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P.O. Box 72
Poplar Bluff, MO 63902
Phone 573.785.9621
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ADDENDUM NO. 1

DATE: December 30th, 2015

PROJECT: St. Francois Davis Crossing Bridge

PROJECT No.: S&C # P140091

LETTING DATE: Tuesday January 12th, 2016 at 10:00 AM

LOCATION: St. Francois County Courthouse – Farmington, Missouri

OWNER: St. Francois County

SUBJECT: Project Specifications

1. The allowable total calendar days for the project are shown as 90 total from the issue of the Notice to Proceed. However, this total allowable time should have been 130 total calendar days. Also, due to a change in the project plans, the Bid Schedule and Basis of Bids have been altered.
 - Please replace the existing bid schedule, basis of bids, and page 22 of Section 00500 of the project specifications with the attached sheets.

SUBJECT: Project Plans

2. Due to an error in column reinforcement dimensions, alterations were made to the project plans concerning the project quantities. Also, changes were made to the details for Bent No. 2 to provide increased clarification of plans referring to the use of permanent casing.
 - Please replace the appropriate plan sheets with the attached revised sheets.

Sincerely,

SMITH & CO.
ENGINEERS


Jeremy Manning, P.E.
Project Manager



NOTICE TO CONTRACTORS

Sealed bids, addressed to St. Francois County Commission, 1 West Liberty St.; Annex Bldg, Suite 301 Farmington, MO 63640 for the proposed work will be received by The Presiding Commissioner until 10:00 A.M. (prevailing local time) on January 12, 2016, at the office of The Presiding Commissioner, St. Francois County Courthouse, 1 West Liberty St.; Annex Bldg, Suite 301, Farmington MO 63640 and at that time will be publicly opened. Bids should be delivered to: St. Francois County Commission, 1 West Liberty St.; Annex Bldg, Suite 301, Farmington, MO 63640.

(1) PROPOSED WORK: The proposed work, hereinafter called the work, includes:

Replacement of existing multi-span crossing with a two span pre-stressed box beam bridge

(2) COMPLIANCE WITH CONTRACT PROVISIONS: The bidder, having examined and being familiar with the local conditions affecting the work, and with the contract, contract documents, including the Missouri Highways and Transportation Commission's "Missouri Standard Specifications for Highway Construction (2011), including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015", their revisions, and the request for bid, including appendices, the special provisions and plans, hereby proposes to furnish all labor, materials, equipment, services, etc., required for the performance and completion of the work. All references are to the Missouri Standard Specifications for Highway Construction, as revised, unless otherwise noted.

The following documents are available on the Missouri Department of Transportation web page at www.modot.mo.gov under "Business with MoDOT" "Standards and Specifications". The effective version shall be determined by the letting date of the project.

General Provisions & Supplemental Specifications

These supplemental bidding documents contain all current revisions to the bound printed versions and have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

Please note that within the above-listed documents, the term "Commission" shall be replaced with the term, "The St. Francois County Commission", and the term "Engineer" is a reference to the Engineer of Record from S.H. Smith & Co., Inc.

(3) PERIOD OF PERFORMANCE: If the bid is accepted, the bidder agrees that work shall be diligently prosecuted at such rate and in such manner as, in the judgment of the engineer, is necessary for the completion of the work within the time specified as follows in accordance with Sec 108:

Calendar Days: 130 Calendar Days

Completion Date: December 31, 2016

(4) LIQUIDATED DAMAGES: The bidder agrees that, should the bidder fail to complete the work in the time specified or such additional time as may be allowed by the engineer under the contract, the amount of liquidated damages to be recovered in accordance with Sec 108 shall be as follows:

Liquidated damages per day calendar day past Completion Date: \$700.00

(5) BID GUARANTY: The bidder shall submit a Bid Guaranty meeting the requirements of Section 102 of the Missouri Standard Specifications for Highway Construction. The project bid bond form is included in the bid book. The bidder shall mark the box below to identify the type of Bid Guaranty.

- Paper Bid Bond
- Cashier's Check

BASIS OF BIDS

PART 1 - GENERAL

1. GENERAL

- A. The basis of bids is a general description of the work and materials which shall be included in the bid items listed on the bid proposal. Bid item prices shall generally reflect the scope of work described below. It shall be understood by the bidder that the total bid price listed on the bid proposal shall represent total compensation for the entire project based on the estimated quantities given. Due to the complex nature of this project, some overlap of work items is inevitable and some minor items may not be included below. It is the contractor's responsibility to be sure that all work items are included in his/her bid prices.
- B. Payment after the award of the contract will be based on the number of units completed for unit price items or on the percentage of each lump sum item for the work that has been completed or as outlined in the specifications. Payment will not be made for items that have not been complete.

2. LIST OF BID ITEMS

- A. Item No. 1 – Clearing and Grubbing (Section 201):
1. This item shall consist of all labor, equipment and materials necessary for the clearing, grubbing, removing and disposing of vegetation within the limits of right of way and easements for site preparation necessary to provide a complete and functional project as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Acre.**
- B. Item No. 2 – Class A Excavation (Section 203):
1. Description: This item shall consist of all labor, equipment and materials associated with the excavation of soil at the slopes of the bridge and adjacent channel banks. This item also consist of the removal and disposal of excess material including rock, abandoned pavement, and any other items necessary to provide a complete and functional project as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Cubic Yard.**
- C. Item No. 3 – Construction Signs (JSP)
1. This item shall consist of all labor, equipment and materials associated with the installation and use of construction signs as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Each.**
- D. Item No. 4 – Type III Barricade (Section 903)
1. This item shall consist of all labor, equipment and materials associated with the installation and use of type 3 moveable barricades as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Each.**
- E. Item No. 5 – Embankment Compacted in Place (Section 203):
1. Description: This item shall consist of all labor, equipment and materials associated with the placement of embankment for roadway approaches and side slopes necessary to provide a complete and functional project as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011 including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Cubic Yard.**
- F. Item No. 6 – Asphalt Pavement (Section 401):
1. This item shall consist of all labor, equipment and materials associated with the placement of 4" asphalt pavement consisting of 2 1/2" of Bituminous Base and 1 1/2" of BP-1, including milling and wedging into existing pavement, width and depth transitions, as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Square Yard.**

- G. Item No. 7 – Type 1 Aggregate for Base (6” Thick) (Section 304):
1. This item shall consist of all labor, equipment and materials associated with the placement of Type 1 aggregate for base as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Square Yard.**
- H. Item No. 8 – Five Strand High-Tensile Barbed Wire Fence (JSP):
1. This item shall consist of all labor, equipment and materials associated with providing and installing sections of five strand high tensile barbed wire fence, including the fence corner sections, as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Acre.**
- I. Item No. 9 – Seeding and Mulching (Division 800):
1. This item shall consist of all labor, equipment and materials associated with the site restoration by seeding and mulching as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Acre.**
- J. Item No. 10 – Mobilization (Section 618):
1. This item shall consist of all preparatory work and operation necessary to start work on this project except as provided in separate pay items and shall be made payable to the contractor according to the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Lump Sum.**
- K. Item No. 11 – Removal of Bridge (Section 216):
1. This item shall consist of all labor, equipment and materials associated with the removal of the existing bridge from the project area as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Lump Sum.**
- L. Item No. 12 – Type C Berm (Section 806):
1. This item shall consist of all labor, equipment and materials associated with the installation of Type C Berm for sediment and erosion control as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Linear Foot.**
- M. Item No. 13 – Class 1 Excavation (Section 206):
1. This item shall consist of all labor, equipment and materials necessary for excavating for the foundations of all structures, the removing and disposing of all excavated material, the backfilling around the completed structures necessary to provide a complete and functional project as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Cubic Yard.**
- N. Item No. 14 – Separation Geotextile (Section 624):
1. This item shall consist of all labor, equipment and materials associated with the placement of woven geotextile fabric as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Square Yard.**

- O. Item No. 15 – Type 2 Rock Blanket (Section 611):
1. This item shall consist of all labor, equipment and materials associated with the transportation and supply of Type 2 Rock Blanket to the project site, and installation and placement of Type 2 Rock Blanket on the channel slopes as outlined in the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Square Yard.**
- P. Item No. 16 – Type 5 Compacted Granular Fill (Section 304):
1. This item shall consist of all labor, equipment and materials associated with the installation of Type 5 Granular Fill as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Cubic Yard.**
- Q. Item No. 17 – Type III Object Marker (Section 903):
1. This item shall consist of all labor, equipment and materials associated with the installation of Type III object markers as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Each.**
- R. Item No. 18 – 36” Drilled Shaft (Section 701):
1. This item shall consist of all labor, equipment and materials associated with the installation of 36” Drilled Shafts as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Linear Foot.**
- S. Item No. 19 – 30” Rock Socket (Section 701):
1. This item shall consist of all labor, equipment and materials associated with the installation of 36” Drilled Shafts as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Linear Foot.**
- T. Item No. 20 – 30” Cast-In-Place Concrete Column (Section 701):
1. This item shall consist of all labor, equipment and materials associated with the installation of 30” CIP Columns as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Linear Foot.**
- U. Item No. 21 – Foundation Inspection Holes (Section 701):
1. This item shall consist of all labor, equipment and materials associated with Foundation Inspection Holes as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Linear Foot.**
- V. Item No. 22 – Sonic Logging Testing (Section 701):
1. This item shall consist of all labor, equipment and materials associated with Sonic Logging Testing as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Each.**

- W. Item No. 23 – Class B-1 Concrete (Substructure) (Section 703):
1. This item shall consist of all material, equipment and labor associated with the placement of concrete abutments as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Cubic Yard.**
- X. Item No. 24 – Class B-2 Concrete (Superstructure Concrete on Box Beams) (Section 703):
1. This item shall consist of all labor, equipment and materials, including reinforcement, concrete and all items associated with the installation of concrete wearing surface with a minimum of 5 inches thick in the center of the span, with the thickness at the end of the span equaling 5 inches plus the camber of the beam and any minor beam irregularities. **Concrete for abutment backwall is incidental to concrete wearing surface.** Concrete wearing surfaces shall conform to Section 505 of the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction - April 1, 2015 and vibratory screeds will be required and shall be governed by Section 505.10.
 2. Method of Payment: **Square Yard.**
- Y. Item No. 25 – Prestressed Concrete Box Beam, 27”x 48” (Section 705):
1. This item shall consist of all labor, equipment and materials, including bearing pads, associated with the installation of prestressed concrete deck beams as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Square Foot.**
- Z. Item No. 26 – Reinforcing Steel (Rock Sockets and Drilled Shafts) (Section 706):
1. This item shall consist of all labor, equipment and materials associated with the installation of reinforcing steel for rock sockets and drilled shafts as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Pound.**
- AA. Item No. 27 – Reinforcing Steel (Reinforced Bents) (Section 706):
1. This item shall consist of all labor, equipment and materials associated with the installation of reinforcing steel for concrete abutments and bents as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Pound.**
- BB. Item No. 28 – Vertical Drain at End Bent (Section 715):
1. This item shall consist of all labor, equipment and materials associated with the installation of vertical drain at end bents as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Each.**
- CC. Item No. 29 – Thrie Beam Guard Rail (Bridge) (Section 713):
1. This item shall consist of all labor, equipment and materials associated with the installation of steel thrie beam guard rails as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Linear Foot.**
- DD. Item No. 30 – Transition Section (Thrie Beam to W Rail) (Section 606):
1. This item shall consist of all labor, equipment and materials associated with the installation of steel guard rail transition sections as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.
 2. Method of Payment: **Each.**
- EE. Item No. 31 –End Anchor Section (Section 606):
1. This item shall consist of all labor, equipment and materials associated with the installation of end anchor sections as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction

2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.

2. Method of Payment: **Each.**

FF. Item No. 32 – End Section (Thrie Beam) (Section 606):

1. This item shall consist of all labor, equipment and materials associated with the installation of steel guard rail end sections for thrie beam guard rail as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.

2. Method of Payment: **Each.**

GG. Item No. 33 – End Section (W Beam) (Section 606):

1. This item shall consist of all labor, equipment and materials associated with the installation of steel guard rail end sections for W beam guard rail as outlined on the project plans and in the Missouri Standard Specifications for Highway Construction 2011, including Supplemental Specifications to 2011 Missouri Standard Specifications for Highway Construction – April 1, 2015.

2. Method of Payment: **Each.**

ITEMIZED BID: THE BIDDER SHOULD COMPLETE THE FOLLOWING SECTION IN ACCORDANCE WITH SEC 102.7. THE BIDDER PROPOSES TO FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, ETC. REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THE WORK, AS FOLLOWS:

BID SCHEDULE

Bid Items

ITEM	DESCRIPTION	UNIT S	QTY	UNIT COST	SUBTOTAL
<u>Roadway Items</u>					
1	CLEARING AND GRUBBING	AC	0.2	\$	\$
2	CLASS A EXCAVATION	CY	74	\$	\$
3	CONSRUCTION SIGNS	EA	4	\$	\$
4	TYPE III BARRICADE	EA	4	\$	\$
5	EMBANKMENT COMPACTED IN PLACE	CY	436	\$	\$
6	ASPHALT PAVEMENT	SY	1030	\$	\$
7	TYPE 1 AGGREGATE FOR BASE(6" Thick)	SY	1008	\$	\$
8	FIVE STRAND HIGH-TENSILE BARBED WIRE FENCE	LF	72	\$	\$
9	SEEDING AND MULCHING	AC	0.2	\$	\$
<u>Bridge Items</u>					
10	MOBILIZATION	LS	1	\$	\$
11	REMOVAL OF BRIDGE	LS	1	\$	\$
12	TYPE C BERM	LF	180	\$	\$
13	CLASS 1 EXCAVATION	CY	21	\$	\$
14	SEPERATION GEOTEXTILE	SY	430	\$	\$
15	TYPE 2 ROCK BLANKET	SY	320	\$	\$
16	TYPE 5 COMPACTED GRANULAR FILL	CY	46	\$	\$
17	TYPE III OBJECT MARKER	EA	4	\$	\$
18	36" DRILLED SHAFT	LF	48	\$	\$
19	30" ROCK SOCKET	LF	36	\$	\$
20	30" CIP COLUMN	LF	18	\$	\$
21	FOUNDATION INSPECTION HOLES	LF	60	\$	\$
22	SONIC LOGGING TESTING	EA	6	\$	\$
23	CLASS B-1 CONCRETE (Substructure)	CY	28.5	\$	\$
24	CLASS B-2 CONCRETE (Superstructure Concrete on Box Beams)	SY	288	\$	\$
25	PRESTRESSED CONCRETE BOX BEAM (27"x48")	SF	2544	\$	\$
26	REINFORCING STEEL(Rock Sockets/Drilled Shafts/Columns)	LB	6992	\$	\$
27	REINFORCING STEEL(Reinforced Bents)	LB	9453	\$	\$
28	VERTICAL DRAIN AT END BENTS	EA	2	\$	\$
29	THRIE BEAM GUARD RAIL (Bridge)	LF	239	\$	\$

