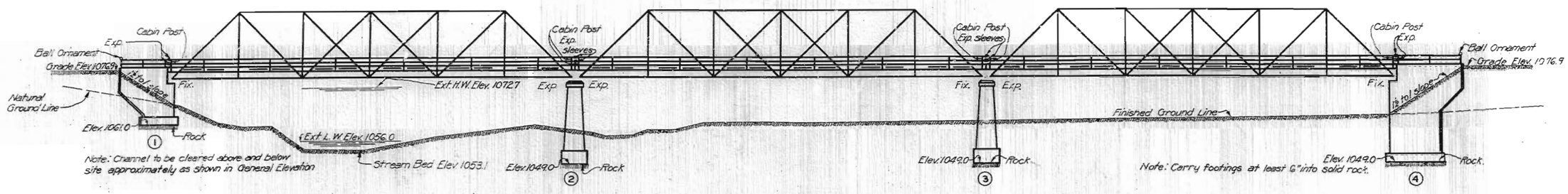
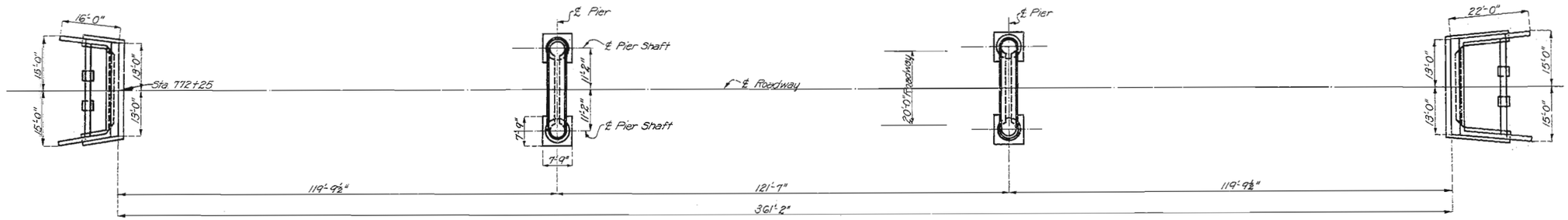
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	329D(R44)	19		

3-STANDARD SUPERSTRUCTURES - S-8120



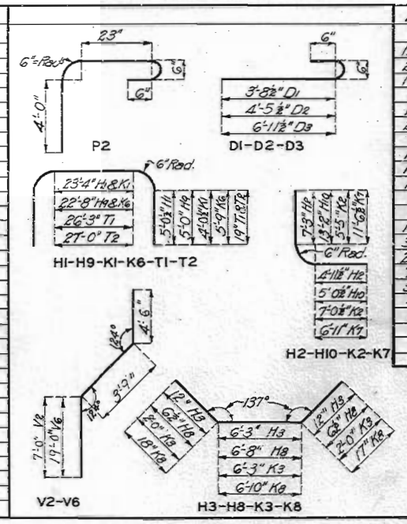
GENERAL ELEVATION



PLAN

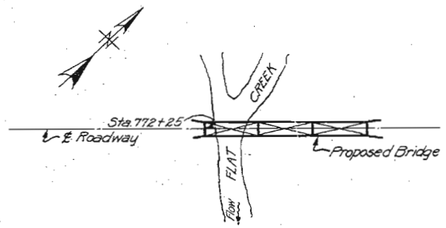
BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Location
		SUBSTRUCTURE		
		Piers No. 2 & 3		
32	1" ⌀	8'-3"	D3	Footing
6	1" ⌀	24'-0"	H8	Web wall
24	½" ⌀	24'-0"	H9	"
8	1" ⌀	22'-6"	H10	Cap
68	⅜" ⌀	8'-0"	P2	"
42	⅜" ⌀	14'-6"	V6	Webwall
32	1" ⌀	19'-6"	V7	Shaft
		U-Abutment No. 1		
37	⅜" ⌀	5'-0"	D1	Footing
5	½" ⌀	35'-0"	H1	Frontwall
10	½" ⌀	13'-0"	H2	Side wall
10	½" ⌀	8'-3"	H3	Haunch
16	⅝" ⌀	10'-6"	H4	Sidewall
6	½" ⌀	8'-3"	H5	"
4	½" ⌀	25'-9"	H6	Frontwall
12	½" ⌀	4'-9"	H7	Side wall
4	⅝" ⌀	33'-0"	K1	Frontwall
8	⅝" ⌀	13'-3"	K2	Sidewall
8	⅝" ⌀	10'-3"	K3	Haunch
8	¾" ⌀	11'-6"	K4	Sidewall
2	⅝" ⌀	26'-0"	K5	Beam
13	⅝" ⌀	9'-6"	V1	Frontwall
10	½" ⌀	15'-3"	V2	"
14	½" ⌀	9'-6"	V3	Sidewall
24	½" ⌀	9'-0"	V4	"
4	½" ⌀	7'-0"	V5	"
8	½" ⌀	31'-0"	T1	Tie Beam
8	⅝" ⌀	5'-9"	P1	Columns



No.	Size	Length	Mark	Location
		Abutment No. 4		
131	¾" ⌀	5'-9"	D2	Footing
26	½" ⌀	7'-9"	H8	Haunch
16	⅝" ⌀	10'-6"	H4	Sidewall
6	½" ⌀	8'-3"	H5	"
13	½" ⌀	34'-3"	H9	Frontwall
26	½" ⌀	19'-0"	H10	Sidewall
4	½" ⌀	25'-9"	H6	Frontwall
12	½" ⌀	11'-0"	H1	Sidewall
14	⅝" ⌀	9'-9"	K9	Haunch
14	¾" ⌀	11'-6"	K4	Sidewall
2	⅞" ⌀	26'-0"	K5	Beam
7	⅞" ⌀	35'-9"	K6	Frontwall
14	¾" ⌀	19'-3"	K7	Sidewall
31	¾" ⌀	21'-6"	V1	Frontwall
28	¾" ⌀	27'-3"	V6	"
72	¾" ⌀	21'-6"	V3	Sidewall
36	½" ⌀	9'-0"	V4	"
4	½" ⌀	7'-0"	V5	"
8	¾" ⌀	31'-9"	T2	Tie Beam
8	¾" ⌀	11'-0"	P2	Column

Note: Dimensions of bars are given along centerline and are for computed lengths.
See Std. S-9 for bill of reinforcing steel in superstructure.
8 additional A bars necessary.
Bars in above units to be billed and tagged separately.



LOCATION SKETCH

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Excavation Class 1	Cu. Yds.	195		195
Excavation Class 2	Cu. Yds.	290		290
Concrete 1:2:3½ mix "X"	Cu. Yds.		174.2	174.2
Concrete 1:2:4 mix "B"	Cu. Yds.	2718		2718
Reinforcing Steel	Lbs.	16,450	34,280	50,730
Fabricated Structural Steel	Lbs.		324,570	324,570
Cast Steel	Lbs.		2910	2910
Gas Pipe Handrail	Lin. Ft.	188	1468	1656

Note:- Bridge excavation above Elev. 1058.0 will be paid for as Class 1 Bridge Excavation.
Bridge excavation below Elev. 1058.0 will be paid for as Class 2 Bridge Excavation.

GENERAL NOTES:-

Concrete in superstructure to be 1:2:3½ mix. "X". Concrete in substructure to be 1:2:4 mix. "B".

Shop drawings for the 120' spans will be furnished by the Missouri State Highway Department.

Exposed edges shall be beveled ¾" where no other bevel is noted.

Two name plates, type "B" as shown on Std. S-818, to be furnished and placed by contractor. Cost of name plates to be included in price bid for other items.

For details of expansion device at Pier No. 2 see Std. S-812R and at Pier No. 3 see Std. S-812R.

Top of concrete in both wings, and front wall of abutments to be kept at same level throughout pouring.

Where bituminous felt is used in expansion or partition joints in concrete, stitch felt in vertical joints securely to one face of concrete with copper wire.

Paint: Shop: NONE.

Field: Surfaces inaccessible after erection four coats of red lead. NO OTHER PAINT TO BE APPLIED BY CONTRACTOR. All paint required will be furnished by the Missouri State Highway Department.

Bridge excavation in accordance with Section I of Standard Specifications issued April, 1, 1930, except that quantities paid for will be computed from extreme low water Elev. 1056.0 where existing ground line is below this elevation.

For details of fixed joint at Abuts. 1-4. See Std. S-814.

B.M. Elev. 1060.65 Spike & Nut in Root 36" Elm. 100' Lt. Sta. 773+54.

BRIDGE OVER FLAT CREEK

STATE ROAD FROM CASSVILLE TO GALENA FINISHED

ABOUT 15 MILES SOUTH OF AURORA

PROJECT NO. 329D(R.44) STA. 772+25

BARRY COUNTY

STD. S-818
STD. S19 R
STD. S-9
J-382

SUBMITTED BY M.R. Hoy BRIDGE ENGINEER DATE 10/13/30

APPROVED BY T.H. Cutler CHIEF ENGINEER DATE 10/13/30

FINISHED

Drawn Sept. 1930 By R.A.B.
Traced Sept. 1930 By H.W.H.
Checked Sept. 1930 By F.C.L.

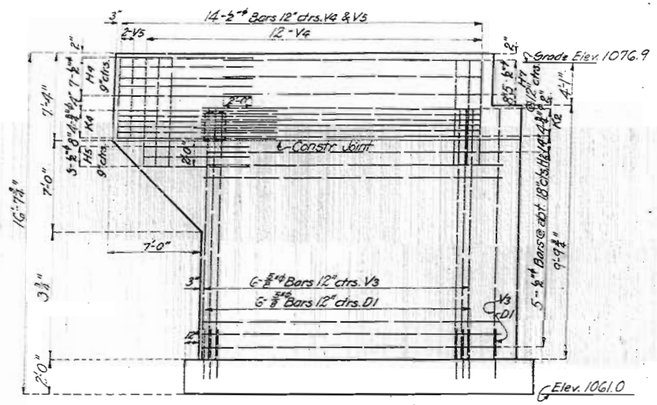
Sheet No. 1 of 4

F.A.

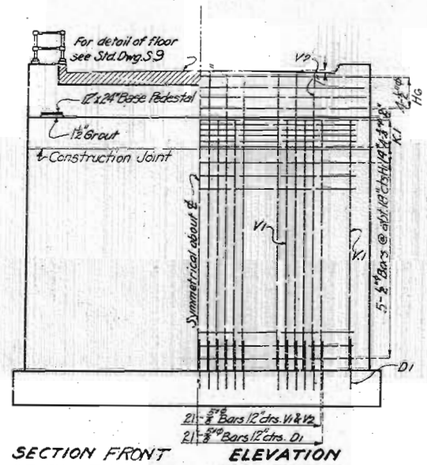
411

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	329D(194)	19		

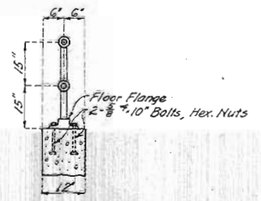


ELEVATION OF WING



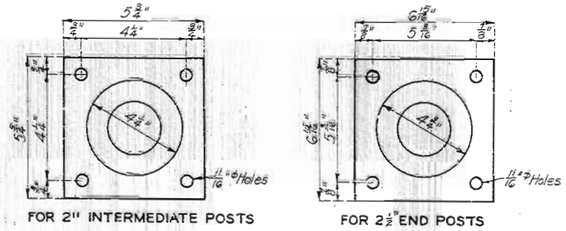
SECTION FRONT OF FRONTWALL

ELEVATION FRONT WALL

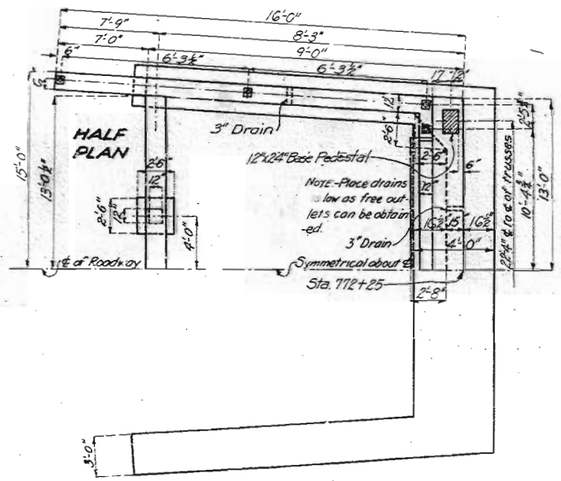


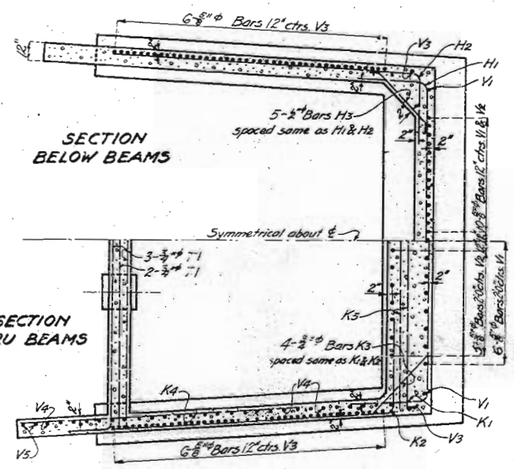
DETAIL OF HANDRAIL

Note:- Use 2⅜" Gas Pipe Post with Ball Ornament at ends of sidewalls. Other posts to be 2" Gas Pipe Posts.

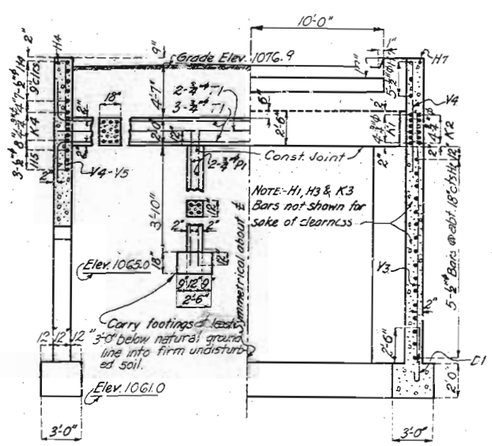


DETAILS OF FLANGES

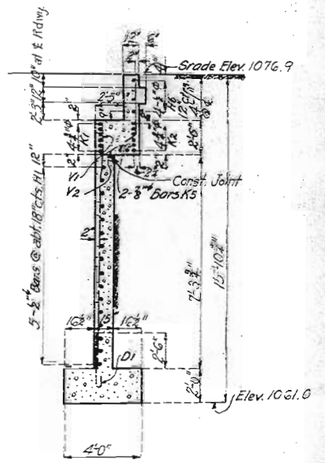




DETAILS OF ABUTMENT NO. 1



BACK OF TIE BEAMS BACK OF FRONT WALL
SECTION THRU WING WALLS



SECTION THRU FRONT WALL

BRIDGE OVER FLAT CREEK FINISHED

STATE ROAD FROM CASSVILLE TO GALENA

ABOUT 15 MILES SOUTH OF AURORA

PROJECT NO. 329D (R.44) STA. 772+25

BARRY COUNTY

FINISHED

SUBMITTED BY W.R. Sayre BRIDGE ENGINEER DATE 10/3/30

APPROVED BY T.H. Cutler CHIEF ENGINEER DATE 10/3/30

STD. S-818
STD. S-9
STD. S-18R
J-382

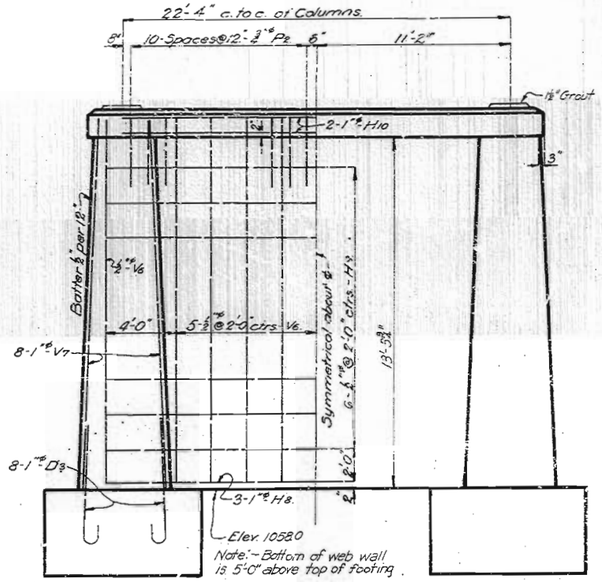
Ass'd Sept. 1930 by P.A.B. & H.W.H.
Ch'k'd Sept. 1930 by F.C.L.
Drawn March 1925 by M.G.P.
Ch'k'd March 1925 by J.I.

