

**OXFORD CITY COUNCIL****CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER 2012****DISCHARGE OF NOISE CONDITIONS AND RAIL DAMPENING****ADVICE**

1. I am asked to advise Oxford City Council (“OCC”) on the interpretation and application of condition 19 (“C19”) of the deemed planning permission (“the 2012 Permission”) granted in conjunction with the Chiltern Railways (Bicester to Oxford Improvements) Order 2012 (“the Order”). C19 provides that operational noise mitigation shall be carried out in accordance with the Noise and Vibration Mitigation Policy January 2011 (“the NVMP”) and that development of each track section (“the Sections”) shall not commence until noise schemes of assessment (“NSoA”) are submitted to and approved by OCC.
2. Under the NVMP, “at source” mitigation is the first preference where it is “reasonably practicable”. Where “at source” measures are not reasonably practicable or sufficient to mitigate significant noise impacts, barriers and then noise insulation are provided for.
3. The issue I have been asked to advise on is whether on a correct understanding of C19 and the NVMP, Network Rail (“NR”) has properly demonstrated that a form of “at source” mitigation namely rail dampening (“RD”) is not RP on, in particular, section H. Resolution of that issue is central to then resolving various procedural issues which have arisen. I am not asked to advise on those procedural issues.
4. I will proceed on the basis that RD may mitigate noise impacts by 2.5dB and that this attenuation is in addition to any other noise mitigation measure. I will also proceed on the assumption that track noise (rather than traction or power on) is the dominant noise source in terms of  $LA_{max}$ .
5. I understand that:
  - a. the barriers have been found to be acceptable in planning and safety terms; have been promoted as “reasonably practicable” and have been constructed;
  - b. much of the noise insulation has been installed (in addition to barriers); and
  - c. the line is now operational.

**Background and Context for the Current Issue**

6. In 2015, NR applied to discharge C19 in respect of Section H. The application was accompanied by the Noise Scheme of Assessment (“NSoA”) for Section H which proceeded on the basis that because RD had not been “type approved” it was not considered to be a practicable mitigation measure. Barriers were thus proposed with residual impacts above 10dB or peak noise above 82  $LA_{max}$  being addressed by noise insulation.
7. Given the terms of C19, OCC correctly questioned whether the absence of “type approval” meant that RD was not RP. It approved the NSOA for Section H (“the Partial Approval”) but imposed condition 2 on it. I am not asked to advise on the legality of the imposition of that condition on the approval.

8. C2 provided that within 3 months of the Partial Approval, proposals for RD were to be submitted and the development was not to be brought into operation until either RD was installed or OCC had provided written confirmation that RD was not RP.
9. The essential point at this stage is that the other measures proposed in the NSoA were approved. They included barriers (see NSoA Fig 5.1) and entitlement to noise insulation for certain properties: p31. It necessarily follows from the Partial Approval of those works that RD was to be considered *in addition to* and not *in substitution* for those works. Otherwise, Partial Approval could not have been granted and NR would have been required to submit a complete new NSoA starting from consideration of RD.
10. I am told that those approved works have been completely or largely carried out. The issue of whether RD is RP under C2 (or C19(12) – see below) remains outstanding.
11. The effect of that history is as follows:
  - a. all the dwellings identified as representative noise sensitive receptors (“NSR”) with a predicted impact of greater than 5dB have in fact been provided with mitigation in the form of noise barriers (see NSoA Scheme H table 5.2);
  - b. for all dwellings which experience a residual impacts (namely the impact after provision of noise barriers) of greater than 10dB or a peak of 82, noise insulation has been (or will be) provided; and
  - c. there is one house which has residual impacts after noise barriers of 3dB but which is not entitled to noise insulation.
12. There are also some houses which, if RD had been provided would have seen their residual impacts drop below 10dB and/or not experienced a peak of 82 – thus meaning that they would secure attenuation from RD of about 2.5dB but not be entitled to noise insulation. Given that noise insulation secures around 10dB attenuation, their noise environment would be significantly worse with RD than with noise insulation.
13. The question now is whether, in all the above, circumstances, it is RP to require RD in addition to the steps already taken<sup>1</sup> in order to achieve the standards of noise mitigation in the NVMP (see: C19(9)).
14. The following points are important to provide more of the context for addressing that question:
  - a. from table 5.2 of the NSoA for most properties assessed the residual impacts in LA<sub>eq</sub> terms (after barriers) are far greater than could be significantly attenuated by RD. With noise insulation, no significant effects to these properties are predicted (see ES page 6-54) and it is not, therefore, clear what significant additional benefit RD could therefore provide;
  - b. for 4 properties the residual impact is 5dB or below. For 3 of these the residual impact is 3dB or less. Under the NVMP impacts of less than 3dB do not fall to be mitigated because the impact is not considered significant; and

