

# Bridge Inspection Report

**03309**  
**SH 21 Carroll**  
**over**  
**PINEY CREEK**



**Inspection Date:**

**Inspected By:**

**Inspection Type(s):**

Inspector:

Structure Number: 03309

Inspection Date:

Facility Carried: SH 21 Carroll

## Bridge Inspection Report

## National Bridge Inventory

IDENTIFICATION		INSPECTIONS	
(1) STATE CODE	056 - Arkansas	(90) INSPECTION DATE	07/15/2019
(8) STRUCTURE NUMBER	03309	(91) DESIGNATED INSPECTION FREQUENCY	24
(5) INV. ROUTE (ON/UNDER)	1 3 1 21 0	(92) CRITICAL FEATURE INSPECTION	(93) CFI DATE
(2) HIGHWAY AGENCY	09 (3) COUNTY CODE 015	A. FRACTURE CRITICAL DETAIL	N
(4) PLACE CODE	00000	B. UNDERWATER INSPECTION	N
(6) FEATURES INTERSECTED	PINEY CREEK	C. OTHER SPECIAL	Y 24 07/03/2018
(7) FACILITY CARRIED	SH 21 Carroll		
(9) LOCATION	S OUTSKIRTS METALTON		
(11) MILEPOINT 6.320	(12) BASE HIGHWAY NETWORK 0		
(13A) LRS INVENTORY ROUTE	0000000000 (13B) SUBROUTE NUMBER 00		
(16) LATITUDE 36.22244	(17) LONGITUDE -93.53007		
(98A) BORDER BRIDGE CODE			
PERCENT RESPONSIBILITY	(99) BORDER BRIDGE STRUCT		
STRUCTURE TYPE AND MATERIAL		CONDITION	
(43) STRUCTURE TYPE, MAIN		(58) DECK	4
A) KIND OF MATERIAL/DESIGN: 3 - Steel		(59) SUPERSTRUCTURE	5 (60) SUBSTRUCTURE 6
B) TYPE OF DESIGN/CONSTR: 02 - Stringer/Multi-beam or Girder		(61) CHANNEL & CHANNEL PROTECTION	6 (62) CULVERT N
(44) STRUCTURE TYPE, APPROACH SPANS			
A) KIND OF MATERIAL/DESIGN: 0 - Other			
B) TYPE OF DESIGN/CONSTR: 00 - Other			
(45) NUMBER OF SPANS IN MAIN 4	(46) NUMBER OF APPROACH 0		
(107) DECK STRUCTURE TYPE 1	(108A) WEARING SURFACE 1		
(108B) DECK MEMBRANE 0	(108C) DECK PROTECTION 0		
AGE OF SERVICE		LOAD RATING AND POSTING	
(27) YEAR BUILT 1960	(106) YEAR RECONSTRUCTED 0000	(31) DESIGN LOAD	2
(42) TYPE OF SERVICE ON 1 UNDER 5		(63) METHOD USED TO DETERMINE OPERATING RATING	1
(28) LANES ON 02 UNDER 00		(64) OPERATING RATING	54
(29) AVERAGE DAILY TRAFFIC 2200	(19) BYPASS DETOUR LENGTH 15	(65) METHOD USED TO DETERMINE INVENTORY RATING	1
(30) YEAR OF AVERAGE DAILY TRAFFIC 2014		(66) INVENTORY RATING	33
(109) AVERAGE DAILY TRUCK TRAFFIC 1		(70) BRIDGE POSTING	5
		(41) STRUCTURE OPEN/POSTED/CLOSED	A
GEOMETRIC DATA		APPRAISAL	
(48) LENGTH OF MAX SPAN (ft.) 40	(49) STRUCTURE LENGTH (ft.) 162	(67) STRUCTURAL EVALUATION	5
(50) CURB/SIDEWALK WIDTHS (ft.) LEFT 0.1 RIGHT 0.2		(68) DECK GEOMETRY	2
(51) BRDG RDWY WIDTH CURB-TO-CURB (ft.)	24.0	(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL	N
(52) DECK WIDTH, OUT-TO-OUT (ft.)	28.7	(71) WATERWAY ADEQUACY	8
(32) APPROACH ROADWAY WIDTH (ft.)	24.0	(72) APPROACH ROADWAY ALIGNMENT	7
(33) BRIDGE MEDIAN 0	(34) SKEW (DEG.) 0	(36) TRAFFIC SAFETY FEATURE	
(35) STRUCTURE FLARED 0	(10) INV RTE, MIN VERT CLEAR (ft.) 99.99	36A) BRIDGE RAILINGS:	0
(47) TOTAL HORIZONTAL CLEARANCE (ft.)	24.3	36B) TRANSITIONS:	1
(53) VERTICAL CLEARANCE OVER BRIDGE ROADWAY (ft.)	99.99	36C) APPROACH GUARDRAIL:	1
(54) VERTICAL UNDER CLEARANCE (ft.)	N 0	36D) APPROACH GUARDRAIL ENDS:	1
(55) LATERAL UNDER CLEARANCE RIGHT (ft.)	N 99.9	(113) SCOUR CRITICAL BRIDGES	8
(56) MIN LATERAL UNDER CLEARANCE (ft.)	0	SUFFICIENCY RATING	61.6 STATUS 1
PROPOSED IMPROVEMENTS		CLASSIFICATION	
(75A) TYPE OF WORK PROPOSED 31	(75B) WORK DONE BY 1	(112) NBIS BRIDGE LENGTH	Y
(76) LENGTH OF STRUCTURE IMPROVEMENT (ft.)	192.0	(104) HIGHWAY SYSTEM OF THE INVENTORY ROUTE	0
(94) BRIDGE IMPROVEMENT COST (\$)	0	(26) FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE	07
(95) ROADWAY IMPROVEMENT COST (\$)	125	(100) STRAHNET HIGHWAY DESIGNATION	0
(96) TOTAL PROJECT COST	471	(101) PARALLEL STRUCTURE DESIGNATION	N
(97) YEAR OF IMPROVEMENT COST ESTIMATE	2003	(102) DIRECTION OF TRAFFIC	2
(114) FUTURE ADT 3405	(115) YEAR OF FUTURE ADT 2028	(103) TEMP STRUCTURE	
		(105) FEDERAL LANDS HIGHWAYS	0
		(110) DESIGNATED NATIONAL NETWORK	0
		(20) TOLL	3
		(21) MAINTENANCE RESPONSIBILITY	01
		(22) OWNER	01
		(37) HISTORICAL	5
		NAVIGATION DATA	
		(38) NAVIGATION CONTROL	0
		(111) PIER OR ABUTMENT PROTECTION	1
		(39) NAV VERT CLEARANCE (ft.)	0
		(116) MIN NAVIGATION VERT CLEARANCE, VERT LIFT BRIDGE (ft.)	0
		(40) NAV HORIZONTAL CLEARANCE (ft.)	0

