

HIGHWAYS ENGLAND
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IMPACT OF THE PROPOSED DEVELOPMENT ON THE A21 TRUNK
ROAD
Technical Matters

TRANSPORT AND WORKS ACT 1992: APPLICATION FOR THE
PROPOSED ROTHER VALLEY RAILWAY (BODIAM TO
ROBERTSBRIDGE JUNCTION) ORDER

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1. Introduction

Qualifications & Experience

1. My name is David Albert Bowie and I am an Associate Director in the Development & Development Management Team of Systra, an established independent multi-national consultancy specialising in transport infrastructure. I hold an honours degree of Bachelor of Science in Civil and Structural Engineering from Cardiff University.
2. I am a member of the Chartered Institution of Highways and Transportation and hold a Highways England Certificate of Competency for Road Safety Audit with over 30 years post graduate experience in Traffic, Highway and Road Safety engineering as well as transportation planning. Prior to my appointment to Systra I held Senior positions in both public and private sectors with the last 7 years seconded into Highways England working on the South East Spatial Planning framework contract (5 years WS Atkins and 2 years WSP).
3. I have over 8 years' experience of holding the Statutory position of Traffic Manager as required under the Traffic Management Act 2004 (TMA 2004) for Bedfordshire County Council and then Central Bedfordshire unitary authority. Prior to my appointment with Bedfordshire County Council in September 2006 I was employed for 9 years by Mouchel Consulting Limited as Head of Profession Road Safety Engineering. During my period of employment at Mouchel I was the Design Team Leader of the Area 21 (North East London Motorway & Trunk Road Network) Improvements Team, a role which I occupied for the duration of the 5 year contract with the Highways Agency commencing in 1998. Prior to this I was employed by Hertfordshire County Council, Highways and Transportation Department for 6 years as a Road Safety Engineer and before that was employed for 1 year with Consulting Transportation Engineers.
4. I have detailed knowledge and experience in Highway Design, Traffic Engineering, Road Safety Engineering, Traffic Calming, Accident Investigation & Reduction and Road Safety Audit.

2. Scope of Appointment

5. This evidence has been prepared for and on behalf of Highways England, as Jacobs / Systra (as a joint venture) holds a term commission with the Highways England to advise on the highway, traffic, safety and transport impact of development proposals.
6. Jacobs / Systra has recently taken over the South East Spatial Planning (development planning) contract with Highways England that advises on the impact of developments on the strategic road network in the south eastern region of the England, including the A21 Trunk Road. This covers Highways England's contractual Areas 3, 4 and 5. I am retained

on this commission for the duration of the contract specialising and leading on Highway, Traffic and Road Safety Engineering and Road Safety Audit.

Scope of Evidence

7. Paragraphs 5 to 10 of Mr Harwood's evidence explain the role and responsibilities of Highways England in respect of the Strategic Road Network (SRN) and the A21 Trunk Road where the proposed development crosses that road.
8. The assessment of the proposed development is guided by the following documents which I rely upon to support my evidence:
 - National Planning Policy Framework and National Planning Policy Guidance;
 - The licence dated April 2015 granted to Highways England by the Secretary of State authorising it to operate as a strategic highways company and setting out statutory directions and guidance to the company;
 - Department for Transport Circular 02/13 The Strategic Road Network and the Delivery of Sustainable Development;
 - Highways England's *The Strategic Road Network: Planning for the future: A guide to working with Highways England on planning matters*;
 - The Design Manual for Roads and Bridges (DMRB) specifically standards:
 - GG 101 '**Introduction to the Design Manual for Roads and Bridges**' (June 2018, formerly GD 01/15) Revision 0;
 - GG104 '**Requirements for safety risk assessment**' (June 2018, formerly GD04/12 and IAN 191/16) Revision 0;
 - CD 109 '**Highway link design**' (March 2020, formerly TD 9/93, TD 70/08) Revision 1;
 - CD 123 '**Geometric design of at-grade priority and signal-controlled junctions**' (Aug 2019 formerly TD 41/95, TD 42/95, TD 40/94, and those parts of TD 50/04 and TD 70/08 relating to priority and signal-controlled junctions.) Revision 0;
 - GG 119 '**Road Safety Audit**' Jan 2020 (formerly HD 19/15 and prior to that HD 19/03) Revision 2;
 - GG142 '**Walking, cycling and horse-riding assessment and review**' Nov 2019 (formerly HD 42/17) Revision 0;
 - CG300 '**Technical approval of highway structures**' Apr 2021 (formerly BD 2/12) Version 0.1.0;
 - CD622 '**Managing Geotechnical Risk**' Mar 2020 (formerly HD 22/08, (formerly HD 22/08, BD 10/97, HA 120/08) Revision 1.
9. My evidence on behalf of Highways England will therefore focus on those technical design and road safety aspects of the application relating to the impacts of the crossing proposals on the SRN. It will set out Highways England's position regarding the application, and our current views on any material technical considerations.

