



**THE DROVES**  
SOLAR FARM

# **The Droves Solar Farm**

## **Preliminary Environmental Information Report**

### **Volume III, Chapter 15: Other Environmental Matters**

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# **Appendix 15.2**

## **Construction Dust Assessment**

# The Drovers Solar Farm.

## Appendix 15.2 – Construction Phase Dust Assessment.

### 1.1 Methodology.

The assessment of construction dust impacts has been undertaken in line with the methodology outlined in the IAQM guidance<sup>1</sup>. The methodology outlined within this Appendix is also applicable to the decommissioning phase, as the associated activities and potential effects are assumed to be similar in nature to the construction phase. Activities on the Site have been divided into three types to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

The risk of dust emissions was assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling;
- The risk of health effects due to a significant increase in exposure to PM<sub>10</sub>; and
- The risk of ecological impacts due to a significant increase in exposure to PM<sub>10</sub>.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM guidance<sup>1</sup>. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 250 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance; and
- An 'ecological receptor' is located within 50 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust impacts arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of dust impacts is then used to determine the mitigation requirements. Following the implementation of the appropriate mitigation, residual effects are considered to be not significant.

Table 15.2.1: Sensitivity of the area to dust soiling effects on people and property.

Receptor Sensitivity	Number of Receptors	Distance from 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

<sup>1</sup> Institute of Air Quality Management (2024) Guidance on the assessment of dust from demolition and construction v2.2 – [online], (Last accessed: 13/03/2025), Available at: [iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf](http://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf)

**Table 15.2.2: Sensitivity of the area to human health effects.**

Receptor Sensitivity	Annual Mean PM <sub>10</sub> Concentration	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m <sup>3</sup>	>100	High	High	High	Low
		10 – 100	High	High	Medium	Low
		1 – 10	High	Medium	Low	Low
	28 – 32 µg/m <sup>3</sup>	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low
	24 – 28 µg/m <sup>3</sup>	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	<24 µg/m <sup>3</sup>	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
Medium	>32 µg/m <sup>3</sup>	>10	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	28 – 32 µg/m <sup>3</sup>	>10	Medium	Low	Low	Low
		1 – 10	Low	Low	Low	Low
	24 – 28 µg/m <sup>3</sup>	>10	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
<24 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	
	1 – 10	Low	Low	Low	Low	
Low	-	1	Low	Low	Low	Low

Table 15.2.3 to Table 15.2.6 illustrate how the dust emission magnitude should be combined with the sensitivity of the area to determine the risk of impacts with no mitigation measures applied.

**Table 15.2.3: Risk of dust impacts – Demolition.**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

**Table 15.2.4: Risk of dust impacts – Earthworks.**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

**Table 15.2.5: Risk of dust impacts – Construction.**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

**Table 15.2.6: Risk of dust impacts – Trackout.**

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

## **1.2 Construction phase dust assessment.**

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

### **1.2.1 Assessment screening.**

There are 'human receptors' within 250 m of the Site but no designated habitat sites within 50 m of the Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance.

The closest ecological receptors to the Site are Castle Acre Common and the River Nar, classified as Sites of Special Scientific Interest (SSSI), located 650 m to the north.

Therefore, an assessment of construction dust at human receptors is required, but an assessment of construction at ecological receptors can be screened out from this assessment.

### 1.2.2 Potential dust emission magnitude.

The potential magnitude of dust emissions from earthworks, construction and trackout have been assessed, as identified in Table 15.2.7. Demolition has been screened out of this assessment as there are no existing hard-standing structures on-site to be demolished.

Table 15.2.7: Predicted magnitude of dust emissions.

