

Safety Bulletin

A serious incident has taken place

Failure of a concrete service duct slab

Issued to: All Network Rail line managers and RISQS registered contractors

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Location: Overbridge at Crescent Road, Scotstounhill, Glasgow

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Overview

On the evening of 5 June 2016 a 7m x 0.4m x 0.1m thick section of reinforced concrete slab fell from the underside of overbridge 268/004 on the Hyndland East Junction to Dalmuir (via Yoker) Line in Glasgow.

The falling concrete damaged the OLE causing it to trip and the debris fouled both lines.

The in-situ cast slab spanned between two precast concrete beams in the bridge deck and formed the base of a service duct under one of the footways. The service duct contained a 6" gas main and a 4" water main.

The bridge was constructed in 1954.

Early indications are that the service duct slab was not constructed in accordance with the design and that the steel reinforcement in the slab did not extend into the nibs resting on the support beams.

A review of the most recent bridge examination reports has found that there was evidence that the service duct slab had dropped slightly however it appears likely that those involved in examining the bridge and evaluating the subsequent reports did not realise that the element was a transverse spanning secondary slab and believed it was a longitudinally spanning main girder therefore the severity of the defect may not have been recognised.

Discussion Points

Whilst we are investigating the causes of this incident bridge examiners, examining engineers and evaluating engineers should consider:

- Where are transverse spanning in-situ concrete service ducts most likely to be found in overbridges (under footways and verges)?
- What signs do you look for to differentiate between transverse spanning in-situ concrete slabs and longitudinally spanning precast concrete beams (e.g. poorer quality concrete finish, less distinct chamfers/joints, change in concrete finish from adjacent beams)?
- What records could be obtained to confirm construction details (e.g. assessment reports, record drawings, technical queries)?

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