RiverOak Strategic Partners

Addendum to the Environmental Statement [APP-033] Chapter 6 Air Quality

TR020002/D6/5.2.6

Examination Document

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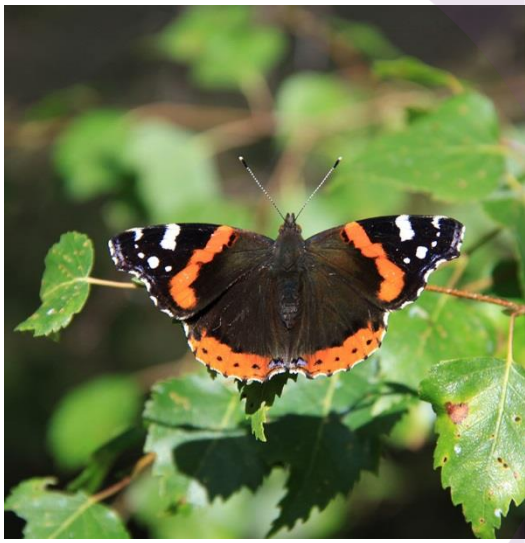
RiverOak Strategic Partners Limited

Manston Airport Development Consent Order

Environmental Statement Addendum- Potential Effects arising from the use of the Kent County Council Thanet Strategic Transport Model



Wood Environment & Infrastructure Solutions UK Limited – May 2019

Report for

George Yarrall
RiverOak Strategic Partners
Audley House
London W1K 6WF
United Kingdom

Main contributors

Katie Lidington
Poppy Prentice

Issued by

[redacted]

Kate Godsmark

Approved by

[redacted]

Nick Hilton

Wood

Floor 23
25 Canada Square
Canary Wharf
London E14 5LB
United Kingdom
Tel +44 (0) 203 215 1610

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Document revisions

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Contents

1. Introduction

1.1.1 This document has been prepared and submitted at Deadline 6 to summarise any potential effects arising from the use of the Kent County Council's (KCC) Thanet Strategic Transport Model (TSTM) to assess the traffic impact resulting from the re-opening of Manston Airport (the 'Proposed Development'). It forms an addendum to the Environmental Statement (ES) [APP-033, 034, 035] for the Manston Airport Development Consent Order (DCO) application. It also forms a direct response to the Examining Authority's (ExA) request to make available further work associated with use of the TSTM), as detailed in the First Written Questions, Tr.1.5 [REP3-195], submitted at Deadline 3.

1.1.1 A Transport Assessment (TA) addendum [REP5-021] and associated revision to the Transport ES Chapter [REP5-022] which utilise the TSTM were provided at Deadline 5. Consequently, the purpose of this document is to provide the ExA with a clear understanding of any subsequent implications for other assessments contained within the ES [APP-033,034,035].

1.1.2 As such, any changes to the environmental effects of the Proposed Development reported in the ES [APP-033,034,035] are considered in this context. For completeness, this addendum also provides a brief report on those chapters that are not affected by the use of the TSTM and why that is the case.

1.1.3 This document should be read in conjunction with the ES submitted alongside the DCO application and all subsequent revisions to the suite of application documents.

1.2 Background

1.2.1 In July 2018, RiverOak Strategic Partners Limited (hereafter referred to as 'RiverOak') submitted a DCO application which seeks to authorise the re-development of Manston Airport (the 'site') as a freight and passenger airport. with the capacity to handle a minimum of 10,000 air traffic movements annually. It is envisaged that this will provide additional air freight capacity to the UK and serve to relieve pressure from other heavily congested airports in the south-east.

1.2.2 The Proposed Development is a Nationally Significant Infrastructure Project (NSIP) under Part 3 of the *Planning Act 2008*[1] (hereafter referred to as 'the 2008 Act') and therefore required an application to be submitted for a DCO under Section 14 of the 2008 Act. Further detail is provided within **Chapter 1: Introduction**, **Section 1.5**, and in **Chapter 3: Description of the Proposed Development** of the ES [APP-033].

1.2.3 KCC have been developing a TSTM to support the draft Thanet Local Plan[2]. At the time the DCO application was submitted, the TSTM was being revised and was not available for third party use. Whilst the Applicant would have been prepared to use the strategic model, had it been available, a robust spreadsheet model, agreed in principle with KCC, was developed and used for the assessment of the traffic impacts arising from the Proposed Development. It was concluded that this formed a robust basis for the assessments contained within the TA [] and ES [APP-033,034,035] and as such was taken forward as the only available assessment tool at the time of submission.

[1] Planning Act 2008 S23(4)(a) -(b) and (5)(a)-(b) (2008) [online]. Available at: http://www.legislation.gov.uk/ukpga/2008/29/pdfs/ukpga_20080029_en.pdf [Accessed April 2019].
[2] Thanet District Council (2018). Draft Thanet Local Plan to 2031 [online]. Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/11/CD1.1-Draft-Thanet-Local-Plan-Reg-19.pdf [April 2019].

1.2.4 The TSTM was made available to the applicant in November 2018 and despite the ongoing process of approving the Local Plan and the transport strategy associated with it, it was agreed to reassess the traffic impact of the Proposed Development using the model.

1.3 Contents of this Addendum

Post application revisions to the assessment

1.3.1 The changes integrated as part of the revisions to the TA [d REP5-021] and ES Traffic and Transport Chapter [REP5-022], take account of the following:

- Agreement with KCC on trip generation with revisions to passenger arrival times and deletion of shared taxi mode share;
- Agreement on traffic distribution;
- Agreement on the modelling of the Proposed Development traffic using the TSTM; and
- Identification of an alternative alignment for the Manston-Haine Link Road to be used in the future year scenario.

1.3.2 Further detail on the requirements for the changes to the TA [APP-060, 061] and the revised traffic modelling is given as a summary in **Chapter 2: Traffic and Transport** within this document and in the ES Transport Chapter [REP5-022] and addendum to the TA [REP5021] submitted at Deadline 5.

1.3.3 The TSTM relates to the surface transport network only and does not alter the aviation forecasts assessed within the ES [APP-033, 034, 035]. The updated model does not affect on-site infrastructure and its operation.

Impacts of the assessment revisions

1.3.4 The revised traffic modelling includes existing and future baseline scenarios that potentially have wider implications for other assessments contained within the ES [APP-033, 034, 035]. In this regard, the principal issue involves changes to link flows resulting from alternative distribution of traffic across the network as a result of assumptions embedded within the TSTM.

1.3.5 It should be emphasised that the built development parameters for Manston Airport are unaffected, and the aviation forecast remains consistent with that assessed in the ES [APP-033,034,035] submitted with the DCO application. As noted in paragraph 1.3.1, there have been some minor modifications to the trip generation associated with the Proposed Development resulting from discussions with KCC, however, these are relatively minor and any changes arising to link flows arise principally from traffic assignment assumptions contained within the TSTM, not as a result of the Proposed Development itself.

1.3.6 The ExA implicitly acknowledged in First Written Questions Tr 1.5 [REP3-195] that there may be links between changes in Traffic and Transport modelling and both the Noise and Vibration (**Chapter 12**) [APP-034] and Air Quality (**Chapter 6**) [APP-033] assessments.

1.3.7 For Deadline 5, sensitivity testing was undertaken for both noise and air quality [REP5-021], which concluded that further work was required to determine whether there are any changes to the assessment of significance relied upon within the ES [APP-033, 034, 035]. This addendum reports any changes associated with these assessments (refer to at **Chapter 3: Noise and Vibration** and **Chapter 4: Air Quality**).

1.3.8 Given the links between noise and air quality and various other ES topics itis also important to consider whether any changes to these data may affect other assessments within the ES [APP-033, 034, 035]. As such, this document details a summary of the changes and resultant effects for each of the remaining chapters (refer to **Chapter 5: Other Environmental Topics**).

1.4 Structure

1.4.1 This ES addendum is structured as follows:

- **Chapter 2** addresses the requirements for changes to the Traffic and Transport assessment, and summarises the changes, the outputs and resultant effects.
- **Chapter 3** addresses the changes and resultant effects for the Noise and Vibration assessment.
- **Chapter 4** addresses the changes and resultant effects for the Air Quality assessment.
- **Chapter 5** addresses the changes and resultant effects for the Biodiversity assessment.
- **Chapter 6** addresses the potential; implications for other environmental topic chapters within the ES [APP-033, 034, 035], this includes:
  - Freshwater Environment;
  - Historic Environment;
  - Land Quality;
  - Landscape and Visual;
  - Socio-Economics;
  - Human Health;
  - Climate Change;
  - Greenhouse Gas Emissions; and
  - Major Accidents and Disasters.
- **Chapter 7** summarises the contents of this addendum.

2. Traffic and Transport

2.1 Introduction

2.1.1 As outlined in paragraph 1.2.3, at the time of submission, the KCC TSTM was not available for third party use. However, since the submission of the DCO application, the Local Plan has been published and revisions to the TSTM completed. As such, in consultation and agreement with KCC, Wood commissioned KCC's transport model consultant to undertake model runs of the Proposed Development. This has resulted in changes to the surface transport traffic flow data (refer to **Sections 1.2** and **1.3**). Aviation forecasts have not been modified.

2.1.2 Changes to the transport model have resulted in amendments to the ES Transport Chapter [APP-034], the (TA [APP-060, 061] and a number of other supporting documents which were submitted at Deadline 5. These include

- Public Rights of Way Management Strategy (PRoWMS) [REP5-021];
- Airport Surface Access Strategy [REP5-021];
- Travel Plan [REP5-021]; and
- Car Park Management Strategy [REP5-021].

2.1.3 The main outputs of the TA addendum [REP5-021] and ES Transport Chapter [REP5-022] are summarised below.

2.2 Requirement for changes

2.2.1 A number of factors have led to amendments to the traffic data as contained within the ES [APP-034] and TA [APP-060,061], as follows:

- Traffic generation – consultation with KCC resulted in:
  - Changes to the arrival times for passengers at the airport terminal which affected the peak hour flows; and
  - Removal of shared taxi as a mode type.
- Inclusion of the draft Thanet Transport Strategy, specifically the Inner Circuit Route Improvement Strategy (ICRIS), incorporating a new road link close to the site known as the Manston-Haine Link Road;
- Use of the KCC TSTM which has had a consequence on the following:
  - Traffic assignment on the road network – the TSTM is a dynamic model meaning that traffic assignment responds to congestion on the network; and
  - Changes to proportional differences in traffic flows as a result of the Proposed Development.
- Receptor locations have increased from 30 to 52 in response to the TSTM's wider output range in terms of links and junctions and consideration of new links as a result of the ICRIS.

2.2.2 The revised assessment associated with both environment and capacity has resulted in outputs which affected the requirements for:

- Highways safety schemes;
- Junction capacity schemes;
- Environmental mitigation; and
- Local infrastructure improvements (particularly the Manston-Haine alternative alignment).

2.3 Summary of outputs and resultant effects

2.3.1 The revised ES Transport Chapter [REP5-022] submitted at Deadline 5 sets out the results of analysis for 52 locations, of which 13 were identified to exceed the impact threshold in terms of proportional increase, this a consequence of the Proposed Development traffic generation.

2.3.2 An assessment of the environmental effects on receptors at these 13 locations concluded that there was no significant impact as a result of the Proposed Development.

3. Noise and Vibration

3.1 Introduction

3.1.1 As set out in Transport ES Chapter submitted at Deadline 5 [REP5-022], sensitivity testing was carried out on the revised traffic data, comparing the distribution of road traffic both with and without the Proposed Development.

3.1.2 The sensitivity test was carried out to determine if the revised data would trigger the screening criteria requiring detailed a noise assessment to be carried out as part of the ES noise assessment. The screening criteria, consistent with Volume 11, Section 3, Part 7 of the Design Manual for Roads and Bridges[3] (DMRB) are as follows:

- All routes that have been bypassed or improved, any proposed new routes or where the road has altered the alignment of any existing carriageway;
- All road segments that were predicted to experience a 25 % increase or 20 % decrease in vehicle flows, and / or a noticeable change in %HGV content;
- All routes where there has been a change in traffic speed or proportion of Heavy Goods Vehicles (HGVs) which would lead to a 1dB change in road traffic noise levels; and
- Construction traffic haul routes (on public roads).

3.1.3 The revised Traffic Data and Noise Impact Assessment Technical Note submitted at Deadline 5 [REP5-022] outlines the results of the sensitivity testing. These results were illustrated in three figures:

- **Figure 12.22** – Predicted increase in road noise resulting from Manston operational traffic – Year 2;
- **Figure 12.23** – Predicted increase in road noise resulting from Manston operational traffic – Year 6; and
- **Figure 12.24** – Predicted increase in road noise resulting from Manston operational traffic – Year 20.

3.1.4 The sensitivity analysis identified links where a change in noise levels as a result of development traffic, could result in a noise increase of more than 1dB. This section of the addendum presents a revised assessment of potential significant effects on these roads resulting from an increase in traffic resulting from the Proposed Development.

3.2 Methodology

Assessment years

3.2.1 For construction, the assessment has been undertaken:

[3] Highways England (2019). The Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, HD 213/11 – Revision 1 Noise and Vibration [online]. Available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/ [Accessed 26/04/2019].

- For the daytime period in Year 2 – the year of highest forecast construction traffic during the daytime period prior to the opening of the Proposed Development; and
- For the night time period in Year 6 – the year of highest forecast construction traffic at night. It should be noted that similar levels of night time construction traffic are forecast in all construction phases up to the full operation of the Proposed Development in Year 18.

3.2.2 For operation, the assessment has been undertaken in Year 20 – the year of highest forecast operational traffic once construction is complete and highest forecast noise change (Figure 12.24 [REP5-022]).

Study area

3.2.3 Road noise has been assessed at sensitive receptors within 1.5km of roads which have been screened into the assessment. The study area extends further than the day time and night time Lowest Observed Adverse Effect Level with and without the scheme. The study area is shown in **Figure 3.1** in **Appendix A**.

3.2.4 For the construction phases, noise has been assessed on the following roads which form part of the construction traffic routes to and from the Proposed Development (see **Figure 3.1** in **Appendix A**):

- A299 Thanet Way;
- Minster Road North of A299; and
- Spitfire Way.

3.2.5 For the operational phases, noise from the following roads has been screened into the assessment (see **Figure 3.1** in **Appendix A**):

- Manston Road;
- Manston Court Road;
- A299 Thanet Way;
- Minster Road;
- Spitfire Way;
- Star Lane; and
- Poorhole Lane.

Assessment criteria

3.2.6 The effect levels for construction and operation road traffic noise were presented in Table 12.6 of Chapter 12 of the ES [APP-033,034,035]. These are reproduced in **Table 3.1**.

Table 3.1 Summary of Road Traffic Noise Thresholds

Noise Sources	Receptor	Period	LOAEL	SOAEL
	Residential	Daytime (07:00-23:00)	50 dB $L_{Aeq,16hr}$	63 dB $L_{Aeq,16hr}$

Noise Sources	Receptor	Period	LOAEL	SOAEL
Construction and operational noise – road traffic		Night-time (23:00-07:00)	40 dB $L_{Aeq,8hr}$	55 dB $L_{Aeq,8hr}$

Significant effects at individual residential receptors

3.2.7 A significant adverse effect on health and quality of life is determined to occur at any individual receptor when the calculated end state noise is greater than the Significant Observed Adverse Effect Level (SOAEL) threshold level as a result of the Proposed Development.

Significant effects at community receptors

3.2.8 Where the road traffic noise effects at residential receptors lie between the Lowest Observable Adverse Effect Level (LOAEL) and the SOAEL, consideration is given to the following factors to evaluate the magnitude of significance in terms of the National Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[4] (hereafter referred to as the 'EIA Regulations'):

- The magnitude of the effect;
- The change in magnitude of the effect (refer to **Table 3.2** and **Table 3.3** for DMRB classification for road noise impacts);
- The number of residential receptors affected;
- The sensitivity of receptors within the 'community';
- The type of effect, including its intermittency;
- The existing sound environment;
- The effectiveness of mitigation, including Best Practicable Means (BPM); and
- The duration of effect.

Table 3.2 DMRB Classification of Magnitude of Noise Impacts in the Short-Term

Noise Change in (dB $L_{AEQ,16hr}$ / $L_{AEQ,8hr}$)	Magnitude of Impact
0	No Change
0.1 – 0.9	Negligible
1 – 2.9	Minor
3 – 4.9	Moderate
5+	Major

[4] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 [online]. Available at: http://www.legislation.gov.uk/uksi/2017/571/contents/made [Accessed April 2019].

Table 3.3 DMRB Classification of Magnitude of Noise Impacts in the Long-Term

Noise Change in (dB $L_{AEQ,16hr}$ / $L_{AEQ,8hr}$)	Magnitude of Impact
0	No Change
0.1 – 2.9	Negligible
3 – 4.9	Minor
5 – 9.9	Moderate
10+	Major

Types of effect

3.2.9 The Proposed Development does not include any new or altered roads. Hence all road noise effects related to the Proposed Development are indirect effects. This is because, for road noise, the legislative context is set by the Noise Insulation Regulations 1975[5] (as amended) under the Land Compensation Act 1973[6]. These noise insulation regulations only apply to 'new or altered' roads. The precedent set by relevant DCO's (for example A14 Cambridge to Huntingdon Improvement Proposed Development) and enacted hybrid Bills (for example HS2 Phase 1) is to therefore consider noise effects resulting from changes to traffic patterns on existing roads as indirect effects.

Noise predictions

3.2.10 Noise predictions for all assessment years have been made at receptor points which are representative of one or more noise sensitive receptors. Each receptor point has been given a unique code. The receptor points are presented in **Figure 3.2** in **Appendix A**.

3.2.11 Noise predictions at these receptor points together with assumptions and input data used to undertake the assessment are provided in **Table B.1** to **Table B.5** in **Appendix B**.

3.3 Summary of changes

Construction phases

Year 2 – Daytime (07:00 to 23:00)

Permanent Noise Impacts at Residential Receptors

3.3.1 In Year 2, no residential properties are forecast to be newly exposed to noise levels above the SOAEL as result of the combined indirect effects of operational and construction traffic during the day.

[5] The Noise Insulation Regulations 1975 [online]. Available at: https://www.legislation.gov.uk/uksi/1975/1763/contents/made [Accessed April 2019].
[6] The Land Compensation Act 1973 [online]. Available at: https://www.legislation.gov.uk/ukpga/1973/26/contents [Accessed April 2019].

Permanent Noise Impacts on Community Receptors

3.3.2 In Year 2, no likely significant effects have been identified as result of the combined indirect effects of operational and construction traffic during the day.

Year 6 – Night time (23:00 to 07:00)

Permanent Noise Impacts at Residential Receptors

3.3.3 In Year 6, the following properties are forecast to be newly exposed to noise levels above the SOAEL as result of the combined indirect effects of operational and construction traffic during the night:

- Approximately 2 properties in the vicinity of Wagtail Farm, Birchington closest to the A299 (Receptor Location RTN01);
- Approximately 1 property in the vicinity of Greys Farm, Cantebury closest to the A299 (Receptor Location RTN03);
- Approximately 1 property in the vicinity of Frost Farm, Birchington closest to the A299 (Receptor Location RTN82);

3.3.4 At these properties the noise change as a result of the Proposed Development is approximately 3dB. These dwellings will be exposed to significant annoyance, disturbance and sleep disturbance as a result of the Proposed Development construction traffic. A **significant adverse temporary indirect effect** in the context of Government Noise Policy has therefore been identified at up to 4 residential properties during the night time.

Permanent Noise Impacts on Community Receptors

3.3.5 Minor temporary short-term impacts at approximately 25 properties on Spitfire Way (Bell Davis Drive and Pouces Cottages), Manston (Receptor Locations RTN32 and 33) are predicted during the night time periods in Year 6. This is as a result of construction and operational traffic accessing the site via Spitfire Way. Construction traffic is forecast to use Spitfire Way at night between Year 2 and Year 18. Road noise would increase to the point where there would be a perceived change in quality of life for occupants of buildings in this community. Considering the magnitude of the impact, the number of properties impacted and the duration of the impact, **a likely significant indirect effect** has been identified at properties on Spitfire Way.

3.3.6 Minor to moderate temporary short-term impacts at approximately 40 properties At Smugglers Leap, Minster Road, Manston (Receptor Locations RTN65 and 66) are predicted during the night time periods in Year 6. This is as a result of construction and operational traffic accessing the site via Minster. Noise levels at these receptors are above the SOAEL, with and without the Proposed Development. Construction traffic is forecast to use Spitfire Way at night between Year 2 and Year 18. Road noise would increase to the point where there would be a perceived change in quality of life for occupants of buildings in this community. Considering the magnitude of the impact, the existing noise level at these receptors, the number of properties impacted and the duration of the impact, **a likely significant indirect effect** has been identified on the community of Manston at Smugglers Leap.

3.3.7 Temporary short-term impacts are predicted during the night at:

- approximately 170 properties (Minor impacts) in Monkton in the vicinity of Parsonage Fields and Monkton Street (Receptor Locations RTN68, 69, 70 and 71);

- approximately 90 properties in Minster (Minor impacts) in the vicinity of Temple Close and Fairfield road (Receptor Locations RTN72 and 75);
- approximately 200 properties in Birchington (Minor to moderate impacts) in the vicinity of Wagtail Farm, Rose Cottage, Greys Farm, the Length, Stuart Lane, Court Road and Frost Farm (Receptor locations RTN02, 03, 04, 31, 64, 78 and 82)

3.3.8 This is as a result of construction and operational traffic accessing the site. Noise levels at the majority of these receptors are between the LOAEL and SOAEL with and without the Proposed Development. Considering the magnitude of the impact and that the road is not a new noise source, hence these properties are already exposed to road traffic noise above the LOAEL, **no likely significant indirect effect** has been identified on the communities of Monkton, Minster or Birchington.

Operational phase – Year of maximum forecast capacity

Permanent Noise Impacts at Residential Receptors

3.3.9 In Year 20, the following properties are forecast to be newly exposed to noise levels above the SOAEL as result of the combined indirect effects of operational traffic during the night:

- Approximately 2 properties in the vicinity of Wagtail Farm, Birchington closest to the A299 (Receptor Location RTN01);
- Approximately 1 property in the vicinity of Greys Farm, Canterbury closest to the A299 (Receptor Location RTN03);

3.3.10 At these properties the noise change as a result of the Proposed Development is approximately 2dB. These dwellings will be exposed to significant annoyance, disturbance and sleep disturbance as a result of the Proposed Development traffic. A **significant adverse indirect effect** in the context of Government Noise Policy has therefore been identified at up to 3 residential properties during the night time.

Permanent Noise Impacts on Community Receptors

3.3.11 Primarily as a result of the KCC proposals for the inner circuit route, minor to moderate permanent long-term impacts at approximately 200 properties in the proximity of Star Lane, Poorhole Lane, Castle Drive and Wherry Close, Manston (Receptor Locations RTN17, 18, 19, 22, 23, 26) are predicted during the daytime and night time periods in Year 20.

3.3.12 Noise levels at these receptors will be between the Daytime and Night time LOAEL and SOAEL. The assessment of noise impacts relevant to the implementation of the of Manston Airport DCO considers the contribution of noise levels with and without the Proposed Development (Columns E and F in **Table B.3 and B.4**). The effect of development traffic is forecast to make less than a 1dB change to road noise levels at these receptors (Column I in **Table B.3 and Table B.4**). Considering that development traffic is not making a perceptible change to noise levels at these receptors **no likely significant indirect effect** on the community of Manston is identified.

3.3.13 Primarily as a result of the KCC proposals for the inner circuit route, moderate to major permanent long-term impacts at approximately 230 properties on Manston Court Road in the proximity of Brookland Bungalow, Valley Road, Tree Tops and Bradgate Caravan Park, Manston (Receptor Locations RTN05, 07, 08, 09, 10, 11) are predicted during the daytime and night time periods in Year 20.

3.3.14 Noise levels at these receptors is between the Daytime and Night time LOAEL and SOAEL. The assessment of noise impacts relevant to the implementation of the of Manston Airport DCO considers the contribution of noise levels with and without the Proposed Development (Column E and F in **Table B.3** and **B.4**). The effect of development traffic is forecast to make less than a 1dB change to road noise levels at these receptors (Column I in **Table B.3** and **B.4**). Considering that development traffic is not making a perceptible change to noise levels at these receptors, no likely significant indirect effect on the community of Manston is identified.

3.3.15 Minor permanent long-term impacts at approximately 25 properties On Spitfire Way (Bell Davis Drive and Pouces Cottages), Manston (Receptors RTN32, 33) are predicted during the daytime and night time periods in Year 20. Approximately 2 dB of the 4 dB noise increase is a result of the Proposed Development and approximately 2 dB is a result of the inner circuit improvement strategy.

3.3.16 The assessment of noise impacts relevant to the implementation of the of Manston Airport DCO considers the contribution of noise levels with and without the Proposed Development (Column E and F in **Table B.3** and **B.4**). Development traffic is forecast to make less than a 1 dB change to road noise levels at these receptors (Column I in **Table B.3** and **B.4**) during the daytime and a 2 dB change at night time.

3.3.17 Pouces Cottages are likely to be eligible for noise insulation and ventilation, under the aircraft noise compensation scheme which, if taken up, would avoid the significant adverse indirect effects of road traffic during the day and night.

3.3.18 Therefore approximately 15 receptors are exposed to a minor long-term impact as a result of the proposed development which is not considered to be significant in EIA terms, hence **no significant adverse indirect effect** on the community of Manston is identified.