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## Bridge Inspection Report

## Element Inspection

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
<b>12 - Reinforced Concrete Deck</b>	1- Ben.	4374	sq. ft.	201	2808	1365	0
<p>Driving surface-</p> <p>The driving surface of the deck in span #1 has patched areas in the right gutter line, the rest of span #1 has map cracking. Spans #2,3,4 have patched or delaminated areas for their entirety in the driving surface, some areas have pot holes with exposed rebar. The deck driving surface is 88.4% delaminated or patched area.</p> <p>Undersurface-</p> <p>Span #1- the undersurface of the span has transverse and longitudinal hairline cracks with no efflorescence leaching in bays #1,2,3. The right side of bay #4 has full depth contamination under the right gutter line. Bay #4 has an area of exposed rebar due to punching through with a pavement breaker.</p> <p>Span #2- the undersurface of span #2 has map cracking with full depth contamination with efflorescence leaching at the end of bays #1,2, the full length of bay #3 and almost the full length of bay #4 have contamination with efflorescence leaching. Full depth failures are possible. Transverse hairline cracking exists in all bays. The undersurface has two areas of spalling with exposed rebar. Span #2 bay #4 basketball size spall with steel exposed.</p> <p>Span #3- the undersurface of span #3 has map cracking with full depth contamination and efflorescence leaching in all bays for the full length of the span. Full depth failures are possible.</p> <p>Span #4- the undersurface of bays #1,2,4 all have map cracking with full depth contamination and efflorescence leaching. Bay #3 has map cracking with full depth contamination and efflorescence leaching from mid span to abutment #2. Full depth failures are possible.</p> <p>Deck overhangs have small amounts of spalling some with rebar exposed at all drain areas. Total deck area has 32% patched or delaminated area.</p> <p>The deck step up on the left and right overhangs was subtracted from the deck area and added as r/c railing.</p>							
1080 - Delamination/Spall/Patched Area		3395		0	2160	1235	0
1090 - Exposed Rebar		16		0	0	16	0
1120 - Efflorescence/Rust Staining		322		0	208	114	0
1130 - Cracking (RC and Other)		440		0	440	0	0

