



RiverOak Strategic Partners

Manston Airport Air Freight Hub

*Reviving strategic transport infrastructure to
maximise Global Britain's trading potential*

**Applicant's Redetermination
Submission as requested by
the Secretary of State**

Appendix 1

Project: Manston Airport Development Consent Order
Document Ref: TR020002/RED2/SoSReq/APP1
Redetermination Deadline Date: 3 December 2021

Technical note:

Manston Airport – Response to air quality

representations:

Effects on air quality impacts of updated APIS data

1. Introduction

- 1.1.1 On 11 June 2021, the Secretary of State issued a statement setting out the matters to be considered further in the re-determination of the application to reopen and develop Manston Airport. Interested Parties were invited to submit representations on this statement, of which Natural England provided comment on Biodiversity, as follows:

"recommend that the applicant ensures that any air quality assessments (including any air quality information that informs the Habitats Regulations Assessment) are updated to refer to the most current background deposition and concentration datasets from the Air Pollution Information Service (APIS). These datasets were updated on 28th March 2021, to a 3-year average for 2017-2019."

- 1.1.2 This technical note provides an update to the air quality assessment to refer to the most up to date background deposition and concentration datasets publicly available. It only covers air quality impacts on ecological receptors, not human receptors. Pollutants addressed are:

- annual mean concentrations of oxides of nitrogen (NO_x);
- daily mean concentrations of NO_x;
- annual deposition rates of nutrient nitrogen (N); and
- annual deposition rates of acidity (made up of acid nitrogen and sulphur (S)).

1.2 Terminology

- 1.2.1 Key terminology used in the previous Environmental Statement (ES) air quality assessment and subsequent updates requested through Written Questions during the Examination Phase is reprised here for convenience:

- The Proposed Development: the development of Manston Airport that is the subject of the application.
- Process Contribution (PC): the contribution of the Proposed Development to air quality impacts (concentrations or deposition rates);
- In Combination Contribution (ICC): the PC plus the contribution from other future plans and projects;
- Predicted Environmental Concentration (PEC): the total concentration or deposition rate, including both the PC and future background contributions.

- Air Pollution Information System (APIS): a website¹ supported by numerous UK agencies from which background deposition rates and critical loads are taken.
- Air Quality Assessment Level (AQAL): a generic term for critical level or critical load. The AQALs used in this technical note are as follows:
 - ▶ 30 $\mu\text{g m}^{-3}$ for annual mean NO_x .
 - ▶ 200 $\mu\text{g m}^{-3}$ for daily mean NO_x .
 - ▶ Site/habitat-specific for nitrogen deposition.
 - ▶ 100% of the site/habitat-specific acidity critical load function for acid deposition.

1.3 The original assessment

- 1.3.1 The air quality impacts on ecological sites were assessed during the course of the application for a Development Consent Order (DCO). The ES included an initial assessment which was subsequently updated to include an in-combination assessment to meet additional requirements identified following the Wealden Judgement². The ecological assessment was therefore updated during the course of the Examination Phase of the application, and presented in two principal documents:
- The Updated Report to Inform the Appropriate Assessment³; and
 - The Environmental Statement (ES) Addendum⁴.
- 1.3.2 These are collectively referred to here as the 'original assessment'.
- 1.3.3 The original assessment found that at most ecological receptors, air quality impacts could be screened out as not significant using Environment Agency criteria⁵, modified to take account of the Wealden Judgement. In summary, the modifications to account for the Wealden Judgement are as follows:
- For annual mean NO_x concentrations, impacts are only screened out where the PEC is less than 70% of the AQAL, regardless of the PC; and
 - For nitrogen deposition and acid deposition, impacts are screened out where the PEC is less than 70% of the AQAL or the ICC is less than 1% of the AQAL.
- 1.3.4 Where impacts at a receptor could not be screened out as not significant, further assessment was undertaken by a qualified ecologist.

2. Methodology

- 2.1.1 The assessment methodology is unchanged from that presented previously (see **Chapter 2** of the RIAA³), except that background concentrations and deposition rates have been updated, as

¹ Air Pollution Information System [online]. Available at [REDACTED] [Accessed 25 August 2021]

² Wealden v SSCLG [2017] EWHC 351 (Admin)

³ Wood (2019) Updated Report to Inform the Appropriate Assessment. TR020002/D7a/RIAA.

