

AQ risk assessment

Project Ref.: 20638

Site Address:

12 Pilgrim Lane London NW3 1SN

For:

Sterling N3 Constructors Ltd

55 The Fairway,

Northolt UB5 4SL

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Introduction

ES Monitoring Ltd has been appointed to prepare an environmental noise management plan for the project at 12 Pilgrim Lane London NW3 1SN.

The following report presents information gathered from relevant documentation and in establishing criteria, controls and working methods, account shall be taken of guidance as per Greater London Authority (GLA) Supplementary Planning Guidance (SPG) on the Control of Dust and Emissions During Construction and Demolition (2014) which is based on that provided by the Institute of Air Quality Management (IAQM).

Air Quality Risk Assessment

The construction dust assessment considers the potential for impacts within 50m of the site boundary or within 50m of any road used by construction vehicles, up to 500m from the site boundary. The assessment methodology follows the Greater London Authority (GLA) Supplementary Planning Guidance (SPG) on the Control of Dust and Emissions During Construction and Demolition (2014) which is based on that provided by the Institute of Air Quality Management (IAQM). The Dust Emission Magnitude (DEM) is based on the scale of the anticipated works and the site will be classified as Small, Medium or Large.

The risk evaluation considerations are based on the following steps:

Step 1: Screen the need for a detailed assessment of human and ecological receptors

Step 2A: Define the potential dust emission magnitude based on the scale of anticipated works

Step 2B: Define the sensitivities of the area to any dust that may be raised

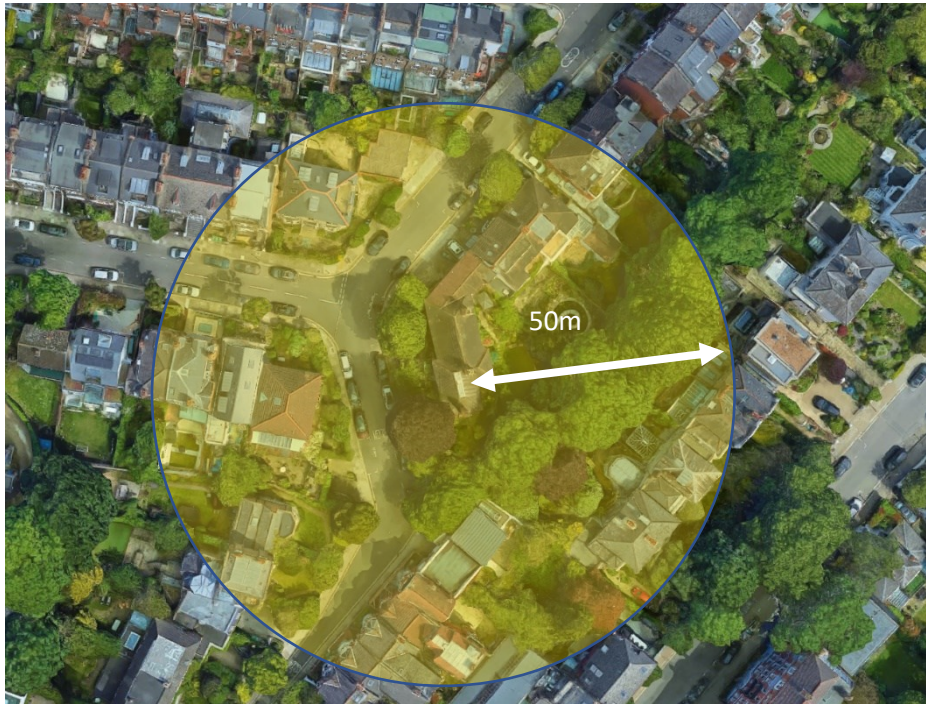
Step 2C: Define the risk of dust impacts without appropriate mitigation

The site activities can be classified into four phases according to dust risk and are assessed on the basis of site activities and the sensitivity of nearby receptors, these are: demolition, earthworks, construction, trackout.

STEP 1. Area sensitivity Screening

The adjacent building and sensitive receptors to this site include:

- Residential properties around the site



STEP 2A: Dust Emission Magnitude

DEMOLITION

The demolition phase of this project was assessed as **LOW** risk based on the nature of the works involving some dusty construction material (concrete). The volume of the demolished building falls within 20.000m³, and the demolition activities would happen up to 10m above the ground level. Most activities will be undertaken within the enclosed building, additionally a temporary roof will be erected for the period of roof replacement.

