1. **Introduction**

An Air Quality Dust Risk Assessment was undertaken for planning application 2017/5914/P (42230, Air Quality Assessment, October 2017). Further information has been requested by Gabriel Berry-Khan in terms of the individual level of risk for each of Demolition, Earthworks, Construction, Trackout.

This note provides the individual levels of risk to confirm the appropriate level of mitigation to employ in accordance with The Control of Dust and Emissions During Construction and Demolition SPG.

2. **Original Assessment**

The original assessment was undertaken using a methodology that we have used for many projects, both inside and outside London. This judges the overall level of risk for the generation of dust from the site; which is either high, medium or low. Whilst the impact assessment can be split down into various categories, the recommended dust mitigation is simply taken from a list representing either high, medium or low mitigation; with mitigation from the highest risk category selected where there is uncertainty regarding the level of mitigation to employ. Overall, the assessment is one of exercising professional judgement, with the guidance provided to aid the assessment.

The original assessment considered that the risk of dust emissions was low as the project would involve the demolition and construction of structures located in the rear of the site, with less than 20,000 m$^3$ to be demolished or built. The study area was considered to be of medium sensitivity, due to 10-100 residential properties within 50 m and shops within 20 m. Appropriate mitigation corresponding to a low risk site was therefore recommended to be included in the CEMP for the site.

3. **Demolition Emission Magnitude**

The demolition dust emission magnitude is defined in accordance with Table 3.1.

<table>
<thead>
<tr>
<th>Dust Emission Magnitude</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>&gt;50,000 m$^3$ building demolished, dusty material (i.e. concrete), on-site crushing/screening, demolition &gt;20 m above ground level</td>
</tr>
<tr>
<td>Medium</td>
<td>20,000 – 50,000 m$^3$ building demolished, dusty material (i.e. concrete) 10 – 20 m above ground level</td>
</tr>
<tr>
<td>Small</td>
<td>&lt;20,000 m$^3$ building demolished, non-dusty material, &lt;10 m above ground level, work in winter</td>
</tr>
</tbody>
</table>

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The project involves the demolition of a single storey shed at the rear of the site and there is no on-site crushing.

As the building to be demolished is a single storey, then activities will be undertaken less than 10 m above ground level, the building to be demolished is less than 20,000 m$^3$ in volume and it is considered that the materials are non-dusty. The overall demolition dust emission magnitude is therefore considered to be low.

4. **Earthworks**

The earthworks dust emission magnitude is defined in accordance with Table 4.1.

Table 4.1: Criteria for Earthworks Dust Emission Magnitude

<table>
<thead>
<tr>
<th>Dust Emission Magnitude</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>&gt;10,000 m$^2$ site area, dusty soil type (i.e. clay),</td>
</tr>
<tr>
<td></td>
<td>&gt;10 earth moving vehicles active simultaneously,</td>
</tr>
<tr>
<td></td>
<td>&gt;8 m high bunds formed, &gt;100,000 tonnes material moved</td>
</tr>
<tr>
<td>Medium</td>
<td>2,500 – 10,000 m$^2$ site area, moderately dusty soil (i.e. silt),</td>
</tr>
<tr>
<td></td>
<td>5 – 10 earth moving vehicles active simultaneously,</td>
</tr>
<tr>
<td></td>
<td>4 m – 8 m high bunds, 20,000 -100,000 tonnes material moved</td>
</tr>
<tr>
<td>Small</td>
<td>&lt;2,500 m$^2$ site area, non-dusty soil, &lt;5 earth moving vehicles active simultaneously,</td>
</tr>
<tr>
<td></td>
<td>&lt;4 m high bunds, &lt;10,000 tonnes material moved</td>
</tr>
</tbody>
</table>

As the site is a previously developed site in London, and is in a constrained location, there would not be extensive landscaping works involving moving large quantities of soil.

The basement site area to be excavated is approximately 600 m$^2$ and therefore well below 2,500 m$^2$. The quantity of material excavated is less than 10,000 tonnes. Excavated mater will be continuously removed.

In accordance with the Ground Investigation and Basement Impact Assessment Report (GEA, September 2017) the material to be excavated includes made ground, gravel and clay. However, groundwater was been measured at depths of between 3.11 m and 5.59 m, and as such some form of groundwater control will be required during the basement excavation. This indicates that whilst the excavated material is potentially dusty, it is likely to be damp and therefore with a low potential to generate dust. Overall therefore, the dust emission magnitude for earthworks is considered to be small.

5. **Construction**

The construction dust emission magnitude is defined in accordance with Table 5.1.

