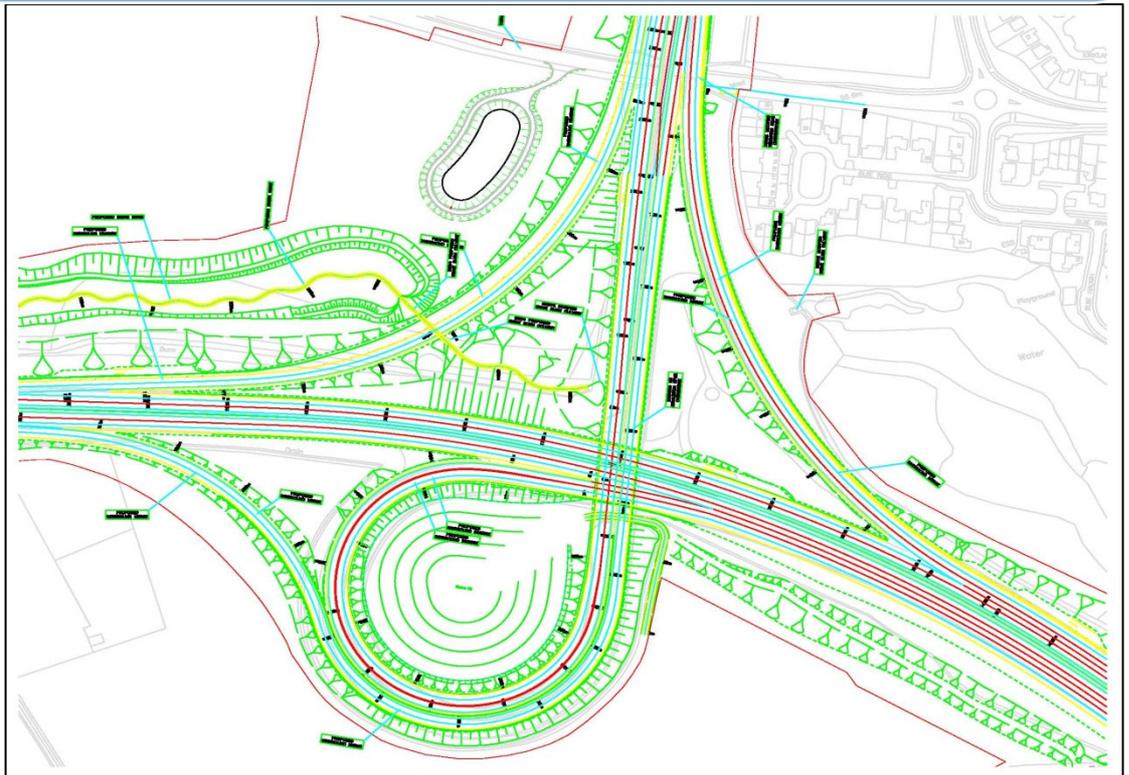




FORTH REPLACEMENT CROSSING M9 Junction 1a – Project Quality Plan: Volume 4 DUST AND AIR POLLUTION MANAGEMENT PLAN



Draft Issue: March, 2012

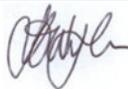
FORTH REPLACEMENT CROSSING M9 Junction A1

Dust and Air Pollution Management Plan

CONTROLLED DOCUMENT

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Revision Record

Rev	Date	By	Summary of Changes	Chkd	Aprvd
01	18th September 2011	RT	Reflect EDT, Statutory Bodies and Local Authorities Consultations and Review	SOB	SOB
02	10 th October 2011	RT	Statement included regarding consultation with the relevant Local Authorities	SOB	SOB
03	14 th March	RT	Six monthly review by SRB	SOB	SOB

Dust and Air Pollution Management Plan

Objective:

To carry out the works in such a way that emissions of dust and other pollutants, including odour, are limited and that best practice means are employed to avoid the creation of a statutory nuisance and risks to human health and to avoid unnecessary impacts on sensitive habitats.

Introduction:

This Dust and Air Pollution Management Plan (DAPMP) has been produced as required by the CoCP, Section 6. It describes measures to be implemented to control and mitigate dust and air pollution during construction together with details regarding monitoring systems to be employed during construction.

This DAPMP has been produced as part of the Construction Environmental Management Plan (CEMP) and takes account of the commitments and requirements as detailed in the following documents:

- Forth Crossing Bill Commitments and Undertakings;
- Code of Construction Practice (CoCP), Revision 5, Dec 2010;
- Outline Construction Environmental Management Plan (CEMP), Revision 0, December 2010;
- Employers Requirements, contract issue.
- Environmental Statement (ES) 2009.

