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TRANSPORT AND WORKS ACT 1992

TRANSPORT AND WORKS (INQUIRIES PROCEDURES) RULES 2004

NETWORK RAIL (HUDDERSFIELD TO WESTTOWN (DEWSBURY) IMPROVEMENTS) ORDER

REBUTTAL PROOF

RELATING TO PROOF OF EVIDENCE HARGREAVES (GB) LTD, NEWLAY ASPHALT LTD, NEWLAY READYMIX LTD, NEWLAY CONCRETE, DEWSBURY SAND AND GRAVEL LTD, AND WAKEFIELD SAND AND GRAVEL LTD (OBJ/18-22,29)

Graham Thomas – Engineering and Design

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GLOSSARY

Abbreviation	Definition
DMRB	Design Manual for Roads and Bridges (published by Highways England)
GRIP	Governance for Railway Infrastructure Projects
MfS	Manual for Streets
PoE	Proof of Evidence
PRM	Persons with Reduced Mobility
the Council	Kirklees Council
SoC	Statement of Case
S&C	Switches and Crossings

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1. INTRODUCTION

1.1 Introduction

1.1.1 The following are Network Rail's responses to the Proof of Evidence OBJ 18-22 & 29.JT.1 of Mr. James Taylor on behalf of Hargreaves (GB) Ltd, Newlay Asphalt Itd, Newlay Readymix Ltd, Newlay Concrete, Dewsbury Sand and Gravel Ltd, and Wakefield Sand and Gravel Ltd (OBJ/18-22,29).

1.2 Structure of rebuttal

- 1.2.1 In my opinion, the points made Mr. Taylor can be summarised within the following matters which are covered in this rebuttal:
- 1.2.2 **Matter 1: Flyover v Diveunder Grade Separation.** Mr. Taylor questions Network Rails preferred option for a Flyover arrangement to provide a grade separation in the Ravensthorpe area in preference to a Dive-under scheme.
- 1.2.3 **Matter 2: Development of the Flyover Grade Separation.** Mr. Taylor questions the way in which the Scheme has been developed, such that it requires the horizontal and vertical re-alignment of Calder Road, thereby affecting the land and operations on the Newlay site. This includes the relocation of Ravensthorpe station adjacent to the Newlay site.
- 1.2.4 **Matter 3: Highway Design & Extent of Land Required.** Mr. Taylor questions the Scheme as developed is taking too much land for the bridge (and highway) reconstruction and can be optimised, thereby reducing, or eliminating the need to acquire land from the Newlay site.

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2. ENGINEERING AND DESIGN REBUTTAL OF OBJECTOR'S EVIDENCE

2.1 Matter 1: Flyover versus Diveunder Grade Separation

- 2.1.1 I have covered this matter extensively in my main PoE Sections 3.1, 3.2 and4.2. Network Rail have also submitted a pack of option selection evidence to the Newlay objectors (refer to my main PoE Appendix 2).
- 2.1.2 I maintain my previous evidence, which shows that Network Rail has followed a thorough, robust, and auditable process, through which the Flyover was chosen as the preferred grade separation option.

2.2 Matter 2: Development of the Flyover Grade Separation

- 2.2.1 Mr. Taylor has questioned the geometrical development of the Flyover scheme, which I have summarised in the following points:
 - **Point 1**. Can the Flyover grade separation be located further east to so that the fast line vertical geometry can be lowered under Calder Road?
 - **Point 2**. Can the replacement Ravensthorpe station be placed further to the east to reduce any impacts on the Newlay site due to its location and island platform configuration?
 - **Point 3**. Can the fast line alignment be moved further north in the Calder Road area to limit potential impact of the existing bridge?

Point 1, Grade Separation Plan Location

- 2.2.2 The position of the grade separation and associated railway alignments was chosen to satisfy a very wide range of competing factors, one being the optimisation of the Calder Road highway alignment. Within this, I had to consider the need to fit the railway within the natural topographical constraints to balance impacts on stakeholders and neighbouring land and property. I also had to consider the viability of the engineering proposals with respect to railway and highways standards, safety, cost, schedule, risk, constructability, and environmental impacts. This was a considerable undertaking, as demonstrated in the various Order documents submitted, plus the Network Rail SoC (NR28), PoE's and additional supporting information.
- 2.2.3 A significant number of alignment options were studied through the Scheme development. This included early GRIP3 options which positioned the grade separation as far east as reasonably possible to limit the vertical level differences at Calder Road. However, this approach resulted in unsatisfactory operational rail alignments, which required extensive additional track and other civil engineering works and posed limitations on the reprovision of Ravensthorpe Station.