Sheet 2 of 4

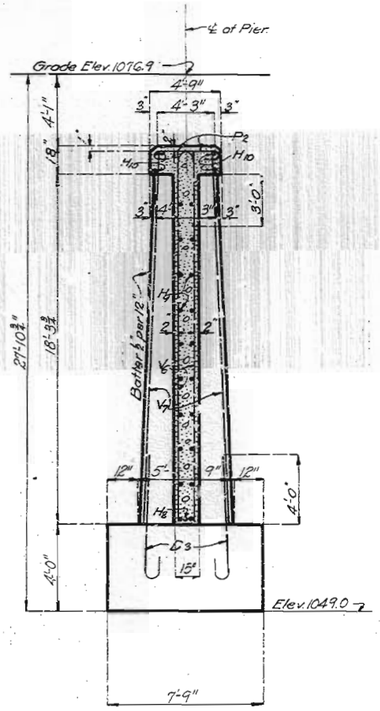
STEEL SPANS—11-ABUTMENTS S 801 F.A.

MISSOURI STATE HIGHWAY DEPARTMENT

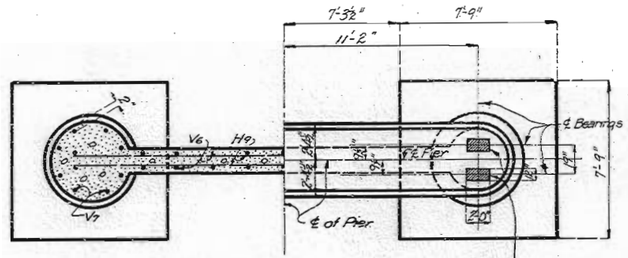
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	329D (R44)	19		



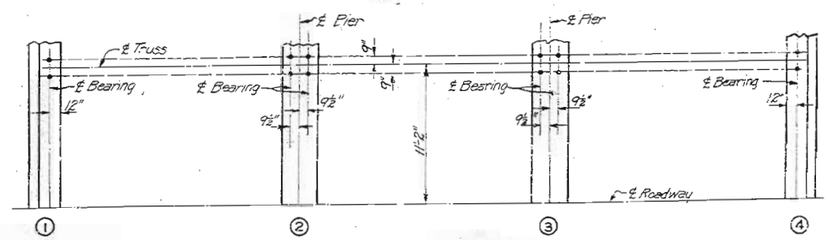
ELEVATION.



SECTION AT ℄.



HALF HORIZONTAL SECTION. HALF PLAN.
DETAILS OF PIERS NOS. 2 & 3



ANCHOR BOLT PLAN

BRIDGE OVER FLAT CREEK

FINISHED

STATE ROAD FROM CASSVILLE TO GALENA
ABOUT 15 MILES SOUTH OF AURORA
PROJECT NO. 329D (R44) STA. 772+25

BARRY COUNTY

FINISHED

SUBMITTED BY M. K. Lock, BRIDGE ENGINEER, DATE 10/13/30
APPROVED BY W. H. Cutler, CHIEF ENGINEER, DATE 10/13/30

STD. S-818
Std. S 9
Std. S 19R
J-382

Assembled Sept. 1930 By FAB & H.W.H.
Checked Sept. 1930 By F.C.L.
Drawn Mar. 1925 By J.I.
Checked Mar. 1925 By H.J.O.

4 13

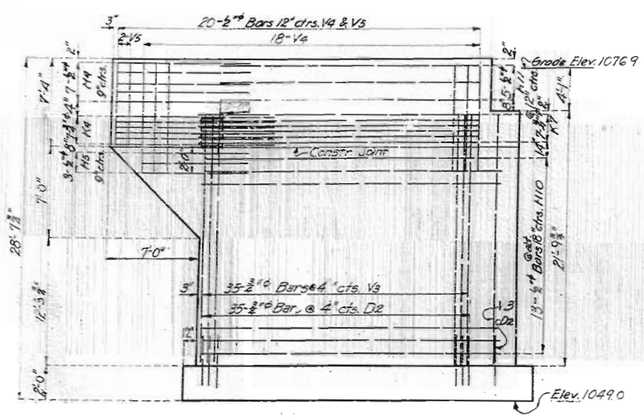
Sheet 3 of 4

Steel Spans - Piers - S 802

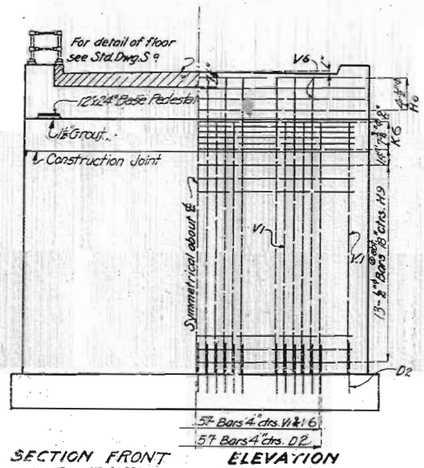
F.A.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	329(D)R44	19		

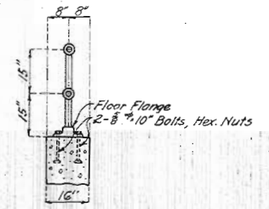


ELEVATION OF WING



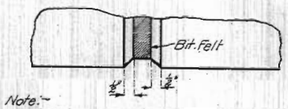
SECTION FRONT OF FRONT WALL

ELEVATION FRONT WALL



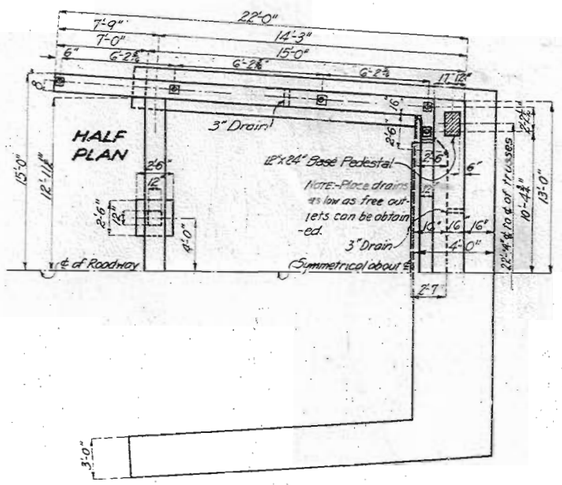
DETAIL OF HANDRAIL

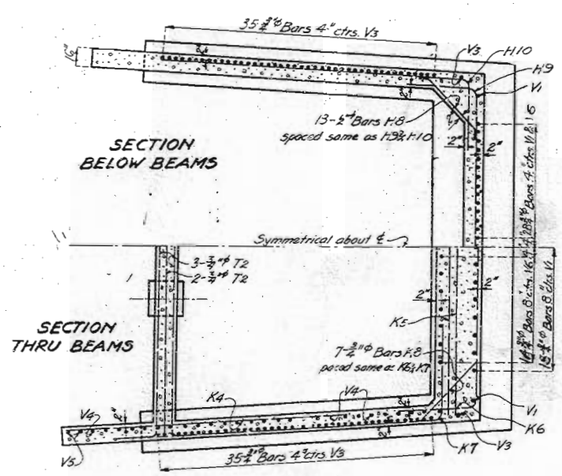
Note.—Use 2½" Gas Pipe Post with Ball Ornament at ends of sidewalls. Other posts to be 2" Gas Pipe Posts



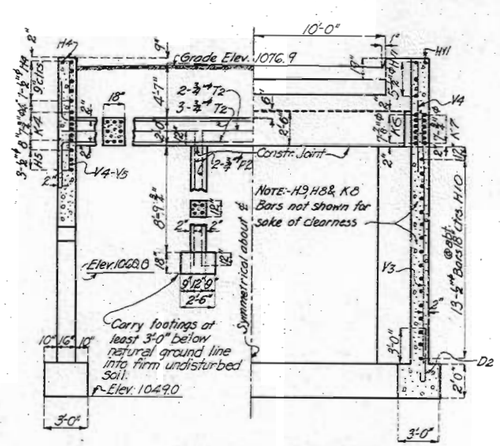
Note:—
Use bevel as shown for exposed faces of all joints consisting of bituminous felt except at top surface of roadway slab. Use edging tool at top surface of roadway slab each side of felt joints.

DETAIL OF BEVEL FOR BIT. FELT JOINTS

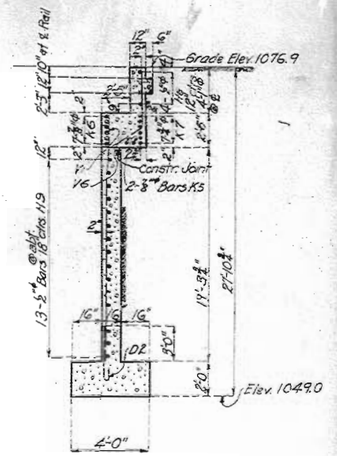




DETAILS OF ABUTMENT NO. 4



BACK OF TIE BEAMS BACK OF FRONT WALL
SECTION THRU WING WALLS



SECTION THRU FRONT WALL

Ass'ed Sept. 1930 by RAB. & H.W.I
Ch'k'd Sept. 1930 by F.C.L.
Drawn March 1925 by H.G.P.
Ch'k'd March 1925 by J.T.

BRIDGE OVER FLAT CREEK

STATE ROAD FROM CASSVILLE TO GALENA
ABOUT 15 MILES SOUTH OF AURORA
PROJECT NO. 329D (R44) STA 772+25

BARRY COUNTY

FINISHED

SUBMITTED BY M.R. Hoyt DATE 10/3/30
APPROVED BY T.H. Cutler DATE 10/13/30

FINISHED

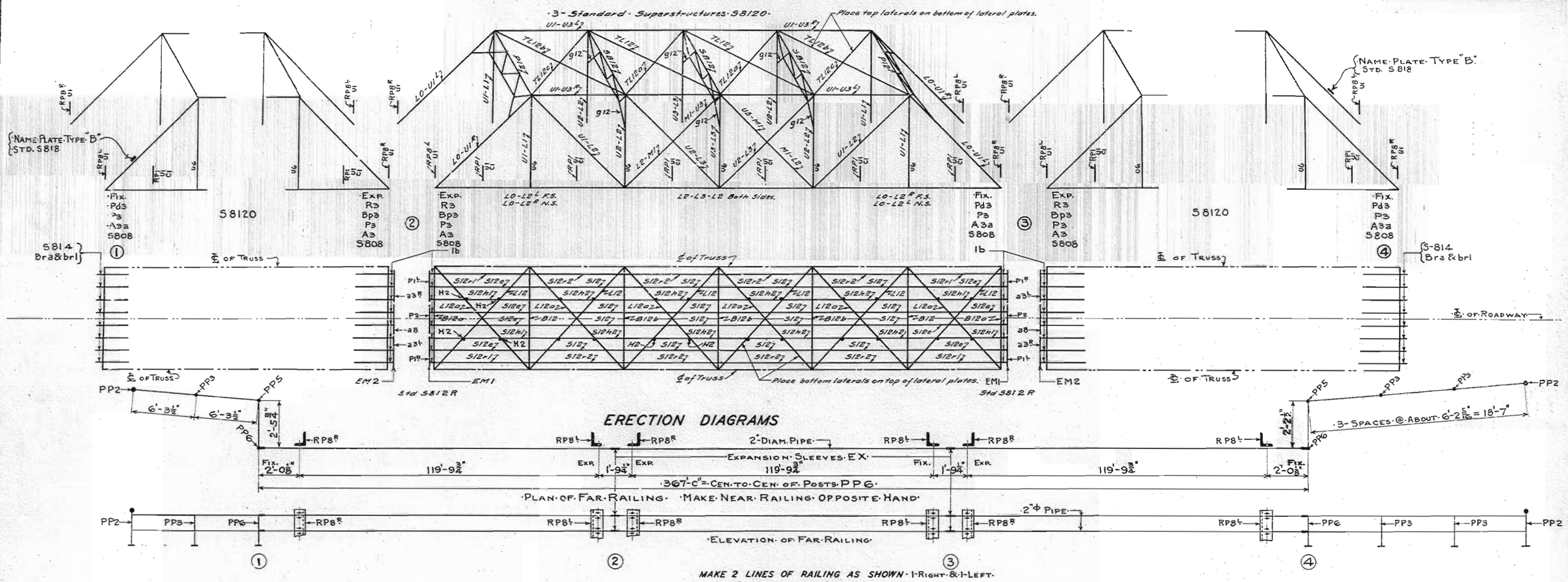
STD. S-9
STD. S-19R
STD. S 8 1 8
J-382

Sheet 4 of 4

STEEL SPANS - U-ABUTMENTS S 801 F.A.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	329D-R44			

MISSOURI STATE HIGHWAY DEPARTMENT



MAKE 2 LINES OF RAILING AS SHOWN· 1-Right & 1-Left.
·See S820 for Pipe Details·

·List of Shop Drawings·

·Sheet No·	·Standard·	·Items·
1	S 8120	·Trusses·
2	S 8120	·Portals· Sways· & Laterals·
3	S 8120	·Beams· Stringers· Posts· Etc!
4	S 812R	·Expansion Devices·
5	S 814	·Brackets·
6	S 808	·Rockers· Pedestals· Etc!
7	S 820	·Pipe Details·
8	S 818	·Name Plates· Type "B"
9	J 382	·Erection Diagrams·

·Quantities Paid For By Mo. S. Hy. Dept·

·Items·	·Struc· Steel·	·Cast· Steel·
·Trusses·	154380	
·Portals· & Sways·	17310	
·Floor Beams· & Stringers·	134820	
·Laterals· Posts· & Bolts·	10770	
·Expansion Devices·	4160	
·Brackets·	1060	
·Rockers· Pedestals· Bearing· Plates· Etc!	2070	2910
·Total· Structural· Steel· Lbs.	324570	2910
·Total Lineal Feet of Pipe Railing = 1656'-0"		

·Erector·Note:-
·All·Pipe·Couplings·Must·Clear·All·Posts·
·And·Truss·Web·Members·By·At·Least·1'-0"·

FINISHED

BRIDGE OVER FLAT CREEK.

STATE ROAD FROM CASSVILLE TO GALENA.
ABOUT 15-MILES SOUTH OF AURORA.
PROJECT NO. 329D-(R44) STA. 772+25

BARRY COUNTY

FINISHED

SUBMITTED BY _____ DATE _____ BRIDGE ENGINEER

APPROVED BY _____ DATE _____ CHIEF ENGINEER

F.A.