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<sup>1</sup> Where noise insulation has not yet been installed, I assume that if RD was RP, entitlement to noise insulation would be removed.

- c. the standards in the NVMP are intended to achieve acceptable internal noise levels – the fact that RD will provide external mitigation whereas noise insulation does not has to be understood in the context of the NVMP aiming to mitigate internal noise.

### **Condition 19**

- 15. The reason for C19 is to ensure that operational noise is adequately mitigated at residential and other noise sensitive properties.
- 16. As noted above, C19 provides that operational noise mitigation shall be carried out in accordance with the NVMP. Development of each Section shall not commence until the NSoA for that section setting out noise impacts and details of proposed mitigation measures have been agreed by OCC – C19(2). The submitted schemes shall show how the *standards* of noise mitigation in the NVMP will be achieved – C19(9). The robustness of the scheme will be verified by a report from an independent expert (“IE”) - C19(9).
- 17. Condition 19(12) covers the situation where Chiltern Railways -now NR – considers that the provision of mitigation measures that would otherwise be required by the NVMP is “not reasonably practicable”. In such circumstances, alternative mitigation is to be considered (and provided) unless that alternative mitigation is not reasonably practicable and there is no suitable substitute. “RP” is the central concept with which we are concerned.

### **Approach to Interpretation and Application**

#### **“Reasonably Practicable”**

- 18. C19 does not define “reasonably practicable”. It is however a well understood term - with ordinary words bearing their ordinary meaning. Here, the NVMP provides some assistance as to the relevant matters to be taken into account in deciding whether something is “reasonably practicable” - it is to be judged having regard among other things to local conditions and circumstances, to the current state of technical knowledge and financial considerations. The list of relevant factors is not closed.
- 19. From the case law it is clear that the degree and nature of the harm has to be weighed against the money, time, trouble and any other disadvantages in avoiding that harm (“the sacrifice”) - the greater the harm, the greater the sacrifice that will be RP to avoid that harm. However one words it the approach is the same: if the sacrifice is disproportionately heavy compared to the harm or the harm is insignificant in relation to the sacrifice or (using language from earlier cases) there is a “gross disproportion” between the harm and the sacrifice, the suggested steps to avoid the harm will not be reasonably practicable. Conversely where the sacrifice is not disproportionately heavy given the harm, the steps to avoid the harm will be reasonably practicable.
- 20. All of this is quintessentially a matter for the judgment of the decision maker with which the Courts will not interfere. The judgment is thus for OCC to reach informed by the Independent Expert and the detailed material provided to it. In that exercise, Webtag will assist but it does not purport to provide a conclusive answer to the RP question and there is a real danger in treating Webtag as providing a “scientific” answer to what is ultimately a question of judgment to be reached on the facts and in context.
- 21. There has been much debate as to whether the benefit-cost ratio (“BCR”) exercise should be a BCR of the whole project, of the complete package of mitigation or of just the RD. Webtag does

not provide a clear answer to that issue<sup>22</sup>. I think the role of Webtag will depend on what it is assessing - and what it is assessing will determine what the BCR is to be of. Here, the scheme and the barriers have been installed. The remaining question for OCC under C2 or C19 is whether RD is RP given the context – given that the noise environment would be x without RD and Y with RD is the cost of installing it disproportionate to the benefits it would bring? Even if I am wrong on this, I do not think it affects the final conclusion for reasons I consider below.

22. I consider that OCC is required to judge the significance of the harm which can be avoided by use of RD and then to assess whether the steps required to avoid that harm are or are not disproportionately heavy in all the circumstances.

