

DESIGN DESIGNATION

A.D.T. = 160
DESIGN SPEED = 30 M.P.H.
POSTED SPEED = 30 M.P.H.
FUNCTIONAL CLASSIFICATION = LOCAL

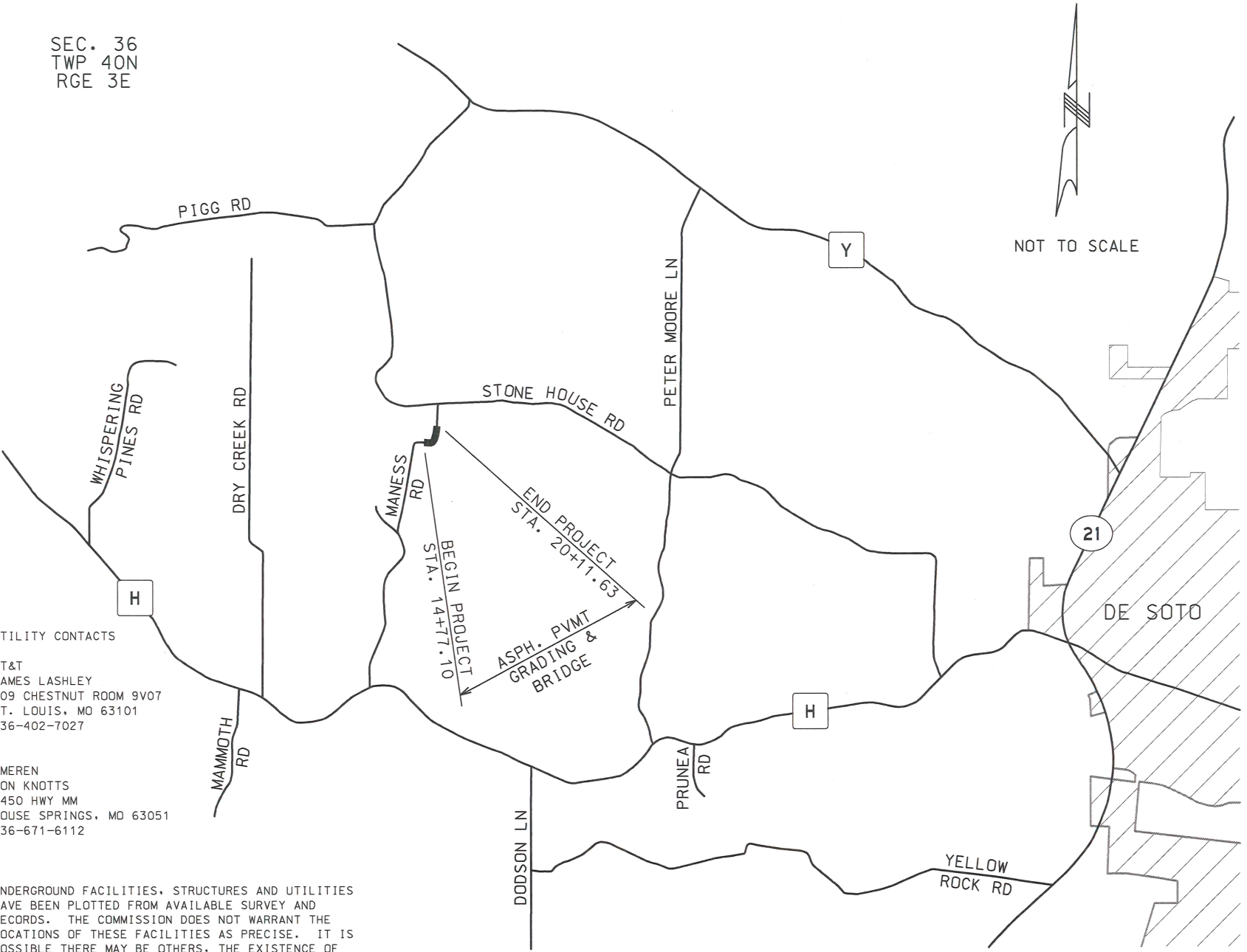
NORMAL RIGHT OF WAY TO BE ACQUIRED.

SPECIFICATIONS:
2011 MISSOURI STANDARD SPECIFICATIONS BOOK FOR
HIGHWAY CONSTRUCTION

JEFFERSON COUNTY, MISSOURI
CONSTRUCTION PLANS

MANESS ROAD BRIDGE REPLACEMENT
BRIDGE NO 27300021

SEC. 36
TWP 40N
RGE 3E



NOT TO SCALE

21

DE SOTO

CONVENTIONAL SYMBOLS
(USED IN PLANS)

- | | EXISTING | NEW |
|------------------------------|----------|-----|
| BUILDINGS AND STRUCTURES | | |
| GUARD RAIL | | |
| CONCRETE RIGHT-OF-WAY MARKER | | |
| STEEL RIGHT-OF-WAY MARKER | | |
| LOCATION SURVEY MARKER | | |
| UTILITIES | | |
| FIBER OPTICS | | |
| OVERHEAD TELEPHONE | | |
| UNDERGROUND TELEPHONE | | |
| OVERHEAD POWER | | |
| UNDERGROUND POWER | | |
| GAS | | |
| WATER | | |
| MANHOLE | | |
| FIRE HYDRANT | | |
| WATER VALVE | | |
| WATER METER | | |
| DROP INLET | | |
| DITCH BLOCK | | |
| GROUND MOUNTED SIGN | | |
| LIGHT POLE | | |
| H-FRAME POWER POLE | | |
| TELEPHONE PEDESTAL | | |
| FENCE | | |
| CHAIN LINK | | |
| WOVEN WIRE | | |
| GATE POST | | |
| BENCHMARK | | |
| NO DIRECT PAY | | |
| REMOVE | | |
| REMOVE AND RELOCATE | | |

NOTE: DASHED OR OPEN SYMBOLS INDICATE
EXISTING FEATURES

UTILITY CONTACTS

AT&T
JAMES LASHLEY
909 CHESTNUT ROOM 9V07
ST. LOUIS, MO 63101
636-402-7027

AMEREN
DON KNOTTS
6450 HWY MM
HOUSE SPRINGS, MO 63051
636-671-6112

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES
HAVE BEEN PLOTTED FROM AVAILABLE SURVEY AND
RECORDS. THE COMMISSION DOES NOT WARRANT THE
LOCATIONS OF THESE FACILITIES AS PRECISE. IT IS
POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF
WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE
CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE
EXISTENCE AND PRECISE LOCATION OF ALL FACILITIES
AND TO AVOID DAMAGE. SEE THE JOB SPECIAL
PROVISIONS FOR A LIST OF UTILITY COMPANIES ON OR
WITHIN THE VICINITY OF THE PROJECT LIMITS.

REFERENCE BENCHMARK

CONTROL POINT NO. 1 ELEV. = 682.00 (NAVD)
IRON PIPE WITH CAP LOCATED APPROXIMATELY 530 FEET NORTH OF THE
MANESS ROAD BRIDGE OVER A TRIBUTARY TO DRY CREEK. SAID ROD BEING
30.9 FEET WEST OF FENCE CORNER ON EAST SIDE OF MANESS ROAD, 7.4
FEET EAST OF FENCE LINE OF WEST SIDE OF MANESS ROAD AND 20.1 FEET
NORTHEAST OF A GATE POST ON THE WEST SIDE OF MANESS ROAD.

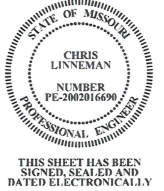
LOCAL AGENCY APPROVAL:

Mr. Jason Jones, P.E.
Director of Public Works
Jefferson County, MO.



INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS)	2
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DATE PREPARED
2/23/2016
STATE
MO
SHEET NO.
1
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

DESCRIPTION

DATE

MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY

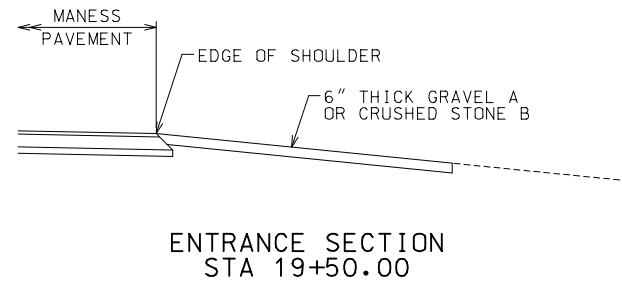
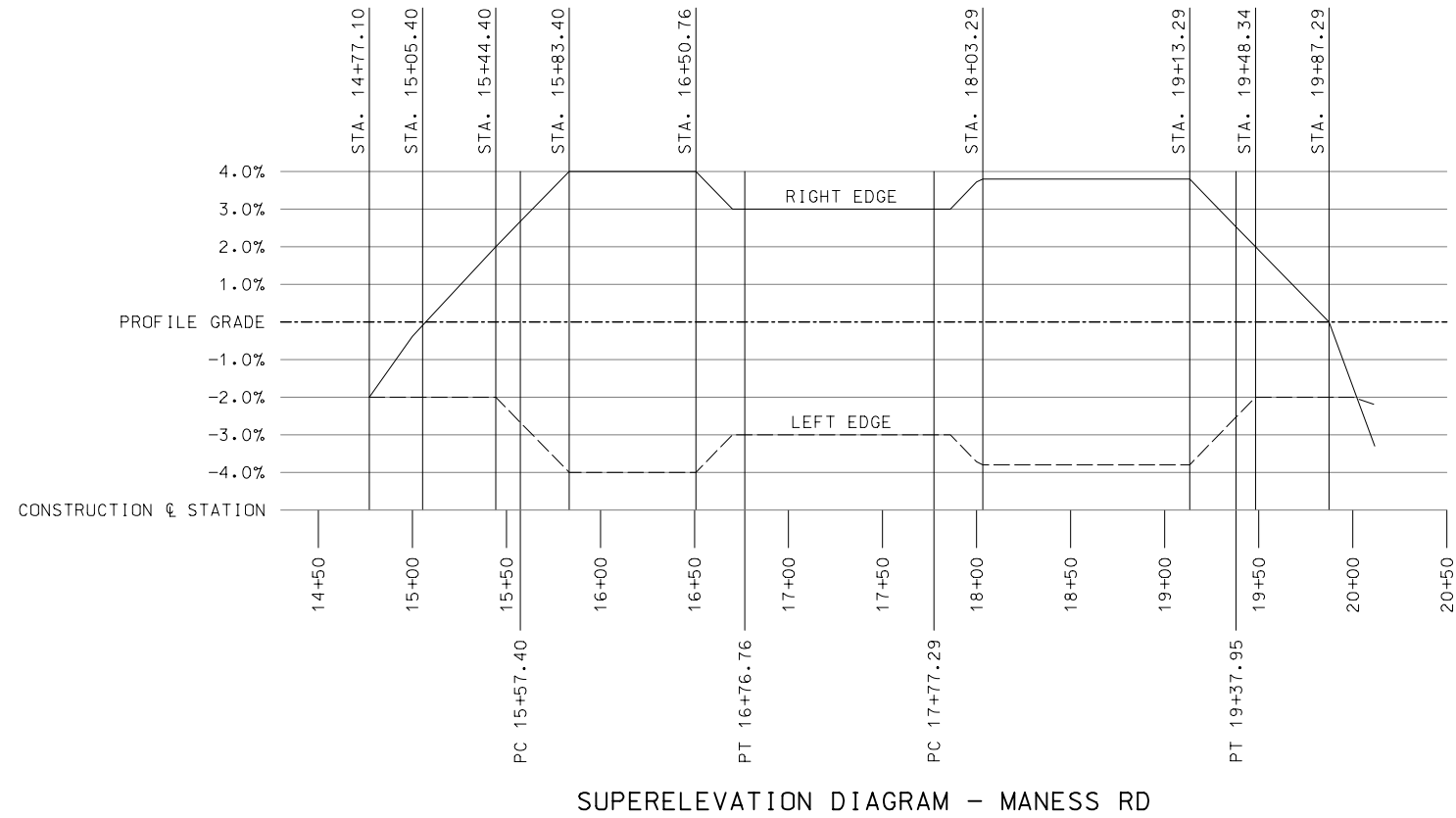
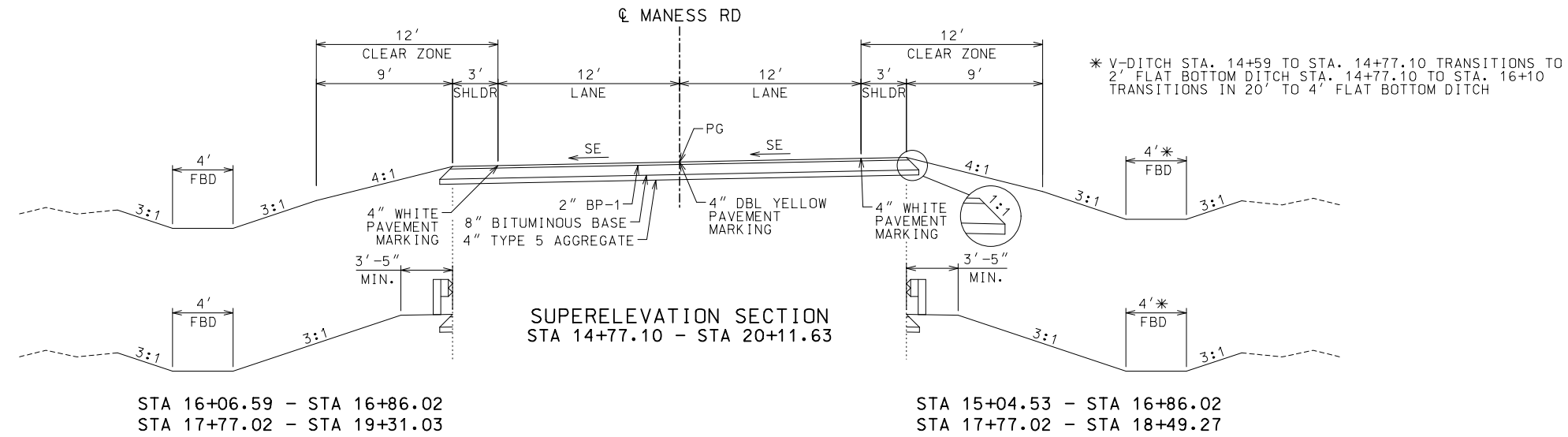
725 Maple Street
Hillsboro, MO 63050

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 14+77.10
END OF PROJECT	STA. 20+11.63
APPARENT LENGTH	534.53 FEET
EQUATIONS AND EXCEPTIONS:	
TOTAL CORRECTIONS	0 FEET
NET LENGTH OF PROJECT	534.53 FEET
STATE LENGTH	0.101 MILES

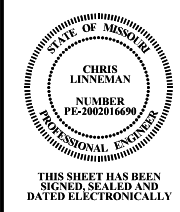
EFK Moen, LLC
Civil Engineering Design

13523 Barrett Parkway Dr.
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



APPLICATION RATES

PG64-22 BP-1 (BIT. PAVEMENT): 1.987 TONS/CY
PG64-22 (BIT. BASE) : 2.005 TONS/CY



DATE PREPARED	2/23/2016
STATE	MO
SHEET NO.	2
COUNTY	JEFFERSON
FEDERAL PROJECT NO.	BR0-B050(20)
BRIDGE NO.	27300021

DATE	DESCRIPTION

MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY

725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC

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TYPICAL SECTION
SHEET 1 OF 1

REMOVAL OF IMPROVEMENTS							
PLAN SHEET	STA	STA	LOC	ROADWAY	LF	SF	DESCRIPTIONS
5	14+88		LT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	15+06		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	15+35		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	15+83		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	16+28		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	16+74		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	16+89		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+03		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+08		LT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+08		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+48		LT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+48		RT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+51		LT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+78		LT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	17+92.00	18+09.00	RT	MANESS RD	18		PIPE
5	19+02		LT	MANESS RD			SIGNS, POSTS AND FOUNDATIONS
5	14+77.10		CL	MANESS RD	20		SAWCUT *
5	20+11.63		CL	MANESS RD	20		SAWCUT *
PAY TOTAL					1 LUMP SUM	* NO DIRECT PAY	

EARTHWORK									
PLAN SHEET	ROADWAY	LOC	STA	STA	CLASS A EXCAVATION	CLASS C EXCAVATION	EMBANKMENT IN PLACE	COMPACTING EMBANKMENT	REMARKS
					CY	CY	CY	CY	
5	MANESS RD	LT & RT	14+77.10	20+11.63	1081	125	406	1009	INCLUDES CREEK
			PAY TOTAL		1081	125	406	1009	

PAVEMENT							
PLAN SHEET	ROADWAY	STA	STA	LOC	2" PG 64-22 BP-1 BITUMINOUS PAVEMENT	8" PG 64-22 BITUMINOUS BASE	4" TYPE 5 AGGREGATE
5	MANESS RD	14+77.10	16+71.53	CL	TONS	TONS	S.Y.
5	MANESS RD	17+91.52	20+11.63	CL	70.19	292.72	670.65
TOTALS					80.50	335.57	768.60
PAY TOTALS					150.7	628.3	1439.3
					151	628	1439

APPLICATION RATES
PG 64-22 BP-1 (BIT. PAVEMENT) : 1.987 TONS/CY
PG 64-22 (BIT. BASE) : 2.005 TONS/CY

GUARDRAIL								
PLAN SHEET	ROADWAY	STA	STA	LOC	TYPE A GUARDRAIL	BRIDGE ANCHOR SECTION (SAFETY BARRIER CURB)	TRANSITION SECTION	TYPE A CRASHWORTHY END TERMINAL
5	MANESS RD	15+26.80	16+79.50	RT	L.F.	EA.	EA.	EA.
5	MANESS RD	16+11.20	16+78.90	LT	112.5	1	1	1
5	MANESS RD	17+80.60	19+30.80	LT		1	1	1
5	MANESS RD	17+80.40	18+49.00	RT	75.0	1	1	1
TOTALS					187.5	4	4	4
PAY TOTALS					188	4	4	4

ROCK DITCH LINER									
PLAN SHEET	ROADWAY	STA	STA	LOC	FURNISHING TYPE 1 ROCK DITCH LINER	FURNISHING TYPE 2 ROCK DITCH LINER	PLACING TYPE 1 ROCK DITCH LINER	PLACING TYPE 2 ROCK DITCH LINER	PERM. EROSION CONTROL GEOTEXTILE
5	MANESS RD	15+00.00	16+10.00	RT	C.Y.	C.Y.	C.Y.	C.Y.	S.Y.
5	MANESS RD	16+10.00	16+50.00	RT	13.58		13.58		86
5	MANESS RD	16+50.00	17+00.00	LT	6.91		6.91		31
5	MANESS RD	16+50.00	16+97.00	RT	7.41		7.41		33
5	MANESS RD	16+50.00	16+97.00	RT		12.19		12.19	37
5	MANESS RD	17+70.00	18+00.00	RT		7.78		7.78	23
5	MANESS RD	17+86.56	17+88.87	LT	2.01		2.01		9
TOTALS					29.9	20.0	29.9	20.0	219
PAY TOTALS					30	20	30	20	219

TYPE 2 ROCK BLANKET								
PLAN SHEET	ROADWAY	STA	STA	LOC	FURNISHING TYPE 2 ROCK BLANKET	PLACING TYPE 2 ROCK BLANKET	TOE STONE PINNED TO BEDROCK	REMARKS
5	MANESS RD	16+94.02	17+20.98	LT & RT	C.Y.	C.Y.	L.F.	
5	MANESS RD	17+64.24	17+69.02	LT & RT	125.48	125.48		
TOTALS					105.47	105.47	99.00	
PAY TOTALS					231.0	231.0	99.0	
					231	231	99	

ROCK LINING						
PLAN SHEET	ROADWAY	STA	STA	LOC	ROCK LINING	REMARKS
5	MANESS RD	19+22.00	19+33.50	RT	C.Y.	
TOTALS					3.56	
PAY TOTALS					3.6	
					4	

ENTRANCES						
PLAN SHEET	STA	LOC	6" GRAVEL A OR CRUSHED STONE B	18" GROUP C PIPE	18" FLARED END SECTION	REMARKS
5	19+50.00	RT	S.Y.	L.F.	EA.	
TOTALS			55.47	28	2	
PAY TOTALS			55.5	28	2	

EROSION CONTROL							
PLAN SHEET	ROADWAY	STA	STA	LOC	ROCK DITCH CHECK	SILT FENCE	SEDIMENT REMOVAL
8	MANESS RD	14+77.10	20+11.63	LT & RT	L.F.	L.F.	C.Y.
TOTALS					338	360	30
PAY TOTALS					338	360	30

MOBILIZATION	1 LUMP SUM
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CONTRACTOR FURNISHED SURVEYING AND STAKING	1 LUMP SUM
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SEEDING – COOL SEASON MIXTURES	2 ACRE
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CLEARING AND GRUBBING	1 ACRE
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PAVEMENT MARKING					
PLAN SHEET	ROADWAY	STA	STA	HIGH BUILD WATERBORNE, TYPE L BEADS	
5	MANESS RD	14+77.10	20+11.63	4 IN. WHITE	4 IN. YELLOW
TOTALS				L.F.	L.F.
PAY TOTALS				1069	1069
				1069	1069

