

**IN THE MATTER OF PART D OF THE NETWORK CODE**

**AND IN THE MATTER OF THE ACCESS DISPUTE RESOLUTION RULES**

**AND IN THE MATTER OF TIMETABLING DISPUTES: TTP: 1064; 1065; 1066; 1069; 1070;  
1071; 1073; 1075**

**BETWEEN:**

**(1) ABELLIO SCOTRAIL LIMITED ("ASR")  
(2) DB CARGO (UK) LIMITED ("DBC")  
(3) FIRST GREATER WESTERN LIMITED ("GWR")  
(4) XC TRAINS LIMITED ("XCT")  
(5) GB RAILFREIGHT LIMITED ("GBRf")  
(6) ARRIVA RAIL NORTH LIMITED ("ARN")  
(7) EAST COAST MAIN LINE COMPANY LIMITED ("VTEC")**

**Claimants**

**and**

**NETWORK RAIL INFRASTRUCTURE LIMITED ("NR")**

**Defendant**

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**NR's RESPONSE TO HEADS A AND B ISSUES –  
APPENDIX 6 –  
NR'S RESPONSE TO THE SUBSTANTIVE PARTS OF THE GBRf SRD**

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**Introduction**

- 1 This document should be read in conjunction with NR's Defence to Heads A and B Issues dated 12 April 2017 (the "**Response**").
- 2 Abbreviations as used in GBRf's second SRD are adopted in this Response. References to Paragraphs are to Paragraphs in GBRf's second SRD.

**Overview of NR'S Response to GBRf'S Second SRD**

- 3 NR denies that GBRf is entitled to the relief it seeks, or to any relief, for the reasons set out in this response to GBRf's second SRD and the Response.

#### **Response to Section 4 of GBRf's second SRD**

- 4 The nature of the dispute in Section 4 of GBRf's second SRD is noted. It is accepted that this is a timetable dispute, but for the reasons set out below and in the Response, it is denied that GBRf is entitled to the relief sought or any relief.
- 5 GBRf does not raise any issue in relation to consultation or the application of the Decision Criteria. It is therefore wrong to say that this Dispute is one which relates to "Common issues of principle", at least insofar as such issues relate to allegations of insufficient consultation or as to the application of Decision Criteria. Any common issues of principle seem to have been with the Dispute raised by Caledonian Sleeper, which has now been withdrawn.
- 5.1 NR consulted with GBRf according to the obligations in Part D and GBRf does not allege otherwise. Accordingly, NR provides no detailed account of the proper and full consultation which took place.
- 5.2 Further, GBRf does not allege any matter as to the application of the Decision Criteria. GBRf's SRD complains about the methodology used within TRIP and the quality of evidence relied upon by NR when using TRIP analysis to support proposed revisions to TPRs. This relates to whether such methodology and evidence is a reliable basis to generate more accurate planning values, not the application of (or failure to apply) specific Decision Criteria. Accordingly, NR does not address the application of specific Decision Criteria in this Appendix.
- 6 GBRf makes the unsupportable broad assertion (in Paragraph 4.3) that some of the methodology, namely ODA, "is inappropriate and is not capable of producing values for TPRs of any kind." This argument, if accepted, would mean that the ODA tool, developed for the specific purpose of using real-world data to analyse TPR values, a process with many years of widespread buy-in from the operators including GBRf, cannot be relied on to produce TPR values. This is, with respect to GBRf's complaint, plainly not the case, and is not supported by any or any sufficient analysis.
- 7 To the extent that comments on a proposed change to the TPRs are properly presented to NR, for example supported by reasons and evidence, NR carefully considers these. If a TOC provides evidence establishing that what NR proposes is incorrect or is not in line with the Decision Criteria, NR will change it. However, when a TOC simply states that it does not agree, or it inconveniences the specific TOC, NR is less likely to be able to justify any change being made.
- 8 NR refers to and relies on the detailed account of NR in Appendix 1 to NR's Response submission and on the witness statement of Matthew Allen. NR sets out a history of the TRIP process and its constituent parts, and explains why the TRIP and ODA methodology is

appropriate and how decisions taken in reliance on TRIP meet the requirements of the Decision Criteria and have been widely accepted by Network Participants.

