# Springwell Solar Farm

## Environmental Statement

Volume 1
Chapter 6: Air Quality

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

EN010149/APP/6.1
November 2024
Springwell Energyfarm Ltd

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# 6. Air Quality

## 6.1. Introduction

6.1.1. This chapter presents an assessment of likely significant effects arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development upon Air Quality. The full description of the Proposed Development is provided within **ES Volume 1, Chapter 3: Proposed Development Description [EN010149/APP/6.1]**.

6.1.2. This chapter is supported by the following figures presented in **ES Volume 2 [EN010149/APP/6.2]**:

- **Figure 6.1: Demolition (during Decommissioning phase)/Earthworks/Construction Activities Buffer Map**;
- **Figure 6.2: Demolition (during Construction Phase) Activities Buffer Map**;
- **Figure 6.3: Trackout Activities Buffer Map**; and
- **Figure 6.4: Location of Sensitive Air Quality Receptors**.

6.1.3. This chapter is further supported by the following appendices presented in **ES Volume 3 [EN010149/APP/6.3]**:

- **Appendix 6.1: Air Quality Stakeholder Engagement Activities**; and
- **Appendix 6.2: Air Quality Assessment**.

6.1.4. This chapter should be read in conjunction with the following assessment chapter presented in **ES Volume 1 [EN010149/APP/6.1]**:

- **Chapter 14: Traffic and Transport [EN010149/APP/6.1]**.

6.1.5. This chapter is also supported by the following document:

- **Battery Energy Storage System (BESS) Plume Assessment [EN010149/APP/7.19]**.

## 6.2. Legislative framework, planning policy and guidance

6.2.1. This assessment has been undertaken with regard to the following legislation, planning policy and guidance. Further details of the legislation framework, planning policy and guidance are presented in **ES Volume 3**, **Appendix 6.2: Air Quality Assessment [EN010149/APP/6.3] Section 3**.

6.2.2. It should be noted that this chapter does not assess the compliance of the Proposed Development against relevant planning policy. Such an

assessment is presented in the **Planning Statement [EN010149/APP/7.2]**.

## Legislation

- Air Quality (England) Regulations 2000 **[Ref. 6-1]**;
- Air Quality (England) (Amendment) Regulations 2002 **[Ref. 6-2]**;
- Air Quality Limit Values Regulations 2003 **[Ref. 6-3]**;
- Air Quality Standards Regulations 2010 **[Ref. 6-4]**;
- Air Quality Standards (Amendment) Regulations 2016 **[Ref. 6-5]**;
- Directive 2008/50/EC of the European Parliament and of the Council of 21st May 2008 on Ambient Air Quality and Cleaner Air for Europe **[Ref.6-6]**;
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 (Volume 1) (Volume 2) **[Ref. 6-7] [Ref. 6-8]**;
- The Clean Air Strategy 2019 **[Ref. 6-9]**;
- The Environment Act 1995 **[Ref. 6-10]**;
- The Environment Act 2021 **[Ref. 6-11]**; and
- The Environment Targets (Fine Particulate Matter) (England) Regulations 2023 **[Ref. 6-12]**.

## National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023) – Sections 5.2 and 5.7 detail the planning policy for air quality, including guidance on undertaking the EIA **[Ref. 6-13]**; and
- National Planning Policy Framework (NPPF) (2023) – presents several requirements and considerations related to air quality. These provisions aim to guide local authorities and developers in addressing air quality issues within the planning process **[Ref.6-14]**. Consultation on the proposed reform to the NPPF ended on the 24 September 2024. The **Planning Statement [EN010149/APP/7.2]** considers both the current and consulted NPPF.

## Local planning policy

- Central Lincolnshire Local Plan (2018 - 2040) adopted 13 April 2023 – specifically Policy S14: Renewable Energy and Policy S53: Design and Amenity **[Ref. 6-15]**.

## Guidance

- Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management Technical Guidance (TG22) (2022) **[Ref. 6-16]**.

- Environmental Protection UK and Institute of Air Quality Management (IAQM) Land-Use Planning and Development Control: Planning for Air Quality (2017) **[Ref. 6-17]**;
- IAQM Guidance of the Assessment of Dust from Demolition and Construction, v2.2 (2024) **[Ref. 6-18]**;
- Greater London Authority Non-Road Mobile Machinery Practical Guide v.6. (2024) **[Ref. 6-19]**; and
- National Highways Design Manual for Roads and Bridges LA 105 Air Quality (2019) **[Ref. 6-20]**.

## 6.3. Stakeholder engagement

6.3.1. **Table 6.1** provides a summary of the stakeholder engagement activities undertaken separately from the Environmental Impact Assessment (EIA) scoping, non-statutory consultation, statutory consultation and targeted consultation process in support of the preparation of this assessment, as well as detailing the matters raised, how such matters have been addressed, and where they have been addressed in the ES.

6.3.2. **ES Volume 3, Appendix 5.3: Scoping Opinion Response Matrix [EN010149/APP/6.3]** presents the responses received via the Scoping Opinion and the Applicant's responses to each matter raised.

6.3.3. Appendix A-4, J-1, J-2 and K-3 of the **Consultation Report [EN010149/APP/5.1]**, which is submitted in support of the Development Consent Order (DCO) Application, sets out the feedback received during non-statutory, statutory and targeted consultation and how regard has been afforded by the Applicant to each matter raised.

Table 6.1 Summary of stakeholder engagement

| Consultee | Date of engagement | Summary of matters raised | How this matter has addressed | Location of where this matter is addressed in the ES |
|---|---|---|---|---|
| North Kesteven District Council Environmental Health Officer and Lincolnshire County Council Environmental Health Officer | 31 July 2023 | A method statement, as provided in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**, detailing the proposed air quality assessment scope and methodology was submitted to North Kesteven District Council and Lincolnshire County Council to seek their agreement on the proposed approach to the air quality assessment.<br><br>An email response, as provided in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**, was received from North Kesteven District Council on behalf of North Kesteven District Council and Lincolnshire County Council, stating acceptance of the suggested assessment approach. | An air quality assessment (i.e. this chapter) has been prepared based on the agreed assessment approach. | **ES Volume 1, Chapter 6: Air Quality [EN010149/APP/6.1]** (this chapter) |
| North Kesteven District Council | 3 April 2024 | An email, as provided in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**, was sent to North | A screening level air quality traffic assessment for the year of early | A screening level air quality traffic assessment for the year of early |

| Consultee | Date of engagement | Summary of matters raised | How this matter has addressed | Location of where this matter is addressed in the ES |
|---|---|---|---|---|
| Environmental Health Officer | | Kesteven District Council and Lincolnshire County Council to seek advice on the assessment year of early decommissioning, following receipt of statutory consultation comments from North Kesteven District Council.<br><br>An email response, as provided in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**, was received from North Kesteven District Council on behalf of North Kesteven District Council and Lincolnshire County Council, confirming the assessment year of early decommissioning at year 20. | decommissioning has been undertaken in this chapter. | decommissioning has been undertaken and presented in **paragraphs 6.7.7** to **6.7.9** of this chapter. |
| North Kesteven District Council Environmental Health Officer | 25 June 2024 | An email, as provided in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**, was sent to North Kesteven District Council and Lincolnshire County Council to seek agreement on the changes on the scope of the construction phase dust risk assessment. | A dust risk assessment for the demolition activities during construction phase has been undertaken in this chapter. | A dust risk assessment for the demolition activities during construction phase has been undertaken and presented in **paragraphs 6.7.1** to **6.7.3** of this chapter. |

| Consultee | Date of engagement | Summary of matters raised | How this matter has addressed | Location of where this matter is addressed in the ES |
|---|---|---|---|---|
| | | An email response, as provided in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**, was received from North Kesteven District Council on behalf of North Kesteven District Council and Lincolnshire County Council, stating acceptance of the suggested assessment approach. | | |

## 6.4. Approach to the assessment

### Study area

6.4.1. Based on the IAQM 2024 construction dust guidance **[Ref. 6-18]**, the study area for the construction and decommissioning phase assessments for sensitive human receptors for demolition, earthworks and general construction activities is up to 250m from the Order Limits. For trackout activities, which is defined as the transport of dust and dirt from the construction/demolition sites onto public road network, the study area is up to 50m from the edge of the roads likely to be affected by trackout. The study area for designated sites for demolition, earthworks, general construction and trackout activities is up to 50m from the Order Limits, as per the IAQM 2024 construction dust guidance.

