

# Habitats Regulations Assessment for Guildford Borough Proposed Submission Local Plan: Strategy and Sites

## Addendum

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# 1 Introduction

1.1.1 A series of HRA queries have been raised to the Inspector and Guildford Borough Council in representations by Wisley Action Group and more recently by Ockham Parish Council during the course of the Examination of the Local Plan. These relate to:

- The reasonableness and legality of allowing for an improvement in background/baseline nitrogen deposition rates and NO<sub>x</sub> concentrations in air quality modelling, in light of the Court of Justice of the European Union (CJEU) ruling in the Dutch Nitrogen cases<sup>1</sup>;
- The implications of the proposals to expand visitor numbers to RHS Wisley for roadside air quality on the A3 past Ockham and Wisley Commons; and
- The implications of the CJEU ruling in the Holohan case<sup>2</sup>.

1.1.2 This Addendum to the Local Plan HRA and the HRA of the Main Modifications addresses these matters.

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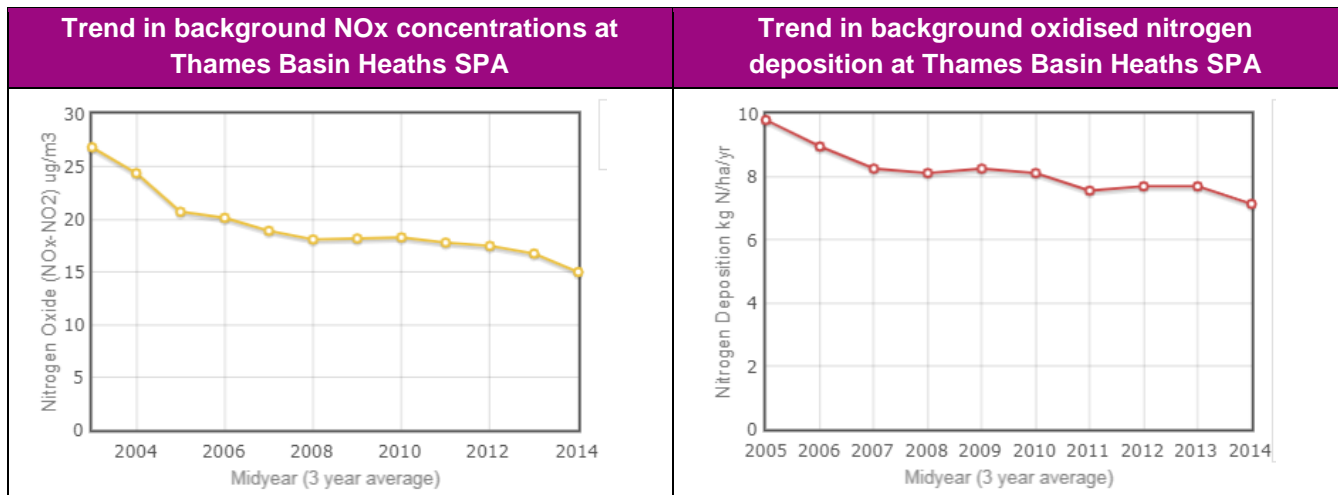
<sup>1</sup> Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu v College van gedeputeerde staten van Limburg C-293/17 and C-294/17

<sup>2</sup> Holohan et al vs. An Bord Pleanála (C-461/17)

## 2 Improvements in background nitrogen deposition

2.1.1 The general long-term trend for NO<sub>x</sub> has been one of improvement (particularly since 1990) despite an increase in vehicles on the roads<sup>3</sup>. Total nitrogen deposition<sup>4</sup> to the UK decreased by 13% between 1988 and 2008, while NO<sub>x</sub> concentrations decreased by 50% over the same time period<sup>5</sup>. These results are the national manifestation of a trend which can also be discerned locally.

