

# M25 junction 10/A3 Wisley interchange TR010030

## 9.144 Applicant's comments to RHS's Submission

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# Infrastructure Planning

## Planning Act 2008

### The Infrastructure Planning (Examination Procedure) Rules 2010

## M25 junction 10/A3 Wisley interchange Development Consent Order 202 [x ]

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### 9.144 Applicant's Comments to RHS's D11 Submission

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# 1. Introduction

1.1.1 This document sets out Highways England's comments to several of Royal Horticultural Society's Deadline 11 submission.

- **REP11-036** - Table showing comparisons of REP10-032 with REP10-004
- **REP11-035** - Response to REP8-040 and REP10-003 (South Facing Slips)
- **REP11-034** - Response to REP10-004 (Journey Times)
- **REP11-039** - Appendix 1 – DMRB guidance LA115 (Habitat Regulations Assessment) dated January 2020 (referenced at 4.3.2)
- **REP11-040** - Appendix 2 – Table A – In combination Impacts - HE REP10-007 corrected by RHS (referenced at 4.3.3)
- **REP11-041** - Appendix 3 – AQC note (references at 4.3.3)
- **REP11-043** - Appendix 5 – Baker Consultants Ltd's Figure 2 (referenced at 4.4.2, 4.4.3, 4.4.5)
- **REP11-044** - Appendix 6 – Baker Consultants Ltd's Figure 3 (referenced at 4.4.3, 4.4.5)
- **REP11-042** - Appendix 4 – Baker Consultants Ltd's Figure 1 (referenced at 4.4.3, 4.4.5)
- **REP11-045** - Appendix 7 – Baker Consultants Ltd's Figure 4 (referenced at 4.4.3, 4.4.5)
- **REP11-038** - RHS Response to HE-NE-SWT responses to ExQ4
- **REP11-051** - Further report of Jeremy Barrell concerning trees
- **REP11-052** - Plan referred to in further tree assessment
- **REP11-037** - RHS Response to REP10-003
- **REP11-047** - Heritage Report of Chris Miele of Montagu Evans

1.1.2 Where issues raised within the submission have been dealt with previously by Highways England, a cross reference to that response or document is provided to avoid unnecessary duplication. The information provided in this document should, therefore, be read in conjunction with the material to which cross references are provided.

1.1.3 In order to assist the Examining Authority, Highways England has not provided comments on every point made by the Interested Parties, including for example statements which are matters of fact and those which it is unnecessary for Highways England to respond to. However, and for the avoidance of doubt, where Highways England has chosen not to comment on matters contained in the response, this should not be taken to be an indication that Highways England agrees with the point or comment raised or opinion expressed.

## **2. Highways England's comments to RHS's submission on Highways and traffic impacts**

### **2.1 Response to REP8-040 and REP10-003 (South Facing Slips) [REP11-035]**

- 2.1.1 To place REP8-040 in context, Highways England presented further information regarding the traffic modelling of a hypothetical addition of south-facing slips roads on the southern side of the A3 at Ockham Park junction at the request of the Examining Authority (ExA) in its Rule 17 letter dated 3 April 2020. The south-facing slips roads are not a part of the scheme or required as mitigation.
- 2.1.2 Highways England is not downplaying the importance of south facing slips at Ockham interchange as referred to in paragraph 2.1; in 2022 the slips are forecast to be in little-use. The numbers quoted in REP8-040 Table 4.1 relate to an event day at RHS Wisley and are not forecast to exceed an average of two vehicles per minute during the busiest evening peak hour.
- 2.1.3 Reference is made in paragraph 2.2 of the benefit that south facing slips would bring to Ripley regarding Wisley Airfield Development related traffic. However, it must be remembered that north facing slips at Burnt Common are the required mitigation for this development, as outlined in paragraph 7.2.1.3 of the Joint Council Local Impact Report [REP2-047] which states that "*As can be seen from the Guildford Local Plan section, there is a long-term solution to the traffic and environmental issues in Ripley High Street from the Local Plan growth through the provision of the Burnt Common slip roads.*"

### **2.2 Table showing comparisons of REP10-032 with REP10-004 [REP11-036]**

- 2.2.1 RHS have incorrectly reproduced some of the Highways England journey times in their table for journeys from RHS Wisley to the M25 as follows:
- From RHS Wisley to both M25 west and east, AM and PM peaks: Journey times are transposed, i.e. journey time to M25 west are those for journeys to M25 east and visa-versa.
- 2.2.2 Importantly, Highways England maintains that the modelled journey times used for the assessment of the DCO Scheme are correct.

### **2.3 Response to REP10-004 (Journey Times) [REP11-034]**

- 2.3.1 Highways England maintain that the so called RHS Alternative is not a valid alternative to the scheme. It has been assessed and discounted at an earlier stage of the Scheme's development (see answer to the second written questions in REP5-015 Q 2.13.10).

- 2.3.2 Highways England disagree with the statement in para 3.6 of REP10-004 that the DCO Scheme will have significant negative socio-economic impact. Highways England has estimated that the scheme will generate very significant positive economic benefits, indeed the total Present Value of Benefits (PVB) of the DCO Scheme for all users to be £388,540,000 at Level 1\* and £439,885,000 at Level 2 (see answer to the fourth written questions in REP10-004 Q 4.12.5).

