

STAFF REPORT

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To: Council
From: Adam Dedrick, Director of Recreation & Parks
Approved by: Warren MacLeod, Chief Administrative Officer
Date: December 10, 2025
Subject: Jordan River Trail Bridge Visual Inspection Report



Origin

A visual inspection of the Jordan River Trail Bridge was completed on November 20, 2025. This staff report provides an overview of the results of the inspection.

Background

In December of 2023 a condition assessment of the Jordan River Trail bridge and an underwater inspection of the piers were completed. It was determined that in its condition at the time, the bridge is safe for pedestrian and off-highway vehicle use for the short-term (1-2 years), which would take it to this December (2025). As a result, the existing bridge required an inspection to determine if it is safe for continued use beyond December until the bridge is replaced. Ideally this would be June 2026 but if the project is delayed a year, it would be June 2027.

Discussion

A visual inspection of the Jordan River Trail Bridge was completed on November 20, 2025, by CBCL Limited. Their findings indicated that the timber ties and south barrier are in poor condition and are cause for concern. The rot in the ties has reduced their overall capacity while there is very little stability if the south barrier were to be impacted by an off-highway vehicle.

The following is a further summary of their findings. The attached inspection report has more details and accompanying photos.

The timber ties are in poor condition and while there are some that appear to be in acceptable condition, there are multiple with severe defects. Without being able to access all the ties, CBCL cannot ensure that the ties that look to be in good condition are structurally sound and have capacity to handle loading from off-highway vehicles (see Photo 5 and Photo 6, Appendix A of the report). The barrier system is unstable and there are multiple locations on the south side that have weakened sections and dislodged connections and will not be able to withstand impact from an off-highway vehicle (see Photo 7, Photo 8 and Photo 9, Appendix A of the report and attached Photos of Barriers Damage). Out of approximately 55 posts on each side, the south has 20 dislodged posts and the north has 12. While the north side exhibits similar deterioration as the south side, it remains comparatively more stable.

The steel superstructure remains the most significant concern for the overall structural integrity of the bridge as deterioration has continued since the previous inspection. However, from the previous assessment, the steel superstructure had enough capacity to continue under its current service conditions and CBCL still believes this to be true even with the slightly worsened defects.

In general, CBCL noted that the Jordan River Trail Bridge is in acceptable condition structurally to handle pedestrian and cyclist loads for the next two years, so until December 2027. If construction of the new bridge were to extend beyond this timeline a re-inspection would be recommended. CBCL stated clearly in the report that the bridge in its current state is not adequate to handle off-highway vehicle loading (Page 9).

CBCL recommends that the Municipality consider one of the two options below to ensure the bridge is safe for users:

1. Close the bridge to off-highway vehicles by installing bollards or laying large boulders by the ends of the bridge. Along with this, periodic visual inspections of the bridge top side, every six months, to see if any defects are worsening (this does not have to be completed by an engineer or specialized personnel).
2. Replace all timber ties and rehabilitate or replace the south barrier.

CBCL noted that while Option 1 is inconvenient for off-highway vehicle users, safety is the key concern for the bridge until it is replaced and without rehabilitation, there is no way to justify that the bridge is safe for off-highway vehicles. Also, the lead engineer for the inspection estimated costs for Option 2 to replace the timber ties and south barrier could be up to \$300,000.

Based on the results of the visual inspection and the safety of users being priority, the Jordan River Trail Bridge has been closed to off highway vehicles and it is recommended for this closure to remain. When asked, CBCL advised that the bridge should be closed to OHVs immediately. Boulders have been installed at each end of the bridge as barriers and repairs to the south barrier are being arranged.

With rehabilitation plans in the works for 2026 it would not be worth spending the funds at this time and for a potentially short time period. If the rehabilitation project is delayed, which will be determined in March or April of 2026, it can be revisited at that time. As well, the opening of the bridge to OHVs was temporary and was dependent on its condition, which was communicated to the public and trail users upfront.

