Peartree Hill Solar Farm

Environmental Statement

Volume 2

Chapter 6: Air Quality

Revision 2 (tracked)

Planning Act 2008

Infrastructure Planning

(Applications: Prescribed Forms

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Contents

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 [EN010157/APP/6.1]**.

6.1.2 This chapter is supported by the following figures presented in **ES Volume 3 [EN010157/APP/6.3]**:

- **Figure 6.1: Demolition (During Decommissioning Phase)/Earthworks/Construction Activities Study Areas**; and
- **Figure 6.2: Trackout Activities Study Areas**.

6.1.3 This chapter is further supported by the following appendices presented in **ES Volume 4 [EN010157/APP/6.4]**:

- **Appendix 6.1: Air Quality Assessment**.

6.1.4 This chapter should be read in conjunction with the following assessment chapters:

- **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**; and
- **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**.

6.2 Legislative framework, planning policy and guidance

6.2.1 This assessment has been undertaken in accordance with the following legislation, and with regard to the following planning policy and guidance.

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 [EN010157/APP/5.5]**.

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 Environment Act 1995 **[Ref. 6-7]**;
- The Environment Act 2021 **[Ref. 6-8]**; and
- The Environment Targets (Fine Particulate Matter) (England) Regulations 2023 **[Ref. 6-9]**.

National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023) (designated in January 2024) – Sections 5.2 and 5.7 detail the planning policy for air quality, including guidance on undertaking the EIA **[Ref. 6-10]**; and
- National Planning Policy Framework (NPPF) (2024) – presents several considerations related to air quality. These provisions aim to guide local authorities and developers in addressing air quality issues within the planning process **[Ref.6-11]**.

Local planning policy

- East Riding Local Plan 2012 – 2029 (adopted April 2016) – specifically Policy EC5 Supporting the energy sector which states that energy sector developments will be supported by East Riding of Yorkshire Council if the effects of development on local amenity, including air quality, is acceptable **[Ref. 6-12]**.

Guidance

- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 (Volume 1) **[Ref. 6-13]**
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 (Volume 2) **[Ref. 6-14]**
- The Clean Air Strategy 2019 **[Ref. 6-15]**;
- Department for Environment, Food and Rural Affairs Local Air Quality Management Technical Guidance (TG22) (2022) **[Ref. 6-16]**;

- Environmental Protection United Kingdom (UK) and Institute of Air Quality Management Land-Use Planning and Development Control: Planning for Air Quality (2017) **[Ref. 6-17]**;
- Institute of Air Quality Management 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]**[1]; 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 by the Applicant in relation to air quality 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 within the DCO Application documentation.

6.3.2 **ES Volume 4, Appendix 5.3: Scoping Opinion Response Matrix [EN010157/APP/6.4]** presents the responses received via the Scoping Opinion and the Applicant's response to each matter raised.

6.3.3 The **Consultation Report Appendices [EN010157/APP/5.2]**, which is submitted in support of the DCO Application, sets out the feedback received during non-statutory, statutory and targeted consultation and how the Applicant has had regard to the matters raised by consultees.

Table 6-1: Summary of stakeholder engagement

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
East Riding of Yorkshire Council Environmental	16 February 2024	A method statement detailing the proposed air	The air quality assessment has been	**ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**

[1] In the absence of any recommended guidance on the assessment of construction equipment, Great London Authority Non-Road Mobile Machinery Practical Guide has been adopted, which sets out the type of plant which is likely to have effects on air quality based on the size of plant.

Consultee	Date of engagement	Summary of matters raised	How this matter has been addressed	Location where this matter is addressed
Control Principal Officer		quality assessment scope and methodology was submitted to East Riding of Yorkshire Council to seek agreement on the proposed approach to the air quality assessment. An email response was received from East Riding of Yorkshire Council, stating acceptance of the suggested assessment approach.	prepared in accordance with the agreed assessment approach.	**ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4]**

6.3.4 **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]** states that as part of the cable route connection to National Grid Creyke Beck Substation could be located within Hull City Council's administrative area, it is recommended that consultation should be undertaken with Hull City Council in relation to air quality impacts, in addition to East Riding of Yorkshire Council. Following further design work undertaken after the EIA Scoping Report was submitted, the cable route connection is no longer located within Hull City Council's administrative area, and therefore the Applicant has not considered it necessary to consult with Hull City Council in relation to air quality impacts.

