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18 August 2014

Ms Carolyn Griffiths
Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire GU11 2HP

Dear Carolyn,

RAIB Report: Partial failure of a structure inside Balcombe Tunnel, West Sussex, on 23 September 2011

I write to report¹ on the consideration given and action taken in respect of the recommendations addressed to ORR in the above report, published on 15 August 2013.

The annex to this letter provides details of the consideration given and action taken. The statuses of each recommendation are:

- 1, 2, 4, 7, & 9: Implementation on-going
- 3, 5, 6, & 8: In-progress

We do not propose to take any further action in respect of recommendations 1, 2, 4, 7 and 9 unless we become aware that any of the information provided becomes inaccurate, in which case I will write to you again². We expect to update you on progress with recommendations 3, 5, 6, & 8: by 19 December 2014.

We will publish this response on the ORR website on 27 August 2014.

Yours Sincerely,

Chris O'Doherty

¹ In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

² In accordance with Regulation 12(2)(c)

Initial Consideration by ORR

1. All 9 recommendations contained in the report were addressed to ORR when RAIB published its report on 24 January 2013.
2. After considering the report / recommendations, on 20 August 2013, ORR passed all 9 Recommendations to Network Rail asking it to consider and where appropriate act upon them.
3. Details of consideration given and any action taken, in respect of these recommendations are provided below.
4. ORR also brought this report to the attention of: Transport for London, London Underground Ltd, Docklands Light Railway Ltd, the Institution of Civil Engineering and the British Tunnelling Society as it was concluded that there are equally important lessons for them. ORR did not ask these organisations to provide a reply.

Recommendation 1

The intention of this recommendation is to identify fixings at risk of failure based on current knowledge.

Network Rail should, where failure could result in risk, identify where polyester resin anchors have been used to support structures (including overhead electrification and signalling equipment), and develop an appropriate regime to detect loose fixings including tactile testing where appropriate.

Details of steps taken or being taken to implement the recommendation:

1. Network Rail provided an initial response on 1 November 2013. However, following a meeting with ORR on 12 February 2014 Network Rail provided a revised response on 19 March 2014 stating that:

Network Rail believes that it would be problematic to embark on a programme of identification of locations where polyester resin has been used historically. There are no easy means of identification of the product insitu that does not include the whole or part dismantling of the structures that the fixings are incorporated into.

It is believed however that the intention of the recommendation can be met by undertaking the following actions:

Action Plan:

- i. Tunnels with ancillary structures similar to the failed structure at Balcombe will be identified. Appropriate management actions will be put in place to manage risk through the examination regime with specific examination and testing requirements identified with the tunnel management strategy.*

'Similar structures' are defined as heavy structures within the confined environment of a tunnel where failure would put the operational railway at an intolerable risk, irrespective of the type of fixing used. Any similar structures found where installed ancillary components are singularly reliant on resin fixings with no apparent design redundancy will be highlighted for urgent management action.

- a) Produce a list of such structures by 28th February '14 (The list will be forwarded to the ORR at this time for information).*

b) Disseminate list to Network Rail Routes to allow Tunnel Management Strategies to be updated with specific structure management actions by 31st May 2014.

ii. For all other assets it is intended to evaluate whether standards across different asset types adequately clarify the responsibility for the examination of fixings and the scope of the exam by undertaking a technical review. Following the review, guidance will be issued across all disciplines, to ensure that no ambiguity exists in the examination, testing and maintenance of fixings.

a) Cross discipline guidance issued, clarifying examination responsibility by 31st May 2014.

Timescale: 31 May 2014

2. On 30 May 2014, Network Rail stated that the timescales for recommendations 1 and 5 had been extended: Recommendation 1 is extended to 30 September 2014 and recommendation 5 is extended to 27 June 2014.

3. Reason for Extension:

1) Tunnels with ancillary structures similar to the tailed structure at Balcombe have been identified. An initial list of 21 structure assets was compiled and disseminated to the applicable Routes and copied to the ORR for information. (Note: Since compilation of the list 2 tunnels have undergone remedial works to remove the complex ancillary structures.

2) To enable appropriate management actions for these assets to be identified and included in the relevant Tunnel Management Strategies (TMS) a pro-forma has been produced and supplied to the Routes to complete and then append to the TMS (for the 19 structures with complex ancillary structures).

