

DRAFT: 14 June 2004

**BRIDGE OWNERS FORUM****MINUTES OF MEETING BOF12: TUESDAY 8 JUNE 2004  
AT KING'S COLLOGE, CAMBRIDGE****PRESENT**

DfT	Bunting	Edward	Edward.Bunting@dft.gov.uk	(020) 7944 2402
British Waterways	Howe	Rod	Rod.Howe@britishwaterways.co.uk	(01132) 845 231
CUED - Chairman	Middlet	Campbell	crm11@eng.cam.ac.uk	(01223) 332 814
CSS/Oxford. CC	Brown	Peter		
CSS	Cole	Graham	graham.cole@surreycc.gov.uk	(020) 8541 7317
CUED	Imhof	Daniel	di208@cam.ac.uk	(01223) 332 812
CUED	Walker	Graeme	gmw25@hermes.cam.ac.uk	(01223) 332 815
DoRD (NI)	Wilson	Ronnie	ronnie.wilson@drdni.gov.uk	(028) 9054 0398
LUL	Moriarty	Jim	Jim.Moriarty@thetube.com	(020) 7308 2697
Network Rail	Bell	Brian	Brian.Bell@networkrail.co.uk	(020) 7557 8355
Scottish Exec.	Valetine	Bill	Bill.Valentine@scotland.gsi.gov.uk	(0131) 244 0430
Tech Secretary	Menzies	John	Jbmenzies@aol.com	(01923) 675 106
CUED	Fidler	Paul	praf1@cam.ac.uk	(01223) 332 816
Parsons Brinckerhoff	Denton	Steve	DentonS@pbworld.com	(0117) 973 9090

**APOLOGIES FOR ABSENCE**

Apologies were received from: John Clarke, John Collins, Peter Hill, Ian Holmes, Awtar Jandu, Geoff Medd and David Yeowell.

**1. INTRODUCTION**

The Chairman welcomed all present and particularly Bill Valentine, who had replaced Raymund Johnstone as the Scottish Executive representative on the Forum, and Peter Brown representing CSS replacing Greg Perks.

In response to an invitation from the Chairman, Bill Valentine and Peter Brown briefly described their role and background: Bill is now chief Bridge Engineer of the Scottish Executive, and Peter is Bridge Engineer of Oxfordshire County Council.

The Chairman reported that David Yeowell had suggested that Richard McFarlane of the London Borough of Kingston be invited to join the Forum to give more input from the London area since he (David Yeowell) has not been able to attend Forum meetings regularly. This was agreed.

**ACTION: CHAIRMAN**

## 2. MINUTES OF MEETING BOF11: 27 JANUARY 2004

Two corrections were agreed – Jim Moriarty was present at the meeting and, in minute 10, the reference to Network Rail interest in research on bridge strikes should have referred to TRL projects and not CIRIA. With these corrections, the minutes were accepted.

### **Matters arising:**

Referring to minute 8, Brian Bell reported that:

- (1) Discussion at a Bridges Board meeting had indicated there had been no response to a request for comments on the Highways Agency (HA) consultation paper on the self-escorting of abnormal loads and vehicles. However, some concerns about the proposed code of practice are known and have not yet been resolved.
- (2) The contractor for the ESDAL (Electronic Service Delivery of Abnormal Loads) project will be announced later in June. Keith Ross will represent Network Rail on the steering group

## 3. ACTIONS FROM MINUTES

Referring to minute 13, the Chairman indicated that he is working to arrange a first International BOF in June 2005 by inviting representatives of major bridge owners abroad.

Other actions were covered by later items on the Agenda

## 4. UPDATE ON BOF RESEARCH PROJECTS

The Chairman listed the topics reviewed or worked on by the Forum to date:

- Contingency loading for design
- Review of assessment programme
- Technical audit of BA79: Management of sub-standard highway structures
- ESDAL programme
- Masonry arch best practice guide
- Older metal bridges
- Dry stone walls
- National bridge inspectors accreditation scheme.

### ***Research budget***

In an update on the Bridges Board, Edward Bunting said DfT ministers are currently reviewing research ‘across the board’ and, as a result, Minister’s reaction to the proposed research budget from April 2004 is not yet known. Consequently the contracts for the BOF projects on ‘Older metal bridges’ and ‘Dry stone walls’ cannot yet be awarded. These projects have already been approved by the Bridges Board (and RLG) so that the contracts can be awarded as soon as Ministerial budget approval is released.

