

Technical Data Sheet

Bridge Identification:	1560440000000B043 1560440000000B044
Facility Carried:	US 10
Feature Intersected:	Sanford Lake
Location:	Sanford
County:	Midland
Region:	Bay
Year Built:	1962
Year Reconstructed:	1984, 1997
Bridge Type:	Two-Girder System
No. of Spans:	3
Deck Area:	12,547 S.F.
Paint System:	Red Lead
Paint Area:	31,500 S.F. (B04-3) 31,500 S.F. (B04-4)



Plan View Looking West (B04-4)
(1)



South Elevation (B04-3)
(2)

Fracture-Critical Members
<ol style="list-style-type: none"> 1. Pin and Hanger Assemblies 2. Tension Areas of Main Girders

Fatigue-Sensitive Details
<ol style="list-style-type: none"> 1. Welds on Longitudinal Web Stiffeners 2. Welded Flange and Web Splices 3. Downspout Support Bracket Welds 4. Intersecting Welds of Stiffeners 5. Small Web Gaps 6. Lateral Bracing-to-Floorbeam Connections 7. Welded Bottom Flange Splices/Transitions 8. Bolted Splices of Main Girders in End Spans 9. Transverse Web Stiffeners on Interior Faces of Main Girders

General Bridge Description

Bridges B04-3 and B04-4 of 56044 are twin structures carrying U.S. Route 10 Eastbound and Westbound, respectively, over Sanford Lake in the town of Sanford in Midland County. Each structure is a three-span, steel, two-girder-system bridge with the spans measuring 109'-0", 136'-0", and 109'-0" from west to east and an overall length of 354'-0". The out-to-out width of each deck is 35'-6" with a clear roadway width of 33'-0" between Type I concrete barriers, providing for two 12'-0" travel lanes with shoulders. The eastbound and westbound bridges are separated by a clear distance of 31'-6". The bridges are supported by reinforced concrete abutments and solid shaft piers.

The floor systems of these two-girder-system superstructures are comprised of longitudinal stringers and transverse floorbeams, that frame into the two main welded girders along either edge of the superstructure. Span 2 of each bridge contains an 80'-0" suspended span supported by pin and hanger assemblies at the end of the girders cantilevered from Spans 1 and 3.

The bridges were built in 1962 and rehabilitated in 1984, when the pins and hangers for the non-redundant suspended spans were replaced. The exterior faces of the main girders were painted, and the deck received a latex overlay in the 1984 rehabilitation. New deck joints were installed in 1997.



Plan View Looking East (3)



North Elevation View (4)

Inspection Checklists

For additional information and detailed inspection procedures, refer to the Inspection and Maintenance Program section of this manual.

Fracture-Critical Members/Fatigue-Sensitive Details

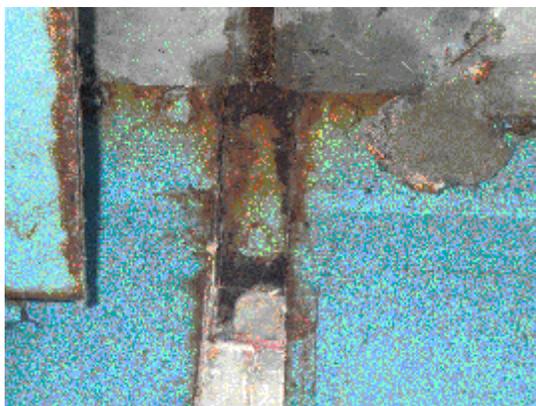
- ! **Pin and hanger assemblies.** (Photos 5 through 8) The tie bars installed to fix the pin and hanger assemblies are susceptible to corrosion.



