# Appendix A7.3: Construction Phase Assessment

## 1 Introduction

1.1 The air quality appendices demonstrate the methodology applied to the air quality assessment with regards to construction.

## 2 Construction Phase Assessment Methodology

2.1 The following section outlines criteria developed by the Institute of Air Quality Management (IAQM 2014) for the assessment of air quality impacts arising from construction activities. The assessment procedure is divided into five steps and is summarised below.

### Step 1: Screening the need for a Detailed Assessment

2.2 An assessment will normally be required where there are human receptors within 350m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). Ecological receptors within 50m of the site boundary or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s), are also identified at this stage.

2.3 An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a Site of Specific Scientific Interest (SSSI), Special Area of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate.

2.4 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible'.

### Step 2: Assess the Risk of Dust Impacts

2.5 A site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the IAQM (demolition, construction, earthworks and trackout).

2.6 The site can also be divided into zones, for example on a large site where there are differing distances to the nearest receptors.

### Step 2A: Define the Potential Dust Emission Magnitude

2.7 The IAQM guidance recommends that the dust emission magnitude is determined for demolition, earthworks, construction and trackout. The dust emission magnitude is based on the scale of the anticipated works.

2.8 Table 1 describes the potential dust emission class criteria for each outlined construction activity.

### Step 2B: Define the Sensitivity of the Area

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

- the specific sensitivities of receptors in the area;
- the proximity and number of receptors;
- the local background $PM_{10}$ concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

2.10 Table 2 describes the sensitivity of different types of receptor to dust soiling, health effects and ecological effects. Table 3, Table 4 and Table 5 show how the sensitivity of the area may be determined for dust soiling, human health and ecosystem impacts respectively.

**Table 1: Criteria Used in the Determination of Dust Emission Class**

| Activity | Criteria used to Determine Dust Emission Class | | |
|---|---|---|---|
| | Small | Medium | Large |
| Demolition | Total building volume <20,000m$^2$, material with low potential for dust release (e.g. metal or timber), demolition activities <10m above ground. | Total building volume 20,000 – 50,000m$^2$, potentially dusty material, demolition activities 10-20m above ground level. | Total building volume >50,000m$^2$, potentially dusty material (e.g. concrete), on-site crushing and screening, demolition activities >20m above ground level. |
| Earthworks | Total site area <2,500m$^2$, soil with large grain size (e.g. sand), <5 heavy moving earth vehicles active at any one time, < 20,000 tones earthworks. | Total site area 2,500 – 10,000m$^2$, moderately dusty soil type (e.g. silt), 5-10 heavy moving earth moving vehicles active at any one time, total material moved 20,000-100,000 tonnes | Total site area >10,000m$^2$, potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, total material moved >100,000 tonnes. |
| Construction | Total building volume <25,000m$^3$, construction material with low potential for dust release. | Total building volume 25,000 – 100,000m$^3$, potentially dusty construction material (e.g. concrete) | Total building volume >100,000m$^3$, on site concrete batching. |
| Trackout | <10 outward HDV trips in any one day.<br>Unpaved road length <50m. | 10-50 outward HDV trips in any one day.<br>Unpaved road length 50-100m. | >50 outward HDV trips in any one day.<br>Unpaved road length >100m. |

**Table 2: Criteria for Determining Sensitivity of Receptors**

| Sensitivity of Receptor | Criteria for Determining Sensitivity (Human Receptors) | | |
|---|---|---|---|
| | Dust Soiling Effects | Health Effects of $PM_{10}$ | Ecological Effects |
| **High** | Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms. | Residential properties, hospitals, schools and residential care homes. | Locations with an international or national designation and the designated features may be affected by dust soiling; or<br><br>Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data list for Great Britain |
| **Medium** | Parks, places of work. | Office and shop workers not occupationally exposed to $PM_{10}$. | Locations where there is a particularly important plant species, where dust sensitivity is uncertain or unknown, or<br><br>Locations with a national designation where the features may be affected by dust deposition. |
| **Low** | Playing fields, farmland, footpaths, short-term car parks and roads. | Public footpaths, playing fields, parks and shopping streets. | Locations with a local designation where the features may be affected by dust deposition. |

