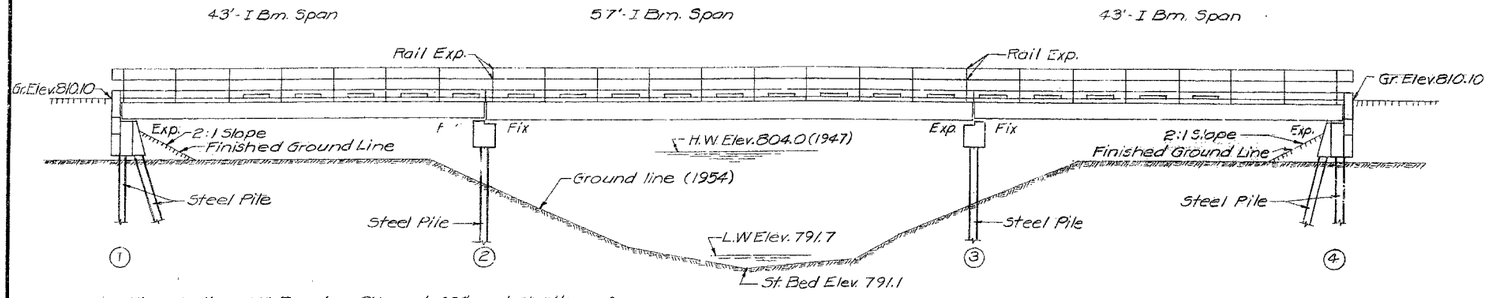
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-1438(1) (SFF)	'59		

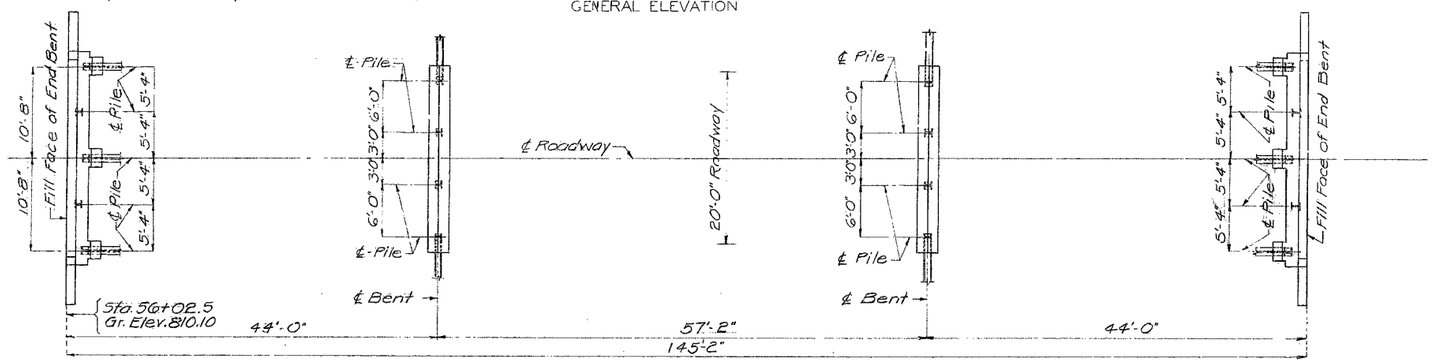


All piling shall be 10" Bearing Piles at 42" and shall conform with details and notes on sheet No. 2 of design plans. Estimated quantities shown on plans are based on the following lengths: 9 at 45'-0" and 9 at 50'-0". These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration will be authorized by the Engineer.

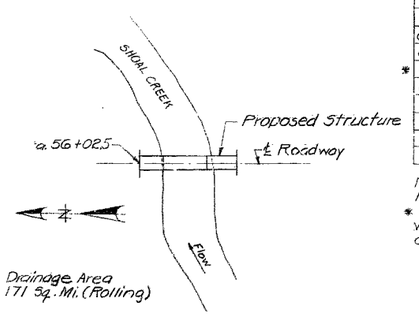
All piles shall be driven to or into solid rock, boulders, shale, or cemented gravel; or to not less than full length authorized and to sustain a load of at least 27.5 ton per pile.

A gravity hammer may be used for driving if desired.

GENERAL ELEVATION



PLAN



LOCATION SKETCH

ESTIMATED QUANTITIES				
Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Yds.	10		10
Class "B" Concrete	Cu. Yds.	39.3	69.8	109.
* Fabricated Structural Steel	Lbs.		64630	64630
Gray Iron Alloy Castings	Lbs.		1280	1280
Reinforcing Steel	Lbs.	4740	13,670	18410
Steel Pile in Place	Lin. Ft.	801		801
Steel Pile Cutoff	Lin. Ft.	54		54

Note: All excavation for bridge will be paid for as Class I Excavation for Structures.

* Final pay weight for Fabricated Structural Steel will be based on using field rivets except for bolted connections specified for handrail.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. (1953)
Loading: H10-44.
Structural Steel Stress: 18,000 #/□".
Reinforcing Steel Stress: 18,000 #/□".
Concrete, Class "B" Stress: 1000 #/□".
All concrete shall be Class "B".
Rivets ¾" ø; holes 15/16" ø except in handrail, where rivets shall be ⅝" ø; holes 11/16" ø.

Field connections shall be riveted except as noted in hand rail details or, if the Contractor desires to eliminate all field riveting on this project, he may use machine bolts except for the ⅝" ø rivet head bolts specified for handrail. Heads and nuts of machine bolts shall be American Standard Regular.

Qualification of welding operators will be required.

Paint: Shop, none; Field, contact surfaces of bolted field connections one coat of red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by Contractor except as noted for steel piles. Red lead required shall be furnished by Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Fabricated Structural Steel.

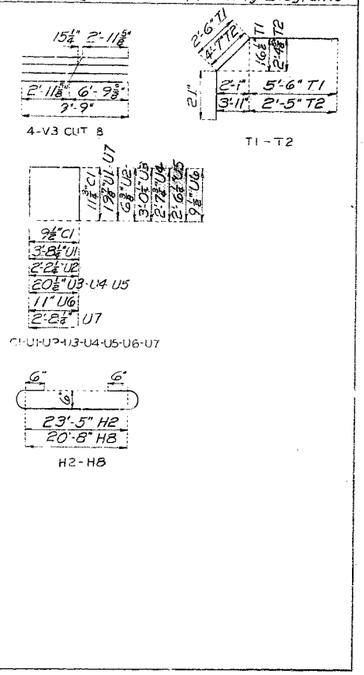
See Section 22-9(c) of Standard Specifications for required painting of steel piles.

Permits must be obtained for all truck loads over legal lengths. Items of material which cannot be transported by truck with overall length less than 75'-0" must be shipped by rail to the specified shipping point.

Where joint filler is specified on the plans it shall conform with the requirements for Premoulded Material for Filler as given in Section 59-22 D of the Standard Specifications.

FINISHED

COMPLETE BILL OF REINFORCING STEEL					
No.	Size	Length	Mark	Location	Bending Sketches & Cutting Diagrams
Superstructure					
208	#5	2'-3"	C1	Curb	
24	#6	23'-0"	C2	"	
12	#6	29'-6"	C3	"	
580	#4	22'-0"	S1	Slab	
128	#4	22'-9"	S2	"	
64	#4	29'-0"	S3	"	
End Bents No. 1 & 4					
4	#6	22'-3"	H1	Backwall	
16	#6	26'-0"	H2	Beam	
8	#6	24'-0"	H3	"	
12	#6	6'-3"	H4	Wing	
4	#6	4'-6"	H5	"	
4	#4	22'-..	H6	Backwall	
8	#6	9'-9"	T1	Wing	
8	#6	8'-9"	T2	"	
96	#4	7'-0"	U1	Beam	
16	#4	3'-3"	U2	"	
48	#7	7'-9"	U3	Buttress	
12	#7	7'-3"	U4	"	
12	#7	6'-9"	U5	"	
88	#5	3'-9"	V1	Backwall	
24	#4	3'-9"	V2	Buttress	
8	#4	9'-9"	V3	Wing	
4	#4	7'-3"	V4	"	
Intermediate Bents No. 2 & 3					
4	#4	21'-3"	H7	Beam	
16	#6	23'-3"	H8	"	
4	#6	21'-3"	H9	"	
52	#4	2'-6"	U6	"	
88	#4	6'-0"	U7	"	
12	#4	3'-3"	U2	"	



B.M. Elev. 803.09 X Nails S. Root 18" Walnut 200'Lt Sta. 52+33 (U.S.G.S. Datum).

BRIDGE OVER SHOAL CREEK

STATE ROAD FROM ROUTE 136 WEST OF LIVONIA SOUTH TO ROUTE SW

ABOUT 18.0 MILES E. OF UNIONVILLE

PROJECT NO. S-1458(1) (SFF) **STA.** 56+02.5

PUTNAM **COUNTY**

SUBMITTED BY J. A. Williams BRIDGE ENGINEER DATE 10-18-1955

APPROVED BY Roy M. Whitten CHIEF ENGINEER DATE 10-18-1955

FINISHED

FINISHED

STD. C-110 R3

P-833

374

Drawn Oct. 1955 by H.G.M.
Checked Oct 1955 by C.S.A.

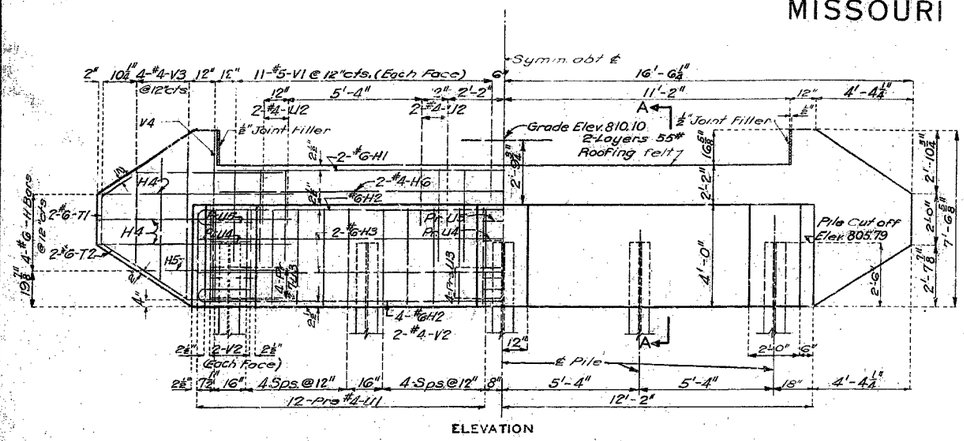
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 4

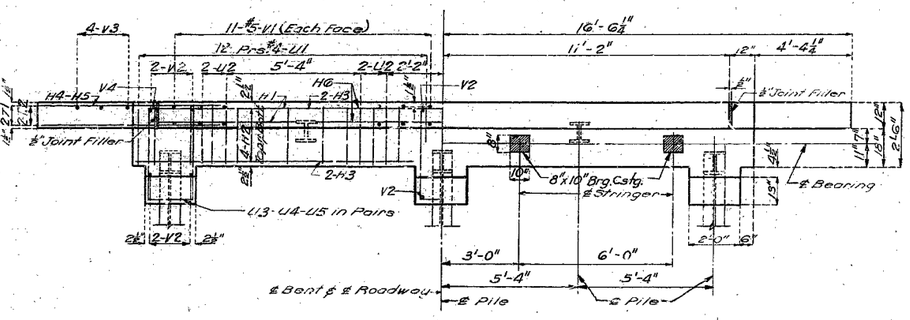
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-1458(1) (SFF)	19		

