



Local Government Air Quality Toolkit

Dust from construction sites visual guide

Visual examples to help council officers when investigating complaints about dust generation at construction sites

Acknowledgement of Country

Department of Climate Change, Energy, the Environment and Water acknowledges the Traditional Custodians of the lands where we work and live.

We pay our respects to Elders past, present and emerging.

This resource may contain images or names of deceased persons in photographs or historical content.

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Introduction

This visual guide provides information to assist council officers when investigating complaints from local residents of dust impacts from construction occurring nearby. The guide provides visual examples for various issues related to dust generation at construction sites.

Refer to the Local Government Air Quality Toolkit – *Dust from construction sites guidance note* for further information about good design and management practices to reduce dust emissions from construction sites.

The images in this visual guide are labelled with traffic light symbols indicating the effectiveness or otherwise of management of odour and particulate issues (Figure 1).



Figure 1 Key to traffic light symbols

Chapter 3 of the Local Government Air Quality Toolkit – *Resource pack* includes a checklist for conducting a site inspection for dust generating activities and investigating dust-related complaints.

Dust screening

Figure 2, Figure 3, Figure 4 and Figure 5 show examples of good dust screening on construction sites.



Figure 2 Well-maintained dust screen
Source: Jane Barnett/Zephyr Environmental

Screens should be porous to allow wind to blow through them (Figure 3). This prevents them from tearing or getting damaged during high winds, as well as avoiding constricting air movement, which may lead to increased dust. If such issues arise, it may be useful to increase the porosity by including larger openings in dust screens.



Figure 3 Well-designed dust screen
Source: Jane Barnett/Zephyr Environmental

It is good practice to include dust screening at elevated levels during construction of high-rise buildings, to prevent material blowing onto roads and walkways beneath (Figure 4).



Figure 4 **Good screening at elevated levels**
Source: Tom Mifsud/Zephyr Environmental

Some onsite activities can generate very high levels of dust, such as concrete grinding or sandstone cutting. Additional internal screening on site, not just at the boundary, can help mitigate these emissions at the source (Figure 5). The use of localised dust extraction is also good practice for such activities. The *Construction sites guidance note* and Module 3 Part 1 – *Air pollution control techniques* provide more information on such control measures.



Figure 5 Additional screening for high-dust activities
Source: Jane Barnett/Zephyr Environmental

Stockpiling

This activity generally refers to the stockpiling of waste material from earthworks, or materials that are delivered to a site to be used in construction.

Figure 6 shows an uncovered stockpile of waste material that would be exposed to wind erosion when dry. There is also a lack of screening material on neighbouring fences to prevent dust entering adjacent properties (see 'Dust screening' above).



Figure 6 Uncovered building waste and lack of dust screening
Source: Jane Barnett/Zephyr Environmental

There may also be issues with the piling of waste into skip bins that are overloaded (Figure 7). This waste can easily be blown into neighbouring properties or onto the road during high winds.



Figure 7 **Overloaded skip bin**
Source: Jane Barnett/Zephyr Environmental

Dust suppression

The most common way to suppress windblown dust is to use water sprays. These can be mobile (Figure 8), fixed or handheld. Smaller sites such as low density residential construction may use handheld sprays during times of high winds or in anticipation of these high winds. Larger sites may use mobile sprays and move them to specific sources as required. For example, Figure 8 shows the mobile spray currently on a waste stockpile, but it could be moved to the raw material stockpiles at other times.

Large sites may also require watering of unsealed roads, however this would be unusual at local low density residential builds or similar scale projects.



Figure 8 Mobile water spray to suppress windblown dust

Source: Damon Roddis/Zephyr Environmental

Some activities on construction sites are dustier than others and may require specific attention with water sprays. Figure 9 shows a dust plume generated from machinery breaking rocks and concrete. Given the close proximity to the adjacent property, it would be good practice to incorporate some dust suppression, possibly targeted water sprays, during this process.

