

ORDER OF SHEETS

Section No.	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
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



DESIGN DESIGNATION

DESIGN DESIGNATION		VERONA RD
A.A.D.T. (2013)	=	65,700
A.A.D.T. (2030)	=	74,000
D.H.V. (2030)	=	7,400
D.D. (2030)	=	50/50
T. (2030)	=	10.2%
DESIGN SPEED	=	35-45 MPH
ESALS	=	19,418,000

CONVENTIONAL SYMBOLS

PLAN

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	

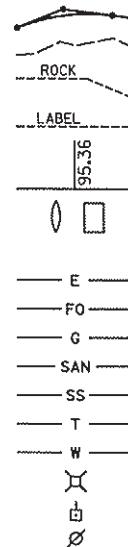
PROFILE

GRADE LINE
ORIGINAL GROUND
MARSH OR ROCK PROFILE
(To be noted as such)
SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES
ELECTRIC
FIBER OPTIC
GAS
SANITARY SEWER
STORM SEWER
TELEPHONE
WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE



LAYOUT

SCALE 0 500 FEET

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY
COORDINATE SYSTEM (WCCS), DANE COUNTY, NAD 83 (2007) ADJUSTMENT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

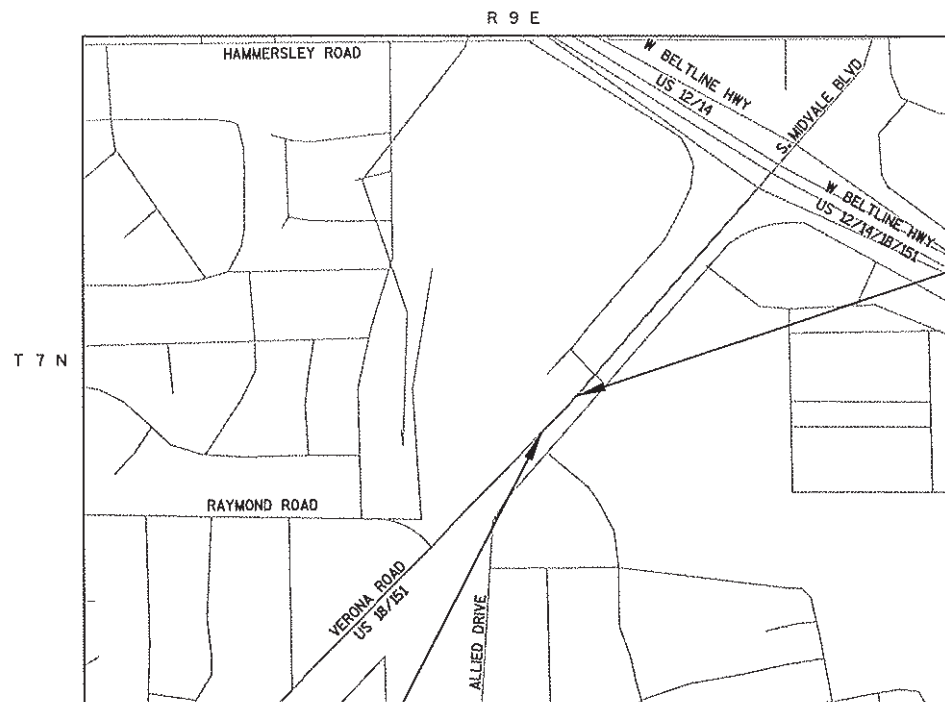
MOUNT HOREB - MADISON

USH 18 B-13-0649 & B-13-0650

EARLY STEEL FOR PHASE 2 RECSTE DANE COUNTY

STATE PROJECT NUMBER

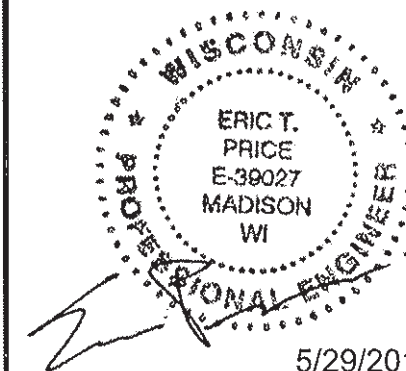
1206-07-86



END PROJECT
STA. 983+87.65 VR
Y: 801,686.56
X: 467,877.58

BEGIN PROJECT
STA. 980+60.66 VR
Y: 801,447.13
X: 467,654.89

ORIGINAL PLANS PREPARED BY:

AECOM

5/29/2013

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	KL Engineering, Inc.
Designer	AECOM
Project Manager	Mark Vesperman
Regional Examiner	
Regional Supervisor	
C.O. Examiner	

APPROVED FOR THE DEPARTMENT

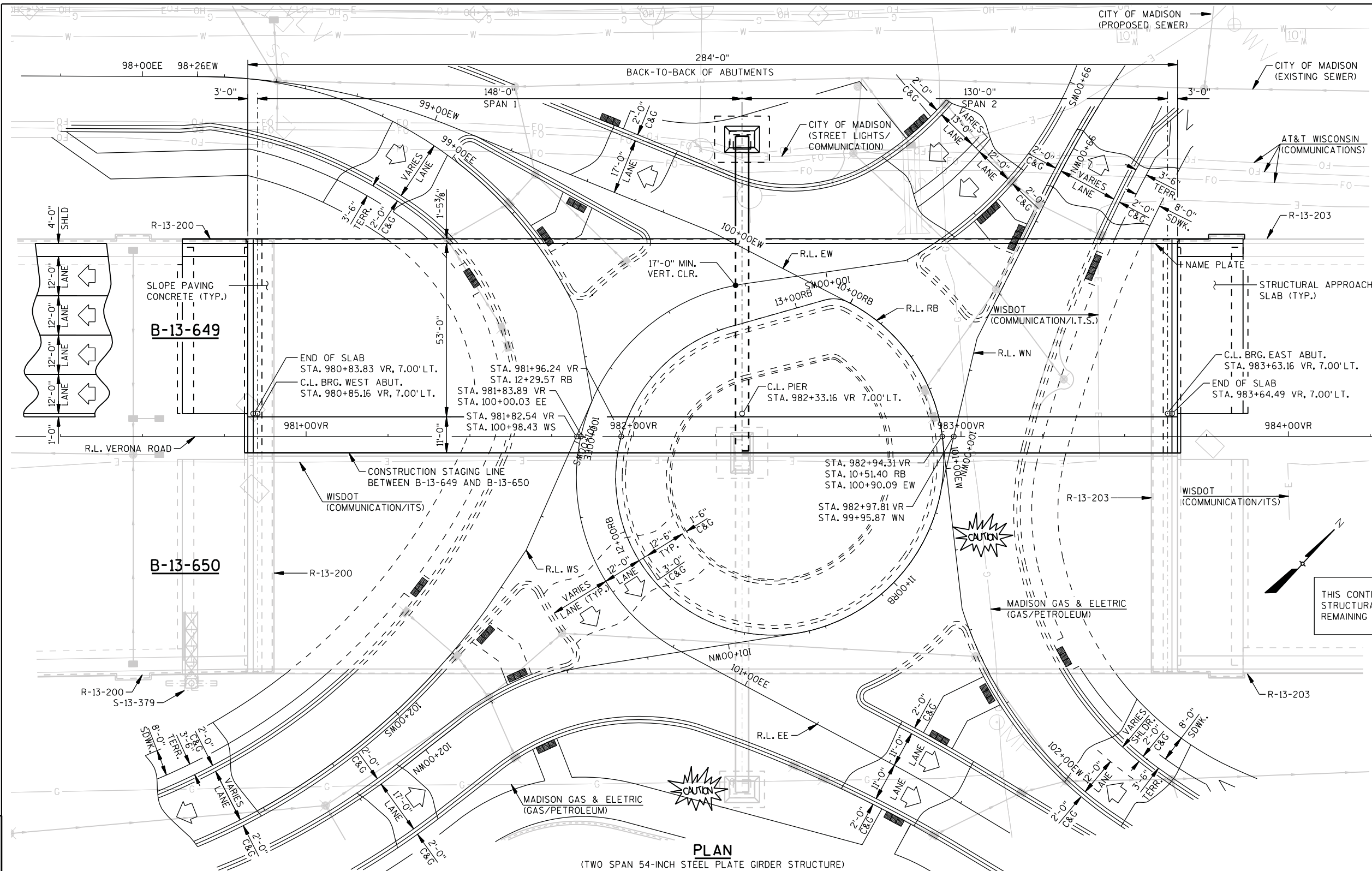
DATE: 5/29/13 John J. Stene
(Signature)

F

DATE 21JUN13			E S T I M A T E O F Q U A N T I T I E S		
LINE			1206-07-86		
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	108.4400	CPM PROGRESS SCHEDULE	EACH	2.000	2.000
0020	517.0600	PAINTING EPOXY SYSTEM (STRUCTURE) 01. B-13-649	LS	1.000	1.000
0030	517.0600	PAINTING EPOXY SYSTEM (STRUCTURE) 02. B-13-650	LS	1.000	1.000
0040	SPV.0060	SPECIAL 01. FABRICATED BEARINGS HIGH-LOAD MULTI-ROTATIONAL FIXED	EACH	2.000	2.000
0050	SPV.0060	SPECIAL 02. FABRICATED BEARINGS HIGH-LOAD MULTI-ROTATIONAL GUIDED	EACH	2.000	2.000
0060	SPV.0060	SPECIAL 03. FABRICATED BEARING ASSEMBLIES EXPANSION STRUCTURE B-13-649	EACH	16.000	16.000
0070	SPV.0060	SPECIAL 04. FABRICATED BEARING ASSEMBLIES EXPANSION STRUCTURE B-13-650	EACH	16.000	16.000
0080	SPV.0060	SPECIAL 05. JUNCTION BOXES, 4X4X4-INCH	EACH	9.000	9.000
0090	SPV.0085	SPECIAL 01. FABRICATED STRUCTURAL STEEL CARBON	LB	307,300.000	307,300.000
0100	SPV.0085	SPECIAL 02. FABRICATED STRUCTURAL STEEL HS	LB	1,684,200.000	1,684,200.000

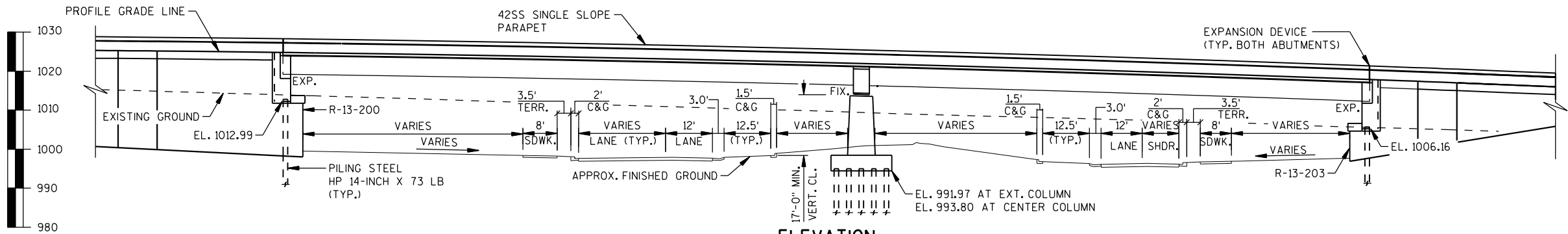
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BATCH PRINT SHEET 1 OF 15

8



PLAN

(TWO SPAN 54-INCH STEEL PLATE GIRDER STRUCTURE)



ELEVATION

(NORMAL TO VERONA ROAD)

STATE PROJECT NUMBER

1206-07-86

LIST OF DRAWINGS

1. GENERAL PLAN
2. GENERAL NOTES & DESIGN DATA
3. CROSS SECTION & QUANTITIES
4. PROFILE GRADE LINES
5. BEARING DETAILS AT ABUTMENTS
6. BEARING DETAILS AT STRADDLE BENT
7. STRADDLE BENT DETAILS-1
8. STRADDLE BENT DETAILS-2
9. STRADDLE BENT DETAILS-3
10. FRAMING PLAN
11. GIRDER ELEVATION
12. GIRDER FIELD SPICE DETAILS
13. GIRDER DETAILS
14. CAMBER AND BLOCKING DIAGRAMS
15. DEADLOAD DEFLECTIONS



6/19/2013

THIS CONTRACT INCLUDES THE FABRICATION AND DELIVERY OF STRUCTURAL STEEL AND BEARINGS ONLY TO THE BRIDGE SITE. REMAINING WORK TO BE LET UNDER SEPARATE CONTRACT.

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
BILL DREHER (608) 266-8489
CONSULTANT:
ERIC PRICE (608) 828-8181
SW REGION:
MARK VESPERMAN (608) 246-7548

NO.	DATE	REVISION	BY

AECOM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *William C. Dreher* KAR **06/20/13**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-13-649

WB USH 18/151 OVER VERONA ROAD FRONTAGE ROAD
COUNTY DANE TOWN/CITY/VILLAGE MADISON

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
DESIGNED BY MSK DESIGN CK'D. CHY DRAWN BY MJK PLANS CK'D. MSK

GENERAL PLAN

SHEET 1 OF 15

8

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GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE. ALL STATIONS AND ELEVATIONS ARE IN FEET.

ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).

ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER FRICTION TYPE A325 HIGH STRENGTH BOLTS UNLESS OTHERWISE SHOWN OR NOTED.

STRUCTURAL STEEL

SOME MEMBERS REQUIRE FABRICATION AND TESTING IN ACCORDANCE WITH REQUIREMENTS FOR FRACTURE CRITICAL MEMBERS (FCM). SEE SHEETS 7-9 FOR SPECIFIC MEMBERS.

CHARPY V-NOTCH TOUGHNESS REQUIREMENTS FOR ALL STEEL SHALL CONFORM TO THE REQUIREMENTS FOR ZONE 2.

ALL WELDING SHALL BE IN ACCORDANCE WITH AASHTO D1.5 BRIDGE WELDING CODE.

SEE "GIRDER DETAILS" SHEET FOR TABLE OF MINIMUM FILLET WELD SIZES. USE THESE SIZES AT ALL LOCATIONS WHERE A SPECIFIC WELD SIZE IS NOT OTHERWISE INDICATED.

BEARING AND EXPANSION JOINT ASSEMBLIES SHALL BE FABRICATED FROM ASTM A709 GRADE 50 MATERIAL (Fy=50 KSI) AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (AASHTO M11).

ANCHOR BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM F1554, GRADE 105. HOT-DIP GALVANIZE IN ACCORDANCE WITH ASTM A153 (AASHTO M232).

ALL BOLTS SHALL BE ASTM A325 TYPE 3. BOLTS SHALL BE 7/8" DIAMETER UNLESS NOTED OTHERWISE. ALL HOLES SHALL BE STANDARD DIAMETER - NO OVERSIZED HOLES. ALL CONNECTIONS SHALL BE FABRICATED AND ASSEMBLED AS SLIP-CRITICAL CONNECTIONS. DESIGN ASSUMED A CLASS B SURFACE .

ITEM " PAINTING SYSTEM EPOXY B-13-649" INCLUDES THE SHOP PAINTING OF ALL STEEL. PAINT ALL STEEL SURFACES, WITH THE EXCEPTION OF THE INSIDE OF THE STRADDLE BENT, COLOR NO. 20059 IN ACCORDANCE WITH FEDERAL STANDARD 595B. STRADDLE BENT INTERIOR SURFACES SHALL BE PAINTED COLOR NO. 27925 (WHITE)

CAMBER DIAGRAMS HAVE BEEN DEVELOPED ASSUMING A CONSTANT 2 1/4" HAUNCH HEIGHT, MEASURED FROM THE TOP OF THE TOP FLANGE TO THE UNDERSIDE OF THE DECK. ANY ADDITIONAL QUANTITIES REQUIRED AS A RESULT OF VARIATION IN THE HAUNCH HEIGHT ARE ASSUMED TO BE INCIDENTAL TO OTHER PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY. THIS INCLUDES ADDITIONAL CONCRETE IN THE HAUNCH, ADDITIONAL OR MORE COMPLICATED FORMWORK, EXTRA SHEAR STUD LENGTH AND ANY REQUIRED REINFORCEMENT IN THE HAUNCH.

TEMPORARY SUPPORTS AND FALSEWORK (INCLUDING CANTILEVER BRACKETS) SHALL NOT BE ATTACHED TO, OR BEAR ON, GIRDER WEBS EXCEPT AT WEB STIFFENER LOCATIONS.

OPTIONAL WELDED SHOP SPLICES MAY BE USED FOR PLATES OVER 60'-0" LONG. IF USED, THE LOCATION OF THE SPLICE SHALL BE SHOWN ON SHOP DRAWINGS AND WILL BE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

DESIGN DATA

LIVELOAD
DESIGN RATING: HL-93
INVENTORY RATING FACTOR: 1.22
OPERATIONAL RATING FACTOR: 2.13
MAX STANDARD PERMIT VEHICLE LOAD: 250 KIPS
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

ULTIMATE DESIGN STRESSES
CONCRETE MASONRY - DECK _____ f'c = 4,000 PSI
- APPROACH SLAB _____ f'c = 4,000 PSI
- ABUTMENTS _____ f'c = 3,500 PSI
- EXTERIOR PIER _____ f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, _____
GRADE 60 _____ fy = 60,000 PSI
STRUCTURAL STEEL, _____
ASTM A709, GRADE 36 _____ fy = 36,000 PSI
HIGH STRENGTH STRUCTURAL STEEL, _____
ASTM A709, GR. 50 _____ fy = 50,000 PSI
ASTM A709, GRADE HPS 50W _____ fy = 50,000 PSI
USED FOR STRADDLE BENT WEBS AND GIRDER FLANGES
ASTM A709, GRADE HPS 70W _____ fy = 70,000 PSI
USED FOR STRADDLE BENT FLANGES AND GIRDER FLANGES

TRAFFIC DATA

EB VERONA ROAD WB VERONA ROAD
A.D.T. (2030) = 31,000 A.D.T. (2030) = 32,000
R.D.S. = 35 MPH R.D.S. = 35 MPH

ROUNDABOUT
A.D.T. (2030) = 17,500
R.D.S. = 15 MPH

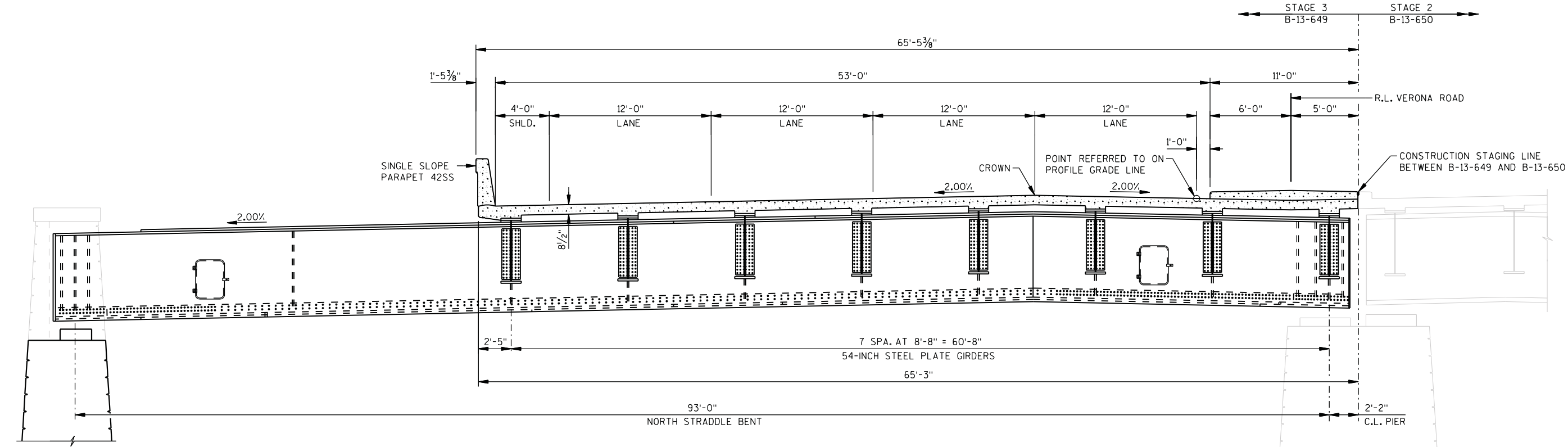
📍 BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
BM3	975+07VR	WISDOT DISK TOP OF CONC PARAPET 63' LT	1031.27
BM9	982+50VR	CHIS SQ TOC 368' RT	1010.03
BM18	980+15VR	RR SPIKE PPOL #20G7-B21 130' LT	1000.75

SEE ROADWAY PLANS FOR ADDITIONAL BENCH MARK LOCATIONS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
		DRAWN BY	MJK PLANS CK'D. MSK
GENERAL NOTES & DESIGN DATA			SHEET 2 OF 15

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CROSS SECTION THRU DECK
(LOOKING EAST)

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	WEST APPROACH	WEST ABUTMENT	PIER		EAST ABUTMENT	EAST APPROACH	SUPER.	TOTALS
					INTERIOR	EXTERIOR				
517.0600	PAINTING EPOXY SYSTEM B-13-649	LS	—	—	—	—	—	—	—	1
SPV.0060.01	FABRICATED BEARINGS HIGH-LOAD MULTI-ROTATIONAL FIXED	EACH	—	—	1	—	—	—	—	1
SPV.0060.02	FABRICATED BEARINGS HIGH-LOAD MULTI-ROTATIONAL GUIDED	EACH	—	—	—	1	—	—	—	1
SPV.0060.03	FABRICATED BEARING ASSEMBLIES EXPANSION STRUCTURE B-13-649	EACH	—	8	—	—	8	—	—	16
SPV.0060.05	JUNCTION BOXES, 4X4X4-INCH	EACH	—	—	—	—	—	—	4	4
SPV.0085.01	FABRICATED STRUCTURAL STEEL CARBON	LB	—	—	—	—	—	—	152,800	152,800
SPV.0085.02	FABRICATED STRUCTURAL STEEL HS	LB	—	—	—	—	—	—	836,600	836,600

QUANTITY NOTES

THIS CONTRACT INCLUDES THE FABRICATION AND DELIVERY OF STRUCTURAL STEEL AND BEARINGS ONLY TO THE BRIDGE SITE. REMAINING WORK TO BE LET UNDER SEPARATE CONTRACT.

STATE PROJECT NUMBER

1206-07-86

STAGE 3
B-13-649

STAGE 2
B-13-650

R.L. VERONA ROAD

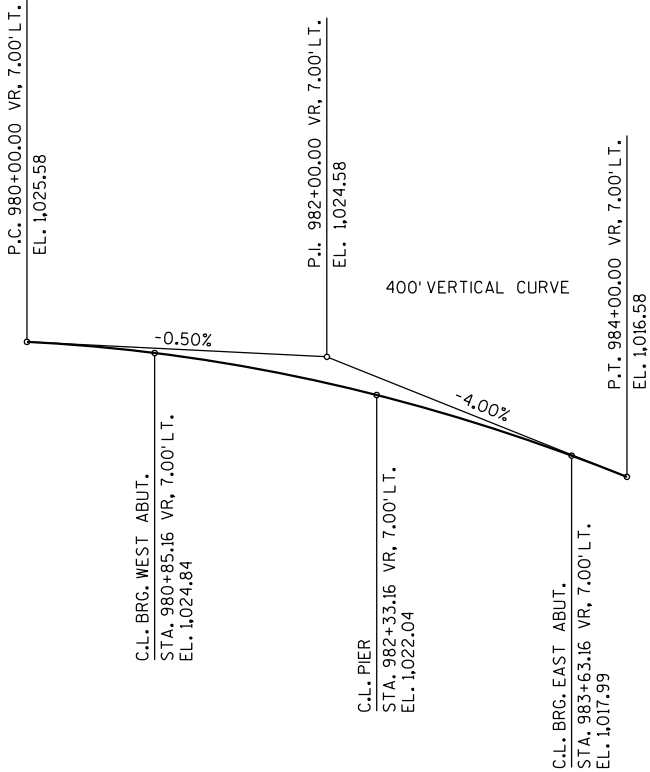
CONSTRUCTION STAGING LINE
BETWEEN B-13-649 AND B-13-650

2'-2"
C.L. PIER

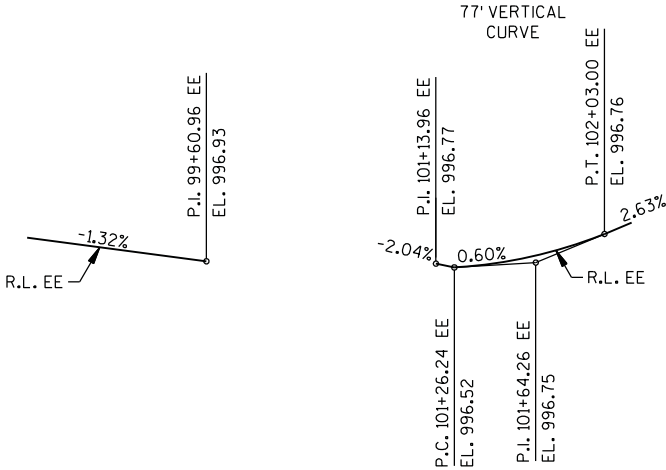
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
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CROSS SECTION & QUANTITIES		SHEET 3 OF 15	

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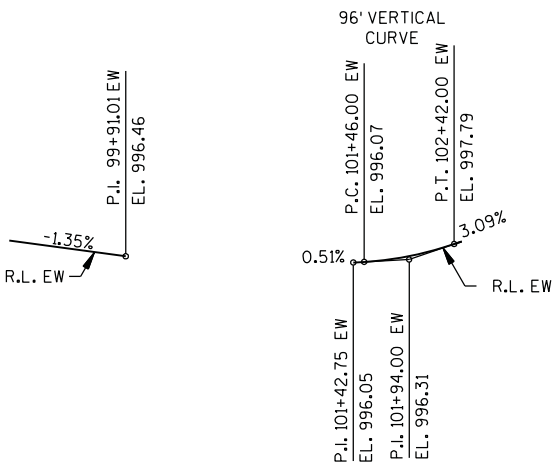
PROFILE GRADE LINE, WB VERONA ROAD



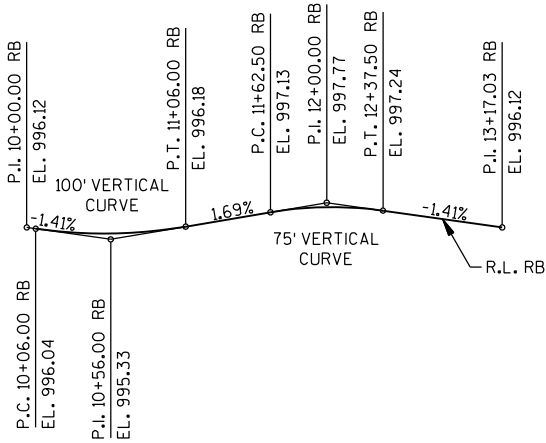
PROFILE GRADE LINE EE ALIGNMENT



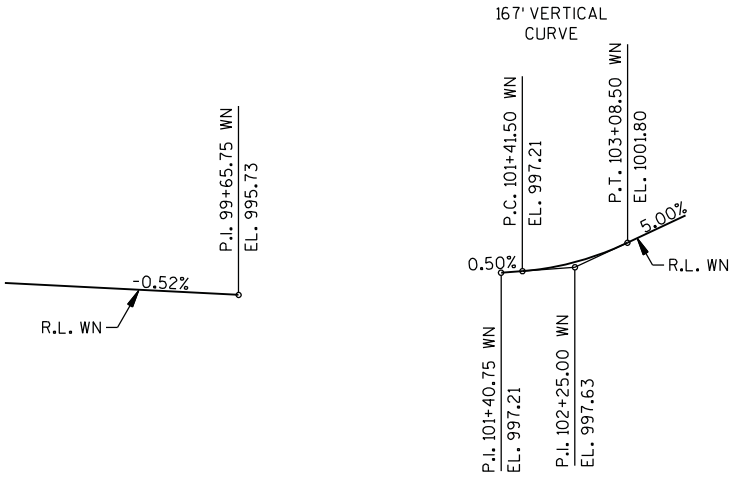
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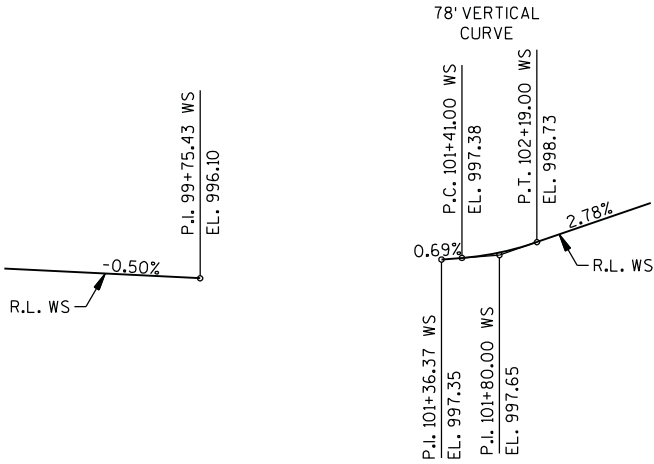
PROFILE GRADE LINE ROUNDABOUT



