

The Network Rail (East West Rail Bicester to Bedford Improvements) Order

Transport and Works Act 1992

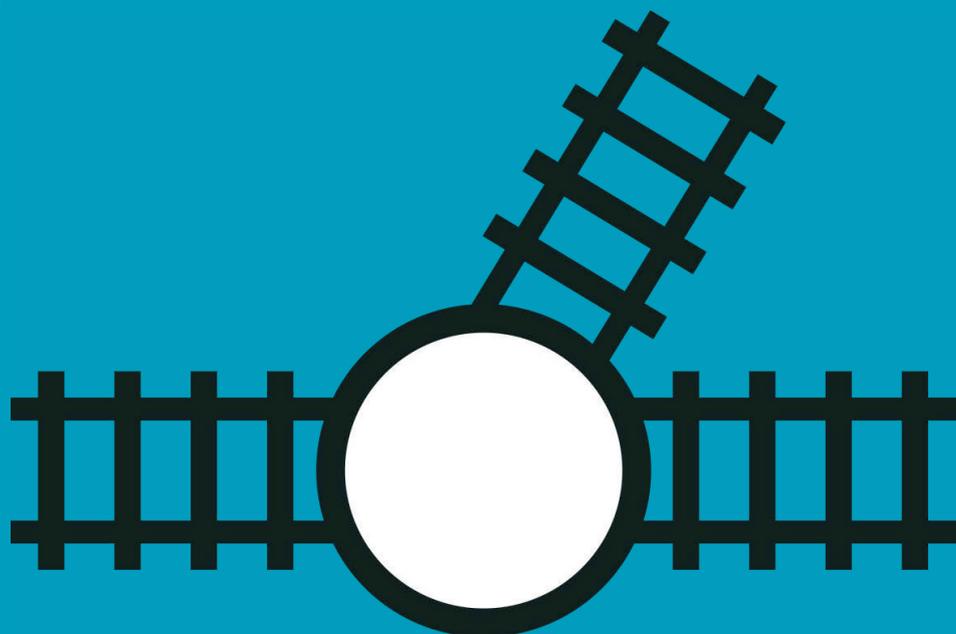
The Transport and Works
(Inquiries Procedure) Rules 2004

Summary of

Proof of Evidence of Simon Croft

Engineering

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Summary Proof of Evidence

Simon Croft - Engineering

1.1 Introduction

- 1.1.1 My name is Simon Croft.
- 1.1.2 I am an Engineering Leader with Laing O'Rourke and Head of Engineering for the East West Rail Alliance (EWR Alliance). My firm has been retained by Network Rail as part of the East West Rail Alliance to provide civil engineering and construction advice and delivery of the Civil Engineering works for the East West Rail Phase 2 (EWR2) programme. I hold a Bachelor Honours Degree in Civil and Structural Engineering, I am a Chartered Civil Engineer with the Institution of Civil Engineers (ICE) and I am registered with the Engineering Council.
- 1.1.3 I have over twenty-five years of experience as a Civil Engineer in engineering leadership and/or design management roles on a wide range of major civil engineering infrastructure projects. These have included the design and delivery of a major underground railway project, a light rail project, nuclear and conventional power stations, nuclear decommissioning facilities, airport terminals, roads and bridges, city centre redevelopment projects and multi-storey car parks. I have significant experience of major civil engineering, building and infrastructure works, under various forms of contract, including working with clients, design teams and key third-party stakeholders on the early planning and design stages and throughout project delivery.
- 1.1.4 My involvement with the EWR2 programme dates from June 2015 from the start of the tender process, where I led the engineering and technical input into the original tender submission. On award of the contract to the EWR Alliance in Sept 2015, I was appointed as the Head of Engineering for the programme and since that date have been responsible for leading the Technical function, which includes design, engineering, and assurance for the EWR Phase 2 programme, throughout the production of the GRIP 3 and GRIP 4 design, which has informed the TWAO submission.
- 1.1.5 This has specifically included:
 - a) Leading the Option Selection and Value for Money process throughout the production of GRIP 3 and GRIP 4 design to ensure that options selected deliver the best value for money.

- b) Defining the technical scope of the programme, identifying and resolving scope gaps and ensuring that the programme design complies with the relevant codes and standards and delivers the required outputs.
 - c) Agreeing the key design, engineering and technical codes, standards and principles to be used in the production of the design for the Order Scheme.
 - d) Ensuring that internal Network Rail and external stakeholder design and assurance approvals are obtained as part of the design process.
- 1.1.6 Given this background, I am familiar with both the design and engineering details of the programme and the overall technical approach that has been adopted.
- 1.1.7 My evidence focuses on the design, engineering and technical elements of the programme that support the Order Scheme. I will provide evidence on the following topics:
- a) Where relevant, the Option Appraisal (Value for Money) process adopted by the EWR Alliance during its GRIP 3, 4 and 5 design and how this process was used to inform the preferred options taken forwards in the Order Scheme.
 - b) The key design, engineering and technical principles used in the preparation of the GRIP 3 and 4 design for the Order Scheme and how these have contributed to the acquisition of land and rights.
 - c) Specific engineering and technical details, where relevant, for each of the key design disciplines that have influenced and/or contributed to the extent of the Order Scheme.
 - d) Details of how any technical changes to the project scope have impacted and/or influenced the Order Scheme since option selection.
 - e) The current technical scope and requirements of the programme to deliver the agreed Output Specification and how these have contributed to the Order Scheme.
 - f) Detailed engineering responses to the main objections raised as part of the TWAO process and how engineering and technical solutions have been changed in specific areas in response to consultation and objections to minimise the impact on 3rd parties affected by the scheme.
 - g) Technical co-ordination and integration with the HS2 scheme to ensure that both schemes are delivered in such a way as to minimise the impact on the surrounding area.