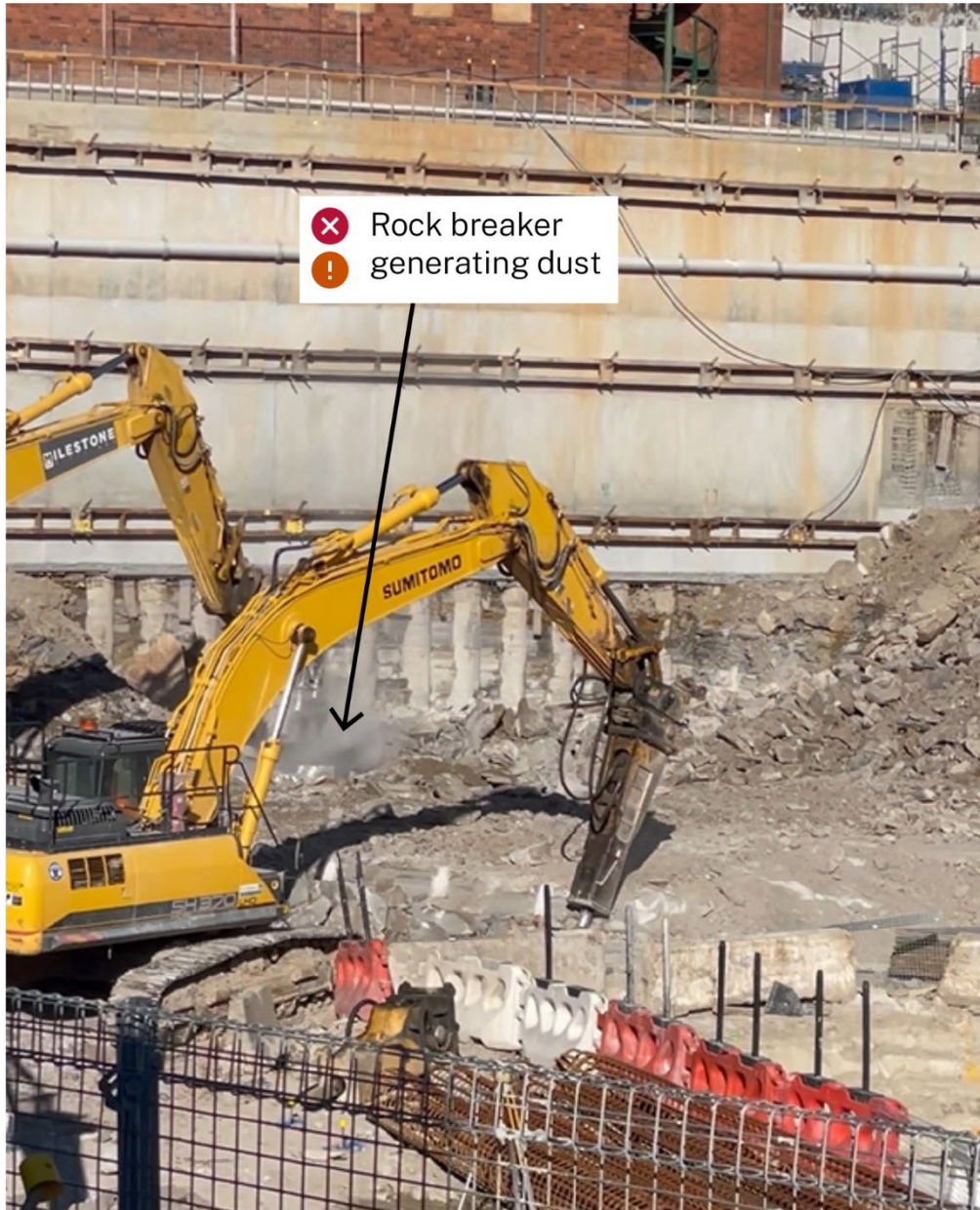


Figure 9 **Dust plume generated by rock breaking**
Source: Jane Barnett/Zephyr Environmental

Tarpaulins can also be used to protect exposed surfaces from wind erosion, as shown in Figure 10. This method is also useful on sloping surfaces for protecting against erosion from heavy rainfall, reducing runoff into drains and watercourses.

Tarpaulins are generally only practical over small areas and when they can be held down effectively during high wind periods.



Figure 10 Tarpaulin laid over exposed surface to suppress dust

Source: Tom Mifsud/Zephyr Environmental

Vehicle track-out

It is important for vehicles to clean their wheels as much as possible before leaving a construction site, to avoid tracking mud and dirt onto local streets. Once dried, this mud can become a source of windblown dust from the road surface.

An effective way to address tracking of mud and dirt is to install a rumble grid at the site exit, which shakes off excess material as the vehicle passes over it. However, these need to be maintained well to retain their 'grid' characteristic. If mud and dirt build up within the grid, it loses functionality (as shown in the top part of Figure 11). The other grid in Figure 11 (at the bottom of the image) shows less build-up as the road leading to it has a rougher gravel surface, resulting in less mud tracked to the grid itself. This gravel surface also has a much lower silt content (fine material), which helps to reduce wheel generated dust from unsealed roads.