PROFILE GRADE LINE WN ALIGNMENT

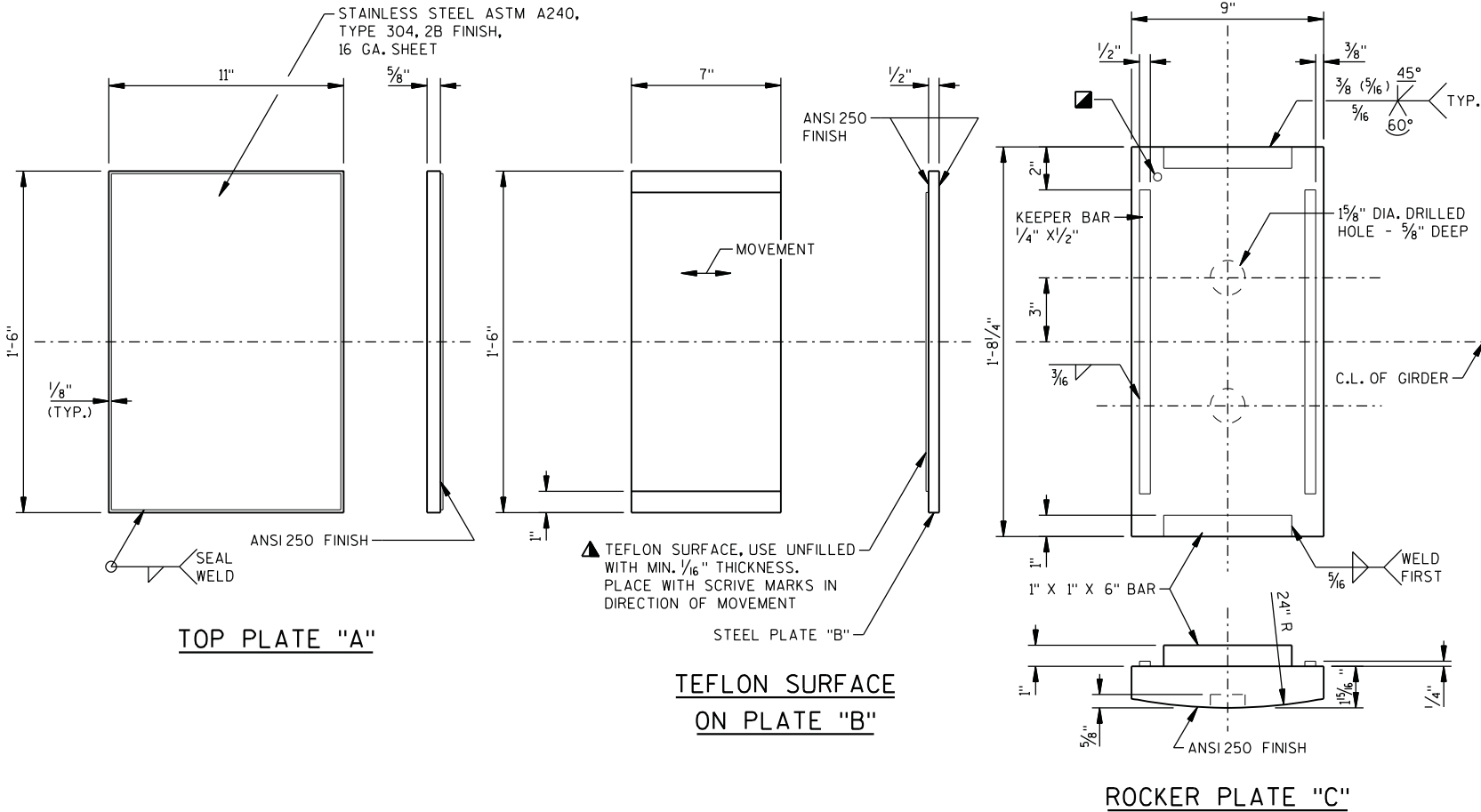


PROFILE GRADE LINE WS ALIGNMENT

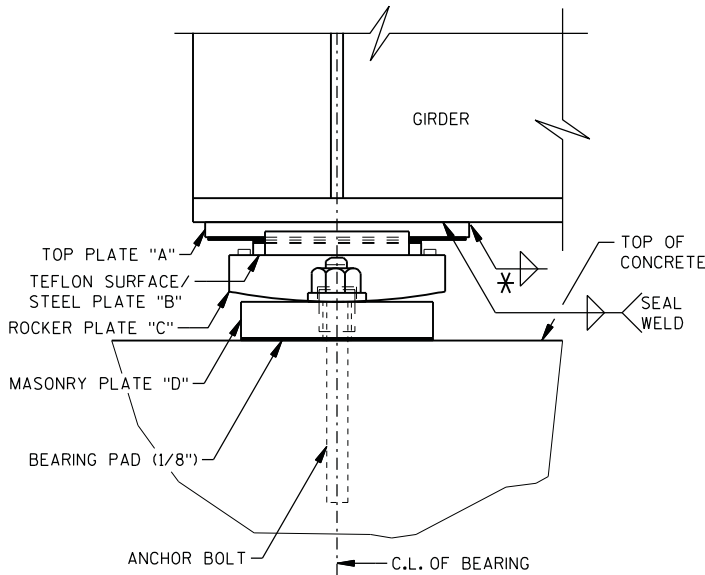


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
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PROFILE GRADE LINES		SHEET 4 OF 15	

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 BATCH PRINT SHEET 5 OF 15



EXPANSION BEARING



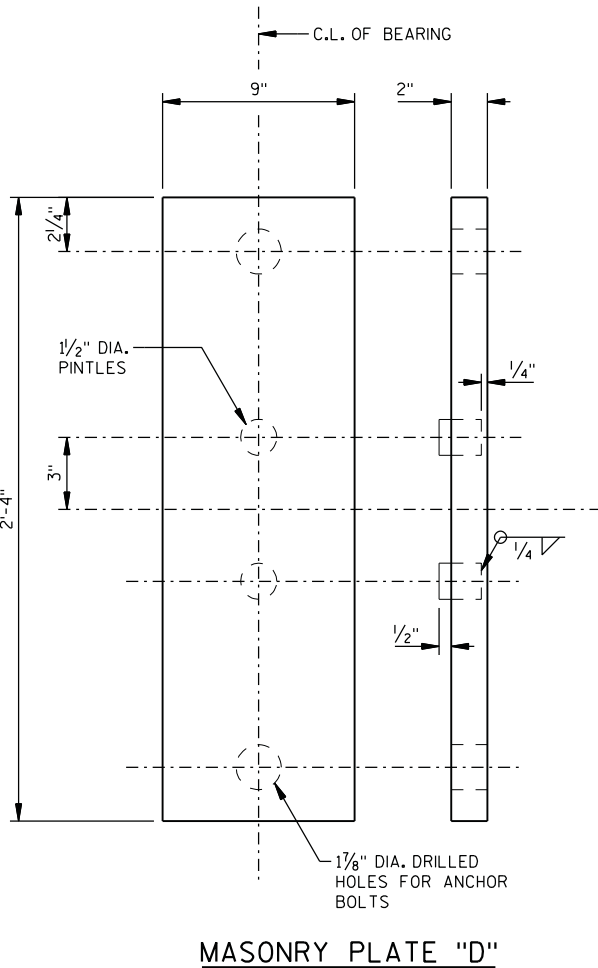
EXPANSION BEARING ASSEMBLY

* TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"
OVER 2 1/4" TO 6"	1/2"

EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

MIN. PASS SIZE IS 5/16"



MASONRY PLATE "D"

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT C.L. OF GIRDER AND C.L. OF BEARING.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-10" FOR 1 1/2" DIA. BOLTS. PROJECT ANCHOR BOLTS 4 1/4" ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, BUT EXCLUDING ANCHOR BOLTS, STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "FABRICATED BEARING ASSEMBLIES EXPANSION STRUCTURE B-13-649".

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED. DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING FEDERAL SPECIFICATION MMM-A-134, FEP FILM OR EQUAL.

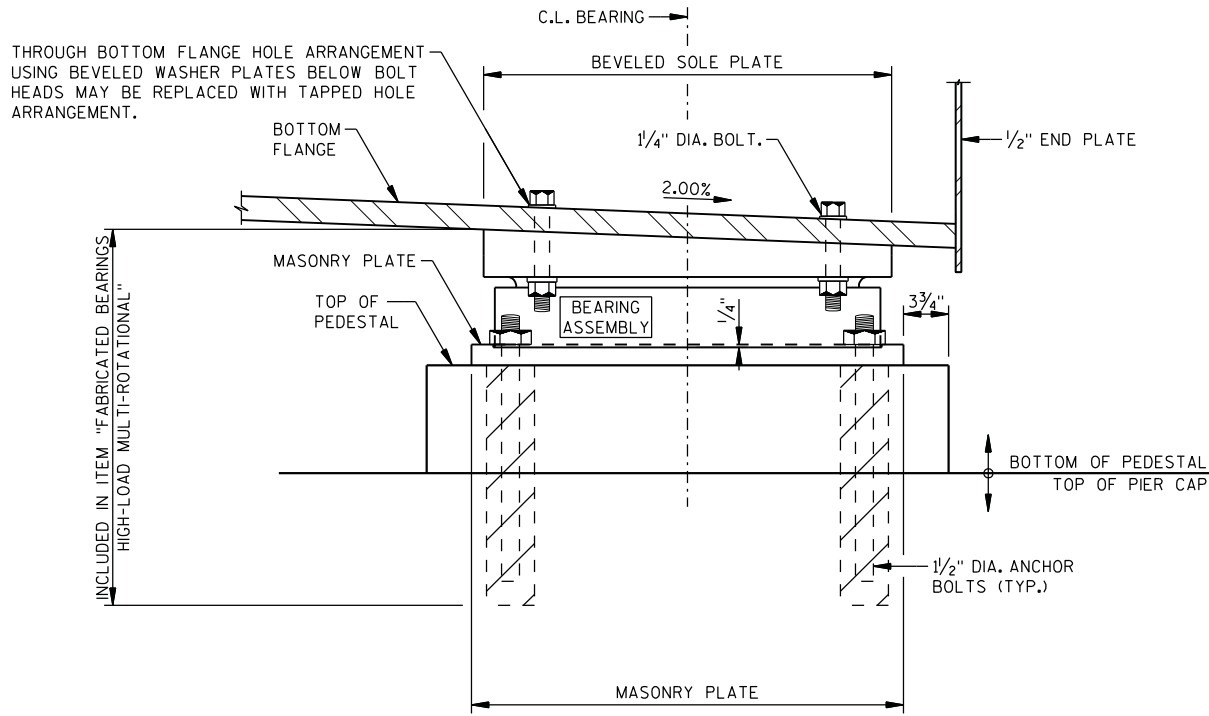
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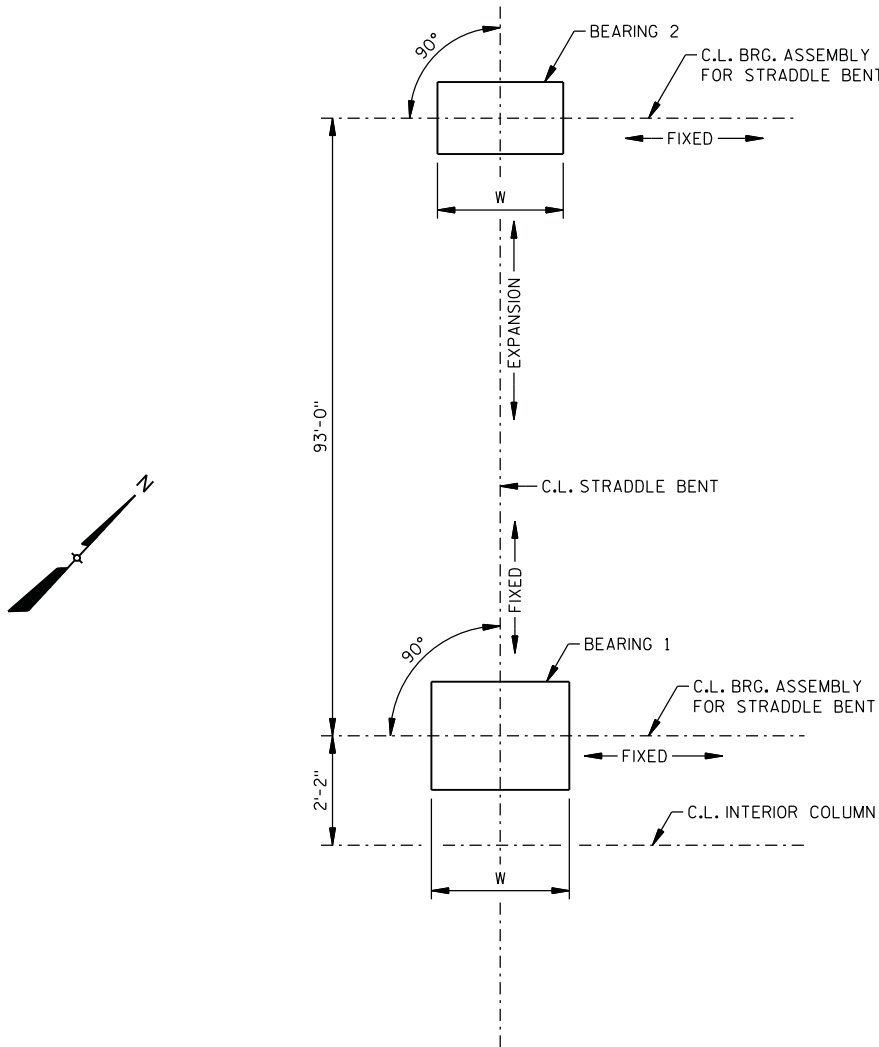
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
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BEARING DETAILS AT ABUTMENTS		SHEET 5 OF 15	

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BATCH PRINT SHEET 6 OF 15



ELEVATION
 BEARING 1 SHOWN, BEARING 2 SIMILAR



STRADDLE BENT BEARING ASSEMBLY TYPES AND ORIENTATION

STATE PROJECT NUMBER

1206-07-86

STRADDLE BENT BEARING ASSEMBLY DATA											
BEARING	BEARING TYPE	VERTICAL FORCES				HORIZONTAL FORCES				THERMAL TRANSLATION (INCHES)	
		SERVICE DEAD (KIPS)	SERVICE TOTAL (KIPS)	STRENGTH DEAD (KIPS)	STRENGTH TOTAL (KIPS)	SERVICE TRANS (KIPS)	SERVICE LONG (KIPS)	STRENGTH TRANS (KIPS)	STRENGTH LONG (KIPS)	LONGITUDINAL	ALONG STRADDLE BENT
1	HLMF	1,635	2,215	2,075	3,090	120	65	150	80	▲ 0	0.00
2	HLMG	845	1,155	1,070	1,615	120	65	150	80	▲ 0	1.31

BEARING NOTES

ALL STRADDLE BENT BEARINGS SHALL BE HIGH LOAD MULTI-ROTATIONAL BEARINGS MEETING THE REQUIREMENTS OF AASHTO LRFD 6TH EDITION AND THE MINIMUM PERFORMANCE REQUIREMENTS LISTED ABOVE.

BEARINGS MUST HAVE A LATERAL CAPACITY OF AT LEAST 15% OF THE VERTICAL DESIGN LOAD AT THE SERVICE LIMIT STATE.

DIMENSION "W" FOR THE SOLE PLATE OF THE BEARING SHALL BE 34" MAX. FOR BEARING 1 AND 30" MAX FOR BEARING 2. BEVELED SOLE PLATE SHALL BE BEVELED TO ACCOUNT FOR THE STRADDLE BENT SLOPE.

▲ LONGITUDINAL THERMAL TRANSLATION AT PIER IS ACCOMODATED BY TOP OF COLUMN DISPLACEMENT.

HOLES IN MASONRY PLATE SHALL BE A MAXIMUM OF 1/8" LARGER THAN THE SPECIFIED ANCHOR BOLT DIAMETER.

ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH ASTM F1554 (GRADE 105) AND HOT DIP GALVANIZED IN ACCORDANCE WITH AASHTO M232.

BEARINGS SHALL BE DESIGNED TO PERMIT REPLACEMENT BY JACKING THE BRIDGE A MAXIMUM OF 1/4".

BEARING DIMENSIONS SHOWN MAY VARY WITH THE SELECTED MANUFACTURER. MAKE ALL NECESSARY ADJUSTMENTS TO DIMENSIONS AND ELEVATIONS AS REQUIRED TO INCORPORATE THE SPECIFIC BEARINGS SELECTED.

FORCES SPECIFIED ARE MAXIMUM EFFECTS FOR LRFD LOAD COMBINATIONS, INCLUDING DYNAMIC LOAD ALLOWANCE.

DESIGN BOLTED CONNECTION BETWEEN SOLE PLATE AND STRADDLE BENT BOTTOM FLANGE FOR A MINIMUM OF 1.25 TIMES THE COMBINED SPECIFIED HORIZONTAL LOADS.

ARRANGE CONNECTION TO ENSURE ALL BOLTS CAN BE REMOVED WITHOUT INTERFERENCE FROM ANCHOR BOLTS OR OTHER OBSTRUCTIONS AFTER BEARING IS INSTALLED.

BEARING MANUFACTURER SHALL COORDINATE SOLE PLATE HOLE LAYOUT WITH STEEL FABRICATOR BEFORE FABRICATION.

BEARING TYPES

HLMF-HIGH LOAD MULTI-ROTATIONAL FIXED

HLMG-HIGH LOAD MULTI-ROTATIONAL GUIDED

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CK'D. MSK
BEARING DETAILS AT STRADDLE BENT			SHEET 6 OF 15



SEE BOX DETAIL ON SHEET 8
FOR FABRICATION DETAILS

TOTAL STRADDLE BENT DEAD LOAD DEFLECTION IS DUE TO PLATE GIRDERS, CONCRETE DECK, HAUNCHES, MEDIAN, BARRIER, AND SELF WEIGHT OF STEEL.

FOR FIELD SPLICES 2 & 3 DETAILS SEE SHEET 12.

CONDUIT RIGID METALLIC 1-INCH AND THROUGH-BULKHEAD FITTINGS WILL BE INSTALLED IN A SEPARATE CONTRACT.

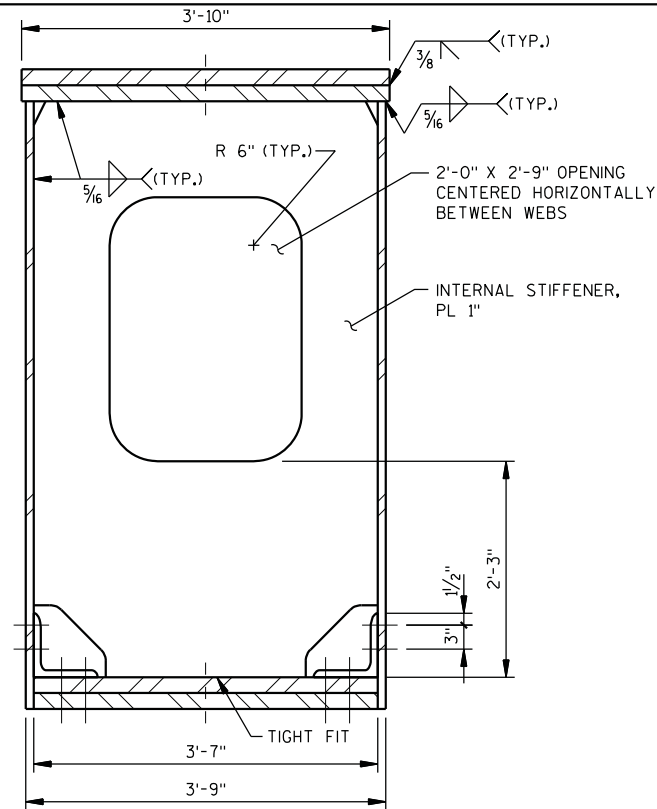
	S1	S2	G1	G2	G3	G4	G5	G6	G7	G8
SELF WEIGHT	0.05	0.12	0.17	0.19	0.19	0.18	0.15	0.11	0.06	0.00
PLATE GIRDERS	0.14	0.32	0.46	0.52	0.53	0.50	0.42	0.31	0.16	0.00
CONCRETE	0.43	1.02	1.46	1.64	1.68	1.57	1.33	0.97	0.51	0.00
TOTAL	0.61	1.46	2.10	2.35	2.40	2.25	1.90	1.38	0.73	0.00

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		BRD	PLANS CK'D. ET
STRADDLE BENT DETAILS-1			SHEET 7 OF 1

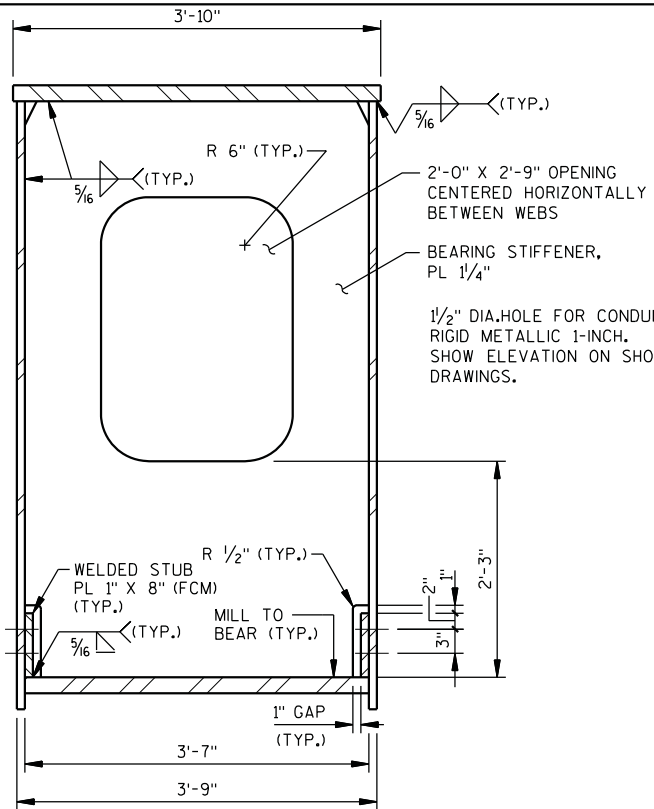
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BATCH PRINT SHEET 8 OF 15

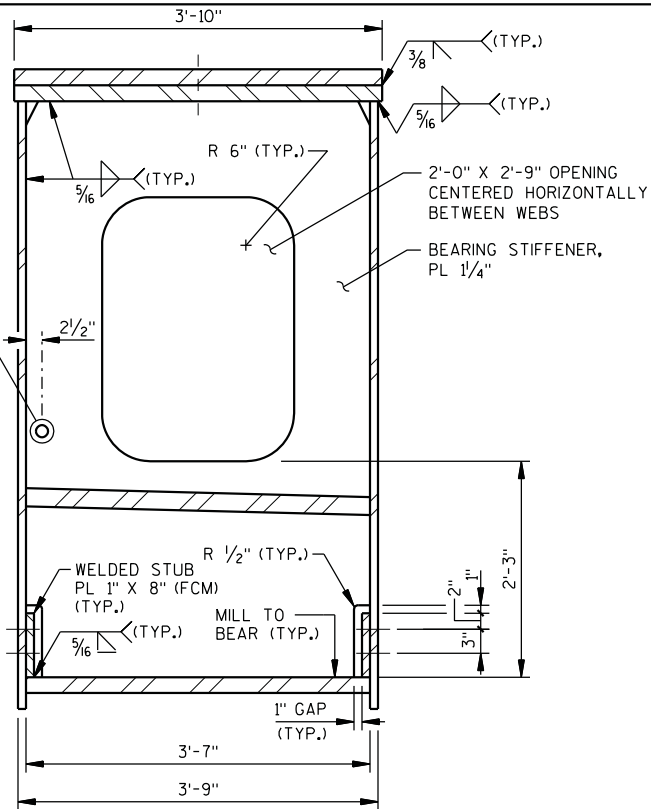
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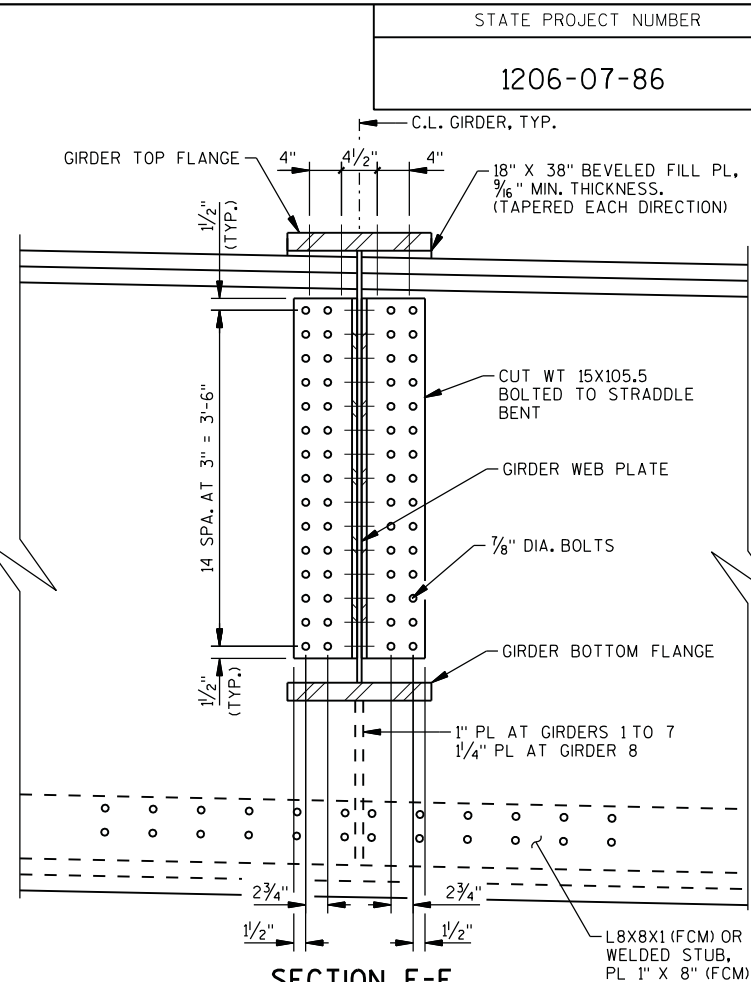
SECTION B-B
INTERNAL STIFFENER
(SECTION THRU STRADDLE BENT)



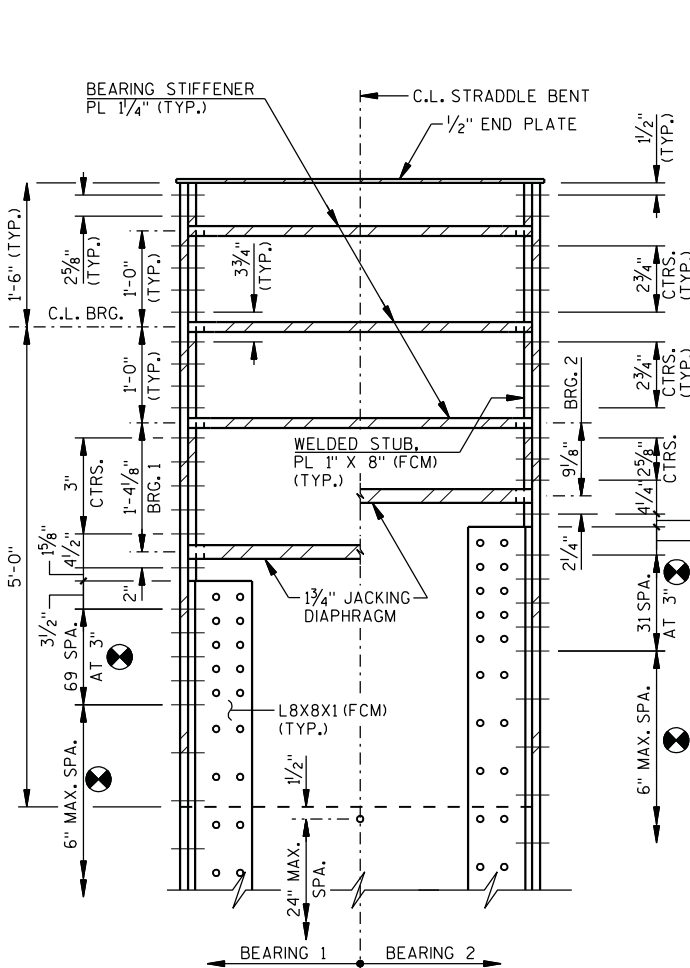
SECTION C-C
BEARING STIFFENER AT BEARING 2
(SECTION THRU BEARING)



SECTION D-D
BEARING STIFFENER AT GIRDER 8
(SECTION THRU BEARING)

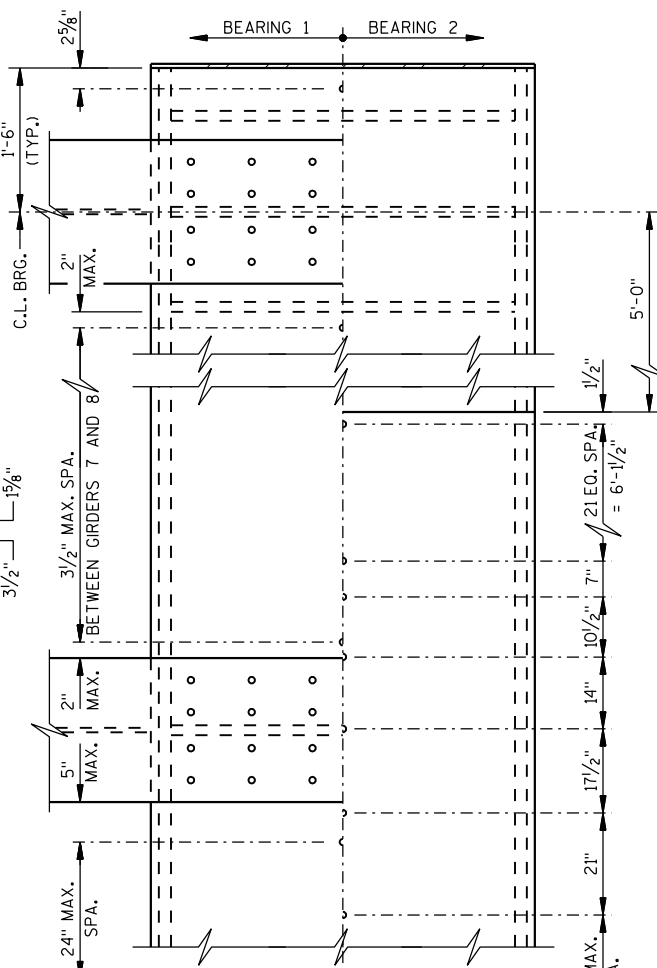


SEE GIRDER ELEVATION SHEETS FOR GIRDER PLATE SIZES.
SEE SECTION AT BEARINGS FOR BOLT SPACING.