6.4 Approach to the assessment

Scope of the assessment

6.4.1 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 [EN010157/APP/6.1]**.

6.4.2 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 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and re-iterates/updates the evidence base for scoping matters in or out following further iterative assessment.

6.4.3 An assessment of impacts of the dust emissions arising from construction and decommissioning activities on human receptors and designated sites has been conducted with reference to the Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]**.

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

Receptors/matters scoped into the assessment

6.4.5 **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 (during decommissioning phase only), 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 phases will result in dust and exhaust gases emissions to the atmosphere. This matter is scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**.
Road traffic exhaust emissions (including emissions haulage/construction vehicles and vehicles	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

Receptor/matter	Phase	Justification
used for workers' trips to and from the Site)		emissions from construction and decommissioning phase vehicles would be in areas adjacent to the Site access and nearby road network within the study area. This matter is scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**.
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 **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. 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 6.7.12** and **6.7.13** of this chapter to confirm the predicted operational traffic levels fall below the Environmental Protection UK and Institute of Air Quality Management 2017

Receptor/matter	Phase	Justification
		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

6.4.6 **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 emissions resulting from demolition works	Construction	There are no demolition works proposed during the construction phase. This matter is scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**.
Dust and particulate matter emissions resulting from the Site 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. This matter is scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**.

Study area

6.4.7 Based on the Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction v2.2 **[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; 20m, 50m, 100m and 250m study areas have been considered in the assessment as per the Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction v2.2

[Ref. 6-18]. 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; 20m and 50m study areas have been considered in the assessment. The study area for designated sites for demolition, earthworks, and general construction and trackout activities is up to 50m from the Order Limits; 20m and 50m study areas have been considered in the assessment. The study area for designated sites for trackout activities is up to 50m from the edge of the roads likely to be affected by trackout; 20m and 50m study areas have been considered in the assessment.

6.4.8 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 (refer to **ES Volume 2**, **Chapter 14: Transport and Access [EN010157/APP/6.2]** for further details), as per the Environmental Protection UK and Institute of Air Quality Management Land-Use Planning and Development Control: Planning for Air Quality **[Ref. 6-17]**. Designated sites within 200m of the affected road network are included in the assessment, as per the Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]**.

Establishing baseline conditions

Data sources to inform the EIA baseline characterisation

6.4.9 The following data sources have been used to understand the existing air quality baseline conditions:

- 2023 Air Quality Annual Status Report published by East Riding of Yorkshire Council **[Ref. 6-21]**;
- Magic Map available online by the Department for Environment, Food and Rural Affairs **[Ref. 6-22]**; and
- Estimated background air quality data from background maps published by the Department for Environment, Food and Rural Affairs **[Ref. 6-23]**.

Site visits/surveys

6.4.10 Latest local air quality monitoring data are publicly available (Air Quality Annual Status Report published by East Riding of Yorkshire 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 East Riding of Yorkshire Council and as per **ES Volume 4**, **Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4]**.

Approach to design flexibility

6.4.11 The design parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** and **Design Parameters Document [EN010157/APP/5.8]**, set out the reasonable 'worst-case' parameters for the Proposed Development.

6.4.12 **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]** sets out those elements of the Proposed Development for which optionality is present within the design.

Assessment assumptions

6.4.13 The dust risk assessment is based on the area of construction and types of activity and is not reliant on the solar PV module (i.e. fixed or tracking) and inverters (i.e. string or central) design parameters.

6.4.14 Plant sized between 37-560 kW that is considered likely to give rise to air quality effects, as per the Greater London Authority Non-Road Mobile Machinery Practical Guide, 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**.

6.4.15 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 [EN010157/APP/6.1]** and **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**, alongside the traffic routing and future baseline traffic values derived in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**. Vehicles would access Land Areas B and C via the A165. For Land Areas D, E and F, vehicles would exit the A1035 at Routh to access the Land Areas via Meaux Lane/Meaux Road.

6.4.16 The construction phase is anticipated to be 24 months. Decommissioning is anticipated to take between 18 and 24 months. The year of 2026 is the anticipated construction traffic peak as it will have lower base traffic compared to 2027 or 2028, and therefore results in the Proposed Development generating a higher percentage impact compared to undertaking the assessment for later years (refer to **ES Volume 2**, **Chapter 14: Transport and Access [EN010157/APP/6.2]** for further details).

