STATEMENT OF COMMON GROUND

ON

AIR QUALITY MATTERS IN RELATION TO ECOSYSTEMS

BETWEEN

LONDON ASHFORD AIRPORT LTD ("THE APPLICANT")

AND

NATURAL ENGLAND

Signed by 27/01/11

Dr Bethan Tuckett-Jones of Parsons Brinckerhoff, on behalf of the Appellant

Signed by 26/01/11

Paul J Taylor of Atkins, on behalf of Natural England

FOR INQUIRY INTO

DEVELOPMENT OF A RUNWAY EXTENSION AND TERMINAL AT LONDON ASHFORD AIRPORT, LYDD, KENT

PLANNING INSPECTORATE REFERENCE:
APP/L2250/V/10/2131934
APP/L2250/V/10/2131936

LOCAL PLANNING AUTHORITY REFERENCE:
Y06/1647/SH & Y06/1648/SH

1 Introduction

1.1 This document sets out the statement of common ground on air quality matters in relation to ecosystems as agreed between Parsons Brinckerhoff on behalf of the Applicants and Atkins on behalf of Natural England.

1.2 The matters are addressed under the following headings:

1. Pollutants of Concern;
2. Existing Sources;
3. Existing Air Quality;
4. Assessment Criteria;
5. Assessment Methodology;
6. Assessment Findings.

2 Pollutants of Concern

2.1 The relevant pollutants for the purposes of assessing the likely air quality effects to ecosystems in respect of the applicant's proposals are:

- nitrogen oxides and nitrogen deposition.

Nitrogen dioxide is also relevant insofar as it is an intermediate component of nitrogen oxides that contributes to nitrogen deposition .

3 Existing Sources

3.1 The relevant existing sources contributing to nitrogen oxides and nitrogen deposition are:

1. the local roads within the study area;
2. the airport sources, including aircraft movements, airside traffic, the landside car park and traffic accessing the airport, as well as stationary sources such as the terminal plant; and

3. background sources, including emissions from local villages and the wider road network, together with contributions imported into the area from elsewhere in the UK and in mainland Europe, especially in relation to nitrogen deposition.

3.2 These sources have been taken into account in the assessment carried out by the Appellants.

4 Existing Air Quality

4.1 Existing air quality has been defined in different ways in the evolving sequence of air quality assessment work since the project started.

4.2 To provide the most appropriate information on existing nitrogen oxides and nitrogen dioxide background concentrations for the study area it is considered necessary to provide a fresh calculation of the existing background concentrations for 2010. This agreed approach is set out in the next two paragraphs.

4.3 The basis for the definition of existing, 2010, annual mean background concentrations of nitrogen oxides and nitrogen dioxide across the study area is the results of measurement programme carried out for 6 months in 2006 for nitrogen dioxide (SEI1 Appendix 4.3, October 2007). It is appropriate to average the results for 5 of the monitoring sites, 3, 7, 8, 9-11 (triplicate tubes at one site), and 12, in order to represent a local background. A review of data from national network automatic rural monitoring two nearby sites at Lullington Heath and Rochester Stoke has shown that 2006 had higher concentrations than 2005, so to be conservative, the diffusion tube data have been adjusted to a 2006 equivalent annual mean, following the methodology set out in Defra's guidance to local authorities (in the document LAQM.TG(09)). This gives a 2006 annual mean nitrogen dioxide concentration at the Airport of 20.1 $\mu g/m^3$. The annual mean nitrogen oxides concentration in 2006 has been estimated from the ratio between nitrogen dioxide and nitrogen oxides at the Lullington Heath monitoring site, which was 0.7609 in 2006, giving a value of 26.4 $\mu g/m^3$.

4.4 These 2006 values have been projected forwards to 2010 using the long-term trend of measured nitrogen oxides concentrations at the Lullington Heath monitoring site. These trends are 1.82% per annum from 2000 for nitrogen oxides and 1.75% per annum for nitrogen dioxide. The annual mean background concentrations in 2010 are thus 18.5 $\mu g/m^3$ for nitrogen dioxide and 24.2 $\mu g/m^3$ for nitrogen oxides.

5 Assessment Criteria

5.1 The appropriate critical level for ecosystems is an annual mean of is 30 $\mu g/m^3$ for nitrogen oxides. This is the limit value in the Air Quality Standards Regulations 2010.

