



**Bridge Name:** Robert J. Adams Bridge  
**Road Carried:** River North Drive  
**Over:** Ocmulgee River  
**Location:** Bibb County, Georgia



Latitude: 32.913079 Longitude: -83.690071

Inspection Date: July 26, 2023

Report Date: July 27, 2023



Prepared by:

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Prepared for:

River North Communities Association  
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## Introduction

The bridge inspection was performed on July 26, 2023 at the request of River North Communities Association for the purpose of completing the biennial bridge inspection of the Robert J. Adams Bridge over the Ocmulgee River. The scope of the inspection was limited to a visual inspection of the entire structure above the water and did not include an underwater inspection of the piers and footings. No load rating services were provided as part of this inspection. The bridge was inspected to identify any structural or maintenance deficiencies that could reduce the live load carrying capacity of the bridge below its design levels or the life span of the bridge.

All inspection work on this project was performed in accordance with the Code of Federal Regulations Title 23, Part 650, Subsection C – National Bridge Inspection Standards, as well as the general requirements of the Georgia Department of Transportation. The bridge inspectors meet the qualifications outlined in the National Bridge Inspection Standards.

The inspection was performed using non-destructive inspection techniques. The inspection work was accomplished with hand tools and documented with field notes and digital photography. The superstructure and underside of the deck were accessed using an under-bridge inspection platform. The inspection team was composed of:

### Inspection Team:

Timothy Dow, PE, Certified Bridge Inspector  
Bob O'Daniels, Certified Bridge Inspector

## Evaluation

### General

**Year Built:** 1975

**Access Equipment:** HPT 38 under bridge inspection vehicle provided by Anderson Crane & Bridge Technologies

For this inspection the bridge is inventoried from the southwest to the northeast with Bent 1 at the southwest end of the bridge. Beams are counted left to right when looking down the bridge from Bent 1 to Bent 6.

The bridge is in overall good condition and is safe for continued use.

### Deck

**NBIS Condition:** 7 – Good condition, some minor problems

**Material:** Concrete

**Deck Wearing Surface:** Copolymer overlay

The total width of the 8 ¾ inch thick reinforced concrete deck measures 30' 9" and is 395 feet long. The deck carries a 24 feet wide travel way, concrete sidewalks (curbs), and three (3) pipe aluminum

handrails. There are steel stay-in-place forms on the underside of the deck between beams. Deck drainage is accommodated with drain holes (scuppers) located in the travel way and along the gutter lines. Several of the scuppers are broken where they emerge from the overhang and are draining directly onto the exterior of the outside beams causing discoloration of the concrete. Some of the scuppers are clogged and should be cleaned out to facilitate drainage. The bridge was constructed with a “hump” centered approximately at Bent 3. The concrete deck joints located at Bents 1, 3, 4 and 6 are formed concrete joints and the joints at Bents 2 and 5 are steel deck joints. All joints were previously sealed with an evazote foam sealant. The deck is supported at the joints by edge beams that extend approximately 3’ 8” below the bottom of the deck. The edge beam between Beams 2 and 3 (Span 3, Bay 2) at Bent 4 rearward was poorly formed during construction, a repair was made in the past and is adequate. There are concrete diaphragms spaced at approximately 20 feet on centers along each span of the bridge. The diaphragm at Bent 3 on the forward side in span 3 has five vertical rebars exposed. One rebar is exposed at Bent 4 on the edge beam.

Two utilities are attached to the bridge and suspended from the deck. An 8-inch gas line is located between the two beams on the northwest side of the bridge (between Beams 1 and 2) and a sewer line is attached to the overhang on the same side. Both utilities are attached to the deck by hanger bolts spaced approximately 20 feet on centers. A third utility may have been attached to the bridge in the past as there are empty hangers between beams 3 and 4.