6.4.2. The study area for the assessment of road traffic exhaust emissions is determined by the receptors close to roads predicted by the traffic assessment as likely to experience a significant change in traffic flows, which comprises the A15, B1191, B1188 and a small number of local minor roads (refer to **ES Volume 1, Chapter 14: Traffic and Transport [EN010149/APP/6.1]** for further details).

### Scope of the assessment

6.4.3. The scope of this assessment has been established throughout the EIA process and design of the Proposed Development. Further information can be found in **ES Volume 1, Chapter 5: Approach to the EIA [EN010149/APP/6.1]**.

6.4.4. This section provides an update to the scope of the assessment from that presented in the EIA Scoping Report which is located in **ES Volume 3, Appendix 5.1: Scoping Report [EN010149/APP/6.3]** and re-iterates/updates the evidence base for scoping matters in or out following further iterative assessment.

6.4.5. An assessment of the dust emissions arising from construction and decommissioning activities has been conducted with reference to the IAQM 2024 construction dust guidance **[Ref. 6-18]**.

6.4.6. A qualitative screening level assessment of the construction, operational (including maintenance) and decommissioning phase traffic impacts has been carried out with reference to the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]**.

6.4.7. No significant combustion sources such as combined heat and power plant or biomass boilers are proposed as part of the Proposed

Development. Therefore, this chapter has not considered emission related to combustion plant any further.

## Receptors/matters scoped into the assessment

6.4.8. **Table 6.2** presents the receptors/matters that are scoped into the assessment reported within this ES, together with appropriate justification.

Table 6.2 Receptors/matters scoped into the assessment

| Receptor/matter | Phase | Justification |
|---|---|---|
| Dust and particulate matter emissions resulting from the Proposed Development activities (demolition, earthworks, construction and trackout), including the operation of the construction equipment | Construction and decommissioning | Construction activities and the operation of equipment during construction and decommissioning will result in dust and exhaust gases emissions to the atmosphere. This matter is scoped into the assessment, as detailed within the EIA Scoping Report presented in **ES Volume 3, Appendix 5.1: Scoping Report [EN010149/APP/6.3]** and confirmed within the Scoping Opinion presented in **ES Volume 3, Appendix 5.2: Scoping Opinion [EN010149/APP/6.3]**.<br><br>Demolition activities during construction will result in dust and exhaust gases emissions to the atmosphere. This matter is scoped into the assessment, as confirmed and presented in **ES Volume 3, Appendix 6.1: Air Quality Stakeholder Engagement Activities [EN010149/APP/6.3]**. |
| Road traffic exhaust emissions (including emissions haulage/construction vehicles and vehicles used for workers' trips to and from the Site) | Construction and decommissioning | Construction and decommissioning traffic would comprise haulage/construction vehicles and vehicles used for workers' trips to and from the Site. The greatest impact on air quality due to emissions from construction and decommissioning phase vehicles would be in areas adjacent to the Site access and nearby road network within the study area.<br><br>This matter is scoped into the assessment, as detailed within the EIA Scoping Report presented in **ES Volume 3, Appendix 5.1: Scoping** |

| Receptor/matter | Phase | Justification |
|---|---|---|
| | | **Report [EN010149/APP/6.3]** and confirmed within the Scoping Opinion presented in **ES Volume 3, Appendix 5.2: Scoping Opinion [EN010149/APP/6.3]**. |
| Road traffic exhaust emissions | Operation (including maintenance) | Given the nature of the Proposed Development, there will only be limited movement of vehicles to the Site for operation and maintenance. This matter was therefore proposed to be scoped out of the assessment, as detailed within the EIA Scoping Report presented in **ES Volume 3, Appendix 5.1: Scoping Report [EN010149/APP/6.3]**.<br><br>However, the Planning Inspectorate has requested that the ES must provide information on the nature of vehicle movements during the operational phases (alone and cumulatively) and confirm these projections fall below the relevant thresholds set out in guidance. Therefore, a screening level qualitative assessment for operational road traffic exhaust emissions has been undertaken and presented in **paragraphs 6.7.10** to **6.7.12** of this chapter to confirm the predicted operational traffic fall below the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria. |

## Receptors/matters scoped out of the assessment

6.4.9. **Table 6.3** presents the receptors/matters that are scoped out of the assessment that are therefore not considered as part of this ES, together with appropriate justification.

Table 6.3 Receptors/matters scoped out of the assessment

| Receptor/matter | Phase | Justification |
|---|---|---|
| Dust and particulate matter emission resulting from the Proposed Development activities (operation of the Proposed Development and maintenance activities) | Operation (including maintenance) | Given the nature of the Proposed Development, no site activities resulting in significant emissions to air quality are anticipated during operation.<br><br>This matter is scoped out of the assessment, as detailed within the EIA Scoping Report presented in **ES Volume 3, Appendix 5.1: Scoping Report [EN010149/APP/6.3]** and confirmed within the Scoping Opinion presented in **ES Volume 3, Appendix 5.2: Scoping Opinion [EN010149/APP/6.3]**. |

## Establishing baseline conditions

### Data sources to inform the EIA baseline characterisation

6.4.10. The following data sources have been used to understand the existing air quality baseline conditions as at the 2024 assessment year:

- Air Quality Annual Status Report published by North Kesteven District Council **[Ref. 6-21]**;
- Magic Map available online by Defra **[Ref. 6-22]**; and
- Estimated background air quality data from background maps published by Defra **[Ref. 6-23]**.

### Site visits/surveys

6.4.11. Latest local air quality monitoring data is publicly available (i.e. Air Quality Annual Status Report published by North Kesteven District Council **[Ref. 6-21]**) and therefore no on-site air quality monitoring, survey or site visits have been undertaken to inform the baseline characterisation, as agreed with North Kesteven District Council.

## Approach to design flexibility

6.4.12. The Project Parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010149/APP/6.1]**, **ES Volume 3, Appendix 3.1: Project Parameters [EN010149/APP/6.3]** and the parameter plans presented in **ES Volume 2, Figure 3.1 – 3.4**

**[EN010149/APP/6.2]**, set out the reasonable 'worst-case' parameters for the Proposed Development.

6.4.13. **ES Volume 1, Chapter 5: Approach to the EIA [EN010149/APP/6.1]** sets out those elements of the Proposed Development for which optionality is present within the design. The reasonable 'worst-case' scenario that has been assessed in this air quality chapter for each element of the Proposed Development where optionality is present within the design is outlined within **Table 6.4**.

Table 6.4 Reasonable worst-case scenario assessed for air quality

| Project element | Reasonable worst-case scenario that has been assessed |
|---|---|
| BESS<br>Springwell Substation and Main Collector Compound | This assessment has considered the maximum parameters for the location of the BESS and Springwell Substation as outlined in **ES Volume 2, Figure 3.1: Zonal Masterplan [EN010149/APP/6.2]**, to ensure a worst case has been assessed. |
| Inverters | The dust risk assessment is based on the area of construction and types of activity and is not reliant on a specific design. |
| Construction Compounds | This assessment has considered the maximum parameters for the location of the construction compounds as identified in **ES Volume 2, Figure 3.10: Primary and Secondary Construction Compounds [EN010149/APP/6.2]**. |
| Satellite Collector Compounds | This assessment assumes that Satellite Collector Compounds would be located in the eastern extent of Field By22 (Springwell East), western extent of Field Bk04 (Springwell Central) and western extent of Field Bdc102 (Springwell West) as these are considered the closest point in those areas to the sensitive receptors. |
| Cable routes<br>Internal tracks | The dust risk assessment is based on the area of construction and types of activity and is not reliant on a specific design; the assessment of dust is therefore based on the design commitments. |

## Assessment assumptions

6.4.14. The assessment of the air quality impact of construction traffic has been based on the assumptions set out in **ES Volume 1, Chapter 3: Proposed Development Description [EN010149/APP/6.1]** and **ES Volume 1,**

**Chapter 14: Traffic and Transport [EN010149/APP/6.1]**, alongside the traffic routing and future baseline traffic values derived in **ES Volume 1, Chapter 14: Traffic and Transport [EN010149/APP/6.1]**.

6.4.15. Plant sized between 37-560kW which the Applicant has assumed will likely be used during the construction and decommissioning of the Proposed Development is listed in **paragraph 6.7.4**.

