Appendix 8.6: Dusk Risk Assessment

APPENDIX 8.6 – CONSTRUCTION DUST RISK ASSESSMENT

Introduction

The assessment of dust risk activities has focused on demolition, earthworks, construction, and trackout activities at the application site in line with the IAQM (2024) guidance methodology (as set out in Appendix 8.2). A summary of the assessment is provided below.

Screening for a Full Assessment

Having reviewed the site location, it is evident that the site has a number of human receptors within 250 m of the site boundary, therefore a detailed dust impact assessment is required.

It is pertinent to note that site currently consists of largely agricultural land as well as forested areas, and no demolition is planned. Therefore, demolition has been scoped out of the dust risk assessment for this site.

A review of the DEFRA Magic website[1] indicates that there are ecological sites within the immediate surrounding area. As per box 1 of the IAQM (2024) guidance, as a number of ecological sites sit within 20 m of the boundary of the site (national forests), a further assessment of dust risk impacts on ecological receptors has been carried out.

Potential Dust Emission Magnitude

Earthworks

The total area where earthworks will occur is > 110,000 m^2. Furthermore, the texture of the soil[2] is classified as slowly permeable, slightly acidic 'Loamy and Clayey[3]' soils. Therefore, in line with Table 8.2.1 as set out in Appendix 8.2, and professional judgment, the magnitude of potential dust release from earthworks activities is classified as **Large**.

Construction

The total building volume to be constructed is unknown. However, considering the floor area proposed and the potentially dusty material being used, in line with Table 8.2.1 as set out in Appendix 8.2, and professional judgement, the magnitude of potential dust release from construction activities is classified as **Large**.

Trackout

The number of daily HGV vehicles movements which may track out dust and dirt is expected to be an average of 14 HGVs per day during the construction phase, however, during the intensive period of activities (including top soil removal and concrete slab pouring), a maximum of 48 HGVs per day may track out dust and dirt. Therefore, in conjunction with Table 8.2.1 as set out in Appendix 8.2, the magnitude of potential dust release from trackout activities is classified as **Medium**.

[1] Natural England. MAGIC. Accessible at: https://magic.defra.gov.uk/
[2] Cranfield Soil and Agrifood Institute. Soilscapes. Accessible at: http://www.landis.org.uk/soilscapes/
[3] Loamy soils have a mix of sand, silt and clay-sized particles and are intermediate in character.

Summary

Table 8.6.1 summarises the dust emission magnitude for the proposed development.

Table 8.6.1: Summary of Dust Emission Magnitude

Activity	Dust Emission Magnitude
Earthworks	Large
Construction	Large
Trackout	Medium

Sensitivity of Area

Step 2B considers the number and the sensitivity of the receptors. A consideration is also made for the background PM_{10} concentrations when looking at human health impacts (which is based upon the DEFRA background concentrations in Table 8.11 in Chapter 8: Air Quality). Buffer zones are set out in Figure 8.6.1 and Figure 8.6.2. to illustrate the number of receptors in proximity to the site that could be impacted by dust as a result of the earthworks, construction, and trackout activities.