3) Routes are currently updating the applicable TMS's. Current Status:

- Anglia: Not Applicable- No similar structures*
- Kent: Completed TMS Update*
- LNE/REM: TMS Update on-going*
- LNW: Completed TMS Update*
- Scotland: 3 No TMS's updated. 1 No awaiting receipt of record drawings*
- Sussex: Completed TMS Update*
- Wales: Completed TMS Update Wessex- Completed TMS Update*
- Western: TMS Update on-going.*

Commitment has been received from the routes still to complete the update of the TMS's in relation to the above by 30 June 2014.

4) In order to consolidate the response to all recommendations the cross discipline review of examination standards will be undertaken in conjunction with the identified actions to review Standard Designs and Details (Recommendation 2) and the review and update of Tunnel Examination Standards (Recommendation 8, 31 August 14) with the milestone for completion aligned accordingly. Extension of time is therefore requested to allow for completion of the update of TMS's and complete the review of standards in conjunction with the actions identified to address Recommendations 2 & 8.

Milestone for completion is to be extended until 30th September 2014.

ORR Decision

4. ORR has considered the work done to date and the evidence provided for an extension to the timescale and is satisfied that Network Rail's action plan is an appropriate way to manage the risk identified by the RAIB recommendation.

5. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: *Implementation on-going.*

Recommendation 2

The purpose of this recommendation is to prevent the further use of polyester resin anchors where their long-term performance may compromise safety.

Network Rail should implement procedures to prevent the use of polyester resin anchors in circumstances where dampness or shrinkage may affect the safe performance of an asset.

Details of steps taken or being taken to implement the recommendation:

6. Network Rail provided an initial response on 1 November 2013. However, following a meeting with ORR on 12 February 2014 Network Rail provided a revised response on 19 March 2014 stating that:

Network Rail believes that a blanket ban of the use of polyester resins will not service the intention of the recommendation but will take appropriate steps to ensure the correct use of all types of fixings in civil engineering applications

The action plan noted below will ensure that specified fixings are appropriate for the intended location and usage and that the correct design and installation assurance processes and good practice guidance are adhered to.

Action Plan:

- a) *Network Rails' Track and Civils Asset Management Team will work with Network Rail Structures to brief design and construction engineers on the correct specification, application and required inspection and testing when resin fixings are to be used. A guidance note summarising these briefings will be disseminated to Design and Construction Engineers, and Structures Managers by 31st May 2014.*

On 27 June 2014, Network Rail provided an update stating: Meetings have taken place between Asset Management and IP [Infrastructure Projects] senior design engineers and engineering managers to brief the design engineers on the approach to be taken for the correct application of resin anchors (3rd December 2013). RAM [Route Asset Manager] structures have been briefed on this also (RAM Meeting 12 March 2014). The Guidance note on the appropriate selection and installation of resin anchors is now in production and will be disseminated to all Design Engineers. The guidance note is being produced by Donaldson Associates (anticipated August 2014 completion).

- b) *In addition to the above, Network Rails Track and Civils Asset Management Team will review Standard Design Details to ensure that design redundancy exists and that no standard detail is singularly reliant on resin fixings. Any such details will be revised accordingly and re-published by 31st August 2014.*

On 27 June 2014, Network Rail provided an update stating: *Standard Design Details for tunnels are now in the process of being reviewed and amendments will be made by 31 August 2014.*

- c) *Standards governing the design and specification of works, the assurance of onsite construction works and the completion of health and safety file (and the need inform the management regime of the asset – i.e. adapt the Tunnel Management Strategy following works in a tunnel example) will be technically reviewed by 30th June 2014.*

On 27 June 2014, Network Rail provided an update stating: *This review is on-going with the intention of completing the review by 30 June 2014.*

Timescale: 31 August 2014

ORR Decision

7. ORR is satisfied that Network Rail is taking action to address the risk identified by the RAIB recommendation in an alternative way.
8. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:
- taken the recommendation into consideration and
 - is taking action to implement it.

Status: *Implementation on-going.*

Recommendation 3

The purpose of this recommendation is to promote additional investigation prior to specifying materials where performance is critical.

