

April 4, 2023

PRE-INSPECTION REPORT

BRIDGE NO HAM-50-1903L

PID No. 105476



WESTBOUND US 50 OVER CSX RAILROAD, CENTRAL
RAILROAD OF INDIANA AND MILL CREEK

INSPECTION DETAILS:

Bridge Nos.:	HAM-50-1903L
Features intersected:	CSX Railroad, Central Railroad of Indiana (CROI), Mill Creek (The cap spans a rail line operated by the CROI)
Locations to Inspect:	HAM-50-1903L: 1 steel pier cap (Pier 5N)
No. of Inspection Days:	Anticipated 1 day
No. of Caps to Inspect:	1
Anticipated Inspection Dates:	Week of July 10, 2023 (tentative)
Inspection Hours:	8 am – 5 pm, or as directed by the Railroad
Inspection Access Equipment:	Bucket Truck, Ladders

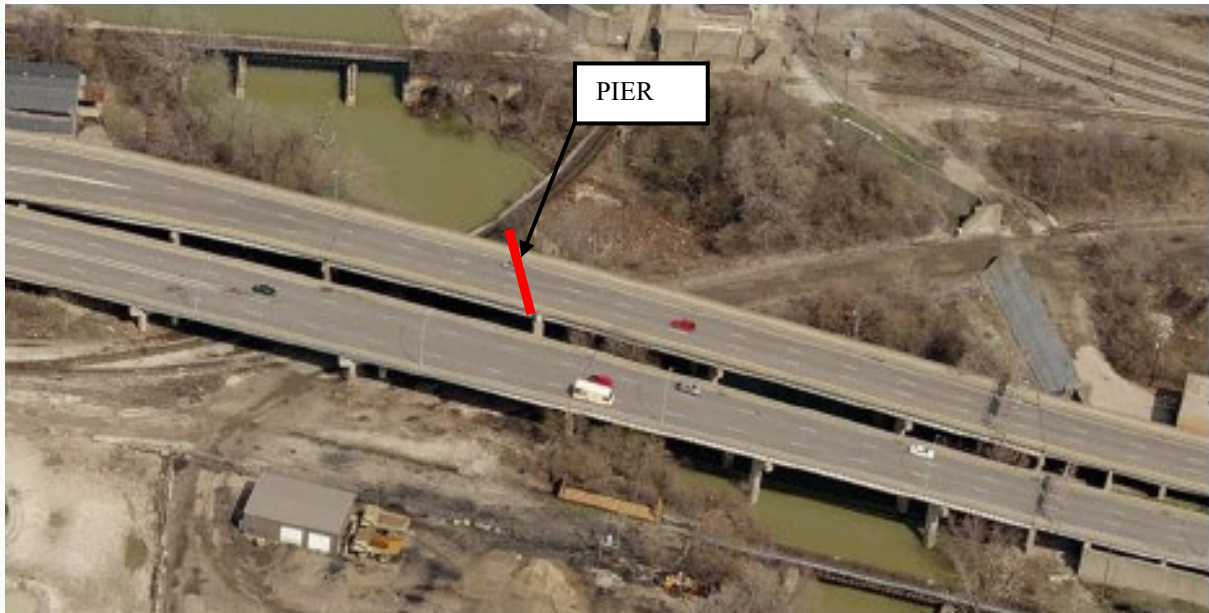
FRACTURE CRITICAL INSPECTION REQUIREMENTS:

The inspection will consist of an In-Depth “Arms-Reach” inspection, performed in accordance with the guidelines of the current FHWA National Bridge Inspection Standards for Fracture Critical Members. To perform an effective Fracture Critical Inspection, the following tasks must be performed:

1. Determine Resource Requirements.
(Identify qualified inspection staff, use appropriate inspection access and inspection equipment).
2. Identify the Fracture Critical Members.
(Identified in Appendix C)
3. Develop the Inspection Procedure.
(Contained in this document)
4. Prepare Follow-up Procedure.
(Recommendations will be made as part of this current project)
5. Provide Quality Control/Quality Assurance for the inspection and report.
(Procedures outlined in this document)
6. Develop a Periodic Inspection Plan
(Already in place with the Ohio Department of Transportation, District 8)