### **3. Highways England's comments to RHS's submission on Air quality and Biodiversity**

#### **[REP11-039, REP11-040, REP11-041, REP11-043, REP11-044, REP11-042, REP11-045, REP11-038]**

- 3.1.1 The information provided by RHS at deadline 11 does not provide any fundamentally new issues with regards to air quality impacts on the SPA, and Highways England will attempt to provide a concise response, minimising the repetition of points of previous discussion.
- 3.1.2 There are two broad areas that RHS have challenged in their deadline 11 submissions with regards to biodiversity:
1. A suggestion of an overlap between the SPA enhancement areas proposed by Highways England as part of the suite of compensatory measures and the draft Surrey Wildlife Trust Wisley and Ockham Commons management plan [REP10-009];
  2. Air quality in relation to the established woodland buffer and its potential to result in an adverse effect on the integrity of the SPA as a result of changes in invertebrate resource.
- 3.1.3 Highways England will provide a summary response to these two areas, but will not be responding to every point that RHS have included in their submissions.
- ### **3.2 The suggested overlap between the SPA enhancement areas proposed by Highways England as part of the suite of compensatory measures and the draft Surrey Wildlife Trust Wisley and Ockham Commons management plan [REP10-009]**
- 3.2.1 This has been raised by RHS in their deadline 11 submissions REP11-038 (4.4.3, 4.4.5), REP11-042, REP11-043, REP11-044, REP11-045 and REP11-046.
- 3.2.2 The suite of compensatory measures are additional to the management undertaken or planned by Surrey Wildlife Trust for the Ockham and Wisley Commons SSSI component of the SPA.

- 3.2.3 As set out in Annex B [REP4-016] and Annex C [REP4-017] of the HRA, the suite of compensatory measures were designed under consultation with key stakeholders, including Natural England and Surrey Wildlife Trust.
- 3.2.4 As explained in Point 11 on page 17 of Highways England's comments on RHS's deadline 3 submission [REP4-005], the current management plan for the Ockham and Wisley Commons SSSI component of the SPA is to maintain existing areas of heathland, rather than creating new areas of heathland by removing additional areas of the coniferous woodland buffer.
- 3.2.5 The Surrey Wildlife Trust issued an email to Atkins Ltd on the 8th July 2020 in relation to RHS's deadline 11 submission. The following four points are taken directly from that email:
1. *"The management plan was written in 2009/10.*
  2. *The tree felling and thinning works within that plan which their consultant is basing their analysis upon were carried out in the late 2000's and early 2010's. Both the thinning and felling works were completed then.*
  3. *The works that have been designed as part of the DCO proposal are in addition to those previously delivered management plans works. i.e. Natural England, the Forestry Commission, Atkins, HE, RSPB and SWT met to discuss the future works and how they would go beyond the scope of the work already delivered in the management plan. We made that clear to the consultant in an email of the 12th February 2020.*
  4. *We will be producing a new management plan for the site that will deal with the areas outside the red line boundary (and associated mitigation and compensation areas). The works that are proposed by HE will be funded by them and we believe will deliver genuine improvements for the SPA species."*
- 3.2.6 Therefore, the thinning and felling works within the Wisley and Ockham Commons management plan [REP10-019] were completed in the early 2010's, with no further works proposed for the remainder of the management period (2010-2020). It was confirmed by Surrey Wildlife Trust and Natural England that the proposals for the SPA enhancement areas fall outside 'normal practice' and would not have occurred as part of the existing management of the SPA (Item 4.0 of the meeting minutes of 16 March 2018 in the HRA Annex B consultation report [REP4-016] and Item 3.2.8 of the SOCG between Highways England and Natural England [REP8-022]). Therefore, regardless of RHS's detailed commentary on a management plan that was written in 2009, Highways England and the ExA can be absolutely certain that the suite of compensatory measures fall outside the management proposals for the Ockham and Wisley Commons SSSI component of the SPA.



### **3.3 Air quality in relation to the established woodland buffer and its potential to result in an adverse effect on the integrity of the SPA as a result of changes in invertebrate resource**

3.3.1 This has been raised by RHS in their deadline 11 submissions REP11-037 (paragraphs 9-15) and REP11-038 (4.4.2, 4.4.11, 4.4.12 and 4.4.13)

3.3.2 Throughout the DCO examination period, RHS have provided submissions repeatedly with regard to air quality and the SiAA, and RHS have continued to do so at deadline 11.

3.3.3 Highways England have already responded to the RHS's submissions with regard to air quality impacts on the SPA in the following responses:

1. Applicant's comments on written representations [REP2-014] (responses REP1-038-4, REP1-038-5, REP1-038-6 on pages 80-83);
2. Response to RHS comments on air quality [REP2-022];
3. Written summary of oral case for ISH2 [REP3-009] (agenda items 4 and 5 on pages 21-28);
4. Applicant's comments on RHS's Deadline 3 submission [REP4-005] (points 8-13 on pages 7-21 and REP1-038-4, REP1-038-5, REP1-038-6 on pages 33-39, and section 5 on pages 43 to 57);
5. Applicant's response to RHS's Deadline 4 submission [REP5-015] (points 6-9 on pages 6-8);
6. Revised nitrogen deposition rates within the Thames Basin Heaths SPA [REP5-024];
7. Applicant's comments on RHS's Deadline 5 submission [REP6-010] (sections 3 and 4 on pages 8-15);
8. Applicant's comments on IP responses to ExQ2 [REP6-013] (2.3.2 and 2.3.4 on page 5);
9. Applicant's response to ExQ3 [REP7-004] (3.4.3 on pages 14-17);
10. Applicant's comments on RHS's Deadline 6 submission [REP7-008] (section 2.2 on pages 5-13 and Appendix A on pages 19-21);
11. Applicant's comments on RHS's Deadline 7 submission [REP8-045] (3.1.2 on pages 6-7 and 4.1.2, 4.2.1, 4.3.1, 4.4.3, 4.4.4, 4.5.1, 4.5.2, 4.5.4, 4.5.3 and 4.5.4 on pages 8-16);



