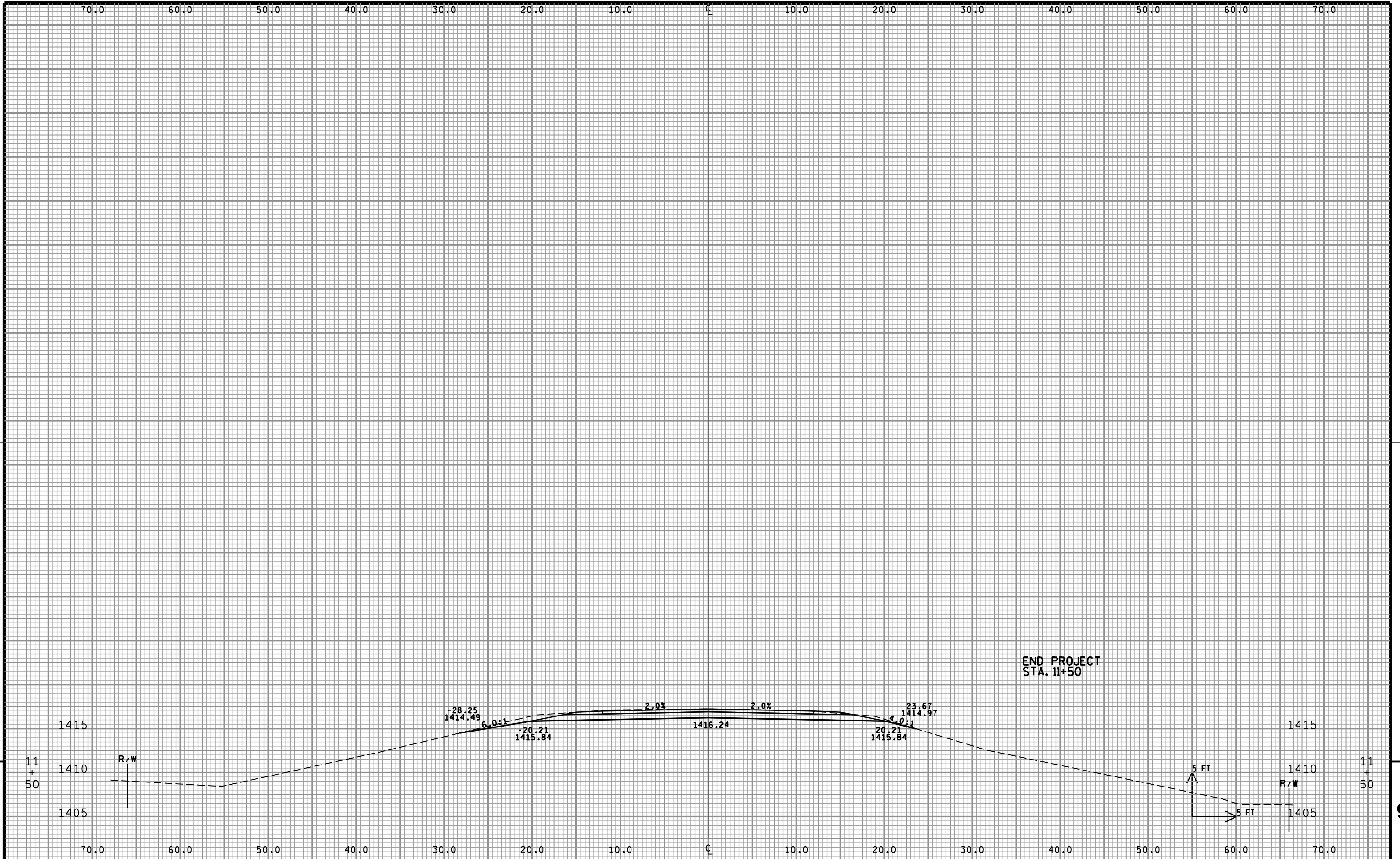
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-83			
DRAWN BY CAR		PLANS CK'D. JRS	
RAILING TUBULAR TYPE M			SHEET 10 OF 10

EARTHWORK									
STATION	AREA (SF)			INCREMENTAL VOL. (CY) (UNADJUSTED)			CUMULATIVE VOL. (CY)		
	CUT	SALVAGED, UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED, UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.30	MASS ORDINATE
8+50	37.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9+00	43.00	0.00	0.00	74.50	0.00	0.00	74.50	0.00	74.50
9+50	40.80	0.00	0.00	77.60	0.00	0.00	152.10	0.00	152.10
9+67.7	40.80	0.00	0.00	26.70	0.00	0.00	178.80	0.00	178.80
10+32.3	42.30	0.00	0.00	0.00	0.00	0.00	178.80	0.00	178.80
10+50	423.30	0.00	0.00	27.70	0.00	0.00	206.50	0.00	206.50
11+00	45.80	0.00	0.00	81.60	0.00	0.00	288.10	0.00	288.10
11+50	40.20	0.00	0.00	79.60	0.00	0.00	367.70	0.00	367.70
COLUMN TOTAL				367.70	0.00	0.00			

NOTES: 1. NO EBS OR MARSH EXCAVATION ANTICIPATED
2. EXISTING ASPHALTIC SURFACE REMOVAL INCLUDED IN COMMON EXCAVATION TOTALS



PROJECT NO: 8448-00-71 HWY: CTH GG COUNTY: SAWYER CROSS SECTIONS: CTH GG SHEET 9



9

9

PROJECT NO: 8448-00-71	HWY: CTH GG	COUNTY: SAWYER	CROSS SECTIONS: CTH GG	SHEET	E
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Notes



Wisconsin Department of Transportation

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