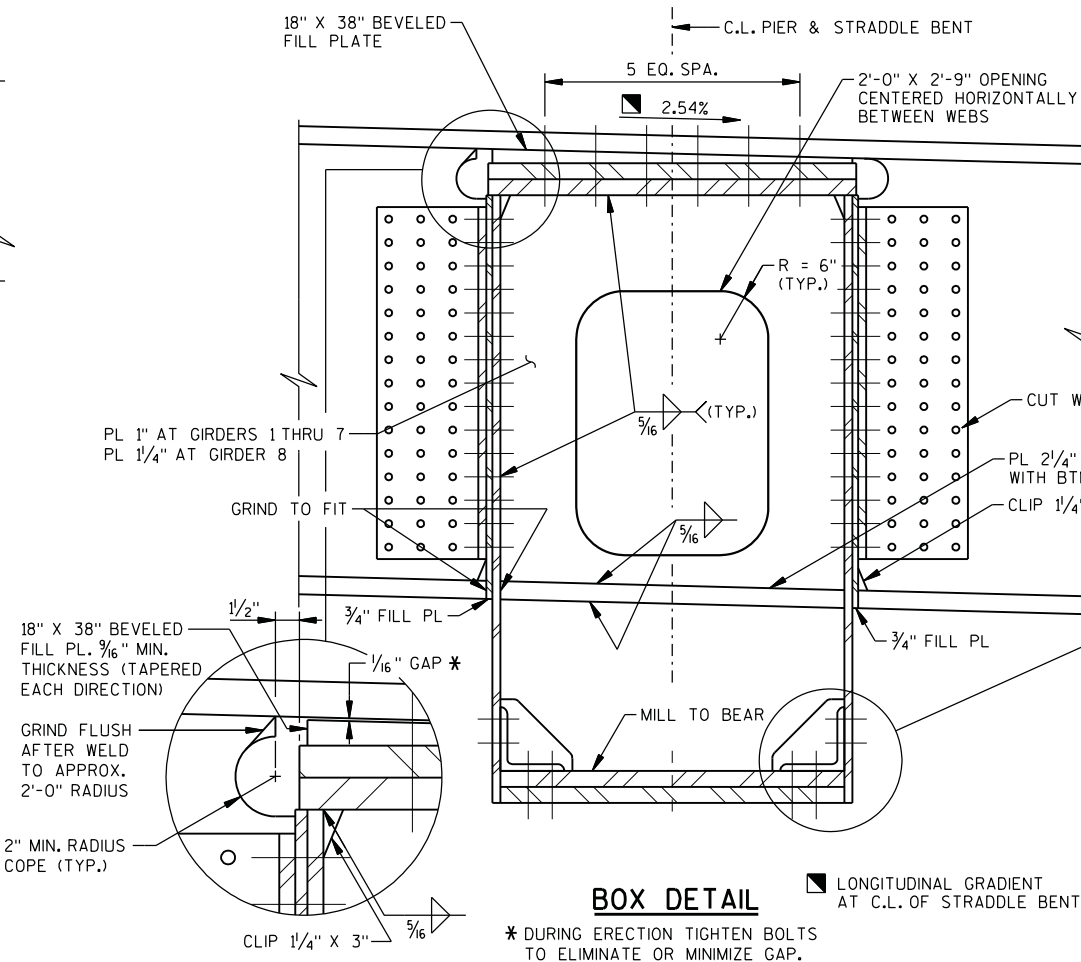
BTM. FLANGE AT BEARINGS

BOTH ENDS OF STRADDLE BENT SHOWN
TYPICAL AT HORIZONTAL AND VERTICAL LEGS OF ANGLE



TOP FLANGE AT BEARINGS

BOTH ENDS OF STRADDLE BENT SHOWN



BOX DETAIL

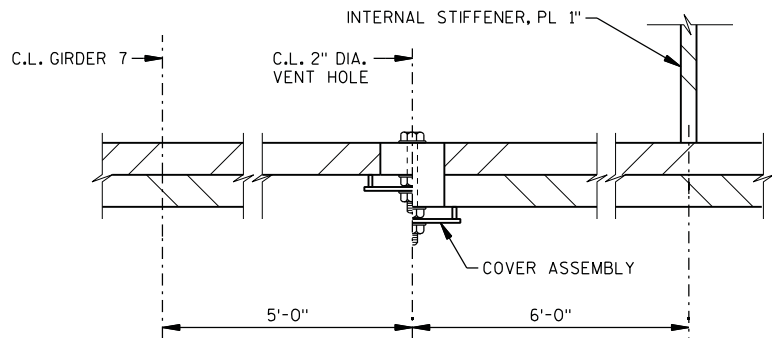
LONGITUDINAL GRADIENT
AT C.L. OF STRADDLE BENT

* DURING ERECTION TIGHTEN BOLTS
TO ELIMINATE OR MINIMIZE GAP.

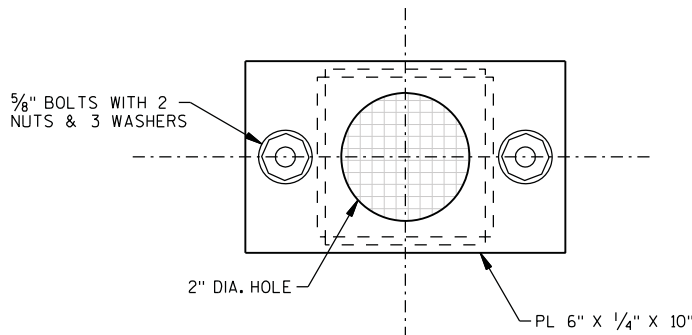
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CKD. ETP
STRADDLE BENT DETAILS-2			SHEET 8 OF 15

8

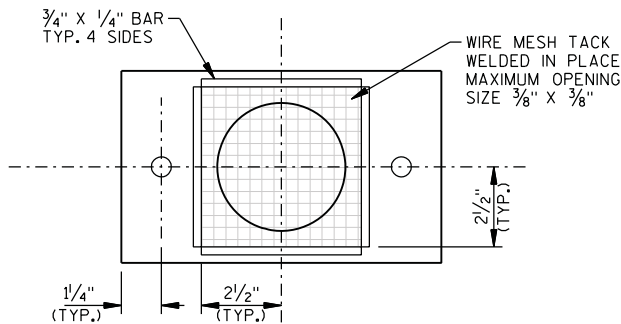
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VENT HOLE LOCATION



FRONT FACE OF COVER



BACK FACE OF COVER

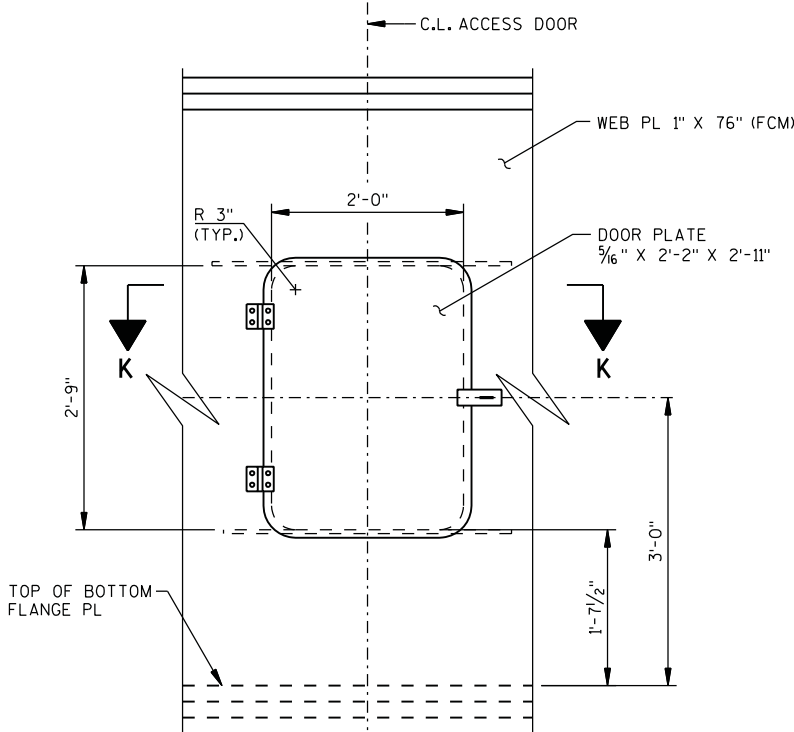
VENT HOLE COVER ASSEMBLY

NOT TO SCALE

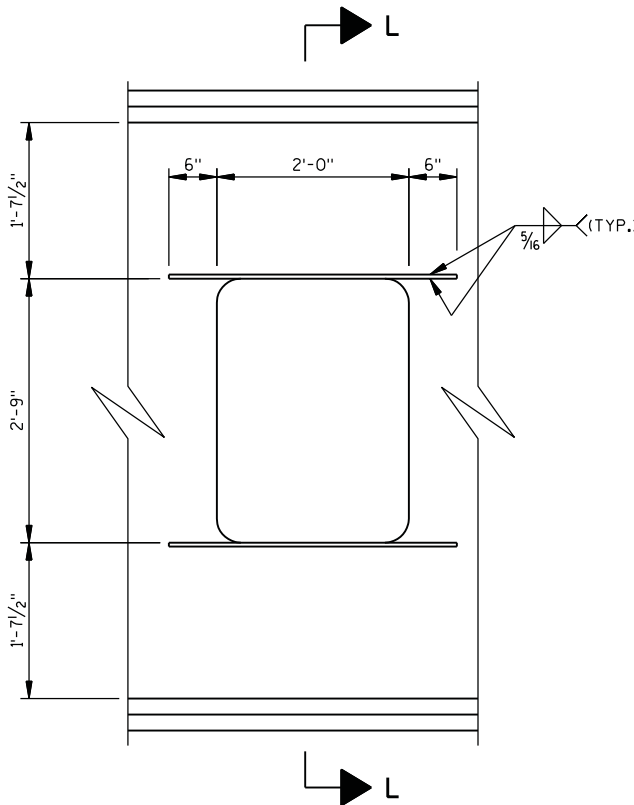
NOTES

VENT HOLE COVER ASSEMBLY SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION AND PAINTED TO MATCH EXTERIOR COLOR OF BENT.

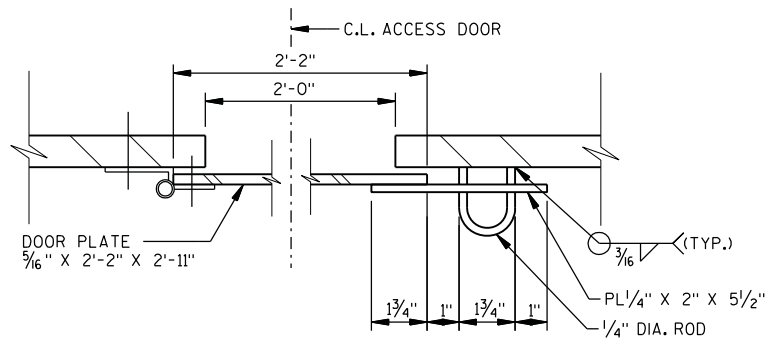
STRUCTURAL STEEL FOR STRADDLE BENT FLANGES TO BE HIGH STRENGTH STRUCTURAL STEEL, ASTM A709 GRADE HPS 70W. STRUCTURAL STEEL FOR STRADDLE BENT WEBS, STIFFENERS, AND CONNECTION PLATES TO BE HIGH STRENGTH STRUCTURAL STEEL, ASTM A709 GRADE HPS 50W. CONNECTION ANGLES, END PLATES AND ACCESS DOORS MAY BE ASTM A709 GRADE 50.



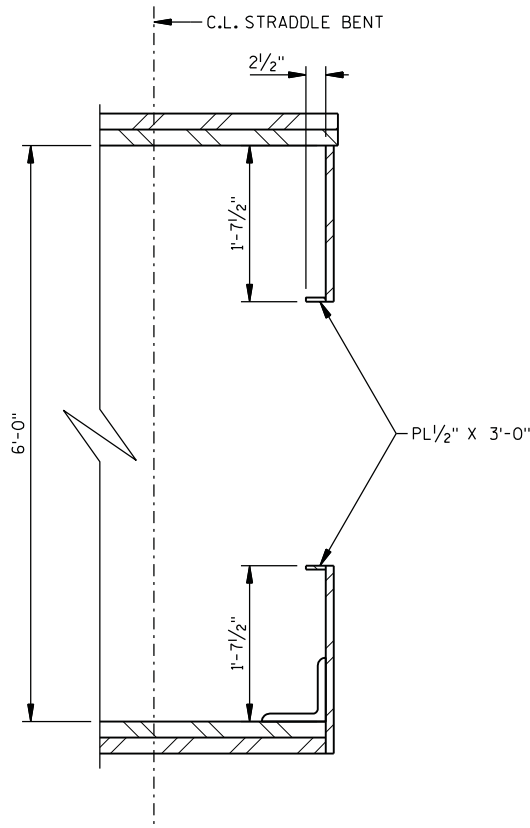
ACCESS DOOR DETAIL



ACCESS DOOR REINFORCEMENT



SECTION K-K

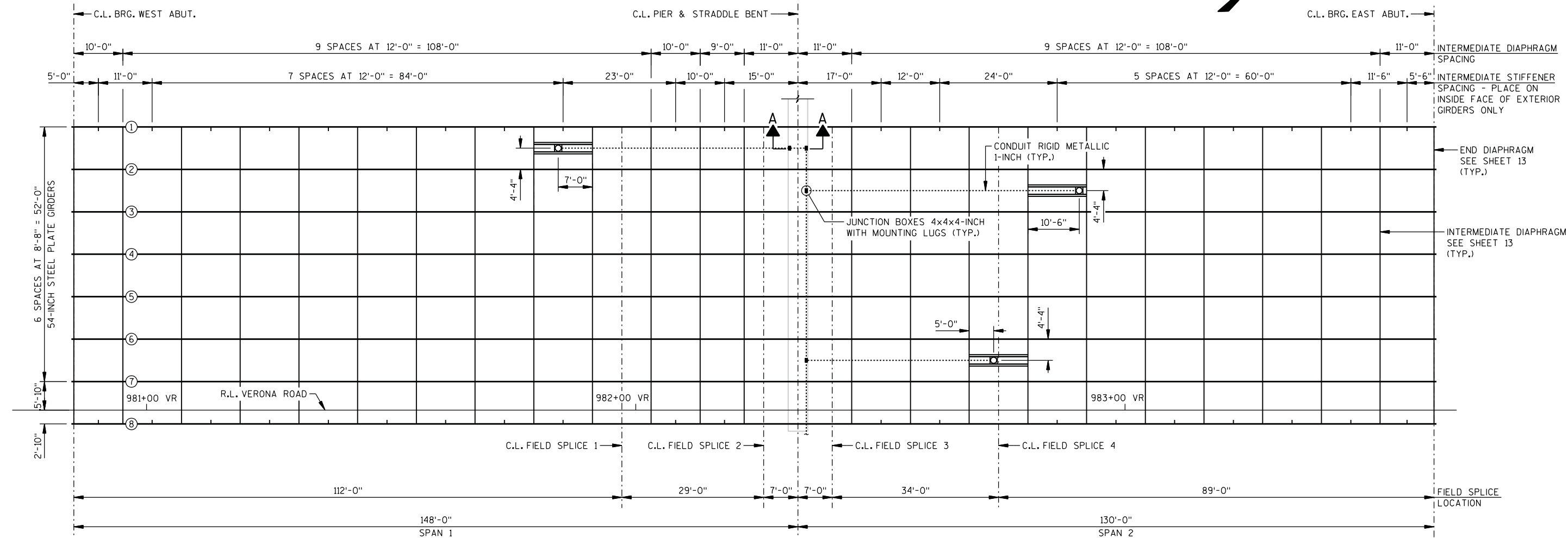


SECTION L-L

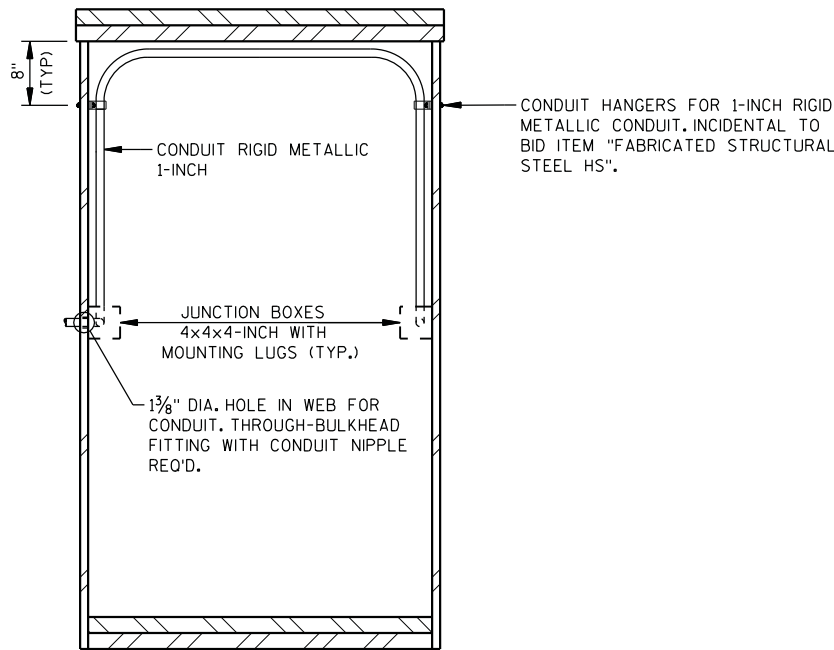
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		BRD	PLANS CK'D. ETP
STRADDLE BENT DETAILS-3			SHEET 9 OF 15

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PLOT DATE: 6/19/2013
PLOT TIME: 22:28:14 PM
BATCH PRINT SHEET 10 OF 15

8



FRAMING PLAN



SECTION A-A

LIGHTING NOTES & LEGEND

CONDUIT SHALL EXIT THROUGH STRADDLE BENT WEB AT TOP OF DIAPHRAGM BOTTOM CHORD ELEVATION, SEE SHEET 13.

MOUNTING HOLES FOR CLAMPS AND JUNCTION BOXES SHALL BE SHOP DRILLED.

☐ LIGHTING FIXTURE, SEE SHEET 13 FOR CONNECTION DETAILS.

CONDUIT RIGID METALLIC 1-INCH AND THROUGH-BULKHEAD FITTINGS WILL BE INSTALLED IN A SEPARATE CONTRACT.

FRAMING NOTES

ALL DIAPHRAGMS TO BE ASTM A709 GRADE 36.

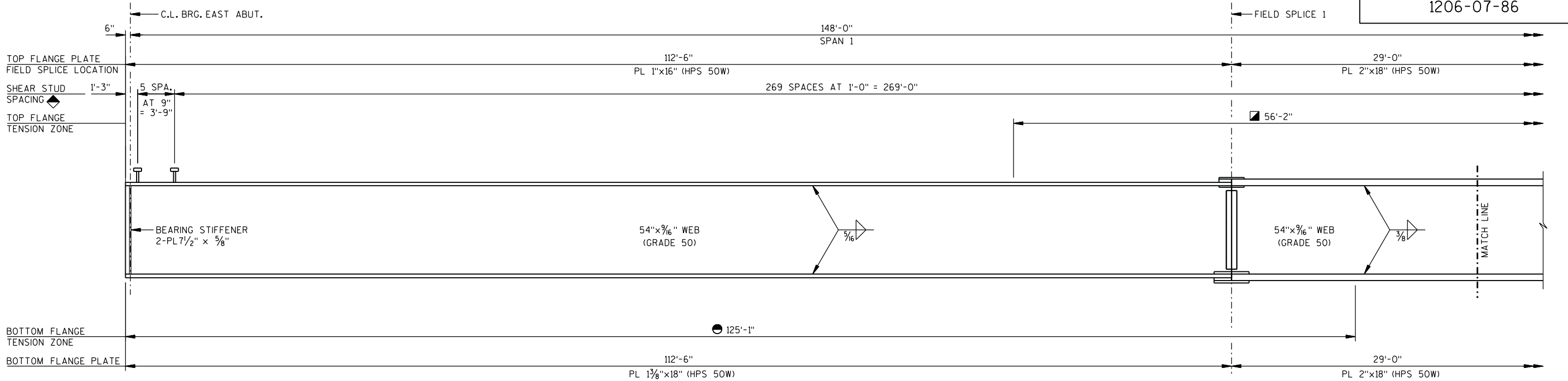
ALL CONNECTIONS TO BE MADE WITH 7/8" DIAMETER FRICTION TYPE HIGH TENSILE STRENGTH BOLTS (ASTM A325)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CK'D. MSK
FRAMING PLAN		SHEET 10 OF 15	

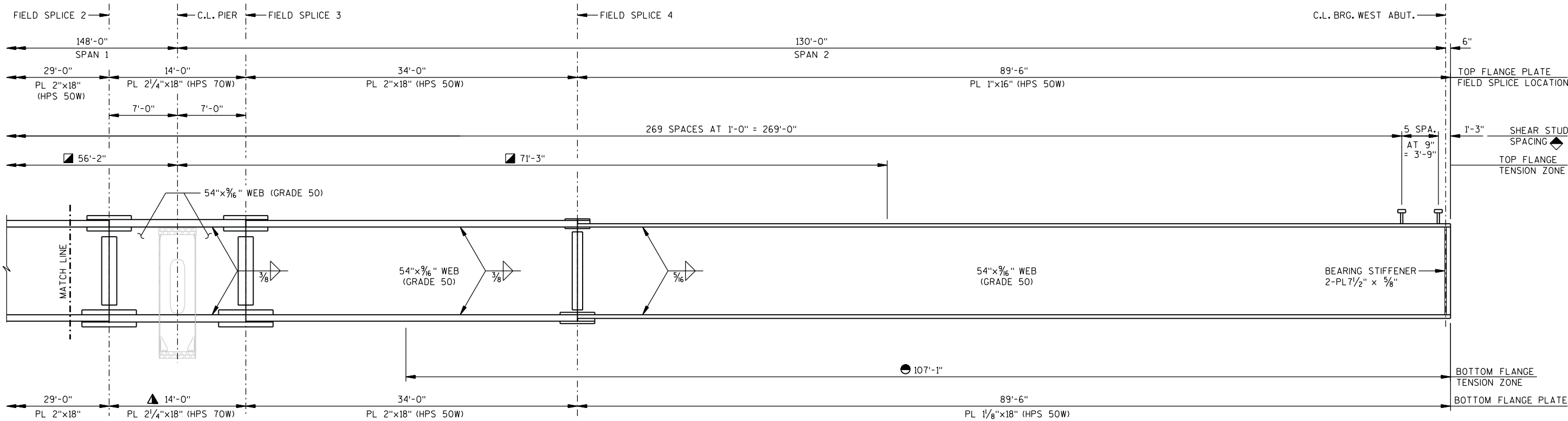
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BATCH PRINT SHEET 11 OF 15

8



GIRDER ELEVATION
(TYP. ALL GIRDERS)



GIRDER ELEVATION
(TYP. ALL GIRDERS)

NOTES

- NO FIELD WELDING TO BOTTOM FLANGE PERMITTED IN THIS AREA.
- NO FIELD WELDING TO TOP FLANGE PERMITTED IN THIS AREA, EXCEPT FOR SHEAR STUD CONNECTOR.
- SEE STRADDLE BENT DETAILS TO DETERMINE LENGTH OF WEB PLATE AND BOTTOM FLANGE PLATE REQUIRED IN THIS AREA. PLATE LENGTHS ARE INTERRUPTED BY THE STRADDLE BENT.
- SHEAR STUDS NEED NOT BE PLACED ON SPLICE PLATES. STUDS THAT FALL OVER SPLICE PLATES SHALL BE DISTRIBUTED EVENLY TO EACH SIDE OF THE SPLICE.

STATE PROJECT NUMBER

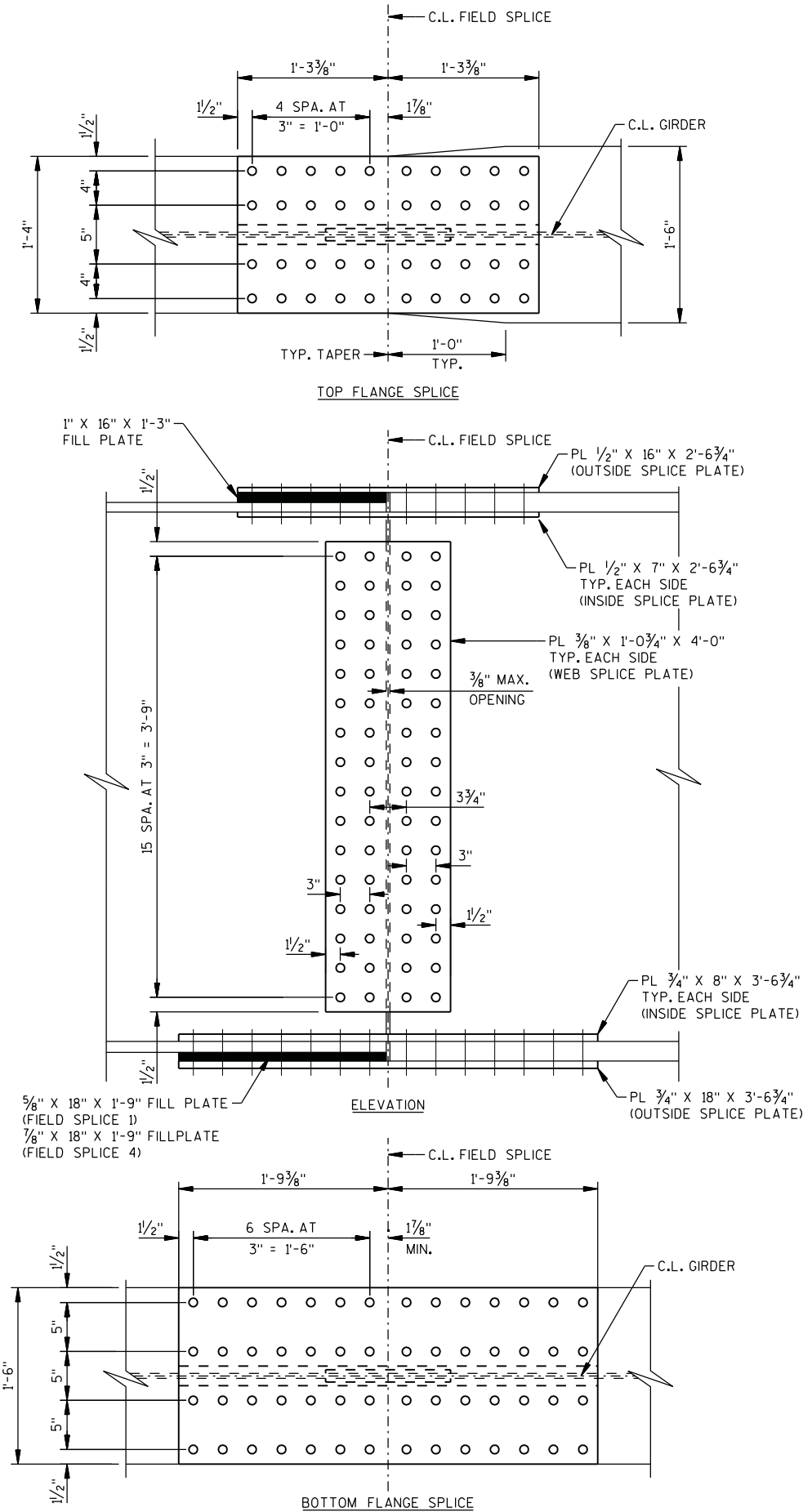
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CK'D. MSK
GIRDER ELEVATION		SHEET 11 OF 15	

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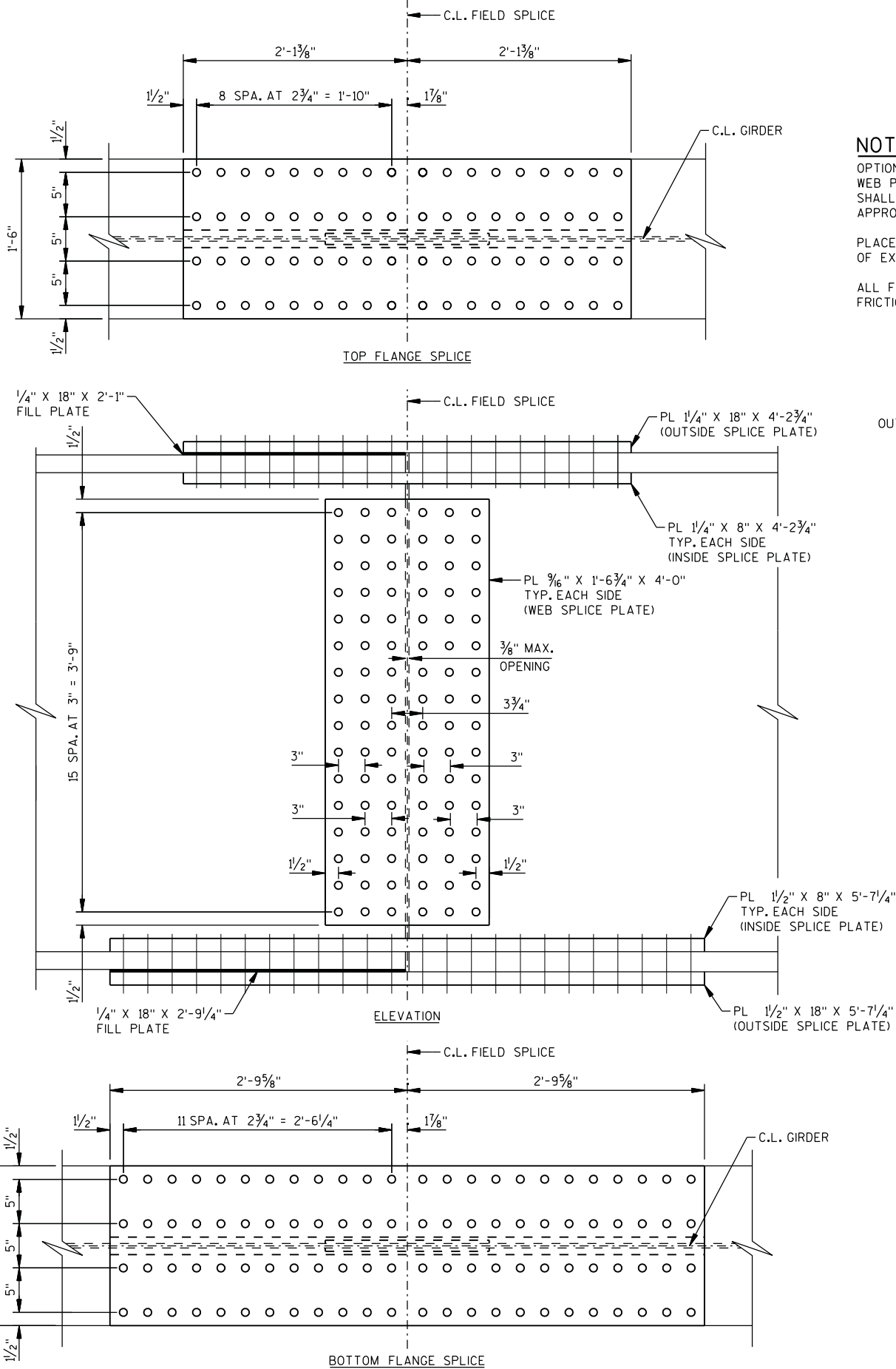
BATCH PRINT SHEET 12 OF 15

8



FIELD SPICE DETAILS

FIELD SPLICE 1 & 4
FLANGE SPLICE STEEL IS A709 GRADE HPS 50W
WEB SPLICE STEEL IS A709 GRADE 50



FIELD SPICE DETAILS

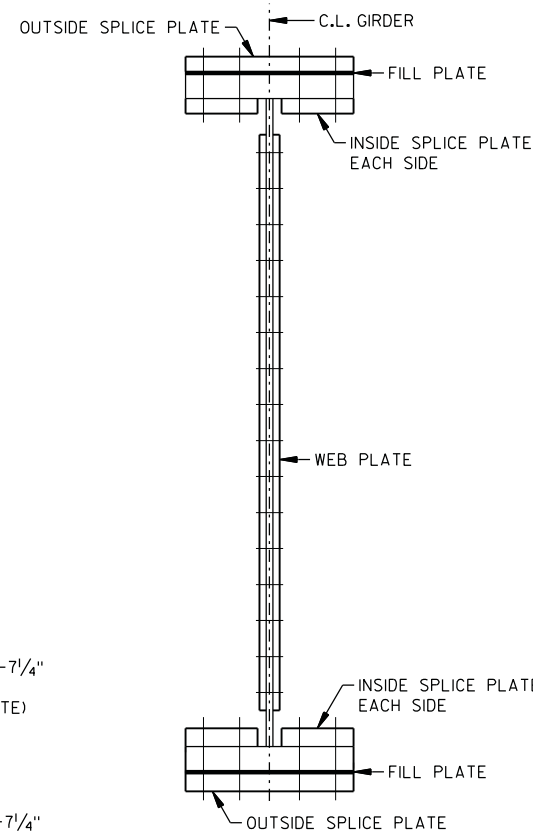
FIELD SPLICE 2 & 3
FLANGE SPLICE STEEL IS A709 GRADE HPS 70W
WEB SPLICE STEEL IS A709 GRADE 50

NOTES

OPTIONAL WELDED SHOP SPLICES MAY BE USED FOR ALL FLANGE AND WEB PLATES OVER 60'-0" LONG. IF USED, THE LOCATION OF THE SPLICE SHALL BE SHOWN ON SHOP DRAWINGS AND WILL BE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

PLACE FIELD SPLICE NUTS UP ON ALL FLANGES AND IN ON ALL WEBS OF EXTERIOR GIRDERS.

