

D101/4 KALEMOUTH SUSPENSION BRIDGE

Briefing Note - November 2021

Purpose

Further update on Kalemouth Suspension Bridge, following previous correspondence on the matter.

Background

The bridge was closed in August 2020 on the grounds of safety. Significant defects, which affect the structures ability to carry vehicular traffic, were uncovered during planned repair works.

During the last few months Council officers have been undertaking a thorough desk-top review of the available information on the bridge to gain a better understanding of its history, previous maintenance, and nature and strength of its main structural elements. This has been an essential and key task to increase our knowledge and understanding of the bridge structure as we work through the decision making process on the most appropriate next steps for the bridge.

Bridge History & Desktop Review

In terms of the bridge's history and status, it is a fine example of early wrought-iron chain-bar suspension bridge. It was designed by Captain Samuel Brown and construction was completed in the 1830's. It has a centre span of roughly 54 metres and a width of just over 4.5 metres. Due to its historical significance the bridge is protected and is a Category 'A' Listed Structure.

The desk-top review has included several visual inspections of the bridge by Council Engineers and in combination these have confirmed that, as a minimum, the entire timber deck and timber balustrades / parapets need to be replaced before it can safely carry vehicular traffic again. The main supporting timber beams are also suffering significant rot, particularly where they interact with the vertical hanger rods, and the balustrade / parapet is weakened through rotting at several joints.

Other defects to the bridge noted during our initial review are not now considered to pose significant structural issues. These initial findings will need to be verified through more thorough inspection and calculation work, however, our early concerns about these other elements on the bridge has now reduced.

Further survey & study work

A geophysical survey has just been undertaken around the suspension cable anchor point on the south side of the bridge. This survey will hopefully establish whether a buried chamber (housing the historic tensioning system for the main suspension links of the bridge) still exists. It is believed the end of this chamber may have been infilled in the 1930's, however, unfortunately no records exist of the tensioning system or the chamber. Results of the survey will inform any additional works that may be needed to the anchorage systems.

A structural engineer will also undertake further more detailed inspection work on the bridge itself. They will use specialist access equipment to reach certain areas of the bridge to assess the current condition of the structure more accurately to help determine the structural integrity of the bridge and its ability to carry traffic safely. This process will help establish a full scope of works necessary to repair the bridge to allow it to re-open to vehicular traffic. At the same time it will be necessary to progress the necessary Listed Building Consent and prepare a detailed cost estimate for the works. It is a historic structure and safe working access arrangements alone will be an engineering challenge and costly.

Initial Cost Estimate

Work undertaken to date by the Council has allowed us to improve our understanding of the extent of the likely repair works for the bridge and as such the likely repair costs. To give a broad indication it is estimated that the likely replacement cost of the timber deck and timer balustrades alone, with the associated access scaffold etc, will be in the region of £800k to £1.1M. If additional works are identified following the more in depth structural assessment then costs will increase accordingly. This initial cost estimate for the timber deck and balustrade replacement is clearly significant and exceeds the current annual budget allocated for bridge improvement works across the Scottish Borders and securing the level of investment required to refurbish Kalemouth Suspension Bridge will take time.

Programme and next steps

The programme for next steps is currently as follows:

Task	Programme
Ground Penetrating Radar Survey	Complete – findings expected mid Nov 2021
Detailed Structural Inspection Works	January/February 2022
Structural Assessment Calculations	March/April 2022
Briefing note outlining Structural Assessment Results and Proposed next steps	Summer 2022

A report is currently being finalised and this will allow senior officers at the Council and local Elected Members to consider the issue and possible funding options.

On behalf of the Council I apologise for the inconvenience caused by the bridge closure and resulting frustration and disappointment. I hope that this briefing note goes some way to explain the engineering and financial challenges faced whilst also detailing the on-going actions the Council is taking to resolve the situation.

Key contacts

Please direct any questions to Stuart Moir

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