3.3.19 Primarily as a result of the KCC proposals for the inner circuit route, minor permanent long-term impacts at approximately 25 properties At Smugglers Leap, Minster Road, Manston (Receptors RTN65) are predicted during the night time periods in Year 20. Approximately 3 dB of the 5 dB noise increase is a result of the Proposed Development and approximately 2 dB is a result of the inner circuit improvement strategy.

3.3.20 Noise levels at these receptors will be above the SOAEL, with and without the Proposed Development. Considering the magnitude of the impact, the existing noise levels and the sensitivity of the receptor, without mitigation there is a potential for a significant adverse indirect effect. However, it should be noted that these properties are likely to be eligible for the noise insulation and ventilation scheme. If taken up, this mitigation would avoid the significant adverse indirect effects of road traffic noise at night. On this basis **no significant adverse indirect effect** is identified at residential properties at Smugglers Leap.

3.3.21 Minor permanent long-term impacts at approximately 30 properties on Manston Road and Manston Court Road (in the (Receptors RTN42, 46 and 50, 51) are predicted during the night time periods in Year 20. The noise change is approximately 3 decibels. Without development traffic, there would be a negligible impact at these receptors. Noise levels at these receptors are close to the LOAEL with and without the Proposed Development. Considering the magnitude of the impact and that the road is not a new noise source, hence these properties are already exposed to road traffic noise above the LOAEL, **no likely significant indirect effect** has been identified on the community of Manston.

3.4 Environmental Measures Incorporated into the Proposed Development

Construction phase

3.4.1 As set out in the Preliminary Construction Traffic Management Plan (PCTMP) the proposed route for construction HGV's is along the A299 to the main construction sites in order to avoid densely populated areas. Construction related HGVs would leave the A299 at the Minster Roundabout and travel North on Minster Road. At the next roundabout, traffic would turn right onto B2190 and follow it a short distance to a roundabout junction with Columbus Avenue. Construction HGVs would route ahead at this junction and follow the B2190 Spitfire Way, either accessing the site via the Cargo access or continuing to the next junction with Manston Road and following appropriate routes to the other three accesses in this location. At night, all HGVs would access site via the Cargo access in order to avoid the community of Manston.

Operational phase

3.4.2 The provision of the Airport Surface Access Strategy and The Travel Plan [REP5-021] will move a proportion of passengers and staff to sustainable modes of transport; hence it will reduce the car traffic mode share.

Additional Mitigation

3.4.3 The Proposed Development has no power to provide physical mitigation to road infrastructure outside the development boundary, for example the construction of earth bunds or barriers to screen noise, or the incorporation of low road noise surfaces.

3.4.4 The following receptor locations are exposed to noise levels above the SOAEL for road traffic noise, with and without the Proposed Development at night, during the construction phase:

- Pouces Cottages (Receptor location RTN32); and
- Smugglers Leap (Receptor location RTN65).

3.4.5 These receptors are also forecast to be exposed to noise levels above the SOAEL for aircraft noise in Year 20, hence they will be eligible for sound insulation under the sound insulation grant scheme described in **Section 12.5** of the ES [APP-033, 034,035] in Year 20.

3.4.6 Provision of this sound insulation in Year 2, if accepted by the property owner, would reduce noise inside dwellings during the night time such that it does not reach a level where it will significantly affect residents at Pouces Cottages and Smugglers Leap.

Combined effects

3.4.7 The following receptors are subject to combined permanent effects of road traffic noise and aircraft noise:

- Properties on Bell Davies Drive, Manston (Receptor Location RTN32)

3.5 Summary of significant effects

Table 3.4 Summary of Residual Significant Effects

Receptor and effects	Significance Level	Rationale
Road traffic noise – temporary indirect effects on individual residential receptors night time	Significant	Up to 4 properties expected to be exposed to noise levels above the night time SOAEL of 55 dB $L_{Aeq,8hr}$ These dwellings will be exposed to significant annoyance and disturbance, and sleep disturbance as a result of operational and construction traffic associated with the Proposed Development.
Road traffic noise – temporary indirect community effects night time	Significant	Road traffic noise at approximately 15 properties on Bell Davies Drive, Manston would increase to the point where there may be a perceived change in quality of life for occupants of buildings in these communities.
Road traffic noise – permanent indirect effects on individual residential receptors	Significant	Up to 3 properties expected to be exposed to noise levels above the night time SOAEL of 55 dB $L_{Aeq,8hr}$ These dwellings will be exposed to significant annoyance and disturbance, and sleep disturbance as a result of operational traffic associated with the Proposed Development.

4. Air Quality

4.1 Introduction

4.1.1 This chapter addresses the implications for the air quality assessment of new road traffic modelling using the TSTM; further details of the new traffic modelling can be found within the Transport Assessment addendum [REP5-021] and revised ES Transport Chapter [REP5-022] submitted at Deadline 5. For reference, a summary of the key outputs of these documents are provided in **Chapter 2**.

4.1.2 As set out in Transport ES Chapter submitted at Deadline 5 [REP5-022], sensitivity testing was carried out on the revised traffic data, comparing the road traffic distribution both with and without the Proposed Development. This sensitivity test identified a need to carry out further, more detailed air quality modelling.

4.2 Methodology

4.2.1 The methodology follows that used for the ES [APP-033 and APP-044] in most respects, but some were required in order to process the updated traffic data. These changes are described in this section.

4.2.2 In contrast with the noise assessment, there is no separate in combination assessment for air quality, rather the effects of aviation emissions and road traffic emissions are considered in combination throughout this chapter.

Road traffic

4.2.3 In order to ensure that the road traffic data is consistent with KCC's strategic plans, a new set of traffic flow data has been generated for each of the assessed years (Year 2, Year 6 and Year 20) [REP5-021].

4.2.4 Additionally, re-modelling enabled the latest emission factors to be incorporated into the assessment. These were drawn from Defra's Emission Factors Toolkit (EFT) version 8.0.1[7] and Air Quality Consultants' CURED version 3A[8] whereas the original assessment used EFT version 7 and CURED version 2A. Using the newest emission factors is expected to reduce the modelled NO_x concentrations by a small amount. The roads were fully digitised for modelling in ADMS-Roads, allowing contours to be produced for these scenarios.

[7] Defra (2017) Emissions Factors Toolkit, [online]. Available at: https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html [Accessed April 2019].
[8] Air Quality Consultants (2018) Updated CURED to V3A, [online]. Available at: http://www.aqconsultants.co.uk/News/January-2018/UPDATED-CURED-TO-V3A.aspx [Accessed April 2019].

Sensitive receptors

Ecological receptors

4.2.5 Impacts on ecological receptors are assessed in accordance with guidance from the Environment Agency[9] (EA) as detailed in paragraph 6.2.35 et seq. of Chapter 6 of the ES [APP-033,034,035]. However, the EA's guidance suggests that impacts on major ecological receptors can be screened out as negligible where the PC is less than 1% of the AQAL. For the purpose of this assessment, a worst-case scenario has been assumed and the EA's screening criteria has **not** been used. This is because the 1% criterion should only be applied after the contribution from other plans and projects have been included in the PC (that is, the in-combination contribution). Because these other plans and projects are insufficiently defined to isolate individual traffic contributions, this assessment opts not to use this screening criterion.

4.2.6 The guidance also that states that impacts at major ecological sites can be considered negligible if the PEC is less than 70% of the AQAL. This criterion **has** been used in this assessment. As such, this change in methodology means that fewer ecological receptors are screened out on the basis of their experiencing negligible impacts. More are therefore referred for further assessment by a qualified ecologist.

4.2.7 Chapter 6 of the ES [APP-033, 034, 035] made the assumption, detailed at paragraph 6.5.21, that the background concentration of NO_x at ecological receptors in future years would be the same as the NO_x measured at urban background sites between 2007 and 2015, namely 25.9 µg m^{-3}. This is a very conservative assumption for two reasons: because ecological sites are more rural than the urban background monitoring locations and therefore have lower NO_x concentrations, and because concentrations are declining and expected to decline further in future. Under the assumption used in the ES, the background annual mean NO_x concentration is more than 70% of the annual mean NO_x AQAL. For this updated assessment, a more realistic assumption has been made, and the Defra mapped NO_x concentrations[10] for the relevant year[11] have been used [APP-033, 034, 035].

4.2.8 Other sources of conservatism in the modelling remain valid as detailed paragraph 6.1.137 of Appendix 6.3 [APP-044]. For other pollutants, this assessment uses the same conservative assumptions on background concentrations as detailed in paragraph 6.5.19 et seq. of Chapter 6 of the ES [APP-033, 034, 035]

4.2.9 In the ES [APP-033, 034, 035], the road contribution was not included in the assessment of short-term criteria, since it is not possible to ensure that the hours of the year with the greatest airport contributions coincide with the hours of the year with the greatest road contributions. For this updated assessment, the road contribution has been included by adding the approximate daily maximum roads contribution to the daily maximum airport contribution. This will overestimate the daily maximum total and is conservative.

4.2.10 As a result of the wider geographical extent of the TSTM, six additional receptors have been added to represent near-road ecological sites. Details of these are given in **Table 4.1**.

[9] Environment Agency (2016). 'Air emissions risk assessment for your environmental permit'. Available online at: https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit [Accessed February 2018], dated 2 August 2016.
[10] Defra. Background mapping data for local authorities. Available online at: https://uk-air.defra.gov.uk/data/laqm-background-home [Accessed April 2019]
[11] For Year 20, concentrations for 2030 have been used; this is the last year for which Defra data is available. Since concentrations are decreasing, this is conservative.

Table 4.1 Additional Ecological Receptors

ID	Description	Easting	Northing	Height	Notes
ER001	Blean Complex SAC	609288	163110	0	Near A299 Thanet Way
ER002	Foxes Cross Bottom LNR	609246	163741	0	Near A299 Thanet Way
ER003	Seasalter Levels SSSI, LNR	609055	163855	0	Near A299 Thanet Way
ER004	The Swale SPA, Ramsar	609055	163859	0	Near A299 Thanet Way
ER005	The Swale SPA, Ramsar	608864	163633	0	Near A299 Thanet Way
ER012	Sandwich Bay SSSI, SAC, SPA, Ramsar	633429	160307	0	Near A256 Ramsgate Road

Human receptors

4.2.11 The methodology used to assess the likely significant effects on human receptors is consistent with the assessment reported within the ES [APP-033, 034, 035].

4.2.12 As discussed in paragraph 6.4.18 of Chapter 6 of the ES [APP-033, 034, 035], the main risk of potential adverse air quality impacts on human receptors relates to annual mean NO_2 concentrations, and all other pollutants were shown to have negligible impacts. Therefore, in relation to human health, this technical note only discusses impacts of annual mean NO_2. The limit for annual mean NO_2 is 40 µg m^{-3}.

4.2.13 Full results for all assessed pollutants are provided in **Appendix C**.

4.3 Summary of changes

Results and evaluation: Year 2

4.3.1 Results are presented to several decimal places in the following discussion, so as to enable comparison between receptors and between PC and PEC contributions. The number of decimal places should not be taken as providing any indication of the accuracy of the results.

4.3.2 For ecological receptors, those requiring assessment by a qualified ecologist are reported in detail in **Chapter 5.** Sections 4.3.3 to 4.3.16 below provide an explanation of where further ecological assessment is and is not needed.

Ecological receptors: annual mean NO_x concentrations in air

4.3.3 In view of the large number of modelled receptors, results are given here for only a selection of receptors, namely the major environmental sites (SPAs, SACs, Ramsar sites and SSSIs) with the five highest PCs and PECs, and the local nature sites with the five highest PCs and PECs. Full results for all receptors are given in **Appendix C**.

4.3.4 Predicted concentrations of annual mean NO_x at these selected receptors are given in **Table 4.2**.

Table 4.2 Maximum PCs and PECs for Annual Mean NO_x, Year 2, Ecological Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E26	30	0.22	16.79	0.7%	56.0%	Major
E28	30	0.19	16.91	0.6%	56.4%	Major
E40	30	0.21	16.04	0.7%	53.5%	Major
E41	30	0.52	44.11	1.7%	147.0%	Major
ER012	30	0.21	23.48	0.7%	78.3%	Major
E21	30	0.39	14.95	1.3%	49.8%	Major
E22	30	0.57	14.25	1.9%	47.5%	Major
E23	30	0.40	13.86	1.3%	46.2%	Major
E24	30	0.27	11.87	0.9%	39.6%	Major
E62	30	2.69	110.96	9.0%	369.9%	Local
E81	30	9.16	26.48	30.5%	88.3%	Local
E82	30	9.27	27.73	30.9%	92.4%	Local
E88	30	0.72	41.26	2.4%	137.5%	Local
ER002	30	0.07	26.31	0.2%	87.7%	Local
E83	30	2.90	20.16	9.7%	67.2%	Local
E84	30	2.68	23.16	8.9%	77.2%	Local

4.3.5 The maximum annual mean NO_x PEC at any relevant major environmental receptor is predicted as 44 µg m^{-3} or 147% of the AQAL at the receptor E41, where the A256 Margate Road passes the Sandwich Bay to Hacklinge Marshes SSSI, which at this point is less than 5m from the kerb. The modelled contribution from the Proposed Development here is 0.5 µg m^{-3}, indicating the contribution to NO_x concentrations at these receptors is dominated by non-airport road traffic.

4.3.6 Under EA guidance, where the PEC is greater than 21 µg m^{-3} (70% of the AQAL) at major ecological receptors, further assessment may be required. Two receptors (E41 and ER012 on the A256) exceed this criterion and have therefore been assessed further. Results are provided in **Chapter 5**. At all other major ecological sites, the impact can be considered **not significant**.

4.3.7 The greatest PC at any of the modelled nationally- or internationally-designated ecological receptors is 0.57 µg m^{-3} at the E22 receptor, representing the north end of Pegwell Bay near Cliffs End. The PEC here is 14 µg m^{-3}, so under EA criteria, this impact can be considered **insignificant** and does not require further assessment.

4.3.8 The maximum annual mean NO_x PEC at any relevant local nature receptor (i.e. excluding Ramsar, SPA, SAC and SSSI sites) is predicted as 111µg m^{-3}, or 370% of the AQAL at the E62 receptor, representing Priority Habitat near the A256 Haine Road. The PC here is 2.7µg m^{-3} or 9% of the AQAL. The greatest modelled PC at a local nature receptor is 9.3 µg m^{-3} at the E82 receptor, representing deciduous woodland in the Priority Habitat Inventory near the B2050 Manston Road,

where the PEC is 28µg m^{-3} or 92% of the AQAL. The PC at all local nature sites is less than 100% of the AQAL and therefore can be screened out from further assessment.

Ecological receptors: maximum daily mean NO_x concentrations in air

4.3.9 In view of the large number of modelled receptors, results are given here for only a selection of receptors, namely the major environmental sites with the five highest PCs and PECs, and the local nature sites with the five highest PCs and PECs. Full results for all receptors are given in **Appendix C**.

4.3.10 Concentrations of maximum daily mean NO_x at these selected receptors are dominated by construction activity, which is a temporary source of emissions. Predicted concentrations are given in **Table 4.3**.

Table 4.3 Maximum PCs and PECs for Maximum Daily Mean NO_x, Year 2, Ecological Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E21	200	54.05	95.82	27.0%	47.9%	Major
E22	200	69.68	115.23	34.8%	57.6%	Major
E23	200	76.82	120.27	38.4%	60.1%	Major
E41	200	14.45	207.71	7.2%	103.9%	Major
ER012	200	8.38	121.68	4.2%	60.8%	Major
E20	200	30.34	70.36	15.2%	35.2%	Major
E24	200	41.21	80.91	20.6%	40.5%	Major
E39	200	20.17	50.73	10.1%	25.4%	Major
E62	200	77.11	505.28	38.6%	252.6%	Local
E81	200	440.99	492.63	220.5%	246.3%	Local
E82	200	394.07	456.25	197.0%	228.1%	Local
E83	200	176.30	226.60	88.1%	113.3%	Local
E84	200	145.47	207.80	72.7%	103.9%	Local
E64	200	110.78	165.80	55.4%	82.9%	Local

4.3.11 The maximum modelled daily mean NO_x PEC at any relevant major environmental receptor is 207 µg m^{-3} or 104% of the AQAL at the receptor E41, where the A256 road passes the Sandwich Bay to Hacklinge Marshes SSSI, which at this point is less than 5m from the kerb. The modelled contribution from the Proposed Development here is 14 µg m^{-3} or 7% of the AQAL, indicating that the concentration here is dominated by non-airport related road traffic and is therefore **not significant** in the terms of this assessment.

4.3.12 The greatest PC at any relevant major ecological receptor is 77 µg m^{-3} or 38% of the AQAL at the receptor E23, representing Pegwell Bay; the PEC here is 120 µg m^{-3} or 60% of the AQAL. Under EA guidance, receptor E23, along with E20, E21, E22 and E24, also representing Pegwell Bay, and at the E39, representing the Sandwich Bay to Hacklinge Marshes SSSI, will be assessed within **Chapter 5**.

4.3.13 At all other major ecological sites, the impact is **not significant**.

4.3.14 The maximum daily mean NO_x PEC at any of the identified local nature receptors is predicted as 505 µg m^{-3} or 252% of the AQAL at the E62 receptor. This receptor is representative of Priority Habitat on the A256 Haine Road. The modelled contribution from the Proposed Development here is 77 µg m^{-3}.

4.3.15 The greatest PC at any of the modelled local nature receptors is 441 µg m^{-3} or 220% of the AQAL at the receptor E81. This receptor representss deciduous woodland in the Priority Habitat Inventory near the B2190 Spitfire Way, where the PEC is 493 µg m^{-3} or 246% of the AQAL. Under EA guidance, receptor E81, along with E82, representing deciduous woodland in the Priority Habitat Inventory near the B2050 Manston Road, will be assessed within **Chapter 5**.

4.3.16 The PC at all other local nature sites is less than 100% of the AQAL, and therefore the impact is **not significant**.

Residential Receptors: NO_2

4.3.17 In view of the large number of modelled receptors, the following results are grouped by the general location of the receptors (namely those near the Proposed Development and those within urban centres), as presented in Sections 6.8-6.10 of the ES [APP-033,034,035].

4.3.18 Predicted concentrations of annual mean NO_2 at receptors outside the urban centres are given in **Table 4.4**, for those modelled receptors with an impact of **slight** or **moderate**. No receptors experience a substantial impact. At all other modelled receptors outside the urban centres, the impact is **negligible**. Full results for all receptors are given in **Appendix C** and revised contours are given in **Appendix A (Figure 4.1).**

Table 4.4 Maximum PCs and PECs for Annual Mean NO_2, Year 2, Residential Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H08	40	3.32	25.00	8.3%	62.5%	Slight
H09	40	3.57	27.38	8.9%	68.5%	Slight
H10	40	4.52	25.83	11.3%	64.6%	Moderate
H11	40	4.60	24.99	11.5%	62.5%	Moderate
H12	40	3.96	24.36	9.9%	60.9%	Slight
H13	40	2.71	21.17	6.8%	52.9%	Slight
H15	40	6.17	25.17	15.4%	62.9%	Moderate
H29	40	0.72	38.02	1.8%	95.1%	Moderate
M11	40	3.20	21.98	8.0%	55.0%	Slight

4.3.19 The maximum modelled annual mean NO_2 PEC at any relevant human receptor located near the Proposed Development is 38 µg m^{-3}, or 95% of the AQAL at receptor H29 (Ozengell Grange 1) on the A256 Haine Road. The modelled contribution from the Proposed Development, including airport-related road traffic, at this receptor is just 0.7µg m^{-3}, and the main contribution here is from

non-airport road traffic. Under the IAQM / EPUK criteria, a **likely significant moderate adverse effect** has been identified.

4.3.20 The greatest PC at any of the modelled receptors is 6.2 µg m^{-3} at receptor H15, at the south end of Manston Court Road, where the PEC is 25 µg m^{-3} or 63% of the AQAL. There is a large contribution from construction activity at this receptor (assuming construction equipment only meets Stage IIIB standards[12]), with a modest contribution from non-airport traffic and smaller contributions from airport-related traffic and aircraft to understand the combined impact. A **likely moderate adverse significant effect** at this receptor has been identified.

4.3.21 Examination of detailed modelling results suggests that approximately 20 other properties at the south end of Manston Court Road, south of the solar farm, and 6 properties on Bell Davies Drive (e.g. H10 and H11) also experience **likely significant moderate adverse effects**.

4.3.22 A comparison between the updated model results against those reported in the ES [APP-033,034,035], indicates that the updated results are on average slightly lower, typically by about 1–4 µg m^{-3}, though at some receptors the updated concentrations are higher than reported in the ES. The updated modelling has four receptors experiencing moderate impacts versus six in the ES [APP-033, 034, 035], and four receptors experiencing slight impacts versus five in the ES.

4.3.23 No existing or new exceedances are predicted, and it should be noted that this is a worst-case assessment incorporating several conservative assumptions as detailed in paragraph 6.1.135 et seq. in Appendix 6.3 [APP-044].

Urban Centres: NO_2

4.3.24 Considering receptors in urban centres, the contribution from principal roads through areas identified by TDC as being of particular concern, namely the High Street St. Lawrence and The Square Birchington, have been modelled. At these locations, the PC is smaller than closer to the Proposed Development, but background concentrations are higher. Modelled concentrations at sensitive receptors in these areas are given in **Table 4.5**.

Table 4.5 Maximum PCs and PECs for Annual Mean NO_2, Year 2, Receptors in Urban Centres

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Likely Significant Effect
A22	40	0.08	35.38	0.2%	88.5%	Negligible
A23	40	0.08	35.38	0.2%	88.5%	Negligible
A24	40	0.09	35.39	0.2%	88.5%	Negligible
A25	40	0.08	35.38	0.2%	88.5%	Negligible
A26	40	0.08	35.38	0.2%	88.5%	Negligible
A27	40	0.08	35.38	0.2%	88.5%	Negligible
A28	40	0.08	35.38	0.2%	88.5%	Negligible
A29	40	0.08	35.38	0.2%	88.5%	Negligible

[12] Directive 2004/26/EC of the European Parliament and of the Council of 21 April 2004 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery.

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Likely Significant Effect
A30	40	0.08	35.38	0.2%	88.5%	Negligible
A31	40	0.08	35.38	0.2%	88.5%	Negligible
A32	40	0.19	38.19	0.5%	95.5%	Negligible
A33	40	0.20	38.20	0.5%	95.5%	Negligible
A34	40	0.21	38.21	0.5%	95.5%	Slight
A35	40	0.22	38.22	0.6%	95.6%	Slight
A36	40	0.22	38.22	0.5%	95.6%	Slight
A37	40	0.21	38.21	0.5%	95.5%	Slight
A38	40	0.18	38.18	0.4%	95.5%	Negligible
A39	40	0.18	38.18	0.4%	95.5%	Negligible
A40	40	0.20	38.20	0.5%	95.5%	Negligible
A41	40	0.20	38.20	0.5%	95.5%	Slight
A42	40	0.17	38.17	0.4%	95.4%	Negligible
A43	40	0.17	38.17	0.4%	95.4%	Negligible

4.3.25 The maximum annual mean NO_2 PEC at any of these receptors is predicted as 38.2 µg m^{-3}, or 96% of the AQAL at receptor A35 (St. Lawrence 4). The modelled contribution from the Proposed Development here is 0.22 µg m^{-3}, which is the greatest PC at any of the modelled receptors in this group. Under the IAQM / EPUK criteria, a **slight** effect has been identified. Of the other modelled St. Lawrence receptors, effects at some are also classed as **slight**, while effects at the remainder are **negligible**.

4.3.26 Effects at the receptors on The Square Birchington, where the PCs are below 0.1 µg m^{-3}, are all classed as **negligible**.

4.3.27 It should be emphasised that the modelled PECs at St. Lawrence and Birchington are dominated by the background contribution, which in turn is largely due to road vehicle emissions along busy and congested roads, and it is assumed that the background concentrations are unchanged from current (2007–2016) monitored concentrations at roadside locations. It should be noted that this is a highly conservative assumption, given that the monitoring data over that period shows a small but steady reduction in concentrations (about 0.4 µg m^{-3} per year at St. Lawrence), and given the active measures to further reduce emissions from road vehicles. A reduction of just 0.5 µg m^{-3} in the background concentration at St. Lawrence would result in the impact at these receptors being classed as **negligible**.

Results and evaluation: Year 6

4.3.28 Results are given to several decimal places in the following discussion as to enable comparison between receptors and between PC and PEC contributions. The number of decimal places should not be taken as providing any indication of the accuracy of the results.

Ecological effects: annual mean NOx concentrations in air

4.3.29 In view of the large number of modelled receptors, results are given here for only a selection of receptors, namely the major environmental sites with the five highest PCs and PECs, and the local nature sites with the five highest PCs and PECs. Full results for all receptors are given in **Appendix C.**

4.3.30 Predicted concentrations of annual mean NO_x at these selected receptors are given in **Table 4.6**.

Table 4.6 Maximum PCs and PECs for Annual Mean NO_x, Year 6, Ecological Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E26	30	0.47	15.67	1.6%	52.2%	Major
E28	30	0.49	16.31	1.6%	54.4%	Major
E40	30	0.42	14.88	1.4%	49.6%	Major
E41	30	1.60	43.83	5.3%	146.1%	Major
ER012	30	0.63	22.61	2.1%	75.4%	Major
E22	30	0.80	13.04	2.7%	43.5%	Major
E23	30	0.67	12.68	2.2%	42.3%	Major
E24	30	0.54	11.15	1.8%	37.2%	Major
E62	30	7.90	113.01	26.3%	376.7%	Local
E77	30	1.09	24.71	3.6%	82.4%	Local
E82	30	7.14	23.72	23.8%	79.1%	Local
E88	30	1.89	41.50	6.3%	138.3%	Local
ER002	30	0.66	25.25	2.2%	84.2%	Local
E81	30	7.40	22.81	24.7%	76.0%	Local
E83	30	3.33	19.17	11.1%	63.9%	Local
E84	30	3.53	22.37	11.8%	74.6%	Local

4.3.31 The maximum annual mean NO_x PEC at any relevant major environmental receptor is predicted as 44 µg m^{-3} or 146% of the AQAL at the E41 receptor, where the A256 Margate Road passes the Sandwich Bay to Hacklinge Marshes SSSI, which at this point is less than 5m from the kerb. The modelled contribution from the Proposed Development here is 1.6 µg m^{-3}, which is the greatest PC of any of the major ecological receptors, indicating the contribution to NO_x concentrations at these receptors is dominated by non-airport road traffic.