**Figure 1: Recent trends in NO<sub>x</sub> and oxidised nitrogen deposition at Thames Basin Heaths SPA (Ockham and Wisley Commons)**  
(Source: APIS, 2019)



2.1.2 The graphs in Figure 1 relate to the 5km grid square (for nitrogen deposition) and 1km grid square (for NO<sub>x</sub>) within which the Ockham and Wisley Commons part of the Thames Basin Heaths SPA is situated. They are the latest data taken from APIS in January 2019. They show that both NO<sub>x</sub> concentrations and oxidised nitrogen deposition rates fell consistently over the c. 10 years to 2014 (the latest year for which data are currently available). Average NO<sub>x</sub> concentrations across the area fell from 27 µg<sup>-3</sup> in 2003 to 15 µg<sup>-3</sup> in 2014, while oxidised nitrogen deposition to heathland fell from 10 kgN/ha/yr in 2005 to 7 kgN/ha/yr in 2014. This is an annual average rate of improvement equivalent to 4% of the starting concentration for NO<sub>x</sub> and 3% for oxidised nitrogen deposition. In other words, oxidised nitrogen deposition fell by an annual average of 0.33 kgN/ha/yr over the period for which data are available.

2.1.3 This reduction occurred notwithstanding increased housing and employment development, including traffic growth, over the same time period and is most likely attributable to improvements in emissions technology in the vehicle fleet (i.e. motorists replacing more polluting vehicles associated with earlier Euro standards with less polluting vehicles associated with more recent Euro standards). This improving trend can be expected to continue, and indeed steepen, as drivers continue to replace older cars with newer vehicles and as further improvements in vehicle emissions technology are introduced. For example, the latest (Euro6/VI) emissions standard only became mandatory in 2014 (for heavy duty vehicles) and 2015 (for cars) and the effects are not therefore visible in the data available from APIS because relatively few people will have been driving vehicles compliant with that standard as early as 2014. In contrast, far more drivers can be expected to be using Euro6 compliant

<sup>3</sup> Emissions of nitrogen oxides fell by 69% between 1970 and 2015. Source: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/579200/Emissions\\_airpollutants\\_statistical\\_release\\_2016\\_final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/579200/Emissions_airpollutants_statistical_release_2016_final.pdf) [accessed 04/07/18]

<sup>4</sup> Oxidised nitrogen derives from combustion, such as vehicle exhausts, while reduced nitrogen results from ammonia primarily from agriculture. Total nitrogen deposition is both oxidised and reduced nitrogen combined.

<sup>5</sup> Rowe EC, Jones L, Stevens CJ, Vieno M, Dore AJ, Hall J, Sutton M, Mills G, Evans CD, Helliwell RC, Britton AJ, Mitchell RJ, Caporn SJ, Dise NB, Field C & Emmett BA (2014) Measures to evaluate benefits to UK semi-natural habitats of reductions in nitrogen deposition. Final report on REBEND project (Defra AQ0823; CEH NEC04307)

vehicles by the end of the Local Plan period (2034) since vehicles that are not compliant with Euro6 ceased manufacture in 2015.