#### Approach to Construction

23. The principles on construing and applying conditions apply equally to construing and applying schemes incorporated by reference into those conditions.
24. First, conditions are to be given the meaning a reasonable reader would give to them having available to him only the permission and the documents expressly incorporated by reference into it: see *Carter Commercial v. SSTLGR* [2002] EWCA Civ 1994 in which Arden LJ stated as follows:

***“I start from the position that this planning permission is not to be construed like a commercial document, but is to be given the meaning that a reasonable reader would give to it, having available to him only the permission, the variation, the application form and the Lewin Fryer report referred to in condition 4 in the planning permission itself.***

25. Second, conditions are to be interpreted benevolently and not narrowly or strictly (see Sullivan J in the *Carter Commercial* case in the High Court). This is particularly relevant in the case of the NVMP which requires judgments to be reached at each stage and which is evidently intended to be applied flexibly in the way judged best able to avoid “significant” noise impacts – see below.
26. Third, the overall approach to construction is an objective exercise – based on the natural and ordinary meaning of the relevant words, the overall purpose of the consent, any other conditions which cast light on the purpose of the relevant words and common sense: see Lord Hodge in *Trump International Golf Club Scotland Ltd v. Scottish Ministers* [2015] UKSC 74 at [34]. I rely heavily on this formulation. The application of common sense and judgment here is, I think, particularly important given the wide range of potential circumstances which the condition covers, the range of impacts predicted, and that the most appropriate way of mitigating the impacts, is not capable of being, and is not, precisely defined in the conditions.
27. Fourth, the application of conditions will often require the application of judgment: see e.g. *Greaves v. Boston Borough Council* [2014] EWHC 3590 (Admin) at [37]. In that case, the condition left certain matters unspecified but the gaps could be appropriately filled by the judgment of those called upon to implement it. So here, where a strict application of an “at source first” approach would result in significant residual impact which the conditions as a whole would not further mitigate, judgment and commonsense will be a useful guide.

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<sup>22</sup> Although I note that the BCR of 0.24 to which ARUP refer is a BCR of a particular piece of mitigation and not of the whole HS2 (including that mitigation).

28. Fifth, where judgments are required to be made, they are for the decision maker to make weighing up all the relevant factors and following the staged process of reasoning required by the conditions.
29. All those principles strongly indicate that the NVMP is not to be construed and applied mechanistically as if it creates a straitjacket for decision making but rather as a practical document to be used to guide appropriate judgments as to what form mitigation should take and what extent of mitigation should be secured in all the circumstances with a first preference for at source measures (for, broadly, the reasons given by ARUP), then barriers and if necessary noise insulation.

### **The NVMP and the ES**

30. The NVMP refers extensively to, relies on and develops concepts from the ES. It is appropriate to start the analysis from the ES.

#### The ES

31. The ES states that “where noise, predictions show a potential for *significant* impacts, mitigation measures are set out”: ES para 6.1 p6-1.
32. The ES has a detailed scheme for assessing *significance* – in a hierarchy of impacts.
33. First, predicted train noise below the noise impact thresholds (55  $L_{Aeq\ 16\ hrs}$  day and 45  $L_{Aeq\ 16\ hrs}$  night) are “never significant” – ES Chp 6 p. 6-6; and NVMP para 2.3.
34. Second, where train noise is above these noise impact thresholds but below the noise insulation trigger levels (66  $L_{Aeq\ 16\ hrs}$  day and 61  $L_{Aeq\ 16\ hrs}$  night) the increase above ambient is assessed in accordance with table 6.3 (ES: p6-5) with the significance of the impact categorised as no impact (0), slight (less than 3dB), moderate (3dB – 5dB), substantial (5 – 10dB) or high (greater than 10dB) impact.
35. Third, where the noise levels are above the noise insulation trigger levels and exceed the ambient by 1dB or more, noise insulation is triggered.
36. Fourth, if the peak “instantaneous” noise regularly exceeds 82dB, that is treated as significant and the need for noise insulation is triggered.
37. We are principally concerned with the second category and I focus on that. Within that, mitigation is only proposed for “substantial or high” impacts: see table 5.2. I interpolate that moderate (less than 5dB) and slight (less than 3dB) impacts were not, at that stage, judged “significant”. Had they been judged to be significant in accordance with para 6.1 mitigation measures would have been set out. This appears to be confirmed by the following text: “areas rated as having no impact or where impacts have been rated as slight or moderate in this assessment are not considered suitable locations for further location specific mitigation given the potential disbenefits.
38. It is recognised that although some change in noise level may occur in these areas as a result of the Scheme (as presented in table 6.12 and table 6.13) they are either “small changes in noise level, or the noise from the railway is unlikely to be loud enough to cause a significant disturbance.” [ES:6-47]. The ES does not therefore propose any mitigation for premises in the 3 – 5dB (moderate impact) category it having been judged at that time that any mitigation over and above standard at source measures (namely those measures referred to in the ES at para 6.5.1 page p6-47 which exclude RD) was not justified given that the noise impact was unlikely to be

