

**MISSOURI DOT
BRIDGE REPAIR & REPLACEMENT PROJECT
F.A.R.M.
FIXING ACCESS TO RURAL MISSOURI**

GARY WISCH, P.E.

VICE PRESIDENT, ENGINEERING

DeLONG'S, INC.

MODOT GOALS

- REPAIR OR REPLACE BETWEEN 30 AND 40 BRIDGES
- REMOVE LOAD RESTRICTIONS
- MAKE ALL STRUCTURES TWO LANES WIDE
- STAY WITHIN BUDGET OF \$26 MILLION

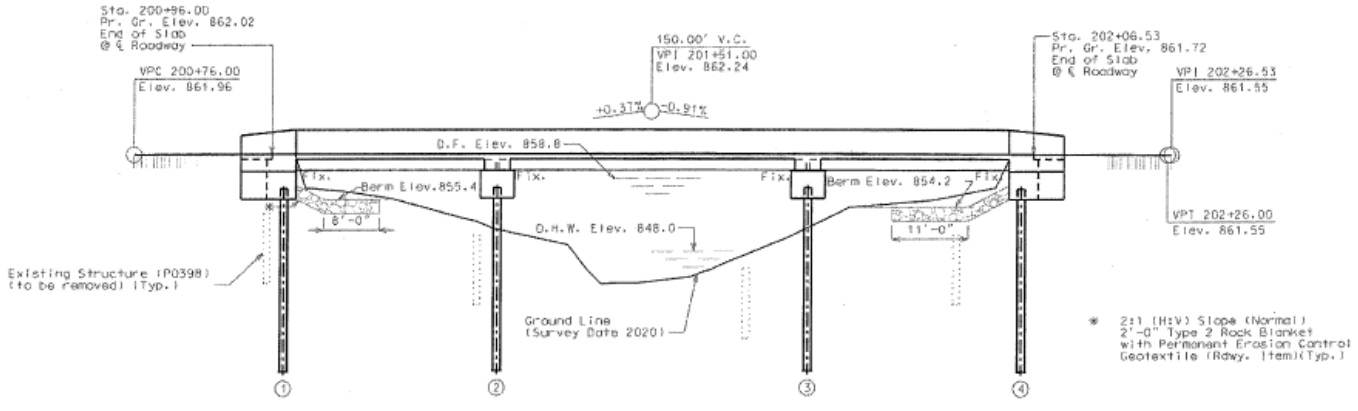
CRITERIA FOR JUDGING THE PROPOSALS

1. HOW MANY BRIDGES DO YOU PLAN TO REPAIR AND REPLACE?
2. HOW DURABLE AND LONG LASTING ARE THE BRIDGES?
3. HOW WILL YOU MINIMIZE DISRUPTION TO THE TRAVELING PUBLIC?

SUMMARY AND RECOMMENDATION

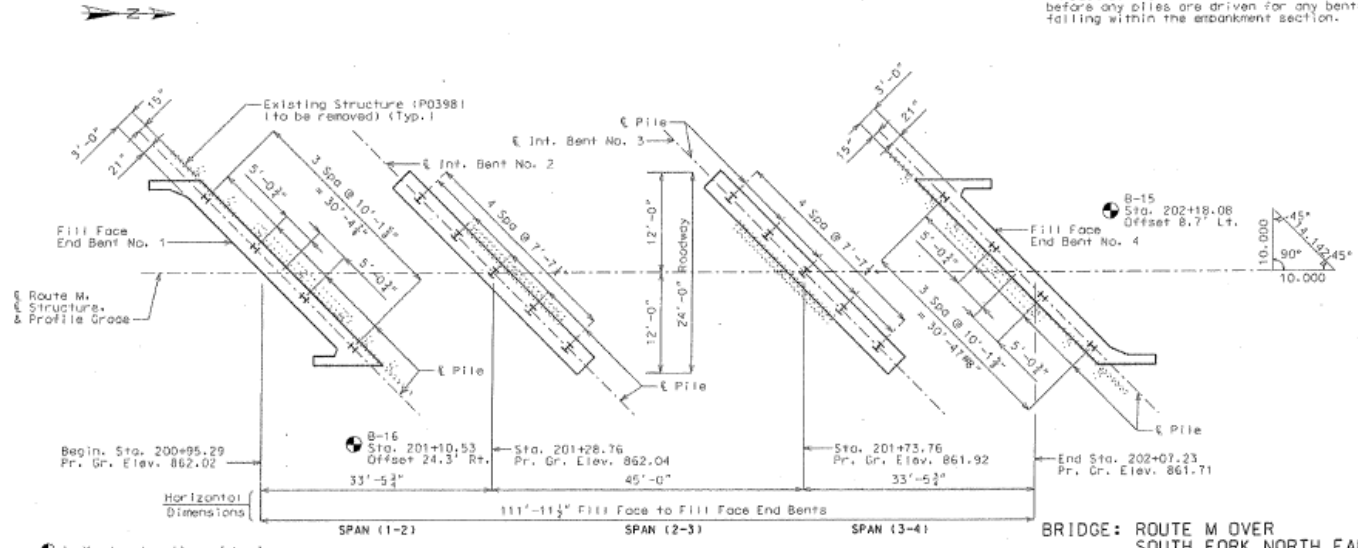
Category	Available Points	Team 1	Team 2	Team 3
Bridge Bundle Definition Part 1	40	39.7	38.3	40
Bridge Bundle Definition Part 2 (Bonus Points)	15	1.5	0	1.5
Bridge Quality and Longevity	30	18.7	20	21.7
Location Completion and Maintenance of Traffic	15	5.8	11.8	8.9
TOTAL	100	65.7	70.1	72.1

