

## **BRIDGE OWNERS FORUM**

### **MINUTES OF MEETING BOF28: THURSDAY 9 JULY 2009 AT KINGS COLLEGE, CAMBRIDGE**

#### **PRESENT**

Campbell Middleton	CHAIRMAN and Cambridge University Engineering Department (CUED)
Brian Bell	Network Rail
Graham Bessant	London Underground
Peter Brown	County Surveyors Society (CSS) and Oxfordshire County Council
Graham Cole	CSS and Surrey County Council
Albert Daly	National Roads Authority-Ireland
Paul Foskett	Department for Transport (morning only)
Peter Hill	Large Bridges Group and Humber Bridge Board
Rod Howe	British Waterways
Neil Loudon	Highways Agency (HA)
John Menzies	TECHNICAL SECRETARY
Graeme Muir	Society of Chief Officers of Transportation in Scotland (SCOTS)
Andy Phillips	Welsh Assembly
Bill Valentine	Transport Scotland
Ronnie Wilson	DoRD(NI)
Paul Fidler	CUED
Neil Hout	CUED
Andrew Jackson	CUED

#### **INTRODUCTION**

The CHAIRMAN welcomed BOF members to the meeting and apologised for the need to alter the date from that originally scheduled due to his absence abroad.

#### **1. APOLOGIES FOR ABSENCE**

John Clarke	BRB (Residuary) Ltd
Robert Humphreys	CSS Wales
Richard McFarlane	London Bridges Engineering Group (LoBEG)
Stephen Pottle	Transport for London (TfL)
Paul Williams	LoBEG

**2. PREVIOUS MINUTES – BOF27 13 JANUARY 2009**

The minutes were accepted subject to the following corrections:

- a correction to the spelling of ‘guide’ in item 10; and
- a correction of the definition of LoBEG to ‘London Bridges Engineering Group’.

**3a. ACTIONS ARISING FROM THE BOF27 MINUTES**

The actions which were not to be covered by later items of the Agenda were considered by reference to the minutes and the tabled summary.

Actions had been completed apart from:

- The new Terms of Reference had not been submitted to the UK Bridges Board.

ACTION: CHAIRMAN

- Stuart Matthews had not yet been invited to make a presentation on Concrete Repair at a BOF meeting. Neil Loudon suggested that John Fairley (secretary of the Concrete Repair Association/Corrosion Prevention Association) could provide input, and highlighted a new Concrete Society report ‘Repair of concrete structures with reference to BS EN 1504’ in this area. Both are to be added to the list of possible speakers for future BOF meetings.

ACTION: CHAIRMAN

- The CSS draft report on Repair of Masonry Arch Bridges had not been distributed to members; John Menzies was asked to arrange for it to be put on the private area of the BOF website.

ACTION: John Menzies

**3b. ACTIONS REMAINING FROM THE BOF26 MINUTES**

Actions had been completed apart from:

- Brian Bell’s comments on the Montreal collapse report had not been distributed to BOF members.

ACTION: CHAIRMAN

**4. BOF RESEARCH PROJECTS UPDATE**

**a. Dry stone retaining walls: condition appraisal and remedial treatment**

The CHAIRMAN presented the published ‘Management of Dry Stone Retaining Walls’ document, and explained that the document was freely available for download via a link to CIRIA from the BOF website. Several members commented that this link was difficult to find on the CIRIA website, and that registration was required before a copy could be downloaded. Brian Bell expressed concerns with CIRIA’s copyright constraints on the electronic documents; Cam Middleton and Brian Bell will review whether these are against the spirit of the contract.

ACTION: CHAIRMAN and Brian Bell

**b. Training and qualification of bridge inspectors (Phase 1)**

Peter Brown reported that Atkins had completed the work and that the Steering Group had approved the final report. The conclusions were much as expected, but the report sets out the reasoning formally in an international context. The main recommendation was to continue with phase 2 (below), which had already been identified as a high priority to the Bridges Board.

Following his final approval, Stephen Pottle (Project Steering Group convenor) was asked to arrange publication and to report on the contractor's performance.