According to the previous report from April 2021 major structural reconstruction and rehabilitation work was performed on the deck in November 2017. This work included removal and replacement of deteriorated and spalled concrete in Span 1 down to the top mat of reinforcing steel. The area of repair comprised approximately 40% of the deck area in Span 1. Additionally, the entire deck was then protected with a copolymer overlay. This repair seals the deck and provides a non-skid riding surface. At this inspection, the overlay remains intact except for a small portion 7 feet by 11 feet at Bent 6 (the forward abutment) where the overlay has deteriorated in small spots down to the concrete deck. All the joints except for Bent 3 were resealed in 2015. All the joints are in good condition with some leakage beginning in small areas. The joint at Bent 3 is in good condition, with some minor ultraviolet (UV) radiation damage.

The sidewalk (curb) slab on the right and left side of the southwest end of the bridge has some minor cracking. At Bent 1 (the rear abutment) on the right side, the beginning of the sidewalk has cracked and heaved upward slightly. This could be a trip hazard to pedestrians. The standard three (3) rail aluminum handrail is in good condition with no vehicle collision damage or settlement. Several minor dents still exist from the 1994 flooding. The overhangs are in good condition with some minor deterioration. Typical concrete cracks exist throughout the sidewalk (curb) up to 0.02”. There are Barn Swallow nests present in the overhang. The metal deck forms between the beams show signs of minor rust.

### **Superstructure**

**NBIS Condition:** 7 – Good condition with some minor problems

**Material:** Concrete

**Year Painted:** Unknown

**Paint Type:** Zinc primer and non-lead topcoat on bearings

The superstructure consists of five Type IV prestressed concrete beams on 6-foot centers and steel bearings.

**Beams:** There are five beams per span with a few visible defects. Beam 1 in Span 1 shows signs of impact damage probably due to the repairs to the substructure and installation of the adjacent slope protection. Spalls previously reported on the bottom flange of the PSC Beams 4 and 5 in Span 4 adjacent to Bent 4 were repaired in November 2017. All exposed reinforcing steel and prestressing wires were cleaned and covered with epoxy concrete. Additional spalls on the bottom of the PSC beams with exposed reinforcing stirrups were observed on PSC Beam 3 in Span 4 adjacent to Bent 4 and PSC Beams 2 and 3 in Span 4 adjacent to Bent 5 in 2019. No prestressing wires were exposed. These deficiencies were cleaned and repaired with epoxy concrete during the April 2021 inspection. The repairs remain in excellent condition at this inspection. PSC beams are manufactured at concrete plants with high strength concrete and generally do not spall. These spalls appear to be the result of improper concrete cover on the reinforcing steel and may continue to occur in the future due to the age of the structure, though none were found at this inspection. This condition can develop into a serious issue if not addressed in a reasonable timeframe. The exterior beams have stains from water draining from the deck, especially at broken scupper locations. The end walls (at Bents 1 and 6), diaphragms, and edge beams (at Bents 2-5) all appear in good condition except for the edge beam between Beams 2 and 3 at Bent 4. Previous repair work was relatively poor but is considered adequate and no repairs are required. The utilities hanging from the bridge (gas line in bay 1 and sewer line in the overhang) appear to be in good condition. There is minor corrosion on the utility supports.

**Bearings:** The bearings throughout the structure consist of steel plates and anchor bolts. All anchor bolts and bearings exhibit signs of minor corrosion. All the bearings have previously been cleaned and painted with a zinc primer and non-lead topcoat (sometime after 2011 according to the April 2021 report). The paint coating is in fair condition with some paint failures and does not require repair currently. The steel bearings throughout the structure are generally in good condition. The bearing plate at Beam 1 forward at Bent 2 was cleaned and painted in November 2017 and is now in good condition. All voids under the bearing plates previously identified were cleaned out and filled with epoxy, which will prevent accumulation of water under the bearings and prevent possible corrosion and freezing damage. Also, a lube plate at Bent 2 was replaced, anchor bolts at Bent 3 were grouted, and the bearing assemblies have been cleaned and painted around 2011 or later according to the April 2021 inspection report.

#### **Substructure**

**NBIS Condition:** 7 – Good condition with some minor problems **Scour Condition:** 6 – Slight scour present – scour/wash can be found near the structural members. The scour/wash is noticeable and definite. The function of the structural members is not yet affected.