ALL FIELD SPLICE CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER FRICTION TYPE HIGH-TENSILE STRENGTH BOLTS (ASTM A325).



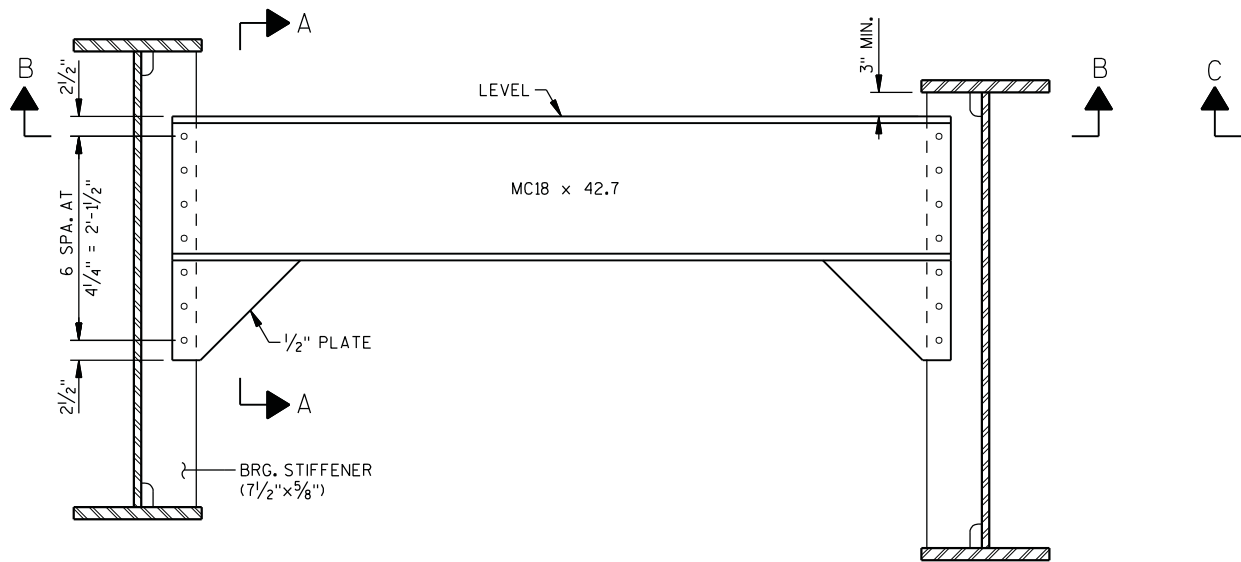
FIELD SPLICE SECTION

8

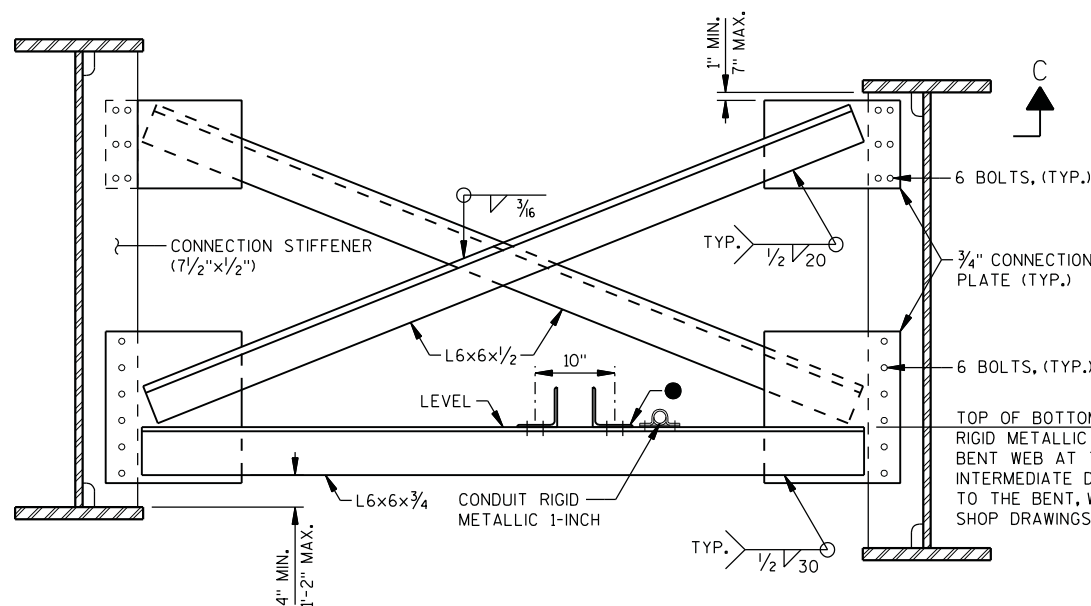
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CK'D. MSK
GIRDER FIELD SPLICE DETAILS		SHEET 12 OF 15	

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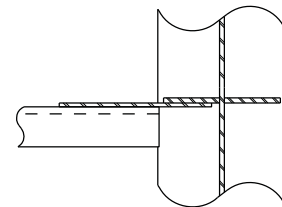
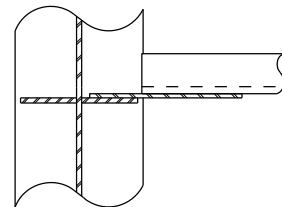
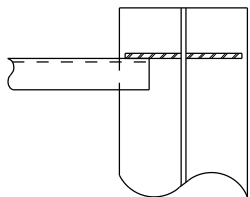
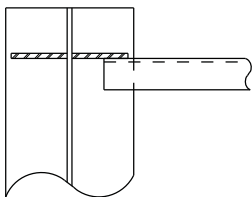
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END DIAPHRAGM AT ABUTMENTS

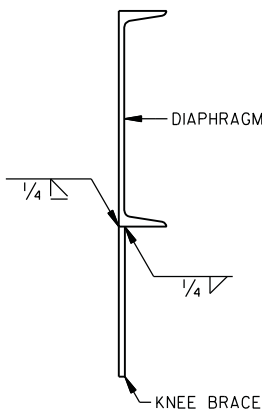


TYPICAL DIAPHRAGM IN SPAN

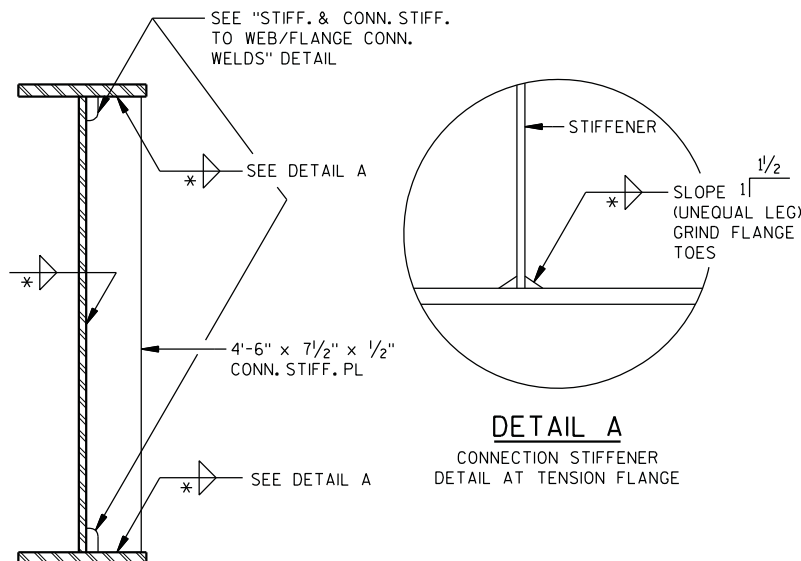


SECTION B-B

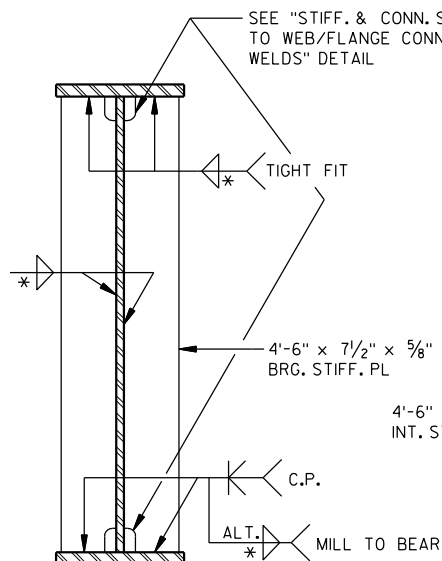
SECTION C-C



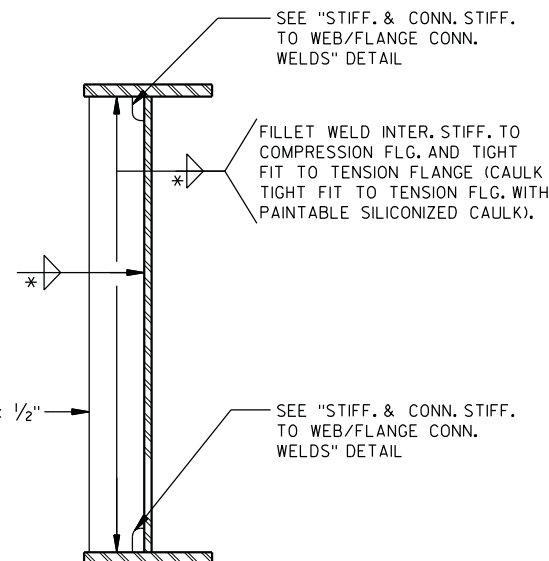
SECTION A-A



CONNECTION STIFF. DETAILS



BRG. STIFF. DETAILS
TYP. AT ABUT.



INTERMEDIATE STIFF. DETAILS
(EXTERIOR GIRDERS)

NOTES

ALL BOLTED CONNECTIONS SHALL BE FRICTION TYPE USING 3/8" DIA. HIGH STRENGTH ASTM A325 BOLTS WITH DOUBLE WASHERS.

HOLES IN CROSS FRAME CONNECTIONS SHALL NOT BE OVERSIZED.

● LIGHTING SUPPORT BRACKET L5x5x5/16. SEE SHEET 10 FOR LOCATIONS OF LIGHTING AND SUPPORT BRACKETS.

ALL DIAPHRAGM AND STIFFENER STEEL TO BE ASTM A709 GRADE 36.

CONDUIT RIGID METALLIC 1-INCH AND THROUGH-BULKHEAD FITTINGS WILL BE INSTALLED IN A SEPARATE CONTRACT.

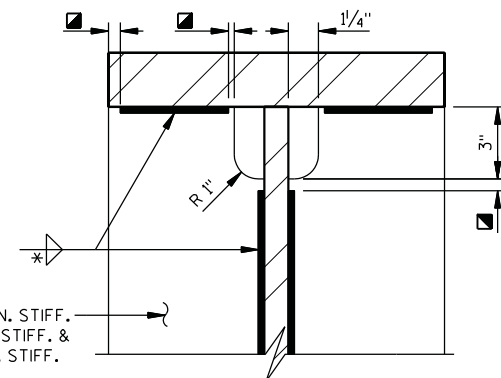
TOP OF BOTTOM CHORD ELEVATION.
RIGID METALLIC CONDUIT 1-INCH TO EXIT BENT WEB AT THIS ELEVATION ON INTERMEDIATE DIAPHRAGMS ADJACENT TO THE BENT, WHERE REQ'D. DETAIL ON SHOP DRAWINGS.

* TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"
OVER 2 1/4" TO 6"	1/2"

* EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

▲ MIN. PASS SIZE IS 3/16"

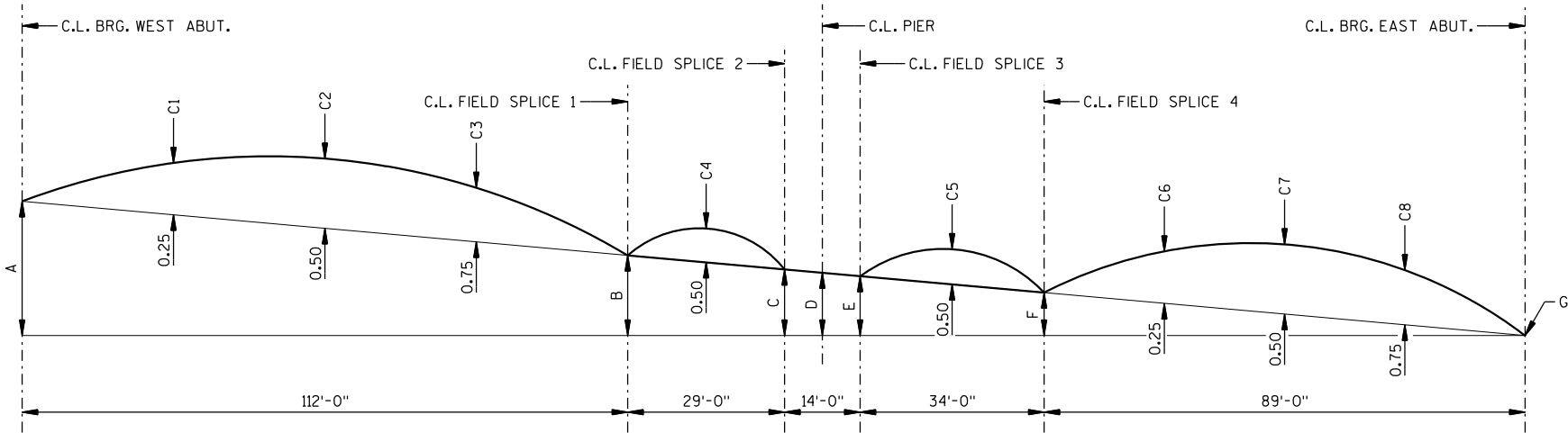


STIFF. & CONN. STIFF. TO
WEB/FLANGE CONN. WELDS

1/4" MIN., 1/2" MAX. (TYP.)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CK'D. MSK
GIRDER DETAILS		SHEET 13 OF 15	

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 PLOT DATE: 6/19/2013



CAMBER AND BLOCKING

BLOCKING DIMENSIONS (FEET)

	ABUT	FS #1	FS #2	PIER	FS #3	FS #4	ABUT
	A	B	C	D	E	F	G
GIRDERS 1 - 8	6.84	4.77	4.01	3.84	3.65	2.80	0.00

CAMBER DIMENSIONS (INCHES)

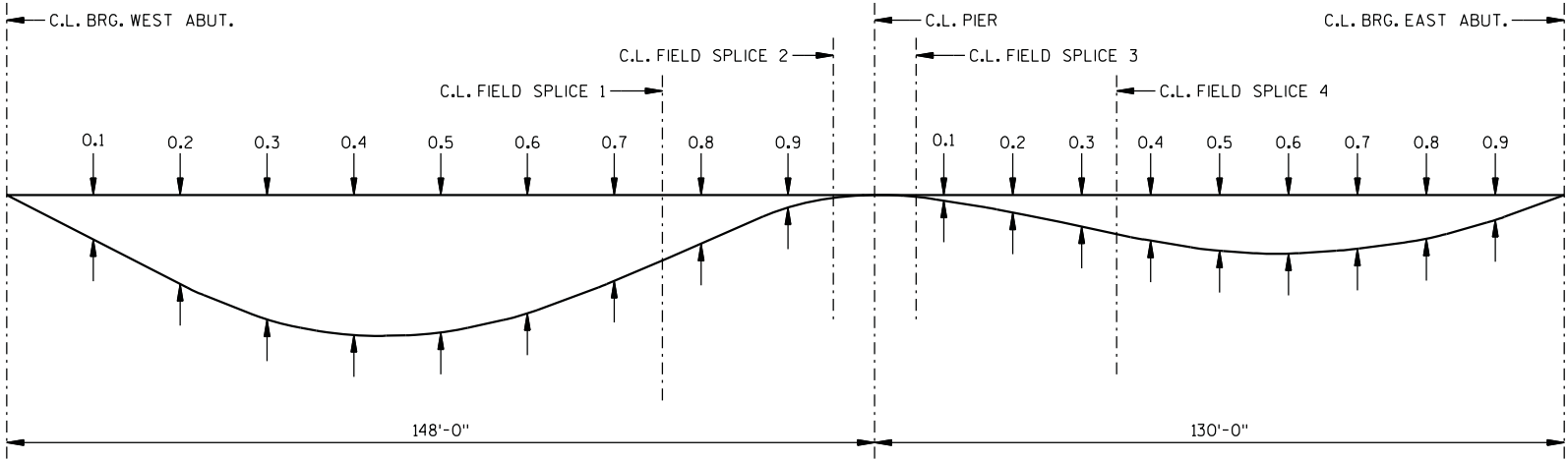
	C1	C2	C3	C4	C5	C6	C7	C8
GIRDER 1	4.5	6.5	5.3	1.0	0.9	3.1	3.5	2.4
GIRDER 2	4.6	6.5	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 3	4.6	6.5	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 4	4.6	6.5	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 5	4.6	6.5	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 6	4.5	6.4	5.2	1.0	0.9	3.1	3.5	2.4
GIRDER 7	4.4	6.3	5.1	1.0	0.9	3.1	3.4	2.3
GIRDER 8	4.3	6.1	5.0	0.9	0.9	3.0	3.3	2.2

TOP-OF-DECK ELEVATIONS

	C/L BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	C/L PIER	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	C/L BRG.
FACE OF PPT	1024.28	1024.08	1023.87	1023.64	1023.39	1023.12	1022.83	1022.52	1022.19	1021.84	1021.48	1021.14	1020.79	1020.42	1020.04	1019.64	1019.23	1018.80	1018.36	1017.91	1017.43
GIRDER 1	1024.30	1024.11	1023.89	1023.66	1023.41	1023.14	1022.85	1022.54	1022.21	1021.87	1021.50	1021.16	1020.81	1020.44	1020.06	1019.66	1019.25	1018.83	1018.38	1017.93	1017.46
GIRDER 2	1024.47	1024.28	1024.07	1023.83	1023.58	1023.31	1023.02	1022.71	1022.39	1022.04	1021.67	1021.33	1020.98	1020.62	1020.23	1019.84	1019.43	1019.00	1018.56	1018.10	1017.63
GIRDER 3	1024.65	1024.45	1024.24	1024.01	1023.76	1023.49	1023.20	1022.89	1022.56	1022.21	1021.85	1021.51	1021.16	1020.79	1020.41	1020.01	1019.60	1019.17	1018.73	1018.28	1017.80
GIRDER 4	1024.82	1024.63	1024.41	1024.18	1023.93	1023.66	1023.37	1023.06	1022.73	1022.39	1022.02	1021.68	1021.33	1020.96	1020.58	1020.18	1019.77	1019.35	1018.90	1018.45	1017.98
GIRDER 5	1024.99	1024.80	1024.59	1024.35	1024.10	1023.83	1023.54	1023.23	1022.91	1022.56	1022.19	1021.85	1021.50	1021.14	1020.75	1020.36	1019.95	1019.52	1019.08	1018.62	1018.15
GIRDER 6	1024.99	1024.79	1024.58	1024.35	1024.10	1023.83	1023.54	1023.23	1022.90	1022.55	1022.19	1021.85	1021.50	1021.13	1020.75	1020.35	1019.94	1019.51	1019.07	1018.62	1018.14
GIRDER 7	1024.81	1024.62	1024.41	1024.17	1023.92	1023.65	1023.36	1023.05	1022.73	1022.38	1022.01	1021.67	1021.32	1020.96	1020.57	1020.18	1019.77	1019.34	1018.90	1018.44	1017.97
GIRDER 8	1024.75	1024.56	1024.35	1024.11	1023.86	1023.59	1023.30	1022.99	1022.67	1022.32	1021.95	1021.61	1021.26	1020.90	1020.51	1020.12	1019.71	1019.28	1018.84	1018.38	1017.91
EDGE OF SLAB	1024.69	1024.50	1024.29	1024.05	1023.80	1023.53	1023.24	1022.93	1022.61	1022.26	1021.89	1021.55	1021.20	1020.84	1020.45	1020.06	1019.65	1019.22	1018.78	1018.32	1017.85

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
	DRAWN BY	MJK	PLANS CK'D. ETP
CAMBER & BLOCKING DIAGRAMS		SHEET 14 OF 15	

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DEAD LOAD DEFLECTIONS

DEAD LOAD DEFLECTIONS (INCHES)

		ABUT	0.1	0.2	0.3	0.4	0.5	0.6	0.7	FS #1	0.8	0.9	FS #2	PIER	FS #3	1.1	1.2	1.3	FS #4	1.4	1.5	1.6	1.7	1.8	1.9	ABUT.
GIRDER 1	CONC. DEFL.	0.0	0.1	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0
GIRDER 2	CONC. DEFL.	0.0	0.1	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0
GIRDER 3	CONC. DEFL.	0.0	0.1	0.2	0.3	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0
GIRDER 4	CONC. DEFL.	0.0	0.1	0.2	0.3	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0
GIRDER 5	CONC. DEFL.	0.0	0.1	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0
GIRDER 6	CONC. DEFL.	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0
GIRDER 7	CONC. DEFL.	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0
GIRDER 8	CONC. DEFL.	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
	TOTAL DEFL.	0.0	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0

DEFLECTION NOTES

GIRDER DEFLECTIONS INCLUDE INFLUENCE OF FLOOR BEAM DEFLECTIONS AT PIER.

DEFLECTIONS ARE GIVEN IN DECIMALS OF AN INCH.

NEGATIVE VALUE INDICATES UPWARD DEFLECTION.

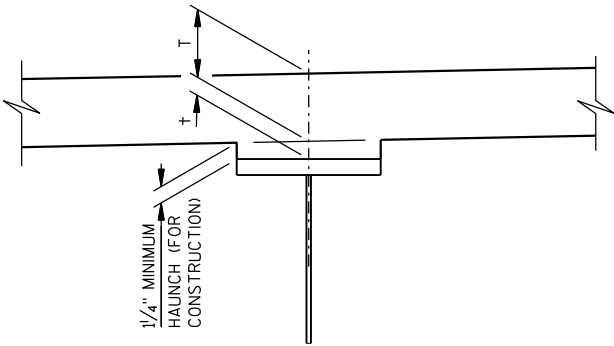
CONCRETE DEFLECTION INCLUDES CONCRETE SLAB, HAUNCH, PARAPET & MEDIAN.

TOTAL DEFLECTION INCLUDES ALL OF ABOVE PLUS DEFLECTIONS DUE TO SELF WEIGHT OF STEEL.

TOP OF ERECTED STEEL

	W. ABUT.	FS #1	FS #2	PIER	FS #3	FS #4	E. ABUT.
GIRDER 1	1023.33	1021.68	1020.91	1020.52	1020.53	1019.61	1016.49
GIRDER 2	1023.50	1021.86	1021.09	1020.69	1020.71	1019.79	1016.66
GIRDER 3	1023.67	1022.03	1021.26	1020.87	1020.88	1019.96	1016.83
GIRDER 4	1023.85	1022.20	1021.43	1021.04	1021.06	1020.14	1017.01
GIRDER 5	1024.02	1022.37	1021.61	1021.21	1021.23	1020.31	1017.18
GIRDER 6	1024.01	1022.36	1021.60	1021.20	1021.22	1020.30	1017.17
GIRDER 7	1023.84	1022.18	1021.42	1021.03	1021.04	1020.11	1017.00
GIRDER 8	1023.67	1021.99	1021.25	1020.85	1020.87	1019.93	1016.83

THESE ELEVATIONS ARE TO TOP OF STEEL (SPlice AND COVER PLATE THICKNESS, IF APPLICABLE, ARE ACCOUNTED FOR) AND THEY ARE FOR THE MATERIAL AS ERECTED. THE ELEVATION OF THE TOP STEEL AT THE FIELD SPLICE POINTS SHALL BE CHECKED, AND CORRECTED, IF POSSIBLE, AFTER ERECTION AND BEFORE PERMANENTLY BOLTING THE DIAPHRAGMS IN PLACE. TOP OF ERECTED STEEL ELEVATIONS INCLUDE DEFLECTIONS DUE TO SELF WEIGHT.



HAUNCH DETAIL

NOTES

+ = HAUNCH HEIGHT AT CENTERLINE OF GIRDER
HAUNCH HEIGHTS WILL NORMALLY BE MADE 2" AT EDGE OF GIRDER, AT ABUTMENTS, HINGES, AND FIELD SPLICES.

HAUNCH VARIATIONS NEED NOT BE SHOWN ON THE PLANS.

(TO DETERMINE "+": AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED. ELEVATIONS OF THE TOP FLANGES, TOP OF SPLICE PLATES, OR TOP OF COVER PLATES, WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS, CENTERLINE OF FIELD SPLICES, AND AT 0.1 POINTS.

- TOP OF DECK ELEV. AT FINAL GRADE.

+ TOP OF STEEL ELEV. AFTER PLACEMENT.
CONC. ONLY DEFLECTION; DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED.

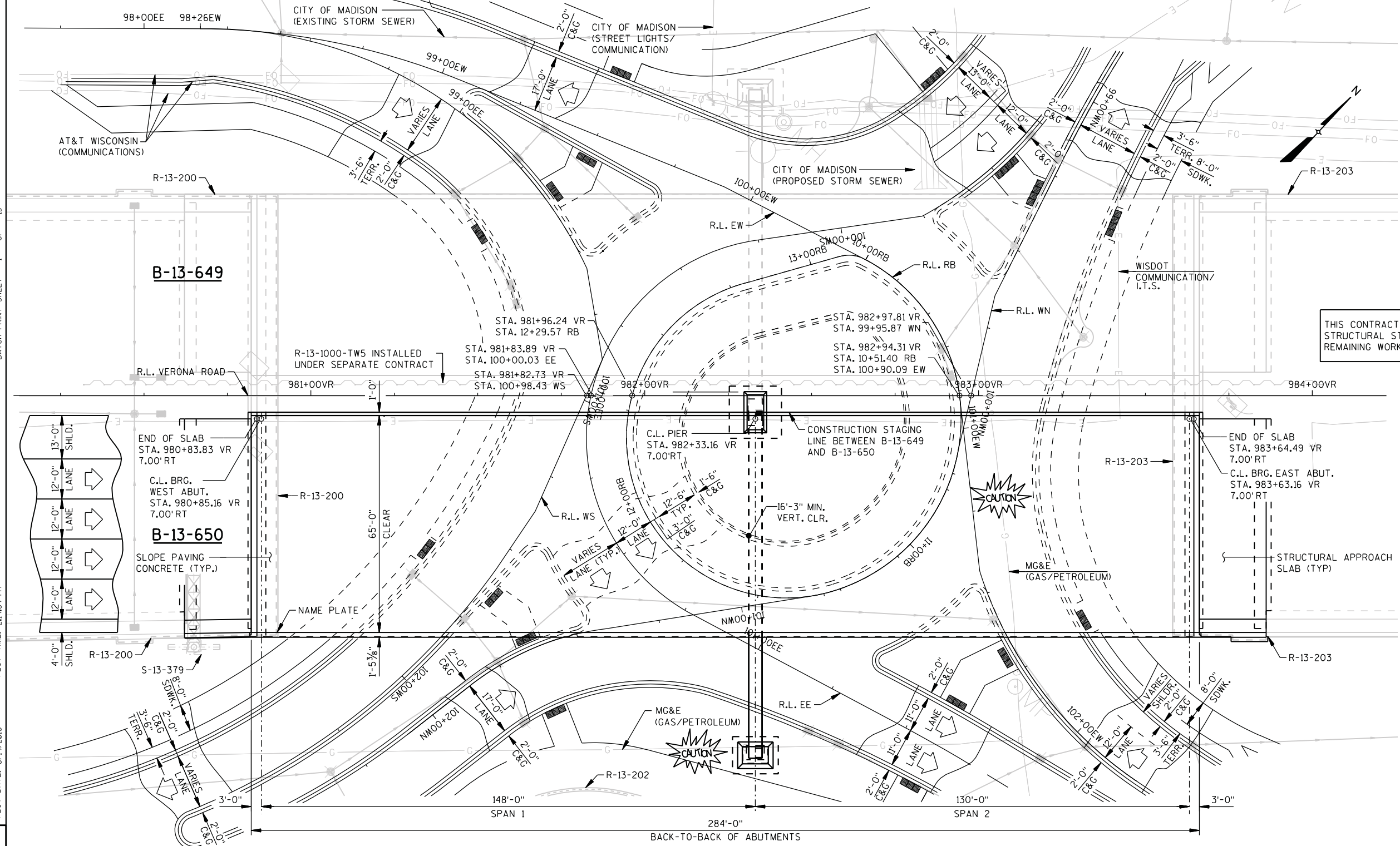
- SLAB THICKNESS ("T")

= "+" VALUE FOR SETTING HAUNCH.