	TRANSITION SECTION				
30	(Thrie Beam to W Rail)	EA	2	\$ _____	\$ _____
31	END ANCHOR SECTION	EA	2	\$ _____	\$ _____
32	END SECTION (Thrie Beam)	EA	2	\$ _____	\$ _____
33	END SECTION (W Beam)	EA	2	\$ _____	\$ _____

TOTAL CONTRACT PRICE: \$ _____

(in words)

By _____
(signature)

LEGEND

EXISTING

UNDERGROUND UTILITY LINES:

WATER..... W
 SANITARY SEWER..... S
 FORCE MAIN..... FM
 STORM SEWER..... STS
 TELEPHONE..... T
 GAS..... G
 ELECTRIC..... E
 CABLE..... C
 FUEL LINE..... F
 FIBER OPTIC..... FO

OVERHEAD UTILITY LINES:

TELEPHONE..... O-T
 ELECTRIC..... O-E
 CABLE..... O-C

POWER POLE..... O-PP

W/TRANSFORMERS NO..... O-PP-1
 CABLE POLE..... O-CP
 TELEPHONE POLE..... O-TP
 LIGHT POLE..... O-LP
 GUY WIRE ANCHOR..... O-PP
 ELECTRICAL RISER..... O-ELEC
 TELEPHONE PEDESTAL..... PHPD
 MANHOLE..... EXIST. MH
 CLEAN OUT..... CO
 FIRE HYDRANT..... FH
 FLUSH HYDRANT..... FH (FLUSH)
 VALVE WATER/GAS..... WV GV
 METER WATER/GAS/ELECTRIC ETC..... WATER/GAS/ELECTRIC METER

DROP INLET FOR STORM WATER..... DROP INLET

DOWN SPOUT..... DS
 SIGN..... SIGN
 RIGHT-OF-WAY MARKER..... R/W
 TREE..... TREE
 TREE LINE..... TREE LINE
 CONTROL POINT..... ACP#1
 CONTOURS
 INTERMEDIATE..... 100
 INDEX..... 100

FENCE

CHAIN LINK..... CHAIN LINK
 WOOD..... WOOD
 BARBED WIRE..... BARBED WIRE

RIGHT-OF-WAY LINE..... RIGHT-OF-WAY LINE

PROPERTY LINE..... PROPERTY LINE
 GUARD RAIL..... GUARD RAIL
 PIPE/CULVERT..... PIPE/CULVERT
 DITCH FLOW LINE DIRECTION..... DITCH FLOW LINE DIRECTION
 BUILDING..... BUILDING

PROPOSED

WATER

2" WATER LINE..... 2W
 4" WATER LINE..... 4W
 6" WATER LINE..... 6W
 8" WATER LINE..... 8W
 10" WATER LINE..... 10W
 12" WATER LINE..... 12W

FIRE HYDRANT..... FH
 FLUSH HYDRANT..... FH (FLUSH)

VALVE WATER..... WV
 WATER SERVICE..... WS

SEWER

SANITARY SEWER..... S
 FORCE MAIN..... FM
 MANHOLE..... MH#1
 SEWER SERVICE..... SS
 CLEAN OUT..... CO

GAS VALVE..... GV

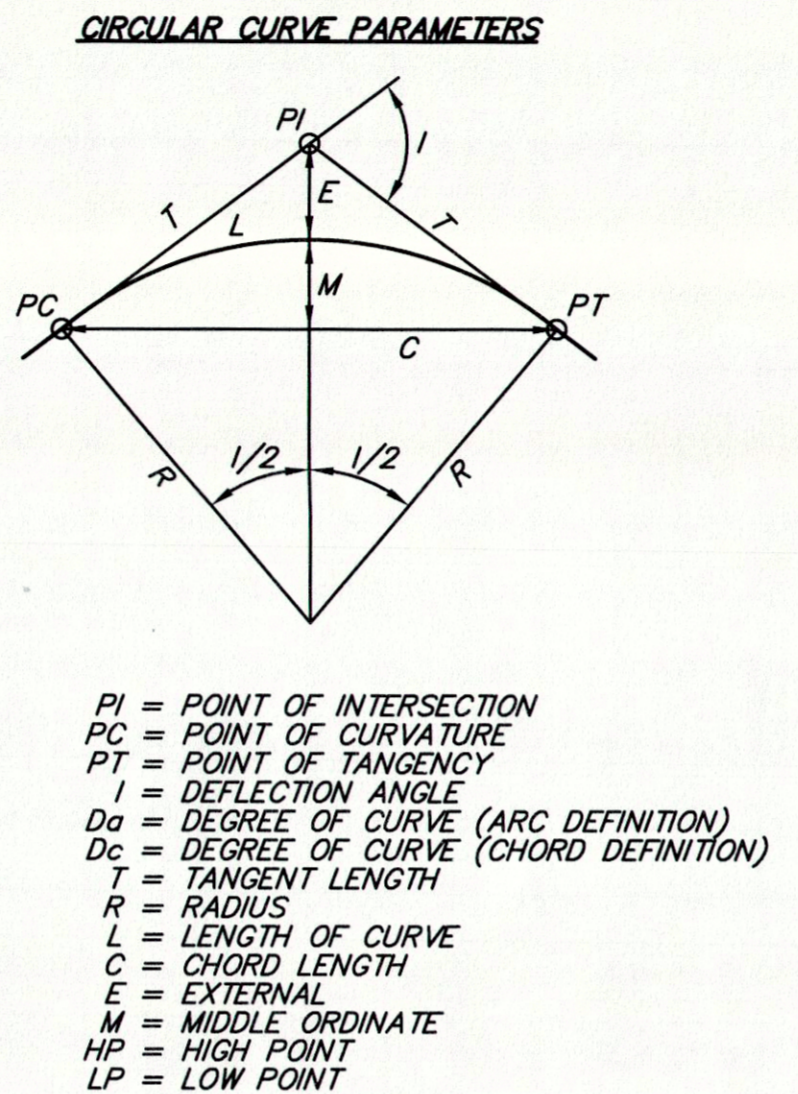
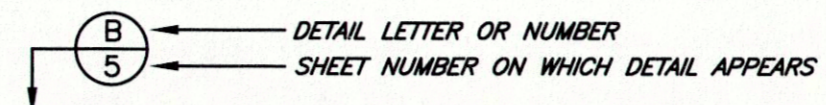
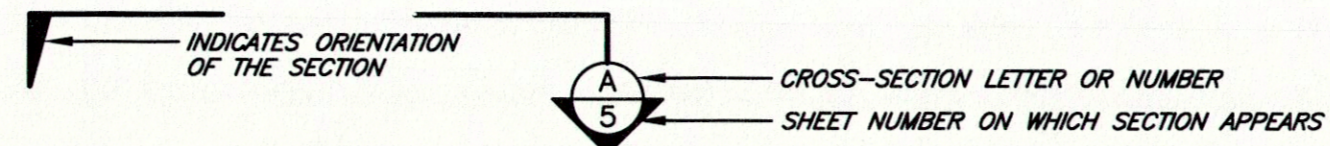
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POWER POLE W/TRANSFORMERS NO..... PP-1
 CABLE POLE..... CP
 TELEPHONE POLE..... TP
 LIGHT POLE..... LP
 SIGN..... SIGN
 TREE..... TREE

CONTOURS..... 100

PIPE/CULVERT..... PIPE/CULVERT
 DROP INLET..... DROP INLET #1
 TEMP. CONSTRUCTION EASEMENT..... TEMP. CONSTRUCTION EASEMENT
 GUARD RAIL..... GUARD RAIL
 SILT FENCE..... SILT FENCE
 RIGHT-OF-WAY..... RIGHT-OF-WAY
 EASEMENT (PERMANENT)..... EASEMENT (PERMANENT)
 EASEMENT (TEMPORARY)..... EASEMENT (TEMPORARY)
 BUILDING..... BUILDING

NOTE:
 ALL ITEMS IN THE GENERAL LEGEND
 MAY OR MAY NOT BE USED IN THIS PLAN SET.



EXISTING UTILITIES NOTE:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE BASED ON VISIBLE ABOVE-GROUND OBJECTS AND MARKINGS, PREVIOUS RECORD DRAWINGS AND SURVEYS PROVIDED TO SMITH&CO. BY OTHERS, AND PAINT OR OTHER MARKINGS MADE BY UTILITY COMPANIES AND/OR UTILITY LOCATOR SERVICES PRIOR TO THE FIELD SURVEY. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED OBJECTS. LOCATIONS OF UNDERGROUND UTILITIES/STRUCTURES/CONDUITS MAY VARY FROM THE LOCATIONS SHOWN HEREUPON. ADDITIONAL BURIED UTILITIES THAT DO NOT HAVE SURFACE MARKERS MAY BE ENCOUNTERED DURING EXCAVATION.
 - SMITH&CO. IS NOT A UTILITY LOCATOR SERVICE. SMITH&CO. IS NOT RESPONSIBLE OR LIABLE FOR DAMAGES RESULTING FROM UNMARKED OR INACCURATELY MARKED UNDERGROUND UTILITIES OR STRUCTURES.
 - THE MISSOURI ONE CALL SYSTEM (DIG-RITE) MUST BE CALLED AT LEAST TWO WORKING DAYS AND NOT MORE THAN TEN WORKING DAYS BEFORE ANY EXCAVATIONS OR INTRUSIVE SUBSURFACE ACTIVITIES ARE BEGUN. ALTHOUGH SMITH&CO. MAY HAVE CALLED DIG-RITE PRIOR TO ANY FIELD SURVEYING, IT IS THE RESPONSIBILITY OF THE PERSON(S) PERFORMING THE EXCAVATION TO CALL MISSOURI ONE-CALL PRIOR TO DIGGING.
- MISSOURI ONE-CALL SYSTEM: CALL 1-800-344-7483 BEFORE YOU DIG.

GENERAL NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE LAND OWNERS FOR FENCE REMOVAL DUE TO LIVESTOCK CONCERNS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING W/ UTILITY COMPANIES.

ESTIMATED EARTHWORK QUANTITIES:

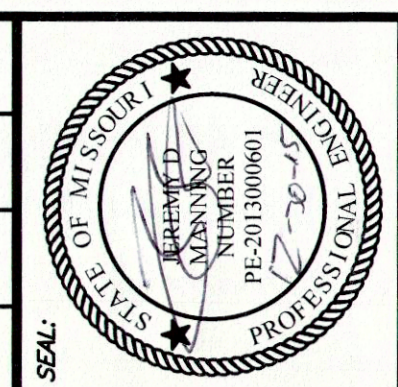
CUT = 74 CY
 FILL = 436 CY

CONTROL POINTS

- ACP#4017 1 1/2" IRON ROD (ROD REMOVED AND REPLACED)
 NORTHING=721848.08, EASTING=794628.22
 ELEV.=N/A
- ACP#4018 CROSS CUT INTO BEDROCK, UNDER 2" DIRT
 NORTHING=721947.72, EASTING=794631.19
 ELEV.=N/A

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
15508	MO	BR0-8094 (014)	2014	2	15

SEC 21 & 22, T36N, R4E
 BRIDGE NO. 0960010



JEREMY D MANNING
 MO# PE-2013000601
 S.H. SMITH & COMPANY
 CERT.# E-616-D

ITEM	DESCRIPTION	UNITS	QTY
Roadway Items			
1	CLEARING AND GRUBBING	AC	0.2
2	CLASS A EXCAVATION	CY	74
3	CONSTRUCTION SIGNS	EA	4
4	TYPE III BARRICADE	EA	4
5	EMBANKMENT COMPACTED IN PLACE	CY	436
6	ASPHALT PAVEMENT	SY	1030
7	TYPE 1 AGGREGATE FOR BASE(6" Thick)	SY	1008
8	FIVE STRAND HIGH-TENSILE BARBED WIRE FENCE	LF	72
9	SEEDING AND MULCHING	AC	0.2
Bridge Items			
10	MOBILIZATION	LS	1
11	REMOVAL OF BRIDGE	LS	1
12	TYPE C BERM	LF	180
13	CLASS 1 EXCAVATION	CY	21
14	SEPERATION GEOTEXTILE	SY	430
15	TYPE 2 ROCK BLANKET	SY	320
16	TYPE 5 COMPACTED GRANULAR FILL	CY	46
17	TYPE III OBJECT MARKER	EA	4
18	36" DRILLED SHAFT	LF	48
19	30" ROCK SOCKET	LF	36
20	30" CIP COLUMN	LF	18
21	FOUNDATION INSPECTION HOLES	LF	60
22	SONIC LOGGING TESTING	EA	6
23	CLASS B-1 CONCRETE (Substructure)	CY	28.5
24	CLASS B-2 CONCRETE (Superstructure)	CY	288
25	Concrete on Box Beams	SY	288
26	PRESTRESSED CONCRETE BOX BEAM (27"x48")	SF	2544
27	REINFORCING STEEL(Rock Sockets/Drilled Shafts/Columns)	LB	6992
28	REINFORCING STEEL(Reinforced Bents)	LB	9453
29	VERTICAL DRAIN AT END BENTS	EA	2
30	THREE BEAM GUARD RAIL (Bridge)	LF	239
31	TRANSITION SECTION (Thrie Beam to W Rail)	EA	2
32	END ANCHOR SECTION	EA	2
33	END SECTION (Thrie Beam)	EA	2
34	END SECTION (W Beam)	EA	2

NO.	REVISIONS	DATE	BY	APP.
1	ADDITION 1	12/15	JDM	JDM

DATE: N/A
 DATE: 5-14
 DATE: 5-14
 DATE: 5-14

SURVEYED BY: N/A
 DESIGNED BY: JDM
 DRAWN BY: AFS
 CHECKED BY: JDM
 FIELD BOOK: N/A

AS SHOWN
 THIS PLAN WILL BE MEASURED 1" = 40' WHEN PRINTED AT FULL SCALE

REESTABLISHED THE

SMITH & CO.
 ENGINEERS

AN EMPLOYEE OWNED COMPANY

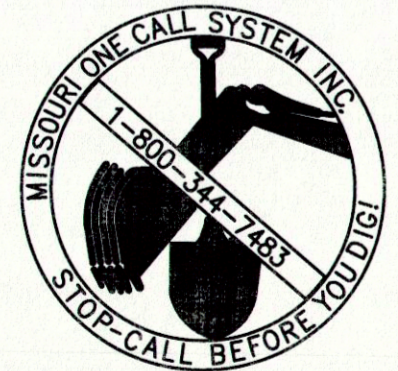
901 VINE STREET, P.O. BOX 72
 POPULAR BLUFF, MISSOURI 63902
 (873) 785-9824 FAX: (873) 785-2651 WWW.SHSMITHCO.COM

CIVIL ENGINEERING • SURVEYING • MATERIAL TESTING
 ENVIRONMENTAL & GEOTECHNICAL SERVICES

DAVIS CROSSING ROAD BRIDGE
 ST. FRANCIS COUNTY, MISSOURI

LEGEND / NOTES

PROJECT #: P140091
 SHEET: 2



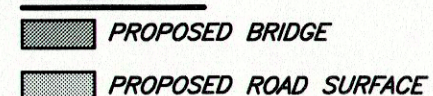
P:\140091 St. Francis County Davis Crossing Bridge Eng Drawings\140091.dwg