Figure 8.6.1: Earthworks and Construction Dust Risk Buffers

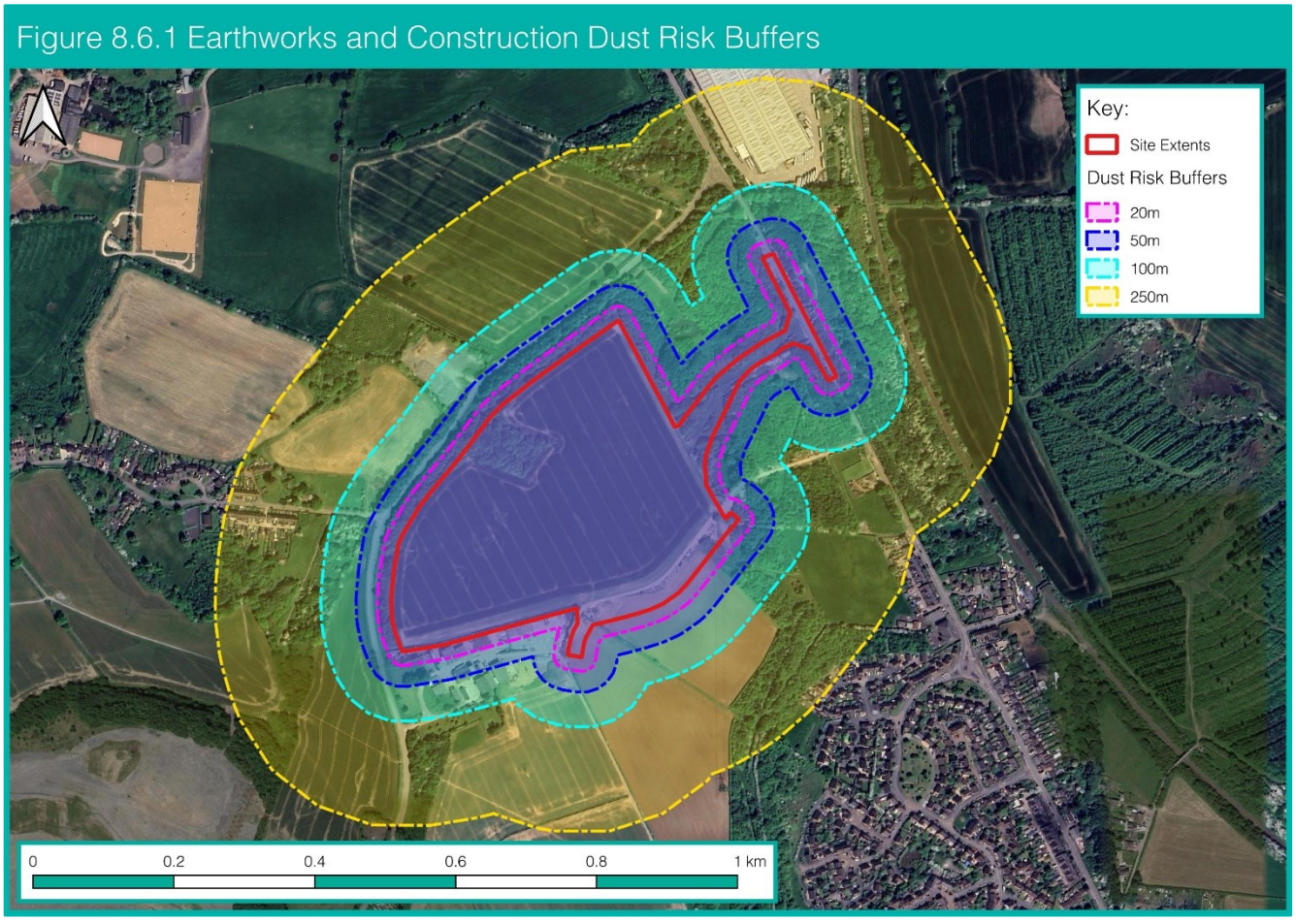
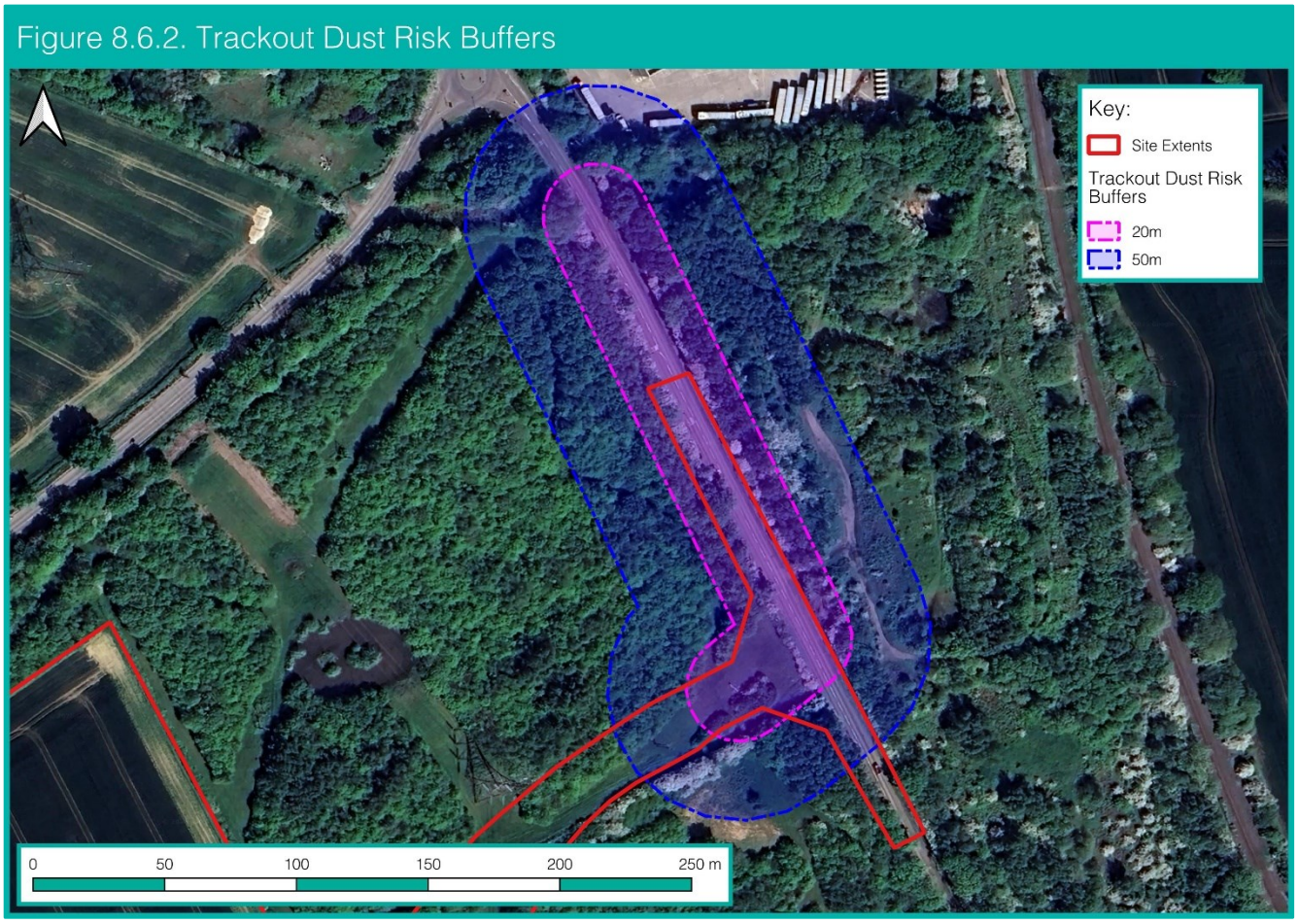