## **Response to Section 5 of GBRf's Second SRD**

### **GBRf's Concerns Over ODA and its Methodology**

9 As to Paragraph 5.1:

9.1 NR accepts that the document attached as Appendix A to GBRf's SRD explains and introduces the methodology of the ODA tool. However, the section headed "ODA Graph Guidance" does not appear in this form. Rather, it appears under the heading "Headway Recommendations", and is followed by graphs setting out headway results. SRT results, presented in a subsequent section of ODA reports, are not represented graphically. NR exhibits the opening section of the Carstairs-Glasgow Central ODA report, which includes the description of the ODA methodology in context (Annex / Tab 3 / GBRF / 1455-1466). This is significant in light of GBRf's allegations in paragraph 5.4.

9.2 GBRf asserts that the "largest point of contention" has been output using the ODA model. These are not particularised in GBRf's SRD. However, in fact the only revisions contained within GBRf's Appendix E – the "TPR proposals contained in 2018 version 2.0 [it appears GBRf asks] be removed from the TPRs as their formulation is incorrect" – that are generated on ODA analysis are the revisions in SC001 (Scotland).

9.3 GBRf refers to "*the bogus methodology that is ODA*" in relation to headway changes to EA1210 and EA1220 (Anglia), but those revisions are not based on ODA analysis. No ODA analysis was carried out on EA1210. (ODA analysis has also been carried out on EA1160 and EA1220, but not in sufficient time for it to be consulted upon and to support Version 1 of the revised Rules - such ODA analysis will inform future revisions of the TPRs.)

9.4 All other revisions listed within GBRf's Appendix E are supported by analysis from the VISION model, which is an unrelated and totally independent tool to ODA.

9.5 In addition, GBRf has not set out how its stated concerns within its sole reference document about ODA relate to any single revision that affects GBRf itself. Instead, they are general methodological objections, which NR addresses in the remainder of this document, and which NR has been trying to meet over many months of consultation.

9.6 NR notes that GBRf had previously accepted, with some caveats, revisions to Scotland headway values contained in the V1 Rules informed by ODA analysis. GBRf has since adopted the approach seen in this Dispute and its wholesale rejection of the ODA methodology. GBRf's approach is however not supported by analysis of how it is said to affect GBRf, or any particular route or operator.

10 As to Paragraphs 5.2 and 5.3:

- 10.1 Mr Allen in his witness statement sets out the advantages of using the ODA tool and of ODA analysis, as well as how that analysis is reviewed prior to its use in informing recommendations to revisions of values within the TPRs.
- 10.2 GBRf complains that the ability to cleanse data appropriately is lost, and it is impossible to say what may have affected individual trains being monitored. This is, with respect, the very purpose of utilising a large sample set, so that individual examples do not skew the results. The use of mass data in ODA, by its very nature, provides a way to 'cleanse' the effect of external data or influences. Taking the 25th percentile of observations avoids the potential effect of skew from any individual result.
- 10.3 Further, where there have been changes in infrastructure, or repeated issues with a specific part of the data set the ODA analysis tool can be filtered to remove sources of data – see, for example, the comments as to paragraph 5.7 below.
- 10.4 Importantly, NR does not use ODA analysis (or indeed the output of any analysis tool) uncritically but as the basis for further consideration. If a particular SRT or headway value suggested via ODA analysis was seen as being affected by other external factors affecting all or a very large batch of the data, this will be addressed via NR's internal review and/or in consultation with operators. As NR explained to GBRf and other operators, and is detailed in Mr Allen's statement, it always checks the results of the analysis against local expertise, or during consultation with operators. NR does not simply use the number produced by the ODA tool as its planning value.
- 10.5 As an illustration of the points made above as to the review of ODAs, the Scotland ODA analysis, read alone, suggested 224 recommended SRT changes. NR's local team carried out an initial review prior to V1 of the Rules (D-59). That review removed or 'cleansed' 50 of the recommendations, and V1 of the Rules included 174 recommendations. This is based on the location-specific experience of the NR planning team, who consider the results of the ODA analysis with what might colloquially be called 'local knowledge.' For example, in some cases a timetable is structured to include allowances and additional time for trains to run under a restrictive aspect. Many of the planned SRTs reflect that structuring, and in a number of those cases the ODA-proposed value did not appear appropriate to use as a planning value in the TPRs, so NR did not propose it as a revision within version 1.0 of the Rules.
- 10.6 For example, following TOC response to the Scotland TPR DRAFT 2018 v1 document, SRTs from Carstairs to Midcalder Jn were challenged by XCTL & TPE. The final ODA generated values were reviewed by NR's Scotland team/TRIP team and the proposed increase withdrawn due to the revised observed values generated being sufficiently different.
- 11 As to Paragraph 5.3