EARTHWORKS

Earthworks primarily cover excavation, haulage, tipping and stockpiling of soil type material. This includes levelling the site and landscaping.

The Earthwork phase of the project was assessed as **LOW** risk based on total area less than 2.500m², and <5 heavy earth moving vehicles active at any time. There are no formation of bounds and the total material moved is <20.000tonnes.

CONSTRUCTION

The key issues when determining the potential dust emission magnitude during the construction phase include the size of the building(s)/infrastructure, method of construction, construction materials, and duration of build.

Similarly, to the above due to the magnitude of the construction site of approx. 320m³, mostly with construction material with low potential for dust release, and limited use of potentially dusty construction material it was assessed as **LOW** risk.

TRUCKOUT

Factors that determine the risk of dust emissions from trackout are vehicle size, vehicle speed, geology and duration. Only receptors within 50m of the route(s) used by vehicles on the public highway and up to 500m from the site entrance(s) are considered to be at risk from the effects of dust trackout.

The scale of risk of dust emission during the trackout phase on this project has been assessed as **SMALL** based on the number of outward movements made in any one day (max 2 HDV (>3.5t)). Additionally the vehicles will not be acceding the site internally but from the paved road thus resulting in minimal transfer of site debris onto public roadways.

Activity	Dust Emission Magnitude
Demolition	SMALL
Earthworks	SMALL
Construction	SMALL
Trackout	SMALL

STEP 2B: Sensitivity of the area

Sensitivity of people to dust soiling effects

The sensitivity of the area takes into account a number of factors including:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM10, the local background concentration; and
- Site specific factors.

The sensitivity of people to dust soiling effects within the local area of this project has been assessed as **HIGH** based on the following principles:

- users can reasonably expect enjoyment of a high level of amenity;
- the appearance, aesthetics or value of their property would be diminished by soiling;
- 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.

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)c			
		<20	<50	<100	<350
High	>100	HIGH	HIGH	<u>MEDIUM</u>	LOW
	>10-100	HIGH	<u>MEDIUM</u>	LOW	LOW
	1-10	<u>MEDIUM</u>	LOW	LOW	LOW

Sensitivities of people to the health effects of PM10

The sensitivities of people to the health effects of PM10 are based on whether or not receptors are likely to be exposed to elevated concentrations over a 24-hour period, consistent with Defra’s advice for local air quality management (Defra, 2009, LAQM Technical Guidance LAQM.TG (09)).

In carrying out this assessment of health effects on local receptors to the project, data from the Camden Air Quality Annual Status Report (2022) was taken into consideration, it notes the Annual Mean PM10 concentration as 21 (for the worst affected area).

The sensitivities to health effects on this project have been assessed as **HIGH** based on the following principles:

- 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.

Receptor Sensitivity	Annual Mean PM ₁₀ concentration	Number of Receptors	Distance from the Source (m)c				
			<20	<50	<100	<200	<350
HIGH	<24 ug/m ³	>100	Medium	Low	<u>Low</u>	Low	Low
		10-100	Low	<u>Low</u>	Low	Low	Low
		1-10	<u>Low</u>	Low	Low	Low	Low

Sensitivities of receptors to ecological effects

Dust can have two types of effects on vegetation: physical and chemical. Direct physical effects include reduced photosynthesis, respiration and transpiration through smothering. Chemical changes to watercourses or soils may lead to loss of plants or animals via changes in acidity. Indirect effects can include susceptibility to stressors such as pathogens and air pollution. These changes are likely to occur only as a result of long term demolition and construction works adjacent to a sensitive habitat. Often impacts will be reversed when the works are completed and dust emissions cease.

The sensitivities of receptors to ecological effects have been assessed as **LOW** based on the following:

- Locations with a local designation where features may be affected by dust deposition.

Receptor Sensitivity	Distance from the Source (m)c	
	<20	<50
Low	Low	Low

Additional factors to consider

The following additional factors have been considered when determining the sensitivity of the area:

- Any history of dust generating activities in the area;
- The likelihood of concurrent dust generating activities on nearby sites;
- Any pre-existing screening between the source and receptors;
- Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant
- The season during which the work will take place;
- Any conclusions drawn from local topography;
- Duration of the potential impact, as a receptor, may become more sensitive over time; and
- Any known specific receptor sensitivities which go beyond the classification given.