⁴ Wood (2019) Addendum to the Environmental Statement [APP-033] Chapter 6 Air Quality. TR020002/D6/5.2.6

⁵ Environment Agency (2016). 'Air emissions risk assessment for your environmental permit' [online]. Available at: [REDACTED] dated 2 August 2016.

requested by Natural England. In particular, this means the PCs and ICCs are unchanged from the original assessment. It is only the PECs that have changed.

- 2.1.2 The latest published background deposition rates have been taken from APIS and background concentrations from Defra's forecast maps⁶. The forecast maps use a base year of 2018, with forecast concentrations for the years 2021 (Year 2), 2025 (Year 6) and 2030 (Year 20)⁷. As in the original assessment⁶, the Defra maps are preferred to the APIS concentrations since they are on a finer resolution grid and are considered to be more realistic forecasts for future years. The choice of 2021 for Year 2, etc., is for consistency with the original assessment.

- 2.1.3 To inform the assessment of air quality impacts on ecological receptors, the assumptions made previously have been checked to confirm continued validity (specifically the site condition assessments presented on the Natural England designated sites website were checked).

3. Results

- 3.1.1 Both the original assessment and the updated assessment conclude that the majority of air quality impacts can be screened out as insignificant in accordance with Environment Agency guidance (with the amendment that ICC should be used in place of PC). Only a small number of impacts at a small number of receptors could not be screened out as insignificant, and therefore require further assessment. The remainder of this technical note only discusses those impacts that cannot be screened out as insignificant.
- 3.1.2 Generally, background NO_x concentrations and N deposition rates are slightly higher in the updated assessment than in the original assessment (see **Table 3.1**, **Table 3.2**, and **Table 3.3** respectively). S deposition rates are slightly lower than those modelled previously (see **Table 3.4**).
- 3.1.3 Results are presented as percentages of the corresponding AQAL.

3.2 Annual mean NO_x

- 3.2.1 The original assessment⁴ (paragraph 2.2.15) found with regard to annual mean NO_x that:
- "air quality effects cannot be screened out for the following ecological receptors associated with designated sites and priority habitats:*
- *Annual mean NO_x on two receptors (ER012 and E41) in Year 2, Year 6 and Year 20 year".*
- 3.2.2 This statement remains unchanged for the updated assessment. No receptors failed the criterion for being screened out as insignificant in the updated assessment that did not do so in the original assessment.
- 3.2.3 Annual mean NO_x concentrations at these receptors are presented in **Table 3.1** for each of the scenarios. Note that the original assessment did not calculate ICCs for annual mean NO_x.

⁶ Defra (no date) Background Mapping data for local authorities – 2018 [online]. Available at: [REDACTED] [Accessed 25 August 2021].

⁷ Note that background maps are only produced up to and including 2030.

Table 3.1 Annual mean NO_x concentrations

Year	Receptor	Assessment	PC (% of AQAL)	ICC (% of AQAL)	PEC (% of AQAL)
2	E41	Original	1.7%	N/A	147.0%
2	E41	Updated	1.7%	9.6%	151.8%
2	ER012	Original	0.7%	N/A	78.3%
2	ER012	Updated	0.7%	3.5%	85.2%
6	E41	Original	5.3%	N/A	146.1%
6	E41	Updated	5.3%	16.6%	152.8%
6	ER012	Original	2.1%	N/A	75.4%
6	ER012	Updated	2.1%	6.1%	82.0%
20	E41	Original	8.4%	N/A	164.3%
20	E41	Updated	8.4%	41.0%	173.6%
20	ER012	Original	3.2%	N/A	80.1%
20	ER012	Updated	3.2%	15.0%	87.5%

3.2.4 Total concentrations (PECs) are slightly higher in the updated assessment (between 4.8%–9.3% higher) than in the original assessment, due to the higher background concentrations.

3.2.5 With regard to receptor ER012, the original assessment⁴ noted a number of reasons why “no further assessment of ER012 is required” (paragraph 2.2.23). These reasons are still considered to be valid, so the conclusion remains unchanged.

3.2.6 With regard to receptor E41, the original assessment⁴ reviewed the condition of the Sandwich Bay to Hacklinge Marshes SSSI Unit 11 represented by this receptor. It concluded (paragraph 2.2.29):

“Overall, therefore, given the already degraded nature of the habitats in this location and taking the above factors into account, no ecological effects that would undermine the conservation objectives for the SSSI are predicted in relation to annual mean NO_x emissions and therefore no significant ecological effect is predicted.”