12. Applicant's comments on IP responses to ExQ3 [REP8-047] (3.4.2 on pages 28-29 and Appendix C on pages 62-66);
13. SOCG between Highways England and Natural England [REP8-022];
14. Applicant's comments on RHS's Deadline 8 submissions [REP9-003] (Section 4 on pages 7-10);
15. Applicant's comments on Deadline 9 submissions [REP10-003] (Sections 4 and 5 on pages 6-9);
16. Applicant's comments to ExQ4 [REP10-004] (Response 4.3.3 and responses 4.4.1-4.4.19 on pages 6-12);
17. Applicant's comments to ExQ4 4.3.3 [REP10-007] (Section 1.2 on pages 5 and 6);
18. Applicant's comments to Deadline 10 submissions [REP11-007] (Section 6, Responses to questions 4.2.1, 4.3.3, 4.4.7, 4.4.12, 4.4.13, 4.4.15, 4.4.18 and 4.4.19 on pages 10-20);
19. IAQM guidance A guide to the assessment of air quality impacts on designated nature conservation sites [REP11-015].

3.3.4 In order to avoid repetition, Highways England will not provide a point by point response to RHS's latest submission on a topic that has been discussed in detail already. Instead, Highways England will respond on three points and then provide an overall summary.

### **3.4 The established woodland buffer is not a supporting habitat for any of the qualifying SPA species**

3.4.1 As RHS have pointed out, the SiAA does use the words 'supporting habitat'. However, RHS have taken this out of context, and incorrectly suggest this implies supporting habitat as defined in the Conservation Objectives. Reading the words in their context, it is clear that this is referring to the potential for the established woodland buffer to contribute to the invertebrate resource of nightjars, and is not referring to a supporting habitat as defined in the conservation objectives (i.e. a feeding, nesting or roosting habitat of any of the SPA qualifying species).

3.4.2 Highways England has clearly demonstrated this in Section 4.7 of the SiAA [REP4-018], Section 4.3 of Applicant's comments on Deadline 9 submissions [REP10-003] and the response to question 4.4.13 on pages 16-18 of Highways England's comments to Deadline 10 submissions [REP11-007].

### **3.5 The conservation objectives do not apply equally to all parts of the SPA**

- 3.5.1 As explained previously in Point 11 on pages 10-11 of Highways England's comments on RHS's deadline 3 submission [REP4-005] a site's conservation objectives do not apply equally to all parts of a site.
- 3.5.2 Natural England guidance has clearly recognised this, and indeed paragraph 4.18 of Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001) [REP3-021] states *"a site's conservation objectives are unlikely to apply equally to all parts of a site and a competent authority may need to be made aware of this as necessary"*.
- 3.5.3 This approach fully aligns with the Compton case (as explained during Issue Specific Hearing 2 and in paragraphs 5.1.1-5.1.7 of the written summary of oral case for ISH2 [REP3-009], and again in Point 11 on page 16 of Highways England's comments on RHS's deadline 3 submission [REP4-005]), where the court concluded that when undertaking an air quality assessment within an SPA, it is necessary to assess whether there is an effect on the protected species and their habitats.
- 3.5.4 Highways England has shown repeatedly throughout the DCO examination that none of the SPA qualifying species occur within the established woodland buffer, and that it is not a nesting, feeding or roosting habitat as set out in the explanatory notes for the air quality conservation objectives (as set out in Tables 1, 2 and 3 of the Supplementary Advice on Conserving and Restoring Site Features [REP5-034]).

### **3.6 There will not be an air quality impact on the invertebrate assemblage of the established woodland buffer as a result of the Scheme**

- 3.6.1 Contrary to RHS's statement in 4.4.12 of its response to ExQ4 responses [REP11-038], Highways England does not contradict itself with regard to air quality impacts on the invertebrate assemblage of the established woodland buffer, as set out in Highways England's comments on RHS's deadline 6 submission [REP7-008].
- 3.6.2 Paragraphs 2.2.4- 2.2.29 of REP7-008 sets out a three point clarification as to why the invertebrate assemblage within the established woodland buffer will not change as a result of air quality changes from the Scheme.
- 3.6.3 Point 1 (paragraphs 2.2.5-2.2.21) considers what effects (or absence of effects) on the invertebrate assemblage may occur from minor changes in air quality, when comparing the operational Scheme against a no scheme scenario. But then Point 2 (paragraphs 2.2.22-2.2.25) goes on to demonstrate that the predicted nitrogen deposition rates as a result of the operational Scheme still fall below the existing baseline and therefore the established woodland buffer will

continue to function in its current form and provide the invertebrate resource it currently does (Point 3 in paragraphs 2.2.26-2.2.29 then goes on to conclude that the SiAA was correct to rule out an adverse effect on the SPA as a result of air quality changes).

3.6.4 There is no contradiction in this response, and Highways England is clear that there will be no adverse effect on the integrity of the SPA as a result of changes in air quality.

### 3.7 Summary of Highways England's key points regarding air quality and the SiAA

3.7.1 In Section 4 of Highways England's comments on RHS's Deadline 8 submissions [REP9-003], Highways England have summarised the key points with regard to the approach to, and findings of, the SiAA with regard to air quality.

3.7.2 For the convenience of the ExA, these key points are repeated here, but have been updated where relevant, in reference to additional information provided during deadline 10 [REP10-003, REP10-004, REP10-007] and deadline 11 [REP11-007].