**Table 3: Sensitivity of the Area to Dust Soiling Effects on People and Property**

| Sensitivity of Receptor | Number of Receptors | Distance from Source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <350 |
| **High** | >100 | high | high | medium | low |
| | 10-100 | high | medium | low | low |
| | 1-10 | medium | low | low | low |
| **Medium** | >1 | medium | low | low | low |
| **Low** | >1 | low | low | low | low |

**Table 4: Sensitivity of the Area to Human Health Impacts**

| Receptor Sensitivity | Annual Mean $PM_{10}$ Concentrations | Number of Receptors | Distance from the Source (m) | | | | |
|---|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <200 | <350 |
| **High** | >32µg.m$^3$ (>18µg.m$^3$ in Scotland) | >100 | high | high | high | medium | low |
| | | 10-100 | high | high | medium | low | low |
| | | 1-10 | high | medium | low | low | low |
| | >28-32µg.m$^3$ (>16-18µg.m$^3$ in Scotland) | >100 | high | high | medium | low | low |
| | | 10-100 | high | medium | low | low | low |
| | | 1-10 | high | medium | low | low | low |
| | >24-28µg.m$^3$ (>14-16µg.m$^3$ in Scotland) | >100 | high | medium | low | low | low |
| | | 10-100 | high | medium | low | low | low |
| | | 1-10 | medium | low | low | low | low |
| | >24µg.m$^3$ (>14µg.m$^3$ in Scotland) | >100 | medium | low | low | low | low |
| | | 10-100 | low | low | low | low | low |
| | | 1-10 | low | low | low | low | low |
| **Medium** | - | >10 | high | medium | low | low | low |
| | - | 1-10 | medium | low | low | low | low |
| **Low** | - | >1 | low | low | low | low | low |

**Table 5: Sensitivity of the Area to Human Health Impacts**

| Receptor Sensitivity | Distance from the Source (m) | |
|---|---|---|
| | <20 | <50 |
| High | High | Medium |
| Medium | Medium | Low |
| Low | Low | Low |

## Step 2C: Define the Risk of Impacts

2.11 The dust emission magnitude determined in Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts from each activity (earthworks, construction and trackout) as detailed in Table 6 (demolition), Table 7 (earthworks), Table 8 (construction) and Table 9 (trackout).

**Table 6: Risk of Dust Impacts- Demolition**

| Potential Impact | Dust Emission Magnitude | | |
|---|---|---|---|
| | large | medium | small |
| High | High Risk | Medium Risk | Medium Risk |
| Medium | High Risk | Medium Risk | Low Risk |
| Low | Medium Risk | Low Risk | Negligible |

**Table 7: Risk of Dust Impacts- Earthworks**

| Potential Impact | Dust Emission Magnitude | | |
|---|---|---|---|
| | large | medium | small |
| **High** | High Risk | Medium Risk | Low Risk |
| **Medium** | Medium Risk | Medium Risk | Low Risk |
| **Low** | Low Risk | Low Risk | Negligible |

**Table 8: Risk of Dust Impacts- Construction**

| Potential Impact | Dust Emission Magnitude | | |
|---|---|---|---|
| | large | medium | small |
| **High** | High Risk | Medium Risk | Low Risk |
| **Medium** | Medium Risk | Medium Risk | Low Risk |
| **Low** | Low Risk | Low Risk | Negligible |

**Table 9: Risk of Dust Impacts- Trackout**

| Potential Impact | Dust Emission Magnitude | | |
|---|---|---|---|
| | large | medium | small |
| **High** | High Risk | Medium Risk | Low Risk |
| **Medium** | Medium Risk | Low Risk | Negligible |
| **Low** | Low Risk | Low Risk | Negligible |

### Step 3: Site-Specific Mitigation

2.12 Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

### Step 4: Determine Significant Effects

2.13 Once the risk of dust impacts has been determined in Step 2C and the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction phase of the proposed Scheme.