J382.

Made·Oct· 1930· by:-M.B.S.
Checked·Oct 1930· by:-C.F.B.

481

Missouri Department of Transportation
State Bridge Inspection Report

April 26, 2023
10:44:07AM

COUNTY: BARRY **DISTRICT: SW** **CLASS: STATBR** **FED-ID: 5371** **BRIDGE: J0382**

GENERAL STRUCTURE INFORMATION

ROUTE: MO248E
FEATURE: FLAT CR
STATUS: P-POSTLOAD
LOG MILE: 13.584
DETOUR: 36.00 MILES
NHS: NO
BUILT: 1930
REHAB:
LOCATION: S 19 T 24 R 25 W
LATITUDE: 36 46 10.38 (DMS)
LONGITUDE: 93 40 33.26 (DMS)

 # SPANS: 3
LANES ON: 1
LANES UNDER: 0
COMPASS DIRECTION: SOUTH to NORTH
DIRECTION OF TRAFFIC: 1-LN/2-WAY
FUNCTIONAL CLASS: RL-MAJOR COLLECTOR
NBI OWNER: MODOT
NBI MAINTAINED: MODOT
MAINTENANCE DISTRICT: SW
MAINTENANCE COUNTY: BARRY
SUB AREA: 7G09

PLACE CODE: 37142 JENKINS
LENGTH: 361 FT 0 IN
MAXIMUM SPAN: 121 FT 7 IN
APPROACH ROADWAY: 22 FT 0 IN
CURB TO CURB: 20 FT 0 IN
OUT TO OUT: 21 FT 0 IN
AADT: 1247
AADT YEAR: 2022
AADT TRUCK: 15.0%
FUTURE AADT: 2058
FUTURE AADT YEAR: 2042

BRIDGE INSPECTION INFORMATION

DATE: 07/20/2021 **RESPONSIBILITY:** BRIDGEDIV
FREQUENCY: 24 **CALCULATED INTERVAL**:** 24
TEAM LEADER: KEVIN WEGENER **ELEMENT:** NO
INSPECTOR 2: JASE SHELTON (NTLQ) **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: 07/20/2021 **RESPONSIBILITY:** BRIDGEDIV **CATEGORY:** THRU TRUSS
FREQUENCY: 24 **CALCULATED INTERVAL**:** 24 **NBI:** YES
TEAM LEADER: KEVIN WEGENER **INSPECTOR 3:** **METHOD:** B32
INSPECTOR 2: JASE SHELTON (NTLQ) **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: 06/14/2022 **RESPONSIBILITY:** BRIDGEDIV **CATEGORY:** SUPERSTRUCTURE
FREQUENCY: 12 **CALCULATED INTERVAL**:** 11 **NBI:** NO
TEAM LEADER: KEVIN WEGENER **INSPECTOR 3:** **METHOD:** VISUAL, B32
INSPECTOR 2: JASE SHELTON (NTLQ) **INSPECTOR 4:**

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

SPECIAL INSPECTION COMMENTS

(MADSEJ, 11/16/2018)--MONITOR THE CRACKS AND SECTION LOSS AT THE ENDS OF L0 AND L0' LOCATIONS.

UNDERWATER INSPECTION INFORMATION

DATE: 09/20/2021 **RESPONSIBILITY:** DISTRICT **CATEGORY:** DRY
FREQUENCY: 60 **CALCULATED INTERVAL**:** 24 **NBI:** NO
TEAM LEADER: MATTHEW GEIGER **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

OTHER UNDERWATER INSPECTIONS

Missouri Department of Transportation
State Bridge Inspection Report

COUNTY: BARRY **DISTRICT: SW** **CLASS: STATBR** **FED-ID: 5371** **BRIDGE: J0382**

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD
01/28/2019	72	CHANNEL CROSS SECTIONS	NO	69	DISTRICT	EMD
08/15/2017	999	GUSSET PLATES	NO	95	BRIDGEDIV	CLIMBER
03/13/2012	999	QUALITY ASSURANCE	NO		BRIDGEDIV	

DATE	FREQUENCY	CATEGORY	NBI	CALCULATED INTERVAL	RESPONSIBILITY	METHOD

STRUCTURE POSTING

APPROVED CATEGORY: S-4 CENTERLINE OF BRIDGE.
Ton 1: **Ton 2:** **Ton 3:**
COMMENTS:

FIELD CATEGORY: S-4 CENTERLINE OF BRIDGE.
Ton 1: **Ton 2:** **Ton 3:** **PROBLEM:** **PROBLEM DIRECTION:**
COMMENTS:

GENERAL COMMENTS/MAJOR RATED ITEMS

GENERAL COMMENTS: (BOWDEJ1, 04/10/2008)--(119'-120'-119') SMP THRU TRUSS SPANS

[ITEM 58] DECK: 6-SATISFACTORY CONDITION **COMMENTS:** (GEIGEM1, 12/26/2019)--MODERATE EDGE DETERIORATION
RATING : 05/18/2001

[ITEM 59] SUPER: 3-SERIOUS CONDITION **COMMENTS:** (MADSEJ, 06/17/2022)--60% SECTION LOSS ON THE WEB OF SPAN 1 FLOORBEAM L0'. PRECAUTIONARY BLOCKING WAS PLACED ON 7-20-21
RATING : 07/21/2021

[ITEM 60] SUB: 5-FAIR CONDITION **COMMENTS:** (ELSEMJ, 06/09/2016)--FOOTINGS EXPOSED
RATING : 12/27/2017

[ITEM 61] BANK/CHANNEL: 5-MAJOR DAMAGE **COMMENTS:** (NUNNT, 11/07/2019)--CHANNEL FLOWING SOUTH AGAINST PIER 2.
RATING : 05/18/2001

[ITEM 113] SCOUR: 8-STABLE FOR CALCULATED **COMMENTS:** (NUNNT, 11/07/2019)--LOOSE GRAVEL COVERS PREVIOUSLY EXPOSED FOOTINGS.
RATING : 05/18/2001
EVALUATION TYPE :

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

[ITEM 72] APPRRDWY ALIGNMENT: 6-SATISFACTORY **COMMENTS:**
RATING : 05/18/2001

RAILING AND APPROACH PAVEMENT COMPONENTS AND RATINGS

[ITEM 36A] BRIDGE RAILING RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *12/16/2004* ***COMMENTS:***

MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
REINFORCED CONCRETE	CURB	BOTH	
STEEL	PIPE-DOUBLE	BOTH	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
COLLISION DAMAGE	RANDOM		MINOR	(BOWDEJ1, 04/10/2008)--E. SIDE OF SPAN #2

[ITEM 36B] TRANSITION RAILING RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *07/30/2019* ***COMMENTS:***

[ITEM 36C] APPROACH RAILING RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *07/30/2019* ***COMMENTS:***

[ITEM 36D] RAIL END TREATMENT RATING: *DOESNT MEET CURRNT STND-0* ***RATING :*** *07/30/2019* ***COMMENTS:***

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

MATERIAL	CONSTRUCTION	DIRECTION	CONDITION*	COMMENTS
ASPHALT	BITUMINOUS MAT	BOTH	FAIR	

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*	*CINDER SEAL*	*.5 IN*	*2007*		*FAIR*

COMMENT:

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
OTHER	THROUGHOUT		NOT APPLICABLE	(NUNNT, 11/05/2019)--MINOR WEAR THROUGHOUT.
SPALLS	AT JOINTS		MINOR	

DECK PROTECTION *NOTAPPLICABLE* *NONE*

COMMENT:

MEMBRANE *NOTAPPLICABLE* *NONE*

COMMENT:

DRAINAGE COMPONENTS:

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

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
DETERIORATION	THROUGHOUT		MODERATE	(RAITHK, 07/30/2019)--BOTTOM EDGE

EXPANSION DEVICE COMPONENTS:

SUB UNIT-#	SUB LABEL	COMPONENT	MATERIAL	CONSTRUCTION	GAP	YEAR APPLIED	MANUFACTURE	OVERALL CONDITION
ABUTMENT-1		CLOSED EXPANSION JOINT	OIL	FILLED JOINT				VERY POOR

COMMENT:

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	COMMENT
FAILING	THROUGHOUT		NOT APPLICABLE	

PIER-2		CLOSED EXPANSION JOINT	ELASTOMERIC	STRIP SEAL GLUED TO DECK		2,021	SILICOFLEX	GOOD

COMMENT: (GEIGEM1, 11/10/2021)--FLAT PLATE REPLACED WITH REINFORCED CONCRETE AND SILICOFLEX BY 7GBM IN MAY 2021

PIER-3		CLOSED EXPANSION JOINT	STEEL	FLAT PLATE				FAIR

COMMENT:

LOOSE	THROUGHOUT		MINOR
LOW	THROUGHOUT		NOT APPLICABLE
POUNDING	THROUGHOUT		NOT APPLICABLE

ABUTMENT-4		CLOSED EXPANSION JOINT	ELASTOMERIC	STRIP SEAL GLUED TO DECK		2,021	SILICOFLEX	GOOD

COMMENT: (GEIGEM1, 11/10/2021)--DECK END REPLACED WITH REINFORCED CONCRETE AND SILICOFLEX BY 7GBM IN MAY 2021

BANK/SLOPE PROTECTION COMPONENTS:

COMPONENT	MATERIAL	CONSTRUCTION	DIRECTION	COMMENTS
BANK PROTECTION	ROCK	RIP RAP	EAST	

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	EDGE		MODERATE		
SCALING	THROUGHOUT		MEDIUM		
TRANSVERSE CRACKS	THROUGHOUT		FEW		

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

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
SCALING	THROUGHOUT		MEDIUM		
SPALLS	AT JOINTS		MINOR		
TRANSVERSE CRACKS	THROUGHOUT		FEW		

SPAN TYPE-#	COMPONENT	MATERIAL	CONSTRUCTION	COMMENTS
MAIN SPANS-3	DECK	REINFORCED CONCRETE	CAST-IN-PLACE	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
DETERIORATION	EDGE		MODERATE		
SCALING	THROUGHOUT		MEDIUM		
TRANSVERSE CRACKS	THROUGHOUT		FEW		

SUPERSTRUCTURE COMPONENTS

SERIES TYPE-#	SPAN TYPE	MATERIAL	CONSTRUCTION	LABEL	COMMENTS

MAIN SERIES-1 *SIMPLE SPAN* *STEEL* *THRU TRUSS*

(GOODMJ1, 06/11/2002)--PORTALS AND WINDBRACES WERE REPLACED AND RAISED. BATTER POSTS STRENGTHENED.
(GEIGEM1, 05/04/2018)--CRACKS IN TOPS OF FLOORBEAMS AT ALL L0 AREAS WERE ATTEMPTED TO BE ARRESTED BY DRILLING HOLES IN FLOORBEAMS AS CLOSE TO CRACKS AS POSSIBLE BY 7GBM ON 2-15-2018.

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-1	NON-COMPOSITE	119 FT 10 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
HORIZONTAL CRACKS	FLOOR BEAMS		FINE		(MEDLES1, 01/19/2016)--3/4" CRACK WEST END FB #1. 5" CRACK WEST END & 7" CRACK EAST END FB # 7 - NC (RAITHK, 07/30/2019)--NO CHANGE
PACK RUST	TOP FLANGE		MODERATE		
SECTION LOSS	FLOOR BEAMS		ADVANCED		(GEIGEM1, 12/14/2021)--60% SECTION LOSS AT ENDS AND WOOD BLOCKING INSTALLED IN 2021 (MADSEJ, 06/17/2022)--ADVANCED SECTION LOSS WITH A 2"X3" HOLE RUSTED THROUGH TH L0' FLOORBEAM WEB AT THE EAST END CLIP ANGLE.
SECTION LOSS	TOP FLANGE		MINOR		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-2	NON-COMPOSITE	121 FT 7 IN	NO	

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
HORIZONTAL CRACKS	FLOOR BEAMS		FINE		(MEDLES1, 01/19/2016)--01/18/06 - NEW 4-1/2" CRK IN TOP FLG GOING INTO WEB W. END OF PIER 3, S. SIDE - NC FB #1 6" & 1 1/2" CRACKS EAST END OF FB.
PACK RUST	TOP FLANGE		MINOR		
SECTION LOSS	TOP FLANGE		MINOR		

SPAN	COMPOSITE INDICATOR	LENGTH	WEATHERING STEEL	COMMENTS
MAIN SPANS-3	NON-COMPOSITE	119 FT 10 IN	NO	(MEDLES1, 01/19/2016)--U2L2 VERTICAL IS TWISTED ON SOUTH SIDE - NC

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
PACK RUST	TOP FLANGE		MINOR		
SECTION LOSS	TOP FLANGE		MINOR		
VERTICAL CRACKS	FLOOR BEAMS		FINE		(MEDLES1, 01/19/2016)--12/06/07 - NEW 5" CRK E. END OF ABUT #4 - NC FB #1 W END 5" & 3" CRACKS IN WEB. (RAITHK, 07/30/2019)--NO NEW CRKS NO CHANGE IN EXISTING CRKS

SUBSTRUCTURE COMPONENTS

SUBSTRUCTURE	SKEW	LENGTH	MATERIAL	CONSTRUCTION	LABEL	COMMENTS
ABUTMENT-1		*26 FT 0 IN*	*REINFORCED CONCRETE*	*NON-INTEGRAL*		

CONDITION	LOCATION 1	LOCATION 2	SEVERITY	MEASUREMENT	COMMENT
ASSOCIATED COMPONENT	**MATERIAL**	**CONSTRUCTION**			
APPROACH BEAM	REINFORCED CONCRETE	CAST-IN-PLACE			
BACKWALL	REINFORCED CONCRETE	CAST-IN-PLACE			
VERTICAL CRACKS	THROUGHOUT		FEW		
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
DETERIORATION	ENDS		MEDIUM		
VERTICAL CRACKS	RANDOM		LARGE		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
FLARED WINGS	REINFORCED CONCRETE	CAST-IN-PLACE			

REBAR EXPOSED	THROUGHOUT		FEW		
SPALLS	THROUGHOUT		SMALL		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
FIXED BEARING	STEEL	PEDESTAL(ROTATING)			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	RANDOM		MINOR		(SHUNAT1, 04/24/2018)--MASONARY PLATE

PIER-2 *27 FT 1 IN* *REINFORCED CONCRETE* *MULTIPLE COLUMN* *(STEGEC, 04/25/2005)--PROFILE GRADE ELEV @ BENT 2 = 1076.9*

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***
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
DRIFT	WATERLINE		SMALL AMOUNT		
SCALING	WATERLINE		MEDIUM		
VERTICAL CRACKS	AT BEAM CAP		FINE		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
WEB BEAM	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
DELAMINATION	AT BEAM CAP		MINOR		
VERTICAL CRACKS	THROUGHOUT		FEW		
EXPANSION BEARING	STEEL	ROCKER			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
OTHER	THROUGHOUT		NOT APPLICABLE		(SHUNAT1, 04/24/2018)--TIPPED NORTH MODERATE
RUSTING	ROCKER		MINOR		
TIPPED	ROCKER		EXCESSIVE		