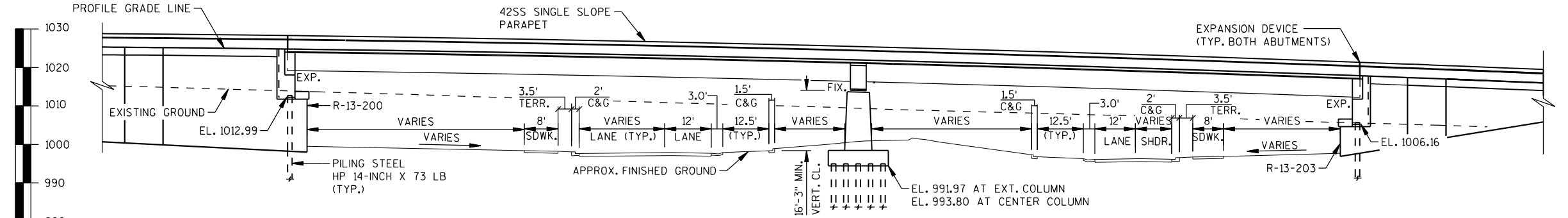
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-649			
DRAWN BY		MJK	PLANS CK'D. ETP
DEADLOAD DEFLECTIONS		SHEET 15 OF 15	

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BATCH PRINT SHEET 1 OF 15

8



PLAN
(TWO SPAN 54-INCH STEEL PLATE GIRDER STRUCTURE)



ELEVATION
(NORMAL TO VERONA ROAD)

STATE PROJECT NUMBER
1206-07-86

- LIST OF DRAWINGS**
1. GENERAL PLAN
 2. GENERAL NOTES & DESIGN DATA
 3. CROSS SECTION & QUANTITIES
 4. PROFILE GRADE LINES
 5. BEARING DETAILS AT ABUTMENTS
 6. BEARING DETAILS AT STRADDLE BENT
 7. STRADDLE BENT DETAILS-1
 8. STRADDLE BENT DETAILS-2
 9. STRADDLE BENT DETAILS-3
 10. FRAMING PLAN
 11. GIRDER ELEVATION
 12. GIRDER FIELD SPICE DETAILS
 13. GIRDER DETAILS
 14. CAMBER AND BLOCKING DIAGRAMS
 15. DEADLOAD DEFLECTIONS

THIS CONTRACT INCLUDES THE FABRICATION AND DELIVERY OF STRUCTURAL STEEL AND BEARINGS ONLY TO THE BRIDGE SITE. REMAINING WORK TO BE LET UNDER SEPARATE CONTRACT.



6/19/2013

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
BILL DREHER (608) 266-8489
CONSULTANT:
ERIC PRICE (608) 828-8181
SW REGION:
MARK VESPERMAN (608) 246-7548

NO.	DATE	REVISION	BY
AECOM			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> KAR		06/20/13	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-13-650			
EB USH 18/151 OVER VERONA ROAD FRONTAGE ROAD			
COUNTY		DANE	TOWN/CITY/VILLAGE
			MADISON
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	MSK	DESIGN CK'D BY	ETP
DRAWN BY	MJK	PLANS CK'D BY	ETP
GENERAL PLAN			SHEET 1 OF 15

8

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GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE. ALL STATIONS AND ELEVATIONS ARE IN FEET.

ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).

ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER FRICTION TYPE A325 HIGH STRENGTH BOLTS UNLESS OTHERWISE SHOWN OR NOTED.

STRUCTURAL STEEL

SOME MEMBERS REQUIRE FABRICATION AND TESTING IN ACCORDANCE WITH REQUIREMENTS FOR FRACTURE CRITICAL MEMBERS (FCM). SEE SHEETS 7-9 FOR SPECIFIC MEMBERS.

CHARPY V-NOTCH TOUGHNESS REQUIREMENTS FOR ALL STEEL SHALL CONFORM TO THE REQUIREMENTS FOR ZONE 2.

ALL WELDING SHALL BE IN ACCORDANCE WITH AASHTO D1.5 BRIDGE WELDING CODE.

SEE "GIRDER DETAILS" SHEET FOR TABLE OF MINIMUM FILLET WELD SIZES. USE THESE SIZES AT ALL LOCATIONS WHERE A SPECIFIC WELD SIZE IS NOT OTHERWISE INDICATED.

BEARING AND EXPANSION JOINT ASSEMBLIES SHALL BE FABRICATED FROM ASTM A709 GRADE 50 MATERIAL (Fy=50 KSI) AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (AASHTO M113).

ANCHOR BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM F1554, GRADE 105. HOT-DIP GALVANIZE IN ACCORDANCE WITH ASTM A153 (AASHTO M232).

ALL BOLTS SHALL BE ASTM A325 TYPE 3. BOLTS SHALL BE 7/8" DIAMETER UNLESS NOTED OTHERWISE. ALL HOLES SHALL BE STANDARD DIAMETER - NO OVERSIZED HOLES. ALL CONNECTIONS SHALL BE FABRICATED AND ASSEMBLED AS SLIP-CRITICAL CONNECTIONS. DESIGN ASSUMED A CLASS B SURFACE .

ITEM " PAINTING SYSTEM EPOXY B-13-650" INCLUDES THE SHOP PAINTING OF ALL STEEL. PAINT ALL STEEL SURFACES, WITH THE EXCEPTION OF THE INSIDE OF THE STRADDLE BENT, COLOR NO. 20059 IN ACCORDANCE WITH FEDERAL STANDARD 595B. STRADDLE BENT INTERIOR SURFACES SHALL BE PAINTED COLOR NO. 27925 (WHITE)

CAMBER DIAGRAMS HAVE BEEN DEVELOPED ASSUMING A CONSTANT 2 1/4" HAUNCH HEIGHT, MEASURED FROM THE TOP OF THE TOP FLANGE TO THE UNDERSIDE OF THE DECK. ANY ADDITIONAL QUANTITIES REQUIRED AS A RESULT OF VARIATION IN THE HAUNCH HEIGHT ARE ASSUMED TO BE INCIDENTAL TO OTHER PAY ITEMS AND WILL NOT BE PAID FOR SEPARATELY. THIS INCLUDES ADDITIONAL CONCRETE IN THE HAUNCH, ADDITIONAL OR MORE COMPLICATED FORMWORK, EXTRA SHEAR STUD LENGTH AND ANY REQUIRED REINFORCEMENT IN THE HAUNCH.

TEMPORARY SUPPORTS AND FALSEWORK (INCLUDING CANTILEVER BRACKETS) SHALL NOT BE ATTACHED TO, OR BEAR ON, GIRDER WEBS EXCEPT AT WEB STIFFENER LOCATIONS.

OPTIONAL WELDED SHOP SPLICES MAY BE USED FOR PLATES OVER 60'-0" LONG. IF USED, THE LOCATION OF THE SPLICE SHALL BE SHOWN ON SHOP DRAWINGS AND WILL BE SUBJECT TO THE APPROVAL OF THE STUCTURES DESIGN SECTION.

DESIGN DATA

LIVELOAD
DESIGN RATING: HL-93
INVENTORY RATING FACTOR: 1.15
OPERATIONAL RATING FACTOR: 2.01
MAX STANDARD PERMIT VEHICLE LOAD: 250 KIPS
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

ULTIMATE DESIGN STRESSES
CONCRETE MASONRY - DECK _____ f'c = 4,000 PSI
- APPROACH SLAB _____ f'c = 4,000 PSI
- ABUTMENTS _____ f'c = 3,500 PSI
- INTERIOR PIER _____ f'c = 4,000 PSI
- EXTERIOR PIER _____ f'c = 3,500 PSI

BAR STEEL REINFORCEMENT, _____
GRADE 60 _____ fy = 60,000 PSI

STRUCTURAL STEEL, _____
ASTM A709, GRADE 36 _____ fy = 36,000 PSI

HIGH STRENGTH STRUCTURAL STEEL, _____
ASTM A709, GR. 50 _____ fy = 50,000 PSI
ASTM A709, GRADE HPS 50W _____ fy = 50,000 PSI
USED FOR STRADDLE BENT WEBS AND GIRDER FLANGES

ASTM A709, GRADE HPS 70W _____ fy = 70,000 PSI
USED FOR STRADDLE BENT FLANGES AND GIRDER FLANGES

TRAFFIC DATA

EB VERONA ROAD WB VERONA ROAD
A.D.T. (2030) = 31,000 A.D.T. (2030) = 32,000
R.D.S. = 35 MPH R.D.S. = 35 MPH

ROUNDABOUT
A.D.T. (2030) = 17,500
R.D.S. = 15 MPH

📍 BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
BM3	975+07VR	WISDOT DISK TOP OF CONC PARAPET 63' LT	1031.27
BM9	982+50VR	CHIS SQ TOC 368' RT	1010.03
BM18	980+15VR	RR SPIKE PPOL #20G7-B21 130' LT	1000.75

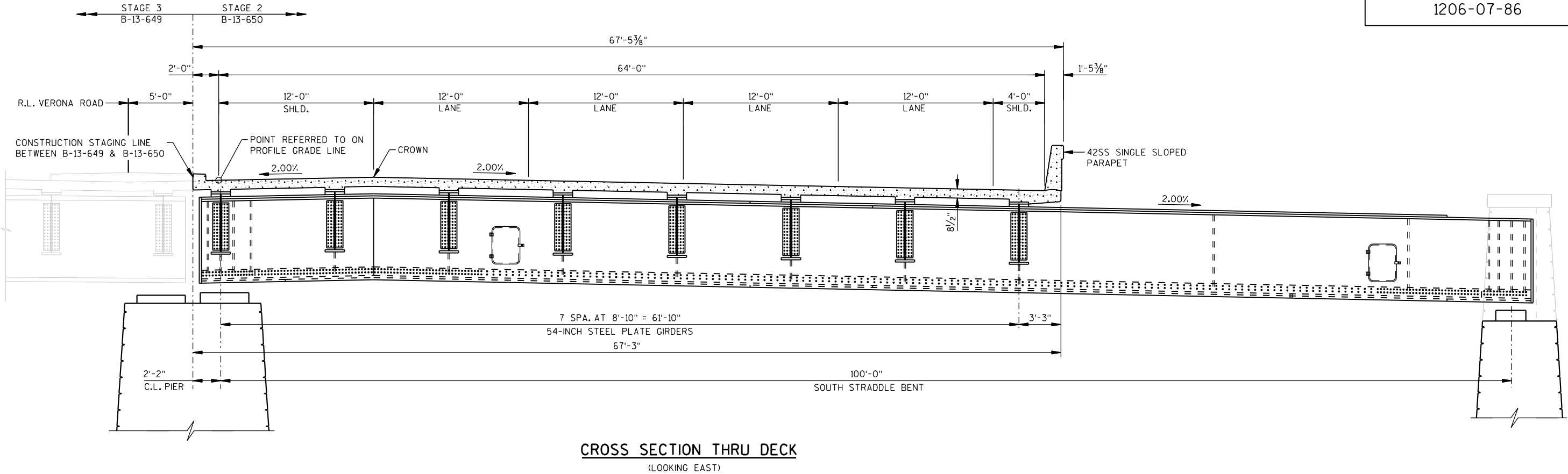
SEE ROADWAY PLANS FOR ADDITIONAL BENCH MARK LOCATIONS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
		DRAWN BY MJK	PLANS CK'D. ETP
GENERAL NOTES & DESIGN DATA			SHEET 2 OF 15

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STATE PROJECT NUMBER

1206-07-86



TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	WEST APPROACH	WEST ABUTMENT	PIER INTERIOR	PIER EXTERIOR	EAST ABUTMENT	EAST APPROACH	SUPER.	TOTALS
517.0600	PAINTING EPOXY SYSTEM B-13-650	LS	—	—	—	—	—	—	—	1
SPV.0060.01	FABRICATED BEARINGS HIGH-LOAD MULTI-ROTATIONAL FIXED	EACH	—	—	1	—	—	—	—	1
SPV.0060.02	FABRICATED BEARINGS HIGH-LOAD MULTI-ROTATIONAL GUIDED	EACH	—	—	—	1	—	—	—	1
SPV.0060.04	FABRICATED BEARING ASSEMBLIES EXPANSION STRUCTURE B-13-650	EACH	—	8	—	—	8	—	—	16
SPV.0060.05	JUNCTION BOXES, 4X4X4-INCH	EACH	—	—	—	—	—	—	5	5
SPV.0085.01	FABRICATED STRUCTURAL STEEL CARBON	LB	—	—	—	—	—	—	154,500	154,500
SPV.0085.02	FABRICATED STRUCTURAL STEEL HS	LB	—	—	—	—	—	—	847,600	847,600

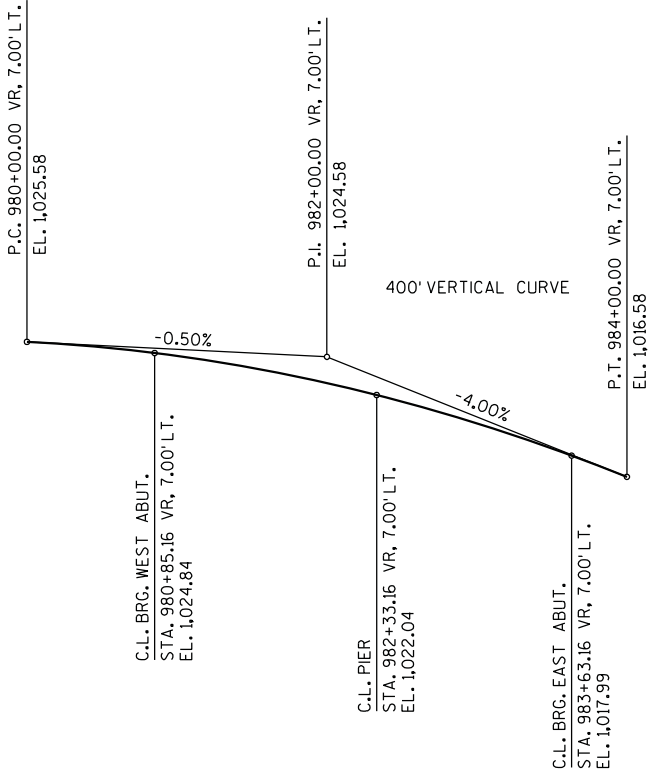
QUANTITY NOTES

THIS CONTRACT INCLUDES THE FABRICATION AND DELIVERY OF STRUCTURAL STEEL AND BEARINGS ONLY TO THE BRIDGE SITE. REMAINING WORK TO BE LET UNDER SEPARATE CONTRACT.

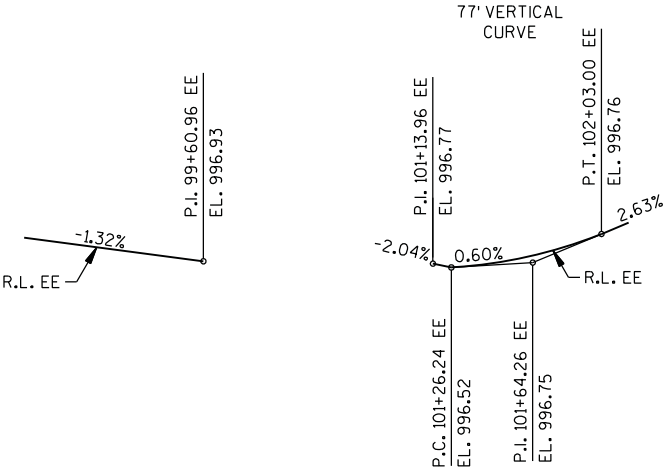
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
DRAWN BY		MJK	PLANS CK'D. ETP
CROSS SECTION & QUANTITIES			SHEET 3 OF 15

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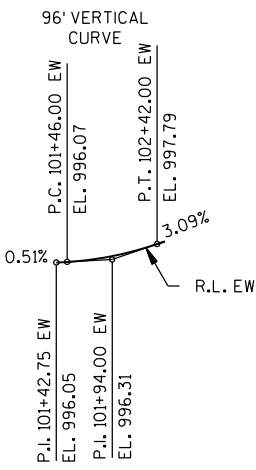
PROFILE GRADE LINE, WB VERONA ROAD



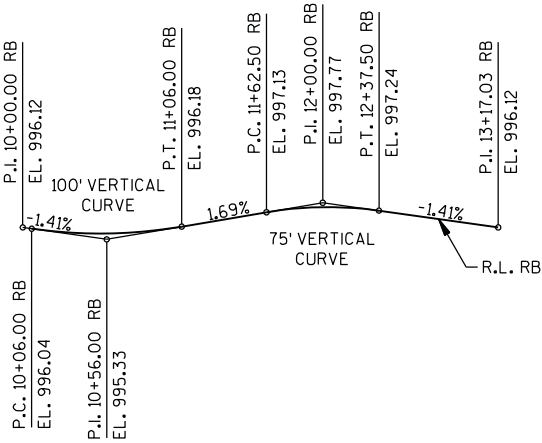
PROFILE GRADE LINE EE ALIGNMENT



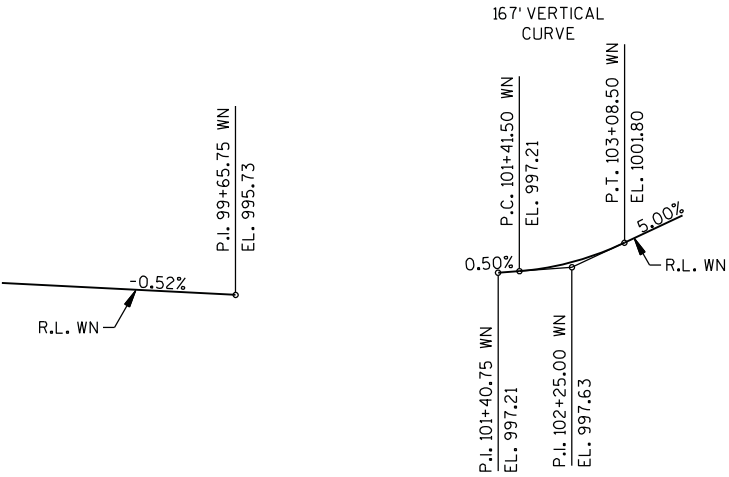
PROFILE GRADE LINE EW ALIGNMENT



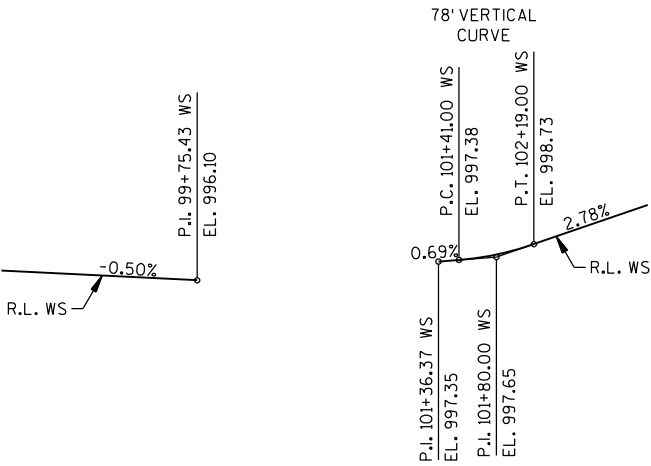
PROFILE GRADE LINE ROUNDABOUT



PROFILE GRADE LINE WN ALIGNMENT

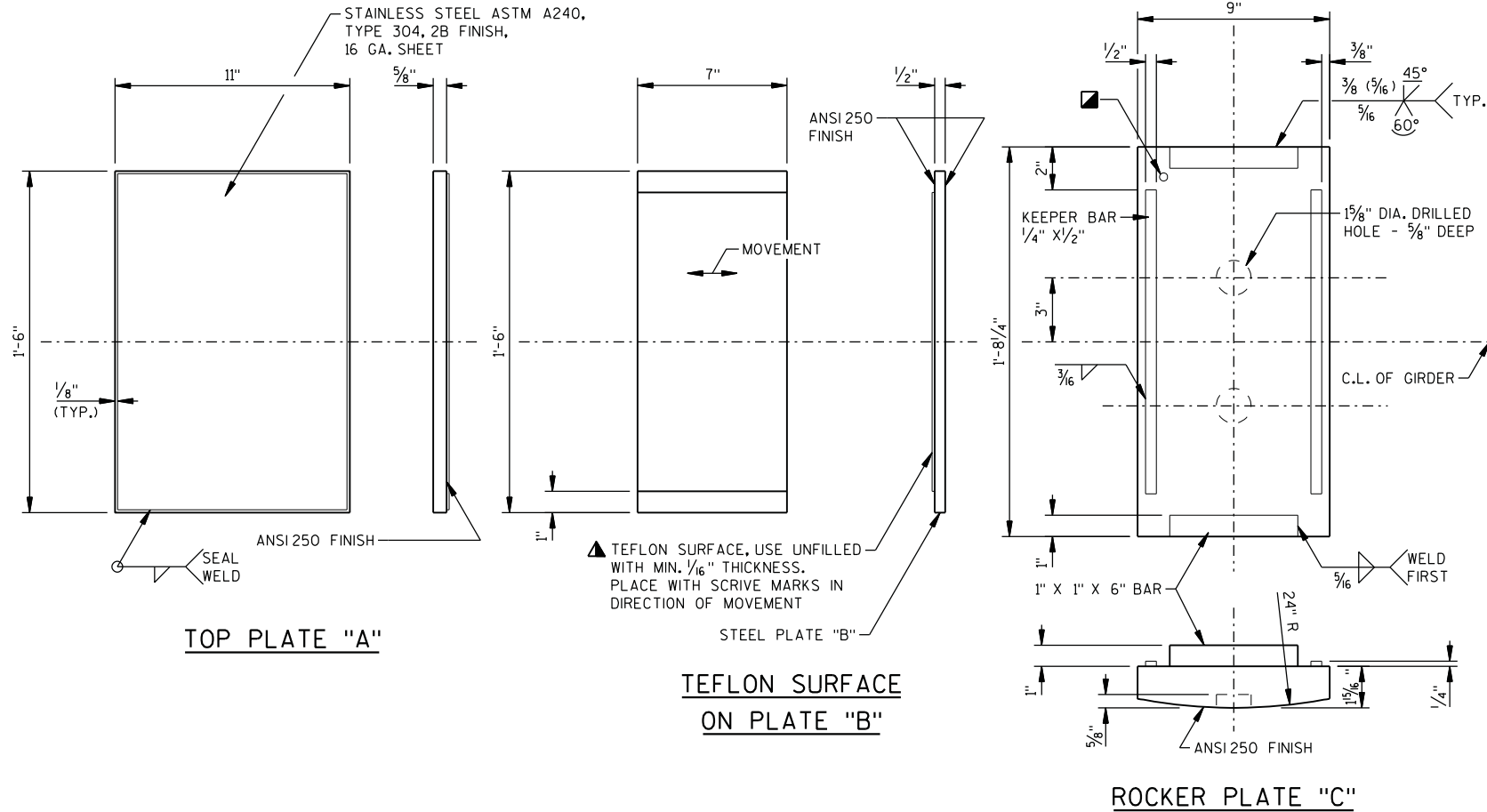


PROFILE GRADE LINE WS ALIGNMENT

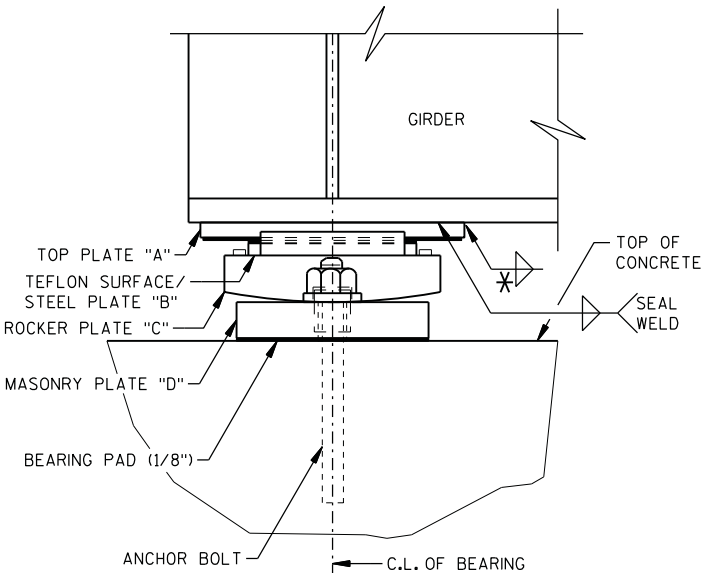


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
DRAWN BY		MES	PLANS CK'D. MAH
PROFILE GRADE LINES		SHEET 4 OF 15	

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 BATCH PRINT SHEET 5 OF 15



EXPANSION BEARING



* TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"
OVER 2 1/4" TO 6"	1/2"

* EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

▲ MIN. PASS SIZE IS 5/16"

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT C.L. OF GIRDER AND C.L. OF BEARING.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-10" FOR 1 1/2" DIA. BOLTS. PROJECT ANCHOR BOLTS 4 1/4" ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

ALL MATERIAL IN BEARINGS, BUT EXCLUDING ANCHOR BOLTS, STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 36, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

PROVIDE 1/8" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "FABRICATED BEARING ASSEMBLIES EXPANSION STRUCTURE B-13-650".

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED. DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

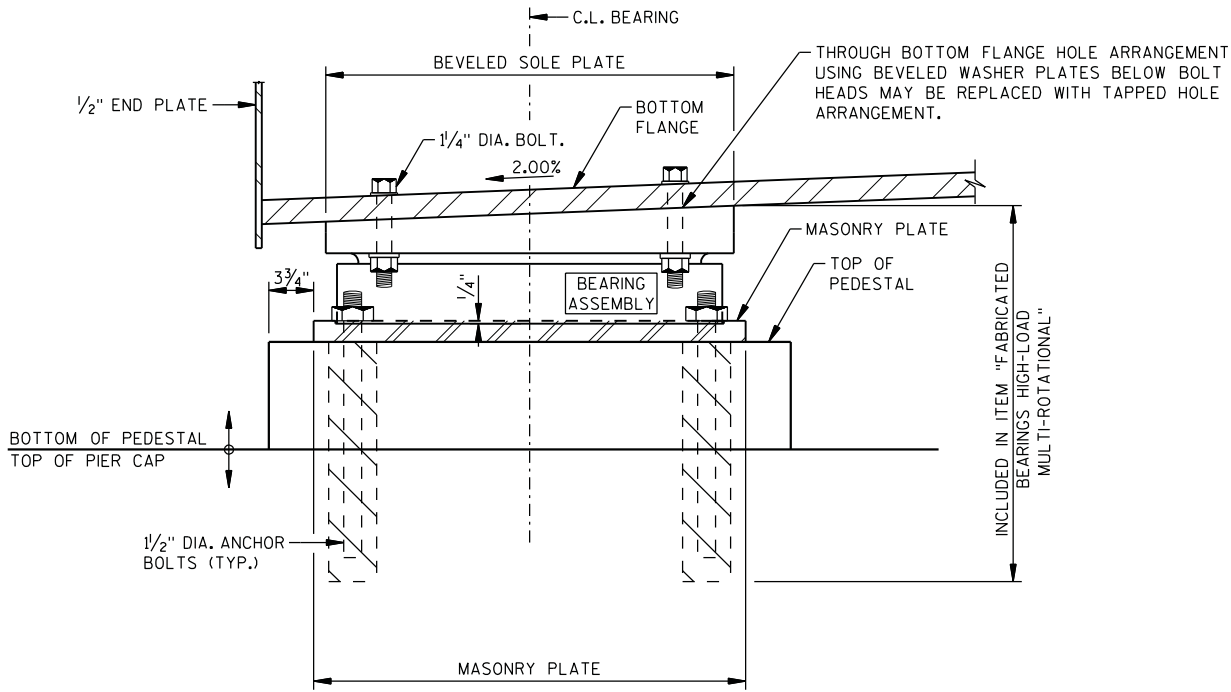
■ PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

▲ BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING FEDERAL SPECIFICATION MMM-A-134, FEP FILM OR EQUAL.