## Assessment methodology and criteria

### Dust and particulate matter emissions during construction and decommissioning phases

6.4.16. Construction and decommissioning works have the potential to release dust including fine particulate matter and impact on nearby sensitive human receptors and designated sites. A qualitative assessment of the likely significant effects of construction and decommissioning phase dust and particulate matter at sensitive receptors has been undertaken following the IAQM 2024 construction dust guidance **[Ref. 6-18]**. Three separate potential dust impacts have been considered:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to $PM_{10}$; and
- Harm to ecological receptors.

6.4.17. The criteria presented in **Table 6.5, Table 6.6** and **Table 6.7** are different from that presented in **Appendix D** of **ES Volume 3, Appendix 5.1: Scoping Report [EN010149/APP/6.3]**, as updated construction dust guidance was published by IAQM in January 2024 **[Ref. 6-18]**.

6.4.18. A detailed assessment methodology is presented in **ES Volume 3, Appendix 6.2: Air Quality Assessment [EN010149/APP/6.3]**.

#### *Sensitivity of the area*

6.4.19. The sensitivity of the area takes into account a number of factors, comprising:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of $PM_{10}$, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

6.4.20. **Table 6.5**, **Table 6.6** and **Table 6.7** below are derived from IAQM 2024 construction dust guidance **[Ref. 6-18]** and show how the sensitivity of the area may be determined for dust soiling, human health and ecological

impacts respectively. These tables take account of a number of factors which may influence the sensitivity of the area when determining dust impacts during the construction and decommissioning phases.

Table 6.5 Sensitivity of the area to dust soiling effects on people and property

| Receptor sensitivity | Number of receptors | Distance from the source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <250 |
| High | >100 | High | High | Medium | Low |
| | 10-100 | High | Medium | Low | Low |
| | 1-10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

*Notes:*

*The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout.*

*Estimate the total number of receptors within the stated distance. Only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20m of the source and 95 high sensitivity receptors between 20 and 50m, then the total of number of receptors <50m is 102. The sensitivity of the area in this case would be high.*

*For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50m from the edge of the road.*

Table 6.6 Sensitivity of the area to human health impacts

| Receptor sensitivity | Annual mean $PM_{10}$ concentration | Number of receptors | Distance from the source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| High | >32μg/m$^3$ | >100 | High | High | High | Medium |
| | | 10-100 | High | High | Medium | Low |
| | | 1-10 | High | Medium | Low | Low |
| | | >100 | High | High | Medium | Low |

| Receptor sensitivity | Annual mean $PM_{10}$ concentration | Number of receptors | Distance from the source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| | 28-32µg/m$^3$ | 10-100 | High | Medium | Low | Low |
| | | 1-10 | High | Medium | Low | Low |
| | 24-28µg/m$^3$ | >100 | High | Medium | Low | Low |
| | | 10-100 | High | Medium | Low | Low |
| | | 1-10 | Medium | Low | Low | Low |
| | <24µg/m$^3$ | >100 | Medium | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| Medium | >32µg/m$^3$ | >10 | High | Medium | Low | Low |
| | | 1-10 | Medium | Low | Low | Low |
| | 28-32µg/m$^3$ | >10 | Medium | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| | 24-28µg/m$^3$ | >10 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| | <24µg/m$^3$ | >10 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| Low | - | ≥1 | Low | Low | Low | Low |

*Notes:*

*The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout.*

*Estimate the total within the stated distance (e.g. the total within 250m and not the number between 100 and 250 m), noting that only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20m of the source and 95 high sensitivity receptors between 20 and 50m, then the total of number of receptors <50m is 102. If the annual mean $PM_{10}$ concentration is 29µg/m$^3$, the sensitivity of the area would be high.*

| Receptor sensitivity | Annual mean $PM_{10}$ concentration | Number of receptors | Distance from the source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| *Most straightforwardly taken from the national background maps, but should also take account of local sources. The values are based on 32 µg/m³ being the annual mean concentration at which an exceedance of the 24-hour objective is likely in England, Wales and Northern Ireland. In Scotland there is an annual mean objective of 18 µg/m³.*<br><br>*In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, just include the number of properties.*<br><br>*For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50m from the edge of the road.* | | | | | | |

Table 6.7 Sensitivity of the area to ecological impacts

| Receptor sensitivity | Distance from the source (m) | |
|---|---|---|
| | <20 | <50 |
| High | High | Medium |
| Medium | Medium | Low |
| Low | Low | Low |
| *Notes:*<br><br>*The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site.*<br><br>*Only the highest level of area sensitivity from the table needs to be considered.*<br><br>*For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site.* | | |

### *Dust emission magnitude*

6.4.21. **Table 6.8** below is derived from IAQM 2024 construction dust guidance **[Ref. 6-18]** and indicates the scale of magnitude for dust emission impacts.

## Table 6.8 Scale of magnitude for dust emission impacts

| Activity | Dust emission magnitude | Description |
|---|---|---|
| Demolition | Large | Total building volume >75,000 $m^3$, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12m above ground level. |
| | Medium | Total building volume 12,000 $m^3$ – 75,000 $m^3$, potentially dusty construction material, demolition activities 6-12m above ground level. |
| | Small | Total building volume <12,000$m^3$, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6m above ground, demolition during wetter months. |
| Earthworks | Large | Total site area >110,000$m^2$, potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, formation of bunds >6m in height. |
| | Medium | Total site area 18,000$m^2$ – 110,000$m^2$, moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 3 – 6m in height. |
| | Small | Total site area <18,000$m^2$, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3m in height. |
| Construction | Large | Total building volume >75,000$m^3$, on site concrete batching, sandblasting. |
| | Medium | Total building volume 12,000$m^3$ – 75,000$m^3$, potentially dusty construction material (e.g. concrete), on site concrete batching. |
| | Small | Total building volume <12,000$m^3$, construction material with low potential for dust release (e.g. metal cladding or timber). |
| Trackout | Large | >50 Heavy Duty Vehicle (>3.5t) outward movements in any one day, potentially dusty |

| Activity | Dust emission magnitude | Description |
|---|---|---|
| | | surface material (e.g. high clay content), unpaved road length >100m. |
| | Medium | 20 – 50 Heavy Duty Vehicle (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m. |
| | Small | <20 Heavy Duty Vehicle (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m. |

### *Significance of effect*

6.4.22. The construction and decommissioning phase dust risk assessment has taken into account the sensitivity of the area (as shown in **Table 6.5**, **Table 6.6** and **Table 6.7**) and the nature and scale of the activities undertaken for each source (i.e. demolition, earthworks, construction and trackout activities) (as shown in **Table 6.8**) to assign a level of risk. Dust risks are described in terms of 'high', 'medium', 'low' or 'negligible', as shown in **Table 6.9** below and are derived from IAQM 2024 construction dust guidance **[Ref. 6-18]**. IAQM 2024 construction dust guidance **[Ref. 6-18]** suggests that significance is only assigned to the effects after considering the construction activities with mitigation. Therefore, only the level of dust risk is presented for pre-additional mitigation effects (refer to **Section 6.7**), and significance criteria is applied and significance is assigned for residual (post-additional mitigation) effects (refer to **Section 6.9**). The determination of the risk category determines the level of mitigation that must be applied. For those cases where the risk category is 'negligible', no mitigation measures beyond those required by legislation will be required.

6.4.23. The IAQM 2024 construction dust guidance **[Ref. 6-18]** makes reference to the use of professional judgement when assessing the significance of the effects of dust impacts from construction and decommissioning activities. 'High risk' is considered to be **significant** and 'medium risk', 'low risk' and 'negligible' are considered to be **not significant**.