Network Rail should review, and if necessary amend its processes, such that designers of structures are required to positively confirm the compatibility of materials with their intended application and environment, including fixing metallic structures to masonry, if the application is safety critical.

Details of steps taken or being taken to implement the recommendation:

9. Network Rail in its initial response on 1 November 2013 advised that:
- The guidance note to be written in accordance with Recommendation 2 will counter any shortfalls in existing and relevant standards.*

Relevant standards will be reviewed by 28 February 2014, to ensure adequacy of this action.

10. On 26 November 2013 ORR wrote to Network Rail requesting a brief summary the findings from its review and any further action it may be taking including timescales. On 10 January 2014 Network Rail stated that: *Network Rail will forward a report on its findings and any recommendations for further actions as soon as completed.*

11. On 27 June 2014, Network Rail provided an update stating:

Network Rail believes that there is adequate existing standards i.e.

- *BS8539: 2012 Code of Practice for the selection and installation of post-installed anchors in concrete and masonry*
- *BS5080-1: 1993 Structural Fixings in Concrete and Masonry – Part 1: Method of test for tensile loading*
- *BS5080-2: 1986 Methods of test for Structural Fixings in Concrete and Masonry – Part 2: Method for determination of resistance to loading in shear.*

These existing British Standards will be reminded to Design Engineers within IP [Infrastructure Projects] and will be the basis of the guidance note being developed under recommendation 2.

12. Network Rail also provided a copy of its Recommendations Owners' Form which stated:

Following a review of the appropriate processes that govern the assurance in design of civil engineering and building assets, the intent of recommendation 3 can be fulfilled by the appropriate application of stating the required engineering deliverables in the PRS [Project Requirement Specification's] and subsequently in the CR-T [Contracts Requirement Technical]. A review of a PRS for a current project indicates that the current template for PRS does not remind authors of the appropriate requirements in Engineering Deliverables.

- *The PRS templates are to be modified to incorporate the requirement of the Engineering Deliverables.*
- *A letter of instruction to be written to mandate the required change to the standard NR/L2/INI/CP0069 'Route Requirements Management and Production of Project Requirements Specification'.*

Network Rail has completed the review of processes governing the assurance of designs for civils assets and a number of improvements have been identified for control documentation that needs revising to ensure robust closure of recommendation 3.

Following the review and identification of the relevant control standards requiring revision a robust time-bound action plan can be outlined

Revised timescale: 31 October 2014



ORR Decision

13. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: In-progress. ORR will update RAIB by 19 December 2014 on action being taken to address this recommendation.

Recommendation 4

The intention of this recommendation is to provide an effective asset management response when structure defects (or suspected defects) are reported.

Network Rail should review and, if necessary, modify the management arrangements that are now in place to provide an appropriate engineering response when structure defects are reported. This should include assessing the risk in the period prior to rectification, the means to verify that work requested has been carried out, and whether the reported defect is an indication of a wider problem.

Details of steps taken or being taken to implement the recommendation:

14. Network Rail in its initial response on 1 November 2013 advised that:

Network Rail has conducted a review of management responses when structures defects have been reported. The review sampled a large number of whole cycle responses.

The review highlighted that further improvements of the process is required to justify the time period between acceptance of the defect report and implementation of remedial works, and that any risk in the interim are controlled accordingly.

In response to this recommendation, Network Rail will produce guidance which will form part of a briefing, to be completed by 31 May 2014.

15. On 26 November 2013 ORR wrote to Network Rail requesting a brief summary the findings from its review and any further action it may be taking including timescales.

16. On 10 January 2014 Network Rail stated that:

Network Rail will forward a copy of the guidance as soon as completed.

17. On 27 June 2014, Network Rail provided an update stating:

A review of our current processes, and those processes in development, are being reviewed to evaluate whether compliance with this recommendation is already in place or will be in place following the development of those processes.

Any shortfalls in current processes or those under development will be highlighted by 30 June 2014.

On 1 July 2014, Network Rail provided a copy of its Recommendations Owners' Form which stated:

Network Rail has completed the review of the processes governing the arrangements for briefing of staff and contractors that are sent to investigate reported defects.

Following the review and identification of the required revisions to the relevant controlling standards, a robust time bound action plan can be implemented.

