Construction Dust Risk Assessment

133-137 Brecknock Road, London, N19 5AE

12.06.2019

1 Introduction

1.00 This report describes the potential dust impacts associated with the construction phase of the proposed residential development at 133-137 Brecknock Road, London, N19 5AE.

2.00 The proposed development involves the construction of a two-storey residential dwelling with one of the stories as a basement level. It lies within an Air Quality Management Area (AQMA) declared by the London Borough of Camden for exceedances of the annual mean nitrogen dioxide objectives.

3.00 The assessment is needed to inform the Construction Management Plan (CMP) for the development.

4.00 The GLA has released Supplementary Planning Guidance on the Control of Dust and Emissions from Construction and Demolition (GLA, 2014b). The SPG outlines a risk assessment approach for construction dust assessment and helps determine the mitigation measures that will need to be applied.

5.00 The assessment of construction dust impacts focuses on the anticipated duration of the works.

6.00 This report has been prepared taking into account relevant guidance:

- Camden's Minimum Requirements for Building Construction (CMRBC).
- Camden Planning Guidance Basements March 2018
- Camden Clean Air Action Plan 2019-2022
- DEFRA: Air Quality Strategy for England, Scotland, Wales and Northern Ireland – July 2007
- BRE: Controlling particles, vapour and noise pollution from costruction sites, parts 1-5 – 2003

2 UK Legislation

Below is a summary that is relevant to air quality that is current at the time of writing this plan.

- The Air Quality Standards Regulations 2010
- The Air Quality Limit Values Regulations 2003
- Environmental Protection Act 1990 as ameneded
- Common Law Nusiance
- Clean Air Act 1993
- Control of Asbestos regulations 2006
- Control of Substances Hazardous to health regulations 2002
- Environment Act 1995
- Environmental permitting (England and Wales) Regulations 2010 as amended
- Pollution Prevention and Control Act 1999
- Pollution Prevention and Control (England and Wales) Regulations 2011
- Climate Change Act 2008
- Volatile Organic Compounds in Paints, Varnishes and Vehicle Refinishing Products Regulations 2005
- Policy 7.14 The London Plan

3 Assessment Approach

1.00 The GLA's SPG on The Control of Dust and Emissions During Construction and Demolition (GLA, 2014b) outlines a risk assessment-based approach to considering the potential for dust generation from a construction site, and sets out what mitigation measures should be implemented to minimise the risk of construction dust impacts, dependent on the outcomes of the risk assessment.

2.00 There are no formal assessment criteria for dust. In the absence of formal criteria, the approach developed by the Institute of Air Quality Management (IAQM) (2014), on which the assessment methodology outlined in the GLA's SPG (GLA, 2014b) is based, has been used.

3.00 Guidance from the IAQM (Institute of Air Quality Management, 2014) is that, with appropriate mitigation in place, the impacts of construction dust will not be significant. The assessment thus focuses on determining the appropriate level of mitigation so as to ensure that impacts will normally not be significant.

4.00 The construction dust assessment considers the potential for impacts within 350m of the site boundary; or within 50 m of roads used by construction vehicles. The assessment methodology follows the GLA's SPG on the Control of Dust and Emissions During Construction and Demolition (GLA, 2014b), which is based on that provided by the IAQM (Institute of Air Quality Management, 2014).

3 Construction Phase Impact Assessment

3.1 Site Classification

Below is a summary of the site classification in accordance with the IAQM.

Activity	**Dust Emission Magnitude**
Demolition	Small
Earthworks	Medium
Construction	Small
Trackout	Small

Demolition – Small

There will be minimal demolition, consisting of the hand removal of some garden walls and fences. Dust created will be negligible.

- Construction materials with low potential dust release
- Demolition activities less than 10m above ground level
- Total building volume demolished is less than 20,000m3

Earthworks - Small

The construction of the basement will involve the excavation and removal of 715 m3 of earth from the site. The site is approx. 250m2 in area. It is proposed to use 1 excavator on the site.