PIER-3 *27 FT 1 IN* *REINFORCED CONCRETE* *MULTIPLE COLUMN* *(STEGEC, 04/25/2005)--PROFILE GRADE ELEV @ BENT 3 = 1076.9*

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***
HORIZONTAL CRACKS	THROUGHOUT		FEW		
SPALLS	THROUGHOUT		MEDIUM		(SHUNAT1, 04/24/2018)--REBAR EXPOSED
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
LOCAL SCOUR	GROUND LINE		AT PIER		
SCALING	WATERLINE		LIGHT		
VERTICAL CRACKS	THROUGHOUT		MEDIUM		(SHUNAT1, 04/24/2018)--W/ EFF
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
WEB BEAM	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
VERTICAL CRACKS	THROUGHOUT		FEW		
EXPANSION BEARING	STEEL	ROCKER			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	ROCKER		MINOR		
TIPPED	ROCKER		EXCESSIVE		

FIXED BEARING	STEEL	PEDESTAL(ROTATING)			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
ABUTMENT-4	*26 FT 0 IN*	*REINFORCED CONCRETE*	*NON-INTEGRAL*		
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
ASSOCIATED COMPONENT	***MATERIAL***	***CONSTRUCTION***			
APPROACH BEAM	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***
BEAM CAP	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
VERTICAL CRACKS	THROUGHOUT		FEW		
COLUMN	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
FLARED WINGS	REINFORCED CONCRETE	CAST-IN-PLACE			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
EFFLORESCENCE	THROUGHOUT		MODERATE		
VERTICAL CRACKS	THROUGHOUT		FINE		
FOOTING	REINFORCED CONCRETE	SPREAD			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
FIXED BEARING	STEEL	PEDESTAL(ROTATING)			
CONDITION	***LOCATION 1***	***LOCATION 2***	***SEVERITY***	***MEASUREMENT***	***COMMENT***
RUSTING	RANDOM		MINOR		

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
ACTUAL	16 FT 8 IN		02/23/2021	

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: VERY POOR **RUST AMOUNT :** 5=3.0% OF SURFACE RUSTED **STEEL TONS :** 165

ORIGINAL PAINT

PAINT TYPE : A SYSTEM
NAME : RED LEAD
PAINT COLOR : ALUMINUM
PAINT YEAR : 1963
MILS : 8

CONTRACT REPAINT

PAINT TYPE :
NAME :
PAINT COLOR :
PAINT YEAR :
MILS :

DEPARTMENT REPAINT

PAINT TYPE : S SYSTEM
NAME : CAL SULPH/LEAD PAINT
PAINT COLOR : GRAY
PAINT YEAR : 2004
MILS : 14
MANUFACTURE : ARMOR SHIELD
SURFACE PREP : HAND CLEANED

REQUESTED WORK ITEMS

GENERAL WORK COMMENTS:

RESPONSIBILITY	*LOCATION*	*ITEM*	*CATEGORY*	*PRIORITY*	*DATE*	*WORK ITEM COMMENT*
DISTRICT ROUTINE	SLOPE	CUT BRSH&TREES SPAYVINES	SLOPE	2	12/27/2017	
DISTRICT ROUTINE	APPROACH SLAB / DECK	SEAL JOINTS - HOT POUR	APPROACH	3	12/27/2017	
STIP			REPLACEMENT		01/17/2018	(GEIGEM1, 01/17/2018)--2024 - SEVERAL GROWING CRACKS IN FRACTURE CRITICAL FLOOR BEAMS OF TRUSS
REGIONAL	SUPER-TRUSS	REPAIR SECT LOSS IN MEMBR	SUPERSTRUCTURE	2	07/21/2021	(WEAVER1, 07/21/2021)--REPAIR SL @ SP 1 L0'L WEB OF FLOORBEAM NEEDS TO BE PLATED

UTILITY ATTACHMENTS

UTILITY	*OWNER*	*METHOD*	*MEASUREMENT TYPE*	*VALUE*	*NUMBER*	*UTILITY ATTACHMENT COMMENT*

PROGRAM NOTES INFORMATION

YEAR	PROJECT #	MONTH LET	YEAR LET	ITEMS	COMMENT

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:	2-BASICALLY INTOLRBLE REQ	4/2/2003
[Item 68] Deck Geometry Rating:	2-BASICALLY INTOLRBLE REQ	4/17/2014
[Item 69] Underclearance:	N-NOT APPLICABLE	1/7/2002
Sufficiency Rating:	23.9%	3/2/2023
Deficiency:	STRUCTURAL	4/2/2003
Funding Eligibility:	FULL	----
Estimated New Structure Length:	121 FT.	----
Estimated Structure Cost:	$2,261,610	----
Estimated Total Project Cost:	$3,392,415	----
Year of Cost Estimate:	2023	----

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	DELINEATOR		
2	B - ONE LANE BRIDGE		
3	YIELD TO ONCOMING TRAFFIC		

OUTFALL INSPECTION INFORMATION

 # OUTFALLS: **INSPECTOR:**
STATUS: **DATE:**
NOTES:

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

April 26, 2023
10:47:19am

COUNTY : BARRY **BRIDGE :** J0382 **REVIEW STATUS :** CONVERTED **NBI STATUS :** T
RECORD TYPE : ROUTE CARRIED 'ON' STRUCT **RUN DATE :** 3/6/2023 **SUBMITTAL YEAR :** 2023

GENERAL STRUCTURE INFORMATION

1	State	MISSOURI
2	District	SW
3	County	BARRY
8	Federal ID No.	5371
27	Year Built	1930
106	Year Reconstructed	0
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	00248
5E	Directional Suffix	NOT APPLICABLE
7	Facility Carried	MO 248 E
12	Base Hwy. Network	NO
13A	LRS Inventory Route No.	
13B	Subroute No.	
20	Toll Status	ON FREE ROAD
26	Functional Classification	07-RURAL MAJOR COLLECTOR
28A	Lanes on Structure	01
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	JENKINS
	Code	37142
9	Location	S 19 T 24 N R 25 W
11	Milepoint	13.66 miles
16	Latitude	36 D 46 M 10 S
17	Longitude	93 D 40 M 33 S

STRUCTURE TRAFFIC INFORMATION

29	AADT	1247
30	AADT Year	2022
102	Direction of Traffic	ONE LANE BRIDGE FOR 2-WAY
109	AADT Truck Percent	15%
114	Future AADT	2058
115	Future AADT Year	2042

UNDERRECORD INFORMATION

6	Features Intersected	FLAT 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	14 Ft. 5 In.
19	By pass Detour Length	36.25 miles
32	Approach Roadway Width	21 Ft. 12 In.
34	Skew	0.00 Degrees
35	Struct. Flared	NO
47	Total Horiz. Clear	20 Ft. 0 In.
48	Maximum Span Length	121 Ft. 9 In.
49	Structure Length	360 Ft. 11 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)	20 Ft. 12 In.
53	Vert.Clearance Over Deck	14 Ft. 5 In.

Design_No = J0382

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

April 26, 2023
10:47:19am

COUNTY :	**BARRY**	**BRIDGE :**	**J0382**	**REVIEW STATUS :**	**CONVERTED**	**NBI STATUS :**	**T**
RECORD TYPE :	**ROUTE CARRIED 'ON' STRUCT**			**RUN DATE :**	**3/6/2023**	**SUBMITTAL YEAR :**	**2023**

LOAD RATING AND POSTING INFORMATION

31	Design Load	H 15
41	Structure Status	POSTED FOR LOAD
63	Oper. Rating Meth.	ALLOWABLE STRESS
64	Operating Rating	22 Tons.
65	Inventory Rating Meth	ALLOWABLE STRESS
66	Inventory Rating	13 Tons.
70	Bridge Posting Code	20.0-29.9% BELOW

PROPOSED IMPROVEMENT INFORMATION

	Sufficiency Rating	23.9 Percent
	Deficiency Rating	STRUCTURAL
	Funding Eligibility	FULL
75A	Proposed Work	REPLACEMENT SUBSTND LOAD
75B	Work Done By	Contract
76	New Struc Length	390 Ft. 5 In.
94	Struc Improve Cost	$ 2,262,000
95	Roadway Improve Cost	$ 226,000
96	Total Project Cost	$ 3,392,000
97	Year of Cost Estimates	2023

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	2
68	Deck Geometry App. Rating	2
69	Underclearance App. Rating	N
71	Waterway Adeq. App. Rating	6
72	Approach Road App. Rating	6
113	Scour Assess App. Rating	8

APPROVED POSTING INFORMATION

Approved Posting Category S-4

Ton1 Ton2 Ton3

Tonnage Values for Posting Sign

General Text for Posting Sign

CENTERLINE OF BRIDGE.

MATERIAL/CONSTRUCTION INFORMATION

43A	Main Struc. Mat type	STEEL
43B	Main struc Constr. Type	TRUSS - THRU
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	6
59	Superstructure Cond. Rating	3
60	Substructure Cond. Rating	5
61	Channel /Channel Protection Cond. Rating	5
62	Culvert Cond. Rating	N

INSPECTION INFORMATION

90	Gen. Insp Date	7 / 21		
91	Gen. Insp. Frequency	24	Months	
92A	Frac. Critical Inspection	Y	Months	24
93A	Frac. Critical Insp. Date	7 / 21		
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.

FIELD POSTING INFORMATION

Field Posting Category S-4

Ton1 Ton2 Ton3

Tonnage Values for Posting Sign

General Text for Posting Sign

CENTERLINE OF BRIDGE.

Design_No = J0382

EXHIBIT II

SERVICES PROVIDED BY THE COMMISSION

The Commission will furnish to the Consultant without charge the following information:

A. General design criteria.
B. Available standard detail sheets in Microstation format.
C. Bridge Survey
D. Traffic and accident data.
E. Pavement Design Selection
F. All geotechnical work including the Bridge Foundation Investigation Report by January 15, 2024
G. All necessary environment services identified through the Request for Environmental Services
H. Right of way and easement acquisition.

The Consultant shall proceed with the final design and detail plans in accordance with the data approved or furnished by the Commission which will meet with the general standards adopted by AASHTO and approved by the Department of Transportation as provided by Title 23, United States Code, Section 109(b).

PLAN
SCALE: 1"=100'

STA. 774+05.48 OFFSET PROFILE =
STA. 108+56.30 FLAT CREEK STREAMBED

STA. 773+72.33 CONST. C/L RTE. 248
STA. 107+79.18 FLAT CREEK STREAMBED

STA. 773+72.33
REMOVE EXIST. BR. #J0382 20'x361'
(1-122' & 2-120' S-8120 TRUSS SPANS)
CONSTRUCT NEW BRIDGE
28' x 402.50'
(130' - 140' - 130' NU-70 P/S CONCRETE NU GIRDERS)

STA. 773+47.11 OFFSET PROFILE =
STA. 107+04.26 FLAT CREEK STREAMBED

OFFSET PROFILE C3
PI 780+52.01
PC 779+97.80
PT 781+06.17
Δ 4° 08' 18" (RT)
D 3° 49' 07"
L 108.38'
T 54.21'
R 1,500.46'

OFFSET PROFILE C2
PI 777+15.91
PC 776+92.03
PT 777+39.79
Δ 1° 03' 56" (RT)
D 2° 13' 52"
L 47.76'
T 23.88'
R 2,568.00'

C/L RTE. 248 CURVE 3
P.I. 783+61.68
P.C. 779+96.53
P.T. 787+11.59
Δ - 28°36'03.9" RT.
D - 3°59'59.3"
T - 365.14'
L - 715.06'
R - 1432.46'

OFFSET PROFILE C3
PI 780+44.73
PC 779+95.32
PT 780+94.09
Δ 4° 08' 18" (RT)
D 4° 11' 24"
L 98.77'
T 49.41'
R 1,367.46'

OFFSET PROFILE C2
PI 777+14.67
PC 776+92.03
PT 777+37.31
Δ 1° 03' 56" (RT)
D 2° 21' 11"
L 45.29'
T 22.64'
R 2,435.00'

C/L RTE. 248 CURVE 2
P.I. 777+15.28
P.C. 776+92.03
P.T. 777+38.53
Δ - 1°03'56.1" RT.
D - 2°17'30.6"
T - 23.25'
L - 46.50'
R - 2500.00'

OFFSET PROFILE C1
PI 768+67.85
PC 767+16.94
PT 770+17.20
Δ 14° 16' 26" (LT)
D 4° 45' 14"
L 300.26'
T 150.91'
R 1,205.25'

C/L RTE. 248 CURVE 1
P.I. 763+44.91
P.C. 754+28.30
P.T. 770+17.20
Δ - 71°30'00.2" LT.
D - 4°29'59.9"
T - 916.61'
L - 1588.90'
R - 1273.25'

OFFSET PROFILE C1
PI 768+51.37
PC 766+83.80
PT 770+17.20
Δ 14° 16' 26" (LT)
D 4° 16' 53"
L 333.40'
T 167.57'
R 1,338.25'

STA. 767+00.00 CONST. C/L RTE. 248
OFFSET PROFILE 68' LT. OF C/L
STA. 767+16.94

STA. 767+00.00 CONST. C/L RTE. 248
OFFSET PROFILE 65' RT. OF C/L
STA. 766+83.80

SIDE CHANNEL

FLAT CREEK

TENTATIVE R/W

EXIST. R/W

CONST. C/L RTE. 248

1/4 SEC. LINE

SEC. LINE

SW SW SE SE
19-24-25

N 78° 06' 48" E

SCALE
0 100 200 300 400 500

NOTE:
ALL STATION'S AND OFFSET'S TAKEN FROM CONSTRUCTION C/L UNLESS OTHERWISE NOTED

HORIZONTAL & VERTICAL DATUM
MODIFIED STATEPLANE COORDINATES
MODOT RTN 2011 ADJ. 2010 EPOCH
GEOID 2018
PROJECT FACTOR = 1.0000388
ELEV = NAVD88 DATUM (GPS)

BM1 = SQUARE CUT ON BRIDGE WALL
RTE. 248 CONST. C/L
STA. 776+07.91
OFFSET = 14.85' LT.
ELEV. = 1075.86

BM2 = SQUARE CUT ON BRIDGE WALL
RTE. 248 CONST. C/L
STA. 772+13.63
OFFSET = 13.68' RT.
ELEV. = 1075.85

(4 SECTIONS) INDEX MAP

Name of Crossing
FLAT CREEK

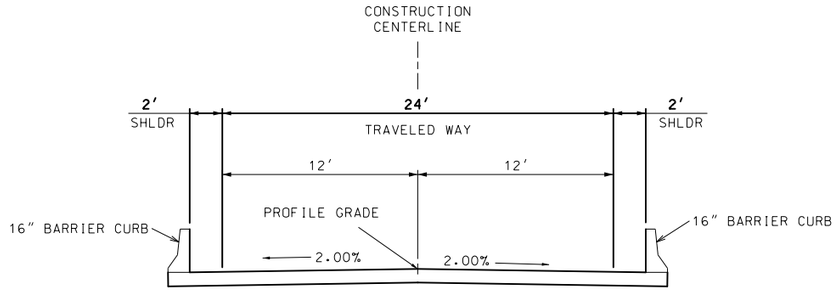
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
REPORT OF BRIDGE SURVEY

SEC. 19 T. 24 R. 25
ROUTE 248 ; BARRY COUNTY
SURVEY MADE BY TRAVIS THIEMANN
PREPARED BY KEVIN MINEAR
CHECKED BY RAY COOK
Transportation Project Manager
PROJ. NO. STA. 773+72.33
JOB NO. JSR0119 BRIDGE NO. J0382