Table 6.9 Level of effects for dust emission impacts

| | | Dust emission magnitude | | |
|---|---|---|---|---|
| **Activity** | **Sensitivity of the area** | **Large** | **Medium** | **Small** |
| **Demolition** | **High** | **High risk** | Medium risk | Medium risk |
| | **Medium** | **High risk** | Medium risk | Low risk |
| | **Low** | Medium risk | Low risk | Negligible |
| **Earthworks** | **High** | **High risk** | Medium risk | Low risk |
| | **Medium** | Medium risk | Medium risk | Low risk |
| | **Low** | Low risk | Low risk | Negligible |
| **Construction** | **High** | **High risk** | Medium risk | Low risk |
| | **Medium** | Medium risk | Medium risk | Low risk |
| | **Low** | Low risk | Low risk | Negligible |
| **Trackout** | **High** | **High risk** | Medium risk | Low risk |
| | **Medium** | Medium risk | Medium risk | Low risk |
| | **Low** | Low risk | Low risk | Negligible |

## Operation of equipment during construction and decommissioning

6.4.24. Exhaust emissions from construction and decommissioning plant may have an impact on local air quality in the vicinity of the Site. A qualitative impact assessment has been undertaken with reference to the Greater London Authority Non-Road Mobile Machinery Practical Guide **[Ref. 6-19]**, and based on professional judgement and considering the following factors:

- The duration of the construction/decommissioning phase;
- The number and type of construction/decommissioning plant that could be required; and
- The number and proximity of sensitive receptors to the Site.

## Road traffic exhaust emissions during construction, operation (including maintenance) and decommissioning

6.4.25. Construction and decommissioning traffic will comprise haulage/construction vehicles and vehicles used for workers' trips to and from the Site. The greatest impact on air quality due to emissions from construction and decommissioning phase vehicles will be in areas adjacent to the Site access and nearby road network. A screening level qualitative assessment for construction and decommissioning road traffic exhaust emissions has been undertaken with reference to the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]**, using professional judgement and by considering the following information:

- The number of road traffic movements likely to be generated;
- The number and proximity of sensitive receptors to the Site and along the likely routes to be used by construction/decommissioning vehicles; and
- The likely duration and the nature of the construction/decommissioning activities undertaken.

6.4.26. As stated in **Table 6.2** above, a screening level qualitative assessment for operational road traffic exhaust emissions has been undertaken and presented in **paragraphs 6.7.10** to **6.7.12** to confirm the predicted operational traffic movements fall below the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria.

### *Sensitivity of the receptor*

6.4.27. Matrices for determining the sensitivity of the receptor are not available in Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** or Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]**, and therefore matrices from IAQM 2024 construction dust guidance **[Ref. 6-18]** as shown in **Table 6.10** are used.

Table 6.10 Scale of receptor sensitivity

| Sensitivity of receptor | Human receptors | Ecological receptors |
|---|---|---|
| High | Locations where members of the public are exposed over a time period relevant to the air quality objective for $PM_{10}$ (in the case of the 24-hour objectives, a relevant location would be one | Locations with an international or national designation and the designated features may be affected by dust soiling.<br>Locations where there is a community of a particularly dust |

| Sensitivity of receptor | Human receptors | Ecological receptors |
|---|---|---|
| | where individuals may be exposed for eight hours or more in a day).<br><br>Examples include residential properties, hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment. | sensitive species such as vascular species included in the Red Data List For Great Britain published by Joint Nature Conservation Committee **[Ref. 6-24]**.<br><br>Examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings. |
| Medium | Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective for $PM_{10}$ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).<br><br>Examples include office and shop workers, but will generally not include workers occupationally exposed to $PM_{10}$, as protection is covered by health and safety at work legislation. | Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown.<br><br>Locations with a national designation where the features may be affected by dust deposition.<br><br>Example is a Site of Special Scientific Interest with dust sensitive features. |
| Low | Locations where human exposure is transient.<br><br>Examples include public footpaths, playing fields, parks and shopping streets. | Locations with a local designation where the features may be affected by dust deposition.<br><br>Example is a Local Nature Reserve with dust sensitive features. |

### *Magnitude of change*

6.4.28. **Table 6.11** below presents the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA

105 Air Quality **[Ref. 6-20]** screening criteria respectively that is used for assessing construction and decommissioning phase road traffic exhaust emissions.

Table 6.11 Indicative criteria for requiring an air quality assessment

| The development will | Indicative criteria to proceed to an air quality assessment |
|---|---|
| **Environmental Protection UK and IAQM 2017 guidance [Ref. 6-17]** | |
| Cause a significant change in Light Duty Vehicle traffic slows on local roads with relevant receptors | A change of Light Duty Vehicle flows of:<br>-more than 100 Annual Average Daily Traffic within or adjacent to an Air Quality Management Area<br>-more than 500 Annual Average Daily Traffic elsewhere. |
| Cause a significant change in Heavy Duty Vehicle flows on local roads with relevant receptors | A Change of Heavy Duty Vehicle flows of:<br>-more than 25 Annual Average Daily Traffic within or adjacent to an Air Quality Management Area<br>-more than 100 Annual Average Daily Traffic elsewhere. |
| **Design Manual for Roads and Bridges LA 105 Air Quality [Ref. 6-20]** | |
| -Daily traffic flow changes of 1,000 Annual Average Daily Traffic or more; or<br>-Heavy Duty Vehicle flow changes of 200 or more.<br>*Internationally, nationally and locally designated sites of ecological conservation importance on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity (known as designated habitats[1]) within 200m of the affected road network shall be included in the air quality assessment. | |

### *Significance of effect*

6.4.29. The Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** make reference to the use of professional judgement when assessing the

[1] Designated habitats include 'Ramsar' sites, special protection areas, special areas of conservation, sites of special scientific interest, local nature reserves, LWSs, nature improvement areas, ancient woodland and veteran trees.

significance of the effects of road traffic exhaust emissions during construction and decommissioning phases.

6.4.30. The Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** recommends that the following factors should be taken into account when making judgement on the overall significance of effect of a development:

- The existing and future air quality in the absence of the development;
- The extent of current and future population exposure to the impacts; and
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

## 6.5. Environmental baseline

### Existing baseline

6.5.1. The following section presents a summary of the baseline conditions for the receptors/matters scoped into the assessment, as detailed within the **Table 6.2** above.

6.5.2. The Proposed Development is located within the administrative area of North Kesteven District Council. There are currently no Air Quality Management Areas declared within the district.

6.5.3. According to the North Kesteven District Council 2023 Air Quality Annual Status Report **[Ref. 6-21]**, North Kesteven District Council undertook non-automatic nitrogen dioxide ($NO_2$) diffusion tube monitoring at 22 locations during 2022. There was no automatic air quality monitoring station within North Kesteven District Council area in 2022, and therefore $PM_{10}$ and $PM_{2.5}$ monitoring data is not available. The nearest monitoring location to the study area is a roadside $NO_2$ diffusion tube location (North Kesteven District Council reference: Ruskington) situated approximately 4.3km away from the Site. The measured annual average $NO_2$ concentrations at this diffusion tube site, for years 2018 - 2022, ranged between 10.4µg/m$^3$ and 14.7µg/m$^3$, well below the annual mean $NO_2$ Air Quality Objective of 40µg/m$^3$.

6.5.4. Estimated background air quality data is available from the UK-AIR website operated by Defra **[Ref. 6-23]**. The website provides estimated annual average background concentrations of $NO_2$, $PM_{10}$ and $PM_{2.5}$ on a 1km$^2$ grid basis from Local Air Quality Management background maps. It is noted that estimated 2022 annual average background $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations at the Site were 6.86 µg/m$^3$, 15.40µg/m$^3$ and 8.27µg/m$^3$ respectively, well below the relevant Air Quality Objectives ($NO_2$: 40µ g/m$^3$, $PM_{10}$: 40µg/m$^3$, $PM_{2.5}$: 20µg/m$^3$). Overall, air quality is considered to be good in the local area.

6.5.5. Seven designated sites, being Local Wildlife Sites (LWSs) have been identified within or adjacent to the Order Limits, comprising:

- Blankney Brick Pit LWS;
- Temple Road Verges, Welbourn to Brauncewell 2 LWS;
- A15, Slate House Farm to Dunsby Pit Plantation 1 LWS;
- A15, Green Man Road to Cuckoo Lane 2 LWS;
- Bloxholm Wood LWS/Lincolnshire Wildlife Trust reserve;
- Gorse Lane LWS; and
- Navenby Heath Road Verges LWS.

6.5.6. The location of the LWSs is presented in **ES Volume 2**, **Figure 6.4: Location of Sensitive Air Quality Receptors [EN010149/APP/6.2]**.

## Future baseline in the absence of the Proposed Development

6.5.7. **Table 6.12** presents the estimated annual average $NO_2$, $PM_{10}$ and $PM_{2.5}$ background concentrations from the latest 2018 background concentrations map published by Defra **[Ref. 6-23]** for the Local Air Quality Management background map grid square containing the Proposed Development for years 2024 (current year) -2030 (2027-2030 is the proposed construction period for the Proposed Development).