**Material:** Concrete

**Year Painted:** Not Applicable

**Paint Type:** Not

Applicable

End Bents (Abutments) 1 and 6 are reinforced concrete caps supported on steel piles. The four (4) intermediate bents are hammerhead piers with rectangular columns founded on concrete spread

footings with concrete seals. Bents 2, 3 and 4 are located within the channel while Bent 5 is currently located outside the channel.

**Scour:** Based on previous inspection reports the foundations have experienced both structural issues and erosion problems due to scour. To address these issues, scour repairs were performed in 1990 and 1994 and structural repairs were performed in 2003. Bent 1 experienced bank scour that was corrected by installing a concrete fiber reinforced mat that extends down the bank terminating approximately 10 feet from Bent 2. This mat is now covered with dirt and rip rap and is no longer visible. Seal concrete was installed at the exposed piles and extended beneath the adjacent approach slab. Bent 2 was once located on the bank but is now located in the channel, hence the scour rating of 6. Concrete filled bags were installed on both the upstream and downstream sides of the seal to protect Bent 2 from additional scour. The scour damage identified at Bents 3 and 4 was repaired using grout bags to form seals around the existing concrete seal and pumping all voids beneath the seal with a structural grout. Bent 5 was originally affected by erosion of the slope on the northwest side of the bridge however with reconstruction of the slope, the bent has been protected. Bent 6 repairs included reconstruction and rip rap protection of the endroll and seal concrete to address some minor settlement and erosion around the piles. The repairs performed at the abutments (Bents 1 and 6) appear in good shape, the piles are no longer exposed. The previously reconstructed slopes have filled in with vegetation and rip rap at Bents 1 and 6 and have remained in place.

**Caps:** In addition to the foundation repairs the caps at Bents 2, 3, 4 and 5 were strengthened with Carbon Fiber Reinforced Polymers (CFRP). Inadequate spacing of the shear reinforcement (stirrups) in the caps at all the intermediate bents was documented in previous inspection reports and carbon fiber repairs were completed in 2009. The carbon fiber repairs remain in good condition. Spots were still observed on the bottom portion of the hammerhead piers that had been repaired with carbon fiber but do not appear to be causing any problems. They should be monitored in future inspections. Previous joint leakage at Bents 2 and 4 has stained the caps. Spalling with exposed reinforcing steel previously observed at the top of the column just below the intersection with the cap at Bents 2 and 3 was repaired with epoxy concrete during the April 2021 inspection. The stay block against Beam 1, Bent 4 forward was repaired in November 2017. All corroded reinforcing steel was replaced and deteriorated concrete replaced with epoxy concrete. Repairs remain in excellent condition.

**Piers:** The piers are in good condition with some concrete exhibiting light scale that is beginning to allow the aggregate to show but without interstitial cement loss. The scale is mainly from the top of the footings up approximately 10 to 15 feet.

**Footings:** The tops and a small portion of the sides of the footings at Bents 3 and 4 are visible, but silt has covered the seals and seal repairs. This was noted from the under-bridge vehicle platform as no underwater inspection was performed.

**Channel:** No drift accumulation was observed at any of the piers. Waterway soundings were taken at each intermediate bent location to be used for future comparisons. Previous soundings are not available for comparison. Currently, the water is shallow around Bents 3 and 4 and slightly deeper around Bents 2 and 5. The sand and silt continue to shift based on water flow but does not have any effect on the

stability of the bents. Since an underwater inspection was not performed, exact scour information at the footings could not be determined. Due to the shallow depth of water at the time of inspection there did not appear to be any scour issues with silt observed around the intermediate piers and an underwater inspection did not appear to be warranted.

### Load Rating and Posting

The structure is open to traffic with no restrictions. No plans or design notes are known to exist. Load rating was not performed as a service of this inspection. Posting signs are not present at the bridge. Several 18-wheeler trucks were noted crossing the bridge during the inspection.