Key Issues

The key issues identified within the ES for this contract include the following:

For the construction area at M9 Junction 1A, the magnitude of change for assessed receptors with regards to annual mean NO₂ concentrations varies from very small to medium. The magnitude of change for PM₁₀ ranges from extremely small to small.

Key construction activities with the potential to create dust include:

- topsoil stripping;
- bulk excavation and rock breaking, crushing and processing;
- drilling, grouting and piling;
- import of materials and use of haul routes; and
- handling of soils and aggregates.

Construction works at the M9 Junction 1A, include the partial demolition of the existing bridge over the B9080.

The risk of dust nuisance experienced by all receptors within 50m is considered High, whilst the dust nuisance potential for receptors within 100m and within 200m is considered to be of Medium and Low risk, respectively.

Management & Mitigation Measures:

Consultations have been carried out with the relevant Local Authorities with regard to the monitoring procedures to be implemented within this plan and the other CEMP Management Plans, in particular the Area Management Plan.

The following Environmental Statement commitments relating to dust and air pollution during construction have been made and which will be delivered by this Plan:

- Throughout scheme, Best practice measures will be implemented to prevent pollution;
- SRB will implement the CoCP and employ Best Practicable Means to control dust and air quality pollution;
- SRB will implement this Dust and Air Quality Management Plan to limit dust and air pollution from the transportation and storage of materials and to limit emissions from construction plant and vehicles;

- Traffic routing, site access points and hours of operations will be discussed with City of Edinburgh Council and West Lothian Council to reduce potential impacts on local receptors;
- A dust and air quality monitoring programme for construction activities has been agreed with the local authorities; and
- Blasting works will be avoided where reasonably practicable
- Daily Weather Reports, including details on predicted wind speed and direction will be communicated and reviewed by each Section Engineer at the commencement of each shift. Works will then be planned so that potential effects on nearby sensitive receptors will be minimised.
- SRB will maintain on a full-time basis a water bowser for deployment on the site internal haul routes for the purpose of dust suppression, as required. A suitable circuit and frequency will be determined by the Roadworks agent taking into account weather, traffic movements and areas where works are taking place. This will undergo constant review so that it remains appropriate to the activities taking place.
- Where required, during periods of dry weather, irrigation measures will be placed on stockpiles. Where there is risk of fugitive dust arising from site works, water spray systems may also be set up near the site boundary
- Work areas will be planned to locate machinery and dust-causing activities away from sensitive receptor locations, where reasonably practicable. Where the LMA permits, topsoil will be stored in windrows along the perimeter to form a natural barrier to dust travelling outside the works.

Specific measures, drawn from the CoCP Sections 6.5-6.11, where appropriate will be implemented to limit emissions from the following:

• **Construction Plant and Vehicles**

The measures to be implemented to limit emissions from construction plant and vehicles will include the following, as appropriate:

- SRB will operate construction plant in accordance with the manufacturer's written recommendations.
- All vehicles and plant will be switched off when not in use.
- Vehicle and construction plant exhausts should be directed away from the ground where possible and be positioned at a height to facilitate appropriate dispersal of exhaust emissions.
- Enclosing, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries will be employed. Items such as dust extractors, filters and collectors on drilling rigs and silos will be used.
- The movement of construction traffic around the site will be kept to the minimum reasonable for the effective and efficient operation of the site and construction of the Project.
- Construction plant will be located away from site boundaries which are close to sensitive receptors where reasonable and practicable.
- SRB will design site access points as required by Section 4.6 of the CoCP to avoid queuing traffic adjacent to access points. Parking of vehicles will be controlled in accordance with Section 4.6 of the CoCP.
- SRB will avoid use of diesel or petrol powered generators by using mains electricity or battery powered equipment where reasonable and practicable.
- Cutting and grinding operations will be conducted using equipment and techniques which reduce emissions and incorporate appropriate dust suppression measures.
- SRB will employ appropriate measures to keep roads and accesses clean, as required in accordance with Sections 3.5 and 4.6 of the CoCP.
 - To date this has included deploying a full-time road sweeper for the Stirling Road Section and supplementing this, as required, with a second road sweeper. This is undergoing a constant review by the Site Management personnel
- SRB will keep vehicle, plant and equipment maintenance records on site and these will be made available to the Employer's Representative upon request.