sufficient to cause a “significant disturbance”. The important point is that dwellings suffering 5dB impact *no mitigation at all* was proposed.

39. The ES goes on to explain that where, but (I interpolate) only where, “further measures are required in addition to those that are inherent in the Scheme’s design and operation procedures, a range of mitigations may be appropriate including” rail dampers, reflective barriers, absorbent barriers, double glazing or full noise insulation: ES6-48.

40. The ES goes on:

***“During detailed design the first option will be to mitigate noise using infrastructure based mitigation which has the advantage of providing noise control at source. Following this, the introduction of noise barriers will be considered. Noise barriers are a widely used method of mitigating noise from the railway. However, noise barriers can also create a number of disbenefits depending on local conditions [these are then set out].***

***Given these inherent issues, it will be necessary to decide, in each location, whether the noise attenuation benefit of a noise barrier compares to the disbenefits it will create. This judgment should be based on local circumstances, but in general Chiltern Railways do not consider it appropriate to mitigate noise impacts of less than 5 to 7dB by the use of noise barriers. Where substantial or high noise impacts are likely, the benefits of noise barriers are increasingly likely to outweigh the dis-benefits as the noise impact increases in magnitude.”***

***Other infrastructure based mitigation solutions, such as rail dampers, will also be considered where appropriate. Possible locations for these are where it is likely that barriers will not provide an effective mitigation solution and in other cases (such as tall properties close to and overlooking the railway) where barriers may not offer effective screening to the upper floors.***

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***Noise insulation will reduce internal noise levels within eligible rooms...but it does not provide a total solution to a predicted noise impact because it can only mitigate noise levels inside the property and it can be restrictive in use. If noise barriers or other infrastructure solutions are likely to be cost-effective, these will be chosen in preference to noise insulation.”***

41. The relevant measures applying that approach are then identified and table 6.22 identifies those receptors at which residual noise impacts greater than moderate are predicted [6-50].

42. Table 6.22 of the ES thus highlights those receptors where residual noise impacts “greater than moderate” are predicted.

***“The feasibility of a noise barrier has been considered in each case....It should be noted that in some cases a different infrastructure solution may be adopted if it proves to be more appropriate, and the noise barriers shown are intended to give an example of the level of mitigation that will be achieved....***

***Where noise barriers are not likely to be appropriate, an explanation is offered. Residual impacts have been predicted based on the likely performance of a 2m high barrier.***

***Other infrastructure mitigation will also be considered at each of these locations and an appropriate solution chosen following a detailed study taking into account practicability and acoustic performance.”***

43. Tables 6.22 and 6.23 show the application of these principles in practice.
44. Those residual impacts then lead to a consideration of “Further Noise Mitigation Measures”. “Some of the properties close to the railway may experience residual noise impacts that are classed as “high”. These locations will be considered for non-statutory noise mitigation which is likely to take the form of noise insulation... Noise insulation packages, where provided, will create acceptable internal levels but some residual impacts to external/garden areas may remain. At other receptors where the impact is less than high, further mitigation will not be provided and the residual impacts are discussed in Table 6.22.”
45. At this point impacts that are “moderate or greater are classed as significant”.