The embedment of the changes identified as part of this review, under this recommendation, are dependent on the progress of existing asset management

process improvement projects: CSAMS (Civils Strategic Asset Management System) and Business Critical Rules (BCR).

Revised timescale: 7 November 2014



ORR Decision

18. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: *Implementation on-going.*

Recommendation 5

The intention of this recommendation is to improve the quality of decision making in the management of structures.

Network Rail should undertake a comprehensive review and, if necessary, implement a time-bound plan to modify its levels of staffing and competency requirements so that all technical tasks associated with the management of structures are performed or checked in a timely manner by sufficiently qualified and experienced staff.

Details of steps taken or being taken to implement the recommendation:

19. Network Rail in its initial response on 1 November 2013 advised that:

Network Rail has evaluated current structures staffing levels and is in the process of recruiting staff to recommended levels.

Competency frameworks are being developed which will address competency issues within the routes.

The anticipated completion date for the Asset Engineers competency framework is 31 May 2014.

20. On 26 November 2013 ORR wrote to Network Rail requesting a copy of the Asset Engineers competency framework and a time bound plan to amend staffing levels.

21. On 10 January 2014 Network Rail stated that:

1. With regard to staffing levels all the Routes have responded to the recommendations for a significant increase in resource, the revised asset engineer staffing levels have been agreed and the route asset managers are actively recruiting for these posts.

2. *The Asset Engineer STE1 competency framework has been completed but due to the breadth of the subject area covered we would prefer to go through the approach with you at our forthcoming meeting where we can fully explain its context, application and proposed management process.*

22. On 30 May 2014, Network Rail stated that the timescales for recommendations 1 and 5 had been extended: Recommendation 1 is extended to 30 September 2014 and recommendation 5 is extended to 27 June 2014.

Reason for Extension:

The action plan to address this recommendation included the production of a closure statement which demonstrates the completion of the Critical Services Review (Project Darwin) and the implementation of the Network Rail Competency Framework.

The ORR as recently published its report on the National Structures Assignment 2013/14 (NRIP 13/14) which includes actions to confirm intended resource levels and the intended programme to roll out the competency framework.

The ORR report noted that across the Routes there are discrepancies between the original idealised project teams as derived by Project Darwin and the plans for current /future resource levels. The NRIP action calls for Network Rail to confirm its intended resource levels, provide justification for any reduction in numbers and provide a time bound action plan to complete recruitment. Network Rail intends to address the NRIP action in June 2014.

An extension of time is therefore requested until 27th June 2014 to allow Network Rail to consolidate the work to address this RAIB recommendation with the on-going actions resulting from the NRIP13/14 report.

23. On 1 August 2014 Network Rail stated that the timescale to address this recommendation has been extended to 31 December 2014.

ORR Decision

24. We understand that Network Rail is going to appoint an external organisation to assess its structures staff competency. The assessment is planned to be completed by the end of December 2014.

Status: In-progress. *ORR will update RAIB by 30 January 2015 on action being taken to address this recommendation.*

Recommendation 6

The intention of this recommendation is to improve the effectiveness of Network Rail's investigations when abnormal events are reported.

Network Rail should revise its arrangements for the briefing of staff or contractors who are sent to investigate reported defects, so that all relevant available information is provided, and correct any deficiencies found in those arrangements.

Details of steps taken or being taken to implement the recommendation:

25. Network Rail in its initial response on 1 November 2013 advised that:

Network Rail will undertake a review of all processes that manage structures faults reporting, other than defects that are reported in the normal structures examinations.

The review will take into account the adequacy of all standards, work instructions and guidance notes for all disciplines that would be involved with each part of the process from detection of a structures fault through to implementation of works to remove the risk of the structures fault.

The review will evaluate whether adequate assurance exists in the dissemination of salient and important information throughout the process and whether relevant standards, work instructions and guidance notes require modifications. Any modifications and briefings will take place by 31 May 2014.

26. On 26 November 2013 ORR wrote to Network Rail requesting a brief summary the findings from its review and any further action it may be taking including timescales.

27. On 10 January 2014 Network Rail stated that:

Network Rail will forward a report on its findings and any recommendations for further actions as soon as completed.