Assessment methodology and criteria

Dust and particulate matter emissions during construction and decommissioning phases

6.4.17 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 Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[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 Particulate Matter with a diameter of 10 microns or less (PM_{10}); and
- Harm to ecological receptors.

6.4.18 The criteria presented in **Table 6-4**, **Table 6-5**, **Table 6-6**, **Table 6-7** and **Table 6-8** are different from that presented in **Appendix D** of **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**, as updated construction dust guidance was published by Institute of Air Quality Management in January 2024 **[Ref. 6-18]**.

6.4.19 A detailed assessment methodology is presented in **ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4]**.

Sensitivity of the area

6.4.20 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.

6.4.21 **Table 6-4**, **Table 6-5** and **Table 6-6** below are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[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 6-4: 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[2]: *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 <20 m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 m 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 50 m from the edge of the road.*					

Table 6-5: 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	>32 µg/m^3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m^3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m^3	>100	High	Medium	Low	Low
		10-100	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m^3	>100	Low	Low	Low	Low

[2] Notes are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]** and explain how the sensitivity of the area to dust soiling effects on people and property is determined.

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

Notes[3]:
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 250 m 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 <20 m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 m is 102. If the annual mean PM_{10} concentration is 29 µg/m^3, the sensitivity of the area would be high.
Most straightforwardly taken from the national background maps but should also take account of local sources. The values are based on 32 µg/m^3 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/m^3.
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.
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 50 m from the edge of the road.

Table 6-6: 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

[3] Notes are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]** and explain how the sensitivity of the area to human health impacts is determined.

Receptor sensitivity	Distance from the source (m)	
	<20	<50
Notes[4]: *The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout and for each designated site.* *Only the highest level of area sensitivity from the table needs to be considered.* *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

6.4.22 **Table 6-7** below is derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]** and indicates the scale of magnitude for dust emission impacts.

Table 6-7: Scale of magnitude for dust emission impacts

Activity	Dust emissions 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 >12 m above ground level.
	Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m 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 <6 m 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 >6 m 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

[4] Notes are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]** and explain how the sensitivity of the area to ecological impacts is determined.

Activity	Dust emissions magnitude	Description
		one time, formation of bunds 3 – 6 m 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 <3 m 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 (>3.5 t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m.
	Medium	20 – 50 Heavy Duty Vehicle (>3.5 t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m.
	Small	<20 Heavy Duty Vehicle (>3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m.

Significance of effect

6.4.23 The construction and decommissioning phase dust risk assessment has taken into account the sensitivity of the areas being assessed (as shown in **Table 6-4**, **Table 6-5** and **Table 6-6**), the nature and scale of the activities undertaken for each source (i.e. demolition, earthworks, construction and trackout activities) (as shown in **Table 6-7**) to assign a level of risk. Dust risks are described in terms of 'high', 'medium', 'low' or 'negligible', as shown in **Table 6-8** below and are derived from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]**. 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.

6.4.24 The Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[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 6-8: Level of effects for dust emission impacts

Activity	Sensitivity of the area	Dust emission magnitude		
		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 phases

6.4.25 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 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 sensitivity receptors to the Site.

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

6.4.26 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 Institute of Air Quality Management 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.

6.4.27 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 6.7.12** and **6.7.13** to confirm the predicted operational traffic movements fall below the Environmental Protection UK and Institute of Air Quality Management 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

6.4.28 Matrices for determining the sensitivity of the receptor are not available in Environmental Protection UK and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** or Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]**, and therefore matrices from Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]** as shown in **Table 6-9** are used.

Table 6-9: 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	Locations with an international or national designation and the designated features may be affected by dust soiling.

Sensitivity of receptor	Human receptors	Ecological receptors
	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). 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.	Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain published by Joint Nature Conservation Committee **[Ref. 6-24]**. 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). 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. Locations with a national designation where the features may be affected by dust deposition. Example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	Locations where human exposure is transient. Examples include public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Example is a Local Nature Reserve (LNR) with dust sensitive features.