### Superstructure Data

Span #	Beam Type	Beam Spacing	Span Length (ft)	# Beams	Remarks
1	Type IV prestressed Concrete	6'0"	79	5	Good Condition
2	Type IV prestressed Concrete	6'0"	79	5	Good Condition
3	Type IV prestressed Concrete	6'0"	79	5	Good Condition
4	Type IV prestressed Concrete	6'0"	79	5	Good Condition
5	Type IV prestressed Concrete	6'0"	79	5	Good Condition

### Bearing Data

Span #	Rear Type Bearing	Forward Type Bearing	Remarks
1	Steel Plate Assembly	Steel Plate Assembly	Good Condition
2	Steel Plate Assembly	Steel Plate Assembly	Good Condition
3	Steel Plate Assembly	Steel Plate Assembly	Good Condition
4	Steel Plate Assembly	Steel Plate Assembly	Good Condition
5	Steel Plate Assembly	Steel Plate Assembly	Good Condition

The bearings at bents 1, 2, 4, 5 and 6 consist of a three (3) plate system bolted to the bent cap. Bent 3 has a pedestal bearing approximately one to two feet high.

### Elements and Defects

Element	Description	Units*	Total	CS1	CS2	CS3	CS4
12	Reinforced Conc Deck	SF	12,206	12,206			
109	Prestressed Concrete Beams	LF	1,975	1,925	50		

316	Plate bearings	EA	20	20			
215	Reinforced Concrete Abutment	LF	62	62			
234	Reinforced Concrete Caps	LF	124	124			
205	Reinforced Concrete Columns	EA	4	4			
301	Pourable Joint Seal	LF	180	170	10		
510	Wearing Surface	SF	9,480	9,403	77		

\*SF-Square Feet, LF-Linear Feet, EA-Each

### Maintenance Items

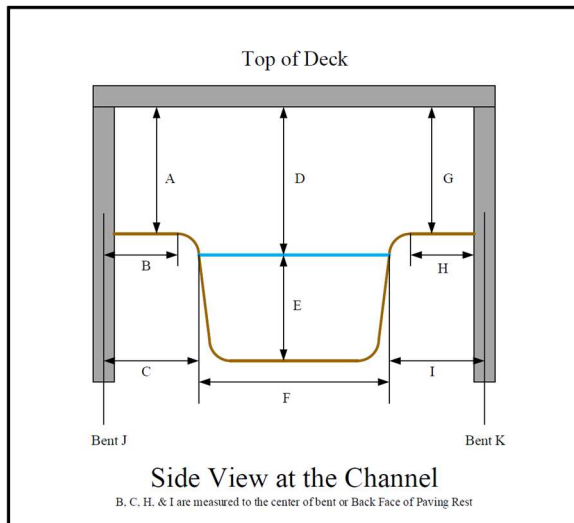
Activity	Priority*	Location	Comments
Repair broken scuppers and clean out clogged scuppers.	C	In deck gutters.	The broken scuppers are not directing the water away from the beams.
Remove vegetation (cut trees, limbs, and brush back away from the bridge).	B	Spans 1 and 5.	Trees and brush are encroaching against the structure and beginning to get into travel lanes and over sidewalks.
Clean and apply epoxy coating on exposed rebar.	B	Diaphragm approximately midspan between Bent 3 and Bent 4 in Span 3 on forward side.	Five vertical rebars are exposed at top of diaphragm.
Clean and apply epoxy coating on exposed rebar.	B	Edge beam at Bent 4, Span 3, Bay 4.	Small vertical rebar exposed at bottom of edge beam.
Program joints for replacement in next two years.	B	Each joint	Joints are beginning to leak in a few places. Joints typically need replacement every 10 years (due in 2025).
Repair sidewalk on both sides at Bent 1 to eliminate trip hazards.	B	Bent 1 beginning of sidewalk on both sides of bridge.	The right side especially presents a trip hazard.

\*A = Repair immediately. Problem affects the structural integrity of the bridge and could lead to failure. Bridge may need to be closed until repairs are made.