BRIDGE DESCRIPTION & FRACTURE CRITICAL MEMBER LOCATIONS:

The HAM-50-1903L Bridge is a 14-span, welded steel plate girder structure with a reinforced concrete deck that carries westbound US 50 traffic over Mill Creek, CSX Transportation and the Indiana & Ohio Railways railroad tracks. The overall length of the bridge is 1,049.0'. The structure has one fracture critical pier cap located at Pier 5N. This cap spans over the Indiana & Ohio railroad track (*see below*). The cap is a welded steel box beam simply supported by two concrete columns. Six bridge girders frame into the pier cap. Pier Cap 5N is a 67'-5" simply supported welded steel box beam. A 24" diameter water line passes through the cap at mid-span. Fatigue prone details were retrofit in a previous rehabilitation (see Appendix C).



INSPECTION METHODS & PLAN:

The Collins Team will perform the inspection of one fracture critical pier cap on HAM-50-1903L, as defined by the Scope of Services. The cap spans the Central Railroad of Indiana at mile post 0008.35. The work will be performed during 1 day. The inspection will adhere to the Confined Space Entry Procedures defined herein and in the company safety procedures. Traffic control will not be needed for this inspection.

FIELD COORDINATION - The following staff will be involved in coordinating and performing all field work associated with the inspection of these structures.

COLLINS – Field Team Contacts:

Michael Seal, P.E., CBI: Team Leader, Project Manager (614) 849-2277 (C)
mseal@collinsengr.com

Matt Rogers, P.E., CBI: Team Leader (859) 630-2238 (C)
mrogers@collinsengr.com

Kevin Mitchell, CBI, Asst. Team Leader, (606) 344-3000 (C)
kmitchell@collinsengr.com

ODOT (Project and Permitting Contacts) – A right of entry permit is necessary through ODOT District 8. Note no lane closures are required. The following ODOT personnel will be contacts.

Brandon Collett: Project Manager Brandon.Collett@dot.state.oh.us	(513) 933-6643
Jeff Meyer: Assistant Structures Engineer	(513) 933-6630
Scott Kraus: District Work Zone Traffic Manager Scott.Kraus@dot.state.oh.us	(513) 933-6519
Chris Bass: Right-of-Way Use Permits Christopher.Bass@dot.state.oh.us	(513) 933-6575

CENTRAL RAILROAD OF INDIANA – A right of entry permit is required through CROI (care of Rail America) to access railroad right of way. Collins will also be required to purchase or show proof of insurance that meets Rail America railroad liability requirements. Railroad flagging is provided by a pre-approved flagging subcontractor through the local office of CROI. Contacts are:

CROI (Local Office)	(513) 860-1000x133
Donna Killingsworth: Right of Entry Permits	(904) 538-6365
Railroad Flagging	(724) 809-9232

Railroad Information:	AAR DOT	524816G
	Mile Post	0008.35

Approved right of entry permits from ODOT and Central Railroad of Indiana will be kept on the job site throughout the inspection period.

CONFINED SPACE ENTRY PROCEDURE: See below.

INSPECTION PLAN:

The condition inspection of the steel box girder pier caps on HAM-50-1903L will involve a 1-day field effort to completely inspect both the interior and exterior. The exterior will be inspected from 46' bucket truck and ladders for access and the interior will be inspected by entering the box girder per the procedures outlined below. A 3-man inspection team will perform the confined space inspection. Gannett Fleming will open the pier caps 1 hour prior to entering to ventilate the piers. Prior to the start of the inspection, the inspection team shall meet at the site for a safety meeting and review the details of this inspection plan.

Entry will be performed in accordance with permit-required confined space entry procedures. This includes the use of an entry permit system, pre-entry and continuous air monitoring, and designating qualified entrants, attendants, and supervisor(s). The Project Work Plan will outline safety procedures for confined space work and contain contact information for local EMS services and for the local Hospital.