Activity	Magnitude	Justification
Earthworks	Large	Extensive landscaping will be required as part of the proposals and earthworks across the majority of the Site are expected. The total area of the Site is greater than 110,000 m <sup>2</sup> . The soil type is predominantly classified as “sandy” and “loamy” <sup>2</sup> , which have a moderate potential for dust emissions. Overall, in line with the IAQM guidance, the magnitude of dust emissions from earthworks is anticipated to be large.
Construction	Small	As construction will involve a few hard standing structures and electrical equipment, the construction volume is expected to be less than 25,000 m <sup>3</sup> . This will primarily involve the installation of solar modules which are not anticipated to have a high potential for dust. As such, in line with the IAQM guidance, the magnitude of dust emissions from construction is expected to be small.
Trackout	Large	The unpaved road length on-site will be greater than 100 m during the construction phase. As outlined in paragraph 10.2.5 of Chapter 15 of the PEIR document, it is anticipated that there will be a maximum of 84 heavy-duty vehicles (HDV) operating on-site per day during peak construction. The soil type is predominantly classified as “sandy” and “loamy” <sup>2</sup> , which have a moderate potential for dust emissions. Overall, in line with the IAQM guidance, the magnitude of dust emissions from trackout is considered to be large as a worst case.

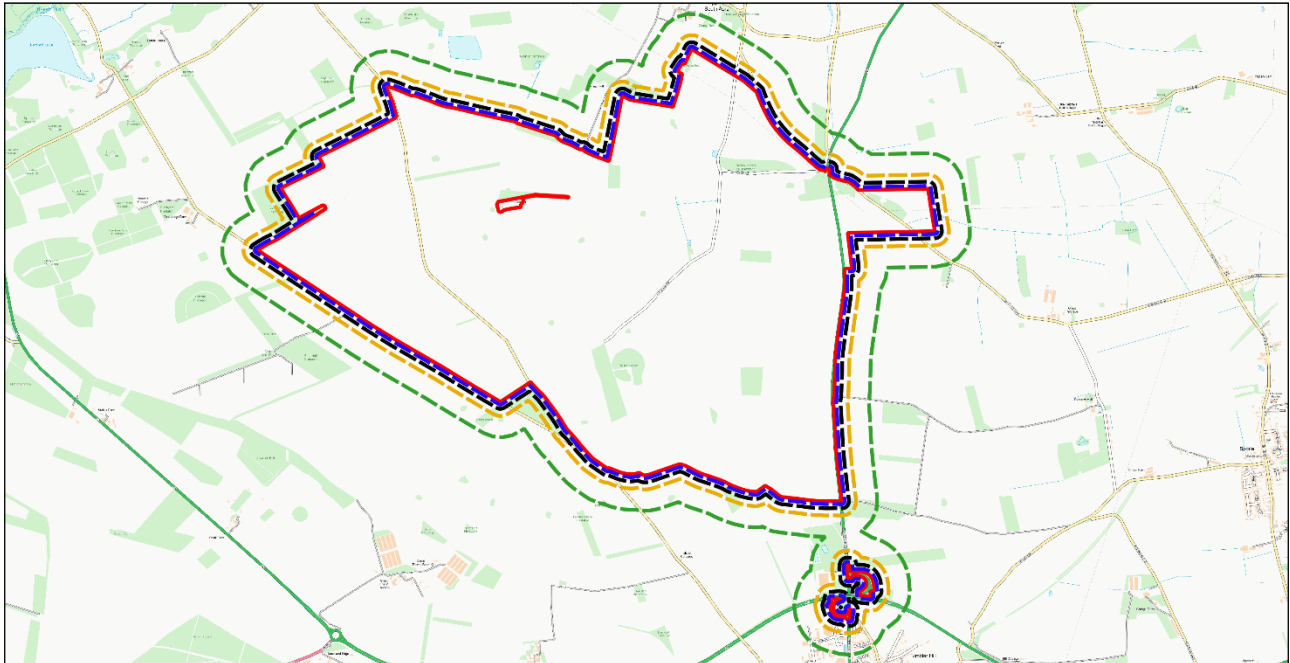
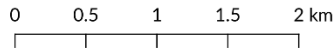
### 1.2.3 Sensitivity of the study area.

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM<sub>10</sub>, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The IAQM distance bands for sensitivity are illustrated relative to the Site in Figure 15.2.1.