B = deficiency not critical but should be performed soon to prevent new or additional damage to structure.

C = deficiency not critical but should be carried out to reduce negative effect on structure.

### Channel Information



#### Channel Measurements for Side View

A: 25 B: 70 C: 62 D: 34 E: 7 F: 246  
G: 31 H: 6 I: 8 J: 1 K: 5

**Location of Bridge Height (D):** 6' forward of Bent 4

**Bridge Height Taken:** Upstream

**Waterway Adequacy:** 7 – Slight chance of overtopping bridge deck and roadway approaches.

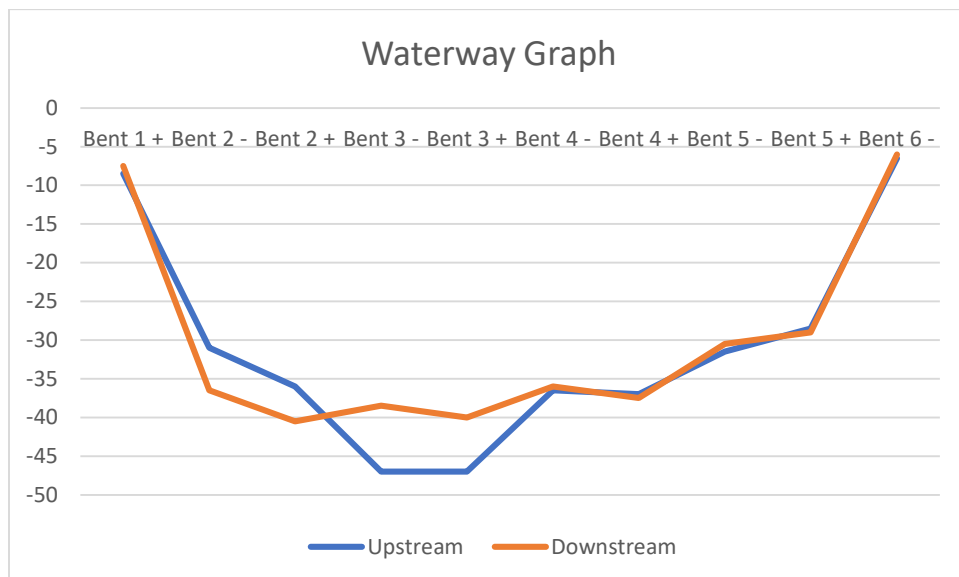
**Channel Protection:** 8 – Banks are protected or well vegetated.

