



Latitude:36.22340, Longitude:-92.67964

Route:14 Section:03 Log:0.16

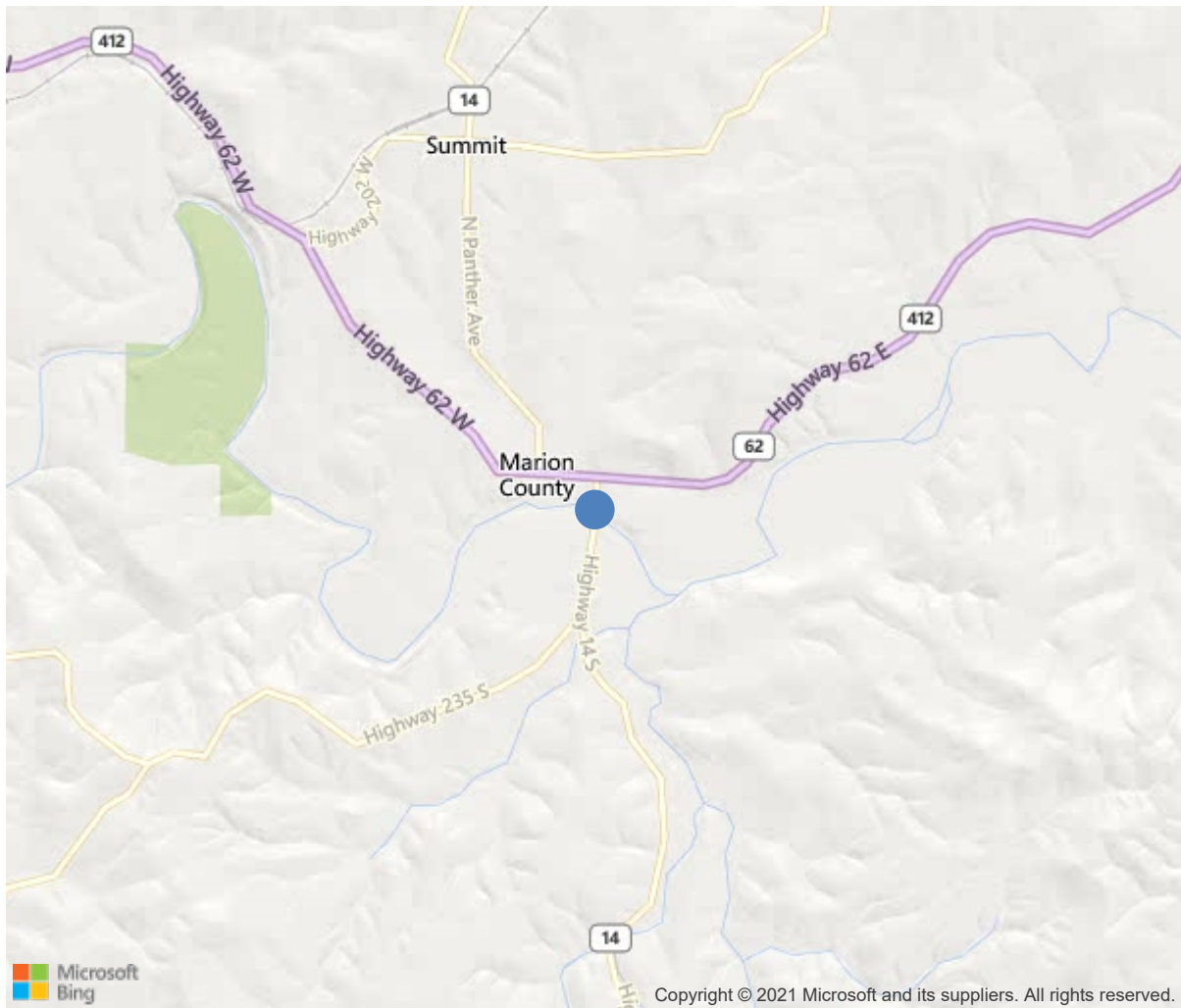
Arnold Road ID:45x14x3xA, Arnold Log mile:0.163

District 09, Marion County

Owner: 1-State Highway Agency

Place Code: 00000 - N/A

0.16 MI S JCT US 62-SH 14



36.22340, -92.67964



Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith Inspection Date: September 21, 2021

IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	00338
(5) Inventory Route	14
(2) Highway Agency District	09
(3) County Code	89-Marion County, Arkansas
(4) Place Code	74720
(6) Features Intersected	CROOKED CREEK
(7) Facility Carried	SH 14 Marion
(9) Location	0.16 MI S JCT US 62-SH 14
(11) Mile Point	0.16 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000014030
(16) Latitude	36.2234
(17) Longitude	-92.67964
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	32
Material	3-Steel
Type	2-Stringer/Multi-beam or girder
(44) Approach Structure Type	32
Material	3-Steel
Type	2-Stringer/Multi-beam or girder
(45) No. of Spans in Main Unit	2
(46) No. of Approach Spans	6
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	1-Monolithic Concrete (concurrently placed
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	1959
(106) Year Reconstructed	0
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	5800
(30) Year of ADT	2014
(109) Truck ADT	1 %
(19) Bypass, Detour Length	29 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	65 ft
(49) Structure Length	432 ft
(50) Curb or Sidewalk Width	
Left	1 ft
Right	1 ft
(51) Bridge Roadway Width Curb to Curb	24 ft
(52) Deck Width Out to Out	25 ft
(32) Approach Roadway Width (W/Shoulders)	21 ft
(33) Bridge Median	0-No median
(34) Skew	0 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	24.3 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ref:	
(55) Min Lat Underclear RT	99.9 ft
Ref:	
(56) Min Lat Underclear LT	0 ft
NAVIGATION DATA	
(38) Navigation Control	0-No navigation control on water
(111) Pier Protection	1-Navigation protection not requ
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	0
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	0-The inventory route is not a S
(101) Parallel Structure	N-No parallel structure exists.
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NRHP
CONDITION	
(58) Deck	7
(59) Superstructure	6
(60) Substructure	6
(61) Channel & Channel Protection	5
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	2-M 13.5 / H 15
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	41
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	2
Rating	25
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	5
(68) Deck Geometry	2
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	8
(72) Approach Roadway Alignment	7
(36A) Bridge Railings	0-Inspected feature does not meet cur
(36B) Transitions	1-Inspected feature meets currently a
(36C) Approach Guardrail	1-Inspected feature meets currently a
(36D) Approach Guardrail Ends	0-Inspected feature does not meet cur
(113) Scour Critical Bridges	5-Bridge foundations determined to be
PROPOSED IMPROVEMENTS	
(75) Type of Work	Replacement of bridge or other
(76) Length of Structure Improvement	470 ft
(94) Bridge Improvement Cost	\$ 0
(95) Roadway Improvement Cost	\$ 265
(96) Total Project Cost	\$ 1910
(97) Year of Improvement Cost Estimate	2003
(114) Future ADT	7836
(115) Year of Future ADT	2028

INSPECTIONS *			
(90) Inspection Date	09/2021		
(91) Frequency	24 Months		
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection	No		
* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.			

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Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith, Inspection Date: September 21, 2021

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
202	Steel Column	EA	20	8	9	3	0
1000	Corrosion	EA	12	0	9	3	0
515	Steel Protective Coating	SF	560	560	0	0	0
(202)	<p>(Piles measure 12" x 12" x 7/16" thick flange.) 5 piles per bent. The original section thickness of the flanges is 7/16".</p> <p>The piles were repainted under contract in 2020.</p> <p>Steel piles at bent #4- piles #1,2,3 have arrested corrosion with shallow pitting for 6' at the top. Piles #4,5 have new paint.</p> <p>Bent #5 piles- have been repainted and a concrete encasement footing has been poured at the bases of the piles.</p> <p>Bent #6 piles- have been repainted and a concrete encasement footing has been poured at the bases of the piles. Column #5 has distortion in the flange for 1'. Pile #1- has arrested corrosion with 3/16 section loss at the top of pile #1 at bent #6. The original section is 7/16".</p> <p>Bent #7 piles- have been repainted and a concrete encasement footing has been poured at the bases of the piles.</p>						
205	Reinforced Concrete Column	EA	6	4	2	0	0
1130	Cracking (RC and Other)	EA	2	0	2	0	0
(205)	<p>Pier #1 columns- the left and right columns have minor vertical hairline cracks.</p> <p>Pier #2 columns- the tops of the left and right column footings are exposed with 18" of vertical face exposed, the channel bottom is solid rock in this location. No deficiencies noted in the columns.</p> <p>Pier #3 columns- no deficiencies noted.</p>						
210	Reinforced Concrete Pier Wall	LF	51	47	2	2	0
1090	Exposed Rebar	LF	2	0	0	2	0
1130	Cracking (RC and Other)	LF	2	0	2	0	0
(210)	<p>The web walls consist of a 17' wide web wall between the columns x 3 pier locations.</p> <p>Pier #1 web wall- has a diagonal hairline crack at the top right corner.</p> <p>Pier #2 web wall- has a spall with exposed rebar on the lower left corner.</p> <p>Pier #3 web wall- no deficiencies noted.</p>						
215	Reinforced Concrete Abutment	LF	68	52	16	0	0
1130	Cracking (RC and Other)	LF	16	0	16	0	0
(215)	<p>Abutment #1 -has 7 vertical hairline cracks in the back wall visible from the driving surface and underneath, and 1 vertical hairline crack in the bridge seat. The abutment is built on a rock bluff.</p> <p>Abutment #2- has 3 cracks in the back wall visible from the driving surface and underneath, and 5 cracks in the bridge seat. The hand placed rip rap is in place and functioning as intended.</p>						
220	Reinforced Concrete Pile Cap/Footing	LF	14	0	14	0	0

