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OFFICE OF RAIL AND ROAD

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Network Rail Infrastructure Ltd
The Quadrant: MK
Elder Gate
Milton Keynes
MK9 1EN

FAO Mr Jon Shaw, Engineering Director Infrastructure Projects

Dear Mr. Shaw,

Health and Safety at Work etc Act 1974
Electrical clearances

Thank you for meeting us at One Eversholt Street on 7 March to discuss how Network Rail can meet its legal duties in relation to public safety from new overhead line equipment at stations, and ORR's criteria for assessing compliance. Matthew McNeal has since met Jane Austin and other representatives of the Great Western Electrification Project to take this forward. ORR is conscious of the sensitivity of this issue in the context of project delivery timetables, for the Great Western project in particular.

We agreed that the key is for Network Rail to produce high-quality site specific risk assessments, in which you demonstrate that you are doing all that is reasonably practicable to protect the public and staff. We would like to reiterate very clearly that the ORR view is not that the highest possible standard be met irrespective of cost. We will consider risk assessments of difficult cases on their merits.

Risk assessments need to demonstrate that all reasonable options have been explored in considering how the risk can be reduced, and that design decisions are made in light of the cost against risk judgements. It is important that those judgements address the specific conditions at each location and are recorded. This will provide greater transparency than a mechanistic, number-based risk assessment process and permit a much clearer demonstration of the option selection basis, particularly for difficult cases.

We note your intention to use a straight line of sight method to measure the clearance to pantographs. It is not for ORR to dictate how you meet standards, but other

interpretations of BS EN 50122 are available which would make it harder to meet the 3.5m benchmark. It is foreseeable that people might make contact with a pantograph by reaching round the profile of a train. You should look at the dimensions you measure in that context. Measurements should, in any case, only inform the risk assessment. The critical matter is whether risk controls are available at reasonable cost which improve protection regardless of the benchmark.

We discussed potential reference to earlier versions of the standards where these were used to design the infrastructure, which gave 2.75m as a benchmark, permissible if a risk assessment showed it was not reasonable to reach 3.5m. The earlier standard also required you to demonstrate that the dimension that can be achieved, together with any additional control measures, is adequate to meet your legal duties This assessment would of course pre-date the standard change. Please let us know if there are locations where clearances fall significantly below 3.5m and you believe that standard should be applied.

A good risk assessment will need to include:

- Identification of the relevant legal provisions
- Identification of hazards and risks
- Likely risk exposure at platforms in terms of station usage, points of congregation in relation to potential pantograph positions etc
- Dimensions from the standing surface to fixed equipment and to pantographs
- Clarity as to the methods of measurement used
- Identification of potential control measures
- Evaluation of the best options for controlling the risks and cost against risk judgements
- Conclusions as to how the control measures selected will satisfy the legal duty

<u>Insulated pantograph horns</u>

We noted that train suppliers and operators also have duties in relation to the electrical risk at stations. We have considered with our rolling stock specialists, and discussed with DfT, the potential for fitting insulated pantograph horns to trains. We are also approaching the rolling stock community to give this advice.

ORR and DfT agreed that Network Rail and the train suppliers and operators should assess the feasibility, risks and costs of the options for controlling the risks on Great Western, with a view to providing a whole-industry solution. Network Rail need to consider the realistic, site-specific costs of relevant infrastructure options, including screening. The rolling stock community needs to evaluate the feasibility and timescales for fitting and operating with insulated pantograph horns; and to consider the realistic costs and impacts (including restricting the cascade of vehicles with insulated horns to other parts of the UK network). Both should consider the benefits of viable methods in terms of compliance with the duty to do all that is reasonably practicable. ORR and DfT will encourage this engagement.

Relevant to this assessment will be:

- The need to understand better whether insulated horns remain electrically safe when damp and contaminated with carbon from the conducting parts.
- The costs of bringing 0-12 infrastructure to a condition where insulated horns can operate on it.
- The cascaded EMU fleet as well as IEP.

ORR and DfT recognise that this is not likely to provide a quick answer; and that the adoption of insulated pantograph horns, if this is a solution, should not jeopardise the entry into service date of IEP on Great Western. We recognise that an insulated pantograph solution, if viable, might not be available until after the introduction of electric services, and therefore that Network Rail might incur significant infrastructure costs in controlling the risk by other means before then, or instead.

ORR and DfT agreed that in relation to East Coast, Trans-Pennine and MML we should also encourage Network Rail and the rolling stock community to develop a whole industry solution to control the risk effectively at the best cost.

Yours sincerely

Ian Prosser

HM Chief Inspector of Railways