- 11.1 GBRf criticises the ODA data as containing much “additional time” but does not support this criticism with analysis of any individual data sets or values. It is difficult for NR to respond meaningfully other than to repeat the previous section of this document.
- 11.2 In relation to the accuracy of berth offsets, as NR has explained in Mr Allen’s witness statement at paragraph 33.3, the use of berth offsets within the ODA tool is detailed, reasoned, and based on agreed values which are used for many other applications across the rail network. If GBRf has a specific concern over a berth offset which they consider inaccurate, NR has always and will always discuss those concerns. GBRf has given no examples of instances of errors and inaccuracies said to affect the appealed revisions.
- 11.3 In relation to approaches to junctions, NR reiterates its comments in paragraphs 10.2 and 10.4 above: where individual observations are impacted by restrictive signals, these will not skew the overall observed SRT because the 25<sup>th</sup> percentile is taken; where all or a very substantial number of observations are affected by restrictive signals and/or the observed SRT from ODA analysis differs significantly from the planned value, the ODA value is even more carefully checked by reference to local knowledge and expertise.
- 12 In relation to Paragraph 5.4
- 12.1 It is clear which percentile has been applied. GBRf’s Appendix A itself – even without the comments noted as to paragraph 5.1 above - expressly refers to the use of the 25<sup>th</sup> percentile for SRT values and the 15<sup>th</sup> percentile for headway values.
- 12.2 The 25<sup>th</sup> percentile is used to produce the observed SRT value for the reasons explained at paragraphs 45-49 of Mr Allen’s witness statement.
- 12.3 This methodology was not queried at the TPR forums. It could have been raised by GBRf, as it had copies of all the relevant ODA analyses (each of which used the 25<sup>th</sup> percentile for observed SRT values), but was not.
- 12.4 As to GBRf’s complaint that the *‘bulk data analysed has never been supplied’*, NR directs the Panel to the evidence on the data sources at paragraph 33 of Mr Allen’s witness statement.
- 13 As to Paragraph 5.5:
- 13.1 GBRf’s asserted expectation that SRTs are only valid if modelled using output from an “approved modelling system” is not reasonable. The use of either theoretical modelling or ODA is a valid mode of analysis. ODA’s key advantage is the use of mass real-world data.
- 13.2 The speed = distance/time equation suggested by GBRf is not helpful other than as the highest level sense check. It cannot be a substitute for proper analysis and GBRf demonstrates a failure to understand the complexities of the process by proposing this.