Overall View of Pin and Hanger Assembly (5)



Typical Bottom Pin of Assembly (6)



Corrosion on Tie Bar (7)

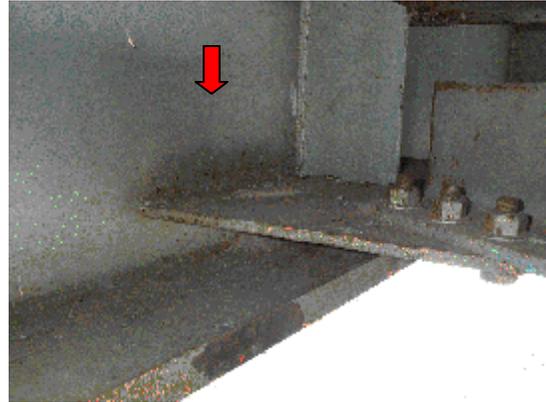


Wind Lock at Pin and Hanger Assembly (8)

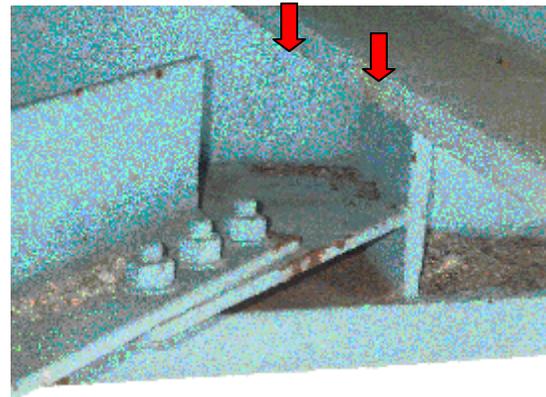
- ! **Tension areas of main girders.** See Figure 1 in the Inspection and Maintenance Program section of this manual for tension areas.
- ! **Girder webs and lateral bracing gusset plates at floorbeam connections.**
(Photos 9 through 11)



Typical Floorbeam Connection to Girder (9)

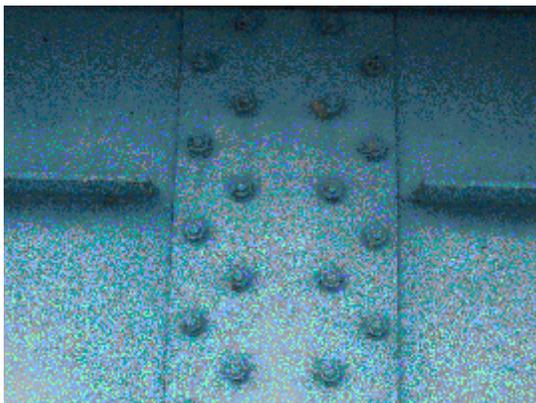


Typical Lateral Gusset Plate Connection (10)



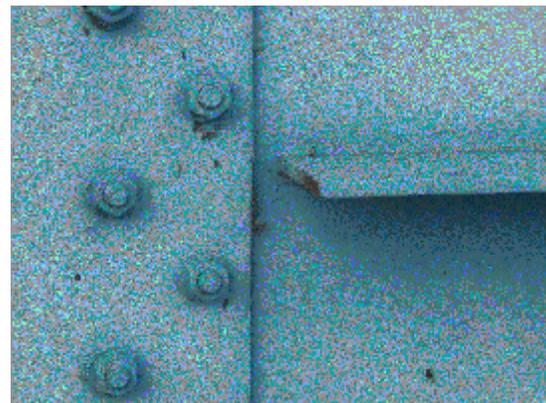
Connection of Lateral Gusset Plate to Main Girder Web and Stiffener (11)

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Longitudinal Web Stiffeners at Field Splice (12)

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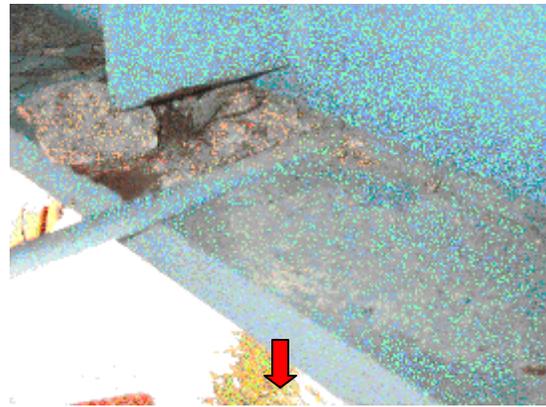
Closeup of End of Longitudinal Web Stiffener (13)

! Welded web splices at  pin and hanger locations.