+Substructure Skew = 0 -Channel Skew = 0 Angle of Stream Attack = 0

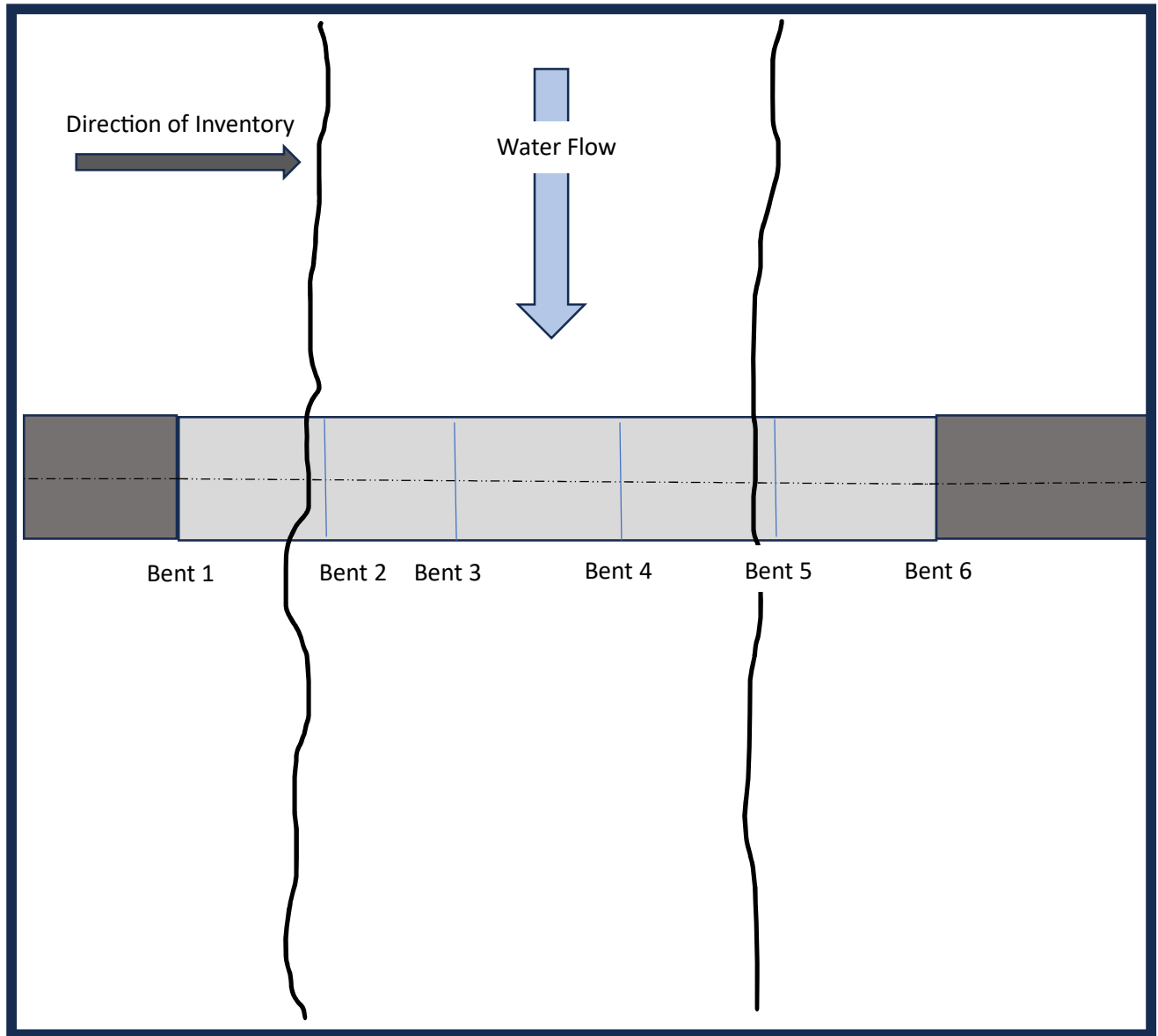
### Waterway Soundings

Sounding Location	Bent 1 +	Bent 2 -	Bent 2 +	Bent 3 -	Bent 3 +	Bent 4 -	Bent 4 +	Bent 5 -	Bent 5 +	Bent 6 -
Upstream	8.5	31	36	47	47	36.5	37	31.5	28.5	6.5
Downstream	7.5	36.5	40.5	38.5	40	36	37.5	30.5	29	6

Soundings measured from the top of the deck to ground line. Soundings are taken either 6' behind (-) or 6' ahead (+) of Bents.