### ***Dry stone walls project***

Ronnie Wilson asked for nominations from BOF members to join the Steering Group for the ‘Dry stone walls’ project (Preparation of a best practice guide). Brian Bell and Rod Howe agreed to join the Group.

### ***Masonry arch best practice guide***

Brian Bell reported that the project is now well under way. The Project Board met on 27 April to review the first draft. The next meeting on 22 July will see the second draft and it is anticipated the final draft guide will be ready for the October meeting when it is hoped it can be approved to go for publication. The guide will be published by CIRIA on the web and also in hard copy form.

### ***Older metal bridges***

The Chairman reported that Graham Cole, the BOF representative on the Project Board, wishes to stand down and suggested that John Clarke (Rail Property Limited) be invited to join this CIRIA Board instead. This was agreed. Other BOF members of the Board are Brian Bell, Rod Howe and Edward Bunting.

ACTION : CHAIRMAN

### ***CINTEC***

Graham Cole referred to a presentation and report by Gifford on supplementary load testing 'before and after treatment'. It was agreed the Chairman would ask Gifford and CINTEC if the report could be made available for publication on the BOF web site.

ACTION: CHAIRMAN

Attention was drawn to the existence of three other manufacturers (Bersche Rolt, MARS and Helifix) of similar systems. It was agreed the Chairman would approach these manufacturers to ask if they would like to provide technical (not publicity) information on their systems for inclusion on the BOF website.

ACTION: CHAIRMAN

### ***Pop Bottle Bridge, Lincolnshire***

Graham Cole referred to strengthening work on this bridge. It was agreed to approach the Local Authority to ask if information on the work could be provided for inclusion on the BOF website.

ACTION: CHAIRMAN

## **5. RESEARCH UPDATE**

### **NETWORK RAIL**

Brian Bell reported that the Network Rail research budget for this year had not yet been released. Several projects were waiting Network Rail funding:

- CIRIA project on tunnel assessment and management
- Use of FRP for repair (PhD support, Surrey University)
- PhD support (Salford University)
- Arches project (Cardiff University)

***Masonry fatigue:*** Referring to a project at Cardiff University on the influence of compressive stress and water content on the fatigue life of masonry, Brian Bell said that a recent project report had indicated that saturation has no effect. This result appears to contradict earlier British Rail work which found an effect. It is thought the contradiction may arise from the different frequencies used in the two sets of tests.

***Metal fatigue:*** Brian Bell reported that research at Surrey University on the probability of fatigue failure in metal bridges is producing encouraging results and has enabled identification of critical locations. The Chairman asked if the reports on the project could be made available for inclusion on the BOF website. Brian Bell agreed to look into this.

ACTION: BRIAN BELL

***Rivet shear:*** Graham Cole asked whether the Cass Hayward report for Network Rail on rivet shear could be made available as discussed at the last meeting. Brian Bell said there is an Information Sheet CIS 33 which can be provided and sent out, for example, to Australian bridge engineers. The full Cass Hayward report is not yet available.

***TR55 Use of FRP for strengthening concrete structures:*** Brian Bell reported that the re-draft of this Concrete Society report is at final draft stage and will soon be published. There is also a forthcoming publication updating guidance on corrosion in concrete.

***Sustainable bridges:*** This 6<sup>th</sup> Framework project on sustainable rail bridges led by Skanska, has started but there are no deliverables yet. When available they will be placed in the public area of the Commission's website.

#### **HIGHWAYS AGENCY**

The tabled spreadsheet listing ongoing and new 2004/05 research projects was reviewed. The BOF felt it would be useful to have more information on some projects, particularly the new projects on substandard shear reinforcement and remote monitoring. The Chairman agreed to seek more information from Ben Sadka.

ACTION: CHAIRMAN

Edward Bunting commented that a number of the HA projects arise from the requirements of the EU Directive on minimum safety standards,

Referring to the new project on bridge deck waterproofing systems, Graham Cole said that Network Rail has published a specification on such systems.

In response to a question about the review of BD44, the Chairman agreed to express BOF interest in the exercise.

ACTION: CHAIRMAN

The Chairman remarked that the role of the Highways Agency is said to be wider than just motorways and trunk roads. Edward Bunting believed that the Secretary of State had never formally placed that remit on the Agency. The Chairman thought the Bridges Board should seek clarification on this question.

