AIRPORTS COMPANY
SOUTH AFRICA

MEMORANDUM

To: Adriaan Rossouw, Mpho Mathelele
Cc: Riaz Essack, Thabo Mokgalanyane, Russel Aschmann
From: Nathaniel Seseletsi
Date: 30 January 2019
Subject: Pier No 23 on Elevated road at ORTIA

1. INTRODUCTION

I conducted an inspection on Pier No 23 of the elevated road at ORTIA on 29 January 2019, the inspection was necessitated by a photograph taken by a passenger. The defects on the pier can be generally classified as cracking of the bridge deck and the pier head, Figure 1 below show the nature of the defects on the pier.

Figure 1: Cracking on Pier 23

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2. FINDINGS

My findings are that cracks are structural in nature, however they do not affect the structural integrity of the Bridge. The cracks are caused by the Bridge deck bearing directly on to the pier head and the Bridge expansion gap closed by mortar. This defect resulted from bad construction of the Bridge as the Bridge deck was constructed to rest directly on the vulnerable part of the Pier head, this area is vulnerable due to the fact that the concrete at the tip is not reinforced due to cover requirements, furthermore the Bearing Strip seems to be omitted resulting in concrete bearing directly on concrete, Figure 2 below provides an example of how the Bridge should have been constructed

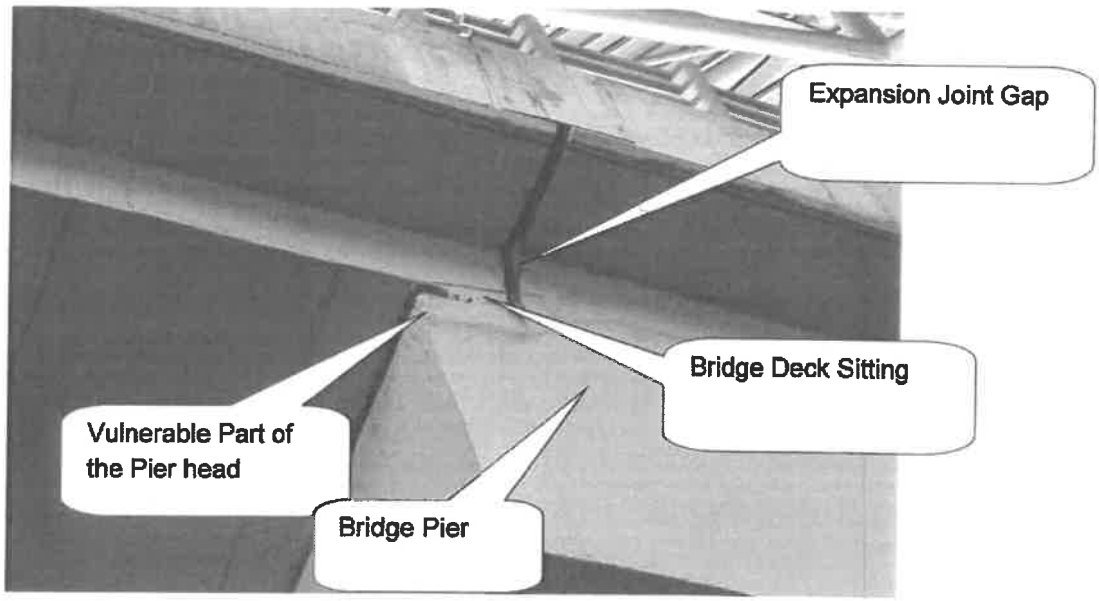

Figure 2: Cracking on Pier 23

Figure 3 below is a close up on the defects on Pier 23, the expansion joint gap was closed by mortar and it is cracking due to bridge movement, the expansion joint gap needs to be reinstated to allow the bridge to move freely.

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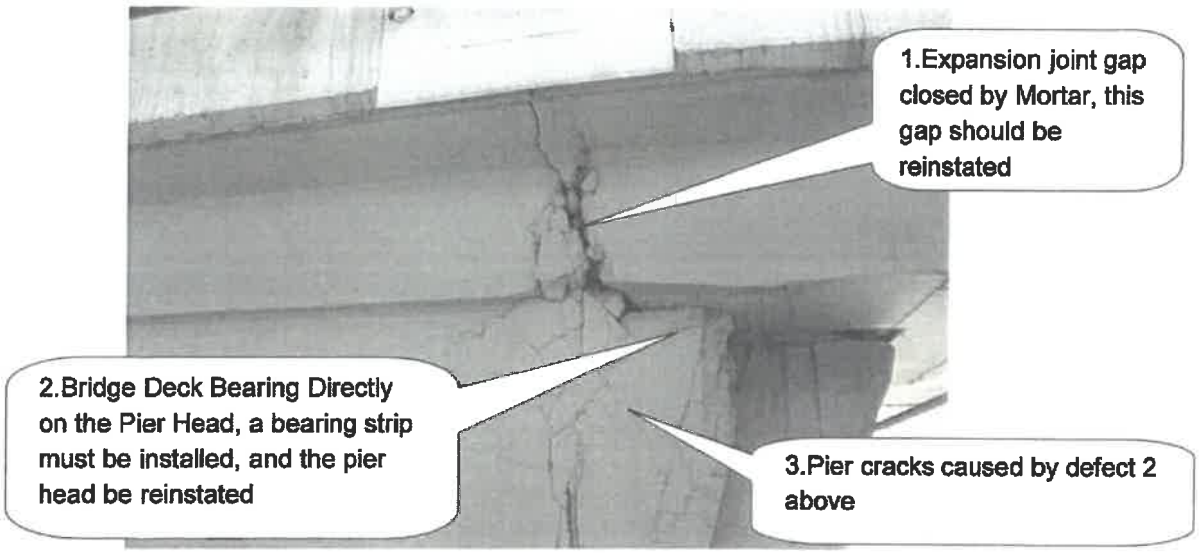

Figure 3: Close Up on Pier 23

3. CONCLUSIONS AND RECOMMENDATION

The cracks on pier 23 are structural in nature, however they have little effect on the structural integrity of the bridge. The cracks are aesthetically displeasing and will cause panic to the public should they not be repaired, based on these observations, I hereby recommend that:

(a) All the loose and spalled concrete and mortar be removed from the Bridge deck and the Pier head
(b) The bridge ends be neatly finished with mortar (Note: The expansion joint gap should remain open)
(c) Apply wet to dry epoxy to the exposed surface of the Pier head, then shutter the pier and pour in flowable concrete

I trust the above to be in order and hold myself available should you have any further queries

30/01/2019

Nathaniel Seseletsi, Chief Civil Engineer