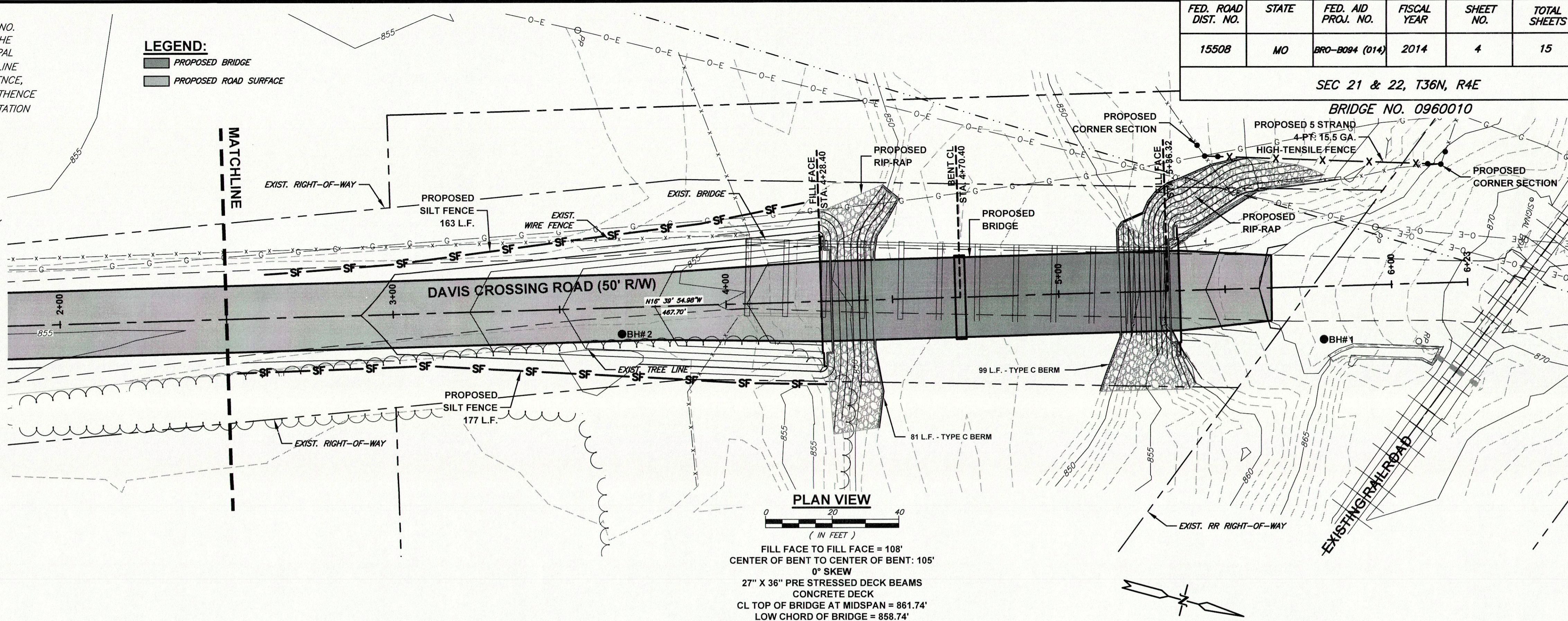
LAND TIE

THE PROJECT CENTERLINE FOR DAVIS CROSSING, SMITH & COMPANY PROJECT NO. P140091, IS DESCRIBED AS FOLLOWS: FROM AN "X" IN BEDROCK MARKING THE QUARTER CORNER OF SECTIONS 21 AND 22, T36N, R4E OF THE FIFTH PRINCIPAL MERIDIAN, ST. FRANCOIS COUNTY, MEASURE S01°41'47"W ALONG THE SECTION LINE BETWEEN SECTION 21 AND 22, A DISTANCE OF 787.37 FEET, TO A POINT; THENCE, S88°18'13"E A DISTANCE OF 129.77 FEET, TO CENTERLINE STATION 0+00.00; THENCE SAID CENTERLINE EXTENDS N25°37'49"E A DISTANCE OF 44.50 FEET, TO PC STATION 0+44.50.

NOTES:

- TYPE 2 ROCK BLANKET SHALL BE PLACED BY CONTRACTOR 2' THICK AS SHOWN ON PLANS.
- GEOTEXTILE FABRIC SHALL BE PLACED BY CONTRACTOR UNDER ALL ROCK BLANKET (RIP-RAP) SHADED AREA INDICATES RIP-RAP AND GEOTEXTILE FABRIC.
- CONTRACTOR SHALL COORDINATE WITH ELECTRIC COMPANY FOR NECESSARY OVERHEAD ELECTRIC SHIELDING REQUIRED.
- CONTRACTOR SHALL COORDINATE WITH LAND OWNER FOR PLACEMENT OF POSSIBLE TEMPORARY FENCING FOR LIVESTOCK.
- CONTRACTOR SHALL COORDINATE WITH LANDOWNER FOR PERMANENT REPLACEMENT OF FENCE.

LEGEND:

 PROPOSED BRIDGE
 PROPOSED ROAD SURFACE

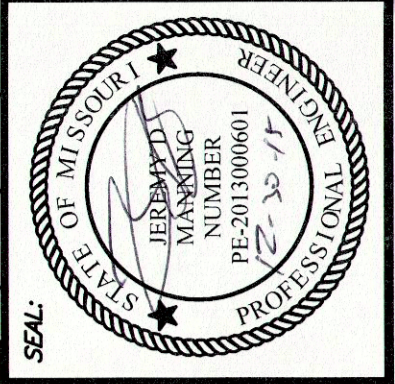


PLAN VIEW
 (IN FEET)
 FILL FACE TO FILL FACE = 108'
 CENTER OF BENT TO CENTER OF BENT: 105'
 0° SKEW
 27" X 36" PRE STRESSED DECK BEAMS
 CONCRETE DECK
 CL TOP OF BRIDGE AT MIDSPAN = 861.74'
 LOW CHORD OF BRIDGE = 858.74'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
15508	MO	BRO-8084 (014)	2014	4	15

SEC 21 & 22, T36N, R4E

BRIDGE NO. 0960010



JEREMY D. MANNING
 MO# PE-2013000801
 S.H. SMITH & COMPANY
 CERT. # E-616-D

NO.	REVISIONS	DATE	BY
1	ADDENDUM 1	12/15	JDM
2			

DATE: N/A
 DATE: 5-14
 DATE: 5-14
 DATE: 5-14
 SURVEYED BY: N/A
 DESIGNED BY: JDM
 DRAWN BY: AFS
 CHECKED BY: JDM
 FIELD BOOK: N/A
 AS SHOWN
 WHEN PRINTED, AT FULL SCALE

PILE DATA:

BENT:	1	2	3
TYPE & SIZE:	36"Ø DRILLED SHAFT	30"Ø COLUMN	36"Ø DRILLED SHAFT
NUMBER/BENT:	2	2	2
APPROX LENGTH EACH FT.:	8.8'	10.3'	12.6'
DESIGN BEARING TONS:	165	165	165
HAMMER ENERGY REQ FT-LBS*:	7000	7000	7000

*MINIMUM ENERGY REQUIREMENT OF HAMMER BASED ON PLAN LENGTH AND DESIGN BEARING VALUE OF PILES.
 ALL PILES SHALL BE DRIVEN TO MINIMUM PENETRATION OF 10' AND TO NOT LESS THAN THE DESIGN BEARING NOTED.

DESIGN TRAFFIC & CLASSIFICATION

OFF SYSTEM RURAL LOCAL ROAD
 WITH ADT < 250 & 10% TRUCK TRAFFIC

DESIGN STRESSES:

- WEATHERING STEEL BEAMS SHALL BE ASTM A709 GRADE 50 FY = 50 KSI
- SECONDARY MEMBERS SHALL BE ASTM A500 GRADE 46(B) FY = 46 KSI
- REINFORCING STEEL SHALL BE GRADE 60 FY = 60 KSI
- CLASS B1 CONCRETE f_c = 4000psi

HYDROLOGIC DATA:

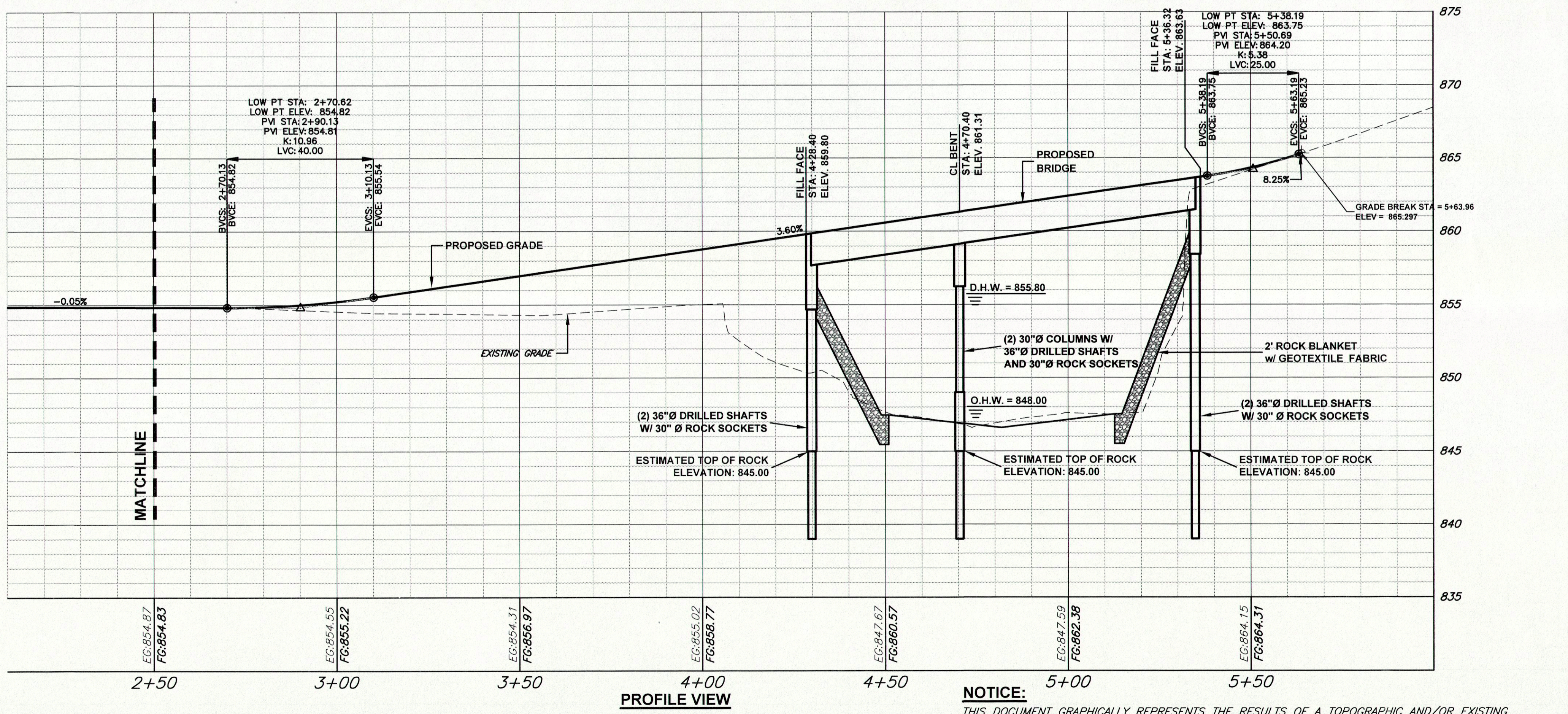
DRAINAGE AREA : FLAT RIVER = 9.1 SQ. MILES
 DESIGN FREQUENCY = 25 YEAR
 DESIGN DISCHARGE = 3451 CFS
 MAXIMUM BACKWATER FOR DESIGN FREQUENCY = 0.04
 DESIGN HIGH WATER ELEVATION AT STRUCTURE = 855.80
 ORDINARY LOW WATER ELEVATION AT STRUCTURE = 848.00
 LOW ELEVATION AT EXISTING STRUCTURE = 855.2
 LOW ELEVATION OF PROPOSED STRUCTURE = 856.70
 100 YEAR DISCHARGE = 4894 CFS
 APPROACH ROADWAY OVERTOPPING FREQUENCY = >50 YEAR DISCHARGE

GENERAL NOTES:

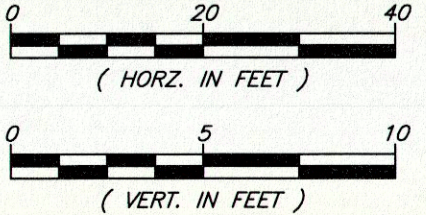
DESIGN SPECIFICATIONS: AASHTO-2002 STANDARD SPECIFICATIONS FOR BRIDGE, 17TH EDITION
 AASHTO 1983 GUIDE SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES.
 FHWA TECHNICAL ADVISORY ON SCOUR AT BRIDGES, FHWA-IP-90-017 DATED MAY 2001
 SEISMIC PERFORMANCE C
 ACCELERATION COEFFICIENT = 0.15
 CONSTRUCTION SHALL FOLLOW THE SPECIFICATIONS AS STATED IN THE "MISSOURI" STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION - 2011"

DESIGN LOADING:

HL93
 50 LB. PER SQ. FT. FUTURE WEARING SURFACE
 EARTH 120 LB. PER CU. FT., FLUID PRESSURE 45 LB. PER CU. FT.
 CLASS B1 CONCRETE (STRUCTURE EXCEPT PRESTRESSED BEAMS) f_c = 4,000 psi; SUPERSTRUCTURE: SIMPLY SUPPORTED NON-COMPOSITE FOR DEAD LOAD. CONTINUOUS COMPOSITE FOR LIVE LOAD.



PROFILE VIEW



NOTICE:

THIS DOCUMENT GRAPHICALLY REPRESENTS THE RESULTS OF A TOPOGRAPHIC AND/OR EXISTING CONDITIONS SURVEY. PROPERTY LINES MAY BE INDICATED FOR REFERENCE OR GENERAL PLANNING PURPOSES. EXISTING PROPERTY CORNERS THAT WERE READILY FOUND MAY BE SHOWN. HOWEVER, THIS SURVEY DOES NOT CONSTITUTE NOR IS IT INTENDED TO FUNCTION AS A PROPERTY BOUNDARY SURVEY, AS DEFINED BY 4 CSR 30-16 (MISSOURI).