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<b>107 - Steel Open Girder/Beam</b>	1- Ben.	800	ft.	150	425	225	0
Steel protective coating includes the diaphragms. the web area of the beams at most locations still has an effective paint system. The top and bottom of the bottom flange of all beams have varying degrees of corrosion for the full length of the structure, the top flange is corroded beneath the areas of contamination in the deck. The beam ends over pier #1 have corrosion for 3' on the bottom flange and lower web due to leaking joint seals. The beam ends have corrosion on the bottom flange and lower web area for 2' at piers #2,3.							
1000 - Corrosion		650		0	425	225	0
515 - Steel Protective Coating		4861	sq. ft.	2441	2195	225	0
3440 - Effectiveness (Steel Protective Coatings)		2420		0	2195	225	0
<b>205 - Reinforced Concrete Column</b>	1- Ben.	6	each	2	3	1	0
<p>Pier #1 Left Column- has vertical hairline cracking on the downstream face. Right Column- has minor insignificant spalling in the upstream side with a minor delamination near the top on the span #2 side. The right column at pier #1 has an 18" deep local scour pocket.</p> <p>Pier #2 Left Column- No deficiencies noted. Right Column- has vertical hairline cracking on the span #2 side.</p> <p>Pier #3 Left Column- has small areas of exposed rebar with vertical hairline cracking on the downstream face. The footing is exposed at the left column of pier #3, but is cast on solid rock. Right Column- has vertical hairline cracking on the span #3 side. The web wall at pier #3 has a full height vertical hairline crack that extends into the pier cap.</p>							
1090 - Exposed Rebar		1		0	0	1	0
1130 - Cracking (RC and Other)		3		0	3	0	0
<b>210 - Reinforced Concrete Pier Wall</b>	1- Ben.	51	ft.	44	7	0	0
<p>The pier wall consists of 10' of web wall between the columns. Pier wall #1- no deficiencies noted.</p> <p>Pier wall #2- no deficiencies noted.</p> <p>Pier wall #3- has 7' of hairline vertical and diagonal cracking.</p>							
1130 - Cracking (RC and Other)		7		0	7	0	0
<b>215 - Reinforced Concrete Abutment</b>	1- Ben.	66	ft.	51	15	0	0
<p>Abutment #1- has a 3' horizontal hairline crack in the abutment face in bay #3 and a vertical hairline crack beneath beam #3, with minor insignificant spalling at the top edge.</p> <p>Abutment #2- has 11' of vertical hairline cracking in the back wall and vertical face of the abutment. Abutment #2 has build up on the bridge seat.</p>							
1130 - Cracking (RC and Other)		15		0	15	0	0