- 13.3 Similarly, stopwatch timings, as covered at paragraph 31 of Mr Allen's witness statement, do not provide a robust set of data.
- 13.4 Finally, GBRf argues that physically observed SRTs should fall within a narrow range of values once external factors are removed. This supports the use of the ODA tool (which is of course based on observed values). NR agrees that observed SRTs do generally fall within a narrow range - they are closely grouped around the 25<sup>th</sup> percentile of observations, which is why NR uses that percentile as the observed SRT value. NR can be confident of this value because ODA analysis considers such a very large number of observations.
- 14 As to Paragraph 5.6, rounding up or rounding down is a national and standardised approach as can be seen section 6.4.7-6.4.10 of the National Timetable Planning Rules (Annex / Tab 3 / GBRF / 1557-1558). It is the "normal practice". In any event, NR cannot depart from this standard and agreed practice for individual operators or for individual timetables, such as GBRf.
- 15 GBRf is wrong to suggest that recommendations are out of context when rounding is applied in instances of multiple stopping patterns:
- 15.1 NR does not plan each SRT in isolation, but in the context of the series in which it lies. That context can require adjustments to the SRT as compared how it would be planned in isolation.
- 15.2 For example, without considering context, a series of three SRTs of (1) 2 minutes 12 seconds, (2) 3 minutes 6 seconds, and (3) 4 minutes 12 seconds would individually be rounded to 2 minutes, 3 minutes and 4 minutes respectively. In the context of those three SRTs following one another in a series, however, NR would round up one of those SRTs to give a more accurate SRT for the journey of 9 minutes 30 seconds as opposed to 9 minutes without NR's adjustment.
- 15.3 In the example above, the distance to the next timing point may follow a station, and if so there will be a different SRT for travelling at speed as compared to starting from a stop, which is likely to differ. For example, there may be observed SRTs of 2 mins 12 seconds at speed, but 2 mins 48 seconds from a stopping start. The TPRs contain different planned values for movement at speed and from a stopping start, but only the one SRT for following SRTs. Therefore in the example used the three SRTs (with the first from a stopping start) of (1) 2 minutes 48 seconds, (2) 3 minutes 6 seconds, and (3) 4 minutes 12 seconds would individually be rounded to 3 minutes, 3 minutes and 4 minutes respectively to give a journey time of 10 minutes. On this specific example there would be no need to round up the second or third SRTs. Depending on whether prior SRTs are at speed or from stop, a different 'rounded' value might well be more appropriate for SRTs in the position of (2) and (3) in the hypothetical situation given. NR accepts that this needs an element of human judgment, which is what NR applies in analysing the ODA analysis and output and deciding how to utilise it for the planning values it proposes.

- 15.4 GBRf has not however given reasoned comments suggesting that a different judgment is appropriate in any particular instance challenged in this appeal. If it had, NR would naturally have considered it as part of the consultation process. GBRf's argument appears to be that the ODA tool (or some other tool) can and should address this differently, but provides no counter proposal, no examples of situations that 'should' be assessed differently, and no methodological analysis.
- 16 As to Paragraph 5.7. GBRf's comments are compatible with ODA methodology. It is a good example of the use of "local knowledge" as described above – if a value suggested by ODA analysis looks odd in the context of local expertise as to a specific run, that proposed value can be investigated and only used within the Rules if considered appropriate. For example, in the Scotland ODA analysis (a full list of the relevant analyses, described as 'sprints', is included in appendix 7 of NR's update to the National Task Force as to TRIP dated 14 November 2016 (Annex / File 1 / Tab 2 National Task Force / 126), on the Glasgow to Carstairs on the Scotland Route (Annex / Tab 3 / GBRF / 1455-1553), initial ODA analysis received on HA06.2 (Glasgow Central to Lanark), a half-hourly route, was queried by the NR review team. The local team noted that the initial analysis had used data from services departing at both XX20 and XX50 – and that the XX50 had effectively an unrestricted run, whereas the XX20 was following another service. The local team was able to advise the ODA analysis team to re-run the analysis filtered to only use XX50 data. This is evidenced through version 4 of that analysis (including the xx20 and xx50 services together), emails between Paul Scott (local) and John Rogers (ODA analysis), and version 5 of the analysis (which split the xx20 and xx50 services) (Annex / Tab 3 / GBRF / 1582—1589A) . This split identified a difference in observed values between the two services, which although ultimately immaterial to SRT planning values for that section of the network, demonstrates the careful approach taken by NR in interpreting ODA analysis.
- 17 Accordingly, NR objects to GBRf's conclusion in Paragraph 5.8 that ODA is a "fake science." The witness statement of Mr Allen details the rigorous approach underlying ODA analysis. As NR has explained above, the ODA output is based upon a significant volume of observed information and actual data, which is then reviewed by those with local knowledge before being used to inform planning values within the TPRs.

