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# Air Quality Assessment - Planning: Land South of A507

## Date: 11 June 2024

# Quality Assurance

**Client:** Jubb Consulting Engineers Ltd

**Reference:** APS_P1207A_A2-5 **Date Published:** 11 June 2024

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# 1. Introduction

1.1. Air Pollution Services (APS), part of KALACO Group Ltd, has been commissioned by Jubb Consulting Engineers Ltd (the 'Client') to assess the air quality impacts associated with the proposed development at Land South of A507, West of Buntingford, Hertfordshire (herein the 'Proposed Development') in the administrative area of East Herts District Council (EHDC).

1.2. The purpose of this assessment is to support the planning application for the proposed land use change at the development site (the 'Site'). This report describes the Proposed Development (Section 2), the scope of the assessment (Section 3), and provides summary of the impacts on air quality due to the Proposed Development (Section 4) and a glossary of useful terms used within the assessment (Section 5).

1.3. The assessment has been carried out by APS. It is important air quality assessments are carried out by suitably qualified experts with professional accreditations, such as being a member of the Institute of Air Quality Management (IAQM), further details of the assessment authors are set out in further details of the assessment authors are set out in Appendix A1.

# 2. The Proposed Development

2.1. The Proposed Development consists of development of employment land (flexible use B2, B8, E(c), and E(g)), informal open space, associated works and infrastructure including a new access from A507, with all matters reserved save for access.

2.2. The Proposed Development is shown in Figure 1.

2.3. The Proposed Development is anticipated to be operational in 2028. The concentrations of pollutants are indicated to improve in future years. Therefore, 2028 is considered an appropriate conservative assessment year.

2.4. The year of 2035 has also been assessed to account for the cumulative impacts of other development in the local area. This is shown in the air quality assessment for the development to the north of the Proposed Development (APS_P1207A_Z1-4).



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Figure 1: The Proposed Development

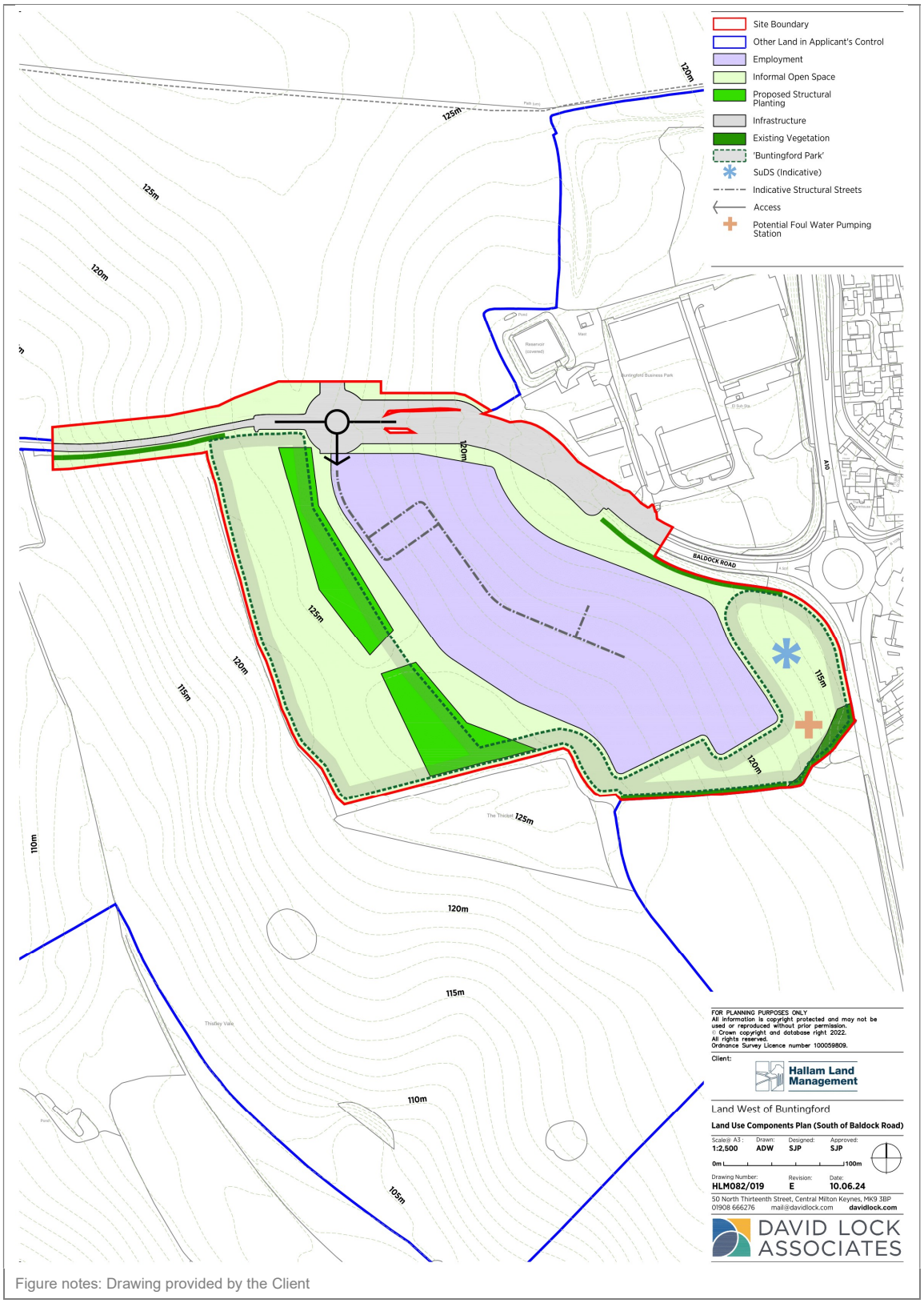



Figure notes: Drawing provided by the Client

## Location

2.5. The Proposed Development is located within the administrative area EHDC. The administrative boundary of North Hertfordshire District Council (NHDC) is approximately located within 2 km of

the Proposed Development. The location of the Proposed Development is shown in Figure 2 and Figure 3.

Figure 2: Location of Proposed Development in relation to Local Authority Administrative Areas

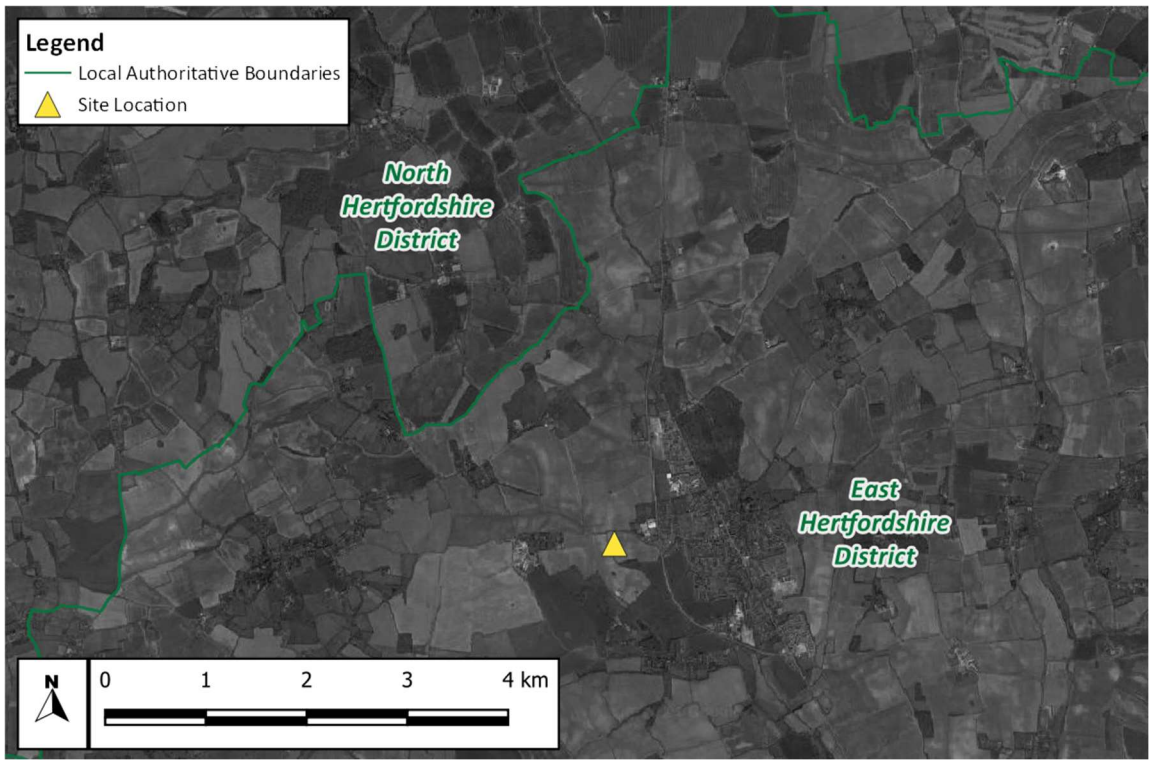



Figure notes: Imagery © 2024 Google, Map data © 2024.

Figure 3: Site Location

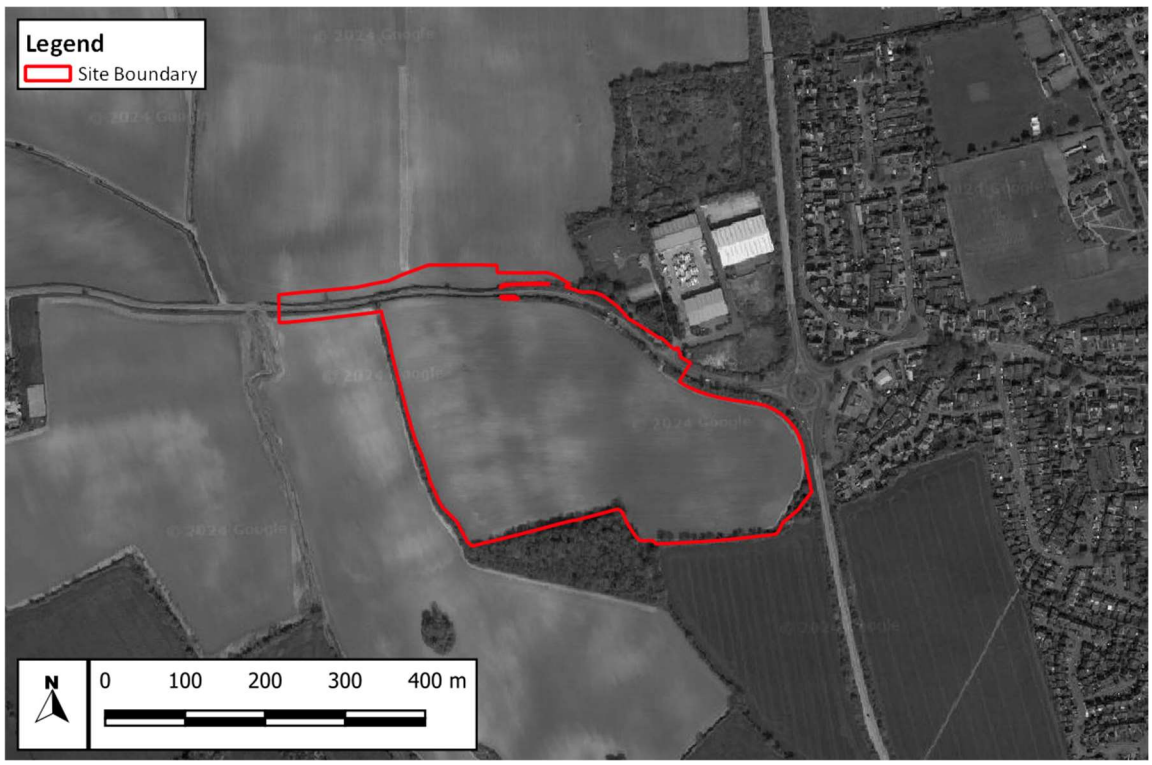



Figure notes: Imagery © 2024 Google, Map data © 2024.

## Traffic Generation

2.6. The Proposed Development will generate traffic on the local roads. The trip generation associated with the Proposed Development was provided by the Client for the year 2035. Baseline traffic flows were also provided.

2.7. The Annual Average Daily Traffic (AADT) movements and % Heavy Duty Vehicles (HDVs) for the area surrounding the Proposed Development are presented in Table 1 and the links are shown in Figure 4.