ACTION: Stephen Pottle

**c. Revision of BS6779 Part 4 (Masonry Bridge Parapets)**

Brian Bell reported that the 12-month contract had been let to AECOM, who had appointed Amrit Ghose to lead the project and employed Matthew Gilbert (Sheffield University) as a subcontractor. One steering group meeting and one telephone conference had been held to date. The next Steering Group meeting was scheduled for September 2009.

The Convenors of all Project Steering Groups (PSGs) were asked to submit minutes of meetings of any progress meetings to John Menzies for publishing in the private area of the BOF website.

ACTION: all PSG Convenors

**d. Bridge deck slabs with non-metallic reinforcement**

Willie Kerr of DoRD(NI) had been added to the PSG. Brian Bell reported that the DfT order for the work has been with Queen's University Belfast for several months and no contact has yet been made by the BOF Project Steering Group.

Ronnie Wilson highlighted the project at Thompson's Bridge and offered to send details to Albert Daly.

ACTION: Ronnie Wilson

**e. Carbon composites for the strengthening of steel structures**

Changes to the PSG:

- Rod Howe reported that Martin Dils had recently moved to BRB. After leaving British Waterways he left the PSG, but now he is at BRB he may wish to rejoin.
- Neil Loudon stated that Ben Sadka had taken his place on the Steering Group.
- Brian Bell proposed Paul Russell (BASF) for the PSG, and will confirm this at the next meeting.

ACTION: Brian Bell

Brian Bell reported that the contract had been let and an initial meeting held with Prof. Ian May (Herriot Watt). A student had been identified, an academic from the NED University of Engineering and Technology, Karachi, and is expected to arrive in August (subject to getting a visa). The official start for the contract has been agreed by DfT as 1 September 2009.

Brian Bell offered to arrange an exchange of ideas with the IMAGINE project, a DTI/Technology Strategy Board project investigating in-service monitoring of FRPs.

ACTION: Brian Bell

**f. Automating bridge inspections**

Albert Daly reported that the project had been let to TRL in January. It will produce an overview of the technology available for automated data collection in bridge inspections, and develop a specification for procurement of future work. TRL had produced an initial

internal report; Stephen Pottle was asked to send this to John Menzies so it could be put on the private area of the website.

ACTION: Stephen Pottle

Paul Williams (LoBEG) was added to the PSG.

At an initial meeting on 26 May (including Andrew Oldland from the DfT), Alex Wright and Stuart McRobbie had presented their intention to postpone the project start until May 2009, delaying the completion until April 2010 (in the following financial year). Andrew Oldland was asked to investigate any impact on the project funding.

ACTION: Paul Foskett for Andrew Oldland (DfT)

The next PSG meeting was scheduled for 2 September 2009. TRL were asked to submit a report to BOF but this had not been received; the PSG convenor was asked to request it.

ACTION: Stephen Pottle

#### **g. NDT of Macalloy bars tying prestressed beams**

No progress had been made on this project. Brian Bell reported that its priority had been reduced; Mike Ford had consequently been asked to reprice it, but had not yet done so. The CHAIRMAN and John Menzies were asked to investigate funding opportunities.

ACTION: CHAIRMAN/John Menzies

The project has no PSG. Graham Cole and Peter Brown were asked to seek volunteers from CSS. Brian Bell suggested than sharing members with the carbon composite project would reduce the cost of travelling to meetings.

ACTION: Graham Cole/Peter Brown

#### **h. Scanning of HA Research Reports**

Neil Loudon reported that he had the reports in his office in Bedford. He, The Chairman and John Menzies will meet to identify which should be scanned and to produce a draft specification for the scanning.

ACTION: Neil Loudon/John Menzies/Cam Middleton

#### **i. Bridge Inspector Competence Training (Phase 2)**

This project aims to set up an accreditation and training scheme. At least one university has expressed interest in involvement.

Stephen Pottle has drafted a specification for the work and estimated the cost to be ~£100K. No money is currently available from the DfT, but several members expressed their interest in contributing:

- HA (perhaps £10K)
- CSS (perhaps £5K)
- NRA(perhaps £25K, if suitable contractual arrangements could be made)
- TfL

Peter Brown highlighted that this issue was closely related to the asset evaluation programme due in 18 months time, so it should be a high priority (see later section on asset management).

