

MEMO/SPECIAL INSPECTION

To: s 9(2)(a)

CC: s 9(2)(a)

From: s 9(2)(a)

Date: 28/04/2022

Subject: Diagonal 3L12-U13 west special structural inspection

A dehumidification system is being trialled on the Auckland Harbour Bridge (AHB) for use as a corrosion protection system. The closed diagonal is located in Span 3 Panel Point 12 to 13 west. The project involved removing cover plates to access the inside of the diagonal. The opportunity was taken to conduct a special (principal) inspection on the accessible components and plate elements.

This report outlines findings from the detailed structural inspection.

The diagonal did not have any of the four diaphragm plates installed, nor did it have any bird proofing installed. Subsequently, there was large amounts of bird droppings and used garnet located on the diaphragm connection flanges and bottom surface of the diagonal.

The inspection included the removal of dirt and clean-up of corrosion on diaphragms connections flange #2 and #3 (refer to Figure 1 and 2). Measurement of section loss was by use of the Elcometer MTG4 (serial No. XE24934). After the inspections the location was repaired via blast and paint.

Figure 1

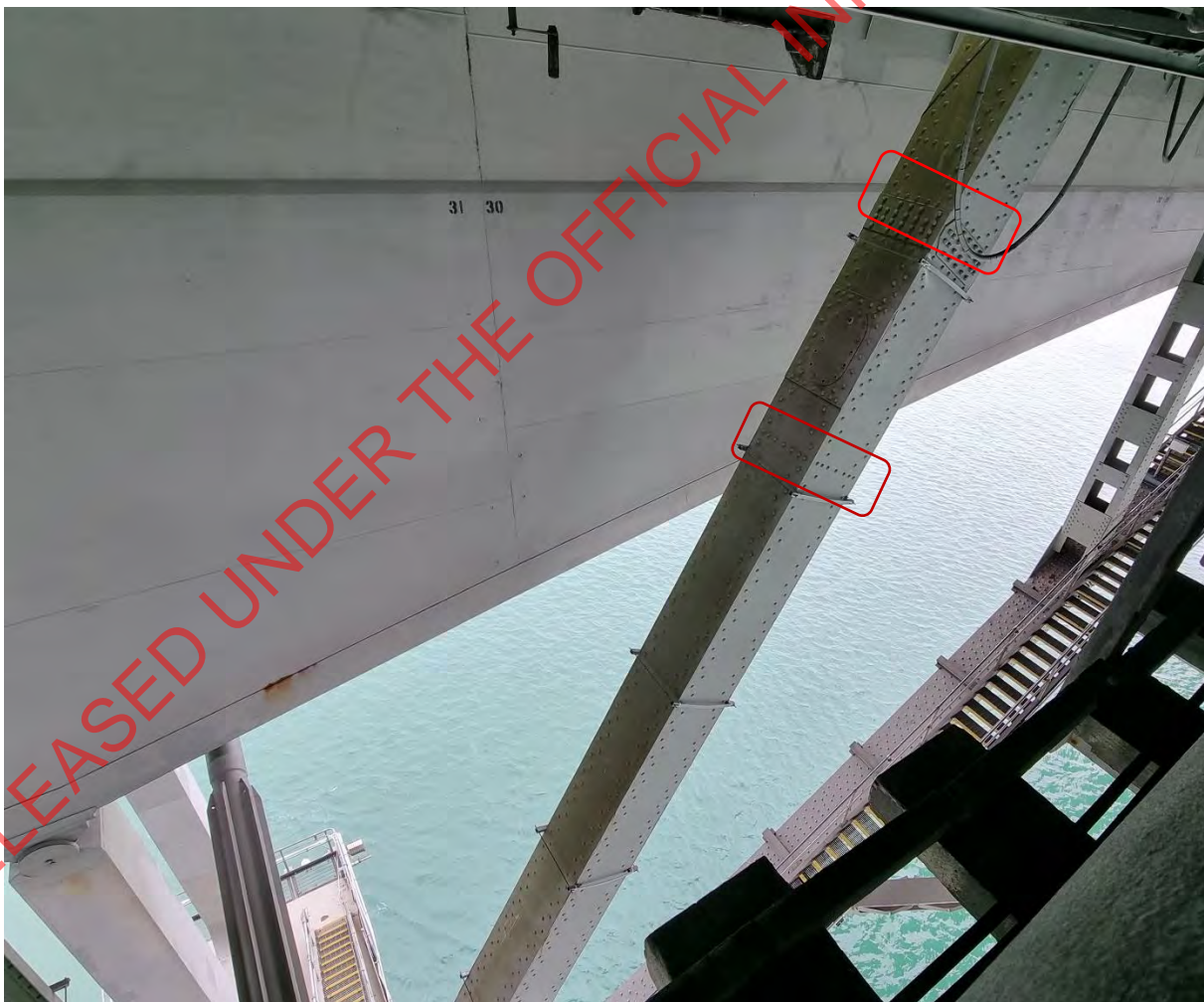
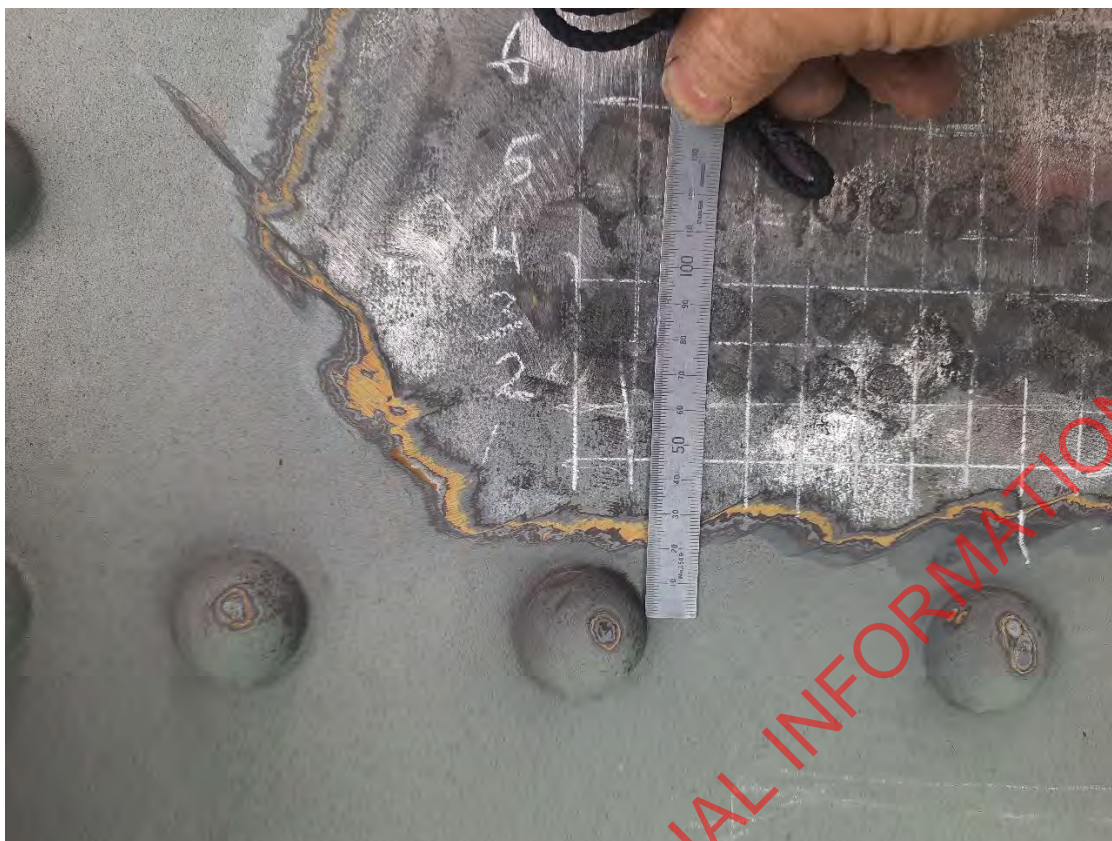


Figure 2 - Internal Pictures



Structural Inspection- Measurement of section loss was by use of the Elcometer MTG4 (serial No. XE24934) from outside the Diagonal.



Moderate to major section loss was found to the north (bottom) plates, angles and diaphragm plates. The north (bottom) plates were measured using an Elcometer MTG4. Readings on the half inch plate came out at 12.8-13mm. Areas of section loss along are described on the **Appendix 1**. Reading at the worst location indicates approximately 50% section loss. Section loss on the angles and diaphragm was similar to the north (bottom) plate (however unable to be read by the UTG).

Remedial Action



Area of corrosion following abrasive blasting

Remedial Action



Area painted

Conclusion

Following the inspection of the diagonal, the Roving team have blasted and painted the area of section loss, however, further investigation and maintenance will be required to fully assess the current situation. A similar methodology will be utilised for the upcoming additional investigations within Span 1. The asset management team is currently reviewing previous inspection reports to identify the presence of diaphragm plates as the presence of water, bird detritus, and garnet increase the likelihood of corrosion and section loss.

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