2.8. The Proposed Development will generate 1,611 daily trips, 1.7% of which will be HGVs.

Table 1: Traffic Generation 24-hour AADT

| Link | Location | Development Traffic (%HDV) |
|---|---|---|
| 3 | The A10 North of Ermine Street | 239 (1.7%) |
| 4 | The A10 South of Ermine Street | 239 (1.7%) |
| 5 | The A10 South of Throcking Lane | 239 (1.7%) |
| 6 | The A10 North of Baldock Road | 239 (1.7%) |
| 7 | Baldock Road East of the A10 | 331 (1.7%) |
| 9 | The A10 South of Baldock Road | 511 (1.7%) |
| 10 | Baldock Road West of the A10 | 1,082 (1.7%) |
| 11 | Baldock Road East of Site Access | 1,082 (1.7%) |
| 12 | Baldock Road West of Site Access | 530 (1.7%) |
| 13 | Baldock Road West of High Street | 331 (1.7%) |
| 14 | High Street North | 146 (1.7%) |
| 15 | High Street South | 185 (1.7%) |
| 16 | High Street North of Hare Street | 185 (1.7%) |
| 17 | Hare Street | 148 (1.7%) |
| 18 | High Street South of Hare Street | 37 (1.7%) |
| 21 | The A10 South | 511 (1.7%) |
| 22 | The A10 West | 511 (1.7%) |
| 24 | Site Access Road South | 1,611 (1.7%) |
| Table notes: Data from the Client | | |


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Figure 4: Road links




Figure notes: Imagery © 2024 Google, Map data © 2024.

2.9. Trip generation during the construction phase is not currently available for this outline planning application.

### On-site Combustion Plant

2.10. No information has been provided in relation to the potential for any on-site combustion plant, in particular centralised combustion plant such as boilers or combined heat and power (CHP) plant.

### Design for Air Quality

2.11. Professional guidance produced by EPUK and IAQM (2017) is clear that it is important that proposed developments incorporate good design and best practice measures to ensure any impacts are minimalised as far as practicable, even where pollutant concentrations are predicted to be below the relevant assessment thresholds. The Proposed Development includes the following specific measures:

- provision of electric charging points to encourage future users to switch to electric vehicles potentially lowering traffic emissions in the local area;
- ensure provision of local bus stops; and
- encouragement of active travel through the provision of cycle parking spaces and cycle routes to reduce reliance on car use by future users.

## 3. Scope of assessment

### In Scope of Assessment

3.1. The scope of assessment includes several elements, and this report is part of a series of documents addressing air quality and should be read in conjunction with the latest version of each document.

3.2. The pollutants of most concern for human exposure are nitrogen dioxide ($NO_2$) and fine particulate matter (both $PM_{10}$ and $PM_{2.5}$).

3.3. EHDC have set out the expectations for assessments in their Sustainability Supplementary Planning Guidance (SPG) (2021). A summary of the checklist from the guidance is provided in Appendix A2.

3.4. The scope and documents covered are set out below.

1. Appended document: *'Air Quality Policy/Legislation Context: Buntingford, Hertfordshire'.*
2. Appended document: *'Air Quality Baseline: Buntingford, Hertfordshire'.*
3. Appended document: '*Dispersion Modelling Study: Buntingford, Hertfordshire'.*
4. Appended document: *'Construction Dust Risk Assessment: Land South of A507, Buntingford'.*
5. Appended document: *'Air Quality at Locations of Human Exposure: Land South of A507, Buntingford'.*
6. Appended document: *'Air Quality Neutral Assessment: Land South of A507, Buntingford'.*

3.5. Where considered, this report is an assessment of air quality at locations of human health exposure (i.e. the quality of the air) which can be linked to health effects, however, it is not an assessment of the effect on human health from poor air quality or deposition to ground. Similarly for ecological assessments, it is an assessment of the air quality at sensitive habitats rather than an assessment of the effects on the ecosystems.


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### Not in Scope of Assessment

3.6. This report does not consider the following:

- Impacts on human exposure and sensitive ecological exposure in the local area due to emissions from Non-Road Mobile Machinery (NRMM) associated with the Proposed Development during the construction phase, although it should be noted that this is expected to be negligible if good practice is adopted and in particular if a low emissions NRMM strategy is implemented during the construction works;
- Impacts on human exposure and sensitive ecological exposure in the local area due to emissions from construction traffic associated with the Proposed Development during the construction phase, information about the trip generation during the construction phase is not currently available for this outline planning application, although it is anticipated that when available it could be screened out based on the EPUK/IAQM screening criteria;
- Impacts on sensitive ecological exposure in the local area due to changes in road traffic associated with the Proposed Development during its operational phase, this is because there are no nearby national network sites and any risk of impacts is anticipated to be screened out based on the IAQM guidance on the assessment of air quality impacts on designated nature conservation sites (IAQM, 2020);
- Impacts of local sources on the future users of the Proposed Development; and
- Impacts on human exposure and sensitive ecological exposure in the local area due to pollutant emissions from on-site combustion plant associated with the Proposed Development during the operational phase. As this stage it is unknown whether combustion plant will be incorporated within the Proposed Development and is therefore not possible to consider the potential for impacts at this stage.

# 4. Summary and Conclusions of the Impact Assessments

4.1. The following assessments have been completed:

- A review of air quality baseline conditions;
- A CDRA;
- An assessment of the impact of the operational Proposed Development on locations of human exposure within the local area; and
- An AQN assessment.

### A review of air quality baseline conditions;

4.2. There are no declared Clean Air Zones (CAZ), Low Emission Zones (LEZs), Ultra Low Emission Zones (ULEZs), Air Quality Focus Areas (AQFAs) or NRMM Zones within the locality of the Proposed Development.

4.3. The Proposed Development is located approximately 16 km northwest of the closest EHDC Air Quality Management Area (AQMA) at Bishops Stortford.

4.4. The baseline concentrations of pollutants are considered in relation to three separate types of criteria, covered by different legislation, policy, and guidance. These include AQOs, LVs and WHO Interim Targets (ITs) and Air Quality Guidelines (AQGs).


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### *Air Quality Objectives*

4.5. There is little baseline information on air quality of direct relevance to the Development Site. Annual mean $NO_2$ concentrations in the local area measured no exceedances of the AQO in recent years. Predicted concentrations of $NO_2$ met the WHO AQG in 2035 at the Development Site. Predicted concentrations of $PM_{10}$ met WHO IT 4 in 2035. Predicted concentrations of $PM_{2.5}$ met WHO IT3 in 2035. All predicted concentrations were well below the AQOs in 2019 and 2035, suggesting that concentrations at the Development Site are likely to be well below the AQOs.

### *Limit Value Compliance*

4.6. There is no information provided by Defra regarding compliance with the limit in the locality of the Proposed Development. However, based on the information available, it can be inferred that concentrations will be below the LVs.

### *World Health Organization Guidelines*

4.7. Table 2 and Table 3 provide an indication of the baseline air quality at the Application Site in 2019 and the assessment year with respect to the WHO annual mean ITs and AQG. In reality the concentrations will vary across the development site.

Table 2: Indicative Achievement of Annual Mean WHO Guidelines / Interim Targets (µg/m$^3$) on the Application Site in 2019

| Pollutant | IT1 | IT2 | IT3 | IT4 | AQG |
|---|---|---|---|---|---|
| $NO_2$ | ✓ | ✓ | ✓ | n/a | x |
| $PM_{10}$ | ✓ | ✓ | ✓ | ✓ | x |
| $PM_{2.5}$ | ✓ | ✓ | ✓ | x | x |
| Table notes:<br>? may achieve IT/AQG; x IT/AQG not achieved; ✓ IT/AQG achieved; n/a not applicable. | | | | | |

Table 3: Indicative Achievement of Annual Mean WHO Guidelines / Interim Targets (µg/m$^3$) on the Application Site in 2028

| Pollutant | IT1 | IT2 | IT3 | IT4 | AQG |
|---|---|---|---|---|---|
| $NO_2$ | ✓ | ✓ | ✓ | n/a | ✓ |
| $PM_{10}$ | ✓ | ✓ | ✓ | ✓ | ? |
| $PM_{2.5}$ | ✓ | ✓ | ✓ | x | x |
| Table notes:<br>? may achieve IT/AQG; x IT/AQG not achieved; ✓ IT/AQG achieved; n/a not applicable. | | | | | |

## A CDRA

4.8. The construction works have the potential to create dust and emissions. During construction it will therefore be necessary to apply a package of mitigation measures to minimise dust emission. With these measures in place, it is expected that any residual effects will be '*not significant*'. The IAQM guidance recognises that even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be '*not significant*'.

## An assessment of the impact of the operational Proposed Development on locations of human exposure within the local area

4.9. The operational air quality effects on locations of human health exposure without additional mitigation are judged to be 'not significant'. This professional judgement takes account of the assessment that:

- The annual mean impacts of pollutant emissions in relation to the human health receptors are described as negligible; and
- The short-term mean impacts of pollutant emissions in relation to the human health receptors are negligible.

## Air Quality Neutral Assessment

4.10. At this stage the full design details are unavailable and therefore it is currently unknown whether the Proposed Development is compliant with the AQN benchmarks. Further details of the scheme are required; once available, any necessary mitigation measures and offsetting payments will be determined.

## Overall Air Quality Statement

4.11. The air quality impacts of the Proposed Development have been assessed.

4.12. The construction works have the potential to create dust. During construction it will therefore be necessary to apply a package of mitigation measures (outlined in APS_P1207A_F1-1). With these measures in place, it is expected that any residual effects will be 'not significant'.

4.13. The impacts of the Proposed Development on the local area at areas of sensitive human exposure are deemed to be insignificant, with all concentrations below the regulatory standards.

4.14. At this stage the full design details are unavailable and therefore it is currently unknown whether the Proposed Development is compliant with the AQN benchmarks.

4.15. The requirements of the SPG (Appendix A2) have been considered.

4.16. Overall, based on the results of the air quality assessment, the air quality effects are compliant with all regulatory standards and are judged to be 'not significant'. Thus, the site is considered suitable for the proposed end use.


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# 5. Glossary, References and Appendices

## Glossary

| | |
|---|---|
| **AADT** | Annual Average Daily Traffic |
| **APS** | Air Pollution Services |
| **AQFA** | Air Quality Focus Area |
| **AQG** | Air Quality Guidelines |
| **AQAP** | Air Quality Action Plan |
| **AQMA** | Air Quality Management Area |
| **AQN** | Air Quality Neutral |
| **CAZ** | Clean Air Zone |
| **CDRA** | Construction Dust Risk Assessment |
| **EHDC** | East Herts District Council |
| **EPUK** | Environmental Protection UK |
| **HDV** | Heavy Duty Vehicle |
| **IAQM** | Institute of Air Quality Management |
| **IT** | Interim Target |
| **LDV** | Light Duty Vehicle |
| **LEZ** | Low Emission Zone |
| **NHDC** | North Hertfordshire District Council |
| **$NO_2$** | Nitrogen dioxide |
| **NOx** | Nitrogen Oxides |
| **NRMM** | Non-Road Mobile Machinery |
| **$PM_{10}$** | Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter |
| **$PM_{2.5}$** | Small airborne particles, more specifically particulate matter less than 2.5 micrometres in aerodynamic diameter |
| **ULEZ** | Ultra Low Emission Zone |

## References

East Herts District Council. (2021). *Sustainability Supplementary Planning Guidance (SPD).*

EPUK/IAQM. (2017). *Land-Use Planning & Development Control: Planning For Air Quality.*



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IAQM. (2020). *A guide to the assessment of air quality impacts on desingated nature conservation sites.*

## Appendices

# A1. Professional Experience

## Kieran Laxen, MEng (Hons) MIEnvSc MIAQM

Kieran is a Director and cofounder of Air Pollution Services and has nearly 15 years' experience in the field of air quality. He has worked on hundreds of projects, including port schemes, road schemes, residential and commercial developments, industrial processes, energy from waste sites, infrastructure projects. Kieran is an active member of the IAQM committee, has led a number of air quality position statements and has recently been involved in developing guidance on indoor air quality. He has extensive experience of ambient air quality monitoring and is a leading UK expert in the assessment of power generating facilities for both permitting and planning applications. He has been a stakeholder in Defra's and the Environment Agency's consultations into implementing the MCPD and Specified Generator Controls. He has substantial experience in assessing air quality and dust for planning applications, for a diverse range of developments, and supporting local authorities with their LAQM duties, such as AQMA and AQAP development. He also supports government bodies with national projects, mostly recently this has included supporting JNCC with selecting the air quality dispersion model for use in the UK AERIUS tool, aiding the assessment of air quality impacts upon ecological habitats. He also led the development of Numerical Weather Prediction (NWP) meteorological data provision at APS, which is used regularly by the air quality and odour industry in the UK.

## Elen Jones, BSc (Hons) AMIEnvSc AMIAQM

Elen is an Assistant Consultant, with experience in preparing air quality and climate change assessments for planning and permitting applications as well as support for local authorities. This has included residential developments and power generation facilities. She completed a BSc Geography degree at the University of the West of England (UWE). In addition, she has experience in meteorology, having carried out measurements of surface albedo and surface air temperature of different land surfaces and undertaken research into methods for cooling urban pavements to reduce urban heat island effects.