**j. Review of Road Restraint Systems in Urban and Rural Areas**

Members highlighted the relationship between this project and other work, including that by the HA on masonry parapets, and work by highways groups. This project was still on the BOF list from 2009/2010 approved by the Bridges Board and currently with the DfT.

**k. Decision Support Tool Phase 2 (Non-BOF Project)**

Graham Cole reported that the Bridges Board had chosen to support John Collins's project, prioritising it above the 'Best Practice for Specifying Long-life Road Surfacing for Bridges' project. This does not fall under BOF's remit; Andy Phillips was asked to investigate whether it should be added to the list of projects which BOF reviews.

ACTION: Andy Phillips
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**5. RENEWAL OF BOF FUNDING FOR 2009/10, AND DfT REQUIREMENTS FOR FUTURE RESEARCH PROJECT SUBMISSIONS**

The CHAIRMAN tabled the 'Bridge Owners Forum: Specification for Consultancy Services' document, and thanked Paul Foskett for his work on developing this document to formalise BOF's role. The contract is valued at £30K over one year.

Paul Foskett reported that the UK Roads Liaison Group (UKRLG) is currently debating its research role, deciding whether it should be:

- a generator of ideas (for which BOF provides a good model);
- a disseminator of research (producing research alerts and regular reviews); and/or
- an enabler of research (as currently, and aided by collaboration with others).

He noted that the Bridges Board is unusual among the boards of the UKRLG in having BOF to provide backup. BOF should begin to reflect on how it might fit within any possible new framework. Brian Bell noted that BOF also has interests outside the highway sector.

The DfT's outsourcing of its secretariat function was perceived to have been a success, and could provide a model for managing research externally. Atkins had been asked to investigate the state of current research, and was due to report back on 15 July.

Some stakeholders were currently managing financial challenges. This may influence thinking among stakeholders to apply more resources towards issues affecting getting the best out of existing infrastructure and away from other projects. However, infrastructure owners and managers should consider how value-for-money appraisals are able to support the case for some of the activities they were considering whether to undertake. In this respect benefit cost ratio tools will have a part to play.

**a. Asset management**

A report (Local Authority Transport Infrastructure Assets – Review of Accounting, Management and Finance Mechanisms) published in June 2008 by the Chartered Institute of Public Finance and Accountancy (CIPFA) estimated that significant efficiency savings could be achieved across Great Britain if an Asset Management approach was adopted for highway maintenance. The CIPFA report is available on their website. CIPFA estimated that pump priming funding would be required to assist local authorities to develop and implement asset management for highways. The DfT had made £32m available to local authorities in England for this purpose. This was in addition to over

£700m capital allocations for 2009/10 made available to local authorities as part of the local transport plan (LTP) settlement.

Members speculated whether non-research funding could be used to fund projects such as Inspectors Training. Paul Foskett noted that the DfT highways maintenance budget was capital rather than revenue. Also, if allowable, any spending of this nature would mean that the funding under the LTP settlement would be reduced and thus affecting the individual allocations which authorities would receive.

Neil Loudon advised that the Bridge Inspectors Competence Training research could be viewed in an asset management perspective. He suggested that as it was considered to be a high priority, BOF should consider whether members would be prepared to contribute towards the costs. CSS members and Albert Daly advised that they would be prepared to consider such a proposition. Paul Foskett advised that, if the case could be made for a link between asset management and this research project and BOF members were prepared to contribute towards the costs of the latter, he would consult colleagues on whether DfT funding could be found in 2009/10 for the Bridge Inspector Competence Training research. For this purpose he would need to see a business case which should, in particular, cover the previous mentioned two points.

ACTION: John Menzies to forward Stephen Pottle's draft specification and business case for the Bridge Inspection Competence project to Paul Foskett

ACTION: Peter Brown to document how Inspection Competence relates to asset management

ACTION: CHAIRMAN/John Menzies to document the funding contributions offered by others

Identified sources of background information included:

- Birmingham University – HDM-4 model allows the consideration of Value for Money of carriageway expenditure.
- Graham Cole advised that work that Surrey County Council had undertaken was an example of using benefit:cost ratios to demonstrate the value for money of expenditure of major maintenance schemes..