Magnitude of change

6.4.29 **Table 6-10** below presents the Environmental Protection UK and Institute of Air Quality Management 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, operation (including maintenance) and decommissioning phase road traffic exhaust emissions.

Table 6-10: Indicative criteria for requiring an air quality assessment

Environmental Protection UK and Institute of Air Quality Management 2017 guidance [Ref. 6-17]	
The development will	**Indicative criteria to proceed to an air quality assessment**
Cause a significant change in Light Duty Vehicle traffic flows on local roads with relevant receptors	A change of Light Duty Vehicle flows of: -more than 100 Annual Average Daily Traffic within or adjacent to an Air Quality Management Area -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: -more than 25 Annual Average Daily Traffic within or adjacent to an Air Quality Management Area -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 -Heavy Duty Vehicle flow changes of 200 or more. *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[5]) within 200m of the affected road network shall be included in the air quality assessment.	

Significance of effect

6.4.30 The Environmental Protection UK and Institute of Air Quality Management 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 significance of the effects of road traffic exhaust emissions during construction and decommissioning phases.

6.4.31 The Environmental Protection UK and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** recommends that the following factors should be taken into

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

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 Proposed Development is located within the administrative area of East Riding of Yorkshire Council. There is currently no Air Quality Management Area declared within the district.

6.5.2 According to the East Riding of Yorkshire Council 2023 Air Quality Annual Status Report **[Ref. 6-21]**, East Riding of Yorkshire Council undertook automatic monitoring at seven sites and non-automatic nitrogen dioxide (NO_2) diffusion tube monitoring at 92 locations during 2022. Particulate matter monitoring data is not available in the vicinity (within 3km) of the Order Limits. The nearest monitoring location to the study area is a roadside NO_2 diffusion tube location (East Riding of Yorkshire Council reference: S92) situated approximately 1.8km north-west from the Site. The S92 NO_2 diffusion tube location was new for 2022. The measured annual average NO_2 concentration at this diffusion tube site was 20.8µg/m^3 in 2022, well below the annual mean NO_2 Air Quality Objective of 40µg/m^3.

6.5.3 Estimated background air quality data are available from the Local Air Quality Management website operated by the Department for Environment, Food and Affairs **[Ref. 6-23]**. The website provides estimated annual average background concentrations of NO_2 and PM_{10} 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 5.8µg/m^3, 13.4µg/m^3 and 5.9 µg/m^3 respectively, which were below the relevant Air Quality Objectives (NO_2: 40µg/m^3, PM_{10}: 40µg/m^3 and $PM_{2.5}$: 20µg/m^3). Overall, air quality is considered to be good in the local area.

6.5.4 The following designated sites (habitats) have been identified within the Order Limits or within ~~200m~~ 50m of the Order Limits (refer to **Statutory/Non-statutory Sites or Features of Nature Conservation and Habitats of Protected Species, Important Habitats or Other Diversity Features Plan [EN010157/APP/2.11]** for further details):

- Figham Pastures LWS (within the Order Limits - the grid connection to National Grid Creyke Beck Substation passes through Figham Pastures LWS);
- Cote Wood LWS/ancient semi-natural woodland (borders Fields D11 and D17 in Land Area D, abutting the Order Limits);
- Meaux LWS (the northern end directly abuts the Order Limits and the southern end is 20m north of Field F6 within Land Area F); and
- Arnold Drain LWS (approximately 50m from the Order Limits as its closest point (Field C7 in Land Area C)).

6.5.5 Apart from the designated sites (habitats) listed in **paragraph 6.5.4**, five European designated sites have been considered in the road traffic exhaust emission assessments to support **Habitats Regulations Assessment – Information to Inform the Appropriate Assessment [EN010157/APP/5.3]**, as shown on **Statutory/Non-statutory Sites or Features of Nature Conservation and Habitats of Protected Species, Important Habitats or Other Diversity Features Plan [EN010157/APP/2.11]**:

- Hornsea Mere Special Protection Area (SPA);
- Humber Estuary Ramsar, SPA and SAC; and
- Greater Wash SPA.

6.5.6 Information from the Air Pollution Information System has not been used in this assessment as a qualitative assessment of air quality impacts on designated sites has been undertaken.