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- 2.2.4 The Scheme as developed provides a solution whereby the grade separation railway geometry, associated infrastructure, and station reconstruction are optimised and simplified as far as reasonably possible within the confines of all the competing constraints and Scheme requirements. This has positioned the grade separation within a short distance of the location achieved in the early studies, and at the same time carefully balanced the impacts of the vertical rail geometry against all neighbouring land and property in the vicinity of Calder Road and the Ravensthorpe Cutting.
- 2.2.5 Various design optimisations to reduce vertical level impacts at Calder Road have already been carried out to the railway as part of the Scheme presented, and these are described in my PoE.
- 2.2.6 I am continuing to work with Network Rail to further optimise the railway alignments during the current design phase of the Scheme. This includes further challenges to standards involving track and OLE geometry. I am confident that the Scheme will achieve some further small rationalisations in vertical railway design which will affect the Calder Road highway alignment. However, these are likely to be small scale in effect, and will not change the overall principle of the Scheme, which requires Calder Road to be re-aligned to the west of the existing railway overbridge.
- 2.2.7 For further discussion with respect to the development of the highway design refer to my response to Matter 3 below.

Point 2, Grade Separation Location

- 2.2.8 The existing Ravensthorpe Station is very poorly located and causes a significant capacity constraint on railway operations due to its proximity to the existing Thornhill LNW Junction and related signalling issues. It is also poorly situated to serve the travelling public as it is located down a narrow cul-de-sac with no PRM access provision and very basic facilities.
- 2.2.9 The development of the railway grade separation scheme in this area requires the reconstruction of the station and Network Rail is very mindful in providing a facility that meets not only the functional requirements of the railway, but also meets the requirements of its existing and future customers.
- 2.2.10 The new station needs to be located near to its principal point of access from Calder Road, and a full range of options have been considered for providing platforms and their inter-relationship with the proposed grade separation layout of the railway and its operational systems. This study of options for the station platforms in combination with junction layouts and grade separation geometry, led to an optimum solution whereby the new station was chosen to be the west side of Calder Road with the re-modelled Thornhill LNW Junction

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to the east. This solution has significant advantages for the Scheme and associated stakeholders including:

- It provides a simple junction layout, which is easily maintainable, with through track alignments that will minimise wear under intensive train operations. This will assist in providing a resilient and robust railway to support the northern economy.
- A simple two face island platform serves all available routes, thereby maximising operational flexibility. This allows train operators to offer additional services, and it can act as an interchange facility for better passenger destination choice (in combination with additional services), or during times of service diversions.
- In combination with the above, and its location close to new housing development land, it is hoped that a better served station on an electrified railway, will drive a significant growth in patronage. This supports broader government policy initiatives of encouraging sustainable transport choices and net zero targets.
- 2.2.11 I strongly disagree with Mr Taylor's suggestion that a new station should be situated further east away from options considered around Calder Road. This would be sub-optimal from a railway operational perspective, and directly conflicts with the driving rationale for placing the station where it best serves the public and wider economy.
- 2.2.12 The reason for the Calder Road re-alignment is the grade separation and the operational railway layout. The location of Ravensthorpe station itself does not require any additional land from the Newlay site, and the platform/railway footprint is situated entirely within the existing Network Rail boundary. New station facilities are proposed to the south side of the railway corridor and, similarly, this does not affect the Newlay site.

Point 3, Fast Line Alignment

- 2.2.13 Mr Taylor suggests that moving the fast line alignment further north would be beneficial. New fast line geometry has been developed and optimised to fit the topographic constraints of the site whilst balancing the effects on adjacent third parties.
- 2.2.14 In simple terms, the alignment of the fast lines needs to be positioned, as far as is reasonably practicable, to the south of the existing railway corridor in the Calder Road area. This allows the optimisation of the grade separation to the east of Calder Road. If the alignment was moved north, it would be a suboptimum solution.