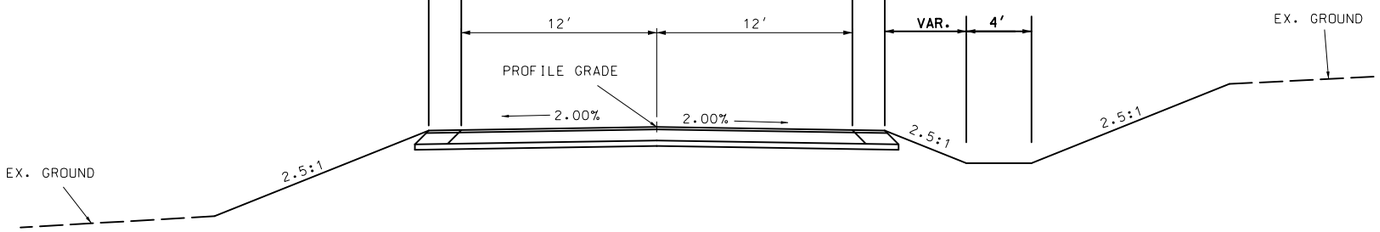
SHEET 1 OF 10

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

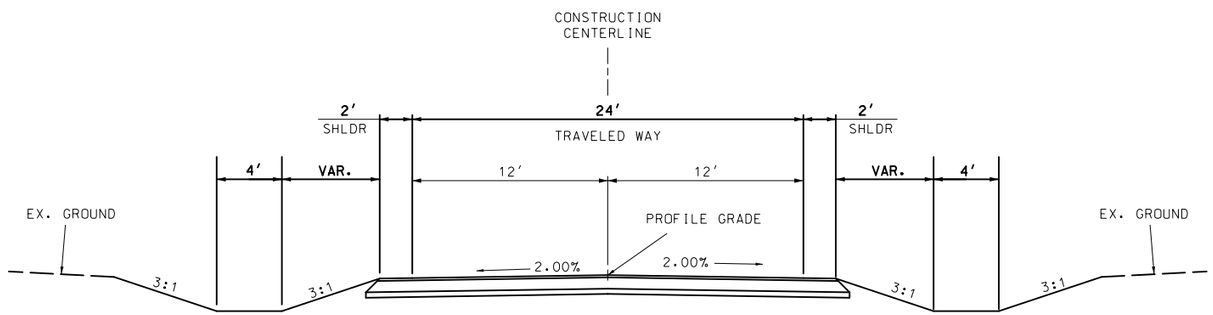
001_JSR0119_Plan_1100.dgn 7:01:38 AM 4/12/2023



TYPICAL SECTION RTE. 248
BRIDGE
STA. 772+45.00 TO STA. 776+45.00



TYPICAL SECTION RTE. 248
STA. 772+25.00 TO STA. 781+00.00



TYPICAL SECTION RTE. 248
STA. 767+70.00 TO STA. 772+25.00

SCALE

0 10 20 30

PROJECT #JSR0119 TRAFFIC DATA
AADT CONSTRUCTION YEAR (2024) = 1,410
AADT DESIGN YEAR (2044) = 1,813
DIRECTIONAL DISTRIBUTION (E/W) = 50.7%/49.3%
PEAK HOUR = 9.78%
PERCENT TRUCKS = 17.87%
GROWTH RATE = 1.27%

ROUTE 248 WILL BE CLOSED DURING
THE PROJECT CONSTRUCTION

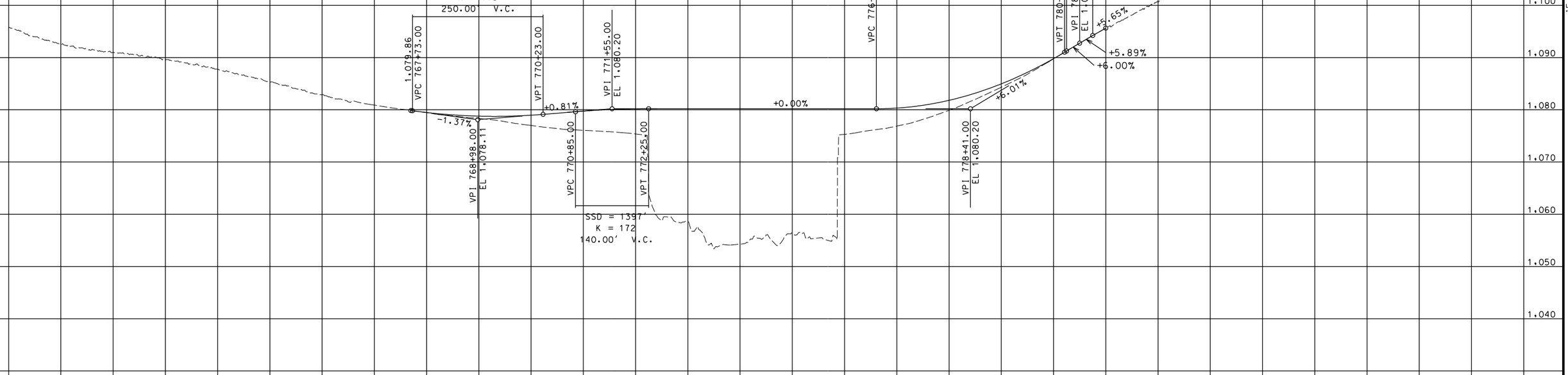
Name of Crossing
FLAT CREEK

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
REPORT OF BRIDGE SURVEY

SEC. 19 T. 24 R. 25
ROUTE 248 : BARRY COUNTY
SURVEY MADE BY TRAVIS THIEMANN
PREPARED BY KEVIN MINEAR
CHECKED BY RAY COOK
Transportation Project Manager
PROJ. NO. STA. 773+72.33
JOB NO. JSR0119 BRIDGE NO. J0382

ROUTE 248
CONTRACTED PROFILE

SCALE: HORI. 1"=100'
VERT. 1"=10'



Name of Crossing
FLAT CREEK

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
REPORT OF BRIDGE SURVEY

SEC. 19 T. 24 R. 25
ROUTE 248 : BARRY COUNTY
SURVEY MADE BY TRAVIS THIEMANN
PREPARED BY KEVIN MINEAR
CHECKED BY RAY COOK
Transportation Project Manager
PROJ. NO. _____ STA. 773+72.33
JOB NO. JSR0119 BRIDGE NO. J0382

SHEET 7 OF 10

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

MEMORANDUM

Missouri Department of Transportation
Construction and Materials
Southwest District, Springfield

TO: Lydia Brownell, Geotechnical Director
Sheri Lamberson, Geologist

CC: Johnny Teegardin, SW/DCME
Stacy McMillan, BR/SLE
Joe Alderson, BR/SPM
Ray Cook, SW/DE

FROM: Nicole Preuss, R.G.
Geologist
Southwest District

DATE: September 12, 2022

SUBJECT: Materials and Construction
Preliminary Geotechnical Report
Route 248, Bridge Replacement
J7S3547, Barry County

The preliminary geotechnical report for the above noted job has been completed. Job length has not been determined as of this time but should be roughly long enough to replace the bridges and get a smooth grade across the new structures. The proposed improvements consist of replacing the existing structure, Bridge Number J0382, over Flat Creek with a new structure.

This preliminary geotechnical report was prepared in accordance with existing bridge plans dated October 1930 and discussion with district design.

Logs of subsurface information are attached. Also attached are soil summary sheets with descriptions and typical properties of the various soils and horizons encountered. Additionally, the suggested wording for the JSP concerning Contractor Furnished Embankment in Place – Borrow is attached.

Soil Types and Geologic Formations

Soil to be encountered in the project limits is the Secesh-Claiborne Association as described by the USDA Natural Resources Conservation Service classification and will be encountered as foundation soils. East of the bridge the Bearthicket-Dapue Complex is the most likely soil and alluvial in origin. West of the bridge the Pomme Silt Loam is the most likely soil and is loess over residuum weathered from dolomite. The soils are brown lean clays to silty clays with low plasticity (CL) in the project limits. They have a plasticity index range of 6 to 13, liquid limit from 23 to 30 and group index between one and three.

Ordovician aged Jefferson City/Cotter Formations underlie the job area and is composed of dolomite.

Grading Recommendations
It is unclear whether borrow material will be required to complete the job at this time. If the need for borrow is required Contractor Furnished Embankment in Place – Borrow will be employed. Suggested wording dealing with JSP is attached.

Sufficient rock of durable quality will not be available to permit construction of a layer of rock fill in the top of the subgrade. If it is deemed desirable to construct this layer, then material is available from the following operations: Hutchens – Shell Knob Quarry, Hutchens - Purdy Quarry, or TRAC – Stoneridge Quarry.

Standard grading specifications now in effect should be adequate for this project.

Slopes
Lean clay soils with variable amounts of gravel are present in the existing stable fill both east and west of Flat Creek. The fill was constructed in the 1930's and was built steeper than current guidelines allow. At this time, it is unclear whether the existing slopes will be widened in connection with a wider bridge than currently exists. If the existing fills are to be widened to accommodate a wider bridge/wider roadbed they should be constructed no steeper than 2.5:1. Likewise, if the grade is raised during final design of the project the slopes should also maintain the 2.5:1 ratio. Widening of the existing slopes should be constructed in accordance with Missouri Standard Specification 203.4.11. Once plans are finalized, please submit them to the District Geotechnical Section for review to ensure preliminary recommendations are still valid.

Existing bridge fill heights are on the order of 23-feet. It is recommended the new design have a 2.5:1 ratio for bridge fill spill with a rock blanket.

Foundations
Preliminary Bridge information for the structure over Flat Creek is available from plans of the existing structure. Sour was noted at several intermediate bents of the bridge during this survey.

Drainage
Proposed drainage will match the existing and discharge capacity will remain adequate.

Seeding
Seeding shall be as per Missouri Standard Specification Section 805 for the region that corresponds with the project location.

Attachments
1. JSP_Borrow_J7S3547
2. Lab_Summary_ J7S3547
3. gINT_Logs_ J7S3547
4. Soil Map_ J7S3547

Job No: J7S3547
Route 248 (Bridge over Flat Creek)
Barry County

Suggested wording for Job Special Provision:

Contractor Furnished Embankment in Place – Borrow Job Special Provision:

Design of this project was based on residual soils which are lean clays to silty clays of generally low plasticity (CL, CL-ML) with considerable rock content), which is a requirement to conform with design criteria of this project. If slope angles steeper than 2.5 are desired, then the borrow material would need to contain considerable rock content or be designed with a rock wedge. Contractor furnished borrow shall be equal to or better than the material assumed for the design and will be subject to approval of the engineer as provided in Missouri Standard Specification Section 106, and in accordance with Specification Section 203.3. Approval will be based on upon consideration of (1) various soil characteristics and dispersion of test values, (2) comparison with those used for design, (3) compliance with slope selection criteria outlined in Table 321.1 of the MoDOT Engineering Policy Guide.

MISSOURI DEPARTMENT OF TRANSPORTATION
DIVISION OF MATERIALS
Summary for Preliminary Geotechnical Report*

COUNTY: Barry **ROUTE:** 248 **JOB NUMBER:** J7S3547

		CLASSIFICATION				% PASSING							
HORIZON	SAMPLE DEPTH	ASTM	AASHTO	DESCRIPTION	SHRINK FACTOR	#10	#40	#200	PL	PI	LL	STATION SAMPLED	LAB NO.**
B-C	2.2-3.5'	CL	A-4(2)	Brown lean clay, with gravel, moist, soft	1.20	79.2	68.8	59.3	16	8	24	771+28.4 15.1'RT	22SWNEP141 J0382_SW
B-C	9.1-10.4'	CL	A-4(2)	Brown lean clay, with gravel, moist, soft	1.20	79.4	68.7	59.9	16	8	24	771+28.4 15.1'RT	22SWNEP142 J0382_SW
B-C	3.1-4.9'	CL-ML	A-4(1)	Brown silty lean clay, with gravel, moist, soft	1.20	78.6	68.6	58.5	17	6	23	771+94.2 15.1'LT	22SWNEP139 J0382_NW
B-C	11.6-13.2'	CL-ML	A-4(1)	Brown silty lean clay, with gravel, moist, soft	1.20	76.0	67.1	57.5	16	7	23	771+94.2 15.1'LT	22SWNEP140 J0382_NW
B-C	1.2-3.7'	CL	A-4(1)	Dark brown gravelly lean clay, moist, soft	1.20	67.1	58.5	42.2	16	10	26	776+34.7 12.0'LT	22SWNEP137 J0382_NE
B-C	10.4-12.8'	CL	A-6(3)	Black lean clay with gravel, with gravel, moist, soft to very soft	1.20	78.4	65.6	47.9	17	13	30	776+34.7 12.0'LT	22SWNEP138 J0382_NE
A	0-0.9'	NP	NP	Non-Plastic black topsoil, contaminate with asphalt	1.20	56.1	38.7	23.1	-	-	-	777+87.3 18.0'RT	22SWNEP143 J0382_SE
				Sour collected under bridge at bent 3: D50=7.52, D90=17.93	1.20								22SWNEP144 J0283_SB

SOIL SERIES:
Secesh-Claiborne

Remarks:

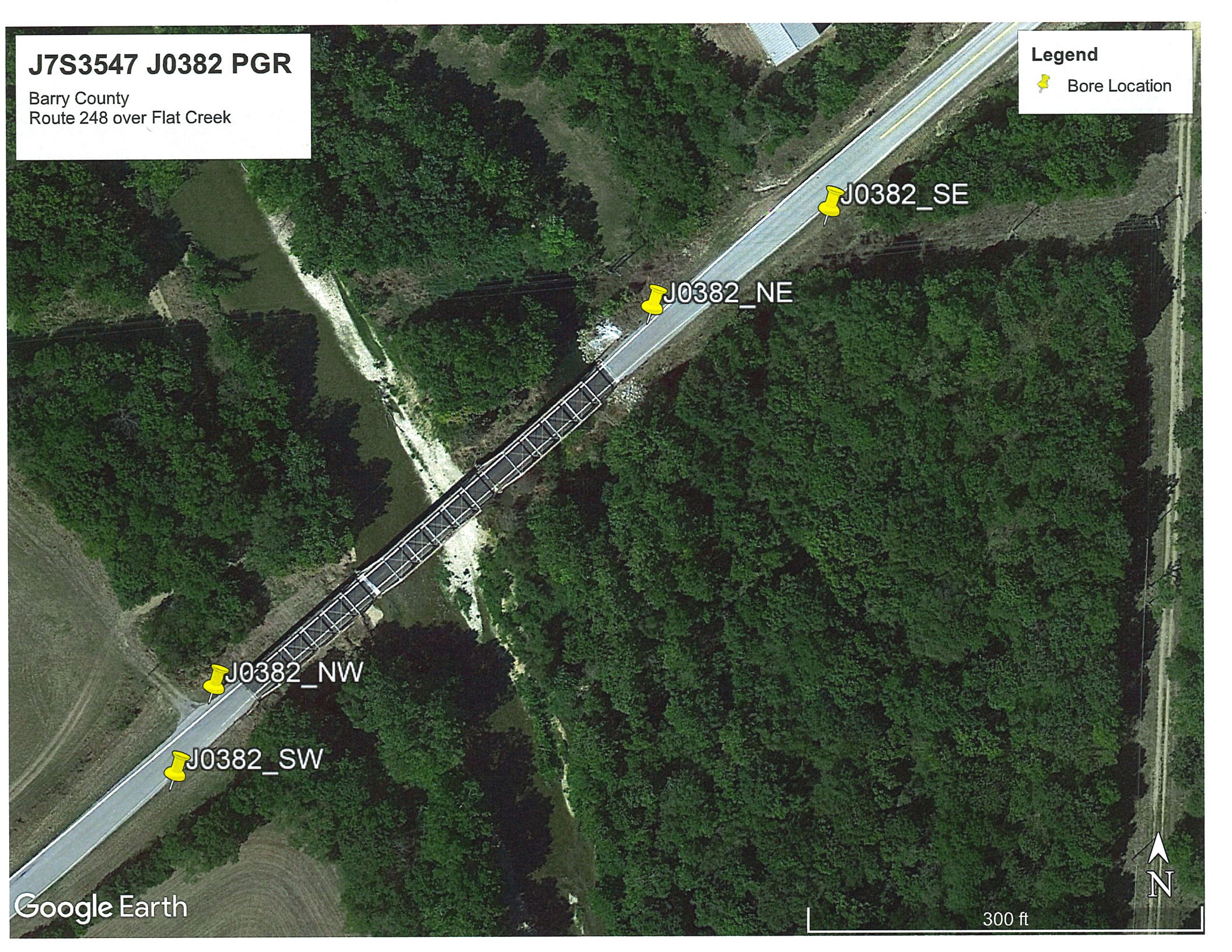
- Shrinkage factors are estimated average data, based upon typical properties of similar soils listed in the **Geology & Soils Manual**.
- These soils are of residual origin as slope alluvium weathered from dolomite.