Future baseline in the absence of the Proposed Development

6.5.7 **Table 6-11** presents the estimated annual average NO_2, PM_{10} and $PM_{2.5}$ background concentrations from the latest 2021 background concentrations map published by the Department for Environment, Food and Rural Affairs **[Ref. 6-23]** for the grid square containing the Proposed Development for years 2024 (current year) and 2026-2028 (the expected construction period for the Proposed Development).

6.5.8 No exceedances of the annual average NO_2 or PM_{10} Air Quality Standards are predicted for years 2024 and 2026-2028. 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 6-11: Department for Environment, Food and Rural Affairs Local Air Quality Management estimated background annual average NO_2, PM_{10} concentrations at the Site (from 2021 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)	5.5	13.3	5.7
2026 (expected construction commencement)	5.2	13.2	5.6
2027	5.0	13.1	5.6
2028	4.9	13.0	5.5
Air Quality Standards	40	40	

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. The **Design Approach Document [EN010157/APP/5.7]** identifies the project design principles and design mitigation that has been embedded into the design of the Proposed Development. The embedded mitigation relevant to this assessment is detailed in **Table 6-12** below and has been established based on the Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]**.

Table 6-12: Embedded mitigation relevant to air quality

Embedded mitigation measure relevant to air quality	Function	Securing mechanism
The Proposed Development design will incorporate a minimum offset distance of 50m from	To minimise the dust and exhaust emission impacts from the Proposed	**Works Plans [EN010157/APP/2.2]**

Embedded mitigation measure relevant to air quality	Function	Securing mechanism
residential properties from solar PV modules and other infrastructure	Development to residential properties.	
The two on-site substations will not be located within 250m of any existing residential properties or environmental designated sites	To minimise the dust and exhaust emission impacts from the Proposed Development to residential properties or any designated sites	**Works Plans [EN010157/APP/2.2]**

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 receptors and designated sites. 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 villages of Long Riston, ~~and~~ Woodmansey, Routh, Arnold, Weel and public rights of way (PRoWs). Four LWSs and one ancient semi-natural woodland have been identified within the Order Limits or within ~~200m~~ 50m of the Order Limits.

6.7.3 With reference to the Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]**, the dust emissions magnitude for demolition, earthworks, construction and trackout activities and the sensitivity of the areas have been determined. A detailed dust risk assessment for the construction and decommissioning phases is presented in **ES Volume 2, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.2]**. The dust risk impacts of construction and decommissioning activities from the Proposed Development prior to the consideration of additional mitigation are presented in **Table 6-13** below.

Table 6-13: 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 phase only)	Earthworks	Construction	Trackout
Dust soiling	Medium risk	Medium risk	Medium risk	Medium risk
Human Health	Negligible	Low risk	Low risk	Low risk
Ecological	Negligible	Low risk	Low risk	Low risk

6.7.4 The operation of Site construction equipment and vehicles will result in emissions to the 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 37-560 kW are likely to give rise to air quality effects. Plant sized between 37-560 kW which is likely to be used during the construction and decommissioning of the Proposed Development is likely to comprise:

- Excavator;
- Mobile crane;
- Crawled Dozer;
- Push press piling rig;
- Power generator;
- Telehandler; and
- Truck.

6.7.5 The above plant will be used intermittently during the two-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 are proposed to be from 07:00 until 19:00 Monday to Friday and from 07:00 until 12:00 on Saturday. There will be no working on Sundays or Bank Holidays unless necessary.

6.7.6 As detailed in **Table 6-12**, setback distances from residential properties and environmental designated sites are included within the project design principles (refer to **Design Approach Document [EN010157/APP/5.7]** for further details). 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 **Table 6-11**) 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 phases

6.7.7 Construction phase Annual Average Daily Traffic data (two-way trips) assumes that the year of 2026 is the anticipated construction traffic peak. Construction phase traffic data is provided in **Table 6-14**.