Table 5.1: Criteria for Construction Dust Emission Magnitude

<table>
<thead>
<tr>
<th>Dust Emission Magnitude</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>&gt;100,000 m$^3$ building volume, piling, on site concrete batching, sandblasting</td>
</tr>
<tr>
<td>Medium</td>
<td>25,000 – 100,000 m$^3$ building volume, potentially dusty construction material, on site concrete batching</td>
</tr>
</tbody>
</table>
Small  <25,000 m$^3$ building volume, non-dusty material

The total building volume is approximately 20,000 m$^3$ and therefore within the small category. Concrete materials for the construction are brought to the site ready mixed and are therefore not dusty. The facing of the building will include brass cladding and therefore non-dusty. Overall, the construction dust emission magnitude is considered to be low.

6. **Trackout**

The earthworks dust emission magnitude is defined in accordance with Table 6.1.

Table 6.1: Criteria for Trackout Dust Emission Magnitude

<table>
<thead>
<tr>
<th>Dust Emission Magnitude</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>&gt;50 HDVs out / day, dusty soil type (i.e. clay), &gt;100 m unpaved roads</td>
</tr>
<tr>
<td>Medium</td>
<td>10 - 50 HDVs out / day, moderately dusty surface material, 50 – 100 m unpaved roads</td>
</tr>
<tr>
<td>Small</td>
<td>&lt;10 HDVs out / day, non-dusty soil, &lt; 50 m unpaved roads</td>
</tr>
</tbody>
</table>

The site access is via paved roads into an already developed site, with much less than 50 m of unpaved roads. There will therefore be less than 10 HDVs per day leaving the site on unpaved ground, where they could accumulate mud and dirt that could be tracked out on the public highway. The trackout dust emission magnitude is therefore considered to be small.

7. **Site sensitivity**

The original dust risk assessment considered that the site sensitivity was medium due to the risk of dust soiling and the presence of high sensitive receptors in close proximity to the site. However, the site is constrained by buildings on all sides and therefore the buildings will act as a natural shelter, reducing the risk of wind-blown dust.

In terms of human health impacts, annual mean PM$_{10}$ concentrations measured at the urban background site at Bloomsbury and Defra background map concentrations are less than 24 µg/m$^3$ (Table 4.3 of the SPG), and therefore the area sensitivity to PM$_{10}$ concentrations would be low.

There are no ecological receptors that could be affected by dust emissions from the site.

8. **Summary of Risk**

In accordance with Table 4.10 of the SPG, and taking into account the relative combination of emission magnitude and area sensitivity; the risk of each element is summarised in Table 8.1.

Table 8.1: Summary Dust Risk Assessment

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Dust Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Demolition</td>
</tr>
<tr>
<td>Dust Soiling</td>
<td>Low</td>
</tr>
<tr>
<td>Human Health</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

In accordance with the risk assessment, mitigation techniques for a low risk site should be incorporated for demolition, earthworks and construction. Mitigation for a negligible risk site should be incorporated for trackout.
9. Mitigation Techniques

Considering the individual risk elements has essentially led to the same conclusion as the original assessment apart for trackout; where the risk is judged to be negligible instead of low. The dust mitigation measures that should be applied are summarised below.

Site Management

- Display the name and contact details of persons accountable on the site boundary;
- Display the head or regional office information on the site boundary;
- 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 site inspection frequency during prolonged dry or windy conditions and when activities with high dust potential are being undertaken; and
- Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and the action taken to resolve the situation is recorded in the log book.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible;
- Erect solid screens or barriers around dusty activities or the site boundary at least as high as any stockpile on site;
- Fully enclosure 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 techniques; and
- Remove potentially dusty materials from site as soon as possible.

Operating Vehicle/Machinery

- Ensure all on road vehicles comply with the London Low Emission Zone;
- Ensure all non-road mobile machinery (NRMM) comply with the standards;
- Ensure all vehicles switch off engines when stationary;
- Avoid the use of diesel or petrol powered generators where possible;
- Impose and signpost a maximum speed limit of 10mph on surface haul and work areas; and
Implement a Travel Plan that supports and encourages sustainable travel (public transports, cycling, walking, and car-sharing).

Operations

- Only use cutting, grinding and sawing equipment with dust suppression equipment;
- Ensure an adequate supply of water on site for dust suppressant; (using recycled water where possible);
- Use enclosed chutes and conveyors and covered skips; and
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use water sprays on such equipment where appropriate.

Waste Management

- Reuse and recycle waste to reduce dust from waste materials; and
- Avoid bonfires and burning of waste materials on site.

Demolition

- Use of soft strip inside buildings before demolition;
- Ensure effective water suppression is used during demolition operations;
- Avoid explosive blasting; and
- Bag and remove any biological debris or damp down such material before demolition.

Construction

- Avoid scabbling (roughening of concrete surfaces) if possible; and
- Ensure sand and other aggregates are stored in bunded areas and are not allow to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.