6.5.8. No exceedances of the annual average $NO_2$, $PM_{10}$ or $PM_{2.5}$ Air Quality Standards are predicted for years 2024-2030. Background concentrations are in general predicted to fall with time, because of the reduction in emissions to air resulting from new vehicle technology (for example, improved engine performance, electric vehicles and improvement in fuel quality). Therefore background concentrations in future years are not expected to exceed their respective annual mean standards.

6.5.9. Air quality across the study area in the absence of the Proposed Development is anticipated to remain largely unchanged from the levels in the current baseline conditions.

Table 6.12 Defra Local Air Quality Management estimated background annual average $NO_2$, $PM_{10}$, $PM_{2.5}$ concentrations at the Site (from 2018 base map)

| Assessment year | Estimated annual average pollutant concentrations derived from the Local Air Quality Management support website | | |
|---|---|---|---|
| | Annual average $NO_2$ ($\mu g/m^3$) | Annual average $PM_{10}$ ($\mu g/m^3$) | Annual average $PM_{2.5}$ ($\mu g/m^3$) |
| 2024 (current year) | 6.45 | 15.11 | 8.04 |
| 2025 | 6.25 | 14.97 | 7.92 |
| 2026 | 6.18 | 14.95 | 7.91 |
| 2027 (proposed construction commencement) | 6.10 | 14.94 | 7.90 |
| 2028 | 6.03 | 14.92 | 7.89 |
| 2029 | 5.97 | 14.91 | 7.88 |
| 2030 | 5.90 | 14.89 | 7.87 |
| Air Quality Standards | 40 | 40 | 20 |

*Note: Presented concentrations for 1km$^2$ grid centred on 506500, 356500; approximate centre of the Site is 506382, 356551. Defra Local Air Quality Management background map only covers the years 2018-2030.*

## 6.6. Mitigation embedded into the design

6.6.1. This assessment has been based on the principle that measures have been 'embedded' into the design of the Proposed Development to remove potential significant effects as far as practicable, for example by the considered placement of infrastructure. **ES Volume 1**, **Chapter 3: Proposed Development Description [EN010149/APP/6.1]** and **ES Volume 3**, **Appendix 3.1: Project Parameters [EN010149/APP/6.3]** and the **Design Commitments [EN010149/APP/7.4]** identify measures that have been embedded into the design of the Proposed Development. The embedded mitigation relevant to this assessment is detailed in **Table 6.13** below and has been established based on the IAQM 2024 construction dust guidance **[Ref. 6-18]**.

Table 6.13 Embedded mitigation relevant to air quality

| Embedded mitigation measures relevant to air quality | Function | Securing mechanism |
|---|---|---|
| Built development above ground will be offset at least 20m from LWSs except for highways improvement works. | To minimise the dust and exhaust emission impacts from the Proposed Development to locally designated wildlife sites. | **Design Commitments [EN010149/APP/7.4]** |
| Perimeter fencing surrounding the Solar PV development will be offset at least 15m from existing woodlands. | To minimise the dust and exhaust emission impacts from the Proposed Development to existing woodlands. | **Design Commitments [EN010149/APP/7.4]** |
| Springwell Substation, BESS, Collector Compounds, Standalone Inverter, Transformer and Switchgear and ITS (part of the balance of solar system plant comprised in Work No. 1) will be offset at least 250m from residential properties. | To minimise the dust and exhaust emission impacts from the Proposed Development to residential properties. | **Design Commitments [EN010149/APP/7.4]** |

## 6.7. Assessment of likely effects (without additional mitigation)

### Dust and particulate matter emissions during construction and decommissioning phases, including the operation of construction equipment

6.7.1. Construction and decommissioning works have the potential to release dust and impact on nearby sensitive human and designated sites (i.e. LWSs). The potential sources of dust emissions are demolition, earthworks, construction and trackout activities.

6.7.2. Human receptors have been identified within 250m of the Order Limits, comprising the settlements of Blankney, Scopwick, Kirkby Green and Ashby de la Launde (refer to **ES Volume 2**, **Figure 6.4: Location of Sensitive Air Quality Receptors [EN010149/APP/6.2]**. Seven designated sites LWSs have been identified within or adjacent to the Order Limits.

6.7.3. With reference to the IAQM 2024 construction dust guidance **[Ref. 6-18]**, the dust emissions magnitude for demolition, earthworks, construction and

trackout activities and the sensitivity of the receptors has been determined. A detailed dust risk assessment for the construction and decommissioning phases is presented in **ES Volume 3, Appendix 6.2: Air Quality Assessment [EN010149/APP/6.3]**. The dust risk impacts of construction and decommissioning activities from the Proposed Development prior to the consideration of additional mitigation are presented in **Table 6.14** below.

Table 6.14 Summary of the dust risk from construction and decommissioning activities prior to the consideration of additional mitigation

| Potential impact | Dust risk impact | | | | |
|---|---|---|---|---|---|
| | Demolition (during decommissioning) | Demolition (during construction) | Earthworks | Construction | Trackout |
| Dust soiling | Medium risk | Negligible | High risk | Medium risk | Low risk |
| Human health | Low risk | Negligible | Low risk | Low risk | Low risk |
| Ecological | Low risk | Negligible | Low risk | Low risk | Low risk |

6.7.4. The operation of site construction equipment and vehicles will result in emissions to atmosphere of exhaust gases. As set out in the Greater London Authority Non-Road Mobile Machinery Practical Guide **[Ref. 6-19]**, only construction and decommissioning plant with a rated power output between 37-560kW are likely to give rise to air quality effects. Plant sized between 37-560kW which is likely to be used during the construction and decommissioning of the Proposed Development is likely to comprise:

- Articulated dump truck;
- Bulldozer;
- Compressor;
- Dozer;
- Dump truck (tipping fill);
- Dumper;
- Excavator;
- Grader;
- Lorry;
- Lorry with lifting boom;
- Lorry, being loaded from silo;

- Mobile telescopic crane;
- Road sweeper;
- Roller;
- Roller (rolling fill);
- Telehandler;
- Telescopic handler;
- Tipper truck;
- Tracked drilling rig with hydraulic drifter;
- Tracked excavator;
- Tractor (towing equipment);
- Vibratory roller;
- Wheeled loader; and
- Wheeled mobile crane.

6.7.5. The above plant will be used intermittently during the four-year construction programme, depending on the construction activities to be undertaken, and will move across the Site as the Proposed Development is built out. Construction working hours will be from 7 a.m. to 7 p.m. Monday to Friday and from 7 a.m. to 12 p.m. Saturday. There will be no working on Sundays or Bank Holidays.

6.7.6. As detailed in **Table 6.13**, setback distances from residential properties, locally designated wildlife sites and existing woodlands are included within the **Design Commitments [EN010149/APP/7.4]**. These distances, as well as the temporary nature of the plant to be used, and the low levels of air pollution at the Site in future years (refer to **Section 6.5**) means it is unlikely there will be a risk of emissions (either in isolation or combination) that could result in an exceedance of the Air Quality Standards.

## Road traffic exhaust emissions during construction and decommissioning

6.7.7. Construction phase Annual Average Daily Traffic data (two-way trips) assumes that the year of 2028 is the anticipated construction traffic peak. Early decommissioning (20 years from commissioning) and decommissioning phases Annual Average Daily Traffic data (two-way trips) have been considered within this assessment (at the request of North Kesteven District Council – refer to **Table 6.1**). The decommissioning year is assumed to be 40 years from commissioning (i.e. 2070); however, due to limitations of the Trip End Model Presentation Program, forecast dataset is only available up to 2060. Therefore 2060 traffic data has been used in this assessment. Construction and

decommissioning phases traffic data are provided in **Table 6.15** and **Table 6.16** respectively.