#### **ODA Methodology - Headways**

- 18 As to Paragraphs 5.9 and 5.10:
- 18.1 NR addresses the calculation of the Planning Headway from paragraphs 39 to 42 and 51 to 53 of the witness statement of Mr Allen, which explains, amongst other things, the outputs for headway values which are graphically represented in the SPA reports, and why the "greater value" is used for planning purposes. This buffer also provides the necessary allowance for signalling and driver response time.

- 18.2 This provides robust headway values, and the methodology has been explained to operators including GBRf on numerous occasions, including through a series of familiarisation sessions of the type described at paragraphs 67 and 68 of Mr Allen’s statement.
- 18.3 NR also addresses the use of berth offset values at paragraph 11.2 above, and in the witness statement of Mr Allen, as referred to above.
- 18.4 However, it should be remembered that the values and graphs they are plotted on are not the final decision or the subject of appeals; they are just used as outputs of a tool of analysis, to inform NR’s proposed revisions on headways. One of the matters NR considers when looking at the results of ODA analysis, especially any proposed change to headway values, is the actual location of the additional signal which adjusts the technical signal reset time to a nominal/planning headway value.

### **Theoretical Modelling**

- 19 From Paragraph 5.11 to Paragraph 5.16, and moving from criticism of ODA analysis to criticism of theoretical modelling, GBRf criticises two specific outputs from two Signal Performance Assessment (“SPA”) reports. None of the specific outputs called out and queried by GBRf has been used to propose revisions to the TPRs. Each output relates to a single geographic area, Kent, for which only four revisions listed in Appendix E (all unrelated to queried outputs) are in issue. These criticisms of isolated products of analysis do not support GBRf’s request that all TPR proposals be removed from the 2018 TPRs.
- 20 As to Paragraph 5.11, NR notes GBRf’s acceptance of the accuracy of the VISION modelling, and, consequentially, its in-principle use of SPA reports as a tool of analysis across the network. NR is confident that the values generated by the VISION model are reliable as all factors have been incorporated into the model in order to generate outputs i.e. Gradient, line speeds, approach controls, rolling stock consists, traction effort, sighting time etc. GBRf has not provided a reasoned criticism of the methodology or inputs, it has merely highlighted what it submits are differences between the model and actual performance. GBRf’s comments as to ‘traction data’ are addressed below by reference to the two examples cited.
- 21 As to Paragraph 5.12, GBRf has never, including in this Dispute, provided data of the alleged “run we undertook on 12 January.” Even if that data were supplied, the examples of specific runs cited are one off examples of real-world data which are, statistically, irrelevant – one observation is not a representative sample. (Indeed, where real world data is used, this shows the need for large amounts of such data, as exemplified in the case of ODA analysis). This is a good example of how citing one isolated observation from one real-world run does not itself undermine the validity of a model.
- 22 Moreover, the specific run referred to is between Sole Street and Herne Hill, on the Faversham-London Victoria route (see page 16 of Appendix B to GBRF’s SRD). This is on route SO110, for which no revisions are appealed in appendix E.