### **The Inquiry**

46. I have not seen how all the iterations of the various documents as the Order progressed. However NR’s position was that “the [NVMP]... defines a significant noise impact as being at or above 3dB which defines the point at which mitigation will be considered”: see para 3.2.7 of Addendum Report to the Secretary of State. I assume that this is a reflection of the provisions of para 2.4 first bullet of the NVMP (see below).
47. I will proceed on this basis – and assume that the identification of “significant” is thus 3dB or above.
48. The continuing significance of the ES is that the ES was only seeking to mitigate impacts above 5dB. For that level of impacts, under the NVMP (see below) NR had a choice as to whether to use “at source” measures or barriers. It was not required to provide “at source” first. NR chose barriers. Those barriers have been implemented. In many cases they are anticipated to be highly effective in reducing residual noise impacts. They are now part of the factual circumstances in which the current issue on RD has to be considered.

### **The NVMP**

49. The purpose of the NVMP is to set out the approach to mitigation of noise from operation of the railway – “based on the commitments made in the Environmental Statement” (para 1.4) which “outlines, where necessary, appropriate mitigation measures” (para 1.6 last bullet). The detailed design will require “refinement of the mitigation following the principles set out in this policy” (para 1.7) to ensure that “the residual noise effects at any location are no worse than those reported in the [ES]”. I note the centrality of the ES to the approach in the NVMP and that the mitigation which the ES provides for is specifically adopted in the NVMP. The NVMP is not seeking to change the commitments in the ES but to refine the mitigation set out there in accordance with the principles in the NVMP. The NVMP therefore has to be understood in the light of the approach in the ES and in particular its approach to barriers above 5db and to noise insulation where there are significant residual impacts.
50. Paragraph 2.2 sets out the overarching approach:

***“The Promoter is committed to using Best Practicable Means to design the railway so as to avoid significant noise....impacts at existing sensitive receptors.... The first***

***preference will be to apply necessary noise control measures at source where this is reasonably practicable. These may include rail dampening or other infrastructure measures to reduce noise at source. Where this is not reasonably practicable or sufficient to mitigate significant noise impacts, the Promoter will:***

***51. where they are effective and reasonably practicable to install , provide noise barriers..., and***

***52. after considering all practicable mitigation measures that can be taken at source...including noise barriers... offer noise insulation to properties where residual noise impacts on sensitive receptors remain high.”***

53. The noise thresholds are then summarised. Para 2.4 goes on:

***“Where train noise is predicted to be above either of these thresholds but where the level is still less than that set out in the Noise Insulation Regulations, the Promoter will provide mitigation to reduce the adverse impacts of noise. These will vary according to the extent to which train noise levels exceed the threshold levels and the extent to which the overall noise is increased above the existing or ambient noise level, as follows:***

***54. Exceedances of 3dB or greater and increases of 3dB or greater, - mitigation at source through rail infrastructure solutions will be implemented where reasonably practicable.;***

***55. Exceedances of greater than 5 and up to 7dB and increases of greater than 5dB and up to 7dB - at source and/or in the form of noise barriers if reasonably practicable and have no other negative effects;***

***56. Exceedances of greater than 7dB and increases of greater than 7dB - at source through all rail infrastructure solutions and where these cannot be reasonably practicably achieved, noise barriers will be provided where reasonably practicable.***

***These standards are consistent with those applied in the [ES] where noise mitigation is considered at source for impacts that are greater than 3dB and in the form of noise barriers for impacts above a minimum of 5dB....The noise benefits of noise barriers are more likely to outweigh the disbenefits where the noise increase is above 7dB. “***

57. The text then goes on to assess residual impacts and the provision of noise insulation (paras 2.5 – 2.7).

58. Paragraphs 2.2 and 2.4 have to be read in context (including the ES) and as a whole. NR is committed to using the Best Practicable Means (which incorporates “reasonably practicable” – see footnote) to design the railway so as to avoid *significant* noise impacts. There is no commitment or obligation to remove all noise impacts. Impacts less than 3dB are not judged to be significant. What is the “best practicable means” will be impacted by a very wide range of factors.