Table 6.15 Construction phase traffic data

| Link | 2028 construction traffic associated with the Proposed Development | |
|---|---|---|
| | Light Duty Vehicles (Annual Average Daily Traffic) | Heavy Duty Vehicles (Annual Average Daily Traffic) |
| A15 (north of B1191) | 379 | 130 |
| A15 (south of B1191) | 340 | 130 |
| B1191 (between RAF Digby and Ashby de la Launde) | 168 | 80 |
| B1191 (between Scopwick and RAF Digby) | 168 | 80 |
| B1188 (north of Scopwick) | 200 | 80 |
| B1188 (south of Digby) | 40 | 0 |
| A15 (south of Metheringham Heath Lane) | 610 | 130 |
| A15 (north of Leasingham) | 307 | 130 |
| B1188 (south of Scopwick) | 40 | 0 |
| B1202 | 78 | 0 |
| Navenby Lane | 71 | 0 |
| Gorse Hill Lane | 637 | 80 |
| Temple Road | 5 | 30 |

Table 6.16 Decommissioning phase traffic data

| Link | Early decommissioning (year 2050) | | Decommissioning (year 2060) | |
|---|---|---|---|---|
| | Light Duty Vehicles (Annual Average Daily Traffic) | Heavy Duty Vehicles (Annual Average Daily Traffic) | Light Duty Vehicles (Annual Average Daily Traffic) | Heavy Duty Vehicles (Annual Average Daily Traffic) |
| A15 (north of B1191) | 379 | 130 | 379 | 130 |
| A15 (south of B1191) | 340 | 130 | 340 | 130 |

| Link | Early decommissioning (year 2050) | | Decommissioning (year 2060) | |
|---|---|---|---|---|
| | Light Duty Vehicles (Annual Average Daily Traffic) | Heavy Duty Vehicles (Annual Average Daily Traffic) | Light Duty Vehicles (Annual Average Daily Traffic) | Heavy Duty Vehicles (Annual Average Daily Traffic) |
| B1191 (between RAF Digby and Ashby de la Launde) | 168 | 80 | 168 | 80 |
| B1191 (between Scopwick and RAF Digby) | 168 | 80 | 168 | 80 |
| B1188 (north of Scopwick) | 200 | 80 | 200 | 80 |
| B1188 (south of Digby) | 40 | 0 | 40 | 0 |
| A15 (south of Metheringham Heath Lane) | 610 | 130 | 610 | 130 |
| A15 (north of Leasingham) | 307 | 130 | 307 | 130 |
| B1188 (south of Scopwick) | 40 | 0 | 40 | 0 |
| B1202 | 78 | 0 | 78 | 0 |
| Navenby Lane | 71 | 0 | 71 | 0 |
| Gorse Hill Lane | 637 | 80 | 637 | 80 |
| Temple Road | 5 | 30 | 5 | 30 |

6.7.8. The predicted construction, early decommissioning and decommissioning phases Light Duty Vehicles generation slightly exceeds the Environmental Protection UK and IAQM 2017 guidance screening criteria **[Ref. 6-17]** (i.e. a change of Light Duty Vehicles of more than 500 Annual Average Daily Traffic Annual Average Daily Traffic (refer to **Table 6.11**)) on A15 (south of Metheringham Heath Lane) and Gorse Hill Lane. The predicted construction, early decommissioning and decommissioning phases Heavy Duty Vehicles generation slightly exceeds the Environmental Protection UK and IAQM 2017 guidance screening criteria **[Ref. 6-17]** (i.e. a change of Heavy Duty Vehicles of more than 100 Annual Average Daily Traffic (refer to **Table 6.11**) on A15 (north of B1191), A15 (south of B1191), A15 (south of Metheringham Heath Lane) and A15 (north of Leasingham).

Despite these slight exceedances and based on the review of baseline conditions in **Section 6.5**, the annual mean $NO_2$ and $PM_{10}$ concentrations at the Site are expected to be well below the Air Quality Standards. Furthermore, there is a minimal number of high sensitive receptors located close to these affected roads. The traffic effects during construction and decommissioning will be limited to a relatively short period at each section/phase of the Proposed Development and will be along traffic routes employed by haulage/construction vehicles and workers. It should also be noted that the Proposed Development is not predicted to cause an increase of more than 500 Annual Average Daily Traffic of Light Duty Vehicles or 100 Annual Average Daily Traffic of Heavy Duty Vehicles on any other roads. Therefore, it is considered unlikely that the additional construction and decommissioning phases traffic emissions as a result of the Proposed Development will cause a significant adverse effect on local air quality.

6.7.9. The Proposed Development is not predicted to generate traffic exceeding the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria (i.e. Light Duty Vehicles equal to or more than 1,000 Annual Average Daily Traffic or Heavy Duty Vehicles equal to or more than 200 Annual Average Daily Traffic (refer to **Table 6.11**)) on any construction and decommissioning traffic routes within 200m of the LWSs. Therefore, it is considered unlikely that the additional construction and decommissioning phases traffic emissions as a result of the Proposed Development will cause a significant adverse effect on the nearby LWSs.

## Road traffic exhaust emissions during operation (including maintenance)

6.7.10. Due to the nature of the Proposed Development, the principal operational (including maintenance) phase air quality impact is likely to be associated with traffic emissions as a result of any changes in traffic flows or flow composition the Proposed Development may bring. The vehicle trip generation for the Proposed Development once operational is anticipated to be minimal in comparison to the construction and decommissioning phases.

6.7.11. Operational (including maintenance) phase Annual Average Daily Traffic data (two-way trips) is provided in **Table 6.17** below.

Table 6.17 Operational phase traffic data

| Link | Operational traffic associated with the Proposed Development | |
|---|---|---|
| | Light Duty Vehicles (Annual Average Daily Traffic) | Heavy Duty Vehicles (Annual Average Daily Traffic) |
| A15 (north of B1191) | 10 | 0 |
| A15 (south of B1191) | 10 | 0 |
| B1191 (between RAF Digby and Ashby de la Launde) | 10 | 0 |
| B1191 (between Scopwick and RAF Digby) | 10 | 0 |
| B1188 (north of Scopwick) | 10 | 0 |
| B1188 (south of Digby) | 10 | 0 |
| A15 (south of Metheringham Heath Lane) | 10 | 0 |
| A15 (north of Leasingham) | 10 | 0 |
| B1188 (south of Scopwick) | 10 | 0 |
| B1202 | 10 | 0 |
| Navenby Lane | 10 | 0 |
| Gorse Hill Lane | 10 | 0 |
| Temple Road | 10 | 0 |

6.7.12. The Proposed Development is not expected to generate traffic exceeding the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria (refer to **Table 6.11**) once operational and therefore it is considered that further assessment of the operational (including maintenance) phase traffic emissions is not required. The increased road traffic emissions resulting from the Proposed Development are expected to have an negligible impact on air quality and nearby LWSs during the operational (including maintenance) phase.

## 6.8. Additional mitigation

### Dust and particulate matter emissions during construction and decommissioning phases, including the operation of construction equipment

6.8.1. Dust emissions during construction and decommissioning phases can be effectively controlled by appropriate dust control measures and any adverse effects can be greatly reduced or eliminated. The mitigation

measures described in **Table 6.18** will be used to control potential dust and particulate matter emissions during the construction and decommissioning phases. Mitigation measures are documented within and will be secured by the **Outline Construction Environmental Management Plan** (**oCEMP**) **[EN010149/APP/7.7]**, the **Outline Decommissioning Environmental Management Plan** (**oDEMP**) **[EN010149/APP/7.13]** and the **Outline Construction Traffic Management Plan (oCTMP) [EN010149/APP/7.8]**.

6.8.2. The dust risk categories identified in **Table 6.14** have been used to define appropriate, site-specific mitigation measures for the Proposed Development which are divided into general measures and measures specific to demolition, earthworks, construction and trackout. Depending on the level of risk, different mitigation measures are assigned in accordance with the IAQM 2024 construction dust guidance **[Ref. 6-18]**. For general mitigation measures the highest risk assessed has been applied.

Table 6.18: Dust emissions mitigation measures

| **Communications** |
|---|
| • Develop and implement a stakeholder communications plan that includes community engagement before work commences on Site.<br>• Implement a CEMP, which includes measures to control all emissions, to be approved by North Kesteven District Council. |
| **Site management** |
| • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.<br>• Arrangements will be made for information to be shared with North Kesteven District Council and Lincolnshire County Council, if requested.<br>• Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site and the action taken to resolve the situation in the logbook. |
| **Monitoring** |
| • Undertake regular on-site and off-site inspection where receptors (including roads) are nearby to monitor dust, record inspection results, and make the inspection log available to North Kesteven District Council and Lincolnshire County Council when asked. Monitoring should where possible include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the Order Limits in agreement with the relevant homeowners/landowners.<br>• Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log |

available to North Kesteven District Council and Lincolnshire County Council when asked.