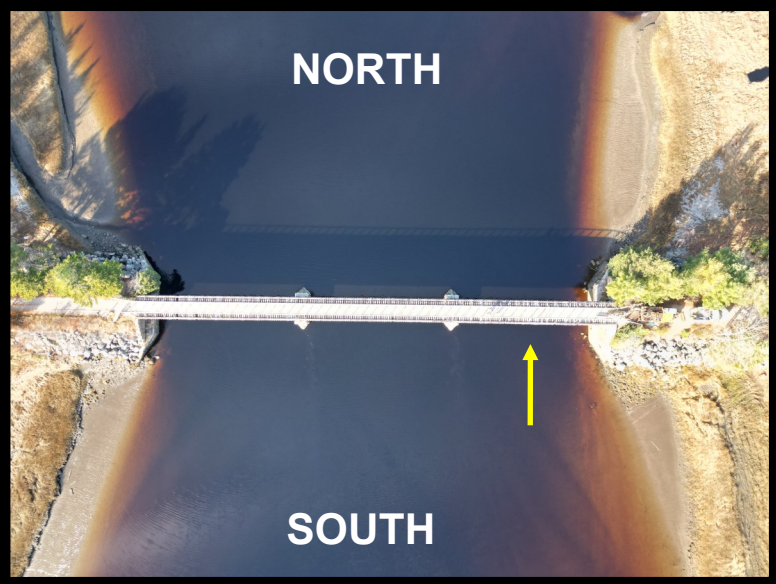
Budget Implications

Exact costs associated with installation of the boulders and barriers repairs are not known at the time of the preparation of this report; however, they are estimated at around \$2,000 to \$2,500. More accurate costs will be provided at the Council meeting. The final amount will be taken from the Recreation Facilities Development GL 00-27130-831.

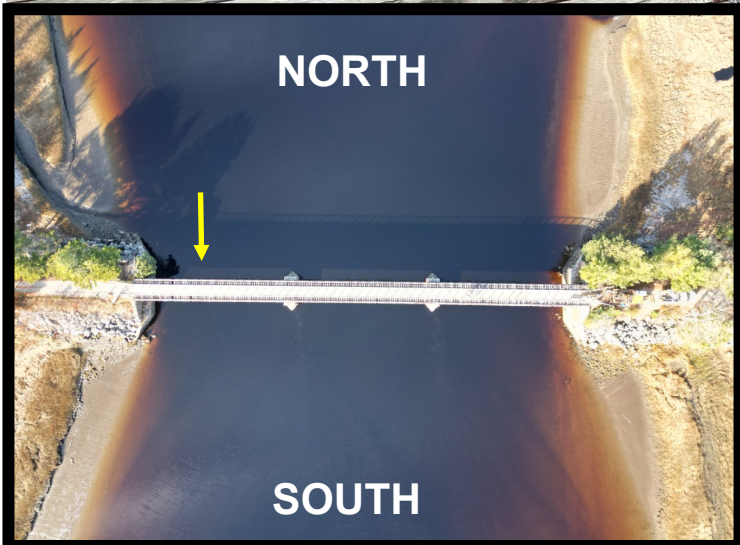
Attachments

- Photos of Barriers Damage
- Jordan River Trail Bridge Visual Inspection Report

South Barrier (ocean side)



North Barrier (inland side)



December 2, 2025

Adam Dedrick
Director of Recreation & Parks
Municipality of the District of Shelburne

Dear Mr. Dedrick:

RE: *Jordan River Trail Bridge – Visual Inspection Memo*

Pleased find attached the memo for the visual inspection of the Jordan River Trail Bridge. This memo reflects the observations made on November 20th, 2025, in conjunction with the previous condition report completed January 31st, 2024 (CBCL).

Executive Summary

CBCL completed the site visit at the Jordan River Trail Bridge in the Municipality of the District of Shelburne, NS on November 20th, 2025.

Since the previous inspection in 2023 (CBCL), all bridge components have continued to deteriorate, with varying degrees of severity. We are aware that the intention is to replace the bridge starting in May of 2026 (with the possibility that construction is delayed until May 2027). In our opinion, the Jordan River Trail bridge in its current condition will remain serviceable for pedestrians and cyclists, **but not off-highway vehicles**, for the next two years (November 2027).