## 3 Construction Phase Assessment

3.1 Information from construction method statements were used where available to inform the assessment.

3.2 As discussed in Chapter 7 (Air Quality), due to the spatial extent of the proposed Scheme the route was divided into three sections for the dust assessment, based on the number of sensitive receptors in proximity to the proposed Scheme. These sections are as follows:

- Section 1: The western end of the proposed Scheme (around Smithton) from the Eastfield way roundabout to Barn Church Road (C1032). Including the site compounds at Smithton Junction and Mid Coul Junction;
- Section 2: The 'middle' section of the proposed Scheme from Barn Church Road (C1032) to the B9090 Loch Flemington – Clephanton – Cawder – Nairn Road. Including the Blackcastle Quarry site compound; and

- Section 3: The eastern end of the proposed Scheme (east of Nairn) from the B9090 Loch Flemington – Clephanton – Cawder – Nairn Road to Hardmuir.

**Assumptions**

3.3 The following assumptions were applied to each of the three sections of the proposed Scheme described in paragraph 3.2:

- distances for the dust assessment were taken from the edge of the DMRB Stage 2 design (drawing reference X_CPO_23_06_16), and construction site compounds (drawing reference: B2103500-HW-0100-SK-118);
- construction vehicles will use the potential following routes to the construction compounds located in Sections 1 and 2:
  - Site access for the site compound east of Smithton Junction will be the existing A9 and A96.
  - Site access for the site compound near Mid-Could Junction will be the existing A9,A96, the B9090 Loch Flemington – Clephanton – Cawder – Nairn Road and B9006 Millburn Roundabout – Culcabock – Castle Hill – Culloden Moor – Croy – Gollandfield – Fort George Road.
  - Site access for the site compound east of Blackcastle Quarry will be the existing A9, A96, the A939, B9090 Loch Flemington – Clephanton – Cawder – Nairn Road and B9091 Croy – Clephanton – Kildrummie – Nairn Road.
- whilst there will be some demolition activities undertaken as part of the proposed Scheme, demolition activities are not thought to be significant;
- total site area >10,000m$^2$, >10 heavy earth moving vehicles active at any one time, total material moved >100,000 tonnes;
- a significant amount of material will be required to build the road, the dust emission magnitude for construction is therefore considered to be large; and
- there will be >50 HGV outward movements in any one day (i.e. one way) based on AADT data provided by the project team.

**Step 2A: Define the Potential Dust Emission Magnitude**

3.4 The potential dust emission magnitude for each section of the proposed Scheme was determined using the criteria detailed in Table 10. The assumptions behind each emission magnitude designation are detailed below:

**Demolition:**

3.5 Whilst there will be no significant demolition activities associated with this proposed Scheme, demolition will be taking place through the construction phase, including the demolition of a building near Smithton Junction, and rail overbridges (x2 total) at Gollanfield and Kildrummie. Demolition activities at these locations are not fully known but are unlikely to include on-site crushing and screening. The dust emission magnitude is therefore considered to be medium.

### Earthworks:

3.6 The total site area is >10,000m$^2$. A considerable amount of excavation will take place across this site, although excavation volumes are not currently known. The dust emission magnitude is therefore considered to be large.

### Construction:

3.7 A significant amount of material will be required to build the road and the dust emission magnitude is therefore considered to be large.

### Trackout:

3.8 From information provided by the project team, the number of construction vehicles associated with the proposed Scheme could potentially be >50 HGV outward movements in any one day (i.e. one way). The dust emission magnitude is therefore considered to be large.

3.9 A summary of the dust magnitudes for demolition, earthworks, construction and trackout are summarised in Table 10. The magnitudes for each activity apply for all sections of the proposed Scheme.