#### **AUSTROADS 5<sup>th</sup> BRIDGE CONFERENCE**

Following his attendance at the Conference, the Chairman introduced bridges developments reported in Australia:

- Delayed ettringite formation (DEF) causing pile degradation
- Introduction of 500 MPa reinforcing steel

- Reactive powder concrete (ductile behaviour of prestressed beams reported in test)
- Inspection procedures (accreditation of inspectors is compulsory)
- FRP developments (not seen by Australian bridge engineers as a major development except for strengthening)
- Contingency loading for design
- New bridge code: AS5100 (new design loading; rail loading; fatigue criteria; barriers)
- Informed client: training of bridge managers.

Concerning the introduction of 500 MPa reinforcing steel, the Chairman expressed concern about the low ductility of the material and the increased risk of sudden brittle failure in reinforced concrete components reducing safety. He had a similar concern relating to reinforcing steel specified in Eurocode 2 which now permits the use of low ductile material.

The Chairman raised the issue of the informed client and drew attention to concern in Australia about the ‘de-engineering’ of clients. There was sympathy amongst BOF members who recognised a similar problem in the UK. Brian Bell suggested this problem arises partly because the professional institutions do not recognise structure maintenance as an engineering issue. Bill Valentine indicated that, in his experience, the intelligent engineer client has saved much money over the years but it remains difficult to prove the value of having ‘internal’ civil engineers. The Chairman suggested the Bridges Board be asked to commission a study of this issue.

## **6. RESEARCH PROPOSALS FROM OWNERS**

A proposal from Network Rail for work to revise BS6779 Part 4 would be considered under item 8 of the Agenda. There were no other proposals from owners.

## **7. TECHNICAL AUDIT OF BA79 AND THE ASSESSMENT PROGRAMME**

The Chairman welcomed Dr Steve Denton of Parsons Brinkerhoff who then gave a presentation on the audits.

In response to a question from the Chairman, Steve Denton indicated the two main recommendations arising from the work that he would commend to bridge owners were conversion of BA79 to a BD (differentiating clearly between principles and how they are to be applied) and enhancement of the understanding of assessment engineers. Enhancement would best be obtained by getting real calibre in the assessment team and by use of technical approvals.

Brian Bell was disappointed the work had not looked at practice in other countries. Referring to Network Rail practice, he said that account should be taken of other practice in rewriting the BA. He expressed concern that the BA does not allow permanent load restriction and that weight restrictions cannot be enforced.

In a discussion on bridge records, Steve Denton said this is an issue for every owner and the Chairman expressed concern about shortcomings in record keeping.

The Chairman thanked Steve Denton for his presentation and the discussion.

## **8. RESEARCH PROPOSALS FROM RESEARCHERS**

The Chairman said that 14 proposals had been received. A preliminary review of these would be made at this meeting and then a final view reached at the next BOF meeting (28 September) so that BOF recommendations could be made to the October meeting of the Bridges Board.

The proposals were commented on in turn:

*[Edit: comments removed from public minutes for reasons of confidentiality. PF]*

Graham Cole drew attention to the projects being undertaken by Atkins for CSS and others. The Chairman agreed to ask Atkins (in time for the 28 September BOF meeting) for information on the work they expect to go forward into the coming year.

ACTION: CHAIRMAN

## **9. OTHER BUSINESS**

### **Forthcoming bridge conferences/events**

It was noted that details for the Conferences at Surrey University (next April) and at Kyoto and other events are on the website.

### **EPSRC visit to 28 September BOF meeting**

The Chairman reported that he has invited someone from EPSRC to the next meeting and he will also ask someone from DTI.

ACTION: CHAIRMAN

### **International Bridges Forum**

The Chairman reported he is trying to arrange a first International Bridges forum meeting in June 2005.

ACTION: CHAIRMAN

## **10. ANY OTHER BUSINESS**

The Chairman reported that an international group is holding a workshop in Cambridge at Jesus College on 27 September on 'Monitoring and Sustainable Management of Ageing Infrastructure'. BOF members may be invited to attend. The Chairman agreed to let members know the arrangements for the workshop and the BOF meeting immediately following.

ACTION: CHAIRMAN

**11. DATE OF NEXT MEETING**

The next meetings of the Forum will be held on:

TUESDAY 28 SEPTEMBER 2004

TUESDAY 11 JANUARY 2005

TUESDAY 14, 21 or 28 JUNE 2005 – members were asked to advise the Chairman of their availability on these dates.

ACTION: ALL

**12. CLOSE**

The Chairman thanked all present for attending the meeting.

John Menzies  
14 June 2004  
HA0401