3.2.7 This assessment is still considered to be valid, so the conclusion remains unchanged.

3.3 Daily mean NO_x

3.3.1 The original assessment⁴ (paragraph 2.2.15) found with regard to daily mean NO_x that:

“air quality effects cannot be screened out for the following ecological receptors associated with designated sites and priority habitats:...

- *Daily mean NO_x on eight receptors (E20, E21, E22, E23, E24, E39, E81 and E82) in Year 2, three receptors (E21, E22 and E23) in Year 6 and one receptor (E22) in Year 20.”*

- 3.3.2 This statement remains unchanged for the updated assessment. No receptors failed the criterion for being screened out as insignificant in the updated assessment that did not do so in the original assessment.
- 3.3.3 Daily mean NO_x concentrations at these receptors are presented in **Table 3.2** for each of the scenarios. Note that the original assessment did not calculate ICCs for daily mean NO_x.

Table 3.2 Daily mean NO_x concentrations

Year	Receptor	Assessment	PC (% of AQAL)	ICC (% of AQAL)	PEC (% of AQAL)
2	E20	Original	15.2%	N/A	35.2%
2	E20	Updated	15.2%	15.6%	34.3%
2	E21	Original	27.0%	N/A	47.9%
2	E21	Updated	27.0%	27.6%	46.9%
2	E22	Original	34.8%	N/A	57.6%
2	E22	Updated	34.8%	35.7%	58.7%
2	E23	Original	38.4%	N/A	60.1%
2	E23	Updated	38.4%	39.1%	61.2%
2	E24	Original	20.6%	N/A	40.5%
2	E24	Updated	20.6%	21.3%	41.4%
2	E39	Original	10.1%	N/A	25.4%
2	E39	Updated	10.1%	10.5%	26.6%
2	E81	Original	220.5%	N/A	246.3%
2	E81	Updated	220.5%	221.6%	248.4%
2	E82	Original	197.0%	N/A	228.1%
2	E82	Updated	197.0%	198.7%	231.2%
6	E21	Original	9.8%	N/A	29.0%
6	E21	Updated	9.8%	10.6%	28.3%
6	E22	Original	14.3%	N/A	35.6%
6	E22	Updated	14.3%	15.5%	36.8%
6	E23	Original	11.9%	N/A	32.2%
6	E23	Updated	11.9%	12.9%	33.2%
20	E22	Original	10.8%	N/A	31.6%
20	E22	Updated	10.8%	12.8%	33.0%

- 3.3.4 Total concentrations (PECs) are similar in the updated assessment to the original assessment.

- 3.3.5 At the major receptors, namely E20, E21, E22, E23, E24 and E39, PECs remain well below the AQAL. For this and other reasons, the original assessment⁴ concluded (paragraph 2.2.36) that:

"it is considered very unlikely that the maximum daily NO_x would result in an ecological effect at any of the major receptors where exceedance of the screening threshold is predicted at Year 2, Year 6 or Year 20. There will therefore be no significant ecological effects on the nationally designated sites."

- 3.3.6 This assessment is still considered to be valid and therefore the conclusion remains unchanged for the updated assessment.

- 3.3.7 At the local receptors, namely E81 and E82, the original assessment⁴ concluded (paragraph 2.2.36) that:

"it is considered very unlikely that the maximum daily NO_x would result in an ecological effect at Receptors E81 and E82 where exceedance of the screening threshold is predicted at Year 2. There will therefore be no significant ecological effects on these local receptors."

- 3.3.8 This assessment is still considered to be valid and therefore the conclusion remains unchanged for the updated assessment.

3.4 Nitrogen deposition

- 3.4.1 The original assessment⁴ (paragraph 2.2.16) found with regard to nitrogen deposition that:

"air quality effects cannot be screened out as insignificant on the following ecological receptors associated with designated sites and priority habitats:

- *Nitrogen deposition on one receptor (ER012) in Year 6 and receptors E26, E28 and ER012 in Year 20".*

- 3.4.2 This statement remains valid for the updated assessment. No receptors failed the criterion for being screened out as insignificant in the updated assessment that did not do so in the original assessment.

- 3.4.3 Nitrogen deposition at these receptors is presented in **Table 3.3** for each of the scenarios.