5.2 The published critical load for the 'perennial vegetation of stony banks', which is the ecosystem feature of interest within the Dungeness SAC, is 10-20 kgN/ha/yr (as published on the national Air Pollution Information System ("APIS") website (http://www.apis.ac.uk/index.htm) run on behalf of Natural England and other agencies). Jo Dear, in her proof of evidence, describes how Natural England has reviewed recent information and concluded that the appropriate critical load should be 10 kgN/ha/yr, which is the lower end of the published range.

6 Assessment Methodology

6.1 The modelling for the assessment of nitrogen deposition published in December 2009 (CD1.45) was carried out using ADMS Airports (version 2.29). This is an appropriate model to use.

6.2 The dispersion model input parameters are also considered appropriate. These include:

- the use of meteorological data from the Herstmonceaux site, although it is acknowledged that this is likely to be worst case, as the windspeeds at Lydd Airport are likely to be higher, giving rise to more dilution;
- the surface roughness length of 0.02 m;
- the aircraft emissions and their application;
- the boiler plant emissions; and
- the traffic emissions.

6.3 There is disagreement though over the minimum specified Monin Obukhov length to use. This is a parameter that reflects the atmospheric stability, which in turn influences the dispersion. Parsons Brinckerhoff believe it is appropriate to use a minimum specified Monin Obukhov length of 10 m, while Atkins believe it is appropriate to have no minimum specified Monin Obukhov length.

6.4 The derivation of deposition rates for the deposition of nitrogen from the local nitrogen dioxide concentrations has been appropriately calculated using a deposition velocity of 0.1 cm/s.

6.5 The site specific deposition rates have been appropriately estimated. This has been done by obtaining the deposition rate from the APIS website for the Dungeness SAC, which is 9.8 kgN/ha/yr for 2010 onto which the modelled airport and road traffic contributions have been added to give a baseline deposition rate for each receptor.

6.6 The baseline nitrogen deposition rates for the study area in 2012 and 2014, without airport expansion, have been derived by applying a 2% per annum reduction rate to the 9.8 kgN/ha/yr for 2010. This gives nitrogen deposition values of 9.4 kgN/ha/yr in 2012 and 9.0 kgN/ha/yr in 2014, onto which the modelled airport and road traffic contributions have been added to give the baseline deposition rate for each receptor.

6.7 The future year annual mean background nitrogen oxides concentrations for the study area, without airport expansion, have been derived by extrapolating from the 2010 value using the decline observed at the Lullington Heath site between 2000 and 2010 (as noted in paragraph 4.4 above). This gives background annual mean nitrogen oxides values of 23.2 $\mu g/m^3$ and 22.1 $\mu g/m^3$ in 2012 and 2014 respectively. Atkins have then adjusted this background by removing the modelled future year baseline nitrogen oxides component at the monitoring sites, before adding the modelled airport and road traffic contributions with the Applications. Parsons Brinckerhoff have adopted a slightly more conservative approach by not removing the modelled baseline airport contribution, but adding this to the background derived from the projected monitored values. This makes only a small difference.

6.8 Nitrogen dioxide concentrations are required to allow nitrogen deposition to be calculated. These have been derived by applying a factor to the modelled nitrogen oxides concentrations. Atkins have converted the modelled nitrogen oxides concentrations arising from the local sources to nitrogen dioxide using the ratio derived from projected nitrogen oxides and nitrogen dioxide (the nitrogen oxides concentrations were projected as outlined in 6.7, with the nitrogen dioxide concentrations similarly projected). This effectively involves applying a varying ratio by assessment year (on average a ratio of 0.76) to the nitrogen oxides to derive the nitrogen dioxide contribution. Parsons Brinckerhoff have utilised a fixed ratio of 0.80 to derive the nitrogen dioxide contribution from the modelled nitrogen oxides, which is slightly more conservative. Both of these approaches are likely to overestimate the conversion of fresh nitrogen oxides emissions to nitrogen dioxide close to the source.

7 Assessment of Findings

7.1 The annual mean concentrations of nitrogen oxides calculated with the ADMS Airports model for the different Applications have not previously been published.

They are therefore presented in the proof of evidence of Dr Bethan Tuckett-Jones and in the Summary of Findings report appended to Jo Dear's proof of evidence for Natural England, based on the agreed methodology and baseline values set out above.

7.2 The nitrogen deposition maps have also been revised to take account of the revised future year baseline deposition rates, and are set out in the evidence of Dr Bethan Tuckett-Jones. Future year nitrogen deposition values are also presented in the Atkins Summary of Findings report appended to Jo Dear's proof of evidence for Natural England.