4.3.32 Under EA guidance, where the PEC is greater than 21 µg m^{-3} (70% of the AQAL) at major ecological receptors, further assessment may be required. Two receptors exceed this criterion, namely E41 and ER012 (also on the A256 Margate Road) and have therefore been assessed. Results are provided in **Chapter 5: Biodiversity**. At all other major ecological sites, the impact can be considered **not significant**.

4.3.33 The maximum annual mean NO_x PEC at any relevant local nature receptor is predicted as 113 µg m^{-3} or 377% of the AQAL at the E62 receptor, representing Priority Habitat near the A256 Haine Road. The PC here is 7.9 µg m^{-3} or 26% of the AQAL, which is the greatest PC at any of the local ecological receptors. The PC at all local nature sites is less than 100% of the AQAL and can therefore be screened out from further assessment and considered **not significant**.

Ecological effects: maximum daily mean NOx concentrations in air

4.3.34 In view of the large number of modelled receptors, results are given here for only a selection of receptors, namely the major environmental sites with the five highest PCs and PECs, and the local nature sites with the five highest PCs and PECs. Full results for all receptors are given in **Appendix C**.

4.3.35 Predicted concentrations of maximum daily mean NO_x at these selected receptors are given in **Table 4.7**.

Table 4.7 Maximum PCs and PECs for Maximum Daily Mean NO_x, Year 6, Ecological Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E22	200	28.69	71.23	14.3%	35.6%	Major
E26	200	9.28	72.13	4.6%	36.1%	Major
E28	200	7.71	84.02	3.9%	42.0%	Major
E41	200	13.85	204.42	6.9%	102.2%	Major
ER012	200	8.94	119.68	4.5%	59.8%	Major
E21	200	19.53	57.93	9.8%	29.0%	Major
E23	200	23.72	64.36	11.9%	32.2%	Major
E24	200	18.16	55.95	9.1%	28.0%	Major
E62	200	55.54	473.95	27.8%	237.0%	Local
E81	200	142.76	187.65	71.4%	93.8%	Local
E82	200	145.83	200.45	72.9%	100.2%	Local
E88	200	16.37	154.02	8.2%	77.0%	Local
ER002	200	5.19	130.84	2.6%	65.4%	Local
E83	200	68.49	115.29	34.2%	57.6%	Local
E84	200	62.09	119.90	31.0%	59.9%	Local

4.3.36 The maximum modelled daily mean NO_x PEC at any relevant major environmental receptor is 204 µg m^{-3} or 102% of the AQAL at the E41 receptor, where the A256 road passes the Sandwich Bay to

Hacklinge Marshes SSSI, which at this point is less than 5m from the kerb. The modelled contribution from the Proposed Development here is 14µg m^{-3} or 7% of the AQAL, and therefore the effect is **not significant**.

4.3.37 The greatest PC at any relevant major ecological receptor is 28.7 µg m^{-3} or 14% of the AQAL at receptor E22, representing Pegwell Bay; the PEC here is 71 µg m^{-3} or 36% of the AQAL, as well as E23. Contributions at these receptors are largely from non-airport road traffic and construction activity, with smaller contributions from aircraft and background sources to understand the combined impact. Under EA guidance, these have been assessed. Results are provided in **Chapter 5**.

4.3.38 At all other major ecological sites, the impact is **not significant** under EA guidance.

4.3.39 The maximum daily mean NO_x PEC at any relevant local nature receptor is predicted as 474 µg m^{-3} or 237% of the AQAL at receptor E62, representing Priority Habitat near the A256 Haine Road. The modelled contribution from the airport here is 56 µg m^{-3}. The greatest PC at any of the modelled local nature receptors is 146 µg m^{-3} or 73% of the AQAL at receptor E82, representing deciduous woodland in the Priority Habitat Inventory near the B2050 Manston Road, where the PEC is 200 µg m^{-3} or 100% of the AQAL. The PC at all local nature sites is less than 100% of the AQAL and therefore is considered **not significant**.

Residential Receptors: NO_2

4.3.40 In view of the large number of modelled receptors, the following results are grouped by the general location of the receptors (namely those near the Proposed Development and those within urban centres). This corresponds with the presentation of results within Sections 6.8-6.10 of Chapter 6 of the ES [APP-033, 034, 035].

4.3.41 Predicted concentrations of annual mean NO_2 at receptors outside the urban centres are given in **Table 4.8**, for those modelled receptors with an impact of **slight** or **moderate**. No receptors experience a substantial impact. At all other modelled receptors near the Proposed Development, the impact is **negligible**. Full results for all receptors are given in **Appendix C**. Contours are shown in **Appendix A (Figure 4.2)**.

Table 4.8 Maximum PCs and PECs for Annual Mean NO_2, Year 6, Residential Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H08	40	2.39	23.79	6.0%	59.5%	Slight
H09	40	3.11	26.65	7.8%	66.6%	Slight
H10	40	4.04	25.06	10.1%	62.7%	Moderate
H11	40	3.78	23.87	9.5%	59.7%	Slight
H12	40	3.24	23.34	8.1%	58.4%	Slight
H13	40	2.47	20.61	6.2%	51.5%	Slight
H15	40	2.31	21.00	5.8%	52.5%	Slight
H17	40	3.09	25.70	7.7%	64.3%	Slight
H23	40	2.74	20.07	6.9%	50.2%	Slight

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H29	40	1.66	38.66	4.1%	96.7%	Moderate
H67	40	2.74	24.25	6.9%	60.6%	Slight

4.3.42 The maximum modelled annual mean NO_2 PEC at any relevant human receptor located near the Proposed Development is 39 µg m^{-3} or 97% of the AQAL at the H29 (Ozengell Grange 1) receptor on the A256 Haine Road. The modelled contribution from the Proposed Development, including airport-related road traffic, at this receptor is just 1.7 µg m^{-3}, and the main contribution here is from non-airport road traffic. Under the IAQM / EPUK criteria, a **likely significant moderate adverse effect** has been identified. This is the only receptor with a moderate impact in Year 6.

4.3.43 The greatest PC at any of the modelled receptors is 4.0 µg m^{-3} at receptor H10 (Bell Davies Drive 1), where the PEC is 25 µg m^{-3} or 63 % of the AQAL. A **likely significant moderate adverse effect** has been identified.

4.3.44 Receptors H29 and H10 are the only ones classified as experiencing **moderate effects**, all other receptors experiencing **slight** impacts.

4.3.45 A comparison between the updated model results against those presented in the ES [APP-033,034,035], indicates that the former is on average slightly lower, typically by about 1–4 µg m^{-3}. The updated modelling has two receptors experiencing moderate impacts versus three reported in the ES [APP-033,034,035], and nine receptors experiencing slight impacts, versus six in the ES [APP-033,034,035].

4.3.46 No existing or new exceedances are predicted, and it should be noted that this is a worst-case assessment incorporating several conservative assumptions as outlined in paragraph 6.1.135 et seq. in Appendix 6.3 [APP-044].

Urban Centres: NO_2

4.3.47 Considering receptors in urban centres, the contribution from principal roads through areas identified by TDC as being of particular concern, namely the High Street St. Lawrence and The Square Birchington, have been modelled. At these locations, the PC is smaller than closer to the Proposed Development, but the background is higher. Modelled concentrations at receptors in these areas are given in **Table 4.9**.

Table 4.9 Maximum PCs and PECs for Annual Mean NO_2, Year 6, Receptors in Urban Centres

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Impact
A22	40	0.13	35.43	0.3%	88.6%	Negligible
A23	40	0.12	35.42	0.3%	88.6%	Negligible
A24	40	0.13	35.43	0.3%	88.6%	Negligible
A25	40	0.13	35.43	0.3%	88.6%	Negligible
A26	40	0.13	35.43	0.3%	88.6%	Negligible
A27	40	0.14	35.44	0.3%	88.6%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Impact
A28	40	0.14	35.44	0.4%	88.6%	Negligible
A29	40	0.13	35.43	0.3%	88.6%	Negligible
A30	40	0.13	35.43	0.3%	88.6%	Negligible
A31	40	0.13	35.43	0.3%	88.6%	Negligible
A32	40	0.31	38.31	0.8%	95.8%	Slight
A33	40	0.32	38.32	0.8%	95.8%	Slight
A34	40	0.37	38.37	0.9%	95.9%	Slight
A35	40	0.43	38.43	1.1%	96.1%	Slight
A36	40	0.41	38.41	1.0%	96.0%	Slight
A37	40	0.38	38.38	0.9%	96.0%	Slight
A38	40	0.29	38.29	0.7%	95.7%	Slight
A39	40	0.30	38.30	0.8%	95.8%	Slight
A40	40	0.36	38.36	0.9%	95.9%	Slight
A41	40	0.37	38.37	0.9%	95.9%	Slight
A42	40	0.25	38.25	0.6%	95.6%	Slight
A43	40	0.25	38.25	0.6%	95.6%	Slight

4.3.48 The maximum annual mean NO_2 PEC at any of these receptors is predicted as 38.4 µg m^{-3} or 96% of the AQAL at receptor A35 (St. Lawrence 4). The modelled contribution from the Proposed Development here is 0.43 µg m^{-3}, which is the greatest PC at any of the modelled receptors in this group. Under the IAQM / EPUK criteria, a **slight** effect at this receptor, as well as at the other modelled St. Lawrence receptors has been identified.

4.3.49 Effects at the receptors on The Square Birchington, where the PCs are below 0.15 µg m^{-3}, are all classed as **negligible**.

4.3.50 It should be emphasised that the modelled PECs at St. Lawrence and The Square Birchington are dominated by the background contribution, which in turn is largely due to road vehicle emissions along busy and congested roads. It has been assumed that the background concentrations are unchanged from current (2007–2016) monitored concentrations at roadside locations. This is a highly conservative assumption, given that the monitoring data over that period shows a small but steady reduction in concentrations (about 0.4 µg m^{-3} per year at St. Lawrence), and given the active measures to further reduce emissions from road vehicles which are expected to take effect over the next twenty years. A reduction of just 1 µg m^{-3} in the background concentration at St. Lawrence would result in the impact of the Proposed Development at these receptors being classed as **negligible**.

Results and evaluation: Year 20

4.3.51 Results are given to several decimal places in the following discussion as to enable comparison between receptors and between PC and PEC contributions. The number of decimal places should not be taken as providing any indication of the accuracy of the results.

Ecological receptors: annual mean NO_x concentrations in air

4.3.52 In view of the large number of modelled receptors, results are given here for only a selection of receptors, namely the major environmental sites with the five highest PCs and PECs, and the local nature sites with the five highest PCs and PECs. Full results for all receptors are given in **Appendix C**.

4.3.53 Predicted concentrations of annual mean NO_x at these selected receptors are given in **Table 4.10**. Contours of NO_x PC in the vicinity of the Proposed Development are shown in **Appendix A [Figure 4.3]**, and over a wider area are shown in **Appendix A (Figure 4.4)**.

Table 4.10 Maximum PCs and PECs for Annual Mean NO_x, Year 20, Ecological Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E26	30	0.68	15.75	2.3%	52.5%	Major
E28	30	0.74	17.21	2.5%	57.4%	Major
E40	30	0.61	14.81	2.0%	49.4%	Major
E41	30	2.51	49.28	8.4%	164.3%	Major
ER012	30	0.97	24.03	3.2%	80.1%	Major
E22	30	1.05	12.25	3.5%	40.8%	Major
E23	30	0.91	11.96	3.0%	39.9%	Major
E24	30	0.75	10.82	2.5%	36.1%	Major
E62	30	1.25	42.85	4.2%	142.8%	Local
E82	30	5.71	24.01	19.0%	80.0%	Local
E84	30	4.39	23.93	14.6%	79.8%	Local
E88	30	2.82	74.58	9.4%	248.6%	Local
ER002	30	1.13	27.06	3.8%	90.2%	Local
E78	30	4.01	16.82	13.4%	56.1%	Local
E81	30	5.57	23.29	18.6%	77.6%	Local
E83	30	3.70	19.81	12.3%	66.0%	Local

4.3.54 The maximum annual mean NO_x PEC at any relevant major environmental receptor is predicted as 49 µg m^{-3} or 164% of the AQAL at receptor E41, where the A256 Margate Road passes the Sandwich Bay to Hacklinge Marshes SSSI, which at this point is less than 5m from the kerb. The modelled contribution from the Proposed Development here is 2.5 µg m^{-3}, which is the greatest PC

of any of the major ecological receptors, indicating the contribution to NO_x concentrations at these receptors is dominated by non-airport road traffic.

4.3.55 Under EA guidance, where the PEC is greater than 21 µg m^{-3} (70% of the AQAL) at major ecological receptors, further assessment may be required. Receptors E41 and ER012 (also on the A256 Margate Road) exceed this criterion and have been assessed. Results are provided in **Chapter 5**.

4.3.56 **Figure 4.5 in Appendix A** shows contours[13] of the 21 µg m^{-3} (70% of the AQAL) and 30 µg m^{-3} (100% of the AQAL) annual mean NO_x PEC, overlaid on the major ecological sites, for those locations where the contours approach the major designated sites (namely, along the A256 Margate Road).

4.3.57 At all other major ecological sites, the impact can be considered **not significant**.

4.3.58 The maximum annual mean NO_x PEC at any relevant local nature receptor is predicted as 75 µg m^{-3} or 249% of the AQAL at receptor E88, representing Priority Habitat near Shottendane Road. The PC here is 2.8 µg m^{-3} or 9% of the AQAL. The greatest modelled PC at a local nature receptor is 5.7 µg m^{-3} at receptor E82, representing deciduous woodland in the Priority Habitat Inventory near the B2050 Manston Road, where the PEC is 24 µg m^{-3} or 80% of the AQAL.

4.3.59 The PC at all local nature sites is less than 100% of the AQAL and therefore can be screened out from further assessment.

Ecological receptors: maximum daily mean NO_x concentrations in air

4.3.60 In view of the large number of modelled receptors, results are given here for only a selection of receptors, namely the major environmental sites with the five highest PCs and PECs, and the local nature sites with the five highest PCs and PECs. Full results for all receptors are given in **Appendix C**.

4.3.61 Predicted concentrations of maximum daily mean NO_x at these selected receptors are given in **Table 4.11**.

Table 4.11 Maximum PCs and PECs for Maximum Daily Mean NO_x, Year 20, Ecological Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E26	200	11.36	79.51	5.7%	39.8%	Major
E28	200	9.94	95.14	5.0%	47.6%	Major
E40	200	10.09	74.35	5.0%	37.2%	Major
E41	200	18.77	236.09	9.4%	118.0%	Major
ER012	200	11.76	136.12	5.9%	68.1%	Major
E21	200	14.33	50.75	7.2%	25.4%	Major
E22	200	21.56	63.21	10.8%	31.6%	Major
E23	200	12.84	53.08	6.4%	26.5%	Major
E24	200	13.97	52.92	7.0%	26.5%	Major
E62	200	24.48	203.02	12.2%	101.5%	Local

[13] Contours for Year 2 and Year 6 are similar, but Year 20 is the worst-case.

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Site type
E77	200	18.24	96.34	9.1%	48.2%	Local
E82	200	29.95	97.31	15.0%	48.7%	Local
E88	200	15.81	260.67	7.9%	130.3%	Local
ER002	200	8.45	148.69	4.2%	74.3%	Local
E63	200	25.87	69.74	12.9%	34.9%	Local
E64	200	29.25	71.84	14.6%	35.9%	Local
E81	200	26.75	84.36	13.4%	42.2%	Local

4.3.62 The maximum modelled daily mean NO_x PEC at any relevant major environmental receptor is 236 µg m^{-3} or 118% of the AQAL at receptor E41, where the A256 road passes the Sandwich Bay to Hacklinge Marshes SSSI, which at this point is less than 5 m from the kerb. The modelled contribution from the Proposed Development here is 19 µg m^{-3} or 9% of the AQAL, and therefore **not significant**.

4.3.63 The greatest PC at any relevant major ecological receptor is 22 µg m^{-3} or 11% of the AQAL at the E22 receptor, representing Pegwell Bay; the PEC here is 63 µg m^{-3} or 32% of the AQAL. Under EA guidance, these have been assessed. Results are provided in **Chapter 5**.

4.3.64 At all other major ecological sites, the impact is **not significant** under EA guidance[10].

4.3.65 The maximum daily mean NO_x PEC at any relevant local nature receptor is predicted as 261 µg m^{-3} or 130% of the AQAL at receptor E88, representing Priority Habitat near Shottendane Road. The modelled contribution from the airport here is 16 µg m^{-3}. The greatest PC at any of the modelled local nature receptors is 30 µg m^{-3} or 15% of the AQAL at receptor E82, representing deciduous woodland in the Priority Habitat Inventory near the B2050 Manston Road, where the PEC is 97 µg m^{-3} or 49% of the AQAL.

4.3.66 The PC at all local nature sites is less than 100 % of the AQAL so under EA guidance[10] can be screened out from further assessment and considered **not significant**.

Residential Receptors: NO_2

4.3.67 In view of the large number of modelled receptors, the following results are grouped by the general location of the receptors (namely those near the Proposed Development and those within urban centres). This corresponds with the presentation of results within Section 6.8-6.10 of the ES [APP-033,034,035].

4.3.68 Predicted concentrations of annual mean NO_2 at receptors outside urban centres are given in **Table 4.12**, for those modelled receptors with an impact of **slight** or **moderate**. No receptors experience a substantial impact. At all other modelled receptors near the Proposed Development, the impact is **negligible**. Full results for all receptors are given in **Appendix C** and contours are provided in **Appendix A (Figure 4.6)**.

Table 4.12 Maximum PCs and PECs for annual mean NO_2, Year 20, Residential Receptors

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H08	40	3.15	27.24	7.9%	68.1%	Slight
H09	40	3.73	31.16	9.3%	77.9%	Moderate
H10	40	3.08	26.43	7.7%	66.1%	Slight
H11	40	2.81	24.64	7.0%	61.6%	Slight
H12	40	2.58	23.72	6.5%	59.3%	Slight
H15	40	2.40	20.50	6.0%	51.3%	Slight
H17	40	4.29	25.36	10.7%	63.4%	Moderate
H18	40	2.45	20.43	6.1%	51.1%	Slight
H20	40	2.31	19.44	5.8%	48.6%	Slight
H21	40	2.55	19.67	6.4%	49.2%	Slight
H22	40	2.33	19.44	5.8%	48.6%	Slight
H23	40	3.62	20.76	9.1%	51.9%	Slight
H24	40	2.41	21.24	6.0%	53.1%	Slight
H38	40	2.20	19.60	5.5%	49.0%	Slight
H63	40	1.47	30.34	3.7%	75.9%	Slight
H67	40	3.75	23.99	9.4%	60.0%	Slight
H69	40	2.40	20.04	6.0%	50.1%	Slight
A14	40	2.98	20.56	7.5%	51.4%	Slight

4.3.69 The maximum modelled annual mean NO_2 PEC at any relevant human receptor located near the Proposed Development is 31 µg m^{-3} or 78% of the AQAL at receptor H09 (Pouces Cottages) on Spitfire Way. The modelled contribution from the Proposed Development here is 3.7 µg m^{-3}. The greatest PC at any of the modelled receptors is 4.3 µg m^{-3} at receptor H17 (Manston Road 2), at the west end of Manston village, where the PEC is 25 µg m^{-3} or 63% of the AQAL. Under the IAQM / EPUK criteria, a **likely significant moderate adverse effect** has been identified. These are the only receptors experiencing moderate impacts.

4.3.70 A comparison between the updated model results against those presented in the ES [APP-033, 034, 035], indicates that the former is on average slightly lower, typically by about 1–4 µg m^{-3}. In both assessments, there are two receptors classified as experiencing moderate impacts, but the updated modelling has 15 receptors experiencing slight impacts versus 23 in the ES [APP-033, 034, 035].

4.3.71 A comparative table of human receptors and their respective impact descriptions from the ES [APP-033, 034, 035], against the impact descriptions from the updated modelling, is given in **Table 4.13**.

Table 4.13 Impacts for Annual Mean NO_2, Year 20: Comparison of Updated Modelling Against ES Modelling

Receptor	ES modelling	Updated modelling	Receptor	ES modelling	Updated modelling
H01	Negligible	Negligible	**H36**	Slight	Negligible
H02	Negligible	Negligible	**H37**	Slight	Negligible
H03	Negligible	Negligible	**H38**	Slight	Slight
H04	Negligible	Negligible	**H39**	Slight	Negligible
H05	Negligible	Negligible	**H40**	Slight	Negligible
H06	Negligible	Negligible	**H41**	Negligible	Negligible
H07	Negligible	Negligible	**H42**	Negligible	Negligible
H08	Slight	Slight	**H43**	Slight	Negligible
H09	Moderate	Moderate	**H44**	Slight	Negligible
H10	Slight	Slight	**H45**	Negligible	Negligible
H11	Slight	Slight	**H46**	Negligible	Negligible
H12	Slight	Slight	**H47**	Negligible	Negligible
H13	Slight	Negligible	**H48**	Negligible	Negligible
H14	Negligible	Negligible	**H49**	Slight	Negligible
H15	Slight	Slight	**H50**	Negligible	Negligible
H16	Negligible	Negligible	**H51**	Negligible	Negligible
H17	Slight	Moderate	**H52**	Negligible	Negligible
H18	Slight	Slight	**H53**	Negligible	Negligible
H19	Slight	Negligible	**H54**	Slight	Negligible
H20	Slight	Slight	**H55**	Negligible	Negligible
H21	Slight	Slight	**H56**	Negligible	Negligible
H22	Slight	Slight	**H57**	Negligible	Negligible
H23	Moderate	Slight	**H58**	Negligible	Negligible
H24	Negligible	Slight	**H59**	Negligible	Negligible
H25	Negligible	Negligible	**H60**	Negligible	Negligible
H26	Negligible	Negligible	**H61**	Negligible	Negligible
H27	Negligible	Negligible	**H62**	Negligible	Negligible
H28	Negligible	Negligible	**H63**	Negligible	Slight

Receptor	ES modelling	Updated modelling	Receptor	ES modelling	Updated modelling
H29	Negligible	Negligible	**H64**	Negligible	Negligible
H30	Negligible	Negligible	**H65**	Negligible	Negligible
H31	Negligible	Negligible	**H66**	Negligible	Negligible
H32	Negligible	Negligible	**H67**	Negligible	Slight
H33	Negligible	Negligible	**H68**	Negligible	Negligible
H34	Negligible	Negligible	**H69**	Slight	Slight
H35	Slight	Negligible	**H70**	Negligible	Negligible

4.3.72 No existing or new exceedances are predicted, and it should be noted that this is a worst-case assessment incorporating several conservative assumptions as outlined in paragraph 6.1.135 et seq. of Appendix 6.3 [APP-044] of the ES [APP-033, 034, 035].

Urban Centres: NO_2

4.3.73 Considering receptors in urban centres, the contribution from principal roads through areas identified by TDC as being of particular concern, namely the High Street St. Lawrence and The Square Birchington, has been modelled. At these locations, the PC is smaller than closer to the Proposed Development, but the background is higher. Modelled concentrations at receptors in these areas are given in **Table 4.14**.

Table 4.14 Maximum PCs and PECs for Annual Mean NO_2, Year 20, Receptors in Urban Centres

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Impact
A22	40	0.20	35.50	0.5%	88.8%	Negligible
A23	40	0.19	35.49	0.5%	88.7%	Negligible
A24	40	0.21	35.51	0.5%	88.8%	Negligible
A25	40	0.21	35.51	0.5%	88.8%	Negligible
A26	40	0.20	35.50	0.5%	88.8%	Negligible
A27	40	0.20	35.50	0.5%	88.8%	Negligible
A28	40	0.20	35.50	0.5%	88.8%	Negligible
A29	40	0.20	35.50	0.5%	88.8%	Negligible
A30	40	0.22	35.52	0.5%	88.8%	Negligible
A31	40	0.27	35.57	0.7%	88.9%	Negligible
A32	40	0.43	38.43	1.1%	96.1%	Slight
A33	40	0.42	38.42	1.1%	96.1%	Slight

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	% PC of AQAL	% PEC of AQAL	Impact
A34	40	0.50	38.50	1.3%	96.3%	Slight
A35	40	0.58	38.58	1.5%	96.5%	Slight
A36	40	0.58	38.58	1.5%	96.5%	Slight
A37	40	0.54	38.54	1.4%	96.4%	Slight
A38	40	0.41	38.41	1.0%	96.0%	Slight
A39	40	0.42	38.42	1.1%	96.1%	Slight
A40	40	0.51	38.51	1.3%	96.3%	Slight
A41	40	0.50	38.50	1.3%	96.3%	Slight
A42	40	0.35	38.35	0.9%	95.9%	Slight
A43	40	0.34	38.34	0.9%	95.9%	Slight

4.3.74 The maximum annual mean NO_2 PEC at any of these receptors is predicted as 38.6 µg m^{-3} or 96 % of the AQAL at receptors A35 and A36 at St. Lawrence 4 and 5. The modelled contribution from the Proposed Development here is 0.58 µg m^{-3}, which is the greatest PC at any of the modelled receptors in this group. These concentrations are a little higher than those reported in the ES [APP-033, 034, 035], for which road traffic arising from the Proposed Development was not modelled at this location. Under the IAQM / EPUK criteria, the impact at these receptors is classed as **slight**. Impacts at the other modelled St. Lawrence receptors are also classed as **slight**.