10. My colleague Mr Paul Harwood will provide evidence on policy, land and consenting matters. Mr Harwood will elaborate on the background matters I briefly touch upon within his evidence.
11. Highways England reserves the right to update and expand its case in response to any further information submitted by the Rother Valley Railway ("RVR") as may be necessary.

3. Background

12. The Rother Valley Railway (RVR) has been discussing the proposals for the route between Robertsbridge and Bodiam with the Office of Rail and Road (ORR) for over 10 years, pre-dating the ORR's present policy in relation to new and reinstated crossings on mainline and heritage networks.
13. In April 2018, ORR was served with a copy of the draft Order and relevant supporting documentation in line with the requirements of the Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006.
14. RVR provided updated and supplementary information in 2019 with additional reviews of traffic levels and more specific crossing layout proposals, as well as indicative costings for the various practicable alternatives to crossings.
15. On 25 February 2019 ORR and Highways England met jointly with the consultants to RVR to be clear on the common information that both bodies required in relation to road safety impacts of the proposals and the underpinning evidence necessary to support that.
16. An updated set of the project documentation was provided by RVR to ORR in July 2019, and further supplementary submissions were received in September, November and December 2019.
17. The ORR issued a statement of case in Jan 2020 (REP/017-1, RVR Core Document Library) which stated the: *'ORR would not have any objection as long as the project follows good practice in the industry and delivers an infrastructure and operational capability that is compatible with the Kent and East Sussex Railway with which it will create an operational connection. We would expect to engage with the project as part of our normal inspection process to monitor development of the works, and make use of our normal regulatory tools to deal with any issues that arise where we felt risks were not being reduced to as low as is reasonably practicable'*.
18. ORR's views are principally directed to the safety of the level crossing proposals. If ORR were solely considering an application for Level Crossing Orders using their delegated functions in relation to the LCA,

and were the sole party making the determination, then they may take our safety and convenience issues into consideration. However, this is not such a case, and ORR believes that the local Highway Authority and Highways England are better placed to make assessment and comment on the convenience impacts of the proposed crossings of the three roads and the bridleway and that it is then for the Inquiry to take the holistic view of the proposals.'

4. The Design Manual for Roads and Bridges

19. The Design Manual for Roads and Bridges (DMRB) (Appendix B, OBJ782/W2/2) is a suite of documents which contains requirements and advice relating to works on motorway and all-purpose trunk roads for which Highways England is highway and road authority.
20. The DMRB embodies the collective experience of the Overseeing Organisations (Highways England, Transport Scotland, The Welsh Government; and the Department for Infrastructure (Northern Ireland)), the Department for Transport, and their agents and designers. It provides requirements and advice resulting from research, practical experience of constructing and operating motorway and all-purpose trunk roads, and from delivering compliance to legislative requirements.
21. Para 31 of Mr Harwood's evidence (OBJ782/W1/1) explains that the Secretary of State's policy as set out in paragraph 11 of Department for Transport Circular 02/13 (RVR/HE/07) is that The Design Manual for Roads and Bridges sets out details of the Secretary of State's requirements for access, design, and audit, with which development proposals must conform.

5. Assumptions made in the preparation of the DMRB

Competence

22. DMRB document GG101 'Introduction to the Design Manual for Roads and Bridges' page 4 (Appendix C, OBJ782/W2/2) advises that DMRB has been prepared for use by competent practitioners, typically qualified professionals able to work independently in relevant fields, who are expected to apply their own skill and judgement when making decisions involving the information that the DMRB contains.

Link with regulation and legislation

23. DMRB documents are not statutory or regulatory documents or training manuals; neither do they cover every point in exhaustive detail.
24. In general, the DMRB does not duplicate National, UK and European legislative requirements. Anyone engaged in works on or relating to Highways England's motorway and all-purpose trunk roads should understand and comply with the relevant legislation.