Key Observations

- ▶ **Deck:** Rot, minor splits, and minor checks observed in the deck planks.
- ▶ **Ties:** Rot and severe section loss to the point of complete deterioration observed in the ties.
- ▶ **Barrier:** Impact damage, post failure, dislodged connections, rot, checking, and splits observed in both barriers. Most notable defects are at the south barrier.
- ▶ **Abutment & Piers:** Loss of mortar joints, erosion, scaling, and several dislodged stones observed in the abutment and piers.
- ▶ **Steel Girders:** Severe corrosion resulting section loss observed in the bottom portion of the steel girders.

Key Recommendations

The ties and south barrier are in poor condition and are cause for concern. The rot in the ties has reduced their overall capacity while there is very little stability if the barrier were to be impacted by an off-highway vehicle. We recommend that the Municipality consider either rehabilitating the ties and barriers or closing the bridge to off-highway vehicles to ensure safety for users.

Introduction

CBCL was retained by The Municipality of the District of Shelburne to perform a visual inspection of the Jordan River Trail Bridge, located in Jordan Falls, NS. The inspection was performed on-foot and with the aid of a microdrone. **Figure 1** presents a plan view aerial image of the inspection site.

The most recent inspection of the bridge was completed on December 13th, 2023 (by CBCL). In the inspection report, the bridge was determined to be safe to carry its intended loads (pedestrians, cyclists, and off-highway vehicles) for two years. The bridge is slated for replacement, with work scheduled to start in May 2026 (however, CBCL is aware that replacement could be delayed until May 2027), which falls out of the two-year timeline given in the previous inspection report. The purpose of CBCL's inspection detailed in this memo was to determine if the bridge is safe for continued use until the bridge replacement commences.

Table 1 – Site Visit Information

Jordan River Trail Bridge – Shelburne County, NS	
Inspection Date/Time	November 20 th , 2025 12:00 pm to 3:00 pm
Conditions	Clear, 5°C, low tide
Inspectors	Eric Tynski, P. Eng – Bridge Engineer Brian Latimer, EIT – Junior Bridge Engineer Meghan Whalen, Engineering Student
Orientation	See Figure 1
Access Equipment	N/A
Inspection Equipment	Hammer, measuring tape, chalk, microdrone
Safety Equipment	Safety vest, hard hat, safety boots
Areas Accessed	Deck and barrier accessed by foot, remaining areas accessed via microdrone only (girders, abutments, ties).