- 2.1.4 To allow for the improvements in emissions and associated deposition rates resulting from these changes in the vehicle fleet the Design Manual for Roads and Bridges guidance for air quality assessment (document HA207/07)<sup>6</sup> recommends reducing nitrogen deposition rates by 2% each year between the base year and assessment year (*'The total average deposition rates obtained from the Air Pollution Information System ... should be reduced by 2% per year to estimate deposition rates for the assessment years'*). AECOM's modelling allows for this, such that, for example, it forecasts a continuation of the existing trend with an annual average rate of improvement in roadside nitrogen deposition along the modelled section of the A3 of 0.29 kgN/ha/yr<sup>7</sup>. It can be seen that the DMRB's recommendation of reducing nitrogen deposition rates is consistent with the recorded improvements in oxidised nitrogen deposition within the Ockham and Wisley Commons part of the Thames Basin Heaths area over the last 10 years. Indeed, for the reasons set out above, allowing only a 2% per year improvement in nitrogen deposition rates represents a precautionary approach, and it could in fact be defensible to actually allow for a greater improvement than has been taken into account in the modelling.
- 2.1.5 With regard therefore to the implications of the 'Dutch Nitrogen' CJEU ruling and the extent that autonomous measures (i.e. improvements in baseline nitrogen deposition that are not attributable to the Guildford Local Plan) can be taken into account in appropriate assessment, the CJEU ruled that it was legally compliant to take such autonomous measures into account provided the benefits were not uncertain (paras. 130&132). Note that previous case law on the interpretation of the Habitats Directive has clarified that 'certain' does not mean absolute certainty but "where no reasonable scientific doubt remains".<sup>8</sup> [emphasis added].
- 2.1.6 In the 'Dutch Nitrogen' case the CJEU recognised that the measures with which they were concerned had "*not yet been taken or have not yielded any results, so that their effects are still uncertain*" (para. 127). It is in that context that the CJEU stated "*The appropriate assessment of the implications of a plan or project for the sites concerned is not to take into account the future benefits of such 'measures' if those benefits are uncertain, inter alia because the procedures needed to accomplish them have not yet been carried out or because the level of scientific knowledge does not allow them to be identified or quantified with certainty.*" (para. 130)
- 2.1.7 In contrast, as explained above, the allowance made for improvements in baseline NOx concentrations and nitrogen deposition rates in AECOM's modelling is in line with DMRB guidance, is justified by empirical evidence at a national and local level and is associated with measures that have already been implemented (i.e. the introduction of vehicles into the fleet which are compliant with increasingly stringent emissions standards up to Euro 6/VI). Therefore, the projected improvements have the requisite level of certainty.
- 2.1.8 It should be further noted that no specific allowance is made in the Local Plan modelling for the UK Government's decision to ban the sale of most new petrol and diesel vehicles from 2040, or the Government's new draft Clean Air Strategy, but those announcements illustrate the general long-term direction of travel for roadside air quality in the UK and underline that allowing for improvements in both vehicle emissions factors and background rates of oxidised nitrogen deposition over long timescales is both appropriate and realistic.

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<sup>6</sup> <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol11/section3/ha20707.pdf>

<sup>7</sup> The base year for the traffic and air quality modelling was 2009 with the end year being 2033

<sup>8</sup> Case C- 239/04 Commission v Portugal [2006] ECR I- 10183, para. 24; *Holohan et al vs. An Bord Pleanála (C-461/17)*, para. 33

### 3 Effects of traffic growth including RHS Wisley the on ability of Ockham & Wisley Commons SSSI to support nightjar, woodlark and Dartford warbler

- 3.1.1 The Thames Basin Heaths SPA is designated for its breeding populations of woodlark, Dartford warbler and nightjar. The presence of these species is governed by the presence of suitable nesting and foraging habitat, primarily heathland and managed plantation<sup>9</sup>, because all three species have highly specific requirements regarding nesting habitat structure and soil type. Woodlarks require dry soils and short vegetation for foraging, interspersed with more tussocky vegetation for nesting<sup>10</sup>; this structure is characteristic of heathland or early stage plantation. Dartford warbler forages predominantly on a range of insects found on gorse<sup>11</sup>, a characteristic shrub species of heathland. Nightjars have slightly broader foraging habitat requirements; in addition to heathland and early stage plantation they will also forage in grazed grass heath and have been recorded foraging occasionally in deciduous woodland and rough pasture. However, their foraging habitat must generally be close to their nesting territories (a mean maximum distance of 747m according to research in Breckland Forest<sup>12</sup>) and there is little doubt that heathland and early stage plantation are key habitats. Dense bracken, mature plantation and permanent deciduous woodland are not favoured by any of the SPA species either for nesting or foraging.
- 3.1.2 All three species (particularly nightjar and woodlark) are highly disturbance sensitive and this may partly govern the distribution of territories. EPR Ltd assembled bird survey data for the SPA around the M25/A3 junction at Ockham and Wisley Commons covering the period 2010-2014<sup>13</sup>. These data indicated that the nearest SPA bird territories to either road were approximately 300m from the roadside. A similar pattern has been observed in nightjar, woodlark and Dartford warbler surveys undertaken at Chobham Common along the M3 corridor by 2Js Ecology (data from 2007-2012) and subsequent monitoring surveys of the same area undertaken by AECOM for Highways England's M3 Smarter Motorways project. These indicate that, even where suitable habitat was present, Dartford warbler territories were not found within 70m of the motorway and nightjar and woodlark territories were even more distant (the closest nightjar/woodlark territory was 200m from the M3, with the majority being more than 500m from the motorway, despite ample suitable habitat much closer).
- 3.1.3 There is therefore strong reason to conclude that nightjar, woodlark and Dartford warbler (particularly the first two species) would be unlikely to successfully establish nesting territories, or undertake much foraging activity, within at least 50m of either the A3 dual carriageway or M25 motorway. This is probably partly a function of habitat distribution (since the majority of the habitat within 200m of the A3/M25 junction is mature plantation, bracken and permanent deciduous woodland which are generally unsuitable for nesting or foraging)<sup>14</sup> and partly a noise-related displacement effect of the