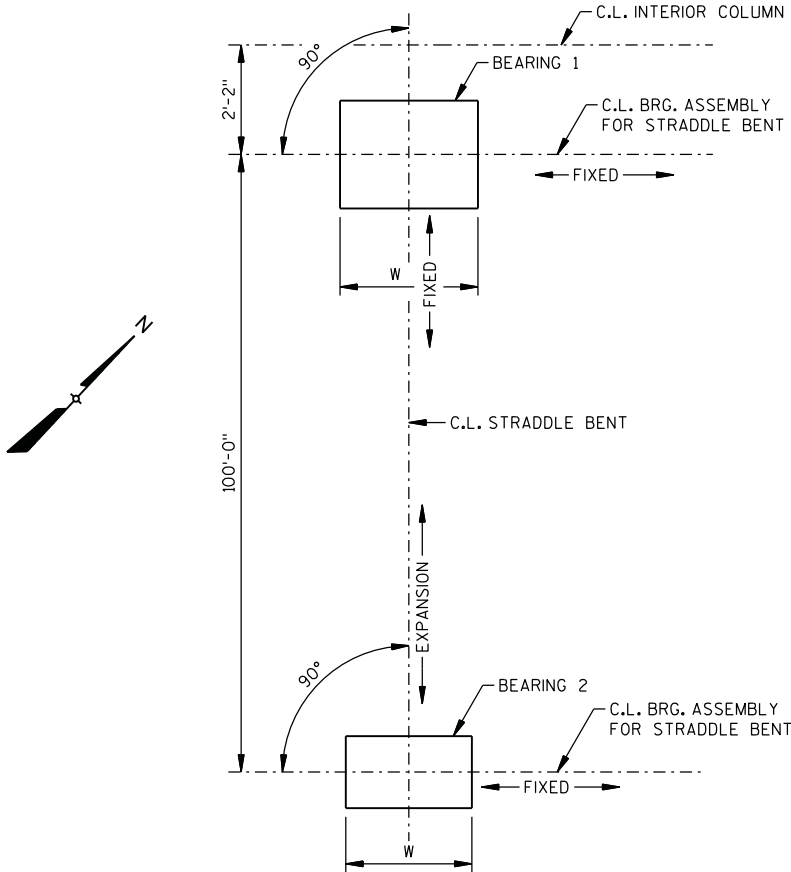
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DRAWN BY		MJK	PLANS CK'D. MSK
BEARING DETAILS AT ABUTMENTS		SHEET 5 OF 15	

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BATCH PRINT SHEET 6 OF 15



ELEVATION
 BEARING 1 SHOWN, BEARING 2 SIMILAR



STRADDLE BENT BEARING ASSEMBLY TYPES AND ORIENTATION

STATE PROJECT NUMBER

1206-07-86

STRADDLE BENT BEARING ASSEMBLY DATA													
BEARING	BEARING TYPE	VERTICAL FORCES				HORIZONTAL FORCES				THERMAL TRANSLATION (INCHES)		DESIGN ROTATION (RADIAN)	
		SERVICE		STRENGTH		SERVICE		STRENGTH					
		DEAD (KIPS)	TOTAL (KIPS)	DEAD (KIPS)	TOTAL (KIPS)	TRANS (KIPS)	LONG (KIPS)	TRANS (KIPS)	LONG (KIPS)	LONGITUDINAL	ALONG STRADDLE BENT	LONGITUDINAL	ALONG STRADDLE BENT
1	HLMF	1,615	2,200	2,055	3,085	115	65	140	80	▲ 0	0.00	0.0130	0.0125
2	HLMG	790	1,090	1,005	1,535	115	65	140	80	▲ 0	1.40	0.0130	0.0126

BEARING NOTES

ALL STRADDLE BENT BEARINGS SHALL BE HIGH LOAD MULTI-ROTATIONAL BEARINGS MEETING THE REQUIREMENTS OF AASHTO LRFD 6TH EDITION AND THE MINIMUM PERFORMANCE REQUIREMENTS LISTED ABOVE.

BEARINGS MUST HAVE A LATERAL CAPACITY OF AT LEAST 15% OF THE VERTICAL DESIGN LOAD AT THE SERVICE LIMIT STATE.

DIMENSION "W" FOR THE SOLE PLATE OF THE BEARING SHALL BE 34" MAX. FOR BEARING 1 AND 30" MAX FOR BEARING 2. BEVELED SOLE PLATE SHALL BE BEVELED TO ACCOUNT FOR THE STRADDLE BENT SLOPE.

LONGITUDINAL THERMAL TRANSLATION AT PIER IS ACCOMODATED BY TOP OF COLUMN DISPLACEMENT.

HOLES IN MASONRY PLATE SHALL BE A MAXIMUM OF 1/8" LARGER THAN THE SPECIFIED ANCHOR BOLT DIAMETER.

ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH ASTM F1554 (GRADE 105) AND HOT DIP GALVANIZED IN ACCORDANCE WITH AASHTO M232.

BEARINGS SHALL BE DESIGNED TO PERMIT REPLACEMENT BY JACKING THE BRIDGE A MAXIMUM OF 1/4".

BEARING DIMENSIONS SHOWN MAY VARY WITH THE SELECTED MANUFACTURER. MAKE ALL NECESSARY ADJUSTMENTS TO DIMENSIONS AND ELEVATIONS AS REQUIRED TO INCORPORATE THE SPECIFIC BEARINGS SELECTED.

FORCES SPECIFIED ARE MAXIMUM EFFECTS FOR LRFD LOAD COMBINATIONS, INCLUDING DYNAMIC LOAD ALLOWANCE.

DESIGN BOLTED CONNECTION BETWEEN SOLE PLATE AND STRADDLE BENT BOTTOM FLANGE FOR A MINIMUM OF 1.25 TIMES THE COMBINED SPECIFIED HORIZONTAL LOADS.

ARRANGE CONNECTION TO ENSURE ALL BOLTS CAN BE REMOVED WITHOUT INTERFERENCE FROM ANCHOR BOLTS OR OTHER OBSTRUCTIONS AFTER BEARING IS INSTALLED.

STEEL FABRICATOR TO COORDINATE SOLE PLATE HOLE LAYOUT WITH BEARING MANUFACTURER BEFORE FABRICATION.

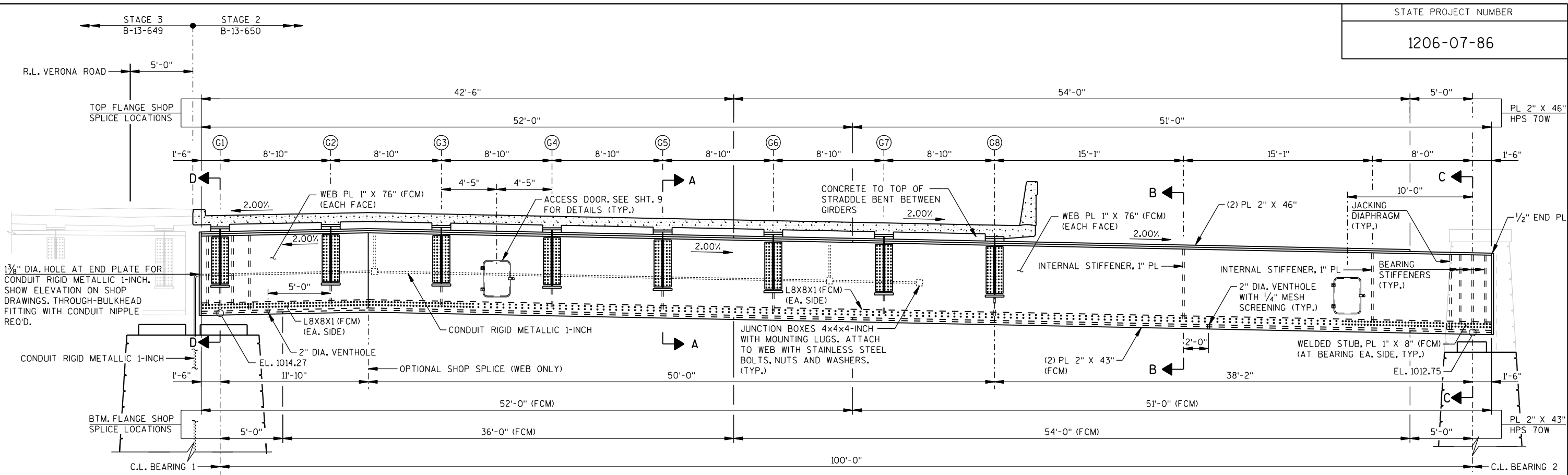
BEARING TYPES

HLMF-HIGH LOAD MULTI-ROTATIONAL FIXED

HLMG-HIGH LOAD MULTI-ROTATIONAL GUIDED

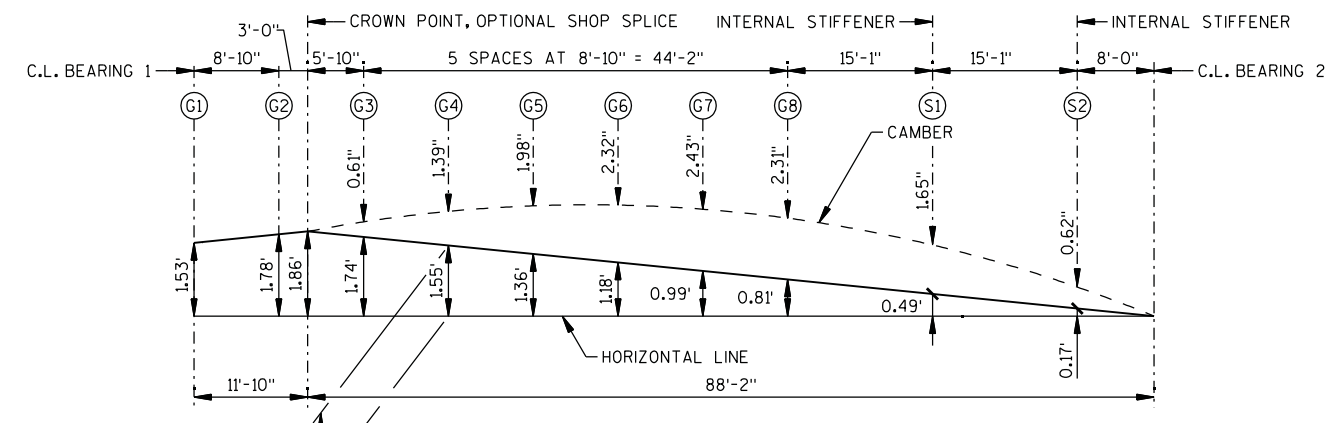
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
DRAWN BY		MJK	PLANS CK'D. ETP
BEARING DETAILS AT STRADDLE BENT			SHEET 6 OF 15

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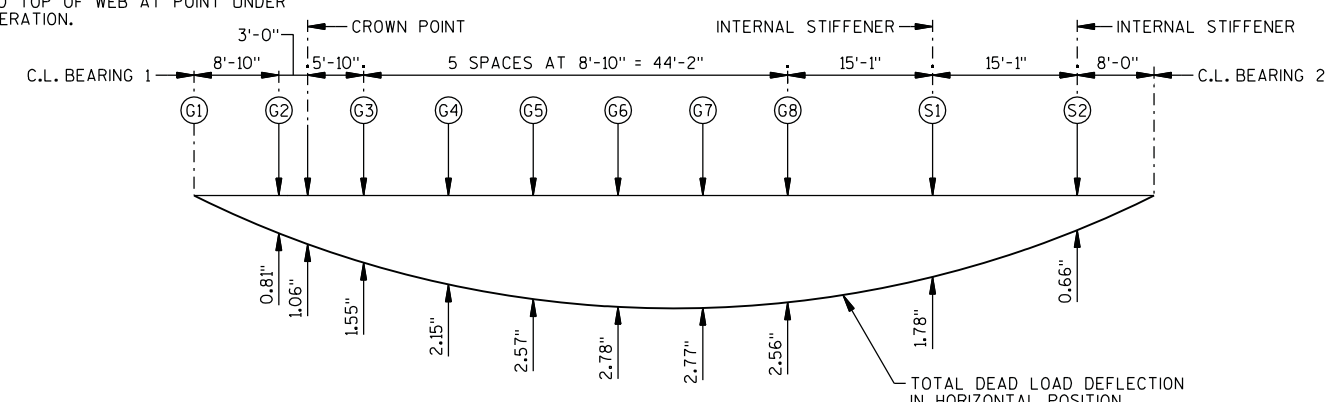
STRADDLE BENT ELEVATION

LOOKING EAST



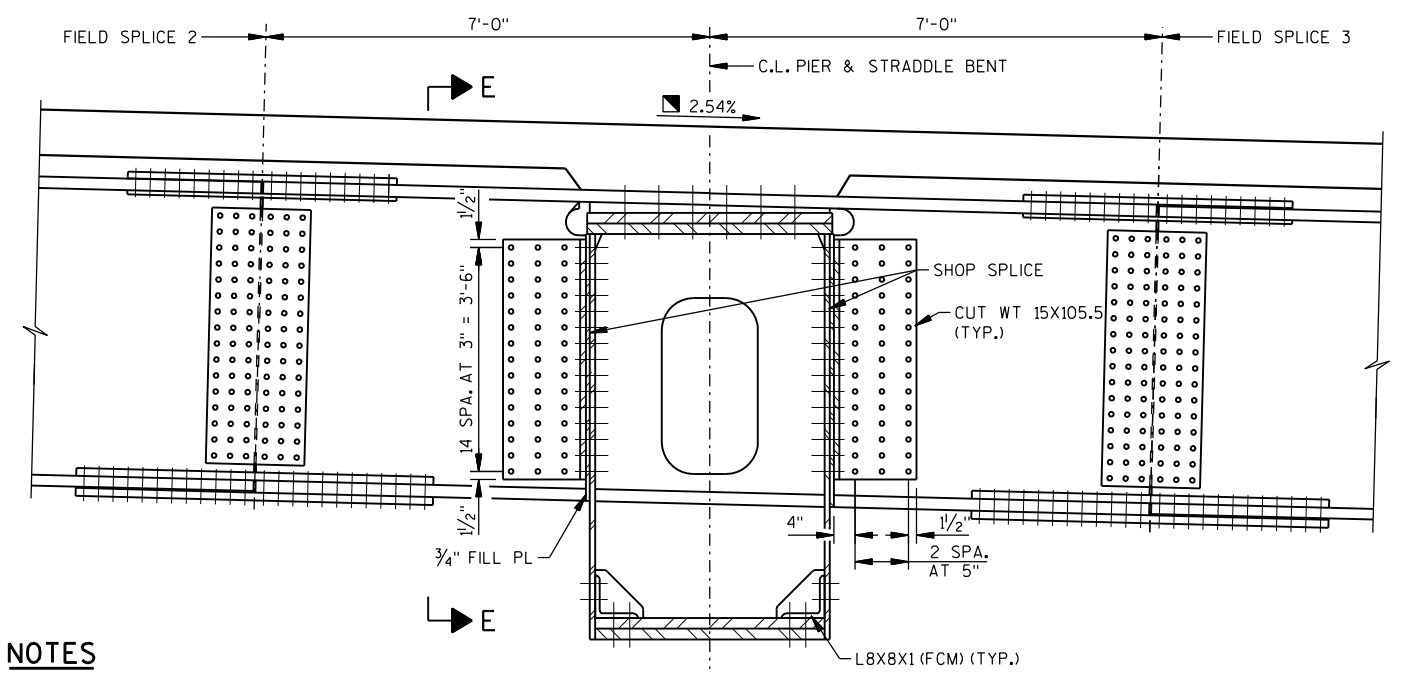
STRADDLE BENT CAMBER AND BLOCKING

BLOCKING DIMENSIONS MEASURED FROM HORIZONTAL LINE (PASSING THRU LOWEST TOP OF STRADDLE BENT WEB) TO TOP OF WEB AT POINT UNDER CONSIDERATION.



STRADDLE BENT DEAD LOAD DEFLECTION

TOTAL DEAD LOAD DEFLECTION IN HORIZONTAL POSITION



NOTES

TOTAL STRADDLE BENT DEAD LOAD DEFLECTION IS DUE TO PLATE GIRDERS, CONCRETE DECK, HAUNCHES, MEDIAN, BARRIERS, AND SELF WEIGHT OF STEEL.

FOR FIELD SPLICES 2 & 3 DETAILS SEE SHEET 10.

CONDUIT RIGID METALLIC 1-INCH AND THROUGH-BULKHEAD FITTINGS WILL BE INSTALLED IN A SEPARATE CONTRACT.

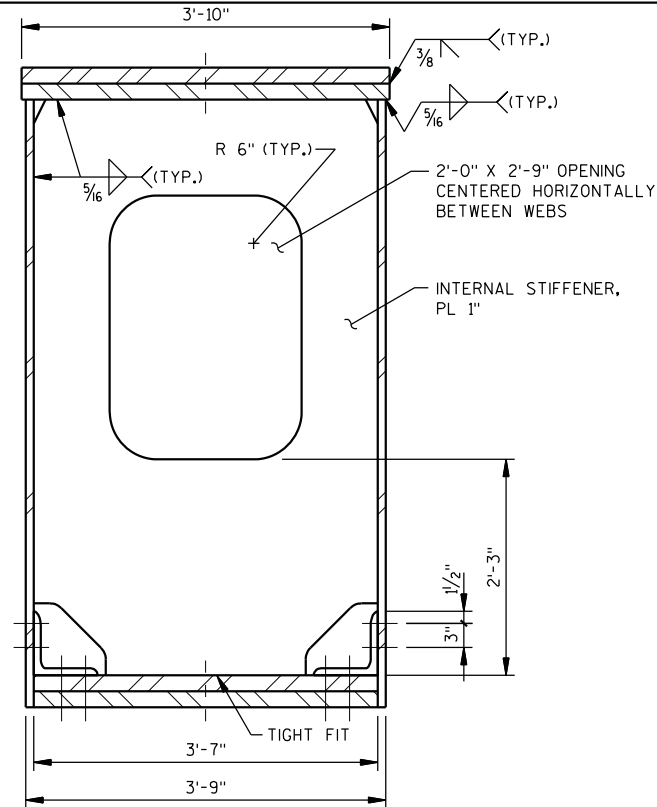
SECTION A-A

SEE BOX DETAIL ON SHEET 8 FOR FABRICATION DETAILS

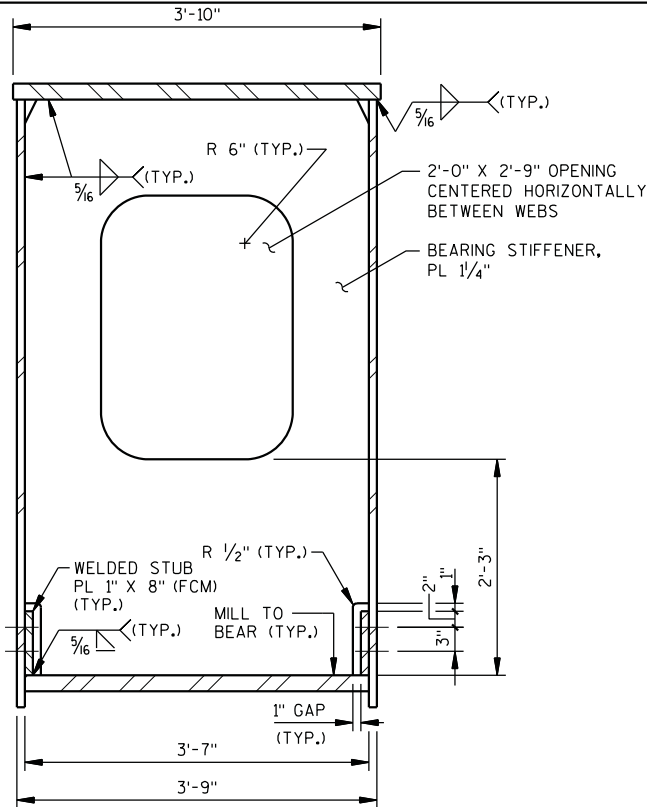
STRADDLE BENT DEAD LOAD DEFLECTIONS TABLE (INCHES)

	G1	G2	G3	G4	G5	G6	G7	G8	S1	S2
SELF WEIGHT	0.00	0.07	0.14	0.19	0.23	0.25	0.25	0.24	0.17	0.06
PLATE GIRDERS	0.00	0.19	0.36	0.50	0.60	0.65	0.64	0.59	0.41	0.15
CONCRETE	0.00	0.55	1.05	1.46	1.75	1.89	1.88	1.73	1.20	0.44
TOTAL	0.00	0.81	1.55	2.15	2.57	2.78	2.77	2.56	1.78	0.66

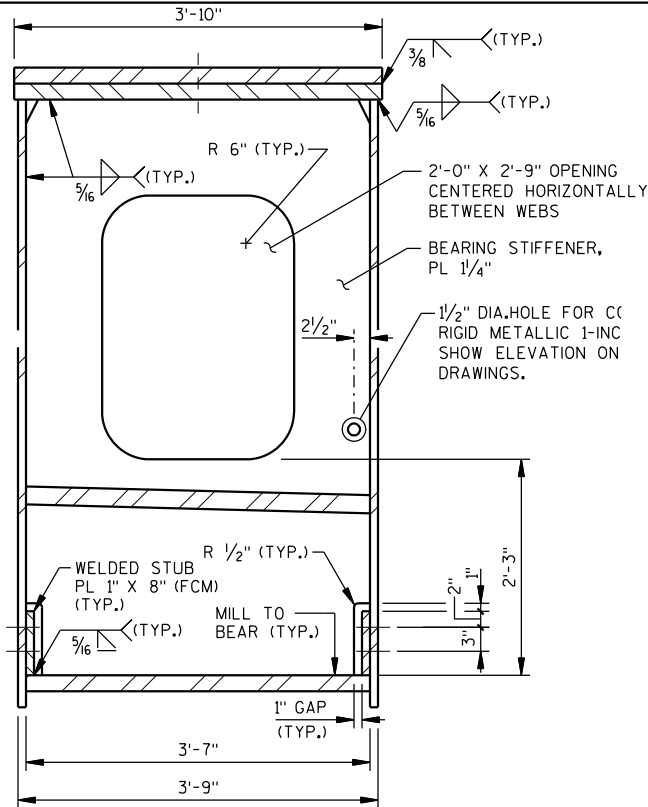
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
DRAWN BY		MJK	PLANS CKD. ETP
STRADDLE BENT DETAILS-1			SHEET 7 OF 15



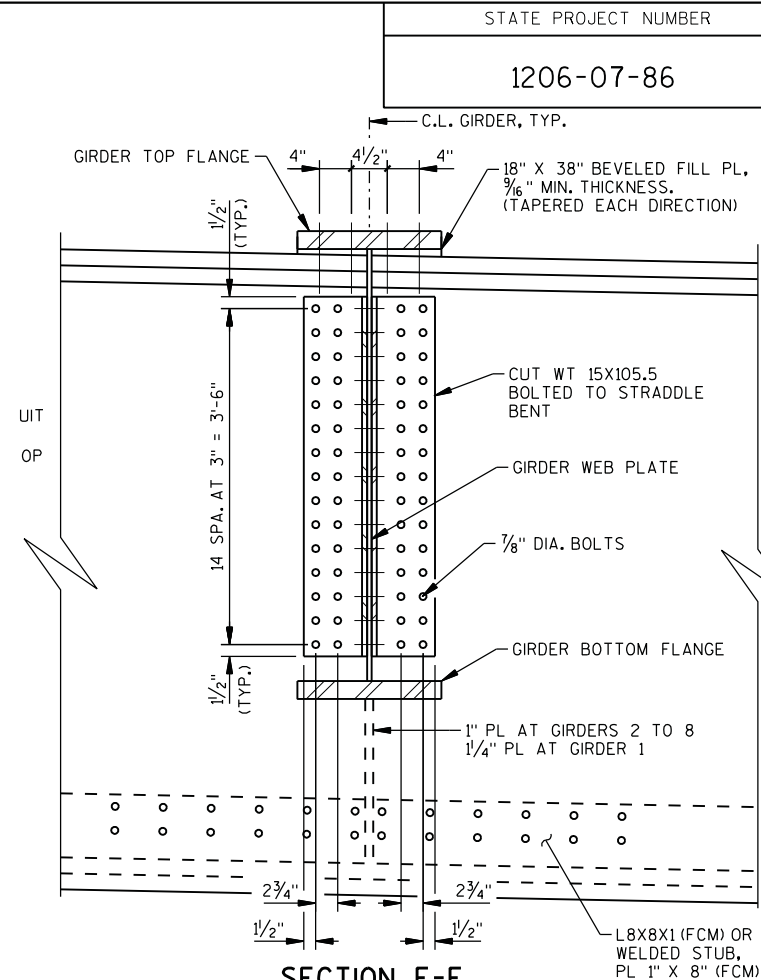
SECTION B-B
INTERNAL STIFFENER
(SECTION THRU STRADDLE BENT)



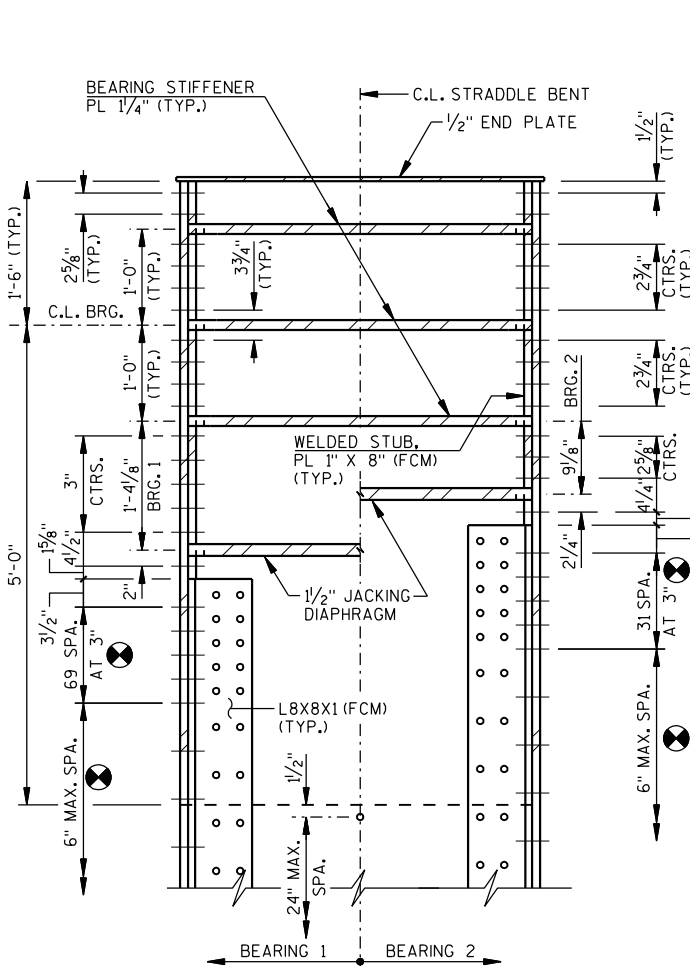
SECTION C-C
BEARING STIFFENER AT BEARING 2
(SECTION THRU BEARING)



SECTION D-D
BEARING STIFFENER AT GIRDER 1
(SECTION THRU BEARING)

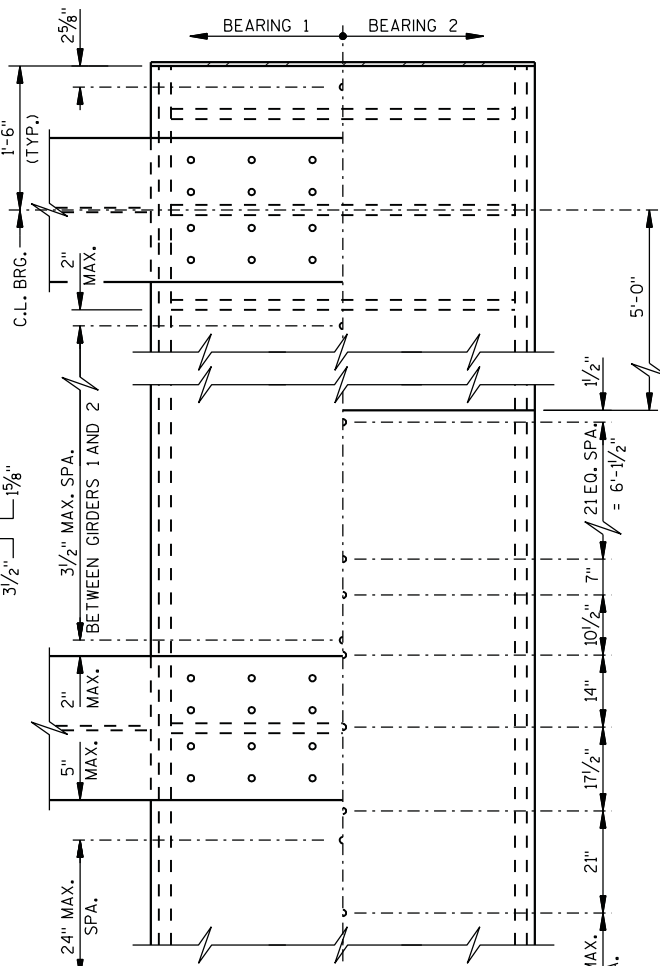


SECTION E-E
SEE GIRDER ELEVATION SHEETS FOR GIRDER PLATE SIZES.
SEE SECTION AT BEARINGS FOR BOLT SPACING.