1. Clear, robust evidence has been provided by Highways England to demonstrate that, with regard to the conservation objectives for the SPA, the established woodland buffer is not a supporting habitat for the SPA qualifying species. This is demonstrated in the vegetation characteristics described in Tables 1, 2 and 3 of the Supplementary Advice on Conserving and Restoring Site Features [REP5-034] and has been demonstrated clearly by Highways England in Section 4.7 of the SiAA [REP4-018], Section 4.3 of Applicant's comments on Deadline 9 submissions [REP10-003] and the response to question 4.4.13 on pages 16-18 of Highways England's comments to Deadline 10 submissions [REP11-007];
2. The air quality conservation objective for the Thames Basin Heaths SPA (as described in Tables 1, 2 and 3 of the Supplementary Advice on Conserving and Restoring Site Features [REP5-034]) as regards all three qualifying species, is to "*Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System*". This objective (described as targets in the tables) relates to the feeding, nesting and roosting habitat of the SPA qualifying species (as explained in the supporting and/ or explanatory notes for this target in the tables), which is the heathland and not the established woodland;
3. The bird surveys for the site were thorough and appropriate, using methodologies agreed with Natural England. The surveys were repeated over four years to provide an extremely high level of understanding of the site, and were combined with existing research with regard to the habitat requirements of Dartford warbler, nightjar and woodlark (as set out in Section 4.7 of the SiAA [REP4-018]), in order to fully understand the distribution and habitat

requirements of all three qualifying species. The SPA qualifying species only occur within the heathland habitats and do not use the established woodland;

4. As stated in paragraph 4.21 in Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001) [REP3-021], *"If none of the site's sensitive qualifying features known to be present within 200 m are considered to be at risk due to their distance from the road, there is no credible risk of a significant effect which might undermine a site's conservation objectives"*;
5. Paragraph 4.19 of the same document states: *"Where the applicant has provided reliable and precise information that models the likely deposition of road based pollutants in relation to the distribution of a site's features and any sensitive features are not present within the area to be affected by emissions (and Natural England's advice is that there is no conservation objective to restore the features to that area), it will be relatively straightforward to ascertain that the project poses no credible air quality risk to it"*;
6. As Highways England has explained, there will not be a discernible effect on nitrogen deposition rates at a distance of 150 m or more from the A3 and M25 as a result of the Scheme (i.e. where the SPA qualifying species and their habitats occur);
7. Increases in nitrogen deposition of greater than 1 % of the lower range of the critical load (as given by APIS for the habitat types of the Ockham and Wisley Commons SSSI component of the SPA) when comparing the operational Scheme against no Scheme, are confined to within 50 m of the road (A3 and M25). This falls well within the established woodland buffer, which is not a supporting habitat of the SPA qualifying species, and which extends over 150 m from the road at the closest point along any of the transects within the SPA;
8. For every transect point assessed within the SPA, the operational nitrogen deposition rate will fall below current baseline levels. As explained in the response to question 4.4.12 on pages 15-16 of Highways England's comments to Deadline 10 submissions [REP11-007], this would still be the case even if the change in nitrogen deposition rate were to be doubled as a precautionary measure to account for ammonia from road vehicles. Any small change in nitrogen deposition rates with the Scheme would not affect the future downward trend nor would there be any delay to the achievement of the conservation objectives on air quality mentioned above;
9. The in-combination assessment was carried out correctly, and the nitrogen deposition rates do take account of other plans and projects. Updated calculations with the change in nitrogen deposition rates doubled for the first 30 m from the road as a precautionary measure to account for ammonia have been provided in response to ExQ4 4.3.3 [REP10-007]. This precautionary sensitivity test continues to show that even when compared against an unrealistic 'do nothing' scenario (i.e. there would be absolutely no growth in traffic from the base year) there would be no discernible change in nitrogen deposition rates within the supporting habitats of the qualifying features in the SPA (i.e. the heathland beyond 150 m of the road edge). The calculations

also demonstrate that when compared against 'do minimum', the Scheme actually leads to a decrease in nitrogen deposition rates at the two transects on the A3, as a result of a reduction in congestion on the A3 with the Scheme;

10. The established woodland is a buffer between the A3 and M25 and the heathland. As explained in their response to ExQ2 2.4.7d [REP5-032], Natural England do not require the conversion of this woodland to heathland in order to achieve favourable condition for this component part of the Thames Basin Heaths SPA. Furthermore, Natural England explain in this response that the role of this established woodland is to provide a buffer between the road and the heathland habitats, dispersing vehicle emissions away from the heathland;
11. The heathland is the supporting habitat for the SPA qualifying species. Highways England has demonstrated that none of the SPA qualifying species use the established woodland buffer. The SiAA identified an adverse effect as a result of physical loss of established woodland, based on the precautionary approach that this could reduce the overall invertebrate resource of the SPA. This is based on the assumption that the complete clearance of 14.6 ha of woodland (5.9 ha permanent and 8.7 ha temporary) would result in the complete loss of invertebrates from this area. However, as explained the response to question 4.4.13 on pages 16-18 of Highways England's comments to Deadline 10 submissions [REP11-007], it is considered highly likely that the existing 78 ha of heathland provides sufficient invertebrate resource to support the SPA qualifying species that are currently present. The consideration of the physical loss of established woodland potentially resulting in reduced invertebrate resource for the SPA is purely a precautionary approach;
12. As explained in response to ExQ4 4.4.13 [REP10-004] and also in the response to question 4.4.13 on pages 16-18 of Highways England's comments to Deadline 10 submissions [REP11-007], the invertebrate assemblage of the established woodland buffer has established under existing conditions. There will be no changes in the invertebrate resource (assemblage or biomass) within the woodland buffer as a result of air quality changes from the Scheme, because the nitrogen deposition rates for all transect points within the established woodland buffer (and heathland) all fall below the current baseline, and therefore the established woodland buffer will continue to function in the same way as it currently does and provide the same invertebrate resource it currently does. It is noted that RHS have agreed with the assessment that all nitrogen deposition rates for all transect points will fall below the current baseline (paragraph 6 of their response to REP10-003 [REP11-037], where RHS states "RHS agrees with HE that, based on RHS's own results Table referred to in paragraph 6 above, which takes into account the "ammonia proxy", the operational nitrogen deposition rate falls below current baseline levels for every transect point within the SPA");
13. The SiAA ruled out an adverse effect on the integrity of the SPA as a result of air quality changes because:



- a) The Scheme will lead to no discernible effects on nitrogen deposition rates within the habitats upon which the SPA qualifying species rely (i.e. the heathland), and;
  - b) The established woodland buffer that separates the heathland from the A3 and M25 will receive lower nitrogen deposition rates than it currently does, and will continue to function in the same way and provide the same contribution to the invertebrate resource as it currently does.
14. The assessment and findings align with the Compton case, which also considered changes in air quality that were confined to the woodland buffer and determined that the air quality assessment should focus on the SPA birds and their habitats. On the legal issues raised by Freeths solicitors on behalf of RHS at deadline 6 [REP6-024], see Highways England's comments at Appendix A of REP7-008 which contains counsel's opinion (Michael Humphries QC) on the issues raised;
15. The RHS alternative requires more land take from the SPA than the Scheme and therefore is not a better alternative to the Scheme with regard to an adverse effect on the integrity of the SPA. Moreover, it does not meet the relevant design standards;
16. In summary, as demonstrated in the SiAA [REP4-018] and the DCO examination submissions listed above, the only adverse effect on the integrity of the SPA as a result of the Scheme is as a result of physical land take. Appropriate compensation in that regard has been identified and agreed with Natural England, RSPB, Surrey Wildlife Trust, Surrey County Council and Forestry Commission. All of these parties are satisfied with, and supportive of, the proposed compensatory measures;
17. Highways England has set out clear reasoning as to why the Scheme will lead to no adverse effect on the SPA as a result of changes in air quality. Highways England is confident that sufficient evidence and justification has been provided to the ExA throughout the DCO examination in order to allow the ExA to undertake its own appropriate assessment, and indeed to make a recommendation to the SoS with regard to the HRA that aligns with the findings of Highways England, as well as the Compton judgement and the responses of Natural England.

## **3.8 RHS Response to HE-NE-SWT responses to ExQ4**

### *3.8.1 Comment on question 4.3.1*

Highways England has not undertaken the calculations as the emissions factors in Defra's Emissions Factors Toolkit are applicable to traffic data and speeds that are entered for a minimum 1-hour period rather than shorter periods such as seconds which would be required for calculating the emissions from these suggested scenarios.

### *3.8.2 Comment on question 4.3.2*

The method for assessment of air quality was discussed and agreed with Natural England [APP-050, para 5.5.1, and REP2-014, response to point REP1-038-5]. The response provided by Natural England should be taken to be a general comment and is consistent with its own guidance [REP10-029, paragraph 2.1]. It does not, as RHS imply, mean that this Scheme assessment must consider ammonia emissions. This point has been agreed with Natural England [REP8-022].

### 3.8.3 *Comment on question 4.3.3*

RHS has raised four points to which Highways England note:

- 1) Highways England has provided the data as requested by the ExA at ExQ4 for the receptors within 150 m of the road including the ammonia contribution.
- 2) The results were not requested to be presented as a change in relation to the critical load, nor was this information presented in REP8-022.
- 3) The ammonia contribution was not considered for receptor points beyond 30 metres from the road due to the concentrations at these distances being indistinguishable from background concentrations [REP11-007, para 6.1.30]. This is considered a reasonable scientific basis upon which the decision was made and is consistent with the concept that ammonia has a higher deposition velocity than NO<sub>2</sub>, thus atmospheric concentrations will reach background levels within a shorter distance from the source of emissions.
- 4) The results presented in REP10-007 can be considered to be reliable and have been produced using a standard published methodology, with an adapted approach to account for ammonia. As noted in email correspondence to Duncan Laxen (on 8th, 11th and 17th June 2020), the difference in Transect 4 can be attributed to the heavier congestion during the peak periods in the base year, than in the do-minimum, which results in lower concentrations in the do-minimum than for the 'do-nothing' scenario.

3.8.4 Traffic congestion at the two to one lane merge on the southbound on-slip is not only influenced by the changes in traffic flow on the slip road, it is also influenced by the volume of traffic leaving and joining it to and from Old Lane, which has a junction with the slip road immediately prior to the merge. Traffic volumes turning left from the slip road into Old Lane increase in the DM scenario compared to the 2015 Base and traffic volumes joining the slip road from Old Lane reduce in the DM scenario compared to the 2015 Base. Consequently, there is less traffic merging on the slip road south of the junction with Old Lane. This is combined with the overall reduction in traffic flow on the slip road in the DM scenario compared to the 2015 Base, albeit a relatively small reduction, explains why traffic congestion on the slip road is reduced in the DM scenario compared to the 2015 Base. In addition, once the capacity of a merge or junction is exceeded, even small increases in traffic demand will cause exponential increases in congestion and delay. Conversely, a relatively small reduction in traffic demand is sufficient for the merge to operate within capacity, removing congestion and delay and allowing free-flow conditions.



- 3.8.5 It should also be noted that the heavy congestion speed band category when applied to a motorway is applicable for speed ranges under 30 kph.
- 3.8.6 The response to AQC's note is provided below under the response to Appendix 3. It should be noted that the findings do not make a substantive contribution to the evaluation of ecological impacts, and that the approach adopted does not follow standard DMRB guidance.
- 3.8.7 Further comment on the SiAA is provided above in section 3.2.
- 3.8.8 *Comment on question 4.4.7*

As noted in REP11-007, RHS submitted the 2020 version of the IAQM guidance rather than the 2019 version which has been the document referred to throughout the DCO examination at that point. Highways England submitted the 2019 version at deadline 11 (REP11-015). There is no requirement to update the air quality assessment for this project which follows the Highways England DMRB guidance for road schemes.