• **Transportation, Storage and handling of materials**

The measures to be implemented to limit pollution due to the transportation and storage of materials include the following, as appropriate:

- SRB will employ appropriate measures, such as covering materials deliveries or loads entering and leaving the construction site by a fixed cover or sheeting appropriately fixed and suitable for the purposes of preventing materials and dust spillage.
- Vehicles transporting materials within or outside the construction site will not to be overloaded.
- Where appropriate stockpiles and mounds will be kept away from the site boundary, sensitive receptors, watercourses and surface drains and sited to take into account the predominant wind direction.
- Stockpiles and mounds will be at a suitable angle of repose and avoid sharp changes in shape to prevent material slippage.
- Materials stockpiles will be enclosed or securely sheeted or kept watered by SRB, as appropriate.
- SRB will cover long-term stockpiles, which give rise to a risk of dust or air pollution, with appropriate sheeting or will stabilise the surfaces of the stockpiles.
- Where reasonably practicable, and where appropriate storage in line with the requirements for covering materials set out above is not implemented, fine dry material (under 3mm particle size) will be stored inside buildings or enclosures.
- Mixing of large quantities of concrete or bentonite slurries will be undertaken in enclosed or shielded areas.
- The number of handling operations for materials will be kept to the minimum practicable.
- SRB will maintain materials handling areas to constrain dust emissions. SRB will use appropriate measures such as watering facilities to reduce or prevent escape of dust from the site boundaries.
- Mixing of grout or cement-based materials will be undertaken using a process suitable for the prevention of dust emissions.

• **Haul Routes**

As explained in Section 4.6 of the CoCP, SRB will provide haul routes through the works for use by construction vehicles to minimise the need to use public roads.

The measures to be implemented to construct and maintain haul routes include the following, as appropriate:

- SRB has agreed haul routes with the Employer's Representative prior to their construction and use and has advised the Employer's Representative of the intended level of trafficking for haul routes. The surfacing of haul routes will be appropriate to avoid dust emissions as far as practicable, taking into account the intended level of trafficking. This will mainly be through the laydown of 100mm stoned "run-out" areas leading up to entrances onto the public carriageway. This will serve to remove loose material and mud from plant before they reach the public carriageway.
- When in use, SRB will maintain the surface of haul routes in a condition appropriate to the surface material and for the purposes of suppressing dust emissions.
- SRB will inspect haul routes regularly and promptly repair haul routes if required.
- Where reasonable, SRB will reuse haul route surfacing materials where the locations of haul routes change during the course of construction.
- SRB will provide areas of hard-standing at site access and egress points to be used by any waiting vehicles.
- SRB will use appropriate methods to clean and suppress dust on haul routes and in designated vehicle waiting areas. The frequency of cleaning will be suitable for the purposes of suppressing dust emissions from the site boundaries.
- SRB will impose and enforce appropriate speed limits on haul roads for safety reasons and for the purposes of suppressing dust emissions.

• Demolition Activities

The measures to limit dust pollution from demolition activities include the following, as appropriate:

- Blasting will not be used on the M9J1a.
- Waste chutes will be shielded and skips covered and secured, where used.
- Where reasonable, SRB will avoid prolonged storage of waste materials on site. Storage of any waste materials on site will comply with the general requirements of the CoCP and the Site Waste Management Plan relating to storage of materials.
- Removal of waste from the site will comply with the general requirements of the CoCP and the Site Waste Management Plan relating to the transportation of materials.

• Excavations and Earthworks Activities

The measures to limit dust pollution from excavations and earthworks activities include the following, as appropriate:

- Topsoil will be stripped as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with run-off or dust generation.
- Drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the minimum practicable to control dust generation associated with the fall of materials.
- SRB will use appropriate methods to suppress dust emissions.
- SRB will compact deposited materials, with the exception of topsoil, as soon as possible after deposition.
- Soiling, seeding, planting or sealing of completed earthworks will be undertaken by SRB as soon as reasonably practicable following completion of the earthworks.