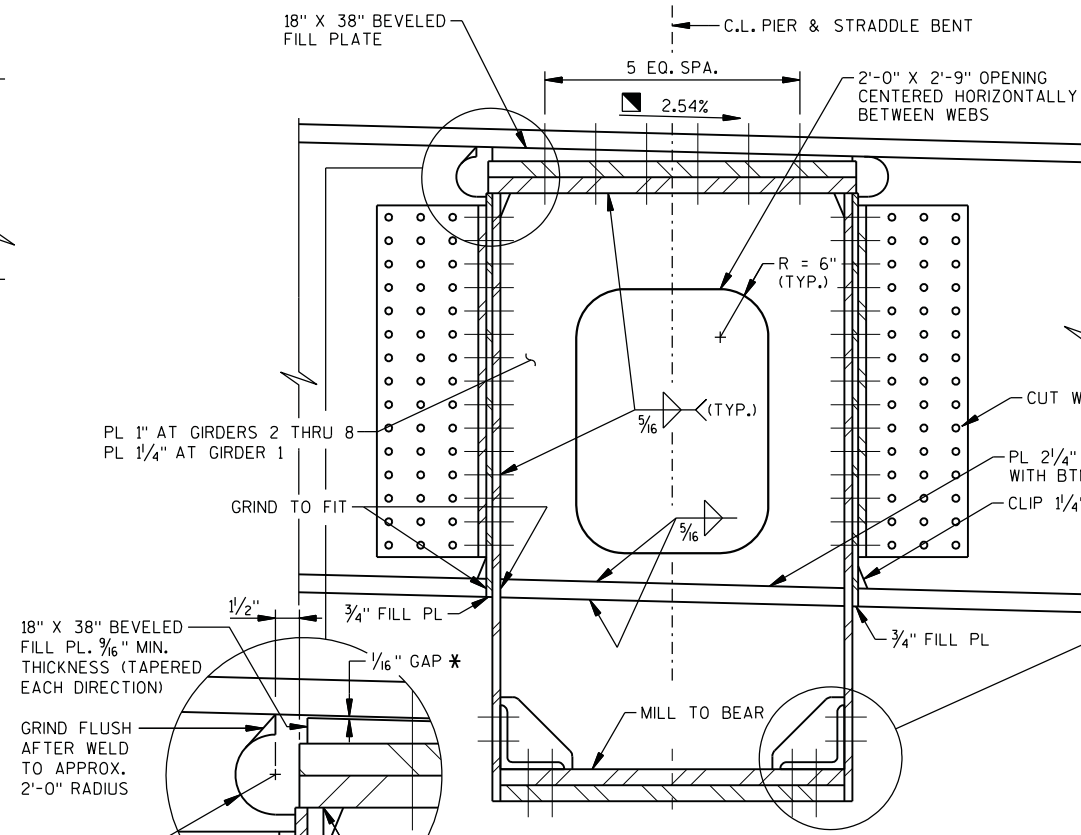
BTM. FLANGE AT BEARINGS

BOTH ENDS OF STRADDLE BENT SHOWN
TYPICAL AT HORIZONTAL AND VERTICAL LEGS OF ANGLE



TOP FLANGE AT BEARINGS

BOTH ENDS OF STRADDLE BENT SHOWN

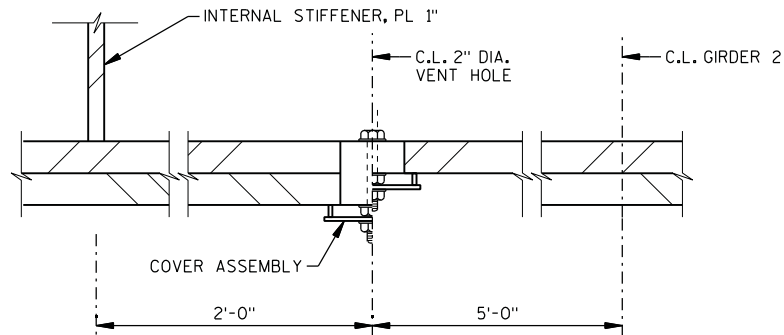


BOX DETAIL

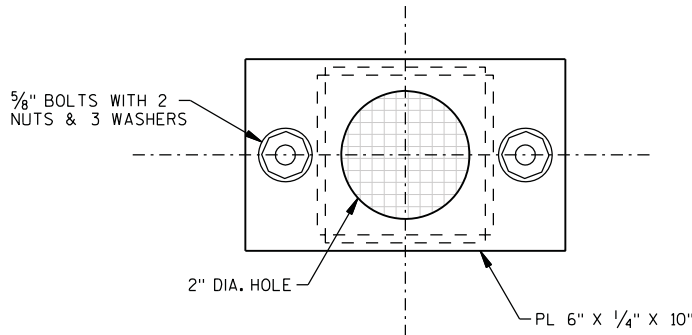
* DURING ERECTION TIGHTEN BOLTS
TO ELIMINATE OR MINIMIZE GAP.

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
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STRADDLE BENT DETAILS-2			SHEET 8 OF 15

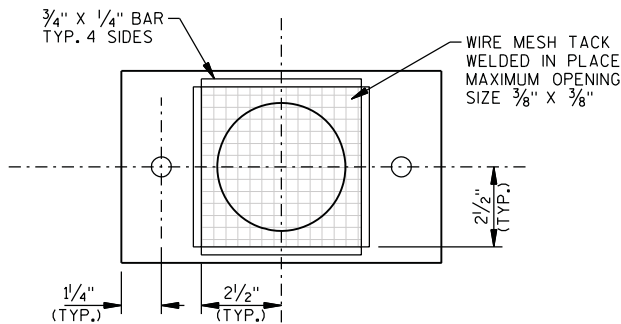
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VENT HOLE LOCATION



FRONT FACE OF COVER



BACK FACE OF COVER

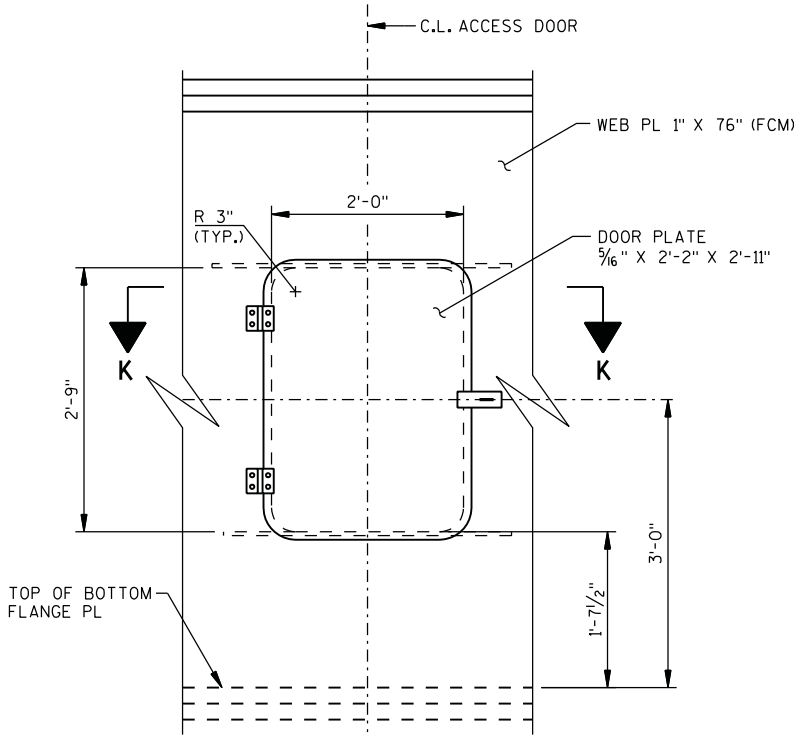
VENT HOLE COVER ASSEMBLY

NOT TO SCALE

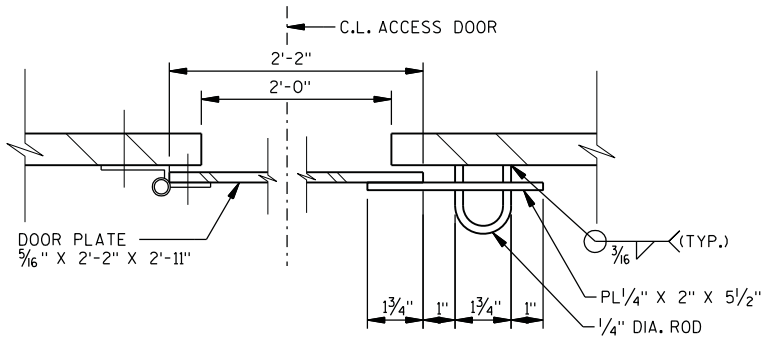
NOTES

VENT HOLE COVER ASSEMBLY SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION AND PAINTED TO MATCH EXTERIOR COLOR OF BENT.

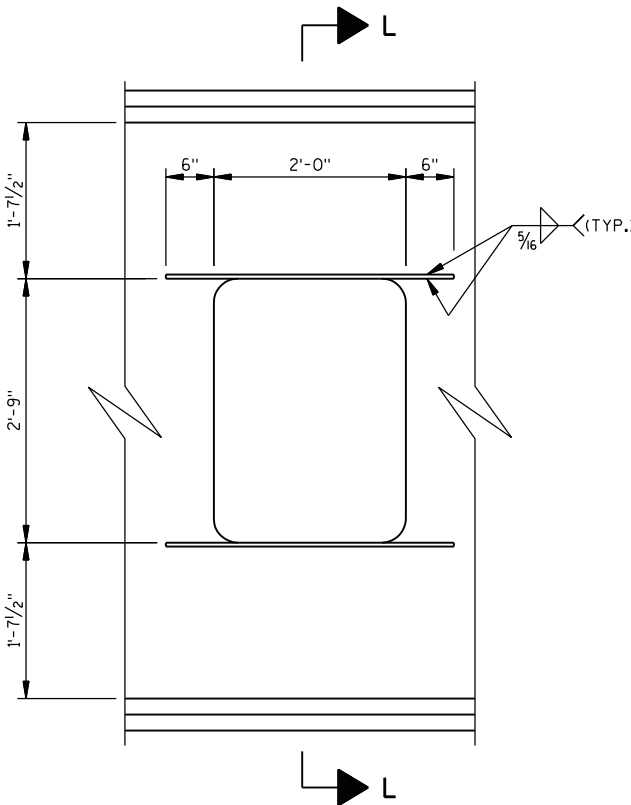
STRUCTURAL STEEL FOR STRADDLE BENT FLANGES TO BE HIGH STRENGTH STRUCTURAL STEEL, ASTM A709 GRADE HPS 70W. STRUCTURAL STEEL FOR STRADDLE BENT WEBS, STIFFENERS, AND CONNECTION PLATES TO BE HIGH STRENGTH STRUCTURAL STEEL, ASTM A709 GRADE HPS 50W. CONNECTION ANGLES, END PLATES AND ACCESS DOORS MAY BE ASTM A709 GRADE 50.



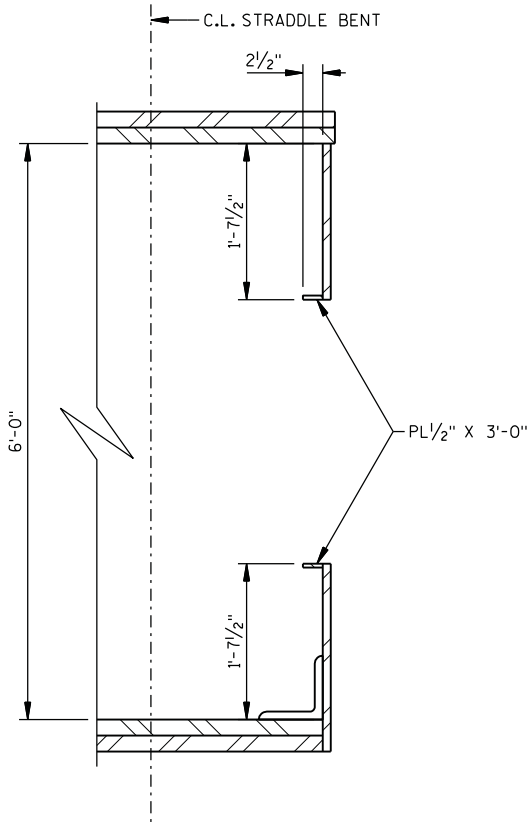
ACCESS DOOR DETAIL



SECTION K-K



ACCESS DOOR REINFORCEMENT

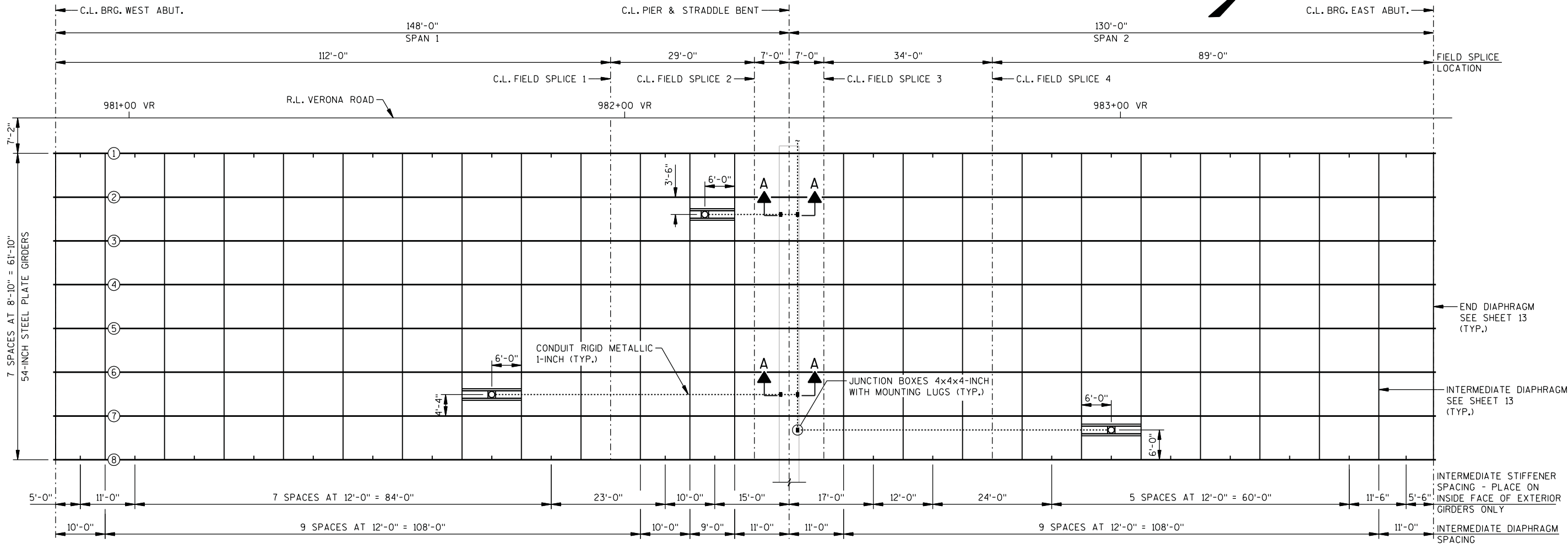


SECTION L-L

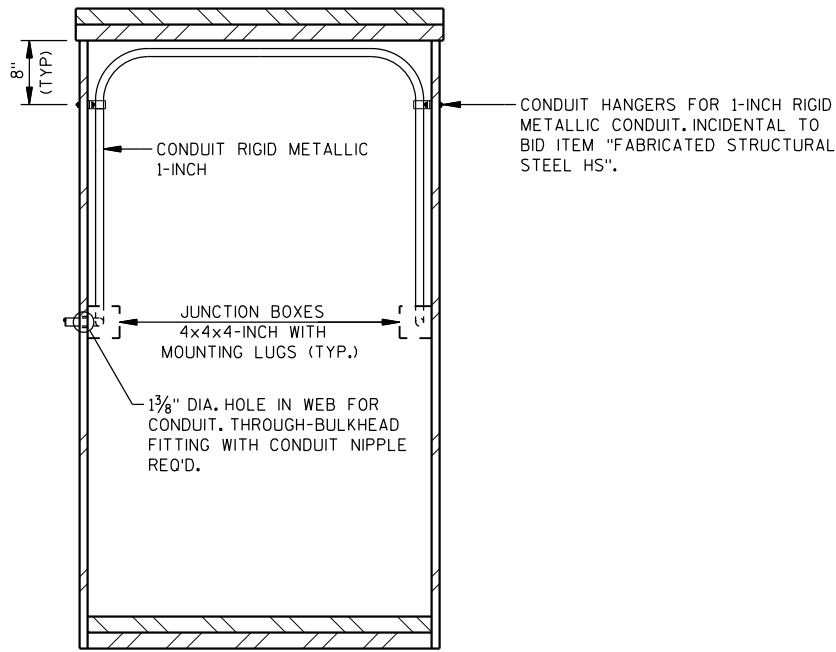
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-13-650			
DRAWN BY		MJK	PLANS CK'D. ETP
STRADDLE BENT DETAILS-3			SHEET 9 OF 15

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BATCH PRINT SHEET 10 OF 15

8



FRAMING PLAN



SECTION A-A

LIGHTING NOTES & LEGEND

CONDUIT SHALL EXIT THROUGH STRADDLE BENT WEB AT TOP OF DIAPHRAGM BOTTOM CHORD ELEVATION. SEE SHEET 13.

MOUNTING HOLES FOR CLAMPS AND JUNCTION BOXES SHALL BE SHOP DRILLED.

☒ LIGHTING FIXTURE. SEE SHEET 13 FOR CONNECTION DETAILS.

CONDUIT RIGID METALLIC 1-INCH AND THROUGH-BULKHEAD FITTINGS WILL BE INSTALLED IN A SEPARATE CONTRACT.

FRAMING NOTES

ALL DIAPHRAGMS TO BE ASTM A709 GRADE 36.

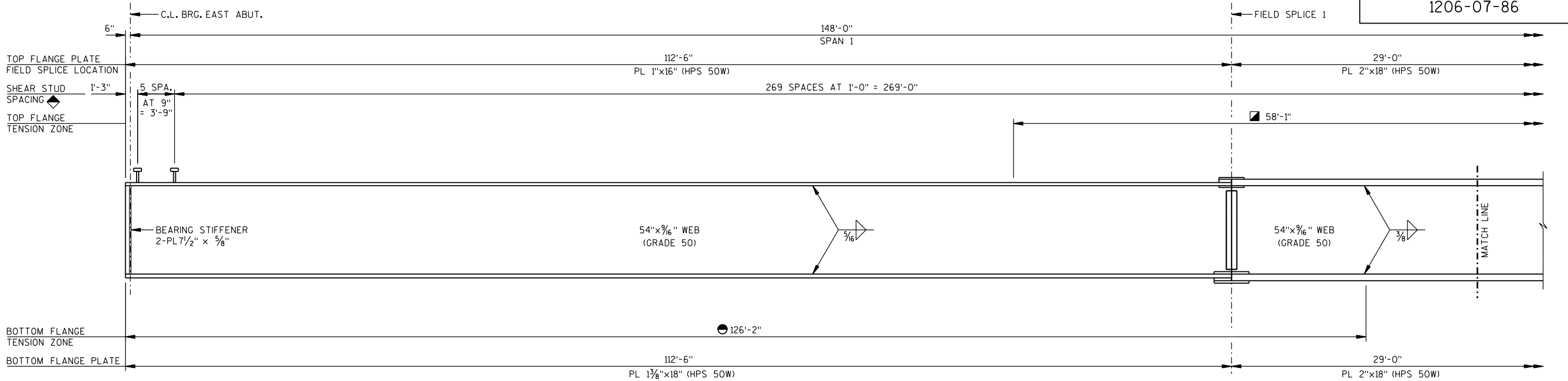
ALL CONNECTIONS TO BE MADE WITH 7/8" DIAMETER FRICTION TYPE HIGH TENSILE STRENGTH BOLTS (ASTM A325)

NO.	DATE	REVISION	BY
		STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
		STRUCTURE B-13-650	
		DRAWN BY: MJK	PLANS CK'D: MSK
		FRAMING PLAN	SHEET 10 OF 15

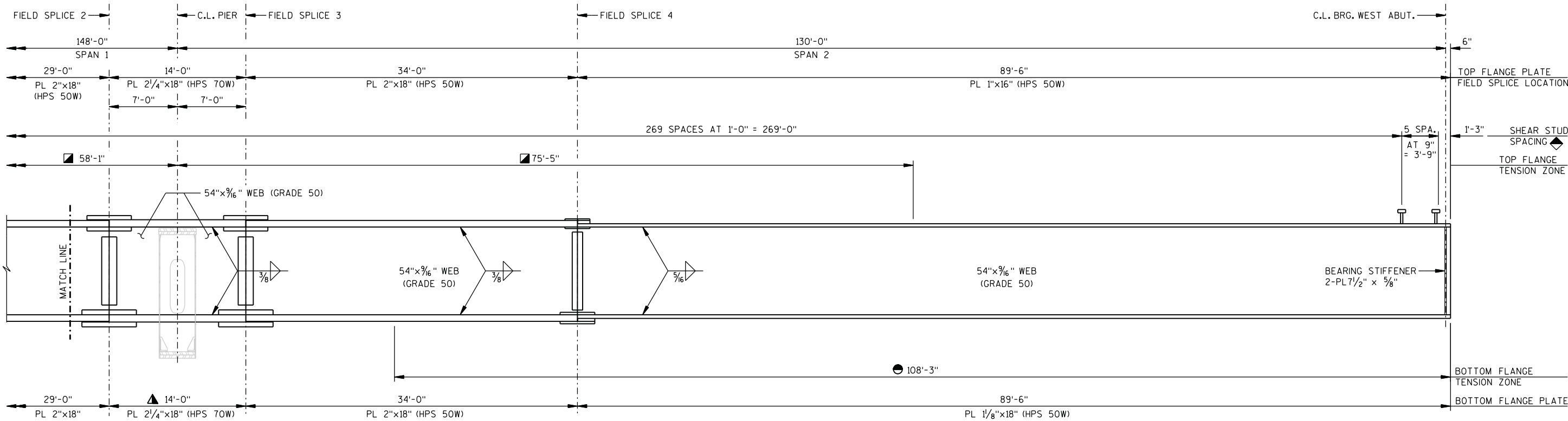
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PLOT DATE: 6/19/2013
PLOT TIME: 22:06:32 PM
BATCH PRINT SHEET 11 OF 15

8



GIRDER ELEVATION
(TYP. ALL GIRDERS)



GIRDER ELEVATION
(TYP. ALL GIRDERS)

NOTES

- NO FIELD WELDING TO BOTTOM FLANGE PERMITTED IN THIS AREA.
- NO FIELD WELDING TO TOP FLANGE PERMITTED IN THIS AREA, EXCEPT FOR SHEAR STUD CONNECTORS.
- SEE STRADDLE BENT DETAILS TO DETERMINE LENGTH OF WEB PLATE AND BOTTOM FLANGE PLATE REQUIRED IN THIS AREA. PLATE LENGTHS ARE INTERRUPTED BY THE STRADDLE BENT.
- SHEAR STUDS NEED NOT BE PLACED ON SPLICE PLATES. STUDS THAT FALL OVER SPLICE PLATES SHALL BE DISTRIBUTED EVENLY TO EACH SIDE OF THE SPLICE.

STATE PROJECT NUMBER

1206-07-86

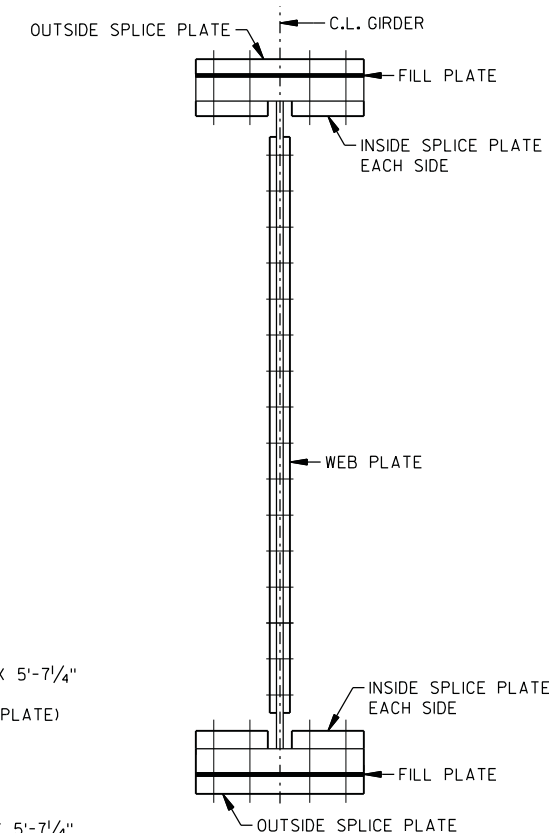
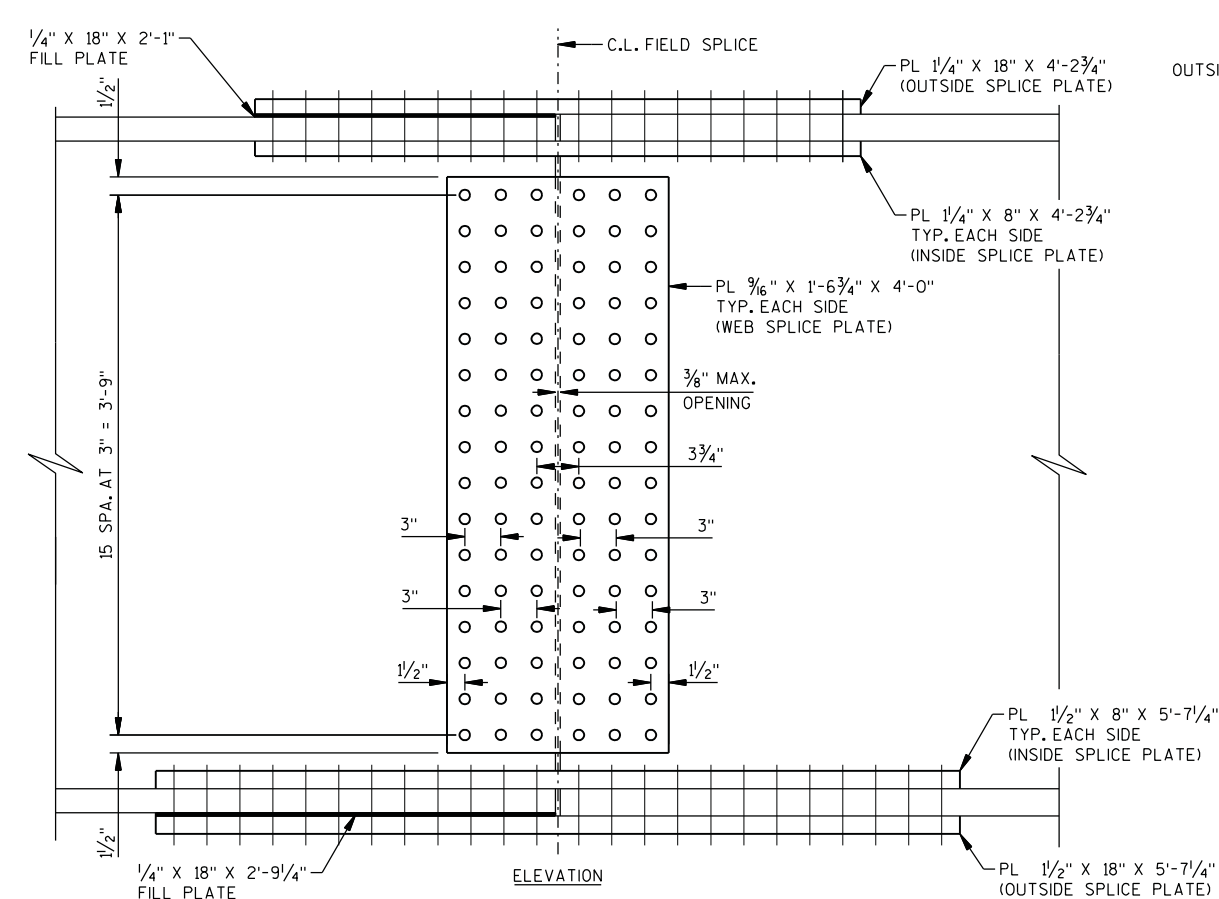
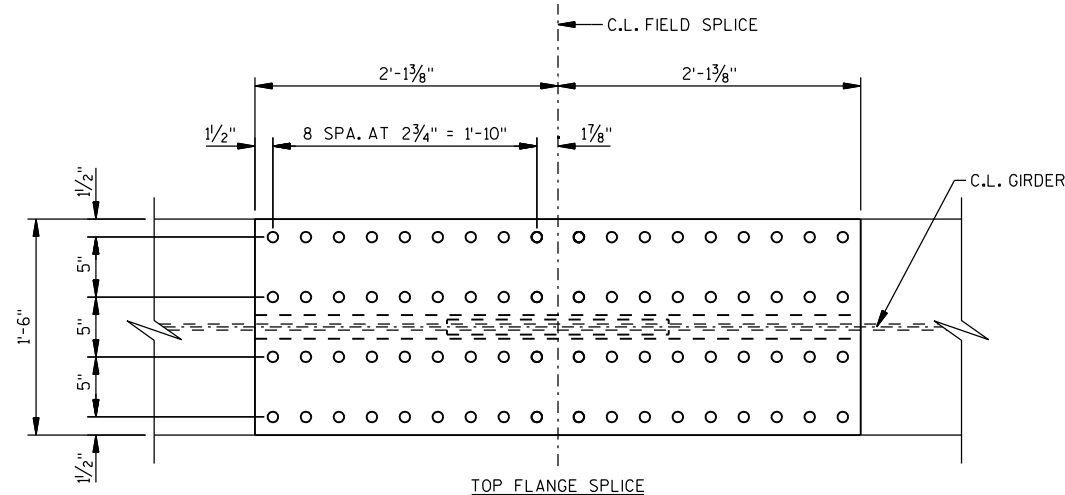
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GIRDER ELEVATION		SHEET 11 OF 15	

8

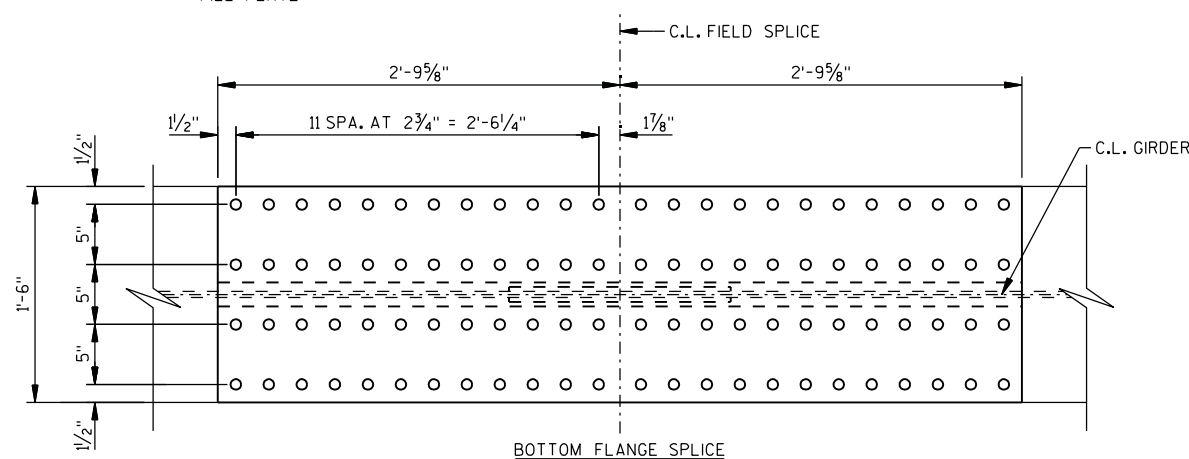
OPTIONAL WELDED SHOP SPLICES MAY BE USED FOR ALL FLANGE AND WEB PLATES OVER 60'-0" LONG. IF USED, THE LOCATION OF THE SPLICE SHALL BE SHOWN ON SHOP DRAWINGS AND WILL BE SUBJECT TO THE APPROVAL OF THE STRUCTURES DESIGN SECTION.

PLACE FIELD SPLICE NUTS UP ON ALL FLANGES AND IN ON ALL WEBS
OF EXTERIOR GIRDERS.