These values are not intended for design purposes.

Found from: Entire Job Length

*Descriptions & soil properties are represented only as average or typical values.
**Test reports are on file with District Construction & Materials Engineer & District Geologist

FORM M41


J7S3547 J0382 PGR
Barry County
Route 248 over Flat Creek
Legend
Bore Location
J0382_SE
J0382_NE
J0382_NW
J0382_SW
Google Earth
N
300 ft

Missouri Department of Transportation
Construction and Materials

BORING NO. J0382_NE
Page 1 of 1

Job No.: J7S3547	**County:** Barry	**Route:** 248
Design: J0382	**Skew:**	**Location:** Flat Creek
Bent:	**Logged By:** Nicole Preuss	**Operator:** Ken Farrow
Station: 776+34.7	**Northing:** 220649.52	**Date of Work:** 08/23/22-08/23/22
Offset: 12.0'LT	**Easting:** 3030319.58	**Depth to Water:**
Elevation: 1075.5	**Requested Northing:**	**Depth Hole Open:**
Requested Station:	**Requested Easting:**	**Time Change:**
Requested Offset:	**Equipment:** Mobile B-31 ,Auger Cuttings	
Requested Elevation:	**Location Note:**	
Drill No.: G-9401	**Hammer Efficiency:**	**Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-0.8' Asphalt and road bed gravel						
		0.8-5.6' (CL) Dark brown gravelly lean clay, moist, soft						LL = 26 PL = 16
			1070					
		5.6-29.2' (CL) Black lean clay with gravel, moist, soft to very soft						
10								LL = 30 PL = 17
			1060					
20								
			1050					
		29.2-29.4' Likely dolomite						
		Bottom of borehole at 29.4 feet.						

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri West **Coordinate Proj. Factor:** 1.0000388

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

Geologic formations encountered: Jefferson City/Cotter

Are pinnacles, crevices or cavities anticipated? Yes

Is scour anticipated? Yes

Is difficulty anticpated in gaining access to site? No

Foundation problems, if any: No

Will a special investigation be requested? No

Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 9/19/22 12:46 - Z:\SG-DISTRICT\GINT\SOUTHWEST DISTRICT\PROJECT FILES\J7S3547_BARRY_248_FLATCREEK.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. J0382_NW
Page 1 of 1

Job No.: J7S3547
Design: J0382
Bent:
Station: 771+94.2
Offset: 15.1'LT
Elevation: 1075.1
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: G-9401

County: Barry
Skew:
Logged By: Nicole Preuss
Northing: 220359.6
Easting: 3029987.91
Requested Northing:
Requested Easting:
Equipment: Mobile B-31 ,Auger Cuttings
Location Note:
Hammer Efficiency:

Route: 248
Location: Flat Creek
Operator: Ken Farrow
Date of Work: 08/23/22-08/23/22
Depth to Water:
Depth Hole Open:
Time Change:
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-13.2' (CL-ML) Brown silty lean clay, with gravel, moist, soft	1075					
5			1070					LL = 23 PL = 17
10			1065					LL = 23 PL = 16
		13.2-13.3' Likely dolomite Bottom of borehole at 13.2 feet.						

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri West **Coordinate Proj. Factor:** 1.0000388

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

Geologic formations encountered: Jefferson City/Cotter

Are pinnacles, crevices or cavities anticipated? Yes

Is scour anticipated? Yes

Is difficulty anticpated in gaining access to site? No

Foundation problems, if any: No

Will a special investigation be requested? No

Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 9/12/22 09:14 - Z:\SG-DISTRICT\GINT\SOUTHWEST DISTRICT\PROJECT FILES\J7S3547_BARRY_248_FLATCREEK.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. J0382_SE
Page 1 of 1

Job No.: J7S3547 **County:** Barry **Route:** 248
Design: J0382 **Skew:** **Location:** Flat Creek
Bent: **Logged By:** Nicole Preuss **Operator:** Ken Farrow
Station: 777+87.3 **Northing:** 220725.23 **Date of Work:** 08/23/22-08/23/22
Offset: 18.0'RT **Easting:** 3030453.69 **Depth to Water:**
Elevation: 1078.8 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:**
Requested Offset: **Equipment:** Mobile B-31 ,Auger Cuttings
Requested Elevation: **Location Note:**
Drill No.: G-9401 **Hammer Efficiency:** **Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0.0		0.0-0.9' Black topsoil contaminated with asphalt and glass beads						
		0.9-4.1' Boulders and cobbles	1077.5					
2.5								
			1075.0					
		4.1-4.8' Likely dolomite						
		Bottom of borehole at 4.8 feet.						

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri West **Coordinate Proj. Factor:** 1.0000388
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

Geologic formations encountered: Jefferson City/Cotter
Are pinnacles, crevices or cavities anticipated? Yes
Is scour anticipated? Yes
Is difficulty anticpated in gaining access to site? No
Foundation problems, if any: No
Will a special investigation be requested? No
Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 9/19/22 12:46 - Z:\SG-DISTRICT\GINT\SOUTHWEST DISTRICT\PROJECT FILES\J7S3547_BARRY_248_FLATCREEK.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. J0382_SW

Job No.: J7S3547	**County:** Barry	**Route:** 248
Design: J0382	**Skew:**	**Location:** Flat Creek
Bent:	**Logged By:** Nicole Preuss	**Operator:** Ken Farrow
Station: 771+28.4	**Northing:** 220293.37	**Date of Work:** 08/23/22-08/23/22
Offset: 15.1'RT	**Easting:** 3029958.67	**Depth to Water:**
Elevation: 1075.3	**Requested Northing:**	**Depth Hole Open:**
Requested Station:	**Requested Easting:**	**Time Change:**
Requested Offset:	**Equipment:** Mobile B-31 ,Auger Cuttings	
Requested Elevation:	**Location Note:**	
Drill No.: G-9401	**Hammer Efficiency:**	**Drilling Method:** Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Field Tests	Index Tests
0		0.0-1.3' Asphalt and road bed gravel	1075					
		1.3-10.5' (CL) Brown lean clay, with gravel, moist, soft						LL = 24 PL = 16
5			1070					
10			1065					LL = 24 PL = 16
		10.5-11.7' Boulders and cobbles						
		11.7-11.9' Likely dolomite						
		Bottom of borehole at 11.9 feet.						

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri West **Coordinate Proj. Factor:** 1.0000388

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

Geologic formations encountered: Jefferson City/Cotter

Are pinnacles, crevices or cavities anticipated? Yes

Is scour anticipated? Yes

Is difficulty anticpated in gaining access to site? No

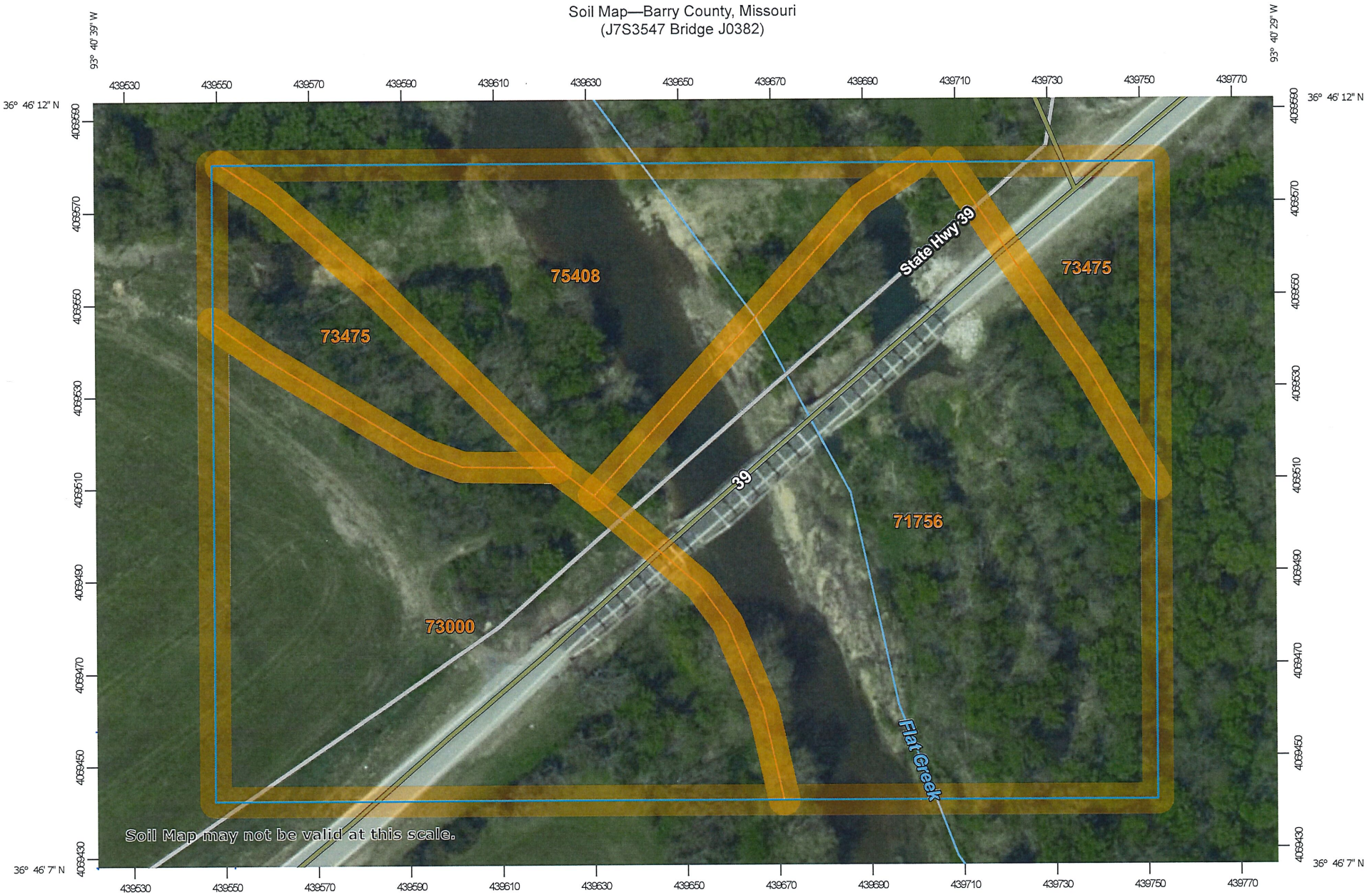
Foundation problems, if any: No

Will a special investigation be requested? No

Other comments:

LETTER BOREHOLE - DISTRICTS - MODOT 20150728.GDT - 9/12/22 09:14 - Z:\SG-DISTRICT\GINT\SOUTHWEST DISTRICT\PROJECT FILES\J7S3547_BARRY_248_FLATCREEK.GPJ

Soil Map—Barry County, Missouri
(J7S3547 Bridge J0382)



Map Scale: 1:1,170 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Barry County, Missouri
Survey Area Data: Version 27, Aug 25, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 20, 2019—Jul 17, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71756	Bearthicket-Dapue complex, 0 to 3 percent slopes, frequently flooded	2.8	39.5%
73000	Pomme silt loam, 3 to 8 percent slopes	2.1	30.2%
73475	Mano-Ocie complex, 15 to 50 percent slopes, extremely stony	0.8	12.0%
75408	Secesh silt loam, 0 to 2 percent slopes, rarely flooded	1.3	18.3%
Totals for Area of Interest		**7.0**	**100.0%**

EXHIBIT "I"

SCOPE OF SERVICES

Surveys, including staking of bridge soundings and ROW monumentation, Preliminary Road Design, Preliminary Bridge Design, Section 404 Corps of Engineers Permit, Right of Way Plan Design, Final Roadway Design, Utility Coordination, Final Bridge Design and Plans Production as follows:

The consultant shall perform the following services, all in accordance with the standard practice of the Commission and the following:

AASHTO "A Policy on Geometric Design of Highways and Streets" (latest version)

AASHTO "Roadside Design Guide" (latest version)

AASHTO "LRFD Design methods" (latest version)

AASHTO "Highway Drainage Guidelines" (latest version)

"Manual on Uniform Traffic Control Devices" (latest version)

"Highway Capacity Manual" (latest version)

I Administration

CONSULTANT shall participate in the following as part of the Administration tasks:

1. Attend and document milestone project meetings with MoDOT (CORE Team meetings). Meetings will be held virtually except for the project kick off and final design field check meetings.
2. Correspondence (emails, letters, meeting minutes, phone calls)
3. Set up the project and conduct Kick-Off Meeting.
4. Coordination with subconsultants.
5. Participate in one Public Meeting. Develop handouts and exhibits for meeting.
6. Provide monthly progress reports and invoices and review subconsultants invoices and reports.
7. Provide exhibits, sketches, and back-up data to MoDOT on an as-needed basis.
8. Provide information to support the SW District MoDOT staff in maintaining a public website for the project staff to inform the public and update impacts related to the project including timelines, changes to the project, meetings, comments. The website to be maintained through the construction phase.

II Surveys

CONSULTANT shall obtain topographic survey information required for the preparation of preliminary, right of way, and final roadway plans including:

1. Perform a thorough review of the existing survey provided by MoDOT.
2. Coordinate available survey control and benchmarks with surveyors.
    a. Translate control and benchmarks into sheet drawings to be used in construction plans, per EPG.
3. Complete remaining topographic surveys to develop preliminary plans, right-of-way plans and final roadway plans, including all improvements and existing topography within the limits of the project. Topographic surveys shall consist of all pertinent topographic features including, but not limited to:
    a. existing drainage and sanitary structures (pipes, types, flowlines, sizes)
    b. trees over 4 inches in diameter
    c. additional existing retaining wall shots and type of wall
    d. building front elevations and pertinent building features
    e. pertinent parking lot features
    f. driveway joints, pavement types and profiles
    g. existing signal equipment surveys
    h. drainage swales
    i. sign posts, size, identification and photo log
    j. pavement marking type
    k. miscellaneous roadside identification and photo log
    l. lighting
    m. other
4. Field locate visible above ground evidence of utilities located within the project area. “Missouri One Call” and MoDOT will be contacted and a formal request will be submitted for marking the locations of member utilities. In the event that “Missouri One Call” fails to respond, in whole or in part, to the formal request, underground facilities, structures, and utilities will be plotted from surveys and/or available records. The locations of all utilities are to be considered approximate. There may be other utilities, whose existence may not be known at the time of the survey.
5. Coordinate with District Utility Engineer on underground utility one-call locates and have utilities located in identified areas of proposed project.
6. Complete utilities survey and verify completeness and accuracy of utility topographical survey.
7. As-needed punch list surveys due to design updates and/or new development.