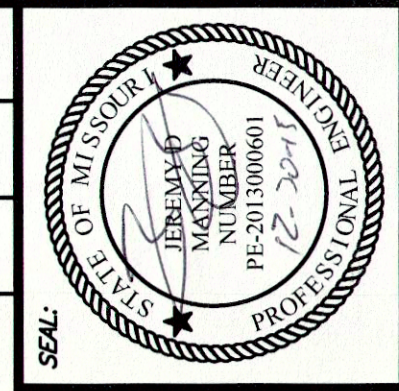
P:\140091 St. Francois County Davis Crossing Bridge Eng Drawings\140091.dwg

SMITH & CO. ENGINEERS
 AN EMPLOYEE OWNED COMPANY
 901 VINE STREET, P.O. BOX 72
 POPLAR BLUFF, MISSOURI 63902
 (937) 785-9821 FAX: (937) 785-2651 WWW.SHSMITHCO.COM
 CIVIL ENGINEERING • SURVEYING • MATERIAL TESTING
 ENVIRONMENTAL & GEOTECHNICAL SERVICES

DAVIS CROSSING ROAD BRIDGE
 ST. FRANCOIS COUNTY, MISSOURI
 PROJECT #: P140091
 SHEET: **4**

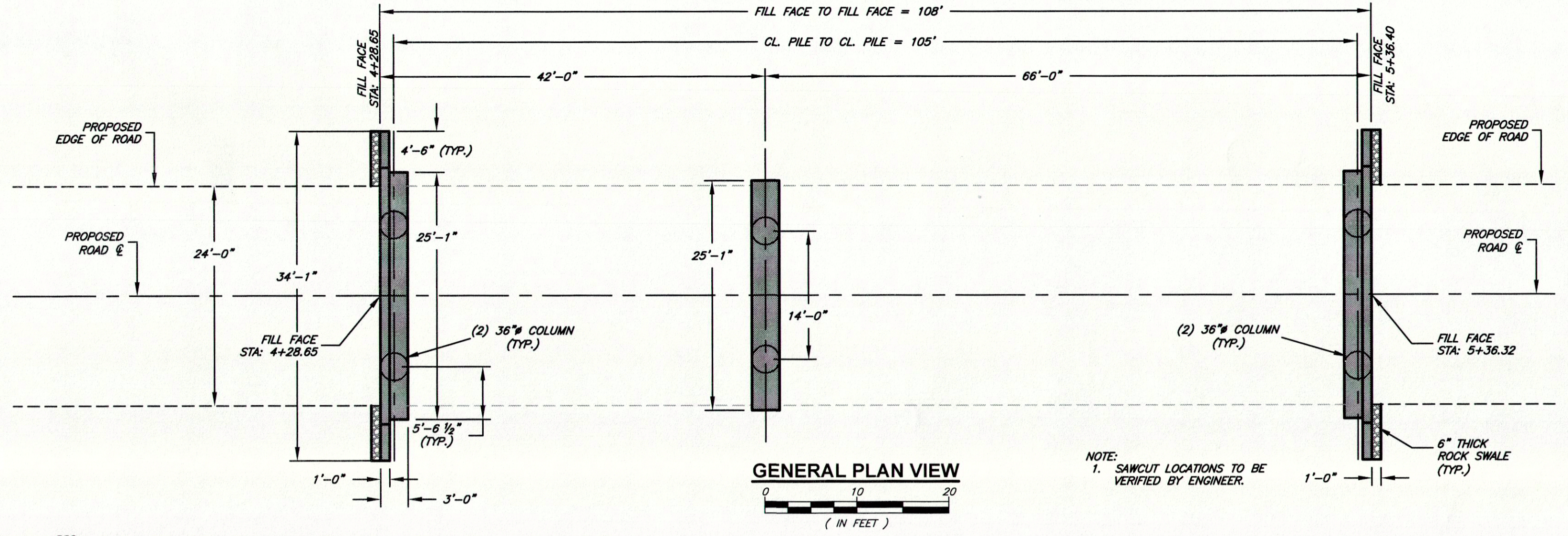
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
15508	MO	BRO-B094 (014)	2014	5	15

SEC 21 & 22, T36N, R4E
BRIDGE NO. 0960010



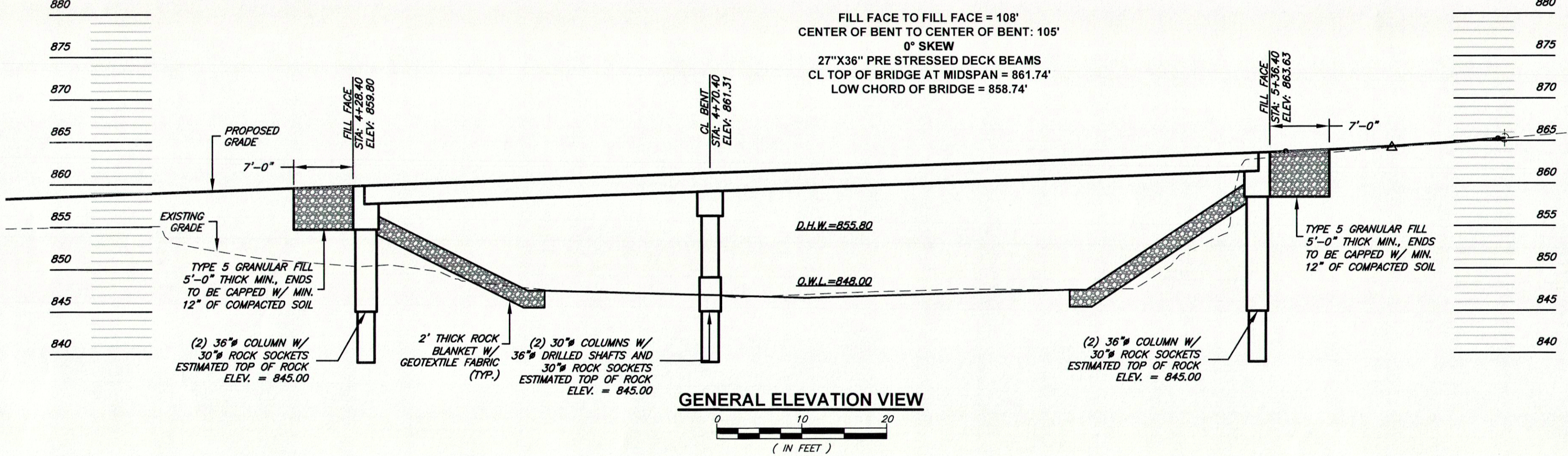
JEREMY D MANNING
MO# PE-2013000601
S.H. SMITH & COMPANY
CERT.# E-616-D

NO.	DATE	BY	APP.
1	12/15	JDM	JDM
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

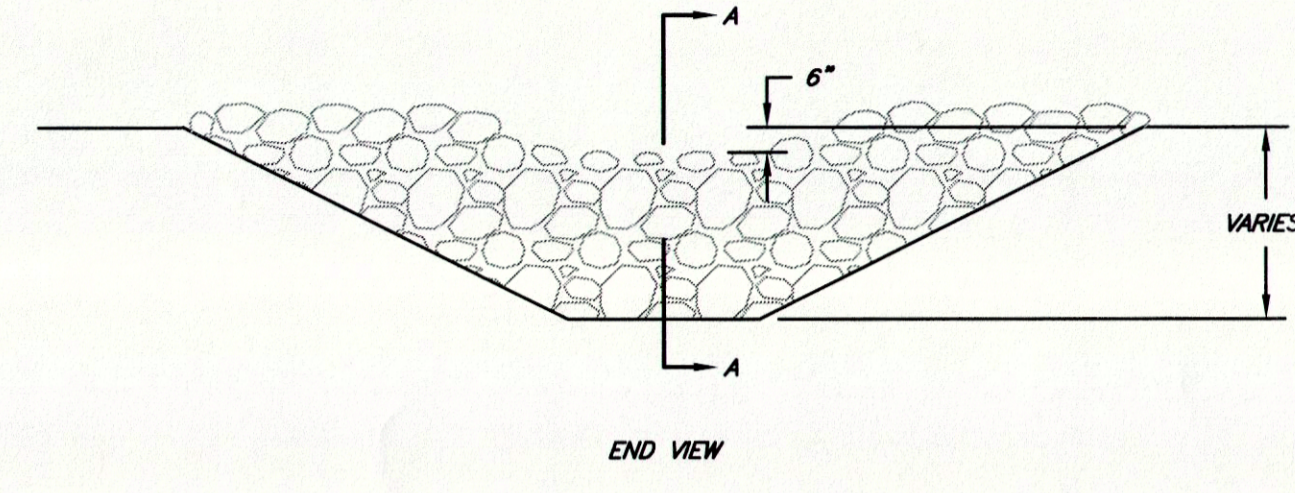


GENERAL PLAN VIEW
(IN FEET)

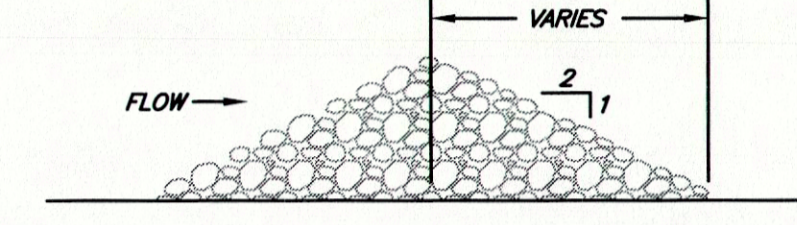
NOTE:
1. SAWCUT LOCATIONS TO BE VERIFIED BY ENGINEER.



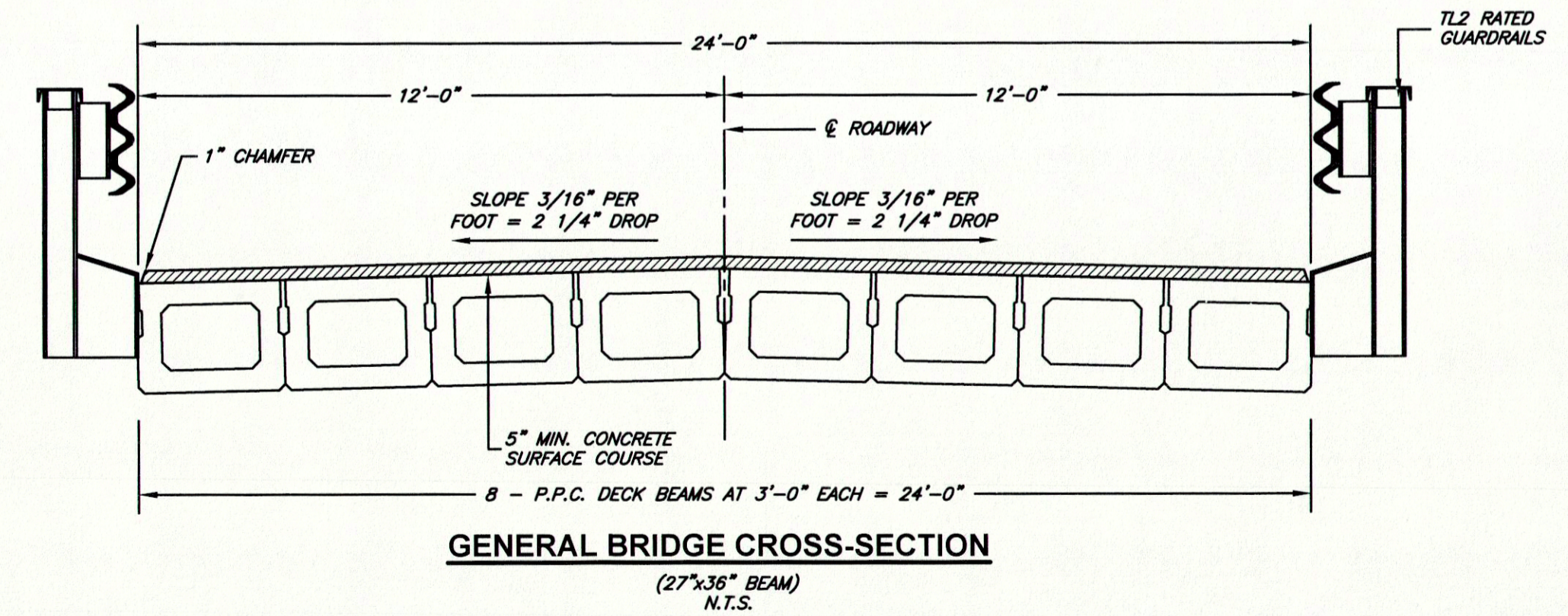
GENERAL ELEVATION VIEW
(IN FEET)



END VIEW

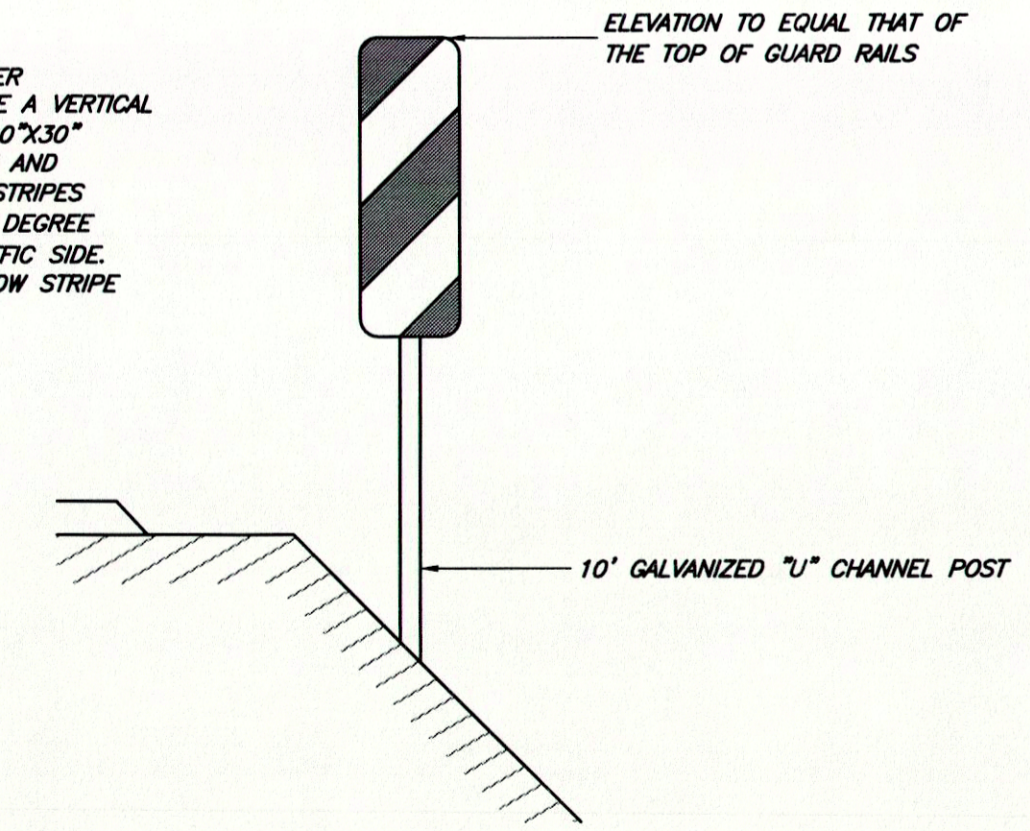


SECTION A-A
ROCK SEDIMENT TRAP DETAIL
N.T.S.



GENERAL BRIDGE CROSS-SECTION
(27x36 BEAM)
N.T.S.

TYPE - 3 OBJECT MARKER
MARKER BOARD SHALL BE A VERTICAL
RECTANGLE MEASURING 10"x30"
WITH ALTERNATING BLACK AND
REFLECTORIZED YELLOW STRIPES
SLOPING DOWN AT A 45 DEGREE
ANGLE TOWARD THE TRAFFIC SIDE.
THE WIDTH OF THE YELLOW STRIPE
WILL BE 6".



TYPE-3 OBJECT MARKER
4 REQD. - ONE AT EACH BRIDGE CORNER
N.T.S.