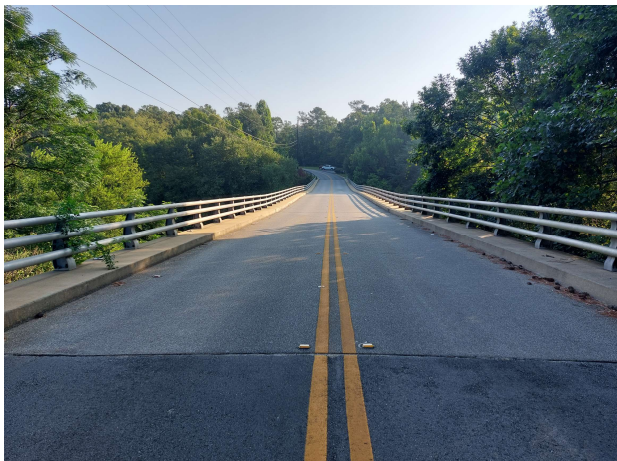


**Waterway Sketch**



## Photographs

Roadway Shot Looking Northeast



Looking from Bent 1 towards Bent 6

Sideview of Bridge



Looking South Bent 4, 3 and 2 are visible

Underside of Bridge Looking at Bent 3 Rear

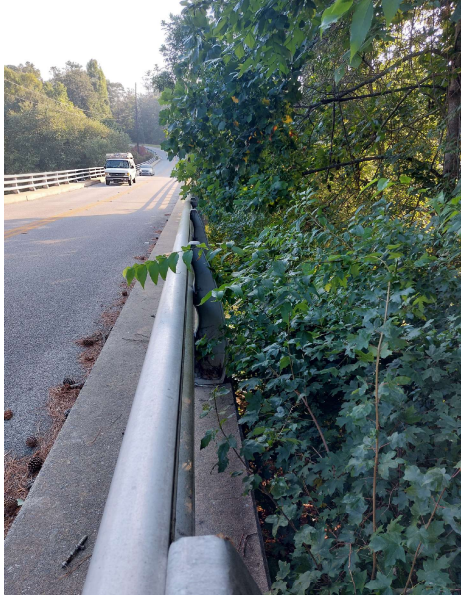


Bent 4 Footing



Silt around footing covers seal

Vegetation Growing Against Bridge



Approach Roadway to Bent 1



Looking toward Arkwright Road

Bridge View



Looking from Bent 1 toward Bent 6

Bent 1 Joint



Joint intact, copolymer overlay intact

Bent 1 Left End Post



Cracking in sidewalk approach just before entering bridge.

Bent 1 Right End Post



Sidewalk damage just before entering bridge creates a trip hazard.

Bridge View



From Bent 6 Looking South

Approach Roadway to Bent 6



Looking away from Arkwright Road

Bent 6 Joint



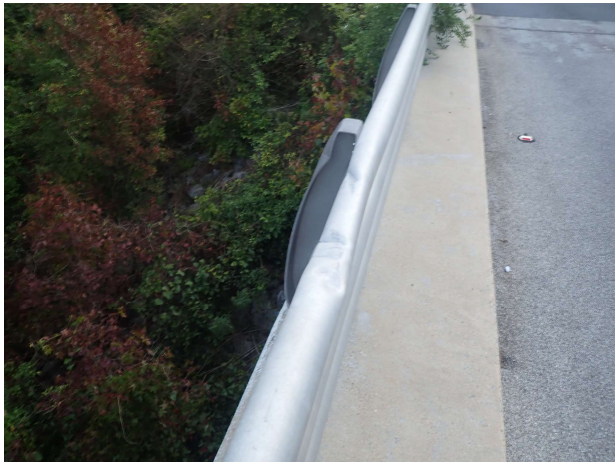
Joint beginning to leak, Overlay has some damage around joint in far lane.

Overlay Damage



Area of damage in overlay 7' X 11'. Damage is on approach slab and beginning of bridge. Has worn down to concrete.

Handrail damage



Damage from debris impact from 1994 flood

Bent 5 Joint

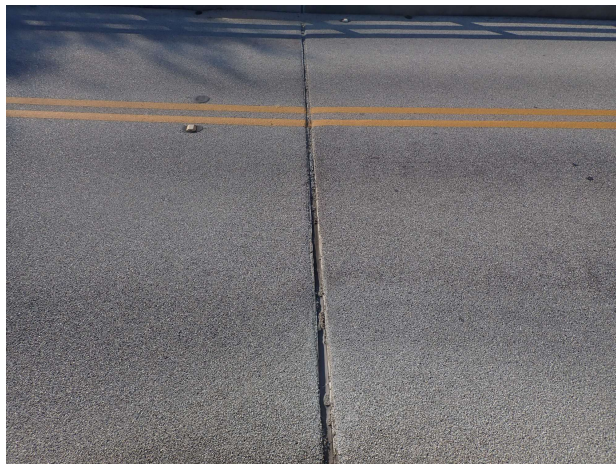


Crack in Curb



Crack in curb in Span 4 up to 0.02". Typical concrete cracking.