<sup>2</sup> Cranfield Soil and Agrifood Institute Soilsmap – [online], (last accessed: 13/03/2025), Available at: <http://www.landis.org.uk/soilsmap/>



Legend






 Approximate Site Boundary  20 m from Site  50 m from Site  100 m from Site  250 m from Site

Figure 15.2.1: IAQM demolition and construction dust distance criteria from the Site boundary. Contains OS Data © Crown Copyright and Database rights 2024.

The sensitivity of the area and the factors considered are detailed in Table 15.2.8.

Table 15.2.8: Sensitivity of the area.

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
Dust Soiling	<p>For construction activities, within 20 m of the Site there is a residential traveller site which would be considered a high sensitivity receptor to dust soiling. Furthermore, there are approximately 1-10 commercial car parking spaces which would be considered medium sensitivity to dust soiling. Within 50 m of the Site, there are a further 10-100 commercial car parking spaces along with 1-10 residential properties which would be considered high sensitivity. Within 100-250 m from the Site, there are a further 10-100 residential properties, in addition to a medical centre and care home which would also be considered high sensitivity to dust soiling. Overall, in line with the IAQM guidance, the sensitivity of the area to dust soiling from on-site activity is anticipated to be high.</p> <p>For trackout, distances are measured from the sides of the roads anticipated to be used by construction traffic up to 250 m from the Site entrance. Within this distance, there are approximately 10-100 residential properties, a traveller site and 1-10 commercial properties. As such in line with the</p>	High	High

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
	IAQM guidance, the sensitivity of the area to dust soiling from trackout is anticipated to be high.		
Human Health	<p>The Defra predicted background concentrations<sup>3</sup> at the Site are below 24 µg/m<sup>3</sup>. For construction activities, within 20 m of the Site there is a residential traveller site which would be considered a high sensitivity receptor to human health impacts. Within 50 m of the Site, there are 1-10 residential properties which would be considered high sensitivity. Within 100-250 m from the Site, there are a further 10-100 residential properties, in addition to a medical centre and care home which would also be considered high sensitivity to human health impacts. Overall, in line with the IAQM guidance, the sensitivity of the area to human health impacts from on-site activity is anticipated to be low.</p> <p>For trackout, distances are measured from the sides of the roads anticipated to be used by construction traffic up to 250 m from the Site entrance. Within this distance, there are approximately 10-100 residential properties, a traveller site and 1-10 commercial properties. As such in line with the IAQM guidance, the sensitivity of the area to human health impacts from trackout is anticipated to be low.</p>	Low	Low

### 1.2.4 Risk of dust impacts.

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 15.2.9 details the risk of dust impacts for earthworks, construction and trackout activities.

Table 15.2.9: Summary of potential unmitigated dust risks.

Potential Impact	Sensitivity	Earthworks	Construction	Trackout
Magnitude		Large	Small	Large
Dust Soiling Impacts	High	High risk	Low risk	High risk
Human Health Impacts	Low	Low risk	Negligible	Low risk

### 1.3 Mitigation.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM guidance<sup>4</sup> are implemented. These mitigation measures have been selected for the Scheme and are based upon the dust risk categories outlined above in Table 15.2.9. The mitigation measures are provided in Table 15.2.10. These mitigation measures would be included in the outlined Construction Environmental Management Plan (oCEMP) and the Decommissioning Statement, submitted in support of the DCO Application.

<sup>3</sup> Defra (2024) Background Pollution Maps – 2021 – [online], (Last accessed: 13/03/2025), Available at: [uk-air.defra.gov.uk/data/iaqm-background-maps?year=2021](https://uk-air.defra.gov.uk/data/iaqm-background-maps?year=2021)

Table 15.2.10: Mitigation measures for Construction Phase.

Issue	Mitigation measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM <sub>10</sub> continuous monitoring and/or visual inspections.
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 the Local Authority 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 log book.
	Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority 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.
	Agree dust deposition, dust flux, or real-time PM <sub>10</sub> continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences.
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.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	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 site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	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 cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
	Ensure all vehicles switch off engines when stationary – no idling vehicles.

Issue	Mitigation measure
Operating vehicles/machinery and sustainable travel	Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)
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 and burning of waste materials.
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.
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.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being in continuous use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

Issue	Mitigation measure
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10 m from receptors where possible.



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