ACTION: Graham Cole to send information on this case to John Menzies for distribution to BOF members

#### **b. Research funding**

Paul Foskett stated that UKRLG had submissions for 2010/2011 funding from all the Boards, but had not yet made any decisions.

ACTION: Paul Foskett to forward indicative research budget for next year

ACTION: Paul Foskett to forward list of current status of UKRLG projects

#### **c. Other funding**

Cam Middleton suggested that an alternative source of funding would be to specify a small percentage of expenditure on research in all major 'construction' contracts. Paul Foskett stated that this would have to be very robustly argued and value for money demonstrated.

BOF members felt that future funding applications should be marketed as ‘making best use of structures’, ‘continuous improvement’, etc., rather than as pure research.

The CHAIRMAN thanked Paul Foskett for his input.

## 6. INTERNATIONAL BRIDGE FORUM (14-16 Sep 2009)

### a. Progress

The CHAIRMAN reported that the event had been booked with King’s College at a cost of £350/head with single accommodation or £190/head without accommodation.

Invitations had been distributed to international delegates. Possible other countries included Eastern European countries, Sweden and Belgium.

Invitations had been distributed to BOF members. Members requested that NRA’s delegate should be changed to Liam Duffy, Albert Daly’s invitation should be changed to reflect his status as a BOF member, and Nick Bisson should be replaced with John Dowie.

ACTION: CHAIRMAN

Brian Bell expressed concern that the majority of attendees were focussed on highways, and that they included academics as well as owners. He suggested that the event should include more than one UK speaker.

### b. Format

The event is to be focussed on delegates’ positive and negative experiences of bridge management technology.

The format provisionally proposed in the invitations was for national presentations on day one and themed discussions on the subsequent days. Some members preferred a programme of themed sessions, with discussion and relevant national presentations in each session. The programme could be adjusted to reflect the interests represented in the delegates’ abstracts. The Organising Panel (CHAIRMAN, Brian Bell, Stephen Pottle, Albert Daly, John Menzies) was asked to review the provisional programme and finalise it so that all delegates would find the event worthwhile.

ACTION: Organising Panel to revise programme asap

Members suggested that the topic of ‘Bridge Management Systems’ should be replaced with ‘Bridge Asset Management’ and that ‘Sustainability’ should be added.

ACTION: CHAIRMAN

Possible chairmen were proposed for the sessions:

- |                                      |  |
|--------------------------------------|--|
| • Bridge asset management            | Bill Valentine/ Neil Loudon                |
| • Inspection, testing and monitoring | Graham Cole/ Albert Daly                   |
| • New materials and repair           | Brian Bell/ Graham Cole                    |
| • Codes, standards and info sources  | Neil Loudon                                |
| • Analysis & evaluation              | Albert Daly                                |
| • Sustainability                     | Peter Brown (if the session is on day 1-2) |

The CHAIRMAN was asked to present the UK's view, with input from all BOF members.

ACTION: CHAIRMAN

It was agreed there should be only one 'presentation per country'.

ACTION: John Menzies to amend Background Note

## 7. ASSET VALUATION – LOBEG V CIPFA

In Stephen Pottle's absence, Graham Cole and Peter Brown were asked to report on Gary Sterritt's presentation at LoBEG's annual meeting.

They reported that international financing rules were forcing a change from the present system of calculating deterioration from global Bridge Condition Indices (BCIs) to one based on calculating the residual life for each element (bearing, joint, paint etc).

LoBEG had spent £500K of DfT asset management money to implement this. Atkins had developed a large spreadsheet to process the entire London stock, including consideration of statistical variation, calculation of backlogs, and calculation of influence of spending level.

Members expressed concern that results would be highly dependent on the accuracy of assumed intervention intervals and on the quality of inspections.

ACTION: Peter Brown to forward 'Lifecycle and Financial Planning Presentation' to the CHAIRMAN for circulation to BOF members

Graham Bessant noted that private owners were not expected to adopt this scheme.