QUANTITIES
SHEET 1 OF 2

STATE OF MISSOURI

CHRIS LINNEMAN

NUMBER PE-2002016690

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED
2/23/2016

STATE
MO

SHEET NO.
3

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

DESCRIPTION

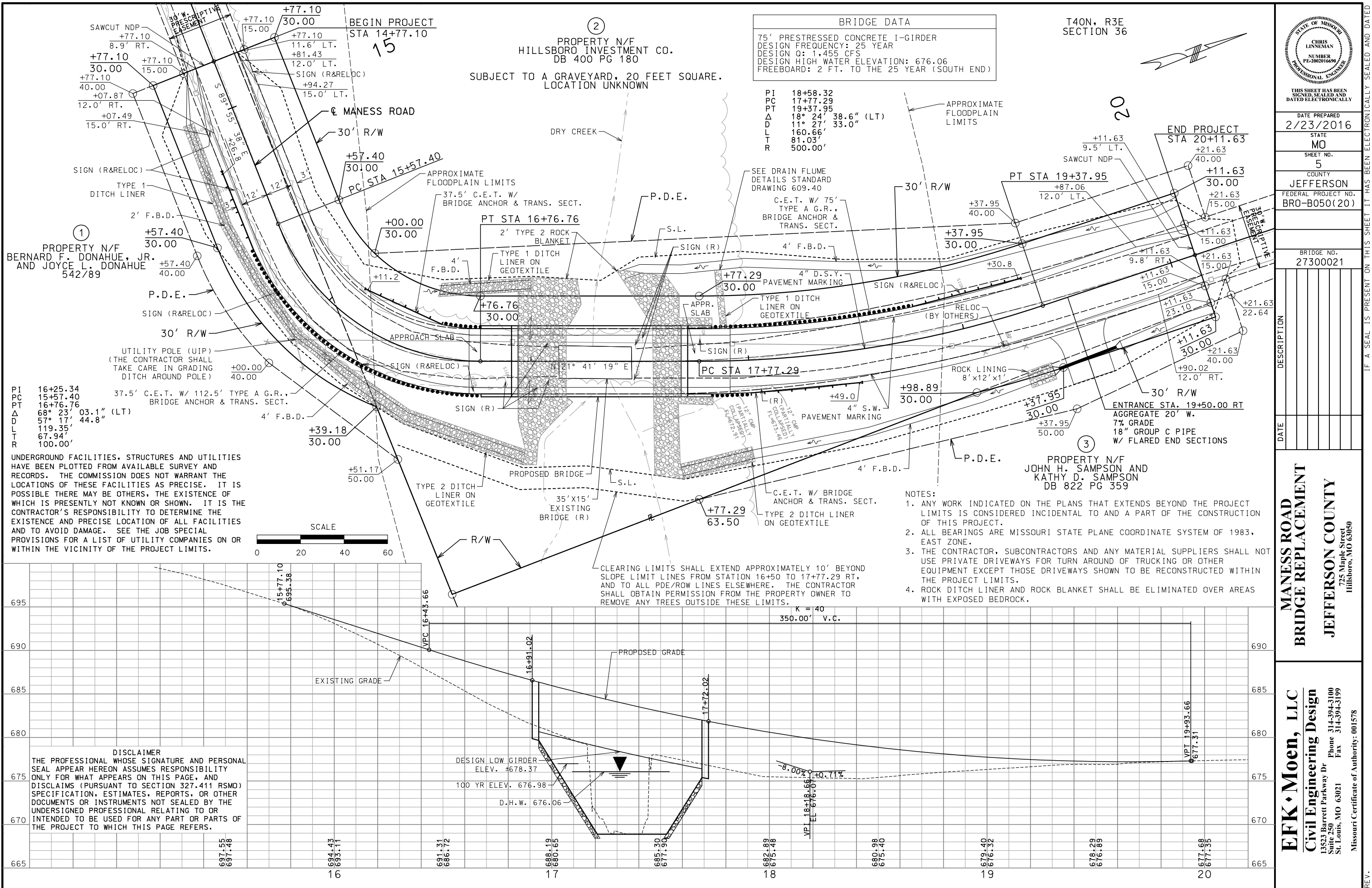
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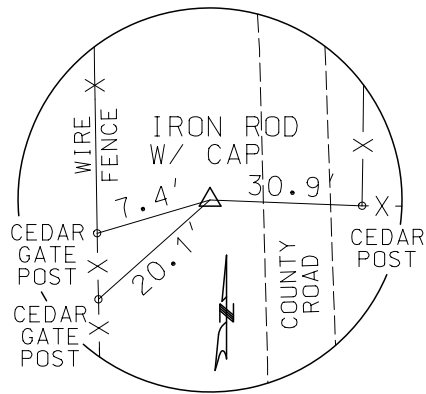
MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

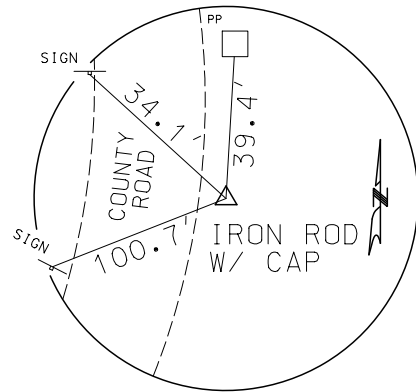
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Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

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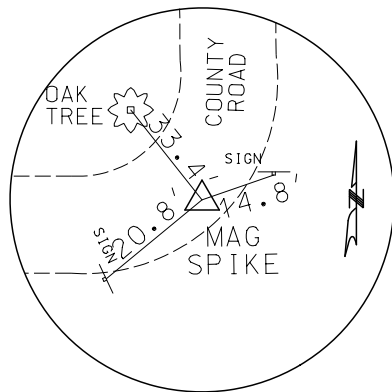




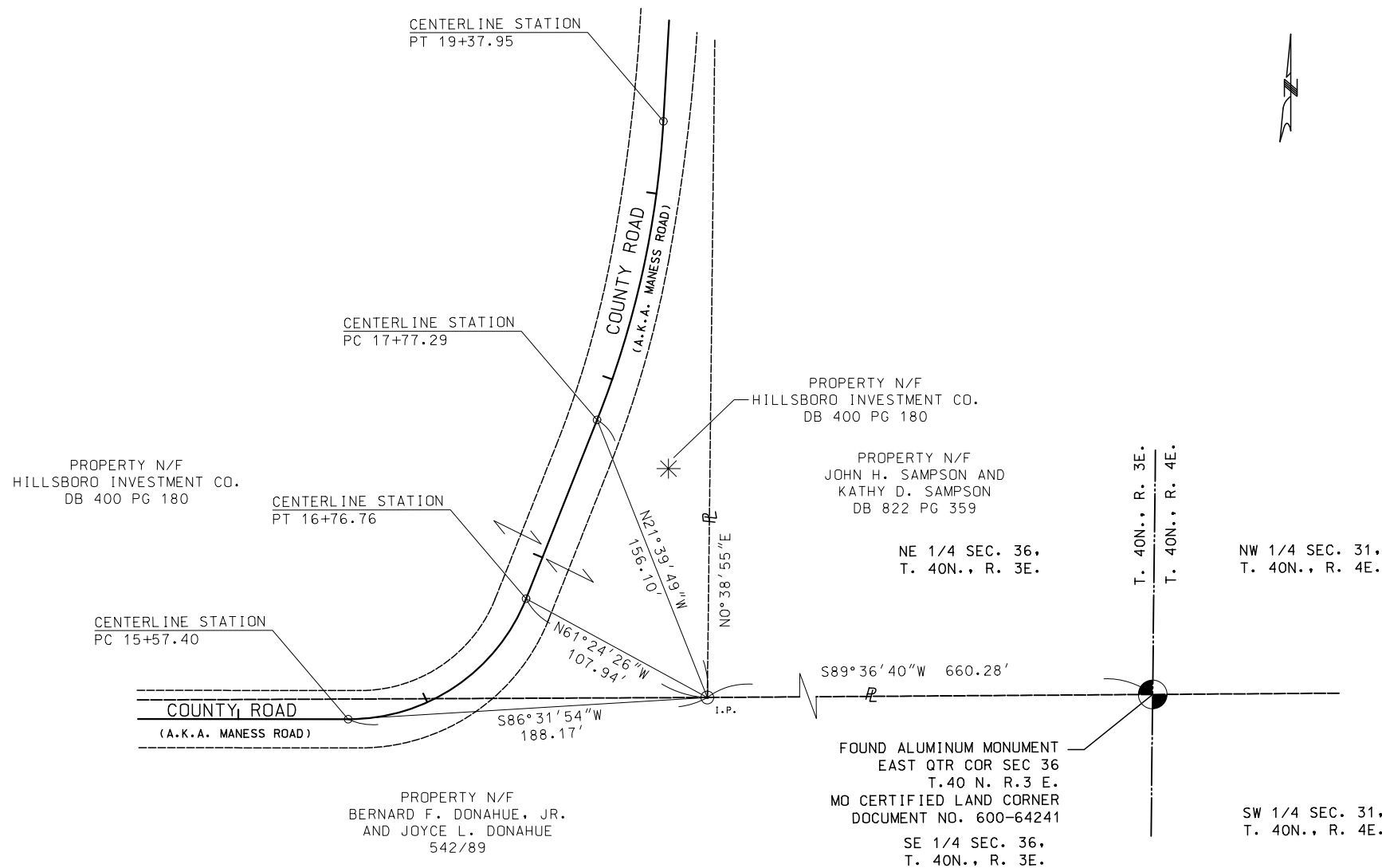
CONTROL POINT NO. 1
IRON ROD W/ CAP
N: 846471.5450 E: 781728.0710
STA. 22+51.74 OFFSET = 11.27 LT.
EL: 682.00



CONTROL POINT NO. 2
IRON ROD W/ CAP
N: 846076.2870 E: 781720.2990
STA. 18+77.48 OFFSET = 7.28 RT
EL: 675.43



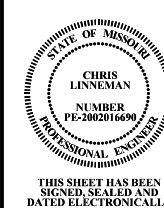
CONTROL POINT NO. 3
MAG SPIKE
N: 845831.3060 E: 781617.1230
STA. 16+15.67 OFFSET 12.05 RT
EL: 691.57



LEGAL LAND CORNER

REFERENCE TIES
SHEET 1 OF 1

DISCLAIMER
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.



DATE PREPARED
2/23/2016

STATE
MO

SHEET NO.
6

COUNTY
JEFFERSON

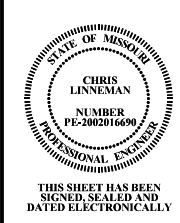
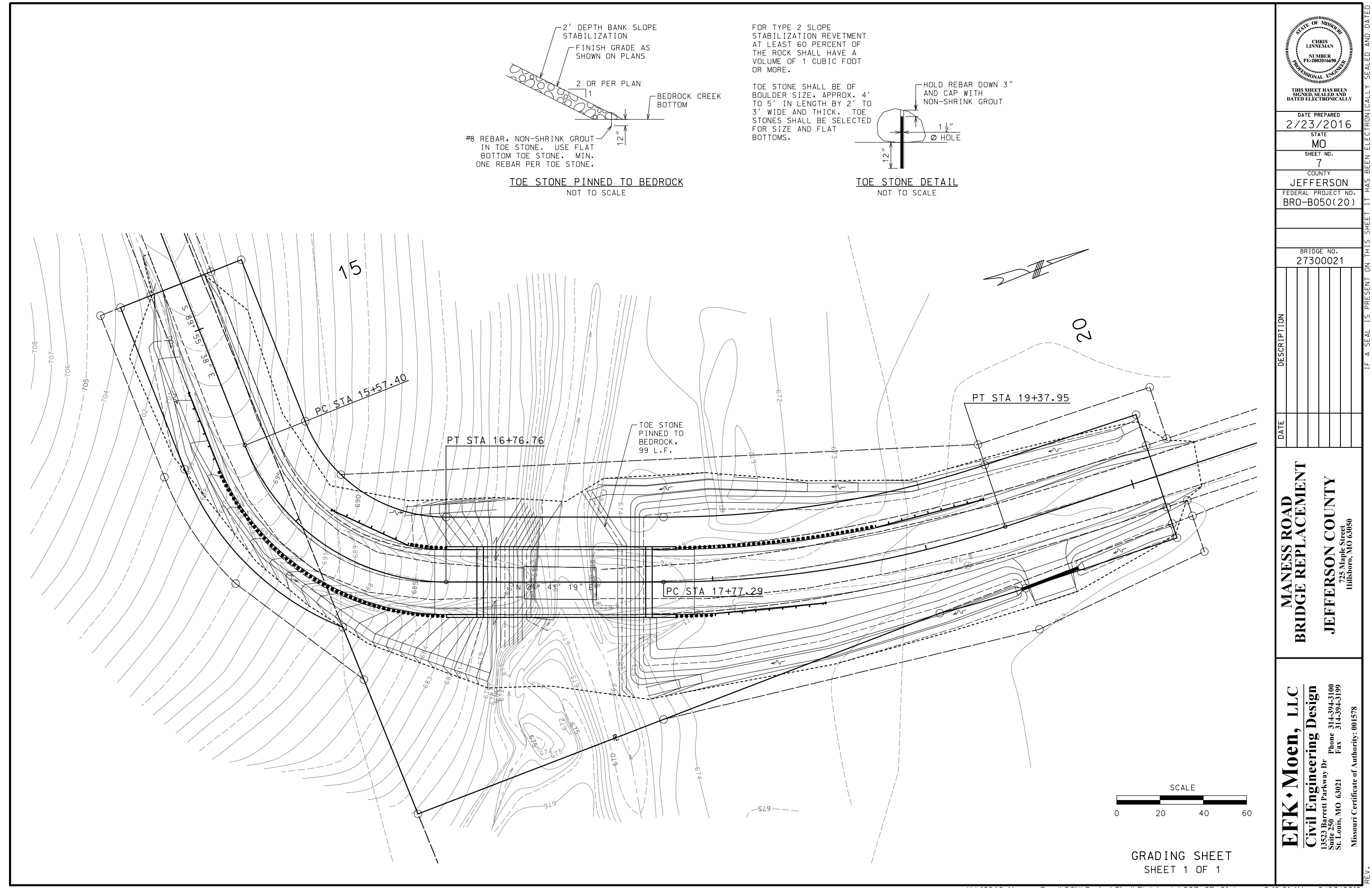
FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

DATE	DESCRIPTION

MANESS ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
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DATE PREPARED
2/23/2016

STATE
MO

SHEET NO.
7

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

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MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY

725 Maple Street
Hillsboro, MO 63050

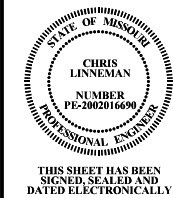
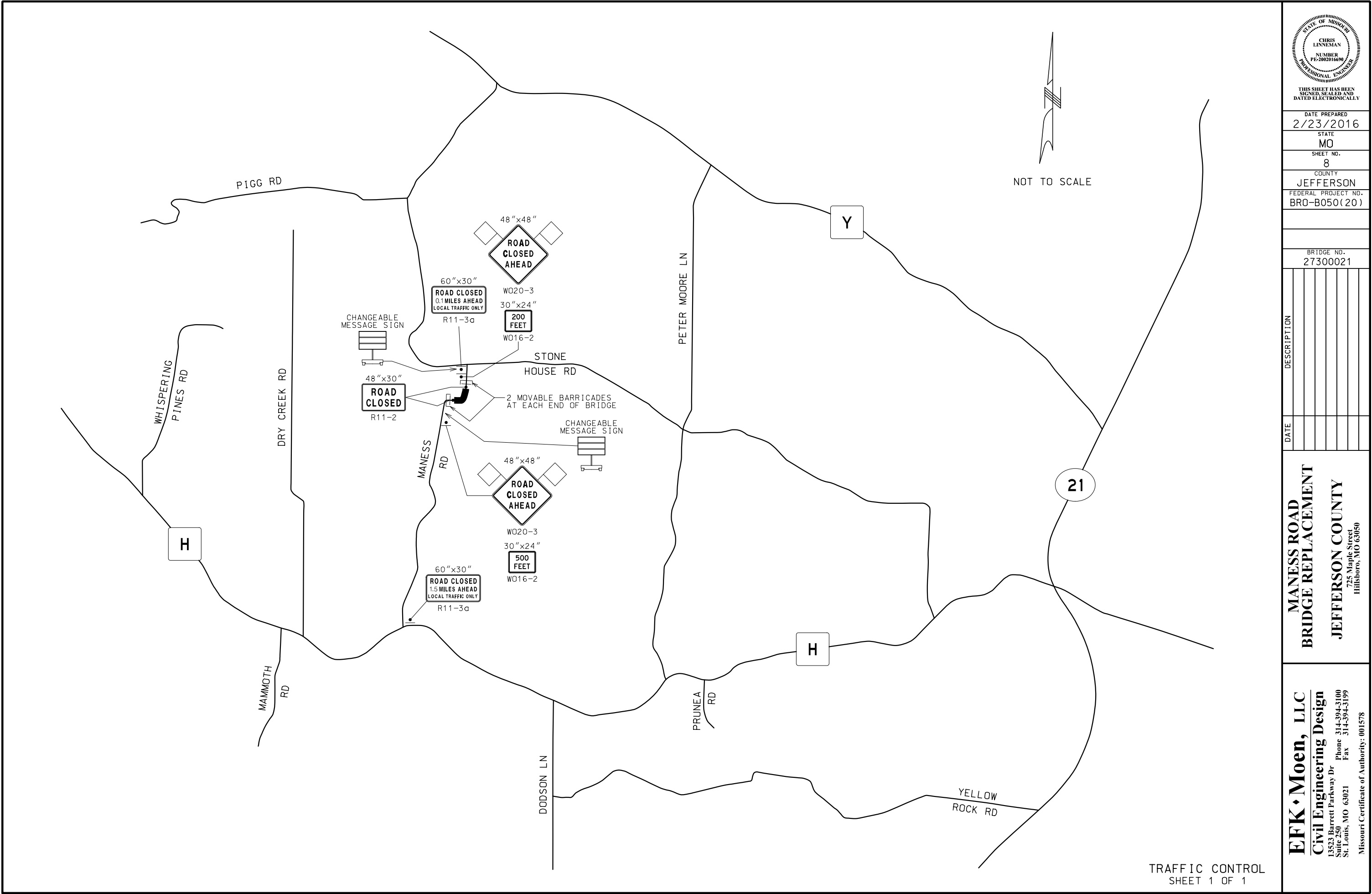
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DATE PREPARED
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STATE
MO
SHEET NO.
8
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

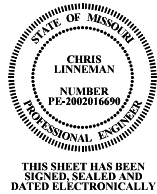
DATE	DESCRIPTION

MANESS ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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Phone 314-394-3100
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TRAFFIC CONTROL
SHEET 1 OF 1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED REV.



DATE PREPARED

2/23/2016

STATE

MO

SHEET NO.

9

COUNTY

JEFFERSON

FEDERAL PROJECT NO
BRO-B050(20

BRIDGE NO.

2730002

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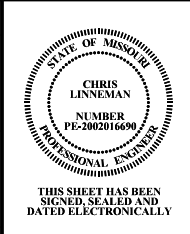
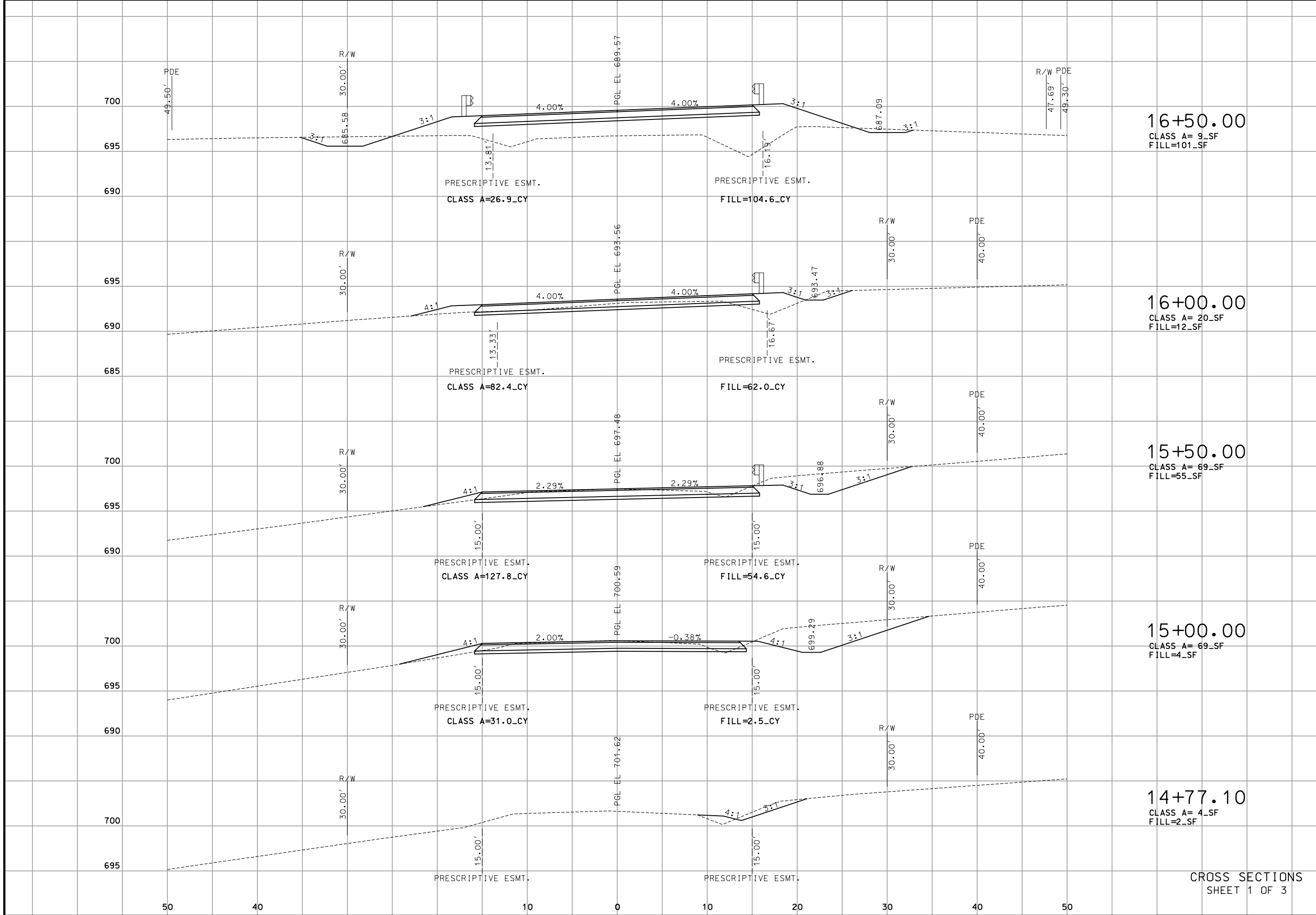
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REV.

NOTE:
AN ADDITIONAL 200 L.F. OF SILT FENCE IS INCLUDED TO BE
PLACED AS DIRECTED BY THE ENGINEER.