1.2 Engineering Evidence Summary

- 1.2.1 My design, engineering and technical evidence is split in to the following main sections:

- a) Overall justification for the EWR2 scheme.
- b) Design and engineering principles that have driven the Order Scheme.
- c) Design and engineering responses to the Statement of Matters.
- d) Design and engineering response to general areas of objection including;
 - Woburn Sands School Crossing.
 - Lidlington School Crossing.
 - Local Highways Authority Objections.
- e) Design and engineering responses to Statements of Case where relevant.
- f) Design and engineering responses to specific objections where relevant.

1.3 Overall Justification for the EWR2 Scheme

1.3.1 This section outlines in detail the following key areas:

- a) The benefits associated with using an existing rail corridor that reduces the amount of works and land and powers required compared to a new alignment.
- b) The impacts that the Secretary of State Challenge (SoS Challenge), which took place between December 2016 and August 2017, has had on the overall scheme.
- c) The rationale behind the closure and diversion of existing level crossings and public rights of way along the route.
- d) The operational and maintenance aspects of the scheme that have driven the Order proposals.

1.4 Summary of General Design and Engineering Principles

1.4.1 This section covers the main design and engineering principles that have driven the overall footprint of the scheme and the extent of permanent and temporary land acquisition proposed under the Order. It includes the following main disciplines:

- a) **Track design and alignment** – This is the starting point for the whole design process and drives the overall earthworks footprint, the height of new structures, drainage requirements and ultimately the land acquisition required under the Order.
- b) **Earthworks and retaining structures** – Earthworks extents are driven by the proposed new track and highways alignments and define the overall extent of the rail corridor and thus land acquisition required under the Order.

- c) **Drainage, culverts, water course modifications and flood mitigation** – This is mainly driven by the proposed track and highways alignments, earthworks to support these alignments and local site conditions. The drainage design drives the position of the scheme boundary fences and land acquisition for flood mitigation.
- d) **Highways design** – The provision of new and modification of existing highways to support the closure and diversion of existing level crossings. This drives the extent of the new offline earthworks and drainage and thus land acquisition required under the Order.
- e) **Bridge and structures design** – For new highways and accommodation structures along the route to support the closure of existing level crossings. This drives the extent of earthworks and local land acquisition in the area of the structure and approach embankments.
- f) **Stations design** - Including the new station at Winslow, new high level platforms at Bletchley, a new platform at Aylesbury Vale Parkway and the platform extensions at Ridgmont and Woburn Sands stations.
- g) **Ancillary civils design** - To support the Rail Systems design below and has in some instances driven the extent of land acquisition required under the order.
- h) **Railway signalling design** - The installation of a new signalling system along the route from line side equipment to signalling control centres.
- i) **Electrical power and plant design** - The provision of power, lighting, heating and ventilation to operational rail and support services along the route.
- j) **Telecommunications design** – Including operational telecommunications for Signalling and Electrical Power & Plant and the Station Information and Surveillance Systems (SISS) provided at all new and altered stations.

1.5 Response to Statement of Matters

1.5.1 This section covers the key design and engineering principles that have a bearing on the issues raised within the Statement of Matters and covers two main areas as follows:

- a) The aims and need for the construction of a new station at Winslow, new high-level platforms at Bletchley Station, a new platform at Aylesbury Vale Parkway and platform extensions at Ridgmont and Woburn Sands.
- b) The likely impact of level crossing closures along the scheme, including the impact of closing Woburn Sands School Crossing.

1.6 Responses to General Areas of Objection

- 1.6.1 This section of my evidence covers the specific design and engineering issues relating to some common areas of objection to the Order Scheme as follows:
- a) Woburn Sands School Crossing.
 - b) Lidlington School Crossing.
 - c) Local Highways Authority Objections. Within this section, I have only responded to specific objections from the Local Highways Authorities where I consider there is a specific design or engineering issue that has been raised.

1.7 Responses to Specific Objections

- 1.7.1 This section of my evidence is split in to two main parts as follows:
- a) Detailed responses to specific Statements of Case where engineering issues have contributed to the objection.
 - b) Detailed responses to specific Statutory Objections where engineering issues have contributed to the objection.
- 1.7.2 My evidence provides the engineering justification for the permanent and temporary land acquisition in these areas under the Order.

1.8 Conclusion

- 1.8.1 In conclusion, the impacts that the Project will have on the areas through which it passes and the third parties with which it will interface have been adequately considered and assessed as part of the development of the technical design and proposed construction methods for the Project. In my opinion, the design, engineering and technical principles adopted for the delivery of the Order Scheme achieves the optimum balance between the interests of local residents, landowners, the environment and the travelling public, other design and construction constraints and other factors that have an influence on the Project.
- 1.8.2 The proposed design, engineering, construction and environmental solution, along with the proposed permanent and temporary land take have taken into account the design of the Project as stated in my proof.
- 1.8.3 The design and engineering principles set out within my evidence comply with all modern design standards and Network Rail standards and are considered to meet the requirements of the scheme, be realistic, and deliver best value in terms of use of public funds