

Oliver Stewart
Senior Executive, RAIB Relationship and
Recommendation Handling

Telephone 020 7282 3864
E-mail oliver.stewart@orr.gsi.gov.uk

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Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire GU11 2HP

Dear Andrew,

RAIB Report: Derailment at Godmersham, Kent on 26 July 2015

I write to provide an update¹ on the action taken in respect of recommendation 1 addressed to ORR in the above report, published on 6 April 2016.

The annex to this letter provides details of the action taken regarding the recommendation. The status of recommendation 1 is '**implemented**'.

We do not propose to take any further action in respect of the recommendation, unless we become aware that any of the information provided has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 7 August 2019.

Yours sincerely,

Oliver Stewart

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

Recommendation 1

The intent of this recommendation is to improve the fence inspection process such that potentially substandard fences are properly identified for repair or renewal. This might be accomplished as part of the Business Critical Rules review of standards.

Network Rail should modify its risk rating methodology for fencing inspections to include guidance on:

- a) the design of the fence and its appropriateness for the adjacent land use; and
- b) condition ratings based on objective and relative (benchmarked) criteria.

If necessary, Network Rail should commission research to establish the relevant criteria

ORR decision

1. Having reviewed the new boundary standards, TWI on boundary inspection and report on fencing research conducted and discussed these documents a meeting with NR STE Lineside Team on 21st May 2019 we now consider that Network Rail have taken appropriate steps (as set out in their earlier action plan) to improve the fence inspection process and therefore implement the recommendation.

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

- taken the recommendation into consideration; and
- has taken action to implement it

Status: *Implemented.*

Previously reported to RAIB

3. On 29 March 2017 ORR reported that Network Rail were reviewing the specification of lineside fencing and the risk model that supports the boundary condition assessment and prioritisation of remedial work. This was to assist Network Rail staff and contractors in assessing the condition and appropriateness of the type of fencing; and to prioritise appropriately any remedial work that maybe required. Any changes to the specification of fencing would be briefed suppliers and changes to the risk model to staff carrying out boundary inspections.

Update

4. On 15 May 2019 Network Rail provided the following closure statement:

The Chief Engineer (STE) has considered this action and addressed the intent of the recommendation by:

- *assessing the current adequacy of the risk assessment process undertaken to identify sub standard fencing against the threat posed by the adjacent land use; and*
- *determining whether Network Rail boundary measures are specified and applied appropriately. This has been undertaken within Safety, Technical & Engineering and Network Operations Directorates involving the Head of Lineside, subject matter experts and route-based management teams.*

The following applications were identified to support the investigation:

a) The current Network Rail boundary specifications and drawings;

b) the boundary measures standard NR/L2/TRK/5100 Managing Fences and other Boundary Measures in particular how to determine condition and adequacy of boundary measures

c) Other supporting information provided to inspectors to identify risk from adjacent land in rural locations;

d) business process documents written as part of the Business Critical Rules (BCR) process including control documents and risk bow ties;

e) British Standard for boundary measures BS1722 including specific boundary designs and their specifications: and

f) The process for approving suppliers of livestock fences and providing maintenance spares. On review of these applications it was concluded that:

· A review should take place of the current boundary risk assessment process and this should be defined within an updated boundary standard that incorporates the outputs from BCR;

· an information sheet should be provided for those undertaking inspections in livestock locations;

· the effectiveness of legacy boundary assets in livestock locations should be reviewed;

· a review of the adequacy of current boundary specification and standard detail drawings for livestock locations should be assessed to determine whether further research and development is required;

· a review of the maintenance spares supply chain and those involved in supplying the materials and A review of the livestock wire and post approved suppliers.

Summary of Actions

It was established through working group members and subject matter experts that a key element that required inclusion within any boundary assessment is to include not only its general condition but whether its design is adequate in deterring incursion in relation to the threat posed by the adjacent land

Tack Work Information Sheet How to undertake a class III boundary inspection was published (see appendix 1) to provide those that undertake boundary inspection guidance when assessing adjacent agricultural land use to determine whether livestock are present or could be present, and to check for signs of deterioration that could lead to failure.