(31'-45'-31') CONTINUOUS COMPOSITE WIDE FLANGE BEAM SPANS



GENERAL ELEVATION

Note:
Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete approach beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.



PLAN

BRIDGE: ROUTE M OVER SOUTH FORK NORTH FABIVS RIVER
ROUTE M FROM MD-202 TO STATE LINE ABOUT 4.0 MILES NORTH OF MD-202
BEG. STA. 200+95.29

Designed Nov. 2021
Detailed Nov. 2021
Checked Dec. 2021

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 23

SCOTT M. SCHUYLER
PROFESSIONAL ENGINEER
No. 20766861
STATE OF MISSOURI

DATE PREPARED 2/17/2022			
DESIGNER M	CHECKER MQ		
DISTRICT NE	SHEET NO. 1		
COUNTY SCHUYLER			
JOB NO. J253318			
CONTRACT NO. 210601-B01			
PROJECT NO.			
BRIDGE NO. A9180			
NO.	DATE	BY	REVISIONS
1	10/13/21	PREL. PLANS	RELIEFING PACKAGE 1
2	11/20/21	FINAL PLANS	DESIGN PACKAGE 2
3	02/27/22	REV. PLANS	DESIGN PACKAGE 2

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

WILSON & COMPANY
ENGINEERS & ARCHITECTS

1888-45-48000-11125-215-20251
105 WEST CAPITOL AVENUE
JEFFERSON CITY, MO 64102

MOBILE: 816.766.0600
FAX: 816.766.0603
Mailing Office: 474 ARTHUR
JEFFERSON CITY, MO 64102

A9180-10



THIS SHEET HAS BEEN REVIEWED AND OK'D ELECTRONICALLY

DATE PREPARED: 2/17/2022

SHEET NO. 9

COUNTY: SCHUYLER

JOB NO.: J253318

CONTRACT ID: 210601-B01

PROJECT NO.:

BRIDGE NO. A9180

REVISIONS

NO. 1 APPR. BY DATE

NO. 2

NO. 3

NO. 4

NO. 5

NO. 6

NO. 7

NO. 8

NO. 9

NO. 10

NO. 11

NO. 12

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NO. 14

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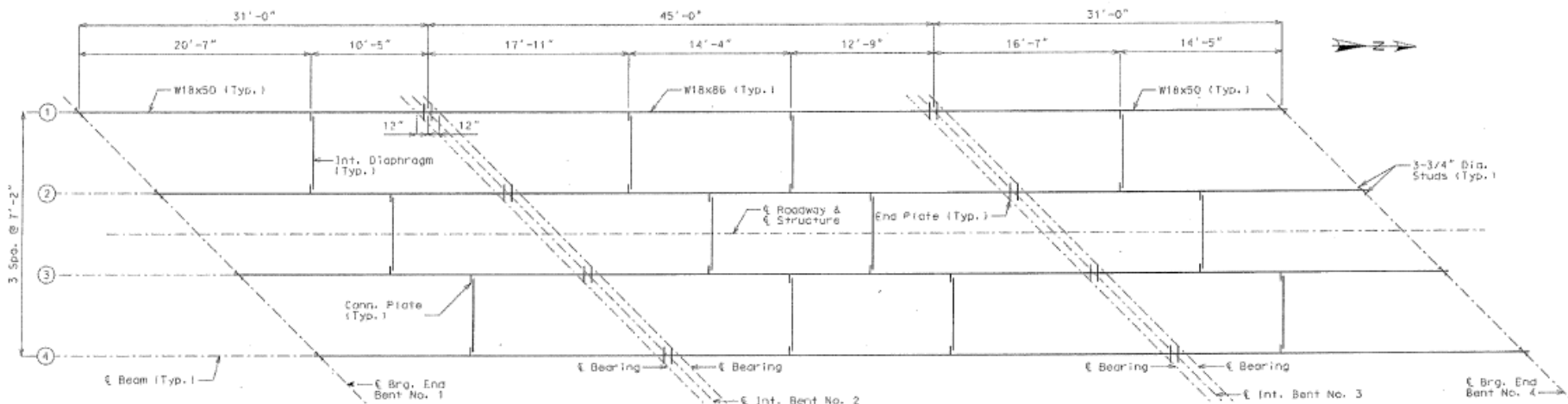
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NO. 30