59. The first preference is at source mitigation where reasonably practicably (notably including rail damping). There is no suggestion that At Source will always trump other mitigation or that irrespective as to the overall package, At Source always has to be included if RP (see below).
60. Conversely, there is no suggestion at this stage that rail dampening is ruled out as not being reasonably practicable. “At source” is however much wider than just RD – see para 39 above. Below 5db, “at source” is all that will be offered – barriers will not even be considered.
61. “Where [At Source] is not reasonably practicable or sufficient to mitigate significant noise impacts” NR will provide noise barriers (if RP), and “after considering all practicable measures that can be taken at source” (including barriers) offer noise insulation where impacts remain high.
62. Whilst the wording is far from perfect, the overall structure is tolerably clear (applying the principles on interpretation of conditions set out above) and when the NVMP is read fairly and as a whole in its context:
  - a. the aim is to avoid *significant* noise impacts. This does not require all impacts to be eliminated but to reduce noise impacts so far as RP to ensure residual impacts are not significant;
  - b. the measures vary according to the extent of exceedance/increase – this is a function of the fact that the higher the impact, the greater the need for physical barriers to the noise reaching the sensitive receptor and the less likely that mitigation at source will be able to sufficiently reduce the impacts;
  - c. “At Source” is preferred but where it is not sufficient to mitigate significant noise impacts or not RP, other measures will be considered – there is no suggestion that if not sufficient At Source has to be used first and then additions to it provided;
  - d. impacts below 3dB are not significant and no mitigation will be provided;
  - e. below 5dB the only mitigation to be considered (if RP) is At Source. There is no requirement to consider barriers. In other words, these levels of impact do not justify the cost and disbenefits of barriers;
  - f. between 5 and 7dB, NR has a choice between barriers and At Source. Plainly that choice will be influenced by whether just one of them is sufficient to mitigate significant noise impacts. If just one of those options would provide adequate mitigation, para 2.2 and 2.4 cannot be construed as requiring both to be provided;
  - g. above 7dB, the wording is confused but the overall intent is plain – the higher the impacts the more likely it is that noise barriers will be RP despite their drawbacks; and
  - h. where barriers do not provide adequate mitigation and the residual impact is still high (greater than 10dB or 82) to provide noise insulation *to avoid significant noise impacts* - in other words in an attempt to get the residual impact down below 3dB. I do not see how provision of RD in place of noise insulation which would result in a residual noise impact which is still significant, is consistent with the primary aim of “avoiding” significant noise impacts”.

### **The Current Arguments**

63. As I understand it, NR has reapplied for discharge of C19 for Section H on the basis that RD is not “reasonably practicable”. Its argument has two central, and potentially, independent, limbs which can be shortly summarised as follows:
  - a. it says that because of the magnitude of unmitigated noise impacts, RD alone is not sufficient to avoid significant noise impacts and to reduce impacts to the levels

anticipated in the NVMP and the ES. It therefore says that barriers will be required in any event and that those barriers will be sufficient (in most cases) to secure less than significant residual impacts. In some cases, barriers would not be sufficient but neither would barriers plus RD and thus noise barriers and noise insulation would be required instead. It says that provision of RD would have a significant disbenefit in those latter cases because it would, in theory, disentitle some residents to noise insulation which delivers much greater noise attenuation than RD; and

- b. RD is not RP. In terms of finances, using Webtag, NR has assessed a BCR of about 0.35 for the RD taken in isolation from the wider scheme. It says that there is no alternative to use of Webtag, that its approach to looking at the costs and benefits of RD in isolation from the wider scheme is appropriate and that in the circumstances (limited residual noise impacts and noise attenuation) the financial costs mean RD is not RP. All these assumptions are in dispute. RP is more than just about finances. It says that the “local circumstances” component of RP includes the fact that other mitigation has already been provided and must be taken into account in the RP analysis for RD.
64. If either or both of those arguments are correct, it would follow that RD would not be required irrespective, NR says, of the NVMP’s first preference for “at source” mitigation.
65. I think NR is correct on a.. For impacts above 5dB, NR could choose barriers if RP. They have been provided. They are an essential part of the context for now considering RD. Noise insulation will, as I understand it, mean that all significant LA<sub>eq</sub> impacts are avoided. Provision of RD in place of noise insulation, conversely, would not avoid significant noise impacts. Dwellings promised noise insulation would fall out of entitlement to it because their residual impacts would be less than 10dB or the peak less than 82dB. The resulting noise impact they would experience would thus be far worse than if RD was not provided. If those facts are correct, I can find no support in the NVMP for requiring NR to take steps which would not achieve the objective and would result in a worse residual situation than that anticipated in the ES. It is only if one treats the At Source First approach as an inflexible obligation irrespective as to context or outputs that RD could be required. I therefore do not think that it is necessary to address b. above.
66. In any event, I think NR’s approach to RP is broadly correct. It is for OCC to judge whether applying that approach in the current context, RD is RP. That will require identifying what significant benefits it will achieve, what harm it will cause (including to those who will lose entitlement to noise insulation) and then to weigh that against the costs. The Webtag figures, on NR’s approach, are not in dispute – at about 0.35 BCR. That is far lower than would *normally* be expected (although as already noted the 0.35 has to be understood and applied in its context – what is it measuring). Standing back, OCC needs to consider whether the number of houses which will gain internal benefits and the quantum of those gains (including not having to close windows in summer) outweighs the costs.