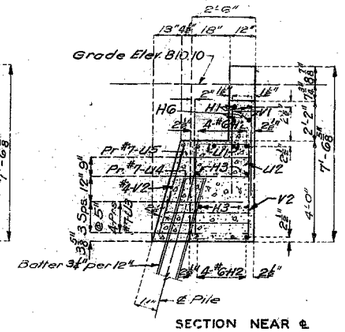


ELEVATION

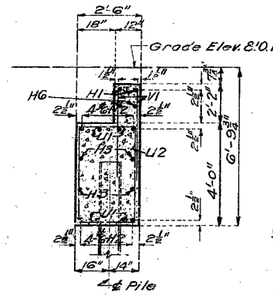


PLAN

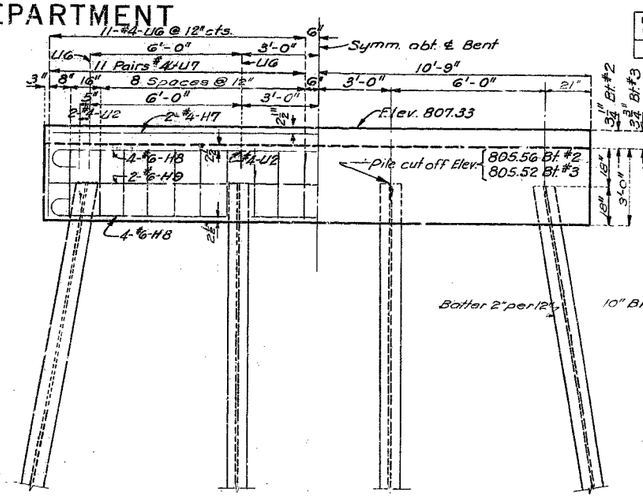
DETAIL OF BENTS NO. 1 & 4



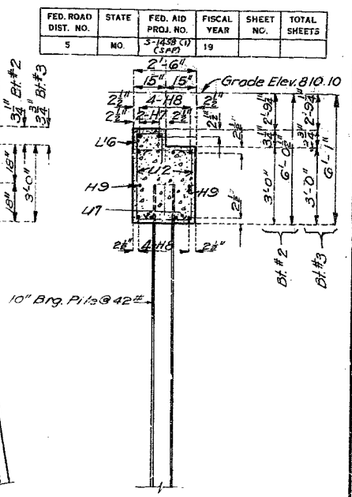
SECTION NEAR ℄



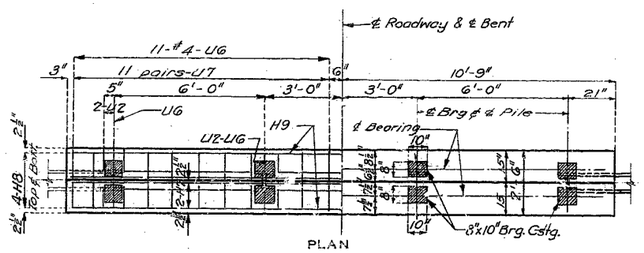
SECTION A-A



ELEVATION

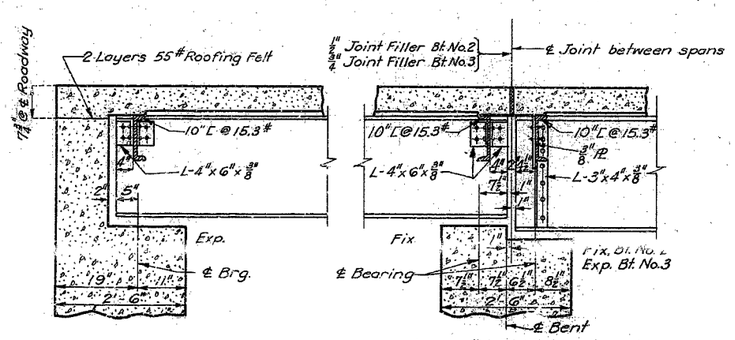


SECTION AT ℄



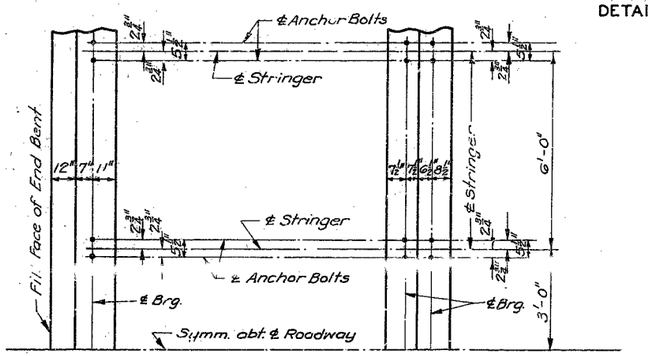
PLAN

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3



END BENTS NO. 1 & 4 INTERMEDIATE BENTS NO. 2 & 3

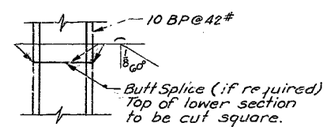
PART LONGITUDINAL SECTION



END BENTS NO. 1 & 4 INTERMEDIATE BENTS NO. 2 & 3

PART ANCHOR BOLT PLAN

FINISHED



DETAILS OF STEEL PILE

BRIDGE OVER SHOAL CREEK

STATE ROAD FROM ROUTE 136 WEST OF LIVONIA SOUTH TO ROUTE 5W
ABOUT 18.0 MILES E. OF UNIONVILLE
PROJECT S-1458(1) (SFF) STA. 56 + 02.5

PUTNAM COUNTY

FINISHED

FINISHED

P-833

Drawn Oct. 1955 by H.E.M.
Traced Oct. 1955 by J.C.B.
Checked Oct. 1955 by C.S.A.

Note: This drawing is not to scale. Follow Dimensions

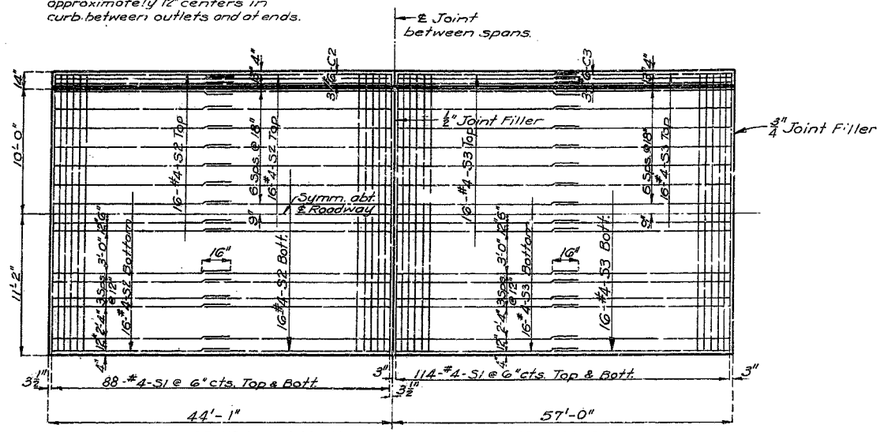
Sheet No. 2 of 4.

375

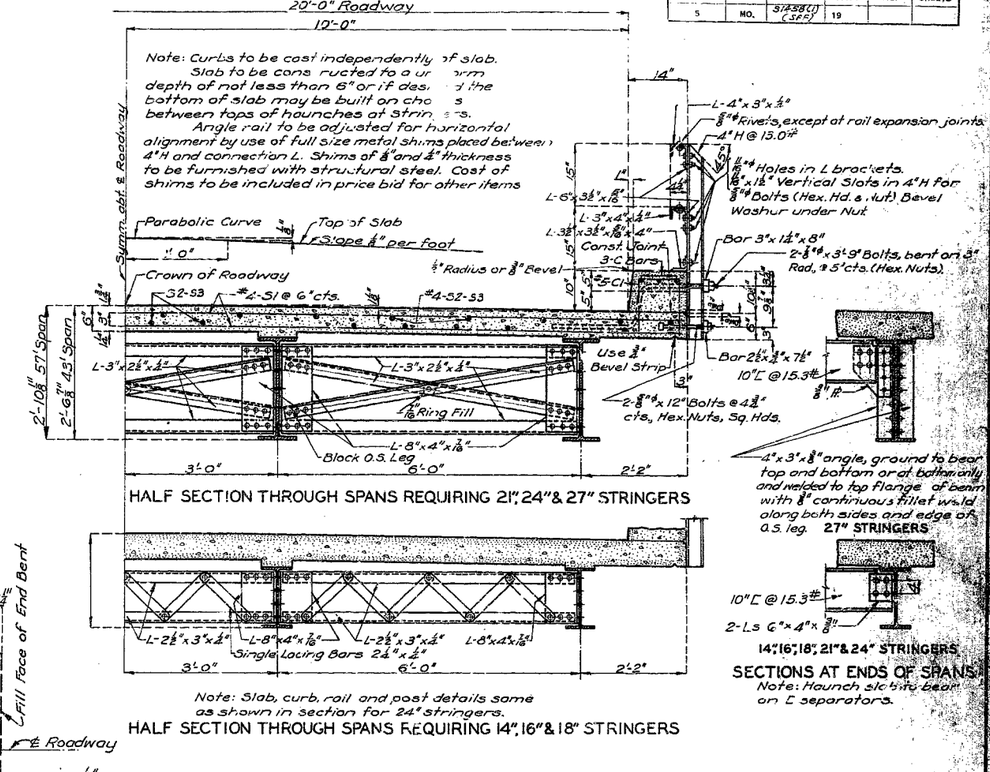
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S1458(1) (SFF)	19		

Note: Space dowel bars C1 at approximately 12" centers in curb between outlets and at ends.



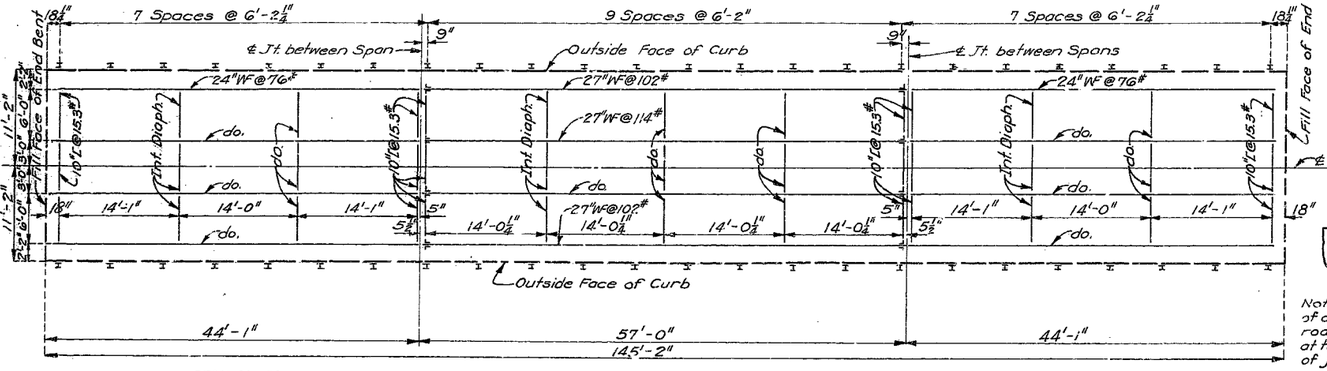
PLAN OF SLAB SHOWING REINFORCEMENT



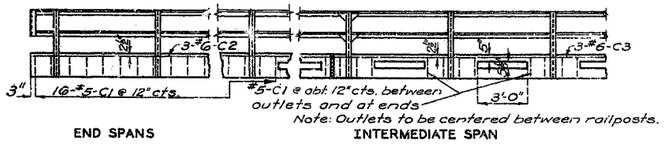
HALF SECTION THROUGH SPANS REQUIRING 21", 24" & 27" STRINGERS

Note: Slab, curb, rail and post details same as shown in section for 24" stringers.