Table 6-14: Construction phase traffic data

Land Area	2026 construction traffic associated with the Proposed Development	
	Light Duty Vehicles (Annual Average Daily Traffic)	Heavy Duty Vehicles (Annual Average Daily Traffic)
B	76	30
C	84	40
D	162	62
E	76	30
F	62	24
Grid connection	20	10

6.7.8 The peak daily Light Duty Vehicle movements is anticipated to be 266 Annual Average Daily Traffic, with Land Areas C and D and grid connection works constructed simultaneously. The Proposed Development is not predicted to generate Light Duty Vehicle movements exceeding the Environmental Protection UK-Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** (i.e. a change of Light Duty Vehicle flows of more than 500 Annual Average Daily Traffic Annual Average Daily Traffic) during the construction phase. The peak daily Heavy Duty Vehicle movements is anticipated to be 112 Annual Average Daily Traffic. The predicted construction phase Heavy Duty Vehicle generation slightly exceeds the Environmental Protection UK-Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** (i.e. a change of Heavy Duty Vehicle flows of more than 100 Annual Average Daily Traffic). However, as per the review of baseline conditions presented in **Table 6-11**, the annual mean NO_2 and PM_{10} concentrations at the Site are expected to be far below the Air Quality Standards. The traffic effects during construction will be limited to a relatively short period at each phase of the Proposed Development and will be along traffic routes employed by haulage/construction vehicles and workers. Therefore, it is considered unlikely that the additional construction phase traffic emissions as a result of the Proposed Development will cause a significant adverse effect on local air quality or on nearby human receptors.

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 Vehicle flow changes of 1,000 Annual Average Daily Traffic

or more or Heavy Duty Vehicle flow changes of 200 Annual Average Daily Traffic or more) (refer to **Table 6-10**) during construction phase. Therefore, it is considered unlikely that the additional construction phase traffic emissions as a result of the Proposed Development will cause a significant adverse effect on designated sites.

6.7.10 The decommissioning year is assumed to be 40 years from commissioning. It is assumed that vehicular generation during decommissioning phase is similar or slightly less than the construction phase (refer to **ES Volume 2**, **Chapter 14: Transport and Access [EN010157/APP/6.2]** for further details).

6.7.11 The Proposed Development is not expected to generate traffic exceeding the Environmental Protection UK-Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria (refer to **Table 6-10**) during decommissioning phase. Therefore, it is considered unlikely that the additional decommissioning phase traffic emissions as a result of the Proposed Development will cause a significant adverse effect on local air quality, or nearby human and designated sites.

Road traffic exhaust emissions during operation (including maintenance)

6.7.12 Due to the nature of the Proposed Development, the principal operation (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. It is anticipated that there will be four two-way Light Duty Vehicle trips per day during the operation (including maintenance) phase (refer to **ES Volume 2**, **Chapter 14: Transport and Access [EN010157/APP/6.2]** for further details).

6.7.13 The Proposed Development is not expected to generate traffic exceeding the Environmental Protection UK and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** and Design Manual for Roads and Bridges LA 105 Air Quality **[Ref. 6-20]** screening criteria (refer to **Table 6-10**) once operational and therefore, it is considered that further assessment of the operation (including maintenance) phase traffic emissions is not required. The increased road traffic emissions resulting from the Proposed Development are expected to have a negligible impact on air quality, and nearby human receptors and designated sites during the operation (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 6-15** 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 (Outline CEMP) [EN010157/APP/7.2]**, the **Outline Decommissioning Environmental Management Plan (Outline DEMP) [EN010157/APP/7.4]** and the **Outline Construction Traffic Management Plan (Outline CTMP) [EN010157/APP/7.7]**.

6.8.2 The dust risk categories identified in **Table 6-13** above 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 Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 **[Ref. 6-18]**. For general mitigation measures, the highest risk assessed has been applied.

Table 6-15: Dust emissions mitigation measures

Communications
• Develop and implement a stakeholder communications plan that includes community engagement before work commences on Site. • Display the name and contact details of people accountable for air quality and dust issues with respect to the Proposed Development. This may be the environment manager/engineer or the site manager. • Display the head or regional office contact information. • Implement a Construction Environmental Management Plan, which includes measures to control all emissions, to be approved by East Riding of Yorkshire 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.

- Make the complaints log available to East Riding of Yorkshire Council when asked.
- 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 log available to East Riding of Yorkshire Council when asked. Monitoring will, where possible, include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Order Limits in agreement with the relevant homeowners/landowners.
- Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to East Riding of Yorkshire 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 phases, agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with East Riding of Yorkshire Council. Where possible commence 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 sensitive receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the Order Limits.
- Fully enclose site or specific operations where there is a high potential for dust production and the Site is active for an extensive period.
- Avoid runoff of water or mud from the Site.
- 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 10 miles per hour on internal tracks and work areas.