4.3.75 Effects at the receptors on The Square Birchington, where the PCs are below 0.3 µg m^{-3}, are all classed as **negligible**. Concentrations here are slightly higher than those as reported in the ES [APP-033, 034, 035], but the contribution from traffic associated with the Proposed Development is smaller at The Square Birchington than at St. Lawrence.

4.3.76 It should be emphasised that the modelled PECs at St. Lawrence and The Square Birchington are dominated by the background contribution, which in turn is largely due to road vehicle emissions along busy and congested roads. It is assumed that the background concentrations are unchanged from current (2007–2016) monitored concentrations at roadside locations. This is a highly conservative assumption, given that the monitoring data over that period shows a small but steady reduction in concentrations (about 0.4µg m^{-3} per year at St. Lawrence), and given the active measures to further reduce emissions from road vehicles which are expected to take effect over the next twenty years. A reduction of just 1 µg m^{-3} in the background concentration at St. Lawrence would result in effects at these receptors being classed as **negligible**.

4.4 Summary of significant effects

Table 4.15 Summary of significant effects

Impact Type	Significance Level	Rationale
Human health effects: Annual mean NO_2	Not significant	There are no new or existing predicted exceedances of the AQAL at receptors around the airport. The impact is classified as **moderate** under IAQM/EPUK criteria at some properties close to the airport and also fronting onto roads, but properties are below the AQAL. In view of the conservatism of the modelling, this impact is considered to be of low to medium significance. At receptors where the existing concentrations of NO_2 are high, around High Street St. Lawrence and The Square Birchington, the modelled contribution from the airport is no more than 0.6µg m^{-3}, which is classified as a **slight** impact under the IAQM/EPUK criteria[9]. However, this assumes that there is no reduction from current levels, whereas the current trend is for concentrations to fall by approximately 0.4µg m^{-3} per year, and a drop of just 1µg m^{-3} in background concentrations will reduce the impact classification to **negligible**. This impact is therefore not considered significant.
Ecological effects: Annual mean NO_x	Significance not yet established	Some Ramsar, SAC, SPA and SSSI receptors do not meet the EA criteria for not requiring further assessment, largely because of existing background concentrations. These sites will be considered further in Chapter 7: Biodiversity. All modelled local nature sites meet the EA criteria for not requiring further assessment.
Ecological effects: Daily mean NO_x	Significance not yet established	Some receptors do not meet the EA criteria for not requiring further assessment. These sites will be considered further in Chapter 7: Biodiversity.

5. Biodiversity

5.1 Introduction

5.1.1 This chapter addresses the implications for the Biodiversity assessment, Chapter 7 of the ES [APP-033,034,035] of revised transport assessment and consequent updates to the noise and air quality assessments (refer to **Chapter 2**, **3** and **4** of this document respectively). Further details of the revised transport assessment can be located within the TA addendum [REP5021] and associated revision to the Transport ES Chapter [REP5-022] submitted at Deadline 5.

5.1.2 Section 2 presents the implications of the updated noise assessment (refer to **Chapter 3**) for Biodiversity, whilst Section 3 presents the implications of the updated air quality assessment (refer to **Chapter 4**) for Biodiversity.

5.2 Methodology

5.2.1 The methodology follows that used for the ES [APP-033, 034,035] in most respects, but some changes are appropriate to handle the revised traffic data. These changes are described in this section.

5.3 Summary of changes

Noise Assessment

5.3.1 The revised noise assessment in **Chapter 3** presents amendments to the assessment associated with road traffic. The effects on ecological receptors of road traffic noise generated during both the construction and operation phases of the Proposed Development were assessed in Section 7.8 of Chapter 7 of the ES [APP-033,034,035]. No significant effects were identified.

5.3.1 Reference to **Figures 12.22 – 12.24** indicate negligible change in road noise on the A256 and A299 roads that pass closest to designated (SSSI, SAC, SPA, Ramsar) sites. All previously assessed effects related to road noise on these biodiversity receptors are still considered **not significant**. Although road noise on the B2190 Spitfire Way and B2050 Manston Road changes during the development and operational phases, the previous assessment summarised in paragraph 7.8.46 in Chapter 7 of the ES [APP-033, 034, 035] is considered to be unchanged, in that the effects of displacement on the SPA golden plover population (the species for which the assessment was made) are considered **not significant** because farmland within 750m of the site is not used on a regular basis by important numbers of this species.

Air Quality

5.3.2 The updated air quality assessment (refer to **Chapter 4**) concludes that air quality effects cannot be screened out as insignificant on the following ecological receptors:

- Annual mean NO_x on two receptors (ER012 and E41) in Year 2, Year 6 and Year 20 year; and
- Daily mean NO_x on 8 receptors (E20, E21, E22, E23, E24, E39, E81 and E82) in Year 2, 3 receptors (E21, E22 and E23) in Year 6 and 1 receptor (E22) in Year 20.

Annual Mean NO_x

5.3.3 Under EA guidance[9], where the PEC is greater than 21 µg m^{-3} (70% of the AQAL) at major ecological receptors, further assessment may be required. Two receptors exceed this criterion, namely Receptors E41 and ER012 which are both located along the A256 Margate Road.

5.3.4 The maximum annual mean NO_x PEC is predicted in Year 20 at Receptor E41 (49.28 µg m^{-3} or 164% of the AQAL), where the A256 Margate Road passes the Sandwich Bay to Hacklinge Marshes SSSI, which at this point is less than 5 m from the kerb. The modelled contribution from the Proposed Development here is 2.51 µg m^{-3}, indicating the contribution to NO_x concentrations at this receptor is dominated by non-airport road traffic. At Receptor ER012, the PEC is 24.03 µg m^{-3} or 80.1 % of the AQAL.

5.3.5 Each of the two modelled locations has been related to the nearest unit of the Sandwich Bay to Hacklinge Marshes SSSI with the habitats present and condition status[14], detailed in **Table 3.1**.

Table 3.1 Modelled locations related to unit details for Sandwich Bay to Hacklinge Marshes SSSI

Receptor	SSSI Unit Number	Main Habitat/ Area (Ha)	Condition Assessment Status/ Latest Assessment Date
E41	11	Neutral grassland – lowland / 28.25	Unfavourable - recovering / 27.09.2012
ER012	08	Littoral sediment / 22.76	Favourable / 28.07.2009

5.3.6 None of the habitats present within areas affected by the exceedance of the 70 % (21 µg m^{-3}) threshold are considered to be particularly sensitive to NO_x deposition (i.e. they are considered very unlikely to support sensitive bryophyte species for example).

5.3.7 Additionally, the Air Pollution Information System[15] (APIS) website states that NO_x are known to have greater adverse effects in the presence of SO_2 or O_3, and hence the critical level should apply where these pollutants are also close to their critical level. The levels of both these pollutants are well below their critical level (refer to paragraph 7.10.20 of Chapter 7 of the ES [APP-033, 034, 035]); hence these pollutants would not exacerbate any effects of NO_x in these locations.

5.3.8 Habitats within the Sandwich Bay to Hacklinge Marshes SSSI Unit 08, approximately 5m from ERO12, comprise littoral sediment. Where vegetated, the habitats present are regularly covered by eutrophic tidal waters. NO_x deposition in Year 20 at Receptor ER012 remains lower than the critical level, with no exceedance of the critical level within the designated site. Therefore, no ecological effects are predicted and therefore no further consideration of these receptors has been undertaken.

5.3.9 The remainder of the assessment of ecological effects of annual mean NOx, is focussed on Receptor E41, where the critical level is exceeded.

5.3.10 Sandwich Bay to Hacklinge Marshes SSSI Unit 11 (Receptor E41) is adjacent to the A256 Ramsgate Road, with a solar farm and waste water treatment plant to the north and Richborough Energy Park to the south. Unit 11 does not form part of the European designated sites.

[14] Each unit of SSSI land is assessed (at least every six years) against six condition states: **Favourable; Unfavourable recovering; Unfavourable no change; Unfavourable declining; Part destroyed; Destroyed.**

[15] Air Pollution Information System (2019) Nitrogen Oxides: Grasslands. Available at: [online] http://www.apis.ac.uk/nitrogen-oxides-grasslands [Accessed April 2019].

5.3.11 The main habitat of the unit is stated as neutral lowland grassland[16]. Based on the information available[17] , it is not clear which of the 31 notified features of the SSSI are present, as none of these clearly fall within a Lowland grassland definition. However, Magic[18] indicates priority habitats are present, with much of the unit close to the road identified as 'coastal and floodplain grazing marsh' with a lesser extent of 'good quality semi-improved grassland'.

5.3.12 Based on review of aerial photography (accessed 26/03/2019), the unit appears significantly scrubbed over and the last condition assessment in 2012 noted:

"*Unit recovering following scrub clearance by Kentish Stour Countryside Project. Grazing arrangement in place appears to be keeping scrub re-growth under control. This is aided by Rabbit grazing, which has allowed some floral diversity to return to the site. Further scrub clearance may be needed to restore site to favourable condition*."

5.3.13 At Year 20, the worst-case year, the PEC at this receptor is 49.28 µg m^{-3}, well above the 30 µg m^{-3} critical level, with a PC of 2.51 µg m^{-3}. The APIS website indicates that increased NO_x can affect grasslands as follows:

- Effects are mainly on growth, photosynthesis and nitrogen assimilation / metabolism with few species showing visible injury;
- Visible decline symptoms for example, leaf discoloration can occur at very high concentrations (> 400 ug m^3);
- Direct damage to mosses, liverworts and lichens, which receive their nutrients from atmospheric deposition, often leads to reductions in species diversity, but also leads to an increase in nitrogen-loving species; and
- Species composition changes.

5.3.14 However, the following factors are relevant in determining the potential for, and significance of ecological effects at this location, as follows:

- Based on analysis of the data provided in **Chapter 4,** in Year 20, traffic in the absence of the Proposed Development would contribute 40.18 µg m^{-3} NO_x, i.e. traffic alone will already contribute significantly more NO_x than the critical level. Alongside the background, in the absence of the Proposed Development, NO_x levels are predicted to be 44.26 µg m^{-3}.
- In the absence of the Proposed Development, the elevated NO_x may limit the quality of the vegetation in the immediate vicinity of the road. An additional 2.51 µg m^{-3} contributed by the Proposed Development may exacerbate any limitation on habitat quality in this location. A potential moderating factor is that, levels of SO_2 and O_3, are well below their critical level and were scoped out of the assessment (as detailed in Section 6.4) in Chapter 6 of the ES [APP-033, 034, 035].
- A very small area of SSSI (entirely within Unit 11, 0.09 ha or <0.005 % of the whole SSSI area), is predicted to be exposed to NO_x concentrations elevated above 30 µg m^{-3}. Of this 0.09 ha, the area that is exposed to NO_x levels above the critical 30 µg m^{-3} will be a small fraction.

[16] Natural England (2019) Designated Sites View [online]. Available at: https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1001128&SiteName=Hack&countyCode=&responsiblePerson [Accessed May 2019].
[17] Natural England (2019) Designated Sites View [online]. Available at: https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1001128&SiteName=Hack&countyCode=&responsiblePerson [Accessed May 2019].
[18] Natural England (2019) MAGIC maps [online]. Available at: https://magic.defra.gov.uk/ [Accessed May 2019]

- The area exposed to NO_x levels above the 30 µg m^{-3} is located in the immediate vicinity of the roadside (refer to **Figure 4.5**) and entrance gate to this unit. It appears from review of aerial photography that the habitats in this area are not representative of the notified habitats, appearing to be scrubbed over. Even if restored to favourable condition, assumed to be grassland, the habitats in this location are likely to be somewhat disturbed and of lower quality than those positioned further away from the road in less disturbed areas.

5.3.15 Given the nature of the habitats in this location, the already (Year 20) high NO_x levels, and extremely small additional area that would be exposed to NO_x above the critical 30 µg m^{-3} level with the Proposed Development, **no significant ecological effect is predicted**.

5.3.16 No habitats located within areas designated as SAC, SPA or Ramsar are predicted to be exposed to annual mean NO_x levels exceeding the critical AQAL of 30 µg m^{-3}. **No adverse effects on site integrity are therefore predicted**.

Maximum daily mean NO_x concentrations in air

5.3.17 Under EA guidance[9], where the short-term Process Contribution (PC) is greater than 10 % of the short-term Air Quality Annual Limit (AQAL) (200 µg m^{-3}) at major ecological receptors, or greater than 100 % of the AQAL at local ecological receptors, further assessment may be required.

5.3.18 The greatest PC at any relevant major ecological receptor is 77 µg m^{-3}, or 38 % of the AQAL at the Receptor E23, representing Pegwell Bay, within the Sandwich Bay to Hacklinge Marshes SSSI, Thanet Coast & Sandwich Bay SPA and Ramsar and Sandwich Bay SAC). The PEC here is 120 µg m^{-3} or 60 % of the AQAL. Under EA guidance[9], this impact cannot be screened out and requires further assessment.

5.3.19 The greatest PC at any of the modelled local nature receptors is 441 µg m^{-3} or 220 % of the AQAL at Receptor E81, representing deciduous woodland in the Priority Habitat Inventory near the B2190 Spitfire Way, where the PEC is 493 µg m^{-3} or 246 % of the AQAL. Under EA guidance[9], this impact cannot be screened out and requires further assessment.

5.3.20 Further assessment is also required at Receptor E82, representing deciduous woodland in the Priority Habitat Inventory near the B2050 Manston Road.

Major Receptors

5.3.21 Each of the modelled locations at which the guidance thresholds are exceeded have been related to the nearest unit of the Sandwich Bay to Hacklinge Marshes SSSI, with the habitats present and condition status[19] detailed in **Table 3.2**.

[19] Each unit of SSSI land is assessed (at least every six years) against six condition states: **Favourable; Unfavourable recovering; Unfavourable no change; Unfavourable declining; Part destroyed; Destroyed.**

Table 3.2 Modelled Locations Related to Unit Details for Sandwich Bay to Hacklinge Marshes SSSI

Receptor	SSSI Unit Number	Main Habitat / Area (Ha)	Condition Assessment Status / Latest Assessment Date
E20	1	Supralittoral rock / 19.06	Favourable / 21.10.2010
E21	1	Supralittoral rock / 19.06	Favourable / 21.10.2010
E22	2	Earth heritage / 1.08	Favourable / 20.07.2009
E23	5	Littoral sediment (saltmarsh)	Favourable / 21.11.2012
E24	5	Littoral sediment (saltmarsh)	Favourable / 21.11.2012
E39	11	Neutral grassland – lowland / 28.25	Unfavourable - recovering / 27.09.2012

5.3.22 As indicated in paragraph 5.3.3, air quality effects cannot be screened out as insignificant for daily mean NO_x on six major receptors (E20, E21, E22, E23, E24, E39) in Year 2, three major receptors (E21, E22 and E23) in Year 6 and one major receptor (E22) in Year 20. This is because the daily mean NO_x PC exceeds the Environment Agency 10% screening threshold[9]. However, the following factors are relevant in determining the potential for, and significance of, ecological effects at these locations:

- The maximum PEC at any of these sites occurs in Year 2 at Receptor E23, however this is 120.27 µg m^{-3} which is only 60 % of the AQAL. The PEC at all other major sites are less than 60 % of the AQAL, with the lowest exceedance being at Receptor E39, where the PEC is 50.73 µg m^{-3} in Year 2, around 25 % of the AQAL. PECs at major sites in Year 6 and Year 20 are all less than half the AQAL.
- The habitats within the designated areas in the immediate vicinity of Receptors E20, E21 and E22 would not be considered sensitive to changes in daily mean NO_x, as these are cliffs (supralittoral rock and earth heritage).
- Habitats at the remaining three receptors (E23, E24 and E39) would likely be sensitive to elevations in daily mean NO_x if sufficiently large over a long time period. However, it is noted that these receptors are all located to the south and south-east of the Proposed Development. Exposure to the maximum daily NO_x would therefore only occur when the wind is blowing from the north to north-west directions. Reference to wind rose data for the site (refer to Appendix 6.3 [APP-044], specifically Figures 6.10 to 6.14) indicates that this occurs infrequently. The habitats present at these sites will be exposed to the maximum daily mean NO_x values calculated infrequently.
- Additionally, the daily mean NO_x contributions are dominated by construction inputs which are temporary and also not continuous during the construction period. Therefore, maximum construction-related NO_x emissions on site will not always coincide with the necessary wind directions.

5.3.23 Taking the above factors into account, 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 national or internationally designated sites.

Local Receptors

5.3.24 The greatest PC at any of the modelled local nature receptors is 441 µg m^{-3}, or 220 % of the AQAL at Receptor E81, representing deciduous woodland in the Priority Habitat Inventory in the immediate vicinity of the B2190 Spitfire Way, where the PEC is 493 µg m^{-3} or 246 % of the AQAL. Receptor E82 is located adjacent to Receptor E81 and is also classified as deciduous woodland in the Priority Habitat Inventory.

5.3.25 These impacts cannot be screened out and require further assessment. However, the following factors are relevant in determining the potential for, and significance of ecological effects at these locations:

- Whilst deciduous woodland would potentially be sensitive to elevated nitrogen levels, effects would only be likely if elevations in daily mean NO_x are sufficiently large over a sufficiently long period. Whilst the maximum daily NO_x levels predicted are around 200% of the AQAL, it is noted that these receptors are both located to the west of Manston Airport. Exposure to the maximum daily NO_x would therefore only occur when the wind is blowing from an easterly direction. Reference to wind rose data for the site (refer to Appendix 6.3 [REF-044], Figures 6.10 to 6.14) indicates that this occurs infrequently. Therefore, the habitats present will be exposed to the maximum daily mean NO_x values calculated infrequently.
- Additionally, the daily mean NO_x contributions are dominated by construction inputs which are temporary and also not continuous during the construction period. Therefore, maximum construction-related NO_x emissions on site will not always coincide with the necessary wind direction.

5.3.26 Taking the above factors into account, 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.

5.4 Conclusions and summary

5.4.1 In conclusion, it is considered that the significance of air quality and noise impacts associated with road traffic on ecological sites is **not significant**.

6. Other Environmental Topics

6.1 Introduction

6.1.1 An extended review of the ES [APP-033, 034, 035] has been undertaken in order to consider whether revisions to the TA [REP5-021] and ES Transport Chapter [REP5-022] would not have wider implications and the potential to alter the conclusions of other environmental topics areas. The following topics are understood not to be affected:

- Freshwater Environment;
- Historic Environment;
- Land Quality;
- Landscape and Visual;
- Socio-Economics;
- Major Accidents and Disasters; and
- Cumulative Effects.

6.2 Freshwater Environment

The revision to the traffic assessment will not result in any material changes to the Proposed Development and changes relate to increase surface transport volumes only. These changes will not increase risks to the water environment, surface or below ground sources and do not alter the conclusions of the freshwater environment assessment, including flood risk and water quality, within the ES [APP-033, 034, 035].

6.2.1 The assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.3 Historic Environment

6.3.1 The revision to the traffic assessment will not result in any material changes to the Proposed Development and changes relate to changes in traffic volumes on specific road links. During the construction phase, HGVs and associated construction traffic will still primarily route along major roads such as the A299. Assets positioned in proximity to these routes are already subject to traffic noise.

6.3.2 The variation to the traffic assessment proposes no more than 3dB changes at heritage assets which is unlikely to be perceptible in terms of the enjoyment of the asset. Therefore, the noise effect in this context can be considered negligible.

6.3.3 As such, the change in traffic conditions resulting from the use of the TSTM is considered unlikely to be sufficient to produce a qualitative change to the setting of these heritage assets, or others that are positioned near to the highway network above and beyond what was previously assessed.

6.3.4 The changes in the air quality assessment also do not affect the historic environment assessment.

6.3.5 Therefore, the assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.4 Land Quality

6.4.1 The revision to the traffic assessment will not result in any material changes to the Proposed Development and changes relate to increase surface transport volumes only. Environmental measures and good practice techniques will be implemented. These changes do not alter the conclusions of the land quality assessment within the ES [APP-033, 034, 035].

6.4.2 As such, the assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.5 Landscape and Visual

6.5.1 The revision to the traffic assessment will not result in any material changes to the Proposed Development and changes relate to increase surface transport volumes only. There is no intention to vary the routing of construction or operational traffic associated with the Proposed Development.

6.5.2 Whilst the distribution of traffic may change, the area is already busy from baseline traffic flows. Likewise, levels of tranquillity are already locally disrupted along main transportation routes as a result of baseline traffic. Therefore, it is unlikely that a change in distribution will disrupt local tranquillity levels beyond that reported in the ES [APP-033, 034, 035].

6.5.1 No amendments are to planned construction activities will be required and as such any effects relating to site preparation and construction that may significantly affect the local landscape character, PRoW and the setting or character of designated landscape sites are unchanged.

6.5.2 As such, the assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.6 Socio-economics

6.6.1 The revision to the traffic assessment will not result in any material changes to the Proposed Development and changes relate to increase surface transport volumes only. The minor changes to the noise and air quality assessments reported above will not have an impact on socio-economic conditions and as such, there are no changes to the conclusions of the socio-economic assessment within the ES [APP-033, 034, 035].

6.6.2 The assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.7 Human Health

6.7.1 The noise assessment (**Chapter 3**) integrates health, considering changes in relative exposure assessed to the health-based criteria within the SOAEL metric, while further considering the LOAEL, and a range of parameters that might further influence significance and any disproportionate risk (magnitude, receptor sensitivity, sound characteristics and timing and duration).

6.7.2 The assessment appropriately considers the varying geographic distribution of community noise exposure from road traffic movements and presents the significance of impact for specific areas during the construction and operational scenarios. The conclusion indicates both significant temporary and permanent impacts to 15 and 45 properties respectively, that may result in annoyance and potentially sleep disturbance (hazards contained within the SOAEL metric). However, the distribution of such receptors will fall within areas of the noise insulation programme, attenuating the impact, and the significance of effect. As such the revisions do not alter the findings and the original conclusions remain.

6.7.3 The updated air quality assessment (**Chapter 4**) provides detailed dispersion modelling of NO_2 for key scenarios and confirms that while the concentration and distribution does vary, air quality objectives will be met at all receptors, and the relative change in concentration and exposure are not of a concentration or exposure sufficient to quantify any change in local health baseline. On the above basis, the original conclusion remains, in that the proposed project will remain within air quality objectives set to be protective of the environment and health and the relative change in air quality will not materially influence baseline levels of respiratory or cardiovascular health.

6.7.4 Therefore, the assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.8 Climate Change

6.8.1 The revision to the traffic assessment will not result in any changes to the assessment of climate change within the ES [APP-033, 034, 035]. Recommended mitigation measures have also been incorporated into the design of the Proposed Development. A Climate Resilience Strategy will strengthen these commitments. As such, there are no changes to the conclusions of the climate change assessment within the ES [APP-033, 034, 035].

6.8.2 The assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.9 Greenhouse Gas Emissions (GHG)

6.9.1 The revision to the traffic assessment does not add significant additional traffic onto the network and will therefore not alter or introduce additional significant environmental effects over and above those already assessed and presented in the ES [APP-033, 034, 035] As such the assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.10 Major Accidents and Disasters

6.10.1 The revision to the transport assessment will not result in any material changes to the Proposed Development and changes relate revised transport modelling only.

6.10.2 These changes do not alter the conclusions of the major accidents and disasters assessment within the ES [APP-033, 034, 035]. This particularly reflects the fact that there is no change in the risk profile resulting from the changes to trip generation, traffic distribution and modelling approach. No hazardous chemicals beyond those fuels and substances already assessed in the ES [APP-033, 034, 035] will be introduced as part of the revisions.

6.10.3 As such the assessment contained within the ES [APP-033, 034, 035] is still considered to be valid and no additional assessment is necessary.

6.11 Cumulative Effects

6.11.1 The revised TA [REP5-021] will not result in any material changes to the Proposed Development and relate to revised transport modelling only.

6.11.2 Whilst the changes resulting from the use of the TSTM have resulted increases in the likely significant effects associated with noise and air quality, there are no expected effects on other ES disciplines.

6.11.3 In terms of the cumulative effects reported in Chapter 18 of the ES [APP-033, 034, 035], no transport related cumulative effects were expected to occur on the short list of developments assessed. The change in transport data and resultant changes to the noise and air quality assessments are not expected to change this conclusion.

6.11.4 As such, the assessment and conclusions contained within the ES [APP-033, 034, 035] remain valid and no additional assessment is necessary.

7. Summary

7.1.1 This document has been prepared to summarise updates to the Environmental Statement [APP-033, 034, 035], for the Manston Airport DCO, due to amendments to the traffic modelling associated with the use of the Thanet Strategic Transport Model, and the submission of an addendum to the Transport Assessment [APP-060, 061] and revised Transport ES Chapter (**Chapter 14**) [APP-033, 034, 035]. It provides a clear understanding of the amendments and the subsequent implications in relation to the previous assessment, through reporting any changes to the previously reported environmental effects of the Proposed Development.