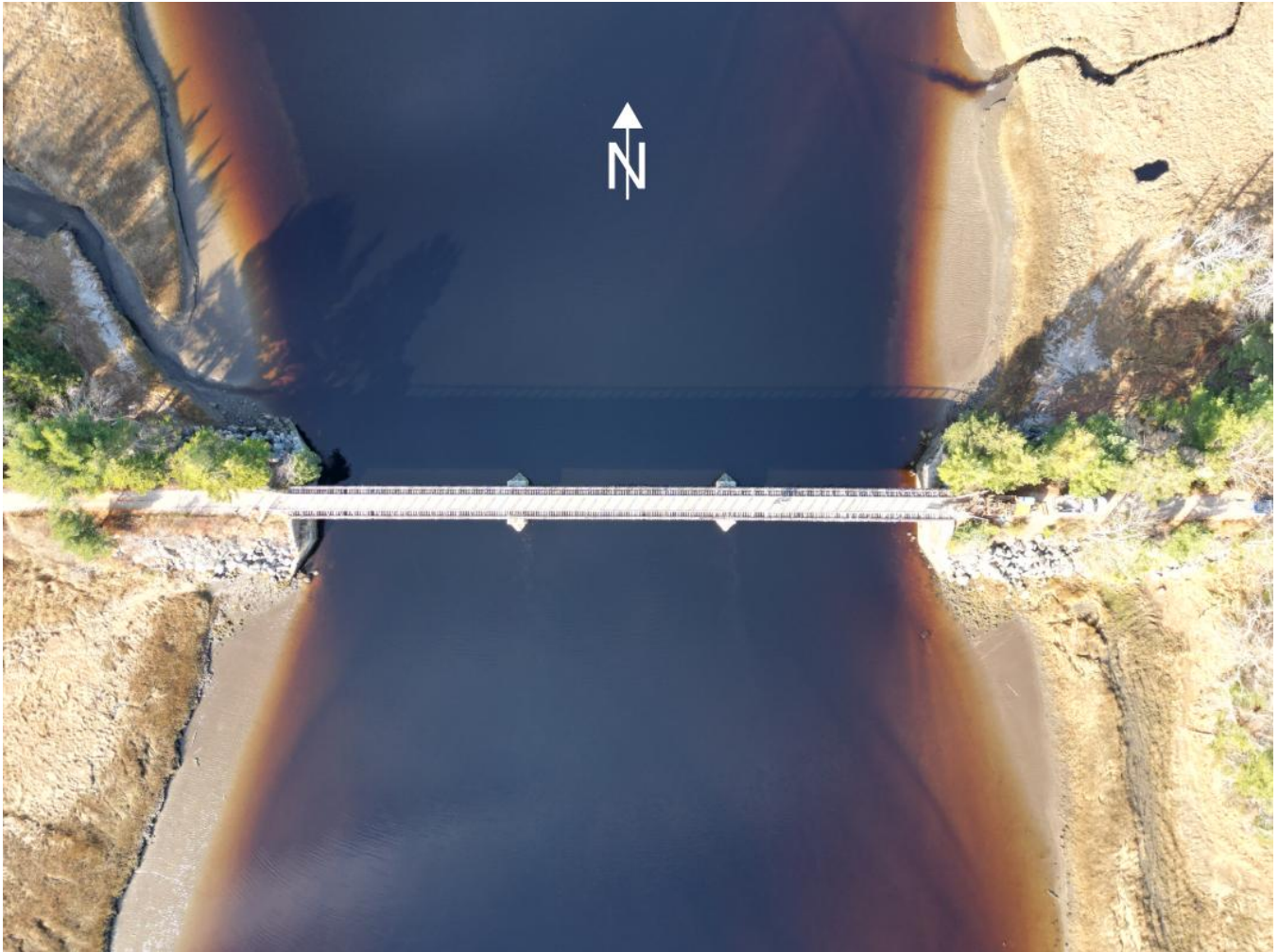


Figure 1 - Site Plan View

Background

The Jordan River Trail Bridge is a three-span steel girder bridge resting on masonry/concrete abutments and piers, originally constructed in 1906. Originally built for train traffic, the bridge has been converted to service pedestrians, cyclists, and off-highway vehicles (likely in the 1990s). The timber ties lie across the two original girders and support a timber deck and barrier. The clear width of the deck is 1.6 m. From the previous inspection report, the east, center, and west spans were measured at approximately 25.6, 25.7, and 25.8 m, respectively, for a total length of 76.2 m.



Figure 2 - Aerial view of Jordan River Trail Bridge. Picture facing north.

Observations

Based on the visual assessment of the bridge, a condition rating was assigned to each major element observed from the four categories – Excellent, Good, Fair, and Poor – defined in **Table 2**. These categories reflect the relative condition of each element and the extent to which any

deterioration might affect functionality or structural performance. The categories are taken from the Ontario Structure Inspection Manual (OSIM); however, the inspection did not follow OSIM procedures, and they are only provided to give a general sense of element condition.

Table 2: Condition Rating Categories.

Rating	Description
Excellent	No visible defects. Element is in brand-new condition.
Good	Light visible defects that do not currently affect the performance of the element.
Fair	Individual defects or quantity of defects that affect the performance of the element, such as rot, corrosion, minor section loss, etc., but do not yet present safety concerns.
Poor	Defects are potentially a safety concern or present a risk to the stability of the element and should be addressed.