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# A2. EHDC Sustainability SPD – AQ Checklist

| Air Quality | | |
|---|---|---|
| **Ref** | **Checklist Criteria** | **Summary of approach to address the criteria** |
| AQ.1 | How has the proposal addressed the<br><br>recommended minimum air quality standards?<br><br>These apply to all new development as set out insection 6.1.2.2 of the SPD. | See Air Quality Neutral Assessment (APS_P1207A_K2-2) |
| AQ.2 | How does the proposal show consideration of air quality in the design of new development?<br><br>Design should address the following principles :<br><br>Building and development layout and design Emissions from transport Sustainable energy<br><br>(See SPD section 6.1.2.4) | See Paragraph 2.11. |
| AQ.3 | How has emissions mitigation been incorporated into theproposal?<br><br>*(See SPD section 6.1.2.5*) | See Air Quality Neutral Assessment (APS_P1207A_K2-2) and Paragraph 2.11. |
| AQ.4 | How will emissions be minimised through the construction and demolition phase of the development?<br><br>Measures should follow the national guidance set out in section 6.1.2.7 of this SPD. | See Construction Dust Risk Assessment (APS_P1207A_F2-2). |
| AQ.5 | Has an Emissions Assessment been carried out as part of the Air Quality Neutral<br><br>Requirement? | See Air Quality Neutral Assessment (APS_P1207A_K2-2) |


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| | | |
|---|---|---|
| | The assessment should utilise the Damage Cost Approach.<br><br>(*See SPD section 6.1.2.6*) | |
| AQ.6 | Has an Air Quality Impact Assessment been submitted?<br><br>This must be submitted ifthe proposal meets any ofthe criteria listed in section<br><br>6.1.3 of this SPD. | See Air Quality Impact Assessment (APS_P1207A_G2-2) |
| AQ.7 | Has an Air Quality Neutral Assessment been submitted?<br><br>This must be submitted ifthe proposal meets the criteria listed in section 6.1.3 of this SPD. | See Air Quality Neutral Assessment (APS_P1207A_K2-2) |

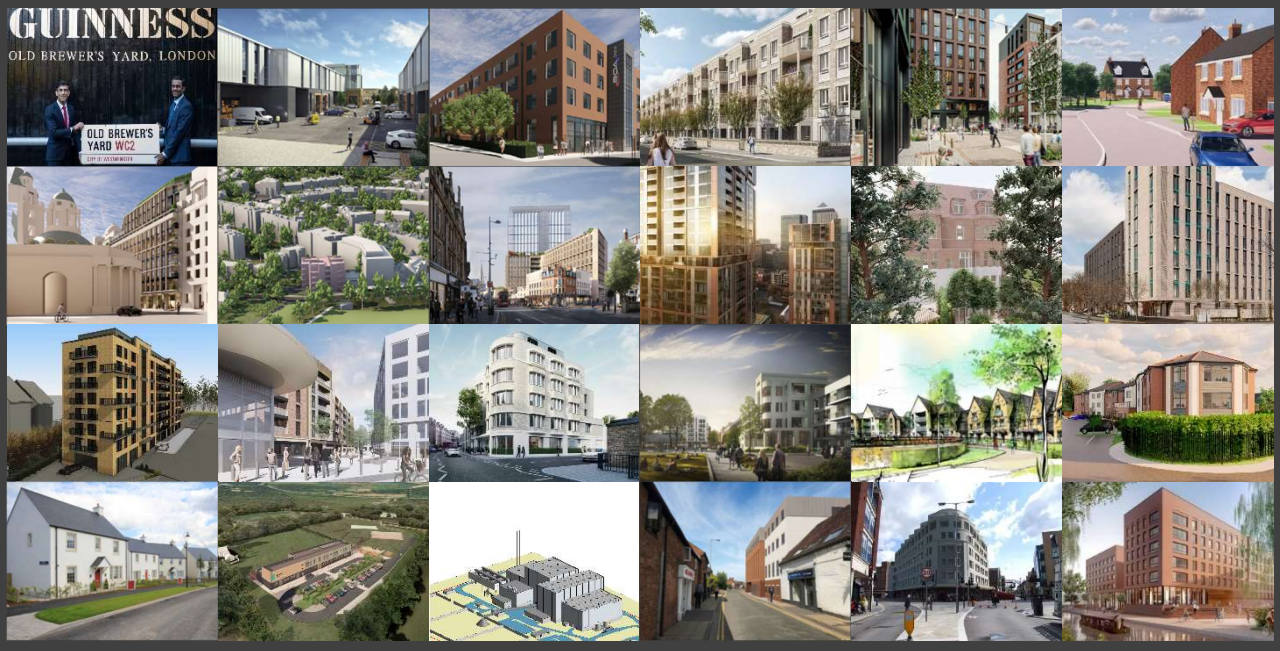

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# Air Quality Policy/Legislation Context: Buntingford, Hertfordshire

**Client:** Jubb Consulting Engineers Ltd

**Reference:** APS_P1027A_C1-1 **Date Published:** 16 February 2024

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# C1. Introduction

C1.1. Air Pollution Services (APS), part of KALACO Group, has been commissioned to assess the air quality impacts associated with the proposed development at Buntingford, Hertfordshire (herein the 'Proposed Development'). The Proposed Development is located within the administrative area of East Herts District Council (EHDC).

C1.2. This document sets out relevant context in terms of air quality, including policy, strategies, action plans, legislation and other useful information, which are material considerations in determining planning applications.

# C2. Air Quality Legislation

C2.1. Relevant Air Quality Legislation is set out in Table 1.

Table 1: Relevant Air Quality Legislation

| Legislation | Text |
|---|---|
| The Environment Act 1995<br>Air Quality Regulations 2000 (SI 2000/98)<br>Air Quality (England) (Amendment) Regulations 2002 (SI 2002/3043) | Part IV of The Environment Act requires the Government to produce an Air Quality Strategy. This must include standards and objectives for the protection of human health and ecosystems. It also sets out the requirements of the Local Air Quality Management (LAQM) regime.<br>LAQM requires every authority to carry out regular reviews and assessments of air quality in its area to identify whether the air quality objectives (AQOs) have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an Air Quality Management Area (AQMA) and prepare an action plan which identifies appropriate measures to be introduced in pursuit of the objectives.<br>The latest Air Quality Strategy was published in 2023 ( (Defra, 2023). It includes a list of pollutant limits (also known as AQOs) for use by local authorities when considering human health. These AQOs were incorporated into English legislation by the 2000 and 2002 Regulations. The Strategy also sets out the $PM_{2.5}$ targets and interim targets set under the Environment Act 2021 (see below) and critical levels for the protection of ecosystems.<br>The 2023 Strategy is a framework for local authorities which sets out a series of local and national actions that the government intend to facilitate.<br>The AQOs are policy targets often expressed as a maximum ambient concentration, for a specific averaging period, not to be exceeded, either without exception or with a permitted number of exceedances, within a specified timescale.<br>To protect ecosystems critical levels and critical loads have been derived for different habitats. Exceedance of these values are used as an indication of the risk to the ecosystem. Critical loads are values of pollutants deposited onto a habitat below which significant effects do not occur. Critical levels are the concentrations of pollutants above which direct adverse effects on vegetation or ecosystems may occur. |
| Air Quality Standards Regulations 2010 (SI 210/1001)<br>The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 (SI 2020/1313) | In additional to the AQOs, the European Union (EU) has set limit and target values for the protection of human health and critical levels for the protection of ecosystems. These were transposed into UK legislation by the 2010 Regulations.<br>The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 reduced the EU annual mean limit value for particulate matter ($PM_{2.5}$) from 25 to 20 µg/$m^3$.<br>Like the AQOs, the limit values, target values and critical levels are set for individual pollutants and are made up of a concentration value, an averaging time over which it is to be measured, the number of exceedances allowed per year (if any) and a date by which it must be achieved. Some pollutants have more than one value covering different dates or averaging times. |
| Conservation of Habitats and Species | This is the principal piece of secondary legislation that transposes the terrestrial aspects of the EU Wild Birds Directive and certain elements of the EU Habitats Directive commonly referred to as the Nature Directives into UK law. These Directives lay down rules for the protection and management of habitats (known as Natura 2000 or European sites) and the protection and exploitation of species. As air pollution can adversely affect terrestrial habitats these rules |


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Table 1: Relevant Air Quality Legislation

| Legislation | Text |
|---|---|
| Regulations 2017 (as amended) | apply to the assessment of the impact of air emissions onto European habitats. An assessment of these impacts may be part of a Habitats Regulation Assessment (HRA), and the result of the HRA taken into account in an Appropriate Assessment (AA) undertaken by the Competent Authority. There has been significant case law influencing the assessment of the impacts on European Sites. Of importance is the need to consider a project or plan alone and in combination with other projects and plans. For a project or plan to be screened out as not likely to have an adverse effect on a European site, any screening criteria must be achieved when considering the in-combination impacts as well as the project or plan on its own. Mitigation cannot be taken into account during the screening process. |
| Conservation of Habitats and Species (amendment)) (EU Exit) Regulations 2019 | These Regulations implement the Nature Directives into England and Wales law post-exit of the UK from the EU by amending the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981. It also ensures the UK will meets its commitments under international commitments. The 'national site network' is defined as including Natura 2000 sites designated prior to EU exit and those Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated post EU Exit. |
| Environment Act 2021<br>Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023/96) | This Act requires the Secretary of State to set a long-term target (defined as no less than 15 years after the date on which the target was set) to reduce people's exposure to $PM_{2.5}$. It also enables the Secretary of State to set other air quality targets, including for other air pollutants<br>The targets are an annual mean concentration target (AMCT) of 10 µg/m$^3$ by 2040 together with a 35% population exposure reduction target (PERT) by 2040 compared to 2018. The 2023 Regulations set these targets in legislation.<br>The Secretary of State must prepare an Environmental Improvement Programme (EIP) and produce an annual report on the implementation of the EIP, including progress towards meeting the targets. Every five years the EIP must be reviewed. The current EIP was published in 2023 (HM Government, 2023). This includes two interim targets to be achieved by the end of January 2028. These are an annual mean of 12 µg/m$^3$ and an exposure reduction target of 22% compared to 2018. |
| Table notes: All legislation cited is available at legislation.gov.uk The Statutory Instrument (SI) number for Regulations is given in brackets. | |

## Useful Information

C2.2. In addition, the 2020 coroners court case investigating a young girl's death in 2013 concluded that air pollution was a significant contributing factor to both the induction of the girl's asthma and the exacerbation of her symptoms, due to exposure in exceedance of World Health Organization (WHO) guidelines for pollutants. This set a precedence to consider WHO guidelines when determining the potential for health impacts of air quality and has thus been considered when undertaking this assessment.

C2.3. For the protection of semi-natural habitats, the United Nations Economic Commission for Europe (UNECE), under the auspices of the Convention on Long-range Transboundary Air Pollution (CLTAP), has adopted a series of critical levels above which adverse effect on ecosystems may occur, and critical loads below which harmful effects on sensitive ecosystems does not occur based on current knowledge. The critical loads are typically expressed as a range in recognition of their uncertainty.

C2.4. The UK Government is a signatory of CLTAP and its protocols.

# C3. National Planning Policy, Strategies and Action Plans

## Planning Policy

### *National Planning Policy Framework*

C3.1. The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing & Communities, 2023) sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out in Table 2.

Table 2: Relevant National Planning Policy Framework Policies

| Paragraph number | Text |
|---|---|
| 55 | *"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition".* |
| 174 | *"Planning policies and decisions should contribute to and enhance the natural and local environment by: … e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans… ".* |
| 180 | *"When determining planning applications, local planning authorities should apply the following principles:*<br>*a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*<br>*b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*<br>*c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional and a suitable compensation strategy exists; and*<br>*d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate".* |
| 185 | *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".* |
| 186 | *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan".* |

| | |
|---|---|
| 187 | *"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed".* |
| 188 | *"The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities".* |
| Table notes: - | |

### *The Planning Practice Guidance*

C3.2. The NPPF is supported by Planning Practice Guidance on air quality (Ministry of Housing, Communities & Local Government , 2019). The most relevant sections are set out in Table 3.