- 3.8.9 *Comment on question 4.4.16*

The Highways England DMRB guidance HA207/07 (as updated by LA 105) does not require the effects of ammonia to be assessed on ecological sites. Highways England has previously commented on the RHS Alternative at REP10-004 point 4.4.16, noting that the differences at the locations of the supporting habitats of the qualifying features are small at 0.03 kg N/ha/yr or less. This is also demonstrated in the RHS Table B. These differences cannot be described as "substantial", as at these locations the changes are less than 1% of the critical load.

### **3.9 Appendix 1 – DMRB guidance LA115 (Habitat Regulations Assessment) dated January 2020 (referenced at 4.3.2)**

- 3.9.1 This document provides the Highways England's DMRB guidance for Habitats Regulations assessment (LA115). There is no reference within the document regarding the need to consider ammonia, nor indeed any other air pollutant in the assessment. Section 9 refers the user to the Highways England DMRB guidance for Air Quality (LA 105).

### **3.10 Appendix 2 – Table A – In combination Impacts - HE REP10-007 corrected by RHS (referenced at 4.3.3)**

- 3.10.1 Comments on the SiAA are provided above in section 3.2.

### **3.11 Appendix 3 – AQC note (references at 4.3.3)**

- 3.11.1 The AQC note (REP11-041) purports to test the results presented by Highways England with regard to the in-combination change in nitrogen deposition for Transect 4.

- 3.11.2 The modelling results presented by Highways England follow the standard methodology as set out in the DMRB guidance HA207/07 (now LA105) and documented in REP10-004 (point 4.4.16) and are correct. The method was discussed and agreed with Natural England [APP-050, para 5.5.1 and REP2-014, response to point REP1-038-5].
- 3.11.3 It is not surprising that the NO<sub>x</sub> modelling results produced by AQC are different, given that there are a large number of input parameters which are used in modelling (as discussed in APP-050 section 5.6). It is possible that AQC have used different emission factors from the Applicant. As documented in the air quality chapter of the ES (APP-050, 5.5.17), the air quality assessment for the Scheme used the speed band methodology in IAN 185/15, together with speed band emission factors based on Defra's Emissions Factors Toolkit (EFT) v8. If AQC used the older emission factors provided in IAN 185/15, this would give rise to lower results in heavily congested periods, and may explain the comparatively lower concentrations presented in the "do nothing" scenario (Table 1, REP11-041) compared with the Do Minimum scenario. For example, the emission factor for a heavy duty vehicle in 2022 on a heavily congested motorway is 0.36 g/km in IAN 185/15 (published in 2015), but updated to 4.123 g/km for the updated speed band emission factors used by Highways England and based on EFTv8.
- 3.11.4 There are other input parameters which can make a difference such as the surface roughness length used for the study area. Atkins used 0.5 m, representative of the wider air quality study area, while AQC used 1.0 m, which is appropriate for woodland. Generally, the higher the surface roughness value, the more mixing of air that occurs leading to greater dispersion and lower pollutant concentrations. Using a surface roughness of 0.5 m, as Atkins did, would therefore be expected to lead to higher modelled concentrations.
- 3.11.5 AQC have not followed the Highways England method as set out in REP10-004 point 4.4.16, but have instead attempted to calculate nitrogen deposition rates using a non standard method by applying various ratios derived from the raw (unadjusted) modelled NO<sub>x</sub> road contribution. The AQC approach has not accounted for the fact that in the standard DMRB approach, nitrogen deposition is derived from NO<sub>2</sub>, rather than NO<sub>x</sub> (as set out in REP10-004 point 4.4.16), and consistent with the deposition velocity which is for NO<sub>2</sub> (consistent in HA207/07, LA105 and IAQM guidance). The application of the NO<sub>2</sub> deposition velocity to a NO<sub>x</sub> concentration will give a higher result.
- 3.11.6 Different outputs at each stage of the calculations whether from the modelled NO<sub>x</sub> road outputs, total adjusted NO<sub>2</sub>, or total nitrogen deposition rates will all give different ratios – as shown in in the tables below.

**Table 3.1 Ratios derived from modelled road NOx**

	DN	DM	DS	Ratio DM/DN
R149	61.52	50.31	52.75	0.8178
R150	46.19	41.81	43.57	0.9052
R151	28.93	26.41	26.97	0.9130
R152	19.11	18.10	18.21	0.9470
R153	14.81	14.39	14.36	0.9716
R154	12.34	12.22	12.14	0.9905
R155	9.58	9.76	9.65	1.0186
R156	8.06	8.37	8.26	1.0382

**Table 3.2 Ratios derived from total nitrogen deposition rates**

	DN	DM	DS	Ratio DM/DN
R149	25.89	23.77	24.38	0.9179
R150	23.06	22.18	22.64	0.9618
R151	19.55	18.99	19.19	0.9711
R152	17.31	17.07	17.16	0.9862
R153	16.25	16.14	16.20	0.9934
R154	15.53	15.51	15.51	0.9983
R155	16.05	16.2	16.1	1.0090
R156	14.63	14.9	14.8	1.0188

**Table 3.3 Ratios derived from total adjusted NO<sub>2</sub> concentrations**

	DN	DM	DS	Ratio DM/DN
R149	54.33	47.0	48.6	0.8651
R150	44.54	41.5	42.7	0.9317
R151	32.45	30.5	30.9	0.9400
R152	24.72	23.9	24.0	0.9667
R153	21.07	20.7	20.7	0.9824
R154	18.59	18.5	18.4	0.9950
R155	16.05	16.2	16.1	1.0090
R156	14.63	14.9	14.8	1.0188