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## Element Inspection

<b>234 - Reinforced Concrete Pier Cap</b>	1- Ben.	78	ft.	17	29	32	0
<p>Pier cap #1 has 14' of horizontal and vertical hairline cracking at the top edge of the cap.</p> <p>Pier cap #2 has a horizontal delamination at the top edge that extends the length of the cap. The cap has build up due to leaking joint seals.</p> <p>Pier cap #3 has 15' of horizontal cracking on the span #4 side. The right side of the cap has map cracking on the underside with patched areas. The left cap end has a large area of honeycombing with a patched area at the extreme left end.</p>							
1080 - Delamination/Spall/Patched Area		32		0	0	32	0
1130 - Cracking (RC and Other)		29		0	29	0	0
<b>303 - Assembly Joint with Seal</b>	1- Ben.	120	ft.	0	70	50	0
The assembly joints are leaking at all locations allowing minor build up on the caps and corrosion at the bearings.							
2310 - Leakage		120		0	70	50	0
<b>311 - Movable Bearing</b>	1- Ben.	20	each	0	0	20	0
The moveable bearings at piers #1,2,3 have heavy corrosion with section loss due to leaking joint seals.							
515 - Steel Protective Coating		20	sq. ft.	0	0	20	0
<b>313 - Fixed Bearing</b>	1- Ben.	20	each	0	0	20	0
<p>The fixed bearings at abutment #1 and #2 have corrosion with section loss.</p> <p>The fixed bearings at piers #1,3 have heavy corrosion with section loss.</p>							
515 - Steel Protective Coating		20	sq. ft.	0	0	20	0
<b>330 - Metal Bridge Railing</b>	1- Ben.	324	ft.	4	320	0	0
<p>Right side railing- The metal bridge railing has pin point rusting throughout, with areas of light corrosion on the front side. The entire back side of the railing has a light rust coating.</p> <p>Left side railing- The metal bridge railing has pin point rusting throughout, with areas of light corrosion on the front side. The entire back side of the railing has a light rust coating.</p>							
1000 - Corrosion		320		0	320	0	0
515 - Steel Protective Coating		972	sq. ft.	12	960	0	0
3440 - Effectiveness (Steel Protective Coatings)		960		0	960	0	0
<b>331 - Reinforced Concrete Bridge Railing</b>	1- Ben.	324	ft.	319	3	2	0
<p>The r/c railing consists of 1' 7" of deck step up on the left and right deck overhangs.</p> <p>The underside of the concrete railing has 1' of exposed rebar at the left end of span #3 and the left beginning of span #4. The 4th concrete rail post in span #2 has a spall with no rebar exposed.</p> <p>Concrete post #12 on the right side of the structure has a spall with rebar exposed.</p> <p>The rail posts along the right side have hairline vertical cracking at random locations.</p>							
1080 - Delamination/Spall/Patched Area		2		0	2	0	0

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**Element Inspection**

1090 - Exposed Rebar		2		0	0	2	0
1130 - Cracking (RC and Other)		1		0	1	0	0

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### Bridge Inspection Report

## Maintenance Needs

Date Reported: 7/19/2011 12:00:00 AM

Priority: D - Routine

Work Code:

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### Deficiency Description:

Bents #2 & #3 both have minor deterioration to right and left end of caps, with horizontal delaminations at the top edge of the caps at the mid section.

### Work Description:

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Date Repairs Completed:

Maintenance Comments:

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Stage: Monitor



PHOTO 1      Description      Bent #3 cap left behind side spalling and delaminated areas.

Stage: Assigned



PHOTO 2      Description      Deterioration of right end of bent #2 cap

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## Bridge Inspection Report

### Maintenance Needs

Stage: Assigned



PHOTO 3      Description      Deterioration to left end of bent #3 cap

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## Bridge Inspection Report

### Maintenance Needs

Date Reported: 7/19/2011 12:00:00 AM

Priority: D - Routine

Work Code:

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#### Deficiency Description:

The bottom flange, bearings, and ends of all beams have corrosion below the assembly joint areas due to leaking joint seals.

#### Work Description:

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Date Repairs Completed:

Maintenance Comments:

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Stage: Monitor



PHOTO 1      Description      Span #3 girder #5 typical end of girder corrosion

Stage: Monitor



PHOTO 2      Description      Typical condition state of flaking rust to bearings due to leakage through joints.



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### Maintenance Needs

Date Reported: 7/17/2013 12:00:00 AM

Priority: C - Important

Work Code:

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#### Deficiency Description:

Driving surface-

Spans #2,3,4 have numerous patched or delaminated areas for most of the span area.

Spans #1,2,4 have small pot holes with rebar exposed.

Undersurface-

Spans #1,2,3 and #4 - have heavy concentrations of map cracking with efflorescence leaching in the deck soffit.

The left and right deck overhangs have spalling with rebar exposed at some of the drain areas.

#### Work Description:

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Date Repairs Completed:

Maintenance Comments:

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Stage: Monitor



PHOTO 1 Description

Stage: Assigned



PHOTO 2 Description Efflorescence cracking with leakage between girders #3,#4 in deck soffit.



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### Maintenance Needs

Stage: Monitor



PHOTO 3 Description

Stage: Monitor



PHOTO 4 Description Span #3 typical spalled patched areas.

Stage: Monitor



PHOTO 5 Description Span #3

Stage: Monitor



PHOTO 6 Description View of span #3 efflorescence.



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### Maintenance Needs

Stage: Monitor



PHOTO 7      Description      Span #2 undersurface.

Stage: Monitor



PHOTO 8      Description      Span #3 girder #5 typical end of girder corrosion