Figure 8.6.2: Trackout Dust Risk Buffers



Effects of Dust Soiling

The presence of 1 – 10 'High' sensitivity receptors within approximately 50 m of the application site boundary, indicates that the area around the earthworks and construction site has a **'Low'** sensitivity (Based upon Table 8.2.3 in Appendix 8.2) for earthworks and construction activities.

The routing of construction vehicles is expected to be out of the site access heading north on Station Road (as illustrated in Figure 8.6.2). Therefore, receptors have been considered along these road with consideration that the impact declines with distance from the site, in line with the prior IAQM *Guidance on the Assessment of Dust from Demolition and Construction* (2016)[4] which suggested that trackout may occur along the public highway up to 200 m from medium sites. For trackout, there are >1 'Low' sensitivity human receptors within 20m of where trackout may occur (for a distance of up to 200 m from the site access). This would be considered a **'Low'** sensitivity (Based upon Table 8.2.3 in Appendix 8.2) for trackout activities.

Effects on Human Health

The presence of 1 – 10 'High' sensitivity receptors within approximately 50 m of the application site boundary, and the background PM_{10} concentrations being under 24 µg/m^3 (as set out in Table 8.11 in Chapter 8), would indicate that the area has a **'Low'** sensitivity (Based upon Table 8.2.4 in Appendix 8.2) for construction and earthworks activities.

The anticipated routing for trackout vehicles is set out above. For trackout, there are between >1 'Low' sensitivity human receptors within 20 m of where trackout may occur (for a distance of up to 200 m from the site access). Along with the background PM_{10} concentrations being below 24 µg/m^3 (as set out in Table 8.11 in Chapter 8), it would indicate the area will have a **'Low'** sensitivity (Based upon Table 8.2.4 in Appendix 8.2) for trackout activities.

[4] Institute of Air Quality Management, 2016. *Guidance on the Assessment of Dust from Demolition and Construction.'*

Effects on Ecological Receptors

In line with Box 8 of the IAQM (2024) guidance, while there is no specific example involving ecological sites designated as "National Forests", since these are designated at a national level, to ensure a reasonable worst case assessment, these features have been classed as having a 'Medium' sensitivity to dust impacts.

The presence of 'Medium' sensitivity receptors within approximately 20 m of the application site boundary, indicates that the area around the earthworks and construction site has a '**Medium'** sensitivity (Based upon Table 8.2.5 in Appendix 8.2) for earthworks and construction activities.

The anticipated routing for trackout vehicles is set out above. For trackout, the presence of 'Medium' sensitivity receptors within 20 m of the expected trackout route indicates that the area around the trackout route has a '**Medium**' sensitivity (Based upon Table 8.2.5 in Appendix 8.2) for trackout activities.

Risk and Significance

The dust emission magnitude (set out in Table 8.6.1) is combined with the sensitivity of the area assessment (set out in above), in line with Table 8.2.6 of Appendix 8.2. The resulting risk categories for the demolition and construction activities, without mitigation, are set out in Table 8.6.2.

Table 8.6.2: Summary of Dust Risk to Define Site-Specific Mitigation

Activity	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Low Risk	Low Risk
Human Health	Low Risk	Low Risk	Low Risk
Ecological	Medium Risk	Medium Risk	Medium Risk

As previously advised, the IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place (as set out in Section 8.6 and Appendix 8.13) the IAQM (2024) guidance is clear that the residual effect will normally be **'not significant.'**