NR/L2/OTK/5100 Boundary Measures Manual was published, this included a new risk assessment process benchmarked against current, previous and local applications (see appendix 2). It includes requirements for the inspector to assess the adequacy of the boundary design in deterring incursion. To assess the design requirements for rural fences the following actions were undertaken. Further output from these actions are available within the attached document.

a) Legacy boundary designs were visited in locations to assess their condition and deterioration levels

b) the boundary measure suppliers were visited to assess their manufacturing and quality control processes.

c) The current Network Rail livestock fence was benchmarked against others and against current British Standards

d) A review of the any current research and development regarding the types and applications of fences in rural locations

e) A review of any test elements applied to livestock fences to prevent livestock incursion.

It was concluded that:

- The current 'in use' boundary standard details are recognised as comparable to other recommended specification and incorporates features that are designed to add strength and durability livestock environments.*
- The supply chain demonstrated a satisfactory standard and quality control throughout the manufacturing processes with all of the suppliers visited.*
- Maintenance spares are supplied by an experienced and knowledgeable supplier that has the ability to supply products that are comparable to current and legacy specifications.*
- the current livestock boundary standard detail fence compares favourably against British Standards 1722.*
- There are ongoing R&D works with our main suppliers to review and test new products particularly steel post configurations.*

Previously reported to RAIB

Recommendation 1

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- a) the design of the fence and its appropriateness for the adjacent land use; and
- b) condition ratings based on objective and relative (benchmarked) criteria.

If necessary, Network Rail should commission research to establish the relevant criteria

ORR decision

5. Network Rail are reviewing the specification of lineside fencing and the risk model that supports the boundary condition assessment and prioritisation of remedial work. This is to assist Network Rail staff and contractors in assessing the condition and appropriateness of the type of fencing; and to prioritise appropriately any remedial work that maybe required.
6. Any changes to the specification of fencing will be briefed suppliers and changes to the risk model to staff carrying out boundary inspections.
7. After reviewing the information provided 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 by 31 May 2018 (or 31 May 2019 if further research is necessary).

Status: Implementation ongoing. ORR will advise RAIB when actions to address this recommendation have been completed.

Information in support of ORR decision

4. Network Rail provided an initial response containing their action plan for addressing the recommendation on 18 July 2016. Following discussion with ORR, Network Rail provided a revised action plan on 6 February 2017 which made the individual stages in the plan clearer and included the addition of a Track Work Information sheet for inspection of the relevant class of boundary measures. The updated response states:

Feb 2017

We are seeking a revision to the original action plan. We have a committed programme in place and if there is no significant draw on our time for other unplanned reasons we are confident in our delivery to the revised deadlines. If unavoidable delay happens, or is expected to, we will advise of this and will submit further revised plans. We, as the Lineside team, recognise the importance of this work to address what we consider to be one of our top issues. We will reinforce this if we are asked to commit resource elsewhere.

Because of the delay in implementation of elements of the original action plan, we are inserting an early measure to advise and tackle risk. The rest of the content of the action plans remains the same but we have amended the order in this action plan so that it is simpler to follow.

To satisfy this recommendation we intend:

- In the short term we will implement a measure to warn and advise of risk. This will be aimed at those carrying out inspection of the boundary asset. This takes lessons from the Godmersham and Dalreoch derailment.*
- In the medium term investigate and review our controls, specifications & designs. If necessary this will result in reissue of our relevant documents.*
- In the long term, if it is identified necessary, further research and testing will be sought to assure our controls, specifications and design.*

Network Rail (NR) uses standard specification of fences which are based on wider industry research and development. We will review the specification of the fences designed to deter livestock incursion to confirm their adequacy and understand how this may reduce over time.

The review will consider older designs and specifications reflecting what is currently installed as well as those introduced when a fence is renewed.