EROSION CONTROL PLAN
SHEET 1 OF 1



DATE PREPARED
2/23/2016
STATE
MO
SHEET NO.
10
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
BR0-B050(20)

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27300021

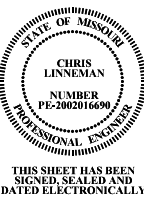
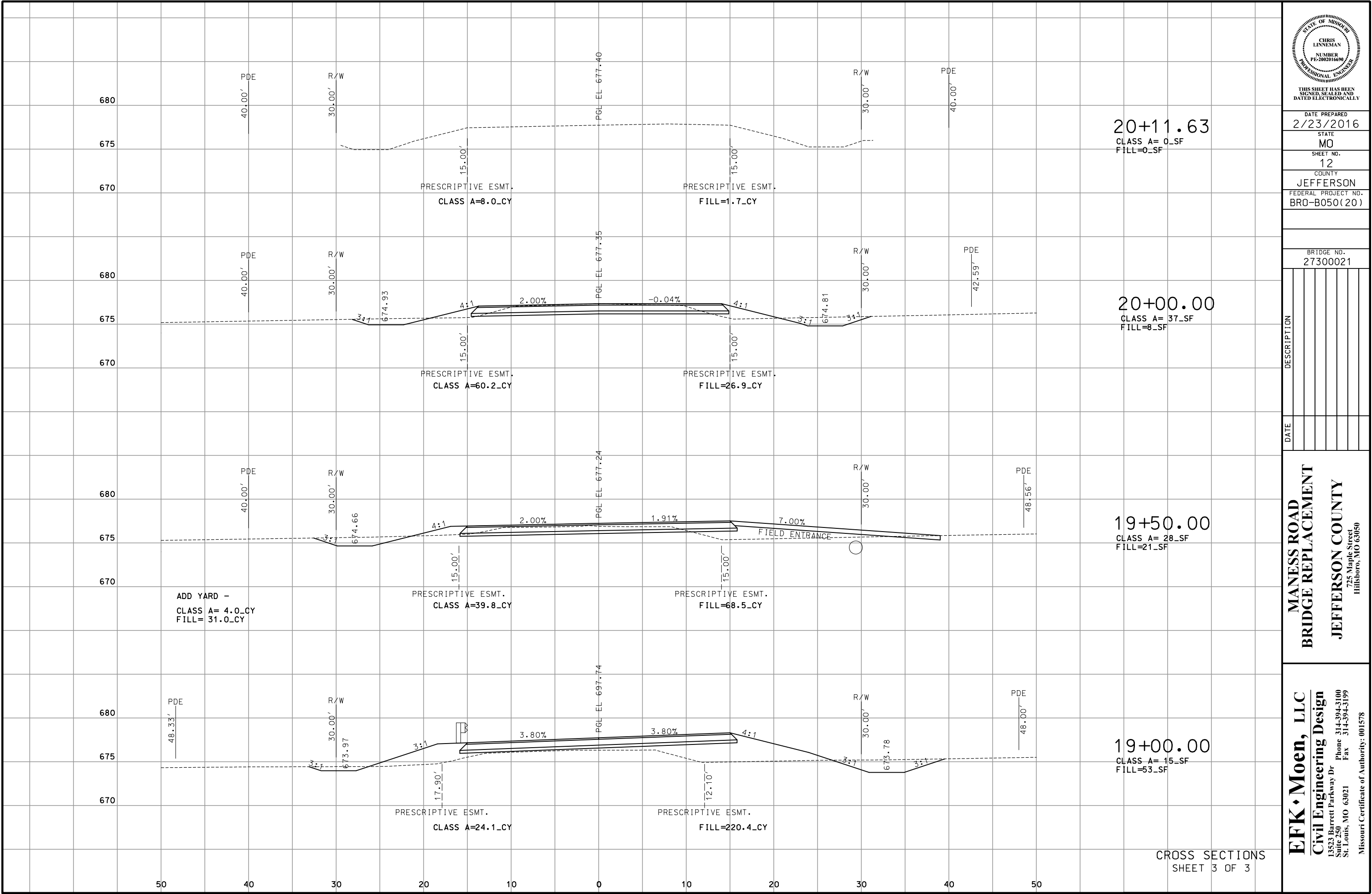
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CROSS SECTIONS
SHEET 1 OF 3

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED
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12
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JEFFERSON COUNTY
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Hillsboro, MO 63050

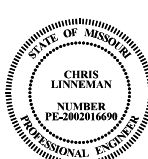
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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED REV.

JEFFERSON COUNTY DEPARTMENT OF PUBLIC WORKS

77' PRE-STRESSED CONCRETE I-GIRDER SPAN

SEC 36 TWP 40N RGE 3E



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED
2/23/2016

STATE
MO

SHEET NO.
13

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
BR0-B050(20)

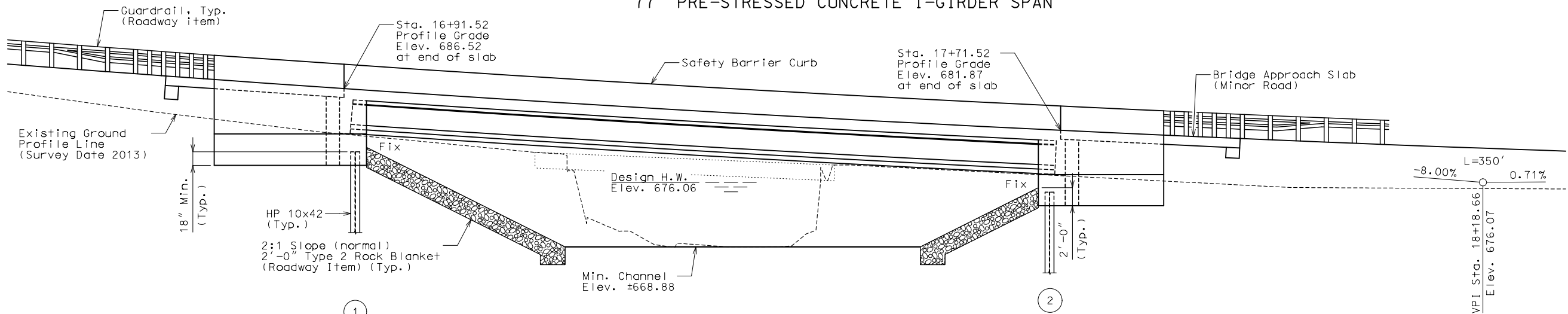
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REV.



GENERAL ELEVATION

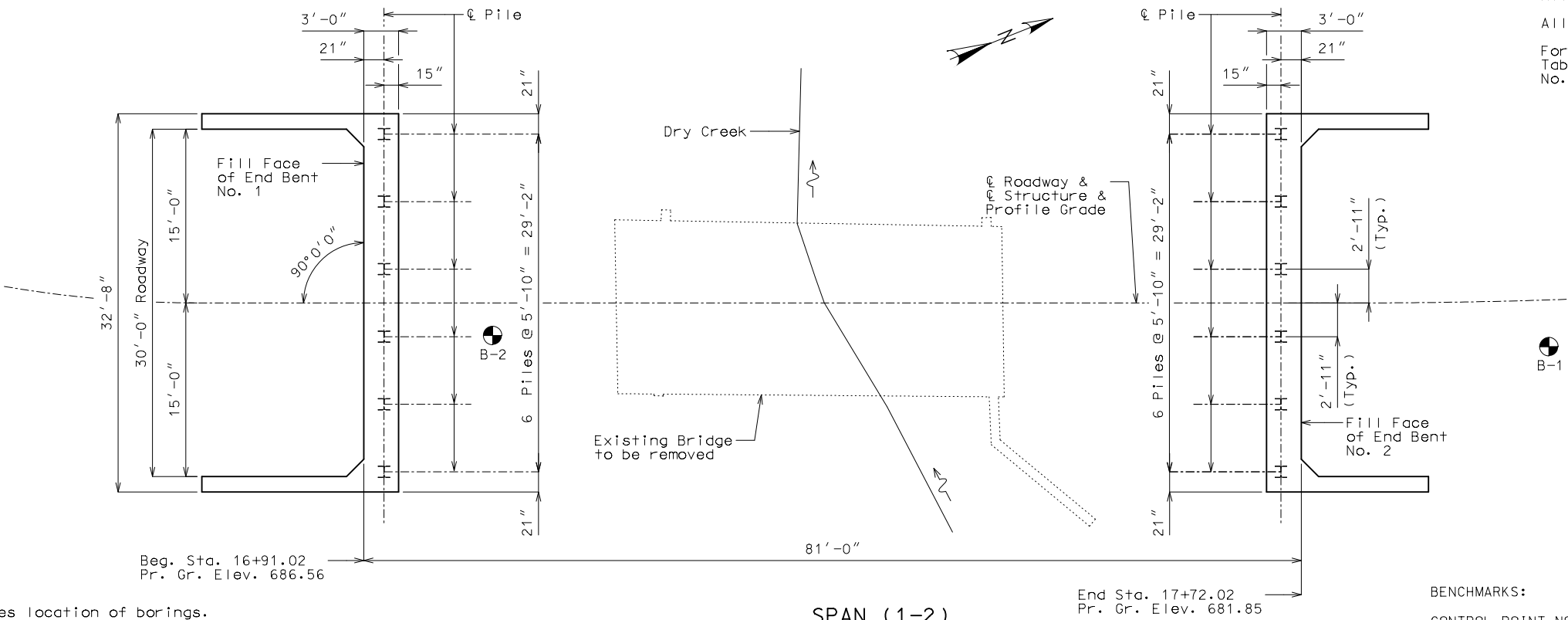
Notes:
All Bents are parallel.
All dimensions are horizontal.
For General Notes, Pile Data, Quantity
Tables and Location Sketch, see Sheet
No. 2.

Horizontal Curve 1 Data

PI	16+25.34
PC	15+57.40
PT	16+76.76
Δ	68° 23' 03.1" (LT)
D	57° 17' 44.8"
L	119.35'
T	67.94'
R	100.00'

Horizontal Curve 2 Data

PI	18+58.32
PC	17+77.29
PT	19+37.95
Δ	18° 24' 38.6" (LT)
D	11° 27' 33.0"
L	160.66'
T	81.06'
R	500.00'



SPAN (1-2)
PLAN

BENCHMARKS:
CONTROL POINT NO. 1 ELEV. = 682.00 (NAVD)
IRON PIPE WITH CAP LOCATED APPROXIMATELY 530 FEET NORTH OF
THE MANESS ROAD BRIDGE OVER A TRIBUTARY TO DRY CREEK. SAID
ROD BEING 30.9 FEET WEST OF FENCE CORNER ON EAST SIDE OF
MANESS ROAD, 7.4 FEET EAST OF FENCE LINE OF WEST SIDE OF
MANESS ROAD AND 20.1 FEET NORTHEAST OF A GATE POST ON THE
WEST SIDE OF MANESS ROAD.

BRIDGE: MANESS ROAD OVER DRY CREEK

COUNTY ROAD: MANESS ROAD FROM STATE ROAD H TO
STONE HOUSE ROAD

ABOUT 0.15 MILES SOUTH OF STONE HOUSE ROAD

STA. 16+91.02

STD. 706.35

⊙ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

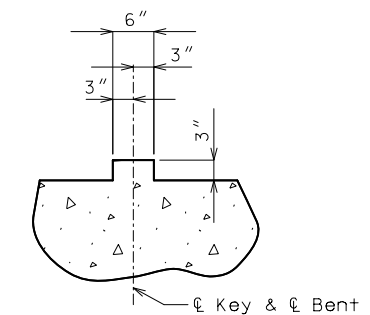
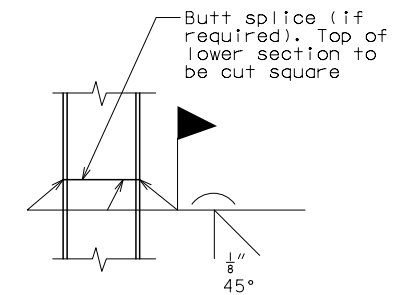
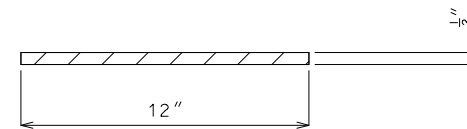
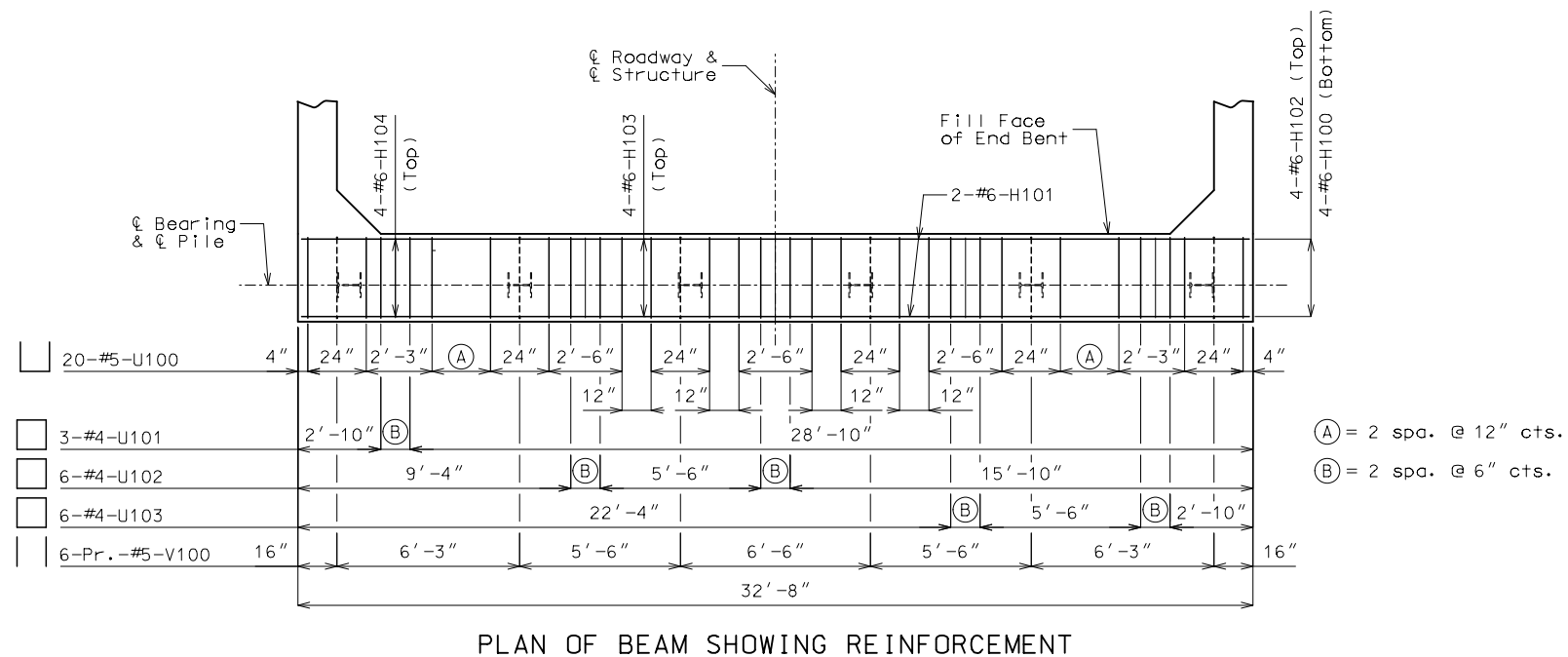
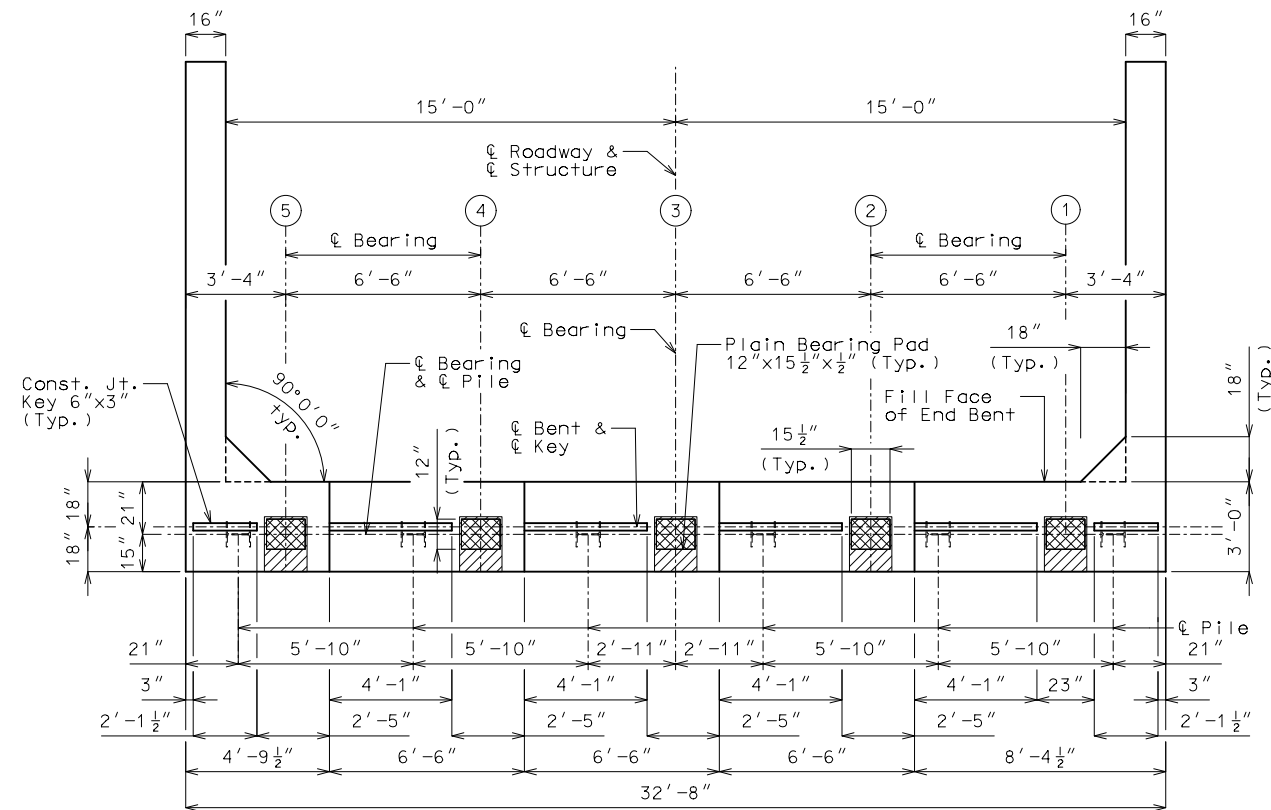
The locations of all subsurface borings for this structure are shown on the bridge plan sheets for this structure. Boring data for the numbered locations is shown on Sheet No. 21. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the County for the design of the project will be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the County or elsewhere.

The County does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the County, or on any other documentation not expressly warranted, which the contractor may obtain from the County.

Detailed JUL 2015
Checked JUL 2015

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

Sheet No. 1 of 21



Note:

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.
For details of Vertical Drain at End Bent, see Sheet No. 9.

All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least $1\frac{1}{2}"$.

All U-bars and Pr. V-bars in end bent are to be placed parallel to C roadway.

For section near End Bent, see Sheet No. 4.

Reinforcement in wing in Plan of Beam not shown for clarity.



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STATE
MO

SHEET NO.

15
COUNTY

JEFFERSON

GENERAL PROJECT NO.
10-B050(20)

[illegible]

BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63150

Civil Engineering Design
3523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

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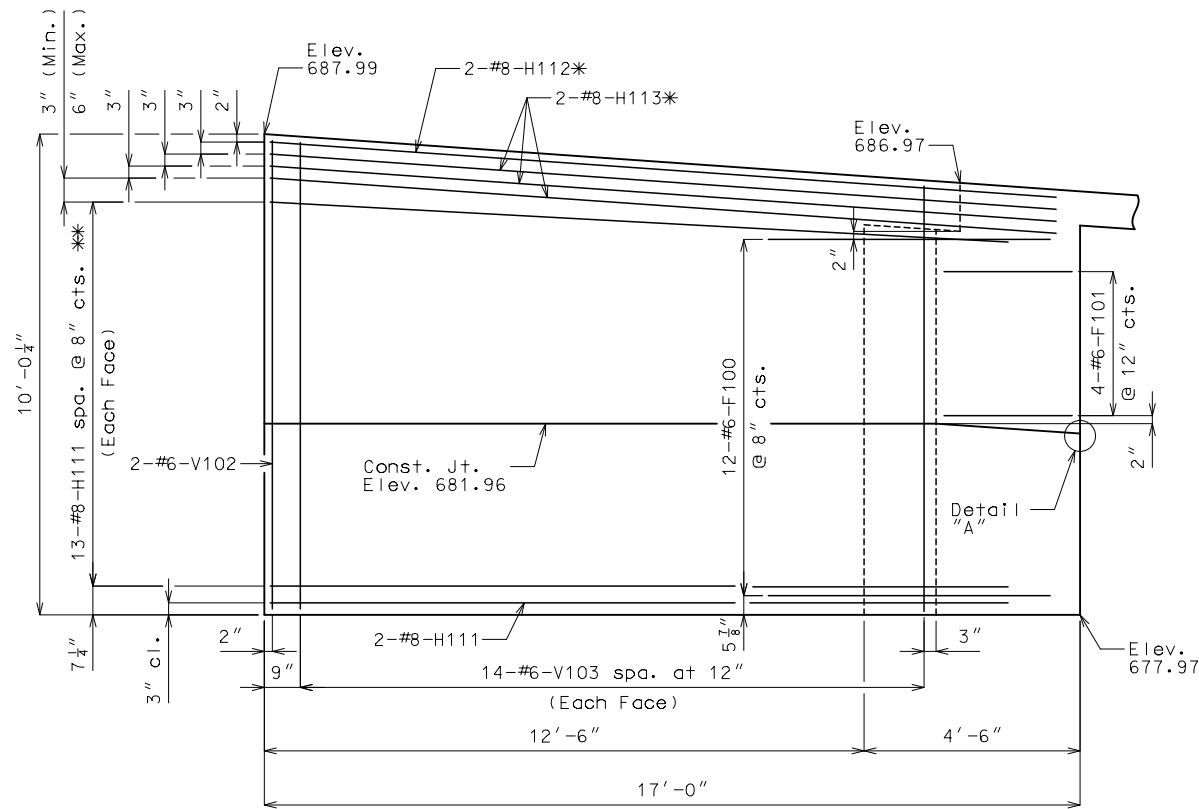
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Checked JUL 2015

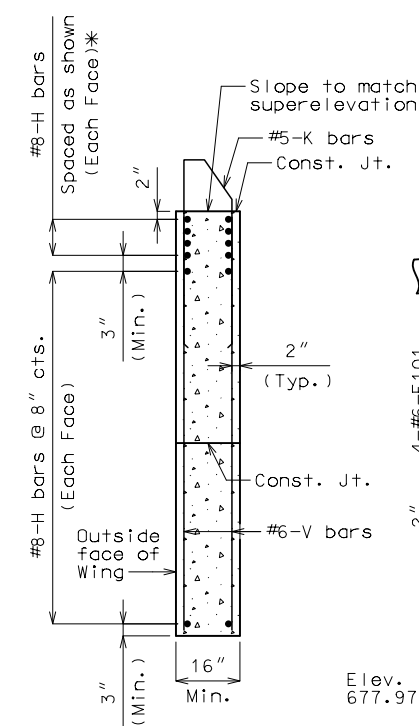
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 21