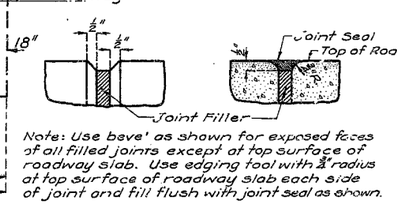
HALF SECTION THROUGH SPANS REQUIRING 14", 16" & 18" STRINGERS



PLAN OF STRUCTURAL STEEL

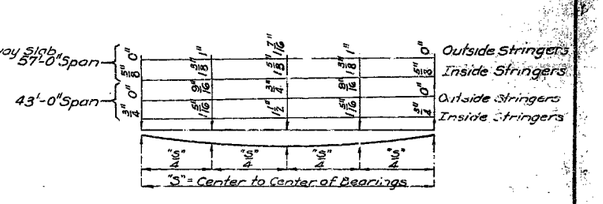


TYPICAL CURB DETAILS



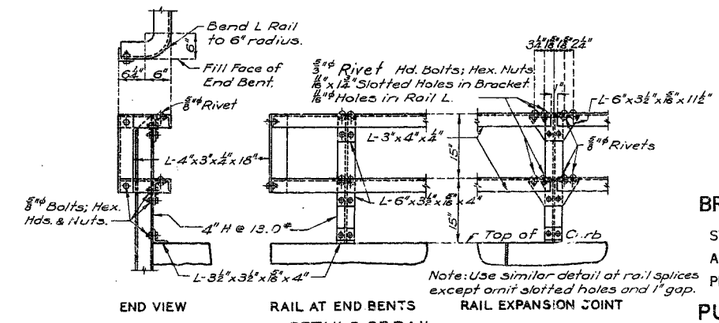
Note: Use bevel as shown for exposed faces of all filled joints except at top surface of roadway slab. Use edging tool with ¾" radius at top surface of roadway slab each side of joint and fill flush with joint seal as shown.

DETAILS OF BEVEL FOR FILLED JOINTS



Note: Slab shall be built parallel to grade and to a minimum thickness of 6". Dead load deflection, vertical curve (if any), crown and any difference in depth of stringers shall be taken care of by haunching the stringers by the amounts shown above. This additional concrete is included in "Estimated Quantities".

SLAB HAUNCHING DIAGRAM



Note: Use similar detail at rail splices except omit slotted holes and 1" gap.

DETAILS OF RAIL

FINISHED

BRIDGE OVER SHOAL CREEK

STATE ROAD FROM ROUTE 136 WEST OF LIVONIA SOUTH TO ROUTE SW ABOUT 18.0 MILES E. OF UNIONVILLE

PROJECT NO. S-1458(1) (SFF) STA. 56 + 02.5

PUTNAM COUNTY

FINISHED

FINISHED

P-833

376

Assembled Oct. 1955 by H.G.M. & J.C.G.
Checked Oct. 1955 by C.S.A.

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

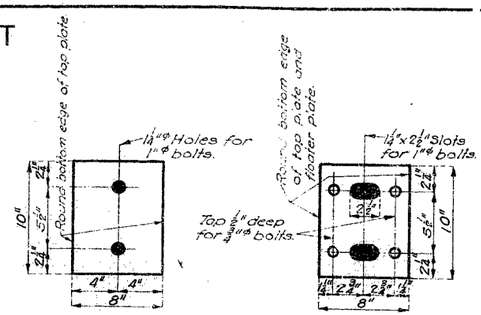
Sheet No. 3 of 4.

NO CONSTRUCTION ... 55

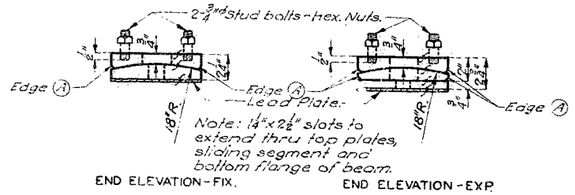
Sq. 20-H10
Rev. Feb. 1955

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	S-1458 (1) (SFF)	19		



BOTTOM PLATES TOP PLATES



END ELEVATION - FIX. END ELEVATION - EXP.

Required: 12 Sets 8"x 10" Each set consists of 5 plates each.

GENERAL NOTES.

Finish all surfaces marked X.

Bearing castings shall be either gray iron alloy or cast steel but payment will be made as gray iron alloy.

All bolts and nuts will be paid for as structural steel.

Anchor bolts shall be 1"ø swedged bolts, no heads or nuts and are to extend 10" into concrete. Top end of anchor bolts shall be above the top of casting, but no higher than ¼" below the top surface of the bottom flange of beam.

All lead plates shall be approximately ⅛" thick and weigh 8#/sq.ft. Cost of lead plates shall be included in price bid for other items.

Edge (A) to be rounded (1/16" to ⅛" radius).

3717

FINISHED

BRIDGE **OVER SHOAL CREEK**

STATE ROAD **FROM ROUTE 136 WEST OF LIVONIA SOUTH TO ROUTE SW**

ABOUT **18.0 MILES E. OF UNIONVILLE**

PROJECT NO. **S-1458(1) (SFF)** STA. **56+02.5**

PUTNAM COUNTY FINISHED

FINISHED

P-833

Assembled Oct. 1955 by H.G.M. & J.C.G.
Checked Oct. 1955 by C.S.A.

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

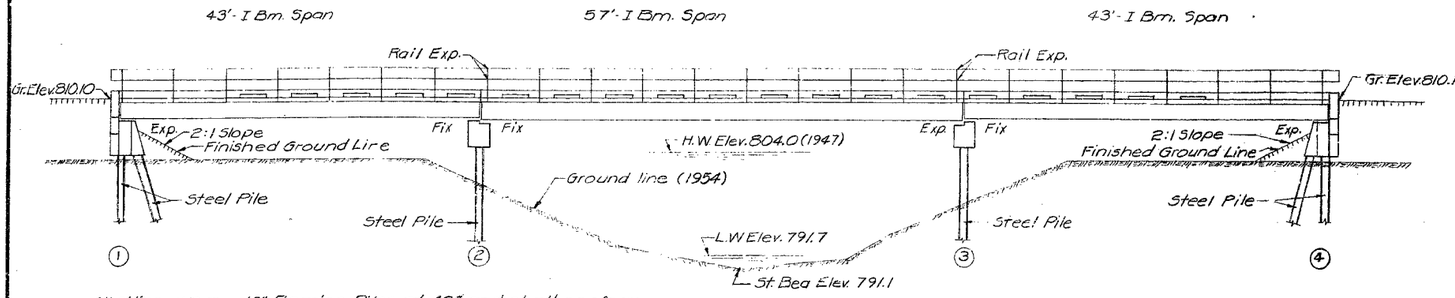
Sheet No. 4 of 4.

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-1458(1) (SFF)	1955		

FINAL PLANS

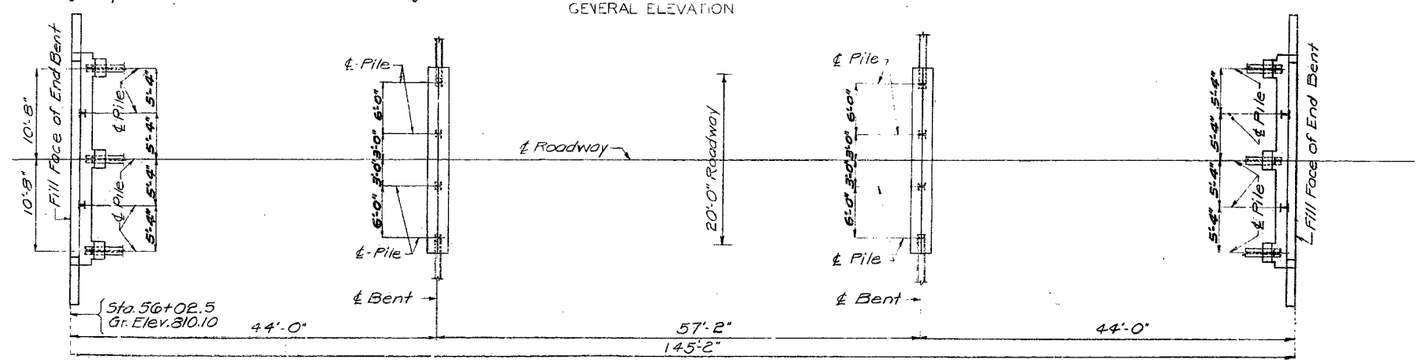


All piling **were** 10" Bearing Piles at 42" and shall conform with details and notes on sheet No. 2 of design plans. **Final** quantities shown on plans are based on the following lengths: 9 at 45'0" and 9 at 50'0" These indicated lengths are approximate only. Proper lengths to give required bearing and/or penetration will be authorized by the Engineer.

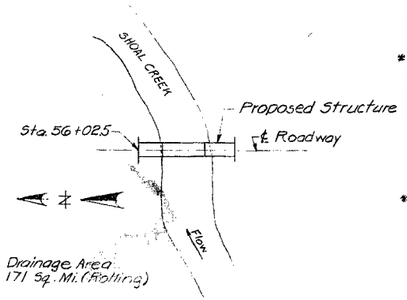
All piles **were** driven to or into solid rock, boulders, shale, or cemented gravel; or to not less than full length authorized and to sustain a load of at least 27.5 ton per pile.

A gravity hammer **was** used for driving.

GENERAL ELEVATION



PLAN



LOCATION SKETCH

FINAL QUANTITIES

Item		Substr.	Superstr.	Total
Class I Excavation for Structures	Cu. Yds.	141.0		141.0
Class "B" Concrete	Cu. Yds.	39.3	62.8	102.1
* Fabricated Structural Steel	Lbs.		54840	54840
Gray Iron Alloy Castings	Lbs.		1280	1280
Reinforcing Steel	Lbs.	4740	13670	18410
Steel Pile in Place	Lin. Ft.	802		802
Steel Pile Cutoff	Lin. Ft.	53		53

Note: All excavation for bridge will be paid for as Class I Excavation for Structures.

* Final pay weight for Fabricated Structural Steel will be based on using field rivets except for bolted connections specified for hand rail.

GENERAL NOTES:

Design Specifications: A.A.S.H.O. (1953)
Loading: H10-44.
Structural Steel Stress: 18,000 #/□".
Reinforcing Steel Stress: 18,000 #/□".
Concrete, Class "B" Stress: 1,000 #/□".
All concrete shall be Class "B".
Rivets ⅞" ϕ; holes 15/16" ϕ except in handrail, where rivets shall be ⅝" ϕ; holes ⅞" ϕ.

Field connections **shall** be riveted except as noted in handrail details on, if the Contractor desires to eliminate all field riveting on this project, he may use machine bolts except for the ⅝" ϕ rivet head bolts specified for handrail. Heads and nuts of machine bolts shall be American Standard Regular.