Team Lead: Benjamin Smith, **Inspection Date:** September 21, 2021

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
1190 (220)	Abrasion/Wear (PSC/RC)	LF	14	0	14	0	0
Pier #2 footings- the top of both column footings are exposed. Both footings have cs2 abrasion.							
234	Reinforced Concrete Pier Cap	LF	178	77	19	82	0
1080	Delamination/Spall/Patched Area	LF	76	0	0	76	0
1090	Exposed Rebar	LF	6	0	0	6	0
1130 (234)	Cracking (RC and Other)	LF	19	0	19	0	0
Pier #1 cap- has 7 vertical hairline cracks with a 3' long spall with rebar exposed in bay #4 on the span #2 side. The span #2 side has full width delamination. The left cap end has 1' of delamination.							
Pier #2 cap- has 3' of vertical hairline cracking and 10' of horizontal delamination.							
Pier #3 cap- has 12' of vertical and horizontal hairline cracking and 2' of delamination with 1' of spalling with rebar exposed on the right cap haunch. The span #4 side has horizontal delaminated areas.							
Bent #4 cap- has 12' of delamination with vertical and horizontal hairline cracks beneath all bearing areas of the cap in the same footage as the delamination. The left end has 2' of spalling with 1' of rebar exposed that is next to the masonry plate.							
Bent #5 cap- has 7' of delamination with vertical and horizontal hairline cracking beneath the bearing areas in the same footage as the delaminations.							
Bent #6 cap has 11' of delamination with 2' of vertical hairline cracks, and 1' of deep spalling with rebar exposed at the left cap end.							
Bent #7- has 10' of delamination with 2' of vertical cracks with 1' of spalling at the top right edge of the cap end.							
301	Pourable Joint Seal	LF	220	206	14	0	0
2320 (301)	Seal Adhesion	LF	14	0	14	0	0
New pourable joint seals were installed with the deck rehab in 2020.							
Abutment #1- no deficiencies noted.							
Pier #1- no deficiencies noted.							
Pier #2 seal- has 1' of cs2 adhesion loss in the left driving lane.							
Pier #3 seal- has 1' of cs2 adhesion loss at the center line.							
Pier #4 seal- has 2' of adhesion loss in the left lane. The right lane has 1' of cs2 adhesion loss.							
Pier #5 seal- no deficiencies noted.							
Pier #6 seal- has 2' of adhesion loss in the left lane.							
Pier #7 seal- has 7' of adhesion loss in the left lane.							
Abutment #2 seal- no deficiencies noted.							
311	Movable Bearing	EA	40	0	6	34	0
1000	Corrosion	EA	40	0	6	34	0
515	Steel Protective Coating	SF	40	0	6	34	0
3440 (311)	Effectiveness (Steel Protective Coatings)	SF	40	0	6	34	0
Pier #1- all 5 moveable bearings at pier #1 are showing moderate corrosion, especially on the masonry plates. The bearings have							

Team Lead: Benjamin Smith, **Inspection Date:** September 21, 2021

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
been repainted. The corrosion is beginning to bleed back through Pier #2 moveable bearings- all 5 have cs3 corrosion with pitting especially on the masonry plates and anchor bolts. The anchor bolt studs have heavy section loss. Pier #3 moveable bearings- all 5 have heavy corrosion with pitting. Bearings #1,2,4,5 are tilted #3 is level. Temp was 75 degrees F. Bearings #1,4,5 have missing anchor bolt studs due to corrosion. Bent #4 all 5 moveable bearings have heavy corrosion with section loss. Bent #5 all 5 moveable bearings have corrosion with section loss at the rocker area. Bent #6- 4 of the 5 moveable bearings have corrosion with section loss at the rocker area. Bearing #3 is retrofitted and has a light rust coating. Bent #7- all 10 moveable bearings have corrosion with section loss at the rocker areas.							
313	Fixed Bearing	EA	40	0	10	30	0
1000	Corrosion	EA	40	0	10	30	0
515	Steel Protective Coating	SF	40	0	10	30	0
3440	Effectiveness (Steel Protective Coatings)	SF	40	0	10	30	0
(313) Abutment #1 fixed bearings- all 5 bearings have heavy corrosion with minor section loss. The bearings have been repainted. The corrosion is beginning to bleed back through the section loss still exists. Pier #1 fixed bearings- all 5 have cs2 corrosion. Pier #2 fixed bearings- all 5 have cs3 corrosion. Pier #3 fixed bearings- all 5 have cs3 corrosion. Bent #4 all 5 fixed bearings have corrosion with section loss on the anchor bolts. Bent #5 all 5 fixed bearings have a light rust coating with no section loss. Bent #6- all 5 fixed bearings have a light rust coating with no section loss. Abutment #2- all 5 fixed bearings have heavy corrosion with section loss.							
330	Metal Bridge Railing	LF	864	0	864	0	0
1000	Corrosion	LF	864	0	864	0	0
515	Steel Protective Coating	SF	2592	1296	1296	0	0
3440	Effectiveness (Steel Protective Coatings)	SF	1296	0	1296	0	0
(330) The metal bridge railing has been re-painted in the past on the front side, the rust is beginning to bleed back through with areas of pin point and general rusting. The back side has patches of light rust coating. The protective coating is figured at 3' per foot. No deficiencies noted in the approach railing.							



Approach view in direction of log mile.



Paint rehab stencil.



Superficial factory defect in the web of beam #4 in span #6.



Shallow pitting on the interior lower web of beam #1 in span #6.



Repainted steel pile columns.



9' of shallow section loss with arrested corrosion on the interior lower web of beam #1 in span #5



Bent #4 bearing condition. Showing corrosion.



Factory defects in the web of beam #3 in span #3.



Small areas of section loss and arrested corrosion on the upper web of the span #3 beams.



Deck cracking in the undersurface. Typical. 0.016" wide.



1' area of arrested corrosion on the exterior lower web of beam 5 in span #2.



Typical view of the curb section of the deck.



Typical utility attachment on the right side of the structure.



Spalling with exposed rebar at the left drain of span #1.



Deck cracking in the undersurface. Showing cs2 efflorescence.



Typical view of paint condition.



Adhesion loss at the pier #7 seal.



Typical view of driving surface.



Abutment #1 joint seal condition. New. No deficiencies noted.



Bearing #1 and #5 are no longer centered beneath the sole plate at bent #6.



Span #2 driving surface.



Span #7 driving surface.



Span #4 driving surface.



Bearing condition over pile bent #4.



Beam end corrosion at the beginning of span #3.



Typical view of the piers in the channel.



Bearing condition at abutment #1. Typical of all 5 at this location.



Tilted bearings at the span #3 side of pier #3. # 1,2,4,5 are tilted #3 is not.



Exposed footings at bent #2.



Assembly joint at abutment #1.



Approach view in direction of log mile.



Cover plate detail.



Pile bent #5 general view.



General view of abutment #1.



Span #8 driving surface.



Beam #1 at the beginning of span #4 showing heavy corrosion on the bottom flange and lower web.



Footings exposed at pier #3.



Bearing #5 at bent #7 is not centered beneath the sole plate.



Span #3 driving surface.



Large areas of pin point rusting in span #2.



View of the deck undersurface. Showing transverse hairline cracking.



General view of pile bent #6.



Pin point rusting at the beam ends in span #1.



2nd Utility mount on the right side of the structure



Longitudinal factory defect in the bottom flange of beam #5 in span #3 at the beginning of the cover plate.



Pin point and general corrosion typical of many locations.



Bearing condition at pier #2. Note the delamination on the pier cap.



Bearing condition at pile bent #6.



Span #5 driving surface.



Typical metal rail condition.



Bearing condition at abutment #2.



Elevation view. Log mile from left to right.



Corrosion on the bottom flange and beam ends in span #2.



Bearing condition at pier #1.



Corrosion with minor section loss at the tops of piles #1,2 at pile bent #4



General view of the undersurface.



Spalling with rebar exposed on the span #2 side of the pier #1 cap. Note the delamination also.



General view of of abutment #2.



Pile bent #5 bearing condition.



Bent #7 bearing condition.



Spalling with rebar exposed on the left cap end of bent #6.



Bearing condition at pier #3.



Typical beam paint condition of the exterior of beam #5.



2' long longitudinal factory defect in the lower web of beam #4 in span #6.



Utility attachment on the right side of the structure.



Span #6 driving surface.



Span #1 driving surface.



Typical welded detail of the drain extensions on the bottom flange of the fascia beams.



Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith **Inspection Date:** September 21, 2021

Maintenance Needs

Date Reported: 09/12/2013

Priority: D- Routine

Type of Work: Repair

Status: Monitor

Component:

Deficiency Description

The right end of the caps at piers #1 and #3 and bents #4,6,7 have delamination.

Remarks

Date Reported: 09/12/2013

Priority: D- Routine

Type of Work: Repair

Status: Monitor

Component:

Deficiency Description

A spall with rebar exposed was noted at the left overhang drain area of span #1.
The left and right overhangs have several areas of delamination and spalling through out the structure.
The undersurface of span #8 in bay #4 has a 5' by 5' area of shallow delamination.

Remarks



Spalling with rebar exposed in the right overhang of span #1.



5' by 5' area of shallow delamination in the undersurface of span 8 in bay #4.



Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith **Inspection Date:** September 21, 2021

Date Reported: 09/12/2013

Priority: D- Routine

Type of Work: Repair

Status: Monitor

Component:

Deficiency Description

A horizontal delamination was noted in the bent #5 cap under beam #2.

Remarks

Date Reported: 09/15/2015

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Pier #1 has a spall with rebar exposed on the back side of the cap and a large 3' spall with rebar exposed in the top edge of the cap in bay #4.

Remarks



Date Reported: 09/15/2015

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Bent #3 right cap end has a spall with rebar exposed.

Remarks



Spall with rebar exposed at left cap end of bent #3



Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith **Inspection Date:** September 21, 2021

Date Reported: 09/19/2017

Priority: D- Routine

Type of Work: Repair

Status: Repair Documented

Component:

Deficiency Description

The driving surface of the deck has sealable hairline transverse cracks with shallow delaminations and exposed rebar in all spans.

Remarks

It was noted during the routine inspection that the deck was rehabilitated under contract.



Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith **Inspection Date:** September 21, 2021

Date Reported: 09/19/2017

Priority: D- Routine

Type of Work: None

Status: Repair Documented

Component:

Deficiency Description

The assembly joints are allowing water and deicer onto the bearing areas at all locations, causing corrosion on the bearings and beam ends.

Remarks

The assembly joints have been removed and replaced by pourable joint seals during the deck rehab.



Bridge #00338(Routine, Underwater type 2)

SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith **Inspection Date:** September 21, 2021

Date Reported: 09/23/2021

Priority: D- Routine

Type of Work: Repair

Status: Open

Component:

Deficiency Description

Arrested corrosion with 3/16 section loss at the top of pile #1 at bent #6. The original section of the flange is 7/16".

Remarks



Arrested corrosion with 3/16 section loss at the top of pile #1 at bent #6. The original section is 7/16".

Date Reported: 09/23/2021

Priority: D- Routine

Type of Work: Repair

Status: Open

Component:

Deficiency Description

A pvc drain extension pipe is missing at the right side of span #3 and span #4.

Remarks



Missing drain pipe on the right side of span #3.



Partially missing drain pipe on the right side of span #4.

Date Reported: 09/23/2021
Priority: C - Important
Type of Work: Replace
Status: Open
Component:

Deficiency Description

The bearing anchor bolt studs at pier #2 and pier #3 have heavy section loss, some of the studs are missing at pier #3.

Remarks



Section loss on the anchor bolt studs at pier #2.



Missing anchor bolt studs at pier #3 movable bearings.



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SH 14 Marion over CROOKED CREEK

Location: 0.16 MI S JCT US 62-SH 14

Team Lead: Benjamin Smith **Inspection Date:** September 21, 2021

Inspection Comments

Structure is logged from North to South. A snooper is required for the spans over the waterway. The steel bent spans are accessible with a ladder.

No bat activity was noted.

Sufficiency Rating Calculation Accepted by dlw at 2009-10-01 08:18:12

Superstructure Notes

Steel pile #1 and Bent #3 has 2 1/2" x 1 1/2" hole in back flange at ground level also a 1" x 1" hole in ahead side flange at ground level. (Piles measure 12" x 12" x 7/16".) Minor section loss at bottom & top of all piles, these areas have been repaired with concrete encasement.