Prior to the inspection, initial air monitoring for O₂, %LEL, CO, and H₂S will be performed by one designated certified entrant climbing the length of the steel box girder pier caps and the certified attendant documenting the readings every 25 feet. Radios will be used for team communications during the inspection. At the conclusion of the initial entry and air monitoring, the confined space air readings will be evaluated and if no hazards exist, the space will be designated a non-permit required confined space. Members of the inspection team entering the confined space will continuously monitor the air, and the attendant will document readings in the box every 30 minutes for the duration of the work inside of the confined space.

If the monitor alarms go off during the initial entrance indicating that unsafe atmospheric conditions exist, the entrant will immediately exit the steel box girder (using a 10-minute escape pack if needed). If unsafe atmospheric conditions continue to exist, further ventilation will continue and the initial air monitoring performed again at a later time after proper ventilation. A blower and generator will be used to provide proper ventilation to the box girder, if necessary. If the atmospheric hazards cannot be removed from the confined space, the box girder will NOT be entered and the District's Project Manager will be contacted to notify and to receive further instructions.

FOLLOW-UP PROCEDURES FOR INSPECTION FINDINGS:

Fracture critical inspection findings shall be documented in the final inspection report.

Quality Control/Quality Assurance

The standard Collins Quality Control Plan will be utilized. Such steps include: completion of field task checklist prior to leaving site, team leader review of all field notes and photographs before leaving the site, either the report originator or checker will be part of the field team, the report checker will be an NBI Team Leader, the report corrector cannot be the checker, the backchecker cannot be the corrector, and the field team leader will be involved for at least one phase of the reporting process.

APPENDIX A – RIGHT OF ENTRY PERMIT APPLICATIONS

APPENDIX B – TRAFFIC CONTROL DETAILS

**APPENDIX C – FATIGUE PRONE DETAILS FOR
HAM-50-1903L**

Pier Cap 5N – Fatigue Prone Details

Fatigue Prone Detail 1

Fillet welds between transverse stiffeners and web plates.

Category: C'

Location: All transverse web stiffeners.

Fatigue Prone Detail 2

Full penetration groove weld of flange splice.

Category: B

Location: Two bottom flange splices.

Fatigue Prone Detail 3

Tack welds, less than 2", on flange plate.

Category: C

Location: Two tack welds on exterior of bottom flange at girder 2.

Fatigue Prone Detail 4

Tack welds, greater than, or equal to, 2" and less than, or equal to, 4".

Category: C

Location: One 2 ½" tack weld on exterior of bottom flange at girder 2.

Fatigue Prone Detail 8

Intersection of fillet welds.

Category: E

Location: Fillet welds of web plates and longitudinal stiffeners intersecting fillet welds of web plates and transverse stiffeners around the water main portholes between girders 3 and 4.

Fatigue Prone Detail 10

Unwelded butt joint between sections of backer bar.

Category: No fatigue category is defined, but a significant potential exists for crack initiation in the web and flange plates adjacent to the butt joint.

Location: Butt joints between sections of bottom flange backer bars along both webs at the fascia girders (4 total).

Fatigue Prone Detail 11

Fillet welds between longitudinal stiffeners and web plates.