! Downspout support bracket welds to bottom flanges of main girders.

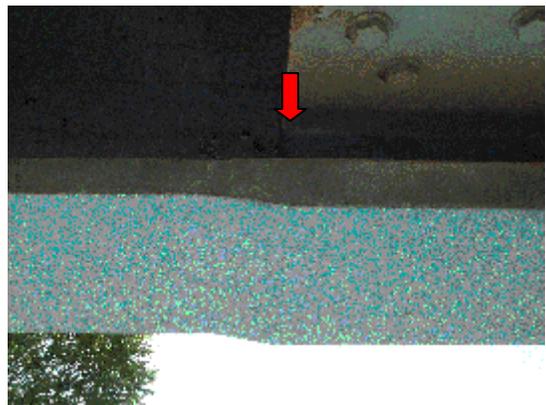


Downspout Support Bracket Welded to Bottom Flange (14)



Downspout Support Bracket Welded to Bottom Flange (15)

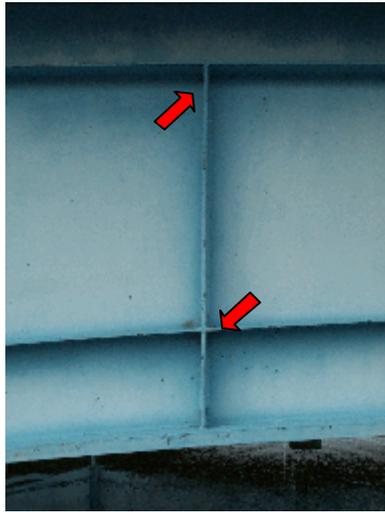
! Welded bottom flange splices/transitions.



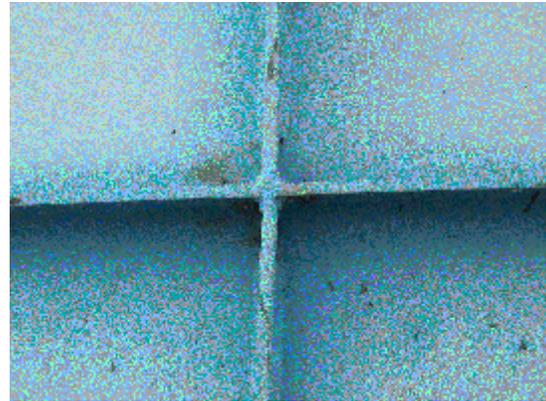
Typical Bottom Flange Splice/Transition (16)

! Bolted splices of main girders in end spans.

! Intersecting welds where transverse and longitudinal web stiffeners cross.

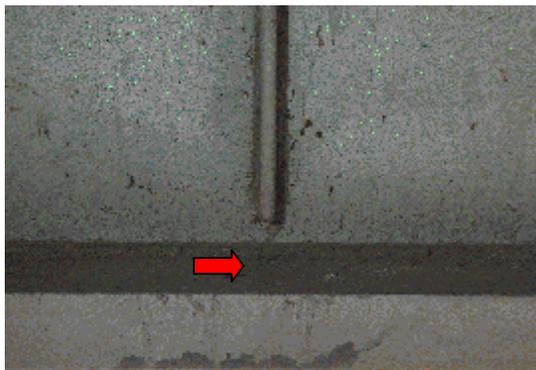


Typical Intersecting Welds (17)



Closeup of Welds (18)

! Small web gaps. There are small web gaps at the transverse web stiffeners.