**Table 10: Dust Emission Magnitude for the Proposed Scheme**

| Activity | Dust Emission Magnitude |
|---|---|
| Demolition | Medium |
| Earthworks | Large |
| Construction | Large |
| Trackout | Large |

### Step 2B: Define the Sensitivity of the Area

3.10 The potential sensitivity of the area in the vicinity of the proposed Scheme to dust soiling effects, health effects of $PM_{10}$ and ecological effects is presented in Table 11.

**Table 11: Sensitivity of the Area in the Vicinity of Site Compounds to Activities**

| Proposed Scheme Section | Sensitivity to Dust Soiling Effects | | Sensitivity to Health Effects of $PM_{10}$ | | Sensitivity to Ecological Effects | |
|---|---|---|---|---|---|---|
| Section 1 | 1-10 highly Sensitive Receptors (Residential properties) <350 m from the edge of the proposed Scheme where demolition activities will take place.<br>10-100 highly Sensitive Receptors (Residential properties) <20 m from the edge of the proposed Scheme where earthworks and construction activities will take place<br>1-10 highly Sensitive Receptors <20m from the side of the road used by construction traffic up to 500m from site entrance (Large site). | | Maximum and average Defra Background 2021 Annual mean $PM_{10}$ concentration <14 µg/m$^3$ within study area. | | Longman and Castle Stuart Bays SSSI are within 50m of the edge of the proposed Scheme and are considered to have a low sensitivity to dust soiling.<br>There are no statutory or designated sites of nature conservation value (European or national), within 50m of routes used by construction vehicles on the public highway. | |
| | Demolition | Low | Demolition | Low | Demolition | Low |
| | Earthworks | High | Earthworks | Low | Earthworks | Low |
| | Construction | High | Construction | Low | Construction | Low |
| | Trackout | Medium | Trackout | Low | Trackout | N/A |

| Proposed Scheme Section | Sensitivity to Dust Soiling Effects | | Sensitivity to Health Effects of $PM_{10}$ | | Sensitivity to Ecological Effects | |
|---|---|---|---|---|---|---|
| Section 2 | 1-10 highly Sensitive Receptors (Residential properties) <350 m from the edge of the proposed Scheme where demolition activities will take place.<br>1-10 highly Sensitive Receptors (Residential properties) <20 m from the edge of the proposed Scheme where earthworks and construction activities will take place.<br>10-100 highly Sensitive Receptors <20m from the side of the road used by construction traffic up to 500m from site entrance (Large site). | | Maximum and average Defra Background 2021 Annual mean $PM_{10}$ concentration <14 µg/m$^3$ within study area. | | Kildrummie Kames SSSI is within 20m of the edge of the proposed Scheme and routes used by construction vehicles on the public highway. It is considered to have a low sensitivity to dust soiling. | |
| | Demolition | Low | Demolition | Low | Demolition | Low |
| | Earthworks | Medium | Earthworks | Low | Earthworks | Low |
| | Construction | Medium | Construction | Low | Construction | Low |
| | Trackout | High | Trackout | Low | Trackout | Low |
| Section 3 | 1-10 highly Sensitive Receptors (Residential properties) <350m from the edge of the proposed Scheme where demolition activities will take place.<br>1-10 highly Sensitive Receptors (Residential properties) <20 m from the edge of the proposed Scheme where earthworks and construction activities.<br>1-10 highly Sensitive Receptors <20m from the side of the road used by construction traffic up to 500m from site entrance (Large site). | | Maximum and average Defra Background 2021 Annual mean $PM_{10}$ concentration <14 µg/m$^3$ within study area. | | There are no statutory or designated sites of nature conservation value (European or national), within 50m of the proposed Scheme or routes used by construction vehicles on the public highway. | |
| | Demolition | Low | Demolition | Low | Demolition | N/A |
| | Earthworks | Medium | Earthworks | Low | Earthworks | N/A |
| | Construction | Medium | Construction | Low | Construction | N/A |
| | Trackout | Medium | Trackout | Low | Trackout | N/A |

### Step 2C: Define the Risk of Impacts

3.11 The dust emission magnitude determined in Step 2A was combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts from each activity (earthworks, construction and trackout) as detailed in Table 7 (earthworks), Table 8 (construction) and Table 9 (trackout).