7.1.2 Due to the nature of the assessments, there are direct links between changes to Traffic and Transport and both the Noise and Vibration (**Chapter 12**) and Air Quality (**Chapter 6**) assessments and direct links between Air Quality and Biodiversity (**Chapter 7**) and Human Health (**Chapter 15**) [APP-033, 034, 035]. Consequently, these two topics have been specific areas of consideration within this document, with more detailed assessments being provided for each. In order to assess the wider implications for other environmental topic chapters of the ES [APP-033, 034, 035], consideration of the impact upon the significance conclusions of these has also been assessed.

7.1.3 This chapter summarises the changes to the likely significant effects, as assessed within the original ES submission [APP-033, 034, 035], reporting the implications, of the amended traffic modelling upon the previous assessment.

7.2 Summary of Significant Effects

7.2.1 A summary of the changes to the conclusions of significant effects of the Proposed Development, arising due to amendments to the traffic modelling, is provided in **Table 8.1**.

Table 8.1 Summary of the new significant effects arising due to the amendments to traffic modelling

Receptor and summary of predicted effects	Significance	Summary rationale
Road traffic noise – temporary community effects night time	Significant	Road traffic noise at approximately 15 properties on Bell Davies Drive, Manston would increase to the point where there would be a perceived change in quality of life for occupants of buildings in these communities.
Road traffic noise – permanent community effects night time	Significant	Road traffic noise at approximately 45 properties on Manston Road (in the proximity of (St Catherine's Grove, Elm Grove and Highlands Glade), Manston (Receptor Locations RTN50 and 51) would increase to the point where there would be a perceived change in quality of life for occupants of buildings in these communities.

7.3 Other Environmental Topics

7.3.1 Other environmental topics assessed within the ES [APP-033, 034, 035], have no direct relationship with the changes in the addendum to the Transport Assessment [APP-060, 061] or the ES Transport Chapter (**Chapter 14**) [APP-034], it can be concluded that the assessments remain valid and unchanged. As detailed in **Chapter 5** of this document, this includes the assessment of significant effects within the following chapters of the ES [APP-033, 034, 035]:

- **Chapter 8: Freshwater Environment**;

- **Chapter 9: Historic Environment**;
- **Chapter 10: Land Quality**;
- **Chapter 11: Landscape and Visual**;
- **Chapter 13: Socio-Economics**;
- **Chapter 16: Climate Change**;
- **Chapter 17: Major Accidents and Disasters**; and
- **Chapter 18: Cumulative Effects**.

Appendix A
Figures

620000 621000 622000 623000 624000 625000 626000 627000 628000 629000 630000 631000 632000 633000 634000 635000 636000 637000

177000 176000 175000 174000 173000 172000 171000 170000 169000 168000 167000 166000 165000 164000 163000 162000

N

Coldblows-Grovelodge
Flete
Vincent Farmhouse
Red House Farm
Westwood
Margate Rd
Leydden
Fleets Court Farm
The Church House
Preston Farm Cottages
Coldswood Farm
Haine
Spratling Court

Reculver
Bishopstone
Beltinge
Hillborough
Hawthorn
Broomfield
Marshside
Under The Wood
Highstead
Ford
Millbank
Boyden Gate
Maypole
Old Tree
Chitty
Chislet
Hoath
Hollow Street
Upstreet
Hersden
A28
Grove
West Stourmouth
East Stourmouth
Westmarsh
St Nicholas at Wade
A253
Sarre
Monkton
Hoo
The Freedom Minster
Way
Durlock
Sevenscore
Mount Pleasant
Kent International Airport
Westbrook
Westgate-on-Sea
Garlinge
Birchington
Woodchurch
Isle of Thanet
Flete
Lydd
Hanwood
Whitehall
Newington
Nethercourt
Chilton
Cliffonville
Clifton End
Pegwell
B2051
B2055
B2052
A254
A255
A256

Key

- Order Limits
- 1.5km study area
- Noise receptor location
- Existing road
- Road in Year 20
- Road used as HGV haul route
- Road where noise is forecast to increase by >1dB as a result of development traffic

Notes:
1. To be read in conjunction with "Environmental Statement Addendum- Potential Effects arising from the use of the Kent County Council Thanet Strategic Transport Model"

0 500 1,000 1,500 2,000 2,500 3,000 m

Scale at A3: 1:58,000

Client

RSP

Manston Airport DCO

Figue 3.1
Road traffic noise study area

May 2019

wood.

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Key

Order Limits

Noise receptor location

Notes:
1. To be read in conjunction with "Environmental Statement Addendum- Potential Effects arising from the use of the Kent County Council Thanet Strategic Transport Model"

0 500 1,000 1,500 2,000 2,500 3,000 m

Scale at A3: 1:50,000

Client

RSP

Manston Airport DCO

Figure 3.2
Road noise receptor locations

May 2019

wood.

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631000 632000 633000 634000 635000 636000

168000 167000 166000 165000 164000

N

Birchington
Park La
B2050
Closes Cottages
Hengrove Farm
A25
East Lodge
Two Chimneys House
Coldblows-Grovelodge
Flete
Red House Farm
Haine Rd
Vincent Farmhouse
Woodchurch
Lydden
Ladds Cottages
Newington Rd
Queendown Farm Cottage
Fleets Court Farm
Acol
Cheesemans Farmhouse
The Coach House
Preston Farm Cottages
Coldswood Farm
Haine
New Haine Rd
Pouces Nursery
Isle of Thanet
Oast Cottages
Cleve Court Farm
Holt Wood
B2050
Alland Grange
Rose Farm
Kent International Airport
Manston
Spratling Court Farm
Mount Pleasant
A256
Telegraph Hill
Ozengell Farmhouse
The Mill House
Hazeldene Farm
Canterbury Rd East
The Freehold
Way
Red Cottages
Thorne Farm
Minster
A299
Thorne Cottages
Sevenscore
Little Cliffsend Farm
Cliffs End
Durlock
Minster

Key

Order Limits

µg m $^{-3}$

< 0.6
0.6 - 1.0
1.0 - 1.6
1.6 - 2.5
2.5 - 6.0
4.0 - 6.0
6.0 - 10.0
> 10.0

0 200 400 600 800 1,000 1,200 m

Scale at A3: 1:20,000

Client

RSP

Manston Airport DCO

Figure 4.1
Annual mean NO_2 PC, Year 2

May 2019

wood.

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631000 632000 633000 634000 635000 636000

168000 167000 166000 165000 164000

Birchington
Park La
B2050
Closes Cottages
Hengrove Farm
A25
East Lodge
Two Chimneys House
Coldblows-Grovelodge
Flete
Red House Farm
Haine Rd
Vincent Farmhouse
Woodchurch
Ladds Cottages
Lydden
Queendown Farm Cottage
Fleete Court Farm
Acol
The Coach House
Cheesemans Farmhouse
Coldswood Farm
Haine
Preston Farm Cottages
New Haine Rd
Pouces Nursery
Isle of Thanet
Oast Cottages
Holt Court
B2050
Cleve Court Farm
Alland Grange
Rose Farm
Kent International Airport
Manston
Spratling Court Farm
Mount Pleasant
A256
Telegraph Hill
A256
Ozengell Farmhouse
The Mill House
Hazeldene Farm
Way
Red Cottages
Thorne Farm
Canterbury Rd East
The Freehold
Minster
A299
Thorne Cottages
Sevenscore
Little Cliffsend Farm
Cliffs End
Durlock
Minster

Key

Order Limits

µg m $^{-3}$

< 0.6
0.6 - 1.0
1.0 - 1.6
1.6 - 2.5
2.5 - 6.0
4.0 - 6.0
6.0 - 10.0
> 10.0

0 200 400 600 800 1,000 1,200 m

Scale at A3: 1:20,000

Client

RSP

Manston Airport DCO

Figure 4.2
Annual mean NO_2 PC, Year 6

May 2019

wood.

H:\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon139.mxd Originator: jacqui.parkin

631000 632000 633000 634000 635000 636000

168000 167000 166000 165000 164000

Birchington
Park La
B2050
Closes Cottages
Hengrove Farm
East Lodge
Two Chimneys House
Coldblows-Grovelodge
Flete
Red House Farm
Vincent Farmhouse
Woodchurch
Ladds Cottages
Queendown Farm Cottage
Acol
Fleet Court Farm
Cheesemans Farmhouse
The Garden House
Coldswood Farm
Haine
Preston Farm Cottages
Pound Nursery
Oast Cottages
Isle of Thanet
Cleve Court Farm
Alland Grange
Rose Farm
B2050
Spratling Court Farm
Manston
Kent International Airport
Mount Pleasant
Telegraph Hill
A256
Ozengell Farmhouse
Haine Rd
The Mill House
Hazeldene Farm
Way
The Freehold
Minster
Red Cottages
Thorne Farm
A299
Thorne Cottages
Sevenscore
Little Cliffsend Farm
Cliffs End
Durlock
Minster

Key

Order Limits

µg m $^{-3}$

< 1
1.0 - 1.6
1.6 - 2.5
2.5 - 4.0
4.0 - 6.0
6.0 - 10.0
10.0 - 16.0
> 16.0

0 200 400 600 800 1,000 1,200 m

Scale at A3: 1:20,000

Client

RSP

Manston Airport DCO

Figure 4.3
Annual mean NO_x, PC, Year 20, near the Proposed Development

May 2019

wood.

627000 628000 629000 630000 631000 632000 633000 634000 635000 636000 637000 638000 639000 640000

171000 170000 169000 168000 167000 166000 165000 164000 163000 162000 161000

N

Westbrook
Westgate-on-Sea
Garlinge
Birchington
Cliftonville
Northdown
Kingsgate
Reading Street
St Peter's
Broadstairs
Fairfield
Upton
Bromstone
Westwood
Flete
Woodchurch
Lydden
Haine
Northwood
Isle of Thanet
Kent International Airport
Manston
Mount Pleasant
Newington
Whitehall
West Dumpton
Dumpton
Nethercourt
Ramsgate
Chilton
Pegwell
Cliffsend
Monkton
Hoo
The Freehold
Minster
Sevenscore
Durlock
Westmarsh
Paramour Street
Lower Goldstone
Ware
Upper Goldstone
Sandwich Bay

A28 A2 A256 A255 A254 A299 B2051 B2052 B2053 B2054 B2055 B2050

Key

Order Limits

$\mu g\ m^{-3}$

- < 0.3
- 0.3 - 0.6
- 0.6 - 1
- 1 - 1.6
- 1.6 - 2.5
- 2.5 - 4
- 4 - 6
- >6

0 500 1,000 1,500 2,000 2,500 m

Scale at A3: 1:43,000

Client

RSP

Manston Airport DCO

Figure 4.4
Annual mean NO_x, PC, Year 20, wider area

May 2019

wood.

H:\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon142.mxd Originator: jacqui.parkin

633000

634000

162000

161000

N

A256

Ramsgate Rd

Minster Stream

Ebbsfleet House

Richborough Port

Sandwich & Pegwell Bay NNR

Sandwich Bay to Hacklinge Marshes SSSI

Thanet Coast & Sandwich Bay Ramsar

Thanet Coast & Sandwich Bay SPA

21

30

Key

- Order Limits
- 30µg m^{-3}
- 21µg m^{-3}
- Local Nature Reserve
- National Nature Reserve
- SSSI
- Ramsar
- SPA
- SAC

0 100 200 300 400 m

Scale at A3: 1:8,000

Client

RSP

Manston Airport DCO

Figure 4.5
Annual mean NOx total concentration (PEC), Year 20, near A256 Ramsgate Road

May 2019

wood.

H:\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon137.mxd Originator: jacqui.parkin

631000 632000 633000 634000 635000 636000

168000 167000 166000 165000 164000

Birchington
Park La
B2050
Closes Cottages
Hengrove Farm
A256
East Lodge
Two Chimneys House
Coldblows-Grovehurst
Pilete
Red House Farm
Vincent Farmhouse
Woodchurch
Ladds Cottages
Lydden
Queendown Farm Cottage
Acol
Fleets Court Farm
The Clutch House
Cheesemans Farmhouse
Coldswood Farm
Haine
Preston Farm Cottages
New Haine Rd
Pouces Nursery
Isle of Thanet
Oast Cottages
Holmesdale
Cleve Court Farm
Allland Grange
Rose Farm
Spratling Court Farm
Manston
Kent International Airport
Mount Pleasant
Telegraph Line
A256
Ozengell Farmhouse
Haine Rd
The Mill House
Hazeldene Farm
Canterbury Rd East
The Freehold
Minster
Way
Red Cottages
Thorne Farm
A299
Thorne Cottages
Sevenscore
Little Cliffsend Farm
Cliffs End
Durlock
Minster

Key

Order Limits

µg m $^{-3}$

< 0.6
0.6 - 1.0
1.0 - 1.6
1.6 - 2.5
2.5 - 6.0
4.0 - 6.0
6.0 - 10.0
> 10.0

0 200 400 600 800 1,000 1,200 m

Scale at A3: 1:20,000

Client

RSP

Manston Airport DCO

Figure 4.6
Annual mean NO_2 PC, Year 20

May 2019

wood.

Appendix B
Noise assessment supporting information

Key

Column	Description
Column A	Receptor location – See **Figure 3.2** in Appendix A
Column B	Area represented by receptor location
Column C	Number of residential properties represented by receptor location
Columns D to F	Predicted road traffic noise levels with and without the scheme
Columns G	The noise change resulting from development traffic and forecast growth in non-development traffic (Column F minus Column D)
Column H	The DMRB impact classification – See Table 3.2 (short-term impacts) and Table 3.3 (long-term impacts
Column I	The noise change due to development traffic only (applicable to Year 6 and Year 20) (Column F minus Column E)
	Cell shading represents a noise level above the day time or night time road traffic noise SOAEL of 63 dB $L_{AEq,16hr}$ or 55dB $L_{AEq,8hr}$ respectively
	Cell shading represents a noise level below the day time or night time road traffic noise LOAEL of 50 dB $L_{AEq,16hr}$ or 40dB $L_{AEq,8hr}$ respectively

Table B.1 Road traffic noise predictions – Year of maximum day time construction traffic at receptors close to construction traffic routes

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment					
			Noise level dB $L_{Aeq,16hr}$					
			Total without project Year 2	-	Total with project Year 2	Change short-term	DMRB impact criteria (Table 3.2)	Change resulting from project traffic only
RTN01	Wagtail Farm, BIRCHINGTON	2	59.6	-	59.8	0.2	Negligible	0.2
RTN02	Rose Cottage, BIRCHINGTON	21	53.8	-	54	0.2	Negligible	0.2
RTN03	Greys Farm, CANTERBURY	10	59.8	-	59.9	0.1	Negligible	0.1
RTN04	Frost Farm, BIRCHINGTON	3	68.8	-	69	0.2	Negligible	0.2
RTN31	Stuart Lane, BIRCHINGTON	3	56.1	-	56.3	0.2	Negligible	0.2
RTN32	Pouces Cottages, RAMSGATE	9	70.9	-	71.7	0.8	Negligible	0.8
RTN33	Bell Davies Drive, RAMSGATE	16	63	-	63.7	0.7	Negligible	0.7
RTN64	Court Road, BIRCHINGTON	22	49.9	-	50	0.1	Negligible	0.1
RTN65	Smugglers Leap, RAMSGATE	23	65.5	-	66.2	0.7	Negligible	0.7
RTN66	Smugglers Leap, RAMSGATE	18	70	-	70.3	0.3	Negligible	0.3
RTN67	Sun Lane, BIRCHINGTON	9	50	-	50.1	0.1	Negligible	0.1
RTN68	Collards Close, RAMSGATE	10	51.6	-	51.7	0.1	Negligible	0.1
RTN69	Parsonage Fields, RAMSGATE	77	51.1	-	51.2	0.1	Negligible	0.1
RTN70	Parsonage Fields, RAMSGATE	11	52.6	-	52.7	0.1	Negligible	0.1
RTN71	Monkton Street, RAMSGATE	61	47.9	-	48.1	0.2	Negligible	0.2
RTN72	Fairfiled Road, RAMSGATE	57	49	-	49.1	0.1	Negligible	0.1
RTN75	Temple Close, RAMSGATE	31	53.4	-	53.5	0.1	Negligible	0.1
RTN78	The Length, BIRCHINGTON	111	49.6	-	49.7	0.1	Negligible	0.1
RTN82	Frost Farm, BIRCHINGTON	42	61.4	-	61.6	0.2	Negligible	0.2

Table B.2 Road traffic noise predictions – Year of maximum night time construction traffic at receptors close to construction traffic routes

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment					
			Noise level dB $L_{Aeq,8hr}$					
			Total without project Year 2	Total without project Year 6	Total with project Year 6	Change short-term	DMRB impact criteria (Table 3.2)	Change resulting from project traffic only
RTN01	Wagtail Farm, BIRCHINGTON	2	52.8	52.8	55.7	3	Moderate	2.9
RTN02	Rose Cottage, BIRCHINGTON	21	46.6	46.6	49.5	3	Moderate	2.9
RTN03	Greys Farm, CANTERBURY	10	52.9	52.9	55.8	3	Moderate	2.9
RTN04	Frost Farm, BIRCHINGTON	3	62.5	62.5	65.3	2.9	Minor	2.8
RTN31	Stuart Lane, BIRCHINGTON	3	49.1	49.1	51.9	2.9	Minor	2.8
RTN32	Pouces Cottages, RAMSGATE	9	65	65	66.3	1.4	Minor	1.3
RTN33	Bell Davies Drive, RAMSGATE	16	56.7	56.7	58	1.4	Minor	1.3
RTN64	Court Road, BIRCHINGTON	22	42.4	42.4	45.2	2.9	Minor	2.8
RTN65	Smugglers Leap, RAMSGATE	23	57.8	57.8	63.8	5.1	Major	6
RTN66	Smugglers Leap, RAMSGATE	18	63.6	63.6	66.4	3	Moderate	2.8
RTN67	Sun Lane, BIRCHINGTON	9	42.3	42.3	44.9	2.6	Minor	2.6
RTN68	Collards Close, RAMSGATE	10	43.8	43.8	46.3	2.6	Minor	2.5
RTN69	Parsonage Fields, RAMSGATE	77	43.3	43.3	45.6	2.4	Minor	2.3
RTN70	Parsonage Fields, RAMSGATE	11	44.9	44.9	46.7	1.9	Minor	1.8
RTN71	Monkton Street, RAMSGATE	61	40.2	40.2	42.9	2.9	Minor	2.7
RTN72	Fairfiled Road, RAMSGATE	57	41.6	41.6	42.3	1.3	Minor	0.7
RTN75	Temple Close, RAMSGATE	31	46.1	46.1	47.3	1.4	Minor	1.2
RTN78	The Length, BIRCHINGTON	111	41.8	41.8	44.2	2.4	Minor	2.4
RTN82	Frost Farm, BIRCHINGTON	42	54.6	54.6	57.5	2.9	Minor	2.9

Table B.3 Road traffic noise predictions – Year of maximum forecast capacity - Daytime

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment Noise level dB $L_{Aeq,16hr}$ Total without project Year 2	Total without project Year 20	Total with project Year 20	Change long-term	DMRB impact criteria (Table 3.3)	Change resulting from project traffic only
RTN01	Wagtail Farm, BIRCHINGTON	2	59.6	60.5	60.8	1.2	Negligible	0.3
RTN02	Rose Cottage, BIRCHINGTON	21	53.8	54.7	55	1.2	Negligible	0.3
RTN03	Greys Farm, CANTERBURY	10	59.8	60.6	61	1.2	Negligible	0.4
RTN04	Frost Farm, BIRCHINGTON	3	68.8	69.7	70.1	1.3	Negligible	0.4
RTN05	Brookland Bungalow, MARGATE	5	50	59.7	60.2	10.2	Major	0.5
RTN06	Manston Court Road, MARGATE	27	55.5	56.6	56.9	1.4	Negligible	0.3
RTN07	Valley Road, MARGATE	10	44.6	52.3	52.7	8.1	Moderate	0.4
RTN08	Tree Tops, MARGATE	1	42.1	48.1	48.5	6.4	Moderate	0.4
RTN09	Bradgate Caravan Park, MARGATE	19	54.7	64.5	65	10.3	Major	0.5
RTN10	Bradgate Caravan Park, MARGATE	##	49.1	57.7	58.1	9	Moderate	0.4
RTN11	Bradgate Caravan Park, MARGATE	50	47.7	54.8	55.3	7.6	Moderate	0.5
RTN12	Manston Way, MARGATE	14	55.8	47.9	48.1	-7.7	No Change	0.2
RTN13	Manston Way, MARGATE	27	55.5	54.4	54.4	-1.1	No Change	0
RTN14	Manston Way Walk, MARGATE	33	43	42.8	43	0	No Change	0.2
RTN15	Castle Drive, MARGATE	8	52.3	54.5	54.5	2.2	Negligible	0
RTN16	Castle Drive, MARGATE	77	53.6	55.7	55.8	2.2	Negligible	0.1
RTN17	Castle Drive, MARGATE	22	50.8	55.9	55.9	5.1	Moderate	0
RTN18	Castle Drive, MARGATE	12	54.3	61.3	61.3	7	Moderate	0
RTN19	Wherry Close, MARGATE	30	52.6	58.7	58.7	6.1	Moderate	0
RTN20	Wherry Close, MARGATE	15	43	45.9	46	3	Minor	0.1
RTN21	Wherry Close, MARGATE	32	42.8	45.8	46	3.2	Minor	0.2
RTN22	Star Lane, MARGATE	54	54.7	60.6	60.6	5.9	Moderate	0
RTN23	Star Lane, MARGATE	67	53.8	60.2	60.2	6.4	Moderate	0
RTN24	Ramsgate Road, MARGATE	18	62.9	63.4	63.5	0.6	Negligible	0.1
RTN25	Ramsgate Road, MARGATE	41	63	63.5	63.6	0.6	Negligible	0.1
RTN26	Poorhole Lane Cottages, BROADSTAIRS	3	61.8	66.4	66.4	4.6	Minor	0
RTN27	Westwood Road, BROADSTAIRS	63	44.3	48.2	48.2	3.9	Minor	0
RTN28	Northwood Road, RAMSGATE	##	38.7	40.2	40.3	1.6	Negligible	0.1
RTN29	Margate Road, RAMSGATE	50	39	40.7	40.9	1.9	Negligible	0.2
RTN30	Orchard Close, RAMSGATE	8	43.6	44.3	44.5	0.9	Negligible	0.2
RTN31	Stuart Lane, BIRCHINGTON	3	56.1	57	57.4	1.3	Negligible	0.4
RTN32	Pouces Cottages, RAMSGATE	9	70.9	73.7	74.5	3.6	Minor	0.8
RTN33	Bell Davies Drive, RAMSGATE	16	63	65.7	66.6	3.6	Minor	0.9

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment Noise level dB $L_{Aeq,16hr}$ Total without project Year 2	Total without project Year 20	Total with project Year 20	Change long-term	DMRB impact criteria (Table 3.3)	Change resulting from project traffic only
RTN34	Tollemache Close, RAMSGATE	68	53.3	55.2	56	2.7	Negligible	0.8
RTN35	Manston Road, MARGATE	16	58.9	57.3	57.7	-1.2	No Change	0.4
RTN36	Vincent Farm House, MARGATE	2	70.5	71.8	71.9	1.4	Negligible	0.1
RTN37	Vincent Farm House, MARGATE	8	55	57	57.1	2.1	Negligible	0.1
RTN38	Vincent Farm Cottages, MARGATE	3	51.7	56.1	56.3	4.6	Minor	0.2
RTN39	Wellington Road, MARGATE	2	41.9	45.3	45.6	3.7	Minor	0.3
RTN40	Fleet Road, MARGATE	1	46.9	48.2	48.3	1.4	Negligible	0.1
RTN41	Norfolk Road, MARGATE	3	44.2	46.1	46.3	2.1	Negligible	0.2
RTN42	Manston Court, RAMSGATE	8	57.5	57.8	58.9	1.4	Negligible	1.1
RTN43	Manston Court, RAMSGATE	4	56.8	55.9	57.4	0.6	Negligible	1.5
RTN44	Manston Court, RAMSGATE	6	54.2	54.7	55.5	1.3	Negligible	0.8
RTN45	Wood Farm Cottages, RAMSGATE	3	55.9	55	56.7	0.8	Negligible	1.7
RTN46	Manston Court Road, RAMSGATE	11	55.3	56.2	57	1.7	Negligible	0.8
RTN47	Manston Court Road, RAMSGATE	4	43.5	45.8	46.2	2.7	Negligible	0.4
RTN48	The Green, RAMSGATE	31	64.2	63.1	64.9	0.7	Negligible	1.8
RTN49	High Street, RAMSGATE	13	46.4	46.6	47.7	1.3	Negligible	1.1
RTN50	Manston Road, RAMSGATE	13	59.4	60.3	61.4	2	Negligible	1.1
RTN51	Manston Road, RAMSGATE	30	50.8	51.7	52.7	1.9	Negligible	1
RTN52	Preston Road, RAMSGATE	24	47.6	47.2	48.3	0.7	Negligible	1.1
RTN53	Spratling St, RAMSGATE	23	45.9	45.9	46.7	0.8	Negligible	0.8
RTN54	Preston Park, RAMSGATE	24	47.9	49.1	49.6	1.7	Negligible	0.5
RTN55	Preston Farm Cottages, RAMSGATE	4	42.5	45.8	46.2	3.7	Minor	0.4
RTN56	High Street, RAMSGATE	5	47.9	48.2	49.1	1.2	Negligible	0.9
RTN57	Haine Road, RAMSGATE	2	68.2	63.9	63.9	-4.3	No Change	0
RTN58	Haine Road, RAMSGATE	21	66.1	65.7	65.8	-0.3	No Change	0.1
RTN59	Saddlers Mews, RAMSGATE	14	52.9	52.6	52.7	-0.2	No Change	0.1
RTN60	Haine Farm Cottage, RAMSGATE	4	44.3	44.8	44.9	0.6	Negligible	0.1
RTN61	Haine Farm Mews, RAMSGATE	19	46.4	46.8	46.8	0.4	Negligible	0
RTN62	Bijou Villas, RAMSGATE	7	46.1	46.2	46.2	0.1	Negligible	0
RTN63	Spratling Lane, RAMSGATE	2	50.1	49.7	49.8	-0.3	No Change	0.1
RTN64	Court Road, BIRCHINGTON	22	49.9	50.7	51.1	1.2	Negligible	0.4
RTN65	Smugglers Leap, RAMSGATE	23	65.5	67.7	68.5	3	Minor	0.8
RTN66	Smugglers Leap, RAMSGATE	18	70	70.6	71.1	1.1	Negligible	0.5
RTN67	Sun Lane, BIRCHINGTON	9	50	50.9	51.2	1.2	Negligible	0.3
RTN68	Collards Close, RAMSGATE	10	51.6	52.1	52.6	1	Negligible	0.5