- Total site area is less than 2,500 m2
- Less than 5 heavy earth moving vehicles active at any one time
- total material moved is less than 10,000 tonnes
- No bunds formed higher than 4m

Construction - Small

Construction will involve the erection of a RC basement box to form the basement level. Above this level, a masonry and concrete superstructure with a timber roof will be formed.

- Total building Volume <25,000m3
- Concrete is proposed which is a potentially dusty construction material - however the concrete is not batched on site. It will be delivered and pumped into the site.

Trackout - Small

Construction vehicles will stop and load spoil into a lorry with a 'grabber' arm to lift spoil over the site boundary. There will be a maximum of around 20 outward heavy vehicle movements per week during the peak period of excavation of the basement, and the level will be lower at other times.

- Less than 10 HGV (3.5t) outward movements in any one day
- No unpaved roads

Taking these points into account and considering that all vehicle movements will take place on paved roads, it is considered that the risk of trackout is small.

3.2 Sensitivity of the Area

This assessment step combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the site. It also considers baseline PM10 concentrations in the case of sensitivity to human health effects.

Sensitivity of the Area to Effects from Dust Soiling

The IAQM guidance, upon which the GLA's guidance is based, explains that residential properties are 'high' sensitivity receptors to dust soiling. Below is a summary of the estimated residential properties at different distances from the site and the site sensitivity categorisation.

Sensitivities of the area to Dust Soiling effects on people and property					
Receptor Sensitivity	**No. of Receptors**	**Distance from source (m)**			
		<20	<50	<100	<350
High	**>100**				Low -300
	1 to 100		Medium -28	Low - 80	
	1 to 10	Medium -10			
Medium	**>1**	None			
Low	**>1**	None			

Sensitivity of the Area to any Human Health Effects

Residential properties are classified as being of 'high' sensitivity to human health effects. The table below requires information on the baseline annual mean PM10 concentration in the area. The annual mean PM10 background concentration is 25 µg/m3.

Using the table below, the area surrounding the onsite works is of 'medium' sensitivity to human health effects.

Sensitivities of People to the Health Effects of PM10						
			Distance from source (m)			
Receptor Sensitivity	**Annual PM10 mean concentration**	**No. of Receptors**	**<20**	**<50**	**<100**	**<350**
High	**>32**	**>100**				
		1 to 100				
		1 to 10				
	28-32	**>100**				
		1 to 100				
		1 to 10				
	24-28	**>100**				Low -300
		1 to 100		Medium -28	Low - 80	
		1 to 10	Medium -10			
	<24	**>100**				
		1 to 100				
		1 to 10				
Medium	**>32**	**>100**				
		1 to 100				
		1 to 10				
	28-32	**>100**				
		1 to 100				
		1 to 10				
	24-28	**>100**				
		1 to 100				
		1 to 10	None			
	<24	**>100**				
		1 to 100				
		1 to 10				
Low		**>1**	None			

Sensitivity of the Area to any Ecological Effects

The guidance only considers designated ecological sites within 50 m to have the potential to be impacted by the construction works. There are no designated ecological sites within 50 m of the site boundary. Therefore, the sensitivity is classified as low.

Sensitivities of the area to Ecological Impacts		
Receptor Sensitivity	**Distance from source (m)**	
	<20	**<50**
High		
Medium		
Low	**Low**	**Low**

Summary of sensitivity

Outcome of Defining the Sensitivity of the Area				
	Activity			
Potential Impact	*Demolition*	*Earthworks*	*Construction*	*Trackout*
Dust Soiling	Medium	Medium	Medium	Medium
Human Health	Medium	Medium	Medium	Medium
Ecological	Low	Low	Low	Low

3.3 Risk of dust impacts

The dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts without mitigation. Below is a table of the level of risk for each activity in accordance with the IAQM. They are either low or negligible risk.