Link with the MCHW

25. The requirements and advice given in DMRB documents are provided on the basis that the works are constructed in accordance with the Manual of Contract Documents for Highway Works (MCHW).

Scope

Aspects covered

26. Para 1.1 of DMRB document GG 101 '*Introduction to the Design Manual for Roads and Bridges*' (Appendix B, OBJ782/W2/2) provides that 'The DMRB provides requirements which shall be applied to the appraisal, design, maintenance, operation and disposal of motorway and all-purpose trunk roads' for which Highways England as one of the Overseeing Organisations is highway or road authority'.

Application of the DMRB

27. Para 2.1 of DMRB document GG 101 (Appendix B, OBJ782/W2/2) goes on to advise that '*All works undertaken on motorway and all-purpose trunk roads shall comply with requirements in the DMRB and MCHW*'.
28. Accordingly, the relevant sections of the DMRB are required to be applied to the design proposals that affect the A21 Trunk Road.

Departures

29. Para 2.4 of DMRB document GG101 (Appendix B, OBJ782/W2/2) states that '*Where requirements of the Overseeing Organisations are not met, a departure application shall be submitted in accordance with the procedures required by the relevant Overseeing Organisation and approved:*

- 1) *before the design is finalised; and*
- 2) *prior to their incorporation into the works.*

30. Departures may be applied for in a variety of situations, including:

- 1) where it can be justified that a requirement is inappropriate in a situation;
- 2) where the application of a requirement would have unintended adverse consequences;
- 3) where innovative methods or materials are to be proposed;
- 4) where a requirement not in the DMRB, National Application Annex (NAA) or MCHW can be adopted if more appropriate in a particular situation; or
- 5) where an aspect not covered by requirements is identified.

31. Clause 2.7 of GG101 (Appendix B, OBJ782/W2/2) reiterates that '*Where an aspect of the works is not covered by existing requirements, a departure application for an aspect not covered by requirements shall be submitted*'. In this context 'shall' represents a mandatory requirement of the Overseeing Organisation (Highways England).
32. Departures from DMRB are considered independently within Highways England by the Safety, Engineering and Standards (SES) Division. Highways England officers outside of SES are not permitted to influence the outcome of those considerations and each Departure is considered on its own merits and only from the information submitted supporting that Departure. The acceptability of a design incorporating a Departure therefore cannot be accepted until the Departure is assessed and approved by SES and any subsequent DMRB requirements are completed such as the Stage 1 Road Safety Audit process.

6. A21 Trunk Road - Robertsbridge Bypass

33. The A21 provides a north-south route between Greater London and Hastings on the south coast. The A21 is a Trunk Road for the majority of its length and passes through the M25 Orbital Motorway where it has limited connectivity at Junction 5. The A21 Trunk Road at Robertsbridge passes to the east of the village of Robertsbridge, which is located in the District of Rother, East Sussex.
34. Highways England is the Highway and Road Authority for the A21 Trunk Road, which includes the A21 Robertsbridge Bypass. Forming part of the Strategic Road Network, it is one of limited north-south routes connecting London to the South Coast. Various sections of the A21 Trunk Road have been upgraded in the past, including the Robertsbridge bypass in 1989 and most recently the dualling of the section between Tonbridge and Tunbridge Wells in 2018-19. The A21 Trunk Road varies in standard of provision and is a mix of a single and dual carriageways.
35. The RVR proposals include the provision of a Level Crossing on the section of the A21 Robertsbridge Bypass between the A21 Northbridge Street roundabout and the River Rother. This section of the A21 Trunk Road is subject to a signed speed limit of 40mph and immediately south of the proposed level crossing it is subject to national speed limit 60mph.
36. There are no formal pedestrian facilities in either verge within this section of the A21 Trunk Road and no connections to adjacent existing walking provision passing underneath the carriageway. However, pedestrians are not prohibited from this section of the A21. Similarly, there are no formal cycle provisions along this section of the A21 Trunk Road even though cyclists are permitted. A standard carriageway cross section for high speed rural trunk roads carriageway width is provided at 7.3m (3.65m lane widths) with 1.0m edge strips demarcated by a solid edge

of carriageway road marking. In some instances, cyclists will utilise the edge strips as cycle lanes.