CONSULTANT shall perform right-of-way surveys necessary for the preparation of preliminary, right of way and final roadway plans including:

1. Identify at the earliest opportunity, the title reports to be ordered by the COMMISSION. This will be coordinated during the preliminary design phase of the project.
2. Locate existing right of way, property lines and pertinent section lines for the entire project limits.
3. Clearly identify linework in drawing with text (i.e. property lines (PL), section lines, quarter-quarter section lines, existing right-of-way, existing easements, etc.
4. Research impacted parcels. Each of these properties within the project limits shall include

property owner name, assessor's map number, last deed book and page, and existing size of parcel in square feet.

5. All property lines shall have a bearing (to the nearest second) and a length (to the nearest hundredth of a foot) shown and the parcel closed within acceptable tolerances governed by the State of Missouri.
6. Incorporate all easements and identified information from the title work into the existing right-of-way drawing.
7. Provide a reference tie drawing with three-point ties.
8. Establish land corner ties.
9. If necessary, the CONSULTANT shall provide a land survey plat that is compliant with the current standards for property boundary surveys to be recorded. The CONSULTANT shall also provide survey plats and legal descriptions as defined in Section 236.4.6 of MoDOT's Engineering Policy Guide.

III Utility Coordination

The CONSULTANT shall perform the following utility coordination tasks:

1. Obtain maps from utilities of their known locations and adjust survey limits as needed.
2. Coordinate submittal of preliminary plans to utility companies.
3. Coordinate with utility companies on the development of the plan of adjustment and obtain cost estimates for reimbursable utilities for the District Utility Engineer's approval.
4. Show the existing utility facilities and plan of adjustments for proposed utilities facilities in the contract plans. (plans sheets, cross sections, culvert sections)
8 Coordinate with utility owner the relocation of each impacted utility on the project during design and construction.
9 Prepare special utility sheets as necessary (including utility profile and exhibits).
10 Assist District Utility Engineer in the preparation of agreements (includes municipal agreements).
11 Identify locations for power service needs, prepare service request for submittal and coordinate with the power company to obtain estimated costs.
12 Coordinate with MoDOT (PM and District Utility Engineer) and to provide SUE test hole information at critical utility locations.
13 Prepare utility job special provision and information for the preparation of the Utility Status Letter for District Utility Engineer.
14 Provide assistance and answer utility related questions during the construction phase for MoDOT staff and the roadway contractor.

IV Preliminary Roadway Design

The CONSULTANT'S attention is directed to Chapter 235 of the MoDOT Engineering Policy Guide (EPG) for general guidelines and requirements for preliminary design. Other chapters may be applicable for preliminary design preparation.

(A) Upon approval of the design criteria memorandum by COMMISSION, the CONSULTANT shall undertake the following to develop the preliminary design phase:

a. Prepare preliminary plans, as outlined in the MoDOT EPG.
    i. The COMMISSION shall furnish the CONSULTANT traffic information for the construction and design years to be used in the preliminary plans.
    ii. The COMMISSION shall furnish the CONSULTANT the latest accident data and traffic information used to calculate the project accident rate. The COMMISSION shall furnish the CONSULTANT the "statewide accident rate for a similar class of roadway" and any high hazard locations within the project limits.
    iii. The CONSULTANT shall submit the preliminary plans to the COMMISSION for review and approval as shown in Exhibit IV.
b. The preliminary plans shall be prepared in accordance with the applicable sections of the MoDOT EPG, as to what shall be shown thereon, including proposed design features.
    i. The plan view English scale shall be 1"=50' horizontal (or different scale as determined by MoDOT Project Manager for clarity) and extend 100 feet beyond project limits.
    ii. The profile view English scale shall be 1"=50' horizontal, and 1"=10' vertical.
c. The CONSULTANT may have to review preliminary cross sections sufficiently to make a cost comparison between using retaining walls versus acquiring additional right of way for all proposed wall locations.
d. The CONSULTANT shall prepare the construction estimate. The COMMISSION shall prepare the right of way estimate based on the right of way requirements furnished by the CONSULTANT.
e. The preliminary plans shall be submitted to the COMMISSION for review and approval. A letter of transmittal shall be provided with the preliminary plan submittal. The COMMISSION shall furnish the template for the letter of transmittal. The construction cost estimate shall also be submitted with the preliminary plans.
f. The preliminary plans shall include the tentative additional easement and right of way limits, property lines and ownerships, section lines, township and ranges, any U.S. Surveys, city limits, and a general outline of the construction staging, critical design items and other items as outlined in the EPG.
g. Traffic assignments shall be shown on the respective roadways or on a line sketch of the roadways.
h. Typical sections shall indicate heavy, medium or light duty pavement for new roadways, along with descriptions of the existing roadway types remaining in place.

(B) A Preliminary Field Check will be arranged by the CONSULTANT with the COMMISSION to discuss design features in the project area.

(C) The CONSULTANT shall provide the COMMISSION with information for proper environmental and cultural clearance including submittal of the preliminary stage RES, right of way stage RES (if needed) and final stage RES. Items that may need to be addressed include historical buildings, archaeological sites, historic bridges, conversion of farmland, endangered species, wetlands, parklands and historical sites.

(D) The CONSULTANT shall prepare and submit the Bridge Survey Report, Bridge Survey Sheets, and Bridge Survey Checklist.

(E) The CONSULTANT shall set horizontal and vertical control for the project and provide the COMMISSION the combined adjustment factor. All control furnished by the CONSULTANT shall use current datums and adjustments.

(F) The CONSULTANT shall provide all land boundary work and legal descriptions to the COMMISSION for review and approval prior to right of way plans submittal.

(G) The COMMISSION shall provide the pavement design and general Job Special Provisions related to the project including any special design elements.

(H) The COMMISSION may hold a public meeting for this project either in person or virtually and the CONSULTANT will be required to attend and coordinate meeting. The CONSULTANT shall provide exhibits for MoDOT public meeting as requested and will refer to the sections of the EPG concerning public involvement.

V Preliminary Bridge Design

(A) Perform the geometric analysis at the proposed bridge site necessary to develop type, size and location drawings consisting of a general plan and elevation plan of the structures, typical roadway sections and roadway profiles. This includes preparation of the Bridge Memorandum & Layout (including the itemized preliminary bridge estimate).

(B) The structure and/or box culvert type and size (if applicable) shall be based on roadway alignments, geometric analysis, hydraulic analysis (if applicable), spill slope requirements, roadway overpass clearances, grades and/or clear zone requirements.

(C) The superstructure type shall be dependent upon site constraints and a detailed cost analysis comparison.

(D) All requirements of the Federal Emergency Management Agency's National Flood Insurance Program shall be met.

(E) Discharges will be estimated using USGS Regression Equations and available stream gauge data (if applicable).

(F) HEC-RAS shall be used to model of the natural, existing and proposed conditions (if applicable).

(G) Scour calculations shall be performed in accordance with FHWA Hydraulic Engineering Circular No. 18 (if applicable).

(H) The results of the hydrologic, hydraulic and scour analysis shall be documented in the Bridge Hydraulic and Scour Report (if applicable).

(I) All requirements outlined in the MoDOT Engineering Policy Guide (EPG) shall be met. The CONSULTANT shall follow MoDOT's "practical design" philosophy and submit any design exceptions as necessary.

(J) Develop final detailed design criteria in the form of Bridge Memorandum and Bridge Design Layout documents.

VI Section 404 Corps of Engineers Permit (if applicable)

The CONSULTANT shall provide the following information necessary to allow MoDOT staff to apply for any required Section 404 Corps of Engineer Permits. If the permit is required due to bridge construction, the application data shall be submitted no later than with the T.S.&L. drawings. All information should be provided to the MoDOT Project Manager who will forward the information to Central Office Design.

(A) Provide the amount and type of excavation and material that will be used in streams, lakes, and wetlands below the Corps of Engineers' ordinary high water line (OHL) elevations.

(B) Provide location and quantities of permanent berms and spill fills below OHL.
   a. Earth fill, rock blanket (square feet and cubic yards)
   b. Rock blanket along right descending bank and left descending bank (linear feet)
   c. Rock ditch (square feet)

(C) Provide location, excavation and size of pier below OHL.
   a. Excavation (cubic yards)
   b. Pier (square feet)

(D) Provide channel realignment data.
   a. Existing channel length of section to be modified (feet)
   b. Average channel width of section to be modified (feet)
   c. Realigned section, length and width (feet)

(E) Provide temporary fill amounts in wetlands or below OHL in streams.
    a. Earth fill (square feet and cubic yards)
    b. Class C (square feet and cubic yards)

(F) Provide information about temporary fills and shoring.
    a. Location of temporary fills and shoring
    b. Source of material
    c. Final disposition of removed materials

(G) Provide information about temporary culverts.
    a. Number of culverts
    b. Size (inches)
    c. Length (feet)

(H) Provide information on channel cleanout – excavation below OHL.
    a. Cleanout upstream and downstream of structure (linear feet)
    b. Total quantity of material to be removed below OHL (square feet and cubic yards)

(I) Provide 8 ½-inch by 11-inch copies of any plan or profile sheets required for the permit application.

(J) Provide bridge elevation and plan views with OHL indicated.

VII Right of Way Design

(A) The CONSULTANT shall prepare right of way plans, which may be separate drawings from those used for design and construction details. The right of way plans shall show alignment, geometric design, removal of improvements, drainage facilities, property lines and ownership, sub-division lot lines, other land survey information, street lines and existing right of way and easements. The CONSULTANT should also include any plan details, which will require additional right of way or permanent, temporary or utility easements during the construction phase of the project such as bypasses, temporary erosion control, etc. Right of way plans include title sheet, typical sections, profile sheets, and cross sections of the roadway, entrances and side roads. Areas of new right of way, permanent easements and/or temporary easements required from each individual property owner may be shown in tabular form on the respective sheets.

    a. The CONSULTANT shall finalize any previous review of the roadway cross sections sufficiently to determine the feasibility of constructing retaining walls versus obtaining additional right of way. This final review shall consist of construction estimates versus right of way estimates.
    b. Upon completion of the estimates by COMMISSION and CONSULTANT, the CONSULTANT shall recommend to the COMMISSION a choice at the various locations which warrant consideration of the alternate retaining wall versus right of way solutions. The COMMISSION shall make the final determination of purchasing right of way, or constructing retaining walls.

(B) Right of way plans shall be submitted to the COMMISSION for review and approval. The right of way plans shall be at the same scale as the construction plans. The right of way plans shall include any design details that will control the width of right of way and necessary easements.

a. New right of way lines and all easements shall be dimensioned by station and offset distance from the centerline, or crossroad centerlines, if necessary. Bearings and distances on the right of way lines may be required.
b. The following minimum design features shall be included on the right of way plans:
    i. Title sheet with appropriate project limits, access note and traffic data completed.
    ii. Typical Sections
    iii. Cross sections at 100' intervals, including additional sections at each entrance with new and existing entrance grades.
    iv. Construction limits (slope lines); drainage facilities; entrances and their reference location, width and type along with their existing and future grade percentage; property owners, with areas of new right of way, easements and remaining property; centerline bearing, ties to legal land corners from centerline stations with notation for corner witness by a registered land surveyor; existing utility locations and easements, including replacement utility easements; horizontal curvature information; and proper right of way symbolization for new right of way (access control) and easements, including areas which may be required to accommodate temporary erosion control.
    v. Township, Range, Section and/or U.S. Survey information broken down t ¼ ¼ section line level on each plan sheet near the title block or appropriate survey/section line.

(C) The CONSULTANT shall provide an updated construction estimate for the Right of Way design stage.

(D) The COMMISSION shall review, approve and certify the right of way plans as completed by the CONSULTANT. The CONSULTANT shall provide one (1) electronic set of fully signed and sealed right of way plans, for the COMMISSION'S use.

(E) The CONSULTANT shall provide title insurance information for all parcels with new right of way acquisition and the last deed of record for any parcel with easements.

(F) The COMMISSION will prepare right of way appraisals and secure the necessary right of way by negotiation or condemnation, if necessary, for construction of this project.

(G) The CONSULTANT shall be responsible for staking and re-staking tentative right of way on individual properties, as required by MoDOT staff, during right of way negotiation and

acquisition phase of the project. The CONSULTANT shall also set permanent monuments as shown on the recordable land survey.

(H) The CONSULTANT shall be responsible for making all revisions to the right of way and construction plans due to negotiations with the property owners in an effort to acquire right of way.

(I) The CONSULTANT shall write, sign and seal deed descriptions for all right of way acquisitions on MoDOT's approved Exhibit A form and submit to COMMISSION.

(J) The CONSULTANT will provide the COMMISSION with information for proper environmental and cultural clearance including submittal of the Right of Way stage RES. Items that may need to be addressed include historical buildings, archaeological sites, historic bridges, conversion of farmland, endangered species, wetlands, parklands and historical sites.

IIX Final Roadway Design

(A) The COMMISSION will secure execution of municipal agreements with the cities and/or county agreements. A copy of the executed agreements will be furnished to the CONSULTANT for his information. The CONSULTANT shall conform to all design provisions of these agreements.

(B) A final design field check shall be held with CONSULTANT and COMMISSION representatives prior to completing final design plan quantities. The CONSULTANT shall make any necessary revisions to the final plans as determined by this design field check.

(C) The CONSULTANT shall prepare detailed temporary erosion control plans for review and approval before inclusion in the final design plans. The CONSULTANT will submit a Final Plans stage RES and help ensure previous RES items have been addressed.

(D) The CONSULTANT shall prepare computations for all design plan quantities. All plan quantities shall be shown on the Quantity Sheets, by construction stage, if applicable. The format for these sheets shall be furnished by the COMMISSION. Specialty items may have separate sheets for quantity tabulations.

(E) The CONSULTANT shall prepare for review and approval by the COMMISSION all General Job Special Provisions, which are to supersede the Missouri Standard Specification for Highway Construction. A brief reason for the deviation from the standard plans and specifications should also be provided. The CONSULTANT shall prepare only Job Special Provisions related to design elements shown in the plans.

(F) The following list shall be considered the minimum requirements for a complete set of Final Design Plans.

a. Title Sheet
b. Typical Sections
c. Quantity Sheets
d. Plan Sheets at 1"=50' horizontal (or different scale as determined by MoDOT Project Manager for clarity). Plan sheets shall include all necessary adjustments to signing and proposed pavement marking.
e. Profile Sheets at 1"=50' horizontal and 1"=10' vertical
f. Culvert Sections at 1"=10', if needed
g. Special Sheets for geometrics, referenced points, grading plan, traffic control plan, temporary erosion control plan and any other sheets for special design features.
h. Earthwork Quantities, Cross Sections at 25' intervals, 1"=10' (1:100), horizontal and vertical, including entrance sections with existing and proposed grades
i. Tabulation of Quantity Sheets
j. Job Special Provisions in electronic format readable in COMMISSION'S current word processor
k. File with the bid items and quantities as generated by COMMISSION'S Estimate Program
l. Construction Workday Study
m. Transportation Management Plan
n. Final Plans Checklist Form D-12

(G) Additional plans and information may be required to complete the Final Design Plans. With the submittal of the Final Design the CONSULTANT shall also provide the COMMISSION a statement that an internal quality control check has been conducted and to the best of the CONSULTANT'S knowledge the final design plans are free of gross errors, misleading or confusing typos, and includes adequate information to construct the project.