Typical Web Gap at Bottom of Stiffener (19)



Typical Web Gap at Top of Stiffener (20)

! Transverse webstiffeners on interior faces of main girder. Several of these interior stiffeners were cut out during the original construction to facilitate installation of the floorbeams. These stiffeners were rewelded into place in the field. These field welds should be carefully inspected.



Typical Rewelded Stiffener (21)

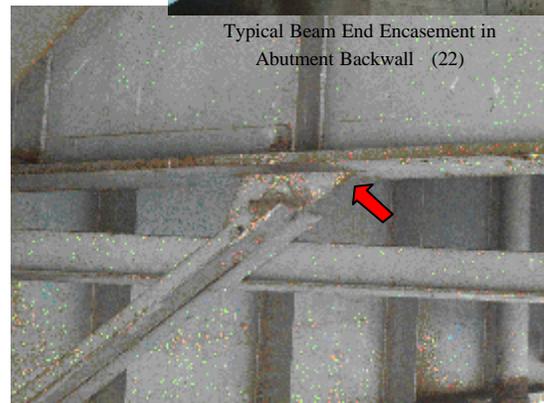
Other

! Beam ends at abutments. The ends of the beams are encased by the concrete backwall at the abutments. The steel is susceptible to development of corrosion at the concrete interface.



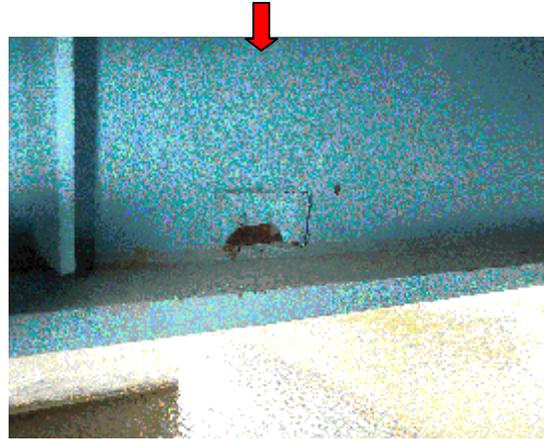
Typical Beam End Encasement in Abutment Backwall (22)

! Floorbeams at knee brace connections. Knee braces are welded to the bottom flanges of the floorbeams and the bearing stiffeners at the piers.



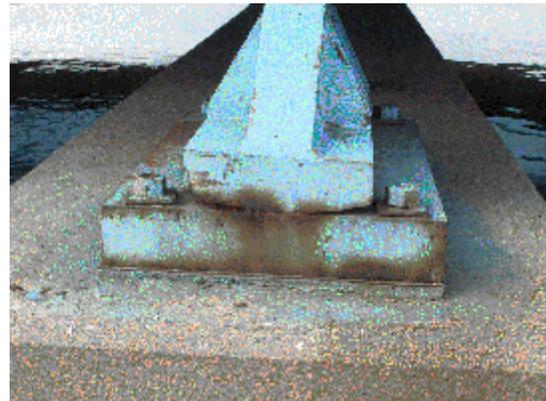
Weld of Knee Brace to Floorbeam (23)

- ! **Floorbeams at pin and hanger locations on eastbound bridge.** Brackets used during the replacement of the pin and hanger assemblies were welded to the floorbeam webs. These areas should be monitored for cracks.



Typical Bracket Welded to Floorbeam Web (24)

- ! **Bearings.**



Typical Pier Bearing (25)

- ! **Paint system.** The paint system should be monitored for chalking, especially on the exterior surfaces of the main girders.



Typical Chalking on Paint System (26)

Maintenance Recommendations

Regularly Scheduled Maintenance Items

Recommendation	Schedule
Clean bridge drainage system components (deck drains and downspouts).	6 to 12 months
Flush bridge deck joints and check for leaks.	12 months
Powerwash bridge superstructure.	12 months
Powerwash bearings and pin and hanger assemblies.	12 months