Category: B

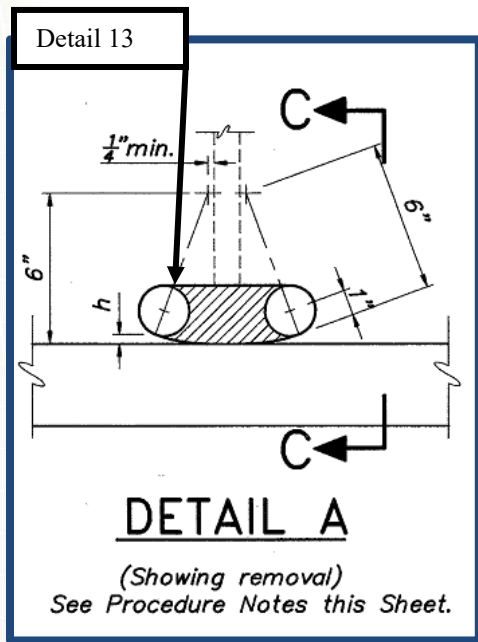
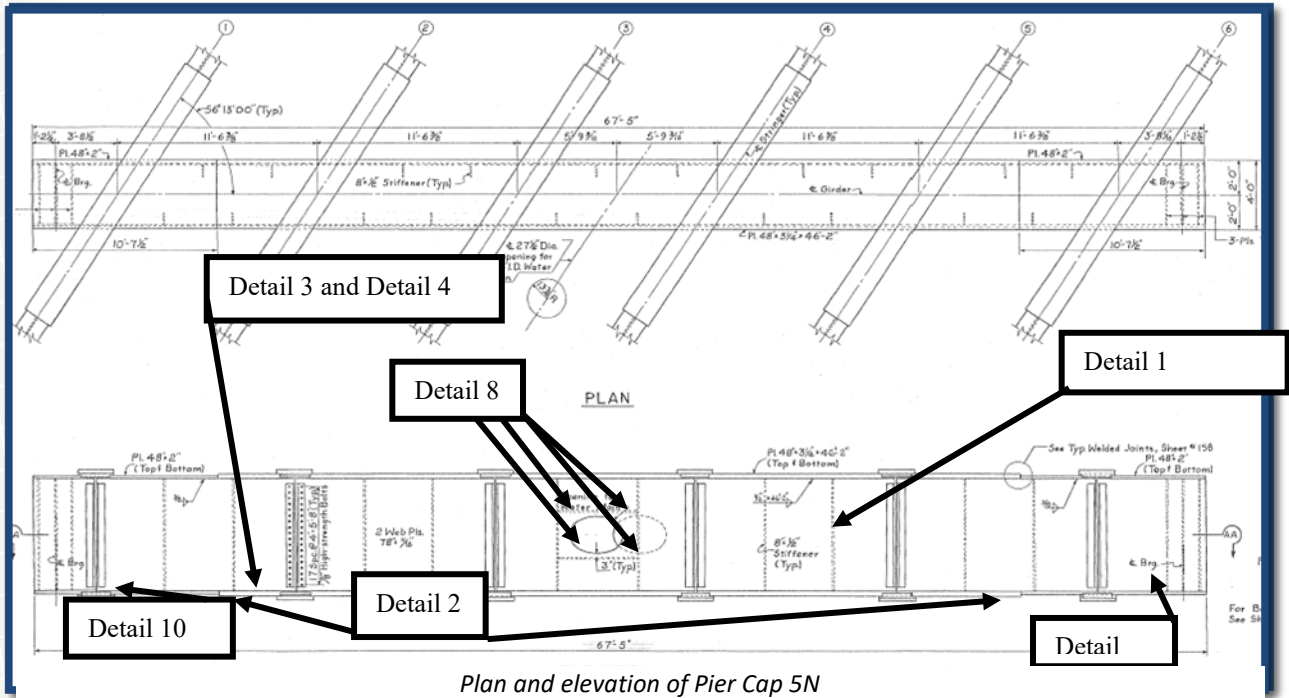
Location: Longitudinal web stiffeners around the water main portholes between girders 3 and 4.

Fatigue Prone Detail 13

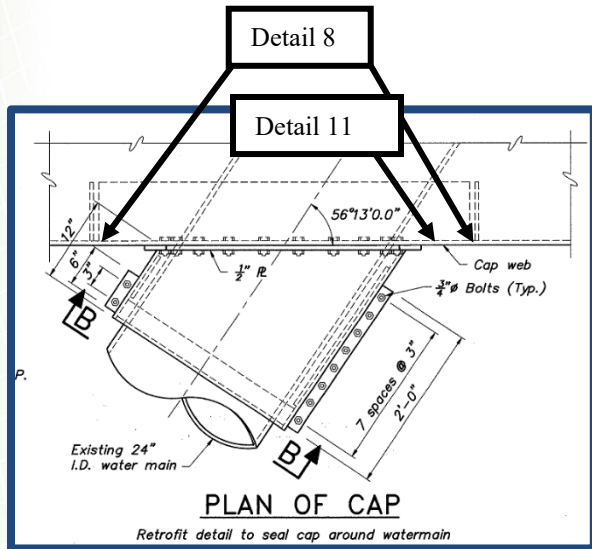
Weld intersection removal holes in web plates.

Category: C

Location: Bottom of web plates at all transverse stiffeners.



Weld intersection retrofit.



Water main portal detail.