- 3.11.7 It would appear that the AQC derived ratios have also been incorrectly applied in the subsequent step. AQC calculated a DS/DM ratio from the road nitrogen deposition rates from the Highways England results (which as described above, were calculated using the standard DMRB method and use an adjusted road NO<sub>2</sub> concentration). AQC have applied this ratio to their calculated total nitrogen deposition rate for the Do Minimum scenario (from a non-standard method and using an unadjusted NO<sub>x</sub> concentration) to calculate a result for the Do Something scenario. Were such an approach to be appropriate, which is not Highways England's position, AQC should have applied the ratio to their calculated road nitrogen deposition rate for the Do Minimum result and then added on the background nitrogen deposition component. Applying the ratio to the road nitrogen deposition rather than the total nitrogen deposition rate would have given a different result.
- 3.11.8 The ratios that AQC have applied are therefore incorrect and the resultant calculations of nitrogen deposition rates are not considered to be based on a valid approach.
- 3.11.9 The findings, regardless of the inaccuracies in the approach, do not make a substantive contribution to the evaluation of the ecological impacts. The results presented by AQC for transect 4, in Table 3 of the AQC note (REP11-041) show that at the location of the supporting habitats for the qualifying features within the SPA (at locations over 150 metres away from the road), the difference in the percentage changes is small (-2.1% to 0.9%) and unlikely to lead to a discernible difference in total nitrogen deposition rates.
- 3.11.10 As acknowledged by RHS REP11-037 para 6] all nitrogen deposition rates are lower in the opening year than in the base year, as a result of the overall future downward trend in NO<sub>x</sub> emissions. Any change as a result of the Scheme will be small in comparison to the reductions in future years, and in respect of improvements in NO<sub>x</sub> concentrations in recent years to date.

## 3.12 RHS Response to REP10-003

- 3.12.1 Highways England has provided the data as requested by the ExA at ExQ4 for the receptors within 150 metres of the road including the ammonia contribution within 30 metres. RHS has previously accepted that doubling the NO<sub>x</sub> derived contribution would provide a conservative estimate of the ammonia contribution to nitrogen deposition [REP10-025 point 4.4.8] and this approach was also adopted by AQC in their note [REP11-041, 2.4].
- 3.12.2 The ammonia contribution was not considered for receptor points beyond 30 metres from the road due to the contribution from road traffic to ammonia concentrations at these distances being indistinguishable from background concentrations [REP11-007, para 6.1.30 and para 6.1.54].
- 3.12.3 The relevant issue is the extent to which the changes with the Scheme affect the supporting habitats of the qualifying features, to which the conservation objectives are applicable [REP7-008, paras 2.2.51 to 2.2.52]. At the distance at which the supporting habitats occur with the Scheme, the changes with the

scheme compared with the “do nothing” are all small (less than 0.3 kg N/ha/yr, at R163, [Table A of REP11-040 and Table 4 of REP8-022]).

- 3.12.4 In any case, as RHS acknowledge [REP11-037 para 6] all nitrogen deposition rates are lower in the opening year than in the base year, as a result of the overall future downward trend in NOx emissions [REP7-008, para 2.2.54, and REP2-013 point 1.4.5].

## **4. Highways England's comments to RHS's submission on Heritage impacts**

### **4.1 Heritage Report of Chris Miele of Montagu Evans [REP11-047]**

- 4.1.1 First, in Highways England's opinion it is unreasonable for RHS to have submitted this lengthy report in the last week of an examination that began on 12 November 2019, and from an individual that has taken no part in the proceedings. Nonetheless, Highways England has endeavoured in the very limited time available to consider and comment on this report in the following paragraphs.
- 4.1.2 The heritage report submitted by Montagu Evans considers that the significance of RHS Wisley comes from its close association with the Royal Horticultural Society (RHS). The significance of the historic association of RHS Wisley with the RHS and its work is noted in the Environmental Statement para 11.10.14 [APP-056] and Statement of Significance para 11.2.4.5 [APP-123].
- 4.1.3 Highways England has noted in the ES [APP-056] and Statement of Significance [APP-123, para 11.2.4.2 – 11.2.4.6] that the significance of RHS Wisley is in the aesthetic and artistic values of its designed gardens and architecture, including the designated and non-designated built heritage within the RPG, as well as its role in the origins of the RHS, as an experimental garden, and in its continuing contributions to botanical studies.
- 4.1.4 As explained in the para 11.10.14 of the ES [APP-056], the assessment of impacts concluded that the DCO Scheme would have only minor impacts on the heritage values of the RPG, the effects of which would not be significant. The assessments of the ES and Statement of Significance support a determination of less than substantial harm under the NPPF. Historic England has agreed with these assessments and the determination of less than substantial harm, which is reflected in the Statement of Common Ground (SOCG) [REP8-024, Table 3.2, issue 3.2.4] and noted in para 11.5.14 of the ES [APP-056].
- 4.1.5 The Montagu Evans report posits that the DCO Scheme would negatively impact the economic viability of RHS Wisley and therefore result in possibly substantial harm. The report recognises, however, that income from RHS Wisley currently does not cover the cost of activities at the garden (para 4.23) and that the garden is maintained through additional funds from other RHS activities. Given the recent funds raised for improvements to the garden, it is clear that the inability of



the garden to be self-sufficient has not previously resulted in harm to any significant historic value. In addition, while the association of the RPG with the RHS is part of its heritage value, the wider operational functionality of the RHS does not contribute to the heritage significance of the RPG. The ability of the RHS to maintain itself and promote the growth of their activities is not a heritage value inherent in the RPG.