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment					
			Noise level dB $L_{Aeq,16hr}$					
			Total without project Year 2	Total without project Year 20	Total with project Year 20	Change long-term	DMRB impact criteria (Table 3.3)	Change resulting from project traffic only
RTN69	Parsonage Fields, RAMSGATE	77	51.1	51.7	52.1	1	Negligible	0.4
RTN70	Parsonage Fields, RAMSGATE	11	52.6	53.2	53.5	0.9	Negligible	0.3
RTN71	Monkton Street, RAMSGATE	61	47.9	48.5	48.9	1	Negligible	0.4
RTN72	Fairfiled Road, RAMSGATE	57	49	49.8	50	1	Negligible	0.2
RTN73	Orchard Close, RAMSGATE	20	54.7	55.4	55.4	0.7	Negligible	0
RTN74	Toothill Street, RAMSGATE	75	64.6	65.2	65.2	0.6	Negligible	0
RTN75	Temple Close, RAMSGATE	31	53.4	53.9	54.2	0.8	Negligible	0.3
RTN76	Temple Close, RAMSGATE	11	64.2	64.9	64.9	0.7	Negligible	0
RTN77	Hill House, RAMSGATE	11	61.5	62.1	62.2	0.7	Negligible	0.1
RTN78	The Length, BIRCHINGTON	##	49.6	50.4	50.7	1.1	Negligible	0.3
RTN79	Lydden Farm, MARGATE	3	40.3	45.2	45.6	5.3	Moderate	0.4
RTN80	Canterbury Rd, BIRCHINGTON	0	56.6	57	57.2	0.6	Negligible	0.2
RTN81	Shottendane Rd, RAMSGATE	0	67.9	71	71.1	3.2	Minor	0.1
RTN82	Frost Farm, BIRCHINGTON	42	61.4	62.3	62.6	1.2	Negligible	0.3

Table A.4 Road traffic noise predictions – Year of maximum forecast capacity – Night time

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment					
			Noise level dB $L_{Aeq,8hr}$					
			Total without project Year 2	Total without project Year 20	Total with project Year 20	Change long-term	DMRB impact criteria (Table 3.3)	Change resulting from project traffic only
RTN01	Wagtail Farm, BIRCHINGTON	2	52.7	53.6	55.2	2.5	Negligible	1.6
RTN02	Rose Cottage, BIRCHINGTON	21	46.5	47.4	49	2.5	Negligible	1.6
RTN03	Greys Farm, CANTERBURY	10	52.8	53.7	55.3	2.5	Negligible	1.6
RTN04	Frost Farm, BIRCHINGTON	3	62.4	63.3	64.8	2.4	Negligible	1.5
RTN05	Brookland Bungalow, MARGATE	5	41.3	52.5	52.9	11.6	Major	0.4
RTN06	Manston Court Road, MARGATE	27	47	48.4	49	2	Negligible	0.6
RTN07	Valley Road, MARGATE	10	35.7	44.5	45	9.3	Moderate	0.5
RTN08	Tree Tops, MARGATE	1	33.4	40	40.5	7.1	Moderate	0.5
RTN09	Bradgate Caravan Park, MARGATE	19	46.1	57.4	57.9	11.8	Major	0.5
RTN10	Bradgate Caravan Park, MARGATE	148	40.3	50	50.5	10.2	Major	0.5
RTN11	Bradgate Caravan Park, MARGATE	50	39.1	46.9	47.4	8.3	Moderate	0.5

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment Noise level dB $L_{Aeq,8hr}$ Total without project Year 2	Total without project Year 20	Total with project Year 20	Change long-term	DMRB impact criteria (Table 3.3)	Change resulting from project traffic only
RTN12	Manston Way, MARGATE	14	47.5	39	39.4	-8.1	No Change	0.4
RTN13	Manston Way, MARGATE	27	46.9	45.8	45.8	-1.1	No Change	0
RTN14	Manston Way Walk, MARGATE	33	34.2	33.6	34	-0.2	No Change	0.4
RTN15	Castle Drive, MARGATE	8	43.6	45.8	45.9	2.3	Negligible	0.1
RTN16	Castle Drive, MARGATE	77	45.1	47.2	47.3	2.2	Negligible	0.1
RTN17	Castle Drive, MARGATE	22	42.2	47.5	47.6	5.4	Moderate	0.1
RTN18	Castle Drive, MARGATE	12	45.8	53.2	53.2	7.4	Moderate	0
RTN19	Wherry Close, MARGATE	30	44	50.3	50.3	6.3	Moderate	0
RTN20	Wherry Close, MARGATE	15	34.1	37.2	37.1	3	Minor	-0.1
RTN21	Wherry Close, MARGATE	32	34.1	36.8	37.1	3	Minor	0.3
RTN22	Star Lane, MARGATE	54	46.2	52.6	52.4	6.2	Moderate	-0.2
RTN23	Star Lane, MARGATE	67	45.3	52	52	6.7	Moderate	0
RTN24	Ramsgate Road, MARGATE	18	54.7	55.3	55.4	0.7	Negligible	0.1
RTN25	Ramsgate Road, MARGATE	41	54.9	55.4	55.6	0.7	Negligible	0.2
RTN26	Poorhole Lane Cottages, BROADSTAIRS	3	53.6	58.4	58.4	4.8	Minor	0
RTN27	Westwood Road, BROADSTAIRS	63	35.4	39.5	39.5	4.1	Minor	0
RTN28	Northwood Road, RAMSGATE	137	29.9	31.2	31.5	1.6	Negligible	0.3
RTN29	Margate Road, RAMSGATE	50	30.4	31.6	32.1	1.7	Negligible	0.5
RTN30	Orchard Close, RAMSGATE	8	35.3	36.1	36.3	1	Negligible	0.2
RTN31	Stuart Lane, BIRCHINGTON	3	49	49.9	51.4	2.4	Negligible	1.5
RTN32	Pouces Cottages, RAMSGATE	9	64.9	67	69	4.1	Minor	2
RTN33	Bell Davies Drive, RAMSGATE	16	56.6	58.6	60.7	4.1	Minor	2.1
RTN34	Tollemache Close, RAMSGATE	68	47	47	48.8	1.8	Negligible	1.8
RTN35	Manston Road, MARGATE	16	51.9	50.2	49.9	-2	No Change	-0.3
RTN36	Vincent Farm House, MARGATE	2	64	64.1	65.7	1.7	Negligible	1.6
RTN37	Vincent Farm House, MARGATE	8	47.7	48.9	50.3	2.6	Negligible	1.4
RTN38	Vincent Farm Cottages, MARGATE	3	44.3	48.5	49.3	5	Moderate	0.8
RTN39	Wellington Road, MARGATE	2	33.5	36.5	37.4	3.9	Minor	0.9
RTN40	Fleet Road, MARGATE	1	39.2	39.2	40.7	1.5	Negligible	1.5
RTN41	Norfolk Road, MARGATE	3	36.2	37.1	38.3	2.1	Negligible	1.2
RTN42	Manston Court, RAMSGATE	8	49.1	49.6	52.2	3.1	Minor	2.6
RTN43	Manston Court, RAMSGATE	4	48.9	48	50.9	2	Negligible	2.9
RTN44	Manston Court, RAMSGATE	6	45.6	46.2	48.5	2.9	Negligible	2.3
RTN45	Wood Farm Cottages, RAMSGATE	3	47.3	47.5	49.5	2.2	Negligible	2
RTN46	Manston Court Road, RAMSGATE	11	46.9	47.8	50.1	3.2	Minor	2.3

A	B	C	D	E	F	G	H	I
Receptor Location ID	Area Represented	Number of residential	Impact Assessment					
			Noise level dB $L_{Aeq,8hr}$					
			Total without project Year 2	Total without project Year 20	Total with project Year 20	Change long-term	DMRB impact criteria (Table 3.3)	Change resulting from project traffic only
RTN47	Manston Court Road, RAMSGATE	4	34.9	37.2	38.4	3.5	Minor	1.2
RTN48	The Green, RAMSGATE	31	56	56.2	58.1	2.1	Negligible	1.9
RTN49	High Street, RAMSGATE	13	37.6	38.2	40.2	2.6	Negligible	2
RTN50	Manston Road, RAMSGATE	13	51	52.9	54.4	3.4	Minor	1.5
RTN51	Manston Road, RAMSGATE	30	42.2	44	45.4	3.2	Minor	1.4
RTN52	Preston Road, RAMSGATE	24	38.9	39	40.9	2	Negligible	1.9
RTN53	Spratling St, RAMSGATE	23	37.3	37.6	38.7	1.4	Negligible	1.1
RTN54	Preston Park, RAMSGATE	24	39.4	40.7	41.3	1.9	Negligible	0.6
RTN55	Preston Farm Cottages, RAMSGATE	4	33.9	37.2	38.1	4.2	Minor	0.9
RTN56	High Street, RAMSGATE	5	39.2	39.9	41.4	2.2	Negligible	1.5
RTN57	Haine Road, RAMSGATE	2	61.2	57.1	57.1	-4.1	No Change	0
RTN58	Haine Road, RAMSGATE	21	59.4	59	59.3	-0.1	No Change	0.3
RTN59	Saddlers Mews, RAMSGATE	14	45.5	45.2	45.5	0	No Change	0.3
RTN60	Haine Farm Cottage, RAMSGATE	4	36.2	37	37.1	0.9	Negligible	0.1
RTN61	Haine Farm Mews, RAMSGATE	19	38.4	39.1	39.2	0.8	Negligible	0.1
RTN62	Bijou Villas, RAMSGATE	7	38	38.6	38.7	0.7	Negligible	0.1
RTN63	Spratling Lane, RAMSGATE	2	42.3	42	42	-0.3	No Change	0
RTN64	Court Road, BIRCHINGTON	22	42.3	43.2	44.8	2.5	Negligible	1.6
RTN65	Smugglers Leap, RAMSGATE	23	58.7	61	63.9	5.2	Moderate	2.9
RTN66	Smugglers Leap, RAMSGATE	18	63.4	63.5	65.7	2.3	Negligible	2.2
RTN67	Sun Lane, BIRCHINGTON	9	42.3	43.2	44.6	2.3	Negligible	1.4
RTN68	Collards Close, RAMSGATE	10	43.7	44.2	45.9	2.2	Negligible	1.7
RTN69	Parsonage Fields, RAMSGATE	77	43.2	43.7	45.2	2	Negligible	1.5
RTN70	Parsonage Fields, RAMSGATE	11	44.8	45.4	46.6	1.8	Negligible	1.2
RTN71	Monkton Street, RAMSGATE	61	40	40.2	42.3	2.3	Negligible	2.1
RTN72	Fairfiled Road, RAMSGATE	57	41	41.7	42.5	1.5	Negligible	0.8
RTN73	Orchard Close, RAMSGATE	20	47.2	47.9	48.1	0.9	Negligible	0.2
RTN74	Toothill Street, RAMSGATE	75	57.4	58.1	58.3	0.9	Negligible	0.2
RTN75	Temple Close, RAMSGATE	31	45.9	45.8	46.9	1	Negligible	1.1
RTN76	Temple Close, RAMSGATE	11	57.1	57.7	57.9	0.8	Negligible	0.2
RTN77	Hill House, RAMSGATE	11	54.2	54.9	55.1	0.9	Negligible	0.2
RTN78	The Length, BIRCHINGTON	111	41.8	42.7	44	2.2	Negligible	1.3
RTN79	Lydden Farm, MARGATE	3	31.4	36.9	37.4	6	Moderate	0.5
RTN80	Canterbury Rd, BIRCHINGTON	0	48.9	49.5	49.8	0.9	Negligible	0.3
RTN81	Shottendane Rd, RAMSGATE	0	63	63.2	63.5	0.5	Negligible	0.3
RTN82	Frost Farm, BIRCHINGTON	42	54.6	55.5	57	2.4	Negligible	1.5

Table B.5 Road traffic noise modelling assumptions and input data

Aspect	Assumption
Noise model	Noise propagation for the road traffic assessment has been predicted within the Predictor LimA (V2019.02) computational noise modelling suite, implementing the calculation methodologies of *'Calculation of Road Traffic Noise'* (CRTN).
Receptor Points	Groups of buildings have been represented as single points by selecting the dwelling most affected by road traffic to be representative of other dwellings in the immediate vicinity. Receptor points are placed 1m from the dwelling façade at a height of 4m.
Traffic data	Traffic movements have been provided by the Transport team as a result of their strategic transport modelling.
Road alignment	Road alignments follow the existing road network with the exception of the future Year 20 link road which has been provided by the Transport team. Road widths have been measured using Google Earth.
Speeds	Traffic speeds adopted within the modelling follow the current speed limits of the road network.
Road surface	A-roads have been assigned a pervious road surface All other roads have been assigned a non-pervious road surface with a texture depth of 2mm
Terrain	Terrain data has been informed by a combination of LiDAR and 10m DTM.
Ground Attenuation	Ground attenuation has been assumed as soft ground (G = 1) due to the majority of surrounding terrain being open fields.
Building Heights	2-storey buildings have been assigned a height of 8m whilst 1-storey buildings have been assigned a height of 6m.

Appendix C

Full modelling results

Table C.1 PCs and PECs for annual mean NO_2, Year 2

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H01	40	0.23	19.57	0.6%	48.9%	Negligible
H02	40	0.21	19.96	0.5%	49.9%	Negligible
H03	40	0.22	20.33	0.5%	50.8%	Negligible
H04	40	0.17	21.20	0.4%	53.0%	Negligible
H05	40	0.16	19.54	0.4%	48.9%	Negligible
H06	40	0.76	18.69	1.9%	46.7%	Negligible
H07	40	0.68	18.40	1.7%	46.0%	Negligible
H08	40	3.32	25.00	8.3%	62.5%	Slight
H09	40	3.57	27.38	8.9%	68.5%	Slight
H10	40	4.52	25.83	11.3%	64.6%	Moderate
H11	40	4.60	24.99	11.5%	62.5%	Moderate
H12	40	3.96	24.36	9.9%	60.9%	Slight
H13	40	2.71	21.17	6.8%	52.9%	Slight
H14	40	1.87	20.98	4.7%	52.5%	Negligible
H15	40	6.17	25.17	15.4%	62.9%	Moderate
H16	40	1.92	20.28	4.8%	50.7%	Negligible
H17	40	2.00	24.89	5.0%	62.2%	Negligible
H18	40	1.61	20.42	4.0%	51.1%	Negligible
H19	40	1.43	19.36	3.6%	48.4%	Negligible
H20	40	1.46	19.14	3.7%	47.9%	Negligible
H21	40	1.65	19.31	4.1%	48.3%	Negligible
H22	40	1.32	18.98	3.3%	47.5%	Negligible
H23	40	2.05	19.71	5.1%	49.3%	Negligible
H24	40	1.04	21.03	2.6%	52.6%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H25	40	0.49	18.29	1.2%	45.7%	Negligible
H26	40	0.40	20.09	1.0%	50.2%	Negligible
H27	40	0.31	18.47	0.8%	46.2%	Negligible
H28	40	0.35	23.08	0.9%	57.7%	Negligible
H29	40	0.72	38.02	1.8%	95.1%	Moderate
H30	40	0.53	24.82	1.3%	62.1%	Negligible
H31	40	0.31	18.88	0.8%	47.2%	Negligible
H32	40	0.32	23.84	0.8%	59.6%	Negligible
H33	40	0.63	19.08	1.6%	47.7%	Negligible
H34	40	0.76	18.69	1.9%	46.7%	Negligible
H35	40	0.79	18.72	2.0%	46.8%	Negligible
H36	40	0.84	18.77	2.1%	46.9%	Negligible
H37	40	0.86	18.80	2.2%	47.0%	Negligible
H38	40	0.92	18.86	2.3%	47.2%	Negligible
H39	40	0.84	18.84	2.1%	47.1%	Negligible
H40	40	0.80	18.85	2.0%	47.1%	Negligible
H41	40	0.75	18.89	1.9%	47.2%	Negligible
H42	40	0.71	19.02	1.8%	47.6%	Negligible
H43	40	0.73	19.04	1.8%	47.6%	Negligible
H44	40	0.78	19.22	1.9%	48.1%	Negligible
H45	40	0.46	19.82	1.2%	49.6%	Negligible
H46	40	0.58	18.57	1.5%	46.4%	Negligible
H47	40	0.48	18.26	1.2%	45.7%	Negligible
H48	40	0.51	18.22	1.3%	45.6%	Negligible
H49	40	0.91	20.53	2.3%	51.3%	Negligible
H50	40	0.82	19.55	2.1%	48.9%	Negligible
H51	40	0.74	19.04	1.9%	47.6%	Negligible
H52	40	0.57	18.35	1.4%	45.9%	Negligible
H53	40	0.51	18.17	1.3%	45.4%	Negligible
H54	40	0.69	21.16	1.7%	52.9%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H55	40	0.52	18.49	1.3%	46.2%	Negligible
H56	40	0.24	18.98	0.6%	47.5%	Negligible
H57	40	0.20	18.16	0.5%	45.4%	Negligible
H58	40	0.28	18.37	0.7%	45.9%	Negligible
H59	40	0.29	18.67	0.7%	46.7%	Negligible
H60	40	0.27	19.15	0.7%	47.9%	Negligible
H61	40	0.25	19.72	0.6%	49.3%	Negligible
H62	40	0.22	22.73	0.5%	56.8%	Negligible
H63	40	0.25	28.00	0.6%	70.0%	Negligible
H64	40	0.26	25.10	0.7%	62.8%	Negligible
H65	40	0.26	23.67	0.7%	59.2%	Negligible
H66	40	0.25	21.89	0.6%	54.7%	Negligible
H67	40	1.96	23.76	4.9%	59.4%	Negligible
H68	40	0.54	18.78	1.4%	47.0%	Negligible
H69	40	0.92	19.08	2.3%	47.7%	Negligible
H70	40	0.30	19.13	0.8%	47.8%	Negligible
A01	40	0.05	17.08	0.1%	42.7%	Negligible
A02	40	0.09	18.08	0.2%	45.2%	Negligible
A03	40	0.11	17.58	0.3%	44.0%	Negligible
A04	40	0.12	17.35	0.3%	43.4%	Negligible
A05	40	0.14	17.36	0.4%	43.4%	Negligible
A06	40	0.17	17.36	0.4%	43.4%	Negligible
A07	40	0.26	20.96	0.7%	52.4%	Negligible
A08	40	0.16	17.66	0.4%	44.2%	Negligible
A09	40	0.25	18.14	0.6%	45.4%	Negligible
A10	40	0.34	18.11	0.9%	45.3%	Negligible
A11	40	0.53	19.83	1.3%	49.6%	Negligible
A12	40	0.52	18.79	1.3%	47.0%	Negligible
A13	40	0.77	18.71	1.9%	46.8%	Negligible
A14	40	1.13	19.23	2.8%	48.1%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
A15	40	0.72	19.09	1.8%	47.7%	Negligible
A16	40	0.31	19.30	0.8%	48.3%	Negligible
A17	40	0.21	18.21	0.5%	45.5%	Negligible
A18	40	0.17	17.69	0.4%	44.2%	Negligible
A19	40	0.21	17.77	0.5%	44.4%	Negligible
A20	40	0.20	17.59	0.5%	44.0%	Negligible
A21	40	0.29	17.86	0.7%	44.7%	Negligible
A22	40	0.08	35.38	0.2%	88.5%	Negligible
A23	40	0.08	35.38	0.2%	88.5%	Negligible
A24	40	0.09	35.39	0.2%	88.5%	Negligible
A25	40	0.08	35.38	0.2%	88.5%	Negligible
A26	40	0.08	35.38	0.2%	88.5%	Negligible
A27	40	0.08	35.38	0.2%	88.5%	Negligible
A28	40	0.08	35.38	0.2%	88.5%	Negligible
A29	40	0.08	35.38	0.2%	88.5%	Negligible
A30	40	0.08	35.38	0.2%	88.5%	Negligible
A31	40	0.08	35.38	0.2%	88.5%	Negligible
A32	40	0.19	38.19	0.5%	95.5%	Negligible
A33	40	0.20	38.20	0.5%	95.5%	Negligible
A34	40	0.21	38.21	0.5%	95.5%	Slight
A35	40	0.22	38.22	0.6%	95.6%	Slight
A36	40	0.22	38.22	0.5%	95.6%	Slight
A37	40	0.21	38.21	0.5%	95.5%	Slight
A38	40	0.18	38.18	0.4%	95.5%	Negligible
A39	40	0.18	38.18	0.4%	95.5%	Negligible
A40	40	0.20	38.20	0.5%	95.5%	Negligible
A41	40	0.20	38.20	0.5%	95.5%	Slight
A42	40	0.17	38.17	0.4%	95.4%	Negligible
A43	40	0.17	38.17	0.4%	95.4%	Negligible

Table C.2 PCs and PECs for annual mean NO_x, Year 2

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E01	30	0.03	11.59	0.1%	38.6%	Not significant
E02	30	0.04	9.50	0.1%	31.7%	Not significant
E03	30	0.10	9.72	0.3%	32.4%	Not significant
E04	30	0.12	10.70	0.4%	35.7%	Not significant
E05	30	0.14	12.12	0.5%	40.4%	Not significant
E06	30	0.16	12.01	0.5%	40.0%	Not significant
E07	30	0.16	12.06	0.5%	40.2%	Not significant
E08	30	0.20	11.97	0.7%	39.9%	Not significant
E09	30	0.15	14.75	0.5%	49.2%	Not significant
E10	30	0.11	13.25	0.4%	44.2%	Not significant
E11	30	0.09	12.13	0.3%	40.4%	Not significant
E12	30	0.09	10.22	0.3%	34.1%	Not significant
E13	30	0.09	10.19	0.3%	34.0%	Not significant
E14	30	0.09	12.05	0.3%	40.2%	Not significant
E15	30	0.11	13.49	0.4%	45.0%	Not significant
E16	30	0.13	13.16	0.4%	43.9%	Not significant
E17	30	0.15	15.24	0.5%	50.8%	Not significant
E18	30	0.17	15.33	0.6%	51.1%	Not significant
E19	30	0.16	14.01	0.5%	46.7%	Not significant
E20	30	0.24	15.11	0.8%	50.4%	Not significant
E21	30	0.39	14.95	1.3%	49.8%	Not significant
E22	30	0.57	14.25	1.9%	47.5%	Not significant
E23	30	0.40	13.86	1.3%	46.2%	Not significant
E24	30	0.27	11.87	0.9%	39.6%	Not significant
E25	30	0.21	14.26	0.7%	47.5%	Not significant
E26	30	0.22	16.79	0.7%	56.0%	Not significant
E27	30	0.11	12.31	0.4%	41.0%	Not significant
E28	30	0.19	16.91	0.6%	56.4%	Not significant
E29	30	0.07	10.42	0.2%	34.7%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E30	30	0.08	12.70	0.3%	42.3%	Not significant
E31	30	0.06	12.44	0.2%	41.5%	Not significant
E32	30	0.05	10.05	0.2%	33.5%	Not significant
E33	30	0.05	10.67	0.2%	35.6%	Not significant
E34	30	0.04	9.73	0.1%	32.4%	Not significant
E35	30	0.04	11.35	0.1%	37.8%	Not significant
E36	30	0.03	9.66	0.1%	32.2%	Not significant
E37	30	0.03	10.55	0.1%	35.2%	Not significant
E38	30	0.20	10.26	0.7%	34.2%	Not significant
E39	30	0.21	10.48	0.7%	34.9%	Not significant
E40	30	0.21	16.04	0.7%	53.5%	Not significant
E41	30	0.52	44.11	1.7%	147.0%	Further assessment required
E42	30	0.17	10.20	0.6%	34.0%	Not significant
E43	30	0.03	9.68	0.1%	32.3%	Not significant
E44	30	0.04	9.03	0.1%	30.1%	Not significant
E45	30	0.05	8.91	0.2%	29.7%	Not significant
E46	30	0.05	8.90	0.2%	29.7%	Not significant
E47	30	0.05	9.01	0.2%	30.0%	Not significant
E48	30	0.04	8.88	0.1%	29.6%	Not significant
E49	30	0.04	9.03	0.1%	30.1%	Not significant
E50	30	0.39	11.18	1.3%	37.3%	Not significant
E51	30	0.41	11.16	1.4%	37.2%	Not significant
E52	30	0.38	11.09	1.3%	37.0%	Not significant
E53	30	0.17	10.24	0.6%	34.1%	Not significant
E54	30	0.18	9.63	0.6%	32.1%	Not significant
E55	30	0.19	9.47	0.6%	31.6%	Not significant
E56	30	0.31	11.04	1.0%	36.8%	Not significant
E57	30	0.29	11.10	1.0%	37.0%	Not significant
E58	30	0.24	11.11	0.8%	37.0%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E59	30	0.27	12.38	0.9%	41.3%	Not significant
E60	30	0.41	12.07	1.4%	40.2%	Not significant
E61	30	0.65	23.35	2.2%	77.8%	Not significant
E62	30	2.69	110.96	9.0%	369.9%	Not significant
E63	30	0.67	16.90	2.2%	56.3%	Not significant
E64	30	0.95	17.70	3.2%	59.0%	Not significant
E65	30	0.57	14.27	1.9%	47.6%	Not significant
E66	30	0.41	13.87	1.4%	46.2%	Not significant
E67	30	0.27	11.84	0.9%	39.5%	Not significant
E68	30	0.24	11.81	0.8%	39.4%	Not significant
E69	30	0.28	15.34	0.9%	51.1%	Not significant
E70	30	1.24	16.42	4.1%	54.7%	Not significant
E71	30	1.37	16.30	4.6%	54.3%	Not significant
E72	30	0.95	15.03	3.2%	50.1%	Not significant
E73	30	1.02	14.94	3.4%	49.8%	Not significant
E74	30	0.34	11.01	1.1%	36.7%	Not significant
E75	30	0.50	11.61	1.7%	38.7%	Not significant
E76	30	0.46	11.47	1.5%	38.2%	Not significant
E77	30	0.43	24.98	1.4%	83.3%	Not significant
E78	30	1.41	15.12	4.7%	50.4%	Not significant
E79	30	1.42	14.90	4.7%	49.7%	Not significant
E80	30	1.31	14.64	4.4%	48.8%	Not significant
E81	30	9.16	26.48	30.5%	88.3%	Not significant
E82	30	9.27	27.73	30.9%	92.4%	Not significant
E83	30	2.90	20.16	9.7%	67.2%	Not significant
E84	30	2.68	23.16	8.9%	77.2%	Not significant
E85	30	0.30	11.63	1.0%	38.8%	Not significant
E86	30	0.31	11.28	1.0%	37.6%	Not significant
E87	30	0.29	11.01	1.0%	36.7%	Not significant
E88	30	0.72	41.26	2.4%	137.5%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
ER001	30	0.02	12.59	0.1%	42.0%	Not significant
ER002	30	0.07	26.31	0.2%	87.7%	Not significant
ER003	30	0.02	14.86	0.1%	49.5%	Not significant
ER004	30	0.02	14.82	0.1%	49.4%	Not significant
ER005	30	0.02	14.11	0.1%	47.0%	Not significant
ER006	30	0.00	19.01	0.0%	63.4%	Not significant
ER012	30	0.21	23.48	0.7%	78.3%	Further assessment required