** It should be noted that these ratings are performance based for the intended function of an element. For example, the girders may appear to be in "poor" condition due to the section loss, but they are still capable of performing as the main load carrying element of the structure. As such, they were given a "fair" rating.*

Timber Deck

The timber deck planks run transversely across the bridge and are supported by three longitudinal stringers, which connect into the timber ties. The deck planks were visually assessed and sounded using a hammer to evaluate their condition. A significant number of planks appear to have been recently replaced and are generally in good condition. However, several of the older planks that have not been replaced exhibit signs of deterioration (See Photo 3, Appendix A). Observed deficiencies include areas of rot present throughout several of the original wooden deck planks. In addition, minor checks and splits were noted across these older planks as well.

Overall, the deck is in good condition and remains functional for its intended use.

Timber Ties

Like the deck planks, the timber ties run transversely across the bridge and are supported by two longitudinal steel girders. The ties were assessed visually, and some were accessed to hammer sound. The ties are aging and exhibit significant deterioration, including extensive checking and splitting, as well as rot in the sounded members. A total of 14 ties have experienced severe section loss (see Photo 5 and Photo 6, Appendix A).

Overall, the ties are in poor condition. While there some members that appear to be in acceptable condition, there are multiple members with severe defects. Without being able to access all the ties, we cannot ensure that the ties that look to be in good condition are structurally sound and have

capacity to handle loading from off-highway vehicles. CBCL recommends either replacing the timber ties or limiting access for off-highway vehicles.

Timber Barrier

The timber barrier system consists of timber posts, double timber top railings, a bottom frame, timber struts connected to the supporting ties, and a chain-link mesh. Multiple posts exhibit signs of impact damage (See Photo 8 and Photo 9, Appendix A), resulting in dislodged connections or complete post failure (See Photo 7, Appendix A). Barrier components show widespread checking and splitting, in some cases, completely through the members (See photo 10, Appendix A). On the south barrier, large portions of the double top railing and sections of the bottom frame are missing. Numerous connections have failed as nails have been dislodged, or the members have experienced section loss. Rot is present throughout the barrier system, contributing significantly to its instability.

As a result of these deficiencies, the barrier system is unstable. There are multiple locations on the south side where the barrier can be easily displaced by hand, indicating that a weakened section will not be able to withstand impact from an off-highway vehicle. While the north side exhibits similar deterioration, it remains comparatively more stable than the south side. It is recommended that the south side barrier is replaced or rehabilitated before the bridge is replaced. Alternatively, as mentioned above, the bridge could be closed to off-highway vehicles.

Overall, the north and south barrier systems are in fair and poor condition, respectively.

Masonry Abutments and Piers

The abutments and piers are constructed of large stone blocks stacked with mortar joints. On the east abutment, the bottom row of stones is encased in a concrete jacket that has experienced severe scaling and erosion to the point of section loss. The top stones of the east abutment have an added layer of cast-in-place concrete near the steel girders for additional support (See Photo 11, Appendix A). The west abutment masonry stones extend down to a mass concrete footing (as detailed in the previous inspection report). Both the east and west piers have concrete noses poured over their north faces, which exhibit severe scaling and erosion.

Observed deficiencies include extensive loss of mortar joints throughout the abutments and piers. Severe erosion of the concrete jacket on the east abutment's bottom row has exposed reinforcement and filler material (See Photo 17, Appendix A). Similarly, the north noses of the piers show significant erosion, exposing the aggregate (See photo 12, Appendix A). Some masonry blocks at the northwest and southwest corners of the west abutment, as well as the south faces of the piers are slightly dislodged (See Photos 13-15, Appendix A), but do not seem to have shifted position significantly compared to the previous inspection.

The observed deficiencies within the abutments and piers are primarily durability-related and do not currently pose a significant risk to the structural integrity of the bridge. These issues would normally warrant monitoring and eventual repair to prevent further deterioration, but they are not expected to compromise the load-carrying capacity of the bridge within the next one to two years under its current service conditions.

Overall, the abutments and piers are in fair condition.