Table 3: Relevant Sections of the Planning Practice Guidance on Air Quality

| Paragraph number | Text |
|---|---|
| Paragraph 001 Reference ID: 32-001-20191101 | What air quality considerations does planning need to address?<br>*"The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified."* |
| Paragraph: 002 Reference ID: 32-002-20191101 | What is the role of plan-making with regard to air quality?<br>*"It is important to take into account air quality management areas, Clean Air Zones and other areas including sensitive habitats or designated sites of importance for biodiversity where there could be specific requirements or limitations on new development because of air quality".* |
| Paragraph: 005 Reference ID: 32-005-20191101 | When could air quality considerations be relevant to the development management process?<br>*"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.*<br>*Where air quality is a relevant consideration the local planning authority may need to establish:*<br>*the 'baseline' local air quality, including what would happen to air quality in the absence of the development;*<br>*whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*<br>*whether occupiers or users of the development could experience poor living conditions or health due to poor air quality".* |
| Paragraph 006, Reference 32-006-20191101 (revision date 01.11.2019), | What specific issues may need to be considered in determining a planning application:<br>*"Considerations that may be relevant to determining a planning application include whether the development would:* |

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|---|---|
| | *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion;*<br>*significantly changing traffic volumes, vehicle speeds or both; and significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*<br>*Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*<br>*Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*<br>*Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations; and*<br>*Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."* |
| Paragraph: 007 Reference ID: 32-007-20191101 | How detailed does an air quality assessment need to be?<br>*"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".* |
| Paragraph: 008 Reference ID: 32-008-20191101 | How can an impact on air quality be mitigated?<br>*"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented".* |
| Table notes: - | |

## *Relevant Government Strategies*

C3.3. The Government has also published a number of strategies and plans which relate to air quality. The most relevant strategies and plans are set out in Table 4.

Table 4: Government Strategies

| Strategy | Relevant Information |
|---|---|
| Air Quality Strategy for England (Defra, 2023) | This document fulfils the statutory requirement of the Environment Act 1995, as amended by the Environment Act 2021, to publish an Air Quality Strategy setting out air quality standards, objectives, and measures for improving ambient air quality every 5 years. It sets out a framework to enable local authorities to deliver for their communities and contribute to the government's long-term air quality goals. |
| Environmental Improvement Plan (HM Government, 2023) | The Environment Act 2021 requires the Secretary of State to produce and update every five years an Environmental Improvement Plan (EIP). The 2023 EIP replaces the first EIP published in 2019. (HM Government, 2019). Goal 2 of the plan is 'clean air'. It sets out the government's interim targets for $PM_{2.5,}$ emission reduction commitments, and measures to reduce emissions from domestic solid fuel combustion and ammonia ($NH_3$) emissions from farming. The Government will also consult on an extension to the North Sea Emission Control Area to cover the Irish Sea and encourage local authorities to improve air quality more quickly. |
| Transport Decarbonisation Plan (Department for Transport , 2021) | This document sets out the Government's commitments to decarbonise all forms of transport including freight transport. For road transport the commitments are:<br>End the sale of new petrol and diesel cars and vans from 2030<br>All new cars and vans must be 100% zero emission at the tailpipe from 2035<br>All new two/three wheeled powered vehicles to be fully zero emission from 2035<br>End the sale of all non-zero emission HGVs from 2040. |

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|---|---|
| Clean Air Strategy (Defra, 2019a) | The strategy focuses on reducing emissions of nitrogen oxides (NOx), ammonia ($NH_3$), particulate matter (PM), non-methane volatile organic compounds (NMVOCs) and sulphur dioxide ($SO_2$). For particulate matter the emission reduction targets are 30% by 2020, and by 46% by 2030 and for NOx 55% by 2020 and 735 by 2030 all from a 2005 baseline.<br>The strategy includes actions to reduce emissions from transport (including road, maritime, rail, aviation and NRMM, homes, farming and industry. |
| The Ten Point Plan for a Green Industrial Revolution (HM Government, 2020) | This sets out how the UK intends to achieve its vision for a cleaner, healthier, net zero carbon future. The focus is on the following ten points:<br>Point 1 Advancing Offshore Wind<br>Point 2 Driving the Growth of Low Carbon Hydrogen<br>Point 3 Delivering New and Advanced Nuclear Power<br>Point 4 Accelerating the Shift to Zero Emission Vehicles<br>Point 5 Green Public Transport, Cycling and Walking<br>Point 6 Jet Zero and Green Ships<br>Point 7 Greener Buildings<br>Point 8 Investing in Carbon Capture, Usage and Storage<br>Point 9 Protecting Our Natural Environment<br>Point 10 Green Finance and Innovation |
| National Air Quality Plan. (Defra and Department for Transport, 2017) and (Defra and Department for Transport, 2018) | Defra and the Department for Transport's plans describe how the UK will comply with the annual mean Nitrogen Dioxide ($NO_2$) limit values. Alongside a package of national measures, the Plan requires those English Local Authorities (or the GLA in the case of London Authorities) that are predicted to have exceedances of the limit values beyond 2020 to produce local plans by December 2018. These plans must have measures to achieve the statutory limit values within the shortest possible time and may include the implementation of a charging Clean Air Zone (CAZ). |
| Table notes: - | |

# C4. Local Planning Policy, Strategies and Action Plans

## Local Planning Context

C4.1. Relevant information on local planning policy, strategy and guidance is set out in Table 5 for context.

Table 5: Local Planning Policy and Strategy

| Document | Content |
|---|---|
| East Herts District Plan 2018 (East Herts District Council, 2018) | The District Plan sets out the Council's planning framework for the district and covers the period 2011-2033.<br>Policy CC3 Renewable and Low Carbon Energy states how the Council will permit new development of sources of renewable energy generation, subject to assessment of the impacts upon:<br>*"(e) air quality and human health;"*<br>Policy EQ4 Air Quality:<br>*"I. The effect of development upon air quality is a material consideration. All applications should take account of the Council's Air Quality Planning Guidance Document, which details when an air quality assessment is required.*<br>*II. All development should take account of the Council's latest Air Quality action Plan, local Air Quality Strategies, Local Transport Plans, as well as national air quality guidance.*<br>*III. All developments should include measures to minimise air quality impact at the design stage and should incorporate best practice in the design, construction and operation of all developments.*<br>*IV. Where development (on its own or cumulatively) will have a negative impact on local air quality during either construction or operation, mitigation measures will be sought that remove overriding impacts, such as an air quality neutral or negative development. Evidence of mitigation measures will be required upfront.* |


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Table 5: Local Planning Policy and Strategy

| Document | Content |
|---|---|
| | *V. Where on-site mitigation is not sufficient, appropriate off-site mitigation measures may be required. Where adequate mitigation cannot be provided, development will not normally be permitted.*<br>*VI. Developments must not:*<br>• *Lead to a breach or worsening of a breach of UK or EU limit values;*<br>• *Lead to a breach or worsening of an Air Quality objective or cause the declaration of an Air Quality Management Area or;*<br>• *Prejudice the implementation of any Air Quality Action Plan or local air quality strategy."* |
| Hertfordshire County Council (HCC) Air Quality Strategy (Hertfordshire County Council, 2019) | HCC published their Air Quality Strategy in 2019 which sets out the Council's position on air quality. The document sets out the following objectives:<br>*"- To gain a stronger understanding of the air quality issues within Hertfordshire.*<br>*- To ensure that air quality is an integral part of everything that we do*<br>*- To develop a productive relationship with partners, in particular the District and Borough Councils, to achieve air quality positive outcomes.*<br>*- To create clear leadership on air quality*<br>*- To establish a coherent workstream on air quality, including clarification on roles and responsibilities."* |
| EHDC Air Quality Planning Guidance (East Herts District Council, n.d) | EHDC released the Planning Guidance Document to support the Council's Air Quality Development Management Policy within its District Plan. The aim of the Strategy is to facilitate sustainable development by helping to achieve the best possible public health protection outcomes, in relation to air quality.<br>The objectives included in the document are:<br>*"Identify the District specific air pollution issues*<br>*Identify the tools to control air pollution that are available to this local authority under the planning regime*<br>*Provide clarity and consistency to developers, planners and local communities by confirming:*<br>• *How the council will assess planning applications in relation to air quality*<br>• *The mitigation and monitoring of air quality impacts via planning conditions and the use of tools such as Section 106 agreements*<br>• *The circumstances where an air quality assessment will be required for a proposed development*<br>• *The requirements of an air quality assessment*<br>*Contribute to the improvement of air quality in the District in particular Air Quality Management Areas*<br>*Be compatible with existing East Herts Council policies*<br>*Compliment and add important local context to the National Planning Practice Guidance…"* |
| Table notes: - | |

## Local Air Quality Action Plan

C4.2. EHDC has declared three AQMAs within the district for exceedances of the annual mean $NO_2$ AQO. In 2001, the Council had declared an AQMA for exceedances of the $PM_{10}$ AQO, this was then revoked in 2004. The Bishops Stortford AQMA was declared in 2007, the Hertford AQMA was declared in 2010 and the AQMA Sawbridgeworth was declared in 2015. EHDC has published a draft Air Quality Action Plan (AQAP) (East Herts Council, 2023) which outlines the action that the council will take from 2024 to improve air quality. The following priorities are set out in the plan:

- Reduce the impact of traffic levels and congestion on air quality;


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- Mitigate the impact of future growth on air quality;
- Support residents' make active travel choices; and
- Reduce East Herts Council's own impact on air quality.

## C5. Glossary

| | |
|---|---|
| **AA** | Appropriate Assessment |
| **AMCT** | Annual Mean Concentration Target |
| **APS** | Air Pollution Services |
| **AQAP** | Air Quality Action Plan |
| **AQMA** | Air Quality Management Area |
| **AQO** | Air Quality Objective |
| **CAZ** | Clean Air Zone |
| **CLTAP** | Convention on Long-range Transboundary Air Pollution |
| **Defra** | Department for Environment, Food and Rural Affairs |
| **EHDC** | East Herts District Council |
| **EIP** | Environmental Improvement Programme |
| **EPR** | Environmental Permitting (England and Wales) Regulations |
| **EU** | European Union |
| **HRA** | Habitats Regulation Assessment |
| **LAQM** | Local Air Quality Management |
| **$NH_3$** | Ammonia |
| **NMVOC** | Non-Methane Volatile Organic Compound |
| **$NO_2$** | Nitrogen dioxide |
| **NOx** | Nitrogen oxides |
| **NPPF** | National Planning Policy Framework |
| **PERT** | Population Exposure Reduction Target |
| **$PM_{10}$** | Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter |
| **$PM_{2.5}$** | Small airborne particles, more specifically particulate matter less than 2.5 micrometres in aerodynamic diameter |
| **SAC** | Special Areas of Conservation |
| **$SO_2$** | Sulphur Dioxide |
| **SPA** | Special Protection Areas |
| **UNECE** | United Nations Economic Commission for Europe |

| | |
|---|---|
| **WHO** | World Health Organization |

## C6. References


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# Air Quality Baseline: Buntingford, Hertfordshire

**Client:** Jubb Consulting Engineers Ltd

**Reference:** APS_P1027A_D1-6 **Date Published:** 11 June 2024

| Rev. | Date | Description | Prepared | Reviewed | Authorised |
|---|---|---|---|---|---|
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| 02 | 20/02/24 | Issued (minor edits to text) | EJ | KL | KL |
| 03 | 26/03/2024 | Issued (minor edits to text) | EJ | KL | KL |
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| 05 | 13/05/2024 | Issued (updates to figures) | EJ | KL | KL |
| 06 | 11/06/2024 | Issued (updates to figures) | EJ | KL | KL |

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KALACO Group Limited, companies house registration number: 11808160

# D1. Introduction

D1.1. Air Pollution Services (APS), part of KALACO Group Ltd, has been commissioned by Jubb Consulting Engineers Ltd to assess the air quality impacts associated with the proposed development at Buntingford, Hertfordshire (herein the 'Proposed Development').

D1.2. There are two sites adjacent to each other ('northern site' and 'southern site'). Each site has its own application; however, the baseline conditions are presented for both sites in this document.

D1.3. This document sets out a review of baseline air quality relevant for the Proposed Development, including the methodology (Section D2), air quality zones (Section D3), concentrations of nitrogen dioxide ($NO_2$) (Section D4), concentrations of particulate matter less than 10 micrometres in diameter ($PM_{10}$) (Section D5), concentrations of particulate matter less than 2.5 micrometres in diameter ($PM_{2.5}$) (Section D6), other sources of air pollution (Section D7), associated health effects (Section D8), the overall baseline conditions (Section D9), and a glossary of useful terms used within the assessment (Section D10).

# D2. Methodology

D2.1. A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the site. This desk-top study was undertaken using the following sources:

- Aerial photography from Google Satellite.
- Information on existing air quality has been obtained by collating the results of monitoring carried out by the local authority and where available other monitoring networks. This covers both the application site (if there is any) and the surrounding area, the latter being used to provide context to the assessment.
- Industrial and waste management sources that may affect the area have been identified using the UK Pollutant Release and Transfer Register (PRTR) (Defra, 2022). Local sources have also been identified through examination of maps and the Council's Air Quality Review and Assessment reports.
- Background concentrations of $NO_2$ and particulate matter ($PM_{10}$ and $PM_{2.5}$) have been defined using the national pollution maps published by Defra (2023a). These cover the whole of the country on a 1x1 $km^2$ grid of average concentrations.
- Predicted roadside concentrations of $NO_2$ in the study area have been identified using the maps of roadside concentrations published by Defra (2023b) as part of its 2017 Air Quality Plan for the baseline year 2015 and for the future years 2017 to 2030. These maps are used by the UK Government, to report exceedances of the Limit Value (LV). The national maps of roadside $PM_{10}$ and $PM_{2.5}$ concentrations (Defra, 2023b), which are available for the years 2009 to 2030, show no exceedances of the LVs anywhere in the UK in 2015 or thereafter.
- Predicted concentrations based on the dispersion modelling exercise (see appended document: 'Dispersion Modelling Study: Buntingford, Hertfordshire') carried out to support this assessment, which includes predictions of $NO_2$ and particulate matter ($PM_{10}$ and $PM_{2.5}$) in the local area in 2019 and 2028.