- Increase the frequency of Site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- During the construction and decommissioning phase, agree dust deposition, dust flux, or real-time $PM_{10}$ continuous monitoring locations with North Kesteven District Council and Lincolnshire County Council. Where possible, commence baseline monitoring at least three months before work commences on site.

## Preparing and maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Suitable dust suppression or containment is used around sites or specific operations.
- Keep site fencing, barriers and scaffolding clean.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

## Operating vehicle/machinery and sustainable travel

- Ensure all vehicles switch off engines when stationary, no idling vehicles.
- Impose and signpost a maximum speed limit of 15 miles per hour on surfaced and 10 miles per hour on unsurfaced haul roads and work areas.
- Produce a construction logistics plan to manage the sustainable delivery of goods and materials.
- Implement a travel plan that supports and encourages sustainable travel.

## Construction operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on Site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

## Waste management

- Avoid bonfires or burning of waste material.

## Measures specific to demolition (during decommissioning phase)

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- Ensure effective water suppression is used during demolition operations.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

## Measures specific to demolition (during construction)

- Negligible impact is anticipated, no mitigation measure is required.

## Measures specific to earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

## Measures specific to construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials, ensure bags are sealed after use and stored appropriately to prevent dust.

**Measures specific to trackout**

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the Site.
- Avoid any dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Implement a wheel washing system.
- Any emissions from non-road mobile machinery can be reduced by ensuring that any plant used on-site comply with the nitrogen oxides, particulate matter and carbon monoxide emissions standards specified in the Regulation (EU) 2016/1628 of the European Parliament and of the Council (as amended) **[Ref. 6-25]** as a minimum, where they have net power of between 37kW and 560kW. The emissions standards vary depending on the net power the engine produces.

6.8.3. The emission controls are outlined and secured within the **oCEMP [EN010149/APP/7.7]** and **oDEMP [EN010149/APP/7.13]** which have been prepared and are submitted in support of the DCO Application.

### Road traffic exhaust emissions during construction and decommissioning

6.8.4. Any effects on air quality from traffic during construction and decommissioning of the Proposed Development will be temporary (i.e. during the construction/decommissioning period only) and can be suitably controlled by the employment of mitigation measures (described in **Table 6.18** above and documented within the **oCTMP [EN010149/APP/7.8]**) which has been prepared and is submitted in support of the DCO Application.

### Road traffic exhaust emissions during operation (including maintenance)

6.8.5. No specific operational phase mitigation measures are required. Nevertheless, best practice mitigation measures can be considered to further reduce any residual effects on air quality. An **Outline Operational Environmental Management Plan** (**oOEMP**) **[EN010149/APP/7.10]** has been prepared and is submitted in support of the DCO Application.

## 6.9. Assessment of residual effects (with additional mitigation)

### Dust and particulate matter emissions during construction and decommissioning phases, including the operation of construction equipment

6.9.1. The sensitivity of the area to dust soiling effects on people and property is considered to be **high** for demolition (during decommissioning), earthworks and construction activities, and **low** for demolition (during construction) and trackout activities. The dust emission magnitude, following additional mitigation, is considered to be **small** for every activity. Therefore, it has been concluded there is a **medium** risk of dust emissions impacts from demolition activities (during decommissioning), a **low** risk of dust emissions impacts from earthworks and construction activities and a **negligible** risk of dust emissions impacts from demolition (during construction) and trackout activities. Therefore the residual effect of dust soiling following the implementation of additional mitigation measures is considered to be **not significant**.

6.9.2. The sensitivity of the area to human health impacts is considered to be **low** for every activity (demolition, earthworks, construction and trackout). The dust emission magnitude, following additional mitigation, is considered to be **small** for every activity. Therefore it has been concluded there is a **negligible** risk of dust emissions impacts for every activity. Therefore the residual effect on human health following the implementation of additional mitigation measures is considered to be **not significant**.

6.9.3. The sensitivity of the area to ecological impacts is considered to be **low** for every activity (demolition, earthworks, construction and trackout). The dust emission magnitude, following additional mitigation, is considered to be **small** for every activity. Therefore it has been concluded there is a **negligible** risk of dust emissions impacts for every activity. Therefore the residual effect on LWSs following the implementation of additional mitigation measures is considered to be **not significant**.

### Road traffic exhaust emissions during construction and decommissioning

6.9.4. The sensitivity of the human receptors is considered to be **high** and the magnitude of change, following additional mitigation, is considered to be below the Environmental Protection UK and IAQM 2017 guidance screening criteria **[Ref. 6-17]**. Therefore the residual effect on human receptors following the implementation of additional mitigation measures is considered to be **not significant**.

6.9.5. The sensitivity of the LWSs is considered to be **low** and the magnitude of change, following additional mitigation, is considered to be below the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria. Therefore the residual effect on LWSs following the implementation of additional mitigation measures is considered to be **not significant**.

### Road traffic exhaust emissions during operation (including maintenance)

6.9.6. The sensitivity of the human receptors is considered to be **high** and the magnitude of change, with additional best practice mitigation measures, is considered to be below the Environmental Protection UK and IAQM 2017 guidance screening criteria **[Ref. 6-17]**. Therefore the residual effect on human receptors following the implementation of additional mitigation measures is considered to be **not significant**.

6.9.7. The sensitivity of the LWSs is considered to be **low** and the magnitude of change, with additional best practice mitigation measures, is considered to be below the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria. Therefore the residual effect on LWSs following the implementation of additional mitigation measures is considered to be **not significant**.

## 6.10. Opportunities for enhancement

6.10.1. The Proposed Development will produce energy from the sun, which is a clean, sustainable source of energy. It will help to reduce the energy requirements from fossil fuels, which will emit harmful air emissions, such as carbon dioxide, nitrogen dioxide, sulphur dioxide, and particulate matters. The Proposed Development contributes towards the transition to clean energy on a national scale and the reduction in harmful air emissions would be possible through phasing out fossil fuels uses.

## 6.11. Monitoring requirement

6.11.1. Construction and decommissioning phases baseline monitoring is proposed to be commence at least three months before work commences on Site and will be secured by the **oCEMP [EN010149/APP/7.7]** and the **oDEMP [EN010149/APP/7.13]**. Dust flux, or real-time $PM_{10}$ continuous monitoring locations would be agreed with North Kesteven District Council and Lincolnshire County Council.

## 6.12. Difficulties and uncertainties

6.12.1. No difficulties or uncertainties have been encountered in the undertaking of this air quality assessment.

## 6.13. Summary

6.13.1. A summary of this assessment is presented in **Table 6.19**. The sensitivity of each receptor is identified alongside any relevant embedded mitigation and the potential effects that could arise on those areas/receptors. Any proposed additional mitigation measures are stated and the magnitude of impact and residual effects then assessed. Finally, any monitoring requirements are stated where applicable.

Table 6.19: Assessment summary

| Matter | Sensitivity of the area/ receptor | Embedded mitigation | Potential effects (without additional mitigation) | Additional mitigation | Dust emission magnitude / Magnitude of change | Residual effects (with additional mitigation) | Monitoring requirement |
|---|---|---|---|---|---|---|---|
| Dust and particulate matter emissions resulting from the Proposed Development activities (demolition, earthworks, construction and trackout), including the operation of the construction equipment | Sensitivity of the area to dust soiling effects on people and property: **high** for demolition (during decommissioning), earthworks and construction activities, **low** for demolition (during construction) and trackout activities. | Springwell Substation, BESS, Collector Compounds, Standalone Inverter, Transformer and Switchgear and ITS will be offset at least 250m from residential properties. | For dust soiling effects on people and property: **high** risk from earthworks activities, **medium** risk from demolition (during decommissioning) and construction activities, **low** risk from trackout activities, **negligible** risk from demolition (during construction) activities. | **oCEMP [EN010149/ APP/7.7]**<br>**oDEMP [EN010149/ APP/7.13]** | **Small** for every activity. | For dust soiling effects on people and property: **medium** risk from demolition (during decommissioning) activities, **low** risk from earthworks and construction activities, and **negligible** risk from demolition (during construction) and trackout activities. The residual effect of | Dust deposition, dust flux, or real-time $PM_{10}$ continuous baseline monitoring during construction and decommissioning. |