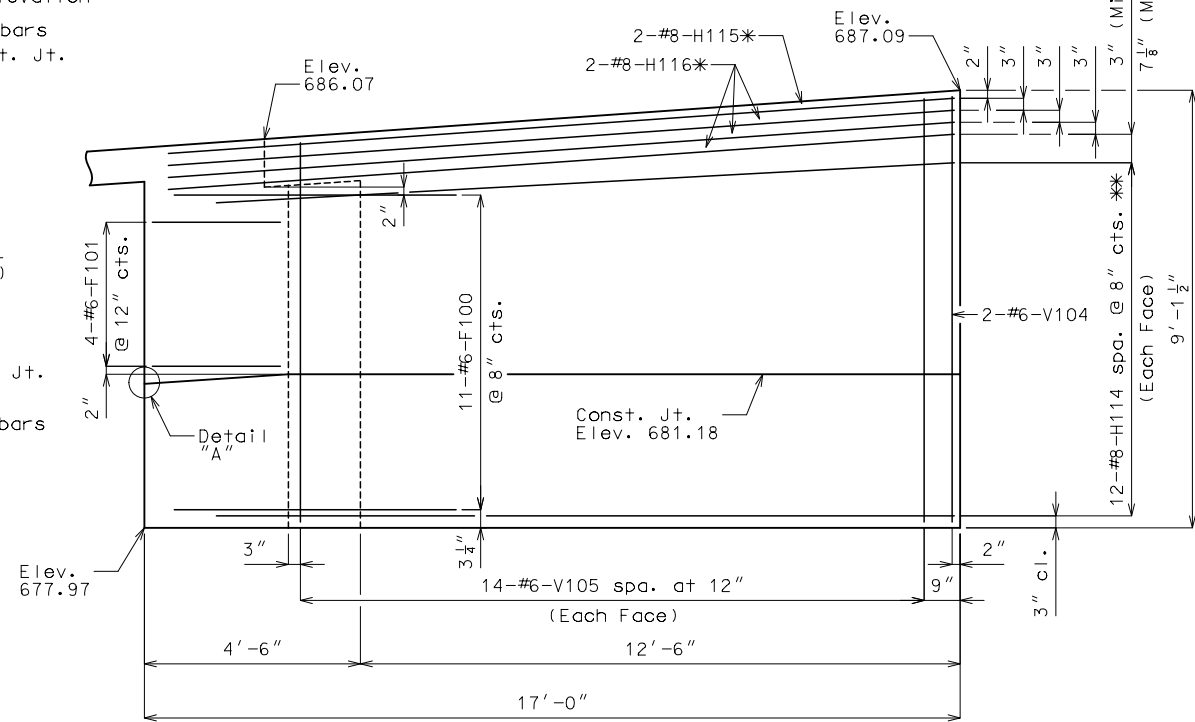
Y:\13046 Manass Road\DGN\Bridge\Final\Plotsheets\003_End Bent 1_1 of 3.dgn 2:48:46 PM 2/23/2016



ELEVATION E-E (SE WING)

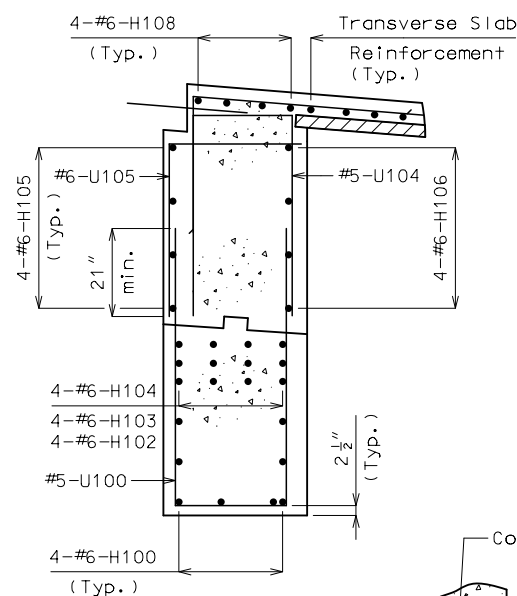


SECTION THRU WING

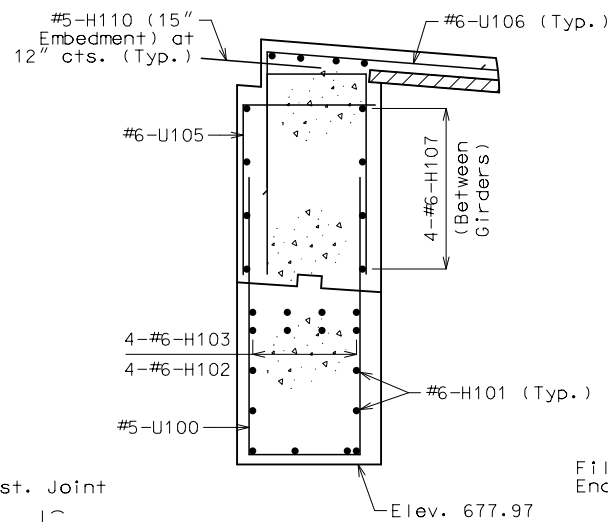


ELEVATION F-F (SW WING)

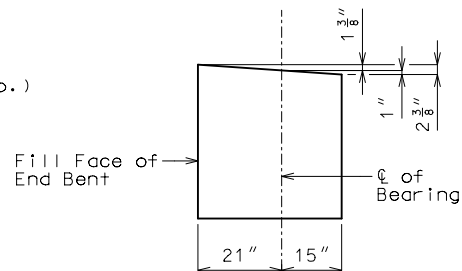
* Place with grade
 ** Fan top 2 bars to keep 3" (Min.) and 8" (Max.) spacing.



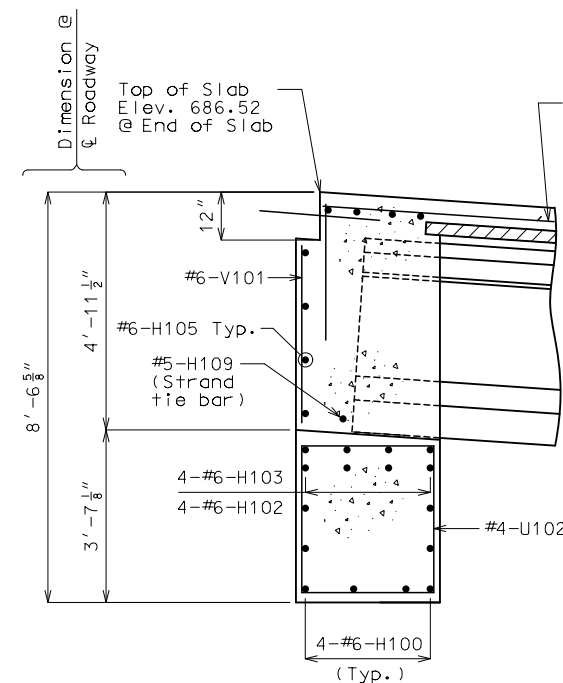
SECTION A-A



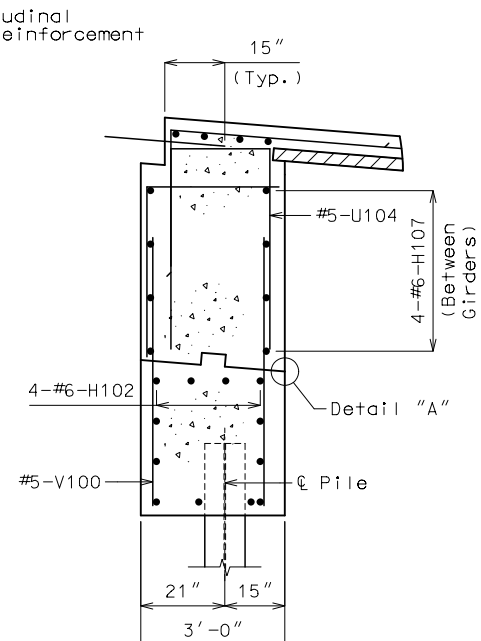
SECTION B-B



DETAIL OF TOP OF BEAM CAP SLOPE



SECTION C-C



SECTION D-D

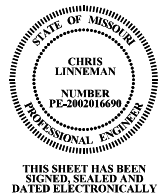
Note:
 For details of End Bent No. 1 not shown, see Sheets No. 3 & 4.
 For locations of Sections A-A, B-B, C-C and D-D, see Sheet No. 4.
 For locations of Elevations E-E and F-F, see Sheet No. 4.

Detailed JUL 2015
 Checked JUL 2015

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

Sheet No. 5 of 21

Y:\13046 Maness Road\DN\Bridge\Final\Plotsheets\005_End Bent 1_3 of 3.dgn 2:48:49 PM 2/23/2016



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 2/23/2016

STATE
 MO

SHEET NO.
 17

COUNTY
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FEDERAL PROJECT NO.
 BR0-B050(20)

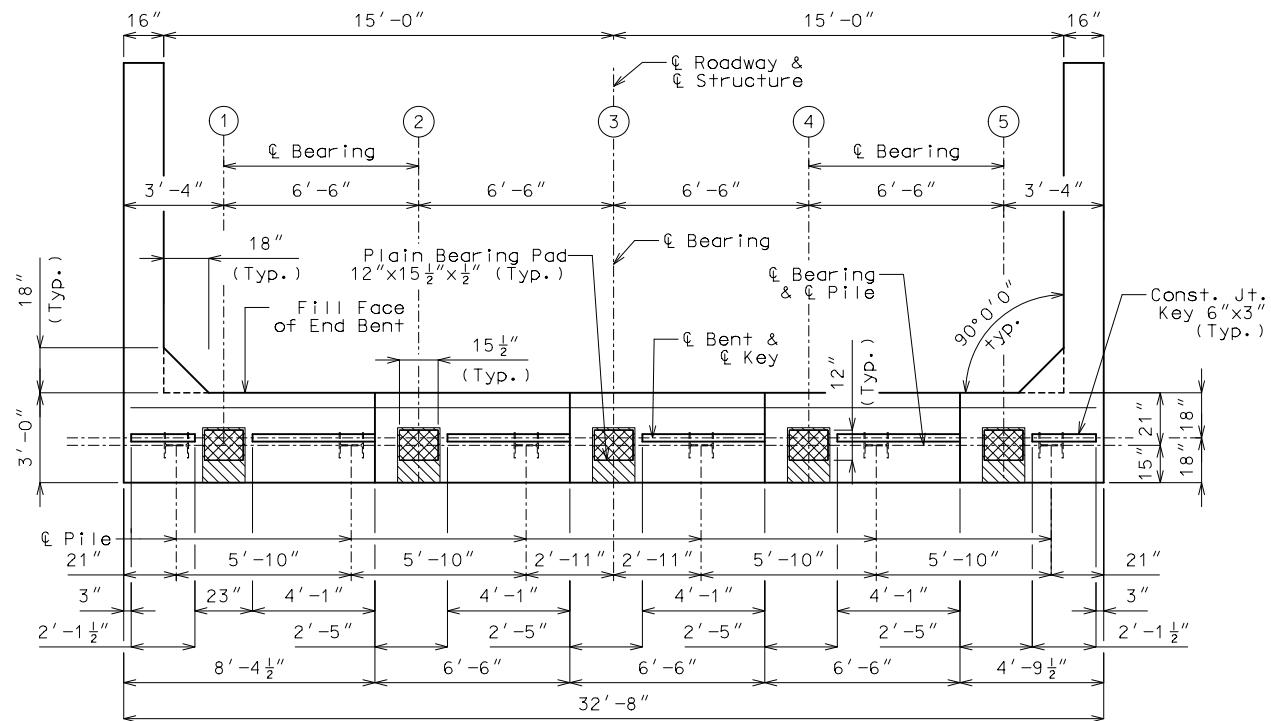
BRIDGE NO.
 27300021

DATE	DESCRIPTION

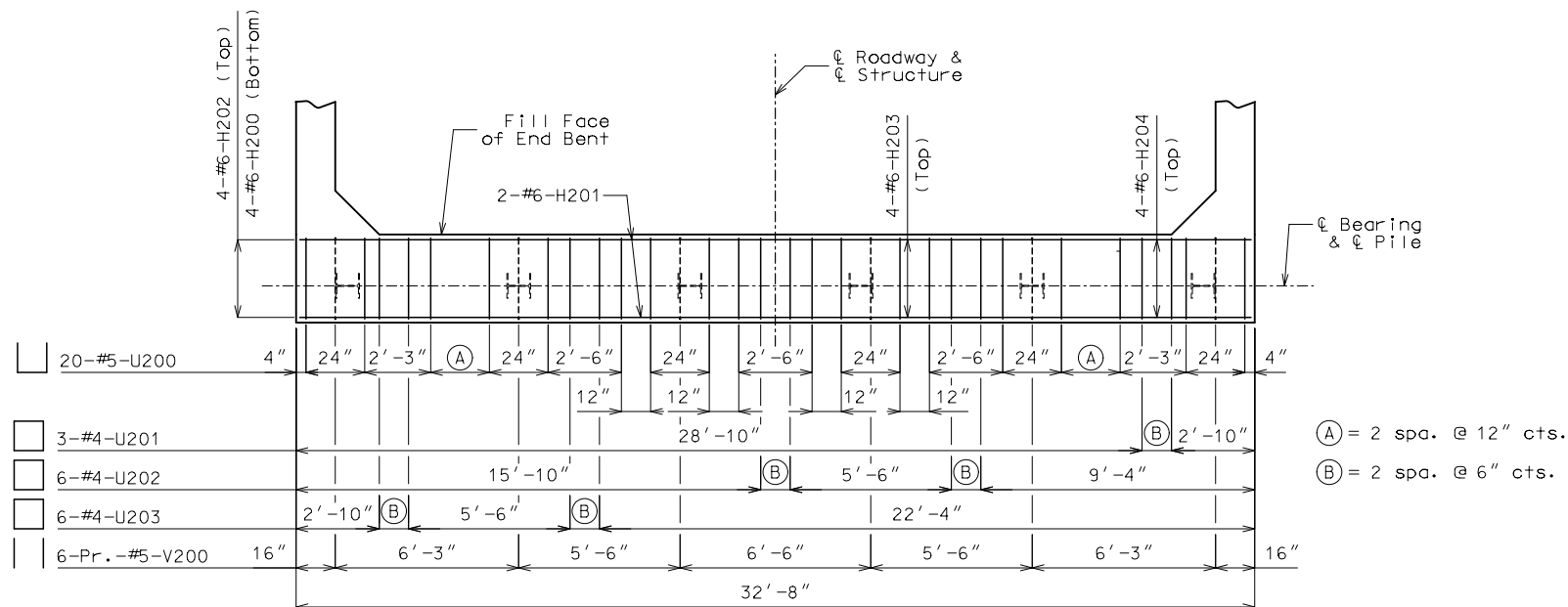
MANESS ROAD
 BRIDGE REPLACEMENT
 JEFFERSON COUNTY
 725 Maple Street
 Hillsboro, MO 63050

EFK Moen, LLC
 Civil Engineering Design
 13523 Barrett Parkway Dr
 Suite 250
 St. Louis, MO 63021
 Phone 314-394-3100
 Fax 314-394-3199
 Missouri Certificate of Authority: 001578

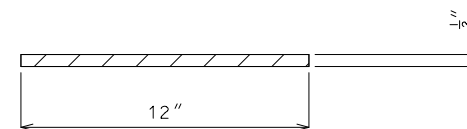
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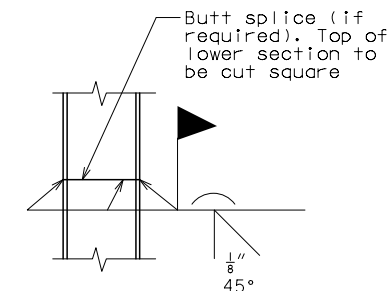
PLAN OF BEAM SHOWING DIMENSIONS



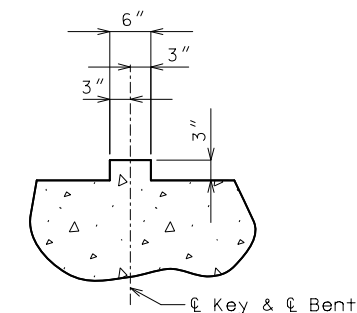
PLAN OF BEAM SHOWING REINFORCEMENT



TYPICAL SECTION THRU 12"x15 1/2"
PLAIN NEOPRENE BEARING PAD



STEEL PILE SPLICE



TYPICAL SECTION
THRU KEY

Note:

- For details of End Bent No. 2 not shown, see Sheets No. 7 & 8.
- For details of Vertical Drain at End Bent, see Sheet No. 9.
- All vertical reinforcing bars in the substructure beams or caps shall be field adjusted to clear piles by at least 1 1/2".
- All U-bars and Pr. V-bars in end bent are to be placed parallel to ℓ roadway.
- For section near End Bent, see Sheet No. 7.
- Reinforcement in wing in Plan of Beam not shown for clarity.



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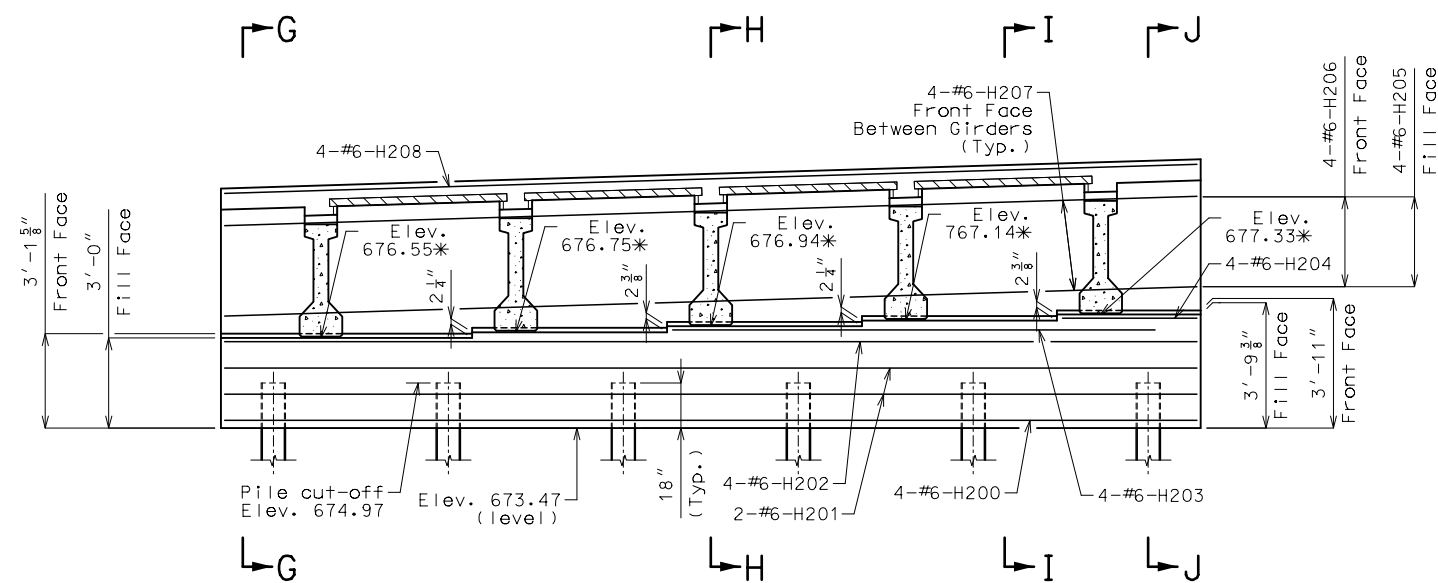
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BR0-B050(20)

BRIDGE NO.
27300021

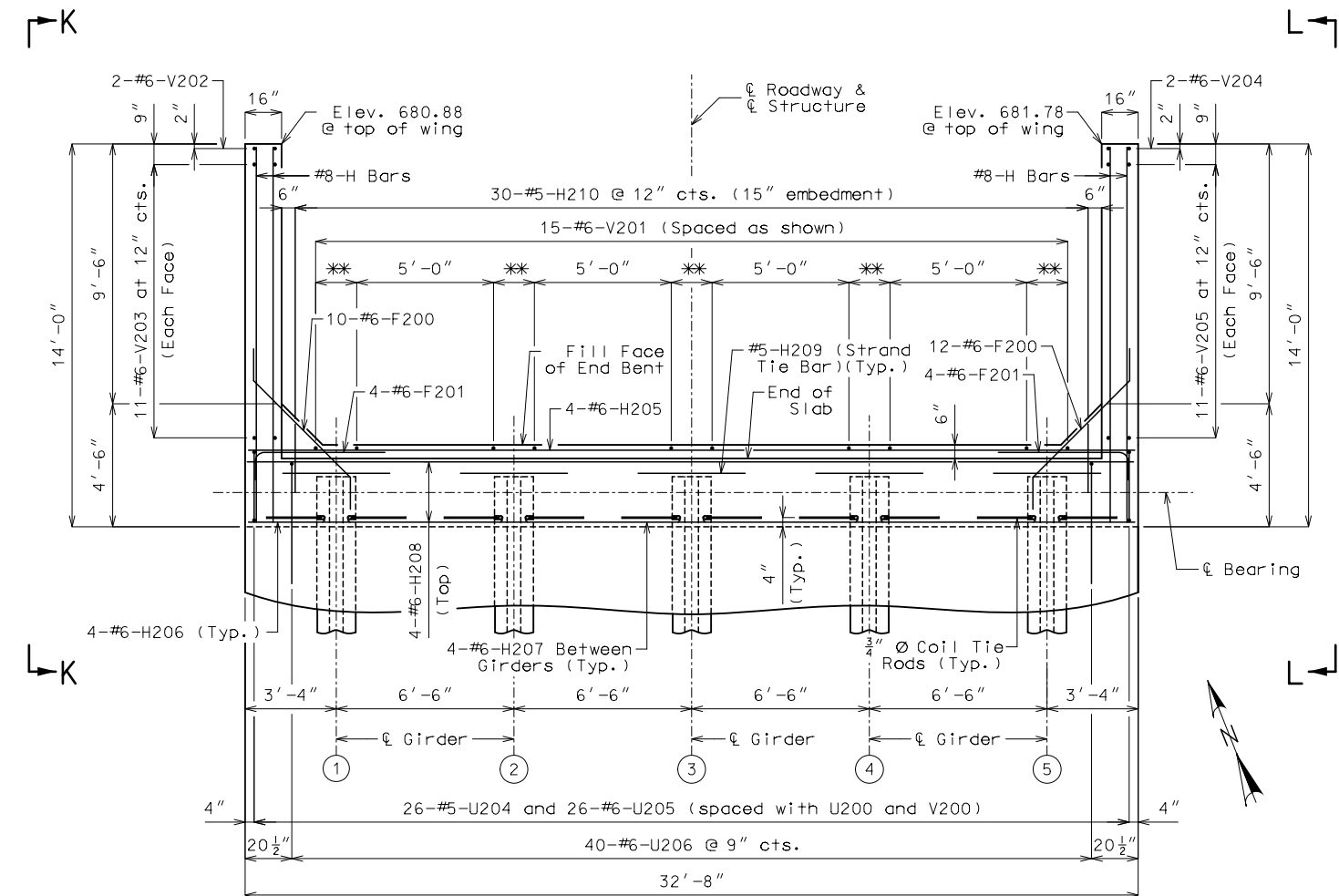
DATE	DESCRIPTION

MANESS ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



SECTION NEAR END BENT



PART PLAN
* 2 spaces at 9".

* Elevation at ϕ Bearing (See Detail of Top of Beam Cap Slope on Sheet No. 8.)

Note:

For details of End Bent No. 2 not shown, see Sheets No. 6 & 8.

For details of approach slab, see Sheet No. 18.

For details of Vertical Drain at End Bent, see Sheet No. 9.