Larger sites may also have wheel washes or wheel baths installed at the exits to water down any material from the wheels and undercarriage of trucks leaving the site.

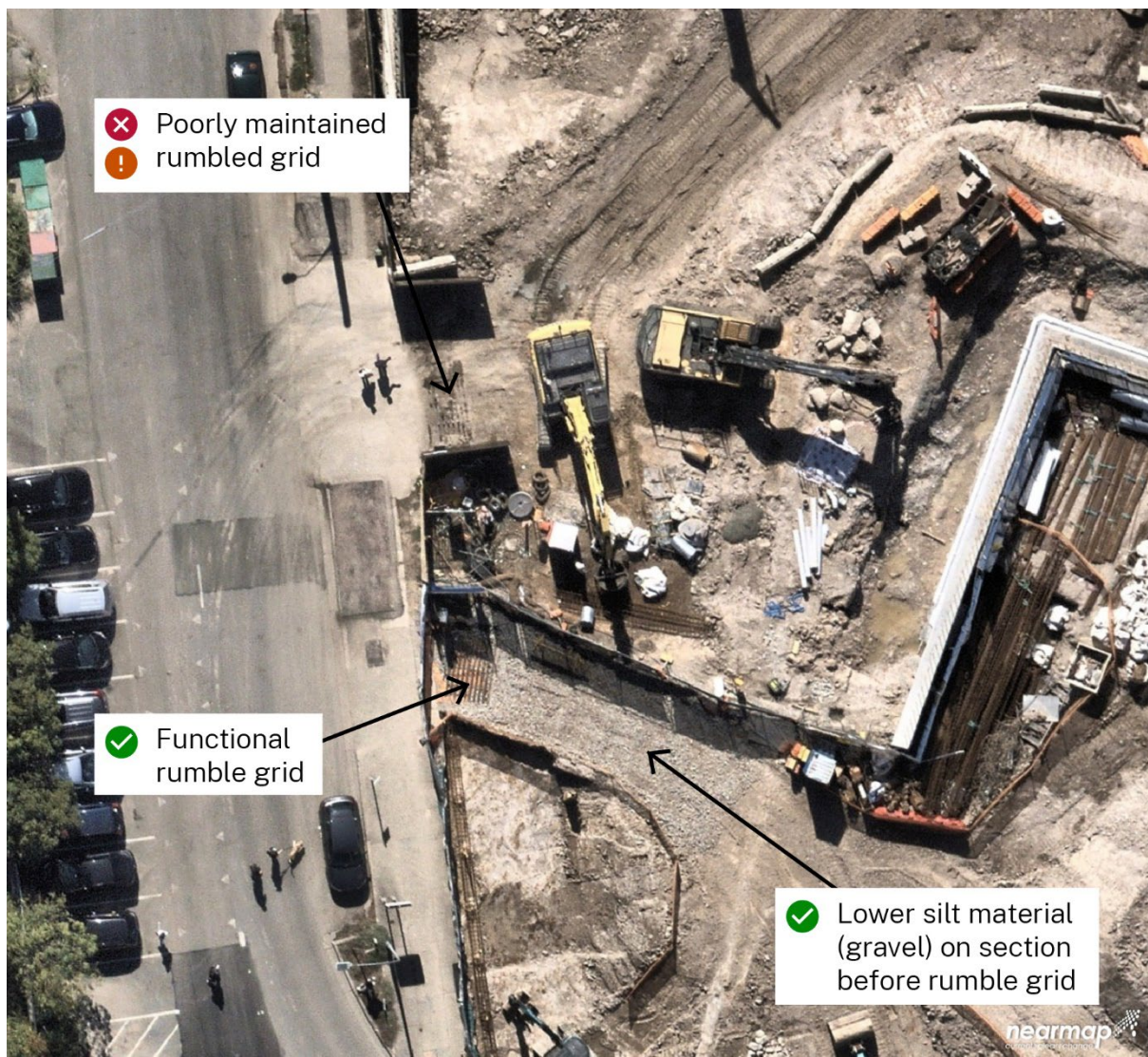


Figure 11 Non-functional and functional rumble grids

Source: Nearmap aerial image. Overlaid information added by DCCEEW

The transport of dust and dirt from the construction site onto the public road (track-out) can be seen from the aerial view in Figure 11, but also in Figure 12, a ground level image of the same site.



Figure 12 Track-out of dust and dirt from a construction site onto the road
Source: Jane Barnett/Zephyr Environmental