**Issue A: Need for Barriers and Noise Insulation anyway to “avoid significant effects”**

**Table 5.2 of the Section H NSoA**

67. The ES identified representative Noise Sensitive Properties (“NSR”) for assessment (numbered as “ES/no.”). The NSoA uses those and other properties for which assessments were undertaken during the public inquiry (numbered as “PI/no.”) to assess impacts and define mitigation. In addition for the purposes of defining the start and end point of mitigation measures needed for the NSRs (in particular barriers), the NSoA has assessed some further properties (numbered as

“SoA/no.”). Because the ES NSRs were selected on the basis that they were representative of the most exposed properties I will first use them for considering the issues which now arise.

68. In Section H there were 3 NSRs in the ES – ES14 Lakeside (a property on Lakeside backing on to the line); ES15 Wolvercote Primary School and ES16 St Peter’s Road (the large home immediately adjoining the line) as shown on ES fig 6.1N – O. By the time of the NSoA the numbering had changed but from it, I understand that for the most exposes houses in Lakeside, the unmitigated impact was up to 11dB ( $L_{a_{eq}}$ ) and for St Peter’s Road, 17dB. Barriers were therefore obviously required. Fig 5.1 shows the extent of those barriers. They are provided in all areas where unmitigated impacts greater than 5dB were predicted and of a sufficient length to achieve the maximum possible attenuation to the NSR (as subject to detailed modelling). The result is that those barriers also provide attenuation for other properties.
69. After barriers, there are a number of houses which experience high residual effects – in the range of 11 – 17dB. Noise insulation will be provided to them. I will only consider the non-statutory – so those with residual impacts of 11 – 12dB. If RD is provided and on the 2.5dB attenuation assumption all would fall below 10dB impact and thus fall outside entitlement to noise insulation using the 10dB criteria. Several of those would also fall outside entitlement to noise insulation on the 82dB criteria<sup>3</sup>. All those houses would therefore experience a far worse noise environment internally with windows closed if RD was adopted and “significant” impacts to them would not be “avoided”. If these facts are right, then RD would not be “sufficient” with barriers to avoid significant impacts but barriers with noise insulation would.
70. Arup says that “all else being equal”, RD should still be applied. I agree but “all else” is not equal. Application of RD *removes* entitlement to noise insulation from a number of houses and makes their noise environment (windows closed) significantly worse. ARUP’s response to the disbenefit is that the same could be said of other mitigation measures being proposed - with the inference that one would always end up undertaking noise insulation in preference to other steps. That is to take the argument in isolation from the facts. Of course, C19 would not allow one to jump straight to noise insulation but where barriers are correctly chosen and RD would not be sufficient to mitigate the residual effects, I cannot understand why the disbenefit and the consequent failure to achieve the basic objective (avoid significant impacts) does not mean that noise insulation is required and RD is not.
71. I accept that there are two gaps in this logic:
- a. On my understanding of the data, the application of this approach leaves one house experiencing 5db residual impact (with no entitlement to noise insulation). RD would benefit it and avoid significant noise impacts to it (and the BCR question may be triggered in respect of that house); and
  - b. The impact of open windows in summer. With noise insulated windows open, the benefit is reduced and RD would marginally (2.5db) improve the situation. If OCC consider that this scenario is more important than the periods when windows are likely to be closed then I accept it would be necessary to move on to the BCR question.

**Issue B: BCR**

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<sup>3</sup> Assuming as I do that the 2.5db attenuation would also apply to LA(max) as appears to be claimed.