The #6-F200 bars shall be bent in field to clear girders.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

Strands at end of the girder shall be field bent or, if necessary, cut in field to maintain $1\frac{1}{2}$ " minimum clearance to fill face of end bent.

For location of Coil Tie Rods and #5-H209 (Strand Tie Bar), see Sheet No. 10.

For Sections A-A, B-B, C-C and D-D, see Sheet No. 8.

For Elevations E-E and F-F, see Sheet No. 8.

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	39.0
Structural Steel Piles (10 in.)	linear foot	96
Pre-Bore for Piling	linear foot	60
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	16.4

Note: These quantities are included in the estimated quantities table on sheet no. 2.

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19

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BR0-B050(20)

BRIDGE NO.
27300021

MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY

725 Maple Street
Hillsboro, MO 63050

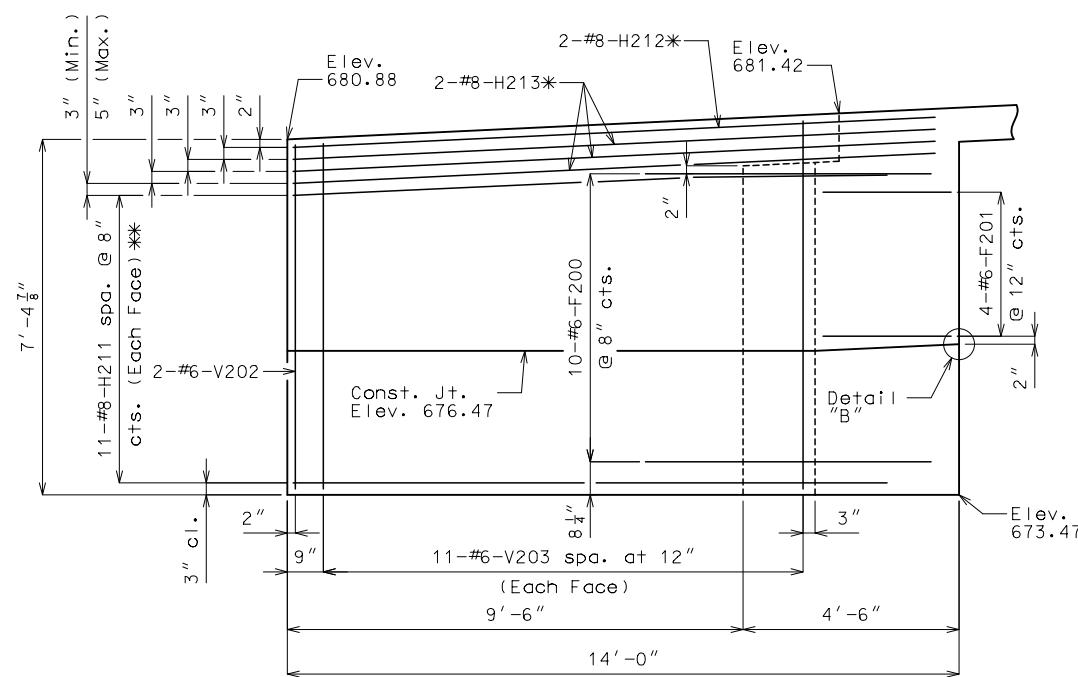
EFK Moen, LLC

Civil Engineering Design

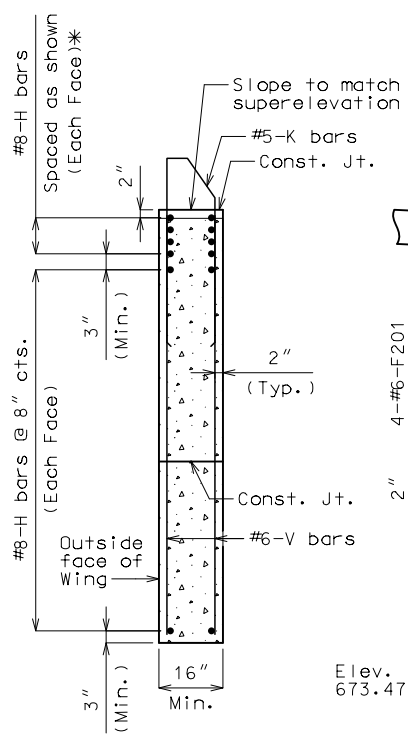
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021

Phone 314-394-3100
Fax 314-394-3199

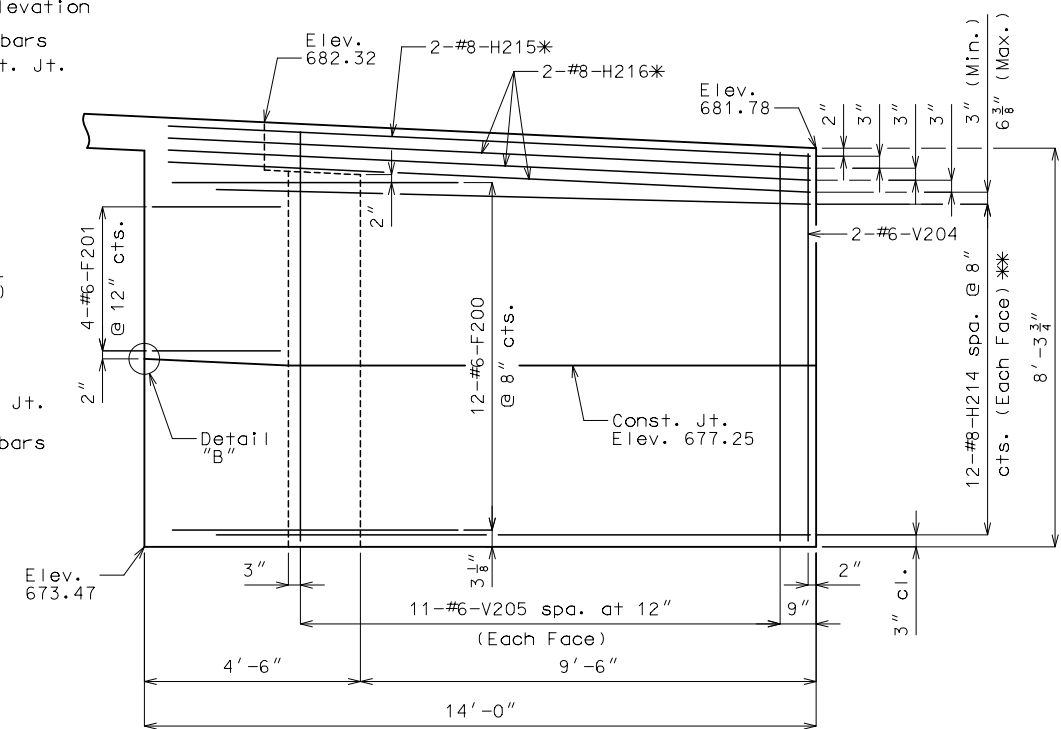
Missouri Certificate of Authority: 001578



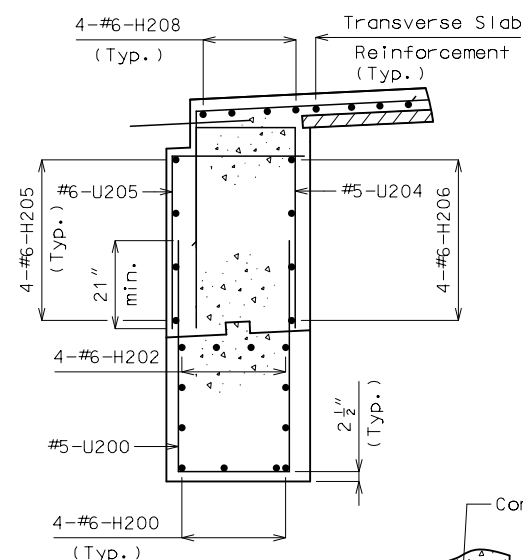
ELEVATION K-K (NW WING)



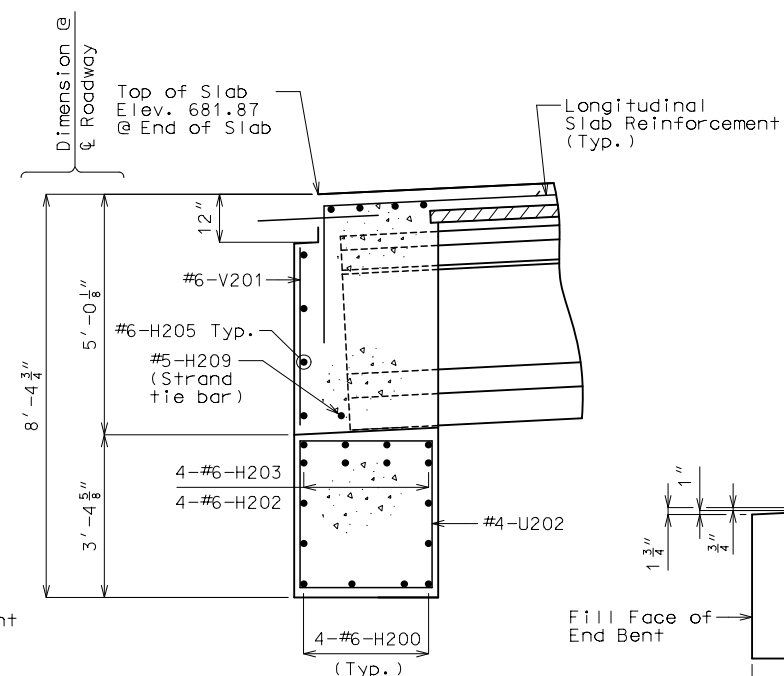
SECTION THRU WING



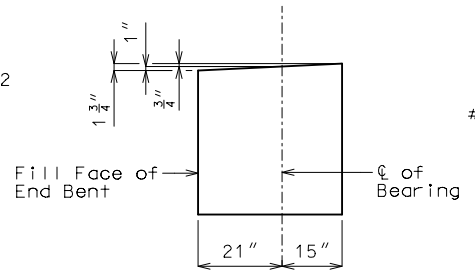
ELEVATION L-L (NE WING)



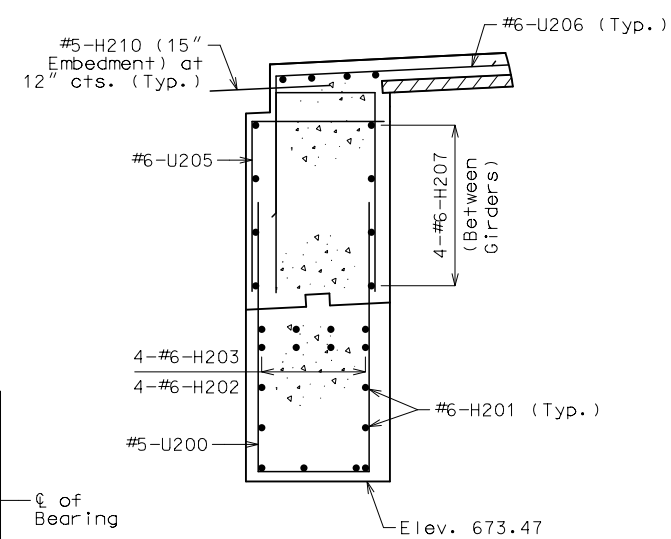
SECTION G-G



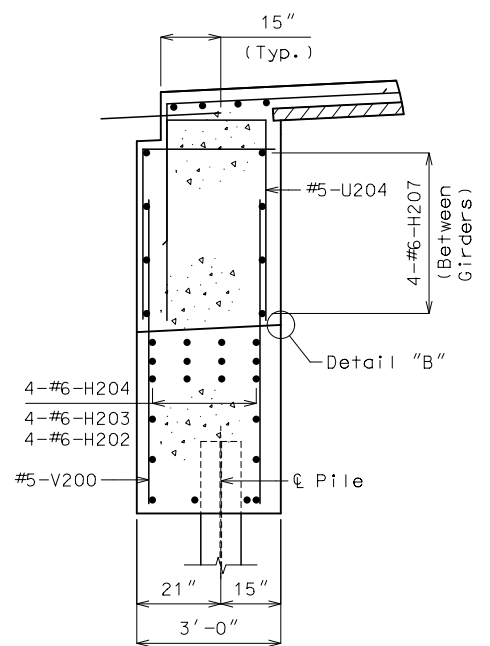
SECTION H-H



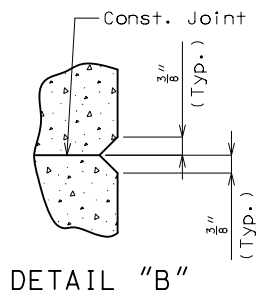
DETAIL OF TOP OF BEAM CAP SLOPE



SECTION I-I



SECTION J-J



DETAIL "B"

* Place with grade
** Fan top 2 bars to keep 3" (Min.) and 8" (Max.) spacing.

Note:
For details of End Bent No. 2 not shown, see Sheets No. 6 & 7.
For locations of Sections G-G, H-H, I-I and J-J, see Sheet No. 7.
For locations of Elevations K-K and L-L, see Sheet No. 7.

DETAILS OF END BENT NO. 2

Detailed JUL 2015
Checked JUL 2015

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

Sheet No. 8 of 21

STATE OF MISSOURI

CHRIS LINNEMAN

NUMBER PE-3002016699

PROFESSIONAL ENGINEER

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STATE
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SHEET NO.
20

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
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BRIDGE NO.
27300021

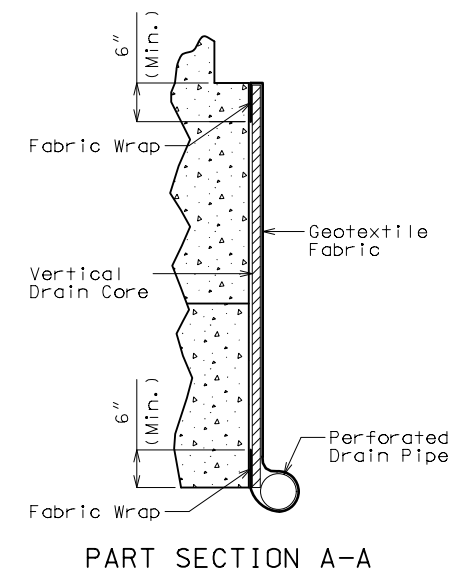
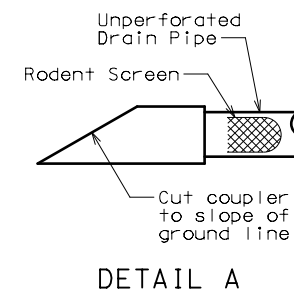
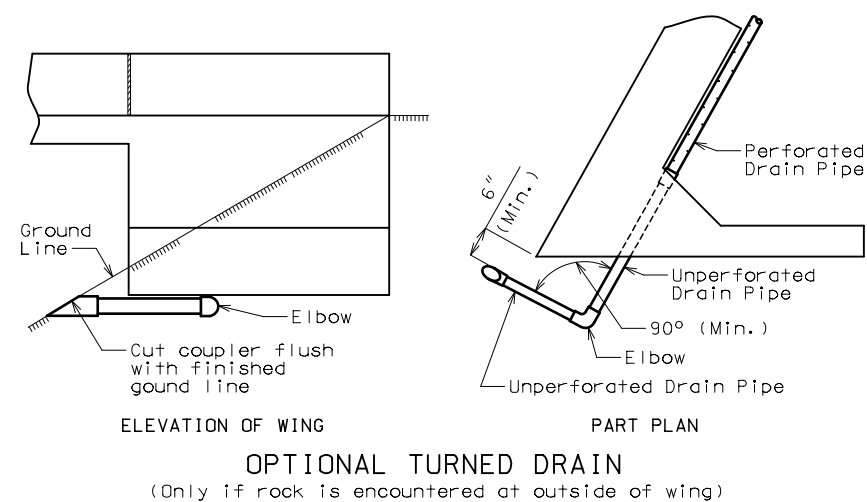
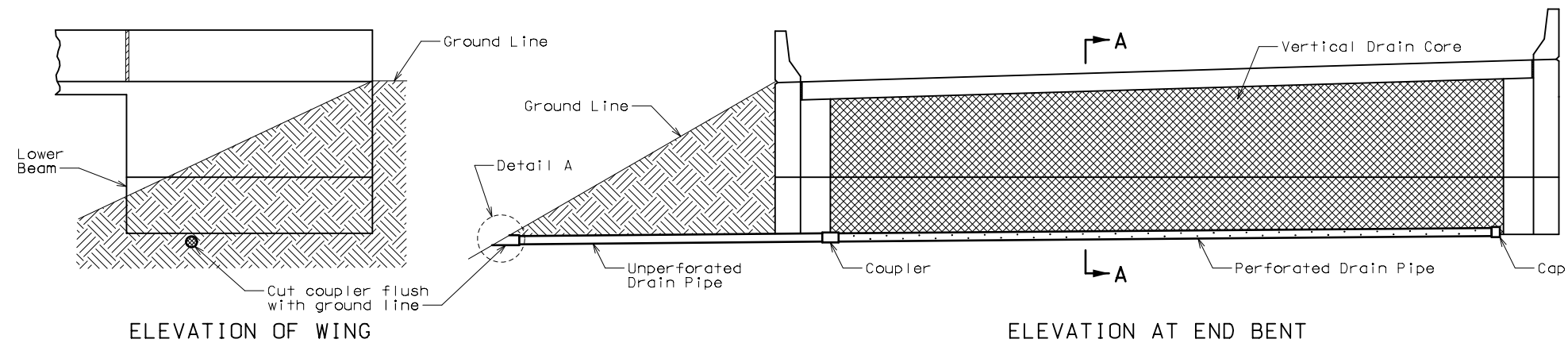
DESCRIPTION

DATE

MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



Note:

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Place drain pipe at fill face of end bent and slope to lowest grade of ground line, also missing the lower beam of end bent by 1 1/2 inches. (See Elevation at End Bent.)

Perforated pipe shall be placed at fill face side at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

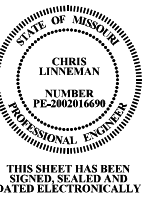
VERTICAL DRAIN AT END BENTS

Detailed JUL 2015
Checked JUL 2015

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

Sheet No. 9 of 21

Y:\13046 Maness Road\DGN\Bridge\Final\Plotsheets\009_Vertical Drain.dgn 2:48:56 PM 2/23/2016



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21

COUNTY
JEFFERSON
FEDERAL PROJECT NO.
BR0-B050(20)

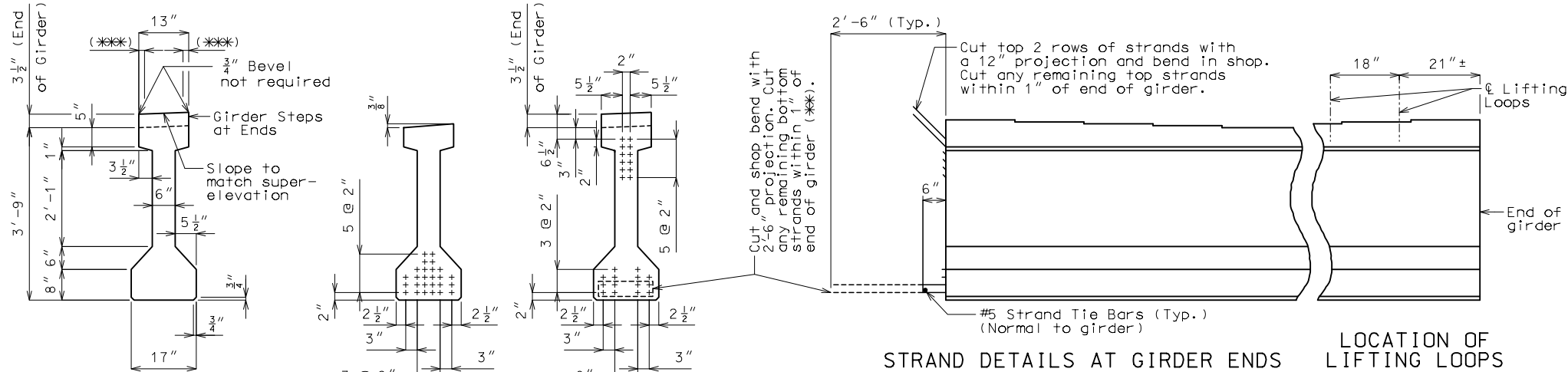
BRIDGE NO.
27300021

DATE	DESCRIPTION

**MANESS ROAD
BRIDGE REPLACEMENT**
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK•Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
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Phone 314-394-3100
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GIRDER DIMENSIONS

STRAND ARRANGEMENTS

STRAND DETAILS AT GIRDER ENDS

LOCATION OF LIFTING LOOPS

Concrete for prestressed girders shall be Class A-1 with $f'c = 8,000$ psi and $f'ci = 6,500$ psi.

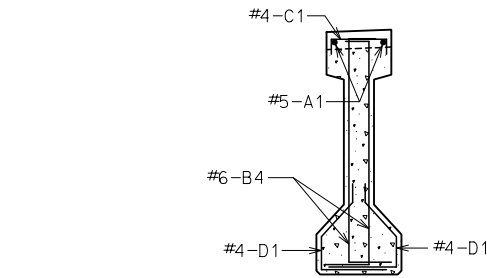
(+) indicates prestressing strand.

Use 26 strands with an initial prestress force of 806 kips.

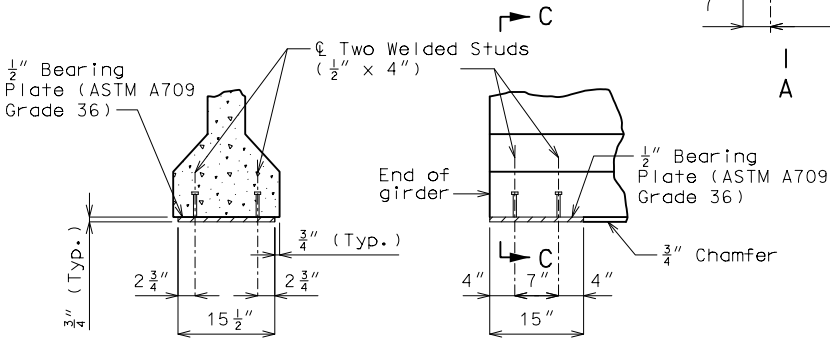
Prestressing tendons shall be uncoated, seven-wire, low-relaxation strands, 1/2 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029.

At the contractor's option the location for bent-up strands may be varied from that shown. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.

At contractor's option a 1 1/2" to 1 3/4" smooth finish strip is permitted to facilitate placement of preformed fiber expansion joint material or expanded or extruded polystyrene bedding material for the prestressed panels.



SECTION A-A
Strands not shown for clarity.