37. Consultants Mott MacDonald on behalf of RVR commissioned Automatic Traffic Counts (ATC) to be undertaken on the A21 during May 2010 (RVR/34, Appendix C Core Document Library). Consultants WSP on behalf of Mr and Mrs A Hoad, Parsonage Farm and the Executive and Trustees of the Noel de Quincey Estate commissioned a further ATC survey which was undertaken for a week in May 2018 (OBJ/1002 Statement of Case, Core Document Library). It is understood that the ATC's were positioned broadly where the proposed rail crossing would be situated albeit both being slightly closer to the A21 Northbridge Street roundabout. The results of both surveys have been shared with Highways England.
38. In addition to the above two surveys, a further ATC survey was commissioned in March/April 2019 by consultants i-Transport as part of their Brief from RVR to update the traffic information previously collected. An ATC was placed on the A21 just to the north of the location of the proposed level crossing. The dates of the surveys coincided with the Easter Bank holiday (RVR/70-06, Traffic and Transport ES Update, Core Document Library)
39. Comparing the results of the surveys it can be seen that in May 2010 the Average Daily Traffic flow was 16,179 vehicles. In May 2018 that figure had risen to 18,254 which reflects general traffic growth over the period. The April 2019 Average Daily Traffic flow had dropped slightly from the 2018 figure to 17,350 Average Daily Traffic flow. This lower figure represents the average over the Bank Holiday weekend (19/4/19 – 22/04/19) and possibly reflects the traffic conditions best when, if consented the RVR would operate at its busiest. Highways England accept these figures which were taken at those respective points in time and are content to use the Bank Holiday 2019 figures as a reasonable representation of traffic conditions on which to test the impacts of the RVR operation on the highway network.
40. The surveys carried out in May 2018 and April 2019 (RVR/70-06, Traffic and Transport ES Update, Core Document Library) also included traffic flow speed data. This showed a recorded 85%ile speed (the speed at which 85% of vehicles travel at or below) between 42 and 43.2 mph northbound (depending on time of day) and between 41.3 and 42.6 mph southbound (depending on time of day) in 2018. These speeds show that there was reasonably good compliance with the signed speed limit of 40mph and the majority of driver speeds are not at a level whereby the police would consider prosecution should enforcement be undertaken.
41. The April 2019 Bank Holiday traffic flow speed data showed notably higher 85%ile speeds in both the southbound and northbound directions. In the northbound direction 85%ile speeds were recorded between 38.7

and 52.7mph, with the higher readings being observed during the early hours of the morning when traffic flows are substantially less and when RVR is unlikely to be in operation. In the southbound direction speeds were recorded between 42.5 and 57mph, again with the higher speeds being recorded in the early hours of the morning.

42. The recording of 85%ile traffic speeds is essential to safe highway design as they are the fundamental basis of the Geometric Design parameters of new, improved/amended highways as given in the Design Manual for Roads and Bridges (Appendix E, OBJ782/W2/2) as well as being used for determination of new and amended speed limits. Highways England have no reason to refute the RVR speed data collected over the bank holiday weekend in April 2019.
43. Personal Injury Accident (collision) data covering a 5-year period was requested from Sussex Safer Road Partnership. The data (originating from Sussex Police) was provided and covered the period from 01/03/2015 to 29/02/2020 inclusive (Appendix H, OBJ782/W2/2). The study area extents of the collision data provided span from the proposed crossing point south on the A21 approximately 325m and north 445m from the Northbridge St. Roundabout. The study extents run east and west from the Northbridge St. Roundabout approximately 300m along Church Street and Northbridge Street respectively. Accordingly, the study area covers both Local and Strategic Road Networks.

44. Table DABT1: Collisions by severity

Collision Severity	Number
Slight	5
Serious	1
Fatal	0
Total	6

45. Whilst the quantity of the study data is considered too small to be of reliable statistical assistance when comparing the locally observed data against the national trunk road data, it can be used to set a base point for the basis of formal Risk Assessment in accordance with DMRB standard GG104 'Requirements for safety risk assessment' (Appendix C, OBJ782/W2/2).
46. Of the six collisions recorded over the 5-year period, 4 occurred on the A21 Trunk Road. Of the 6 collisions within the study area:
- 67% occurred during daylight.
 - 67% occurred when the carriageway surface was dry.
 - 17% occurred when the carriageway surface was wet/damp.
 - 17% occurred when the carriageway surface was stated as having frost/ice.

