

Environmental Statement – Chapter 7: Air Quality Appendix 7.1: Construction Dust Assessment Methodology

Predicting Risk

The assessment of risk is determined by considering the predicted change in conditions as a result of the development. The risk category for potential dust effects arising from site works is defined into 4No. potential activities:

- demolition;
- earthworks;
- construction; and
- trackout.

The determination of risk categories presented above are based upon the descriptors presented within IAQM: Guidance on the assessment of dust from demolition and construction.

Sensitivity of Receptor

To determine the significance of dust effects associated with the construction phase of the development, an evaluation of the sensitivity of the surrounding area is required. Receptors can demonstrate different sensitivities to changes in their environment, and are classified as detailed within *Table Error! No text of specified style in document..1*.

Quoted distances to the nearest receptor are from the dust emission sources. Where this is not known, receptor distances are determined from the site boundary. The risk category is based upon the distance of site works to the nearest receptor.

Table Error! No text of specified style in document..1: Methodology for Defining Sensitivity to Dust Effects

Sensitivity of Area	Examples		
	Human Receptors		Ecological Receptors ^(A)
	Dust Soiling Effects	Health Effects of PM10	
High	<ul style="list-style-type: none"> users can reasonably expect an enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms. 	<ul style="list-style-type: none"> locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (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). Indicative 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. 	<ul style="list-style-type: none"> locations with an international or national designation and the designated features may be affected by dust soiling; or 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. indicative 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	<ul style="list-style-type: none"> users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or the people or property wouldn't reasonably be 	<ul style="list-style-type: none"> locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or 	<ul style="list-style-type: none"> locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition. indicative example is a Site of

Sensitivity of Area	Examples		
	Human Receptors		Ecological Receptors ^(A)
	Dust Soiling Effects	Health Effects of PM10	
	<p>expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.</p> <ul style="list-style-type: none"> indicative examples include parks and places of work. 	<p>more in a day).</p> <ul style="list-style-type: none"> indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM₁₀, as protection is covered by Health and Safety at Work legislation. 	<p>Special Scientific Interest (SSSI) with dust sensitive features.</p>
Low	<ul style="list-style-type: none"> the enjoyment of amenity would not reasonably be expected; or property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads. 	<ul style="list-style-type: none"> locations where human exposure is transient. indicative examples include public footpaths, playing fields, parks and shopping streets. 	<ul style="list-style-type: none"> locations with a local designation where the features may be affected by dust deposition. indicative example is a local Nature Reserve with dust sensitive features.

Notes:

(A) Only applicable if ecological habitats are present which may be sensitive to dust effects.

Assessment of Impact Significance – Dust Effects

Table Error! No text of specified style in document..2 to Table Error! No text of specified style in document..4 illustrates how the sensitivity of the area may be determined for dust soiling, human health and ecosystem impacts, respectively. The highest level of sensitivity from each table should be recorded.

Table Error! No text of specified style in document..2: Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10 – 100	Medium	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	<1	Low	Low	Low	Low

Table Error! No text of specified style in document..3: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from Source (m)				
			<20	<50	<100	<200	<350
High	>32µg/m ³	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 – 32µg/m ³	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 – 28µg/m ³	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	<24µg/m ³	>100	Medium	Low	Low	Low	Low
		10 – 100	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Medium	>32µg/m ³	>10	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	28 – 32µg/m ³	>10	Medium	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
	24 – 28µg/m ³	>10	Low	Low	Low	Low	Low

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from Source (m)				
			<20	<50	<100	<200	<350
		1 – 10	Low	Low	Low	Low	Low
	<24µg/m ³	>10	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Low	-	1	Low	Low	Low	Low	Low

Table Error! No text of specified style in document..4: Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Source (m) ^(A)	
	<20	<20
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Note:

(A) For trackout, the stand-offs should be measured from the side of the roads used by construction traffic.

Defining the Risk of Impact

Table Error! No text of specified style in document..5 to Table Error! No text of specified style in document..8 illustrates 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 Error! No text of specified style in document..5: Risk of Dust Impacts – Demolition

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

Table Error! No text of specified style in document..6: Risk of Dust Impacts – Earthworks

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

Table Error! No text of specified style in document..7: Risk of Dust Impacts – Construction

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

Table Error! No text of specified style in document..8: Risk of Dust Impacts – Trackout

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