(H) The CONSULTANT shall prepare all plans through the use of a Computer Aided Drafting (CAD) program. The CONSULTANT shall conform to MoDOT's Specifications for Computer Deliverable Contract Plans as referenced in the MoDOT EPG.

(I) The CONSULTANT shall furnish the COMMISSION the following completed sheets and documents, as applicable, for each separate construction project included in this contract, as follows:

a. Final Design Plans showing profile grades, geometric data, alignment data, etc.
b. One (1) electronic copy of the location sketch for Commission Approval submitted in electronic format.

c. Draft copy of the job special provisions related to design elements for review. After corrections, the job special provisions shall be furnished in electronic format utilizing the COMMISSION'S latest word processing program.
d. One (1) legible electronic copy of engineering calculations and analysis.
e. One (1) electronic copy of a complete summary of quantities and estimate of construction costs. The estimate shall be prepared using the latest version of MoDOT's ESTIMATE program.
f. One (1) electronic copy of Electronic Design Data.
g. One (1) electronic copy of a workday study showing the estimated number of workdays required to construct each project.
h. The CONSULTANT shall provide a 3D model of the project exported from Geopak Open Roads Designer software for the COMMISSION'S use.

IX Final Bridge Design

Furnish to the COMMISSION fully checked design plans, job special provisions, design computations, quantity computations, final cost estimate, and a construction workday study for the structure(s). The CONSULTANT is expected to make the COMMISSION aware of more economical design alternatives that may become apparent during the preparation of the final design.

(A) The plans shall be complete and shall cover all parts of the structure they represent. The degree of detail shall be comparable to that furnished on typical plans prepared by the COMMISSION. High resolution final signed and sealed plans, will be submitted in Adobe Acrobat Reader format version 7 or higher. Final signed and sealed plans shall be in pdf full size (34" x 22") format. These deliverables shall use the file naming convention and be in accordance with the "Specifications of Computer Deliverable Contract Plans" requirement outlined in the Commission's Engineering Policy Guide, Section 237.13.3. The electronic plans in Microstation format cannot be signed and sealed. The electronic submittals shall be made in a method suitable to MoDOT.

(B) All construction changes made to the plans during construction of the project shall also be submitted electronically in Adobe Acrobat and Microstation format.

(C) The job special provisions shall be complete and describe all design features, construction procedures, or material requirements in the plans that are deviations from the latest edition of the Missouri Standard Plans for Highway Construction. Typical job special provisions that have been developed by MoDOT for previous jobs are posted on MoDOT's website and are available for use and modification as needed. The job special provisions shall include a table of contents sheet that is signed and sealed by a professional engineer registered in Missouri. The signed and sealed job special provisions shall also be submitted in Adobe Acrobat Reader format, version 7 or higher.

Job Special Provisions shall also be submitted in Microstation Word format. The submittal letter shall explain the need for each provision.

(D) The design computations and plans shall be acceptable to and will become the property of the Commission. The CONSULTANT shall submit design computations in Adobe Acrobat Reader version 7.0 format or greater. The files shall be transferred in a manner acceptable to MoDOT. The design computations shall contain an index file, with electronic links to the files contained within. Submittals shall include a set of design computations for each bridge. The design computations shall not be combined with the Microstation or the Adobe Acrobat Reader submittals.

(E) The final estimate submitted by the CONSULTANT shall include backup material that supports the estimates made for non-standard or lump sum pay items.

(F) The CONSULTANT shall submit the hours and cost summarizing the design effort for each bridge. The summary shall include separate amounts for: Number of Hours for Bridge Preliminary Design, Cost of Bridge Preliminary Design, Number of Hours for Bridge Final Design, Cost of Bridge Final Design. Generally, the above amounts should include all hours and costs invoiced that are attributable to bridge design and plans preparation up to the point of turning in the signed and sealed plans. It should not include hours attributable to preparing the bridge survey, final construction cost estimate, or workday study.

X Construction Support

(A) The CONSULTANT shall be available to the COMMISSION to discuss and interpret plans and specifications during the bidding and construction phase of the project as determined necessary by the Engineer.

(B) The CONSULTANT shall be available to provide Shop Drawing review of CONTRACTOR submittals pertaining to essential structural components and review any contractor's Value Engineering Proposals.

(C) The CONSULTANT may be required to attend a pre-construction meeting, and a post construction meeting via TEAMS.

(D) If issues arise during construction, there will be a direct line of communication established between the MoDOT Construction Office and the CONSULTANT. The CONSULTANT will immediately inform the MoDOT Design Division or MoDOT Bridge Division of any recommendations or clarifications made to the Construction Office.

XI Construction Inspection

(A) Purpose

i. The Consultant shall provide construction inspection, materials testing, and other services as needed. Support services will be assigned by the MoDOT Resident Engineer, as described within this Exhibit (PROJECT).

ii. The Consultant shall provide support services as requested throughout the following phases of the Project:

- Construction

iii. The Consultant shall provide PROJECT related services as described herein.

- The consultant shall provide to MoDOT qualified inspection services to supplement MoDOT's Resident Engineer (RE) and staff on the inspection of the above referenced project(s).

- The services provided shall include Quality Assurance (QA) verifications on all items of installed work and QA tests as outlined in the attached Contractor Quality Control Job Special Provision (JSP). Testing frequencies shall be no less than as defined in the Inspection Testing Plan (ITP) and in accordance with the applicable Missouri Standard Specifications for Highway Construction. Above referenced documents can be found at https://www.modot.org.

- Any testing performed by the consultant can only be performed by personnel certified for the tests being conducted through MoDOT's technician certification program AND testers must carry current credentials validating their certification

- The consultant's inspector shall be present on the jobsite daily to capture necessary diary information for progress monitoring. For periods of work between critical installations and at certain hold points, the inspection time spent on the project (while daily) can be minimal if approved by the RE.

- Daily, the inspector shall provide/perform:
    - A daily work report entered into AASHTOWare Project documenting all construction activities on the project
    - Any QA tests required by the ITP for the work being performed
    - All test results shall be recorded in AASHTOWare Project in the proper format as defined by the Sampling Checklist and Materials Summary
    - A work zone traffic control review of all TCDs associated to the project to ensure compliance with the plans and MUTCD. All reviews will be maintained and available for review upon request by the RE

- On a semi-monthly basis, the inspector may be required to run an AASHTOWare Project estimate and submit to the RE for review.

- As needed, develop change orders to document overruns/underruns on the project to ensure prompt payment to the contractor.

- Expected allocation of resources are as follows:
    - Staffing of above referenced project will be confirmed by the Branson Resident Engineer; however, it's anticipated inspection services will be needed for approximately Six (6) months beginning in July of 2022.
    - The consultant should expect to dedicate 1 individual for a total of 40 hours each per week for the duration of the project(s) except for intervals of time that the weather will not allow the work to continue or the contractor chooses not to staff the projects in question.

(B) Quality Assurance Personnel Duties and Responsibilities

i. Quality Assurance Testers – Quality Assurance Testers will perform testing and sampling during construction as outlined in the Inspection & Test Plan (ITP). The QA sampling and testing will be performed by QA Testers certified through the MoDOT Technician Certification Program or a certification program preapproved by MoDOT. The QA Testers report directly to the Quality Assurance Inspector (QAI). **The QA tester can be the QAI.**

ii. QA Tester responsibilities:

- Perform required tests and document test in accordance with contract documents
- Conduct material sampling and testing in conformance with the appropriate methods and frequencies
- Ensure all measuring and test equipment is properly maintained and calibrated
- Promptly communicate nonconforming material to RE and production staff

iii. Quality Assurance Inspectors (QAI) – Quality Assurance Inspectors will have a thorough understanding of the contract requirements and will perform inspections during construction to ensure the quality of the work meets or exceeds contract specifications. The QA Inspector will be knowledgeable of the work he/she is inspecting and will be able to recognize conforming and nonconforming work and material. The QA Inspector reports directly to the MoDOT's Resident Engineer.

iv. QA Inspector responsibilities:

- Perform required inspections and complete checklists in accordance with contract documents and found at the following link - http://www.modot.org/business/contractor_resources/Quality_Management/
- Ensure inspection observations are included on Daily Inspection Report (DWR)
- Ensure material is conforming to the contract requirements before being incorporated into the work
- Promptly communicate nonconformance material and work to RE

- Wage rate inspections are required at a minimum of 1 every week per job. QAI needs to discuss required frequency on each job with the RE prior to work to ensure accuracy.
- CUF (commercially useful function) reviews on all DBE Subs, minimum 1/sub/job. These must be submitted to CPOA (Construction Project Office Assistant) within 24 hours of completion.
- After completion of ADA work at each location, the following ADA checklist shall be completed by the insepector and provided to the Resident Engineer (RE) for Review and Approval. ADA exceptions can only be approved by the MoDOT RE. https://epg.modot.org/files/1/1a/136.9.4_Mar_2021.docx

v. Pre-Activity Meeting

- Pre-Activity Meetings are necessary to discuss details of the Work Plan and schedule. Pre-Activity Meetings will be held 24-hours prior to the start of each new project activity or change in work crew. The Superintendent/Job Foreman of the activity will lead the meeting and others present at the meeting will be the QA Inspection and Testing Staff, and MoDOT.

vi. Inspection and Testing

- Inspection and testing are performed during all phases of the work from start to completion to ensure the work and testable material (asphalt, concrete, aggregate, etc.) meets or exceeds the contract requirements. Consultant will perform inspection and testing of the work and material as specified in the Inspection and Testing Plan and MoDOT-provided checklists. All results will be documented in AASHTOWare Project.

(C) Inspection and Testing Plan (ITP)

i. The Inspection and Testing Plan (ITP) outlines the acceptance criteria for contract items for this project along with the required tests, testing frequency, and the required QA documentation. The ITP is provided by MoDOT. Any changes to the specifications, testing procedures, or the testing frequencies from the standard ITP will be implemented via change order. In addition, a change order will be completed to add acceptance criteria for nonstandard contract items not included in the standard ITP.

ii. See link below for ITP:
- http://www.modot.org/business/contractor_resources/Quality_Management/

(D) Daily Work Report (DWR)

i. A Daily Inspection Report (DWR) will be completed on the project each day to document pertinent project activities. The report will include a detailed diary that describes the work performed as well as observations made by QA Inspection staff regarding quality assurance. The DWR will include other items such as weather conditions, location of work, installed quantities, tests performed, and a list of all subcontractors that performed work on that date. The DWR is completed in AASHTOWare Project.

(E) Hold Points

i. Hold Points are events in the work process that require approval from MoDOT prior to continuing work. Hold Points occur between different definable stages of work when the succeeding work depends on the acceptance of the preceding work. A list of minimum Hold Points is available on MoDOT's website and can be provided upon request. Additional Hold Points can be added by MoDOT.

ii. Hold Point inspections will be at times planned in the Weekly Schedule. The Hold Points may be rescheduled as needed, but the Consultant Inspector will provide a minimum 24-hour advance notification to MoDOT, unless otherwise approved by MoDOT.

iii. Prior to all Hold Point inspections, the consultant Inspection Staff will provide MoDOT with the Daily Inspection Reports, Inspection Checklists, Test Reports, and Materials Receiving Inspection Reports for the work performed leading up to the Hold Point. MoDOT-identified issues will be corrected prior to continuing work and a new Hold Point scheduled.

(F) Material Receiving

i. Material Receiving is assurance that products and materials are identified from receipt and during all stages of production, delivery and installation. At receipt, the Consultant Inspection Staff will inspect general condition of material and determine if material is compliant based on the requirements specified in the ITP, Specifications, Job Special Provisions, Standard Drawings, or other pertinent contract documents. For products that require on-site inspection by MoDOT Materials staff, the RE will notify MoDOT staff promptly to schedule the inspection.

ii. Some materials are pre-qualified or pre-accepted for use on MoDOT projects. A list of these items is maintained by MoDOT and can be found on the MoDOT internet site. These lists include: Pre-Acceptance List (PAL), Approved Product List (APL),

Bridge Pre-qualified Products List (BPPL), and the Qualified List (QL). Although pre-qualified or pre-accepted, appropriate documentation detailed in the Specifications will accompany these products for acceptance.

iii. All material delivered to the project, excluding testable material, will be inspected for appropriate dimensions, quantity, condition, markings, etc., and accompanied with appropriate documentation. All PAL items will be inspected to ensure material confirms to plans and specifications and disposition remarks added to the associated identification number in AASHTOWare Project.

(G) QUALITY DOCUMENTATION

i. Project documentation (inspection checklists, daily work reports, test records, Materials Receiving Inspection Reports, etc.) referenced in this plan will be electronically stored and organized by the Consultants Inspection Staff in AASHTOWare Project.

ii. Project documentation will be electronically saved to AASHTOWare Project within 48-hours after the work shift ends.

iii. In addition, to the above, all project correspondence must be delivered to MoDOT electronically so it can be archived with the project's permanent records. Copies should be maintained by the consultant for access as needed. This includes, but is not limited to: delivery tickets, mix designs, mill test reports, certifications, test reports, contractor schedule, any letters associated to the contract, wage rate inspections, NCR's, and order records. These items shall be uploaded and stored in eProjects.

iv. Certified payrolls for contractor activity will be checked and maintained by MoDOT.

v. At project completion, the inspector shall provide the RE with a set of marked up Final Plans, including final quantities, for each Project in the Contract, and in accordance with direction given by the Resident Engineer.

(H) CONTROL OF NON-CONFORMING WORK AND MATERIAL

i. Non-conformance reporting will be used to identify and ensure that work, material, and/or processes (i.e. QC inspections, tests, documentation, etc.) that fail to satisfy the contract requirements are identified and promptly resolved. QA staff or production staff will identify non-conformances and the QAI will document using a Non-Conformance Report (NCR). MoDOT may also initiate an NCR.

ii. The NCR process is as follows:

1. Non-conforming work and/or material are identified.
2. NCR is issued on the provided standard form.
3. QAI forwards copy of NCR to MoDOT with proposed resolution.
4. MoDOT either approves or rejects the proposed resolution. A dialogue will ensue following any rejected proposals until an acceptable solution is identified.
5. The MoDOT-approved resolution is executed.
6. New inspection and/or test of previously identified non-conforming item is completed.
7. QAI verifies previously identified non-conforming item is now compliant and requests final approval from MoDOT.
8. MoDOT evaluates previously identified non-conforming item. If accepted, MoDOT signs NCR for closure.

EXHIBIT IV

PERIOD OF SERVICE

The Consultant shall make submittals in accordance with the schedule described below.

Preliminary Stage Request for Environmental Services by August 25, 2023

Preliminary Road Plans by September 25, 2023

Public Meeting Exhibits by October 5, 2023

Bridge Memo by September 25, 2023

Request for Soundings by September 25, 2023

Right of Way Stage Request for Environmental Services by September 1, 2023

Right of Way Plans by October 01, 2023

Type Size and Location Bridge Drawings ~~December 13~~February 22, 2023

Final Stage Request for Environmental Services by ~~December 27, 2023~~May 15, 2024

100% Review Plans by ~~January~~ May 22, 2024

Construction Engineering / Construction Inspection as needed post award~~.~~

Final Signed and Sealed Bridge Plans and Roadway Plans, Job Special Provisions, Final Construction Estimate, Working Day Study, D-12 Form and remaining PS&E documents by ~~March 1~~July 15, 2024 for an October 2024 letting~~.~~

PERIOD OF SERVICE – The total period of service including construction services is expected to be completed by ~~October~~ Apirl 1, 202~~5~~6.