Table 3.3 Nitrogen deposition

Year	Receptor	Assessment	PC (% of AQAL)	ICC (% of AQAL)	PEC (% of AQAL)
6	ER012	Original	0.6%	1.7%	169.7%
6	ER012	Updated	0.6%	1.7%	184.2%
20	E26	Original	0.6%	2.1%	170.1%
20	E26	Updated	0.6%	2.1%	184.6%
20	E28	Original	0.7%	2.8%	170.8%
20	E28	Updated	0.7%	2.8%	185.3%
20	ER012	Original	0.8%	3.9%	171.9%
20	ER012	Updated	0.8%	3.9%	186.4%

- 3.4.4 Total deposition rates (PECs) are slightly higher (14.5%) in the updated assessment compared to the original assessment, due to the higher background deposition rates. However, the increase is small relative to the amount of exceedance, and the contribution from the Proposed Development (the PC) and the in-combination contribution (the ICC) are both very small.
- 3.4.5 For these and other reasons, the original assessment⁴ concluded (paragraph 2.2.48) that:
- "ecological effects that would undermine the conservation objectives of the SSSI are not predicted at the receptors (ER012 in Year 6 and ER012, E26 and E28 in Year 20) where nitrogen deposition cannot be screened out as insignificant. There will therefore be no significant ecological effects on the nationally designated sites."*
- 3.4.6 This assessment is still considered to be valid and therefore conclusion remains unchanged for the updated assessment.

3.5 Acid deposition

- 3.5.1 The original assessment⁴ (paragraph 2.2.16) found with regard to acid deposition that:
- 3.5.2 *"air quality effects cannot be screened out as insignificant on the following ecological receptors associated with designated sites and priority habitats:...*
- *Acid deposition on one receptor (E41) in Years 2 and 6 and three receptors (E40, E41 and ER012) in Year 20."*
- 3.5.3 This statement remains valid for the updated assessment. No receptors failed the criterion for being screened out as insignificant in the updated assessment that did not do so in the original assessment⁵.
- 3.5.4 Acid deposition at these receptors is presented in **Table 3.4**.

Table 3.4 Acid deposition

Year	Receptor	Assessment	ICC (% of AQAL)	Background (% of AQAL)	PEC (% of AQAL)
2	E41	Original	2.6	220.5	223.1
2	E41	Updated	2.6	209.1	211.7
6	E41	Original	4.4	220.5	224.9
6	E41	Updated	4.4	209.1	213.5
20	E40	Original	2.0	220.5	222.5
20	E40	Updated	2.0	209.1	211.1
20	E41	Original	10.3	220.5	230.9
20	E41	Updated	10.3	209.1	219.5
20	ER012	Original	2.0	100.0	102.0
20	ER012	Updated	2.0	97.3	99.3

- 3.5.5 The total deposition rate (PEC) is slightly lower (2.7%–11.4%) in the updated assessment, due to the reduced background sulphur deposition rate. The PECs at E40 and E41 remain well above the AQAL, whilst the PEC at ER012 changes from slightly above to slightly below the AQAL.
- 3.5.6 The original assessment⁴ reviewed the conditions of the site, trends in emissions and other factors, and concluded (paragraph 2.2.60) that:
- "no ecological effects that would undermine the conservation objectives for the SSSI are predicted at the assessed receptors in relation to acid deposition. There will therefore be no significant ecological effects on the nationally designated sites."*
- 3.5.7 This assessment is still considered to be valid and therefore the conclusion remains unchanged for the updated assessment.

4. Summary and conclusions

- 4.1.1 This updated assessment does not find any new receptors above and beyond those contained in the original assessment where air quality impacts cannot be screened out as insignificant.
- 4.1.2 Increases in annual mean NO_x, daily mean NO_x and nitrogen deposition are predicted compared to the original assessment, at receptors where impacts cannot be screened out as insignificant. However, these increases are small and do not lead to any exceedances of the AQALs for annual mean NO_x or daily mean NO_x, or any new exceedances of the AQAL for nitrogen deposition. Small decreases in acid deposition are predicted compared to the original assessment.
- 4.1.3 All receptors where the impacts cannot be screened out as insignificant were assessed as part of the original assessment. The changes reported in this updated assessment are not considered to be large enough to materially change the conclusions presented in the original assessment, as the assumptions supporting the conclusions made previously are considered to remain valid. The overall conclusion of the original assessment⁴ is therefore considered to be valid for the updated assessment, namely that:
- "there will be no significant ecological effects on major or local receptors resulting from changes to the air quality environment caused by the Proposed Development alone or in combination, during construction or operation. Furthermore, no adverse effects on the integrity of the Sandwich Bay SAC are predicted due to air quality changes caused by the Proposed Development alone or in combination, during construction or operation."*

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