47. Of the 4 of the recorded collisions that occurred on the A21, 3 were recorded as slight injury collisions and 1 serious collision. The Serious collision occurred to the north of the Robertsbridge Roundabout, 2 slight collisions occurred on the roundabout itself with the final slight collision occurring near to the proposed Level Crossing to the south of the roundabout.
48. With such a low level of collision occurrence within the 5-year period it can be said that this section of the A21 maintains a reasonably high level of safe operation.

7. Departure Submission

49. The rail crossing is not a recognised highway feature in the Design Manual for Roads and Bridges. Therefore, in accordance with the requirements of GG 101 'Introduction to the Design Manual for Roads and Bridges' clauses 2.4 & 2.4.1 (5) (Appendix C, OBJ782/W2/2) a Departure application must be submitted and approved for an '*Aspect not covered by requirements*' before the rail crossing design can be accepted.
50. The initial departure application was opened on the 13th November 2020 by consultants Arup on behalf of the applicants. The Departure was completed and submitted for consideration on the 17th March 2021 some 4 months after it was opened. The Departure submission was initially reviewed and rejected on 19th March with a requirement for 'rework' due to insufficient information supplied.
51. Following rejection on the 19th March 2021 the Departure submission was resubmitted on the 20th April 2021 and was approved for internal review on the 21st April 2021.
52. Following internal review by SES, the Departure application was again returned for rework on the 26th May 2021. The internal response to the Departure Application lists some 33 items that require further consideration and response (RVR/HE/02, Core Document Library) before the Departure Application can be reconsidered by SES.
53. Whilst it can be reasonably agreed that some of those 33 items listed in the SES review of the Departure can be resolved relatively simply with further rework and correction, there are other matters which will need more detailed consideration, design and review. The following section of this evidence will therefore focus on those items which are considered more onerous to satisfactorily resolve rather than consider each of the 33 items raised in the SES response. With this noted, SES will require all 33 items to be satisfactorily resolved before the Departure can be reconsidered and a final view taken on its acceptability. I deal with the more significant issues in the order as presented in the SES response

to the Departure application 26th May 2021 (RVR/HE/02, Core Document Library).

8. Impacts of the Proposed Level Crossing

54. Item 2, as noted DMRB does not cover the provision of level crossings on the all-purpose trunk road network. However, there are elements of the proposal which do overlap into highway items covered by DMRB standards. DMRB standard CD 123 – '*Geometric design of at grade priority and signalised junctions*' (Appendix E, OBJ782/W2/2) covers design principles relating to signalised junctions. Accordingly, design elements such as signal visibility, road markings, and stopping site distance (SSD) etc. should be designed to provide compliance with standard CD123. Where the design falls short of those highway requirements these themselves would necessitate a Departure, which would reasonably be expected to be included within the overall Departure process saving multiple Departure applications for the crossing design.
55. Item 3, the Departure submission must consider the combined impact of the proposed level crossing on the A21 and the two crossings on the local road network. The proposed crossing on Northbridge Street will be located approximately 300m west of the proposed A21 crossing and operation of one crossing could directly affect the other, particularly with regard to length of closure times and hence impact on the wider road network. Accordingly, the risk associated with drivers diverting from the A21 to the local road network and vice-versa in order to 'beat the signals' must be robustly considered within the departure submission and any necessary mitigations included within the design.
56. Item 6, the Departure submission will need to robustly demonstrate that the proposed extension of the 40mph speed limit complies with the guidance provided in DfT Circular 01/2013 (RVR/HE/07) Setting Local Speed Limits. The section of the A21 to the south of the proposed level Crossing is subject to National Speed limit 60mph. The horizontal and vertical alignment of the carriageway, its cross-sectional arrangement and immediately adjacent road and land environment clearly indicate to the driver that the route is national speed limit. The extension of the speed limit into the section of the route, save for the mandatory speed limit signs, gives no other visual or physical indications to the driver that they are in a lower 40mph speed limit whereby they should significantly adjust their driving behaviour. Failure to satisfactorily manage road user speed will lead to higher approach speeds to the proposed crossing point with resultant increase in risk.
57. Item 8, the proposed relocation the start of the 40mph speed limit to the south of the crossing will reduce the length of the overtaking provision on this section of the A21. An overtaking assessment to ascertain the overtaking value of the route, in accordance Section 9 of CD 109 Highway link design (Appendix D, OBJ782/W2/2) will need to be

undertaken and submitted for Highways England approval outside of the Departure process. If the assessment shows that the overtaking capacity of the route is reduced to less than 30% as a result of the design proposal, then a Departure will be required for this aspect.