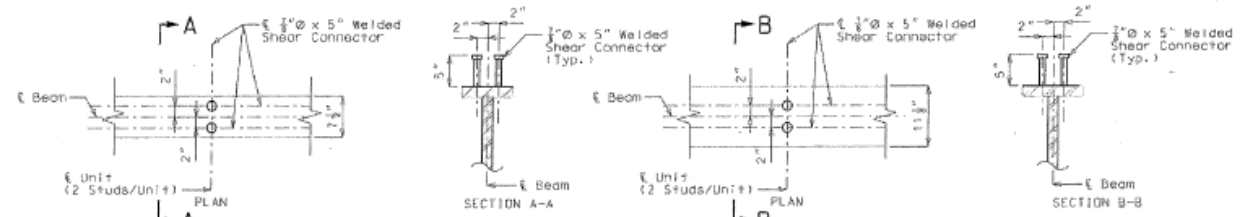
NO. 31

NO. 32

NO. 33



PLAN OF STRUCTURAL STEEL



DETAILS OF SHEAR CONNECTORS

Weight of 1450 pounds of shear connectors for the beams is included in the weight of Galvanized Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50. Shear connectors shall be in accordance with Sec 712, 1037, and 1080.

Notes:

① - denotes Girder Number.
Intermediate diaphragm connection plate and diaphragm spacing may vary from plan dimension by a maximum of 3" for diaphragm to connect to the intermediate diaphragm connection plate.

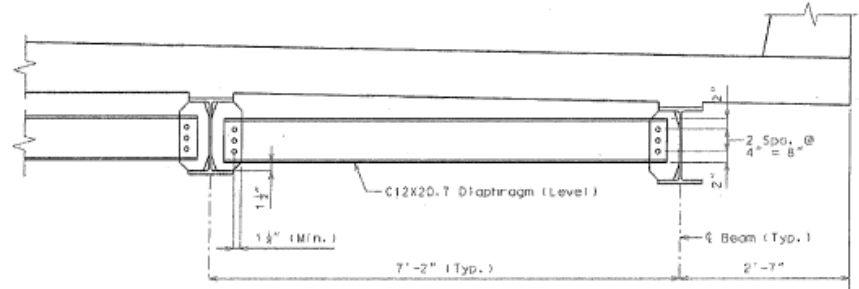
Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16" diameter holes, except as noted.

At the contractor's option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.

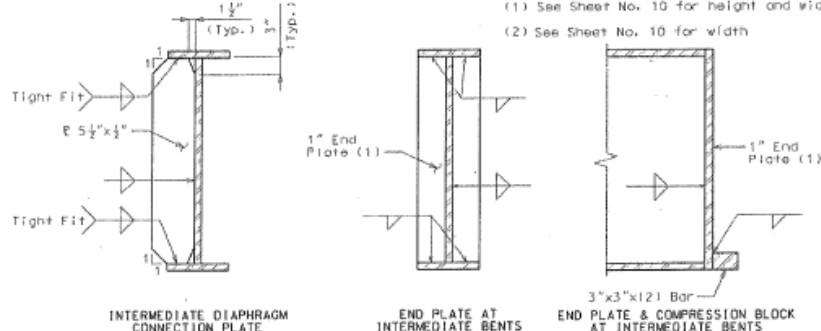
Longitudinal dimensions are horizontal dimensions.

For additional steel details, see Sheet No. 10.