3.12 The risks for dust soiling and human health are summarised in Table 12.

**Table 12: Summary Dust Risk Table to Define Site-Specific Mitigation**

| Proposed Scheme Section | Risk | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Demolition | | | Earthworks | | | Construction | | | Trackout | | |
| | Dust Soiling | Human Health | Ecological | Dust Soiling | Human Health | Ecological | Dust Soiling | Human Health | Ecological | Dust Soiling | Human Health | Ecological |
| Section 1 | Low | Low | Low | High | Low | Low | High | Low | Low | Medium | Low | N/A |
| Section 2 | Low | Low | Low | Medium | Low | Low | Medium | Low | Low | High | Low | Low |
| Section 3 | Low | Low | N/A | Medium | Low | N/A | Medium | Low | N/A | Medium | Low | N/A |

### Step 3: Site-Specific Mitigation

3.13 Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to

whether the site is a low, medium or high risk site. A robust selection of mitigation measures are specified within IAQM guidance, and should be considered as part of the Construction Environmental Management Plan (CEMP), to be agreed with the local authority.

3.14 Standard good practice measures to mitigate dust emissions from the proposed Scheme should be included within a CEMP to prevent or reduce the release of dust entering the atmosphere and/or being deposited on nearby receptors. Particular attention will be paid to operations which must unavoidably take place close to the site boundary. The recommended mitigation for the proposed Scheme is detailed in Table 14.

3.15 The risk level for each activity is summarised in Table 13 below. These risk levels should be used to determine the mitigation measures required for that element for each site location from Table 13.

3.16 The 'overall dust impact risk' column (Table 13) summarises the highest risk level appointed to a particular proposed Scheme section. This overall risk level should be used to determine which of the mitigation controls apply to that site location.

3.17 These measures are proportionate to the risk levels defined in Step 2C, and with consistent implementation and management, the potential dust impacts of each location would be sufficiently reduced to a minor or negligible impact.

**Table 13: Summary of Dust Effect Risks Across Study Area (without Mitigation)**

| Location | Dust Risk of Construction Elements | | | | Overall Dust Impact Risk |
|---|---|---|---|---|---|
| | Demolition | Earthworks | Construction | Trackout | |
| **Section 1** (Western extent of proposed Scheme) | Low | High | High | Medium | High |
| **Section 2** (Central section of proposed Scheme) | Low | Medium | Medium | High | High |
| **Section 3** (Eastern extent of proposed Scheme) | Low | Medium | Medium | Medium | Medium |

**Table 14: Potential Dust Mitigation Measures**

3.18 Key: H – Highly recommended / D – Desirable / N – Not Required.

| Mitigation Measures | High Risk | Medium Risk | Low Risk |
|---|---|---|---|
| **Demolition** | | | |
| 1. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). | H | D | D |
| 2. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. | H | H | H |
| 3. Avoid explosive blasting, using appropriate manual or mechanical alternatives. | H | H | H |
| 4. Bag and remove any biological debris or damp down such material before demolition. | H | H | H |
| **Construction** | | | |
| 5. Avoid scabbling (roughening of concrete surfaces) if possible. | H | D | D |
| 6. 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. | H | H | D |
| 7. Only remove the cover in small areas during work and not all at once. | H | D | N |
| **Trackout** | | | |
| 8. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. | H | H | D |
| 9. Avoid dry sweeping of large areas. | H | H | D |
| 10. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. | H | H | D |

| Mitigation Measures | High Risk | Medium Risk | Low Risk |
|---|---|---|---|
| 11. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. | H | H | N |
| 12. Record all inspections of haul routes and any subsequent action in a site log book. | H | H | D |
| 13. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. | H | H | N |
| 14. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). | H | H | D |
| 15. 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. | H | H | N |
| 16. Access gates to be located at least 10m from receptors where possible. | H | H | N |