72. I have not attempted to analyse the BCR information in detail. I have made general comments above.
73. In the RP balance, the actual benefits to be judged are “internal” because that is what the NVMP focusses on. Those benefits are to any house which would avoid a significant noise impact if RD is used or if the severity of the impact is reduced. This would include consideration of the open window point. The significance of the residual impacts would also be highly important – noting that the ES considered that less than 5db was not significant and the accepted norm that a 3db difference is at the margin of perceptibility. OCC would have to consider what importance they attach in planning terms to 2.5db attenuation of what is already a relatively minor impact. The Webtag values are one way of assessing those benefits but the methodology covers also much higher impacts.
74. On the disbenefits side, would be the fact that for a number of houses their noise environment would be worse. The costs of RD are broadly agreed.
75. I have seen nothing to suggest there is a modelling alternative to Webtag for present purposes; all parties agree it is an appropriate model to use as part of the RP exercise. Given the current circumstances I think the BCR is just of RD being applied in the context of the barriers already provided and any noise insulation already installed/committed to.
76. I accept that a BCR of 1 is not determinative. What BCR is appropriate on the facts is a matter for judgment. I can understand that a BCR of less than 1 may be justified where the impacts are very significant and unacceptable absent mitigation. Sometimes very expensive measures are required at the planning stage to make a scheme acceptable. That is not the situation here. OCC will therefore need to assess if a BCR of 0.35 for just RD indicates that RD is or is not RP in all the circumstances – including the severity of the residual impacts.

### **Summary of Advice**

77. C19 and the NVMP has to be applied with judgment and in a commonsense way. I cannot read the NVMP as always requiring At Source first irrespective as to the facts, the context and the efficacy of the various options. Where At Source will not be sufficient to avoid significant impacts or where other measures are already being provided, then the NVMP does not require At Source if other measures will achieve the objectives.
78. On that approach, and given the current circumstances, NR’s approach to the application of the NVMP is permissible (and I think correct). On that approach, the potential role of RD for section H is very limited. This is before one gets to the RP/BCR question.
79. At the BCR stage, the issue is one for the judgment of OCC informed by, but not dictated to, by Webtag. The context, the severity of the impacts and the scale of the benefits and to how many people are the crucial elements. If, as I think is the correct approach, the BCR of RD is to be assessed from the starting point of the implemented Partial Approval, the RD serves to mitigate open window noise from those who have noise insulation and reduces one house from 5db to less than 3db; whilst removing entitlement to noise insulation from any who have not yet had it installed.

### **Train Number and Timing Assumptions**

80. The NVMP defines the train number and timing assumptions (para 1.8 – 1.9). Para 1.10 provides that the noise mitigation will be designed based on those assumptions.

81. NR omitted some cross-country services from its assessment – see para 11 of Appx 24 to the June 2015 report to committee on vibration. Given that those services are not included in the NVMP, its approach appears justified and consistent with the approach at the Inquiry.
82. Objectors complain that NR has plans for major increases in usage of the line in the future (in addition to those assumed in phase 2B). There are two issues here: (1) is the growth in trains from phase 2B to be taken into account in current modelling; and (2) is further possible growth to be assessed under C19?
83. The answer to (1) is clearly yes. This is for the simple reason that that is what the NVMP provides. I cannot tell from table D2.7 of Annex D to the NSOA for Section H whether this has been done (although I have been told that the assessment assumes phase 2B).
84. The answer to (2) is more complex. The NVMP does not require the assessments to address any such future increase and defines the assumptions to be made. It therefore follows that in discharging C19, future possible growth in train numbers is not required to be modelled.
85. That, though, may not be the full answer. Given that no condition limiting the number of trains was imposed on the Permission, NR could increase the number of trains on the line without being in breach of any condition. However, the ES assessed the then predicted number of trains. It did not assess or propose mitigation for a far higher number of trains (and therefore potentially higher impacts). I will proceed on the basis that there may in the future be a “project” to increase the number of trains which does not require further engineering works. Under the current permission there would be no requirement to seek a further consent. However, there is an argument that if the effect of the “project” is to arguably cause additional significant environmental effects, NR could not carry it out without an ES. This issue though does not arise at this stage and I say nothing further on it.

David Forsdick QC

27<sup>th</sup> January 2017

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