DATE: N/A
DATE: 5-14
DATE: 5-14
DATE: 5-14
SURVEYED BY: N/A
DESIGNED BY: JDM
DRAWN BY: AFS
CHECKED BY: JDM
FIELD BOOK: N/A
AS SHOWN
THIS DRAWING WILL MEASURE 1" = 10' WHEN PRINTED AT FULL SCALE.

SMITH & CO. ENGINEERS
AN EMPLOYEE OWNED COMPANY
45
901 VINE STREET, P.O. BOX 72
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(673) 785-8821 FAX: (673) 785-8851 WWW.SHSMITHCO.COM
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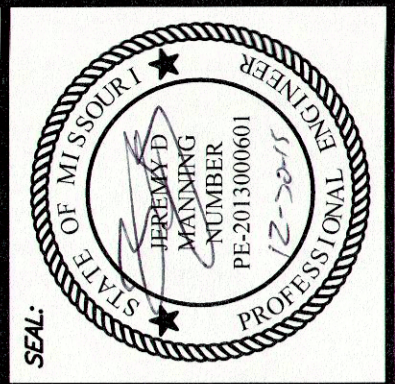
DAVIS CROSSING ROAD BRIDGE
ST. FRANCIS COUNTY, MISSOURI
BRIDGE LAYOUT

PROJECT #: P140091
SHEET: 5

P:\140091_01 - Francis County Road Crossing Bridge.dwg (User: jdm) (P140091.dwg)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
15508	MO	BR0-B094 (014)	2014	10	15

SEC 21 & 22, T36N, R4E
BRIDGE NO. 0960010



JEREMY D. MANNING
MO# PE-2013000601
S.H. SMITH & COMPANY
CERT.# E-616-D

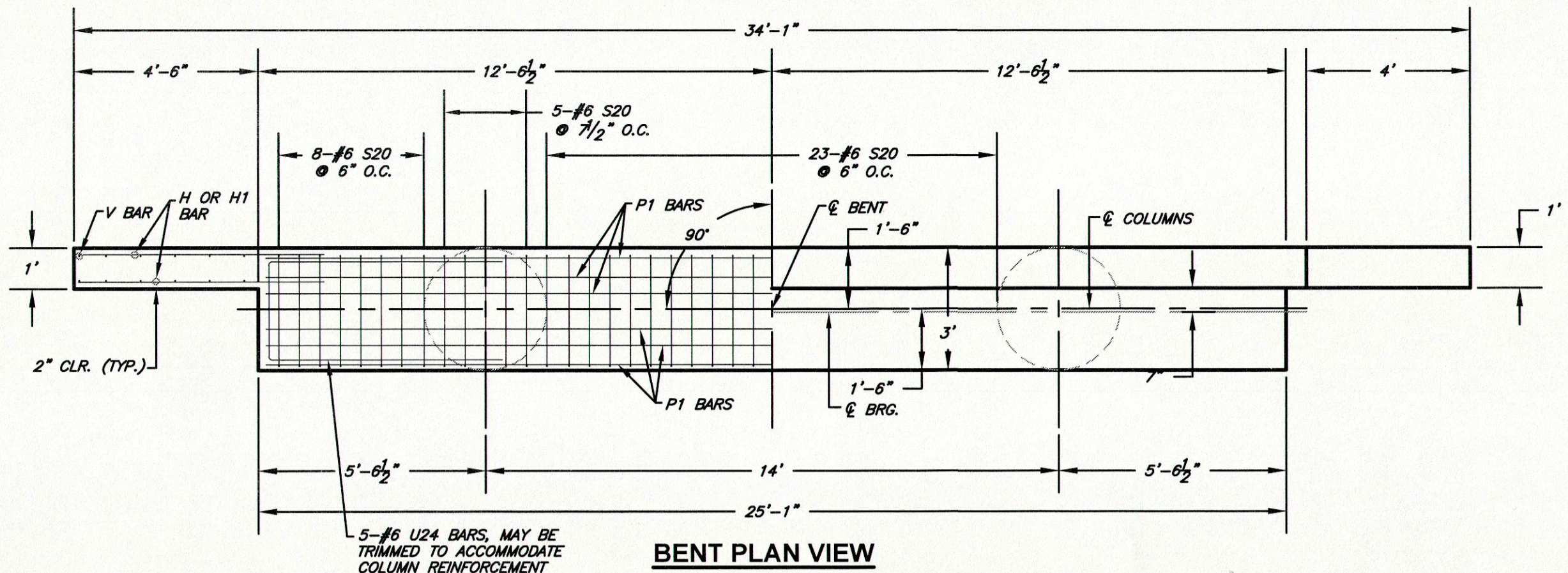
NO.	REVISIONS	DATE	BY	APP.
1	ADDENDUM 1	1/2/15	JDM	JDM

DESIGNED BY: N/A
DATE: 5-14
DRAWN BY: AFS
DATE: 5-14
CHECKED BY: JDM
DATE: 5-14
FIELD BOOK: N/A

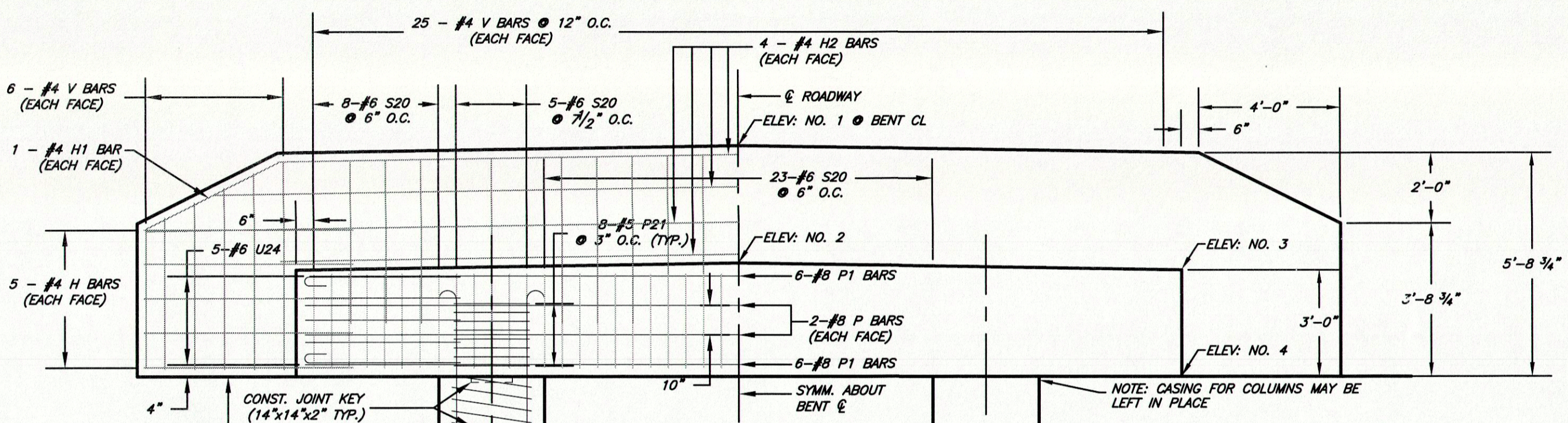
SMITH & CO. ENGINEERS
AN EMPLOYEE OWNED COMPANY
ESTABLISHED 1988
901 VINE STREET, P.O. BOX 72
POPULAR BLUFF, MISSOURI 63902
(973) 785-9621 FAX: (973) 785-2651 WWW.SHSMITHCO.COM
CIVIL ENGINEERING • SURVEYING • ENVIRONMENTAL & GEOTECHNICAL SERVICES • MATERIAL TESTING

DAVIS CROSSING ROAD BRIDGE
ST. FRANCIS COUNTY, MISSOURI
PROJECT #: P140091
SHEET: 10

SHEET: 10

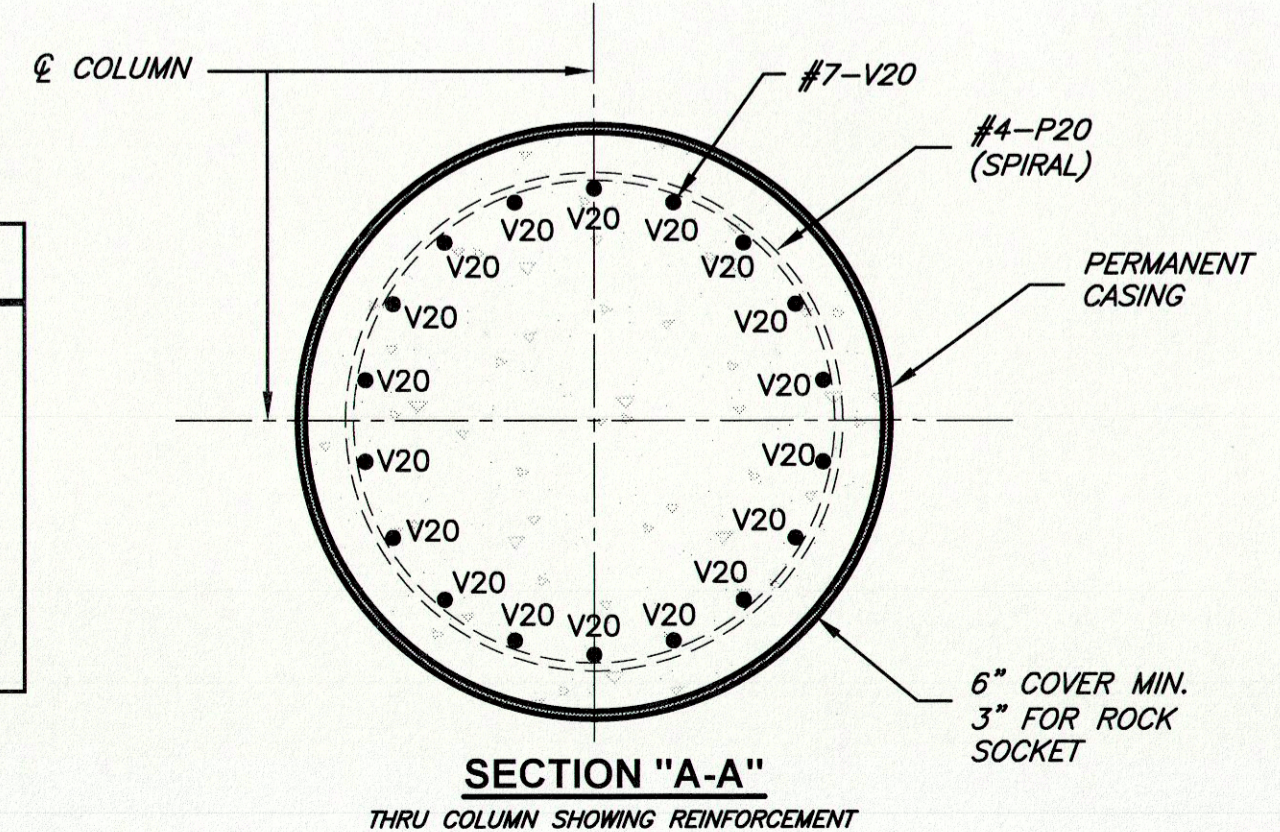


BENT PLAN VIEW

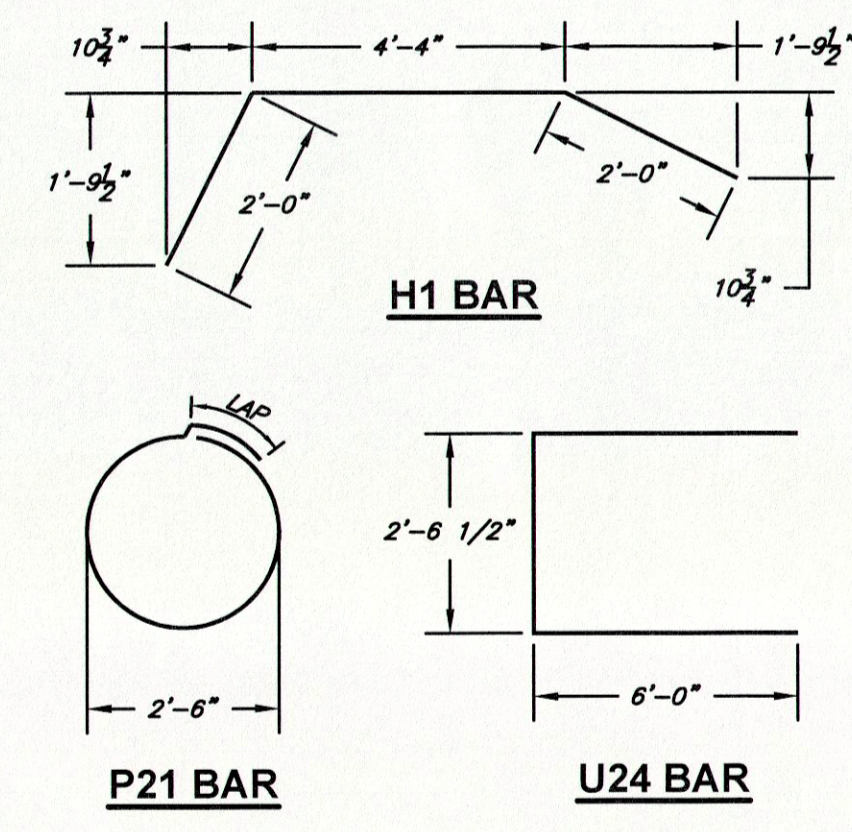


BENT ELEVATION VIEW

Elevations at Bents	Bent 1	Bent 3
Elev. No. 1	860.34	863.58
Elev. No. 2	857.55	860.79
Elev. No. 3	857.35	860.59
Elev. No. 4	854.35	857.59