Qualification of welding operators will be required.

Paint: Shop, none; Field, contact surfaces of bolted field connections one coat of red lead and surfaces inaccesible after erection three coats of red lead. No other paint to be applied by Contractor except as noted for steel piles. Red lead required shall be furnished by Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Fabricated Structural Steel.

See Section 22-9(c) of Standard Specifications for required painting of steel piles.

Permits must be obtained for all truck loads over legal lengths. Items of material which cannot be transported by truck with overall length less than 75'-0" must be shipped by rail to the specified shipping point.

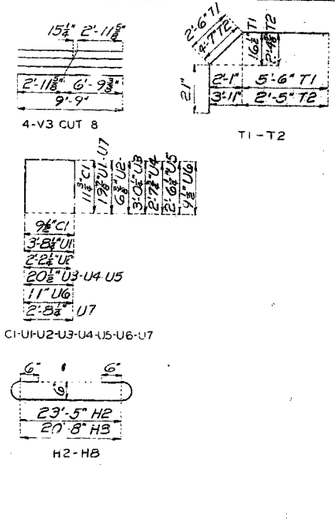
Where joint filler is specified on the plans it shall conform with the requirements for Premoulded Material for Filler as given in Section 59-22 D of the Standard Specifications.

FINISHED

COMPLETE BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
Superstructure				
208	#5	2'-9"	C1	Curb
24	#6	23'-0"	C2	"
12	#6	29'-6"	C3	"
580	#4	22'-0"	S1	Slab
128	#4	22'-9"	S2	"
64	#4	29'-0"	S3	"
End Bents No. 1 & 4				
4	#6	22'-3"	H1	Backwall
16	#6	26'-0"	H2	Beam
8	#6	24'-0"	H3	"
12	#6	6'-3"	H4	Wing
4	#6	4'-6"	H5	"
4	#4	22'-3"	H6	Backwall
8	#6	9'-9"	T1	Wing
8	#6	8'-9"	T2	"
96	#4	7'-0"	U1	Beam
16	#4	3'-3"	U2	"
48	#7	7'-9"	U3	Buttress
12	#7	7'-0"	U4	"
12	#7	6'-9"	U5	"
88	#5	3'-9"	V1	Backwall
24	#4	3'-9"	V2	Buttress
8	#4	9'-9"	V3	Wing
4	#4	7'-3"	V4	"
Intermediate Bents No. 2 & 3				
4	#4	21'-3"	H7	Beam
16	#6	23'-3"	H8	"
4	#6	21'-3"	H9	"
52	#4	2'-6"	U6	"
88	#4	6'-0"	U7	"
12	#4	3'-3"	U2	"

Bending Sketches & Cutting Diagrams



B.M. Elev. 810.20 ⅜" Bolt in N. Side of W. ear of S. Conc. (U.S.G.S. Datum). Abut. Bridge Sta. 56+02.5

BRIDGE OVER SHOAL CREEK

STATE ROAD FROM ROUTE 136 WEST OF LIVONIA SOUTH TO ROUTE 5W

ABOUT 18.0 MILES E. OF UNIONVILLE

PROJECT NO. S-1458(1) (SFF) **STA.** 56+02.5

PUTNAM **COUNTY**

SUBMITTED BY J. A. Williamson BRIDGE ENGINEER DATE 10-18-1955

APPROVED BY Ray M. Whitton CHIEF ENGINEER DATE 10-18-1955

FINISHED

STD. C-110 R3

P-833

Drawn Oct. 1955 by H.G.M.

Checked Oct. 1955 by C.S.A.

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

Sheet No. 1A of 1.

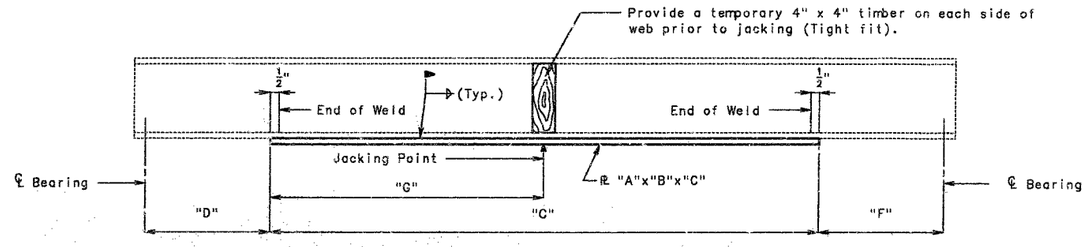
FINISHED

FINAL PLANS

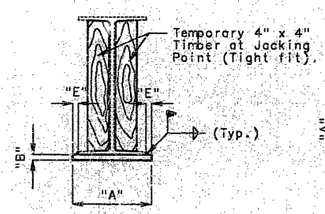
378

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

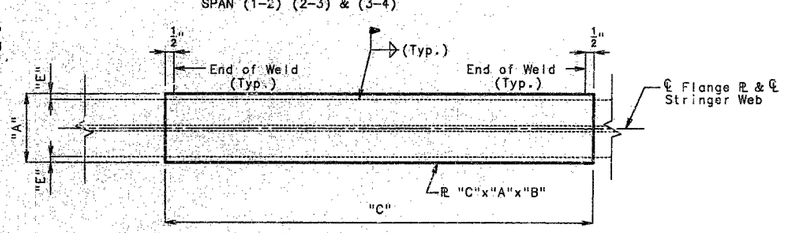
STATE	PROJ. NO.	SHEET NO.
MO.	J2S0583	9
SEC/SUR 6	TWP 65N RGE 15W	



TYPICAL ELEVATION OF STRINGER
SPAN (1-2) (2-3) & (3-4)



SECTION THRU STRINGER



DETAIL OF FLANGE ℞

TABLE OF DIMENSIONS

Stringer Location		Dimensions								
		"A"	"B"	"C"	"D"	"E"	"F"	"G"	*	**
Exterior	Span (1-2)	11"	1"	18'-3"	11'-9¼"	1"	11'-9¼"	9'-1½"	⅝"	29.0
Interior	Span (1-2) & (3-4)	11"	1"	18'-3"	11'-9¼"	1"	11'-9¼"	9'-1½"	¼"	31.0
Exterior	Span (2-3)	12"	1"	23'-6"	16'-3½"	1"	16'-3½"	11'-9"	1 1/16"	34.0
Interior	Span (2-3)	12"	1"	23'-6"	16'-3½"	1"	16'-3½"	11'-9"	1⅛"	37.0

General Notes:

Design Specifications:

A.A.S.H.T.O. 1992

Design Loading:

1993 Missouri Posting Loads. (H20 & 3S2)
No Future Wearing Surface

Design Unit Stresses:

Structural Carbon Steel fy=36,000 psi. (New Steel)
Existing Steel fy=33,000 psi.
Working stress Design based on 68% fy. (Exist.)

Paint:

Calcium Sulfonate (2 coats)(See Special Provisions).

Old and New Work:

Outline of old work is indicated by light dashed lines.
Heavy lines indicate new work.

Dimensions:

Longitudinal dimensions are based on the original design plans.

Traffic:

Maintain one lane of traffic during construction, (See Roadway Traffic Control Plans).

Stringer Support:

All existing stringers in the span being strengthened shall be raised simultaneously * at jacking point and supported during welding of new steel plates.

The temporary supports must be capable of safely supporting a service load of approximately ** tons per stringer. (Factor of safety not included) (See Special Provisions).

ESTIMATED QUANTITIES

ITEM		TOTAL
Strengthening Existing Stringers	Lump Sum	1

WID 5, ,FLA,1,

FLANGE BRACE	REVISED
AUG. 1993	NOV. 1993

DESIGNED: JAN. 1994
DETAILED: JAN. 1994
CHECKED: JAN. 1994

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1 OF 1 .

REPAIRS TO BRIDGE OVER SHOAL CREEK
STATE ROAD FROM RTE. 136 SOUTH TO RTE. W
ABOUT 1.2 MILES SOUTH OF ROUTE 136

PROJECT NO. J2S0583 STA. 56+02.50
JOB NO. J2S0583 RTE. FF

PUTNAM COUNTY

DATE 3/9/94

STD.
STD.
P08331

Bridge Number: P0833R1

Route/County: FF/Putnam

Asbestos-Containing Material Present?

Yes: [X] No: [ ]

If yes, see report for location(s).

Structural Steel Present?

Yes: [X] No: [ ]

If No, then skip the following.

Lead-Based Paint (LBP) Present?

Yes: [ ] No: [X]

Trusses LBP?

Yes: [ ] No: [ ]

Girder LBP?

Yes: [ ] No: [X]

Railing LBP?

Yes: [ ] No: [X]

Pile LBP?

Yes: [ ] No: [X]

MEMORANDUM

Missouri Department of Transportation
Construction and Materials
Central Laboratory

TO: TMS

FROM: Frank Reichart
Environmental Chemist

DATE: February 25, 2016

SUBJECT: Materials
Asbestos Inspection & Heavy Metal Paint Survey
Route FF
Bridge P-0833R1
Putnam County

We are providing you with the results of the inspection on the above referenced bridge. The inspection report contains an asbestos and a heavy metals survey. The asbestos inspection included identifying suspect asbestos-containing material and NVLAP accredited testing to confirm the presence of asbestos.

Form T746 – This will show if samples were taken, where from, and, if the sample was found to contain asbestos, our estimated quantity of material present. Under the column "Friability Category", this is the meaning for the following:

N-ACM – No asbestos detected.
I NF – Asbestos is present. Material shall be handled carefully by a licensed abatement worker and kept wet if removing as part of a maintenance activity.
II NF – Asbestos is present. If removal is required for the maintenance activity, use an abatement contractor.

In accordance with Missouri Department of Natural Resources' Technical Bulletin "Managing Construction and Demolition Waste" dated January 31, 2003, a heavy metal paint survey has been performed on the above referenced bridge. This survey includes locating concrete which has been painted with something other than traffic paint or graffiti, and testing the painted surface(s) to determine if hazardous heavy metals are present. If the bridge is being removed completely, or the maintenance repairs include removing the painted concrete, then, non-hazardous painted concrete may be used as clean fill materials, if properly handled. You must contact the Central Office Design Division for proper handling of the reported painted surfaces.

Although our survey included observing and sampling all accessible areas, it is possible that potentially hidden asbestos-containing materials may exist within the structure. Should you have any questions regarding these reports, please contact me at (573) 526-4359.

db/fr/dr
http://sharepoint/systemdelivery/cm/chemicallab/environmental/shared documents/asbestos/districts/northwest (nw)/mt/p0833r1/dr16022519.docx
Attachments

MISSOURI DEPARTMENT OF TRANSPORTATION
CONSTRUCTION AND MATERIALS
Asbestos Survey Report
All Suspect ACM

ROUTE:	FF	**SURVEYED BY:**	Frank Reichart and Diane Roegge
MODOT JOB NO.:	N/A	**CERTIFICATION #:**	7118110315MOIR11239, F.R.
DISTRICT:	NW	**CERTIFICATION #:**	7118110315MOIR7165, D.R.
COUNTY:	Putnam	**SITE ADDRESS:**	Over Shoal Creek
DATE OF SURVEY:	February 25, 2016	**TYPE(S) OF STRUCTURE(S):**	Bridge
PARCEL NO.:	Bridge P-0833R1		

Sample ID	Type of Materials	Location of Material	Friability Category	Field Measure
16MFJR 086	Asphalt Joint Material	2-Wing Wall Joints (Northeast & Southwest)	I NF	3 Sq. Ft.
16MFJR 087	Asphalt Joint Material	2-Deck and 4-Curb Joints	N-ACM	
	Bridge Paint is not a suspect ACM per MSDS's on file.			