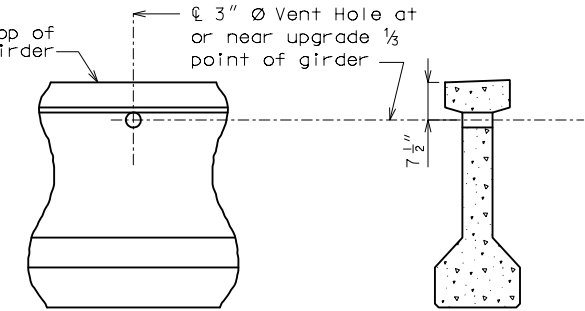


SECTION C-C

BEARING PLATE DETAILS

Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123. Cost of furnishing, galvanizing, and installing the 1/2" bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered completely covered by the contract unit price for Prestressed Concrete I-Girder.

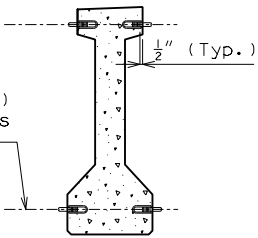
PART ELEVATION AT END OF GIRDER



PART ELEVATION OF GIRDER

PART SECTION NEAR VENT HOLE

Place vent holes at or near upgrade 1/2 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



DETAILS OF COIL TIES

BILL OF REINFORCING STEEL - EACH GIRDER				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
4	5 A1	40'-0"	14	SHAPE 9 SHAPE 10 SHAPE 11 SHAPE 14
36	5 B1	5'-2"	11	
32	5 B2	5'-3"	11	SHAPE 9 SHAPE 10 SHAPE 11 SHAPE 14
44	5 B3	5'-4"	11	
36	5 B4	5'-5"	11	
16	6 B5	4'-10"	11	SHAPE 9 SHAPE 10 SHAPE 11 SHAPE 14
82	4 C1	13"	10	
164	4 D1	2'-7"	9	

All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

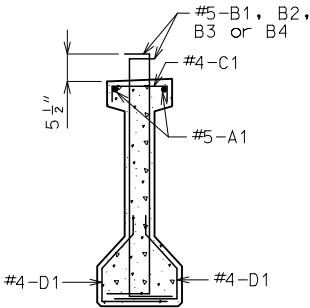
Actual lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1".

All reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1, B2, B3 and B4 bars shall be epoxy coated.



SECTION B-B
Strands not shown for clarity.

Cost of 3/4" Ø coil tie rods placed in diaphragms will be considered completely covered by the contract unit price for Prestressed Concrete I-Girder.

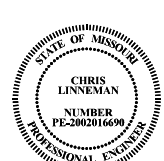
Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting through forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods.

For location of coil ties, see Sheets No. 4 & 7.

The 1 1/2" Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed.

For details of diaphragms, see Sheet No. 11.

For Girder Camber Diagram, see Sheet No. 14.



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22

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27300021

DESCRIPTION

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MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY

725 Maple Street
Hillsboro, MO 63050

EFK • Moen, LLC

Civil Engineering Design

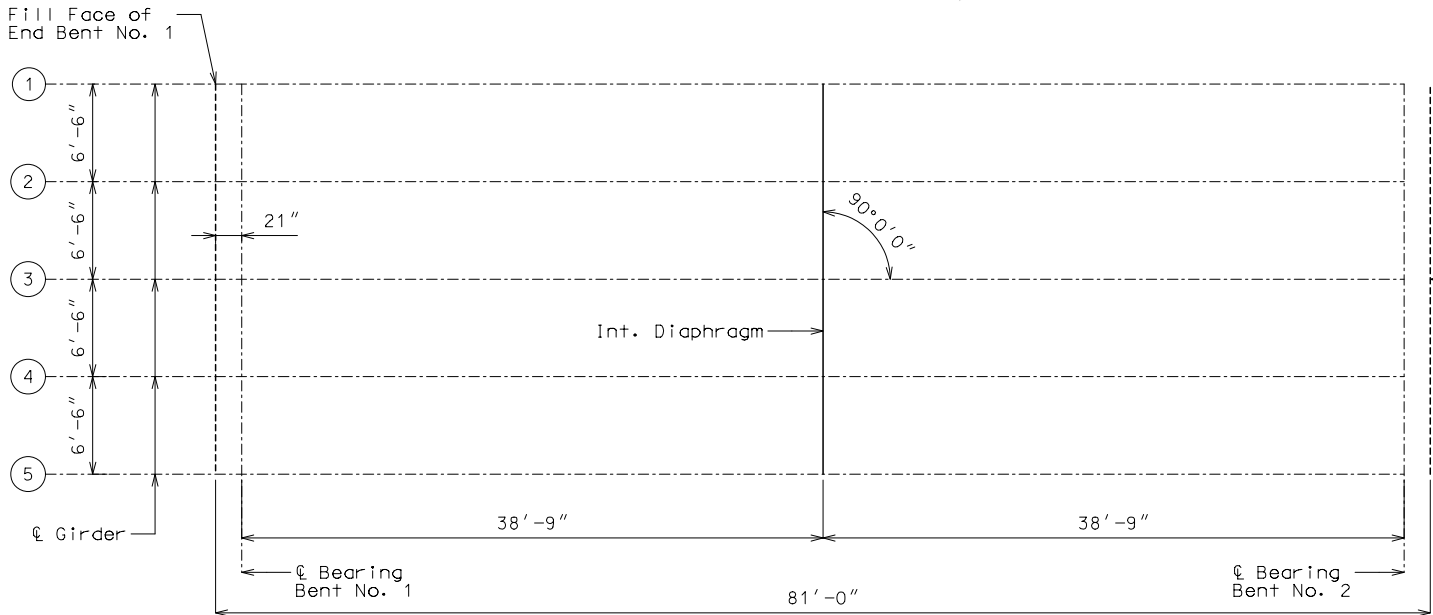
13523 Barrett Parkway Dr
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Missouri Certificate of Authority: 001578

REV.

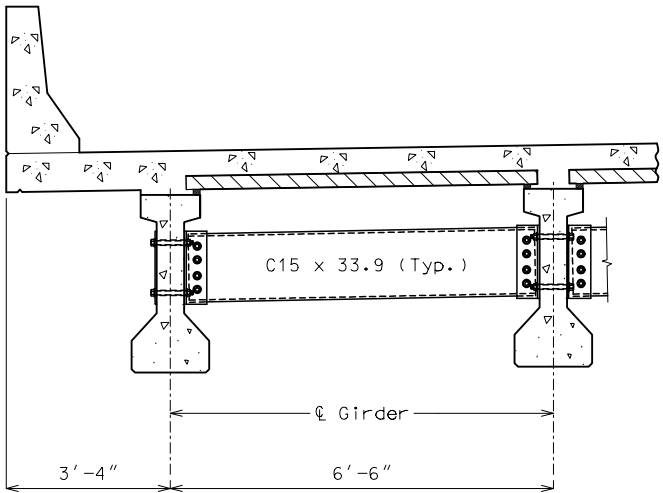
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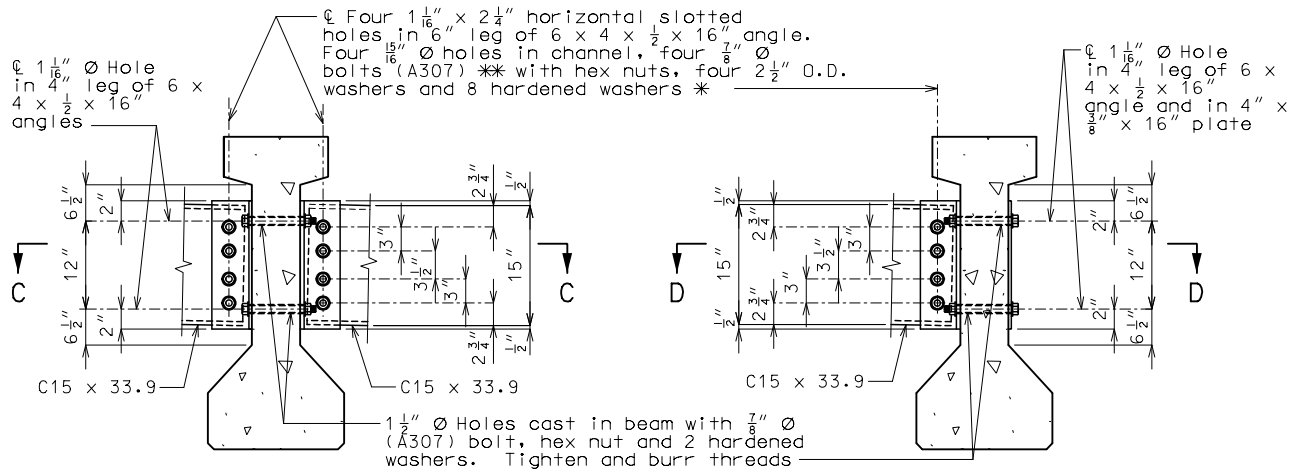
SPAN (1-2)

PLAN SHOWING LOCATION OF INTERMEDIATE DIAPHRAGMS

Note: All dimensions are horizontal

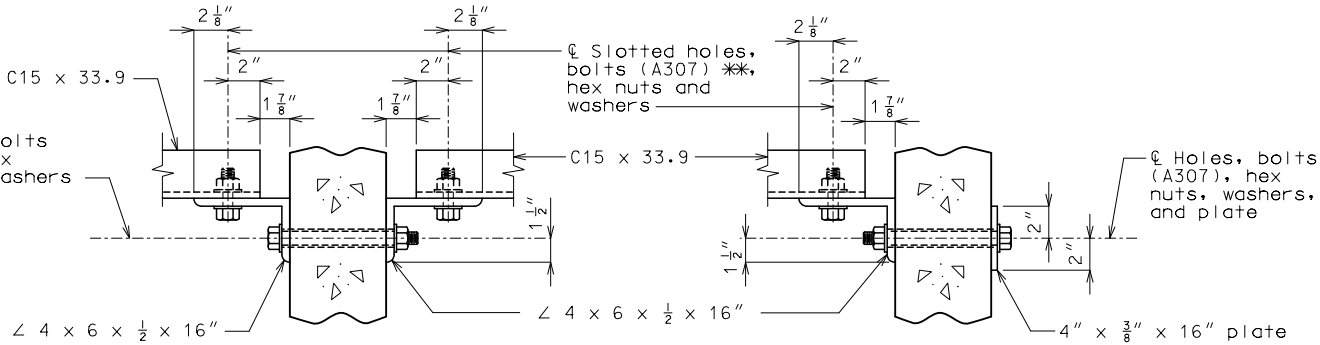


PART SECTION SHOWING
INTERMEDIATE DIAPHRAGMS



SECTION THRU INT. GIRDER
AT DIAPHRAGM

SECTION THRU EXT. GIRDER
AT DIAPHRAGM



SECTION C-C

SECTION D-D

STEEL DIAPHRAGM NOTES:

* In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 1/16" Ø holes and one hardened washer per bolt.

** Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. A325 bolts may be substituted for and installed in accordance with the requirements for the specified A307 bolts.

All diaphragm materials including bolts, nuts, and washers shall be galvanized.

Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.

Shop drawings will not be required for steel intermediate diaphragms and angle connections.

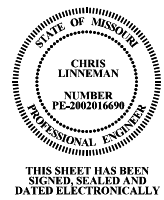
For location of intermediate diaphragms, see Plan on this sheet.

STEEL INTERMEDIATE DIAPHRAGM DETAILS

Detailed JUL 2015
Checked JUL 2015

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

Sheet No. 11 of 21



DATE PREPARED
2/23/2016

STATE
MO

SHEET NO.
23

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JEFFERSON

FEDERAL PROJECT NO.
BR0-B050(20)

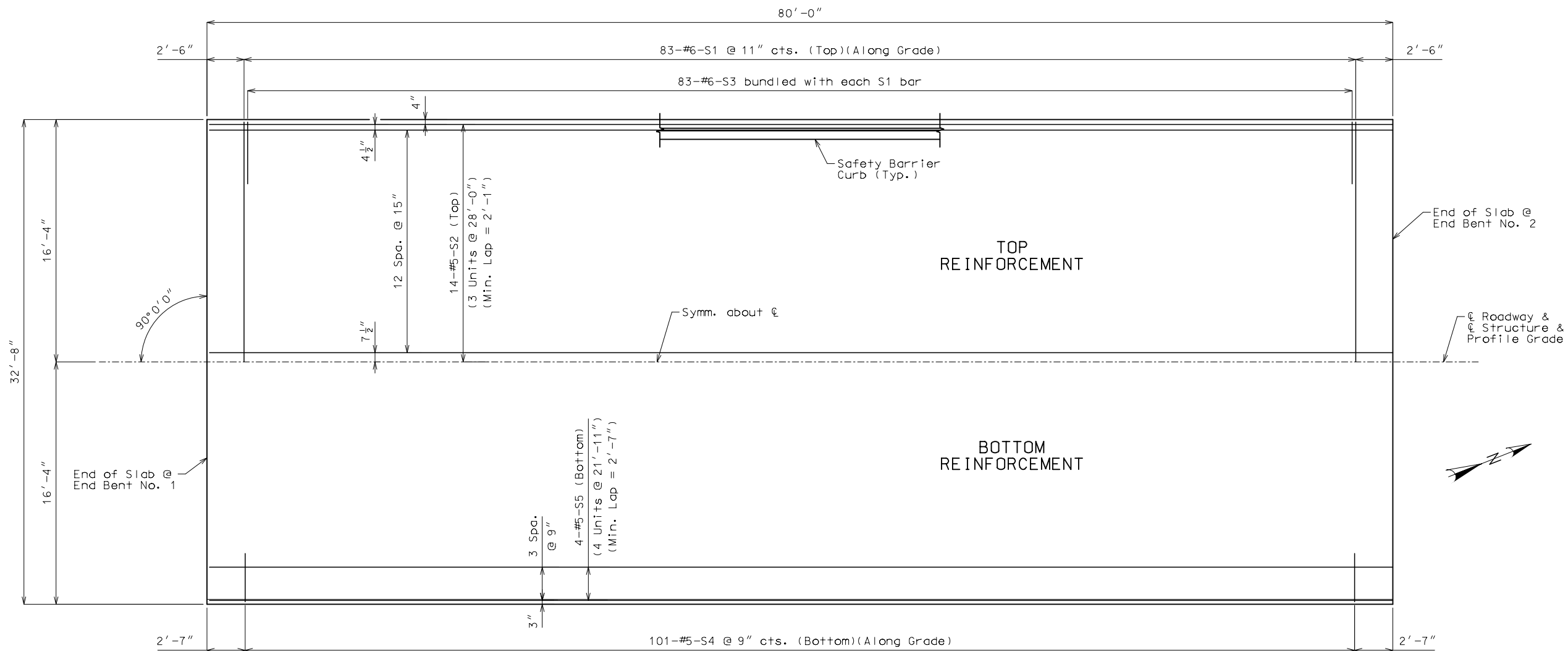
BRIDGE NO.
27300021

DATE	DESCRIPTION

MANESS ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
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PLAN OF SLAB SHOWING REINFORCEMENT
All dimensions are horizontal, unless noted otherwise.

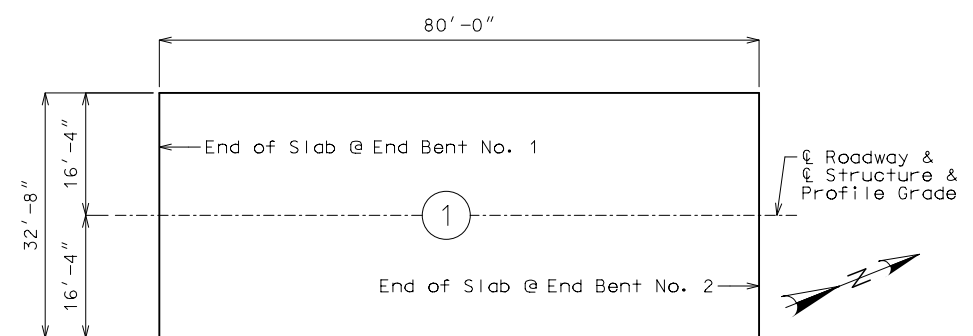
Note:

For details of Prestressed Panels, see Sheet No. 12.

For Section Thru Slab, Theoretical Bottom of Slab Elevations, Theoretical Slab Haunching Diagram and Girder Camber Diagram, see sheet no. 14.

For details and reinforcement of Safety Barrier Curb, see Sheets No. 15 & 16

All reinforcing steel in the bridge deck (top and bottom mats) shall be firmly tied with wire at each cross or lap.



	Sequence of Pours	Min. rate of pour cu. yds./hr.	
	Direction	With retarder	No retarder
Basic sequence	1 North to South (upgrade)	25	25

Note: The contractor shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.

SLAB DETAILS

SLAB POURING SEQUENCE

Detailed JUL 2015
Checked JUL 2015

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

Sheet No. 13 of 21

Y:\13046 Maness Road\Drawings\Bridge\Final\Plotsheets\013_Slab Plan.dgn 2:49:05 PM 2/23/2016



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25
COUNTY

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FEDERAL PROJECT NO.
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BRIDGE NO.
27300021

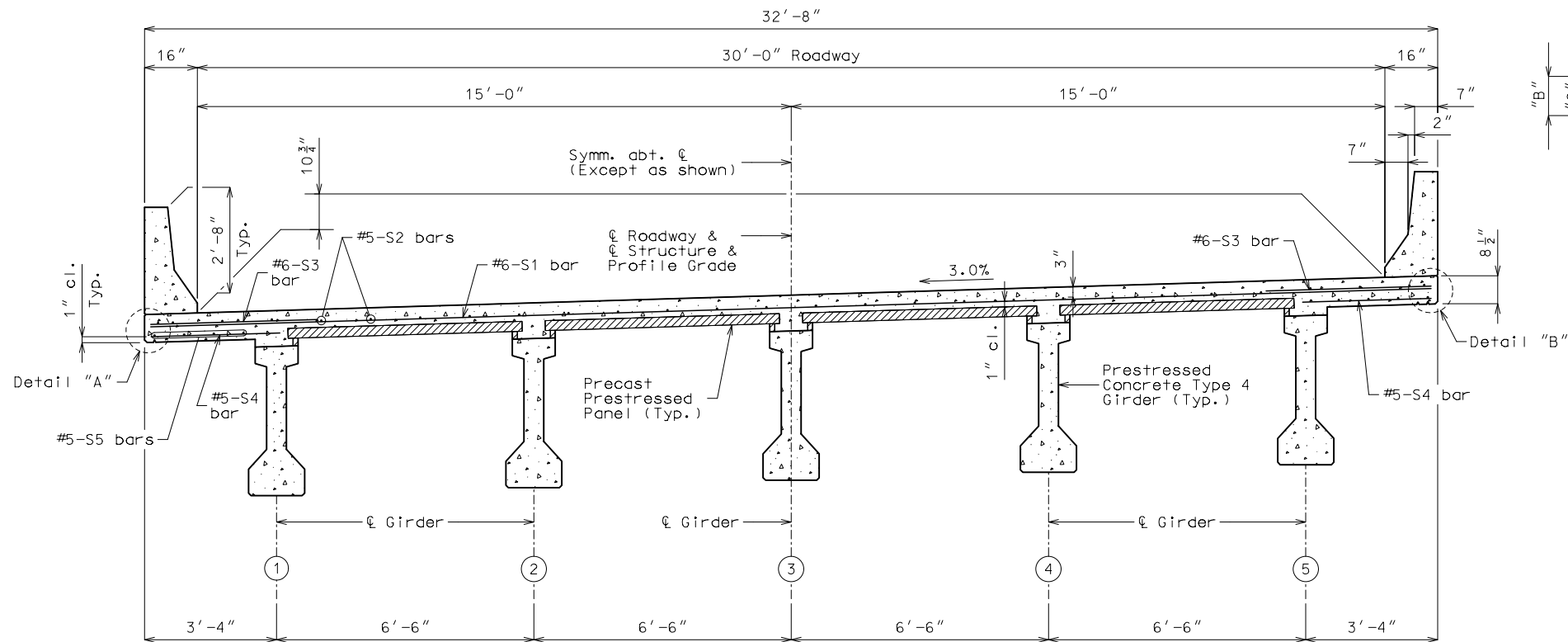
DESCRIPTION

DATE

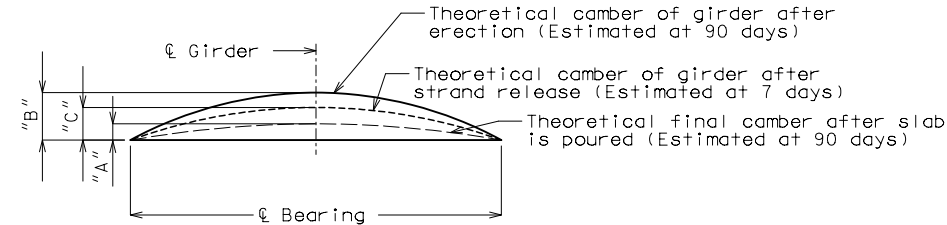
MANESS ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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Civil Engineering Design
13523 Barrett Parkway Dr
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SECTION THRU SLAB



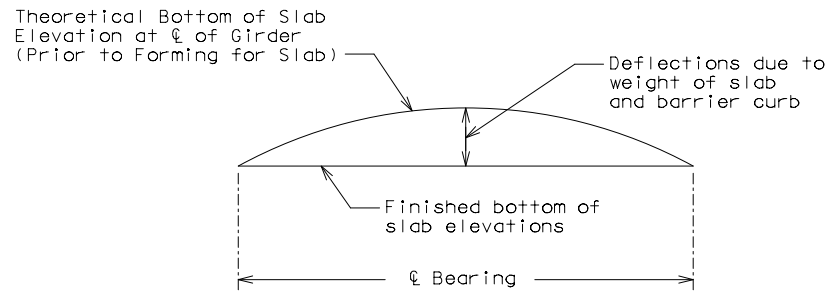
	Span (1-2)		
	"A"	"B"	"C"
Ext. girder	2 1/4"	3 3/8"	1 5/8"
Int. girder	2 1/4"		

GIRDER CAMBER DIAGRAM

Conversion factors for girder camber (estimated at 90 days)
 0.1 pt. = 0.314 x 0.5 pt.
 0.2 pt. = 0.593 x 0.5 pt.
 0.3 pt. = 0.813 x 0.5 pt.
 0.4 pt. = 0.952 x 0.5 pt.

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness adjustment of the slab haunches, an increase in slab thickness or a raise in grad uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

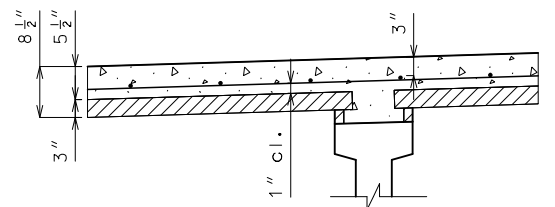
Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete I-Girder.