• Produce a Construction Traffic Management 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 only)
• 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 earthworks
• Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Only remove the cover in stages 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 Site are covered to prevent escape of materials during transport. • Inspect on-Site haul routes for integrity and instigate necessary repairs to the surface. • Record all inspections of haul routes and any subsequent action in a site logbook. • Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Implement a wheel washing system. • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the Site exit. • Access gates to be located at least 10m from sensitive receptors.

6.8.3 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 37 kW and 560 kW. The emissions standards vary depending on the net power the engine produces. The emission controls are outlined and secured within the **Outline CEMP [EN010157/APP/7.2]** and the **Outline DEMP [EN010157/APP/7.4]** which have been prepared and are submitted in support of the DCO Application. The construction working hours are detailed within the **Outline CEMP [EN010157/APP/7.2]**.

Road traffic exhaust emissions during construction and decommissioning phases

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 6-15** above and documented within the **Construction Traffic Management Plan** 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 mitigation measures are required. Nevertheless, best practice mitigation measures (described in **Table 6-15** above) can be considered to further reduce any residual effects on air quality. An **Outline Operational Environmental Management Plan (Outline OEMP) [EN010157/APP/7.3]**, including such measures described, 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** during demolition (during decommissioning phase only), earthworks and construction activities, and **medium** for 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 phase only) and a **low** risk of dust emissions impacts from earthworks, 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 (during decommissioning phase only), 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 (during decommissioning phase only), 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 Figham Pastures LWS, Cote Wood LWS/ancient semi-natural woodland, Meaux LWS and Arnold Drain LWS following the

implementation of additional mitigation measures is considered to be **not significant**.

Road traffic exhaust emissions during construction and decommissioning phases

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 Institute of Air Quality Management 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 designated sites 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 the designated sites 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 Institute of Air Quality Management 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 designated sites 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 the designated sites 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 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 requirements

6.11.1 Monitoring for the construction and decommissioning phases is proposed to commence at least three months before work commences on Site and will be secured by the **Outline CEMP [EN010157/APP/7.2]** and the **Outline DEMP [EN010157/APP/7.4]**. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with East Riding of Yorkshire 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 6-16**. The sensitivity of each area/receptor is identified alongside any relevant embedded mitigation and the potential effects that could arise on those receptors. Any proposed additional mitigation measures are stated, and the dust emission magnitude/magnitude of change and residual effects then assessed. Finally, any monitoring requirements are stated where applicable.

Table 6-16: Assessment summary

Receptor/ matter	Phase	Sensitivity of the area/ receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Dust emission magnitude/ Magnitude of change	Residual effect (with additional mitigation)	Monitoring requirement
Dust and particulate matter emissions resulting from the Proposed Development activities (demolition (during decommissioning phase only), earthworks, construction and trackout), including the operation of the construction equipment	Construction and decommissioning	Sensitivity of the area to dust soiling effects on people and property: **high** for demolition (during decommissioning only), earthworks and construction activities, **medium** for trackout activities	The Proposed Development will incorporate a minimum offset distance of 50 m from residential properties from solar PV modules and other infrastructure. The two on-site substations will not be within 250m of residential properties.	For dust soiling effects on people and property: **medium** risk for every activity.	**Outline CEMP [EN010157/APP/7.2]** **Outline DEMP [EN010157/APP/7.4]** **Outline CTMP [EN010157/APP/7.7]**	**Small** for every activity.	For dust soiling effects on people and property: **medium** risk from demolition (during decommissioning phase only) activities, **low** risk from earthworks, construction and trackout activities. The residual effect of dust soiling is **not significant**.	Dust deposition, dust flux, or real-time PM_{10} continuous baseline monitoring during construction and decommissioning phases.
	Construction and decommissioning	Sensitivity of the area to human health impacts: **low** for every activity.	The Proposed Development will incorporate a minimum offset distance of 50 m from residential properties from solar PV modules and other infrastructure. The two on-site substations will not be within 250 m of residential properties.	For human health impacts: **low** risk from earthworks, construction and trackout activities, **negligible** risk for demolition (during decommissioning phase only) activities.	**Outline CEMP [EN010157/APP/7.2]** **Outline DEMP [EN010157/APP/7.4]** **Outline CTMP [EN010157/APP/7.7]**	**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 phases.
	Construction and decommissioning	Sensitivity of the area to ecological impacts: **low** for every activity.	The two on-site substations will not be within 250m of any environmental designated sites.	For ecological impacts: **low** risk from earthworks, construction and trackout activities, **negligible** risk for demolition (during decommissioning phase only) activities.	**Outline CEMP [EN010157/APP/7.2]** **Outline DEMP [EN010157/APP/7.4]** **Outline CTMP [EN010157/APP/7.7]**	**Small** for every activity.	For ecological impacts: **negligible** risk for every activity. The residual effect on LWSs and ancient semi-natural woodland is **not significant**.	Dust deposition, dust flux, or real-time PM_{10} continuous baseline monitoring during construction and decommissioning phases.
Road traffic exhaust emissions	Construction and decommissioning	Human receptors: **high**	N/A	The Proposed Development is not expected to generate Light	**Outline CEMP [EN010157/APP/7.2]**	Below the Environmental Protection UK	The residual effect on human	N/A