28. On 27 June 2014, Network Rail provided an update stating:

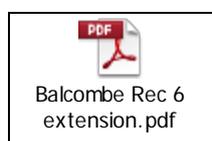
The review is on-going and will concentrate on how any circumstances that could influence the on-going safe operation of a structure can be reported by persons other than members of the structures team and how that information can be collected to be included in the preparation of any examination of that structure including rapid response examinations. The plan to remove any shortfalls will be finalised by 30 June 2014.

29. On 1 July 2014, Network Rail provided a copy of its Recommendations Owners' Form which stated:

Network Rail has completed the review of the processes governing the arrangements for briefing of staff and contractors that are sent to investigate reported defects.

Following the review and identification of the required revisions to the relevant controlling standards, a robust time bound action plan can be implemented.

Revised timescale: 7 November 2014



ORR Decision

30. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: In-progress. ORR will update RAIB by 19 December 2014 on action being taken to address this recommendation.

Recommendation 7

The intention of this recommendation is to provide adequate opportunities for examination and maintenance activities.

Network Rail should review, and if necessary amend, its processes to include adequate safeguards such that sufficient track access is provided for the examination needs of all structures in a manner commensurate with the risk they pose to railway safety.

Details of steps taken or being taken to implement the recommendation:

31. Network Rail in its initial response on 1 November 2013 advised that:

Network Rail is currently reviewing and developing guidance on the required duration of track access for undertaking adequate examinations of structures to enable efficient planning of examinations.

The guidance will include methods for determining adequate possession duration commensurate with delivering examination quality.

This guidance will be rolled out nationally to Route Structures Asset Managers and the importance of adhering to this guidance will be briefed to Route Operations Management, emphasising the importance of examinations.

31 March 2014.

32. On 26 November 2013 ORR wrote to Network Rail requesting a brief summary the findings from its review and any further action it may be taking to make sure adequate priority and resource is given to structures examination, including timescales. On 10 January 2014 Network Rail stated that:

The duration of track access required for examination of structures assets is highly variable. This applies to tunnels in particular where access to the tunnel from the nearest access point, the length of the tunnel and traffic density is an issue. Network Rail's proposed solution to this is for the Route Asset Manager (RAM) and the examination contractor to agree the optimum time necessary to carry out the examination and record this in the Tunnel Management Strategy (TMS). Following this any issues regarding time can be escalated within Network Rail with the TMS evidencing the agreed access time required. Following review the examination contractor has now identified the amount of time required for each tunnel exam and are applying for multiple possessions and doubling up examination teams if required. Contingency possessions are also applied for in case of unforeseen loss of booked access.

33. On 1 August 2014 Network Rail provided an update stating that:

Network Rail has developed a methodology for the determination of appropriate tunnel examinations in accordance with Network Rail's Balcombe Tunnel Formal Investigation Recommendation A8.1 which will be reviewed and applied to structures within the scope of this recommendation, therefore the closure of this RAIB recommendation was dependent on understanding the lessons learnt from developing and applying the methodology for tunnels.

Lessons learnt from the Balcombe incident has been briefed to both structures mangers and examination teams. The requirements for specific management arrangements for complex ancillary structures in tunnels and guidance on determining tunnel examinations durations have been cascaded to Route Structures Teams.

Timescale: 14 November 2014

ORR Decision

34. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: Implementation on-going

Recommendation 8

The intention of this recommendation is to improve the effectiveness of Network Rail's examinations regime for structures within tunnels.

Network Rail should clarify arrangements, including its relationship with its contractors, for examining structures which are within tunnels, but are not fully encompassed by the normal tunnel management regime.

Details of steps taken or being taken to implement the recommendation:

35. Network Rail in its initial response on 1 November 2013 advised that:

Network Rail will review and where necessary revise examination standards to clarify the scope of examinations of tunnels that include unique ancillary structures; any required changes will be reflected in the examination contract technical specification. The management of specific ancillary structures within a specific tunnel will be included in the Tunnel Management Strategy for those particular tunnels.

Timescale: 31 March 2014.

36. On 26 November 2013 ORR wrote to Network Rail requesting clarification on what Network Rail means by unique ancillary structures and specific ancillary structures within a specific tunnel.

37. On 10 January 2014 Network Rail stated that:

Agreed, there is need for clarification; the word specific should be removed.