58. Item 10, the traffic figures taken from the Highways England's online Traffic Information System (Webtris) shows an increase in traffic in the summer months and it is probable that there would also be a corresponding increase in cyclist activity as well as other non-motorised user activity particularly due to the rural nature of the area. The traffic data supplied is limited and inconclusive in relation to traffic flows for all road user groups. This could have a significant bearing on the submitted queue lengths and cyclist numbers quoted in the submission. Additional traffic surveys, particularly within the warmer months, would be required to gain a more accurate and hence reliable analysis of traffic figures, walkers, cyclists, horse riders and an accurate assessment of peak periods. Due to the current Covid 19 Pandemic, traffic counts are highly unlikely to reflect normal circumstances and current DfT advice is that they should not be undertaken. It is not clear when traffic patterns will be deemed to have returned to 'normal' but this is unlikely to be within the summer or autumn months of 2021 and therefore there is no certainty when any new surveys can be undertaken and more robust information provided.
59. Items 11, 18, 21, 22, 23, 24, 25, 26 & 30 relate to matters which require attention within the Safety Risk Assessment (SRA) to the requirements of GG104.
60. The Traffic Assessment Note, and the SRA must consider the impact of journey times on the SRN as a result of trains running during peak periods and the possibility of the disruption during the end of the school day.
61. The proposed road markings on the A21, immediately to the south of the roundabout, allow a short overtaking section. The SRA should include an assessment of any potential hazards associated with the road marking layout at this location together with appropriate specific mitigation measures to reduce the residual risk.
62. The SRA should be updated to include an assessment of the risks and potential mitigation measures involved with altering the vertical alignment of the A21 to that of a higher design speed.
63. The SRA must identify risks and provide mitigation regarding the risks to rail passengers as part of the 'other party' group (GG104 Table 1.3 Populations on the motorway and all-purpose trunk roads), as a result of the provision of a level crossing.

64. The SRA must include a comparison of risk between the existing situation and the risks to users of the SRN following the provision of a level crossing.
65. The SRA must include a comparison of risk between a level crossing and the other grade separated options.
66. Item H12 of the SRA must provide further details on the appropriate visibility to the crossing and its associated operational signs and if this visibility cannot be achieved, must provide details of suitable mitigations to reduce the residual risk.
67. Item H21a and b of the SRA, must provide further details on the levels of impact that the barrier will be designed to withstand.
68. The SRA must provide a comparison between the chosen level crossing and control arrangement against other available types, to ensure that the chosen crossing type is the most appropriate for the location.
69. Item 12, the RVR Economic Impacts Report, Table 1-2, indicates that RVR is expected to attract an additional 22,000 visitor trips, rising to 94,000 in 2030, the impact of which must be considered and the possible impacts recorded for the SRN and local road network.
70. Item 13, Survey figures indicate that the operation of Robertsbridge roundabout will be compromised, disrupting traffic from Robertsbridge and Salehurst wishing to access the northbound A21 from both Northbridge Street and Church Lane. During the 'best case' days the southbound queues would end approximately 25m south of the roundabout, which could result in rear end shunts due to vehicles leaving the roundabout to head south. Worst case northbound queues could potentially have an adverse impact on the operation of the A21/Redlands Lane junction. To the north of the Level crossing the southbound queue through the roundabout and then through the signalled controlled pedestrian crossing would also have a safety impact for users of that crossing.
71. The Technical Review undertaken by Atkins 'Review of i-Transport LinSig Models (PH/JN/ITL14477-016)' (Appendix K, OBJ782/W2/2) on the i-transport Technical Note Queuing Assessment Summary & Update dated 9 Feb 2021 (Appendix M, OBJ782/W2/2) reviewed the RVR's figures set out at Table 2.2. The Atkins report concluded that the barrier down time should be taken as 72s but did not question the predicted queue lengths save to advise that a more detailed microsimulation of the level crossing could yield more accurate results. The i-Transport TN advised at para 1.1.12 *'Having regard to the previous analysis and that contained in this Note the assessed queue lengths from the proposed level crossing are: 535m north and 506m south' over the worst Bank Holiday time periods.'*