- 4.1.6 The Montagu Evans report does not provide information on the total amount of visitor income and therefore does not support the claim that the change in income would be significant and necessarily result in an existential threat to the garden. In any event, Highways England does not accept that the scheme will have any detrimental economic effect on the garden.
- 4.1.7 Highways England agrees with the assessment of the RPG's heritage significance as a place for the study and advancement of horticultural research as well as its historic design and architectural features. This has been provided in the ES [APP-056, para 11.10.14] and Statement of Significance [APP-123 para 11.2.4.2 – 11.2.4.6] referenced above.
- 4.1.8 Highways England does not agree that the proposed changes to the approach to the garden from Wisley Lane will have any detrimental effect on the heritage value of the RPG as claimed by Dr Miele in (pp 7.12). In part, this is because the historic entrance to the RPG has changed considerably through the development of the large modern carpark, ticketing, sales and refreshment facilities (recognised as impacting the historic entrance in pp 7.11). In addition, the entrance to the property has not been determined to contribute to the heritage values (significance) of the RPG as identified in both the ES [APP-056, para 11.10.14], Statement of Significance [APP-123 para 11.2.4.2 – 11.2.4.6], or the Montagu Evans report. This is also in contradiction to the evidence provided by the Montagu Evans report that the RPG is significant in the way that it has adapted and changed through the 20th century (pp 5.54), of which the alterations to roadway infrastructure to accommodate increased traffic, including increased visitor numbers, must be a part.
- 4.1.9 The significance of RHS Wisley as a research facility and laboratory located just off a major road into London suggests that the rural nature of its setting and approach were not considered imperative to its purpose. Whilst the RPG may be quieter than the A3, the relative tranquillity of the RPG is not noted as contributing to its heritage values and would not be expected to be part of a research facility and laboratory. There are areas of the gardens where planting and topography have been designed to have an isolated or tranquil character. However, these areas are not those that would be affected by the DCO Scheme.
- 4.1.10 The overbridge for the Wisley Lane diversion overbridge is part of the preliminary scheme design. It is not, as Dr Miele states in para 7.21 of his report, at a concept stage although it is the case that it will be subject to detailed design in due course. The SOCG with Historic England has noted their desire to examine detailed designs of certain aspects of the scheme but not the Wisley Lane diversion overbridge [REP8-024, Table 3.2, Issues 3.2.11 – 3.2.16]. Furthermore, Issue 3.2.11 of the SOCG [REP8-024] notes agreement between

Highways England and Historic England that the DCO design enables the sustainable operation of the heritage asset.

- 4.1.11 The discussion of heritage trees in para 7.22- 7.28 of Dr Miele's report includes reference to the heritage assessment of trees, including the grading of significance. These grades are not equivalent to statutory heritage designations and do not have the same weight. NPPF/NPS do not require their assessment as heritage assets.

## **5. Highways England's comments to RHS's submission on Arboricultural related matters**

### **5.1 Further report of Jeremy Barrell concerning trees [REP11-051]**

- 5.1.1 The Environmental Statement [APP-089] recorded RHS trees along the A3 boundary and identified those that would be lost within the footprint of the Wisley Lane diversion. RHS has been aware of this since the before the DCO application was made and facilitated Highways England's surveys when they were carried out. No comment has been raised on the validity of the survey by anyone until now – the last week of an examination that began on 12 November 2019.
- 5.1.2 The ES recorded all those trees deemed at risk from the DCO Scheme in line with BS5837:2012 guidance at the time of the application. Of the recorded trees seven of these were identified for potential removal at that time given the extent of the proposed works and the impact on their root protection areas (RPAs). The remaining trees were not identified for removal as the encroachment into their RPAs was deemed broadly acceptable in line with BS5837:2012 guidance.
- 5.1.3 During the DCO examination and in consultation with RHS, Highways England revised the intended detailed design in this area to change the alignment of the A3 past RHS Wisley. With this change and along with other measures to limit construction activity here (including protection of RPAs) Highways England considers that all the trees along this boundary will not be harmed by the works in this area. These measures are shown examination document TR010030/9.144.

### Comment on the assessment of trees

- 5.1.4 The survey and assessment of trees in the ES were in accordance with BS5837:2012, a standard which Mr Barrell has referenced throughout his responses. This standard provides the basis to evaluate trees using Category gradings as per the cascade chart reference table 1 on page 9 of BS5837:2012, which includes heritage values as a consideration in assigning a category grading. Mr Barrell's heritage tree assessment method is not a recognised within BS5837:2012 and not widely used within the industry. The heritage value of a tree can be established adequately through existing tree evaluations without



creating another system of evaluation that is expounded by the author alone and without peer review. In particular we make the following comments:

- The categorisation and evaluation of the trees as possessing certain heritage value is not explained.
- The value shows no evidence of peer review
- The descriptors of value are so wide as to include all trees

5.1.5 Monetary terms are broached within Mr Barrell's report, but the report does not attribute a value to each tree. Furthermore, as the trees along the A3 boundary are not to be removed their financial value is not relevant in this case or indeed a requirement of BS5837:2012. RHS were made aware before the DCO application was made that the loss of trees from the Wisley Lane diversion works is unavoidable. Hence any discussion on risk or associated values is not relevant.

## **5.2 Plan referred to in further tree assessment [REP11-052]**

5.2.1 The trees in the plan referred to in the Barrell report appears to largely correspond with those on plans in Appendix 7.3 of the Environmental Statement. The plan in TR010030/9.144 has been updated as part of this submission to extend the red-hatched area adjacent to the seven trees and therefore incorporating further trees along this boundary.

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