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- 2.2.15 Mr Taylor suggests that the structural form of the replacement Calder Road bridge could be made more efficient with a central pier and more equal spans of steel/concrete composite construction.
- 2.2.16 I disagree with this as the bridge form has been optimised around the relative levels of the fast and slow lines. The unequal span arrangement not only allows for bridge supports to be built off-line from the operational railway but allows for a short span over the fast lines minimising its structural depth. The main (long) bridge span is indeed of steel/concrete composite construction where it passes over the operational railway. Therefore, the bridge is the most economic form of construction responding to suit the site constraints.

2.3 Matter 3: Highway Design and Extent of Land Required

- 2.3.1 The design of the Calder Road highway realignment has been undertaken in accordance with the Design Manual for Roads and Bridges (DMRB). This standard has been used to develop the design in terms of geometry, visibility, and other relevant requirements. I understand that this was discussed and agreed in consultation with Kirklees Council (the Council) prior to the submission of the Order.
- 2.3.2 I defer to the rebuttal response provided by Chris Williams (NR/PoE/REB/CW/11) to the Councils evidence in respect of the highway and roundabout design standards.
- 2.3.3 In my opinion, based on design development to date and my assessment of the design optimisation opportunities, it is possible that a highway alignment could be developed that positions Calder Road Bridge further east towards the existing highway, reducing slightly the Newlay land required. However, this needs me to test the feasibility of any such optimisations on the railway scheme within the Limits of Deviation (LoD) and requires further discussions with the Council regarding which highway design standards are to be implemented.
- 2.3.4 Mr. Taylor suggests that if the alignment geometry of Calder Road can be sufficiently developed then the Scheme should consider re-building the bridge and highway as an "on-line" or as a "half-half" solution. I have been involved in several complex bridge reconstructions, where I have successfully used such techniques, and on this project I have proposed a "half-half" reconstruction of the A62 Leeds Road Bridge, which suits the constraints of that site. However, in this instance the highway geometry, construction staging sequence, utility diversion strategy and traffic management arrangements do not lend themselves to either of these methodologies. The reconstruction of the Calder Road Bridge should be carried out off-line to the west of its existing site as

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shown in the Order. I defer to further rebuttal evidence provided by Mike Pedley with respect to Construction Methodology.

2.4 Conclusion

- 2.4.1 The development of the preferred Scheme (including the grade separation) has been thoroughly optioneered and tested through Network Rail's GRIP procedures and assurance processes. This has resulted in a necessary and justified re-alignment of Calder Road in Ravensthorpe, which has some foreseen impacts on neighbouring land and property to the north and south of the railway, including the Newlay site.
- 2.4.2 Within my PoE (particularly Section 3.2), this rebuttal, and other documentation submitted with the Order, I have sought to demonstrate how I have directed the development of this railway Scheme, such that any negative impacts on 3rd parties are minimised as far as reasonably possible, and associated decision making has been thorough, objective, and auditable. However, there is always a careful balance to be struck between design optimisation with respect to the needs of railway, and the needs of other stakeholders and affected 3rd parties. I have shown that how in developing the Scheme design, Network Rail has reached that balanced conclusion.
- 2.4.3 At the time of writing Network Rail is continuing to develop the detailed design of the Scheme in the Calder Road area to achieve an optimum solution within the LoD proposed. Any further optimisations will be undertaken in consideration of all views included within submitted objections or representations, and any further discussions that may result. In my opinion that process provides a further opportunity to seek to refine the detailed design of the Scheme within the scope of the Order powers, in response to remaining concerns of objectors.

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3. WITNESS DECLARATION

3.1 Statement of declaration

- (i) This proof of evidence includes all facts which I regard as being relevant to the opinions that I have expressed, and that the Inquiry's attention has been drawn to any matter which would affect the validity of that opinion.
- (ii) I believe the facts that I have stated in this proof of evidence are true and that the opinions expressed are correct.
- (iii) I understand my duty to the Inquiry to help it with matters within my expertise and I have complied with that duty.