Bent 4 Joint



Joint is beginning to leak.

Bent 2 Bearings



Utility, Gas Line



Gas line is suspended between Beams 1 and 2.  
Looking toward Bent 3 rear.

Bent 2 Forward

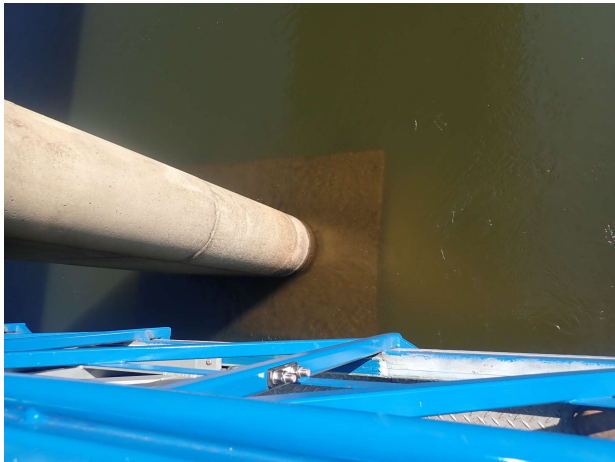


Stains on cap are an indication of joint leakage.

Bent 3 Bearings on Pedestals



Bent 3 Footing



Bent 4, Rear



Staining on Cap is from leaking joint.

Cracking at Edge Beam



Bents 3 through Bent 5 have cracking at Edge Beams. This is not structural damage.

Bent 3



Small spall on overhang in Span 2.

Bent 4, Span 3, Bay 2 – Edge Beam



Previous repair work to poorly formed edge beam. Repair is adequate, no further work needs to be done.

Bent 4 Right Overhang



Note broken scuppers and water stains on beams below them.

Bent 4 Left Overhang



Note broken scupper and water staining on beam.  
Edge beam poorly formed at construction.

Diaphragm in Span 3 Forward, Bay 1



Spalling has exposed rebar due to shallow cover at construction. Should be cleaned and coated with epoxy to prevent further rusting and section loss.

Edge Beam in Span 3, Bent 4, Bay 4



Small amount of rebar is exposed. This should be repaired when the repair is made at the Span 3 Diaphragm exposed rebar.

Beam 2 Span 3 corner spall



Small spall at the corner of Beam 2. No repair necessary.

Bent 5 Rear



Bent 4 Forward



Utility, sewer on left overhang



Bent 1 End Wall



It is difficult to see in photo, but end wall has minor cracking that is typical of concrete. No repair necessary.

Bent 1 Forward, Left side



Concrete was formed and pumped to cover exposed piles in the past. Repair is in good condition. Rip rap protection is in good condition.

Underside of Bridge at Bent 2 Rear



Stay in place metal forms are apparent in between beams. Epoxy repair in the pier is in good condition.

Bent 6 Rear



Concrete was pumped around and under cap to cover exposed piles in the past. Repair is in good condition. Rip rap protection is in good condition.

Bent 5 Forward



Left side of bridge looking downstream



#### Recommendations

1. Perform maintenance items listed above.
2. Perform topside bridge inspections on a continuous two-year cycle. Next inspection should be planned for June 2025 so that report can be delivered in a timely manner to be provided to insurance company.
3. Perform Load Rating on the bridge to determine load carrying capacity, especially considering the Georgia State legislature has recently upgraded the legal loads allowed on Georgia roads and highways. Tractor-trailer traffic was observed crossing the bridge and without knowledge of the load carrying capacity, it is not known if the bridge will handle the new loads. Load Rating a bridge without the bridge plans is difficult and can be expensive. It would be advantageous to find the plans, if possible. If load rating is not possible, then we suggest posting the bridge to the previous legal limits for Georgia.

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Timothy Dow, PE, Bridge Inspector

Date

*Bob O'Daniels*

July 28, 2023

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Bob O'Daniels, Bridge Inspector

Date