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<sup>9</sup> Most managed plantations are managed on a 50-60 year cycle of felling and replanting as part of standard Forestry Commission practice. Generally, new plantation is suitable for nesting woodlark for the first six years before the tree growth becomes too dense and the birds move elsewhere to nest, while new plantation is suitable for nightjar for its first twenty years.

<sup>10</sup> Bowden C. 1990. Selection of Foraging Habitats by Woodlarks Nesting in Pine Plantations. *Journal of Applied Ecology*. 27 410-419

<sup>11</sup> Bibby C. 1979. Foods of the Dartford warbler *Sylvia undata* on southern English heathland. *Journal of Zoology*, Volume 188, issue 4. Pp 557-576

<sup>12</sup> Sharps K, Henderson I, Conway G, Armour-Chelu N, Dolman P. 2015. Home-range size and habitat use of European Nightjars nesting in a complex plantation-forest landscape. *Ibis*, Volume 157 issue 2 pp 260-272

<sup>13</sup> EPR. 2015. Wisley Airfield. Information for Habitats Regulations Assessment. Report to support a planning application by Wisley Property Investments Ltd.

<sup>14</sup> Moreover, it would seem unlikely that habitat close to the M25 or A3 would be put to heathland or managed plantation in the future, due to a combination of difficulty creating heathland in this area of dense woodland and the low desirability of removing the tree belt which currently shelters the rest of the SPA from the M25 and A3.



very large volume of traffic movements in this area meaning that the birds settle in more tranquil locations<sup>15</sup>.

- 3.1.4 The parts of the SPA closest to the A3/M25 junction still serve an important function through buffering and protecting those areas of the SPA which *do* support bird territories and foraging habitat. However, the low likelihood of SPA birds actually using the area closest to the dual carriageway and motorway is clearly an important factor when determining the likelihood of roadside atmospheric pollution negatively affecting the ability of the SPA to support the relevant bird species and thus the integrity of the SPA<sup>16</sup>. The modelling undertaken for the Local Plan in 2016 clearly indicates that the area that will be most subject to elevated nitrogen deposition due to the presence of the A3 and M25 is also the area least likely to be used for nesting or foraging by the birds for which the SPA is designated.
- 3.1.5 The modelling undertaken by AECOM in 2016 for the Local Plan has been updated to factor in traffic growth on the A3 corridor due to the RHS Wisley's proposals to increase visitor numbers between 2016 and 2026. In order to generate this forecast, the forecast two-way weekday, Saturday and Sunday daily traffic flows on the A3 by 2026 were taken from a Transport Assessment prepared by RHS Wisley.<sup>17</sup> These were totalled and converted to Annual Average Daily Traffic (AADT). It can be seen from the table below, that the change in flows due to the RHS Wisley proposals, expressed as Average Annual Daily Traffic is forecast to be 1,498 AADT.