N-ACM = Non-Asbestos Containing Material I NF = Category I Nonfriable II NF = Category II Nonfriable F = Friable
NAFD = No Asbestos Fiber Detected * = Tested By Point Count Procedure

MISSOURI DEPARTMENT OF TRANSPORTATION
CONSTRUCTION AND MATERIALS
Asbestos Survey Report
Nonfriable Asbestos-Containing Materials
(Abatement not required if not made friable during demolition.)

ROUTE:	FF	**TESTED BY:**	Diane Roegge
MODOT JOB NO.:	N/A	**CERTIFICATION #:**	7118110315MOIR7165, D.R.
DISTRICT:	NW	**SITE ADDRESS:**	Over Shoal Creek
COUNTY:	Putnam	**TYPE(S) OF STRUCTURE(S):**	Bridge
DATE OF TESTS:	March 14, 2016		
PARCEL NO.:	Bridge P-0833R1		

Sample ID	Type of Material	Location of Material	Friability Category	Field Measure	Asbestos Type	Percent
16MFJR 086	Asphalt Joint Material	2-Wing Wall Joints (Northeast & Southwest)	I NF	3 Sq. Ft.	Chrysotile	1-3

All necessary work to handle this material is the contractor's responsibility.

I NF = Category I Nonfriable

MISSOURI DEPARTMENT OF TRANSPORTATION
CONSTRUCTION AND MATERIALS
Asbestos Survey Report
All materials requiring removal or special handling.

ROUTE:	FF	**TESTED BY:**	Diane Roegge
MODOT JOB NO.:	N/A	**CERTIFICATION #:**	7118110315MOIR7165, D.R.
DISTRICT:	NW	**SITE ADDRESS:**	Over Shoal Creek
COUNTY:	Putnam	**TYPE(S) OF STRUCTURE(S):**	Bridge
DATE OF TESTS:	March 14, 2016		
PARCEL NO.:	Bridge P-0833R1		

Bid Item No.	Sample ID	Type of Material	Location of Material	Friability Category	Field Measure	Asbestos Type	Percent
			None Located	F			
			None Located	II NF			

I NF = Category I Nonfriable II NF = Category II Nonfriable F = Friable * = Tested By Point Count Procedure

MISSOURI DEPARTMENT OF TRANSPORTATION
CONSTRUCTION AND MATERIALS
Metals Survey Report of Painted Concrete, Block, Brick Surfaces for Clean Fill Purposes

ROUTE:	FF	**TESTED BY:**	N/A
MODOT JOB NO.:	N/A	**DATE OF TESTS:**	N/A
DISTRICT:	NW	**PARCEL NO.:**	Bridge P-0833R1
COUNTY:	Putnam	**SITE ADDRESS:**	Over Shoal Creek
SURVEYED BY:	Frank Reichart	**TYPE(S) OF STRUCTURE(S):**	Bridge
DATE OF SURVEY:	February 25, 2016		

Sample ID	Color/Location of Material/Substrate	Metals (ppm)							
		As	Cr	Pb	Cd	Se	Ba	Hg	Ag
	No samples taken. No painted surfaces located.								

All results are by XRF unless otherwise indicated: a = USEPA SW-846 Method 3050
b = USEPA SW-846 Method 7471

MEMORANDUM

Missouri Department of Transportation
Construction and Materials
Central Laboratory

TO: TMS

FROM: Frank Reichart
Environmental Chemist, Lead License #110506-300003364

DATE: October 29, 2018

SUBJECT: Materials
Job No. N/A
FF/Putnam County
Bridge# P0833R1

On October 29, 2018, a paint screening for regulated heavy metals was performed on the subject bridge. The following results were obtained:

	18MFJR734
Arsenic (As)	LOD*
Chromium (Cr)	205 ppm**
Lead (Pb)	268 ppm
Cadmium (Cd)	LOD
Selenium (Se)	LOD
Barium (Ba)	606 ppm
Mercury (Hg)	LOD
Silver (Ag)	LOD

*LOD = below the detection limit of the instrument
**ppm = parts per million

TMS paint data indicated a System C Al paint, applied in 1991. The results verify the information found in TMS.

The existing paint system is NOT lead-based paint.

Should any further screenings be required, please contact Todd Bennett, Chemical Laboratory Director, at (573) 751-1045.

Should you have any questions regarding the screenings, feel free to call me at (573) 526-4359.

fr/dr
http://sharepoint/systemdelivery/cm/chemicallab/environmental/shared documents/asbestos/districts/northwest (nw)/mt/p0833r1/lbp xrf p0833r1.docx

Expiration Date **12/2/2016**

Training Date: **11/3/2015**

Certificate Number: 7118110315MOIR11239

Missouri State Certificate for Asbestos Related Occupations

issued by Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
Phone (573) 751-4817

Francis J. Reichart

has successfully completed the requirements for certification as a INSPECTOR. This Missouri State Certification is subject to review and the director may deny, suspend or revoke the certification per RSMo chapter 643.230.

12/3/2015
Date

Kyra L Moore
Director of Air Pollution Control Program

Expiration Date **12/2/2016**

Training Date: **11/3/2015**

Certificate Number: 7118110315MOIR7165

Missouri State Certificate for Asbestos Related Occupations

issued by Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
Phone (573) 751-4817

Diane R. Roegge

has successfully completed the requirements for certification as a INSPECTOR. This Missouri State Certification is subject to review and the director may deny, suspend or revoke the certification per RSMo chapter 643.230.

12/3/2015
Date

Director of Air Pollution Control Program

Missouri Department of Transportation
State Bridge Inspection Report

December 03, 2024
7:34:50AM

COUNTY: PUTNAM **DISTRICT: NW** **CLASS: STATBR** **FED-ID: 8041** **BRIDGE: P0833**

GENERAL STRUCTURE INFORMATION

ROUTE: RTFFS	**# SPANS:** 3	**PLACE CODE:** 28522 GRANT	
FEATURE: SHOAL CR	**LANES ON:** 2	**LENGTH:** 145 FT 0 IN	
STATUS: P-POSTLOAD	**LANES UNDER:** 0	**MAXIMUM SPAN:** 57 FT 2 IN	
LOG MILE: 0.998	**COMPASS DIRECTION:** NORTH to SOUTH	**APPROACH ROADWAY:** 18 FT 0 IN	
DETOUR: 21.00 MILES	**DIRECTION OF TRAFFIC:** 2-WAY TRAF	**CURB TO CURB:** 20 FT 0 IN	
NHS: NO	**FUNCTIONAL CLASS:** RL-MINOR COLLECTOR	**OUT TO OUT:** 22 FT 4 IN	
BUILT: 1955	**NBI OWNER:** MODOT	**AADT:** 86	
REHAB: 1994	**NBI MAINTAINED:** MODOT	**AADT YEAR:** 2023	
LOCATION: S 32 T 66 R 16 W	**MAINTENANCE DISTRICT:** NW	**AADT TRUCK:** 11.6%	
LATITUDE: 40 28 17.22 (DMS)	**MAINTENANCE COUNTY:** PUTNAM	**FUTURE AADT:** 108	
LONGITUDE: 92 43 31.84 (DMS)	**SUB AREA:** 7A24	**FUTURE AADT YEAR:** 2043	

BRIDGE INSPECTION INFORMATION

DATE: 12/14/2023 **RESPONSIBILITY:** DISTRICT
FREQUENCY: 24 **CALCULATED INTERVAL**:** 24
TEAM LEADER: BRYCE ACTON **ELEMENT:** NO
INSPECTOR 2: **INSPECTOR 4:**
INSPECTOR 3:

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

GENERAL INSPECTION COMMENTS

FRACTURE CRITICAL INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

FRACTURE CRITICAL INSPECTION COMMENTS

INDEPTH INSPECTION INFORMATION

DATE: **RESPONSIBILITY:** **CATEGORY:**
FREQUENCY: **CALCULATED INTERVAL**:** **NBI:**
TEAM LEADER: **INSPECTOR 3:** **METHOD:**
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

INDEPTH INSPECTION COMMENTS

SPECIAL INSPECTION INFORMATION

DATE: 06/02/2021 **RESPONSIBILITY:** DISTRICT **CATEGORY:** CHANNEL CROSS SEC
FREQUENCY: 72 **CALCULATED INTERVAL**:** 82 **NBI:** NO
TEAM LEADER: SCOTT STEPHENS **INSPECTOR 3:** **METHOD:** WT TAPE
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

SPECIAL INSPECTION COMMENTS

UNDERWATER INSPECTION INFORMATION

DATE: 12/14/2023 **RESPONSIBILITY:** DISTRICT **CATEGORY:** DRY
FREQUENCY: 60 **CALCULATED INTERVAL**:** 24 **NBI:** NO
TEAM LEADER: BRYCE ACTON **INSPECTOR 3:** **METHOD:** VISUAL
INSPECTOR 2: **INSPECTOR 4:**

** When calculated interval exceeds the frequency, a justification comment per BIRM is required.

UNDERWATER INSPECTION COMMENTS

OTHER SPECIAL INSPECTIONS

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

OTHER UNDERWATER INSPECTIONS

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

COUNTY: PUTNAM **DISTRICT: NW** **CLASS: STATBR** **FED-ID: 8041** **BRIDGE: P0833**

STRUCTURE POSTING

APPROVED CATEGORY: S-11 TRUCKS OVER 18 TONS 15 MPH ON BRIDGE EXCEPT TRUCKS WEIGHT LIMIT 39 TONS.
Ton 1: 18 **Ton 2:** 39 **Ton 3:**
COMMENTS:

FIELD CATEGORY: S-11 TRUCKS OVER 18 TONS 15 MPH ON BRIDGE EXCEPT TRUCKS WEIGHT LIMIT 39 TONS.
Ton 1: 18 **Ton 2:** 39 **Ton 3:** **PROBLEM:** **PROBLEM DIRECTION:**
COMMENTS:

GENERAL COMMENTS/MAJOR RATED ITEMS

GENERAL COMMENTS: (BOWDEJ1, 02/10/2010)--(44'-57'-44') CONT NON-COMP WF GDR SPANS (STRENGTHEN ALL GDRS 1994)

[ITEM 58] DECK: 4-POOR CONDITION
RATING : 01/12/2018
COMMENTS: (STEPHS2, 02/17/2012)--SATURATION SPAN 2 AND 3.
(ACTONB1, 12/27/2023)--MANY LARGE PATCHES THROUGHOUT

[ITEM 59] SUPER: 6-SATISFACTORY CONDITION
RATING : 01/02/2014
COMMENTS: (STEPHS2, 01/02/2014)--RUST AT JOINTS

[ITEM 60] SUB: 5-FAIR CONDITION
RATING : 01/12/2018
COMMENTS: (STEPHS2, 12/24/2019)--SL AT BENT 2 AND 3.

[ITEM 61] BANK/CHANNEL: 5-MAJOR DAMAGE
RATING : 12/23/2010
COMMENTS: (BOWDEJ1, 10/19/2004)--CHANNEL DEEPENING & ERODING UNDER OUTLETS
(MARTEP, 12/23/2010)--LOTS OF DOWNSTREAM BANK EROSION.
(MENEET, 03/01/2012)--RIP-RAP ADDED IN 2010 ON SOUTH BANK.