Steel Superstructure

The steel superstructure consists of two built-up plate girders, which serve as the primary load-bearing elements of the bridge. The girders are reinforced with cover plates on the bottom flanges and vertical stiffeners along the web. From the previous inspection CBCL is aware internal diaphragms exist between the girders, however, the underside of the bridge was not accessed for this inspection and as such this bracing was not observed. It is assumed that the condition of the internal diaphragms would be in a similar or slightly worsened condition compared to the 2023 inspection, based on the observed condition of the girder exteriors.

The upper portions of the girders have light to moderate corrosion with no apparent section loss in these areas. In contrast, the bottom portions of the girders exhibit severe corrosion, resulting in significant section loss. This deterioration extends to the webs, bottom flanges, and stiffeners. Most of the section loss has occurred on the webs. See **Figure 3**, **Figure 4**, and **Figure 5** below for a comparison between the 2023 and 2025 inspections.



Figure 3 - North girder, Span 2 (viewed from west to east), showing condition comparison between 2023 (left) and 2025 (right). Increase in existing section loss and new areas of section loss forming.



Figure 4 - North girder, Span 3 (viewed from west to east), showing condition comparison between 2023 (left) and 2025 (right). Similar conditions.



Figure 5 - South girder, Span 1 (viewed from west to east), showing condition comparison between 2023 (left) and 2025 (right). New section loss forming on the web and stiffener.

The steel superstructure remains the most significant concern for the overall structural integrity of the bridge. Deterioration has continued since the previous inspection, with section loss in the webs becoming more pronounced. Several new minor areas of section loss have developed, and previously identified areas have slightly increased in severity. From the previous assessment, the steel superstructure had enough capacity to continue under its current service conditions. CBCL still believes this to be true even with the slightly worsened defects.

Overall, the girders are in fair to poor condition.

Recommendations and Closing

In general, the Jordan River Trail Bridge is in acceptable condition structurally to handle pedestrian and cyclist loads for the next two years. If construction of the new bridge were to extend beyond this timeline we would recommend a re-inspection. **The bridge in its current state is not adequate to handle off-highway vehicle loading.**

The timber ties have extensive visual defects and could not be accessed to confirm if more physical defects were present. The south barrier has significant defects and poses a safety hazard to users, especially if subjected to an impact force from an off-highway vehicles.

Adam Dedrick
December 2, 2025

CBCL recommends that that the Municipality consider one of the two options below to ensure the bridge is safe for users:

1. Close the bridge to off-highway vehicles by installing bollards or laying large boulders by the ends of the bridge. Along with this, periodic visual inspections of the bridge top side, every six months, to see if any defects are worsening (this does not have to be completed by an engineer or specialized personnel).
2. Replace all timber ties and rehabilitate or replace the south barrier.

With the upcoming replacement of the bridge, we understand there are limited funds available to carry out any large rehabilitation project. While Option 1 is inconvenient for off-highway vehicle users, safety is the key concern for the bridge until it is replaced. Without rehabilitation, there is no way to justify that the bridge is safe for off-highway vehicles.

We thank you for this opportunity to complete this work for the Municipality of the District of Shelburne and welcome the opportunity to discuss our findings and how we can assist you with next steps.

Please do not hesitate to contact the undersigned if you have any questions or concerns.

Yours very truly,

CBCL Limited



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Appendix A

Site photos

Appendix A – Site Photos



Photo 1: Aerial overview of Jordan River Trail Bridge, facing south.



Photo 2: Aerial plan view of the Jordan River Trail Bridge.

Appendix A – Site Photos



Photo 3: Typical view of timber deck planks, with several boards replaced.