Scenario	2033 two-way AADT
Total traffic flows forecast on modelled section of A3 used in the original 2016 Local Plan air quality modelling	137,446
Proposals for growth of RHS Wisley	1,498

- 3.1.6 In air quality terms such a change in flows would be expected to translate into a very small change to the previously modelled nitrogen deposition rates. To demonstrate this, the previous 2016 air quality modelling was rerun with the additional flows attributable to RHS Wisley. The addition of the 1,498 AADT raises the forecast nitrogen deposition rates at the roadside of the A3 past Ockham and Wisley Commons by a negligible 0.01 kgN/ha/yr. The increase away from the immediate roadside is even smaller. This small change does not affect the previous modelling or its conclusions as it means the difference between an end of plan period nitrogen deposition rate at the closest point to the A3 of 10.43 kgN/ha/yr compared to an originally forecast rate of 10.42 kgN/ha/yr. In ecological terms these are the same number since no habitat has shown itself to be sensitive to such small incremental differences in nitrogen deposition.
- 3.1.7 Even with RHS Wisley included therefore, the modelling forecasts total nitrogen deposition rates to have fallen to the critical load at the roadside<sup>18</sup> and below the critical load by 15-30m from the roadside by the end of the plan period. This would mean that atmospheric nitrogen (irrespective of source) would cease having an influence on vegetation composition/structure except possibly within a narrow band along both the A3 and M25 which, as has been established, is the area of the SPA least likely to be functionally used by SPA birds. Moreover, the NO<sub>x</sub> critical levels and nitrogen critical loads are based primarily on protecting floristic vegetation characteristics such as species-richness and percentage grass cover. The ability of the Thames Basin Heaths SPA to support nightjar, woodlark and Dartford warbler is based far more on habitat structure and appropriate management. It is the broad structure of the vegetation that is relevant to the ability of the area to support SPA birds. If the area was turned to managed plantation then the process of clearing and maintaining working forestry would have a much greater effect on the ability of the area to support SPA birds than nitrogen deposition.

<sup>15</sup> Several studies have identified that bird territory densities generally (almost regardless of species) are much lower close to very busy roads than at greater distances. This has been attributed to several causes ranging from actual disturbance to the masking of calls by traffic noise.

<sup>16</sup> Note that there is no reason to assume that conventional single carriageway roads would deter nesting to the same extent. The effect appears to be particularly associated with major dual carriageways and motorways carrying very high constant volumes of traffic throughout the day and night.

<sup>17</sup> Transport Assessment for RHS Wisley (May 2016) submitted as part of the evidence supporting application 16/P/01080

<sup>18</sup> The critical load is not precise to a set number of decimal places so the forecast deposition rate of 10.4 kgN/ha/yr essentially reaches the critical load

## 4 Implications of the Holohan CJEU ruling

- 4.1.1 In late 2018 the CJEU handed down their ruling in the Holohan case<sup>19</sup>. This case confirmed that appropriate assessments should: (i) catalogue all habitats and species for which the site is protected and (ii) include in its assessment other (i.e. non-protected) habitat types or species which are on the site and habitats and species located outside of the site **if they are necessary to the conservation of the habitat types and species listed for the protected area.**
- 4.1.2 In relation to (i) the habitats and species for which the Thames Basin Heaths SPA are protected were discussed in sections 6.2 and 6.3 of the HRA.
- 4.1.3 In relation to (ii) this does not represent any change to standard ecological practice in the UK which traditionally considers impacts on European sites holistically, taking account of the underlying functional relationships.
- 4.1.4 Nonetheless, this section of the HRA Addendum has been added for clarity to specifically discuss the implications of the Holohan ruling for the Guildford Local Plan. While nightjar in particular will forage more widely, the ability of the SPA to support its populations of nightjar, woodlark and Dartford warbler is very closely linked (in terms of both nesting and foraging habitat) to the presence of two habitats within and outside the SPA boundary: heathland and traditionally managed plantation. Therefore the HRA of the Local Plan considered relevant impacts on these habitats (notably air quality impacts) despite that fact that neither habitat is a reason for designation of Thames Basin Heaths SPA. With regard to the presence of heathland or managed plantation outside the SPA boundary but which the SPA species may use for foraging or nesting, none of the proposed development sites in the Local Plan will result in the loss of significant areas of heathland or managed plantation. Therefore no adverse effect on integrity is expected and the Holohan ruling requires no change to the HRA.

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<sup>19</sup> Holohan et al vs. An Bord Pleanála (C-461/17)

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