The action plan for this recommendation is broken into the following steps:

i. Issue a Track Work Information (TWI) sheet for inspection of Class III fences. The class III fence is the type associated with control of incursion by livestock and is a typically a tensioned wire design with stock proofing measures. When the original action plan was reviewed it was identified that this shorter term step was necessary. There are obvious lessons to learn from the recent derailments which should be shared. This is the first time this matter has been raised as part of our control document hierarchy. It will be important to include the key elements that contribute to a successful inspection.

This is planned to be briefed in the March 2017 Briefing cascade with implementation by June 2017.

ii. Investigate the specification of fences designed to deter livestock incursion. This is to consider specifications of currently installed designs

as well as those introduced at renewal. We will evaluate the effectiveness of the fence when newly installed and how this varies through deterioration, maintenance and refurbishment. Completion by January 2018.

Detailed elements of this stage are as follows:

Identify Performance and Strength requirements for the fencing classes used to deter livestock incursion.

Comment on and, if necessary propose, requirements for the fencing specification. Consult with bodies such as the RSSB and British Standards to clarify requirements.

Review testing carried out to prove fencing specifications and comment on adequacy. Consider what has been undertaken to understand how deterioration or intervention affects strength. Where identified necessary to assure the specifications, we will propose further testing required to be carried out in step (vii).

We will visit tensioned fences of varying ages and designs. We will estimate how effective they are in their current state. We will endeavour to take account of the amount of maintenance carried out that may have influenced the current effectiveness. We will use this knowledge to inform inspectors so that they are better placed to identify condition, adequacy and intervention required.

iii. Evaluate the current risk models included within our current standard for boundary condition assessment and prioritisation of work arising. This will consider the features/failures from previous incidents.

We will review current control documents and training material that include any items covering boundary inspection. By June 2017.

iv. We will test alternative scenarios for control measures and risk models. We will propose changes to documents which inform or provide detail on inspection and specification of boundary measures.

We will review how specifications are shared and briefed. We will identify improvements for their visibility to the inspection, maintenance renewal and project organisations.

We will address any deficiencies by proposing revisions to standard specifications and table the approval/testing process which will be captured in step (vii). By July 2017.

v. We will incorporate changes, generated from steps (i) to (iv), to the suite of control documents and training material for boundary management. This will require approval from any necessary authorising bodies for example Standards and controls group. By January 2018.

vi. We will release and brief modified documents and training material in step (v). This will be aimed at those carrying out boundary inspection but the documents will be relevant to those who manage or renew the boundary measure. By June 2018.

vii. Following step (ii) we will consider and if necessary identify if any field research or testing of fence types is required.

Work of this nature is not funded as part of a business plan so we will produce a scope for the research required which will form the basis of a project or 'technology challenge statement' submission within the Chief Engineer organisation. Authorisation for the financial and resource commitment will be required for this to proceed. By April 2018.

viii. If necessary, following step (vii), carry out field research or testing on fencing specifications and design. This is to ascertain adequacy when installed from new and in stages of deteriorating condition. Where changes are necessary to the design associated with standard specifications, these will be amended and circulated within NR and our supplier base.

A summary paper of results of research and testing will be produced. It will identify any stages necessary for modification to control documents, specifications and training material. In particular we will alert our training organisation of any requirement for changes to learning material or the competence framework. By September 2018.

ix. Changes from step (viii) will be included into the suite of control documents, specifications and training material for boundary management and gain approval from any necessary authorising bodies.

Brief these as part of the control document cascade, especially, to those carrying out boundary inspections. Where we have implemented alternative fencing specifications or designs to deter incursion, we will circulate within Network Rail and also to our suppliers/contractors. By March 2019.

The action plan is to include a period, after completion of step (ix), for production, review and sign-off of the closure statement. By 31st May 2019.

Note - If further research is not required (steps vii to ix) this will be sooner, approximately 31st May 2018.

The intent of this action plan is to inform, in particular, our boundary inspectors and maintainers to be confident on the choice of condition ratings, fence type and work prioritisation.

It is also to give us confidence on the adequacy of current fencing designs and identify changes for future modifications.