- (1) See Sheet No. 10 for height and width
- (2) See Sheet No. 10 for width



TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS



INTERMEDIATE DIAPHRAGM CONNECTION PLATE

END PLATE AT INTERMEDIATE BENTS

END PLATE & COMPRESSION BLOCK AT INTERMEDIATE BENTS

WELDING DETAILS

FRAMING PLAN

Dated Aug. 2021
Checked Dec. 2021

Note: This drawing is not to scale. Follow dimensions.

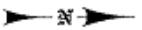
Sheet No. 9 of 23

WILSON & COMPANY
ENGINEERS & ARCHITECTS

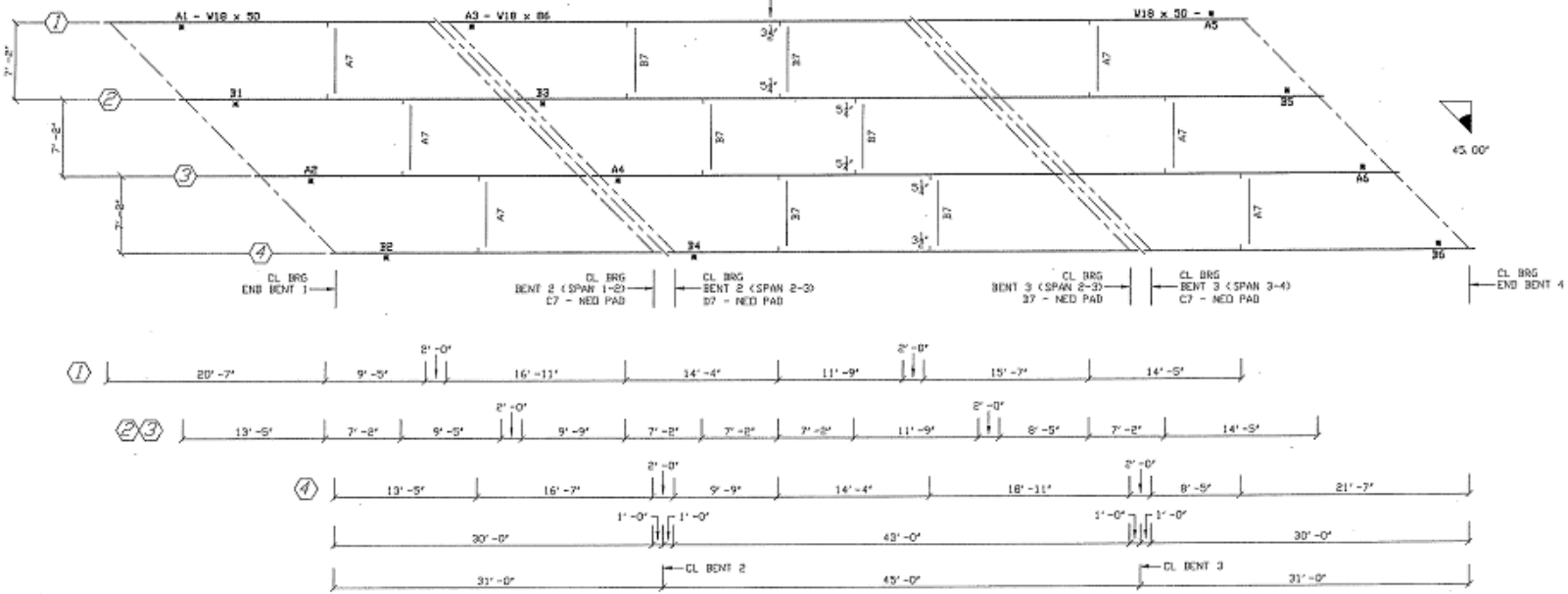
A9180-18

LEGEND
 (1) STRINGER #
 * PIECE MARK LOCATION

BILL OF MATERIAL									
DRWG	MARK	QTY	UNITS	DESCRIPTION	GRADE	MARK	QTY	UNITS	DESCRIPTION
E1	W18	18	LB	3/4" x 7 1/4"	A36-STEEL				
E1	W18	18	LB	3/4"	A36-STEEL				
E1	W18	18	LB	3/4"	A36-STEEL				

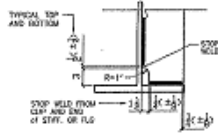


DIMENSIONS SHOWN ARE TAKEN FROM BOTTS OF TOP FLG DOWN TO FIRST HOLE IN CONNECTION PL (TYP)