- 23 Further, the values within the Appendix B and Appendix C SPA reports, and the proposed revisions to the TPRs supported by them, were consulted at TPR Forums of 19 January 2017, attended by GBRf (Annex / File 1 / Tab 1 / 76-89). Prior to that TPR Forum, NR had distributed to GBRf the SPA reports containing the graphs highlighted in Paragraphs 5.12 and 5.13.
- 24 More recently, GBRf expressed a concern at a Sussex TPR forum on 15 March 2017 over the traction effort/resistance data used within VISION, for GTR Class 377 rolling stock (that is, of 377 stock operated by GTR), which it considered may have been incorrect. NR has received confirmation from GTR that they are happy with the traction effort data used. (Annex / Tab 3 / GBRF / 1478-1581). In short, GBRf recently raised a specific concern on traction data, and NR investigated this with the outcome being that the actual operator using the stock has confirmed it had no concerns. This is the only example NR is aware of where queries relate to modelling inputs (specifically 'traction data') within VISION that would affect the modelled increase in train speed, and NR has demonstrated how it has investigated that matter.
- 25 As to Paragraph 5.13, GBRf's comments refer to the prior use of the TRATIM model, and output from that model dating from 2000. TRATIM was, for many years, the industry standard model. It has, however, not been widely used, or updated, since 2005. In a situation in which nothing has changed in relation to the network infrastructure, its results should still be useful. But significant parts of the network have changed. Operators have introduced new items of rolling stock which have not and will never be modelled within TRATIM. Such changes over the past 12 years mean that TRATIM is no longer an accurate model for use across the network; indeed, for newer rolling stock, it is literally impossible to use TRATIM as a tool of analysis.
- 26 On the specific section of track referenced by GBRf – Tonbridge to Headcorn, both on SO130 - GBRf has not stated whether it considers that the specific section of track cited has had any changes in infrastructure since 2000, when the model was run. The models NR uses now –including VISION – have the benefit of the extra sourcing of data carried out in the initial phase of TRIP, in 2014. This substantially improved the quality of these models. While it is fair to acknowledge that no model is perfect and each has its strengths and weaknesses, the models used by NR now use better underlying datasets - both in terms of the volume of data, and by being up-to-date.
- 27 If the TTP analyses the specific data put forward by GBRf, the model does not appear to be as "correct" or accurate as GBRf suggests. For example, between Cranmore LP and Saltwood In the TRATIM report says it is 22.1 miles and takes 17.6 minutes ( $0.7 + 4.2 + 4.5 + 6.5 + 1.7 = 17.6$  minutes). This works out at an average speed of 75.34mph which is in excess of the specified maximum speed of the train which says it should be no more than 75mph. This does not undermine the validity of all analysis from TRATIM, but suggests caution in relying on these specific results.

- 28 In that regard, notably, headway revisions on the section of track (SO130) from which this example is taken are the subject of one of the appealed revisions listed in Appendix E. However, in version 2.1 of the Rules, these revisions have now been agreed, and so this revision is no longer in issue. However, further headway revisions have also been agreed with GBRf on this section of track as a result of TRIP modelling. The fact of these agreements leads NR to question why GBRf maintains its strongly worded general objections to the modelling work from TRIP.
- 29 As to Paragraph 5.14, this is correct as a general statement of principle – both headways and junction margins are the amount of time which must elapse between the two train movements for the second train movement not to see a restrictive signal aspect, so, if the model inputs were incorrect/inaccurate, this would affect the accuracy of the model outputs. GBRf has not, and cannot argue that traction is modelled incorrectly. It has given no specifics in this document, and the only specific query which NR can recall either within or outside these proceedings (noted in paragraph 24 above, in response to Paragraph 5.12) confirmed the appropriateness of the existing figure. NR cannot respond to a vague and unsupported assertion of error.
- 30 As to Paragraphs 5.15 and 5.16 the modelled number for a stopping headway can be less than for a non-stop headway, as they are modelled differently. This is to avoid complications with multiple stopping points that would arise if applying the model for non-stopping headways to stopping headways. As a result, GBRf is not comparing like with like. This may be seen as a limitation of the model for a stopping headway – in reality a stopping headway will not be less than a non-stopping headway - but NR understands how the model works differently in respect of non-stopping headways and stopping headways. Any theoretical model has its limitations, including VISION, and that is why NR's judgement as to when to use the model's outputs and when not to use them is critical – NR does not apply values from models that do not sit with real-world experience. This does not make the theoretical modelling or any specific model illegitimate: NR the considers the model outputs and plans accordingly (Annex / Tab 3 / GBRF / 1590-1595).
- 31 Where a stopping headway is modelled and produces a result less than a non-stop headway, NR will not use the stopping headway value. So for examples like Rochester and Sittingbourne called out in paragraph 5.15, the model output would never be used as a stopping headway (and NR confirms it was not used to propose a revision to the headways for Rochester and Sittingbourne in this revision).
- 32 NR also independently tests each result against local knowledge. Values are not put in blindly but assessed on their merits. The fact that individual results from a model may not reflect reality accurately does not stop the model being a useful tool in the majority of cases, where the results do accurately reflect reality.
- 33 NR also consults on individual challenges to headways for operators– for instance that a specific stopping headway value revision supported by the VISION model is unrealistic