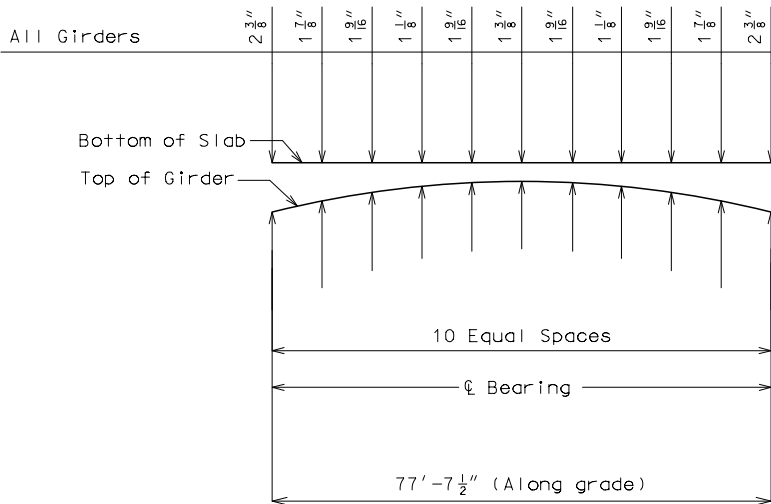
TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at CL of Girder (Prior to Forming for Slab) **											
	Span (1-2) (77'-7 1/2" CL brg - CL brg. along grade)										
	CL brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	CL brg.
Girder No. 1	685.34	684.86	684.38	683.92	683.46	683.01	682.56	682.12	681.68	681.25	680.83
Girder No. 2	685.54	685.05	684.58	684.11	683.65	683.20	682.75	682.31	681.87	681.45	681.03
Girder No. 3	685.73	685.25	684.77	684.31	683.85	683.40	682.95	682.50	682.07	681.64	681.22
Girder No. 4	685.93	685.44	684.97	684.50	684.04	683.59	683.14	682.70	682.26	681.84	681.42
Girder No. 5	686.12	685.64	685.16	684.70	684.24	683.79	683.34	682.90	682.46	682.03	681.61

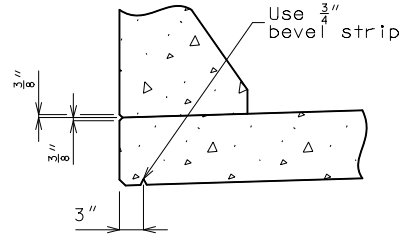
** Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.



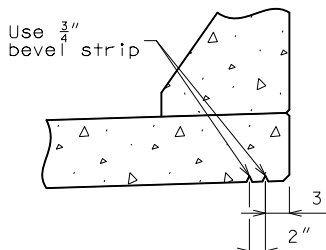
CLEARANCES



THEORETICAL SLAB HAUNCHING DIAGRAM



DETAIL "A"



DETAIL "B"

Notes:
 For Plan of Slab showing reinforcement see, Sheet No. 13.
 For details and reinforcement of Safety Barrier Curb, see Sheets No. 15 & 16.
 For details of Precast panels, see Sheet No. 12.
 For details of Prestressed Girders, see Sheets No. 10 & 11.

DETAILS OF SLAB

Detailed JUL 2015
 Checked JUL 2015

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

Sheet No. 14 of 21

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2/23/2016

STATE
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SHEET NO.
26

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JEFFERSON

FEDERAL PROJECT NO.
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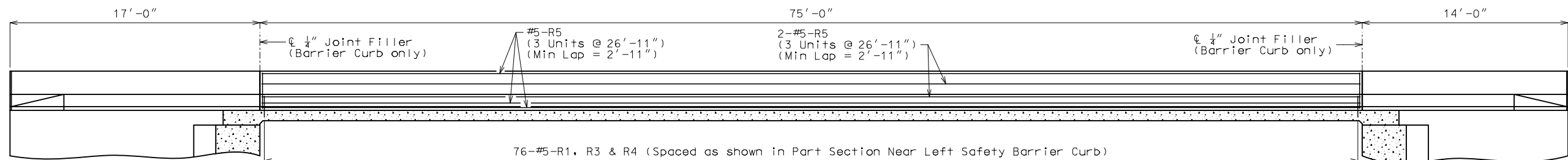
BRIDGE NO.
27300021

MANESS ROAD
BRIDGE REPLACEMENT

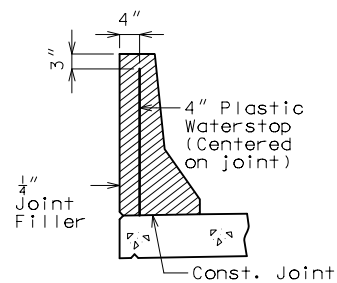
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
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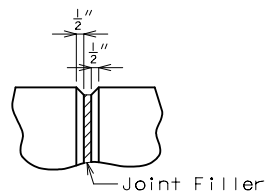
ELEVATION OF SAFETY BARRIER CURB
(Left barrier curb shown, right barrier curb similar)
Longitudinal dimensions are horizontal, unless noted otherwise.



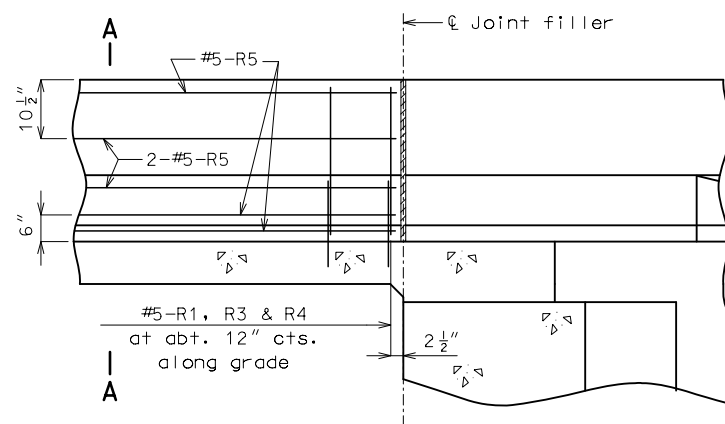
PLASTIC WATERSTOP DETAIL

Plastic waterstop shall be placed in all safety barrier curb filled joints, except structures with superelevation, use on all lower safety barrier curb joints only.

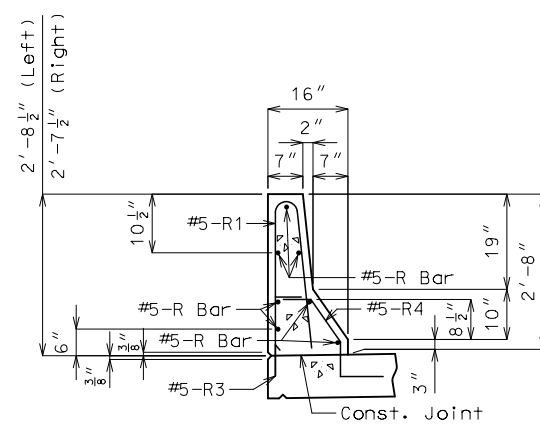
Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



FILLED JOINT DETAIL



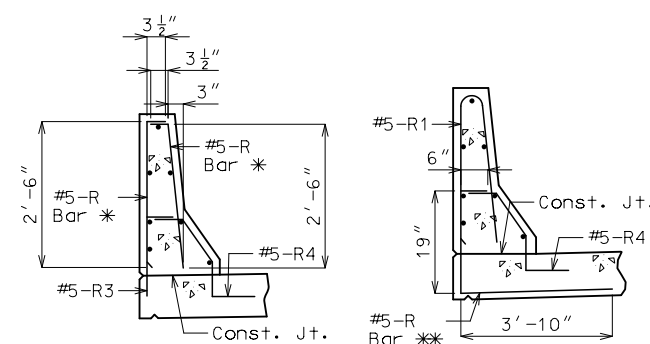
PART SECTION NEAR LEFT SAFETY BARRIER CURB
(CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



SECTION A-A

Use a minimum lap of 2'-11" for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.28 sq. ft. (Left)
2.23 sq. ft. (Right)



R-BAR PERMISSIBLE ALTERNATE SHAPE

* The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)

** The R3 bar and #5 bottom transverse slab bar in cantilever (P/S panels only) combination may be furnished as one bar as shown, at the contractor's option.

General Notes

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a $\frac{1}{2}$ -inch radius or a $\frac{3}{8}$ -inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.



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27

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
RO-B050(20)

BRIDGE NO.
27300021

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BRIDGE REPLACEMENT

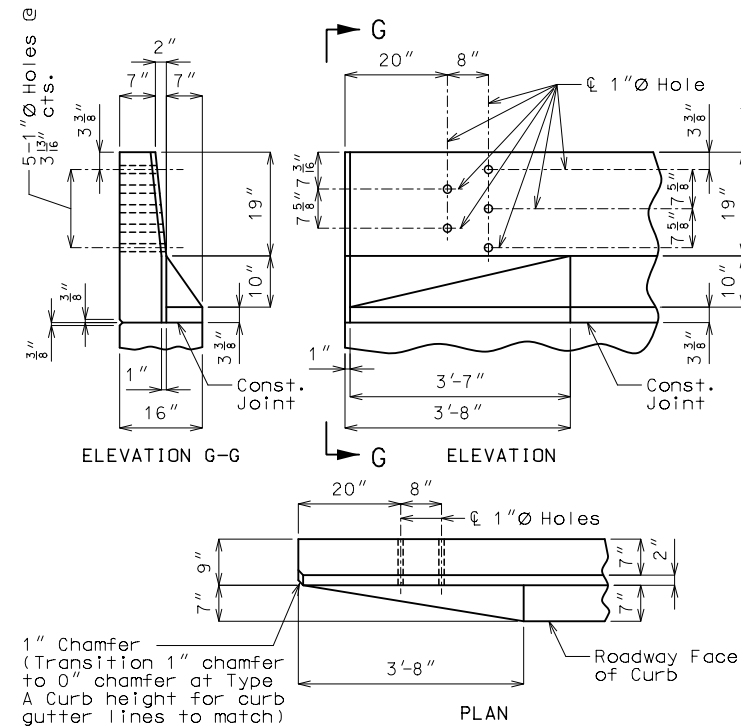
RIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street

LEFK MOCH, LLC
Civil Engineering Design

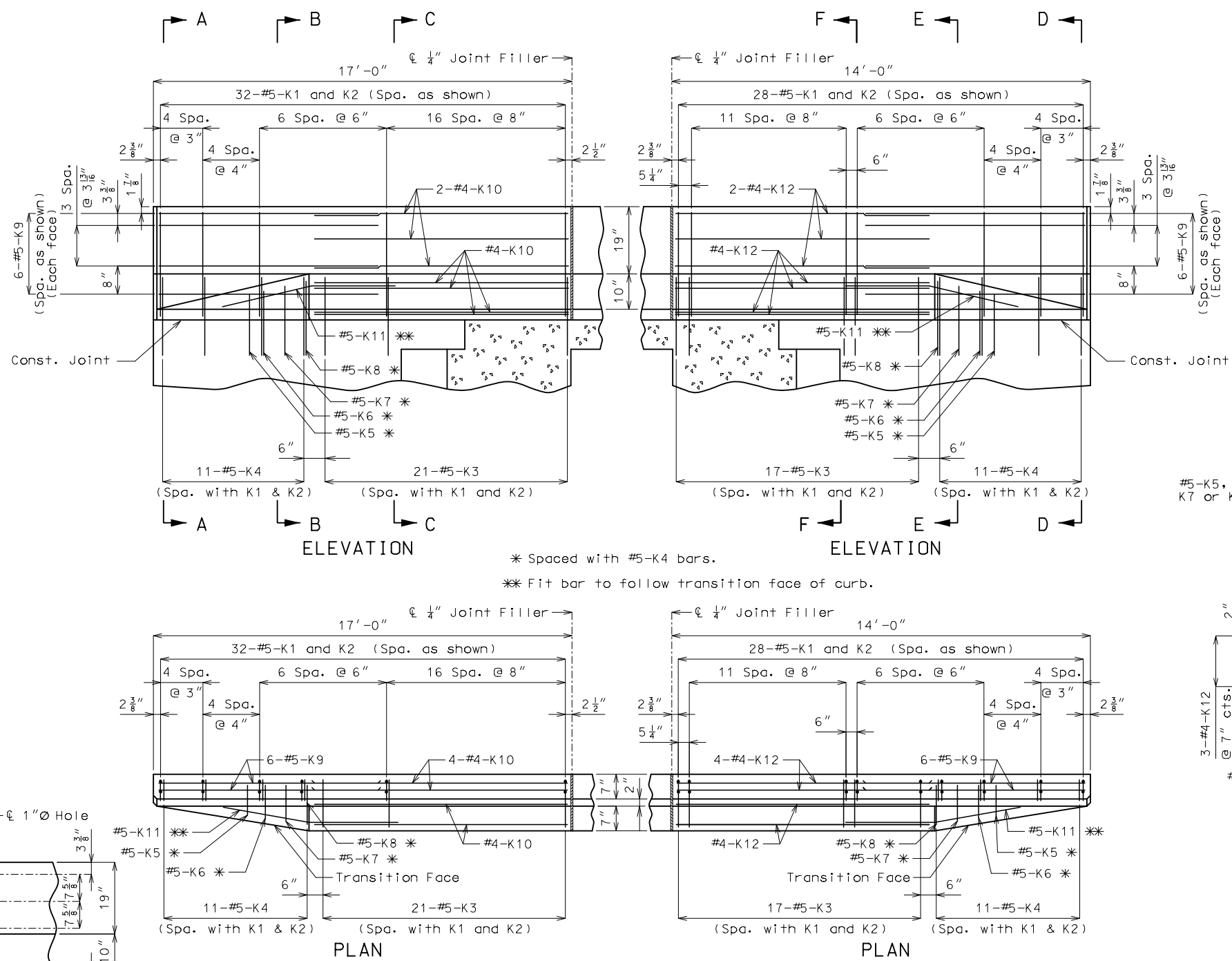
Civil Engineering Design
3523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199

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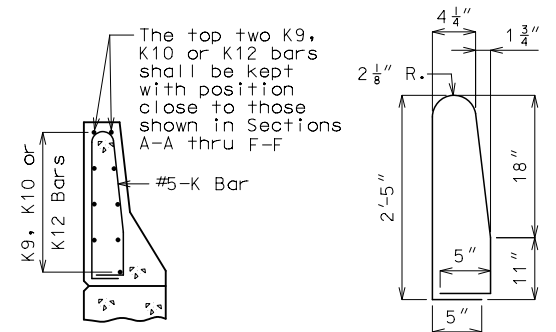
DETAILS OF GUARD RAIL ATTACHMENT



Note: Use a minimum lap of 2'-0" between K9 and K10 or K12 bars.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

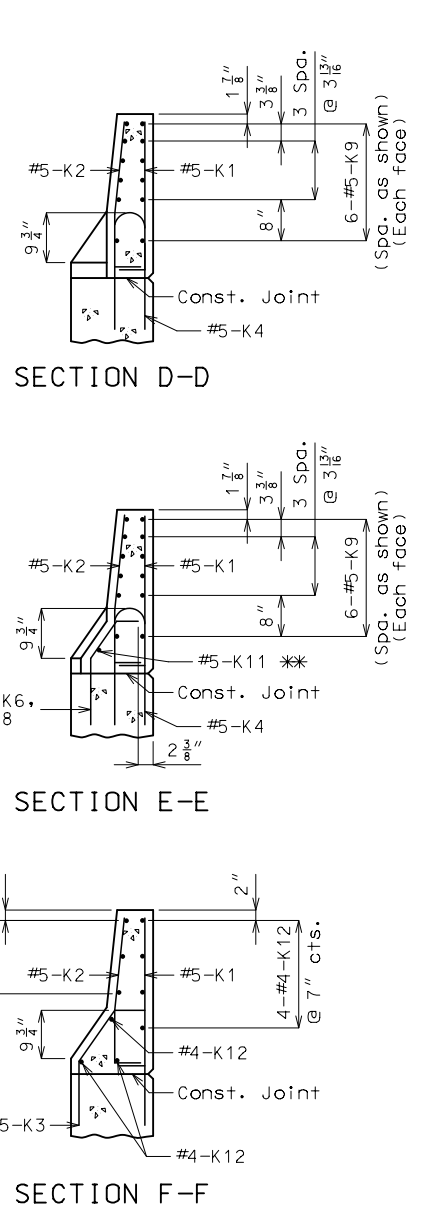
DETAILS OF SAFETY BARRIER CURB AT END BENTS
(Left barrier curb shown, right barrier curb similar)



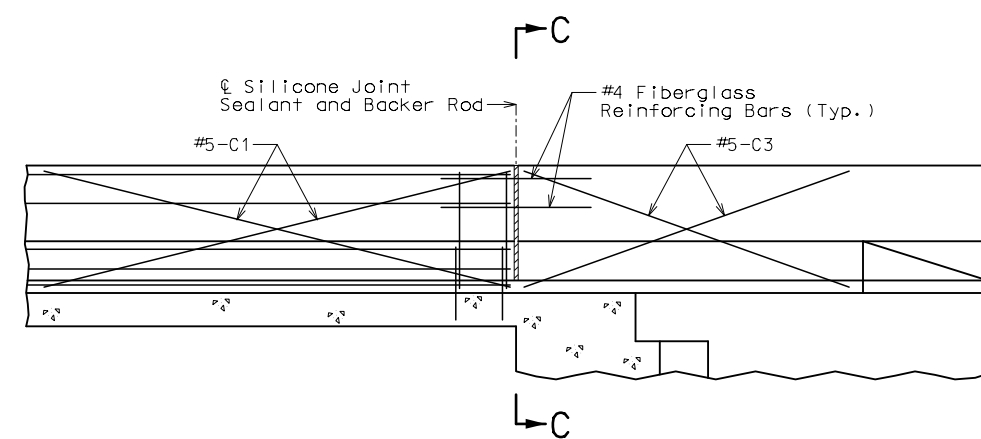
K1-K2 BAR PERMISSIBLE
ALTERNATE SHAPE

(K3 or K4 thru K8 bars not shown for clarity)

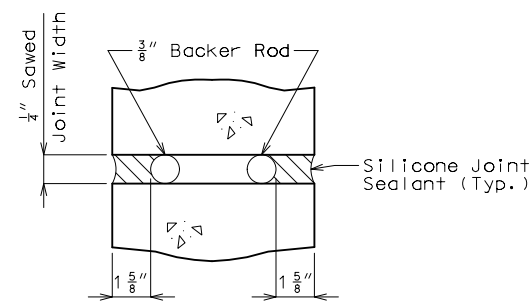
The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.



EFK♦Moen, LLC Civil Engineering Design 13523 Barrett Parkway Dr Suite 250 St. Louis, MO 63021 Phone 314-394-3100 Fax 314-394-3199 Missouri Certificate of Authority: 001578	MANESS ROAD BRIDGE REPLACEMENT JEFFERSON COUNTY 725 Maple Street Hillsboro, MO 63050		DATE	DESCRIPTION
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STATE OF MISSOURI CHRIS LINNEMAN NUMBER PE-2002016690 PROFESSIONAL ENGINEER THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY DATE PREPARED 2/23/2016 STATE MO SHEET NO. 28 COUNTY JEFFERSON FEDERAL PROJECT NO. BRO-B050(20) BRIDGE NO. 27300021				

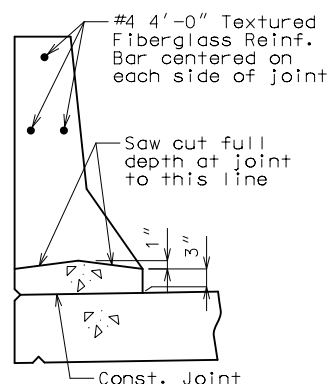


TYPICAL ELEVATION OF SAFETY BARRIER CURB AT SUPPORT LOCATIONS



SECTION THRU JOINT

SECTION A-A



SECTION B-B

* Each side of joint location.

SECTION C-C

OPTIONAL SLIP-FORM SAFETY BARRIER CURB

Sheet No. 17 of 21

General Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

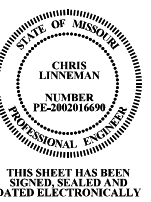
Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

For slip-form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

C bars (slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

Cost of silicone joint sealant and backer rod, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb.



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2/23/2016

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MANESS ROAD BRIDGE REPLACEMENT

JEFFERSON COUNTY

**1/25 Maple Street
Hillsboro, MO 63050**

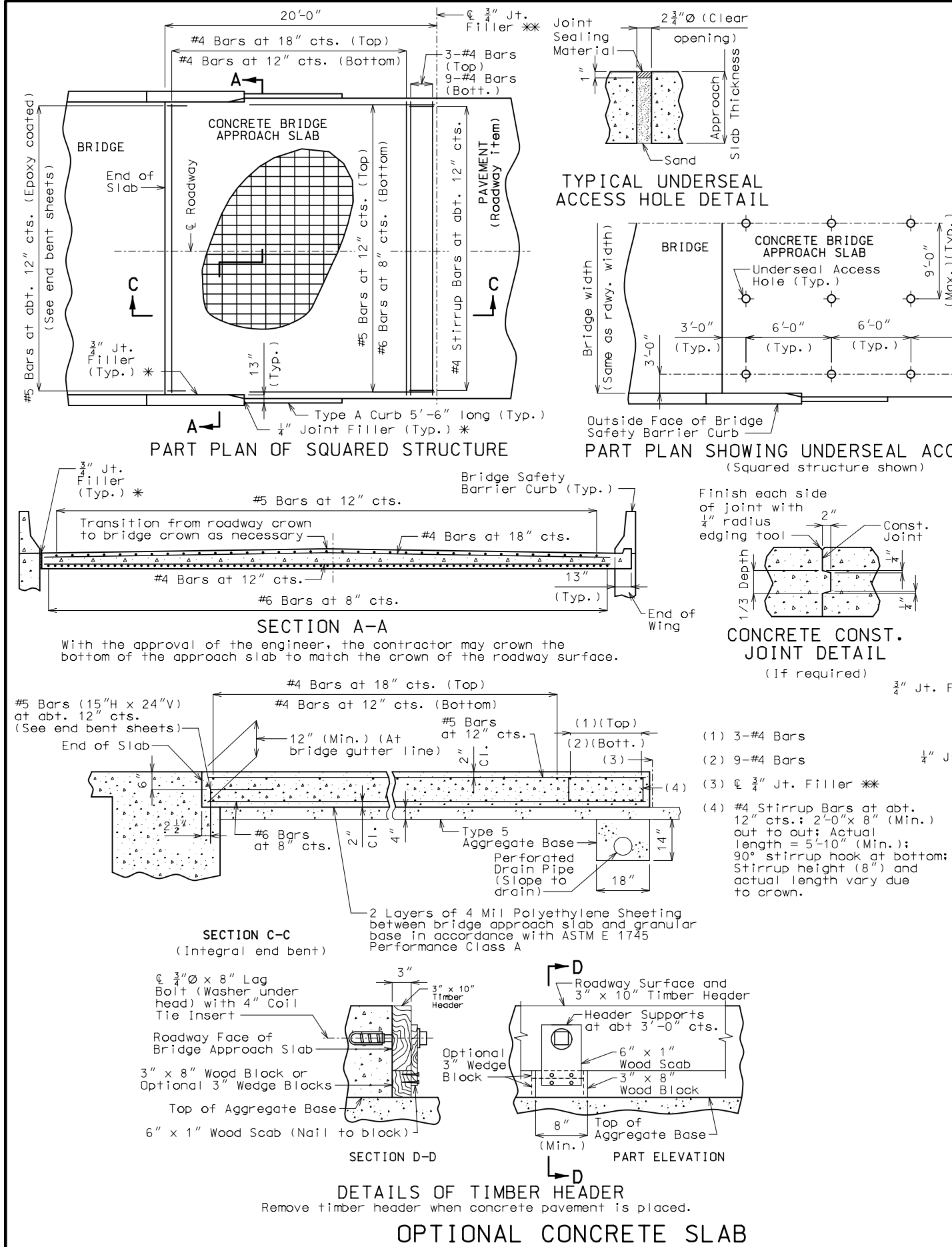
EFK•Moen, LLC
Civil Engineering Design

Civil Engineering Design
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Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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Notes For Concrete Slab Only:

All concrete for the bridge approach slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in the bridge.