ALL FIELD SPLICE CONNECTIONS SHALL BE MADE WITH $\frac{7}{8}$ " DIAMETER FRICTION TYPE HIGH-TENSILE STRENGTH BOLTS (ASTM A325).



FIELD SPLICE SECTION



FIELD SPlice 1 & 4
FLANGE SPlice STEEL IS A709 GRADE HPS 50W
WEB SPlice STEEL IS A709 GRADE 50

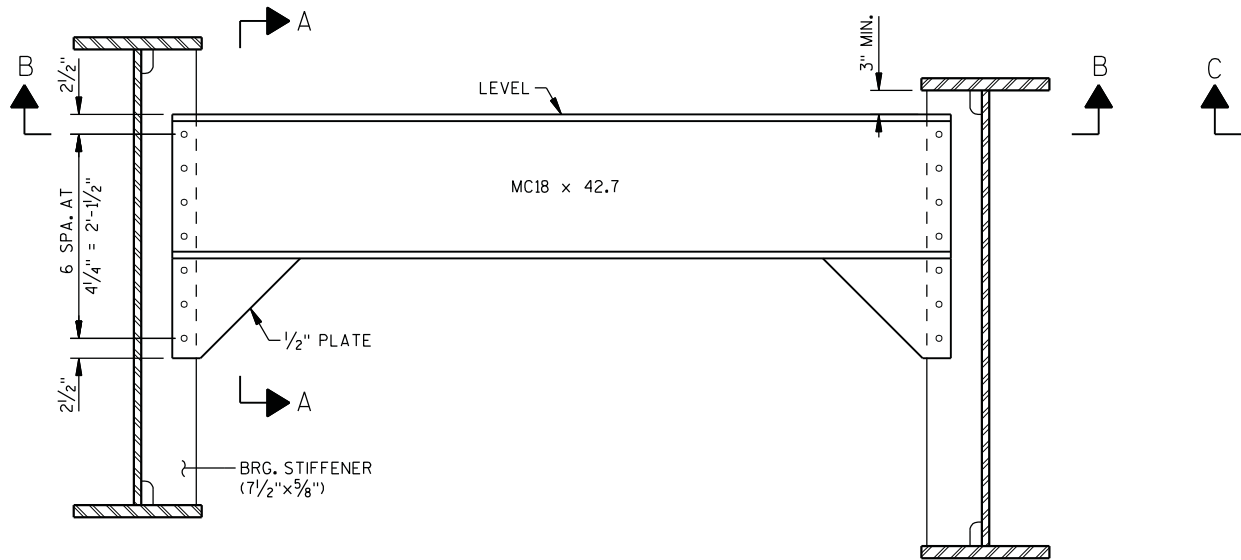
FIELD SPLICE 2 & 3
FLANGE SPLICE STEEL IS A709 GRADE HPS 70W
WEB SPLICE STEEL IS A709 GRADE 50

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		DRAWN BY	MJK PLANS CK'D. MSK
GIRDER FIELD SPlice DETAILS		SHEET 12 OF 15	

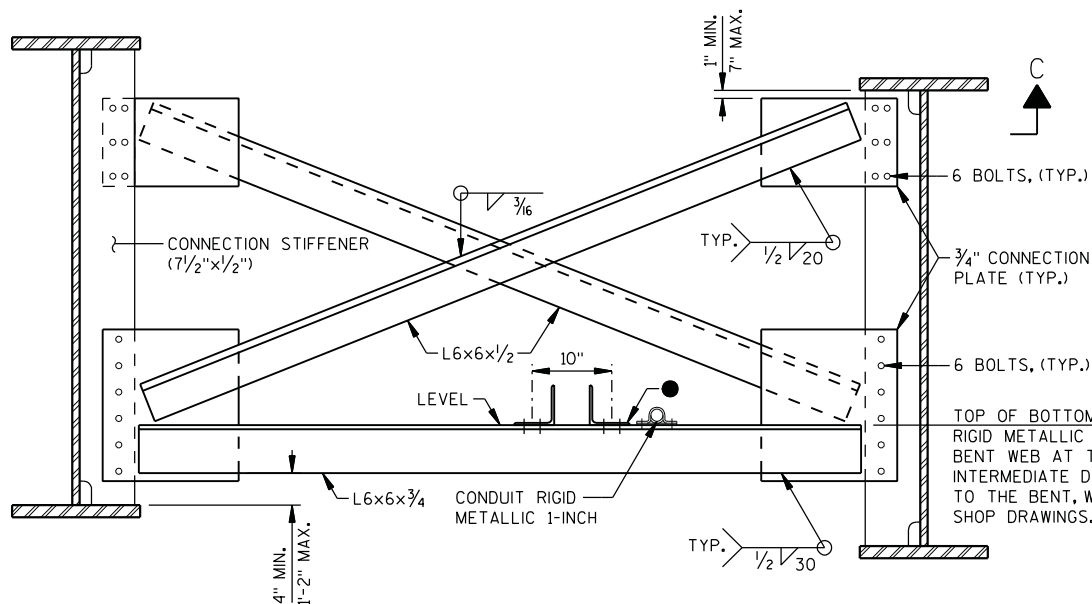
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BATCH PRINT SHEET 13 OF 15

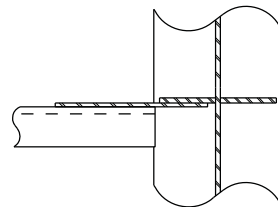
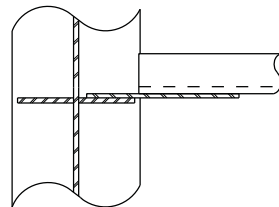
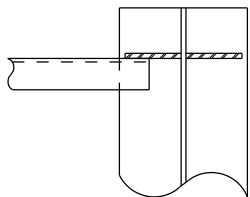
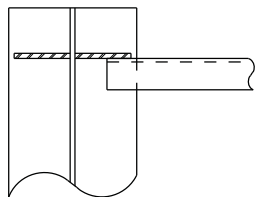
8



END DIAPHRAGM AT ABUTMENTS

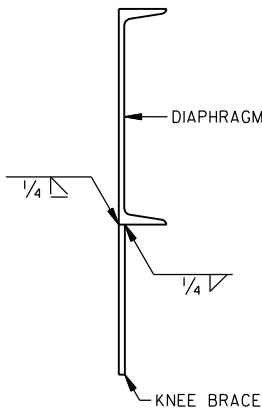


TYPICAL DIAPHRAGM IN SPAN

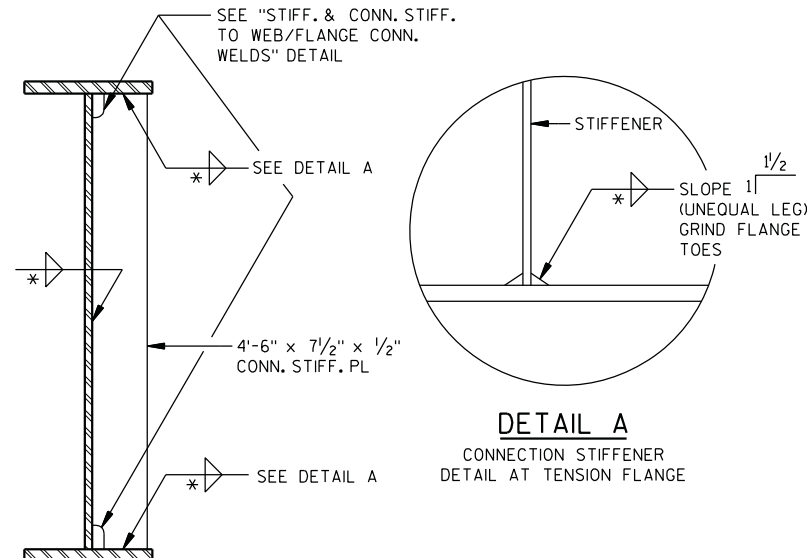


SECTION B-B

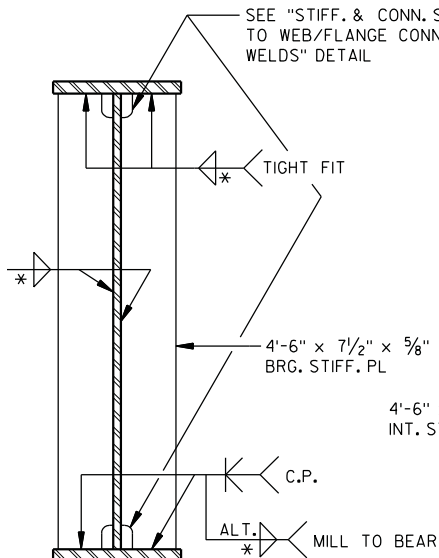
SECTION C-C



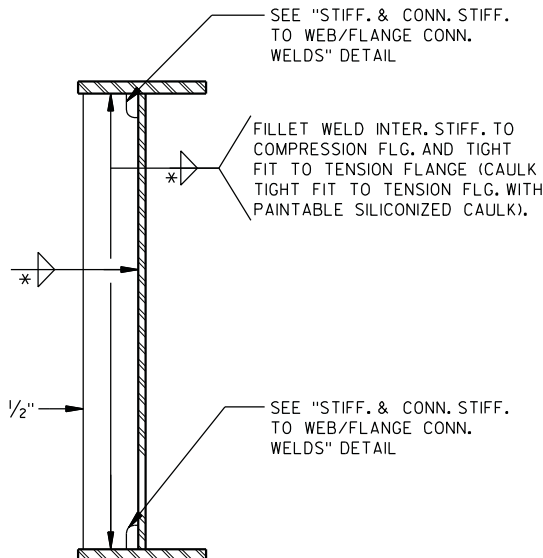
SECTION A-A



CONNECTION STIFF. DETAILS



BRG. STIFF. DETAILS
TYP. AT ABUT.



INTERMEDIATE STIFF. DETAILS
(EXTERIOR GIRDERS)

NOTES

ALL BOLTED CONNECTIONS SHALL BE FRICTION TYPE USING 7/8" DIA. HIGH STRENGTH ASTM A325 BOLTS WITH DOUBLE WASHERS.

HOLES IN CROSS FRAME CONNECTIONS SHALL NOT BE OVERSIZED.

● LIGHTING SUPPORT BRACKET L5x5x5/16. SEE SHEET 10 FOR LOCATIONS OF LIGHTING AND SUPPORT BRACKETS.

ALL DIAPHRAGM AND STIFFENER STEEL TO BE ASTM A709 GRADE 36.

CONDUIT RIGID METALLIC 1-INCH AND THROUGH-BULKHEAD FITTINGS WILL BE INSTALLED IN A SEPARATE CONTRACT.

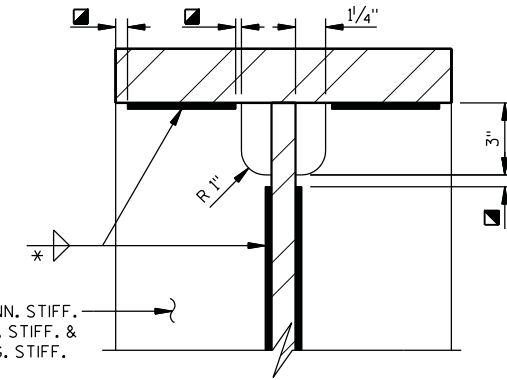
TOP OF BOTTOM CHORD ELEVATION.
RIGID METALLIC CONDUIT 1-INCH TO EXIT BENT WEB AT THIS ELEVATION ON INTERMEDIATE DIAPHRAGMS ADJACENT TO THE BENT, WHERE REQ'D. DETAIL ON SHOP DRAWINGS.

* TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"
OVER 2 1/4" TO 6"	1/2"

* EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

▲ MIN. PASS SIZE IS 5/16"



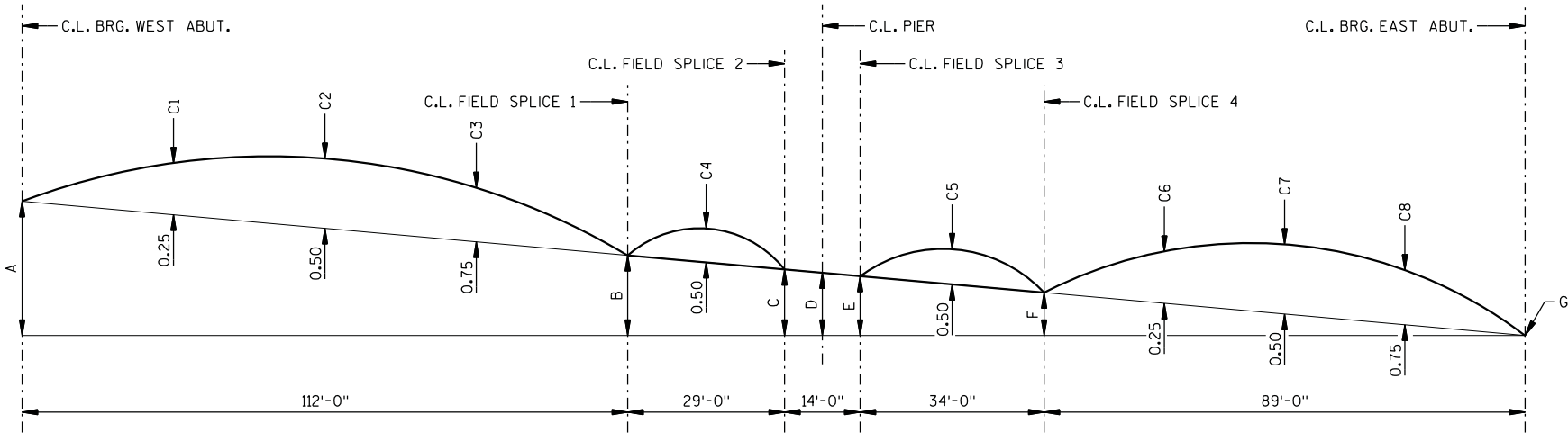
STIFF. & CONN. STIFF. TO
WEB/FLANGE CONN. WELDS

1/4" MIN., 1/2" MAX. (TYP.)

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GIRDER DETAILS		SHEET 13 OF 15	

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CAMBER AND BLOCKING

BLOCKING DIMENSIONS (FEET)

	ABUT	FS #1	FS #2	PIER	FS #3	FS #4	ABUT
	A	B	C	D	E	F	G
GIRDERS 1 - 8	6.84	4.77	4.01	3.84	3.65	2.80	0.00

CAMBER DIMENSIONS (INCHES)

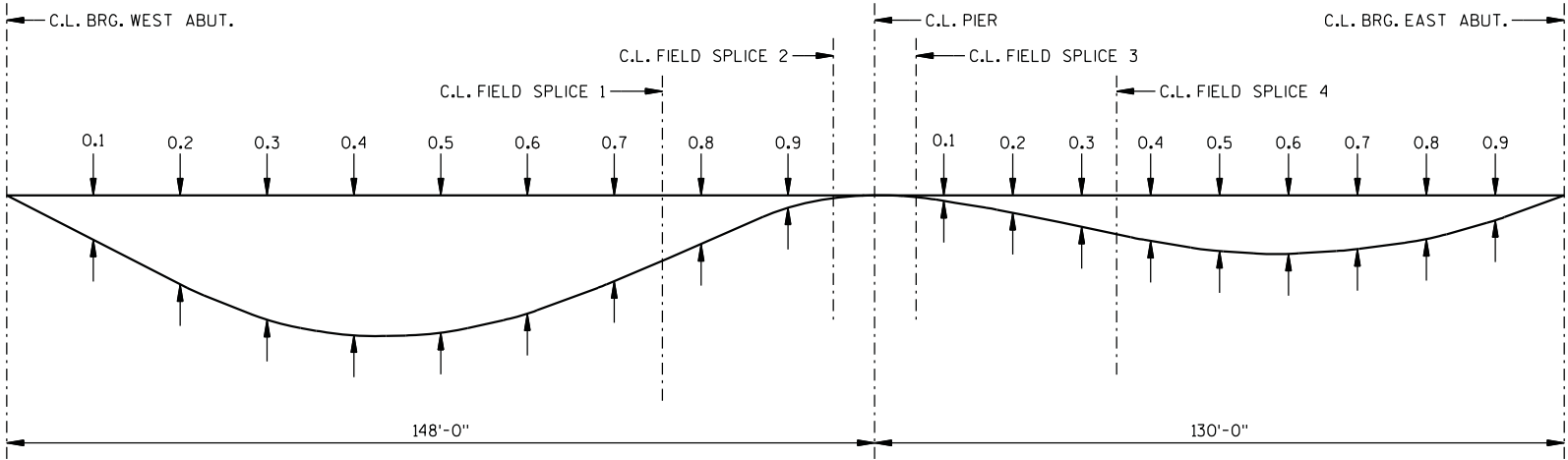
	C1	C2	C3	C4	C5	C6	C7	C8
GIRDER 1	4.2	6.0	4.9	1.0	0.9	2.9	3.2	2.2
GIRDER 2	4.3	6.2	5.0	1.0	0.9	3.0	3.3	2.3
GIRDER 3	4.4	6.4	5.1	1.0	0.9	3.1	3.4	2.3
GIRDER 4	4.5	6.4	5.2	1.0	0.9	3.1	3.5	2.4
GIRDER 5	4.5	6.5	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 6	4.6	6.5	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 7	4.6	6.6	5.3	1.0	0.9	3.2	3.5	2.4
GIRDER 8	4.6	6.6	5.4	1.0	0.9	3.2	3.6	2.4

TOP-OF-DECK ELEVATIONS

LOCATION	W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	PIER	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	E. ABUT.
FACE OF CURB	1024.82	1024.63	1024.41	1024.18	1023.93	1023.66	1023.37	1023.06	1022.73	1022.39	1022.02	1021.68	1021.33	1020.96	1020.58	1020.18	1019.77	1019.35	1018.90	1018.45	1017.98
GIRDER 1	1024.84	1024.65	1024.43	1024.20	1023.95	1023.68	1023.39	1023.08	1022.75	1022.41	1022.04	1021.70	1021.35	1020.98	1020.60	1020.20	1019.79	1019.37	1018.92	1018.47	1018.00
GIRDER 2	1025.02	1024.82	1024.61	1024.38	1024.13	1023.86	1023.57	1023.26	1022.93	1022.58	1022.22	1021.88	1021.53	1021.16	1020.78	1020.38	1019.97	1019.54	1019.10	1018.65	1018.17
GIRDER 3	1024.96	1024.77	1024.55	1024.32	1024.07	1023.80	1023.51	1023.20	1022.87	1022.53	1022.16	1021.82	1021.47	1021.10	1020.72	1020.32	1019.91	1019.49	1019.04	1018.59	1018.12
GIRDER 4	1024.78	1024.59	1024.38	1024.14	1023.89	1023.62	1023.33	1023.02	1022.70	1022.35	1021.98	1021.64	1021.29	1020.93	1020.54	1020.15	1019.74	1019.31	1018.87	1018.41	1017.94
GIRDER 5	1024.61	1024.41	1024.20	1023.97	1023.72	1023.45	1023.16	1022.85	1022.52	1022.17	1021.81	1021.47	1021.12	1020.75	1020.37	1019.97	1019.56	1019.13	1018.69	1018.24	1017.76
GIRDER 6	1024.43	1024.24	1024.02	1023.79	1023.54	1023.27	1022.98	1022.67	1022.34	1022.00	1021.63	1021.29	1020.94	1020.57	1020.19	1019.79	1019.38	1018.96	1018.51	1018.06	1017.59
GIRDER 7	1024.25	1024.06	1023.85	1023.61	1023.36	1023.09	1022.80	1022.49	1022.17	1021.82	1021.45	1021.11	1020.76	1020.40	1020.01	1019.62	1019.21	1018.78	1018.34	1017.88	1017.41
GIRDER 8	1024.08	1023.88	1023.67	1023.44	1023.19	1022.92	1022.63	1022.32	1021.99	1021.64	1021.28	1020.94	1020.59	1020.22	1019.84	1019.44	1019.03	1018.60	1018.16	1017.71	1017.23
FACE OF PPT	1024.02	1023.82	1023.61	1023.38	1023.13	1022.86	1022.57	1022.26	1021.93	1021.58	1021.22	1020.88	1020.53	1020.16	1019.78	1019.38	1018.97	1018.54	1018.10	1017.65	1017.17

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		DRAWN BY	MJK PLANS CK'D. ETP
CAMBER & BLOCKING DIAGRAMS		SHEET 14 OF 15	

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DEAD LOAD DEFLECTIONS

DEAD LOAD DEFLECTIONS (INCHES)

		W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	FS #1	0.8	0.9	FS #2	PIER	FS #3	1.1	1.2	1.3	FS #4	1.4	1.5	1.6	1.7	1.8	1.9	E. ABUT.
GIRDER 1	CONC. DEFL.	0.0	1.3	2.5	3.2	3.6	3.4	2.9	2.1	1.6	1.2	0.5	0.2	0.0	-0.1	-0.1	0.1	0.5	0.6	0.9	1.2	1.4	1.3	1.1	0.6	0.0
	TOTAL DEFL.	0.0	1.8	3.3	4.3	4.8	4.6	3.9	2.9	2.2	1.7	0.6	0.3	0.0	-0.1	-0.1	0.2	0.7	0.8	1.2	1.6	1.9	1.8	1.4	0.8	0.0
GIRDER 2	CONC. DEFL.	0.0	1.4	2.6	3.5	3.8	3.7	3.2	2.3	1.8	1.4	0.5	0.2	0.0	0.0	0.0	0.2	0.6	0.7	1.1	1.4	1.6	1.5	1.2	0.7	0.0
	TOTAL DEFL.	0.0	1.9	3.5	4.6	5.1	5.0	4.2	3.1	2.4	1.8	0.7	0.3	0.0	0.0	0.0	0.3	0.9	0.9	1.4	1.9	2.1	2.0	1.6	0.9	0.0
GIRDER 3	CONC. DEFL.	0.0	1.5	2.8	3.6	4.0	3.9	3.4	2.5	1.9	1.5	0.6	0.2	0.0	0.0	0.0	0.3	0.8	0.8	1.2	1.6	1.7	1.7	1.3	0.7	0.0
	TOTAL DEFL.	0.0	2.0	3.7	4.8	5.4	5.2	4.5	3.3	2.5	2.0	0.8	0.3	0.0	0.0	0.0	0.4	1.0	1.1	1.6	2.1	2.3	2.2	1.7	0.9	0.0
GIRDER 4	CONC. DEFL.	0.0	1.5	2.9	3.8	4.2	4.1	3.5	2.6	2.0	1.6	0.6	0.3	0.0	0.0	0.1	0.4	0.8	0.9	1.3	1.7	1.8	1.7	1.4	0.7	0.0
	TOTAL DEFL.	0.0	2.0	3.8	5.0	5.5	5.4	4.7	3.5	2.7	2.1	0.9	0.4	0.0	0.0	0.1	0.5	1.1	1.2	1.7	2.2	2.4	2.3	1.8	1.0	0.0
GIRDER 5	CONC. DEFL.	0.0	1.6	2.9	3.8	4.3	4.2	3.6	2.7	2.1	1.6	0.7	0.3	0.0	0.0	0.1	0.4	0.9	1.0	1.4	1.7	1.9	1.8	1.4	0.8	0.0
	TOTAL DEFL.	0.0	2.1	3.8	5.1	5.6	5.5	4.8	3.6	2.8	2.2	0.9	0.4	0.0	0.0	0.1	0.6	1.2	1.3	1.8	2.3	2.5	2.3	1.8	1.0	0.0
GIRDER 6	CONC. DEFL.	0.0	1.6	2.9	3.9	4.3	4.2	3.6	2.7	2.1	1.7	0.7	0.3	0.0	0.0	0.1	0.4	0.9	1.0	1.4	1.7	1.9	1.8	1.4	0.8	0.0
	TOTAL DEFL.	0.0	2.1	3.9	5.1	5.7	5.6	4.8	3.6	2.8	2.2	0.9	0.4	0.0	0.0	0.1	0.6	1.2	1.3	1.8	2.3	2.5	2.3	1.8	1.0	0.0
GIRDER 7	CONC. DEFL.	0.0	1.6	3.0	3.9	4.4	4.3	3.7	2.8	2.1	1.7	0.7	0.3	0.0	0.0	0.1	0.4	0.9	1.0	1.4	1.7	1.9	1.8	1.4	0.8	0.0
	TOTAL DEFL.	0.0	2.1	3.9	5.2	5.7	5.6	4.9	3.6	2.8	2.2	0.9	0.4	0.0	0.0	0.1	0.6	1.2	1.3	1.8	2.3	2.5	2.3	1.8	1.0	0.0
GIRDER 8	CONC. DEFL.	0.0	1.6	3.0	4.0	4.4	4.4	3.8	2.8	2.2	1.7	0.7	0.3	0.0	0.0	0.1	0.4	0.9	1.0	1.4	1.8	1.9	1.8	1.4	0.8	0.0
	TOTAL DEFL.	0.0	2.1	4.0	5.2	5.8	5.7	5.0	3.7	2.9	2.3	0.9	0.4	0.0	0.0	0.1	0.6	1.2	1.3	1.8	2.3	2.5	2.4	1.8	1.0	0.0

DEFLECTION NOTES

GIRDER DEFLECTIONS INCLUDE INFLUENCE OF FLOOR BEAM DEFLECTIONS AT PIER.

DEFLECTIONS ARE GIVEN IN DECIMALS OF AN INCH.

NEGATIVE VALUE INDICATES UPWARD DEFLECTION.

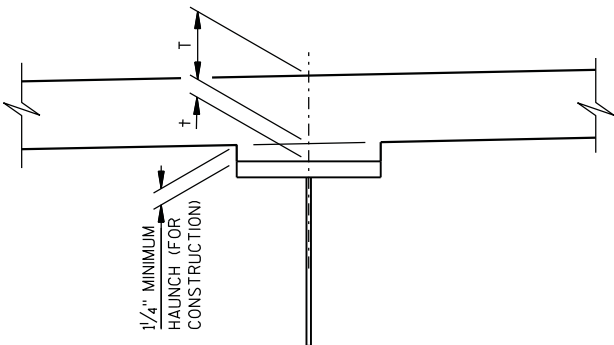
CONCRETE DEFLECTION INCLUDES CONCRETE SLAB, HAUNCH, PARAPET & MEDIAN.

TOTAL DEFLECTION INCLUDES ALL OF ABOVE PLUS DEFLECTIONS DUE TO SELF WEIGHT OF STEEL.

TOP OF ERECTED STEEL

	W. ABUT.	FS #1	FS #2	PIER	FS #3	FS #4	E. ABUT.
GIRDER 1	1023.87	1022.18	1021.45	1021.05	1021.07	1020.12	1017.03
GIRDER 2	1024.04	1022.37	1021.62	1021.23	1021.25	1020.31	1017.20
GIRDER 3	1023.99	1022.33	1021.57	1021.18	1021.19	1020.27	1017.15
GIRDER 4	1023.81	1022.16	1021.40	1021.00	1021.02	1020.10	1016.97
GIRDER 5	1023.63	1021.99	1021.22	1020.83	1020.84	1019.92	1016.79
GIRDER 6	1023.46	1021.82	1021.04	1020.65	1020.67	1019.75	1016.62
GIRDER 7	1023.28	1021.64	1020.87	1020.47	1020.49	1019.57	1016.44
GIRDER 8	1023.10	1021.47	1020.69	1020.30	1020.31	1019.39	1016.26

THESE ELEVATIONS ARE TO TOP OF STEEL (SPlice AND COVER PLATE THICKNESS, IF APPLICABLE, ARE ACCOUNTED FOR) AND THEY ARE FOR THE MATERIAL AS ERECTED. THE ELEVATION OF THE TOP STEEL AT THE FIELD SPlice POINTS SHALL BE CHECKED, AND CORRECTED, IF POSSIBLE, AFTER ERECTION AND BEFORE PERMANENTLY BOLTING THE DIAPHRAGMS IN PLACE. TOP OF ERECTED STEEL ELEVATIONS INCLUDE DEFLECTIONS DUE TO SELF WEIGHT.



HAUNCH DETAIL

NOTES

+ = HAUNCH HEIGHT AT CENTERLINE OF GIRDER
HAUNCH HEIGHTS WILL NORMALLY BE MADE 2" AT EDGE OF GIRDER, AT ABUTMENTS, HINGES, AND FIELD SPLICES.

HAUNCH VARIATIONS NEED NOT BE SHOWN ON THE PLANS.

(TO DETERMINE "+": AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED. ELEVATIONS OF THE TOP FLANGES, TOP OF SPlice PLATES, OR TOP OF COVER PLATES, WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS, CENTERLINE OF FIELD SPLICES, AND AT 0.1 POINTS.

- TOP OF DECK ELEV. AT FINAL GRADE.

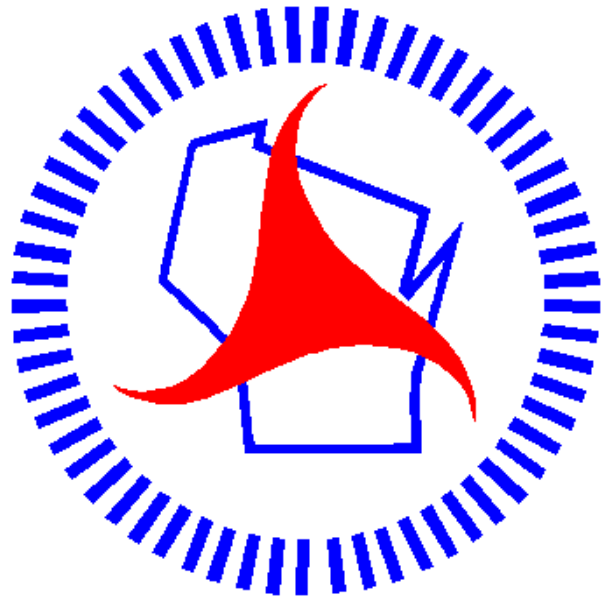
+ TOP OF STEEL ELEV. AFTER PLACEMENT.
CONC. ONLY DEFLECTION; DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED.

- SLAB THICKNESS ("T")

= "+" VALUE FOR SETTING HAUNCH.

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		DRAWN BY	MJK
		PLANS CK'D.	ETP
DEADLOAD DEFLECTIONS		SHEET 15 OF 15	

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>