ENVIRONMENTAL STATEMENT

VOLUME 2

APPENDIX 7.4 – CONSTRUCTION PHASE DUST ASSESSMENT

Appendix 7.4 – Construction Phase Dust Assessment

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

Potential Dust Emission Magnitude

The potential magnitude of dust emissions from earthworks, construction and trackout have been assessed, as identified in Table A4-1.

Table A4-1: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Earthworks	Large	The total Site area is greater than 10,000m^2 and there are likely to be more than 10 heavy earth moving vehicles active at any one time.
Construction	Large	It is anticipated that the total building volume is greater than 100,000 m^3. Building material will be a mix of masonry material such as concrete and bricks which has potential to generate dust as well as material with a lower dust potential including metals and timber.
Trackout	Large	As detailed in the Construction Methodology Programme, there will be more than 50 HDV outward movements per day and due to the size of the Site, the unpaved road length is likely to be more than 100m.

Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The sensitivity of the area and the factors considered are detailed in Table A4-2.

Table A4-2: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area
Dust Soiling	There is one residential property within 350m of the site boundary which is considered to be highly sensitive to dust soiling. In addition, the existing Bicester, Hotel and Spa which is considered to be of medium sensitivity to dust soiling is located within 100m of the site boundary.	Low
Human Health	The background PM_{10} concentration for the 1km^2 grid square centred on the Site is estimated to be 17.1µg/m^3; based upon 2018 mapped background estimates as presented within Table 7.5 of the Air Quality ES Chapter.	Low

Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table A4-3 details the risk of dust impacts for demolition, earthworks, construction and trackout activities.

Table A4-3: Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity	Earthworks	Construction	Trackout
		Magnitude		
		Large	Large	Large
Dust Soiling Impacts	**Low**	Low Risk	Low Risk	Low Risk
Human Health Impacts	**Low**	Low Risk	Low Risk	Low Risk

Mitigation

To mitigate the potential impacts during the Construction Phase it is recommended that mitigation measures as detailed in the IAQM guidance are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in Table A4-1.

It is recommended that the LPA approve a Dust Management Plan prior to works commencing on Site, and that this is implemented using an appropriately worded planning condition. Table A4-4 below details the measures that should be incorporated in the Dust Management Plan.

Table A4-4: Mitigation Measures

Issue	Control Measure
Communications	• Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary • Develop and implement a stakeholder communications plan that includes community engagement • Display the head or regional office contact information • Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the LA
Site Management	• Record all dusty and air quality complaints and make the complaints log available to the LA when asked • Record any exceptional incidents that cause dust/or air emissions, and the action taken to resolve the situation • Make complaints log available to LA when asked
Monitoring	• Undertake daily on-site and off-site inspection where receptors are nearby to monitor dust • Carry out regular site inspections to monitor compliance with the DMP • Increase frequency of site inspections when activities with a high potential to produce dust are being carried out
Preparing and Maintaining the Site	• Plan site layout so that machinery and dust causing activities are located away from receptors • Fully enclose site or specific operations where there is a high potential for dust production and the site as actives for an extensive period • Avoid site runoff of water or mud • Keep site fencing, barriers and scaffolding clean using wet methods • Remove materials that have a potential to produce dust from site as soon as possible • Cover, seed or fence stockpiles to prevent wind whipping Use water as dust suppressant where applicable

Operating Vehicle/ Machinery and Sustainable Travel	• All vehicles to switch off engines - no idling vehicles • Avoid the use of diesel or petrol powered generators where practicable • Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph in unsurfaced haul roads • Produce a Construction Logistics Plan to manage sustainable deliveries • Implement a Travel Plan that supports and encourages sustainable travel
Operations	• Cutting equipment to use water as dust suppressant or suitable local extract ventilation • Ensure adequate water supply on the site for effective dust/particulate matter suppression/mitigation • Use enclosed chutes and covered skips • Minimise drop heights • Ensure equipment is readily available on site to clean any spillages
Waste Management	• No bonfires
Earthworks and Construction	• Avoid scabbling • Ensure sand and other aggregates are stored and not able to dry out, unless it is required for a specific process
Trackout	• Ensure vehicles entering and leaving sites are covered to prevent escape of materials • Inspect on-site routes for integrity, instigate necessary repairs and record in site log book • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits • Access gates to be located at least 10m from receptors, where possible

Potential dust effects during the construction phase are considered to be temporary in nature. The impacts are determined to be temporary as they will only potentially occur throughout the construction phase and short-term because these will only arise at particular times when certain activities and meteorological conditions for creating the level of magnitude predicted combine.

However, with the application of the above dust control and mitigation measures, it is considered that impacts at all receptors will be 'not significant' in accordance with the IAQM guidance[i].

[i] Institute of Air Quality Management (2016) Guidance on the assessment of dust from demolition and construction v1.1 –[online], Available: http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf