



Bridge #A0350(Routine, Underwater type 2)
State Highway 22 over Massard Creek Seb. Co.
Location: 1.35 MI SE MASSARD, ARK.

Team Lead: Eric West **Inspection Date:** September 30, 2020



Latitude:35.34258, Longitude:-94.32429

Route:22 Section:01 Log:6.289

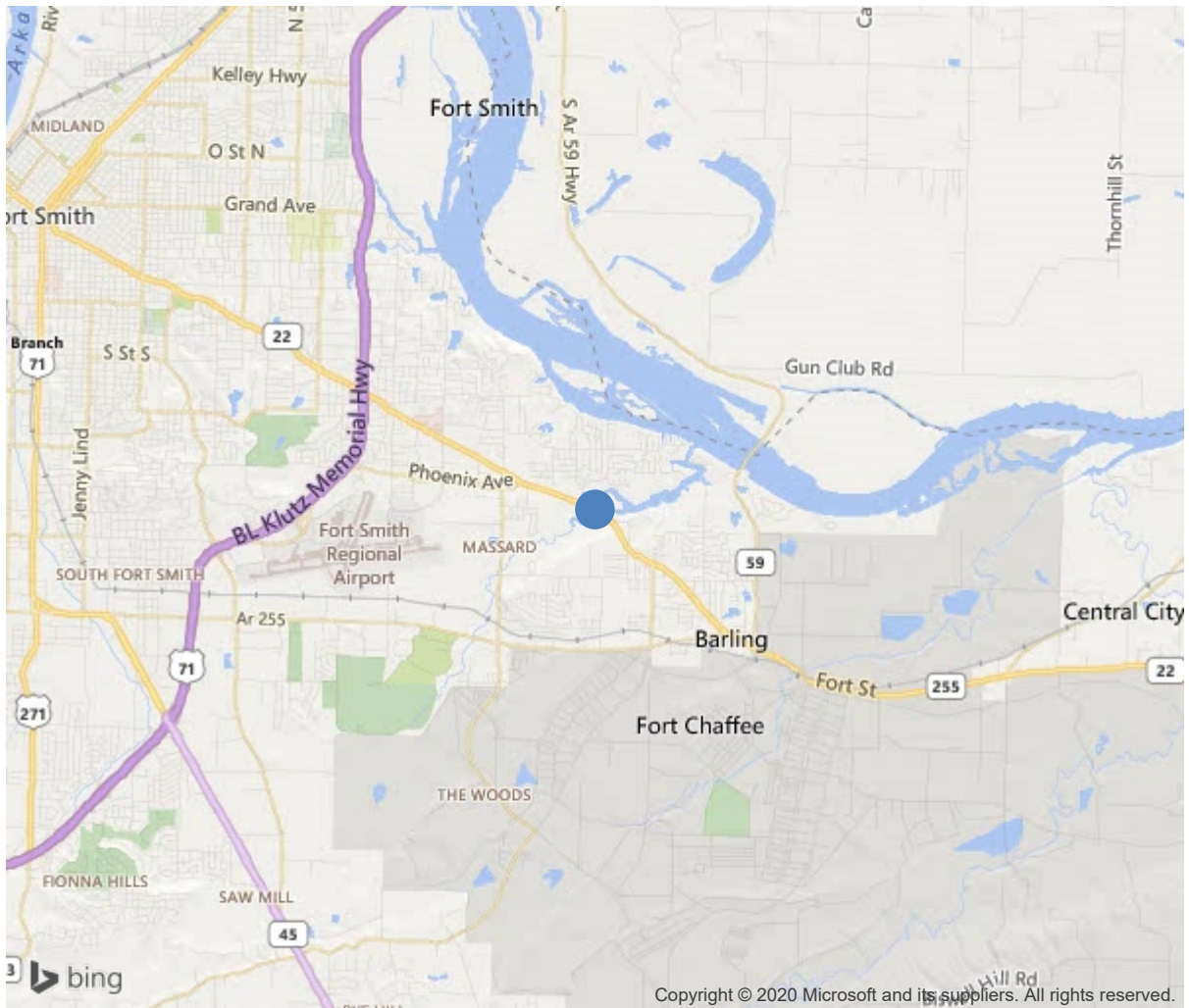
Arnold Road ID:65x22x1xA, Arnold Log mile:6.293

District 04, Sebastian County

Owner: 1-State Highway Agency

Place Code: 24060 - FORT SMITH

1.35 MI SE MASSARD, ARK.



35.34258, -94.32429



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IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	A0350
(5) Inventory Route	22
(2) Highway Agency District	04
(3) County Code	131-Sebastian County, Arkansas
(4) Place Code	24060
(6) Features Intersected	Massard Creek Seb. Co.
(7) Facility Carried	State Highway 22
(9) Location	1.35 MI SE MASSARD, ARK.
(11) Mile Point	6.289 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000022010
(16) Latitude	35.342579
(17) Longitude	-94.324287
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	14
Material	1-Concrete
Type	4-Tee beam
(44) Approach Structure Type	00
Material	0-Other
Type	0-Other
(45) No. of Spans in Main Unit	3
(46) No. of Approach Spans	0
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	6-Bituminous
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	1928
(106) Year Reconstructed	1974
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	4
Under	0
(29) Average Daily Traffic	19000
(30) Year of ADT	2018
(109) Truck ADT	1 %
(19) Bypass, Detour Length	3 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	35 ft
(49) Structure Length	108 ft
(50) Curb or Sidewalk Width	
Left	4 ft
Right	4 ft
(51) Bridge Roadway Width Curb to Curb	49.9 ft
(52) Deck Width Out to Out	60 ft
(32) Approach Roadway Width (W/Shoulders)	58.1 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	58.1 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			1
(26) Functional Class	14-Urban Other Principal 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			5
(61) Channel & Channel Protection			8
(62) Culverts			N
LOAD RATING AND POSTING			
(31) Design Load	5-MS 18 / HS 20		
(63) Operating Rating Method			1
(64) Operating Rating			
Type	1-Load Factor(LF)		
Rating			51
(65) Inventory Rating Method	1-Load Factor(LF)		
(66) Inventory Rating			
Type			3
Rating			31
(70) Bridge Posting	5-Equal to or above legal loads		
(41) Structure Open/Posted/Closed	A-Open, no restriction		
APPRAISAL			
(67) Structural Evaluation			6
(68) Deck Geometry			3
(69) Clearances, Vertical/Horizontal			N
(71) Waterway Adequacy			8
(72) Approach Roadway Alignment			7
(36) Traffic Safety Features			1111
A) Bridge Railings	1-Inspected feature meets currently a		
B) Transitions	1-Inspected feature meets currently a		
C) Approach Guardrail	1-Inspected feature meets currently a		
D) Approach Guardrail Ends	1-Inspected feature meets currently a		
(113) Scour Critical Bridges	8-Bridge foundations determined to be		
PROPOSED IMPROVEMENTS			
(75) Type of Work			
(76) Length of Structure Improvement			0 ft
(94) Bridge Improvement Cost			\$ 0
(95) Roadway Improvement Cost			\$ 0
(96) Total Project Cost			\$ 0
(97) Year of Improvement Cost Estimate			
(114) Future ADT			26358
(115) Year of Future ADT			2028
INSPECTIONS			
(90) Inspection Date			
(91) Frequency			24 Months
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No	24	
B: Underwater Inspection	No	0	
C: Other Special Inspection	No	0	

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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
16	Reinforced Concrete Top Flange	SF	2808	2804	0	4	0
1120	Efflorescence/Rust Staining	SF	4	0	0	4	0
510	Wearing Surfaces	SF	2808	448	17	2343	0
3210	Delam/Spall/Patched Area/Pothole	SF	45	0	17	28	0
3220	Crack (Wearing Surface)	SF	2315	0	0	2315	0
(16)							
-ACHM driving surface is map cracked in the wheel paths and is breaking up over the deck joints. -The undersurface of the deck has a diagonal crack with efflorescence in bay #4 adjacent to abutment #1. -Span 3, Bay 4 near Abutment #2 has an 8" area of spalled concrete with exposed reinforcing steel.							
38	RC Slab	SF	2754	2721	32	1	0
1080	Delamination/Spall/Patched Area	SF	26	0	26	0	0
1090	Exposed Rebar	SF	1	0	0	1	0
1120	Efflorescence/Rust Staining	SF	6	0	6	0	0
510	Wearing Surfaces	SF	2100	525	0	1575	0
3210	Delam/Spall/Patched Area/Pothole	SF	122	0	0	122	0
3220	Crack (Wearing Surface)	SF	1453	0	0	1453	0
(38)							
-This structure is a concrete deck girder that has been widened on the left and right sides with a concrete slab span. -The asphalt driving surface has map cracking in the wheel paths. -There are several patched areas in the right lane of span #1. -The asphalt is breaking apart over the expansion joints. Maintenance forces have patched several areas over the expansion joints with asphalt mix.							
Deck Soffit: -The undersurface of the deck has areas of light scale / leaching. Isolated areas of transverse cracking with light efflorescence on the exterior additions. -The left undersurface of the slab in span #1 has a baseball sized spall with exposed reinforcing steel over bent #2. -Span #2 has a delaminated area adjacent to deck drain on left and right side. -Span 3, Bay 4 near Abutment #2 has an 8" area of spalled concrete with exposed reinforcing steel. -Spans 1 Left and 3 Right have delaminated areas around the deck drains. -Span 3 right side has a 4 foot delaminated area around the deck drain.							
110	Reinforced Concrete Open Girder/Beam	LF	525	490	35	0	0
1080	Delamination/Spall/Patched Area	LF	3	0	3	0	0
1130	Cracking (RC and Other)	LF	32	0	32	0	0
(110)							
-There are areas with superficial hairline map cracking in some of the original girders. -Vertical hairline flexure cracking in the concrete girders at variable spacing. -Span #1, girders #1 and #5 has a softball sized delaminated area adjacent to abutment #1. -Span #2, girder #4 has a spalled area with exposed reinforcing steel over bent #3.							

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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
-Span #3 girder #4 has baseball size spalls adjacent to the cap haunch that does not expose reinforcing steel. -Span #3 girder #5 has shallow basketball size spall adjacent to abutment #2 that does not expose reinforcing steel.							
205	Reinforced Concrete Column	EA	16	0	12	4	0
1080	Delamination/Spall/Patched Area	EA	2	0	1	1	0
1090	Exposed Rebar	EA	2	0	0	2	0
1130	Cracking (RC and Other)	EA	1	0	0	1	0
1190	Abrasion/Wear (PSC/RC)	EA	11	0	11	0	0
(205)							
-Bent 2, column #5 has a shallow 12" tall spall that does not expose the reinforcing steel located approximately 4' above the water elevation and a shallow baseball sized spall with exposed reinforcing steel near the top of the column. -Bent #2, column #3 has a softball sized delaminated area on the ahead face. -Bent #3, column #4 has short duration vertical cracks on the backface of the column. -The ahead face of column #5 of bent #3 has large spalls with exposed reinforcing steel along the edges with vertical cracking that propagates from the spalls. The exposed reinforcing steel has an estimated 30% section loss. -Medium / heavy abrasion at the water line is typical of all columns.							
215	Reinforced Concrete Abutment	LF	138	60	41	36	1
1080	Delamination/Spall/Patched Area	LF	3	0	0	3	0
1120	Efflorescence/Rust Staining	LF	37	0	10	27	0
1130	Cracking (RC and Other)	LF	38	0	31	6	1
1190	Abrasion/Wear (PSC/RC)	LF	0	0	0	0	0
(215)							
-Abutment #1 has diagonal and random cracking with efflorescence in the breast wall under beams #2 and #4. Cracking appears to be most extensive at the exterior ends where the structure has been widened. -Abutment #1 stem (original portion) wall has a horizontal crack that extends the full width of original stem wall located mid-way up the wall. -Abutment #1 Lt has vertical settlement crack that is 1/4" wide at the interface of the monolithic Northwest wing wall. The wing wall appears to be slightly rotated toward the channel. -Abutment #1 Rt has a 3' long spall with exposed reinforcing steel at the wing wall juncture. -Abutment #2 has diagonal cracking under girder #5 with a delaminated area. The right side of stem wall has map cracking under girder #1. -Abutment #2 stem wall has several vertical cracks with rust staining and efflorescence. Two of the vertical cracks propagate from the weep holes. -The base of the original portion of abutments has up to medium abrasion at the water elevation. -The monolithic Northeast wing wall has a wide vertical crack at the interface of the abutment. The wing wall has several hairline vertical cracks in random locations.							
234	Reinforced Concrete Pier Cap	LF	87	74	7	6	0
1080	Delamination/Spall/Patched Area	LF	6	0	5	1	0
1090	Exposed Rebar	LF	4	0	0	4	0
1120	Efflorescence/Rust Staining	LF	1	0	0	1	0
1130	Cracking (RC and Other)	LF	2	0	2	0	0
(234)							

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[illegible]



Roadway



Typical driving surface of the deck westbound.



Typical driving surface of the deck eastbound.



Span #1 Rt with failing asphalt patches.



Bent #3 asphalt breaking apart over the deck joint.



Span #1 Lt concrete delamination's at the deck drain.



Southwest approach rail collision damage.



Bent #3 column #5 spalling with exposed reinforcing steel.



Bent #2 column #5 spalling with exposed reinforcing steel and a concrete spall near the water elevation.



Abutment #1 cracking in the original portion of the abutment stem.



Abutment #1 Rt spalling in the abutment at the wingwall juncture.



Abutment #1 Lt wing wall cracking.



Bent #2 Span #2 girders # 1,2 & 3 spalling with exposed reinforcing steel.



Bent #2 Lt shallow spalling with exposed reinforcing steel.

Maintenance Needs

Date Reported: 09/24/2012
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: Substructure

Deficiency Description

Substructure -

The substructure caps have spalling that exposes reinforcing steel in the cap haunches and other random areas of the caps. The ahead face of column #5 of bent #3 has large spalls with exposed reinforcing steel. The exposed reinforcing steel has an estimated 30% section loss.

Remarks



Bent #2 cap, left side-Spalling with exposed reinforcing steel.



Bent #2 cap-Spalling with exposed reinforcing steel.



The ahead face of column #5 of bent #3 has large spalls with exposed reinforcing steel. The exposed reinforcing steel has an estimated 30% section loss.



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Date Reported: 09/24/2012
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: Deck

Deficiency Description

Deck -

The asphalt on the driving surface of the deck has map cracking, minor rutting and is breaking up over the deck joints allowing potholes to form in the driving surface.

Remarks





Asphalt breaking up over bent #3, left side.



Asphalt breaking up over bent #3.

Date Reported: 09/09/2014
Priority: G - General/ Preventive maintenance
Type of Work: Repair
Status: Monitor
Component: Superstructure

Deficiency Description

Undersurface of deck -

The undersurface of the deck has delaminated areas adjacent to the deck drains on the left and right sides of the structure. The undersurface has a baseball sized spall with exposed reinforcing steel on the right exterior side of span #1 and in bay #4 of span #3 adjacent to abutment #2.

Remarks



Span #2, right side-Delaminated area at deck drain.



Span #3, bay #4-Spall with exposed reinforcing steel near abutment #2.



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Date Reported: 10/03/2018
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: Substructure

Deficiency Description

Substructure -

The Northwest wing wall has a wide vertical crack at the abutment interface and has rotated slightly toward the channel.

Remarks



Northwest wing wall-Wide vertical cracking.



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Date Reported: 09/09/2014
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: 330 - Metal Bridge Railing

Deficiency Description

Bridge railing -

The metal portion of bridge railing on the right side of structure has loose connections at post # 1 and # 2 of span # 3 adjacent to bent # 3.

Remarks



Span #3, right bridge railing at post #1-Loose connection.

Date Reported: 09/29/2016
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: Approach

Deficiency Description

Approach Guardrail-
The approach guardrail at the Southwest bridge end has collision damage.

Remarks



The Southwest approach railing has collision damage at the bridge end that has created a "Pocket" in the railing.



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Inspection Comments

10/03/2018 - RSM - Element quantities plan verified this date.

09/28/2016 - JCJ & JML - Type 2 Underwater Inspection - Probing by range pole from a boat indicates that the top of the footing at Bent 2, Column # 4 is exposed and the tops of Bent 3 footings at Columns 4 & 5 are exposed at this inspection. AHTD Drawing # 18815 Boring Legend designates the structure is founded on Very Hard Blue Shale. AHTD Drawing # 672 indicates that the footings are 2' thick. There are no apparent scour problems or undermining at this inspection.

Substructure Notes

09/30/2020 - EJW & JPW - Type 2 Underwater Inspection - Probing by range pole from a boat indicates abutment #1 footing has cover. The top of the footing at Bent 2, Column # 2 & 4 is exposed and the tops of Bent 3 footings at Columns 3, 4 & 5 are exposed at this inspection. Abutment #2 footing has cover. There are no apparent scour problems or undermining at this inspection.