because of signal distance from the platform on either side. Again, the fact that NR may determine (after additional information and data is provided by operators) that individual model outputs do not reflect reality accurately does not stop the model being a useful tool in the majority of cases, where the model outputs do accurately reflect reality.

## **Appendix E**

- 34 GBRf introduces Appendix E at Paragraph 6.1(c). This appendix (which is a series of comments drawn from a longer letter dated 23 February 2017 from GBRf to NR, commenting on V2 of the Rules) contains a list of 30 proposed revisions to the TPRs which, NR understands, GBRf seeks to have withdrawn "as their formulation is incorrect". GBRf refers to the particular points made in Appendix E only in passing, and has not explained how those complaints made within it, or any of the 30 revisions themselves (some of which are no longer in issue), relate to the matters complained of in the SRD. Curiously, given GBRf's focus on ODA analysis in the SRD, only three (at most) of the 30 revisions are informed by ODA analysis.
- 35 As far as NR can understand them, many of the appeals are made solely on the basis that a revision is informed by TRIP analysis (that is, either ODA or modelling analysis). GBRf has not sought to argue in Appendix E that specific inputs or outputs of the analysis which informed that revision are inaccurate or unrealistic, nor explained why the revision proposed is, in GBRf's view, inappropriate.
- 36 As such, the TTP could only make the findings that GBRf seeks on the ground that any revision supported by analysis from any theoretical model or from ODA is, per se, "formulated incorrectly". That determination would require complex analysis that GBRf has not provided and it would require a criticism of the underlying models and methodologies that are widely accepted by the operators across the network. Further, GBRf has not sought to provide the TTP (or indeed NR) with any further "points of detail" that would allow the TTP to find that certain revisions informed by ODA or modelling should stand while others require a different direction.
- 37 NR sets out in Annex below its response to GBRf's Appendix E in order to place the individual revisions challenged in their proper context. To the extent that the TTP is not minded to dismiss all of Appendix E on the general basis suggested in the previous paragraph, these individual matters might be usefully dealt with by the TTP under Heads C and D. The TTP is asked to consider this and to give appropriate directions including that any Appendix E matters which remain in dispute after the hearing on 20 April 2017 be dealt with at later hearings for Heads C and D. NR also proposes that it be given the opportunity to set out its case on these matters more fully in the responses due on 26 April 2017 following the 20 April 2017 hearing.

## **Conclusion**

- 38 GBRf states that its main point of contention is NR's use of ODA and its methodology. NR has given a detailed response to GBRf's concerns and hopes that this explains to GBRf and to the TTP the background to the use of ODA a tool within the TPR revision process. NR trusts that this explanation also demonstrates that this tool is robust, appropriate, and widely accepted by other operators.
- 39 NR has also responded to GBRf's concerns over the individual examples of theoretical modelling GBRf introduces at Paragraphs 5.12 and 5.13, and has shown that these do not impact on the validity of theoretical modelling *per se* or any of the revisions in issue informed by theoretical modelling.

## **ANNEX: NR COMMENTS ON GBRf APPENDIX E**