**Table 15: Potential Dust Mitigation Controls**

| Mitigation Controls | High Risk | Medium Risk | Low Risk |
|---|---|---|---|
| **Communication** | | | |
| 1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. | H | H | N |
| 2. Display the name and contact details of person(s) accountable for air quality (including dust and odour) issues on the site boundary.<br>This may be the environment manager/engineer or the site manager. | H | H | H |
| 3. Display the head or regional office contact information. | H | H | H |
| **Dust Management** | | | |
| 4. Develop and implement a Dust Management Plan (DMP) which should be discussed with and approved by the relevant Local Authorities. The level of detail should reflect the worse-case locations, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site in question. | H | H | D |
| **Site Management** | | | |
| 5. Record all dust and air quality complaints, identify cause(s), and take appropriate measures to reduce emissions in a timely manner, and record the measures taken. | H | H | H |
| 6. Make the complaints log available to the local authority when asked. | H | H | H |
| 7. Record any exceptional incidents that cause dust/air emissions, either on-site or off-site, and the action taken to resolve the situation in the log book. Review measures accordingly. | H | H | H |
| **Monitoring** | | | |
| 9. Undertake daily on/off site inspections, at nearby receptors (including roads) to monitor dust, record inspection results, and make the log available to the local authority when asked. Regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary should be undertaken, with cleaning to be provided if necessary. It is understood road cleaning would be in operation. | H | D | D |
| 10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked. | H | H | H |
| 11. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. | H | H | H |
| 12. Agree dust deposition, dust flux, or real-time $PM_{10}$ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction. | H | H | N |
| **Site Preparation and Maintenance** | | | |
| 13. Plan site layout so that machinery and dust/odour causing activities are located away from receptors, as far as is possible. | H | H | H |
| 14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. | H | H | H |
| 15. Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period. | H | H | D |
| 16. Avoid site runoff of water (minimising risk of dissolution from leachate) or mud. | H | H | H |
| 17. Keep site fencing and barriers clean using wet methods. | H | H | D |

| Mitigation Controls | High Risk | Medium Risk | Low Risk |
|---|---|---|---|
| 18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used. If they are being re-used on-site, provide cover as described below, especially when sites are not active (i.e. weekends). | H | H | D |
| 19. Any contaminated excavated material being disposed off-site in accordance with the Site Waste Management Plan (SWMP) as agreed with Scottish Environment Protection Agency. | H | H | H |
| 20. Cover, seed or fence stockpiles to prevent wind whipping. | H | H | D |
| **Operating Vehicle/Machinery and Sustainable Travel** | | | |
| 21. Ensure all vehicles switch off engines when stationary - no idling vehicles. | H | H | H |
| 22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. | H | H | H |
| 23. Impose and signpost a maximum-speed-limit of 15 mph (surfaced) and 10 mph (unsurfaced) haul roads and work areas (if long haul routes are required, speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). | H | D | D |
| 24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. | H | H | N |
| 25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). | H | D | N |
| 26. Travel Plan to stipulate HGV movements through the AQMA are avoided, particularly at peak times. | H | H | H |
| **Operations** | | | |
| 27. 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. | H | H | H |
| 28. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. | H | H | H |
| 29. Use enclosed chutes and conveyors and covered skips. | H | H | H |
| 30. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. | H | H | H |
| 31. Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. | H | H | D |
| **Waste management** | | | |
| 32. Avoid bonfires and burning of waste materials. | H | H | H |

### Step 4: Determine Significant Effects

3.19 With the implementation of the mitigation measures as outlined, the residual effects from the construction are considered to be not significant.