• Drilling Blasting and Grouting Activities

The measures to limit dust pollution associated with drilling, blasting and grouting activities include the following, as appropriate:

- Blasting works will be kept to the minimum practicable taking consideration of the requirements of the design and programme requirements of the Project.
- Measures such as enclosing, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries will be employed. Items such as dust extractors, filters and collectors on drilling rigs and silos will be used, as appropriate.
- Where appropriate dust will be extracted at source to prevent exposure of workers to excessive dust inhalation.
- Where drilling and blasting is used for the purposes of excavating within rock, the exposed surfaces will be watered to limit dust emissions as necessary.
- Materials used for grouting, such as cements or pulverised fuel ash, will be stored in accordance with the requirements of the CoCP for materials storage to prevent them becoming an airborne hazard.
- Mixing of grout or cement based materials will be undertaken using a process suitable for the prevention, as far as reasonably practicable, of dust emissions.
- SRB will implement appropriate measures to comply with Scottish Development Department Planning Advice Note 50 [PAN 50] Annex D 'The Control of Blasting at Surface Mineral Workings.'

• Processing, crushing, cutting and grinding activities

The measures to limit dust pollution associated with processing and crushing rock for use as aggregate or other materials within the works include the following, as appropriate:

- SRB will comply with the requirements of the CoCP relating to construction plant, transportation and storage of materials.

- Drop heights from excavators to crushing plant, and from crushing plant to stockpiles will be kept to the minimum practicable to control dust generation associated with the fall of materials.

Appropriate measures will be used for any processing, crushing, cutting and grinding activities as required to limit dust pollution.

The individual measures from “DAPMP” will be assessed during the development of the Method Statements to ensure that all reasonable and practicable measures are employed to minimise dust and air pollution.

Dust and Air Pollution Monitoring Measures to be employed

From initial site walkover, reference to the Stage 3 assessment Air Quality Model and analysis of the type of construction activities to be carried out within the LMA, SRB have placed monitoring apparatus at the following locations:

Receptor	Grid Ref	Location Details
CD01	311768 674915	Kirklands Park Grove boundary with Kirkliston Leisure Centre
CD02	312008 673551	2 Millrig Cottages, Kirkliston(at closest boundary to site)
CD03	311905 674102	95 King Edwards Way (at closest boundary to site)
CD04	311632 674652	15-17 BuieRigg (at closest boundary to site)
CD05	311340 674862	Construction Compound exit onto B9080
CD06	311263 674459	Overton Cottages (at closest boundary to site)

These locations can be found in Drawing SSK-CD-01-001 below. The CD naming system refers to Community Dust (CD).

Dust monitoring will be carried out bi-monthly during construction using Bergerhoff Dust Deposition Monitors, located at the closest sensitive receptors to the project. SRB propose to utilise the TA Luft limit of 250mg/m²/day over the existing background dust deposition rate at each location, to be determined by baseline monitoring prior to works commencing in each area. Monitors will be collected bi-monthly and sent to an appropriate laboratory for analysis.

A daily inspection of each work area including haul routes and level of trafficking will be undertaken by the Environmental Manager or his assistant to ensure that mitigation measures and controls are in place and that the dust deposition monitors are in place. A weekly site Environmental Inspection will also be completed identifying areas that require improvement and timeframes for actions. Where works are located adjacent to houses and schools, the ECoW will carry out inspections, as required to ensure that dust from the works is not reaching these areas.

Where exceedences are identified, an Environmental Observation Report will be raised and root cause analysis carried out.

Plant operators will carry out regular inspections of their plant. Where defects are noted, the Health and Safety Advisor will arrange for a fitter to repair / service the machine. Fitters will carry out weekly inspections of all plant and machinery on the site.

References

- BS 6187:2000 Code of Practice for Demolition, British Standards Institution
- Clean Air Act 1993
- Environmental Protection Act 1990, as amended
- GLA and London Councils (2006) Best Practice Guidance: The control of dust and emissions from construction and demolition
- Planning Advice Note 50 [PAN 50] Annex D ‘The Control of Blasting at
- Surface Mineral Workings’

- Pollution Prevention and Control Act 1999
- Pollution Prevention and Control (Scotland) Regulations 2000, as amended
- Process Guidance Note PG 3/1 (04) Secretary of State's Guidance for Blending, Packing, Loading, Unloading and Use of Bulk Cement, Department for Environment, Food and Rural Affairs, 2004
- Process Guidance Note PG 3/16 (04) Secretary of State's Guidance for Mobile Crushing and Screening
- The Air Quality (Scotland) Regulations 2000, as amended
- The Air Quality (Scotland) Amendment Regulations 2002
- The Control of Substances Hazardous to Health Regulations 2002, as amended
- The Non-Road Mobile Machinery (Emissions of Gaseous and Particulate Pollutants) (Amendment) Regulations 1999, as amended