72. These queue lengths are significantly different to those reported to ORR by RVR given on page 12 Table 6 to Appendix A of the ORR revised statement of case (REP/017-1, Core Document Library). Using a longer barrier down time of 110s, ORR have been advised that average queues southbound of 145m and a maximum of 285m with a northbound maximum of 232m and average of 177m for the May Bank Holiday. It is not clear how these queue lengths relate to each other and the applicant will be required to clarify such that a consistent set of queue length values can be considered.
73. Notwithstanding the significant differences between the quoted queue length figures, it is clear that queuing will increase the risk of road traffic injury collisions on the affected lengths of the A21. Accordingly, the submission must provide details of suitable mitigations and the proposed network signing strategy.
74. Item 28, with the points noted in para 40 above, the Departure submission advises that *'Queuing is expected to regularly extend through the roundabout when the barrier is lowered'* (RVR/HE/02, Core Document Library). The interface between the proposed crossing and the existing roundabout creates a queueing hazard and the risk of road traffic injury collisions, most notably the potential for nose to tail shunts type and side on 'T bone' collisions. The designer must provide details of proposed mitigations to manage this risk.
75. The figures within the Cost Benefit Analysis technical note submitted with the Departures Submission to Highways England (Appendix L, OBJ782/W2/2) used to estimate the Benefit/Cost Ratios, indicate an increased accident rate on the A21 from current 0.783 accidents per annum (average) to a 3.151 accidents per annum average (Page 1, para 1.5). This indicates that the current accident occurrence of 4 injury accidents in 5 years is likely to rise to 16 injury accidents in 5 years with the inclusion of the level crossing. Whilst the Departure submission does state that *'The only negative impact likely to result from the installation of the level crossing is in relation to safety'* it does not account for the fact that highway safety is the number one strategic imperative of Highways England.
76. On approval of the Departures application and any others that might arise as a result of the rework, the outline scheme design can be accepted as sufficient for the purposes of undertaking a fully independent Stage 1 Road Safety Audit in accordance with DMRB standard GG119 'Road Safety Audit' (Appendix F, OBJ782/W2/2). All matters raised through this process will need to be agreed and all agreed actions incorporated into the scheme design before it can be accepted by Highways England. This process has at the time of writing this proof yet to be undertaken and typically the RSA process would be expected to be completed in 4 to 6 weeks from formal instruction.

9. Preliminary Design Drawings

77. The design drawings submitted for the Departure approval process have not been subjected to a compliant Highways England controlled GG119 compliant Stage 1 Road Safety Audit. The Departure process for the 'Aspect not covered' would need to be concluded ahead of the Audit Process and also to confirm that the design can be undertaken in accordance with the guidance given in the ORR 'Level Crossings: A guide for managers, designers and operators (2011)'. With this noted the Drawings have been considered as submitted.
78. For Robertsbridge Bypass General Arrangement 23905-ARP-XX-XX-DR-CH-0001 (RVR/74-01, Core Document Library), the level of detail provided is sufficient to show the General Arrangement of the proposals. It is noted that the provision of the High Friction Surfacing (HFS) to the crossing stop lines is 100m south and 40m north. The extent of HFS should cover the average extents of the queues northbound and southbound with an additional length of HFS to assist in the deceleration of approaching traffic to the end of the queue.
79. The General Arrangement drawing does not indicate the extents of the current street lighting or that which is proposed.
80. Stopping Site Distances to the level crossing have not been marked on the drawing and therefore it cannot be determined whether or not Stopping Sight Distances compliant to the requirements of CD 109 (Appendix D, OBJ782/W2/2) can be achieved.
81. In Robertsbridge Bypass Road Markings 23905-ARP-XX-XX-DR-CH-0002 (RVR/74-02, Core Document Library), the drawing refers all markings to Traffic Signs Regulations and General Directions (2002) and the Traffic Signs Manuals. The reference is incorrect as the Traffic Signs Regulations and General Directions (TSRGD) have since been updated and the note should refer to the updated 2016 TSRGD.
82. The extents of the double white line system to the north of the crossing should extend to the roundabout circulatory carriageway to prohibit dangerous overtaking in this short section of carriageway.
83. The roundabout 'Keep Clear' markings should be staggered across the circulatory carriageway to discourage queuing traffic from blocking the Church Lane entry to the roundabout. In addition, an additional set of 'Keep Clear' markings should be provided across the circulatory carriageway at the A21 southbound entry to the roundabout.
84. For Robertsbridge Bypass Traffic Signs 23905-ARP-XX-XX-DR-CH-0003 (RVR/74-03, Core Document Library), the drawing refers all signs to the Traffic Signs Regulations and General Directions (2002) and the Traffic Signs Manuals. The reference is incorrect as the Traffic Signs

Regulations and General Directions (TSRGD) have since been updated and the note should refer to the updated 2016 TSRGD.