SECTION "A-A" THRU COLUMN SHOWING REINFORCEMENT

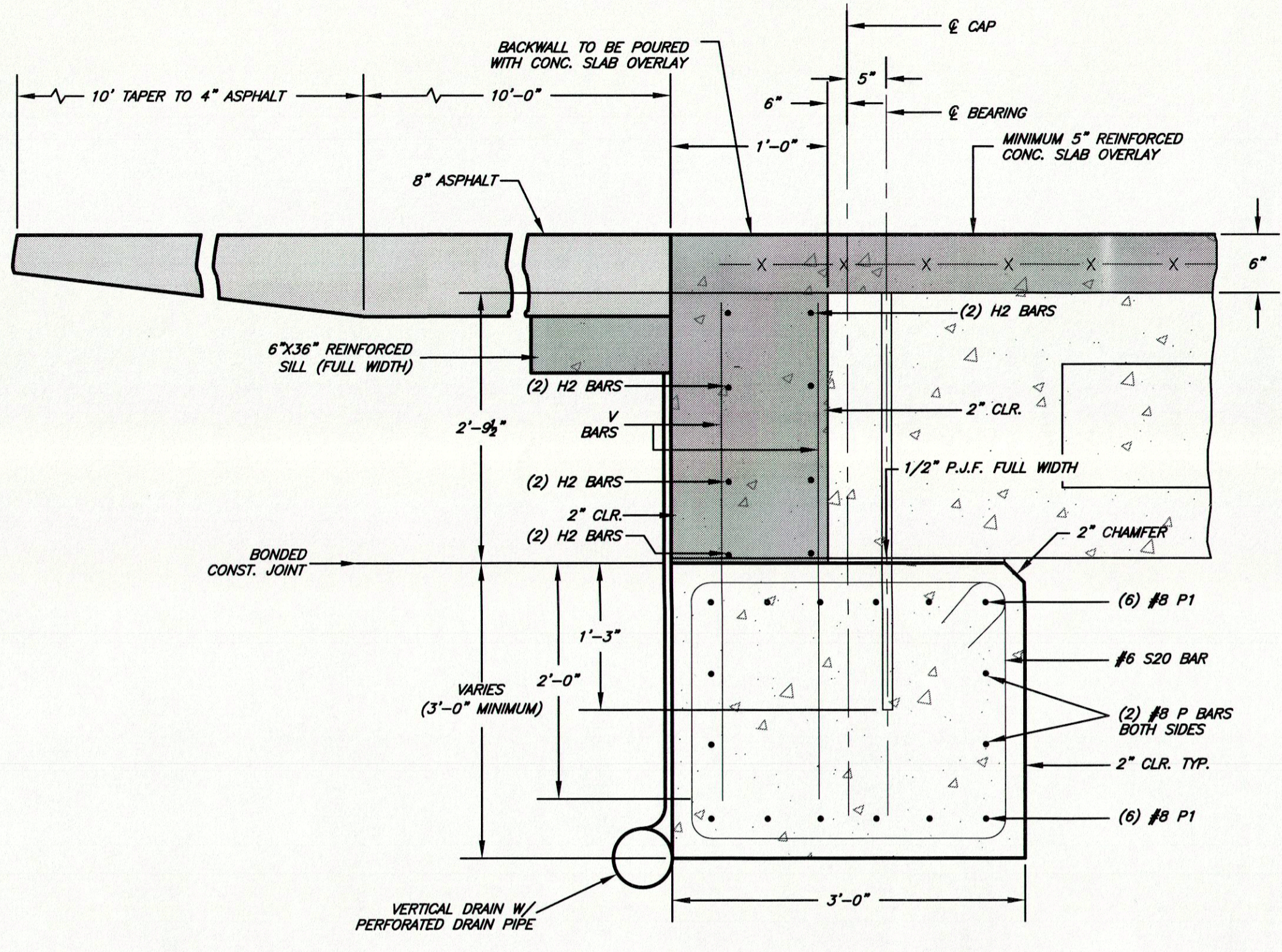


H1 BAR

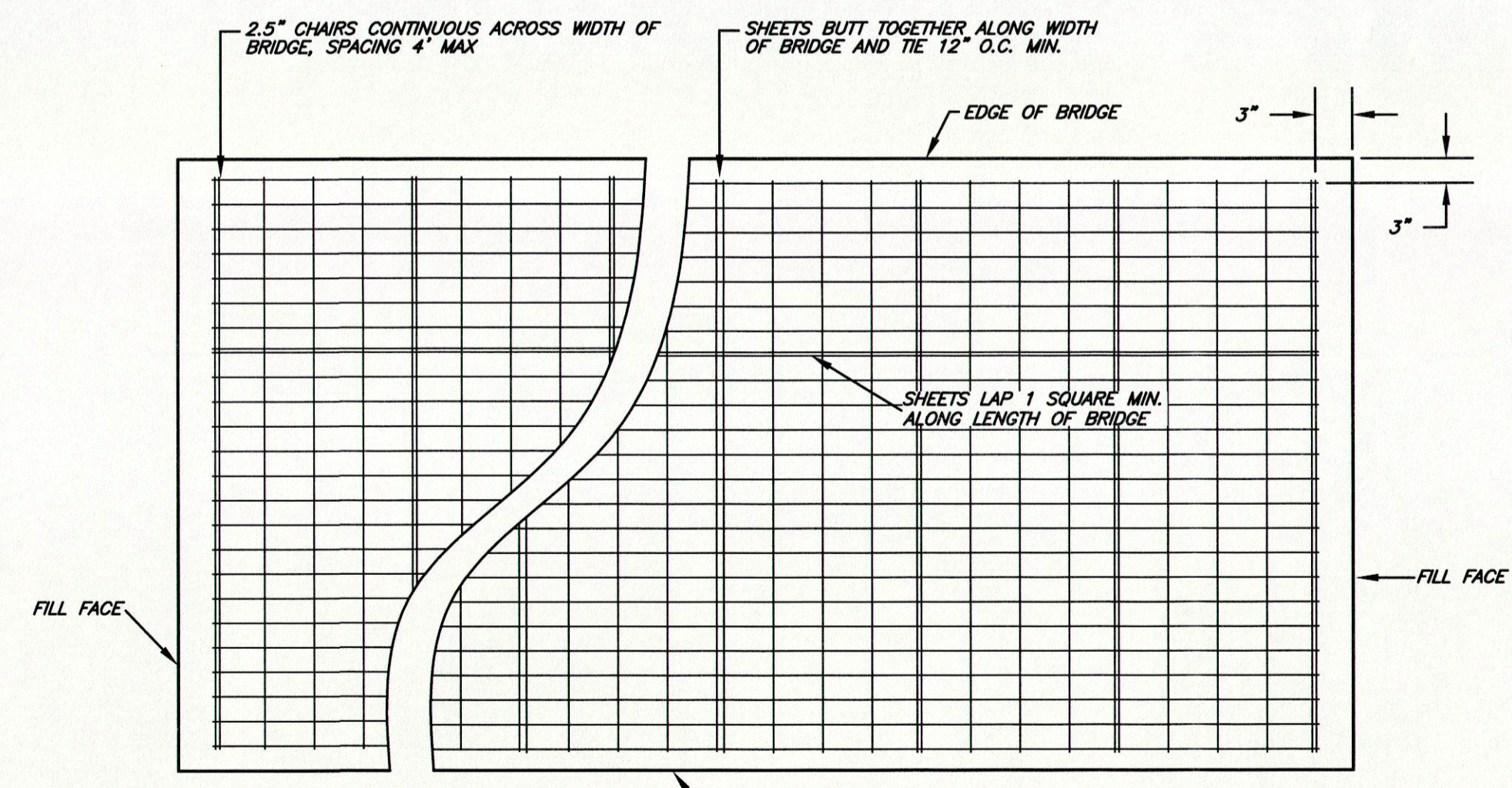
U24 BAR

S20 BAR

NOTE: REINFORCEMENT BARS SHALL CONFORM TO A.A.S.H.T.O. M-31, M-42, OR M-63 GRADE 60.



SECTION THRU ABUTMENT #1
SCALE: 1" = 1'-0"



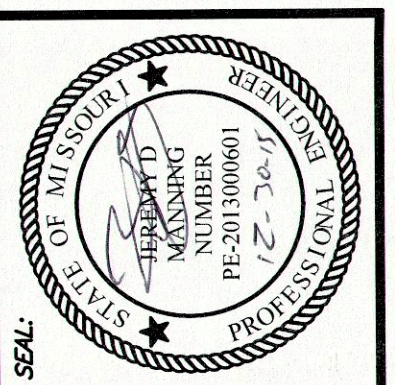
REINFORCED CONCRETE SLAB OVERLAY REINFORCEMENT
N.T.S.

NOTE: REINFORCEMENT SHALL CONSIST OF WWF-A4-WAXW4, SUPPLIED IN SHEETS, SUPPORTED BY CHAIRS WITH A MAX. HEIGHT OF 2 1/2 INCH. SHEET EDGES WILL LAP ALONG THE LENGTH OF THE BRIDGE, BUT NOT PERPENDICULAR TO THE BRIDGE CENTER LINE.

P140091 - St. Francois County Road Crossing Bridge (Long Drawings) (P140091.dwg)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
15508	MO	BR0-B084 (014)	2014	11	15

SEC 21 & 22, T36N, R4E
BRIDGE NO. 0960010



JEREMY D. MANNING
MO # PE-2013000601

S.H. SMITH & COMPANY
CERT. # E-616-D

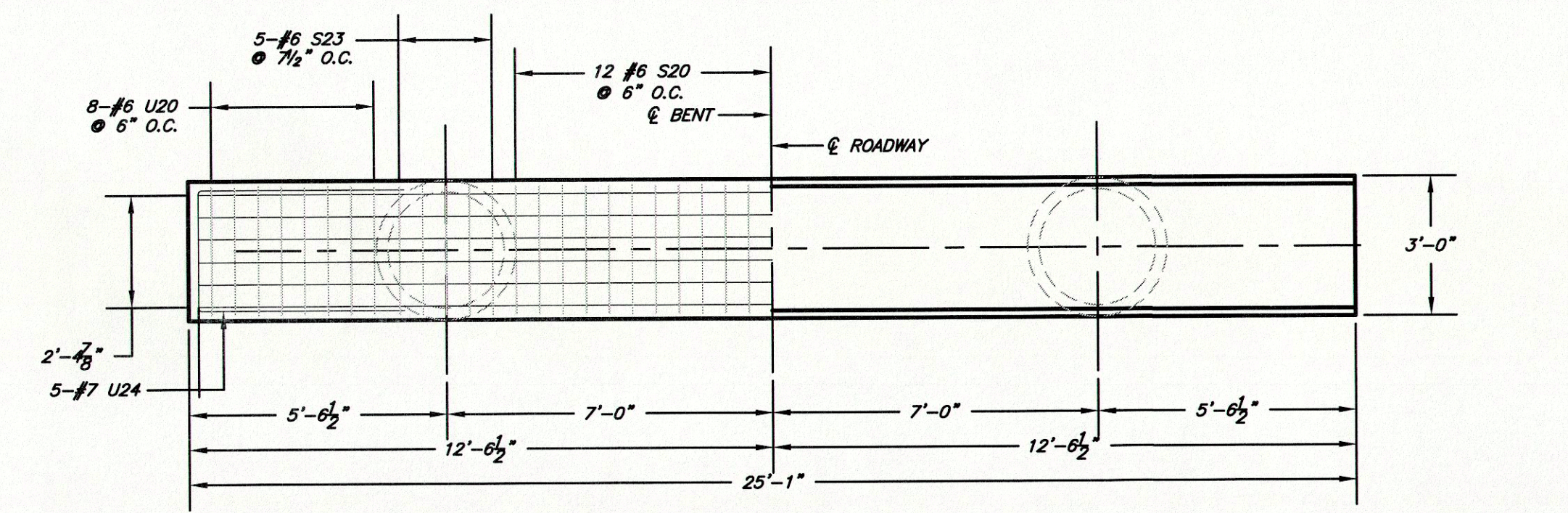
NO.	DATE	BY	APP.
1	12/15	JDM	JDM
2			
3			
4			
5			
6			
7			

DATE: N/A
DESIGNED BY: JDM
DRAWN BY: AFS
CHECKED BY: JDM
FIELD BOOK: N/A
AS SHOWN
UNLESS OTHERWISE NOTED
WEB PRINTED AT FULL SCALE

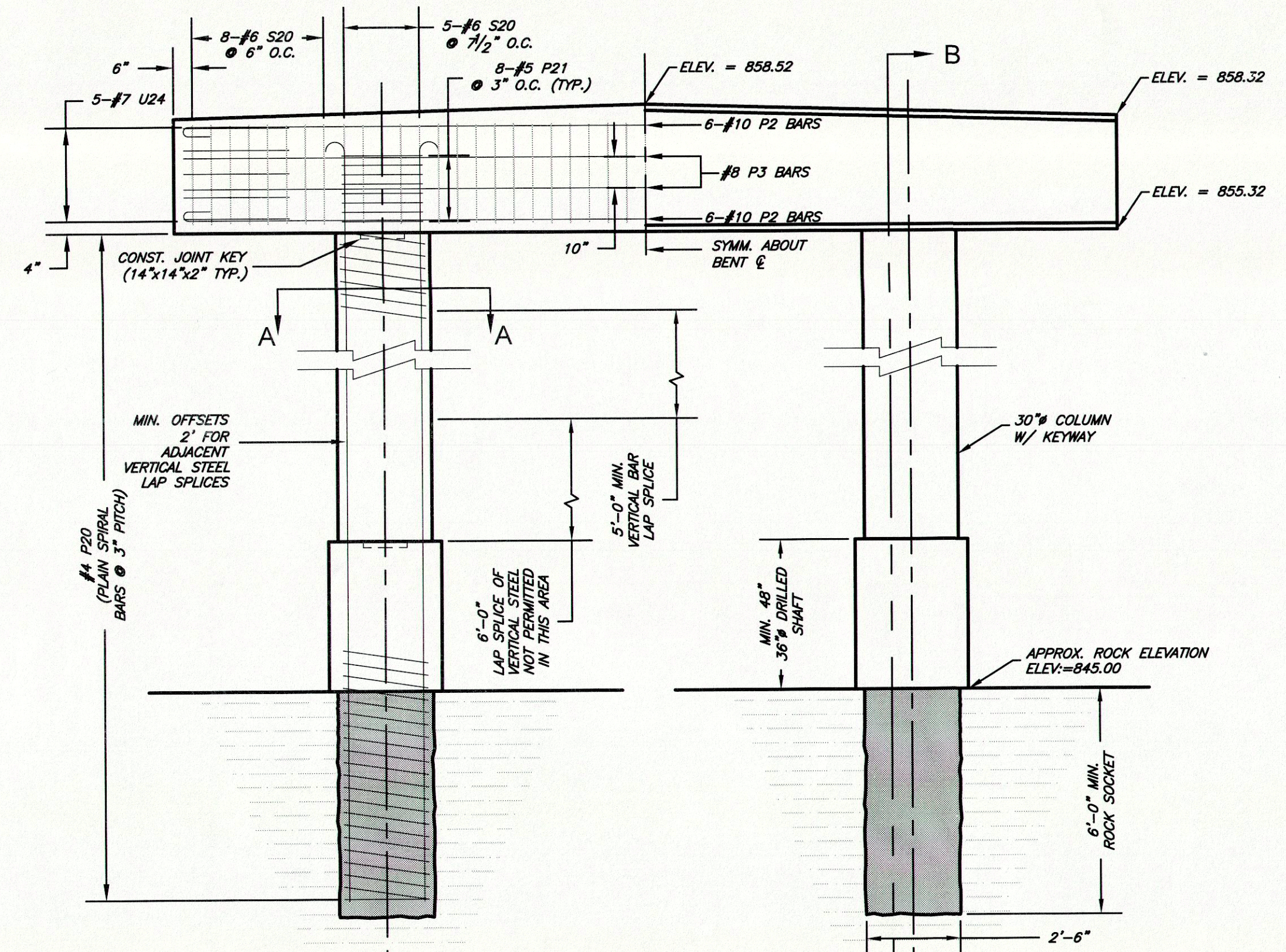
SMITH & CO. ENGINEERS
AN EMPLOYEE OWNED COMPANY
ESTABLISHED 1888
901 VINE STREET, P.O. BOX 72
POPULAR BLUFF, MISSOURI 63902
(937) 785-9821 FAX: (937) 785-2651 WWW.SHSMITHCO.COM
CIVIL ENGINEERING • SURVEYING • MATERIAL TESTING
ENVIRONMENTAL & GEOTECHNICAL SERVICES