Receptor/ matter	Phase	Sensitivity of the area/ receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Dust emission magnitude/ Magnitude of change	Residual effect (with additional mitigation)	Monitoring requirement
(including emissions haulage/construction vehicles and vehicles used for workers' trips to and from the Site) (during construction and decommissioning)				Duty Vehicle movements exceeding the Environmental Protection UK and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** screening criteria during construction phase. The predicted construction phase Heavy Duty Vehicle generation slightly exceeds the Environmental Protection UK and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** screening criteria. The Proposed Development is not expected to generate traffic exceeding the Environmental Protection UK and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** screening criteria during decommissioning phase.	**Outline DEMP [EN010157/APP/7.4]** **Outline CTMP [EN010157/APP/7.7]**	and Institute of Air Quality Management 2017 guidance **[Ref. 6-17]** screening criteria.	receptors is **not significant**.	
	Construction and decommissioning	Designated sites: **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 during construction and decommissioning phases.	**Outline CEMP [EN010157/APP/7.2]** **Outline DEMP [EN010157/APP/7.4]** **Outline CTMP [EN010157/APP/7.7]**	Below the Design Manual for Roads and Bridges **[Ref. 6-20]** screening criteria.	The residual effect on designated sites is **not significant**.	N/A
Road traffic exhaust emissions during operation (including maintenance)	Operation (including maintenance)	Human receptors: **high**	N/A	The Proposed Development is not expected to generate traffic exceeding the Environmental Protection UK and Institute of Air Quality Management 2017	No specific mitigation measures are required, but best practice mitigation measures are included in **Outline OEMP [EN010157/APP/7.3]**	Below the Environmental Protection UK and Institute of Air Quality Management 2017 guidance	The residual effect on human receptors is **not significant**.	N/A

Receptor/ matter	Phase	Sensitivity of the area/ receptor	Embedded mitigation	Potential effects (without additional mitigation)	Additional mitigation	Dust emission magnitude/ Magnitude of change	Residual effect (with additional mitigation)	Monitoring requirement
				guidance **[Ref. 6-17]** screening criteria once operational.		**[Ref. 6-17]** screening criteria.		
	Operation (including maintenance)	Designated sites: **low**	N/A	The Proposed Development is not expected to generate traffic exceeding the Design Manual for Roads and Bridges LA105 Air Quality **[Ref. 6-20]** screening criteria once operational.	No specific mitigation measures are required, but best practice mitigation measures are included in **Outline OEMP [EN010157/APP/7.3]**	Below the Design Manual for Roads and Bridges **[Ref. 6-20]** screening criteria.	The residual effect on designated sites is **not significant**.	N/A

6.14 References

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- **Ref. 6-5**: Air Quality Standards (Amendment) Regulations 2016. Available online: https://www.legislation.gov.uk/uksi/2016/1184/contents/made
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- **Ref. 6-15**: Department for Energy Security and Net Zero, Department for Environment, Food and Rural Affairs, Department for Transport (DfT), Department of Health and Social Care and Ministry of Housing, Communities and Local Government (2019). The Clean Air Strategy 2019. Available online: https://www.gov.uk/government/publications/clean-air-strategy-2019
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