## D3. Air Quality Zones

D3.1. There are no declared Clean Air Zones (CAZ), Low Emission Zones (LEZs), Ultra Low Emission Zones (ULEZs), Air Quality Focus Areas (AQFAs) or Non-Road Mobile Machinery (NRMM) Zones within the study area.

### *AQMAs*

D3.2. East Herts District Council (EHDC) has declared three air quality management areas (AQMAs) within its authoritative area for exceedances of the annual mean $NO_2$ air quality objective (AQO). The Proposed Development is located approximately 16 km northwest of the closest EHDC AQMA at Bishops Stortford, as shown in Figure 1.


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Figure 1: Location of the Proposed Development site in relation to the Bishops Stortford AQMA.

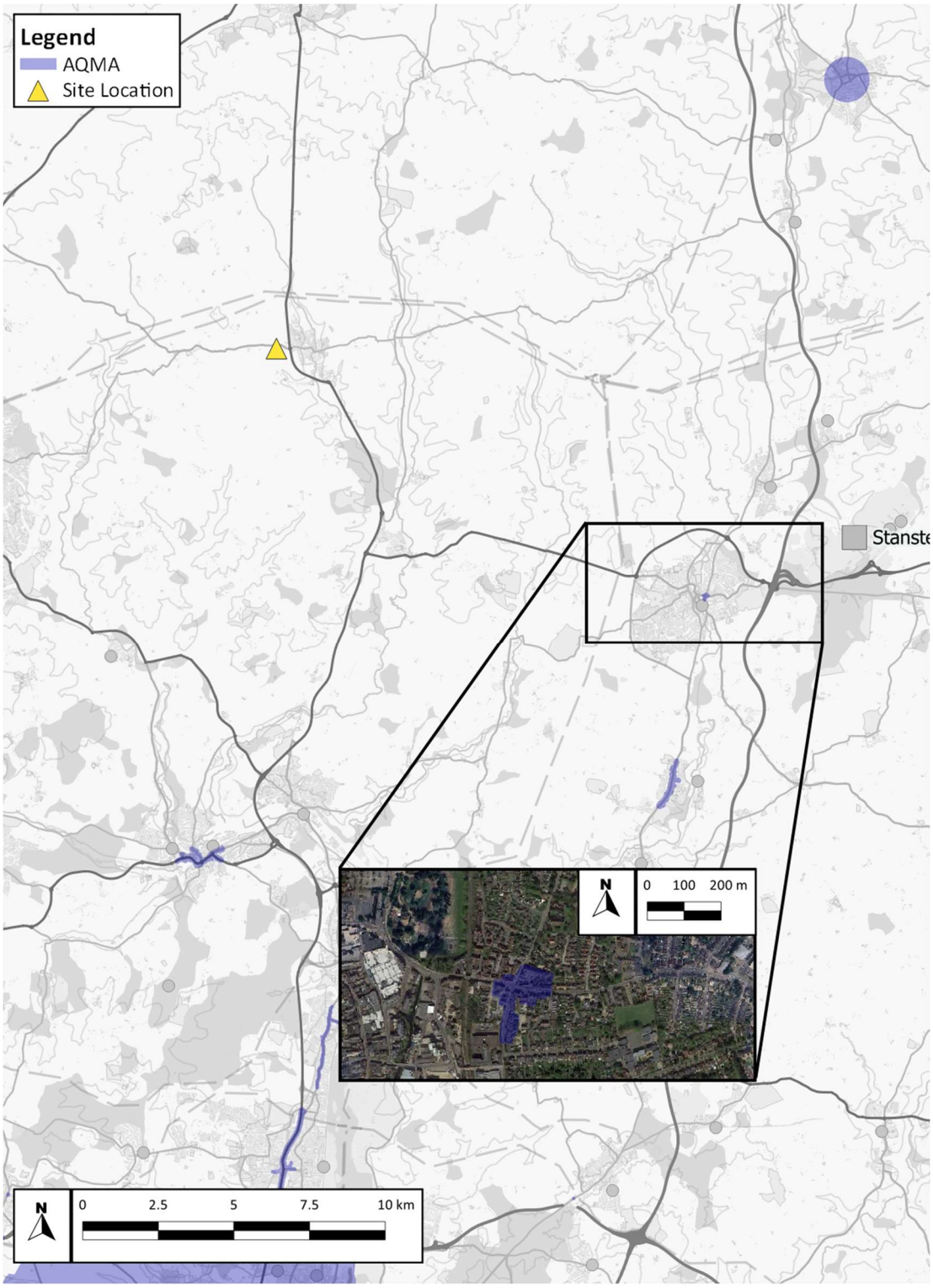



Figure notes: Contains OS data © Crown copyright and database right (2024). Imagery © 2024 Google, Map data © 2024

# D4. Nitrogen Dioxide

## Measurements

### *Monitoring Surveys*

D4.1. EHDC measures $NO_2$ concentrations at many locations across the borough using both automatic monitors and passive monitors (diffusion tubes). Concentrations from 2016 to 2021 have been taken from the annual status report for 2022 (East Herts District Council, 2022). Data for 2020 is considered to be atypical due to the impacts of the COVID-19 pandemic. 2022 data was not available at the time of this assessment.

D4.2. National Government measures concentrations of $NO_2$ at monitoring sites across the UK, as part of the Automatic Urban and Rural Network (AURN) regime. There are no National Government monitoring sites that measures $NO_2$ concentrations within the vicinity of the site.

D4.3. Figure 2 shows the locations of the monitoring sites closest to the Proposed Development (EH68 and EH70). These sites are situated within the urban hub of Buntingford, where concentrations are likely to be higher than at the Proposed Development.

D4.4. The rest of the monitoring sites presented in this report, shown in Figure 4 to Figure 6 are located further from the Proposed Development in Hertford and Bishop's Stortford and are thus not considered to be representative of the conditions at the Proposed Development. However, they still provide valuable information about the conditions in the wider area.


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Figure 2: Site Location and Relevant Monitoring Sites




Figure notes: Imagery © 2024 Google, Map data © 2024.


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Figure 3: Monitoring Sites in the Wider Area

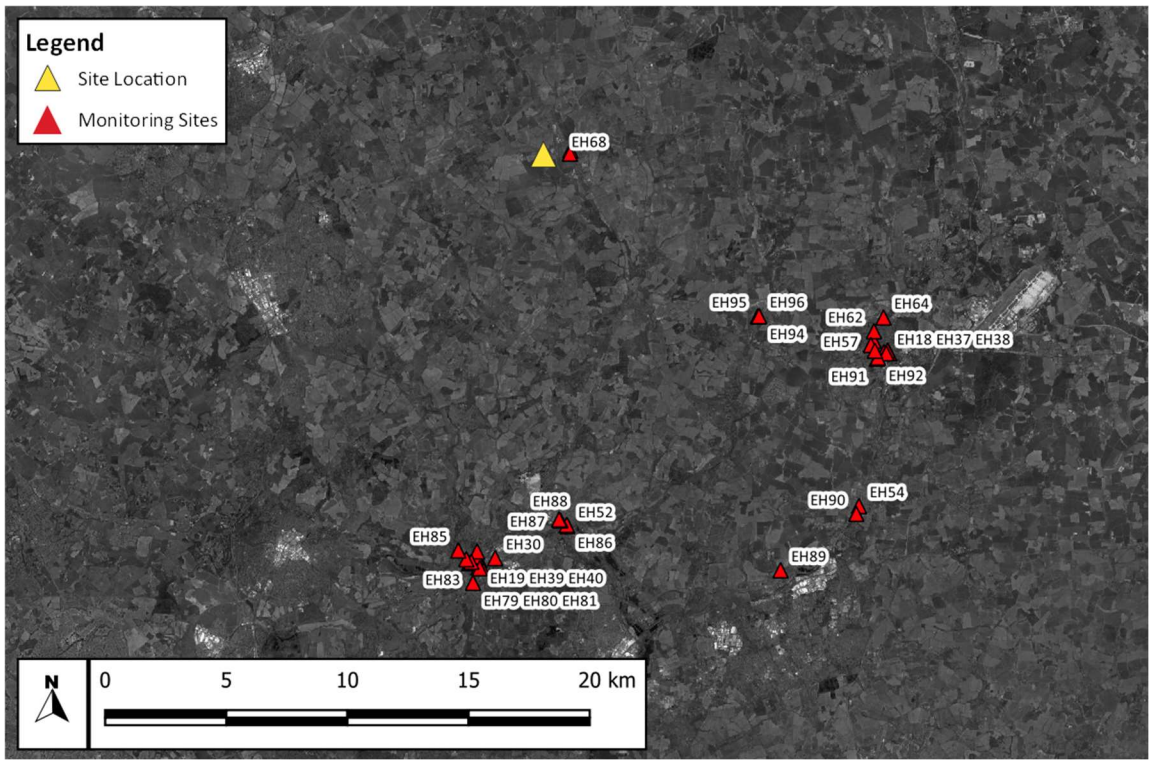



Figure notes: Imagery © 2024 Google, Map data © 2024

Figure 4: Monitoring Sites in Bishops Stortford

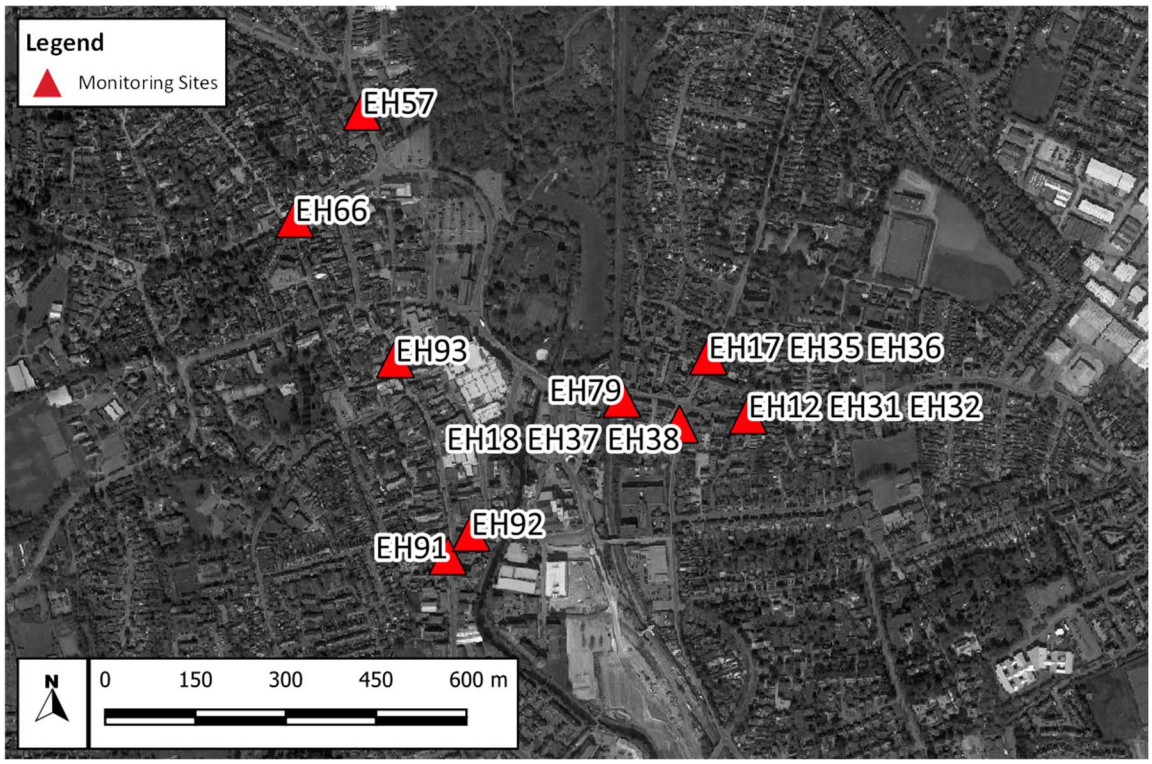



Figure notes: Imagery © 2024 Google, Map data © 2024


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Figure 5: Monitoring Sites near Bishops Stortford