85. The signing strategy appears cluttered around the Level Crossing with some signs inappropriately spaced from one another whereby viewing distances to sign faces will be too short and/or obscured/partially obscured from one another.
86. For Robertsbridge Bypass Construction Details 23905-ARP-XX-XX-DR-CH-0004 (RVR/74-04, Core Document Library), the indicative construction details are noted and whilst not all dimensions are provided and will be subject to appropriate calculation where necessary, the general intent is noted. All construction works within the public highway will be required to meet the requirements of the Manual of Contract Documents for Highway Works (MCHW), particularly the Specification for Highway Works and Highway Construction Details.

10. Journey Time Delay

87. Inevitably, the introduction of the Level Crossing on the A21 Robertsbridge Bypass will introduce journey time delays to the network when the barriers are down. The delay vehicles encounter are not simply made up from the barrier down time but also from the time taken for traffic to return to normal flow conditions.
88. Highways England understood that the RVR case was that overall the effects of platoons of traffic meant that the proposed Level Crossing would not severely impact on journey times on the A21. However, RVR's current position on this matter suggests that they consider that the platooning effect of traffic is not relevant. RVR are requested to clarify whether or not they now consider that the proposed Level Crossing would materially delay traffic on the A21.
89. Delays to the journey times carry an economic cost and these will need to be factored into the Cost Benefit Analysis.

11. Impact to Highway Structures

90. DMRB documents CG300 '*Technical approval of highway structures*' (Appendix J, OBJ782/W2/2) and CD622 '*Managing Geotechnical Risk*' (Appendix I, OBJ782/W2/2) describe what engineering work is required by Highways England during the preliminary design stage of a project.
91. CG300 (Appendix J, OBJ782/W2/2) para 1.1 states '*technical approval (TA) procedures shall be applied to all proposals, including third party proposals and private developments, that are:*
1) *within the highway boundary;*

- 2) *outside the highway boundary, where the structures are to be adopted by the Overseeing Organisation;*
- 3) *outside the highway boundary where works can affect the highway or highway structure; and*
- 4) *outside the highway boundary where works can affect the safety of the highway user.*

92. Whilst CG300 does not expect an Approval In Principle (AIP) by the completion of preliminary design, it does require an Options Report Para's 2.16 to 2.19, or an explanation as to why only a single option is viable (Option report guidance CG300 Appendix O) (Appendix J, OBJ782/W2/2). The Options Report should set out who will own and maintain the various structures and which structures are within the A21 or which are outside the A21 highway boundary but can affect the safety of any of the A21 user groups, the A21 itself or an A21 structure. These structures will require an AIP before commencement of construction.

93. CG300 (Appendix J, OBJ782/W2/2) also requires a Ground Investigation Report before the completion of the preliminary design.

94. Highways England will also need an explanation of the Technical Approval regime for structures that support the proposed railway in the vicinity of the A21. It is not known who is the Technical Approval Authority for these structures from the point of view of railway safety and structural integrity and also where the technical and other requirements of this Authority set down.

95. The latest RVR submission on the structural elements does not give sufficient clarity to be able to answer the issues above. The Structural requirements have yet to be concluded and therefore it is not possible to advise whether or not the structural elements of the proposals can be delivered without harm to the A21 Robertsbridge Bypass.

12. Statement of Common Ground

96. Para 52 of Mr Harwood's evidence (OBJ782/W1/1) explains the current position with regard to the Statement of Common Ground between RVR and Highways England.

13. Conclusion

97. At this time, the Departure and Design process has not been completed to a sufficient level to enable Highways England to take an informed view of whether or not the provision of a Level Crossing on the A21 (T) Robertsbridge Bypass pass will be tolerable from a safety perspective or that the design of the proposed railway where it crosses the A21 Trunk Road will conform to the Design Manual for Roads and Bridges.

98. For these reasons Highways England continues to object the proposals and recommends that the Order should not be granted due to the safety impacts on the operation of the A21 (T) Robertsbridge Bypass.

99. Highways England gives an undertaking to continue to work with the applicants and their consultants in order to assist the Inquiry.

David Albert Bowie BSc (Hons) MCIHT
Associate Director

7th June 2021