Risk of dust impacts with no mitigation applied

The below table combines the dust emission magnitude determined above with the sensitivity of the area, determining the risk of impacts with no mitigation applied.

We have assessed the following risk of dust impacts for the various phases of work. It is Erith’s intention to apply maximum mitigation measures in excess of the requirement to better ensure that a non-nuisance environment exists for all receptors.

Demolition:

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	High Risk	Medium Risk	<u>Low Risk</u>
Low	Low Risk	Low Risk	Negligible

Earthworks:

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	<u>Low Risk</u>
Low	Low Risk	Low Risk	Negligible

Construction:

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	<u>Low Risk</u>
Low	Low Risk	Low Risk	Negligible

Trackout:

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	<u>Negligible</u>
Low	Low Risk	Low Risk	Negligible

Air Quality Mitigation Measures

Dust from construction and demolition sites can have a negative effect on the amenity of neighbouring residents. Dust and other pollutants can have a range of effects, the severity of which can vary depending upon the on the recipient as referenced in the IAQM 'Guidance on the assessment of dust from demolition and construction'.

As such, it is important that a number of mitigation measures are applied in order to minimise dust emissions from the site, in accordance with the Mayor's SPG for Control of Dust and Emissions during Construction and Demolition.

General advice for all construction and demolition sites, include the following:

- Dust generated by the construction process will be suppressed via a fine directional spray jet of water aimed at the source, and any material to be transported to be wetted down prior to transit.
- Skips and powder containers to be covered when not in use
- Wherever possible fabrication / dismantling is undertaken off site
- Cutting equipment to be used with water suppressant and/or suitable extract system
- Vehicles transporting materials capable of generating dust to and from site will be suitably sheeted on each journey to prevent release of materials and particulate matter. The sheeting material will be maintained in good order, free from excessive rips and tears;
- Plant is well maintained (with efficient dust suppression systems) and switched off when not in use;
- No burning of waste wood or other materials on site
- The stockpiling of dust generating materials on site will be minimised
- Wet brushing techniques will be used for cleaning
- Regular checks for visual observation of dust and soiling within 50m of site
- Soft strip inside the building before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- Screening to be erected surrounding site boundaries where possible
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment
- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone, where applicable
- All employees are provided with an appropriate induction and on-going briefings regarding dust mitigation measures required from the works they are carrying out
- Only use registered waste carriers to take waste off-site

Furthermore, according to IAQM guidelines, it would be necessary to inspect the area in the local vicinity of the construction works to ensure that surfaces are not soiled by dust emissions from the site, with suitable cleaning offered if necessary. In order to minimise this, it would be recommended that screens are erected around the site boundaries as appropriate.

The following mitigation measures will be implemented when construction methods are being considered, to reduce emissions in relation to construction plant:

- Vehicle engines and equipment will be switched off when not in use and not left running unnecessarily
- Vehicles and Equipment will be maintained in accordance with the manufacturer's recommendations
- Where practicable kept operating equipment away from potentially sensitive receptors
- Mains or battery powered equipment will be used where practically possible and available
- All qualifying plant procured or hired will be registered on the NRMM register ensuring that it conforms to EU standard IIIA for GLA.

Automated PM₁₀/PM_{2.5} Monitoring

The impact from the on-site activities was assessed and the site was identified as low-risk impact site during the demolition and construction period with negligible impact from the trackout.

Camden Council states that the real-time dust (PM10) monitoring with MCERTS 'Indicative' monitoring equipment will be required for all sites with a high OR medium dust impact risk level. As the site does not present medium or high dust impact risk levels, it is recommended to follow the *Guidance on the assessment of dust from demolition and construction* and :

- 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 checks of surfaces such as street furniture, cars and window sills within 100 m of 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.

Conclusions

ES monitoring Ltd. have reviewed the relevant documentation and prepared the AQ risk assessment and identified the possible impact from on-site activities at 12 Pilgrim Lane, London NW3 1SN.

The sensitivity of the area was assessed as MEDIUM while dust emission magnitude as SMALL during each construction/demolition phase.

The site have been identified as low dust impact risk level during demolition, construction and earthworks, and that the trackout activities will have negligible dust impact on the surrounding area.

It had been concluded that automated monitoring will not be required as per Camden Council recommendations, though visual inspection and monitoring of the surrounding area is desirable approach.

Krzysztof Mrozek

ES Monitoring Ltd.