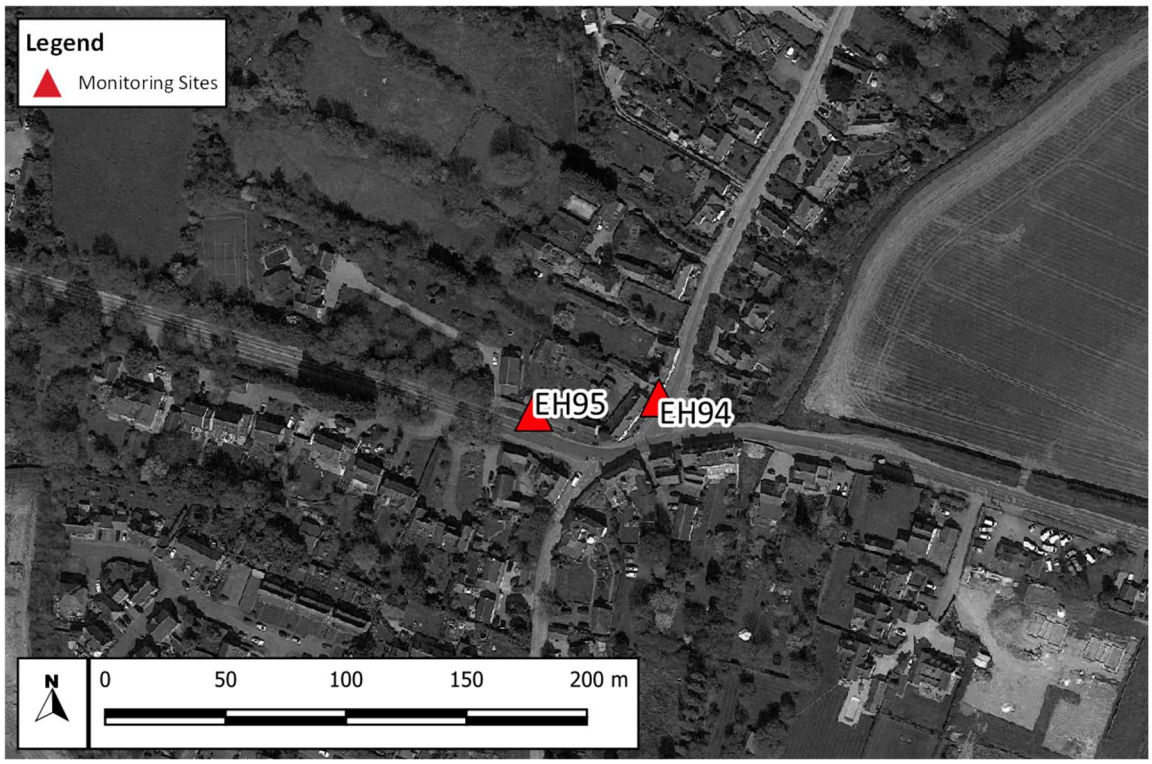



Figure notes: Imagery © 2024 Google, Map data © 2024

Figure 6: Automatic Monitoring site at Gascoyne Way




Figure notes: Imagery © 2024 Google, Map data © 2024

D4.5. A project monitoring survey is currently being undertaken. This commenced in December of 2023 and will last until March 2024. A review of the provisional concentrations measured at the monitoring sites suggests that concentrations will be well below the regulatory thresholds. The locations of the monitoring sites are shown in Figure 7.


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Figure 7: Monitoring Survey Locations

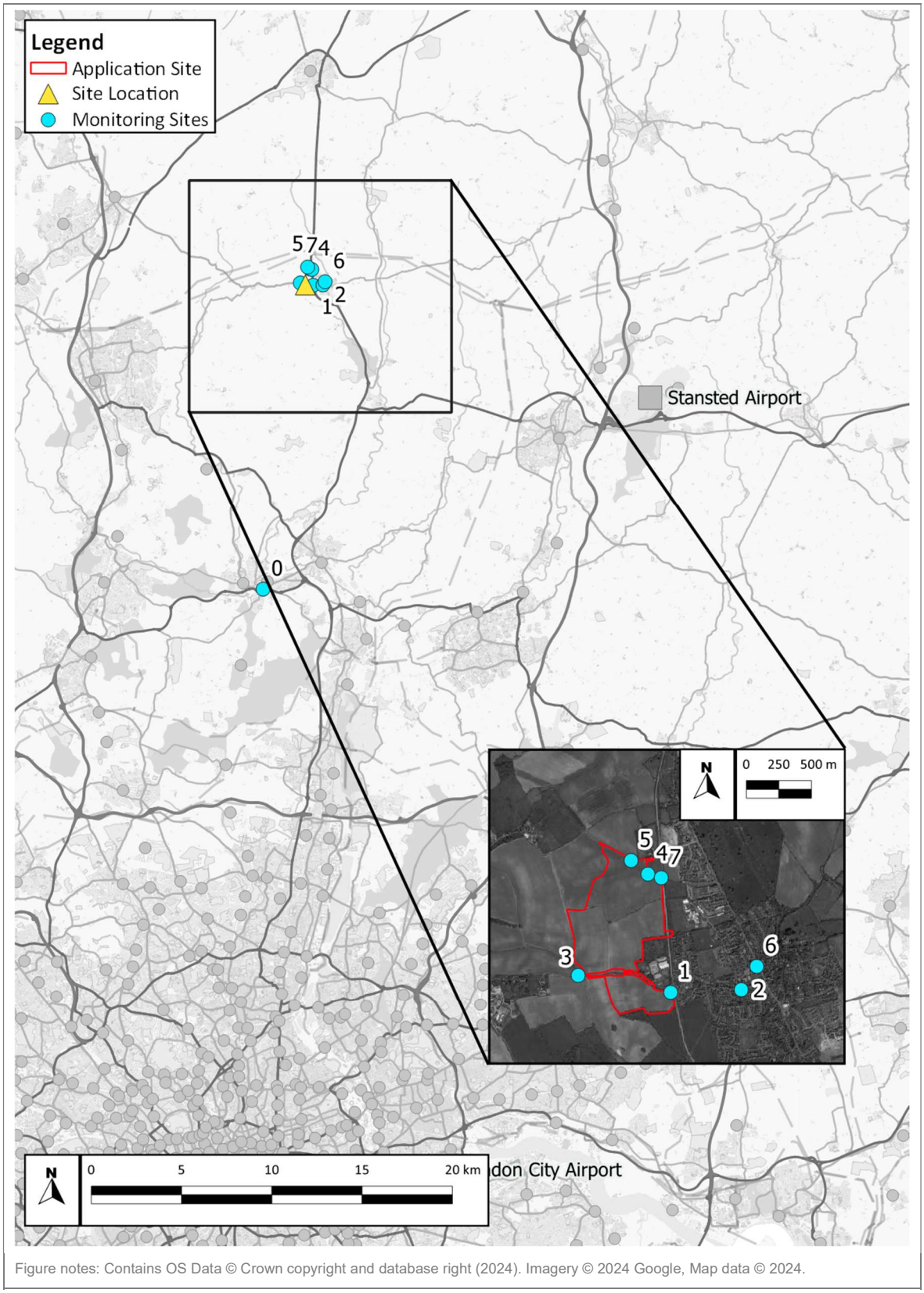



Figure notes: Contains OS Data © Crown copyright and database right (2024). Imagery © 2024 Google, Map data © 2024.

### *Annual Mean*

D4.6. Measured annual mean $NO_2$ concentrations for nearby monitoring sites are presented in Table 1. The annualised short-term monitoring results from the project monitoring survey are not available at the time this report was completed. Further information will be supplied on request and not discussed further in this assessment.

D4.7. Measured $NO_2$ concentrations exceeded the annual mean AQO level of 40 µg/m$^3$ at four of these monitoring sites in 2017 and 2019, there were 5 measured exceedances in 2018 and two in 2021. 2020 data is not considered representative of typical air quality conditions due to the travel restrictions associated with the COVID-19 pandemic. Annual mean measured $NO_2$ concentrations meet the World Health Organisation (WHO) Interim Target (IT) 1 at 12 monitoring sites in 2019, although in the two sites nearest to the Proposed Development (EH70 and EH73) achieved IT 2.

Table 1: Measured $NO_2$ Annual Mean Concentrations (µg/m$^3$) [a]

| Monitoring Site – Site Name (Type) | Distance from Road (m) | Network [b] | 2016 | 2017 | 2018 | 2019 | 2020 [e] | 2021 |
|---|---|---|---|---|---|---|---|---|
| **Automatic Monitoring - Annual Mean Concentrations (µg/m$^3$)** | | | | | | | | |
| EH79 – Gascoyne Way (Roadside) | 2.5 | A | - | 34.7 | 32.2 | 33 | 20 | 26 |
| **Diffusion Tube Monitoring - Annual Mean Concentrations (µg/m$^3$)** | | | | | | | | |
| EH12, EH31, EH32 – Hockerill St BS (Kerbside) | 2.5 | A | - | **46.3** | **40.1** | **43.8** | 34.5 | 33.4 |
| EH17, EH35, EH36 – Dunmow Rd (Kerbside) | 2.5 | A | - | **63.3** | **58.1** | **59.5** | **46.9** | **47.3** |
| EH18, EH37, EH38 – Stanstead Rd (Kerbside) | 2.5 | A | - | **40.3** | 34.9 | 36.1 | 30.8 | 30.7 |
| EH57 – Opp Bell St SBW at crossing (Roadside) | 2.5 | A | - | **46.5** | **47.0** | **50.4** | **40.5** | **40.9** |
| EH62 – Northgate End B/S Jct Yew Tree Court (Roadside) | 2.5 | A | - | 32.9 | 31.2 | 30.7 | 24.4 | 25.4 |
| EH64 – Rye St, B/S outside 79 (Roadside) | 2.5 | A | - | 32.7 | 31.2 | 30.7 | 24.4 | 25.4 |
| EH66 – 211 Rye Street Bishops Stortford (Roadside) | 2.5 | A | - | 21.1 | 18.0 | 19.0 | 14.8 | 14.1 |
| EH70 – Outside 38 High St, Buntingford (Roadside) | 2.5 | A | - | 19.6 | 21.1 | 23.7 | 18.9 | 18.2 |
| EH73 – opp Horseshoe Cott's, Buntingford (Roadside) | 2.5 | | | 33.1 | 33.6 | 28.2 | 23.2 | 22.5 |
| EH79, EH80, EH81 – Gascoyne Way, Hertford (Roadside) | 2.5 | A | - | 39.1 | 36.0 | 32.0 | 25.6 | 26.1 |
| EH91 – 14 London Road, SBW (Roadside) | 2.5 | A | - | - | **41.5** | 39.5 | 32.7 | 33.6 |


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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EH92 – Gourmet Oriental, South Street, B/S (Roadside) | 2.5 | A | - | - | 26.4 | 27.1 | 23.1 | 22.1 |
| EH93 – Stortford Flooring, 4 Station Road B/S (Roadside) | 2.5 | A | - | - | **40.6** | **41.0** | 30.3 | 27.1 |
| EH94 – Cancer Research (now empty), Potter Street, B/S (Roadside) | 2.5 | A | - | - | 31.5 | 32.8 | 22.9 | 23.3 |
| EH95 – Stortford Road, Little Hadham (Roadside) | 2.5 | A | - | - | 25.6 | 22.8 | 17.2 | 18.7 |
| EH96 – Standon Road, Little Hadham (Roadside) | 2.5 | A | - | - | 25.0 | 25.0 | 19.8 | 16.9 |
| **AQO** | | | **40** | | | | | |
| **LV [c]** | | | **40** | | | | | |
| **WHO AQG Level (IT 1, IT 2, IT 3) [d]** | | | **10 (40, 30, 20)** | | | | | |

Table notes:

a. Concentrations above the AQO are presented in bold. These do not necessary represent relevant exposure nor exceedances of the AQO.

b. A - Local Authority network, B – AURN.

c. Reporting of LV exceedances is only carried out based on approved reference monitoring and at relevant reporting locations. Therefore, while the value is included, the monitoring presented is unlikely to comply with the requirements for LV reporting and assessment.

d. Not required to be achieved within UK legislation.

e. Air quality monitoring carried out includes periods of national travel restrictions due to the COVID-19 pandemic; measured concentrations are therefore not likely to be representative of typical conditions.

D4.8. Long term trends of annual means require at least 5 years of data; however, the COVID-19 pandemic has potentially skewed the more recent data. Measured concentrations may be demonstrating a slight reduction in annual mean $NO_2$ concentrations between 2017 and 2021, as shown in Figure 8. This is likely to be due to continued improvement in vehicle technologies, concentrations are expected to decline further into the future.