Table C.3 PCs and PECs for maximum daily mean NO_x, Year 2

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E01	200	2.54	30.01	1.3%	15.0%	Not significant
E02	200	4.08	26.62	2.0%	13.3%	Not significant
E03	200	11.42	34.02	5.7%	17.0%	Not significant
E04	200	11.12	36.37	5.6%	18.2%	Not significant
E05	200	13.54	43.06	6.8%	21.5%	Not significant
E06	200	12.48	42.09	6.2%	21.0%	Not significant
E07	200	14.40	42.31	7.2%	21.2%	Not significant
E08	200	11.15	37.91	5.6%	19.0%	Not significant
E09	200	8.96	43.02	4.5%	21.5%	Not significant
E10	200	6.00	34.96	3.0%	17.5%	Not significant
E11	200	4.37	31.09	2.2%	15.5%	Not significant
E12	200	4.36	26.95	2.2%	13.5%	Not significant
E13	200	4.88	27.55	2.4%	13.8%	Not significant
E14	200	8.58	35.93	4.3%	18.0%	Not significant
E15	200	8.39	39.23	4.2%	19.6%	Not significant
E16	200	10.53	41.20	5.3%	20.6%	Not significant
E17	200	15.36	50.77	7.7%	25.4%	Not significant
E18	200	18.19	54.68	9.1%	27.3%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E19	200	15.31	50.41	7.7%	25.2%	Not significant
E20	200	30.34	70.36	15.2%	35.2%	Further assessment required
E21	200	54.05	95.82	27.0%	47.9%	Further assessment required
E22	200	69.68	115.23	34.8%	57.6%	Further assessment required
E23	200	76.82	120.27	38.4%	60.1%	Further assessment required
E24	200	41.21	80.91	20.6%	40.5%	Further assessment required
E25	200	13.88	60.21	6.9%	30.1%	Not significant
E26	200	12.70	78.28	6.4%	39.1%	Not significant
E27	200	8.75	45.20	4.4%	22.6%	Not significant
E28	200	9.66	87.75	4.8%	43.9%	Not significant
E29	200	12.60	42.43	6.3%	21.2%	Not significant
E30	200	6.03	47.96	3.0%	24.0%	Not significant
E31	200	4.88	39.82	2.4%	19.9%	Not significant
E32	200	7.63	35.82	3.8%	17.9%	Not significant
E33	200	4.41	31.67	2.2%	15.8%	Not significant
E34	200	3.55	29.94	1.8%	15.0%	Not significant
E35	200	3.59	30.73	1.8%	15.4%	Not significant
E36	200	2.90	26.93	1.5%	13.5%	Not significant
E37	200	3.47	29.04	1.7%	14.5%	Not significant
E38	200	18.33	46.02	9.2%	23.0%	Not significant
E39	200	20.17	50.73	10.1%	25.4%	Further assessment required
E40	200	14.46	76.87	7.2%	38.4%	Not significant
E41	200	14.45	207.71	7.2%	103.9%	Not significant
E42	200	16.10	44.40	8.0%	22.2%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E43	200	5.28	28.17	2.6%	14.1%	Not significant
E44	200	5.50	27.64	2.8%	13.8%	Not significant
E45	200	7.04	29.15	3.5%	14.6%	Not significant
E46	200	7.36	29.30	3.7%	14.7%	Not significant
E47	200	7.30	29.20	3.7%	14.6%	Not significant
E48	200	6.94	28.33	3.5%	14.2%	Not significant
E49	200	6.12	27.50	3.1%	13.7%	Not significant
E50	200	23.99	53.86	12.0%	26.9%	Not significant
E51	200	24.49	54.22	12.2%	27.1%	Not significant
E52	200	24.65	53.66	12.3%	26.8%	Not significant
E53	200	16.27	44.99	8.1%	22.5%	Not significant
E54	200	16.41	42.47	8.2%	21.2%	Not significant
E55	200	13.44	38.19	6.7%	19.1%	Not significant
E56	200	22.22	51.95	11.1%	26.0%	Not significant
E57	200	28.34	58.76	14.2%	29.4%	Not significant
E58	200	31.87	63.22	15.9%	31.6%	Not significant
E59	200	19.66	47.68	9.8%	23.8%	Not significant
E60	200	20.32	53.38	10.2%	26.7%	Not significant
E61	200	38.92	113.87	19.5%	56.9%	Not significant
E62	200	77.11	505.28	38.6%	252.6%	Not significant
E63	200	57.79	114.92	28.9%	57.5%	Not significant
E64	200	110.78	165.80	55.4%	82.9%	Not significant
E65	200	70.38	116.15	35.2%	58.1%	Not significant
E66	200	77.84	121.36	38.9%	60.7%	Not significant
E67	200	42.13	81.63	21.1%	40.8%	Not significant
E68	200	27.58	65.88	13.8%	32.9%	Not significant
E69	200	23.98	79.84	12.0%	39.9%	Not significant
E70	200	104.36	153.79	52.2%	76.9%	Not significant
E71	200	95.00	144.56	47.5%	72.3%	Not significant
E72	200	70.38	113.13	35.2%	56.6%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E73	200	80.24	123.06	40.1%	61.5%	Not significant
E74	200	28.46	58.07	14.2%	29.0%	Not significant
E75	200	33.63	67.73	16.8%	33.9%	Not significant
E76	200	30.93	64.41	15.5%	32.2%	Not significant
E77	200	41.96	130.42	21.0%	65.2%	Not significant
E78	200	68.47	103.95	34.2%	52.0%	Not significant
E79	200	71.27	105.53	35.6%	52.8%	Not significant
E80	200	69.41	103.02	34.7%	51.5%	Not significant
E81	200	440.99	492.63	220.5%	246.3%	Further assessment required
E82	200	394.07	456.25	197.0%	228.1%	Further assessment required
E83	200	176.30	226.60	88.1%	113.3%	Not significant
E84	200	145.47	207.80	72.7%	103.9%	Not significant
E85	200	31.23	59.58	15.6%	29.8%	Not significant
E86	200	31.17	58.18	15.6%	29.1%	Not significant
E87	200	25.36	52.01	12.7%	26.0%	Not significant
E88	200	31.91	171.30	16.0%	85.6%	Not significant
ER001	200	1.06	39.38	0.5%	19.7%	Not significant
ER002	200	1.43	130.78	0.7%	65.4%	Not significant
ER003	200	1.17	57.33	0.6%	28.7%	Not significant
ER004	200	1.17	57.08	0.6%	28.5%	Not significant
ER005	200	1.12	50.31	0.6%	25.2%	Not significant
ER006	200	0.37	39.14	0.2%	19.6%	Not significant
ER012	200	8.38	121.68	4.2%	60.8%	Not significant

Table C.4 PCs and PECs for annual mean NO_2, Year 6

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H01	40	0.53	19.56	1.3%	48.9%	Negligible
H02	40	0.42	19.86	1.1%	49.7%	Negligible
H03	40	0.40	20.21	1.0%	50.5%	Negligible
H04	40	0.30	21.03	0.8%	52.6%	Negligible
H05	40	0.26	19.33	0.6%	48.3%	Negligible
H06	40	1.29	18.89	3.2%	47.2%	Negligible
H07	40	1.01	18.40	2.5%	46.0%	Negligible
H08	40	2.39	23.79	6.0%	59.5%	Slight
H09	40	3.11	26.65	7.8%	66.6%	Slight
H10	40	4.04	25.06	10.1%	62.7%	Moderate
H11	40	3.78	23.87	9.5%	59.7%	Slight
H12	40	3.24	23.34	8.1%	58.4%	Slight
H13	40	2.47	20.61	6.2%	51.5%	Slight
H14	40	1.53	20.33	3.8%	50.8%	Negligible
H15	40	2.31	21.00	5.8%	52.5%	Slight
H16	40	1.61	19.65	4.0%	49.1%	Negligible
H17	40	3.09	25.70	7.7%	64.3%	Slight
H18	40	1.86	20.36	4.7%	50.9%	Negligible
H19	40	1.59	19.20	4.0%	48.0%	Negligible
H20	40	1.74	19.09	4.4%	47.7%	Negligible
H21	40	1.95	19.28	4.9%	48.2%	Negligible
H22	40	1.73	19.06	4.3%	47.7%	Negligible
H23	40	2.74	20.07	6.9%	50.2%	Slight
H24	40	1.72	21.41	4.3%	53.5%	Negligible
H25	40	0.55	18.02	1.4%	45.1%	Negligible
H26	40	0.47	19.86	1.2%	49.7%	Negligible
H27	40	0.37	18.21	0.9%	45.5%	Negligible
H28	40	0.52	22.97	1.3%	57.4%	Negligible
H29	40	1.66	38.66	4.1%	96.7%	Moderate

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H30	40	0.95	24.97	2.4%	62.4%	Negligible
H31	40	0.45	18.71	1.1%	46.8%	Negligible
H32	40	0.54	23.79	1.4%	59.5%	Negligible
H33	40	0.96	19.09	2.4%	47.7%	Negligible
H34	40	1.18	18.79	3.0%	47.0%	Negligible
H35	40	1.28	18.88	3.2%	47.2%	Negligible
H36	40	1.36	18.97	3.4%	47.4%	Negligible
H37	40	1.46	19.07	3.7%	47.7%	Negligible
H38	40	1.58	19.20	4.0%	48.0%	Negligible
H39	40	1.45	19.12	3.6%	47.8%	Negligible
H40	40	1.34	19.07	3.4%	47.7%	Negligible
H41	40	1.23	19.05	3.1%	47.6%	Negligible
H42	40	1.16	19.15	2.9%	47.9%	Negligible
H43	40	1.26	19.25	3.2%	48.1%	Negligible
H44	40	1.36	19.48	3.4%	48.7%	Negligible
H45	40	0.78	19.84	2.0%	49.6%	Negligible
H46	40	0.78	18.45	1.9%	46.1%	Negligible
H47	40	0.66	18.11	1.7%	45.3%	Negligible
H48	40	0.71	18.09	1.8%	45.2%	Negligible
H49	40	1.30	20.61	3.3%	51.5%	Negligible
H50	40	1.15	19.56	2.9%	48.9%	Negligible
H51	40	1.01	18.99	2.5%	47.5%	Negligible
H52	40	0.78	18.23	2.0%	45.6%	Negligible
H53	40	0.70	18.03	1.8%	45.1%	Negligible
H54	40	1.24	21.41	3.1%	53.5%	Negligible
H55	40	0.87	18.51	2.2%	46.3%	Negligible
H56	40	0.54	18.96	1.4%	47.4%	Negligible
H57	40	0.46	18.10	1.2%	45.3%	Negligible
H58	40	0.62	18.39	1.6%	46.0%	Negligible
H59	40	0.67	18.73	1.7%	46.8%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H60	40	0.65	19.21	1.6%	48.0%	Negligible
H61	40	0.63	19.79	1.6%	49.5%	Negligible
H62	40	0.71	22.93	1.8%	57.3%	Negligible
H63	40	0.95	28.44	2.4%	71.1%	Negligible
H64	40	0.91	25.49	2.3%	63.7%	Negligible
H65	40	0.90	24.04	2.3%	60.1%	Negligible
H66	40	0.60	21.95	1.5%	54.9%	Negligible
H67	40	2.74	24.25	6.9%	60.6%	Slight
H68	40	0.71	18.63	1.8%	46.6%	Negligible
H69	40	1.70	19.53	4.3%	48.8%	Negligible
H70	40	0.69	19.21	1.7%	48.0%	Negligible
A01	40	0.07	16.77	0.2%	41.9%	Negligible
A02	40	0.13	17.80	0.3%	44.5%	Negligible
A03	40	0.16	17.30	0.4%	43.3%	Negligible
A04	40	0.22	17.12	0.6%	42.8%	Negligible
A05	40	0.24	17.13	0.6%	42.8%	Negligible
A06	40	0.25	17.10	0.6%	42.8%	Negligible
A07	40	0.64	21.05	1.6%	52.6%	Negligible
A08	40	0.26	17.43	0.6%	43.6%	Negligible
A09	40	0.35	17.92	0.9%	44.8%	Negligible
A10	40	0.41	17.86	1.0%	44.7%	Negligible
A11	40	0.80	19.79	2.0%	49.5%	Negligible
A12	40	0.76	18.71	1.9%	46.8%	Negligible
A13	40	1.22	18.83	3.1%	47.1%	Negligible
A14	40	2.09	19.86	5.2%	49.7%	Negligible
A15	40	1.22	19.27	3.1%	48.2%	Negligible
A16	40	0.55	19.23	1.4%	48.1%	Negligible
A17	40	0.39	18.06	1.0%	45.2%	Negligible
A18	40	0.31	17.50	0.8%	43.8%	Negligible
A19	40	0.35	17.58	0.9%	44.0%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
A20	40	0.31	17.37	0.8%	43.4%	Negligible
A21	40	0.40	17.64	1.0%	44.1%	Negligible
A22	40	0.13	35.43	0.3%	88.6%	Negligible
A23	40	0.12	35.42	0.3%	88.6%	Negligible
A24	40	0.13	35.43	0.3%	88.6%	Negligible
A25	40	0.13	35.43	0.3%	88.6%	Negligible
A26	40	0.13	35.43	0.3%	88.6%	Negligible
A27	40	0.14	35.44	0.3%	88.6%	Negligible
A28	40	0.14	35.44	0.4%	88.6%	Negligible
A29	40	0.13	35.43	0.3%	88.6%	Negligible
A30	40	0.13	35.43	0.3%	88.6%	Negligible
A31	40	0.13	35.43	0.3%	88.6%	Negligible
A32	40	0.31	38.31	0.8%	95.8%	Slight
A33	40	0.32	38.32	0.8%	95.8%	Slight
A34	40	0.37	38.37	0.9%	95.9%	Slight
A35	40	0.43	38.43	1.1%	96.1%	Slight
A36	40	0.41	38.41	1.0%	96.0%	Slight
A37	40	0.38	38.38	0.9%	96.0%	Slight
A38	40	0.29	38.29	0.7%	95.7%	Slight
A39	40	0.30	38.30	0.8%	95.8%	Slight
A40	40	0.36	38.36	0.9%	95.9%	Slight
A41	40	0.37	38.37	0.9%	95.9%	Slight
A42	40	0.25	38.25	0.6%	95.6%	Slight
A43	40	0.25	38.25	0.6%	95.6%	Slight

Table c..5 PCs and PECs for annual mean NO_x, Year 6

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E01	30	0.07	10.21	0.2%	34.0%	Not significant
E02	30	0.08	8.61	0.3%	28.7%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E03	30	0.14	8.81	0.5%	29.4%	Not significant
E04	30	0.19	9.66	0.6%	32.2%	Not significant
E05	30	0.26	10.96	0.9%	36.5%	Not significant
E06	30	0.33	10.91	1.1%	36.4%	Not significant
E07	30	0.32	10.89	1.1%	36.3%	Not significant
E08	30	0.31	10.75	1.0%	35.8%	Not significant
E09	30	0.29	13.20	1.0%	44.0%	Not significant
E10	30	0.23	12.00	0.8%	40.0%	Not significant
E11	30	0.19	10.97	0.6%	36.6%	Not significant
E12	30	0.16	9.37	0.5%	31.2%	Not significant
E13	30	0.14	9.32	0.5%	31.1%	Not significant
E14	30	0.14	10.85	0.5%	36.2%	Not significant
E15	30	0.15	12.01	0.5%	40.0%	Not significant
E16	30	0.16	11.78	0.5%	39.3%	Not significant
E17	30	0.20	13.67	0.7%	45.6%	Not significant
E18	30	0.23	13.78	0.8%	45.9%	Not significant
E19	30	0.24	13.06	0.8%	43.5%	Not significant
E20	30	0.35	13.75	1.2%	45.8%	Not significant
E21	30	0.51	13.52	1.7%	45.1%	Not significant
E22	30	0.80	13.04	2.7%	43.5%	Not significant
E23	30	0.67	12.68	2.2%	42.3%	Not significant
E24	30	0.54	11.15	1.8%	37.2%	Not significant
E25	30	0.39	13.08	1.3%	43.6%	Not significant
E26	30	0.47	15.67	1.6%	52.2%	Not significant
E27	30	0.23	11.13	0.8%	37.1%	Not significant
E28	30	0.49	16.31	1.6%	54.4%	Not significant
E29	30	0.17	9.60	0.6%	32.0%	Not significant
E30	30	0.16	11.34	0.5%	37.8%	Not significant
E31	30	0.13	11.38	0.4%	37.9%	Not significant
E32	30	0.11	9.24	0.4%	30.8%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E33	30	0.10	9.69	0.3%	32.3%	Not significant
E34	30	0.09	8.96	0.3%	29.9%	Not significant
E35	30	0.08	10.18	0.3%	33.9%	Not significant
E36	30	0.07	8.91	0.2%	29.7%	Not significant
E37	30	0.06	9.57	0.2%	31.9%	Not significant
E38	30	0.36	9.50	1.2%	31.7%	Not significant
E39	30	0.34	9.70	1.1%	32.3%	Not significant
E40	30	0.42	14.88	1.4%	49.6%	Not significant
E41	30	1.60	43.83	5.3%	146.1%	Further assessment required
E42	30	0.27	9.40	0.9%	31.3%	Not significant
E43	30	0.08	8.72	0.3%	29.1%	Not significant
E44	30	0.10	8.18	0.3%	27.3%	Not significant
E45	30	0.11	8.09	0.4%	27.0%	Not significant
E46	30	0.11	8.07	0.4%	26.9%	Not significant
E47	30	0.11	8.16	0.4%	27.2%	Not significant
E48	30	0.10	8.04	0.3%	26.8%	Not significant
E49	30	0.09	8.18	0.3%	27.3%	Not significant
E50	30	0.64	10.43	2.1%	34.8%	Not significant
E51	30	0.67	10.44	2.2%	34.8%	Not significant
E52	30	0.64	10.36	2.1%	34.5%	Not significant
E53	30	0.27	9.44	0.9%	31.5%	Not significant
E54	30	0.33	8.94	1.1%	29.8%	Not significant
E55	30	0.38	8.83	1.3%	29.4%	Not significant
E56	30	0.54	10.27	1.8%	34.2%	Not significant
E57	30	0.54	10.36	1.8%	34.5%	Not significant
E58	30	0.50	10.37	1.7%	34.6%	Not significant
E59	30	0.43	11.23	1.4%	37.4%	Not significant
E60	30	0.60	11.29	2.0%	37.6%	Not significant
E61	30	0.80	22.28	2.7%	74.3%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E62	30	7.90	113.01	26.3%	376.7%	Not significant
E63	30	1.09	16.16	3.6%	53.9%	Not significant
E64	30	1.45	17.07	4.8%	56.9%	Not significant
E65	30	0.81	13.06	2.7%	43.5%	Not significant
E66	30	0.67	12.69	2.2%	42.3%	Not significant
E67	30	0.54	11.12	1.8%	37.1%	Not significant
E68	30	0.46	11.04	1.5%	36.8%	Not significant
E69	30	0.49	14.14	1.6%	47.1%	Not significant
E70	30	1.75	15.53	5.8%	51.8%	Not significant
E71	30	1.86	15.38	6.2%	51.3%	Not significant
E72	30	1.31	13.96	4.4%	46.5%	Not significant
E73	30	1.39	13.88	4.6%	46.3%	Not significant
E74	30	0.60	10.28	2.0%	34.3%	Not significant
E75	30	0.92	11.04	3.1%	36.8%	Not significant
E76	30	0.82	10.84	2.7%	36.1%	Not significant
E77	30	1.09	24.71	3.6%	82.4%	Not significant
E78	30	2.72	15.27	9.1%	50.9%	Not significant
E79	30	2.33	14.66	7.8%	48.9%	Not significant
E80	30	2.16	14.35	7.2%	47.8%	Not significant
E81	30	7.40	22.81	24.7%	76.0%	Not significant
E82	30	7.14	23.72	23.8%	79.1%	Not significant
E83	30	3.33	19.17	11.1%	63.9%	Not significant
E84	30	3.53	22.37	11.8%	74.6%	Not significant
E85	30	0.48	10.85	1.6%	36.2%	Not significant
E86	30	0.50	10.50	1.7%	35.0%	Not significant
E87	30	0.51	10.27	1.7%	34.2%	Not significant
E88	30	1.89	41.50	6.3%	138.3%	Not significant
ER001	30	0.10	11.11	0.3%	37.0%	Not significant
ER002	30	0.66	25.25	2.2%	84.2%	Not significant
ER003	30	0.19	13.44	0.6%	44.8%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
ER004	30	0.19	13.40	0.6%	44.7%	Not significant
ER005	30	0.17	12.77	0.6%	42.6%	Not significant
ER006	30	0.01	16.07	0.0%	53.6%	Not significant
ER012	30	0.63	22.61	2.1%	75.4%	Further assessment required