(In this context, "unique" meaning heavy structures of bespoke design within the confined environment of a tunnel and where if they would fail would put the operational railway at an intolerable risk. They may or may not include resin anchors).

38. On 27 June 2014, Network Rail provided an update stating:

Ancillary structures in tunnels that present the greater risk to railway operations, should they fail, have been identified. Those structures whereby their complexity precludes them from being within the scope of current tunnel management

processes have been identified for special management and examination processes. Tunnel Management Strategies are being up dated in light of this for each affected tunnel. Required output actions identified are being progressed. This recommendation is in line with Recommendation 1 but will eventually incorporate the output of this recommendation 8 into tunnel examination standards where it is believed they are not sufficiently robust in this context. To be completed by August 2014.

ORR Decision

39. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: *In-progress.* ORR will update RAIB by 19 December 2014 on action being taken to address this recommendation.

Recommendation 9

The intention of this recommendation is to improve the quality of information available to staff responsible for the management of structures including provision of information not required within the statutory Health and Safety File.

Network Rail should review, and if necessary improve, arrangements for recording, storing and retrieving data so that all relevant information is readily available to staff undertaking the examination, evaluation and maintenance of structures.

Details of steps taken or being taken to implement the recommendation

40. Network Rail in its initial response on 1 November 2013 advised that:

Network Rail is currently developing a new structures database which will improve data recording, storage and retrieval to enhance examination quality.

In addition, and specifically for tunnels the Tunnel Management Strategies [TMS] for each tunnel will form the basis of tunnel specific information which will be available to all parties undertaking examinations or works on tunnels.

Timescale: 31 June 2014

On 26 November 2013 ORR wrote to Network Rail asking if a review had been carried out and if so what the findings were. ORR also requested evidence that Health and Safety File information was being included in the Tunnel Management Strategies.

41. On 10 January 2014 Network Rail stated that:

Network Rail believes that there is a need for improved data gathering, storage and access of structures management related information without the need for a review. It is believed that the transformation project has this improvement within its scope and that the development of the CSAMS (Civils Strategic Asset Management System) within that project will provide that improvement. It is intended that there will be facility developed within CSAMS to access all documents of relevance to parties conducting work (including examinations) on any particular structure.

Network Rail would welcome further meetings to discuss any of the above recommendation responses and would like to take the opportunity of expanding the agenda of the meeting proposed under recommendation 2 to discuss any other issues resulting from this investigation.

42. On 27 June 2014, Network Rail provided an update stating:

Route members of Structures Asset Management are aware that TMS must be made available to all persons engaged with works on tunnels including examinations, design and maintenance works. The review of whether health and safety files are adequately included in the TMS is on-going. The inclusion of TMS into the CSAMS system is now under consideration with the intent of making them more readily available and easier to update.

43. On 1 July 2014, Network Rail provided a copy of its Recommendations Owners' Form which stated:

The submitted action plan notes that the intent of this recommendation will be addressed by the successful roll out of the CSAMS system. The action plan also notes that the intended go-live date for CSAMS is 30 June 2015.

Unfortunately the summary of the recommendation erroneously notes that the recommendation is due to be completed by 30 June 2014 and this date has been formally noted.

The action plan includes details of interim mitigation measures in place of the pending CSAMS roll out. In the interim structures dashboard has been developed and implemented to enhance the information available to structures managers. The structures dashboard is a system designed to act as a portal to all current structures databases which hold valid asset management information. These database, include the current structures database, CARRS (containing – asset headline data, examination reports and works items), VeRA (assessment factors), Geogis (line tonnage), HCE and scour databases (for evaluation of risk factors from hidden details and susceptibility to flooding or scour action), BCM/TCMI (bridge/tunnel condition marking index) and the Asset Exam Bridging Tool (monitors compliance of the exam regime).

In addition and specifically for tunnels, following review and revision as necessary, the Tunnel Management Strategies for each tunnel will form the basis of tunnel specific information which will be available to all parties undertaking examinations or works on tunnels. Update of Tunnel Management Strategies to be taken in line with the TMS update in response to recommendation 1 with a targeted completion date of 31 May 2014.

Revised timescale: 30 June 2015.



ORR Decision

44. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it.

Status: *Implementation on-going*