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #4 bars 20" min.

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor Road) per square yard.

See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

* Seal joint between vertical face of bridge approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 717.

General Notes:

Contractor shall have the option to construct either slab except as noted.

The contractor shall pour and satisfactorily finish the bridge approach slab before placing the bridge approach slab.

Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

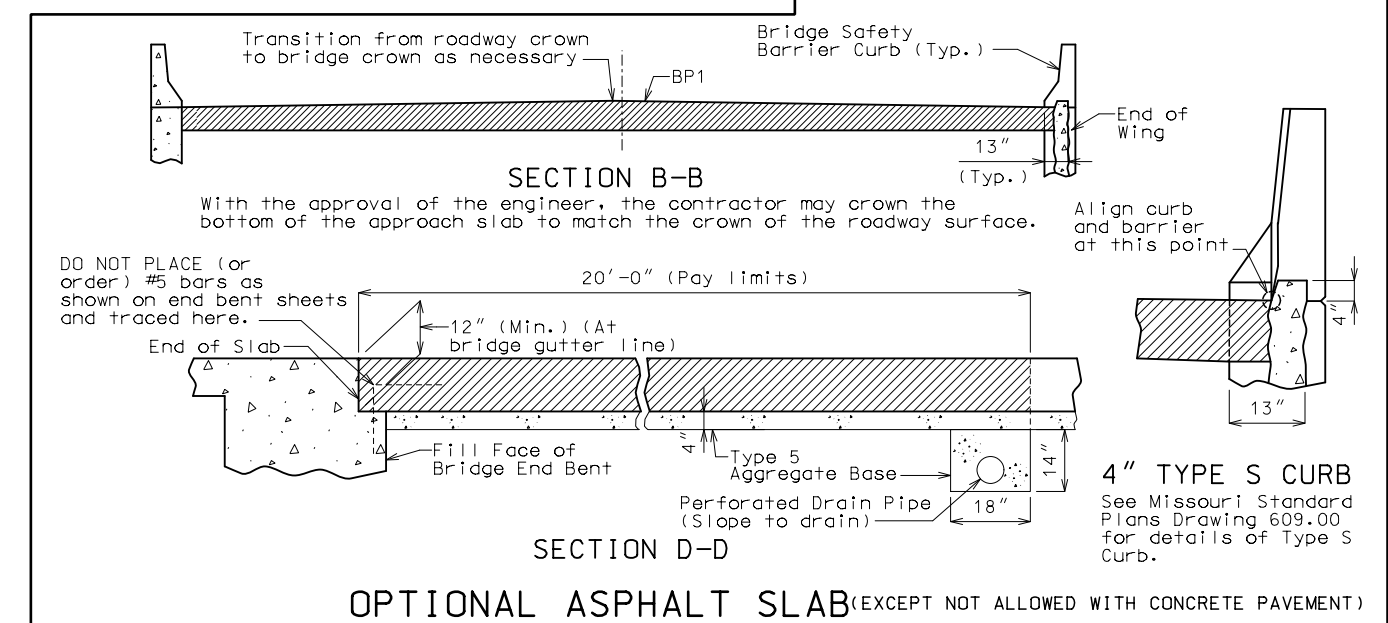
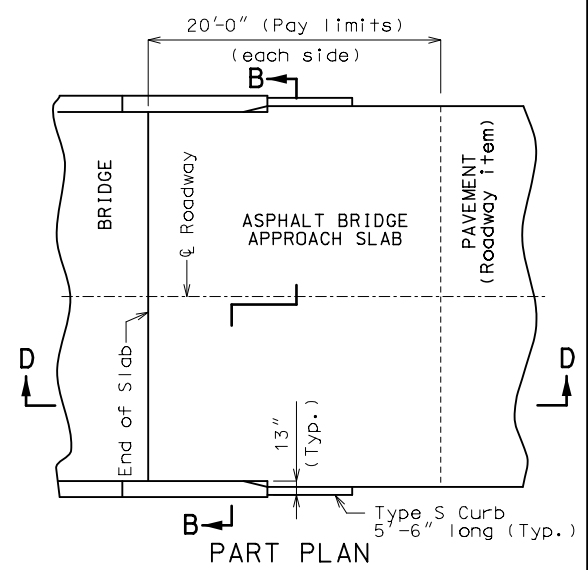
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

Payment for furnishing all materials, curb, labor and excavation necessary to construct the asphalt bridge approach, including curb, underdrain and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor Road) per square yard.



DETAILS OF BRIDGE APPROACH SLAB (MINOR ROAD)

STATE OF MISSOURI

CHRIS LINNEMAN

PE-0002016699

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED
2/23/2016

STATE
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30

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

DESCRIPTION

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MANESS ROAD
BRIDGE REPLACEMENT

JEFFERSON COUNTY

725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC

Civil Engineering Design

13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021

Phone 314-394-3100
Fax 314-394-3199

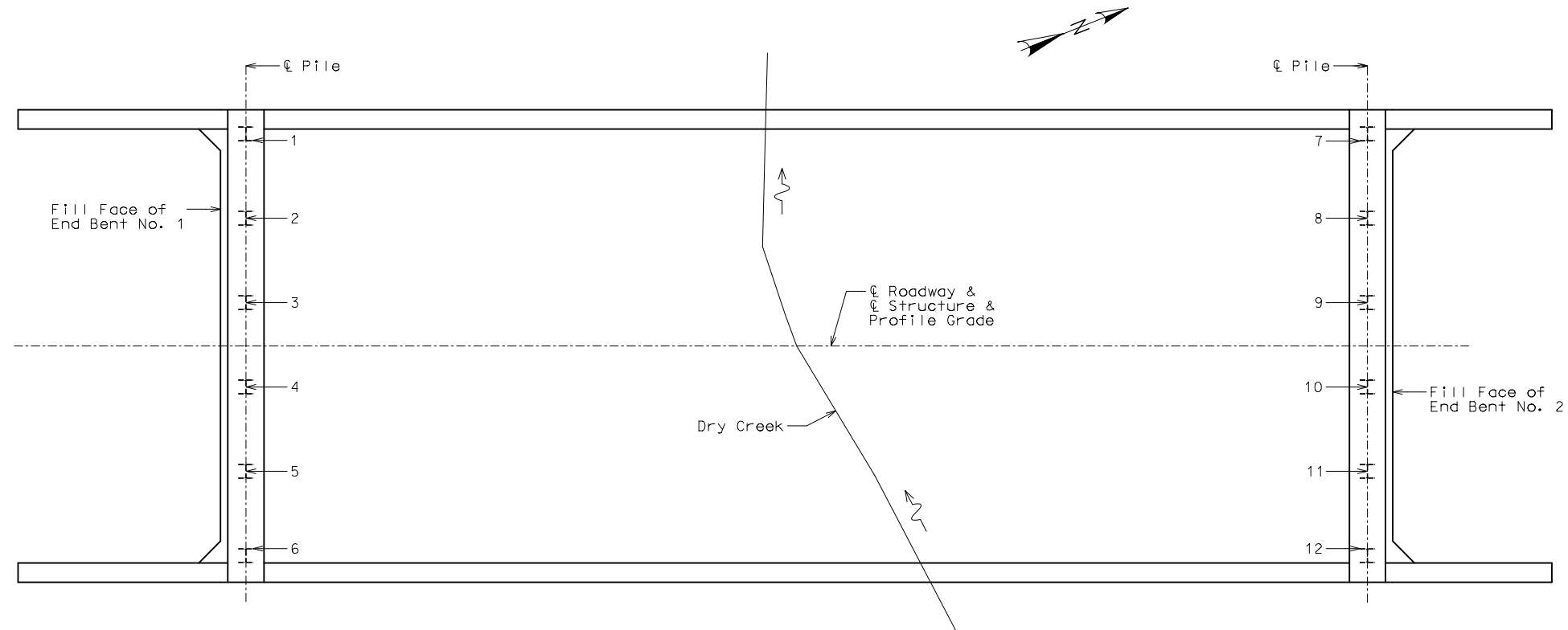
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BILL OF REINFORCING STEEL																												
NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT								
										B		C		D		E					F		H		K			
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	LBS.
23		6 F100	WINGWALL		23					0	14.000	5	1.375	0	14.000	0	9.875	0	9.875	0	9.875	0	9.875	7	5	7	5	256
8		6 F101	WINGWALL		6					4	11.000	2	8.000										7	7	7	5	89	
4		6 H100	BEAM		20					32	4.000												32	4	32	4	194	
4		6 H101	BEAM		20					32	4.000												32	4	32	4	194	
4		6 H102	BEAM		20					32	4.000												32	4	32	4	194	
4		6 H103	BEAM		20					16	1.000												16	1	16	1	97	
4		6 H104	BEAM		20					4	6.000												4	6	4	6	27	
4		6 H105	DIAPHRAGM	E	20					32	4.000												32	4	32	4	194	
8		6 H106	DIAPHRAGM	E	20					2	4.000												2	4	2	4	28	
16		6 H107	DIAPHRAGM	E	20					4	10.000												4	10	4	10	116	
4		6 H108	DIAPHRAGM	E	20					32	4.000												32	4	32	4	194	
5		5 H109	DIAPHRAGM		20					3	11.000												3	11	3	11	20	
30		5 H110	DIAPHRAGM	E	20					2	6.000												2	6	2	6	78	
28		8 H111	WINGWALL		20					15	4.000												15	4	15	4	1146	
2		8 H112	WINGWALL	E	20					16	5.000												16	5	16	5	88	
6		8 H113	WINGWALL		20					16	5.000												16	5	16	5	263	
24		8 H114	WINGWALL		20					15	4.000												15	4	15	4	983	
2		8 H115	WINGWALL	E	20					16	5.000												16	5	16	5	88	
6		8 H116	WINGWALL		20					16	5.000												16	5	16	5	263	
20		5 U100	BEAM		10	S					5	8.000	2	9.000									14	1	13	11	290	
3		4 U101	BEAM		13	S				2	9.000	3	5.000	2	9.000	3	5.000						13	1	12	10	26	
6		4 U102	BEAM		13	S				2	9.000	3	0.000	2	9.000	3	0.000						12	3	12	0	48	
6		4 U103	BEAM		13	S				2	9.000	2	8.000	2	9.000	2	8.000						11	7	11	4	45	
26		5 U104	DIAPHRAGM	E	10	S					4	2.000	2	3.000									10	7	10	5	282	
26		6 U105	DIAPHRAGM	E	19	S				3	4.000	2	9.000										6	1	5	11	231	
40		6 U106	DIAPHRAGM	E	32	S					3	0.000	4	5.125				4	5.000	0	3.625	7	5	7	3	436		
12		5 V100	BEAM		20					5	8.000												5	8	5	8	71	
15		6 V101	DIAPHRAGM	E	20					3	6.000												3	6	3	6	79	
2		6 V102	WINGWALL		20					9	8.000												9	8	9	8	29	
28		6 V103	WINGWALL		20			V	2	8	8.000												8	8	8	8	384	
			INCR.=0.875"							9	7.000												9	7	9	7		
2		6 V104	WINGWALL		20					8	9.000												8	9	8	9	26	
28		6 V105	WINGWALL		20			V	2	7	10.000												7	10	7	10	349	
			INCR.=0.875"							8	9.000												8	9	8	9		
			BARRIER CURB																									
120		5 K1	BARRIER CURB	E	19	S				2	5.000		5.125										2	10	2	9	344	
120		5 K2	BARRIER CURB	E	14	S					5.125		11.125		18.000				2.000	17.875	2	10	2	9		344		
76		5 K3	BARRIER CURB	E	27	S				3	0.000		5.125		12.000	2	2.125		9.875	6.875	6	7	6	5		509		
44		5 K4	BARRIER CURB	E	7					3	0.000		6.000										6	3	6	3	287	
4		5 K5	BARRIER CURB	E	25	S				2	6.500		6.750		4.375				5.500	4.000	3	6	3	5		14		
4		5 K6	BARRIER CURB	E	25	S				2	5.500		7.875		4.375				6.500	4.500	3	6	3	5		14		
4		5 K7	BARRIER CURB	E	25	S				2	4.125		9.625		4.375				7.875	5.500	3	6	3	5		14		
4		5 K8	BARRIER CURB	E	25	S				2	2.750		11.250		4.375				9.250	6.500	3	6	3	6		15		
48		5 K9	BARRIER CURB	E	20					5	7.000												5	7	5	7	280	
20		4 K10	BARRIER CURB	E	20					13	1.000												13	1	13	1	175	
4		5 K11	BARRIER CURB	E	8					2	2.125							2	2.000		2.375	4	4	4	4	18		
20		4 K12	BARRIER CURB	E	20					10	1.000												10	1	10	1	135	
152		5 R1	BARRIER CURB	E	26					2	6.000		4.250					2	6.000		3.000	5	3	5	2	819		
		R2	NOT USED																									
152		5 R3	BARRIER CURB	E	19	S					17.000		6.000										1	11	1	10	291	
152		5 R4	BARRIER CURB	E	27	S					6.000			11.250		7.000		12.000		9.250		6.375	3	0	2	10	449	
42		5 R5	BARRIER CURB	E	20					26	11.000												26	11	26	11	1179	

BILL OF REINFORCING STEEL																									
NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT						
									B	C	D	E	F	H	K										
									FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.										
		END BENT NO. 2							0	14.000	5	1.375	0	14.000	0	9.875	0	9.875	0	9.875	7	5	7	5	245
8	6 F201	WINGWALL		6					4	11.000	2	8.000									7	7	7	5	89
4	6 H200	BEAM		20					32	4.000											32	4	32	4	194
4	6 H201	BEAM		20					32	4.000											32	4	32	4	194
4	6 H202	BEAM		20					32	4.000											32	4	32	4	194
4	6 H203	BEAM		20					16	1.000											16	1	16	1	97
4	6 H204	BEAM		20					4	6.000											4	6	4	6	27
4	6 H205	DIAPHRAGM	E	20					32	4.000											32	4	32	4	194
8	6 H206	DIAPHRAGM	E	20					2	4.000											2	4	2	4	28
16	6 H207	DIAPHRAGM	E	20					4	10.000											4	10	4	10	116
4	6 H208	DIAPHRAGM	E	20					32	4.000											32	4	32	4	194
5	5 H209	DIAPHRAGM		20					3	11.000											3	11	3	11	20
30	5 H210	DIAPHRAGM	E	20					2	6.000											2	6	2	6	78
22	8 H211	WINGWALL		20					12	4.000											12	4	12	4	724
2	8 H212	WINGWALL	E	20					13	4.000											13	4	13	4	71
6	8 H213	WINGWALL		20					13	4.000											13	4	13	4	214
24	8 H214	WINGWALL		20					12	4.000											12	4	12	4	796
2	8 H215	WINGWALL	E	20					13	4.000											13	4	13	4	71
6	8 H216	WINGWALL		20					13	4.000											13	4	13	4	214
20	5 U200	BEAM		10	S						5	7.000	2	9.000							13	11	13	9	28
3	4 U201	BEAM		13	S				2	9.000	3	5.000	2	9.000	3	5.000					13	1	12	10	20
6	4 U202	BEAM		13	S				2	9.000	3	0.000	2	9.000	3	0.000					12	3	12	0	48
6	4 U203	BEAM		13	S				2	9.000	2	8.000	2	9.000	2	8.000					11	7	11	4	48
26	5 U204	DIAPHRAGM	E	10	S				4	2.000	2	3.000									10	7	10	5	28
26	6 U205	DIAPHRAGM	E	19	S				3	6.000	2	9.000									6	3	6	1	23
40	6 U206	DIAPHRAGM	E	9	S						4	5.125	3	0.000			0	2.625	4	5.000	7	5	7	3	43
12	5 V200	BEAM		20					5	7.000											5	7	5	7	70
15	6 V201	DIAPHRAGM	E	20					3	6.000											3	6	3	6	71
2	6 V202	WINGWALL		20					7	1.000											7	1	7	1	2
22	6 V203	WINGWALL		20			V	2	7	1.000											7	1	7	1	24
		INCR.=0.625"							7	7.000											7	7	7	7	
2	6 V204	WINGWALL		20					8	0.000											8	0	8	0	2
22	6 V205	WINGWALL		20			V	2	8	0.000											8	0	8	0	27
		INCR.=0.625"							8	6.000											8	6	8	6	
		SLAB																							
83	6 S1	SLAB	E	20					32	4.000											32	4	32	4	403
84	5 S2	SLAB	E	20					28	0.000											28	0	28	0	245
166	6 S3	SLAB	E	20					5	4.000											5	4	5	4	133
202	5 S4	SLAB	E	20					3	10.000											3	10	3	10	80
32	5 S5	SLAB	E	20					21	11.000											21	11	21	11	73
		SLIP FORM																							
		OPTION																							
8	5 C1	SLIP FORM	E	20					10	0.000											10	0	10	0	8
4	5 C2	SLIP FORM	E	20					13	3.000											13	3	13	3	51
4	5 C3	SLIP FORM	E	20					10	4.000											10	4	10	4	41
																					</				



PART PLAN SHOWING PILE NUMBERING FOR RECORDING
AS-BUILT PILE DATA

"AS-BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT)	COMPUTED NOMINAL AXIAL COMPRESSIVE RESISTANCE (KIPS)	REMARKS
			END BENT NO. 1
1			
2			
3			
4			
5			
6			

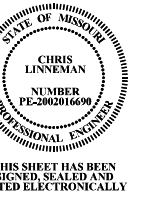
"AS-BUILT PILE" DATA			
PILE NO.	LENGTH IN PLACE (FT)	COMPUTED NOMINAL AXIAL COMPRESSIVE RESISTANCE (KIPS)	REMARKS
			END BENT NO.2
7			
8			
9			
10			
11			
12			

Note: This sheet to be completed by County construction personnel.

Note: Indicate in remarks column:

- A. Pile type and grade
- B. Batter
- C. Driven to practical refusal

AS-BUILT PILE DETAILS



DATE PREPARED
/23/2016

STATE
MO

SHEET NO.
32

COUNTY
JEFFERSON

GENERAL PROJECT NO.
10-B050(20)

BRIDGE NO.
27300021

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.	.	.	.	.	.	.

BRIDGE REPLACEMENT

JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

Civil Engineering Design
31525 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES
LOG OF BORING 2002 WL J021988.01 - MANESS ROAD BRIDGE GPJ 00 CLONE ME GPJ 00 CLONE ME GPJ 00 CLONE ME

Surface Elevation: <u>675.4</u>		Completion Date: <u>9/11/14</u>									
Datum: <u>msl</u>											
DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES	SHEAR STRENGTH, tsf						
					Δ - UU/2	○ - QU/2	□ - SV				
	Chip and seal - 4 inches FILL: brown, silty clay with gravel and sand				STANDARD PENETRATION RESISTANCE ▲ N-VALUE (BLOWS PER FOOT) (ASTM D 1586)						
					WATER CONTENT, %						
					PL	10	20	30	40	50	LL
			1-1-3	SS1							
			3-4-7	SS2							
5	Medium dense, brown, gravel and limestone rock fragments with silty clay and sand										
			10-11-11	SS3							
	Medium stiff, tan CLAY, trace gravel - (CH)										
10			3-4-4	SS4							81
15	Core loss										
	Moderately hard, gray, finely crystalline, medium bedded, slightly weathered DOLOMITE with limestone seams and clay partings		90% 63%	NQ1							
20	2 inch clay and gravel seam Boring terminated at 20 feet.										
25											
30											
35											
GROUNDWATER DATA					DRILLING DATA						
☒ FREE WATER NOT ENCOUNTERED DURING DRILLING					☐ AUGER 3 3/4" HOLLOW STEM WASHBORING FROM ___ FEET SP DRILLER SHN LOGGER CME 85 DRILL RIG HAMMER TYPE <u>Auto</u>						
REMARKS: * Poor recovery					Geotechnology FROM THE GROUND UP Maness Road Bridge Replacement Jefferson County, Missouri LOG OF BORING: B-1 Project No. J021988.01						

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES
LOG OF BORING 2002 WL J021988.01 - MANESS ROAD BRIDGE GPJ 00 CLONE ME GPJ 00 CLONE ME GPJ 00 CLONE ME

Surface Elevation: <u>680.6</u>		Completion Date: <u>9/11/14</u>									
Datum: <u>msl</u>											
DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES	SHEAR STRENGTH, tsf						
					Δ - UU/2	○ - QU/2	□ - SV				
	Weathered LIMESTONE with silty clay				STANDARD PENETRATION RESISTANCE ▲ N-VALUE (BLOWS PER FOOT) (ASTM D 1586)						
					WATER CONTENT, %						
					PL	10	20	30	40	50	LL
			9-3-4	SS1							
			50/2"	SS2							S-2
5	Moderately hard, gray and tan, aphanitic to very finely crystalline, thin to medium bedded, moderately weathered, pitted to vuggy DOLOMITE		100% 83%	NQ1							
			100% 77%	NQ2							
10			100% 86%	NQ3							
15	Boring terminated at 14 feet.										
20											
25											
30											
35											
GROUNDWATER DATA					DRILLING DATA						
☒ FREE WATER NOT ENCOUNTERED DURING DRILLING					☐ AUGER 3 3/4" HOLLOW STEM WASHBORING FROM ___ FEET SP DRILLER SHN LOGGER CME 85 DRILL RIG HAMMER TYPE <u>Auto</u>						
REMARKS:					Geotechnology FROM THE GROUND UP Maness Road Bridge Replacement Jefferson County, Missouri LOG OF BORING: B-2 Project No. J021988.01						

STATE OF MISSOURI
CHRIS LINNEMAN
NUMBER
PE-3002016699
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED
2/23/2016
STATE
MO
SHEET NO.
33
COUNTY
JEFFERSON
FEDERAL PROJECT NO.
BR0-B050(20)

BRIDGE NO.
27300021

DESCRIPTION

DATE

MANESS ROAD
BRIDGE REPLACEMENT
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578