DAVIS CROSSING ROAD BRIDGE
ST. FRANCIS COUNTY, MISSOURI
INTERMEDIATE BENT DETAILS
PROJECT #: P140091

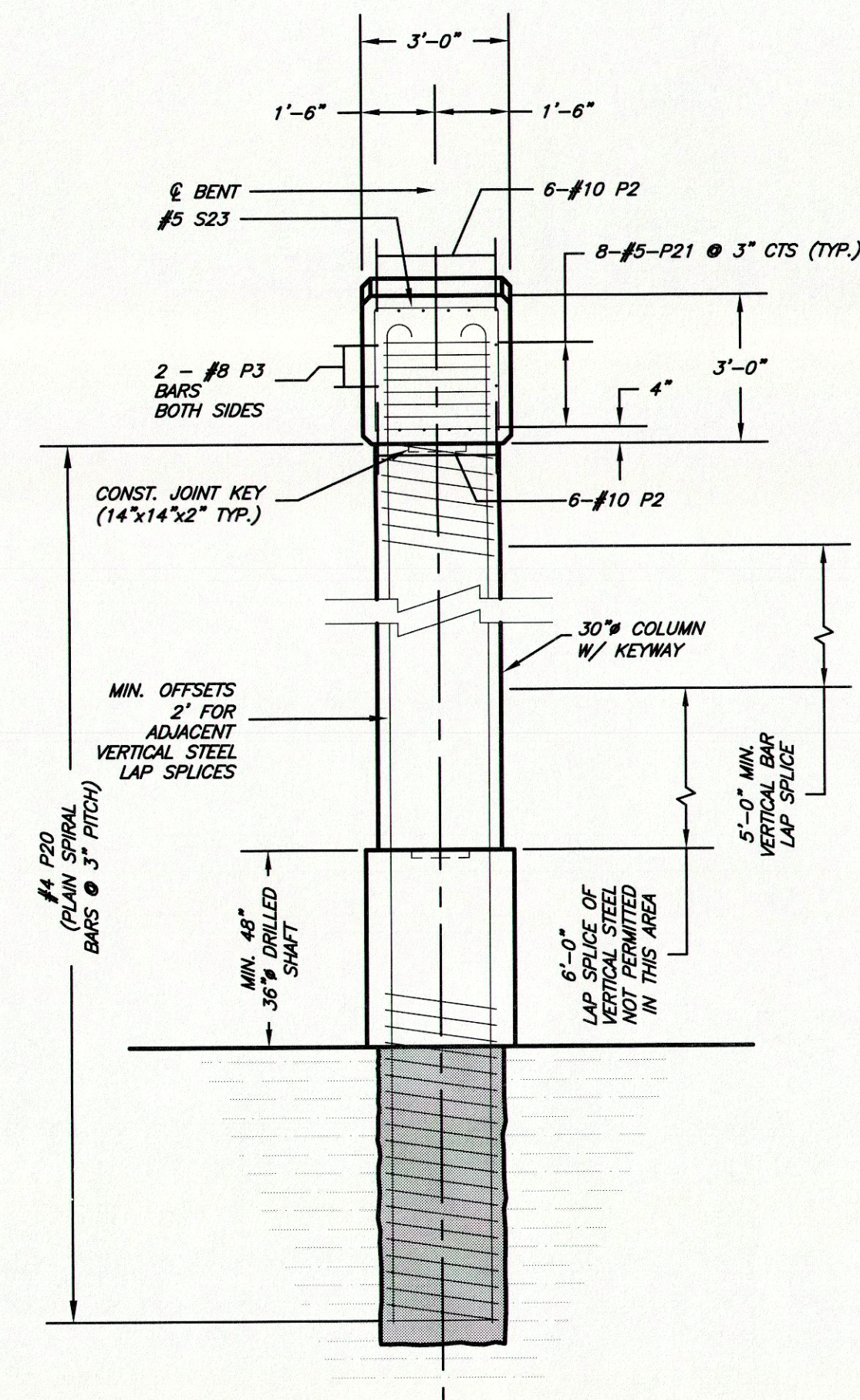
SHEET: 11



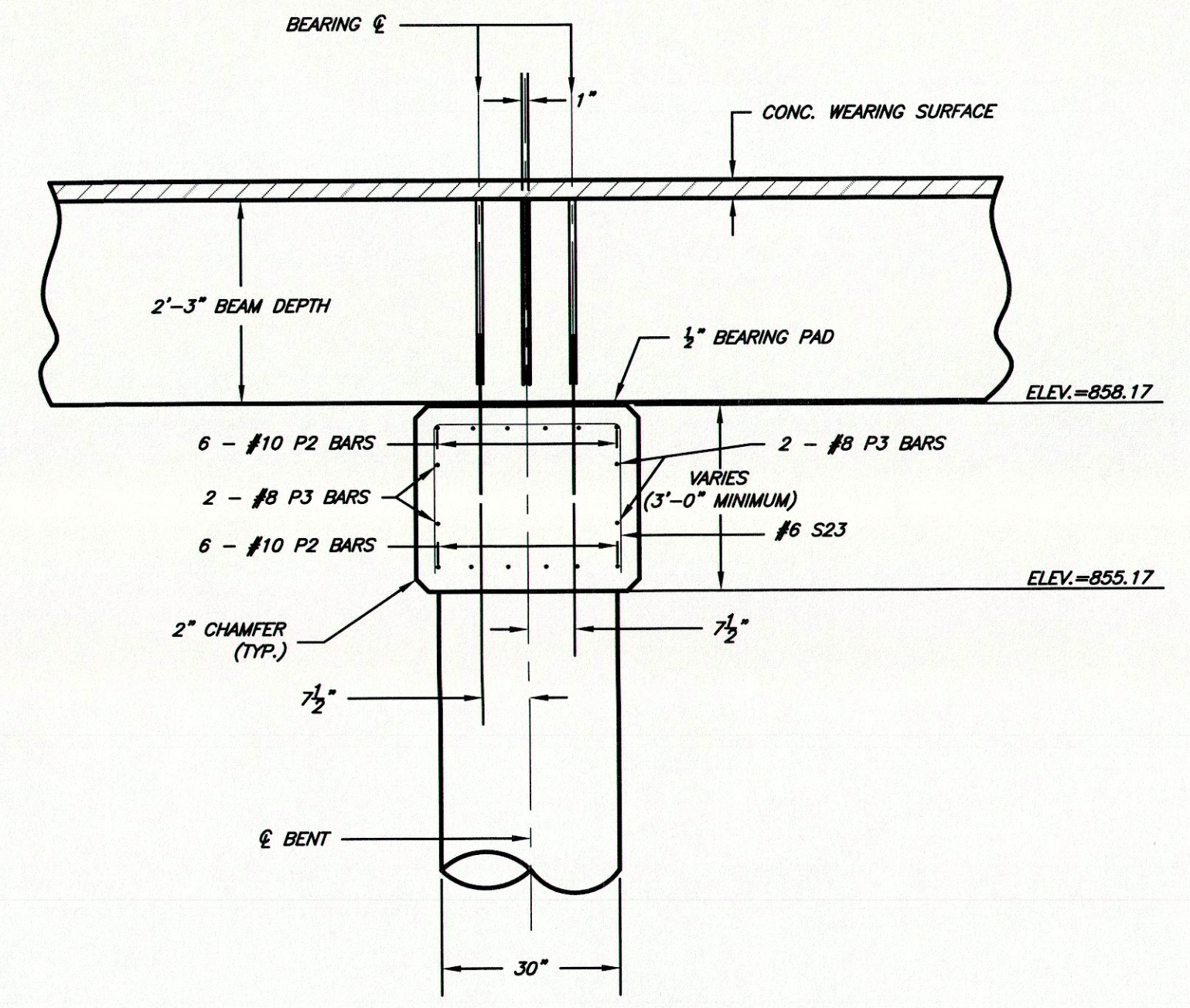
BENT PLAN VIEW



BENT ELEVATION VIEW

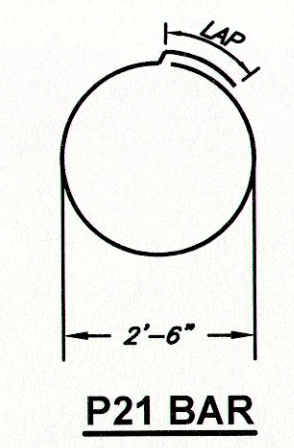


SECTION "B-B"
THRU COLUMN SHOWING REINFORCEMENT

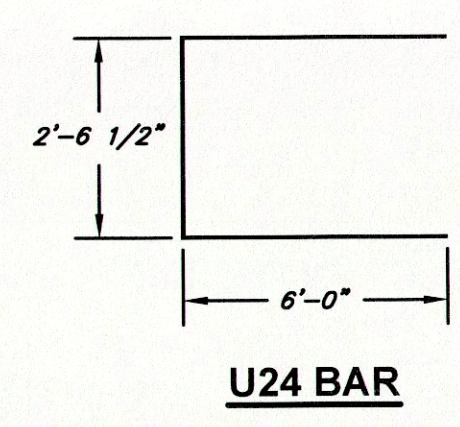


SECTION THRU BENT

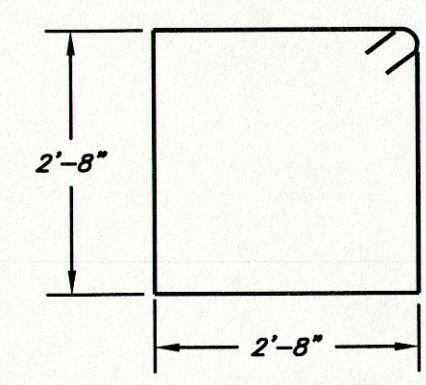
SCALE: 6" = 1'-0"
*COLUMN REINFORCEMENT NOT SHOWN FOR CLARITY



P21 BAR

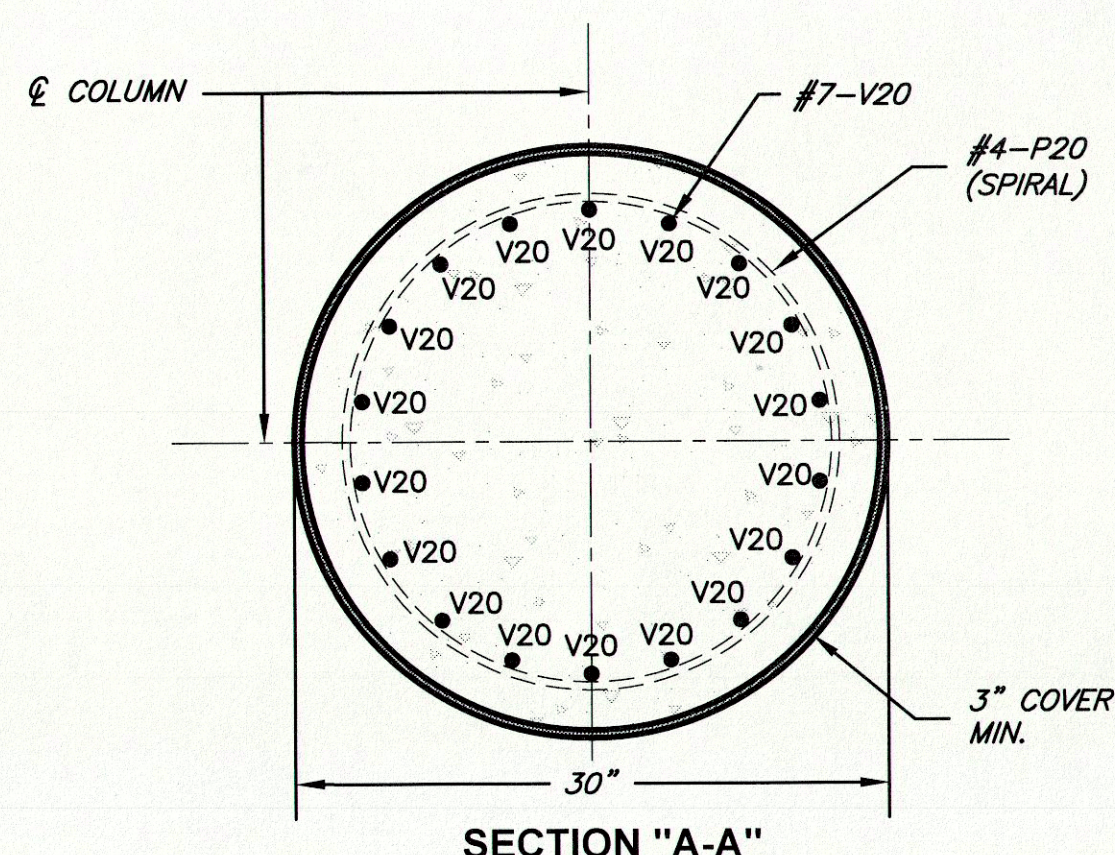


U24 BAR



S20 BAR

NOTE:
REINFORCEMENT BARS SHALL CONFORM TO A.A.S.H.T.O. M-31, M-42, OR M-63 GRADE 60.



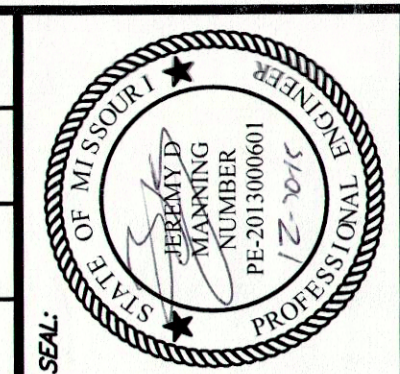
SECTION "A-A"

- NOTES:
- DISCHARGE FROM BORING MUST BE EITHER COLLECTED OR FILTERED.
 - IN LIEU OF CONSTRUCTING A PORTION OF THE COLUMNS W/ 30" TEMPORARY FORMS, CONTRACTOR MAY CONSTRUCT USING 36" CASING AND LEAVE IN-PLACE.