[ITEM 113] SCOUR: 8-STABLE FOR CALCULATED
RATING : 05/18/2001
EVALUATION TYPE :
COMMENTS: (ACTONB1, 12/27/2023)--MINOR SCOUR @ BENTS 2/3

[ITEM 71] WATERWAY ADEQUACY: DECK/APPRCH OVERTOP SLIGT
RATING : 05/18/2001
COMMENTS:

[ITEM 72] APPRRDWY ALIGNMENT: 8-VERYGOOD
RATING : 05/18/2001
COMMENTS:

RAILING AND APPROACH PAVEMENT COMPONENTS AND RATINGS

[ITEM 36A] BRIDGE RAILING RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *01/09/2004* ***COMMENTS:***

MATERIAL	***CONSTRUCTION***	***DIRECTION***	***COMMENTS***
REINFORCED CONCRETE	CURB	BOTH	
STEEL	ANGLE-DOUBLE	BOTH	

[ITEM 36B] TRANSITION RAILING RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

[ITEM 36C] APPROACH RAILING RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

[ITEM 36D] RAIL END TREATMENT RATING: *NOT PROVIDED-0* ***RATING :*** *05/18/2001* ***COMMENTS:***

APPROACH PAVEMENT: *Overall condition assigned for each approach pavemenet component is shown below.

MATERIAL	CONSTRUCTION	DIRECTION	CONDITION*	COMMENTS
ASPHALT	BITUMINOUS MAT	BOTH	GOOD	

DRAINAGE, EXPANSION DEVICES, BANK/SLOPE, AND DECK PROTECTIVE COMPONENTS

DECK PROTECTIVE COMPONENTS:

SERIES TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	THICKNESS	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION
MAIN SERIES-1	*WEARING SURFACE*	*ASPHALT*	*BITUMINOUS SEAL COAT*				*FAIR*

COMMENT:

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
PATCHES	THROUGHOUT		LARGE	

DECK PROTECTION	*NOTAPPLICABLE*	*NONE*	

COMMENT:

MEMBRANE	*NOTAPPLICABLE*	*NONE*	

COMMENT:

DRAINAGE COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
DRAINAGE	*REINFORCED CONCRETE*	*CURB OUTLET*		

EXPANSION DEVICE COMPONENTS:

SUB UNIT-#	SUB LABEL	COMPONENT	MATERIAL	CONSTRUCTION	GAP	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION

COMMENT:

BANK/SLOPE PROTECTION COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
BANK PROTECTION	*ROCK*	*RIP RAP*	*BOTH*	

DECK COMPONENTS

SPAN TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	COMMENTS
MAIN SPANS-1	*DECK*	*REINFORCED CONCRETE*	*CAST-IN-PLACE*	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT OUTLETS		MINOR		
EFFLORESCENCE	THROUGHOUT		MINOR		
PATCHES	THROUGHOUT		LARGE	20 %	
TRANSVERSE CRACKS	THROUGHOUT		MANY		

SPAN TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	COMMENTS
MAIN SPANS-2	*DECK*	*REINFORCED CONCRETE*	*CAST-IN-PLACE*	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT OUTLETS		MINOR		
EFFLORESCENCE	THROUGHOUT		MODERATE		
PATCHES	THROUGHOUT		LARGE	25 %	

SATURATION	THROUGHOUT		MODERATE	40 %
TRANSVERSE CRACKS	THROUGHOUT		MANY	

MAIN SPANS-3 *DECK* *REINFORCED CONCRETE* *CAST-IN-PLACE*

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	AT OUTLETS		MINOR		
EFFLORESCENCE	THROUGHOUT		MINOR		
PATCHES	THROUGHOUT		LARGE	20 %	
SATURATION	THROUGHOUT		MINOR	20 %	
TRANSVERSE CRACKS	THROUGHOUT		MANY		

SUPERSTRUCTURE COMPONENTS

SERIES TYPE-#	SPAN TYPE	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
MAIN SERIES-1	*CONTINUOUS SPAN*	*STEEL*	*WIDE FLANGE GIRDERS*		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-1	NON-COMPOSITE	44 FT 0 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
RUSTING	THROUGHOUT		MINOR		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-2	NON-COMPOSITE	57 FT 2 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
RUSTING	THROUGHOUT		MINOR		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-3	NON-COMPOSITE	44 FT 0 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
RUSTING	THROUGHOUT		MINOR		

SUBSTRUCTURE COMPONENTS

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
ABUTMENT-1		*24 FT 4 IN*	*REINFORCED CONCRETE*	*NON-INTEGRAL*		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

ASSOCIATED COMPONENT	MATERIAL	CONSTRUCTION
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
EFFLORESCENCE	THROUGHOUT		MEDIUM		
HORIZONTAL CRACKS	THROUGHOUT		MEDIUM		

PILING	STEEL		H-SHAPE		
CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
STRAIGHT WINGS	REINFORCED CONCRETE		CAST-IN-PLACE		
CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
BACKWALL	REINFORCED CONCRETE		CAST-IN-PLACE		
CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
FIXED BEARING	STEEL		CURVED PLATE(ROTATING		
CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

BENT-2 *21 FT 6 IN* *REINFORCED CONCRETE* *PILE CAP* *(BOWDEJ1, 01/28/2008)-- (26' DECK TO GROUNDLINE 11/07/07)*

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT

ASSOCIATED COMPONENT	MATERIAL	CONSTRUCTION
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
PILING	STEEL	H-SHAPE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
LOCAL SCOUR	GROUND LINE		PILE EXPOSED		
SECTION LOSS	GROUND LINE		INITIAL		
FIXED BEARING	STEEL	CURVED PLATE(ROTATING			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**

BENT-3 21 FT 6 IN REINFORCED CONCRETE PILE CAP (BOWDEJ1, 01/28/2008)-- (23.4' DECK TO GROUNDLINE 11/07/07)

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
PILING	STEEL	H-SHAPE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
LOCAL SCOUR	GROUND LINE		PILE EXPOSED		
SECTION LOSS	GROUND LINE		INITIAL		
FIXED BEARING	STEEL	CURVED PLATE(ROTATING			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**

ABUTMENT-4 24 FT 4 IN REINFORCED CONCRETE NON-INTEGRAL

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
DETERIORATION	THROUGHOUT		MINOR		
EFFLORESCENCE	THROUGHOUT		MEDIUM		
HORIZONTAL CRACKS	THROUGHOUT		MEDIUM		
SCALING	THROUGHOUT		LIGHT		
PILING	STEEL	H-SHAPE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
STRAIGHT WINGS	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
BACKWALL	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**
FIXED BEARING	STEEL	CURVED PLATE(ROTATING			
CONDITION	**LOCATION 1**	**LOCATION 2**	**SEVERITY**	**MEASUREMENT**	**COMMENT**

OVER/UNDER ROUTES CLEARANCE INFORMATION

CLEARANCES OVER DECK

**NOTE: Vertical clearances for permitting purposes are taken as 2 inches less than the actual field measured clearance.

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT

COUNTY: PUTNAM DISTRICT: NW CLASS: STATBR FED-ID: 8041 BRIDGE: P0833

CLEARANCES UNDER BRIDGE

**NOTE: Vertical clearances for permitting purposes are taken as 2 inches less than the actual field measured clearance.

RECORD #	ROUTE	# LANES	DIRECTION OF TRAFFIC	RIGHT LATERAL CLEARANCE	LEFT LATERAL CLEARANCE	UR-ID

VERTICAL CLEARANCE TYPE**	VALUE	DIRECTION	DATE	COMMENT

STRUCTURE PAINT INFORMATION

CONDITION: GOOD **RUST AMOUNT :** 7 = .2% OF SURFACE RUSTED **STEEL TONS :** 33

ORIGINAL PAINT	CONTRACT REPAINT	DEPARTMENT REPAINT	
PAINT TYPE :	**PAINT TYPE :**	**PAINT TYPE :** C SYSTEM	**MANUFACTURE :**
NAME :	**NAME :**	**NAME :** INORGANIC ZINC/VINYL	**SURFACE PREP :**
PAINT COLOR :	**PAINT COLOR :**	**PAINT COLOR :** ALUMINUM	
PAINT YEAR :	**PAINT YEAR :**	**PAINT YEAR :** 1991	
MILS :	**MILS :**	**MILS :** 8	

REQUESTED WORK ITEMS

GENERAL WORK COMMENTS:

RESPONSIBILITY	LOCATION	ITEM	CATEGORY	PRIORITY	DATE	WORK ITEM COMMENT

UTILITY ATTACHMENTS

UTILITY	OWNER	METHOD	MEASUREMENT TYPE	VALUE	NUMBER	UTILITY ATTACHMENT COMMENT

PROGRAM NOTES INFORMATION

YEAR	PROJECT #	MONTH LET	YEAR LET	ITEMS	COMMENT

Design_No = p0833

COMPUTER GENERATED RATINGS AND DEFICIENCY ITEMS

NOTE: The items listed in this section are updated whenever computer edits are ran on a structure after the inspection updates have been entered in to TMS.

Rated Item	Rating	Rating Date
[Item 67] Structure Evaluation Rating:	4-MEETS MINIMUM TOLERABLE	2/8/2011
[Item 68] Deck Geometry Rating:	5-BETTER THAN MINIMUM	1/4/2017
[Item 69] Underclearance:	N-NOT APPLICABLE	5/18/2001
Sufficiency Rating:	52.0%	1/24/2022
Deficiency:	STRUCTURAL	1/22/2018
Funding Eligibility:		----
Estimated New Structure Length:		----
Estimated Structure Cost:		----
Estimated Total Project Cost:		----
Year of Cost Estimate:		----

NOTE: The above structure length and cost estimates are computer generated using algorithims in the TMS system. These algorthims are generalized to use NBI items to come up with a new structure length and width to calculate a new area which is taken times a representative cost per square foot. The actual structure size and cost may vary significantly from these numbers once site specific engineering is done.