- GENERAL NOTES:**
- 1.) ALL STEEL TO BE ASTM A709 GR.50, UNLESS NOTED.
 SHEAR STUDS SHALL CONFORM TO AASHTO M169 OR 1015 (AISI C1015).
 - 2.) ALL MATERIAL DESIGNATED T2 SHALL HAVE CHERRY V-NOTCH REQUIREMENTS OF 15 FT LBS @ 40F. - TEMPERATURE ZONE 2.
 - 3.) LENGTHWISE DIMENSIONS SHOWN ARE TAKEN PARALLEL TO GRADE AT TOP OF BOTTOM FLANGE.
 - 4.) BEAM FLANGES SHALL BE SQUARED UP AT ALL POINTS OF BEARING.
 ALL BEARING STIFFENER PLATE LENGTHS ARE 1/2" LONG TO ALLOW FOR SHOP FIT. ALL INTERMEDIATE ARE 1/4" LONG TO ALLOW FOR SHOP FIT.
 - 5.) ALL WELDING OXYGEN CUTTING, SHEARING, CLIPPING, AND DIMENSIONAL TOLERANCES SHALL BE IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE AWS/AASHTO/AAS D1.5-2002, BRIDGE WELDING CODE AND AS MODIFIED BY W8001 STD SPECS, 2021 EDITION.
 - 6.) BEAM WELDING SHALL BE SUBJECT TO RADIOGRAPHIC, ULTRASONIC AND MAGNETIC PARTICLE INSPECTION WHERE APPLICABLE.
 - 7.) ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES IN COATED AREAS SHALL BE GRIND TO A BROKEN EDGE.
 - 8.) HEAT NUMBER AND COLOR CODING SHALL BE PLACED ON ALL PRINCIPAL PIECES IN ACCORDANCE WITH MISSOURI STANDARD SPECIFICATIONS, SECTION 1030.2.9. PRINCIPAL PIECES INCLUDE ALL WEBS, FLANGES, BEAMS, SPLICE PLATES, BEARING STIFFENER PLATES, BEARING SOLE PLATES, AND ALL LOAD BEARING MEMBERS OF END DIAPHRAGMS.
 - 9.) IF OIL, GREASE, OR OTHER CONTAMINANTS HAVE ACCUMULATED PRIOR TO GALVANIZING STEEL SURFACES SHALL BE CLEANED BY A COMBINATION OF SSPC-SP1 (SOLVENT CLEANING) AND SSPC-SP8 (BLAST CLEANING)
 - 10.) DELONG'S IS TO PROTECT NON-GALVANIZED SURFACES PRIOR TO SHIPMENT TO DELIVERIES.
 - 11.) ALL STEEL TO BE GALVANIZED PER ASTM A153. THE MINIMUM AVERAGE COATING THICKNESS SHALL BE 2.5 MILS PER SIDE. ALL REPAIRS PER ASTM A153, HOT STEEL ZINC ALLOY METHOD. AFTER GALVANIZING THE PAVING SURFACES OF SPLICES SHALL BE HAND WIRE BRUSHED.

STEEL PLACING PLAN



TYPICAL WELD LIMIT & CLIP DETAIL

HIGH STRENGTH FIELD BOLTS ASTM F9125 (A325-Mechanically Galvanized)

M-Mark	Qty	Description	Size	Type	Req'd	Test	Notes
DD1	B2	BO	3/4" x 2 1/4"	13/16"	Hex	Hex	2-Grp
							72
							9 1 1

FIELD NUTS (A688-Mechanically Galvanized)

M-Mark	Qty	Description	Size	Type	Req'd	Test	Notes
NU1	B2	NU	3/4"	HEX	72	9	1

FIELD WASHERS (F496-Mechanically Galvanized)

M-Mark	Qty	Description	Size	Type	Req'd	Test	Notes
WA1	164	WA	3/4"	CWPB	144	18	2

RT. M. OVER S. FORK NORTH FABUIS

Contractor: LEHMAN CONSTRUCTION
 Location: SCHUYLER CO, MO
 JOB NO: 2023218
 PROJECT NO: A16180
 ARCH-ENGR: NELSON & COMPANY

CONTRACT NO. 210609-001
 DATE: 04/11/22
 JOB No. 21-160
 SHL No. - SHL Total E1/07

DELONG'S INC.
 SEDALIA
 JEFFERSON CITY
 TEL: 573-655-6181 • FAX: 573-655-8101
 P.O. BOX 439-301 DE MOORE • MISSOURI • DEL. 05122

REVISIONS	DATE	BY	REMARKS

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MYS USA