| Matter | Sensitivity of the area/ receptor | Embedded mitigation | Potential effects (without additional mitigation) | Additional mitigation | Dust emission magnitude / Magnitude of change | Residual effects (with additional mitigation) | Monitoring requirement |
|---|---|---|---|---|---|---|---|
| | | | | | | dust soiling is **not significant**. | |
| | Sensitivity of the area to human health impacts: **low** for every activity. | Springwell Substation, BESS, Collector Compounds, Standalone Inverter, Transformer and Switchgear and ITS will be offset at least 250m from residential properties. | For human health impacts: **low** risk for demolition (during decommissioning), earthworks, construction and trackout activities, **negligible** risk for demolition (during construction) activities. | **oCEMP [EN010149/ APP/7.7]**<br>**oDEMP [EN010149/ APP/7.13]** | **Small** for every activity. | For human health impacts: **negligible** risk for every activity. The residual effect on human health is **not significant**. | Dust deposition, dust flux, or real-time $PM_{10}$ continuous baseline monitoring during construction and decommissioning. |
| | Sensitivity of the area to ecological | Built development will be offset at | For ecological impacts: **low** risk for demolition | **oCEMP [EN010149/ APP/7.7]** | **Small** for every activity. | For ecological impacts: **negligible** risk | Dust deposition, dust flux, or |

| Matter | Sensitivity of the area/ receptor | Embedded mitigation | Potential effects (without additional mitigation) | Additional mitigation | Dust emission magnitude / Magnitude of change | Residual effects (with additional mitigation) | Monitoring requirement |
|---|---|---|---|---|---|---|---|
| | impacts: **low** for every activity. | least 20m from LWSs except for highways improvement works. Perimeter fencing surrounding the Solar PV development will be offset at least 15m from existing woodlands. | (during decommissioning), earthworks, construction and trackout activities, **negligible** risk for demolition (during construction) activities. | **oDEMP [EN010149/ APP/7.13]** | | for every activity. The residual effect on LWSs is **not significant**. | real-time $PM_{10}$ continuous baseline monitoring during construction and decommissioning. |
| Road traffic exhaust emissions (including emissions haulage/ construction vehicles and | Human receptors: **high** | N/A | Construction and decommissioning traffic slightly exceeds the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-** | **oCTMP [EN010149/ APP/7.8]**<br>**oDEMP [EN010149/ APP/7.13]** | Below the Environmental Protection UK and IAQM 2017 guidance **[Ref. 6-17]** | The residual effect on human receptors is **not significant**. | N/A |

| Matter | Sensitivity of the area/ receptor | Embedded mitigation | Potential effects (without additional mitigation) | Additional mitigation | Dust emission magnitude / Magnitude of change | Residual effects (with additional mitigation) | Monitoring requirement |
|---|---|---|---|---|---|---|---|
| vehicles used for workers' trips to and from the Site) (during construction and decommissioning) | | | **17]** screening criteria on A15 (south of Metheringham Heath Lane), Gorse Hill Lane, A15 (north of B1191), A15 (south of B1191) and A15 (north of Leasingham). The Proposed Development is not predicted to cause an increase exceeding that guidance **[Ref. 6-17]** screening criteria on any other roads. | | screening criteria. | | |

| Matter | Sensitivity of the area/ receptor | Embedded mitigation | Potential effects (without additional mitigation) | Additional mitigation | Dust emission magnitude / Magnitude of change | Residual effects (with additional mitigation) | Monitoring requirement |
|---|---|---|---|---|---|---|---|
| | LWSs: **low** | N/A | The Proposed Development is not predicted to generate traffic exceeding the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria on any construction and decommissioning traffic routes within 200 m of the LWSs. | **oCTMP [EN010149/ APP/7.8]**<br>**oDEMP [EN010149/ APP/7.13]** | Below the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria. | The residual effect on LWSs is **not significant**. | N/A |
| Road traffic exhaust emissions during operation | Human receptors: **high** | N/A | The Proposed Development is not expected to generate traffic exceeding the Environmental | **oOEMP [EN010149/ APP/7.10]** | Below the Environmental Protection UK and IAQM 2017 | The residual effect on human receptors is **not significant**. | N/A |

| Matter | Sensitivity of the area/ receptor | Embedded mitigation | Potential effects (without additional mitigation) | Additional mitigation | Dust emission magnitude / Magnitude of change | Residual effects (with additional mitigation) | Monitoring requirement |
|---|---|---|---|---|---|---|---|
| (including maintenance) | | | Protection UK and IAQM 2017 guidance **[Ref. 6-17]** screening criteria once operational. | | guidance **[Ref. 6-17]** screening criteria. | | |
| | LWSs: **low** | N/A | The Proposed Development is not expected to generate traffic exceeding the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria once operational. | **oOEMP [EN010149/ APP/7.10]** | Below the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria. | The residual effect on LWSs is **not significant**. | N/A |

## 6.14. References


- **Ref. 6-1**: Air Quality (England) Regulations 2000. Available online: https://www.legislation.gov.uk/uksi/2000/928/contents/made
- **Ref. 6-2**: Air Quality (England) (Amendment) Regulations 2002. Available online: https://www.legislation.gov.uk/uksi/2002/3043/contents/made
- **Ref. 6-3**: Air Quality Limit Values Regulations 2003. Available online: https://www.legislation.gov.uk/uksi/2003/2121/made
- **Ref. 6-4**: Air Quality Standards Regulations 2010. Available online: https://www.legislation.gov.uk/uksi/2010/1001/contents/made
- **Ref. 6-5**: Air Quality Standards (Amendment) Regulations 2016. Available online: https://www.legislation.gov.uk/uksi/2016/1184/contents/made
- **Ref. 6-6**: Directive 2008/50/EC of the European Parliament and of the Council of 21st May 2008 on Ambient Air Quality and Cleaner Air for Europe. Available online: [redacted]
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- **Ref. 6-8**: Department for Environment, Food and Rural Affairs (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 2). Available online: https://assets.publishing.service.gov.uk/media/5a79b5f3ed915d07d35b789c/pb12670-air-quality-strategy-vol2-070712.pdf
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- **Ref. 6-10**: Environment Act 1995. Available online: https://www.legislation.gov.uk/ukpga/1995/25/contents
- **Ref. 6-11**: Environment Act 2021. Available online: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted
- **Ref. 6-12**: Environment Targets (Fine Particulate Matter) (England) Regulations 2023. Available online: https://www.legislation.gov.uk/uksi/2023/96/contents/made

- **Ref. 6.13**: Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). Available online: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1
- **Ref. 6-14**: Ministry of Housing, Communities and Local Government (2023). National Planning Policy Framework. Available online: https://www.gov.uk/government/publications/national-planning-policy-framework--2
- **Ref. 6-15**: North Kesteven District Council (2023) Central Lincolnshire Local Plan. Available online: https://www.n-kesteven.gov.uk/central-lincolnshire/adopted-local-plan-2023
- **Ref. 6-16**: Department for Environment, Food and Rural Affairs (2022) Local Air Quality Management Technical Guidance (TG22). Available online: https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf
- **Ref. 6-17**: Environmental Protection UK and Institute of Air Quality Management (2017) Land-Use Planning and Development Control: Planning for Air Quality. Available online: [redacted]
- **Ref. 6-18**: Institute of Air Quality Management (2024) Guidance of the Assessment of Dust from Demolition and Construction (Version 2.2). Available online: [redacted]
- **Ref. 6-19**: Greater London Authority (2024) Non-Road Mobile Machinery Practical Guide v.6. Available online: https://www.london.gov.uk/sites/default/files/2024-05/NRMM-Practical-Guide-Accessible-May2024.pdf
- **Ref. 6-20**: National Highways (2019) Design Manual for Roads and Bridges LA 105 Air Quality. Available online: [redacted]
- **Ref. 6-21**: North Kesteven District Council (2023) Annual Status Report 2023. Available online: https://www.n-kesteven.gov.uk/sites/default/files/2023-09/Air%20Quality%20Annual%20Status%20Report%202023.pdf
- **Ref. 6-22**: Department for Environment, Food and Rural Affairs (2014). MAGIC Map. Available online: https://magic.defra.gov.uk/
- **Ref. 6-23**: Department for Environment, Food and Rural Affairs (2018). Background Mapping Data for Local Authorities-2018. Available online: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018

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