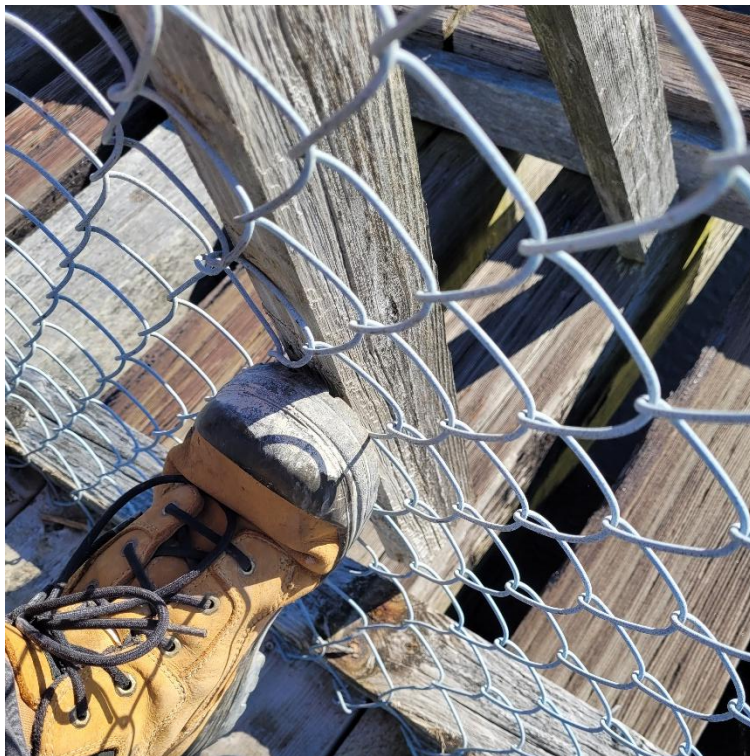


Photo 4: Typical view of a barrier post completely disconnected, south barrier.

Appendix A – Site Photos



Photo 5: Typical view of a missing timber tie, south side.



Photo 6: Typical view of a deteriorated timber tie, south side.

Appendix A – Site Photos



Photo 7: Typical view of a barrier post completely disconnected, north barrier.

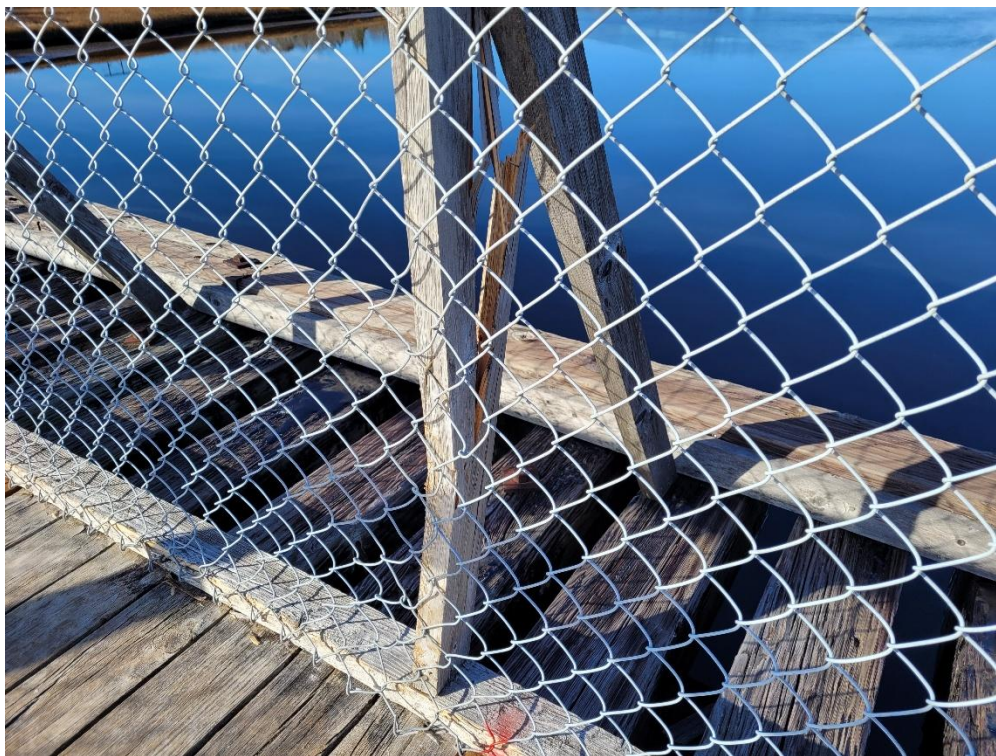


Photo 8: Typical view of barrier impact damage, north barrier.