## 8. BRIDGE RESEARCH UPDATE

### a. Report on visit to China, Australia, New Zealand & US – Cam Middleton

The CHAIRMAN presented a variety of construction and research programmes witnessed during his recent trip.

### b. HA - Neil Loudon

Neil Loudon stated that the HA has a new 'Knowledge Management Programme'. Projects include:

- 'State Bridge Infrastructure' to produce a structural condition benchmark survey (following the Maunsell 200 Bridges Report);
- 'Integrated Asset Management Strategy' (IAMS) to guide high-level maintenance spending;
- Eurocode implementation; and
- Sustainability/Resilience.

### c. Network Rail – Brian Bell

Brian Bell updated members on the progress of some projects since BOF27:



- ‘Smart Management for Sustainable Human Environment’ (Cyprus Technical University) had been delayed, and was due to start autumn 2009.
- ‘FRP on Metallic Structures’ (Leeds University) had been delayed.
- ‘Risk-based inspections’ (Surrey University) had finished, and was currently being written up. Many organisations have been doing similar work. The CHAIRMAN volunteered to arrange for Stephen Pottle, Andy Phillips, Brian Bell and Gary Sterritt (Atkins) to present a summary of work at a future BOF. John Menzies was asked to produce a summary of risk-based assessment research from last 5-10 years, with input from those involved.

ACTION: CHAIRMAN, John Menzies

- ‘Culvert Design and Operation Guide’ (CIRIA) had been signed off, and was due for publication in Autumn 2009 and official launch on 3 December 2009
- ‘Effective Bridges’ and ‘Masonry Arch Bridges’ (University College, Dublin) had not been funded
- The MCR paper on FRP strengthening of concrete structure was due to be in the January 2010 issue
- The Surveyor Bridge Conference included a paper on the CIRIA Dry Stone Wall report.

Brian Bell described problems with contractual arrangements on a partnership project with the Highways Agency (HA), highlighting the difficulty of ensuring that all contributors received proportionate control over the work. Paul Foskett offered to raise these concerns with his procurement team. Neil Loudon said that the HA had recently used Memoranda of Understanding rather than full contracts in some cases.

ACTION: Paul Foskett

**d. LUL – Graham Bessant**

Graham Bessant reported that LUL research was focused on reducing the cost of maintenance. Specific projects included:

- Investigating the movement of parapets on brick railway viaducts, in collaboration with a consultant; and
- In-house investigation of the use of advanced analysis to improve load rating.

**e. TfL – Stephen Pottle**

Not present.

**f. NRA – Albert Daly**

Albert Daly reported that the NRA had approximately 20 projects and submitted details of the most relevant. It was noted that the NRA research made extensive use of university research groups in Ireland, in contrast to the HA’s use of consultants for most research projects.

**g. Other research – CHAIRMAN**

The CHAIRMAN reported that the US scanning tour administrator had sent a list of subject areas deemed to be of interest to the visiting party.

ACTION: CHAIRMAN to distribute

**9. BOF TECHNICAL TOPICS - UPDATE**

**a. Clyde Bridge cable failure – Graeme Muir**

Graeme Muir told members that a few publications on this case had been produced. It was believed to be a material failure, and was the subject of a legal dispute.

**b. Action plan post Minnesota Bridge Collapse – Neil Loudon**

Neil Loudon presented the HA's current work to investigate vulnerable structures.

ACTION: Neil Loudon to forward edited presentation to the CHAIRMAN for distribution
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**10. ANY OTHER BUSINESS**

The CHAIRMAN tabled a draft version of a 'Guide to Bridge Technology' from Australia, and offered to put it online in the private area. The final version will be made public when it is available.

ACTION: CHAIRMAN
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Brian Bell described the recent collapse of Stewarton Bridge, which is still under investigation.

Albert Daly notified members of some opportunities in the ICE journals:

- the ICE Bridges journal had a call for abstracts on cable structures;
- the ICE Bridges journal was due to have a special edition on arch bridges in 2011; and
- an ICE computational journal had a call out for arch bridge analysis.

**11. PROPOSED DATES FOR 2009/10 MEETINGS**

IBF/BOF29	14 -16 September 2009 (reception on 13 Sep)	King's College
BOF30	New date: Tue 19 January 2010	King's College