Figure 8: Measured $NO_2$ Concentrations between 2017 and 2021[a]

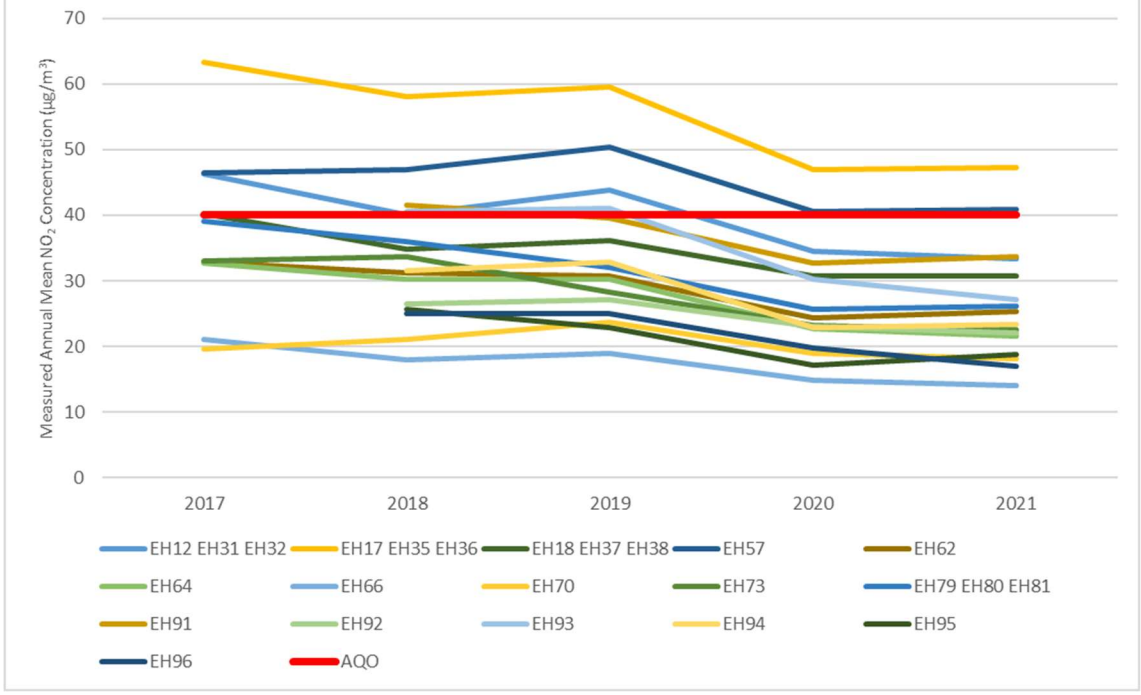



Figure notes:

a. 2020 data should be treated with caution.

### *Short-term Mean*

#### 1-hour Mean

D4.9. The measured number of 1-hour mean $NO_2$ concentrations above 200 µg/m$^3$ for EH79 are presented in Table 2. Exceedances of the 1-hour mean $NO_2$ AQO were not measured in any of the years presented.

Table 2: Measured Number of $NO_2$ 1-hour Concentrations above 200 (µg/m$^3$) [a]

| Monitoring Site – Site Name (Type) | Distance from Road (m) | Network [b] | 2016 | 2017 | 2018 | 2019 | 2020 [d] | 2021 |
|---|---|---|---|---|---|---|---|---|
| EH79 – Gascoyne Way (Roadside) | 2.5 | A | - | 0 | 0 | 0 | 0 | 0 |
| **AQO** | | | **18 (200) [c]** | | | | | |
| **LV** | | | **18 (200) [c]** | | | | | |

Table notes:

a. Exceedances of the AQO are presented in bold.

b. A - Local Authority network, B – AURN.

c. Where data capture was low the 99.79$^{th}$ percentile of 1-hour mean concentrations is provided in brackets.

d. Air quality monitoring carried out in 2020 includes periods of national travel restrictions due to the COVID-19 pandemic; measured concentrations are therefore not likely to be representative of typical conditions.

#### 24-hour Mean

D4.10. The number of 24-hour mean $NO_2$ concentrations above the WHO AQG and ITs at the automatic monitoring station (EH79) was not available from EHDC's Annual Status Reports and is therefore not presented.

## Predicted Concentrations

### *Defra Predicted Background Mapped Concentrations*

D4.11. Ambient background concentrations of $NO_2$ have been defined using the national pollution maps published by Defra (Defra, 2023a). These cover the whole of the country on a 1x1 $km^2$ grid for each year from 2018 until 2030. The 2030 concentrations have been treated as conservative 2035 concentrations.

D4.12. Concentrations for 2019, 2028 and 2035 have been extracted for the grid cells that cover the Proposed Development and the study area. All predicted background concentrations are well below the AQOs and LV in all years presented, as shown in Table 3. With respect to the WHO guidelines in 2028 and 2035, the pollutant concentrations are below the WHO AQG (10 µg/$m^3$) for $NO_2$.

Table 3: Defra Predicted Background Mapped $NO_2$ Concentrations (µg/$m^3$)

| Year | Proposed Development | Study Area |
|---|---|---|
| 2019 | 8.0 – 8.7 | 8.4 – 9.4 |
| 2028 | 5.9 – 6.5 | 6.3 – 6.8 |
| 2035 | 5.7 – 6.2 | 5.7 – 6.5 |
| **AQO** | **40** | |
| **LV** | **40** | |
| **WHO AQG Level (IT 1, IT 2, IT 3) [a]** | **10 (40, 30, 20)** | |

Table notes:
a. Not in Regulations and there is no legal requirement for local authorities to meet it.

### *Defra Predicted Roadside Concentrations*

D4.13. Defra has predicted roadside concentrations of $NO_2$ for the main roads in the UK (Defra, 2023b) for the years 2017 to 2030 as part of Defra's commitment to report exceedances of the LV. There are no predictions for roads within 200 m of the development site.

### *Study Specific Dispersion Modelling*

D4.14. The assessment for the Proposed Development has included a dispersion modelling exercise (see appended document: 'Dispersion Modelling Study: Buntingford, Hertfordshire') which includes predictions of $NO_2$ in the local area. The locations of the modelled receptors are shown in Figure 9.

D4.15. Table 4 sets out the predicted concentrations in 2019, 2028 and 2035. All concentrations are well below the AQO and LV and are below WHO IT 4. Concentrations in 2035 at all receptor locations all meet the AQG.

Figure 9: Existing Receptor Locations




Figure notes: Imagery © 2024 Google, Map data © 2024.


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Table 4: Predicted Annual Mean $NO_2$ Concentrations (µg/m$^3$) in the Local Area

| Receptor | 2019 | 2028 No Development | 2035 No Development |
|---|---|---|---|
| E1 | 16.1 | 9.4 | 7.7 |
| E2 | 16.2 | 10.4 | 8.2 |
| E3 | 18.4 | 10.7 | 8.2 |
| E4 | 26.3 | 14.2 | 9.9 |
| E5 | 17.6 | 11.5 | 8.1 |
| E6 | 17.4 | 10.3 | 8.1 |
| E7 | 17.4 | 10.4 | 8.0 |
| **AQO** | **40** | | |
| **LV [a]** | **40** | | |
| **WHO AQG Level (IT 2, IT 3, IT 4) [b]** | **10 (40, 30, 20)** | | |

Table notes:

a. Reporting of LV exceedances is only carried out based on approved reference monitoring and at relevant reporting locations. Therefore, while the value is included, the monitoring presented is unlikely to comply with the requirements for LV reporting and assessment.

b. Not in Regulations and there is no legal requirement for local authorities to meet it.

# D5. Particulate Matter <10 micrometres ($PM_{10}$)

## Measurements

### *Monitoring Surveys*

D5.1. EHDC does not currently undertake monitoring of $PM_{10}$ within its administrative area.

D5.2. National Government measures concentrations of $PM_{10}$ at monitoring sites across the UK, as part of the AURN regime. There are no National Government monitoring sites that measures $PM_{10}$ concentrations within the vicinity of the site.

## Predicted Concentrations

### *Defra Predicted Background Mapped Concentrations*

D5.3. Ambient background concentrations of $PM_{10}$ have been defined using the national pollution maps published by Defra (Defra, 2023a). These cover the whole of the country on a 1x1 km$^2$ grid for each year from 2018 until 2030. The 2030 concentrations have been treated as conservative 2035 concentrations.

D5.4. Concentrations for 2019, 2028 and 2035 have been extracted for the grid cells that cover the Proposed Development and the study area. All predicted background concentrations are well below the AQOs and LV in all years presented, as shown in Table 5. With respect to the WHO guidelines in 2028 and 2035, the pollutant concentrations are below the WHO AQG (15 µg/m$^3$) for $PM_{10}$.

Table 5: Defra Predicted Background Mapped $PM_{10}$ Concentrations (µg/m$^3$)

| Year | Proposed Development | Study Area |
|---|---|---|
| 2019 | 15.0 – 15.3 | 14.6 – 15.3 |
| 2028 | 13.9 – 14.4 | 13.6 – 14.2 |

| | | |
|---|---|---|
| 2035 | 13.8 – 14.4 | 13.6 – 14.2 |
| **AQO** | **40** | |
| **LV** | **40** | |
| **WHO AQG Level (IT 1, IT 2, IT 3, IT 4) [d]** | **15 (70, 50, 30, 20)** | |
| Table notes:<br>a. Not in Regulations and there is no legal requirement for local authorities to meet it. | | |

### *Defra Predicted Roadside Concentrations*

D5.5. Defra has predicted roadside concentrations of $PM_{10}$ for the main roads in the UK (Defra, 2023b) for the years 2017 to 2030 as part of Defra's commitment to report exceedances of the LV. There are no predictions for roads within 200 m of the development site.

### *Study Specific Dispersion Modelling*

D5.6. The assessment for the Proposed Development has included a dispersion modelling exercise (see appended document: 'Dispersion Modelling Study: Buntingford, Hertfordshire') which includes predictions of $PM_{10}$ in the local area. The locations of the modelled receptors are shown in Figure 9.

D5.7. Table 6 sets out the predicted concentrations in the local area in 2019, 2028 and 2035. All concentrations are well below the AQO and LV and are below WHO IT 4. Concentrations at all receptors, except for E4, also met the WHO AQG Level in 2028 and 2035.

Table 6: Predicted Annual Mean $PM_{10}$ Concentrations (µg/m$^3$) in the Local Area

| Receptor | 2019 | 2028 No Development | 2035 No Development |
|---|---|---|---|
| E1 | 15.7 | 14.6 | 14.5 |
| E2 | 15.8 | 14.7 | 14.9 |
| E3 | 15.9 | 14.7 | 14.6 |
| E4 | 16.8 | 15.4 | 15.4 |
| E5 | 15.9 | 14.7 | 14.7 |
| E6 | 15.8 | 14.2 | 14.7 |
| E7 | 15.8 | 14.6 | 14.6 |
| **AQO** | **40** | | |
| **LV** | **40** | | |
| **WHO AQG Level (IT 1, IT 2, IT 3, IT 4) [d]** | **15 (70, 50, 30, 20)** | | |
| Table notes:<br>a. Reporting of LV exceedances is only carried out based on approved reference monitoring and at relevant reporting locations. Therefore, while the value is included, the monitoring presented is unlikely to comply with the requirements for LV reporting and assessment.<br>b. Not in Regulations and there is no legal requirement for local authorities to meet it. | | | |

# D6. Particulate Matter <2.5 micrometres ($PM_{2.5}$)

## Measurements

### *Monitoring Surveys*

D6.1. EHDC measures $PM_{2.5}$ concentrations at Gascogyne Way (EH79) using an automatic monitor. Data for 2017 to 2021 have been taken from the annual status report for 2022 (East Herts District Council, 2022). Concentrations from 2020 are considered atypical due to the impacts associated with the COVID-19 pandemic. Concentrations from 2022 were not available at the time of this assessment. The location of EH79 is shown in Figure 6.

D6.2. National Government measures concentrations of $PM_{2.5}$ at monitoring sites across the UK, as part of the AURN regime. There are no National Government monitoring sites that measures $PM_{2.5}$ concentrations within the vicinity of the site.

### *Annual Mean*

D6.3. Measured annual mean $PM_{2.5}$ concentrations for EHDC are presented in Table 7. Measured $PM_{2.5}$ concentrations did not exceed the annual mean AQO level of 25 µg/m$^3$ or LV of 20 µg/m$^3$ at the monitoring site in the years presented. Annual mean measured $PM_{2.5}$ concentrations met the WHO IT 3 (15 µg/m$^3$) in 2021.