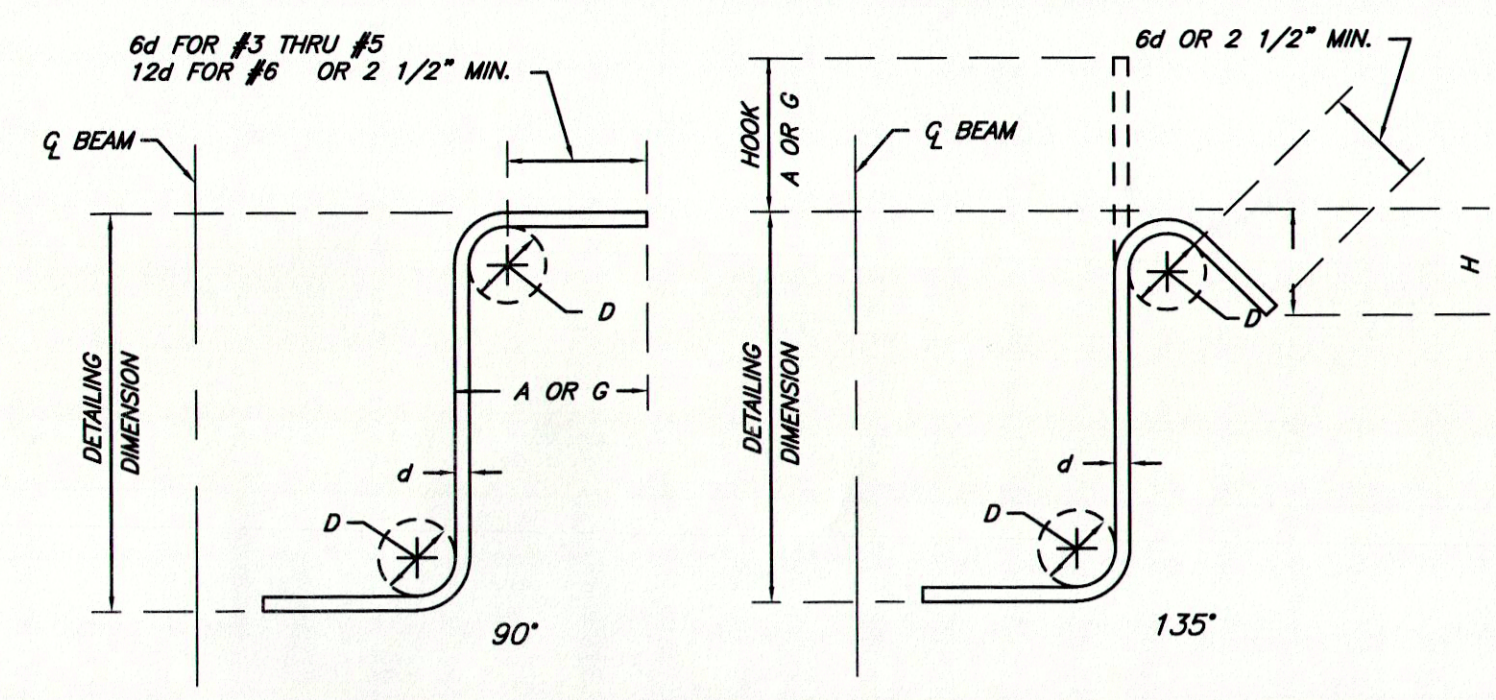
P:\P140091 St. Francis County Davis Crossing Bridge (Eng) Drawings\P140091.dwg

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
15508	MO	BRO-8084 (014)	2014	13	15

SEC 21 & 22, T36N, R4E
BRIDGE NO. 0960010



JEREMY D. MANNING
M.O. PE-2013000601
S.H. SMITH & COMPANY
CERT. # E-616-D

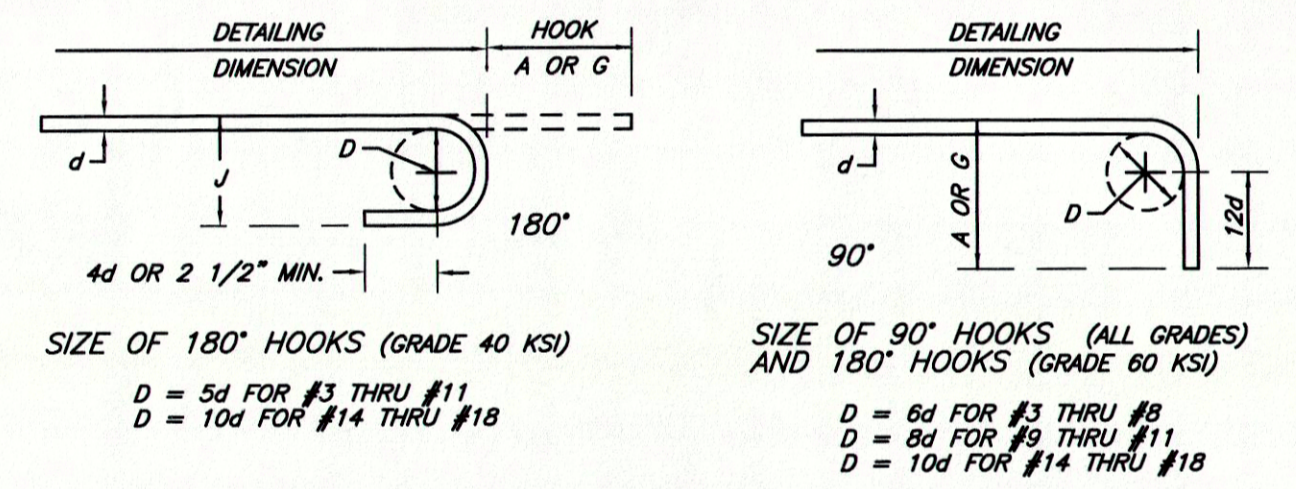


STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK		135° HOOK
		HOOK A OR G	HOOK A OR G	APPROX. H
#3	1 1/2"	4"	4"	2 1/2"
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	7 3/4"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

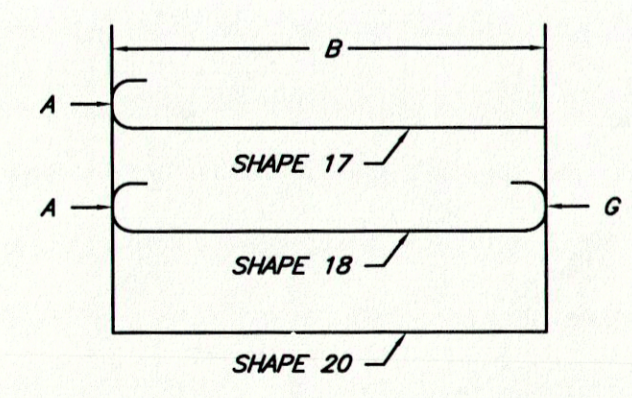
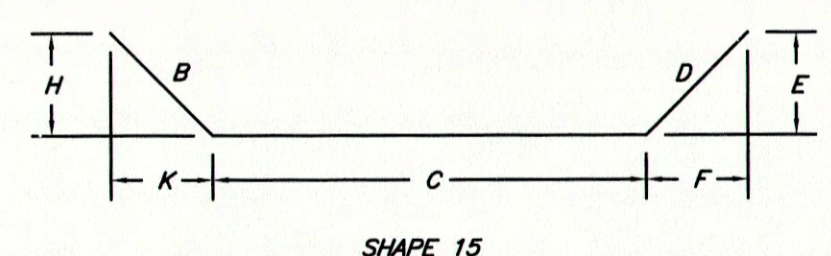
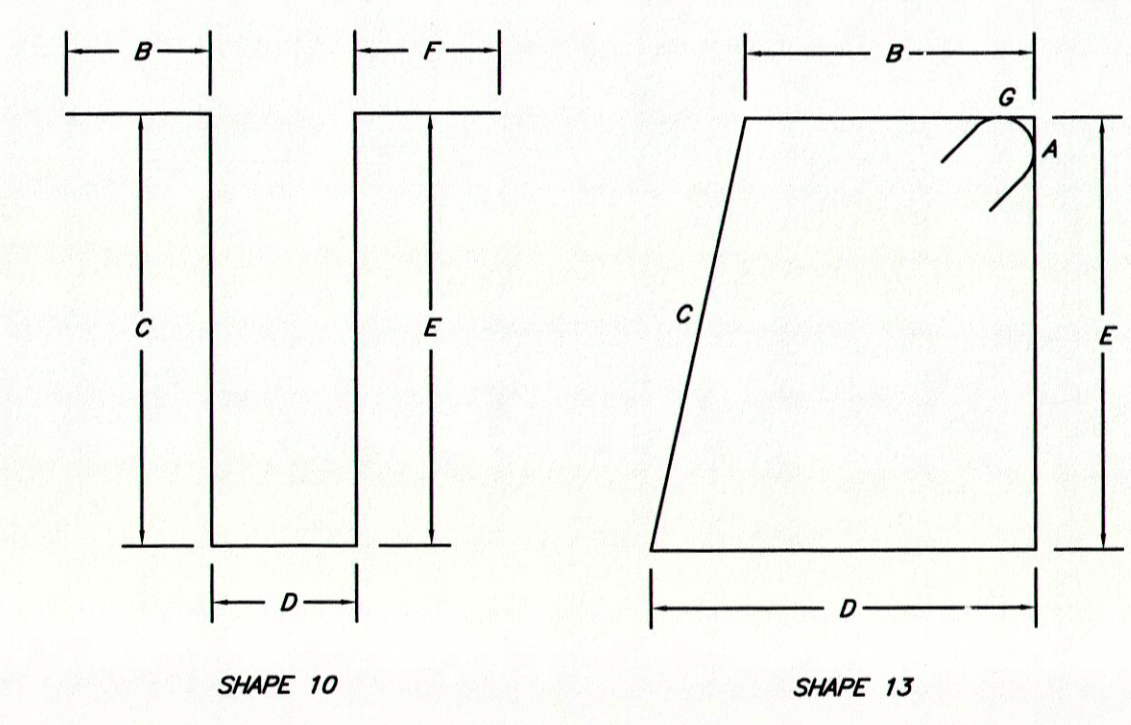
STEEL QUANTITIES

Mark	No. Req.	Size	Location	Epoxy	Shape No.	Substr.	Varies	DIMENSIONS							Nominal Length	Actual Length	Weight	
								A	B	C	D	E	F	G				
SUBSTRUCTURE																		
Bent 1																		
H	20	#4	BEAM	x	20	X			6'-6"							6'-6"	6'-6"	86.84
H1	4	#4	BEAM	x	15	X			2'-0"	4'-4"	2'-0"					8'-4"	8'-3 3/8"	22.13
H2	8	#4	BEAM	x	20	X			33'-9"							33'-9"	33'-9"	180.36
V	74	#4	BEAM	x	20	X			6'-0"							6'-0"	6'-0"	296.59
P	4	#8	BEAM	x	20	X			24'-9"							24'-9"	24'-9"	264.33
P2	12	#8	BEAM	x	18	X			1'-5"	24'-9"	0'-6"	0'-6"		1'-5"		28'-7"	28'-7"	915.81
S20	49	#6	BEAM	x	13	X			0'-7 3/4"	2'-8"	2'-8"	2'-8"	2'-8"	0'-7 3/4"	11'-11 1/2"	11'-7 3/4"	857.11	
U24	10	#6	BEAM	x	10	X			6'-0"	2'-6 1/2"	6'-0"		6'-0"		14'-6 1/2"	14'-4"	215.29	
V20	36	#7	COLUMN	x	18	X			18'-0"	0'-10 1/2"	0'-3 1/2"			1'-2"	20'-4"	20'-4"	1496.21	
P20 (Spiral Cage)	2	#4	COLUMN	x	22	X			15'-6"	1'-11 1/2"					421'-2 1/2"	421'-2 1/2"	562.72	
P21	16	#5	BEAM	x	16	X					2'-6"				17'-4 9/16"	17'-4 9/16"	290.05	
																SUBTOTAL		5187
Intermediate Bent 2																		
P2	12	#10	BEAM	x	18	X			1'-5"	24'-9"	0'-6"	0'-6"		1'-5"		28'-7"	28'-7"	1475.93
P3	4	#8	BEAM	x	20	X			24'-9"						24'-9"	24'-9"	264.33	
S20	50	#6	BEAM	x	13	X			0'-7 3/4"	2'-8"	2'-8"	2'-8"	2'-8"	0'-7 3/4"	11'-11 1/2"	11'-7 3/4"	874.60	
U24	10	#6	BEAM	x	10	X			6'-0"	2'-6 1/2"	6'-0"		6'-0"		14'-6 1/2"	14'-2 3/4"	291	
V20	36	#7	COLUMN	x	18	X			22'-0"	0'-10 1/2"	0'-3 1/2"			1'-2"	24'-4"	24'-4"	1791	
P20 (Spiral Cage)	2	#4	COLUMN	x	22	X			16'-6"	1'-11 1/2"					445'-10"	445'-10"	596.00	
P21	16	#5	BEAM	x	16	X					2'-6"				17'-4 9/16"	17'-4 9/16"	290.05	
																SUBTOTAL		5582.30
Bent 3																		
H	20	#4	BEAM	x	20	X			6'-6"						6'-6"	6'-6"	86.84	
H1	4	#4	BEAM	x	15	X			2'-0"	4'-4"	2'-0"				8'-4"	8'-3 3/8"	22.13	
H2	8	#4	BEAM	x	20	X			33'-9"						33'-9"	33'-9"	180.36	
V	74	#4	BEAM	x	20	X			6'-0"						6'-0"	6'-0"	296.59	
P	4	#8	BEAM	x	20	X			24'-9"						24'-9"	24'-9"	264.33	
P2	12	#8	BEAM	x	18	X			1'-5"	24'-9"	0'-6"	0'-6"		1'-5"		28'-7"	28'-7"	915.81
S20	49	#6	BEAM	x	13	X			0'-7 3/4"	2'-8"	2'-8"	2'-8"	2'-8"	0'-7 3/4"	11'-11 1/2"	11'-7 3/4"	857.11	
U24	10	#6	BEAM	x	10	X			6'-0"	2'-6 1/2"	6'-0"		6'-0"		14'-6 1/2"	14'-4"	215.29	
V20	36	#7	COLUMN	x	18	X			23'-0"	0'-10 1/2"	0'-3 1/2"			1'-2"	25'-4"	25'-4"	1864.13	
P20 (Spiral Cage)	2	#4	COLUMN	x	22	X			19'-0"	1'-11 1/2"					510'-5"	510'-5"	682.00	
P21	16	#5	BEAM	x	16	X					2'-6"				17'-4 9/16"	17'-4 9/16"	290.05	
																SUBTOTAL		5675
																SOCKET/COLUMNS		6992
																CAP/WINGS		9453
																TOTAL STEEL		16,444 Lbs



BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS		LAP SPLICES (UNLESS OTHERWISE NOTED)
		ALL GRADES		ALL GRADES		
		A OR G	J	A OR G		
#3	2 1/4"	5"	3"	6"	12"	
#4	3"	6"	4"	8"	17"	
#5	3 3/4"	7"	5"	10"	21"	
#6	4 1/2"	8"	6"	12"	25"	
#7	5 1/4"	10"	7"	14"	32"	
#8	6"	11"	8"	16"	42"	
#9	9 1/2"	15"	11 3/4"	19"	53"	
#10	10 3/4"	17"	13 1/4"	22"	67"	

NOTES:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E - EPOXY COATED REINFORCEMENT.
S - STIRRUP.
X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. - NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE (NEAREST INCH).
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.



BENDING DIAGRAMS

NO.	REVISIONS	DATE	BY	APP.
1	ADDED	12/15	JDM	JDM

DATE: N/A
DATE: 5-14
DATE: 5-14
DATE: 5-14
DESIGNED BY: JDM
DRAWN BY: AFS
CHECKED BY: JDM
FIELD BOOK: N/A
AS SHOWN
THIS BAR WILL MEASURE 1" WHEN PRINTED AT FULL SCALE

SMITH & CO. ENGINEERS
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CIVIL ENGINEERING • SURVEYING • MATERIAL TESTING
ENVIRONMENTAL & GEOTECHNICAL SERVICES • MATERIAL TESTING

DAVIS CROSSING ROAD BRIDGE
ST. FRANCIS COUNTY, MISSOURI
PROJECT #: P140091
SHEET: 13