Table C.6 PCs and PECs for maximum daily mean NO_x, Year 6

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E01	200	1.36	25.96	0.7%	13.0%	Not significant
E02	200	2.25	22.90	1.1%	11.4%	Not significant
E03	200	4.32	25.02	2.2%	12.5%	Not significant
E04	200	4.71	27.79	2.4%	13.9%	Not significant
E05	200	5.64	32.68	2.8%	16.3%	Not significant
E06	200	6.98	34.14	3.5%	17.1%	Not significant
E07	200	6.03	31.28	3.0%	15.6%	Not significant
E08	200	6.04	30.14	3.0%	15.1%	Not significant
E09	200	4.82	35.57	2.4%	17.8%	Not significant
E10	200	3.62	29.84	1.8%	14.9%	Not significant
E11	200	2.76	26.96	1.4%	13.5%	Not significant
E12	200	2.48	23.22	1.2%	11.6%	Not significant
E13	200	2.36	23.17	1.2%	11.6%	Not significant
E14	200	3.76	28.61	1.9%	14.3%	Not significant
E15	200	4.81	32.63	2.4%	16.3%	Not significant
E16	200	5.57	33.42	2.8%	16.7%	Not significant
E17	200	6.99	39.17	3.5%	19.6%	Not significant
E18	200	8.25	41.50	4.1%	20.7%	Not significant
E19	200	8.18	41.20	4.1%	20.6%	Not significant
E20	200	11.71	48.74	5.9%	24.4%	Not significant
E21	200	19.53	57.93	9.8%	29.0%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E22	200	28.69	71.23	14.3%	35.6%	Further assessment required
E23	200	23.72	64.36	11.9%	32.2%	Further assessment required
E24	200	18.16	55.95	9.1%	28.0%	Not significant
E25	200	9.15	52.74	4.6%	26.4%	Not significant
E26	200	9.28	72.13	4.6%	36.1%	Not significant
E27	200	7.30	41.16	3.6%	20.6%	Not significant
E28	200	7.71	84.02	3.9%	42.0%	Not significant
E29	200	6.71	34.71	3.4%	17.4%	Not significant
E30	200	4.80	43.85	2.4%	21.9%	Not significant
E31	200	4.59	37.26	2.3%	18.6%	Not significant
E32	200	4.75	31.19	2.4%	15.6%	Not significant
E33	200	3.23	28.44	1.6%	14.2%	Not significant
E34	200	3.44	28.20	1.7%	14.1%	Not significant
E35	200	2.62	27.33	1.3%	13.7%	Not significant
E36	200	2.70	25.14	1.3%	12.6%	Not significant
E37	200	1.92	25.46	1.0%	12.7%	Not significant
E38	200	8.77	34.61	4.4%	17.3%	Not significant
E39	200	8.37	37.11	4.2%	18.6%	Not significant
E40	200	8.67	68.30	4.3%	34.1%	Not significant
E41	200	13.85	204.42	6.9%	102.2%	Not significant
E42	200	7.01	33.50	3.5%	16.8%	Not significant
E43	200	3.31	24.17	1.7%	12.1%	Not significant
E44	200	3.47	23.79	1.7%	11.9%	Not significant
E45	200	4.37	24.70	2.2%	12.4%	Not significant
E46	200	4.51	24.68	2.3%	12.3%	Not significant
E47	200	4.41	24.49	2.2%	12.2%	Not significant
E48	200	4.13	23.73	2.1%	11.9%	Not significant
E49	200	3.63	23.19	1.8%	11.6%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E50	200	13.15	41.06	6.6%	20.5%	Not significant
E51	200	13.35	41.11	6.7%	20.6%	Not significant
E52	200	14.23	41.24	7.1%	20.6%	Not significant
E53	200	6.98	33.90	3.5%	16.9%	Not significant
E54	200	8.11	32.50	4.1%	16.2%	Not significant
E55	200	8.74	31.78	4.4%	15.9%	Not significant
E56	200	16.47	44.17	8.2%	22.1%	Not significant
E57	200	18.04	46.42	9.0%	23.2%	Not significant
E58	200	18.23	47.53	9.1%	23.8%	Not significant
E59	200	7.19	32.57	3.6%	16.3%	Not significant
E60	200	9.98	41.11	5.0%	20.6%	Not significant
E61	200	13.65	87.07	6.8%	43.5%	Not significant
E62	200	55.54	473.95	27.8%	237.0%	Not significant
E63	200	29.04	82.97	14.5%	41.5%	Not significant
E64	200	40.51	93.01	20.3%	46.5%	Not significant
E65	200	28.95	71.71	14.5%	35.9%	Not significant
E66	200	23.99	64.68	12.0%	32.3%	Not significant
E67	200	18.29	55.87	9.1%	27.9%	Not significant
E68	200	14.59	50.93	7.3%	25.5%	Not significant
E69	200	10.55	63.59	5.3%	31.8%	Not significant
E70	200	40.75	87.62	20.4%	43.8%	Not significant
E71	200	37.21	84.21	18.6%	42.1%	Not significant
E72	200	24.70	64.74	12.3%	32.4%	Not significant
E73	200	22.10	62.22	11.0%	31.1%	Not significant
E74	200	13.13	40.79	6.6%	20.4%	Not significant
E75	200	20.15	52.31	10.1%	26.2%	Not significant
E76	200	19.27	50.80	9.6%	25.4%	Not significant
E77	200	19.99	106.33	10.0%	53.2%	Not significant
E78	200	32.63	65.65	16.3%	32.8%	Not significant
E79	200	30.66	62.53	15.3%	31.3%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E80	200	30.34	61.59	15.2%	30.8%	Not significant
E81	200	142.76	187.65	71.4%	93.8%	Not significant
E82	200	145.83	200.45	72.9%	100.2%	Not significant
E83	200	68.49	115.29	34.2%	57.6%	Not significant
E84	200	62.09	119.90	31.0%	59.9%	Not significant
E85	200	11.35	37.87	5.7%	18.9%	Not significant
E86	200	11.39	36.42	5.7%	18.2%	Not significant
E87	200	10.93	35.59	5.5%	17.8%	Not significant
E88	200	16.37	154.02	8.2%	77.0%	Not significant
ER001	200	1.61	36.71	0.8%	18.4%	Not significant
ER002	200	5.19	130.84	2.6%	65.4%	Not significant
ER003	200	2.26	55.11	1.1%	27.6%	Not significant
ER004	200	2.25	54.86	1.1%	27.4%	Not significant
ER005	200	2.02	48.13	1.0%	24.1%	Not significant
ER006	200	0.32	33.18	0.2%	16.6%	Not significant
ER012	200	8.94	119.68	4.5%	59.8%	Not significant

Table C.7 PCs and PECs for annual mean NO_2, Year 20

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H01	40	0.78	20.05	2.0%	50.1%	Negligible
H02	40	0.60	19.17	1.5%	47.9%	Negligible
H03	40	0.56	19.03	1.4%	47.6%	Negligible
H04	40	0.42	18.98	1.1%	47.5%	Negligible
H05	40	0.35	18.13	0.9%	45.3%	Negligible
H06	40	1.83	19.76	4.6%	49.4%	Negligible
H07	40	1.37	18.90	3.4%	47.3%	Negligible
H08	40	3.15	27.24	7.9%	68.1%	Slight
H09	40	3.73	31.16	9.3%	77.9%	Moderate
H10	40	3.08	26.43	7.7%	66.1%	Slight

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H11	40	2.81	24.64	7.0%	61.6%	Slight
H12	40	2.58	23.72	6.5%	59.3%	Slight
H13	40	1.95	21.23	4.9%	53.1%	Negligible
H14	40	1.53	23.43	3.8%	58.6%	Negligible
H15	40	2.40	20.50	6.0%	51.3%	Slight
H16	40	1.98	19.65	4.9%	49.1%	Negligible
H17	40	4.29	25.36	10.7%	63.4%	Moderate
H18	40	2.45	20.43	6.1%	51.1%	Slight
H19	40	2.09	19.40	5.2%	48.5%	Negligible
H20	40	2.31	19.44	5.8%	48.6%	Slight
H21	40	2.55	19.67	6.4%	49.2%	Slight
H22	40	2.33	19.44	5.8%	48.6%	Slight
H23	40	3.62	20.76	9.1%	51.9%	Slight
H24	40	2.41	21.24	6.0%	53.1%	Slight
H25	40	0.71	17.93	1.8%	44.8%	Negligible
H26	40	0.62	19.51	1.6%	48.8%	Negligible
H27	40	0.44	17.96	1.1%	44.9%	Negligible
H28	40	0.63	23.36	1.6%	58.4%	Negligible
H29	40	0.60	24.24	1.5%	60.6%	Negligible
H30	40	0.65	20.01	1.6%	50.0%	Negligible
H31	40	0.54	18.36	1.4%	45.9%	Negligible
H32	40	0.70	24.26	1.8%	60.7%	Negligible
H33	40	1.28	19.17	3.2%	47.9%	Negligible
H34	40	1.59	18.96	4.0%	47.4%	Negligible
H35	40	1.72	19.09	4.3%	47.7%	Negligible
H36	40	1.87	19.25	4.7%	48.1%	Negligible
H37	40	2.00	19.39	5.0%	48.5%	Negligible
H38	40	2.20	19.60	5.5%	49.0%	Slight
H39	40	2.00	19.45	5.0%	48.6%	Negligible
H40	40	1.84	19.35	4.6%	48.4%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
H41	40	1.69	19.29	4.2%	48.2%	Negligible
H42	40	1.58	19.35	4.0%	48.4%	Negligible
H43	40	1.76	19.55	4.4%	48.9%	Negligible
H44	40	1.90	19.83	4.8%	49.6%	Negligible
H45	40	1.07	19.91	2.7%	49.8%	Negligible
H46	40	1.00	18.51	2.5%	46.3%	Negligible
H47	40	0.83	18.13	2.1%	45.3%	Negligible
H48	40	0.88	18.10	2.2%	45.3%	Negligible
H49	40	1.69	20.85	4.2%	52.1%	Negligible
H50	40	1.47	19.75	3.7%	49.4%	Negligible
H51	40	1.30	19.14	3.3%	47.9%	Negligible
H52	40	0.99	18.30	2.5%	45.8%	Negligible
H53	40	0.90	18.08	2.3%	45.2%	Negligible
H54	40	1.72	21.76	4.3%	54.4%	Negligible
H55	40	1.14	18.65	2.8%	46.6%	Negligible
H56	40	0.75	19.17	1.9%	47.9%	Negligible
H57	40	0.65	18.21	1.6%	45.5%	Negligible
H58	40	0.89	18.58	2.2%	46.5%	Negligible
H59	40	0.94	18.96	2.4%	47.4%	Negligible
H60	40	0.93	19.50	2.3%	48.8%	Negligible
H61	40	0.91	20.15	2.3%	50.4%	Negligible
H62	40	1.06	23.76	2.7%	59.4%	Negligible
H63	40	1.47	30.34	3.7%	75.9%	Slight
H64	40	1.42	27.86	3.6%	69.7%	Negligible
H65	40	1.41	26.77	3.5%	66.9%	Negligible
H66	40	0.85	22.49	2.1%	56.2%	Negligible
H67	40	3.75	23.99	9.4%	60.0%	Slight
H68	40	0.85	18.26	2.1%	45.7%	Negligible
H69	40	2.40	20.04	6.0%	50.1%	Slight
H70	40	0.99	19.49	2.5%	48.7%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
A01	40	0.09	16.60	0.2%	41.5%	Negligible
A02	40	0.18	18.48	0.4%	46.2%	Negligible
A03	40	0.21	17.72	0.5%	44.3%	Negligible
A04	40	0.30	17.07	0.8%	42.7%	Negligible
A05	40	0.32	17.15	0.8%	42.9%	Negligible
A06	40	0.30	17.17	0.8%	42.9%	Negligible
A07	40	0.65	21.52	1.6%	53.8%	Negligible
A08	40	0.36	17.45	0.9%	43.6%	Negligible
A09	40	1.06	26.80	2.7%	67.0%	Negligible
A10	40	0.54	17.81	1.4%	44.5%	Negligible
A11	40	0.81	20.24	2.0%	50.6%	Negligible
A12	40	0.98	18.54	2.5%	46.4%	Negligible
A13	40	1.64	19.01	4.1%	47.5%	Negligible
A14	40	2.98	20.56	7.5%	51.4%	Slight
A15	40	1.69	19.56	4.2%	48.9%	Negligible
A16	40	0.76	19.28	1.9%	48.2%	Negligible
A17	40	0.53	18.08	1.3%	45.2%	Negligible
A18	40	0.42	17.44	1.1%	43.6%	Negligible
A19	40	0.47	17.50	1.2%	43.8%	Negligible
A20	40	0.41	17.26	1.0%	43.2%	Negligible
A21	40	0.51	17.52	1.3%	43.8%	Negligible
A22	40	0.20	35.50	0.5%	88.8%	Negligible
A23	40	0.19	35.49	0.5%	88.7%	Negligible
A24	40	0.21	35.51	0.5%	88.8%	Negligible
A25	40	0.21	35.51	0.5%	88.8%	Negligible
A26	40	0.20	35.50	0.5%	88.8%	Negligible
A27	40	0.20	35.50	0.5%	88.8%	Negligible
A28	40	0.20	35.50	0.5%	88.8%	Negligible
A29	40	0.20	35.50	0.5%	88.8%	Negligible
A30	40	0.22	35.52	0.5%	88.8%	Negligible

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
A31	40	0.27	35.57	0.7%	88.9%	Negligible
A32	40	0.43	38.43	1.1%	96.1%	Slight
A33	40	0.42	38.42	1.1%	96.1%	Slight
A34	40	0.50	38.50	1.3%	96.3%	Slight
A35	40	0.58	38.58	1.5%	96.5%	Slight
A36	40	0.58	38.58	1.5%	96.5%	Slight
A37	40	0.54	38.54	1.4%	96.4%	Slight
A38	40	0.41	38.41	1.0%	96.0%	Slight
A39	40	0.42	38.42	1.1%	96.1%	Slight
A40	40	0.51	38.51	1.3%	96.3%	Slight
A41	40	0.50	38.50	1.3%	96.3%	Slight
A42	40	0.35	38.35	0.9%	95.9%	Slight
A43	40	0.34	38.34	0.9%	95.9%	Slight

Table C.8 PCs and PECs for annual mean NO_x, Year 20

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E01	30	0.10	9.29	0.3%	31.0%	Not significant
E02	30	0.12	8.06	0.4%	26.9%	Not significant
E03	30	0.19	8.25	0.6%	27.5%	Not significant
E04	30	0.27	9.03	0.9%	30.1%	Not significant
E05	30	0.36	10.24	1.2%	34.1%	Not significant
E06	30	0.46	10.23	1.5%	34.1%	Not significant
E07	30	0.43	10.14	1.4%	33.8%	Not significant
E08	30	0.39	10.03	1.3%	33.4%	Not significant
E09	30	0.40	12.21	1.3%	40.7%	Not significant
E10	30	0.32	11.17	1.1%	37.2%	Not significant
E11	30	0.27	10.15	0.9%	33.8%	Not significant
E12	30	0.23	8.74	0.8%	29.1%	Not significant
E13	30	0.20	8.68	0.7%	28.9%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E14	30	0.19	10.05	0.6%	33.5%	Not significant
E15	30	0.20	11.07	0.7%	36.9%	Not significant
E16	30	0.21	10.88	0.7%	36.3%	Not significant
E17	30	0.26	12.67	0.9%	42.2%	Not significant
E18	30	0.30	12.79	1.0%	42.6%	Not significant
E19	30	0.33	12.50	1.1%	41.7%	Not significant
E20	30	0.47	12.88	1.6%	42.9%	Not significant
E21	30	0.66	12.57	2.2%	41.9%	Not significant
E22	30	1.05	12.25	3.5%	40.8%	Not significant
E23	30	0.91	11.96	3.0%	39.9%	Not significant
E24	30	0.75	10.82	2.5%	36.1%	Not significant
E25	30	0.55	12.65	1.8%	42.2%	Not significant
E26	30	0.68	15.75	2.3%	52.5%	Not significant
E27	30	0.32	10.40	1.1%	34.7%	Not significant
E28	30	0.74	17.21	2.5%	57.4%	Not significant
E29	30	0.24	9.07	0.8%	30.2%	Not significant
E30	30	0.23	10.51	0.8%	35.0%	Not significant
E31	30	0.19	10.72	0.6%	35.7%	Not significant
E32	30	0.16	8.70	0.5%	29.0%	Not significant
E33	30	0.13	9.03	0.4%	30.1%	Not significant
E34	30	0.13	8.44	0.4%	28.1%	Not significant
E35	30	0.11	9.35	0.4%	31.2%	Not significant
E36	30	0.10	8.38	0.3%	27.9%	Not significant
E37	30	0.08	8.88	0.3%	29.6%	Not significant
E38	30	0.48	9.04	1.6%	30.1%	Not significant
E39	30	0.45	9.30	1.5%	31.0%	Not significant
E40	30	0.61	14.81	2.0%	49.4%	Not significant
E41	30	2.51	49.28	8.4%	164.3%	Further assessment required
E42	30	0.36	8.95	1.2%	29.8%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E43	30	0.12	8.04	0.4%	26.8%	Not significant
E44	30	0.14	7.60	0.5%	25.3%	Not significant
E45	30	0.16	7.53	0.5%	25.1%	Not significant
E46	30	0.16	7.51	0.5%	25.0%	Not significant
E47	30	0.15	7.57	0.5%	25.2%	Not significant
E48	30	0.14	7.46	0.5%	24.9%	Not significant
E49	30	0.13	7.58	0.4%	25.3%	Not significant
E50	30	0.87	10.06	2.9%	33.5%	Not significant
E51	30	0.92	10.08	3.1%	33.6%	Not significant
E52	30	0.88	9.99	2.9%	33.3%	Not significant
E53	30	0.36	9.00	1.2%	30.0%	Not significant
E54	30	0.45	8.53	1.5%	28.4%	Not significant
E55	30	0.53	8.43	1.8%	28.1%	Not significant
E56	30	0.75	9.88	2.5%	32.9%	Not significant
E57	30	0.75	9.99	2.5%	33.3%	Not significant
E58	30	0.71	10.01	2.4%	33.4%	Not significant
E59	30	0.55	10.74	1.8%	35.8%	Not significant
E60	30	0.77	12.45	2.6%	41.5%	Not significant
E61	30	1.19	20.95	4.0%	69.8%	Not significant
E62	30	1.25	42.85	4.2%	142.8%	Not significant
E63	30	1.24	14.42	4.1%	48.1%	Not significant
E64	30	1.88	16.24	6.3%	54.1%	Not significant
E65	30	1.05	12.27	3.5%	40.9%	Not significant
E66	30	0.91	11.96	3.0%	39.9%	Not significant
E67	30	0.75	10.79	2.5%	36.0%	Not significant
E68	30	0.65	10.70	2.2%	35.7%	Not significant
E69	30	0.67	13.85	2.2%	46.2%	Not significant
E70	30	2.29	15.08	7.6%	50.3%	Not significant
E71	30	2.41	14.97	8.0%	49.9%	Not significant
E72	30	1.71	13.45	5.7%	44.8%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E73	30	1.79	13.37	6.0%	44.6%	Not significant
E74	30	0.79	9.86	2.6%	32.9%	Not significant
E75	30	1.27	10.84	4.2%	36.1%	Not significant
E76	30	1.13	10.59	3.8%	35.3%	Not significant
E77	30	1.68	22.90	5.6%	76.3%	Not significant
E78	30	4.01	16.82	13.4%	56.1%	Not significant
E79	30	3.33	15.73	11.1%	52.4%	Not significant
E80	30	3.06	15.19	10.2%	50.6%	Not significant
E81	30	5.57	23.29	18.6%	77.6%	Not significant
E82	30	5.71	24.01	19.0%	80.0%	Not significant
E83	30	3.70	19.81	12.3%	66.0%	Not significant
E84	30	4.39	23.93	14.6%	79.8%	Not significant
E85	30	0.63	10.14	2.1%	33.8%	Not significant
E86	30	0.68	10.20	2.3%	34.0%	Not significant
E87	30	0.71	10.23	2.4%	34.1%	Not significant
E88	30	2.82	74.58	9.4%	248.6%	Not significant
ER001	30	0.17	10.32	0.6%	34.4%	Not significant
ER002	30	1.13	27.06	3.8%	90.2%	Not significant
ER003	30	0.33	13.09	1.1%	43.6%	Not significant
ER004	30	0.32	13.04	1.1%	43.5%	Not significant
ER005	30	0.29	12.41	1.0%	41.4%	Not significant
ER006	30	0.01	13.92	0.0%	46.4%	Not significant
ER012	30	0.97	24.03	3.2%	80.1%	Further assessment required

Table C.9 PCs and PECs for maximum daily mean NO_x, Year 20

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E01	200	1.45	24.85	0.7%	12.4%	Not significant
E02	200	2.45	22.47	1.2%	11.2%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E03	200	3.36	23.47	1.7%	11.7%	Not significant
E04	200	4.15	26.14	2.1%	13.1%	Not significant
E05	200	4.94	31.00	2.5%	15.5%	Not significant
E06	200	7.11	33.52	3.6%	16.8%	Not significant
E07	200	5.53	29.94	2.8%	15.0%	Not significant
E08	200	6.65	30.18	3.3%	15.1%	Not significant
E09	200	5.58	34.36	2.8%	17.2%	Not significant
E10	200	4.11	29.01	2.1%	14.5%	Not significant
E11	200	3.23	26.18	1.6%	13.1%	Not significant
E12	200	2.77	22.66	1.4%	11.3%	Not significant
E13	200	2.41	22.41	1.2%	11.2%	Not significant
E14	200	3.61	27.38	1.8%	13.7%	Not significant
E15	200	5.36	31.91	2.7%	16.0%	Not significant
E16	200	6.17	32.86	3.1%	16.4%	Not significant
E17	200	6.77	37.16	3.4%	18.6%	Not significant
E18	200	7.92	39.35	4.0%	19.7%	Not significant
E19	200	8.48	40.94	4.2%	20.5%	Not significant
E20	200	10.65	46.23	5.3%	23.1%	Not significant
E21	200	14.33	50.75	7.2%	25.4%	Not significant
E22	200	21.56	63.21	10.8%	31.6%	Further assessment required
E23	200	12.84	53.08	6.4%	26.5%	Not significant
E24	200	13.97	52.92	7.0%	26.5%	Not significant
E25	200	10.93	56.52	5.5%	28.3%	Not significant
E26	200	11.36	79.51	5.7%	39.8%	Not significant
E27	200	8.99	43.29	4.5%	21.6%	Not significant
E28	200	9.94	95.14	5.0%	47.6%	Not significant
E29	200	6.70	35.02	3.4%	17.5%	Not significant
E30	200	6.03	46.13	3.0%	23.1%	Not significant
E31	200	6.22	39.19	3.1%	19.6%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E32	200	5.26	31.89	2.6%	15.9%	Not significant
E33	200	3.94	28.65	2.0%	14.3%	Not significant
E34	200	4.51	29.33	2.3%	14.7%	Not significant
E35	200	3.21	26.86	1.6%	13.4%	Not significant
E36	200	3.62	25.73	1.8%	12.9%	Not significant
E37	200	2.08	24.90	1.0%	12.4%	Not significant
E38	200	8.25	33.79	4.1%	16.9%	Not significant
E39	200	7.17	36.17	3.6%	18.1%	Not significant
E40	200	10.09	74.35	5.0%	37.2%	Not significant
E41	200	18.77	236.09	9.4%	118.0%	Not significant
E42	200	6.30	32.78	3.2%	16.4%	Not significant
E43	200	3.82	23.85	1.9%	11.9%	Not significant
E44	200	4.01	23.76	2.0%	11.9%	Not significant
E45	200	5.00	24.84	2.5%	12.4%	Not significant
E46	200	5.15	24.78	2.6%	12.4%	Not significant
E47	200	5.00	24.46	2.5%	12.2%	Not significant
E48	200	4.66	23.60	2.3%	11.8%	Not significant
E49	200	4.09	22.91	2.0%	11.5%	Not significant
E50	200	14.44	42.44	7.2%	21.2%	Not significant
E51	200	15.12	42.93	7.6%	21.5%	Not significant
E52	200	15.95	43.06	8.0%	21.5%	Not significant
E53	200	6.23	33.20	3.1%	16.6%	Not significant
E54	200	7.88	32.03	3.9%	16.0%	Not significant
E55	200	10.40	33.28	5.2%	16.6%	Not significant
E56	200	20.19	47.83	10.1%	23.9%	Not significant
E57	200	21.54	49.94	10.8%	25.0%	Not significant
E58	200	20.28	49.71	10.1%	24.9%	Not significant
E59	200	6.87	32.54	3.4%	16.3%	Not significant
E60	200	10.07	52.45	5.0%	26.2%	Not significant
E61	200	11.70	80.19	5.9%	40.1%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
E62	200	24.48	203.02	12.2%	101.5%	Not significant
E63	200	25.87	69.74	12.9%	34.9%	Not significant
E64	200	29.25	71.84	14.6%	35.9%	Not significant
E65	200	21.74	63.46	10.9%	31.7%	Not significant
E66	200	13.11	53.37	6.6%	26.7%	Not significant
E67	200	13.92	52.60	7.0%	26.3%	Not significant
E68	200	13.13	50.93	6.6%	25.5%	Not significant
E69	200	10.14	65.95	5.1%	33.0%	Not significant
E70	200	16.62	62.80	8.3%	31.4%	Not significant
E71	200	18.75	65.22	9.4%	32.6%	Not significant
E72	200	14.76	54.42	7.4%	27.2%	Not significant
E73	200	16.23	56.06	8.1%	28.0%	Not significant
E74	200	12.80	40.56	6.4%	20.3%	Not significant
E75	200	22.40	55.11	11.2%	27.6%	Not significant
E76	200	21.91	53.87	11.0%	26.9%	Not significant
E77	200	18.24	96.34	9.1%	48.2%	Not significant
E78	200	21.22	57.52	10.6%	28.8%	Not significant
E79	200	17.67	51.90	8.8%	25.9%	Not significant
E80	200	16.74	49.74	8.4%	24.9%	Not significant
E81	200	26.75	84.36	13.4%	42.2%	Not significant
E82	200	29.95	97.31	15.0%	48.7%	Not significant
E83	200	18.48	68.27	9.2%	34.1%	Not significant
E84	200	21.75	84.39	10.9%	42.2%	Not significant
E85	200	8.18	34.82	4.1%	17.4%	Not significant
E86	200	8.89	37.40	4.4%	18.7%	Not significant
E87	200	9.03	35.99	4.5%	18.0%	Not significant
E88	200	15.81	260.67	7.9%	130.3%	Not significant
ER001	200	2.31	37.79	1.2%	18.9%	Not significant
ER002	200	8.45	148.69	4.2%	74.3%	Not significant
ER003	200	3.43	59.44	1.7%	29.7%	Not significant

Receptor	AQAL (µg m^{-3})	PC (µg m^{-3})	PEC (µg m^{-3})	PC (percent of AQAL)	PEC (percent of AQAL)	Impact
ER004	200	3.41	59.13	1.7%	29.6%	Not significant
ER005	200	3.03	51.50	1.5%	25.8%	Not significant
ER006	200	0.39	29.07	0.2%	14.5%	Not significant
ER012	200	11.76	136.12	5.9%	68.1%	Not significant