ADVANCED SIGN INFORMATION

SIGN #	SIGN TYPE	PROBLEM	PROBLEM DIRECTION
1			

OUTFALL INSPECTION INFORMATION

 # OUTFALLS: **INSPECTOR:**

STATUS: **DATE:**

NOTES:

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

December 3, 2024
7:29:33am

COUNTY : PUTNAM **BRIDGE :** P0833 1 **REVIEW STATUS :** APPROVED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 11/27/2024 **SUBMITTAL YEAR :** 2024

GENERAL STRUCTURE INFORMATION

1	State	MISSOURI
2	District	NW
3	County	PUTNAM
8	Federal ID No.	8041
27	Year Built	1955
106	Year Reconstructed	1994
42A	Type of Service On	HIGHWAY
21	Structure Maintenance	STATE HIGHWAY AGENCY
22	Structure Owner	STATE HIGHWAY AGENCY
33	Br. Median Code	NO MEDIAN
37	Historical Significance	HISTORICAL SIGNIF UNKNWN
101	Parallel Struc Desg	NONE EXISTS
103	Temporary Structure	NOT TEMPORARY
112	NBIS Bridge Length	YES

ROUTE DESIGNATION INFORMATION

5A	Record Type	ROUTE CARRIED 'ON' STRUCT
5B	Route Signing Prefix	MO
5C	Designated Level of Service	MAINLINE
5D	Route Number	000FF
5E	Directional Suffix	NOT APPLICABLE
7	Facility Carried	RT FF S
12	Base Hwy. Network	NO
13A	LRS Inventory Route No.	
13B	Subroute No.	
20	Toll Status	ON FREE ROAD
26	Functional Classification	08-RURAL MINOR COLLECTOR
28A	Lanes on Structure	02
100	STRAHNET Designation	RTE NOT A DEFENSE HWY
104	National Highway System	NOT ON NHS
105	Federal Lands Highway	NOT APPLICABLE
110	Designated Nat. Network	NO

STRUCTURE LOCATION INFORMATION

4	Place	GRANT
	Code	28522
9	Location	S 32 T 66 N R 16 W
11	Milepoint	1.00 miles
16	Latitude	40 D 28 M 17 S
17	Longitude	92 D 43 M 32 S

STRUCTURE TRAFFIC INFORMATION

29	AADT	86
30	AADT Year	2023
102	Direction of Traffic	2-WAY TRAFFIC
109	AADT Truck Percent	12%
114	Future AADT	108
115	Future AADT Year	2043

UNDERRECORD INFORMATION

6	Features Intersected	SHOAL CR
42B	Type of Service Under	WATERWAY
28B	Lanes Under Structure	00
54A	Vert. Clearance Ref.	N/A
54B	Vert. Clearance	0 Ft. 0 In.
55A	Rt. Lat Clear Ref.	N/A
55B	Rt. Lat Clearance	0 Ft. 0 In.
56	Left Lat Clearance	0 Ft. 0 In.
38	Navigation Control	PERMIT NOT REQ
39	Nav Vertical Clear	0 Ft. 0 In.
40	Nav Horizontal Clear	0 Ft. 0 In.
111	Nav. Pier Protection	
116	Nav. Cl. Vert. Clear	

STRUCTURE GEOMETRIC INFORMATION

10	Inventory Rte. Vert. Clear	99 Ft. 99 In.
19	By pass Detour Length	21.25 miles
32	Approach Roadway Width	18 Ft. 1 In.
34	Skew	0.00 Degrees
35	Struct. Flared	NO
47	Total Horiz. Clear	20 Ft. 0 In.
48	Maximum Span Length	57 Ft. 1 In.
49	Structure Length	145 Ft. 0 In.
50A	Left Curb/Sidewalk Width	0 Ft. 0 In.
50B	Right Curb/Sidewalk Width	0 Ft. 0 In.
51	Curb to Curb Br. Width	20 Ft. 0 In.
52	Deck Width (Out-Out)	22 Ft. 4 In.
53	Vert.Clearance Over Deck	99 Ft. 99 In.

Design_No = p0833 and Inventory_Appraisal_Submittal_Year = 2024

Missouri Department of Transportation
Bridge Inventory and Inspection System
Structural Inventory & Appraisal Sheet

December 3, 2024
7:29:33am

COUNTY : PUTNAM **BRIDGE :** P0833 1 **REVIEW STATUS :** APPROVED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 11/27/2024 **SUBMITTAL YEAR :** 2024

LOAD RATING AND POSTING INFORMATION

31	Design Load	H 10
41	Structure Status	POSTED FOR LOAD
63	Oper. Rating Meth.	ALLOWABLE STRESS
64	Operating Rating	26 Tons.
65	Inventory Rating Meth	ALLOWABLE STRESS
66	Inventory Rating	14 Tons.
70	Bridge Posting Code	20.0-29.9% BELOW

PROPOSED IMPROVEMENT INFORMATION

	Sufficiency Rating	52.0 Percent
	Deficiency Rating	STRUCTURAL
	Funding Eligibility	PARTIAL
75A	Proposed Work	REHAB-GENERAL DETERIORAT
75B	Work Done By	Contract
76	New Struc Length	177 Ft. 2 In.
94	Struc Improve Cost	$ 626,000
95	Roadway Improve Cost	$ 63,000
96	Total Project Cost	$ 939,000
97	Year of Cost Estimates	2024

APPRAISAL RATING INFORMATION

36A	Br. Rail App. Rating	DOES NOT MEET ACCEPT STND
36B	Transition Rail App. Rating	DOES NOT MEET ACCEPT STND
36C	Approach Rail App. Rating	DOES NOT MEET ACCEPT STND
36D	Rail End Treat. App. Rating	DOES NOT MEET ACCEPT STND
67	Struc Eval App. Rating	4
68	Deck Geometry App. Rating	5
69	Underclearance App. Rating	N
71	Waterway Adeq. App. Rating	7
72	Approach Road App. Rating	8
113	Scour Assess App. Rating	8

MATERIAL/CONSTRUCTION INFORMATION

43A	Main Struc. Mat type	STEEL CONTINUOUS
43B	Main struc Constr. Type	STRINGER/MULTIBEAM - GRD
45	# of Main Spans	3
44A	Appr Struc. Mat type	000
44B	Appr Struc. Cnstr. type	000
46	# of Approach Span	0
107	Deck Mat/Constr.	1 CONCRETE CIP
108A	Wear Surf Mat/Constr.	6 BITUMINOUS
108B	Membrane Mat/Constr.	0 NONE
108C	Deck Protect Mat/Constr.	0 NONE

CONDITION RATING INFORMATION

58	Deck Cond. Rating	4
59	Superstructure Cond. Rating	6
60	Substructure Cond. Rating	5
61	Channel /Channel Protection Cond. Rating	5
62	Culvert Cond. Rating	N

INSPECTION INFORMATION

90	Gen. Insp Date	12 / 23	
91	Gen. Insp. Frequency	24	Months
92A	Frac. Critical Inspection	N	Months
93A	Frac. Critical Insp. Date		
92B	Underwater Inspection	N	Months
93B	Underwater Insp. Date		
92C	Special Inspection	N	Months
93C	Special Inspection Date		

BORDER BRIDGE INFORMATION

98	Neighboring State Code
98B	Neighboring State % Respon
99	Neighboring State Struc. No.

APPROVED POSTING INFORMATION

Approved Posting Category S-11

	Ton1	Ton2	Ton3
Tonnage Values for Posting Sign	18	39	

General Text for Posting Sign

TRUCKS OVER 18 TONS 15 MPH ON BRIDGE EXCEPT TRUCKS WEIGHT LIMIT 39 TONS.

FIELD POSTING INFORMATION

Field Posting Category S-11

	Ton1	Ton2	Ton3
Tonnage Values for Posting Sign	18	39	

General Text for Posting Sign

TRUCKS OVER 18 TONS 15 MPH ON BRIDGE EXCEPT TRUCKS WEIGHT LIMIT 39 TONS.

Design_No = p0833 and Inventory_Appraisal_Submittal_Year = 2024

Missouri Department of Transportation

STRUCTURAL REHABILITATION CHECKLIST

Bridge No.:	P0833	**Job No.:**	NW0014
Route:	FF	**Over:**	Shoal Creek
County:	Putnam	**Date of Field Check:**	8/23/2022

*** * * Please include photographs for all items that apply. * * ***

1

OVERLAY

* **Type of existing overlay:** ☐ None ☑ Asphalt ☐ Low Slump ☐ Silica Fume ☐ Latex ☐ Epoxy ☐ Other: _____

* **Existing overlay thickness:** _____ " * **Year overlay was applied:** _____ ☐ Unknown

* **% of overlay repaired or patched:** _____ % * **Replace overlay:** ☐ Yes ☐ No

* **Notes:** _____

Picture #

2A

DECK REPAIRS

(Deck repair quantities are required even if a Deck Test request has been ordered for this structure.)

* **Half-sole repairs:** _____ sq. ft.
(round up to the nearest 50 sq. ft.)

* **Full depth repairs:** _____ sq. ft.
(round up to the nearest 50 sq. ft.)

* **Existing deck repair (patching):** _____ sq. ft.
(round up to the nearest 25 sq. ft.)

* **Slab edge repairs:** _____ lin. ft.
(covers the outer 4" of the slab edge)

* **Superstructure repair (Unformed):** _____ sq. ft.
(covers the remaining slab cantilever beyond the outer 4")

* **Clean & epoxy coat slab edge:** _____ lin. ft.
(in lieu of edge repairs)

* **Cantilever replacement:** _____ lin. ft.

* **Total surface hydro demolition of bridge deck:** ☐ Yes ☐ No
(half-sole, full depth and exist. deck repair quantities still required)

* **Deck repairs with voided tube replacement:** ☐ Yes ☐ No
(minimum of 10% of half-sole repair quantity)
_____ sq. ft.

* **Full deck replacement (redeck):** ☐ Yes ☐ No ☐ Optional

* **Superstructure replacement:** ☐ Yes ☐ No ☐ Optional

* **Full bridge replacement:** ☐ Yes ☐ No ☐ Optional
(Deck repair quantities required for cost comparison of alternatives)

* **How were the quantities obtained?** ☐ Visual ☐ Bridge Inspection Report ☐ Sounded ☐ Other _____

* **Notes:** N/A - Replacing the bridge deck

Picture #

2B

DECK REPAIRS CONT.

*** ISSUES / PROBLEMS WITH PRECAST PRESTRESSED DECK PANELS**

Spans	At Panel Jt.	Btwn (mid) Panel Jt.	Location in Span: End		Mid		End	Deterioration: Type	Amount	Describe
	☐	☐	☐	☐	☐	☐	☐		sq. ft.	
	☐	☐	☐	☐	☐	☐	☐		sq. ft.	
	☐	☐	☐	☐	☐	☐	☐		sq. ft.	
	☐	☐	☐	☐	☐	☐	☐		sq. ft.	
	☐	☐	☐	☐	☐	☐	☐		sq. ft.	
	☐	☐	☐	☐	☐	☐	☐		sq. ft.	

* **Notes:** N/A - Replacing the bridge deck

(Deterioration may include water saturation, efflorescence, rust staining, cracking, spalling, exposed steel, disintegration of panel edges at joints, etc. Typically observed at or near panel joints. The location and "Type" of deterioration should be recorded.)

Picture #

3

APPROACH SLABS

* **Is there a bridge approach slab in place?** ☐ Yes ☑ No * **Type:** ☐ Concrete ☐ Asphalt ☐ Other

* **Is there rdwy. approach pavement in place?** ☐ Yes ☑ No * **Type:** ☐ Concrete ☐ Asphalt ☐ Other

* **Is the approach slab sinking at the end bent?** ☐ N/A ☑ Yes ☐ No **Asphalt wedge exists**

* **Are repairs needed to the bridge approach slab driving surface?** ☐ Yes ☐ No **N/A**
(Typically a roadway item but will be reported to District on the Bridge Memorandum.)

* **Full replacement of bridge approach slab?** ☐ Yes ☐ No **N/A**

* **Notes:**

Picture #

4

SLAB DRAINS

* **Is the drainage system working adequately?** ☑ Yes ☐ No

* **Recommendations:** Concrete erosion on exit end of slope drains

* **Notes:**

Picture #

5

CURBS & RAILS

* **Existing curb (left side):** ☐ Safety Barrier Curb ☐ Curb/parapet ☐ Blockouts ☐ Thrie Beam ☐ Baluster ☑ Steel Channel

☐ Other ☐ Handrail ☐ Fence

* Does curb need repair ☐ Yes ☐ No * Curb repair _____ lin. ft.