Table 7: Measured $PM_{2.5}$ Annual Mean Concentrations (µg/m$^3$) [a]

| Monitoring Site – Site Name (Type) | Distance from Road (m) | Network [b] | 2016 | 2017 | 2018 | 2019 | 2020 [e] | 2021 |
|---|---|---|---|---|---|---|---|---|
| EH79 – Gascognye Way | 2.5 | A | - | 14.0 | 10.2 | 8.1 | 10.6 | 12.0 |
| **AQO [c]** | | | **25** | | | | | |
| **LV [d]** | | | **20** | | | | | |
| **WHO AQG Level (IT 1, IT 2, IT 3, IT 4) [c]** | | | **5 (35, 25, 15, 10)** | | | | | |
| **Environmental Target - AMCT (Interim Target) [f]** | | | **10 (12)** | | | | | |

Table notes:

a. Concentrations above the AQO are presented in bold. These do not necessary represent relevant exposure nor exceedances of the AQO.

b. A - Local Authority network, B – AURN.

c. Not required to be achieved within UK legislation.

d. Reporting of LV exceedances is only carried out based on approved reference monitoring and at relevant reporting locations. Therefore, while the value is included, the monitoring presented is unlikely to comply with the requirements for LV reporting and assessment.

e. Air quality monitoring carried out includes periods of national travel restrictions due to the COVID-19 pandemic; measured concentrations are therefore not likely to be representative of typical conditions.

f. Environmental target of 10 µg/m$^3$ needs to be met by 2040 and the interim target of 12 µg/m$^3$ needs to be met by 2028.

### *Short-term Mean*

#### 24-hour Mean

D6.4. 24-hour mean $PM_{2.5}$ concentrations were not available at the time of this assessment.

## Predicted Concentrations

### *Defra Predicted Background Mapped Concentrations*

D6.5. Ambient background concentrations of $PM_{2.5}$ have been defined using the national pollution maps published by Defra (Defra, 2023a). These cover the whole of the country on a 1x1 $km^2$ grid for each year from 2018 until 2030. The 2030 concentrations have been treated as conservative 2035 concentrations.

D6.6. Concentrations for 2019, 2028 and 2035 have been extracted for the grid cells that cover the Proposed Development. All predicted background concentrations are well below the AQOs and LV in 2019, 2028 and 2035. With respect to the WHO guidelines in 2028, the pollutant concentrations are below Interim Target 4 (10 µg/$m^3$) for $PM_{2.5}$. Concentrations are also below the Environmental AMCT (10 µg/$m^3$ by 2040) and the AMCT IT (12 µg/$m^3$ by 2028).

Table 8: Defra Predicted Background Mapped $PM_{2.5}$ Concentrations (µg/$m^3$) [a]

| Year | Proposed Development | Study Area |
|---|---|---|
| 2019 | 9.3 – 9.4 | 9.3 – 9.4 |
| 2028 | 8.4 – 8.5 | 8.4 – 8.5 |
| 2035 | 8.4 – 8.5 | 8.4 – 8.5 |
| **AQO [b]** | **25** | |
| **LV [c]** | **20** | |
| **WHO AQG Level (IT 1, IT 2, IT 3, IT 4) [b]** | **5 (35, 25, 15, 10)** | |
| **Environmental Target - AMCT (Interim Target) [d]** | **10 (12)** | |

Table notes:

a. These do not necessary represent relevant exposure.

b. Not required to be achieved within UK legislation.

c. Reporting of LV exceedances is only carried out based on approved reference monitoring and at relevant reporting locations. Therefore, while the value is included, the monitoring presented is unlikely to comply with the requirements for LV reporting and assessment.

d. Environmental target of 10 µg/$m^3$ needs to be met by 2040 and the interim target of 12 µg/$m^3$ needs to be met by 2028.

### *Defra Predicted Roadside Concentrations*

D6.7. Defra has predicted roadside concentrations of $PM_{2.5}$ for the main roads in the UK (Defra, 2023b) for the years 2017 to 2030 as part of Defra's commitment to report exceedances of the LV. There are no predictions for roads within 200 m of the development site.

### *Study Specific Dispersion Modelling*

D6.8. The assessment for the Proposed Development has included a dispersion modelling exercise (see appended document: 'Dispersion Modelling Study: Buntingford, Hertfordshire') which includes predictions of $PM_{2.5}$ in the local area. The locations of the modelled receptors are shown in Figure 9.

D6.9. Table 9 sets out the predicted concentrations in the local area in 2019, 2028 and 2035. All concentrations are well below the AQO and LV and are below WHO IT 3.

Table 9: Predicted Annual Mean $PM_{2.5}$ Concentrations (µg/$m^3$) in the Local Area

| Receptor | 2019 | 2028 No Development | 2035 No Development |
|---|---|---|---|
| E1 | 10.8 | 10.0 | 9.8 |

| | | | |
|---|---|---|---|
| E2 | 10.9 | 10.2 | 10.5 |
| E3 | 11.4 | 9.9 | 10.4 |
| E4 | 13.0 | 11.9 | 12.0 |
| E5 | 11.3 | 10.4 | 10.4 |
| E6 | 11.4 | 10.6 | 10.5 |
| E7 | 11.4 | 10.3 | 10.5 |
| **AQO [b]** | **25** | | |
| **LV [c]** | **20** | | |
| **WHO AQG Level (IT 1, IT 2, IT 3, IT 4) [b]** | **5 (35, 25, 15, 10)** | | |
| **Environmental Target - AMCT (Interim Target) [d]** | **10 (12)** | | |

Table notes:

a. These do not necessary represent relevant exposure.

b. Not required to be achieved within UK legislation.

c. Reporting of LV exceedances is only carried out based on approved reference monitoring and at relevant reporting locations. Therefore, while the value is included, the monitoring presented is unlikely to comply with the requirements for LV reporting and assessment.

d. Environmental target of 10 µg/m$^3$ needs to be met by 2040 and the interim target of 12 µg/m$^3$ needs to be met by 2028.

# D7. Other Sources of Air Pollution

## Permitted Facilities

D7.1. Defra and the Devolved Administrations maintain a database of sites which are at risk of contributing significantly to pollutant concentrations, called the UK Pollutant Release and Transfer Register (Defra, 2022). A search of the 2020 database has not identified any regulated facilities within 1 km of the Proposed Development.

# D8. Health Effects

D8.1. The Public Health Outcomes Framework (Public Health England, 2021) provides information on the fraction of mortality attributable to particulate matter ($PM_{2.5}$) air pollution (indicator D01). For East Hertfordshire, 5.8 % of deaths were attributed to $PM_{2.5}$, which is slightly lower the average for the East region and England of 5.5%. The long-term trend in proportion of deaths associated with exposure to $PM_{2.5}$ is shown in Figure 5.

Figure 5: Public Health Framework D01 Fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution

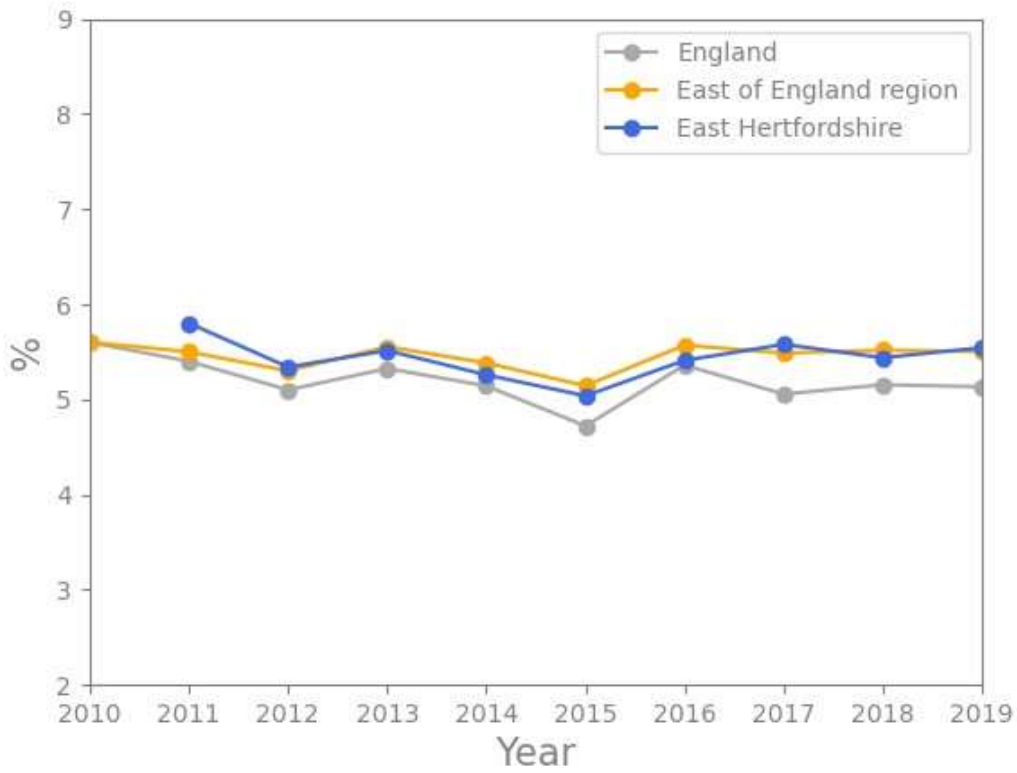



Figure notes: -

# D9. Overall Baseline Conditions

## Air Quality Objectives

D9.1. There is little baseline information on air quality of direct relevance to the Development Site, however there is information on the $NO_2$ conditions in the local area over the last few years. Annual mean $NO_2$ concentrations in the local area measured no exceedances of the AQO in recent years.

D9.2. All predicted concentrations were well below the AQOs in 2019, 2028 and 2035, suggesting that concentrations at the Development Site are likely to be well below the AQOs.

## Limit Value Compliance

D9.3. There is no information provided by Defra regarding compliance with the limit in the locality of the Proposed Development. However, based on the information available, it can be inferred that concentrations will be below the LVs.

## World Health Organization Guidelines

D9.4. Table 10 to Table 12 provide an indication of the baseline air quality at the Application Site in 2019 and the assessment years with respect to the WHO annual mean ITs and AQG. In reality the concentrations will vary across the development site.

Table 10: Indicative Achievement of Annual Mean WHO Guidelines / Interim Targets (µg/m$^3$) on the Application Site in 2019

| Pollutant | IT1 | IT2 | IT3 | IT4 | AQG |
|---|---|---|---|---|---|
| $NO_2$ | ✓ | ✓ | ✓ | n/a | x |
| $PM_{10}$ | ✓ | ✓ | ✓ | ✓ | x |
| $PM_{2.5}$ | ✓ | ✓ | ? | x | x |
| Table notes:<br>? may achieve IT/AQG; x IT/AQG not achieved; ✓ IT/AQG achieved; n/a not applicable. | | | | | |

Table 11: Indicative Achievement of Annual Mean WHO Guidelines / Interim Targets (µg/m$^3$) on the Application Site in 2028

| Pollutant | IT1 | IT2 | IT3 | IT4 | AQG |
|---|---|---|---|---|---|
| $NO_2$ | ✓ | ✓ | ✓ | n/a | ✓ |
| $PM_{10}$ | ✓ | ✓ | ✓ | ✓ | ? |
| $PM_{2.5}$ | ✓ | ✓ | ✓ | x | x |
| Table notes:<br>? may achieve IT/AQG; x IT/AQG not achieved; ✓ IT/AQG achieved; n/a not applicable. | | | | | |

Table 12: Indicative Achievement of Annual Mean WHO Guidelines / Interim Targets (µg/m$^3$) on the Application Site in 2035

| Pollutant | IT1 | IT2 | IT3 | IT4 | AQG |
|---|---|---|---|---|---|
| $NO_2$ | ✓ | ✓ | ✓ | n/a | ✓ |
| $PM_{10}$ | ✓ | ✓ | ✓ | ✓ | ? |
| $PM_{2.5}$ | ✓ | ✓ | ✓ | x | x |
| Table notes:<br>? may achieve IT/AQG; x IT/AQG not achieved; ✓ IT/AQG achieved; n/a not applicable. | | | | | |

# D10. Glossary

| | |
|---|---|
| **Air Quality Standards** | Concentrations recorded over a given time period, which are considered to be acceptable in terms of what is scientifically known about the effects of each pollutant on health and on the environment. |
| **An exceedance** | A period of time (defined for each standard) where the concentration is higher than that set out in the Standard. |
| **An objective** | The target date on which exceedances of a Standard must not exceed a specified number. |
| **APS** | Air Pollution Services |
| **AQFA** | Air Quality Focus Area |

| | |
|---|---|
| **AQG** | Air Quality Guidelines |
| **AQMA** | Air Quality Management Area |
| **AQO** | Air Quality Objective |
| **AURN** | Automatic Urban and Rural Network |
| **CAZ** | Clean Air Zone |
| **EHDC** | East Herts District Council |
| **IT** | Interim Targets |
| **LAQM** | Local Air Quality Management |
| **LEZ** | Low Emission Zone |
| **LV** | Limit Value |
| **$NO_2$** | Nitrogen dioxide |
| **NRMM** | Non-Road Mobile Machinery |
| **$PM_{10}$** | Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter |
| **$PM_{2.5}$** | Small airborne particles, more specifically particulate matter less than 2.5 micrometres in aerodynamic diameter |
| **PRTR** | Pollutant Release and Transfer Register |
| **ULEZ** | Ultra Low Emission Zone |
| **WHO** | World Health Organization |
| **µg/m³** | Microgrammes per cubic metre |

# D11. References


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