Appendix A – Site Photos



Photo 9: Barrier impact damage resulting in a damaged post, north barrier.

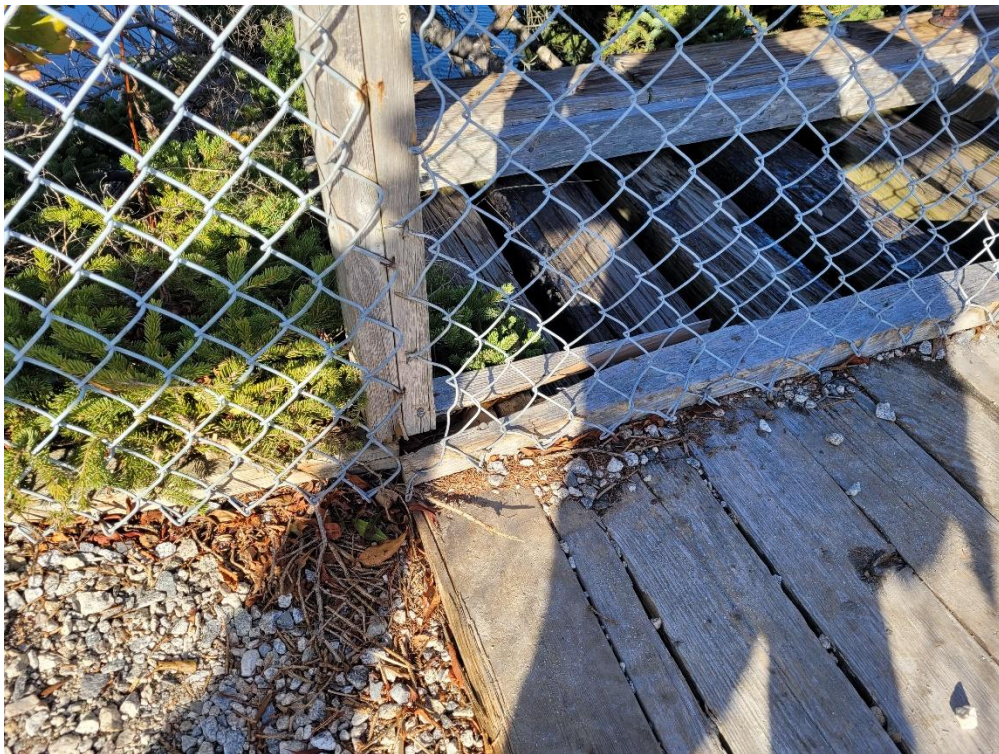


Photo 10: Typical connection damage with splits and checks throughout the timber.

Appendix A – Site Photos



Photo 11: Cast-in-place concrete atop masonry stones at the east abutment near the girders.



Photo 12: Typical erosion and scaling on pier nose.

Appendix A – Site Photos



Photo 13: Dislodged masonry stones at the northwest abutment.



Photo 14: Slightly dislodged masonry stones on the south face of the piers.

Appendix A – Site Photos



Photo 15: Dislodged masonry stones at the southwest abutment.



Photo 16: Typical view of superstructure bearings at the west abutment.

Appendix A – Site Photos



Photo 17: Severely eroded concrete jacket at the east abutment, with exposed reinforcement and other filler material (1).



Photo 18: Severely eroded concrete jacket at the east abutment, with exposed reinforcement and other filler material (2).

Appendix A – Site Photos



Photo 19: Severe corrosion on the south girder near the west abutment, resulting in section loss.



Photo 20: Severe corrosion on the south girder near the west pier, resulting in section loss.

Appendix A – Site Photos



Photo 21: Severe corrosion on the south girder near the east abutment, resulting in section loss.



Photo 22: View showing a missing tie, a deteriorated tie, and a severely damaged tie, south side.

Appendix A – Site Photos



Photo 23: The most extensive corrosion on the north girder near the west abutment, resulting in severe section loss on the girder web.



Photo 24: Severe corrosion on the north girder near the east abutment, resulting in section loss.