* Remove hand rail ☐ Yes ☐ No * Add curb blockout ☐ Yes ☐ No

* **Existing curb (right side):** ☐ Safety Barrier Curb ☐ Curb/parapet ☐ Blockouts ☐ Thrie Beam ☐ Baluster ☑ Steel Channel

☐ Other ☐ Handrail ☐ Fence

* Does curb need repair ☐ Yes ☐ No * Curb repair _____ lin. ft.

* Remove hand rail ☐ Yes ☐ No * Add curb blockout ☐ Yes ☐ No

* **Existing median curb:** Type: _____ Width _____" Height _____"

* Does curb need repair ☐ Yes ☐ No * Curb repair _____ lin. ft.

* **Approach rail attachment:** ☐ None ☐ Not attached ☐ 4 Hole ☐ 5 Hole ☐ Turn-down ☐ Other

* **If the existing handrails will be removed, does the local maintenance supervisor wish to keep them?** ☐ Yes ☐ No

Storage address: *location:*

address:

city: *state:* *zip:*

* **Notes:** No guardrail exists on either end of the bridge. Object markers are present on all 4 corners of the bridge.

Picture #

6

EXPANSION DEVICES

Bent	Type	Recommendations	Gap Left	Gap Right	Temperature & Other Info
1N	Unknown	☐ USE-IN-PLACE ☐ REPAIR ☐ REPLACE	"	"	
2	Unknown	☐ USE-IN-PLACE ☐ REPAIR ☑ REPLACE	"	"	
3	Unknown	☐ USE-IN-PLACE ☐ REPAIR ☑ REPLACE	"	"	
4S	Unknown	☐ USE-IN-PLACE ☐ REPAIR ☑ REPLACE	"	"	
		☐ USE-IN-PLACE ☐ REPAIR ☐ REPLACE	"	"	
		☐ USE-IN-PLACE ☐ REPAIR ☐ REPLACE	"	"	

4

* Notes: Expansion joints onbents 2 & 3

Picture #

7

BEARINGS

Bent	Coating	Recommendations	Notes (indicate which bearings at each bent)
1N	☐ CLEAN & OVERCOAT ☑ BLAST CLEAN & RECOAT	☐ USE-IN-PLACE ☐ REPAIR ☐ RESET ☐ REPLACE ☐ MAKE END BENT SLIDING SLAB ☑ MAKE END BENT INTEGRAL	
2	☐ CLEAN & OVERCOAT ☑ BLAST CLEAN & RECOAT	☑ USE-IN-PLACE ☐ REPAIR ☐ RESET ☐ REPLACE ☐ MAKE END BENT SLIDING SLAB ☐ MAKE END BENT INTEGRAL	
3	☐ CLEAN & OVERCOAT ☑ BLAST CLEAN & RECOAT	☑ USE-IN-PLACE ☐ REPAIR ☐ RESET ☐ REPLACE ☐ MAKE END BENT SLIDING SLAB ☐ MAKE END BENT INTEGRAL	
4S	☐ CLEAN & OVERCOAT ☑ BLAST CLEAN & RECOAT	☑ USE-IN-PLACE ☐ REPAIR ☐ RESET ☐ REPLACE ☐ MAKE END BENT SLIDING SLAB ☐ MAKE END BENT INTEGRAL	
	☐ CLEAN & OVERCOAT ☐ BLAST CLEAN & RECOAT	☐ USE-IN-PLACE ☐ REPAIR ☐ RESET ☐ REPLACE ☐ MAKE END BENT SLIDING SLAB ☐ MAKE END BENT INTEGRAL	
	☐ CLEAN & OVERCOAT ☐ BLAST CLEAN & RECOAT	☐ USE-IN-PLACE ☐ REPAIR ☐ RESET ☐ REPLACE ☐ MAKE END BENT SLIDING SLAB ☐ MAKE END BENT INTEGRAL	

* Notes:

Picture # (Provide Pictures of Each Bearing)

8

COATING SYSTEM (PAINT)

* **Existing coating system:** Type C ☐ green ☑ gray ☐ other

* **Date last coated:** 11/1991

* **Is existing coating peeling?** ☐ Yes (Overcoat is not an option) ☑ No

* **Coating recommendation:**

☑ Blast clean & recoat all steel

☐ Clean & overcoat all steel

☐ Blast clean & recoat only at joint locations

☐ Blast & recoat at joint locations and clean & overcoat all other steel

Note: Pull-off test required for overcoat (Calcium Sulfonate) option. Bridge Division will request pull-off tests.

* Notes: Paint looks good except on the upper and lower flanges of the beams.

Picture #

9

SUPERSTRUCTURE REPAIRS *(Repairs needed not previously stated.)*

Concrete Slab Superstructure or Girder: *(above the bearings)* Girder

(Example: Deck solid slabs, voided slabs, box girders, deck girders & prestressed girders) Deck solid slab

Steel: *(Example: Beams, stringers, girders, diaphragms, cross-frames, misc. steel)*

Member *(Check all that apply) (Attach pictures)*							Describe & Locate
	☐	Section Loss	%	☐	Cracks	in.	
	☐	Section Loss	%	☐	Cracks	in.	
	☐	Section Loss	%	☐	Cracks	in.	
	☐	Section Loss	%	☐	Cracks	in.	

Notes: Rust appears on all steel beams on the upper and power flanges. Channel span girders are deeper then the fill slope spans.

Picture #

10

SUBSTRUCTURE REPAIR

Bent	Formed Repair	Unformed Repair	Seal Concrete Beam Cap Bts.	Coat Exposed Pile @ Int. Pile Cap Bts.	Describe (Beam, Backwall, Wing, etc.)
1N	sq. ft.	sq. ft.	☐ Yes ☐ No	☐ Yes ☐ No	
2	sq. ft.	sq. ft.	☑ Yes ☐ No	☐ Yes ☑ No	Crack on concrete cap under interior beam
3	sq. ft.	sq. ft.	☑ Yes ☐ No	☐ Yes ☑ No	
4S	4 sq. ft.	sq. ft.	☐ Yes ☐ No	☐ Yes ☐ No	Rebar exposed on SW corner
	sq. ft.	sq. ft.	☐ Yes ☐ No	☐ Yes ☐ No	

* **Does the structure need graffiti protection?** ☑ No ☐ Bottom 8' of Concrete ☐ End Bents ☐ Other

* **Notes:**

Picture #

11

SIGNS, SIGNALS &/OR LIGHTING ATTACHED TO STRUCTURE

* **Are there signs attached directly to this structure?** ☐ Yes ☑ No quantity _____ location _____

* **Describe proposed work to be done to signs.** N/A

* **Are there signals attached directly to this structure?** ☐ Yes ☑ No quantity _____ location _____

* **Describe proposed work to be done to signals.** N/A

* **Is there aviation lighting attached to this structure?** ☐ Yes ☑ No ☐ N/A ☐ Red _____ *qnty.* ☐ Green _____ *qnty.*

* **Is there navigational lighting attached to this structure?** ☐ Yes ☑ No ☐ N/A ☐ Red _____ *qnty.* ☐ Green _____ *qnty.*

* **Is there roadway lighting attached to this structure?** ☐ Yes ☐ No ☐ N/A

* **Describe proposed work to be done to lighting.** N./A

* **Notes:**

Picture #

12

UTILITIES ATTACHED TO STRUCTURE

Type	Qty.	Size	Owner	Condition
☐ Conduit ☐ Pipeline ☐ Other				☐ Repaint ☐ Repair ☐ Replace ☐ Remove
☐ Conduit ☐ Pipeline ☐ Other				☐ Repaint ☐ Repair ☐ Replace ☐ Remove
☐ Conduit ☐ Pipeline ☐ Other				☐ Repaint ☐ Repair ☐ Replace ☐ Remove
☐ Conduit ☐ Pipeline ☐ Other				☐ Repaint ☐ Repair ☐ Replace ☐ Remove

* **Notes:** None existing

Picture #

13

CATHODIC PROTECTION SYSTEM

* **Is there a cathodic system on this structure?** ☐ Yes ☑ No ☐ Remove ☐ Do not alter ☐ Abandon in place (grooved system)

* **Is it on and working?** ☐ Yes ☐ No ☐ Unknown _____

* **Notes:** _____

_____

Picture #

14

CHANNEL ALIGNMENT, SLOPE PROTECTION & SCOUR

* **Is channel aligned to bridge opening?** ☑ Yes ☐ No Describe _____

* **Is drift a continual problem?** ☑ Yes ☐ No Describe & Locate **Evidence of drift along the channel**

* **Is erosion a problem?** ☐ Yes ☐ No Describe & Locate _____

* **Describe slope protection in place.** **Rip-rap**

* **Scour**	**At Footing**	**At Piling**	**Depth**	**Bent**	**Recommendation**
	☐	☐			
	☐	☐			

* **Describe needed work.** Note: Gabion baskets exist along the south riverbank near pilings uner bent 3.

_____

_____

Picture #

15

TRAFFIC LANES

* **Number of lanes striped:** on structure **2** under structure **N/A**

* **Shoulder width:** ☑ None on structure _____ (left) _____ (right) under structure _____ (left) _____ (right)

* **Sidewalk widths:** N/A on structure _____ (left) _____ (right) under structure _____ (left) _____ (right)

* **Median width:** N/A on structure _____ under structure _____

* **Proposed improvements for lanes/shoulders/sidewalks:** _____

_____

Picture #

16

GENERAL AREA CONDITIONS

* **Primary area:** ☐ Commercial ☐ Industrial ☐ Residential ☑ Agricultural ☐ Military ☐ Other _____

* **Posted speed limit on structure:** 55 mph

* **Posted load on structure:** 18 tons @ 15 mph ☐ NA

Single Unit: _____ tons @ _____ mph ☐ NA

Semi (tractor/trailer): _____ tons @ _____ mph ☐ NA

* **Are both signs in place?** ☐ Yes ☐ No

* **Do pedestrians and/or bicyclists regularly use this structure?** ☐ Yes ☑ No ☐ Undetermined

* **Notes:** Max weight 39 tons

Picture #

17

MAINTENANCE

* **What work has been done to this structure that may not be reflected on existing bridge plans?**

Numerous deck repairs and an asphalt overlay exists on the deck. The bridge ends have asphalt wedges.

Picture #

18

ADDITIONAL FIELD NOTES

Picture #

19

STAGING / DETOUR

* **Traffic Control:** ☑ Close structure ☐ Stage construction on structure ☐ Cross over traffic to adjacent structure ☐ Detour

☐ Other option _____

* **Define probable detour route.** US 136 west to MO 149 south to Rte. W east. County roads exist for local teraffic.

20

PERSONS ASSISTING WITH CHECKLIST

Name	Brian Rosenthal	Title	Project Manager	Ph.	(816) 387 - 2499
Name	Shannon Kusilek	Title	District Design Engineer	Ph.	(816) 387 - 2441
Name		Title		Ph.	( ) -
Name		Title		Ph.	( ) -
Name		Title		Ph.	( ) -

21

REQUIRED SIGNATURES

I have reviewed the information on this checklist and believe it to be as accurate as possible.

Name Joyce Reynolds **Date** 12/2/2022

Transportation Project Manager

Name Bryce Acton **Date** 12/2/2022

District Bridge Engineer

The structural rehabilitation checklist indicates how the bridge is functioning and aging.

All deterioration should be noted, even if it is known that the work will not be completed under the proposed project.

Send **NEW** Structural Rehabilitation Checklist by email
To: "Bridge Survey Processor"
Cc: Structural Project Manager or Structural Resource Manager