Site specific summary for Land to the rear of 133-137 Brecknock Road				
	Activity			
	Demolition	*Earthworks*	*Construction*	*Trackout*
Potential Impact	**Risk**			
Dust Soiling	Low Risk	Low Risk	Low Risk	Negligible
Human Health	Low Risk	Low Risk	Low Risk	Negligible
Ecological	Negligible	Negligible	Negligible	Negligible

4 Mitigation

1.00 Measures to mitigate dust emissions will be required during the construction phase of the development in order to reduce impacts upon nearby sensitive receptors.

2.00 The site has been identified as a Low Risk site during construction as set out in Table 2. The GLA's SPG on The Control of Dust and Emissions During Construction and Demolition (GLA, 2014b) describes measures that should be employed, as appropriate, to reduce the impacts. This has been used, together with the experience of the contractor, to draw up a set of measures that will be incorporated into the specification for the works.

3.00 The construction works have the potential to create dust. During construction it will therefore be necessary to apply a package of mitigation measures to minimise dust emission. With these measures in place, it is expected that any residual effects will be 'not significant'.

4.00 However, the guidance recognises that it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will not be significant.

5 Mitigation measures

The following set of measures will be incorporated into the construction process:

Site Management

- The Site Manager will monitor operations with the potential to cause airborne dust emissions and all findings (including prevailing weather conditions) will be recorded in a logbook
- display the contractor's office contact information on hoardings
- record and respond to all dust and air quality pollutant emissions complaints
- make a complaint log available to the local authority when asked
- carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the Local Authority when asked
- increase the frequency of site inspections when activities with a high potential to produce dust and emissions are being carried out and during prolonged dry or windy conditions; and record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and ensure that the action taken to resolve the situation is recorded in the log book.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone
- Ensure all Non-road Mobile Machinery (NRMM) comply with the standards set within the GLA's Control of Dust and Emissions During Construction and Demolition SPG and register for the NRMM compliance scheme
- Ensure vehicles servicing the site are covered to prevent escape of materials during transport
- Ensure all vehicles switch off engines when stationary – no idling vehicles; and avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

Operations

- Plant and equipment to be selected to minimise the generation of dust; 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 recycled water where possible and appropriate;
- use enclosed chutes, 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
- 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 bags of fine powder materials are sealed after use and stored appropriately to prevent dust
- during dry conditions, suspend soil handling operations if wind conditions give rise to dust
- hard surfaces and public roads to be swept regularly when potential traffic movements containing soil, spoil, hardcore, concrete etc. are being taken in or out of the site
- traffic speed to be lowered to prevent the generation of dust
- store materials as far away as possible from sensitive boundaries, whenever possible
- reuse and recycle waste to reduce dust from waste materials
- avoid bonfires and burning of waste materials

6 Training

• All site personnel will be made aware of the air quality issues covered in this plan during site induction.

• Toolbox talks will be given to remind all site personnel of the requirements of dust management.

• Method statements briefed to all site personnel before any works that may impact air quality are carried out on site.

7 Complaints and incident procedures

Complaints received will be recorded and investigated by the Site Manager.

Actions to be taken:

- Time, date, identity and contact details of complainant are to be taken;
- A note is to be taken if the complaint has been referred by the local authority;
- Ask the complainant to describe the dust emission - is it constant or intermittent, how long has it been occurring for and is it worse at any time of the day? Does it come from an identifiable source?
- As soon as possible after receipt of the complaint, a site inspection is to be undertaken, by the site manager and all dust producing activities noted. Note all dust mitigation methods that are being employed
- If the complaint is related to an activity in the recent past, note any dust producing activities that were underway at the time. If possible, implement any remedial action possible;
- Visit the area from which the complaint originated and ascertain if there is still a problem;
- After initial investigations have been completed, contact the complainant and explain any problems and remedial actions taken;
- Notify the Project Manager and the Local Authority that a complaint has been received, the findings of the investigation and the remedial measure(s) that were taken.